September 20, 2019

ENTECH
ENGINEERING, INC.

505 ELKTON DRIVE
COLORADO SPRINGS, CO 80907
PHONE (719) 531-5599
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Tech Contractors
3575 Kenyon Street, Ste 200
San Diego, California 92110

Attn: Raul Guzman

Re: Soil, Geology and Geologic Hazard Evaluation
Meridian Ranch – Rolling Hills Ranch, Filings 1 through 4
SE of Sunrise Ridge Drive and Rex Road
El Paso County, Colorado

Dear Mr. Guzman:

As requested, personnel of Entech Engineering, Inc. have investigated the above referenced site to evaluate the conditions with respect to geology and geologic hazards affecting development of the site. The subsurface soil conditions were investigated by Entech Engineering, Inc., Test Boring Logs (Appendix A) and Summary of Laboratory Testing Results are included with this report.

The project consists of single-family residential development on an approximate 250–acre site. The site lies in El Paso County, Colorado, approximately 4 miles north of Falcon, Colorado. The approximate location of the site is shown on the Vicinity Location Map, Figure 1.

The topography of the site is gently to moderately sloping rolling hills that generally slope in a southeasterly direction. Minor drainages exist on the site that trend in south-southeasterly directions. The drainages were dry at the time of this investigation. The site lies in portions of S½ of Section 20, and Northern portion of Section 29 Township 12 South, Range 64 West of the 6th Principal Meridian in El Paso County, Colorado. The site is currently vacant. The Site Plan/Proposed Grading is presented in Figure 3.

Forty-nine test borings were drilled on the site as a part of a Subsurface Soil Investigation dated July 15, 2019, (Reference 1). The Test Boring Logs are included in Appendix A. Laboratory Test Results are summarized in Table 1. Information from this report was used evaluating the site.

The scope of this report includes a geologic analysis/evaluation of the site utilizing published geologic data, available subsurface soils information and site-specific mapping of major geologic features, and identification of geologic hazards with respect to the development with recommended mitigation techniques. The Natural Resource Conservation Service (NRCS), previously the Soil Conservation Service (SCS) Survey was also reviewed to evaluate the site.

SOIL AND GEOLOGIC CONDITIONS

Soil Survey

The Natural Resource Conservation Service (NRCS) (Reference 2, Figure 3), previously the Soil Conservation Service (Reference 3) has mapped two soil types on the site. Complete descriptions of the soils are presented in Appendix B. In general, the soils consist of gravelly, sandy loam and sandy loam. The soils are described as follows:

Type	Description
19	Columbine gravelly sand loam, 0-3% slopes
83	Stapleton sandy loam, 3-8% slopes

Soils

The soils encountered in the test borings from Subsurface Soil Investigation consisted of slightly silty to silty sand, clayey sand, and clean sand overlying slightly silty to silty sandstone, clayey to very clayey sandstone with interbedded layers of sandy to very sandy claystone. The upper soils were encountered at medium dense to dense states and moist conditions. The upper sands have low expansion potential, however, the claystone and very clayey sandstone have moderate to high expansion potential.

Groundwater

Groundwater was encountered at depths ranging from 2 to 23 feet in thirty-eight of the test borings drilled on this site (Reference 1). Areas of potentially seasonal shallow and seasonal shallow groundwater have been mapped on the site and are discussed later in this report. Fluctuations in groundwater conditions may occur due to variations in rainfall or other factors not readily apparent at this time. Isolated sand layers within the soil profile can carry water in the subsurface. Contractors should be cognizant of the potential for the occurrence of subsurface water features during construction.

Geology

Approximately 16 miles west of the site is a major structural feature known as the Rampart Range Fault. This fault marks the boundary between the Great Plains Physiographic Province and the Southern Rocky Mountain Province. The site exists within a large structural feature known as the Denver Basin. Bedrock in the area is typically gently dipping in a northwesterly direction (Reference 4). The bedrock underlying the site consists of the Dawson Arkose Formation of Tertiary Age. The Dawson Formation typically consists of coarse-grained arkosic sandstone with interbedded layers of fine-grained sandstone, siltstone or claystone. Overlying the Dawson are deposits of alluvial, residual, and man-made soils.

The geology of the site was evaluated using the *Geologic Map of the Falcon Quadrangle,* by Morgan and White in 2012, (Reference 5, Figure 4). The geology of the site is indicated in Figure 5. Five mappable units were identified on this site which are described as follows:

Qaf **Artificial Fill of Quaternary Age:** These are man-made fill deposits associated with recent on-site grading and stockpiles.

Qal **Recent Alluvium of Quaternary Age:** These are recent stream deposits associated with the defined drainages on site. They generally consist of silty to clayey sands and may contain highly organic soil.

Qa_2 **Alluvium Two of Quaternary Age:** These are water deposited as stream terrace deposits that typically consist of silty to clayey sands and may contain clay layers. The Alluvium two correlates with the Piney Creek Alluvium.

Qa_3 **Alluvium Three of Quaternary Age:** These are water deposited as stream terrace deposits that typically consist of silty to clayey sands and may contain clay layers. The Alluvium Three correlates with the Broadway Alluvium.

Tda **Dawson Arkose Formation of Tertiary Age:** The Dawson Formation typically consists of arkosic sandstone with interbedded fine-grained sandstone, siltstone and claystone. Overlying this formation is a variable layer of residual soil. The residual soils were derived from the in-situ weathering of the bedrock materials on-site. These soils consisted of silty sands and may contain layers of sandy clays.

ENGINEERING GEOLOGIC HAZARDS

Mapping has been performed on this site to identify areas where various geologic conditions exist of which developers should be cognizant during the planning, design and construction stages should new construction be proposed. The engineering geologic hazards identified on this site include artificial fill, potentially seasonal shallow groundwater areas, and shallow groundwater areas (Figure 6). Areas of shallow bedrock will also be encountered on this site. These hazards and recommended mitigation techniques are discussed as follows:

Artificial Fill

An area of fill was mapped on the site in the northeastern portion associated with a dam, and in the north central portion that is associated with a large fill pile that is considered uncontrolled, and areas of fill may exist that are not mapped due to on-going site grading.

Mitigation: It is anticipated the uncontrolled fill piles will be removed during site grading. Any uncontrolled fill encountered beneath foundations should be removed and recompacted at a minimum of 95% of its maximum Modified Proctor Dry Density, ASTM D-1557.

Loose Soils

Loose soils were encountered in some of the borings drilled on site. Loose soils if encountered beneath the foundation or floor slabs will require mitigation.

Mitigation: Should loose soils be encountered beneath foundations or floor slabs, mitigation will be necessary. Overexcavation and recompaction at a minimum of 95% of its maximum Modified Proctor Dry Density, ASTM D-1557 is a suitable mitigation, which is common in the area. An overexcavation depth of 2 to 3 feet is anticipated for loose soils.

Expansive Soils

Expansive soils were encountered in some of the test borings drilled on-site. These occurrences are typically sporadic; therefore, none have been indicated on the maps. These clays and claystones, if encountered beneath foundations, can cause differential movement in the structure foundation. These occurrences should be identified and dealt with on an individual basis.

Mitigation: Should expansive soils be encountered beneath the foundation, mitigation will be necessary. Mitigation of expansive soils will require special foundation design. Overexcavation and replacement with non-expansive soils at a minimum of 95% of its maximum Modified Proctor Dry Density, ASTM D-1557 is a suitable mitigation, which is common in the area. Another alternative in areas of highly expansive soils is the use of drilled pier foundation systems. Typical minimum pier depths are on the order of 25 feet and requiring penetration into the bedrock material a minimum of 4 to 6 feet, depending upon building loads. Floor slabs on expansive soils should be expected to experience movement. Overexcavation and replacement has been successful in minimizing slab movements. The use of structural floors should be considered for basement construction on highly expansive clays. Final recommendations should be determined after additional investigation of each building site.

Potentially Seasonal Shallow and Seasonal Shallow Groundwater Area

Drainages are located along the western, northern and southeastern portions of the site. In these areas, the potential for periodically high subsurface moisture conditions and frost heave potential exists. In these areas, the potential exists for shallow groundwater during high moisture periods. The drainages will be avoided or regraded during site development, and the seasonal shallow groundwater area will be avoided by the proposed development.

Mitigation: Foundations must have a minimum 30-inch depth for frost protection. In areas where high subsurface moisture conditions are anticipated periodically, subsurface perimeter drains are recommended to help prevent the intrusion of water into areas below grade. It is anticipated much of these areas would be filled during site grading further raising foundations above the groundwater level. Any grading in these areas should be done to direct surface flow around construction to avoid areas of ponded water. All organic material would be completely removed prior to fill placement. Specific recommendations concerning the affects of groundwater on site

grading and construction are included in the Subsurface Soil Investigation (Reference 1). Further investigation will be necessary to determine the groundwater depth after final grading. The site does not lie within any floodplain zones according to the FEMA Map No. 08041CO552G, dated December 7, 2018 (Figure 7, Reference 6). Exact locations of floodplain and specific drainage studies are beyond the scope of this report. Finished floor levels must be located a minimum of one foot above floodplain levels.

RELEVANCE OF GEOLOGIC CONDITIONS TO LAND USE PLANNING

As mentioned, the proposed development will be single-family residential. The existing geologic and engineering geologic conditions will impose some constraints on development and construction. The geologic conditions on the site include artificial fill, expansive or loose soils, and potentially seasonal shallow groundwater areas which can be satisfactorily mitigated through proper engineering design and construction practices or regrading and avoidance.

The upper granular soils encountered in the borings drilled on the site were generally encountered at medium dense to very dense states. Loose or uncontrolled fill soils, if encountered in roads or beneath foundations, will require recompaction. Expansive layers may also be encountered in the soil on this site. Expansive soils, if encountered, will require special foundation design. These soils will not prohibit development.

An area of fill was mapped on the site in the northeastern portion that is associated with the road and pond embankment, and a large fill pile is located in the northern portion of the site. Other minor areas associated with small fill piles that are considered uncontrolled, and areas of fill may exist. It is anticipated the fill piles would be removed during site grading. Any uncontrolled fill encountered beneath foundations and floor slabs will require removal and recompaction at a minimum of 95% of its maximum Modified Proctor Dry Density, ASTM D-1557.

Areas of shallow bedrock will be encountered on this site. Shallow bedrock will likely be encountered in those areas mapped as Tda-Dawson Formation, or Soil Types 2 or 3 on Figure 2. Bedrock depths are indicated on Table 2 and in Figures 3 and 6. Difficult excavation should be anticipated in areas of shallow bedrock. Higher allowable bearing capacities will also be expected in areas of shallow bedrock.

Groundwater was encountered at 2 to 23 feet in the thirty-eight of the forty-nine test borings. Groundwater depths are indicated on Table 2. Areas of potentially seasonal shallow and seasonally shallow groundwater have been mapped on this site. (Figure 6). These areas can be avoided by construction or are being regraded. Specific recommendations concerning the effects of groundwater on site grading and construction are discussed in the Subsurface Soil Investigation (Reference 1). The site should not be affected by any delineated 100-year FEMA floodplains (Figure 7, Reference 6).

Tech Contractors
Soil, Geology and Geologic Hazard Evaluation
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SE of Sunrise Ridge Drive and Rex Road
El Paso County, Colorado

In summary, the site granular soils will likely provide suitable support for roads and shallow foundations. The geologic conditions encountered on site can be mitigated with proper engineering and construction practices. Specific recommendations have been made in the Subsurface Soil Investigation (Reference 1).

CLOSURE

It should be pointed out that because of the nature of data obtained by random sampling of such variable nonhomogeneous materials as soil and rock, it is important that we be informed of any differences observed between surface and subsurface conditions encountered in construction and those assumed in the body of this report. Construction and design personnel should be made familiar with the contents of this report. Specific site recommendations have been made in the Preliminary Subsurface Soil Investigation (Reference 1). Specific construction and foundation recommendations will be provided when investigations are completed for new construction after overlot grading.

This report has been prepared for Tech Contractors for application to the proposed development in accordance with generally accepted geologic, soil and engineering practices. No other warranty expresses or implied is made.

We trust that this report has provided you with all the information that you required. Should you have any questions or require additional information, please do not hesitate to contact us.

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Logan L. Langford, P. G.
Engineering Geologist

LLL/hg

Encl.Entech Job No. 190300
AAprojects/2019/190300 sg&ghs

Reviewed by:

Joseph C. Goodwin, P.E.
President

COLORADO LICENSED
JOSEPH COLLIN GOODWIN
23725
9.20.19
PROFESSIONAL ENGINEER

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2. Natural Resources Conservation Service. September 23, 2016. *Web Soil Survey.* United States Department of Agriculture. http:/websoilsurvey.sc.egov..usda.gov.

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4. Scott, Glenn R.; Taylor, Richard B.; Epis, Rudy C. and Wobus, Reinhard A. 1978. *Geologic Structure Map of the Pueblo 1° x 2° Quadrangle, South-Central Colorado.* Sheet 2. US Geological Survey. Map I-1022.

5. Morgan, Matthew L. and White, Jonathan L. 2012. *Falcon Quadrangle Geologic Map, El Paso County, Colorado. Colorado Geological Survey.* Open-File Report 12-05.

6. Federal Emergency Management Agency. December 7, 2018. *Flood Insurance Rate Maps for the City of Colorado Springs, Colorado.* Map Number 08041CO552G.

FIGURES

TABLE 1

SUMMARY OF LABORATORY TEST RESULTS

CLIENT TECH CONTRACTORS
PROJECT ROLLING HILLS
JOB NO. 190300

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	SULFATE (WT %)	AASHTO CLASS.	FHA SWELL (PSF)	SWELL/ CONSOL (%)	UNIFIED CLASS.	SOIL DESCRIPTION
1	6	2-3			8.1	NV	NP	<0.01	A-1-b			SM-SW	SAND, SLIGHTLY SILTY
1	8	5			6.1							SM-SW	SAND, SLIGHTLY SILTY
1	10	5			14.0	29	16	0.01	A-2-6			SC	SAND, CLAYEY
1	11	2-3			15.2					370		SM	SAND, SILTY
1	2	2-3			8.4							SM-SW	SAND, SLIGHTLY SILTY
1	23	2-3			17.0	NV	NP	0.00	A-1-b			SM	SAND, SILTY
1	24	2-3			18.0							SM	SAND, SILTY
1	32	10			15.6							SM	SAND SILTY
1	27	5			48.3					460		SC	SAND, VERY CLAYEY
1	1	2-3			4.7	NV	NP		A-1-b			SW	SAND
1	5	2-3			13.3	26	10		A-2-4			SC	SAND, CLAYEY
1	13	2-3			4.8							SW	SAND
1	14	5			13.2	NV	NP		A-1-b			SM	SAND, SILTY
1	16	5			5.9					70		SM-SW	SAND, SLIGHTLY SILTY
1	19	2-3	10.0	112.9	34.7						-1.2	SM	SAND, SILTY
1	26	5			11.5	NV	NP		A-1-b			SM-SW	SAND, SLIGHTLY SILTY
1	28	2-3			4.9	NV	NP		A-1-b			SW	SAND
1	30	2			12.1							SC	SAND, CLAYEY
1	30	3								2970		CL	CLAY, SANDY
1	30	5			6.9							SM-SW	SAND, SLIGHTLY SILTY
1	31	5			5.4							SM-SW	SAND, SLIGHTLY SILTY
1	38	2-3			8.6	NV	NP		A-1-b			SM-SW	SAND, SLIGHTLY SILTY
1	39	5			17.8							SM	SAND, SILTY
1	42	5			19.6							SM	SAND, SILTY
1	43	2-3			6.0	NV	NP		A-1-b			SM-SW	SAND, SLIGHTLY SILTY
1	47	2-3			20.7					220		SM	SAND, SILTY
1	49	5			7.3							SM-SW	SAND, SLIGHTLY SILTY
2	7	10			18.6	32	14		A-2-6			SC	SANDSTONE, CLAYEY
2	17	10			7.3	NV	NP		A-1-b			SM-SW	SANDSTONE, SLIGHTLY SILTY
2	18	5			14.2							SM	SANDSTONE, SILTY
2	20	5			17.1	37	20		A-2-6			SC	SANDSTONE, CLAYEY
2	21	10			12.5							SM	SANDSTONE, SILTY
2	41	10			16.0							SM	SANDSTONE, SILTY
2	44	10			14.3							SM	SANDSTONE, SILTY
2	6	20			38.9	26	13	<0.01	A-6			SC	SANDSTONE, VERY CLAYEY
2	9	15			17.5	NV	NP	<0.01	A-1-b			SM	SANDSTONE, SILTY

TABLE 1 (cont.)

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	SULFATE (WT %)	AASHTO CLASS.	FHA SWELL (PSF)	SWELL/ CONSOL (%)	UNIFIED CLASS.	SOIL DESCRIPTION
2	12	10			15.5							SM	SANDSTONE, SILTY
2	3	5			26.1							SM	SANDSTONE, SILTY
2	37	5	11.4	116.5	35.4			0.00			-0.4	SC	SANDSTONE, CLAYEY
2	40	10			12.3	NV	NP	<0.01	A-1-b			SM	SANDSTONE, SILTY
2	25	15			28.7	NV	NP		A-2-4			SM	SANDSTONE, SILTY
2	23	10			11.6							SM-SW	SANDSTONE, SLIGHTLY SILTY
2	35	5			10.1							SM-SW	SANDSTONE, SLIGHTLY SILTY
2	27	10			16.2							SM	SANDSTONE, SILTY
2	1	15			15.5							SM	SANDSTONE, SILTY
2	4	20	9.3	110.3	20.3	29	12		A-2-6		-1.9	SC	SANDSTONE, CLAYEY
2	5	25			48.5	31	14		A-6			SC	SANDSTONE, VERY CLAYEY
2	14	20			17.8							SM	SANDSTONE, SILTY
2	15	15			19.9							SC	SANDSTONE, CLAYEY
2	20	20	7.4	84.0	49.7	28	14		A-6		3.2	SC	SANDSTONE, VERY CLAYEY
2	21	25			21.2							SM	SANDSTONE, SILTY
2	28	15			28.3	41	17		A-2-6			SC	SANDSTONE, CLAYEY
2	29	10	4.5	119.9	49.6						-0.4	SC	SANDSTONE, VERY CLAYEY
2	39	15			41.1							SC	SANDSTONE, VERY CLAYEY
2	45	20			13.4							SM	SANDSTONE, SILTY
2	46	15			45.5							SC	SANDSTONE, VERY CLAYEY
3	19	5			65.1							CL	CLAYSTONE, SANDY
3	15	10	7.2	126.8	56.1						1.0	CL	CLAYSTONE, VERY SANDY
3	16	20	9.5	120.5	58.8						0.0	CL	CLAYSTONE, VERY SANDY
3	22	10	12.7	99.3	54.2	34	15		A-6			CL	CLAYSTONE, VERY SANDY
3	38	15			59.6	34	17		A-6			CL	CLAYSTONE, VERY SANDY
3	48	20	12.5	103.3	51.1						-0.7	CL	CLAYSTONE, VERY SANDY
3	36	15			59.7							CL	CLAYSTONE, VERY SANDY
3	24	5			63.6					90		CL	CLAYSTONE, SANDY
3	34	10	11.5	114.3	56.0						0.7	CL	CLAYSTONE, VERY SANDY
3	33	10	16.5	115.0	80.8	42	20		A-7-6		2.5	CL	CLAYSTONE, SANDY

Table 2: Summary of Test Borings and Water Measurements*

Test Boring No.	Depth of Boring (ft.)	Depth to Bedrock (ft.)	Depth to Groundwater (ft.)	Cut & Fill** (-/+, ft.)	Estimated Ground Elevation	Estimated Groundwater Elevation
1	20.0	9.0	9.0	0 to -2	7021.3	7012.3
2	25.0	9.0	13.0	-2 to -4	7031.5	7018.5
3	25.0	1.0	15.0	-2 to -4	7032.3	7017.3
4	20.0	1.0	dry	-2 to -4	7044.0	dry
5	25.0	4.0	14.0	-2 to -4	7044.8	7030.8
6	25.0	14.0	10.0	0 to +2	7054.7	7044.7
7	20.0	1.0	16.5	+2 to +4	7058.6	7042.6
8	20.0	9.0	13.0	0 to -2	7060.1	7047.1
9	20.0	14.0	10.0	+4 to +6	7069.7	7059.7
10	20.0	14.0	14.0	0 to -2	7077.5	7063.5
11	20.0	9.0	9.0	0 to +2	7071.6	7062.6
12	20.0	9.0	14.0	0 to -2	7087.3	7073.3
13	20.0	9.0	14.0	0 to -2	7092.0	7078.0
14	25.0	14.0	18.5	-6 to -8	7105.3	7086.8
15	20.0	9.0	18.0	0 to -2	7108.4	7090.4
16	25.0	9.0	16.0	0 to -2	7110.9	7094.9
17	20.0	1.0	17.5	0 to -2	7121.7	7104.2
18	20.0	4.0	dry	0 to +2	7120.7	dry
19	20.0	4.0	dry	+2 to +4	7126.5	dry
20	20.0	1.0	dry	outside cut/fill	7125.4	dry
21	25.0	1.0	10.0	-6 to -8	7105.7	7095.7
22	20.0	4.0	18.5	-6 to -8	7106.0	7087.5
23	20.0	9.0	dry	+2 to +4	7092.3	dry
24	25.0	4.0	2.0	0 to +2	7072.9	7070.9

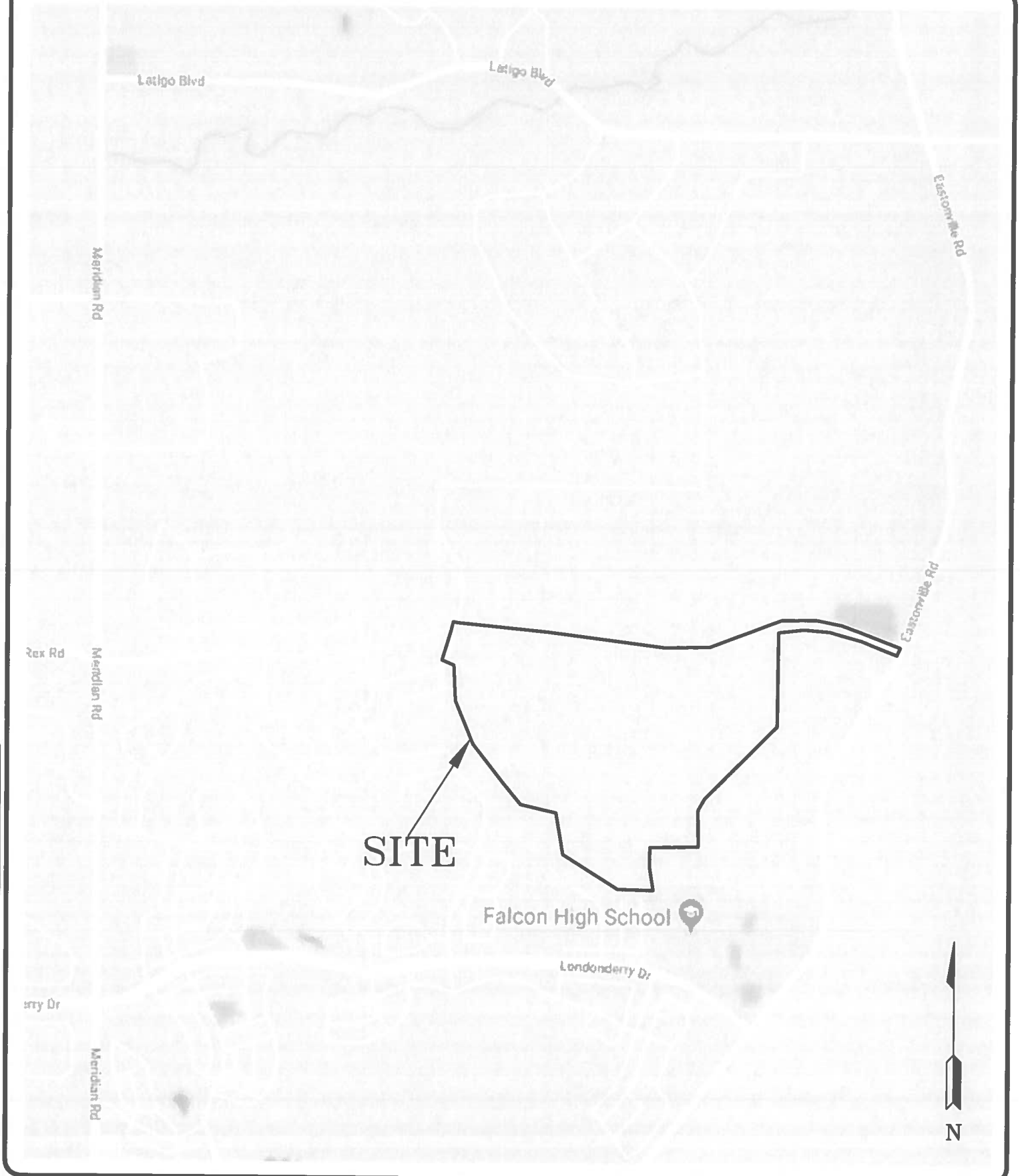
Table 2: (Continued)

Test Boring No.	Depth of Boring (ft.)	Depth to Bedrock (ft.)	Depth to Groundwater (ft.)	Cut & Fill** (-/+, ft.)	Est. Ground Elevation	Estimated Groundwater Elevation
25	20.0	1.0	12.0	0 to +2	7068.8	7056.8
26	20.0	1.0	17.0	-6 to -8	7049.2	7032.2
27	20.0	9.0	8.0	0 to +2	7071.2	7063.2
28	20.0	9.0	13.5	0 to -2	7082.9	7069.4
29	25.0	4.0	12.0	outside cut/fill	7084.4	7072.4
30	20.0	10.0	8.0	0 to +2	7066.7	7058.7
31	20.0	14.0	dry	0 to -2	7057.5	dry
32	25.0	14.0	13.0	0 to -2	7045.4	7032.4
33	25.0	9.0	7.0	0 to -2	7052.7	7045.7
34	20.0	1.0	9.0	+2 to +4	7042.0	7033.0
35	20.0	3.0	dry	0 to -2	7065.4	dry
36	25.0	1.0	23.0	-6 to -8	7049.4	7026.4
37	20.0	1.0	dry	-2 to -4	7038.8	dry
38	25.0	12.0	10.0	-6 to -8	7032.4	7022.4
39	20.0	9.0	4.0	-6 to -8	7032.5	7028.5
40	20.0	9.0	10.0	+12 to +14	7032.1	7022.1
41	20.0	1.0	17.0	outside cut/fill	7039.1	7022.1
42	25.0	9.0	14.0	outside cut/fill	7046.0	7032.0
43	25.0	4.0	19.0	outside cut/fill	7049.0	7030.0
44	20.0	1.0	dry	outside cut/fill	7064.0	dry
45	25.0	4.0	11.0	outside cut/fill	7072.1	7061.1
46	25.0	4.0	22.0	outside cut/fill	7065.0	7043.0
47	20.0	1.0	dry	outside cut/fill	7058.7	dry
48	20.0	1.0	dry	outside cut/fill	7047.6	dry
49	25.0	14.0	12.0	outside cut/fill	7029.5	7017.5

* - Measurement taken subsequent to drilling

** - Cut and Fill estimates based on map provided by the client

TABLES



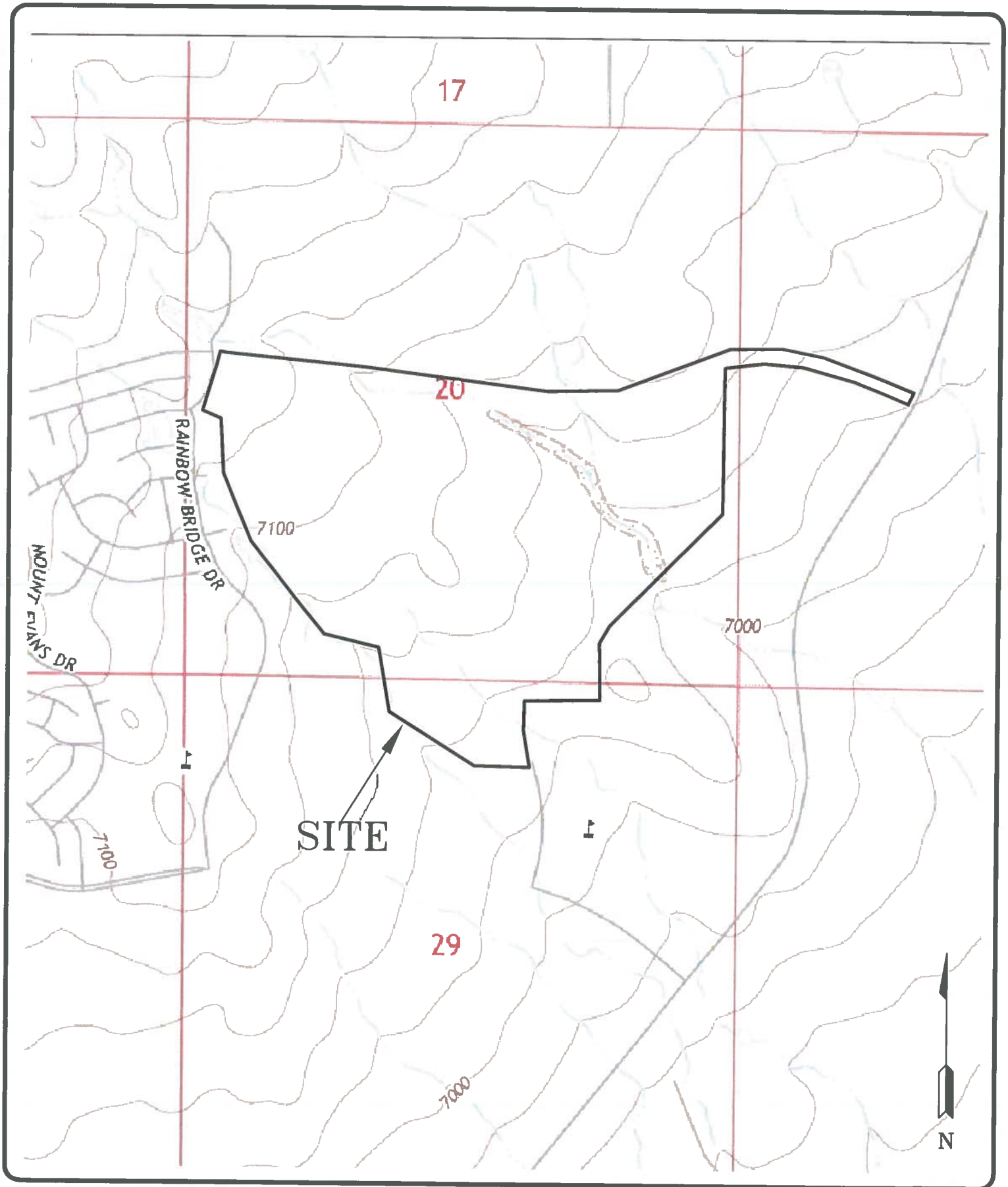
ENTECH ENGINEERING, INC.
505 ELKTON DRIVE
COLORADO SPRINGS, CO. 80907 (719) 531-5599

VICINITY MAP
MERIDIAN RANCH – ROLLING HILLS RANCH FILINGS 1 – 4
EL PASO COUNTY, CO.
FOR: TECH CONTRACTORS

DRAWN:	DATE:	CHECKED:	DATE:
LLL	9/18/19		

JOB NO.: 190300

FIG NO.: 1



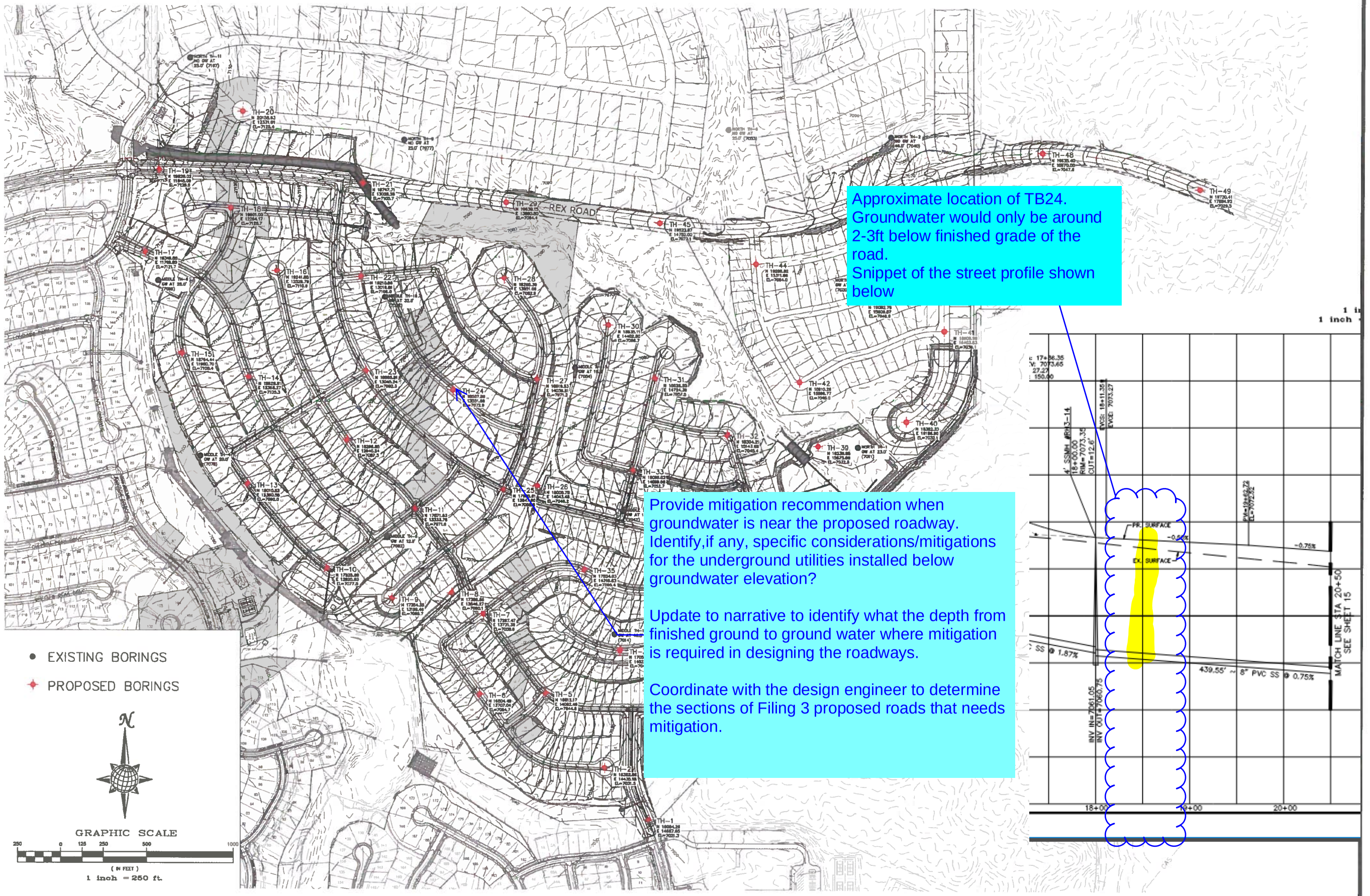
ENTECH ENGINEERING, INC.
505 ELKTON DRIVE
COLORADO SPRINGS, CO. 80907 (719) 531-5599

USGS MAP
MERIDIAN RANCH – ROLLING HILLS RANCH
FILINGS 1 – 4
EL PASO COUNTY, CO.
FOR: TECH CONTRACTORS

DRAWN:	DATE:	CHECKED:	DATE:
LLL	9/18/19		

JOB NO.: 190300

FIG NO.: 2



Approximate location of TB24. Groundwater would only be around 2-3ft below finished grade of the road.
Snippet of the street profile shown below

Provide mitigation recommendation when groundwater is near the proposed roadway. Identify,if any, specific considerations/mitigations for the underground utilities installed below groundwater elevation?

Update to narrative to identify what the depth from finished ground to ground water where mitigation is required in designing the roadways.

Coordinate with the design engineer to determine the sections of Filing 3 proposed roads that needs mitigation.

REVISION	BY

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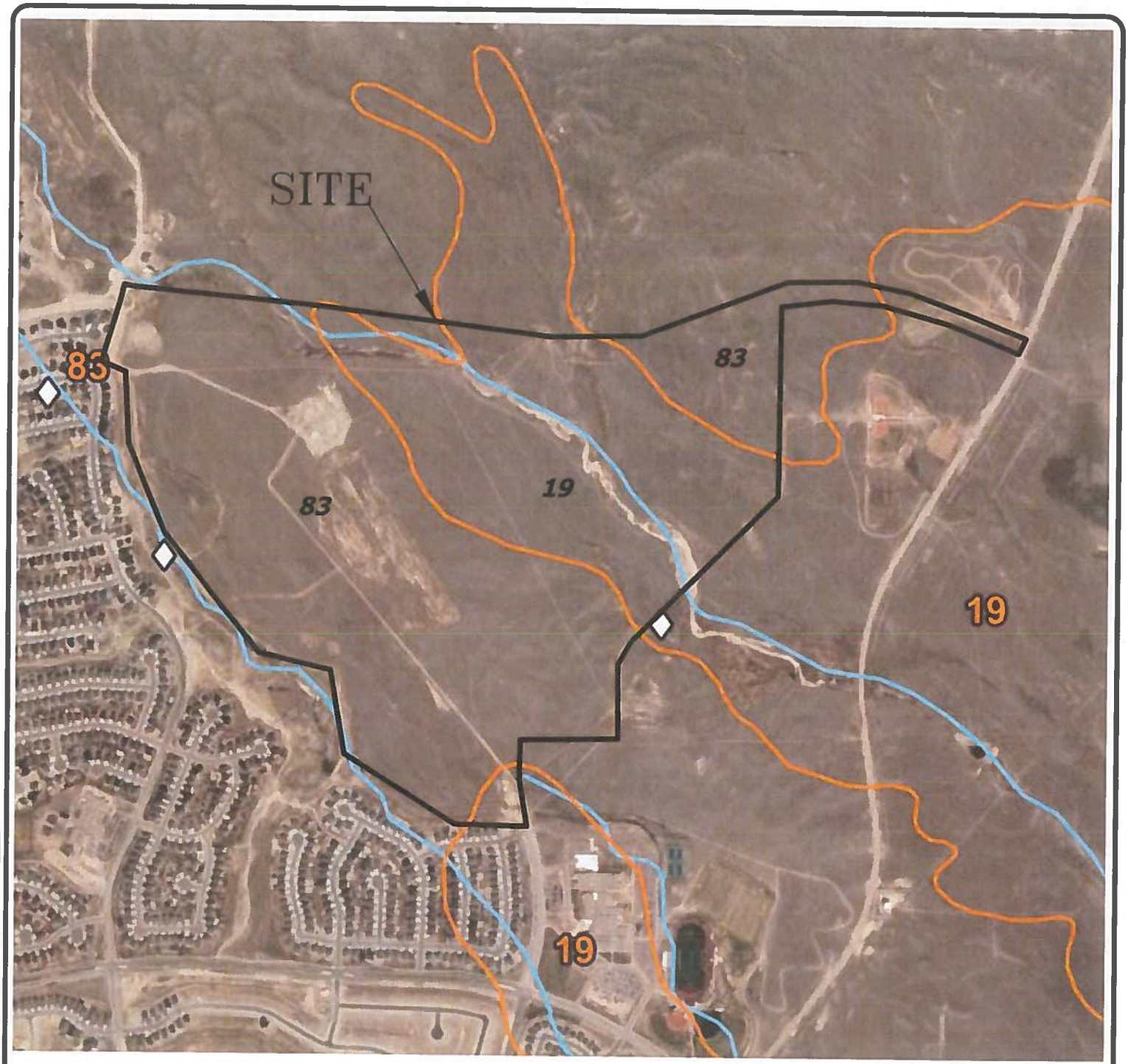
COLORADO SPRINGS, CO. 80907

SITE PLAN/PROPOSED GRADING
MERIDIAN RANCH – ROLLING HILLS RANCH
FILINGS 1 – 4
EL PASO COUNTY, CO.
FOR: TECH CONTRACTORS

DRAWN	LLL
CHECKED	
DATE	9/16/19
SCALE	AS SHOWN
JOB NO.	190300
FIGURE No.	3



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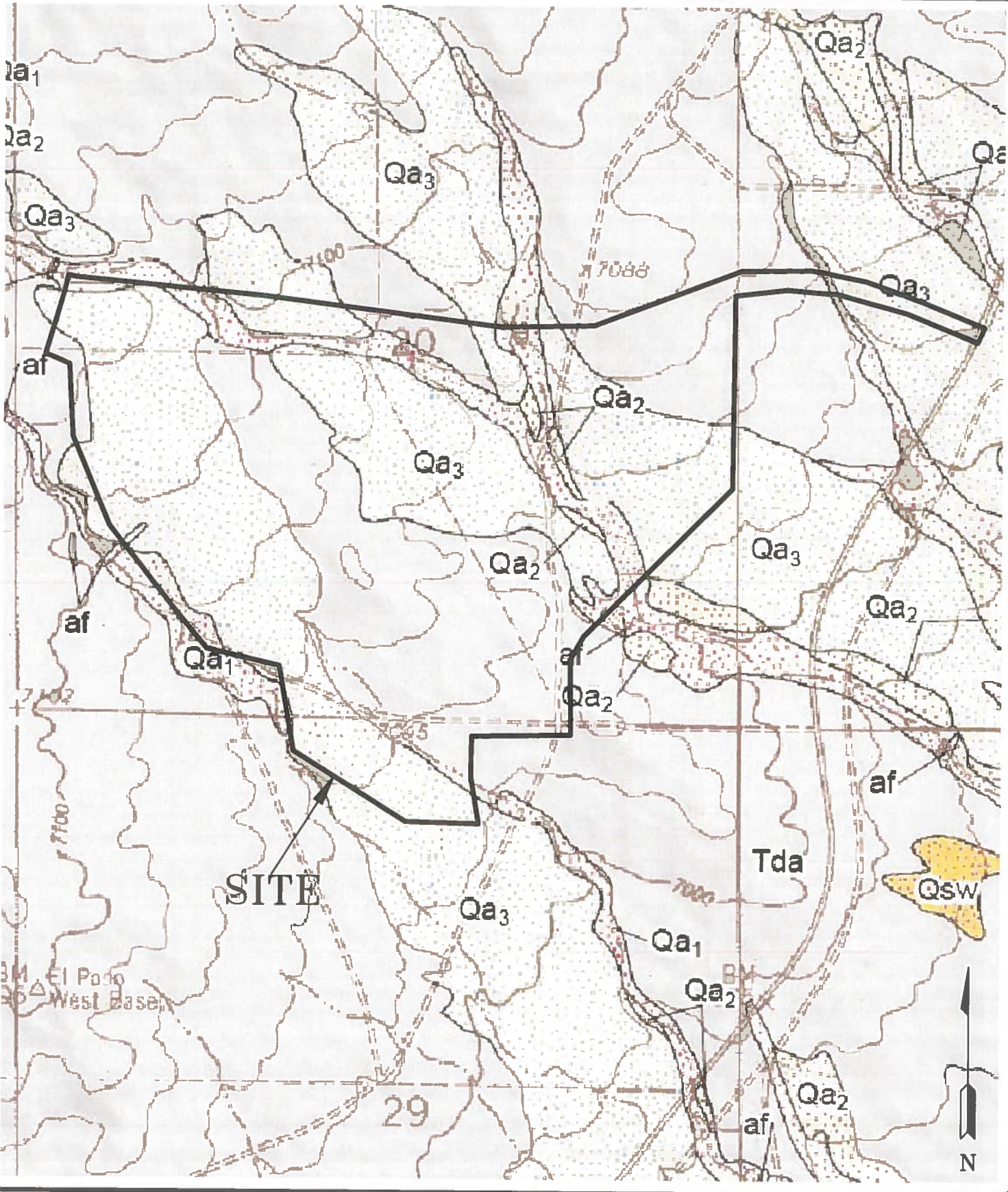
SOIL SURVEY MAP
MERIDIAN RANCH – ROLLING HILLS RANCH
FILINGS 1 – 4
EL PASO COUNTY, CO.
FOR: TECH CONTRACTORS

DRAWN:	DATE:	CHECKED:	DATE:
LLL	9/18/19		

JOB NO.: 190300

FIG NO.: 4



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FALCON QUADRANGLE GEOLOGIC MAP
MERIDIAN RANCH – ROLLING HILLS RANCH FILINGS 1 – 4
EL PASO COUNTY, CO.
FOR: TECH CONTRACTORS

DRAWN:	DATE:	CHECKED:	DATE:
LLL	9/18/19		

JOB NO.: 190300

FIG NO.: 5

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ENGINEERING GEOLOGY MAP
MERIDIAN RANCH – ROLLING HILLS RANCH
FILINGS 1 – 4
EL PASO COUNTY, CO.
FOR: TECH CONTRACTORS

REX ROAD
LONGVIEW PARK LANE
CULEBRA PEAK DRIVE
WHEELER PEAK DRIVE
RAINBOW BRIDGE

Qaf
Qal,sw
Qal, psw
Qa 2
Qa 3
Tda

TH-1 TH-2 TH-3 TH-4 TH-5 TH-6 TH-7 TH-8 TH-9 TH-10 TH-11 TH-12 TH-13 TH-14 TH-15 TH-16 TH-17 TH-18 TH-19 TH-20 TH-21 TH-22 TH-23 TH-24 TH-25 TH-26 TH-27 TH-28 TH-29 TH-30 TH-31 TH-32 TH-33 TH-34 TH-35 TH-36 TH-37 TH-38 TH-39 TH-40 TH-41 TH-42 TH-43 TH-44 TH-45 TH-46 TH-47 TH-48

- EXISTING BORINGS
- PROPOSED BORINGS

N

GRAPHIC SCALE

250 0 125 250 500 1000
(IN FEET)
1 inch = 250 ft.

LEGEND:

Qaf- Artificial Fill of Holocene Age:
man-made fill deposits

Qal- Recent Alluvium of Holocene Age:
recent water deposited materials

Qa_2- Alluvium Two of early Holocene Age:
stream terrace deposited sands (Piney Creek Alluvium)

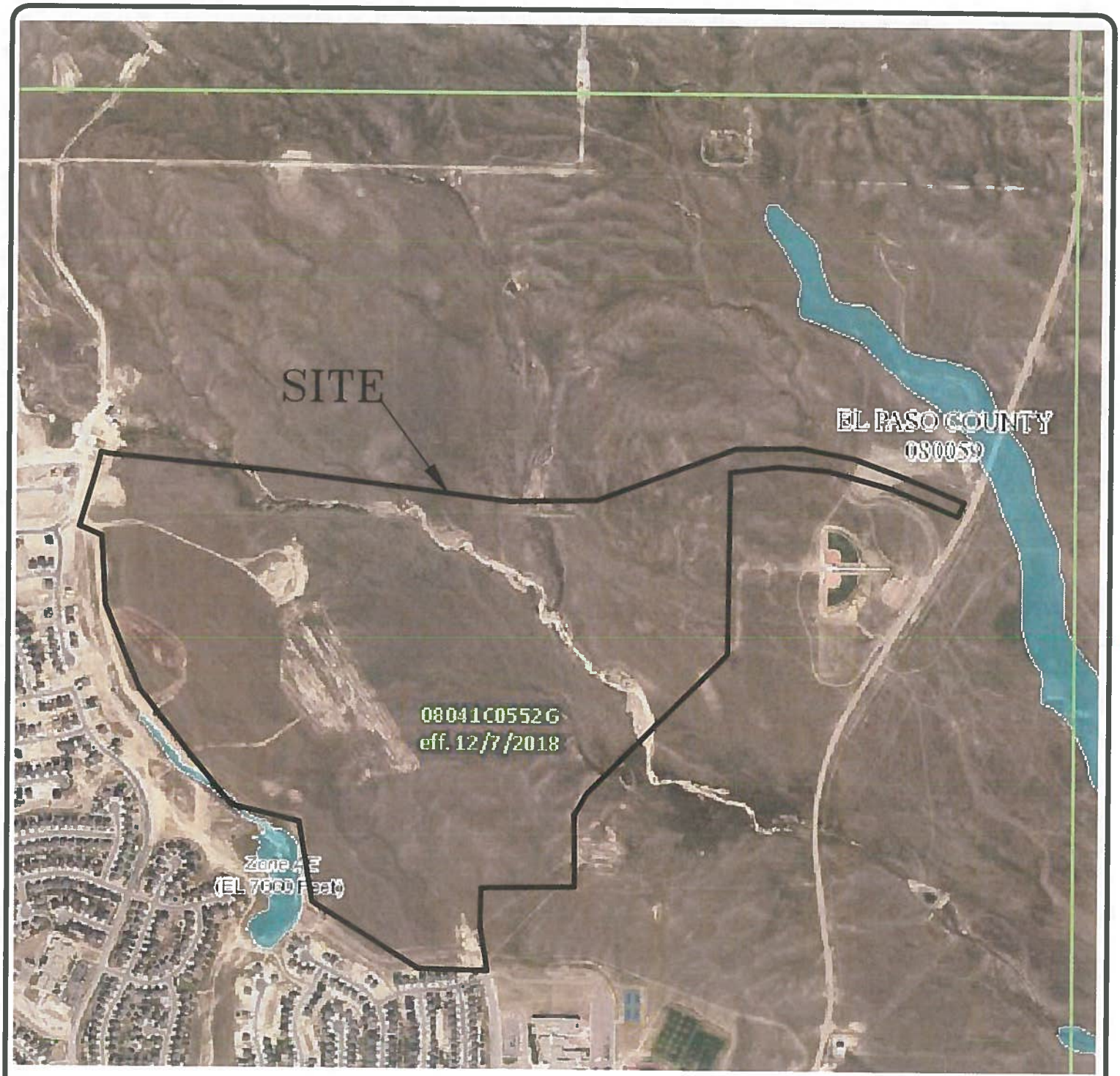
Qa_3- Alluvium Three of Pleistocene Age:
stream terrace deposited sands (Broadway Alluvium)

Tda- Dawson Arkose of Tertiary Age:
arkosic sandstone with siltstone and claystone lenses

psw- potential seasonal shallow groundwater area
sw- seasonal shallow groundwater area

TB-1 Approximate Test Boring Location (Depth to Bedrock)

DRAWN	LLL
CHECKED	
DATE	9/18/19
SCALE	AS SHOWN
JOB NO.	190300
FIGURE No.	6



N

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FEMA FLOODPLAIN MAP
MERIDIAN RANCH – ROLLING HILLS RANCH FILINGS 1 – 4
EL PASO COUNTY, CO.
FOR: TECH CONTRACTORS

DRAWN:	DATE:	CHECKED:	DATE:
LLL	9/18/19		

JOB NO.: 190300

FIG NO.: 7

APPENDIX A: Test Boring Logs

TEST BORING NO. 1
DATE DRILLED 6/19/2019
Job # 190300

REMARKS

WATER @ 9', 6/19/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			14	8.3	1	3" TOPSOIL SAND, CLEAN TO SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST
5			23	7.0	1	
10			50/9"	12.4	2	SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST TO WET
15			50/10"	11.9	2	
20			50/7"	12.7	2	

TEST BORING NO. 2
DATE DRILLED 3/11/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

WATER @ 13', 3/11/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			22	12.5	1	SAND, GRAVELLY, SLIGHTLY SILTY, FINE TO COARSE GRAINED, BROWN, MEDIUM DENSE, MOIST
5			28	9.3	1	
10			50/10"	7.8	2	SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN TO GRAY BROWN, VERY DENSE, MOIST TO WET
15			50/9"	14.6	2	
20			50/9"	11.9	3	CLAYSTONE, SANDY, GRAY BROWN, HARD, MOIST
25			50/6"	12.4	3	

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE:
			7/11/19

JOB NO.: 190300
FIG NO.: A- 1

TEST BORING NO. 3
DATE DRILLED 3/11/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 15', 3/11/19						
SAND, SILTY, TAN						1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST				50/11"	4.4	2
	5			50/8"	7.3	2
SANDSTONE, CLAYEY, FINE TO MEDIUM GRAINED, GRAY BROWN, VERY DENSE, MOIST TO WET	10			50/4"	11.4	2
	15			50/6"	11.6	2
	20			50/8"	30.4	2
	25			50/3"	24.1	2

TEST BORING NO. 4
DATE DRILLED 6/7/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 20', 6/7/19						
6" TOPSOIL, SAND, SILTY, TAN						1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST				50/7"	7.8	2
	5			50/7"	5.7	2
FINE GRAINED LENSES	10			50/6"	8.7	2
CLAYSTONE, SANDY, TAN, HARD, MOIST	15			50/9"	17.0	3
SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST	20			50/5"	8.4	2

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TEST BORING LOG

DRAWN.	DATE:	CHECKED:	DATE:
		h	7/1/19

JOB NO. 190300
FIG NO. A- 2

TEST BORING NO. 5
DATE DRILLED 5/29/2019
Job # 190300

REMARKS

WATER @ 14', 5/29/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			14	9.6	1
5			40	5.4	2
10			50 6"	9.3	2
15			50 5"	6.5	2
20			50 4"	13.8	3
25			50 7"	14.6	2

3" TOPSOIL SAND, CLAYEY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST

SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, DENSE TO MEDIUM DENSE, MOIST

CLAYSTONE, SANDY, GRAY BROWN, HARD, MOIST

SANDSTONE, VERY CLAYEY, FINE GRAINED, GRAY BROWN, VERY DENSE, MOIST

TEST BORING NO. 6
DATE DRILLED 3/7/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

WATER @ 10', 3/7/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			28	2.4	1
5			21	4.2	1
10			9	15.7	1
15			48	13.3	2
20			50 10"	11.7	2
25			45	15.4	2

6" TOPSOIL, SAND, SLIGHTLY SILTY, FINE TO COARSE GRAINED BROWN TO TAN, MEDIUM DENSE TO LOOSE, MOIST TO WET

WEATHERED TO FORMATIONAL SANDSTONE, CLAYEY TO VERY CLAYEY, FINE TO COARSE GRAINED, GRAY BROWN, DENSE TO VERY DENSE, MOIST

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TEST BORING LOG

DRAWN:	DATE:	CHECKED: L	DATE: 7/11/19

JOB NO. 190300
FIG NO A- 3

TEST BORING NO. 7
DATE DRILLED 5/29/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 16.5', 5/29/19						
6" TOPSOIL, SAND, SILTY, TAN						1
WEATHERED SANDSTONE, SILTY, FINE TO COARSE GRAINED, DENES, MOIST				46	4.8	2
	5			45	9.0	2
SANDSTONE, CLAYEY TO SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST TO WET	10			50/6"	8.1	2
FINE GRAINED LENSES	15			50/3"	10.7	2
	20			50/6"	11.1	2

TEST BORING NO. 8
DATE DRILLED 3/7/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 13', 3/7/19						
6" TOPSOIL, SAND, SLIGHTLY SILTY, FINE TO COARSE GRAINED, BROWN, MEDIUM DENSE, MOIST				23	4.1	1
	5			11	6.0	1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST TO WET	10			50/9"	8.5	2
	15			50/7"	17.8	2
	20			50/6"	16.6	2

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TEST BORING LOG

DRAWN:	DATE	CHECKED	DATE:
		L	7/1/19

JOB NO.: 190300
FIG NO.: A- 4

TEST BORING NO. 9
DATE DRILLED 3/7/2019
Job # 190300

REMARKS

WATER @ 10', 3/7/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			16	2.7	1	6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, BROWN, MEDIUM DENSE, DRY TO MOIST
5			11	6.6	1	
10			5	18.0	1	SAND, CLAYEY, FINE TO COARSE GRAINED, GRAY BROWN, LOOSE, WET
15			50/7"	8.7	2	SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST
20			50/6"	10.9	2	

TEST BORING NO. 10
DATE DRILLED 3/7/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

WATER @ 14', 3/7/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			26	6.2	1	6" TOPSOIL, SAND, SILTY TO CLAYEY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST
5			19	7.8	1	
10			27	12.4	1	
15			50/10"	12.5	2	SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, BRPOWN, VERY DENSE TO DENSE, WET
20			45	13.8	2	WEATHERED ZONE

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE: 7/1/19

JOB NO 190300
FIG NO A- 5

TEST BORING NO. 11
DATE DRILLED 3/7/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 9', 3/7/19						
SAND, SILTY, FINE TO COARSE GRAINED, TAN, LOOSE TO MEDIUM DENSE, VERY MOIST				7	21.3	1
	5			16	15.1	1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, WET	10			50 11"	17.5	2
	15			50 8"	12.6	2
	20			50 7"	12.7	2

TEST BORING NO. 12
DATE DRILLED 3/7/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 14', 3/7/19						
6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, BROWN, LOOSE TO MEDIUM DENSE, MOIST				6	3.6	1
	5			23	8.6	1
WEATHERED TO FORMATIONAL SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, DENSE TO VERY DENSE, MOIST TO WET	10			36	11.3	2
CLAYEY LENSES	15			50 11"	20.2	2
	20			50 7"	12.8	2

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE
			7/17/19

JOB NO. 190300
FIG NO. A- 6

TEST BORING NO. 13
DATE DRILLED 5/29/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 14', 5/29/19						
6" TOPSOIL, SAND, CLEAN TO SILTY, FINE TO COARSE GRAINED, TAN, LOOSE TO MEDIUM DENSE, MOIST				11	1.4	1
	5			14	6.3	1
WEATHERED TO FORMATIONAL SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, DENSE TO VERY DENSE, MOIST TO WET	10			45	8.4	2
	15			48	8.9	2
	20			50/5"	11.5	2

TEST BORING NO. 14
DATE DRILLED 5/29/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 18.5', 5/29/19						
6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, TAN, LOOSE TO MEDIUM DENSE, DRY TO MOIST				13	1.8	1
	5			7	2.3	1
FINE GRAINED LENSES	10			24	9.1	1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST TO WET	15			50/11"	6.7	2
	20			50/11"	10.6	2
	25			50/9"	12.6	2

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE:
			7/17/19

JOB NO.: 190300
FIG NO.: A- 7

TEST BORING NO. 15
DATE DRILLED 5/29/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 18', 5/29/19						
6" TOPSOIL SAND, SILTY, TAN						1
WEATHERED SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, DENSE, MOIST				43	3.2	2
	5			34	9.9	2
CLAYSTONE, VERY SANDY, GRAY BROWN, HARD, MOIST	10			50 7"	11.4	3
SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST	15			50 4"	11.0	2
	20			50 11"	14.2	2

TEST BORING NO. 16
DATE DRILLED 5/29/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 16', 5/29/19						
6" TOPSOIL, SAND, SLIGHTLY SILTY, FINE TO COARSE GRASINED, TAN, MEDIUM DENSE, DRY				11	1.2	1
	5			21	1.8	1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST	10			50 9"	7.0	2
	15			50 6"	8.3	2
CLAYSTONE, VERY SANDY, BROWN, HARD, MOIST	20			50	15.0	3
	25			B	8.9	3

B - BOUNCE

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE:
			7/1/19

JOB NO.: 190300
FIG NO.: A- 8

TEST BORING NO. 17
DATE DRILLED 5/29/2019
Job # 190300

REMARKS

WATER @ 17.5', 5/29/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			50 / 10"	1.7	2
5			50 / 8"	1.8	2
10			50 / 6"	6.9	2
15			50 / 7"	8.0	2
20			50 / 6"	10.1	2

6" TOPSOIL, SAND, SILTY, TAN
SANDSTONE, SILTY, FINE TO
COARSE GRAINED, TAN,
VERY DENSE, DRY TO MOIST

TEST BORING NO. 18
DATE DRILLED 6/7/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

DRY TO 20', 6/7/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			12	2.7	1
5			42	5.0	2
10			50 / 6"	8.9	2
15			50 / 7"	4.9	2
20			50 / 6"	7.0	2

6" TOPSOIL, SAND, SILTY,
FINE TO COARSE GRAINED,
BROWN, MEDIUM DENSE, DRY

WEATHERED TO FORMATIONAL
SANDSTONE, SILTY, FINE TO
COARSE GRAINED, TAN,
DENSE TO VERY DENSE, MOIST

FINE GRAINED LENSES

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COLORADO SPRINGS, COLORADO 80907

TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE: 7/1/19

JOB NO.: 190300
FIG NO.: A- 9

TEST BORING NO. 19
DATE DRILLED 6/7/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 20', 6/7/19						
6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, GRAY BROWN, MEDIUM DENSE, MOIST				21	7.8	1
CLAYSTONE, SANDY, GRAY BROWN, HARD, MOIST	5			50/9"	10.9	3
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST	10			50/8"	7.8	2
	15			50/8"	5.7	2
	20			50/6"	8.9	2

TEST BORING NO. 20
DATE DRILLED 5/30/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 20', 5/30/19 CAVED TO 19', 6/6/19, DRY						
6" TOPSOIL, SAND, SILTY, TAN						1
SANDSTONE, SILTY TO CLAYEY, FINE TO COARSE GRAINED, TAN, VERY DENSE, DRY TO MOIST				50/10"	4.8	2
	5			50/9"	8.6	2
	10			50/9"	6.5	2
CLAYSTONE, SANDY, GRAY BROWN, HARD, MOIST	15			50/7"	10.4	3
SANDSTONE, VERY CLAYEY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST	20			50/2"	8.0	2

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE:
			7/1/19

JOB NO. 190300
FIG NO. A- 10

TEST BORING NO. 21
DATE DRILLED 5/30/2019
Job # 190300

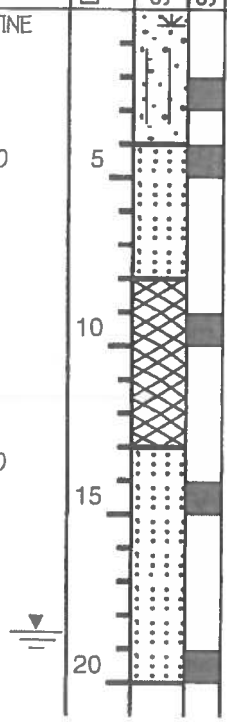
REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
6" TOPSOIL, SAND, SILTY, TAN						1
WEATHERED SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, DENSE, MOIST				40	3.0	2
	5			42	6.2	2
6/6/19	10			50 10"	6.5	2
SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST						
CLAYSTONE, SANDY, GRAY BROWN, HARD, MOIST	15			50	13.1	3
5/30/19						
SANDSTONE LENSE	20			50	12.3	3
SANDSTONE, SILTY, FINE TO COARSE GRAINED, GRAY BROWN, VERY DENSE, MOIST	25			50 6"	8.8	2

WATER @ 18', 5/30/19
WATER @ 10', 6/6/19

TEST BORING NO. 22
DATE DRILLED 4/25/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST				25	7.2	1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST	5			50 10"	6.3	2
CLAYSTONE, VERY SANDY, TAN, HARD, MOIST	10			50 8"	12.1	3
SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST	15			50 6"	3.4	2
	20			50 6"	9.7	2

WATER @ 18.5', 6/6/19



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TEST BORING LOG

DRAWN:	DATE	CHECKED:	DATE:
			7/1/19

JOB NO. 190300
FIG NO. A- 11

TEST BORING NO. 23
DATE DRILLED 3/12/2019
Job # 190300

REMARKS

DRY TO 20', 3/12/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			4	3.3	1
5			7	4.5	1
10			50 10"	12.1	2
15			50 8"	12.5	3
20			50 11"	13.3	3

6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, TAN, LOOSE, MOIST

SANDSTONE, SLIGHTLY SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST

CLAYSTONE, SANDY, BLUE GRAY, HARD, MOIST

TEST BORING NO. 24
DATE DRILLED 3/12/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

WATER @ 9', 3/12/19
WATER @ 2', 6/6/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			45	11.4	1
5			50 7"	16.8	3
10			50 11"	21.0	2
15			50 7"	8.3	2
20			50 9"	10.4	2
25			50 5"	16.1	3

6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, TAN, DENSE, MOIST 6/6/19

CLAYSTONE, SANDY, TAN, HARD, MOIST

3/12/19
SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, WET

CLAYSTONE, SANDY, BLUE GRAY, HARD, MOIST

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TEST BORING LOG

DRAWN	DATE:	CHECKED:	DATE: 7.12.19

JOB NO.: 190300
FIG NO.: A- 12

TEST BORING NO. 25
DATE DRILLED 3/12/2019
Job # 190300

REMARKS

WATER @ 12', 7/9/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
					1
			50 3"	9.4	2
5			50 9"	8.6	2
10			50 7"	6.6	2
15			50 11"	17.0	2
20			50 5"	14.6	2

SAND, SILTY, TAN
SANDSTONE, CLAYEY TO SILTY, FINE TO COARSE GRAINED, TAN TO GRAY BROWN, VERY DENSE, MOIST TO WET

TEST BORING NO. 26
DATE DRILLED 6/7/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

WATER @ 11', 7/9/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
					1
			50 7"	5.5	2
5			50 6"	4.2	2
10			50 7"	6.4	2
15			50 6"	10.3	2
20			50 5"	11.5	2

6" TOPSOIL, SAND, SILTY, TAN
SANDSTONE, SLIGHTLY SILTY TO SILTY, FINE TO COARSE GRAINED, BROWN TO TAN, VERY DENSE, MOIST TO WET

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE:
		h	7.12.19

JOB NO.: 190300
FIG NO: A- 13

TEST BORING NO. 27
DATE DRILLED 3/12/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
6" TOPSOIL SAND, SILTY, FINE TO COARSE GRAINED, BROWN, MEDIUM DENSE, DRY				22	2.7	1
SAND, VERY CLAYEY, FINE TO COARSE GRAINED, BROWN, MEDIUM DENSE, MOIST	5			23	13.6	1
WATER @ 18', 3/12/19 WATER @ 8', 6/6/19 6/6/2019						
SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST	10			50/8"	8.7	2
	15			50/7"	9.6	2
3/12/2019						
CLAYSTONE, SANDY, BROWN, HARD, MOIST	20			50/6"	15.9	3

TEST BORING NO. 28
DATE DRILLED 4/25/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
6" TOPSOIL, SAND, SILTY TO CLEAN, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, DRY TO MOIST				18	2.4	1
	5			26	5.2	1
WATER @ 13.5', 4/25/19						
SANDSTONE, SILTY TO CLAYEY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST TO WET	10			50/11"	7.7	2
	15			50/6"	17.1	2
	20			50/5"	8.1	2

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE: 7.12.19

JOB NO.: 190300
FIG NO.: A- 14

TEST BORING NO. 29
DATE DRILLED 5/30/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 19', 5/30/19 WATER @ 12', 6/11/19						
6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST				20	6.6	1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST	5			50 / 11"	8.5	2
SANDSTONE, CLAYEY TO VERY CLAYEY, FINE TO COARSE GRAINED, GRAY BROWN, VERY DENSE, MOIST	10			50 / 6"	11.2	2
6/6/19	15			50 / 6"	7.7	2
5/30/2019	20			50 / 6"	9.0	2
FINE GRAINED LENSES	25			50 / 6"	15.4	2

TEST BORING NO. 30
DATE DRILLED 4/25/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 8', 4/25/19						
6" TOPSOIL, SAND, SILTY TO SLIGHTLY SILTY WITH CLAY LENSES, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE TO DENSE, DRY TO MOIST				10	1.7	1
	5			30	4.4	1
	10			39	9.5	1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, WET	15			50	12.8	2
B - BOUNCE	20			B		2

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE: 7.12.19

JOB NO. 190300
FIG NO. A- 15

TEST BORING NO. 31
DATE DRILLED 5/29/2019
Job # 190300

REMARKS

DRY TO 20', 5/29/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			32	2.0	1	6" TOPSOIL, SAND, SLIGHTLY SILTY, FINE TO COARSE GRAINED, TAN, DENSE, DRY TO MOIST
5			30	3.0	1	
10			34	9.8	1	
15			50 11"	14.8	3	CLAYSTONE, SANDY, BLUE GRAY, HARD, MOIST
20			50 7"	14.7	3	

TEST BORING NO. 32
DATE DRILLED 3/12/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

WATER @ 13', 3/12/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			5	1.4	1	6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, BROWN, LOOSE TO MEDIUM DENSE, DRY TO MOIST
5			6	1.3	1	
10			11	10.7	1	
15			50 10"	11.8	2	SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, GRAY BROWN, VERY DENSE, MOIST
20			50 7"	11.0	2	
25			50 8"	14.8	3	CLAYSTONE, SANDY, BLUE GRAY, HARD, MOIST

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE: 7/12/19

JOB NO: 190300
FIG NO: A- 16

TEST BORING NO. 33
DATE DRILLED 3/12/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, BROWN, MEDIUM DENSE, DRY TO MOIST				13	2.4	1
	5			15	4.1	1
6/6/2019 ▼						
WEATHERED TO FORMATIONAL CLAYSTONE, SANDY, GRAY BROWN, VERY STIFF TO HARD, MOIST	10			45	17.4	3
	15			50/9"	13.1	3
3/12/2019 ▼						
	20			50/8"	18.0	3
SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, VERY MOIST						
	25			50/5"	14.3	2

WATER @ 17', 3/12/19
WATER @ 7', 6/6/19

TEST BORING NO. 34
DATE DRILLED 3/12/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
6" TOPSOIL, SAND, SILTY, BROWN						1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST				50/7"	6.1	2
	5			50/10"	8.2	2
CLAYSTONE, VERY SANDY, GRAY BROWN, HARD, MOIST ▼	10			50/9"	12.8	3
SANDSTONE, SILTY, FINE TO COARSE GRAINED, GRAY BROWN, VERY DENSE, MOIST	15			50/5"	9.7	2
CLAYSTONE, SANDY, BLUE GRAY, HARD, MOIST	20			50/5"	15.9	3

WATER @ 9', 3/12/19

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE:
			7/12/19

JOB NO.: 190300
FIG NO.: A- 17

TEST BORING NO. 35
DATE DRILLED 3/12/2019
Job # 190300

REMARKS

DRY TO 20', 3/12/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
						6" TOPSOIL SAND, SILTY, FINE TO COARSE GRAINED, TAN, DENSE, MOIST
			48	3.6	1	SANDSTONE, SLIGHTLY SILTY TO SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST
5			50	6.0	2	
10			50/9"	8.9	2	
15			50	9.7	2	
						CLAYSTONE, SANDY, BLUE GRAY, HARD, MOIST
20			50/6"	11.7	3	

TEST BORING NO. 36
DATE DRILLED 3/11/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

WATER @ 13.5', 7/9/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
					1	SAND, SILTY, TAN
			50/7"	3.1	2	SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST
5			50/6"	3.7	2	
10			50/6"	10.9	2	
15			50/6"	12.2	3	CLAYSTONE, VERY SANDY, BLUE GRAY, HARD, MOIST
20			50/10"	13.4	2	SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, GRAY BROWN TO BROWN, VERY DENSE, MOIST TO WET
25			50/7"	16.8	2	

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TEST BORING LOG

DRAWN:	DATE	CHECKED:	DATE
			7/12/19

JOB NO 190300
FIG NO A- 18

TEST BORING NO. 37
DATE DRILLED 3/12/2019
Job # 190300

REMARKS

DRY TO 20', 3/12/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			50/11"	11.6	3
5			50/10"	10.1	2
10			50/7"	11.3	2
15			50/7"	9.2	2
20			50/6"	9.3	2

SAND, SILTY, BROWN

CLAYSTONE, SANDY, BROWN, HARD, MOIST

SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST

TEST BORING NO. 38
DATE DRILLED 6/7/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

WATER @ 18', 7/9/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			4	1.7	1
5			12	0.7	1
10			*	7.6	1
15			*	19.1	3
20			50/5"	12.1	2
25			B	9.4	3

6" TOPSOIL, SAND, GRAVELLY, SILTY TO SLIGHTLY SILTY, FINE TO COARSE GRAINED, BROWN, LOOSE TO MEDIUM DENSE, MOIST

CLAYSTONE, SANDY, BROWN, MOIST

SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST

CLAYSTONE, SANDY, BLUE GRAY, HARD, MOIST

* - BULK SAMPLE TAKEN

B - BOUNCE

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE: 7/12/19

JOB NO. 190300
FIG NO. A- 19

TEST BORING NO. 39
DATE DRILLED 5/29/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 11', 7/9/19						
6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST TO WET				13	10.7	1
	5			21	11.7	1
CLAYSTONE, SANDY, GRAY BROWN, HARD, MOIST ▼	10			50	10.2	3
SANDSTONE, VERY CLAYEY, FINE TO COARSE GRAINED, BROWN, WET	15			*	14.8	2
CLAYSTONE, SANDY, BROWN, WET	20			*	18.4	3

TEST BORING NO. 40
DATE DRILLED 3/12/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 10', 3/12/19						
6" TOPSOIL, SAND, SILTY, FINE TO COARSE GRAINED, TAN, DENSE TO MEDIUM DENSE, MOIST				32	4.8	1
	5			27	6.2	1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, GRAY BROWN, VERY DENSE, MOIST TO WET ▼	10			50/9"	12.9	2
CLAYEY LENSES	15			50/8"	12.9	2
	20			50/9"	15.2	2

* - BULK SAMPLE TAKEN

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TEST BORING LOG

DRAWN:	DATE.	CHECKED	DATE
			7/12/19

JOB NO. 190300
FIG NO A- 20

TEST BORING NO. 41
DATE DRILLED 6/7/2019
Job # 190300

REMARKS

WATER @ 17', 6/7/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
					1	6" TOPSOIL, SAND, SILTY, TAM
						SANDSTONE, SILTY, FINE
			50/7"	5.2	2	TO COARSE GRAINED, BROWN,
						VERY DENSE, MOIST
5			50/6"	10.3	3	CLAYSTONE, SANDY, BROWN,
						HARD, MOIST
10			50/6"	10.1	2	SANDSTONE, CLAYEY TO
						SILTY, FINE TO COARSE
						GRAINED, BROWN, VERY
						DENSE, MOIST TO WET
15			50/7"	11.9	2	
20			50/6"	15.5	2	CLAYEY LENSES

TEST BORING NO. 42
DATE DRILLED 3/12/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

WATER @ 14', 6/7/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
						6" TOPSOIL, SAND, CLAYEY,
			10	9.2	1	FINE TO COARSE GRAINED,
						BROWN, MEDIUM DENSE,
						MOIST
5			29	7.8	1	
10			50/10"	10.0	2	SANDSTONE, SILTY, FINE TO
						COARSE GRAINED, BROWN,
						VERY DENSE, MOIST TO WET
15			50/6"	10.2	2	
20			50/6"	9.3	2	
25			50/6"	14.0	2	

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE
			7/12/19

JOB NO. 190300
FIG NO. A- 21

TEST BORING NO. 43
DATE DRILLED 5/30/2019
Job # 190300

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 19', 5/30/19						
6" TOPSOIL, SAND, SLIGHTLY SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST				14	3.4	1
WEATHERED SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, DENSE, MOIST	5			32	8.3	2
CLAYSTONE, SANDY, GRAY BROWN, HARD, MOIST	10			50/7"	14.1	3
	15			50/8"	12.5	3
SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST	20			50/5"	12.2	2
CLAYSTONE, SANDY, BLUE GRAY HARD, MOIST	25			50/6"	16.8	3

TEST BORING NO. 44
DATE DRILLED 5/30/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 20', 5/30/19						
6" TOPSOIL, SAND, SILTY, TAN						1
WEATHERED SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, DENSE, MOIST				32	3.0	2
CLAYEY LENSES	5			35	10.3	2
SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST	10			50/11"	9.8	2
	15			50/8"	8.8	2
CLAYEY LENSES	20			50/7"	10.6	2

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TEST BORING LOG

DRAWN	DATE:	CHECKED:	DATE:
			7/1/19

JOB NO: 190300
FIG NO: A- 22

TEST BORING NO. 45
DATE DRILLED 5/30/2019
Job # 190300

REMARKS

WATER @ 13', 5/30/19
WATER @ 11', 6/6/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			22	11.2	1
5			50 5"	6.9	2
10			50 11"	9.0	2
15			50 7"	8.7	2
20			50 8"	13.4	2
25			50 7"	13.4	2

6" TOPSOIL, SAND, CLAYEY, FINE TO COARSE GRAINED, BROWN, MEDIUM DENSE, MOIST

SANDSTONE, SILTY TO CLAYEY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST TO WET

6/6/2019 ▼

5/30/2019 ▼

TEST BORING NO. 46
DATE DRILLED 5/30/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

WATER @ 22', 5/30/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			10	14.2	1
5			50 11"	7.9	2
10			50 6"	7.9	2
15			50 6"	8.4	2
20			50 6"	12.9	3
25			50 6"	14.3	2

6" TOPSOIL, SAND, CLAYEY, FINE TO COARSE GRAINED, LIGHT BROWN, MEDIUM DENSE, MOIST

SANDSTONE, CLAYEY TO VERY CLAYEY, FINE TO COARSE GRAINED, TAN TO GRAY BROWN, VERY DENSE, MOIST

CLAYSTONE, SANDY, GRAY BROWN, HARD, MOIST ▼

SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, GRAY BROWN, VERY DENSE, MOIST

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TEST BORING LOG

DRAWN:	DATE	CHECKED:	DATE:
			7/1/19

JOB NO: 190300
FIG NO: A- 23

TEST BORING NO. 47
DATE DRILLED 5/30/2019
Job # 190300

REMARKS

DRY TO 20', 5/30/19

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
					1	6" TOPSOIL, SAND, SILTY, TAN
			50/9"	9.0	2	SANDSTONE, SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE, MOIST
5			50/10"	8.7	2	
10			50/10"	9.4	2	
15			50/10"	8.8	2	
20			50/7"	8.5	2	

TEST BORING NO. 48
DATE DRILLED 6/7/2019
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS

DRY TO 20', 6/7/19
CAVED TO 14', 7/9/19, DRY

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
					1	6" TOPSOIL, SAND, SILTY, TAN
			32	8.9	2	SANDSTONE, CLAYEY TO SILTY, FINE TO COARSE GRAINED, BROWN, VERY DENSE,
5			27	7.8	2	MOIST
10			50/9"	9.6	3	CLAYSTONE, SANDY, BROWN, HARD, MOIST
15			50/8"	5.4	2	SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST
20			50/9"	9.4	3	CLAYSTONE, VERY SANDY, GRAY BROWN, HARD, MOIST

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE:
			7/12/19

JOB NO.: 190300
FIG NO.: A- 24

TEST BORING NO. 49
DATE DRILLED 6/7/2019
Job # 190300

TEST BORING NO.
DATE DRILLED
CLIENT TECH CONTRACTORS
LOCATION ROLLING HILLS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
WATER @ 12', 6/7/19						
6" TOPSOIL, SAND, SLIGHTLY SILTY TO SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE TO DENSE, MOIST				15	5.2	1
	5			20	10.3	1
	10			33	10.1	1
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST TO WET	15			50/9"	11.9	2
	20			50/6"	15.5	2
	25			50/5"	15.5	2

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	5					
	10					
	15					
	20					
	25					

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE: 7/12/19

JOB NO.: 190300
FIG NO.: A- 25

APPENDIX B: Soil Survey Descriptions

El Paso County Area, Colorado

19—Columbine gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367p
Elevation: 6,500 to 7,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Columbine and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Columbine

Setting

Landform: Flood plains, fan terraces, fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 14 inches: gravelly sandy loam
C - 14 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: Gravelly Foothill (R049BY214CO)
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls

Percent of map unit:
Landform: Swales

Hydric soil rating: Yes

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

Other soils

Percent of map unit:
Hydric soil rating: No

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 16, Sep 10, 2018

El Paso County Area, Colorado

83—Stapleton sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 369z
Elevation: 6,500 to 7,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Stapleton and similar soils: 80 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stapleton

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

A - 0 to 11 inches: sandy loam
Bw - 11 to 17 inches: gravelly sandy loam
C - 17 to 60 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: Gravelly Foothill (R049BY214CO)
Hydric soil rating: No

Minor Components

Pleasant
Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

Fluvaquentic haplaquolls
Percent of map unit:
Landform: Swales
Hydric soil rating: Yes

Other soils
Percent of map unit:
Hydric soil rating: No

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 16, Sep 10, 2018