

PLANNING COMMISSION MEETING
Tuesday, October 26, 2021 6:00 p.m.

Notice is hereby given that the Planning Commission of the City of Cedar Hills, Utah, will hold a **Planning Commission Meeting on Tuesday, October 26, 2021 beginning at 6:00 p.m.** at the Community Recreation Center, 10640 N Clubhouse Drive, Cedar Hills, Utah. This is a public meeting, and anyone is invited to attend.

PLANNING COMMISSION MEETING

1. Call to Order
2. Public Comment: Time has been set aside for the public to express their ideas, concerns, and comments (comments limited to 3 minutes per person with a total of 30 minutes for this item)

SCHEDULED ITEMS & PUBLIC HEARINGS

3. Approval of the minutes from the August 31, 2021 and the September 28, 2021 Planning Commission meetings
4. Review/Action on the concept plan for The Cedar Townhomes Plat E Phase 5 located in the H-1 Hillside Residential Zone
5. Review/Action on the concept plan for the subdivision proposed by Jesse Mecham located in the H-1 Hillside Residential Zone
6. Review/Action on the concept plan for the Jens Monson Lane Subdivision located in the R-1-15,000 Zone

ADJOURNMENT

7. Adjourn

Posted this 20th day of October, 2021

/s/ Colleen A. Mulvey, City Recorder

Supporting documentation for this agenda is posted on the city website at www.cedarhills.org.

In accordance with the Americans with Disabilities Act, the City of Cedar Hills will make reasonable accommodations to participate in the meeting. Requests for assistance can be made by contacting the City Recorder at 801-785-9668 at least 48 hours in advance of the meeting to be held.

The order of agenda items may change to accommodate the needs of the Planning Commission, the staff, and the public. This meeting may be held electronically to permit one or more of the commission members or staff to participate.



CITY OF CEDAR HILLS

TO:	Planning Commission
FROM:	Chandler Goodwin, City Manager
DATE:	10/26/2021

Planning Commission Agenda Item

SUBJECT:	Review/Action on the Concept Plan for the Cedar Townhomes Plat E Phase 5 located in the H-1 Hillside Residential Zone
APPLICANT PRESENTATION:	n/a
STAFF PRESENTATION:	Chandler Goodwin, City Manager
BACKGROUND AND FINDINGS: Cedars Townhomes Plat E Phase 5 was given final approval on April 9, 2002. The developer did not ever develop the Phase 5 portion and has come back to the City seeking changes to the overall layout of Phase 5. The concept plan shows the development of twelve townhomes that will be a part of the Cedars Townhomes HOA. Phase 5 is the last, and most difficult portion to develop, of the original Cedars Townhomes. The main concerns with this development center on geotechnical and utility issues. Staff has required that the developer submit a new Geotech study that shows test pits at each building location as well as engineering recommendations for construction methods. The other concern deals with how this portion of the subdivision connects to the City's utility system, namely sewer. The development of this phase will have to take into consideration these, as well as other engineering concerns in order to comply with City standards. City staff will prepare a presentation for the planning commission with all of our findings and make a recommendation to the planning commission on how to proceed.	
PREVIOUS LEGISLATIVE ACTION: N/A	
FISCAL IMPACT: N/A	
SUPPORTING DOCUMENTS: Cedars Phase 5 Concept Plan,	
RECOMMENDATION: Review submission documents and make any recommendations necessary, staff will prepare their own recommendation for the meeting.	
MOTION: To approve/disapprove/table the concept plan for the Cedars Townhomes Plat E, Phase 5, subject to the following changes and recommendations {LIST ANY CHANGES}.	

CEDAR HILLS TOWN HOMES PLAT 5

-INDEX OF PLAN SHEETS-

GENERAL

- SEWER

- WATER

- ROADWAY/STORM DRAIN

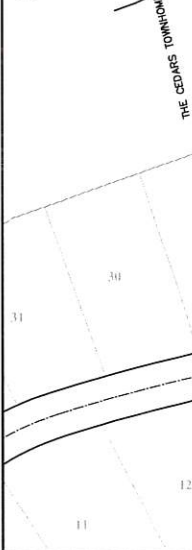
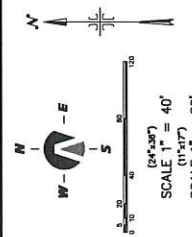
- VICINITY MAP
-
- N.T.S.-



1040 E. 800 N.
OREM, UTAH 84097
(801) 802-8992

CHEST 1/4 OF S...
SALT LAKE C...

1, SALT LAKE BASE AND MERIDIAN CITY
HILLS, UTAH COUNTY, UTAH



LINE TABLE		
LINE	LENGTH	DIRECTION
L1	10.46'	N02°43'10"E
L2	10.28'	N18°46'04"W
L3	10.00'	N87°15'35"W
L4	20.35'	N07°21'56"E
L5	20.00'	N02°33'42"E
L6	7.46'	S40°34'41"W

Map of the study area showing the location of the 'PROPOSED SITE' relative to the 'KAWA' river and surrounding features like 'KAWA' and 'KAWA'.

SCALE 1" = 80'

VICINITY MAP
-175-

LEGEND

NORTH QUARTER CORNER SECTION 5
T. 55. N. R. 2E. S. 14M
FOUND BRASS CAP MON.

FOUND BRASS CAP

⑥ SET 5/8" IRON PIN
 CALCULATED POINT, NOT SET
 ▲ PROPOSED FIRE HYDRANT
 ▴ EXISTING FIRE HYDRANT
 ▽ PROPERTY BOUNDARY
 _____ CENTERLINE
 _____ RIGHT-OF-WAY LINE
 _____ LOT LINE
 _____ SECTION LINE
 _____ EASEMENT

 EXISTING DEED LINE
 ROADWAY DEDICATION TO THE CITY OF CEDAR HILLS
 COMMON AREA
 PRIVATE AREA

STATE OF UTAH }
COUNTY OF UTAH } ss.
ON THIS _____ DAY OF _____ IN THE YEAR 20____
BEFORE ME _____ PERSONALLY ADJURED _____

NOTARY PUBLIC _____
 A NOTARY COMMISSIONED IN UTAH

WHO DULY ACKNOWLEDGED TO ME THAT SHE IS A _____ A UTAH
 WITH MANAGEMENT AUTHORITY [MANAGER] OF
 UNITED LIABILITY COMPANY, AND IS AUTHORIZED TO EXECUTE THE FOREGOING
 AGREEMENT IN ITS BEHALF AND THAT HE OR SHE EXECUTED IT IN SUCH CAPACITY.

COMMISSION NUMBER _____ JV COMMISSION EXPIRES _____

ACCEPTANCE BY LEGISLATIVE BODY

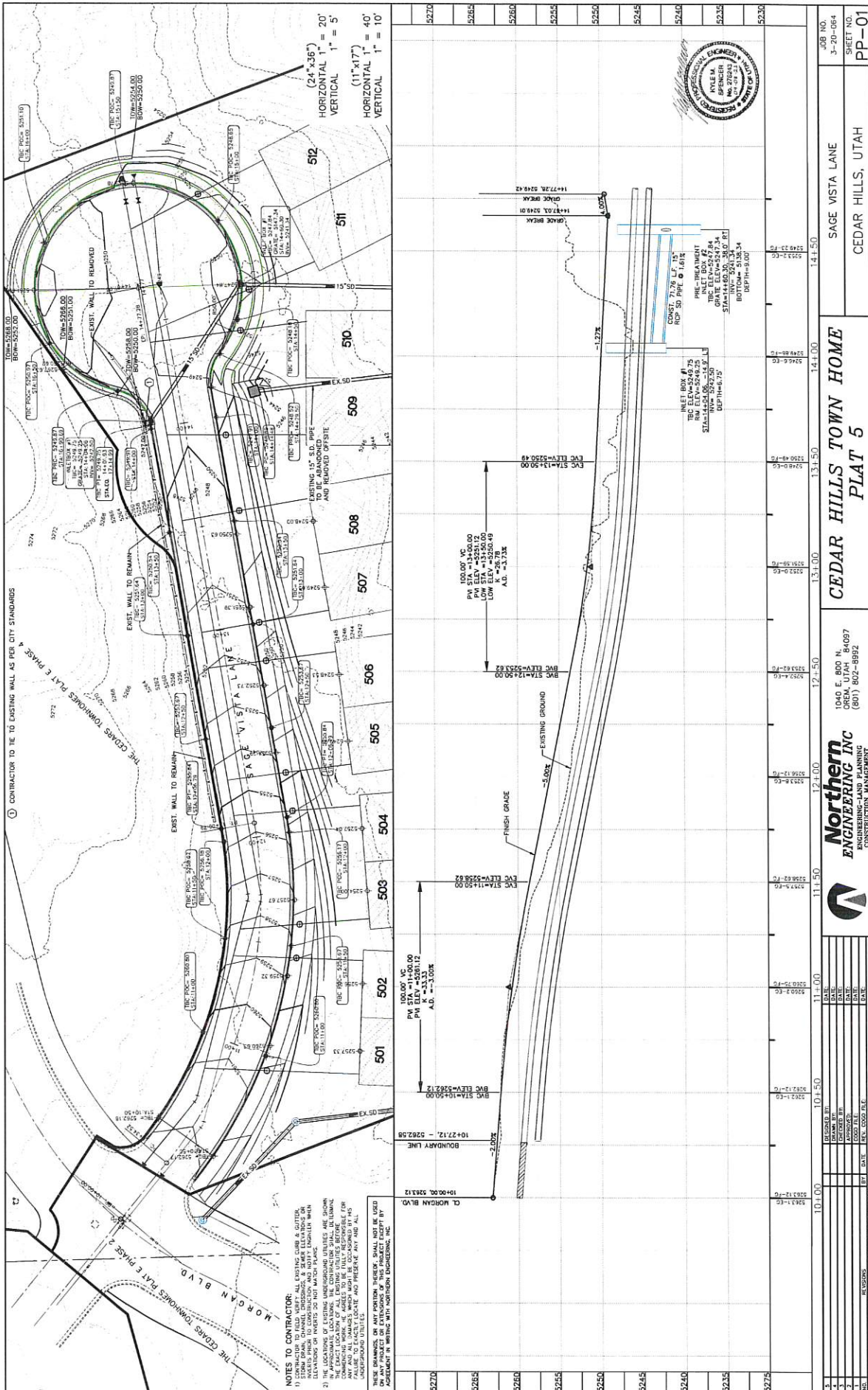
THE CITY COUNCIL OF CITY OF CEDAR HILLS, COUNTY OF UTAH, APPROVES THIS SUBDIVISION AND HEREBY ACCEPTS THE DEDICATION OF ALL STREETS, EASEMENTS,

AND OTHER PARCELS OF LAND INTENDED FOR PUBLIC PURPOSES FOR THE PERPETUAL USE OF THE PUBLIC THIS _____ DAY OF _____ A.D. 20____.

[illegible]

C1	14.56'	15.00'	16.33'	577.2455'	6239.00'
C3	15.46'	164.00'	150.33'	497.376'	
C4	16.00'	20.00'	15.86'	531.2130'	6393.00'
	51.83'	49.22'	52.5616'	6441.16'	
C8	172.27'	200.00'	187.00'	5164.0776'	4921.00'

C7	7.13°	15.00°	7.06°	N28°40'19"E	27°3'46"
C8	18.83°	216.00°	178.42°	S19°37'16"W	46°17'22"
C9	18.88°	20.00°	16.47°	N19°32'00"E	46°30'32"
C10	23.86°	20.00°	22.48°	S42°38'00"E	86°37'08"
C11	258.24°	80.00°	82.26°	N71°40'16"E	28°33'51"
C12	134.75°	184.00°	131.76°	S12°32'20"W	41°37'36"



NOTES TO CONTRACTOR:

- 1) STORM DRAIN, CHANNEL DRAINAGE, & SEWER ELEVATIONS OR ELEVATIONS OR INVERTS DO NOT MATCH PLANS.
- 2) THE LOCATION OF EXISTING AND PROPOSED UTILITY LINES, ELEVATIONS OR INVERTS DO NOT MATCH PLANS.
- 3) THE LOCATION OF EXISTING AND PROPOSED UTILITY LINES, ELEVATIONS OR INVERTS DO NOT MATCH PLANS.
- 4) THE LOCATION OF EXISTING AND PROPOSED UTILITY LINES, ELEVATIONS OR INVERTS DO NOT MATCH PLANS.
- 5) THE LOCATION OF EXISTING AND PROPOSED UTILITY LINES, ELEVATIONS OR INVERTS DO NOT MATCH PLANS.

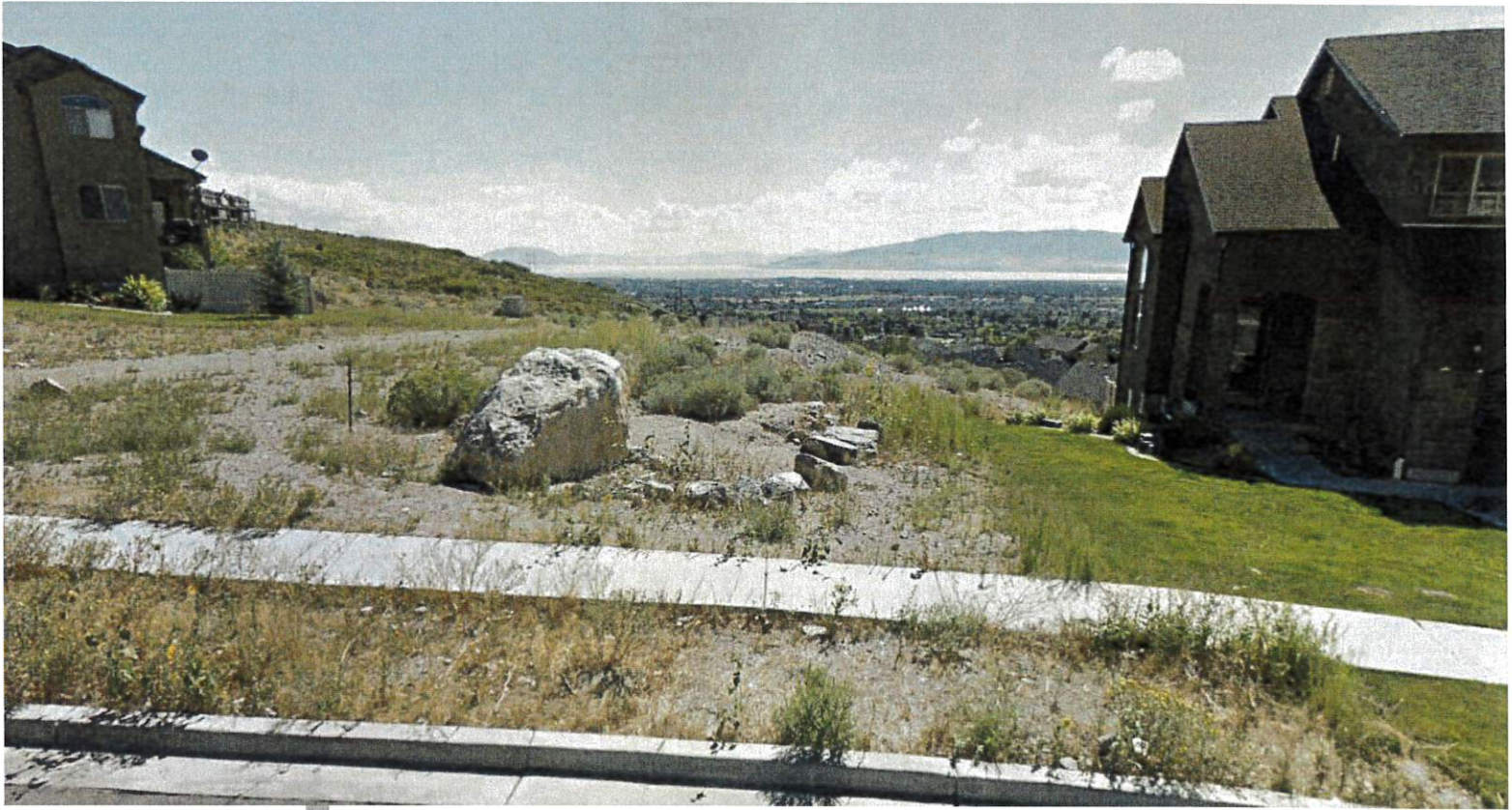
THESE DRAWINGS OR ANY PORTION THEREOF SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

AGREEMENT IN WRITING WITH NORTHERN ENGINEERING, INC.

Engineering plan view showing stationing from 10+00.00 to 14+50.00. The drawing includes a centerline, right-of-way (R.O.W.), and existing ground lines. Key features include:

- Stationing:** 10+00.00, 10+27.12, 11+00.00, 11+50.00, 12+10.00, 12+50.00, 13+10.00, 13+50.00, 14+00.00, 14+50.00.
- Elevations:**
 - 10+00.00 VC: PVI ELEV = 5281.12, LOW ELEV = 5280.12, A.S. = 13.31, A.S. = 1.00%
 - 11+00.00 VC: PVI ELEV = 5281.12, LOW ELEV = 5280.12, A.S. = 13.31, A.S. = 1.00%
 - 12+10.00 VC: PVI ELEV = 5281.12, LOW ELEV = 5280.12, A.S. = 13.31, A.S. = 1.00%
 - 13+10.00 VC: PVI ELEV = 5281.12, LOW ELEV = 5280.12, A.S. = 13.31, A.S. = 1.00%
 - 14+00.00 VC: PVI ELEV = 5281.12, LOW ELEV = 5280.12, A.S. = 13.31, A.S. = 1.00%
- Grades:** -2.00%, -1.27%, 6.00%, 14.

NO.	REVISIONS	BY



GEOTECHNICAL ENGINEERING STUDY

Cedar Hills Townhomes

Morgan Boulevard and Sage Vista Lane
Cedar Hills, Utah

CMT PROJECT NO. 16163

FOR:

Lone Peak Links
750 East 9000 South
Sandy, Utah 84094

May 24, 2021

ENGINEERING • GEOTECHNICAL • ENVIRONMENTAL (ESA I & II) •
MATERIALS TESTING • SPECIAL INSPECTIONS •
ORGANIC CHEMISTRY • PAVEMENT
DESIGN • GEOLOGY

May 24, 2021

Mr. Kyle Spencer
Lone Peak Links
750 East 9000 South
Sandy, Utah 84094

Subject: Geotechnical Engineering Study
Cedar Hills Townhomes
Morgan Boulevard and Sage Vista Lane
Cedar Hills, Utah
CMT Project No. 16163

Mr. Spencer:

Submitted herewith is the report of our geotechnical engineering study for the subject site. This report contains the results of our findings and an engineering interpretation of the results with respect to the available project characteristics. It also contains recommendations to aid in the design and construction of the earth related phases of this project.

On April 1, 2021, a CMT Engineering Laboratories (CMT) staff professional was on-site and supervised the excavation of 6 test pits extending to depths of about 5 to 9 feet below the existing ground surface. Soil samples were obtained during the field operations and subsequently transported to our laboratory for further testing and observation.

Conventional spread and/or continuous footings may be utilized to support the proposed structures, provided the recommendations in this report are followed. A detailed discussion of design and construction criteria is presented in this report.

We appreciate the opportunity to work with you at this stage of the project. CMT offers a full range of Geotechnical Engineering, Geological, Material Testing, Special Inspection services, and Phase I and II Environmental Site Assessments. With offices throughout Utah, Idaho and Arizona, our staff is capable of efficiently serving your project needs. If we can be of further assistance or if you have any questions regarding this project, please do not hesitate to contact us at 801-492-4132 or 801-870-6730.

Sincerely,
CMT Engineering Laboratories



Jeffrey J. Egbert, P.E., LEED A.P., M. ASCE
Senior Geotechnical Engineer

Reviewed by:

Steven L. Smith, P.E.
Senior Geotechnical Engineer

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1.1 General

[illegible]

1.2 Objectives, Scope and Authorization

In accomplishing these objectives, our scope of work has included performing field exploration, which consisted of the excavating/logging/sampling of 6 test pits, performing laboratory testing on representative samples of

the subsurface soils collected in the test pits, and conducting an office program, which consisted of correlating available data, performing engineering analyses, and preparing this summary report. This scope of work was authorized by returning a signed copy of our proposal dated October 30, 2020 and executed on March 3, 2021.

1.3 Description of Proposed Construction

We understand that the proposed structures will be town home residences which we project will have two levels of conventional wood frame construction above grade and a single level of reinforced concrete below grade (basement). We project that maximum structural loads for the residences will be on the order of 4,000 pounds per lineal foot for walls and 50,000 pounds for columns. Floor slab loads are anticipated to be relatively light, with an average uniform loading not exceeding 100 pounds per square foot. If the structural loading conditions are different than we have projected, please notify us so that any appropriate modifications to our conclusions and recommendations contained herein can be made.

We anticipate that asphalt-paved residential streets will be constructed as part of the development. Traffic is projected to consist of a light volume of automobiles and pickup trucks, one or two daily medium-weight delivery trucks, a weekly garbage truck, and an occasional fire truck.

Site development will require some earthwork in the form of cutting and filling. A site grading plan was not available at the time of this report, but we project that maximum cuts and fills may be on the order of 6 to 8 feet. If deeper cuts or fills are planned, CMT should be notified to provide additional recommendations, if needed.

1.4 Executive Summary

Proposed townhome residences can be supported upon conventional spread and continuous wall foundations. The most significant geotechnical aspects regarding site development include the following:

1. Topsoil and up to 3.5 feet of fill, considered undocumented, was found on the surface at the test pit locations, which will require removal beneath structures;
2. Subsurface natural soils consist of GRAVEL (GM), extending to the maximum depth explored of about 9 feet;
3. Groundwater was not encountered in the test pits; and
4. Foundations and floor slabs may be established on suitable, undisturbed natural gravel soils or on properly placed and compacted structural fill extending to suitable, undisturbed natural gravel soils.

CMT must assess that topsoil, undocumented fills, debris, disturbed or unsuitable soils have been removed and that suitable soils have been encountered prior to placing site grading fills, footings, slabs, and pavements.

In the following sections, detailed discussions pertaining to the site are provided, including subsurface descriptions, geologic/seismic setting, earthwork, foundations, lateral resistance, lateral pressure, floor slabs, and pavements.

2.0 FIELD EXPLORATION

2.1 General

In order to define and evaluate the subsurface soil and groundwater conditions, 6 test pits were excavated with a backhoe at the site to depths of approximately 5 to 9 feet below the existing ground surface. Locations of the test pits are shown on **Figure 1, Site Plan**, included in the Appendix. The field exploration was performed under the supervision of an experienced member of our geotechnical staff.

Representative soil samples were collected by obtaining disturbed "grab" samples from within the test pits. The samples were sealed in plastic bags prior to transport to the laboratory.

The subsurface soils encountered in the test pits were classified in the field based upon visual and textural examination, logged and described in general accordance with ASTM¹ D-2488. These field classifications were supplemented by subsequent examination and testing of select samples in our laboratory. Graphical representations of the subsurface conditions encountered are presented on each individual Test Pit Log, **Figures 2 through 7**, included in the Appendix. A Key to Symbols defining the terms and symbols used on the logs, is provided as **Figure 8** in the Appendix.

Upon completion of logging and sampling, the test pits were backfilled with the excavated soils. When backfilling, minimal to no effort was made to compact the backfill and no compaction testing was performed. Thus, the test pit backfill is considered undocumented fill and settlement of the backfill in the test pits over time should be anticipated.

2.2 Infiltration Testing

An infiltration test was also performed as part of our field exploration by digging a small hole using a shovel at the bottom of a shallow test pit (about 2.5 feet deep in natural gravel soils). The testing consisted of filling the small hole with water, and measuring the rate of water drop within the small hole over a certain time period. The results of this test indicate that the silty gravel soils at this site have an infiltration rate of 15 minutes per inch. The rate will likely slow over time and an appropriate factor of safety should be applied for design.

3.0 LABORATORY TESTING

Selected samples of the subsurface soils were subjected to various laboratory tests to refine field classifications and assess pertinent engineering properties, as follows:

1. Moisture Content, ASTM D-2216, Percent moisture representative of field conditions
2. Gradation Analysis, ASTM D-1140/C-117, Grain Size Analysis

¹American Society for Testing and Materials

Laboratory test results are presented on the test pit logs (Figures 2 through 7) and in the following Lab Summary table:

LAB SUMMARY TABLE

TEST PIT	DEPTH (feet)	SAMPLE TYPE	SOIL CLASS	MOISTURE CONTENT(%)	GRADATION		
					GRAV.	SAND	FINES
TP-1	4	Bag	GM	5	71	12	17
TP-1	8	Bag	GM	8	61	10	29
TP-3	3	Bag	GM	9	45	21	34
TP-3	6	Bag	GM	11	56	17	27
TP-6	4	Bag	GM	5	55	19	26

4.0 GEOLOGIC & SEISMIC CONDITIONS

4.1 Geologic Setting

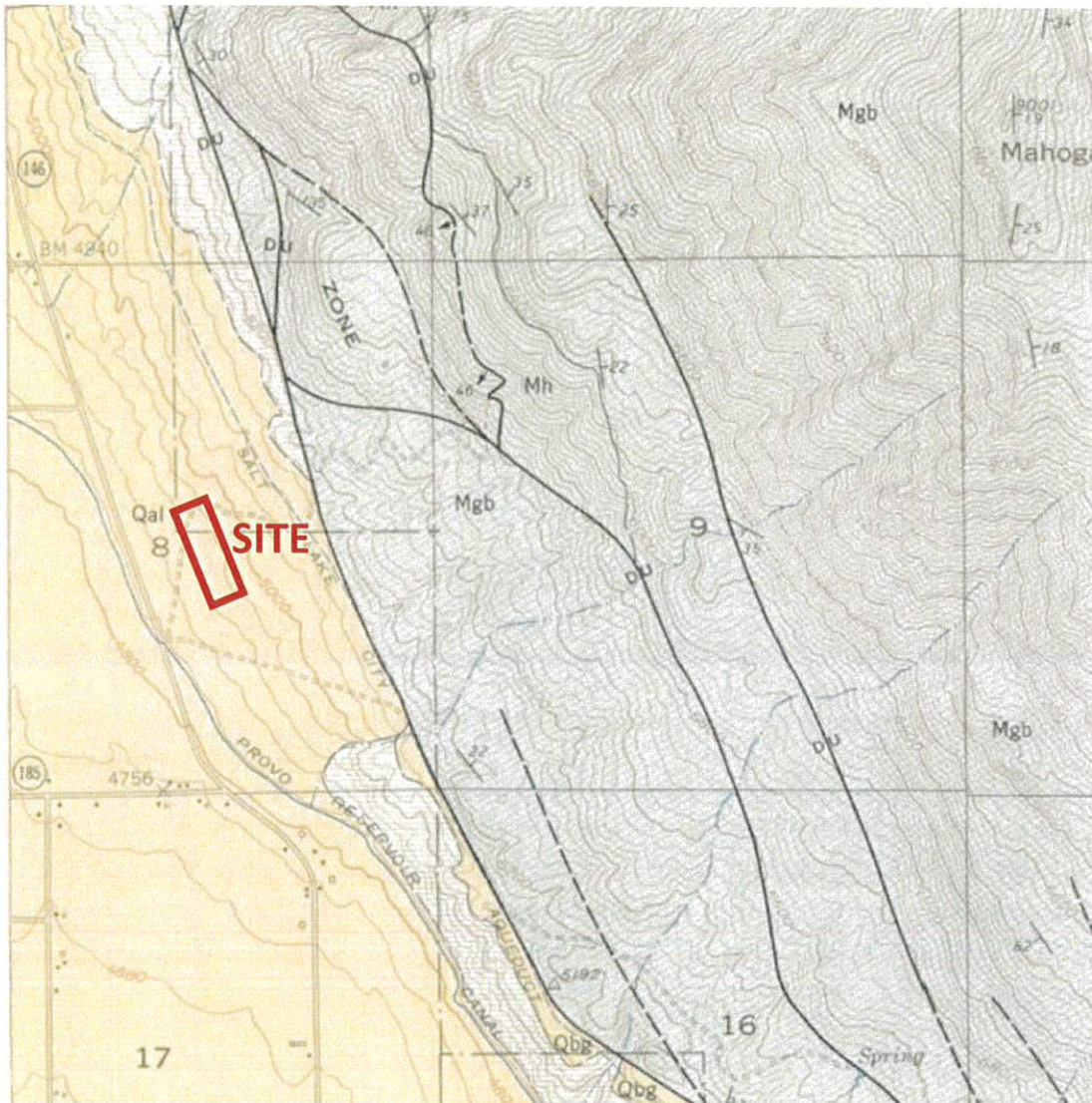
The subject site is located in the northeast portion of Utah Valley in north-central Utah at an elevation of approximately 5,252 feet above sea level. Utah Valley is a deep, sediment-filled basin that is part of the Basin and Range Physiographic Province. The valley was formed by extensional tectonic processes during the Tertiary and Quaternary geologic time periods. The valley is bordered by the Wasatch Mountain Range on the east and Lake Mountain and West Mountain on the west. Utah Valley is located within the Intermountain Seismic Belt, a zone of active tectonism and seismic activity extending from southwestern Montana to southwestern Utah. The active (evidence of movement within the past 10,000 years) Wasatch Fault Zone is part of the Intermountain Seismic Belt and extends from southeastern Idaho to central Utah along the western base of the Wasatch Mountain Range.

Much of northwestern Utah, including Utah Valley, was also previously covered by the Pleistocene age Lake Bonneville. Utah Lake, which currently occupies much of the western portion of the valley, is a remnant of this ancient fresh water lake. Lake Bonneville reached a high-stand elevation of approximately 5,092 feet above sea level at between 18,500 and 17,400 years ago. Approximately 17,400 years ago, the lake breached its basin in southeastern Idaho and dropped by almost 300 feet relatively fast as water drained into the Snake River. Following this catastrophic release, the lake level continued to drop slowly over time, primarily driven by drier climatic conditions, until reaching the current levels of Utah Lake and the larger Great Salt Lake to the north. Shoreline terraces formed at the high-stand elevation of the lake and several subsequent lower lake levels are visible in places on the mountain slopes surrounding the valley. Much of the sediment within Utah Valley was deposited as lacustrine sediments during both the transgressive (rise) and regressive (fall) phases of Lake Bonneville.

The geology of the USGS 7.5 minute Timpanogos Cave Quadrangle, which includes the subject site, was mapped by Baker and others². The surficial geology at the subject site and adjacent sites has been mapped as "Alluvial

² Baker, A.A., Crittenden, M.D. Jr., 1961, Geology of the Timpanogos Cave Quadrangle, USGS Open File Report GQ-132, 1:24,000 scale

deposits" (Map Unit Qal) dated Pleistocene. Unit Qal is described in the referenced map as "stream gravel, valley fill and low angle alluvial cones." No fill has been mapped at the site. Refer to the **Geologic Map**, shown below.



GEOLOGIC MAP

4.2 Faulting

No surface fault traces are shown on the referenced geologic map crossing or projecting toward the subject site. The nearest active fault is the Provo Segment of the Wasatch Fault Zone 0.1 miles to the east. A surface fault hazard study was not performed as part of our scope of work. Note that the site will likely experience significant shaking if an earthquake were to occur along this fault segment, within several miles from the site. Seismic design issues are addressed in **Section 4.3** below.

4.3 Seismicity

4.3.1 Site Class

Utah has adopted the International Building Code (IBC) 2018, which determines the seismic hazard for a site based upon 2014 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC code and are also available based on latitude and longitude coordinates (grid points). For site class definitions, IBC 2018 Section 1613.2.2 refers to Chapter 20, Site Classification Procedure for Seismic Design, of ASCE³ 7-16, which stipulates that the average values of shear wave velocity, blow count and/or shear strength within the upper 100 feet (30 meters) be utilized to determine seismic site class.

Based on average shear wave velocity data within the upper 30 meters ($V_{s,30}$) published by McDonald and Ashland⁴, the subject site is located within unit description Q02, which has a log-mean $V_{s,30}$ of 294 meters per second (964 feet per second). Thus, it is our opinion the site best fits Site Class D – Stiff Soil Profile (with data), which we recommend for seismic structural design.

4.3.2 Ground Motions

The 2014 USGS mapping utilized by the IBC provides values of peak ground, short period and long period spectral accelerations for the Site Class B/C boundary and the Risk-Targeted Maximum Considered Earthquake (MCE_R). This Site Class B/C boundary represents average bedrock values for the Western United States and must be corrected for local soil conditions. The following table and response spectra summarizes the peak ground, short period and long period accelerations for the MCE_R event, and incorporates appropriate soil correction factors for a Site Class D (with data) soil profile at site grid coordinates of 40.4201 degrees north latitude and -111.7480 degrees west longitude:

³American Society of Civil Engineers

⁴McDonald, G.N. and Ashland, F.X., 2008, "Earthquake Site-Conditions Map for the Wasatch Front Urban Corridor, Utah," Utah Geological Survey Special Study 125, 41 pp.

SPECTRAL ACCELERATION PERIOD, T	SITE CLASS B/C BOUNDARY [mapped values] (g)	SITE COEFFICIENT	SITE CLASS D* [adjusted for site class effects] (g)	MULTIPLIER	DESIGN VALUES (g)
Peak Ground Acceleration	PGA = 0.617	$F_{pga} = 1.100$	$PGA_M = 0.679$	1.000	$PGA_M = 0.679$
0.2 Seconds (Long Period Acceleration)	$S_S = \mathbf{1.352}$	$F_a = 1.000$	$S_{MS} = 1.352$	0.667	$S_{DS} = 0.901$
	(no exceptions needed)	$F_a = (N/A)$	$S_{MS} = (N/A)$	0.667	$S_{DS} = (N/A)$
1.0 Second (Long Period Acceleration)	$S_1 = \mathbf{0.506}$	$F_v = N/A$	$S_{M1} = N/A$	0.667	$S_{D1} = N/A$
	(Exception 2:)	$F_v = (1.794)$	$S_{M1} = (0.908)$	0.667	$S_{D1} = (0.605)$

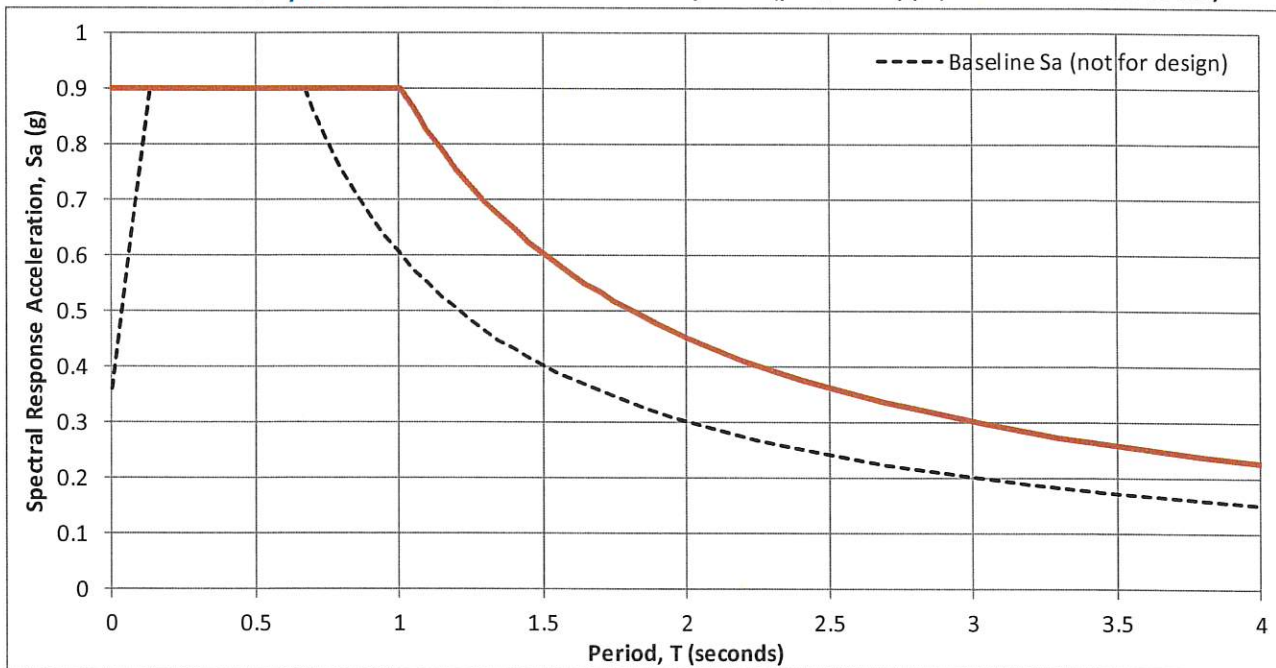
NOTES: 1. TL (seconds): **8**

* Site Class D With Data

2. Site Class: **D**

4. ASCE 7-16 Requires Site-Specific Ground Motion Hazard Analysis (Since $S_1 \geq 0.2$ sec) - OR Can Use Exception 2 (per §11.4.8) (S_a/C_s Plot Assumes $R=1e=1.0$)

3. Have data to verify? **yes**



As indicated in the above table, S_1 is greater than 0.2 seconds and a site-specific ground motion hazard analysis (GMHA) is required for the site, unless the Exception 2 values shown are used for seismic design. If a site-specific GMHA is desired instead of using the higher exception values, please contact CMT for a proposal to perform the GMHA.

4.3.3 Liquefaction

Liquefaction is defined as the condition when saturated, loose, sandy soils lose their support capabilities because of excessive pore water pressure which develops during a seismic event. Clayey soils, even if saturated, will generally not liquefy during a major seismic event.

The site is located within an area designated by the Utah Geologic Survey⁵ as having "Very Low" liquefaction potential. This is considered as having a less than 5% probability that within a 100-year period an earthquake strong enough to cause liquefaction will occur.

A special liquefaction study was not performed for this site. We encountered unsaturated natural gravel soils, estimated to be in a dense state, within the depths we explored. In our opinion, the soils we encountered support the mapped very low liquefaction potential designation.

4.4 Other Geologic Hazards

No landslide deposits or features, including lateral spread deposits, are mapped on or adjacent to the site. The site is not located within a known or mapped potential stream flooding⁶, debris flow, or rock-fall hazard area.

5.0 SITE CONDITIONS

5.1 Surface Conditions

At the time the test pits were excavated the site consisted of undeveloped land vegetated with grasses, weeds, and sage brush. The site grade sloped downward to the south with an overall relief of about 10 feet, and to the west with an overall relief of about 25 to 40 feet. Based upon aerial photos readily available online dating back to 1985, the site appears to have been undeveloped range land until the early 2000s when the surrounding development began. The site is bounded on all sides almost entirely by residential development (see **Vicinity Map** in **Section 1.1** above).

5.2 Subsurface Soils

At the locations of test pits TP-5 and TP-6 we encountered a few inches to as much as about 12 inches of topsoil at the surface. At the other test pit locations we encountered sandy gravelly fill soils up to about 3.5 feet in thickness. These fill soils are considered undocumented (not test for compaction) and unsuitable for support of footings or floor slabs.

Natural soils observed beneath the topsoil/fill soils consisted of light brown to brown, slightly moist, Silty GRAVEL (GM) with sand, and varying amounts of cobbles, extending to the maximum depth explored of about 9 feet below the surface. These natural gravel soils were estimated to be in a dense state and are projected to exhibit moderately high strength and low compressibility characteristics.

For a more descriptive interpretation of subsurface conditions, please refer to the test pit logs, **Figures 2 through 7**, which graphically represent the subsurface conditions encountered. The lines designating the interface

⁵Utah Geological Survey, "Liquefaction-Potential Map for a Part of Utah County, Utah," Utah Geological Survey Public Information Series 28, August 1994. https://ugspub.nr.utah.gov/publications/public_information/pi-28.pdf

⁶<https://msc.fema.gov/portal/search?AddressQuery=Morgan%20Blvd.%20and%20Sage%20Vista%20Lane%2C%20Cedar%20Hills%2C%20UT#searchresultsanchor>

between soil types on the logs generally represent approximate boundaries - in situ, the transition between soil types may be gradual.

5.3 Groundwater

Groundwater was not encountered at the time of our field explorations within the maximum depth explored of about 9 feet below the existing ground surface. Therefore, groundwater is not anticipated to be encountered in excavations at this site.

Groundwater levels can fluctuate as much as 1.5 to 2 feet seasonally. Numerous other factors such as heavy precipitation, irrigation of neighboring land, and other unforeseen factors, may also influence ground water elevations at the site. The detailed evaluation of these and other factors, which may be responsible for ground water fluctuations, and the magnitude of potential fluctuations, is beyond the scope of this study.

5.4 Site Subsurface Variations

Based on the results of the subsurface explorations and our experience, variations in the continuity and nature of subsurface conditions should be anticipated. Due to the heterogeneous characteristics of natural soils, care should be taken in interpolating or extrapolating subsurface conditions between or beyond the exploratory locations.

Also, when logging and sampling of the test pits was completed, the test pits were backfilled with the excavated soils but minimal to no effort was made to compact these soils. Thus, the test pit backfill is considered undocumented fill and settlement of the backfill in the test pits over time should be anticipated.

6.0 SITE PREPARATION AND GRADING

6.1 General

All deleterious materials should be stripped from the site prior to commencement of construction activities. This includes loose and disturbed soils, topsoil, vegetation, etc. Based upon the conditions observed in the test pits there is topsoil on the surface of portions of the site which we estimated to be up to about 12 inches in thickness. When stripping and grubbing, topsoil should be distinguished by the apparent organic content and not solely by color; thus we estimate that topsoil stripping will need to include the upper 4 to 6 inches. However, where larger brush is located roots or root balls likely extend deeper and should also be removed.

At most of the test pit locations up to approximately 3.5 feet of undocumented fill is present on the surface of the site. All undocumented fill shall be removed from beneath structures, but may remain beneath flatwork and pavements, provided the owner understands that additional maintenance may be required. Outside of building footprints, proper preparation of undocumented fill and disturbed soils for support of pavement and exterior concrete flatwork shall consist of removing the upper 12 inches, scarifying the exposed surface to a minimum depth of 8 inches, removing any debris encountered, moisture conditioning as needed, and re-

compacting the scarified soils in place to 95% of the maximum dry density. The removed 12 inches, if free of debris, organics, etc. may then be replaced in similarly compacted lifts.

Prior to placement of pavement materials the exposed subgrade must then be proofrolled by passing moderate-weight rubber tire-mounted construction equipment over the surface at least twice. If excessively soft or loose soils are encountered, they must be removed (up to a maximum depth of 2 feet) and replaced with structural fill.

Following stripping and grubbing the site should be observed by a CMT geotechnical engineer to assess that suitable natural soils have been exposed and any deleterious materials, loose and/or disturbed soils have been removed, prior to placing site grading fills, footings, slabs, and pavements.

Fill placed over large areas to raise overall site grades can induce settlements in the underlying natural soils. If more than 3 feet of site grading fill is anticipated over the natural ground surface, we should be notified to assess potential settlements and provide additional recommendations as needed. These recommendations may include placement of the site grading fill far in advance to allow potential settlements to occur prior to construction.

6.2 Temporary Excavations

Excavations deeper than 8 feet are not anticipated at the site. Groundwater was not encountered within the depths explored, about 6 to 9 feet, at the time of our field explorations, and thus is not anticipated to be encountered in excavations.

The natural soils encountered at this site consisted of gravel. For sandy/gravelly (cohesionless) soils, temporary construction excavations not exceeding 4 feet in depth should be no steeper than one-half horizontal to one vertical (0.5H:1V). For excavations up to 8 feet and above groundwater, side slopes should be no steeper than one horizontal to one vertical (1H:1V). Excavations encountering saturated cohesionless soils will be very difficult to maintain, and will require very flat side slopes and/or shoring, bracing and dewatering.

In clayey (cohesive) soils, temporary construction excavations not exceeding 4 feet in depth may be constructed with near-vertical side slopes. Temporary excavations up to 8 feet deep, above or below groundwater, may be constructed with side slopes no steeper than one-half horizontal to one vertical (0.5H:1V).

All excavations must be inspected periodically by qualified personnel. If any signs of instability or excessive sloughing are noted, immediate remedial action must be initiated. All excavations should be made following OSHA safety guidelines.

We anticipate that cut and fill slopes will be created at this site as part of development. Temporary cut and fill slopes should be no steeper than 1.5:1 (horizontal:vertical). Permanent cut or fill slopes should be no steeper than 2:1 unless slope stability analysis indicate steeper slopes can be achieved. If planned, retaining walls which do not exceed an exposed height of 4 feet typically do not require engineering design. If retaining walls greater than 4 feet in exposed height are planned, CMT should be notified to provide design recommendations.

6.3 Fill Material

Following are our recommendations for the various fill types we anticipate will be used at this site:

FILL MATERIAL TYPE	DESCRIPTION RECOMMENDED SPECIFICATION
Structural Fill	Placed below structures, flatwork and pavement. Well-graded sand/gravel mixture, with maximum particle size of 4 inches, a minimum 70% passing 3/4-inch sieve, a maximum 20% passing the No. 200 sieve, and a maximum Plasticity Index of 10.
Site Grading Fill	Placed over larger areas to raise the site grade. Sandy to gravelly soil, with a maximum particle size of 6 inches, a minimum 70% passing 3/4-inch sieve, a maximum 50% passing No. 200 sieve, and a maximum Plasticity Index of 15.
Non-Structural Fill	Placed below non-structural areas, such as landscaping. On-site soils or imported soils, with a maximum particle size of 8 inches, including silt/clay soils not containing excessive amounts of degradable/organic material (see discussion below).
Stabilization Fill	Placed to stabilize soft areas prior to placing structural fill and/or site grading fill. Coarse angular gravels and cobbles 1 inch to 8 inches in size. May also use 1.5-inch to 2.0-inch gravel placed on stabilization fabric, such as Mirafi RS280i, or equivalent (see Section 6.6).

On-site fill and natural gravel soils may be suitable for use as structural fill, if processed to meet the requirements given above, and may also be used in site grading fill and non-structural fill situations.

All fill material should be approved by a CMT geotechnical engineer prior to placement.

6.4 Fill Placement and Compaction

The various types of compaction equipment available have their limitations as to the maximum lift thickness that can be compacted. For example, hand operated equipment is limited to lifts of about 4 inches and most "trench compactors" have a maximum, consistent compaction depth of about 6 inches. Large rollers, depending on soil and moisture conditions, can achieve compaction at 8 to 12 inches. The full thickness of each lift should be compacted to at least the following percentages of the maximum dry density as determined by ASTM D-1557 (or AASHTO⁷ T-180) in accordance with the following recommendations:

LOCATION	TOTAL FILL THICKNESS (FEET)	MINIMUM PERCENTAGE OF MAXIMUM DRY DENSITY
Beneath an area extending at least 4 feet beyond the perimeter of structures, and below flatwork and pavement (applies to structural fill and site grading fill) extending at least 2 feet beyond the perimeter	0 to 5	95
	5 to 8	98
Site grading fill outside area defined above	0 to 5	92
	5 to 8	95
Utility trenches within structural areas	--	96

⁷American Association of State Highway and Transportation Officials

LOCATION	TOTAL FILL THICKNESS (FEET)	MINIMUM PERCENTAGE OF MAXIMUM DRY DENSITY
Roadbase and subbase	-	96
Non-structural fill	0 to 5	90
	5 to 8	92

Structural fills greater than 8 feet thick are not anticipated at the site. For best compaction results, we recommend that the moisture content for structural fill/backfill be within 2% of optimum. Field density tests should be performed on each lift as necessary to verify that proper compaction is being achieved.

Where fill will be placed on slopes with a gradient steeper than 4:1 (horizontal:vertical) we recommend that the slope be benched to allow placement and compaction on level surface. Bench heights should not exceed 3 feet.

6.5 Utility Trenches

For the bedding zone around the utility, we recommend utilizing sand bedding fill material that meets current APWA⁸ requirements.

All utility trench backfill material below structurally loaded facilities (foundations, floor slabs, flatwork, parking lots/drive areas, etc.) should be placed at the same density requirements established for structural fill in the previous section.

Most utility companies and local governments are requiring Type A-1a or A-1b (AASHTO Designation) soils (sand/gravel soils with limited fines) be used as backfill over utilities within public rights of way, and the backfill be compacted over the full depth above the bedding zone to at least 96% of the maximum dry density as determined by AASHTO T-180 (ASTM D-1557). The natural gravel soils at this site will not likely meet these specifications.

Where the utility does not underlie structurally loaded facilities and public rights of way, on-site fill and natural soils may be utilized as trench backfill above the bedding layer, provided they are properly moisture conditioned and compacted to the minimum requirements stated above in **Section 6.4**.

6.6 Stabilization

To stabilize soft subgrade conditions (if encountered), a mixture of coarse, clean, angular gravels and cobbles and/or 1.5- to 2.0-inch clean gravel should be utilized, as indicated above in **Section 6.3**. Often the amount of gravelly material can be reduced with the use of a geotextile fabric such as Mirafi RS280i or equivalent. Its use will also help avoid mixing of the subgrade soils with the gravelly material. After excavating the soft/disturbed soils, the fabric should be spread across the bottom of the excavation and up the sides a minimum of 18 inches.

⁸ American Public Works Association

Otherwise, it should be placed in accordance with the manufacturer's recommendation, including proper overlaps. The gravel material can then be placed over the fabric in compacted lifts as described above.

7.0 FOUNDATION RECOMMENDATIONS

The following recommendations have been developed on the basis of the previously described project characteristics, including the maximum loads discussed in **Section 1.3**, the subsurface conditions observed in the field and the laboratory test data, and standard geotechnical engineering practice.

7.1 Foundation Recommendations

Based on our geotechnical engineering analyses, the proposed townhome residences may be supported upon conventional spread and/or continuous wall foundations placed on suitable, undisturbed natural gravel soils and/or on structural fill extending to suitable natural gravel soils. Footings may be designed using a net bearing pressure of 2,500 psf.

The term "net bearing pressure" refers to the pressure imposed by the portion of the structure located above lowest adjacent final grade, thus the weight of the footing and backfill to lowest adjacent final grade need not be considered. The allowable bearing pressure may be increased by 1/3 for temporary loads such as wind and seismic forces.

We also recommend the following:

1. Exterior footings subject to frost should be placed at least 30 inches below final grade.
2. Interior footings not subject to frost should be placed at least 16 inches below grade.
3. Continuous footing widths should be maintained at a minimum of 18 inches.
4. Spot footings should be a minimum of 24 inches wide.

7.2 Installation

Under no circumstances shall foundations be placed on undocumented fill, topsoil with organics, sod, rubbish, construction debris, other deleterious materials, frozen soils, or within ponded water. If other unsuitable soils are encountered, they must be completely removed and replaced with properly compacted structural fill.

Deep, large roots may be encountered where trees and larger bushes are located or were previously located at the site; such large roots should be removed. The base of footing excavations should be observed by a CMT geotechnical engineer to confirm that suitable bearing soils have been exposed.

All fill used below footings and floor slabs should meet the requirements for structural fill, and should be placed and compacted in accordance with **Section 6** above. The width of structural replacement fill below footings should be equal to the width of the footing plus 1 foot for each foot of fill thickness. For instance, if the footing width is 2 feet and the structural fill depth beneath the footing is 2 feet, the fill replacement width should be 4 feet, centered beneath the footing.

The minimum thickness of structural fill below footings should be equivalent to one-third the thickness of structural fill below any other portion of the foundations. For example, if the maximum depth of structural fill is 6 feet, all footings for the new structure should be underlain by a minimum 2 feet of structural fill.

7.3 Estimated Settlement

Foundations designed and constructed in accordance with our recommendations could experience some settlement, but we anticipate that total settlements of footings founded as recommended above will not exceed 1 inch, with differential settlements on the order of 0.5 inches over a distance of 25 feet. We expect approximately 50% of the total settlement to initially take place during construction.

7.4 Lateral Resistance

Lateral loads imposed upon foundations due to wind or seismic forces may be resisted by the development of passive earth pressures and friction between the base of the footings and the supporting soils. In determining frictional resistance, a coefficient of 0.40 for natural gravel soils and structural fill, may be utilized for design. Passive resistance provided by properly placed and compacted structural fill above the water table may be considered equivalent to a fluid with a density of 475 pcf. A combination of passive earth resistance and friction may be utilized if the friction component of the total is divided by 1.5.

8.0 LATERAL EARTH PRESSURES

We project that basement walls up to 8 feet tall will be constructed at this site. The lateral earth pressure values given below anticipate that native gravel soils or structural fill will be used as backfill material, placed and compacted in accordance with the recommendations presented herein. If other soil types will be used as backfill, we should be notified so that appropriate modifications to these values can be provided, as needed.

The lateral pressures imposed upon subgrade facilities will depend upon the relative rigidity and movement of the backfilled structure. Following are the recommended lateral pressure values, which also assume that the soil surface behind the wall is horizontal and that the backfill within 3 feet of the wall will be compacted with hand-operated compacting equipment.

CONDITION	STATIC (psf/ft)*	SEISMIC (psf)**
Active Pressure (wall is allowed to yield, i.e. move away from the soil, with a minimum 0.001H movement/rotation at the top of the wall, where "H" is the total height of the wall)	35	133
At-Rest Pressure (wall is not allowed to yield)	55	354
Passive Pressure (wall moves into the soil)	475	850

*Equivalent Fluid Pressure (applied at 1/3 Height of 8-foot High Wall)

**Uniform Pressure, Seismic Only (applied at 1/2 Height of 8-foot High Wall)

9.0 FLOOR SLABS

Floor slabs may be established upon suitable, undisturbed, natural gravel soils and/or on structural fill extending to suitable natural gravel soils (same as for foundations). Under no circumstances shall floor slabs be established directly on any topsoil, undocumented fills, loose or disturbed soils, sod, rubbish, construction debris, other deleterious materials, frozen soils, or within ponded water.

In order to facilitate curing of the concrete, we recommend that floor slabs be directly underlain by at least 4 inches of "free-draining" fill, such as "pea" gravel or 3/4-inch to 1-inch minus, clean, gap-graded gravel. To help control normal shrinkage and stress cracking, the floor slabs should have the following features:

1. Adequate reinforcement for the anticipated floor loads with the reinforcement continuous through interior floor joints;
2. Frequent crack control joints; and
3. Non-rigid attachment of the slabs to foundation walls and bearing slabs.

10.0 DRAINAGE RECOMMENDATIONS

10.1 Surface Drainage

It is important to the long-term performance of foundations and floor slabs, and to stability of slopes, that water not be allowed to collect near the foundation walls and infiltrate into the underlying soils. We recommend the following:

1. All areas around each residence should be sloped to provide drainage away from the foundations. We recommend a minimum slope of 4 inches in the first 10 feet away from the structure. This slope should be maintained throughout the lifetime of the structure.
2. All roof drainage should be collected in rain gutters with downspouts designed to discharge at least 10 feet from the foundation walls or well beyond the backfill limits, whichever is greater.
3. Adequate compaction of the foundation backfill should be provided. We suggest a minimum of 90% of the maximum laboratory density as determined by ASTM D-1557. Water consolidation methods should not be used under any circumstances.
4. Landscape sprinklers should be aimed away from the foundation walls. The sprinkling systems should be designed with proper drainage and be well-maintained. Over watering should be avoided.
5. Other precautions that may become evident during construction.

10.2 Foundation Subdrains

The subsurface natural soils encountered at this site primarily consisted of gravel (GM), which is a Group 1 soil per IRC⁹ 2018. Thus, perimeter foundation subdrains are not needed for this site.

11.0 PAVEMENTS

All pavement areas must be prepared as discussed above in **Section 6.1**. Under no circumstances shall pavements be established over topsoil, non-engineered fills (if encountered), loose or disturbed soils, sod, rubbish, construction debris, other deleterious materials, frozen soils, or within ponded water.

In roadway areas, subsequent to stripping and prior to the placement of pavement materials, the exposed subgrade must be proof rolled by passing moderate-weight rubber tire-mounted construction equipment over the surface at least twice. If excessively soft or otherwise unsuitable soils are encountered, we recommend they be removed to a minimum of 18 inches below the subgrade level and replaced with structural fill.

We anticipate the natural gravel soils, or the existing undocumented fill properly prepared as recommended in Section 6.0, will exhibit good pavement support characteristics when saturated or nearly saturated. Based on our laboratory testing experience with similar soils, our pavement design utilized a California Bearing Ratio (CBR) of 20 for these soils.

Given the projected traffic as discussed above in **Section 1.3**, the following equivalent pavement sections are recommended for approximately 4 ESAL's (18-kip equivalent single-axle loads) per day:

MATERIAL	PAVEMENT SECTION THICKNESS (inches)	
Asphalt	3	3
Road-Base	7	4
Subbase	0	6
Total Thickness	10	13

Untreated base course (UTBC) should conform to city specifications, or to 1-inch-minus UDOT specifications for A-1-a/NP, and have a minimum CBR value of 70%. Material meeting our specification for structural fill can be used for subbase, as long as the fines content (percent passing No. 200 sieve) does not exceed 15%. Roadbase and subbase material should be compacted as recommended above in **Section 6.4**. Asphalt material generally should conform to APWA requirements, having a ½-inch maximum aggregate size, a 75-gradation Superpave mix containing no more than 15% of recycled asphalt (RAP) and a PG58-28 binder.

⁹International Residential Code

12.0 QUALITY CONTROL

We recommend that CMT be retained as part of a comprehensive quality control testing and observation program. With CMT on-site we can help facilitate implementation of our recommendations and address, in a timely manner, any subsurface conditions encountered which vary from those described in this report. Without such a program CMT cannot be responsible for application of our recommendations to subsurface conditions which may vary from those described herein. This program may include, but not necessarily be limited to, the following:

12.1 Field Observations

Observations should be completed during all phases of construction such as site preparation, foundation excavation, structural fill placement and concrete placement.

12.2 Fill Compaction

Compaction testing by CMT is required for all structural supporting fill materials. Maximum Dry Density (Modified Proctor, ASTM D-1557) tests should be requested by the contractor immediately after delivery of any fill materials. The maximum density information should then be used for field density tests on each lift as necessary to ensure that the required compaction is being achieved.

12.3 Excavations

All excavation procedures and processes should be observed by a geotechnical engineer from CMT or their representative. In addition, for the recommendations in this report to be valid, all backfill and structural fill placed in trenches and all pavements should be density tested by CMT. We recommend that freshly mixed concrete be tested by CMT in accordance with ASTM designations.

13.0 LIMITATIONS

The recommendations provided herein were developed by evaluating the information obtained from the subsurface explorations and soils encountered therein. The exploration logs reflect the subsurface conditions only at the specific location at the particular time designated on the logs. Soil and ground water conditions may differ from conditions encountered at the actual exploration locations. The nature and extent of any variation in the explorations may not become evident until during the course of construction. If variations do appear, it may become necessary to re-evaluate the recommendations of this report after we have observed the variation.

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties, either expressed or implied.

We appreciate the opportunity to be of service to you on this project. If we can be of further assistance or if you have any questions regarding this project, please do not hesitate to contact us at (801) 492-4132. To schedule materials testing, please call (801) 381-5141.

APPENDIX

SUPPORTING DOCUMENTATION



Cedar Hills Townhomes

Southwest corner of Morgan Boulevard and Sage Vista Lane,
Cedar Hills, Utah

CMTENGINEERING
LABORATORIES

Site Map

Date:	3-May-21
Job #	16163

Figure:

1

Cedar Hills Townhomes

Southwest corner of Morgan Boulevard and Sage Vista Lane, Cedar Hills, Utah

Test Pit Log

TP-1

Total Depth: 9'

Date: 4/1/21

Water Depth: (see Remarks)

Job #: 16163

Depth (ft)	GRAPHIC LOG	Soil Description	Sample Type	Sample #	Moisture (%)	Dry Density (pcf)	Gradation			Atterberg		
							Gravel %	Sand %	Fines %	LL	PL	PI
0		Fill: Gravel and sand with fines, trace cobbles and boulders										
1												
2												
3												
4		Light Brown Silty GRAVEL (GM) with sand, trace cobbles, slightly moist dense (estimated)										
5				1	5		71	12	17			
6												
7												
8				2	8		61	10	29			
9		END AT 9'										
10												
11												
12												
13												
14												

Remarks: Groundwater not encountered during excavation.

Coordinates: °, °

Surface Elev. (approx): Not Given

Equipment: Rubber Tire Backhoe

Excavated By: Blaine Hone

Logged By: Nate Pack

Figure:

2

Cedar Hills Townhomes

Southwest corner of Morgan Boulevard and Sage Vista Lane, Cedar Hills, Utah

Test Pit Log

TP-2

Total Depth: 6.5'

Date: 4/1/21

Water Depth: (see Remarks)

Job #: 16163

Depth (ft)	GRAPHIC LOG	Soil Description	Sample Type	Sample #	Moisture (%)	Dry Density (pcf)	Gradation			Atterberg		
							Gravel %	Sand %	Fines %	LL	PL	PI
0		Fill: Gravel and sand with trace wood and plastic debris										
1												
2												
3		Silty GRAVEL (GM) with sand, trace clay and cobbles, slightly moist dense (estimated)		3								
4												
5												
6				4								
7		END AT 6.5'										
8												
9												
10												
11												
12												
13												
14												

Remarks: Groundwater not encountered during excavation.

Coordinates: °, °

Surface Elev. (approx): Not Given

Equipment: Rubber Tire Backhoe

Excavated By: Blaine Hone

Logged By: Nate Pack

Figure:

3

Cedar Hills Townhomes

Southwest corner of Morgan Boulevard and Sage Vista Lane, Cedar Hills, Utah

Test Pit Log

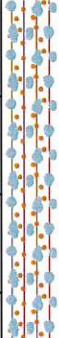
TP-3

Total Depth: 6.5'

Date: 4/1/21

Water Depth: (see Remarks)

Job #: 16163

Depth (ft)	GRAPHIC LOG	Soil Description	Sample Type	Sample #	Moisture (%)	Dry Density (pcf)	Gradation			Atterberg		
							Gravel %	Sand %	Fines %	LL	PL	PI
0		Fill: Gravel and sand with fines, trace cobbles and boulders										
1												
2												
3		Silty GRAVEL (GM) with sand, trace clay, slightly moist dense (estimated)		5	9		45	21	34			
4												
5												
6				6	11		56	17	27			
7		END AT 6.5'										
8												
9												
10												
11												
12												
13												
14												

Remarks: Groundwater not encountered during excavation.

Coordinates: °, °

Surface Elev. (approx): Not Given

Equipment: Rubber Tire Backhoe

Excavated By: Blaine Hone

Logged By: Nate Pack

CMT ENGINEERING
LABORATORIES

Page: 1 of 1

Figure:

4

Cedar Hills Townhomes

Southwest corner of Morgan Boulevard and Sage Vista Lane, Cedar Hills, Utah

Test Pit Log

TP-4

Total Depth: 6'

Date: 4/1/21

Water Depth: (see Remarks)

Job #: 16163

Depth (ft)	GRAPHIC LOG	Soil Description	Sample Type	Sample #	Moisture (%)	Dry Density (pcf)	Gradation			Atterberg		
							Gravel %	Sand %	Fines %	LL	PL	PI
0		Fill: Gravel and sand										
1												
2												
3		Silty GRAVEL (GM) with sand, cobbles and boulders, trace clay, slightly moist dense (estimated)										
4												
5												
6		END AT 6'										
7												
8												
9												
10												
11												
12												
13												
14												

Remarks: Groundwater not encountered during excavation.

Coordinates: °, °

Surface Elev. (approx): Not Given

Equipment: Rubber Tire Backhoe

Excavated By: Blaine Hone

Logged By: Nate Pack

Figure:

5

Cedar Hills Townhomes

Southwest corner of Morgan Boulevard and Sage Vista Lane, Cedar Hills, Utah

Test Pit Log

TP-5

Total Depth: 6'

Date: 4/1/21

Water Depth: (see Remarks)

Job #: 16163

Depth (ft)	GRAPHIC LOG	Soil Description	Sample Type	Sample #	Moisture (%)	Dry Density(pcf)	Gradation			Atterberg		
							Gravel %	Sand %	Fines %	LL	PL	PI
0		Topsoil with gravel										
		Brown Silty GRAVEL (GM) with sand, cobbles and boulders, slightly moist dense (estimated)										
1												
2												
3		grades light brown with trace silt and clay										
4				8								
5												
6		END AT 6'										
7												
8												
9												
10												
11												
12												
13												
14												

Remarks: Groundwater not encountered during excavation.

Coordinates: °, °

Surface Elev. (approx): Not Given

Equipment: Rubber Tire Backhoe

Excavated By: Blaine Hone

Logged By: Nate Pack

Figure:

6

Cedar Hills Townhomes

Southwest corner of Morgan Boulevard and Sage Vista Lane, Cedar Hills, Utah

Test Pit Log

TP-6

Total Depth: 5'

Date: 4/1/21

Water Depth: (see Remarks)

Job #: 16163

Depth (ft)	GRAPHIC LOG	Soil Description	Sample Type	Sample #	Moisture (%)	Dry Density(pcf)	Gradation			Atterberg		
							Gravel %	Sand %	Fines %	LL	PL	PI
0		Topsoil										
1		Light Brown/Tan Silty GRAVEL (GM) with sand, cobbles, slightly moist dense (estimated)										
2												
3												
4												
4				9	5		55	19	26			
5		grades with boulders										
5		END AT 5'										
6												
7												
8												
9												
10												
11												
12												
13												
14												

Remarks: Groundwater not encountered during excavation.

Coordinates: °, °

Surface Elev. (approx): Not Given

Equipment: Rubber Tire Backhoe

Excavated By: Blaine Hone

Logged By: Nate Pack

Figure:

7

Cedar Hills Townhomes

Southwest corner of Morgan Boulevard and Sage Vista Lane, Cedar Hills,
Utah

Key to Symbols

Date: 4/1/21

Job #: 16163

① Depth (ft)	② GRAPHIC LOG	③ Soil Description	④ Sample Type	⑤ Sample #	⑥ Moisture (%)	⑦ Dry Density(pcf)	⑧ Gradation	⑨ Atterberg																																																																												
							Gravel %	Sand %	Fines %	LL	PL	PI																																																																								
COLUMN DESCRIPTIONS																																																																																				
① Depth (ft.): Depth (feet) below the ground surface (including groundwater depth - see water symbol below). ② Graphic Log: Graphic depicting type of soil encountered (see ② below). ③ Soil Description: Description of soils encountered, including Unified Soil Classification Symbol (see below). ④ Sample Type: Type of soil sample collected at depth interval shown; sampler symbols are explained below-right. ⑤ Sample #: Consecutive numbering of soil samples collected during field exploration. ⑥ Moisture (%): Water content of soil sample measured in laboratory (percentage of dry weight of sample). ⑦ Dry Density (pcf): The dry density of a soil measured in laboratory (pounds per cubic foot). ⑧ Gradation: Percentages of Gravel, Sand and Fines (Silt/Clay), obtained from lab test results of soil passing the No. 4 and No. 200 sieves. ⑨ Atterberg: Individual descriptions of Atterberg Tests are as follows: LL = Liquid Limit (%): Water content at which a soil changes from plastic to liquid behavior. PL = Plastic Limit (%): Water content at which a soil changes from liquid to plastic behavior. PI = Plasticity Index (%): Range of water content at which a soil exhibits plastic properties (= Liquid Limit - Plastic Limit).																																																																																				
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SAMPLER SYMBOLS - Block Sample - Bulk/Bag Sample - Modified California Sampler 3.5" OD, 2.42" ID - D&M Sampler - Rock Core - Standard Penetration Split Spoon Sampler - Thin Wall (Shelby Tube) WATER SYMBOL - Encountered Water Level - Measured Water Level (see Remarks on Logs)																																																																																				
Note: Dual Symbols are used to indicate borderline soil classifications (i.e. GP-GM, SC-SM, etc.).																																																																																				

- The results of laboratory tests on the samples collected are shown on the logs at the respective sample depths.
- The subsurface conditions represented on the logs are for the locations specified. Caution should be exercised if interpolating between or extrapolating beyond the exploration locations.
- The information presented on each log is subject to the limitations, conclusions, and recommendations presented in this report.

Figure:

8



CITY OF CEDAR HILLS

TO:	Planning Commission
FROM:	Chandler Goodwin, City Manager
DATE:	10/26/2021

Planning Commission Agenda Item

SUBJECT:	Review/Action on the Concept Plan for the subdivision proposed by Jesse Mecham located in the H-1 Hillside Residential Zone
APPLICANT PRESENTATION:	Jesse Mecham
STAFF PRESENTATION:	Chandler Goodwin, City Manager
BACKGROUND AND FINDINGS: The parcel in question is approximately 24.5 acres, located just south of the Lakeshore Trails Subdivision. While the parcel is in the H-1 zone, it qualifies to be developed under the Planned Residential Development code, 10-6B. Under this section of code, density is granted based on a slope analysis, with lesser slopes granting a higher density. This portion of code also allows for the homes to be clustered in a manner that may preserve larger, contiguous areas of open space. Staff will be presenting the concept plan and how it complies with the provisions of City Code 10-6B.	
PREVIOUS LEGISLATIVE ACTION: N/A	
FISCAL IMPACT: N/A	
SUPPORTING DOCUMENTS: Mecham Subdivision concept plan	
RECOMMENDATION: To review the proposed concept plan and make any conditions necessary for approval	
MOTION: To approve/disapprove/table the concept plan for the Mecham Subdivision located in the H-1 Hillside Zone, subject to the following changes and recommendations {LIST ANY CHANGES}.	



CITY OF CEDAR HILLS

TO:	Planning Commission
FROM:	Chandler Goodwin, City Manager
DATE:	10/26/2021

Planning Commission Agenda Item

SUBJECT:	Review/Action on the concept plan for the Jens Monson Lane Subdivision located at 3963 Jens Monson Lane, in the R-1 15,000 Zone
APPLICANT PRESENTATION:	Bryan Fugal
STAFF PRESENTATION:	Chandler Goodwin, City Manager
BACKGROUND AND FINDINGS: The proposed development is a two-lot subdivision with an existing home. The lot is located on the corner of 3963 W Jens Monson Lane in the R-1 15,000 Zone and is just under one acre in size (approximately 40,000 square feet). Based on City Code, when a subdivision occurs, the developer is responsible for bringing the lot frontage into compliance with current City Code. This would require the installation of curb, gutter, sidewalk, and asphalt along the frontage of both Jens Monson Lane and 4000 W. The homeowner wishes to waive this requirement due to historical circumstances associated with the lane and the home; however, neither the home nor the lane are listed on the Utah Historical Registry. In order to meet subdivision requirements, the developer would need to provide a civil plan set that can be reviewed by the City Engineer and show compliance with Code.	
PREVIOUS LEGISLATIVE ACTION: N/A	
FISCAL IMPACT: N/A	
SUPPORTING DOCUMENTS: Fugal Subdivision	
RECOMMENDATION: To review the proposed concept plan and make any conditions necessary for approval	
MOTION: To approve/disapprove/table the concept plan for the Fugal Subdivision, located in the R-1 15,000 Zone, subject to the following changes and recommendations {LIST ANY CHANGES}.	

3970

N 900 W

W 9850 N

Jens Monson Lane

W 9850 N

W 985

W 9820 N

N 4000 W

N 5

New
Home

LOT 2

3963
Existing
Home

LOT 1