

December 11, 2023  
Revised September 17, 2024



**ENTECH**  
ENGINEERING, INC.

505 ELKTON DRIVE  
COLORADO SPRINGS, CO 80907  
PHONE (719) 531-5599

Lazy Y and Rockin' J  
P.O. Box 516  
Peyton, Colorado 80831

Attn: Scott Smith

Re: Wastewater Study  
Lazy Y and Rockin' J Subdivision  
12960 North Peyton Highway  
Parcel No. 63070-00-007  
El Paso County, Colorado  
Entech Job No. 230520

Please provide a map sheet demonstrating: (2)2 OWTS Sites Required for All Lots or Parcels. All lots shall be designed to ensure that each lot has a minimum of 2 sites appropriate for OWTS which do not fall in the restricted areas identified on the preliminary plan; soils and geology report delineated wetland or floodplain maps; or other reports required under this Code.

Dear Mr. Smith:

The project consists of subdividing 36.24-acres into two lots. One rural residential lot and one lot for an RV Park. The existing quonset hut, cell tower, and outbuildings will remain. These are located on the RV parcel. The site is located south of US Highway 24 on North Peyton Highway, in El Paso County, Colorado.

### **GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION**

The site is located in a portion of the NE $\frac{1}{4}$  of the SE $\frac{1}{4}$  of Section 7, Township 12 South, Range 63 West of the 6<sup>th</sup> Principal Meridian in El Paso County, Colorado. The site is located approximately  $\frac{1}{2}$  mile south of Peyton, Colorado, on the western side of North Peyton Highway. The location of the site is as shown on the Vicinity Map, Figure 1.

The topography of the site is primarily gradually sloping to the south and northeast off of a ridge that bisects the site. Moderate slopes to the northeast are present in the northeastern portion of the site. No drainages are located on the site. Brackett Creek is located  $\frac{1}{2}$  mile to the north, and Black Squirrel Creek is located approximately  $\frac{1}{2}$  mile to the south of the site. The site boundaries are indicated on the USGS Map, Figure 2. Previous land uses have included undeveloped agricultural grazing pastureland. Site photographs, taken November 21, 2023, are included in Appendix A.

Total acreage involved in the proposed subdivision is 36.24-acres. The existing structures, outbuildings, on-site wastewater treatment system, and water well located on the proposed RV Park Lot will remain. The new residential lot will be serviced by a new water well and on-site wastewater treatment system (OWTS), and the RV Park will be serviced by a new water well and OWTS. According to the preliminary grading plans new gravel roadways will be constructed for the RV Park with a detention pond proposed in the northeastern portion of the site. The Site Plan with the proposed replat is presented in Figure 3.

### **LAND USE AND ENGINEERING GEOLOGY**

This site was found to be suitable for the proposed development. Areas were encountered where the geologic conditions will impose some constraints on development and land use. These include potentially expansive soils, areas of erosion, and radon. Based on the proposed development plan, it appears that these areas will have minor impacts on the development. These conditions will be discussed in greater detail in the report.

In general, it is our opinion that the development can be achieved if the observed geologic conditions on site are either avoided or properly mitigated. All recommendations are subject to the limitations discussed in the report.

## **SCOPE OF THE REPORT**

The scope of the report includes a general geologic analysis utilizing available published geologic data, and detailed site-specific mapping to obtain general information in respect to major geographic and geologic features, geologic descriptions, and their effects on the development of the property.

## **FIELD INVESTIGATION**

Our field investigation consisted of the preparation of a geologic map of any bedrock features and significant surficial deposits. The Natural Resource Conservation Service (NRCS), previously the Soil Conservation Service (SCS) survey was also reviewed to evaluate the site. The position of mappable units within the subject property are shown on the Geologic Map. Our mapping procedures involved both field reconnaissance and measurements, and aerial photo reconnaissance and interpretation. The same mapping procedures have also been utilized to produce the Geology/Engineering Geology Map which identified pertinent geologic conditions affecting development. The field mapping was performed by personnel of Entech Engineering, Inc. (Entech) on November 21, 2023. Recent site observations to monitor groundwater levels were also completed.

Five test borings were drilled, and four piezometers placed on the site to determine general suitability for the proposed site development, and general soil characteristics. The locations of the test borings and piezometer are indicated on the Site and Exploration Plan, Figure 3. The Test Boring Logs are presented in Appendix B. Results of this testing will be discussed later in this report.

Seventeen test pits were excavated across the site to identify suitable soil treatment areas for the RV Park OWTS. The OWTS Site Evaluation completed by Entech dated May 25, 2023 is included in Appendix D. The location of the test pits, Figures 1 – 1A, Test Pit Logs, Figures 2 – 11, and Grain-Size Analysis results, Figures 12 – 31 are included in Appendix D.

Soil and bedrock samples were obtained from the borings utilizing the Standard Penetration Test (ASTM D1586) using a 2" split-barrel spoon and California sampler. Results of the Standard Penetration Test (SPT) are included on the boring logs in terms of N-values expressed in blows per foot (bpf). Soil and bedrock samples recovered from the borings were visually classified and recorded on the boring logs. The soil and bedrock classifications were later verified utilizing laboratory testing and grouped by soil type. The soil type numbers are included on the boring logs. It should be understood that the soil descriptions shown on the boring logs may vary between boring location and sample depths. It should also be noted that the lines of stratigraphic separation shown on the boring logs represent approximate boundaries between soil types and the actual stratigraphic transitions may be more gradual or variable with location.

Water content testing (ASTM D2216) was performed on the samples recovered from the borings, and the results are shown on the boring logs. Grain-Size Analysis (ASTM D422) and Atterberg Limits testing (ASTM D4318) were performed on selected samples to assist in classifying the

materials encountered in the borings. Swell/Consolidation testing (ASTM D4546) was performed to evaluate the soils expansion/compression characteristics. Results of the laboratory testing are included in Appendix C.

## SOIL AND GEOLOGIC CONDITIONS

### Soil Survey

The Natural Resource Conservation Service (NRCS) (Reference 1, Figure 4), previously the Soil Conservation Service (Reference 2) has mapped one soil type on the site. Complete description of the soil type is presented in Appendix E. In general, the soils typically consist of sandy loam to gravelly loamy sand. The soils are described as follows:

Type	Description
84	Stapleton sandy loam, 8 to 15% slopes

The soils have been described to have moderate to rapid permeabilities. The soils are described as well suited for use as homesites. Possible hazards with soils erosion are present on the site. The erosion potential can be controlled with vegetation. The soils have been described to have moderate erosion hazards (Reference 2).

### Soils

Two primary soil and rock types were encountered in the test borings drilled for the subsurface investigation. Each soil and rock type were classified in accordance with the Unified Soil Classification System (USCS) using the laboratory testing results and the observations made during drilling. Bedrock was encountered at depths of 11 to 16 feet bgs.

Soil Type 1 classified as loose to dense sand with varying percentages of clay and silt (SM, SW-SM, SC) and was encountered in all the test borings at the existing ground surface and extended to depths of 1 to 16 feet bgs.

Soil Type 2 classified as stiff to hard clay with sand and sandy clay (CL). The clay was encountered three of the test borings at depths ranging from 1 to 8 feet and extended to depths of 11 to to 14 feet bgs. Swell/Consolidation Testing resulted in volume change of 1.5%, indicating a low to moderate expansion potential.

Soil Type 3 classified as highly to moderately weathered sandstone or very dense silty sand when classified as a soil (SM). The sandstone was encountered in the test borings at depths of 11 to 18 feet bgs and extended to the termination depth of TB-1 – TB4 (20 feet), and to 29 feet in P-1. Swell/Consolidation Testing on a sample of the sandstone resulted in a volume change of 0.1% indicating a low expansion potential.

Soil Type 4 classified as moderately weathered claystone or sandy clay and clay with sand when classified as a soil (CL). The claystone was encountered in TB-2 and P-1 at depths of 14 to 29 feet and extended to 18 feet in TB-2, and the termination depth of P-1 (50 feet). Swell/Consolidation Testing on a sample of the claystone resulted in a volume change of 1.5% indicating a low to moderate expansion potential.



Groundwater

Groundwater was encountered in TB-4 at 7 feet, and in TB-5 at 6.5 feet. TB-5 was placed in the proposed detention pond location. The remaining borings were dry. The borings were drilled to depths of 20 to 50 feet. Four piezometers were set in the anticipated soil treatment area of the onsite wastewater treatment system. The piezometer readings are presented in the table below. It is not anticipated groundwater will not affect shallow foundations on the site. 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.

Piezometer, and Total Depth (ft.)	Groundwater Level (ft.) 2/16/24	Groundwater Level (ft.) 2/26/24	Groundwater Level (ft.) 8/6/24
P1, 50'	47.2	48	49.2
P2, 50'	27	27.5	30.5
P3, 50'	30	40.2	42.5
P4, 40'	33	33	31

Geology

Approximately 23 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 the southern extent of a large structural feature known as the Denver Basin. Bedrock in the area is typically gently dipping in a northerly direction (References 3 and 4). The bedrock underlying the site consists of the Dawson Formation of Tertiary to Cretaceous Age. The Dawson Formation typically consists of sandstone with interbedded layers of claystone and siltstone. The claystone and siltstone are typically expansive.

The geology of the site was evaluated using the *Bedrock Geologic Map of the Denver Basin*, distributed by CGS in 2011, (Reference 4, Figure 5). The Geology Map for the site is presented in Figure 6. One mappable unit was identified on this site which is described as follows:

**Qc/Tkd Colluvial and Residual Soils of Quaternary Age overlying the Dawson Formation of Tertiary to Cretaceous Age:** The colluvial and residual soils are associated sheetwash and the in-situ weathering of the bedrock. The Dawson formation typically consist of arkosic sandstone with interbedded claystone and siltstone.

The soils listed above were mapped from site-specific mapping, the *Geologic Map of the Cheyenne Mountain Quadrangle* distributed by the Colorado Geologic Survey in 2003 (Reference 4, Figure 5), The *Geologic Map of the Colorado Springs-Castle Rock Area*, distributed by the US Geological Survey in 1979 (Reference 5), and the *Geologic Map of the Pueblo 1° x 2° Quadrangle*, distributed by the US Geological Survey in 1978 (Reference 6). The test borings and test pits were used in evaluating the site and is included in Appendix B. The Geology Map prepared for the site is presented in Figure 6.

### Floodplain and Drainage Areas – Constraint

The site is not mapped within any floodplains according to the FEMA Map No. 08041CO375G, dated December 7, 2018 (Figure 7, Reference 7). No drainages or areas of shallow water were observed on the site. Groundwater was encountered in TB-4 at 7 feet in the proposed detention pond location, and in P-1 at 46.5 feet located south of the anticipated soil treatment area for the RV Park. **Specific drainage studies are beyond the scope of this report.**

### **ON-SITE WASTEWATER TREATMENT**

The Natural Resource Conservation Service (Reference 1), previously the Soil Conservation Service (Reference 2) has been mapped with one soil description. The Soil Survey Map (Reference 1) is presented in Figure 4, and the Soil Survey Descriptions (Reference 2) are presented in Appendix D. The soils are described as having moderate to rapid percolation rates. Records for the existing septic system were not available for the site. The proposed residential structure will utilize an individual OWTS permitted through El Paso County Health Department. Due to the anticipated daily flow rates for the RV Park a State permitted system will be required.

The test pits were excavated on April 13, 2023, April 14, 2023, and May 9, 2023 to approximate depths of 2.5 to 8-feet. The locations of the test pits are shown in Figure 1. Soils encountered in Test Pit Nos. 1, 2, 3 and 4 consisted of sandy clay to sandy clay loam with underlying sandy clay bedrock. Soils encountered in Test Pit Nos. 5, 6, 7, and 8 consisted of sandy clay to gravelly sandy clay loam with underlying sandy clay bedrock. Soils encountered in Test Pit Nos. 9 and 10 consisted of sandy clay to sandy clay loam with underlying bedrock. Soils encountered in Test Pit Nos. 11 and 12 consisted of sandy clay loam with gravel with underlying sandy clay. Soils encountered in Test Pit Nos. 13 and 14 consisted of sandy loam with gravel overlying sandy clay bedrock. Soils encountered in Test Pit Nos. 15, 16, 17, 18 and 19 consisted of gravelly sandy clay loam, sandy clay with underlying sandy loam to sandy clay loam bedrock (in Test Pit No. 15), gravelly sandy clay loam with underlying sandy clay, and sandy loam with underlying gravelly sandy clay loam.

The Test Pit Logs and Laboratory Test Results are shown in Figures 2 through 31 and Tables 1 and 2 of Appendix D. Refusal due to bedrock was encountered at various depths throughout the site from 2.5 to 8.0 feet below grade (termination of Test Pit). No bedrock was encountered near Test Pit Nos. 11, 12, 16, 17, 18, or 19. Redoximorphic features were encountered at 7.0 to 7.5 feet below grade in Test Pit Nos. 11, 12, and 16, and at 6.0 feet below grade in Test Pit No. 18.

Visual and tactile evaluation of the soils was performed. The limiting layer encountered in Test Pit Nos. 11, 12, 15, 16, 17, and 19 is the sandy clay loam with gravel and the underlying sandy clay which classifies as USDA Soil Type 3, R-1, and 4A. For design purposes a maximum LTAR value of 0.55 gallons per day per square foot is recommended for Treatment Level 3, provided the soil treatment area is installed near Test Pit Nos. 11, 12, 15, 16, 17, and 19. A minimum 2 feet thick sand filter is required to achieve the Treatment Level 3 LTAR

Absorption fields must be maintained a minimum of 4 feet above groundwater or bedrock, or confining layer. Should groundwater or bedrock be encountered within 6 feet of the surface, designed systems will be required. Designed systems are anticipated for the new lot, however, other areas may be encountered on the lot where conventional systems would be suitable.

TB-1 was placed in the proposed house area, based on the soils encountered in the boring and other test pits across the site it is anticipated an engineered OWTS would be needed.

In summary, it is our opinion the site is suitable for individual on-site wastewater treatment systems (OWTS) and that contamination of surface and subsurface water resources should not occur provided the OWTS sites are evaluated and installed according to El Paso County and State Guidelines and properly maintained. Based on the testing performed designed systems will be required for the new lots. The Septic Suitability Map is presented in Figure 8. A possible house location, water well, and two septic sites for the new lots are indicated on Figure 8. Areas that should be avoided by septic systems are indicated on the septic suitability map.

**Individual soil testing is required for proposed construction on the residential lot prior to construction.** Absorption fields must be located a minimum of 100 feet from any well, including those on adjacent properties. Absorption fields must also be located a minimum of 50 feet from any drainages, floodplains or ponded areas and 25 feet from dry gulches

## **CLOSURE**

It is our opinion that the existing geologic engineering and geologic conditions will impose some minor constraints on development and construction of the site. The majority of these conditions can be avoided by construction. Others can be mitigated through proper engineering design and construction practices. The proposed development and use are consistent with anticipated geologic and engineering geologic conditions.

It should be pointed out that because of the nature of data obtained by random sampling of such variable and non-homogeneous 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. Reporting such discrepancies to Entech Engineering, Inc. soon after they are discovered would be greatly appreciated and could possibly help avoid construction and development problems.

This report has been prepared for Lazy Y and Rockin' J, for application to the proposed project in accordance with generally accepted geologic soil and engineering practices. No other warranty expressed or implied is made.

Lazy Y and Rockin' J  
Wastewater Study  
Lazy Y and Rockin' J Subdivision  
12960 North Peyton Highway  
Parcel No. 63070-00-007  
El Paso County, Colorado  
Page 7



We trust that this report has provided you with all the information that you require. Should you require additional information, please do not hesitate to contact Entech Engineering, Inc.

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Reviewed by:

A handwritten signature in blue ink, appearing to read "Logan L. Langford", is written over a light gray rectangular background.

Logan L. Langford, P.G.  
Sr. Geologist



Digitally signed by Joseph C. Goode Jr.  
Date: 09/18/24

Joseph C. Goode, Jr., P.E.  
President

LLL/JCG  
Encl.

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## REFERENCES

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2. United States Department of Agriculture Soil Conservation Service. June 1981. *Soil Survey of El Paso County Area, Colorado*.
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4. Dechesne, Marieke, Reynolds, Robert G., Barkmann, Peter, E., and Johnson, Kirk. R, 2011. *Bedrock Geologic Map of the Denver Basin, Colorado*. Colorado Geological Survey. Open-File Report 11-01 Plate 1.
5. Trimble, Donald E. and Machette, Michael N. 1979. *Geologic Map of the Colorado Springs-Castle Rock Area, Front Range Urban Corridor, Colorado*. USGS, Map I-857-F.
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12. Keller, John W.; TerBest, Harry and Garrison, Rachel E. 2003. *Evaluation of Mineral and Mineral Fuel Potential of El Paso County State Mineral Lands Administered by the Colorado State Land Board*. Colorado Geological Survey. Open-File Report 03-07.



## FIGURES



**VICINITY MAP**

12960 NORTH PEYTON HIGHWAY  
EL PASO COUNTY, CO  
LAZY Y AND ROCKIN' J

JOB NO.  
230520

**FIG. 1**

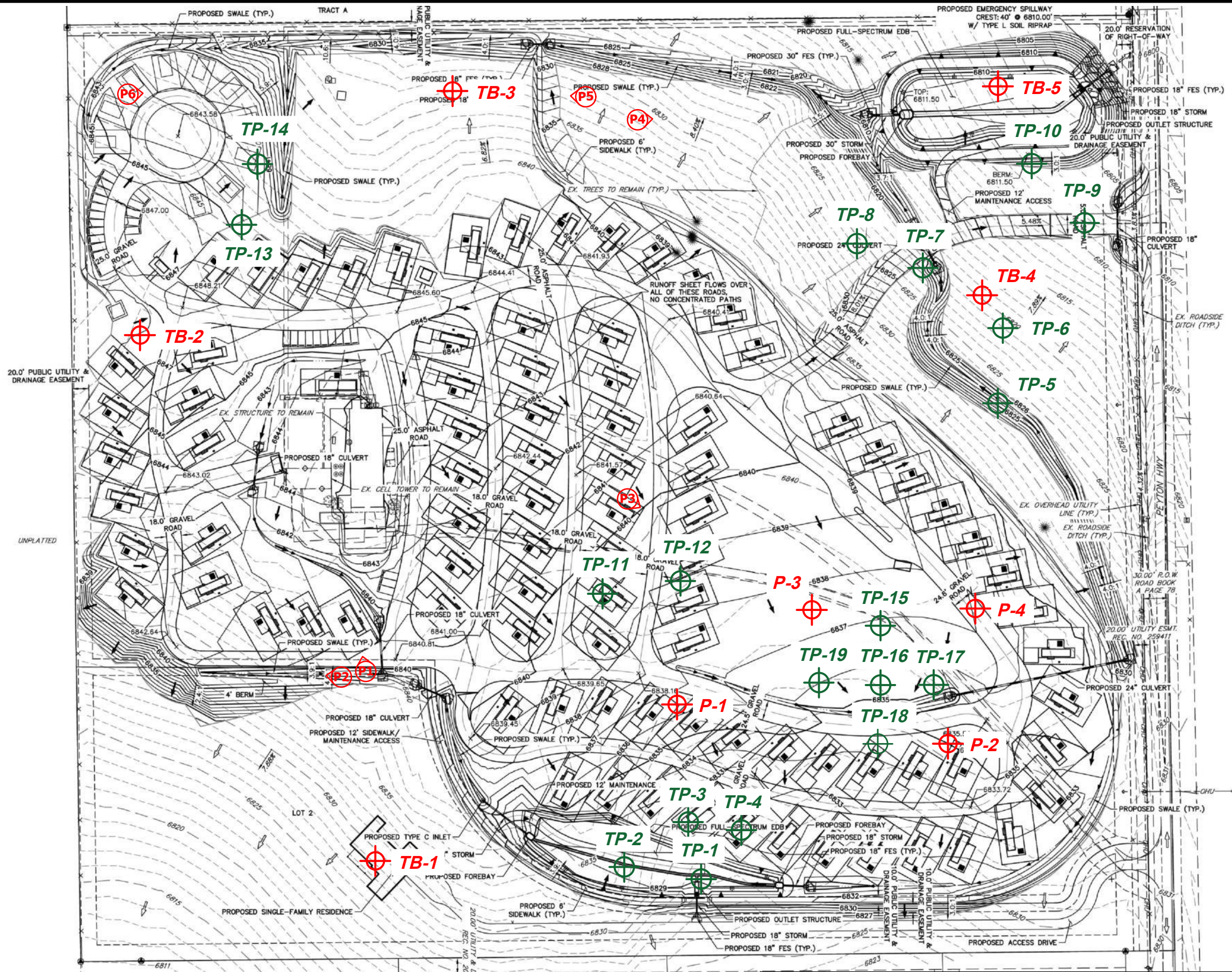


**USGS TOPOGRAPHY MAP**

12960 NORTH PEYTON HIGHWAY  
EL PASO COUNTY, COLORADO  
LAZY Y AND ROCKIN' J

JOB NO.  
230520

**FIG. 2**

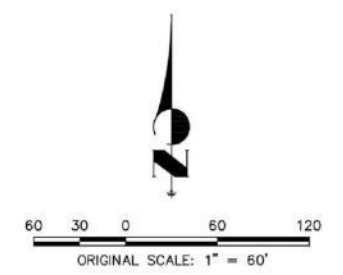


**LEGEND**

EXISTING STORM SEWER	
STORM SEWER PROPOSED	
PROPOSED R.O.W	
PROPOSED PROPERTY LINES	
EXISTING PROPERTY LINE	
ROW EXISTING	
EXISTING EDGE OF ASPHALT	
EXISTING TRAIL	

<b>EXISTING</b>	<b>PROPOSED</b>
LOW POINT/HIGH POINT	L.P./H.P.
FLOW DIRECTION & SLOPE	(2.0)%
FLOW DIRECTION ARROW	
EXISTING FLOW DIRECTION ARROW	
LIMITS OF GRADING	



- APPROXIMATE TEST BORING LOCATION AND NUMBER
- APPROXIMATE TEST PIT LOCATION AND NUMBER
- APPROXIMATE PIEZOMETER LOCATION AND NUMBER
- APPROXIMATE PHOTOGRAPH LOCATION AND NUMBER

**ENTECH**  
ENGINEERING, INC.

**SITE AND EXPLORATION PLAN**

12960 NORTH PEYTON HIGHWAY  
EL PASO COUNTY, CO  
LAZY Y AND ROCKIN' J

JOB NO.  
230520

**FIG. 3**



PROJECT  
SITE

uotlv

95

Peyton Hwy

84

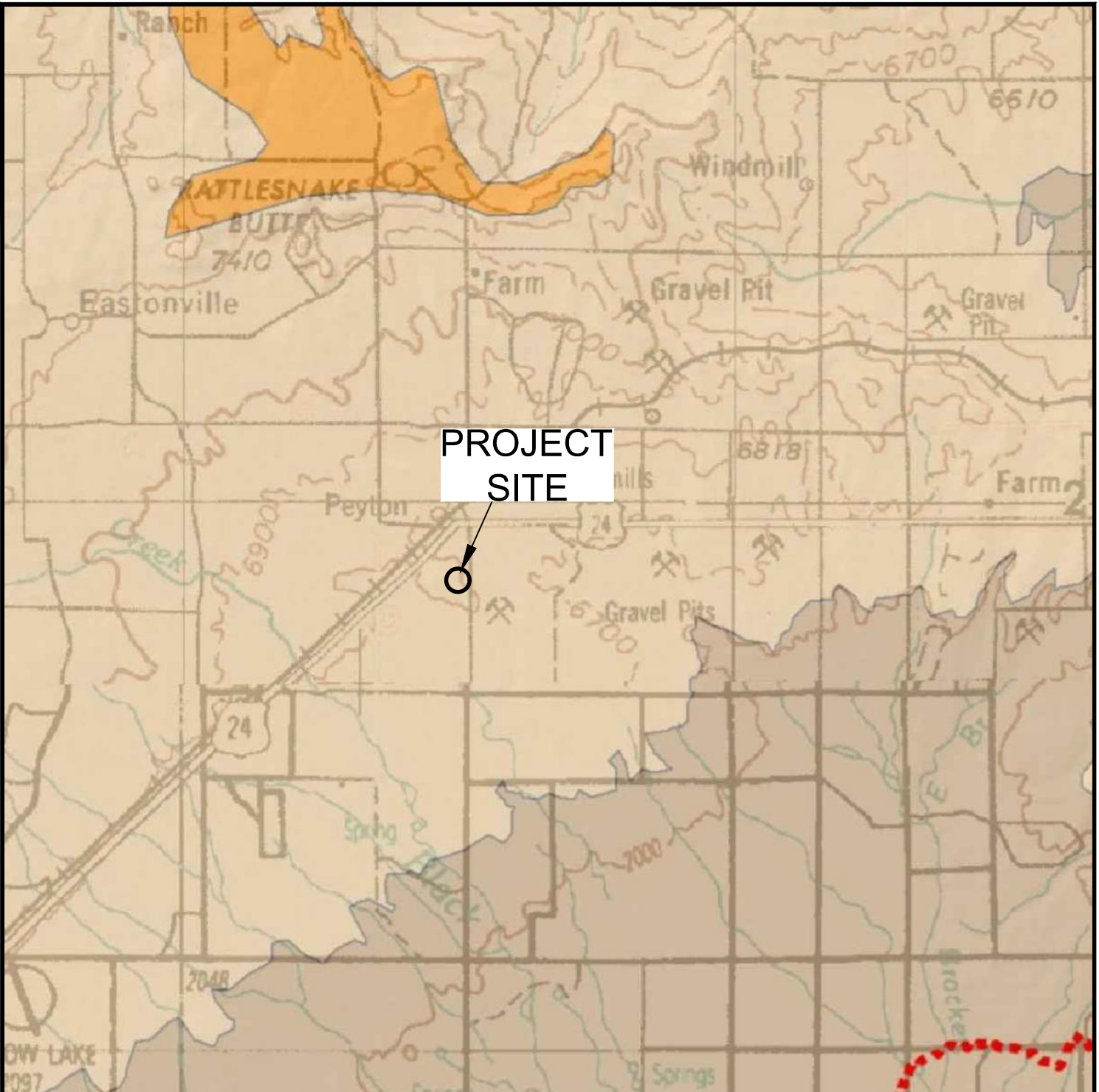


**SOIL SURVEY MAP**

305 PINE OAKS ROAD  
EL PASO COUNTY, COLORADO  
T-BONE CONSTRUCTION

JOB NO.  
231440

**FIG. 4**



**PROJECT SITE**

**Geologic Units**

- |   |   |
|---|---|
|  Undifferentiated younger Tertiary rocks   |  Laramie Formation (Cretaceous)  |
|  Denver Basin Group D2 Sequence (Eocene)<br><i>Also known as Dawson Arkose or Dawson Formation.</i>  |  Fox Hills Sandstone (Cretaceous)<br><i>Base is modeled at a depth of 200 ft below the top</i> |
|  Table Mountain Lava Flows (Paleocene)   |  Pierre Shale (Cretaceous)   |
|  Denver Basin Group D1 Sequence (Cretaceous to Paleocene)<br><i>Also known as, or including, the Dawson Arkose, Dawson Fm., Denver Fm. or Arapahoe Fm.</i> |  Undifferentiated Mesozoic and Paleozoic Rocks   |
|   |  Undifferentiated Precambrian Crystalline Basement   |

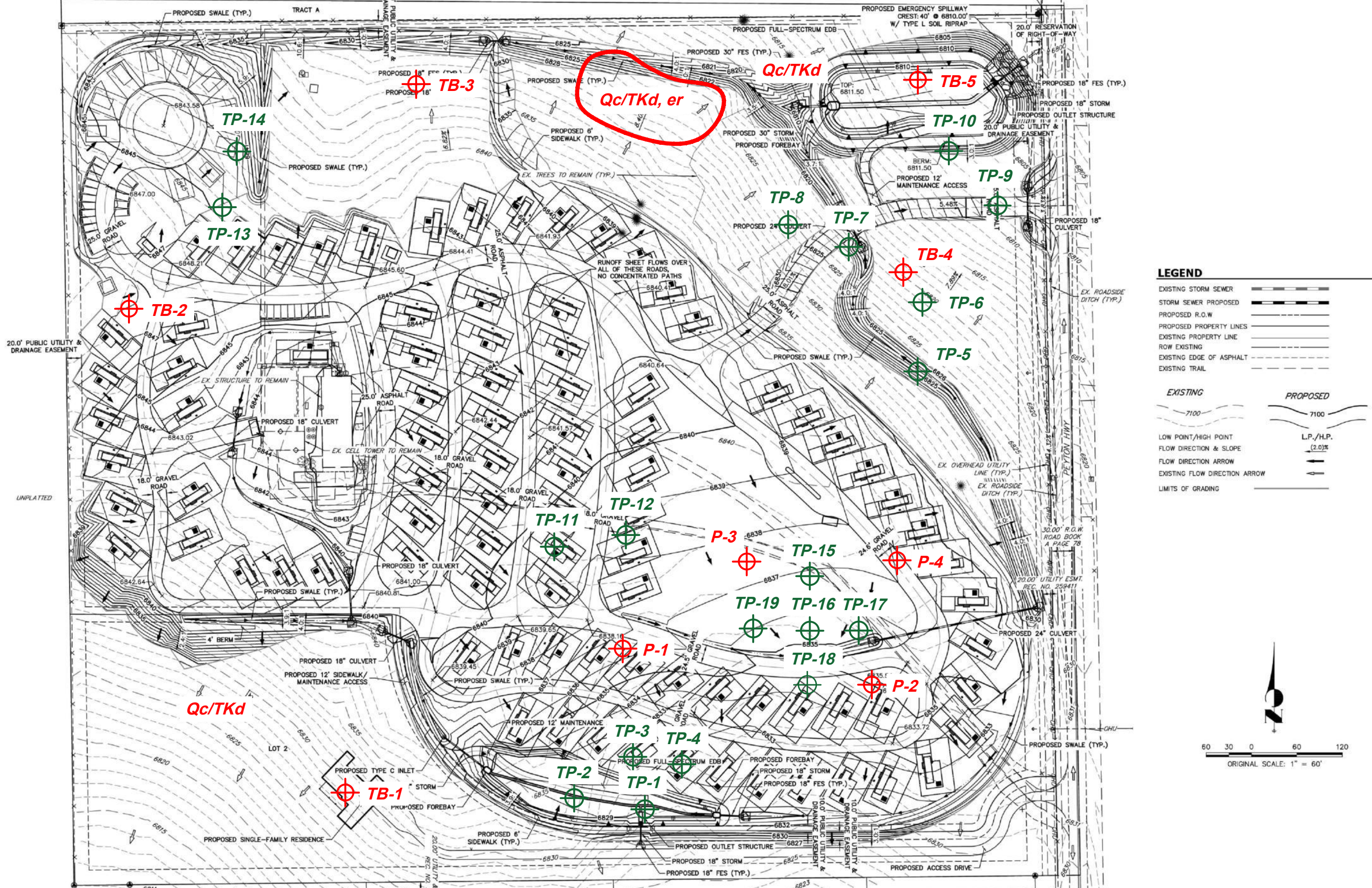


**BEDROCK GEOLOGIC MAP OF THE DENVER BASIN**

12960 NORTH PEYTON HIGHWAY  
EL PASO COUNTY, COLORADO  
LAZY Y AND ROCKIN' J

JOB NO.  
230520

**FIG. 5**

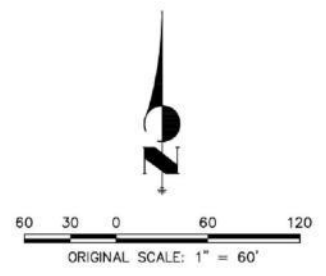


**LEGEND**

EXISTING STORM SEWER	
STORM SEWER PROPOSED	
PROPOSED R.O.W	
PROPOSED PROPERTY LINES	
EXISTING PROPERTY LINE	
ROW EXISTING	
EXISTING EDGE OF ASPHALT	
EXISTING TRAIL	

<i>EXISTING</i>	<i>PROPOSED</i>
LOW POINT/HIGH POINT	L.P./H.P.
FLOW DIRECTION & SLOPE	(2.0)%
FLOW DIRECTION ARROW	
EXISTING FLOW DIRECTION ARROW	
LIMITS OF GRADING	



Legend:  
 Qc/TKd - Colluvial and Residual Soils of Quaternary Age overlying the Dawson Formation of Tertiary to Cretaceous Age: older fan and rockfall deposits  
 er - area of erosion



**GEOLOGY / ENGINEERING MAP**

12960 NORTH PEYTON HIGHWAY  
 EL PASO COUNTY, COLORADO  
 LAZY Y AND ROCKIN' J

JOB NO.  
 230520  
**FIG. 6**



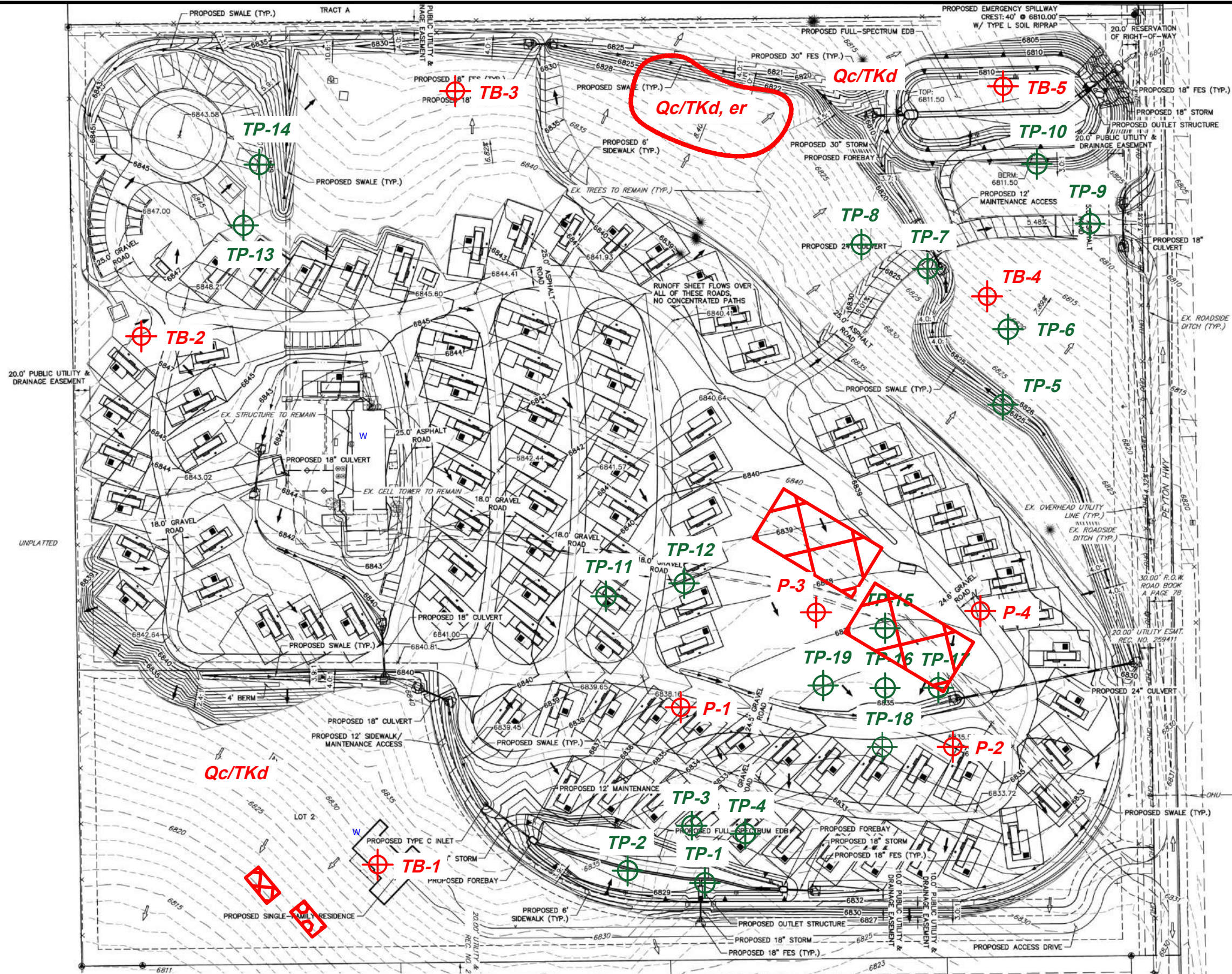
### FEMA FLOODPLAIN MAP

12960 NORTH PEYTON HIGHWAY  
EL PASO COUNTY, COLORADO  
LAZY Y AND ROCKIN' J

JOB NO.  
230520

**FIG. 7**



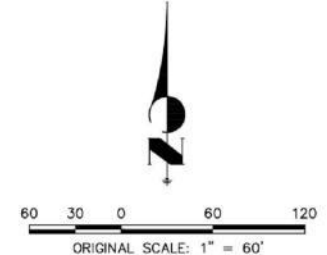


**LEGEND**

EXISTING STORM SEWER	
STORM SEWER PROPOSED	
PROPOSED R.O.W	
PROPOSED PROPERTY LINES	
EXISTING PROPERTY LINE	
ROW EXISTING	
EXISTING EDGE OF ASPHALT	
EXISTING TRAIL	

<i>EXISTING</i>	<i>PROPOSED</i>
LOW POINT/HIGH POINT	L.P./H.P.
FLOW DIRECTION & SLOPE	(2.0)%
FLOW DIRECTION ARROW	
EXISTING FLOW DIRECTION ARROW	
LIMITS OF GRADING	



**LEGEND:**

- POSSIBLE OWTS LOCATIONS

- POSSIBLE OWTS ALTERNATE LOCATION

**W** \*- WATER WELLS MUST BE A MINIMUM OF 100 FT FROM OWTS ABSORPTION FIELDS



**OWTS SUITABILITY MAP**

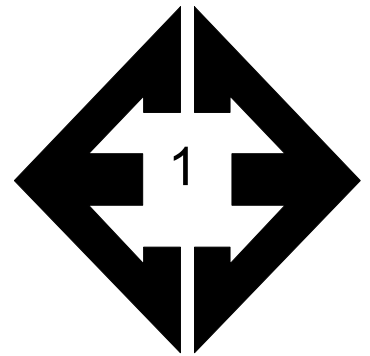
12960 NORTH PEYTON HIGHWAY  
EL PASO COUNTY, COLORADO  
LAZY Y AND ROCKIN' J

JOB NO.  
230520

**FIG. 8**

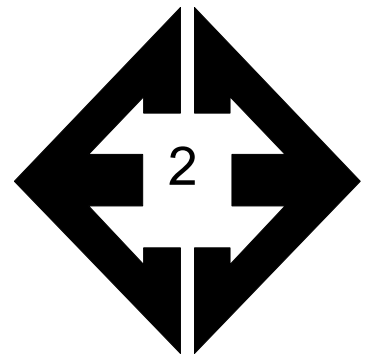


## **APPENDIX A: Site Photographs**



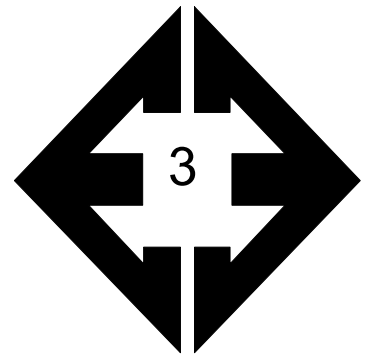
**Looking north from the west-central portion of the site.**

November 21, 2023



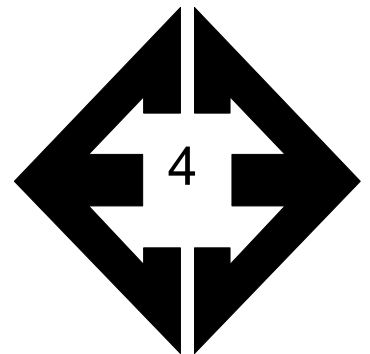
**Looking west from the west-central portion of the site.**

November 21, 2023



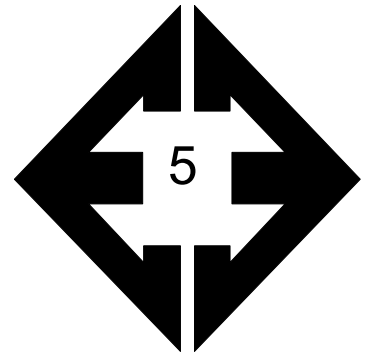
**Looking southeast  
from the central  
portion the site.**

November 21, 2023



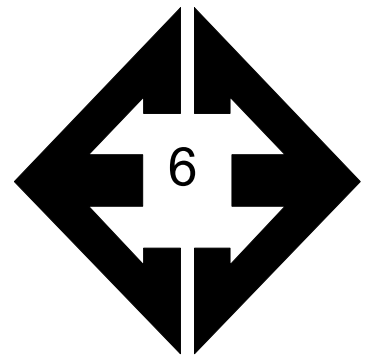
**Looking east from the  
northern side of the  
site.**

September 20, 2023



**Looking west from the northern side of the site.**

November 21, 2023



**Looking east from the northwestern side of the site.**

November 21, 2023



## **APPENDIX B: Test Boring Logs**

**TABLE B-1**  
**DEPTH TO GROUNDWATER & BEDROCK**

TEST BORING	DEPTH TO GROUNDWATER (ft.)	DEPTH TO BEDROCK (ft.)
1	>20	11
2	>20	14
3	>20	16
4	8.7	11
5	6.5	10
P-1	37	11
P-2	27	17
P-3	23	18
P-4	33	18

TEST BORING 1  
DATE DRILLED 11/22/2023

TEST BORING 2  
DATE DRILLED 11/22/2023

REMARKS

REMARKS

DRY TO 20', 2/23/24

DRY TO 20', 2/23/24

SAND, SILTY, TAN

CLAY, WITH SAND, LIGHT BROWN to TAN, STIFF to HARD, MOIST

SAND, WITH SILT, TAN, MEDIUM DENSE, DRY to MOIST

SANDSTONE, EXTREMELY WEAK, TAN, MODERATELY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)

CLAY, WITH SAND, GRAY, VERY STIFF, MOIST

CLAYSTONE, VERY WEAK, GRAY, MODERATELY WEATHERED (CLAY, WITH SAND, HARD, MOIST)  
SANDSTONE, EXTREMELY WEAK, TAN, MODERATELY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
0-1						0-1					
1-5			14	14.0	2	1-5			23	2.6	1
5-10			42	12.8	2	5-10			21	7.0	1
10-15			37	15.8	2	10-15			28	14.5	2
15-20			50 9"	9.1	3	15-20			50 10"	11.8	4
20-25			50 10"	9.0	3	20-25			50 9"	8.5	3



**TEST BORING LOGS**

12960 N. PEYTON HIGHWAY  
LAZY Y & ROCKIN' J

JOB NO.  
230520

**FIG. B-1**



TEST BORING 3  
 DATE DRILLED 11/22/2023

TEST BORING 4  
 DATE DRILLED 11/22/2023

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 20', 2/23/24							WATER @ 8.7', 2/23/224, WATER @ 7', 11/24/23						
SAND, CLAYEY, BROWN, LOOSE, MOIST	5			5	12.6	1	TOPSOIL				16	5.2	1
	5			8	10.8	1	SAND, SILTY, DARK BROWN, MEDIUM DENSE, MOIST				7	15.8	1
	10			36	10.1	1	SAND, CLAYEY, BROWN to TAN, LOOSE to DENSE, MOIST				47	13.9	1
SAND, SILTY, TAN, DENSE, MOIST	15			40	10.0	1					50	9.7	3
	20			50	7.4	3	SANDSTONE, EXTREMELY WEAK, TAN to GRAY, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)				50	12.7	3
SANDSTONE, EXTREMELY WEAK, TAN, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)				7"									



**TEST BORING LOGS**

12960 N. PEYTON HIGHWAY  
 LAZY Y & ROCKIN' J

JOB NO.  
 230520

**FIG. B-2**

TEST BORING 5  
 DATE DRILLED 2/15/2024

REMARKS

WATER @ 6.5', 2/23/24,  
 WATER @ 8', 2/15/24

CLAY, SANDY, BROWN, STIFF,  
 MOIST

SAND, WITH SILT, TAN, LOOSE,  
 MOIST

CLAY, SANDY, OLIVE, HARD, MOIST  
 CLAYSTONE, VERY WEAK, GRAY,  
 MODERATELY WEATHERED  
 (CLAY, SANDY, HARD, MOIST)

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
0 - 8	[Diagonal Hatching]		8	14.3	2
8 - 10	[Dotted]		8	10.0	1
10 - 15	[Cross-hatching]		34	20.1	2
15 - 20	[Cross-hatching]		50 7"	14.4	3
20 - 26	[Cross-hatching]		50 6"	9.2	3



TEST BORING LOGS

12960 N. PEYTON HIGHWAY  
 LAZY Y & ROCKIN' J

JOB NO.  
 230520

FIG. B-3

PIEZOMETER 1  
 DATE DRILLED 11/22/2023

PIEZOMETER 1 cont.  
 DATE DRILLED 11/22/2023

REMARKS

REMARKS

WATER @ 47.2', 2/16/24,  
 WATER @ 46.5', 11/24/23

SAND, SILTY, LIGHT BROWN,  
 LOOSE, DRY  
  
 CLAY, SANDY, GRAY, HARD, MOIST

SANDSTONE, VERY WEAK, TAN to  
 BROWN, HIGHLY WEATHERED  
 (SAND, SILTY, VERY DENSE,  
 MOIST)

SANDSTONE, VERY WEAK, TAN to  
 BROWN, HIGHLY WEATHERED  
 (SAND, SILTY, VERY DENSE,  
 MOIST)  
 CLAYSTONE, VERY WEAK, GRAY,  
 MODERATELY WEATHERED  
 (CLAY, WITH SAND, HARD,

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
0						0					3
5			7	1.6	1	30			50 11"	8.9	4
5			35	9.0	2	35			50 6"	9.5	4
10			32	11.3	2	40			50 8"	8.5	4
15			50 7"	6.3	3	45			50 9"	12.3	4
20			50 10"	10.8	3	50			50 6"	13.9	4
25			50 11"	11.6	3						



**TEST BORING LOGS**

12960 N. PEYTON HIGHWAY  
 LAZY Y & ROCKIN' J

JOB NO.  
 230520

**FIG. B-4**

PIEZOMETER 2  
 DATE DRILLED 2/15/2024  
 REMARKS

PIEZOMETER 2 cont.  
 DATE DRILLED 2/15/2024  
 REMARKS

WATER @ 27', 2/16/24,  
 WATER @ 28', 2/15/24

SAND, SILTY, TAN, MEDIUM  
 DENSE, MOIST

CLAY, SANDY, GRAY, VERY STIFF,  
 MOIST

SANDSTONE, VERY WEAK, TAN,  
 MODERATELY WEATHERED  
 (SAND, SILTY, VERY DENSE,  
 MOIST)

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
5			26	6.9	1
10			29	17.1	2
20			50 9"	9.5	3
25					

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
30			50 9"	16.1	4
35					
40			50 10"	16.6	4
45					
50			50 7"	19.4	4



**TEST BORING LOGS**  
 12960 N. PEYTON HIGHWAY  
 LAZY Y & ROCKIN' J

JOB NO.  
 230520

**FIG. B-5**

PIEZOMETER 3  
 DATE DRILLED 2/15/2024

PIEZOMETER 3 cont.  
 DATE DRILLED 2/15/2024

REMARKS

REMARKS

WATER @ 30', 2/16/24,  
 WATER @ 23', 2/15/24

SAND, SILTY, TAN

CLAY SANDY, TAN, VERY STIFF,  
 MOIST

SANDSTONE, VERY WEAK, TAN,  
 MODERATELY WEATHERED  
 (SAND, SILTY, VERY DENSE,  
 MOIST)



Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
0 - 5	(Dotted pattern)				1
5 - 10	(Diagonal hatching)		22	16.0	2
10 - 20	(Diagonal hatching)		50 8"	5.0	3
20 - 25	(Dotted pattern)				

CLAYSTONE, VERY WEAK, GRAY,  
 MODERATELY WEATHERED  
 (CLAY, SANDY, BROWN, HARD,  
 MOIST)

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
0 - 30	(Dotted pattern)				
30 - 35	(Dotted pattern)		50 8"	18.2	3
35 - 40	(Diagonal hatching)				
40 - 45	(Diagonal hatching)		50 9"	17.5	4
45 - 50	(Diagonal hatching)				
50 - 55	(Dotted pattern)		50 8"	17.5	4



**TEST BORING LOGS**

12960 N. PEYTON HIGHWAY  
 LAZY Y & ROCKIN' J

JOB NO.  
 230520

**FIG. B-6**

PIEZOMETER 4  
 DATE DRILLED 2/15/2024

PIEZOMETER 4 cont.  
 DATE DRILLED 2/15/2024

REMARKS

REMARKS

WATER AT 33', 2/16/24,  
 DRY TO 40', 2/15/24

SAND, SILTY, TAN

CLAY, SANDY, OLIVE, VERY STIFF,  
 MOIST

CLAYSTONE, EXTREMELY WEAK,  
 LIGHT BROWN, MODERATELY  
 WEATHERED (CLAY, SANDY,  
 HARD, MOIST

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
0					1
5					
10			24	20.6	2
15					
20			50 11"	19.0	4
25					

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
0					4
30			50 6"	10.6	3
35					
40			50 8"	13.1	4
45					
50					



**TEST BORING LOGS**

12960 N. PEYTON HIGHWAY  
 LAZY Y & ROCKIN' J

JOB NO.  
 230520

**FIG. B-7**

## **APPENDIX C: Laboratory Test Results**

**TABLE C-1  
SUMMARY OF LABORATORY TEST RESULTS**

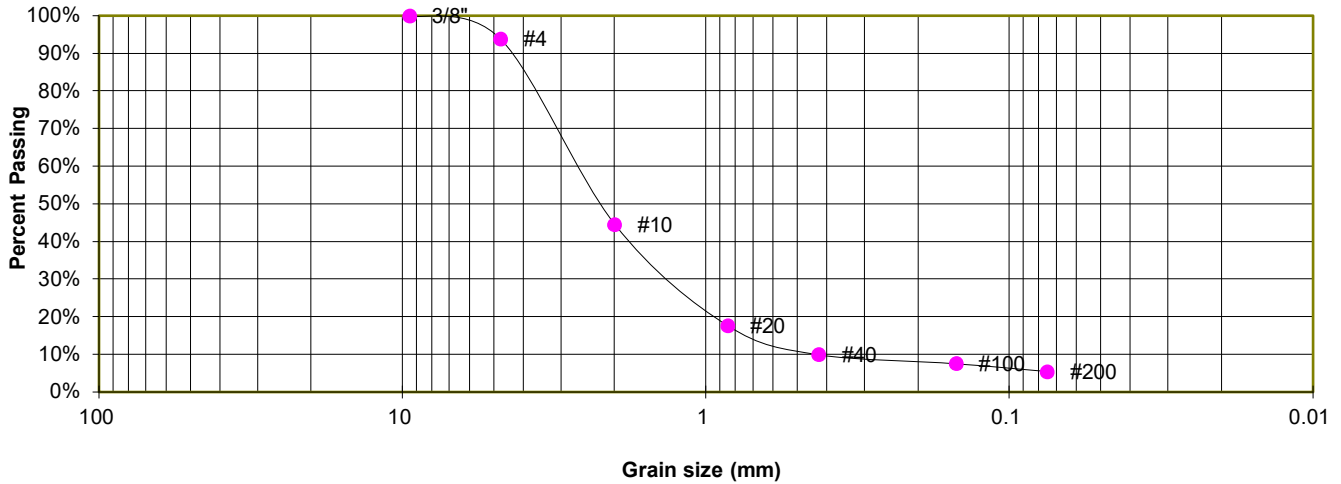
SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX	SULFATE (WT %)	SWELL/ CONSOL (%)	USCS	SOIL DESCRIPTION
1	2	2-3			5.4	NV	NP	NP	<0.01	1.5	SW-SM	SAND, WITH SILT
1	5	5			9.7						SW-SM	SAND, WITH SILT
2	1	5	14.0	117.2	70.4	34	17	17	<0.01		CL	CLAY, WITH SAND
2	P-1	5	17.0	99.9	89.7					1.5	CL	CLAY, SLIGHTLY SANDY
2	5	2-3			69.5						CL	CLAY, SANDY
3	3	20			17.7	NV	NP	NP	0.00		SM	SANDSTONE (SAND, SILTY)
3	4	20	14.3	113.7	40.3	NV	NP	NP	<0.01	0.1	SM	SANDSTONE (SAND, SILTY)
3	P-1	15			10.7						SW-SM	SANDSTONE (SAND, WITH SILT)
4	P-1	35	14.0	113.3	72.5					1.5	CL	CLAYSTONE (CLAY, WITH SAND)



TEST BORING 2  
 DEPTH (FT) 2-3

SOIL DESCRIPTION SAND, WITH SILT  
 SOIL TYPE 1

**Sieve Analysis  
 Grain Size Distribution**



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	93.8%
10	44.5%
20	17.7%
40	10.0%
100	7.6%
200	5.4%

**ATTERBERG LIMITS**

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: SW-SM



**LABORATORY TEST RESULTS**

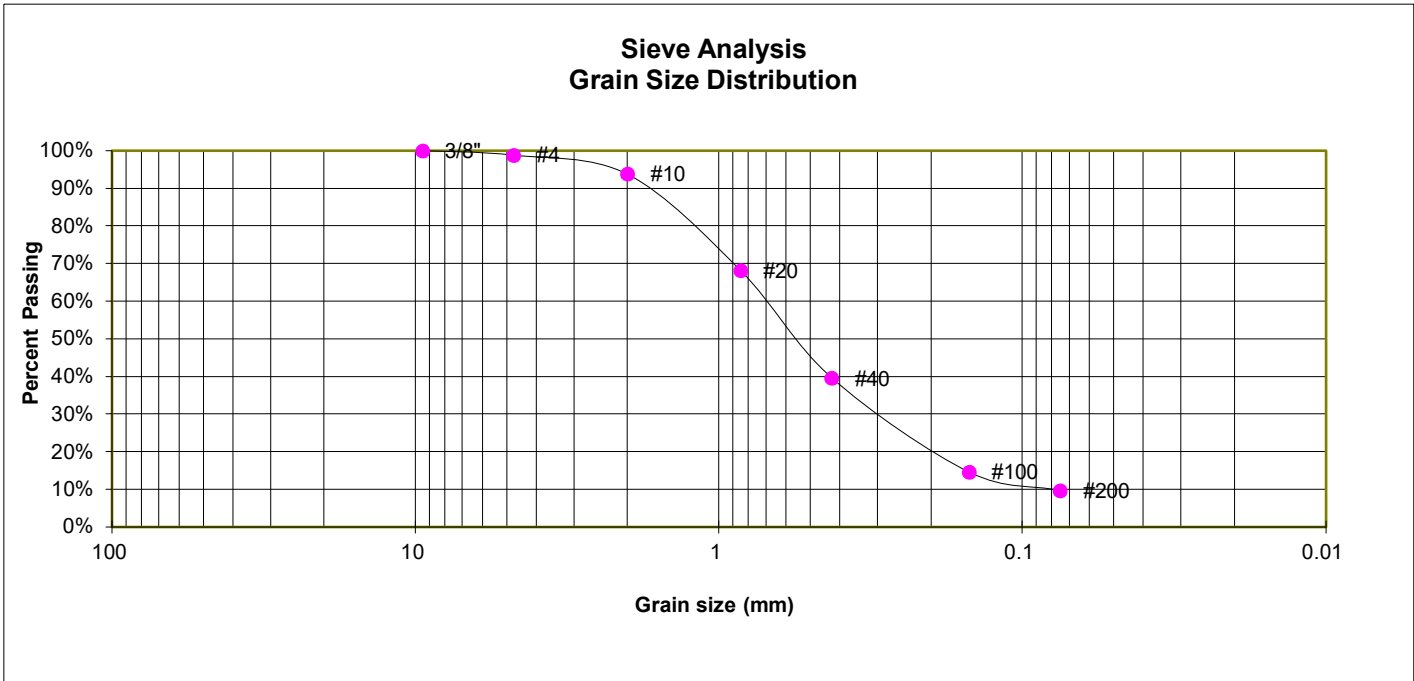
12960 N. PEYTON HIGHWAY  
 LAZY Y & ROCKIN' J

JOB NO.  
 230520

**FIG. C-1**

TEST BORING 5  
DEPTH (FT) 5

SOIL DESCRIPTION SAND, WITH SILT  
SOIL TYPE 1



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	98.9%
10	93.8%
20	68.2%
40	39.6%
100	14.7%
200	9.7%

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: SW-SM



**LABORATORY TEST RESULTS**

12960 N. PEYTON HIGHWAY  
LAZY Y & ROCKIN' J

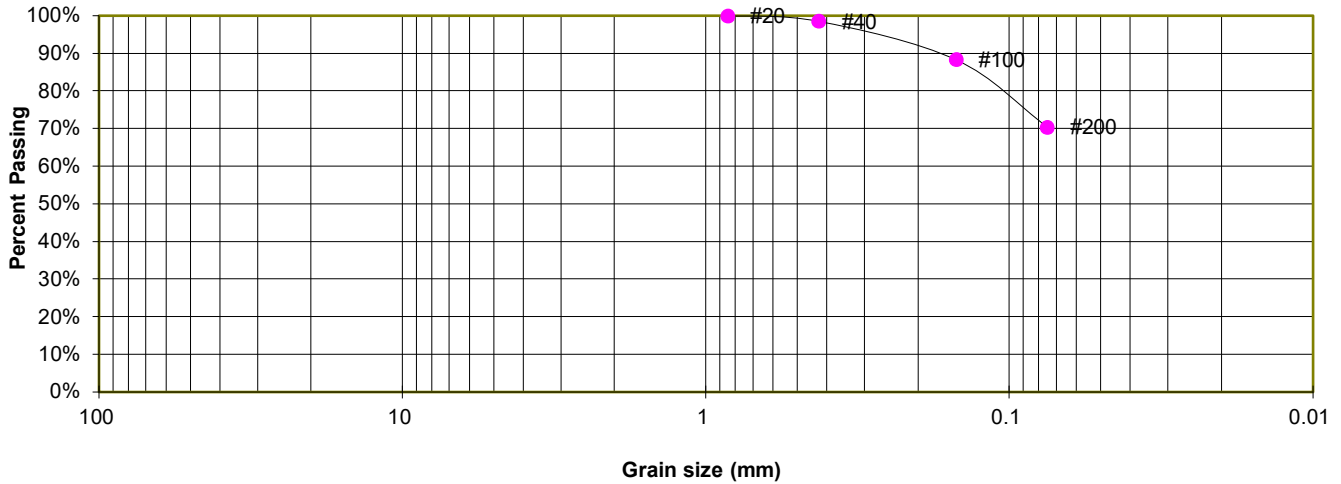
JOB NO.  
230520

**FIG. C-2**

TEST BORING 1  
 DEPTH (FT) 5

SOIL DESCRIPTION CLAY, WITH SAND  
 SOIL TYPE 2

**Sieve Analysis  
 Grain Size Distribution**



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	
20	100.0%
40	98.5%
100	88.4%
200	70.4%

**ATTERBERG LIMITS**

Plastic Limit	17
Liquid Limit	34
Plastic Index	17

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: CL



**LABORATORY TEST RESULTS**

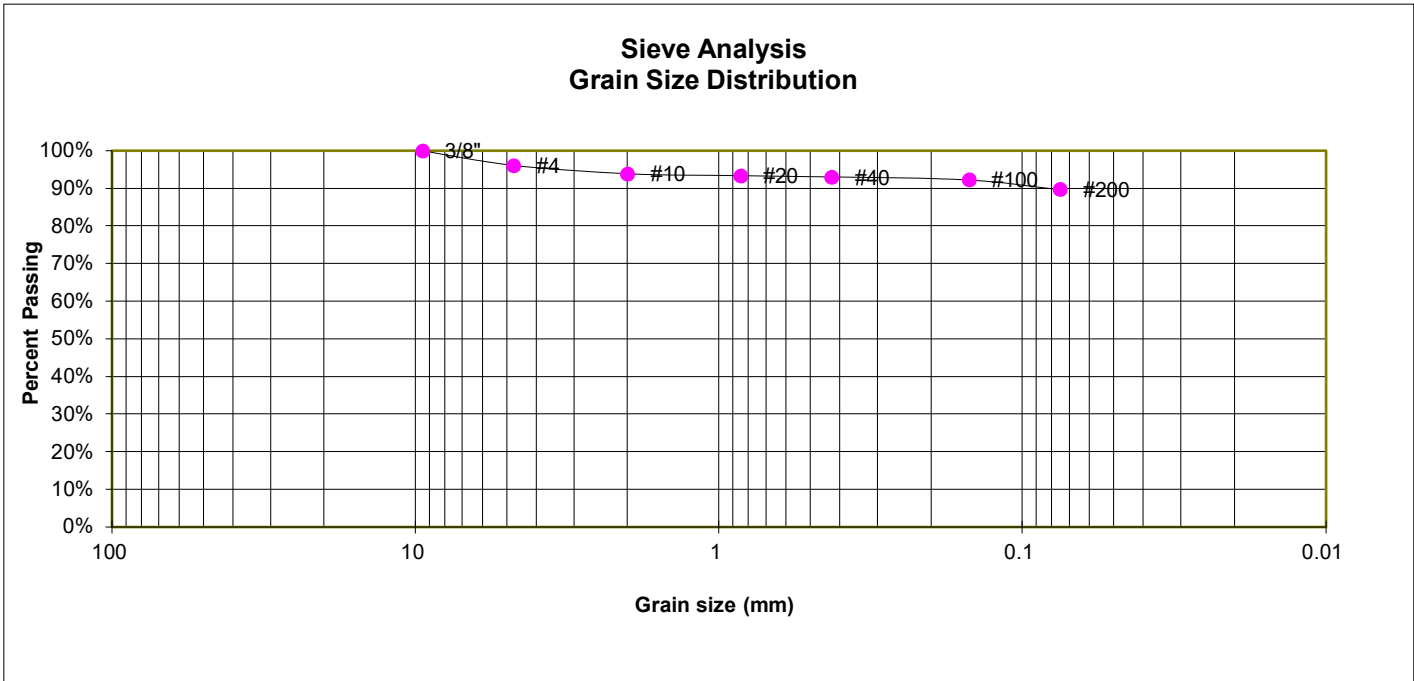
12960 N. PEYTON HIGHWAY  
 LAZY Y & ROCKIN' J

JOB NO.  
 230520

**FIG. C-3**

TEST BORING P-1  
DEPTH (FT) 5

SOIL DESCRIPTION CLAY, SLIGHTLY SANDY  
SOIL TYPE 2



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	96.1%
10	93.9%
20	93.4%
40	93.0%
100	92.3%
200	89.7%

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: CL



**LABORATORY TEST RESULTS**

12960 N. PEYTON HIGHWAY  
LAZY Y & ROCKIN' J

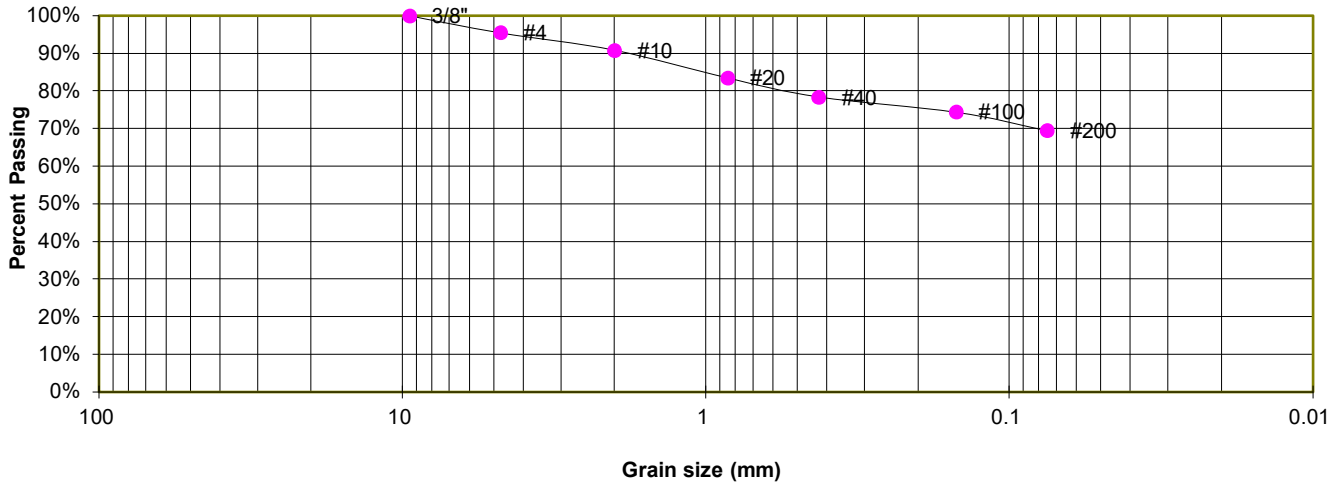
JOB NO.  
230520

**FIG. C-4**

TEST BORING 5  
DEPTH (FT) 2-3

SOIL DESCRIPTION CLAY, SANDY  
SOIL TYPE 2

**Sieve Analysis  
Grain Size Distribution**



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	95.5%
10	90.9%
20	83.5%
40	78.4%
100	74.4%
200	69.5%

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: CL



**LABORATORY TEST RESULTS**

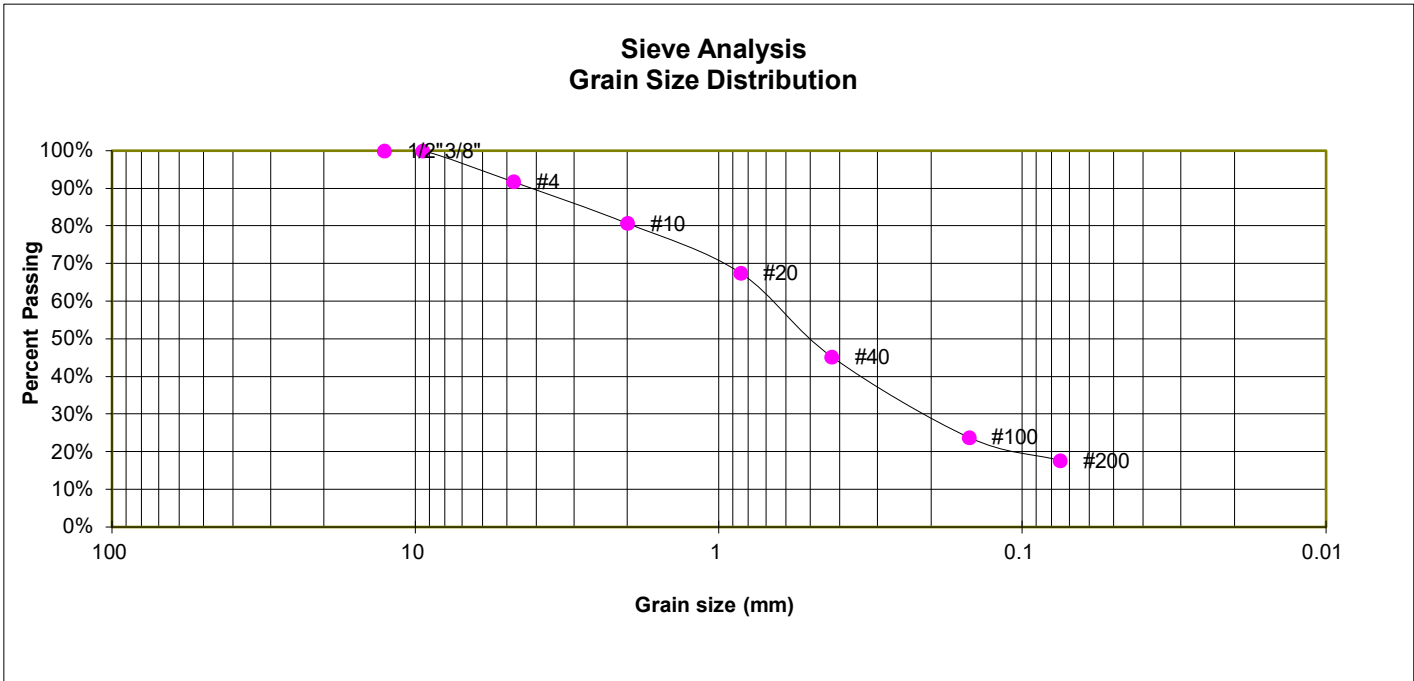
12960 N. PEYTON HIGHWAY  
LAZY Y & ROCKIN' J

JOB NO.  
230520

**FIG. C-5**

TEST BORING 3  
 DEPTH (FT) 20

SOIL DESCRIPTION SANDSTONE (SAND, SILTY)  
 SOIL TYPE 3



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	100.0%
4	91.8%
10	80.7%
20	67.6%
40	45.2%
100	23.9%
200	17.7%

**ATTERBERG LIMITS**

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: SM



**LABORATORY TEST RESULTS**

12960 N. PEYTON HIGHWAY  
 LAZY Y & ROCKIN' J

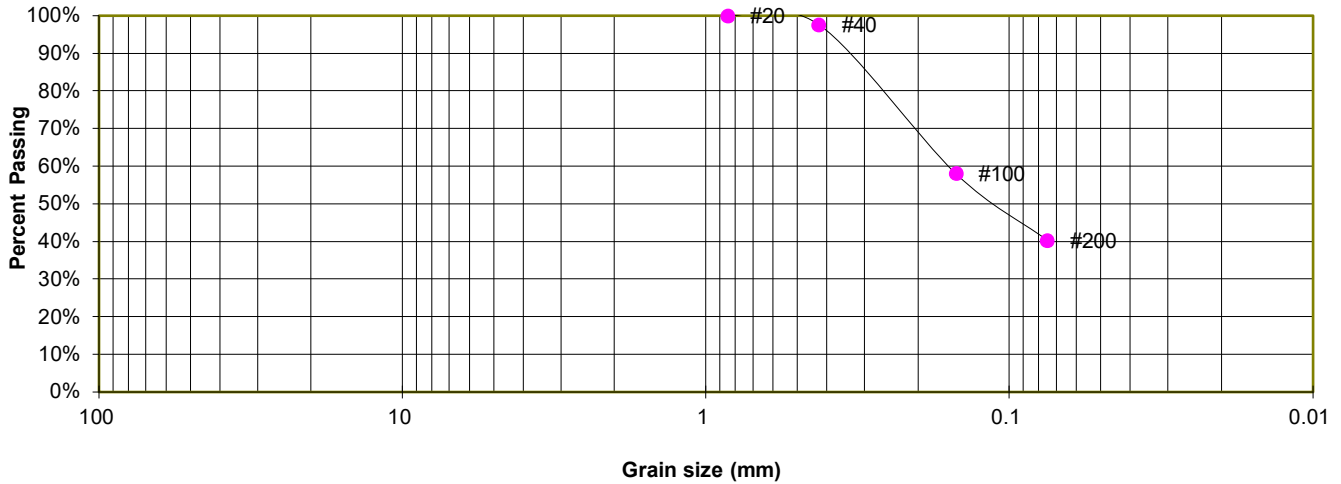
JOB NO.  
 230520

**FIG. C-6**

TEST BORING 4  
 DEPTH (FT) 20

SOIL DESCRIPTION SANDSTONE (SAND, SILTY)  
 SOIL TYPE 3

**Sieve Analysis  
 Grain Size Distribution**



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	
20	100.0%
40	97.6%
100	58.1%
200	40.3%

**ATTERBERG LIMITS**

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: SM



**LABORATORY TEST RESULTS**

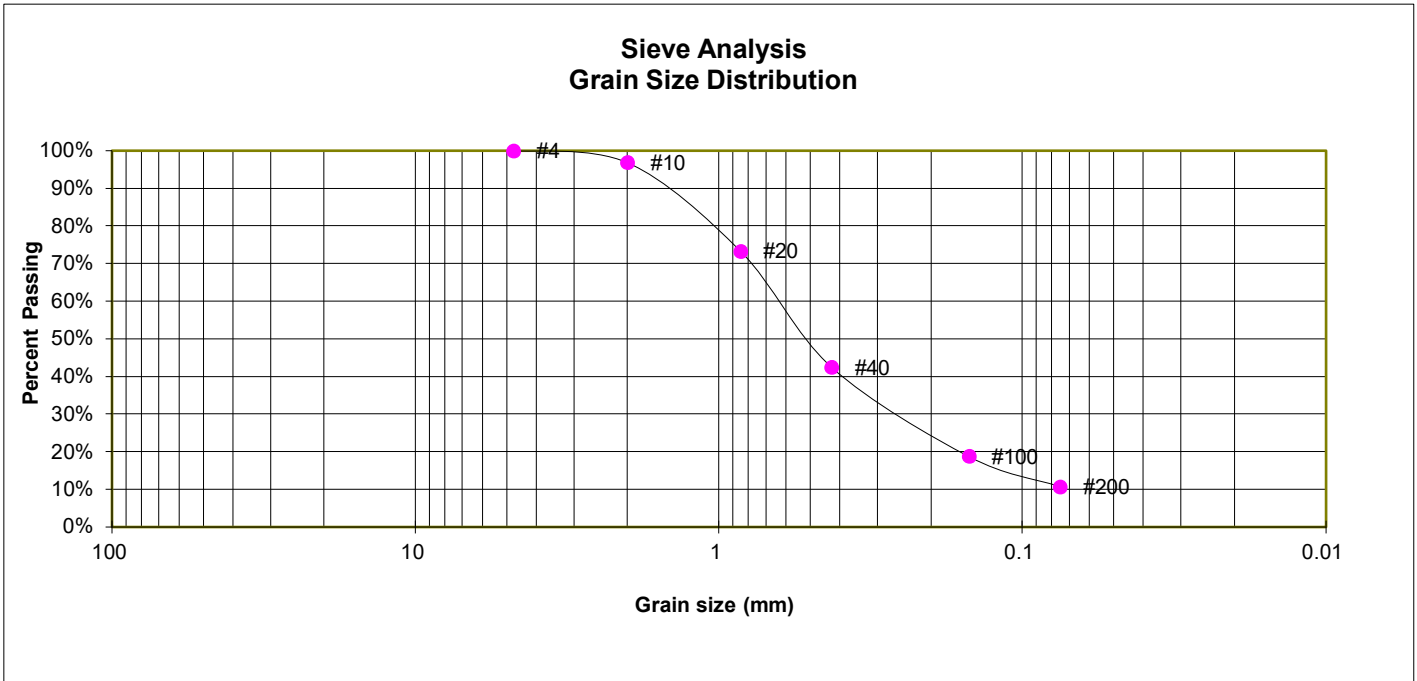
12960 N. PEYTON HIGHWAY  
 LAZY Y & ROCKIN' J

JOB NO.  
 230520

**FIG. C-7**

TEST BORING P-1  
DEPTH (FT) 15

SOIL DESCRIPTION SANDSTONE (SAND, WITH SILT)  
SOIL TYPE 3



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	96.9%
20	73.3%
40	42.4%
100	18.8%
200	10.7%

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: SW-SM



**LABORATORY TEST RESULTS**

12960 N. PEYTON HIGHWAY  
LAZY Y & ROCKIN' J

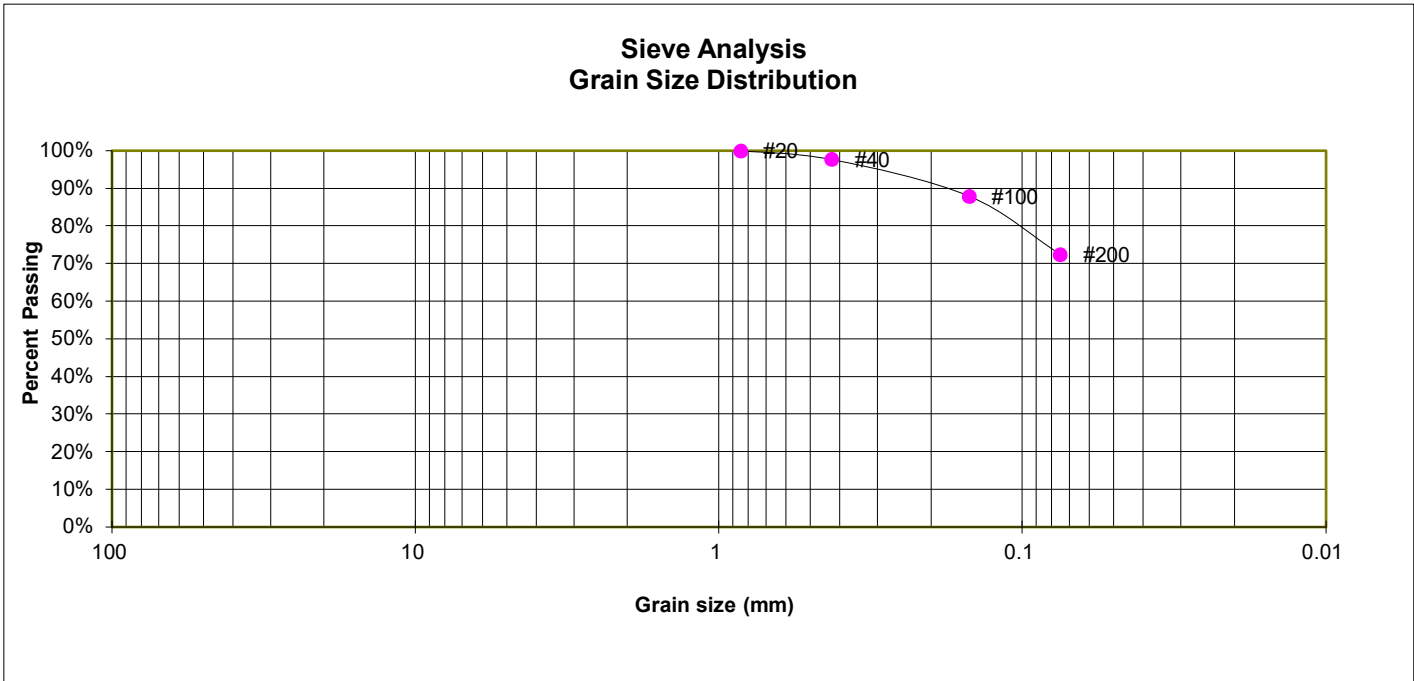
JOB NO.  
230520

**FIG. C-8**



TEST BORING P-1  
DEPTH (FT) 35

SOIL DESCRIPTION CLAYSTONE (CLAY, WITH SAND)  
SOIL TYPE 4



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	
20	100.0%
40	97.7%
100	88.0%
200	72.5%

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: CL



**LABORATORY TEST RESULTS**

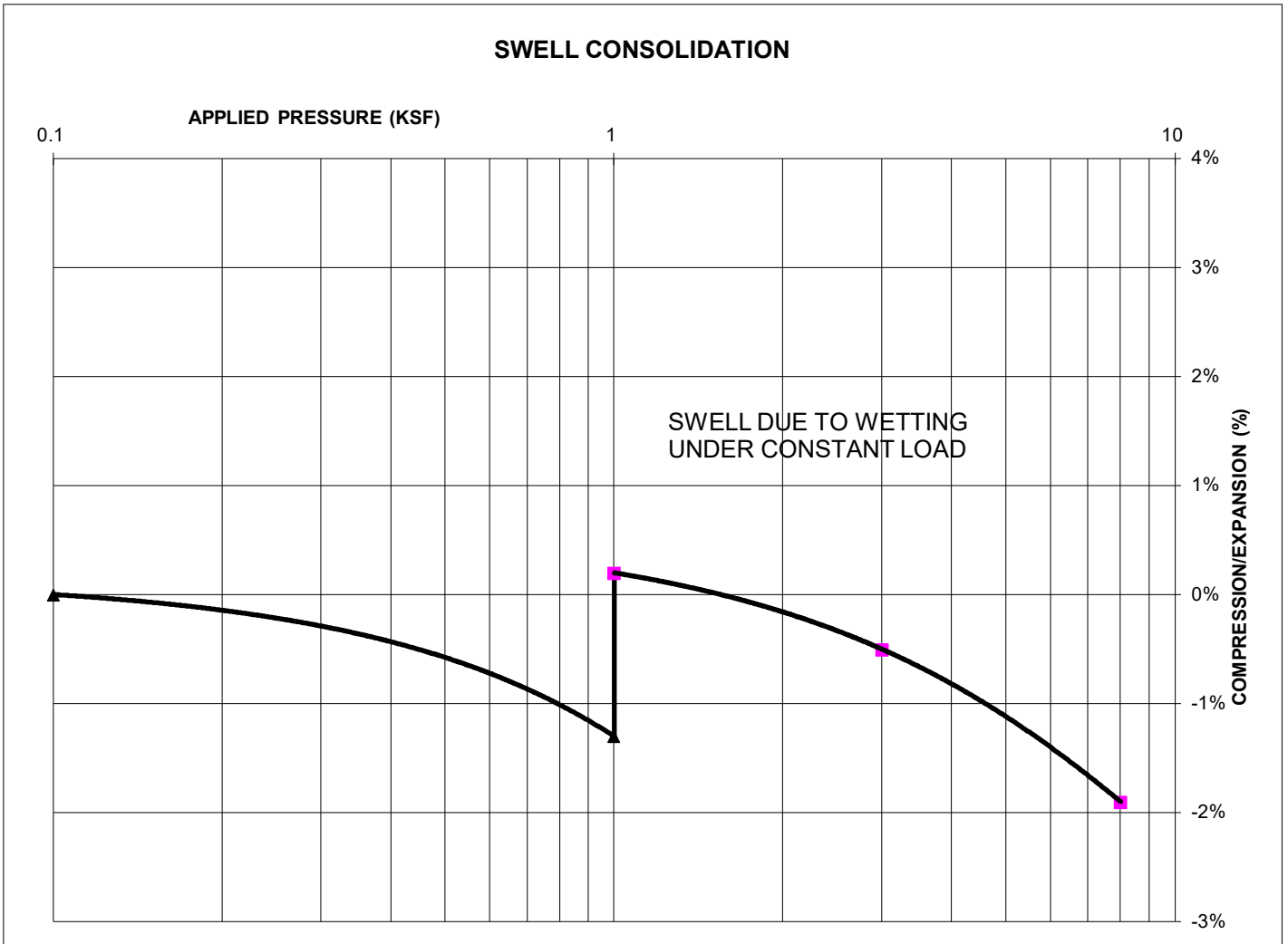
12960 N. PEYTON HIGHWAY  
LAZY Y & ROCKIN' J

JOB NO.  
230520

**FIG. C-9**

TEST BORING 1  
DEPTH (FT) 5

SOIL DESCRIPTION CLAY, SLIGHTLY SANDY  
SOIL TYPE 2



**SWELL/CONSOLIDATION TEST RESULTS**

NATURAL UNIT DRY WEIGHT (PCF): 117  
NATURAL MOISTURE CONTENT: 14.0%  
SWELL/CONSOLIDATION (%): 1.5%



**SWELL/CONSOLIDATION  
TEST RESULTS**

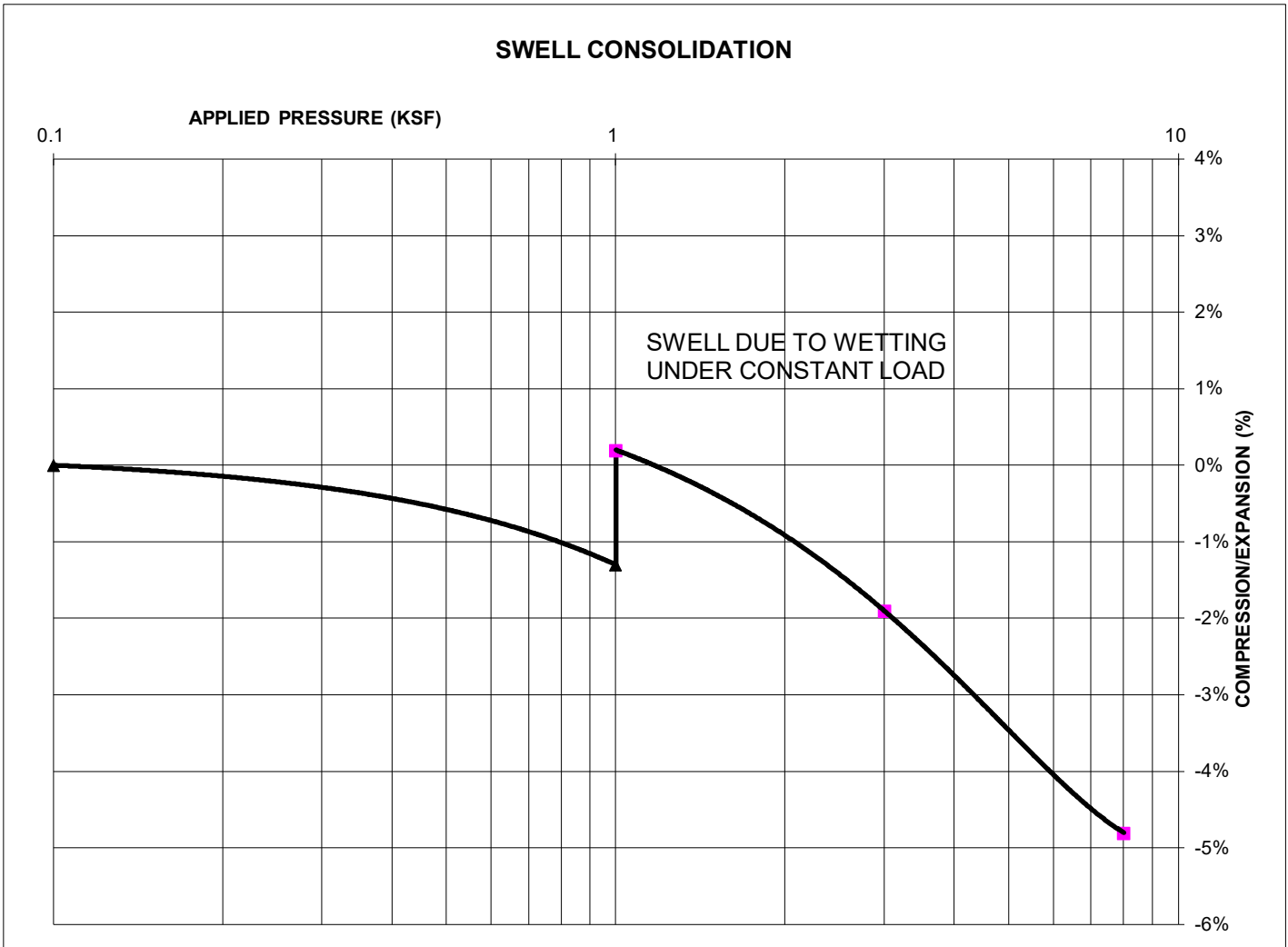
12960 N. PEYTON HIGHWAY  
LAZY Y & ROCKIN' J

JOB NO.  
230520

**FIG. C-10**

TEST BORING TP-1  
DEPTH (FT) 5

SOIL DESCRIPTION CLAY, SLIGHTLY SANDY  
SOIL TYPE 2



**SWELL/CONSOLIDATION TEST RESULTS**

NATURAL UNIT DRY WEIGHT (PCF): 100  
NATURAL MOISTURE CONTENT: 17.0%  
SWELL/CONSOLIDATION (%): 1.5%



**SWELL/CONSOLIDATION  
TEST RESULTS**

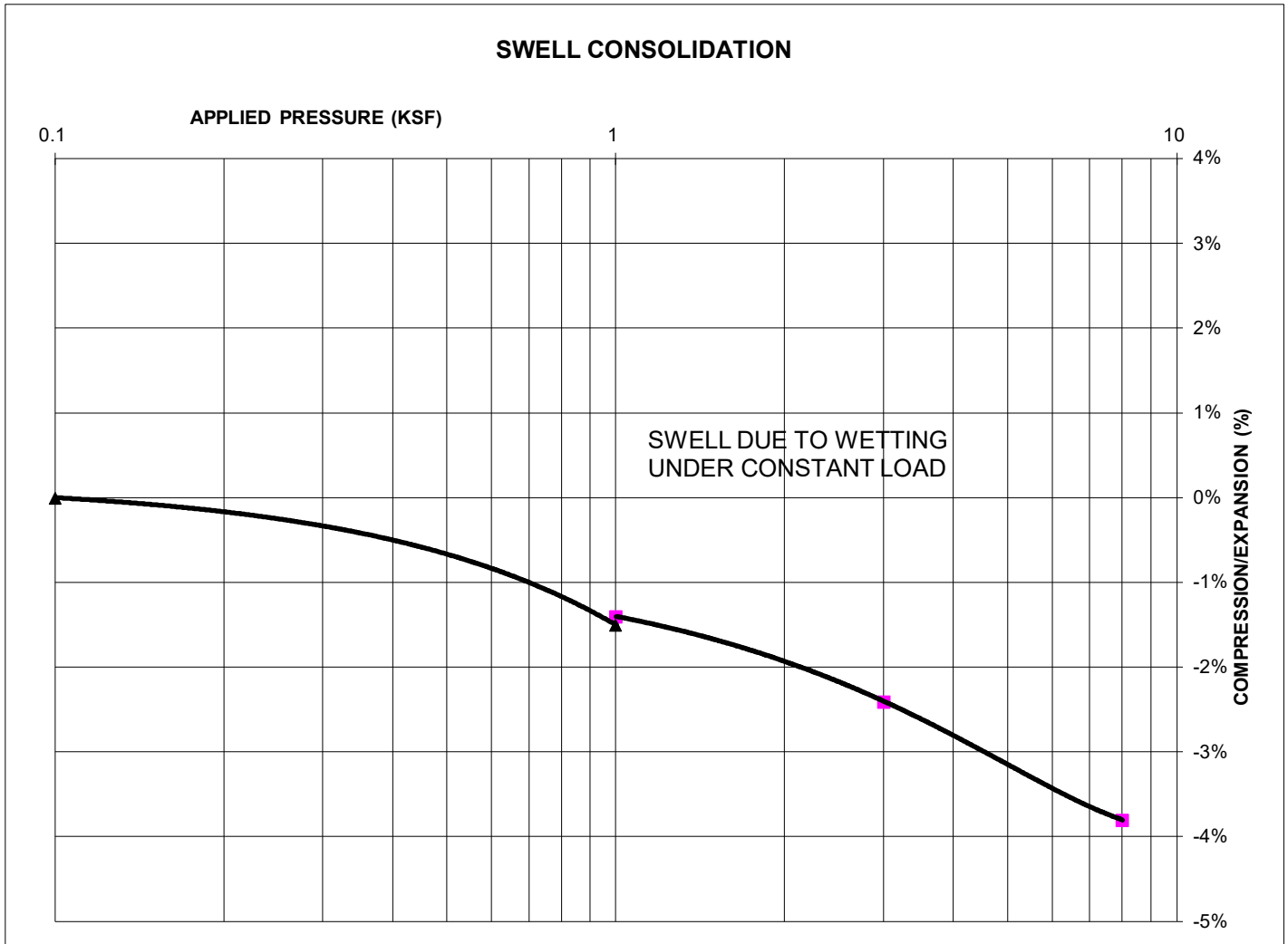
12960 N. PEYTON HIGHWAY  
LAZY Y & ROCKIN' J

JOB NO.  
230520

**FIG. C-11**

TEST BORING 4  
DEPTH (FT) 20

SOIL DESCRIPTION SANDSTONE (SAND, SILTY)  
SOIL TYPE 3



**SWELL/CONSOLIDATION TEST RESULTS**

NATURAL UNIT DRY WEIGHT (PCF): 114  
NATURAL MOISTURE CONTENT: 14.3%  
SWELL/CONSOLIDATION (%): 0.1%



**SWELL/CONSOLIDATION  
TEST RESULTS**

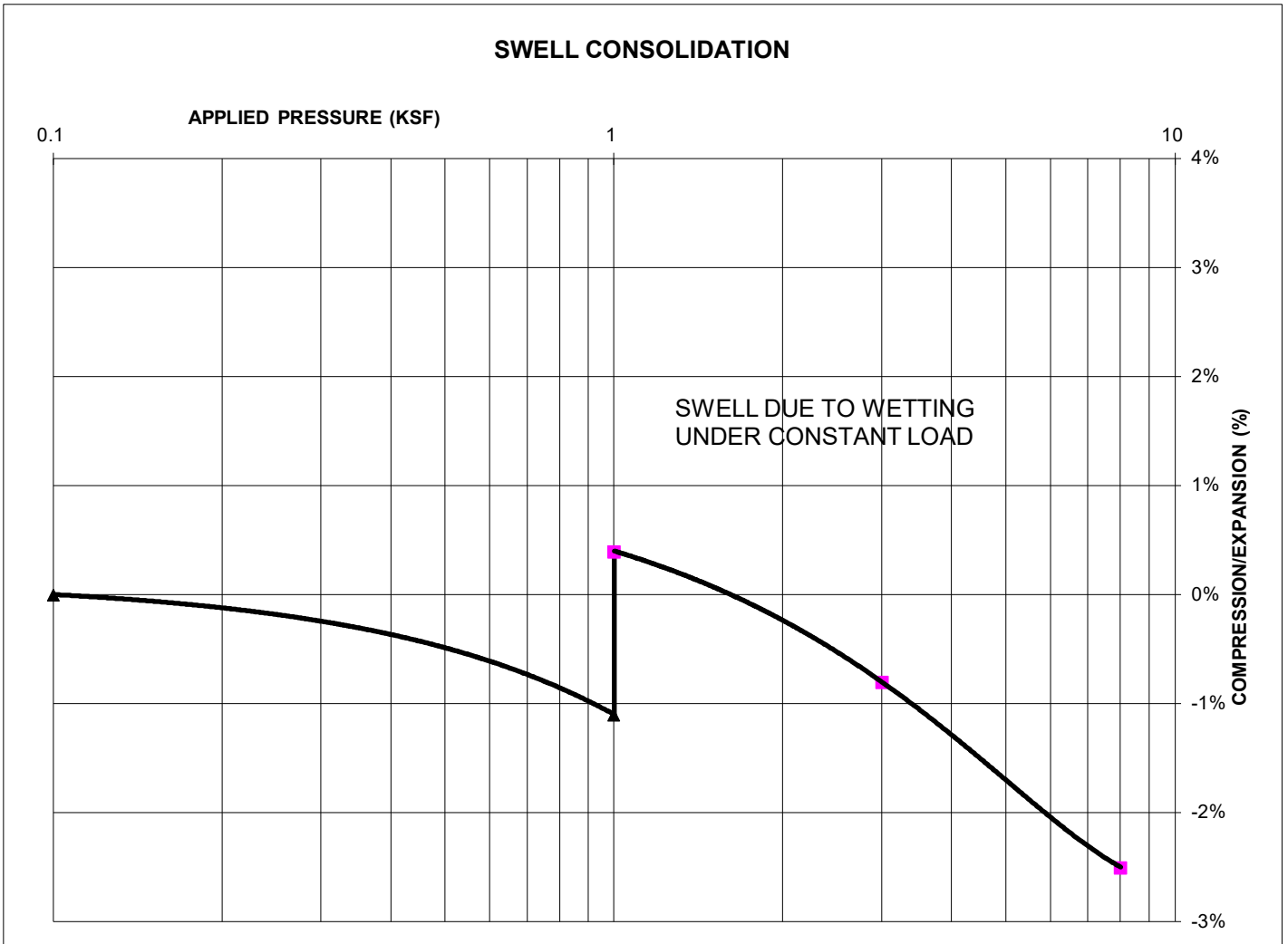
12960 N. PEYTON HIGHWAY  
LAZY Y & ROCKIN' J

JOB NO.  
230520

**FIG. C-12**

TEST BORING TP-1  
DEPTH (FT) 35

SOIL DESCRIPTION CLAYSTONE (CLAY, SANDY)  
SOIL TYPE 4



**SWELL/CONSOLIDATION TEST RESULTS**

NATURAL UNIT DRY WEIGHT (PCF): 113  
NATURAL MOISTURE CONTENT: 14.0%  
SWELL/CONSOLIDATION (%): 1.5%



**SWELL/CONSOLIDATION  
TEST RESULTS**

12960 N. PEYTON HIGHWAY  
LAZY Y & ROCKIN' J

JOB NO.  
230520

**FIG. C-13**

## **APPENDIX D: OWTS Site Evaluation**

May 25, 2023

Lazy Y and Rockin' J  
PO Box 516  
Peyton, CO 80831



**ENTECH**  
ENGINEERING, INC.

505 ELKTON DRIVE  
COLORADO SPRINGS, CO 80907  
PHONE (719) 531-5599  
FAX (719) 531-5238

Attn: Scott Smith

Re: OWTS Site Evaluation  
12960 North Peyton Highway  
Parcel No. 3207-000-007  
El Paso County, Colorado  
Entech Job No. 230520

Dear Mr. Smith:

As requested, personnel of Entech Engineering, Inc. have observed the excavation of nineteen test pits in the areas of the proposed location for the on-site wastewater treatment system (OWTS) absorption field at the above referenced site. This letter presents the results of our testing.

The test pits were excavated on April 13, 2023, April 14, 2023, and May 9, 2023 to approximate depths of 2.5 to 8-feet. The locations of the test pits are shown in Figure 1. Soils encountered in Test Pit Nos. 1, 2, 3 and 4 consisted of sandy clay to sandy clay loam with underlying sandy clay bedrock. Soils encountered in Test Pit Nos. 5, 6, 7, and 8 consisted of sandy clay to gravelly sandy clay loam with underlying sandy clay bedrock. Soils encountered in Test Pit Nos. 9 and 10 consisted of sandy clay to sandy clay loam with underlying bedrock. Soils encountered in Test Pit Nos. 11 and 12 consisted of sandy clay loam with gravel with underlying sandy clay. Soils encountered in Test Pit Nos. 13 and 14 consisted of sandy loam with gravel overlying sandy clay bedrock. Soils encountered in Test Pit Nos. 15, 16, 17, 18 and 19 consisted of gravelly sandy clay loam, sandy clay with underlying sandy loam to sandy clay loam bedrock (in Test Pit No. 15), gravelly sandy clay loam with underlying sandy clay, and sandy loam with underlying gravelly sandy clay loam.

The Test Pit Logs and Laboratory Test Results are shown in Figures 2 through 31 and Tables 1 and 2. Refusal due to bedrock was encountered at various depths throughout the site from 2.5 to 8.0 feet below grade (termination of Test Pit). No bedrock was encountered near Test Pit Nos. 11, 12, 16, 17, 18, or 19. Redoximorphic features were encountered at 7.0 to 7.5 feet below grade in Test Pit Nos. 11, 12, and 16, and at 6.0 feet below grade in Test Pit No. 18.

Visual and tactile evaluation of the soils was performed. The limiting layer encountered in Test Pit Nos. 11, 12, 15, 16, 17, and 19 is the sandy clay loam with gravel and the underlying sandy clay which classifies as USDA Soil Type 3, R-1, and 4A. For design purposes a maximum LTAR value of 0.55 gallons per day per square foot is recommended for Treatment Level 3, provided the soil treatment area is installed near Test Pit Nos. 11, 12, 15, 16, 17, and 19. A minimum 2 feet thick sand filter is required to achieve the Treatment Level 3 LTAR.

An engineered OWTS design is required for this site due to the following:

- The Proposed Flow Rate (10,000 to 12,500 gallons per day)
- Soil Types 3A, 4, 4A, and R1 encountered in the test pits
- Shallow refusal due to bedrock and redoximorphic features encountered in the test pits

Lazy Y and Rockin' J  
OWTS Site Evaluation  
12960 North Peyton Highway  
Parcel No. 3207-000-007  
El Paso County, Colorado  
Entech Job No. 230520


The on-site wastewater treatment system should be installed in accordance with El Paso County Department of Public Health and Environment and Colorado Department of Health and Environment regulations.

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

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Reviewed by:

  
Robert P. Jaquet, P.E.



  
Joseph C. Goode, Jr., P.E.  
President

JG/rj

Encl.

AA projects/2023/230520 owts site eval



# TABLE 1

## SUMMARY OF LABORATORY TEST RESULTS

CLIENT LAZY Y AND ROCKIN' J  
PROJECT 12960 NORTH PEYTON HIGHWAY  
JOB NO. 230520

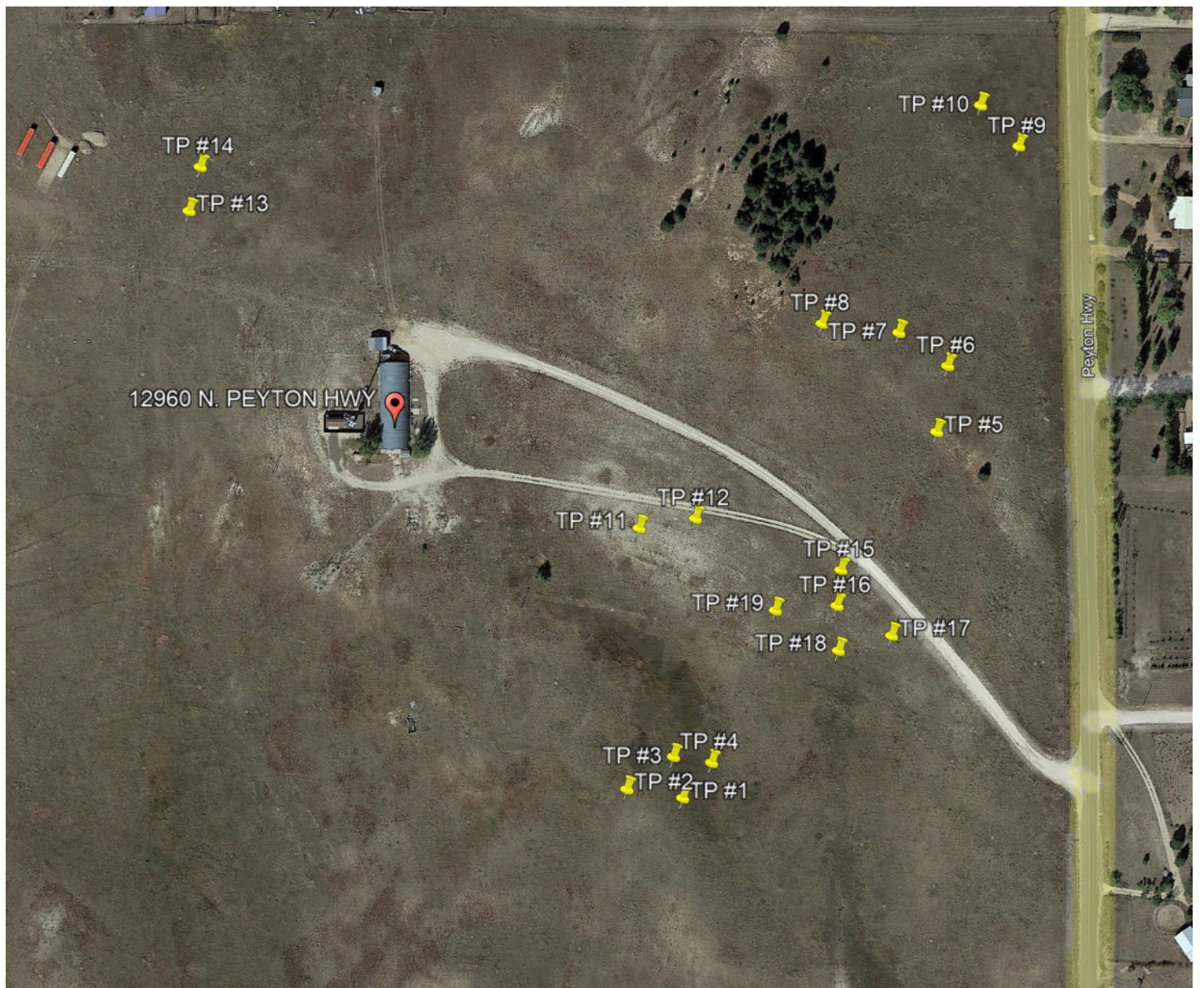
TEST PIT NO.	USDA SOIL TYPE	DEPTH (FT)	PASSING NO. 200 SIEVE (%)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION
TP-1	4A	4.0	53.6	CL	SANDY CLAY
TP-2	4A	2.0	95.1	CL	SANDY CLAY
TP-3	3	2.0	24.7	SC	SANDY CLAY
TP-4	4A	4.5	87.3	CL	SANDY CLAY
TP-5	3	3.0	20.1	SC	SANDY CLAY
TP-6	4A	3.5	33.6	SC	SANDY CLAY
TP-7	4A	2.5	23.1	SC	SANDY CLAY
TP-8	3A / R1	1.5	8.7	SM-SW	SANDY CLAY LOAM WITH GRAVEL
TP-9	3A	2.0	16.4	SC	SANDY CLAY LOAM
TP-10	4A	2.0	66.0	CL	SANDY CLAY
TP-11	3 / R1	4.0	7.7	SM-SW	SANDY CLAY LOAM WITH GRAVEL
TP-12	4A	7.5	21.5	SC	SANDY CLAY
TP-13	2 / R1	3.0	8.5	SM-SW	SANDY LOAM WITH GRAVEL
TP-14	4A	5.0	46.7	SC	VERY CLAYEY SAND
TP-15	3A	3.5	13.4	SC	SANDY CLAY LOAM
TP-16	3A / R1	3.0	9.1	SC	SANDY CLAY LOAM WITH GRAVEL
TP-16	3A / R1	6.5	12.6	SC	SANDY CLAY LOAM WITH GRAVEL
TP-17	4A	3.0	62.2	CL	SANDY CLAY
TP-18	3	4.0	9.2	SC	SANDY CLAY LOAM
TP-19	3 / R1	4.0	8.5	SC	SANDY CLAY LOAM WITH GRAVEL

## TABLE 2

### SUMMARY OF TEST PIT LOGS

CLIENT      LAZY Y AND ROCKIN' J  
PROJECT     12960 NORTH PEYTON HIGHWAY  
JOB NO.      230520

TEST PIT NO.	LIMITING SOIL LAYER	RECOMMENDED L.T.A.R.	DEPTH TO REDOXIMORPHIC FEATURES (ft.)	DEPTH TO BEDROCK (ft.)
TP-1	4A	0.15 T.L.1	n/a	4.5
TP-2	4A	0.15 T.L.1	n/a	2.5
TP-3	4A	0.15 T.L.1	n/a	6.5
TP-4	4A	0.15 T.L.1	n/a	5.0
TP-5	4A	0.15 T.L.1	n/a	6.0
TP-6	4A	0.15 T.L.1	n/a	4.0
TP-7	4A	0.15 T.L.1	n/a	3.0
TP-8	4A/R1	0.20 T.L.3	n/a	2.5
TP-9	3A	0.30 T.L.1	n/a	2.5
TP-10	4A	0.15 T.L.1	n/a	3.0
TP-11	3/R1	0.65 T.L.3	7.5	n/a
TP-12	3/R1	0.65 T.L.3	7.5	n/a
TP-13	4A/R1	0.20 T.L.3	6.0	6.0
TP-14	4A/R1	0.20 T.L.3	n/a	6.0
TP-15	3A/R1	0.30 T.L.3	n/a	5.0
TP-16	3A/R1	0.30 T.L.3	7.0	n/a
TP-17	4A/R1	0.20 T.L.3	n/a	n/a
TP-18	4A/R1	0.20 T.L.3	6.0	n/a
TP-19	4A/R1	0.20 T.L.3	6.0	n/a



## T.P. LOCATION MAP

SCALE: 1" = 210'

### TP- APPROXIMATE TEST PIT LOCATION AND NUMBER

- TP-1    39° 0'55.45"N,    104°28'49.68"W	- TP-11    39° 0'59.18"N,    104°28'50.45"W
- TP-2    39° 0'55.57"N,    104°28'50.67"W	- TP-12    39° 0'59.31"N,    104°28'49.46"W
- TP-3    39° 0'56.02"N,    104°28'49.84"W	- TP-13    39° 1' 3.53"N,    104°28'58.40"W
- TP-4    39° 0'55.94"N,    104°28'49.16"W	- TP-14    39° 1' 4.13"N,    104°28'58.20"W
- TP-5    39° 1' 0.51"N,    104°28'45.17"W	- TP-15    39° 0'58.60"N,    104°28'46.88"W
- TP-6    39° 1' 1.42"N,    104°28'44.96"W	- TP-16    39° 0'58.11"N,    104°28'46.94"W
- TP-7    39° 1' 1.88"N,    104°28'45.83"W	- TP-17    39° 0'57.70"N,    104°28'45.97"W
- TP-8    39° 1' 2.00"N,    104°28'47.21"W	- TP-18    39° 0'57.49"N,    104°28'46.91"W
- TP-9    39° 1' 4.53"N,    104°28'43.61"W	- TP-19    39° 0'58.05"N,    104°28'48.04"W
- TP-10    39° 1' 5.10"N,    104°28'44.30"W	



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COLORADO SPRINGS, CO. 80907    (719) 531-5599

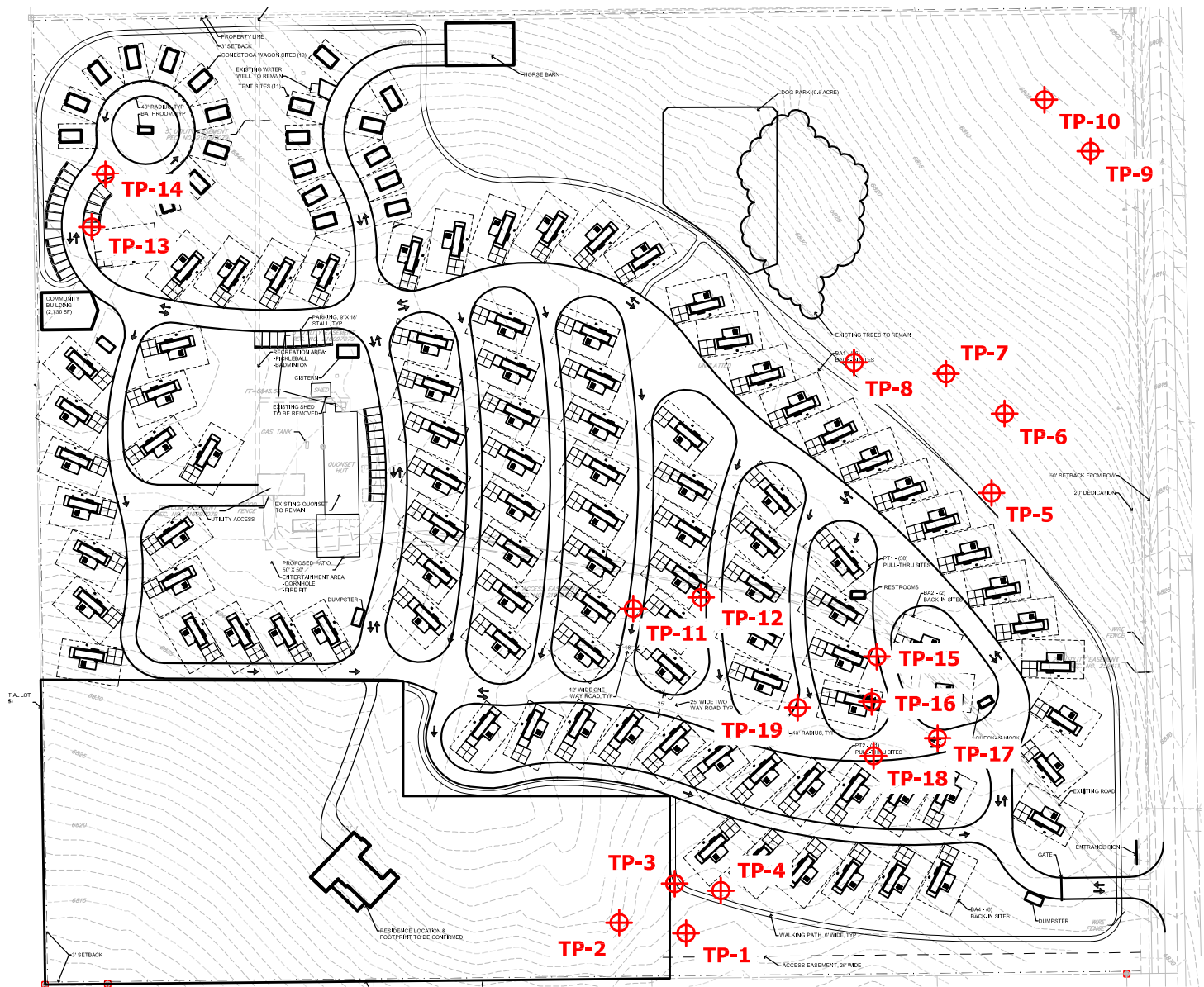
TEST PIT LOCATION MAP  
12960 NORTH PEYTON HIGHWAY  
EL PASO COUNTY, COLORADO  
FOR: LAZY Y & ROCKIN' J

JOB NO.:

230520

FIG NO.:

1



### T.P. LOCATION MAP

SCALE: 1" = 210'

#### TP- APPROXIMATE TEST PIT LOCATION AND NUMBER

- TP-1	39° 0'55.45"N,	104°28'49.68"W	- TP-11	39° 0'59.18"N,	104°28'50.45"W
- TP-2	39° 0'55.57"N,	104°28'50.67"W	- TP-12	39° 0'59.31"N,	104°28'49.46"W
- TP-3	39° 0'56.02"N,	104°28'49.84"W	- TP-13	39° 1' 3.53"N,	104°28'58.40"W
- TP-4	39° 0'55.94"N,	104°28'49.16"W	- TP-14	39° 1' 4.13"N,	104°28'58.20"W
- TP-5	39° 1' 0.51"N,	104°28'45.17"W	- TP-15	39° 0'58.60"N,	104°28'46.88"W
- TP-6	39° 1' 1.42"N,	104°28'44.96"W	- TP-16	39° 0'58.11"N,	104°28'46.94"W
- TP-7	39° 1' 1.88"N,	104°28'45.83"W	- TP-17	39° 0'57.70"N,	104°28'45.97"W
- TP-8	39° 1' 2.00"N,	104°28'47.21"W	- TP-18	39° 0'57.49"N,	104°28'46.91"W
- TP-9	39° 1' 4.53"N,	104°28'43.61"W	- TP-19	39° 0'58.05"N,	104°28'48.04"W
- TP-10	39° 1' 5.10"N,	104°28'44.30"W			



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TEST PIT LOCATION MAP  
12960 NORTH PEYTON HIGHWAY  
EL PASO COUNTY, COLORADO  
FOR: LAZY Y & ROCKIN' J

JOB NO.:  
230520  
FIG NO.:  
1A

TEST PIT NO. 1  
 DATE EXCAVATED 4/13/2023  
 Job # 230520

TEST PIT NO. 2  
 DATE EXCAVATED 4/13/2023  
 CLIENT LAZY Y AND ROCKIN' J  
 LOCATION 12960 NORTH PEYTON HIGHWAY

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
bedrock refusal @ 4'-6"							redoximorphic features / bedrock refusal @ 2'-6"						
topsoil, sandy clay loam, brown, moist	1	[Symbol]		bl	s	4	topsoil, sandy clay loam, brown, moist	1	[Symbol]				
sandy clay, fine to coarse grained, brown, moist	2	[Symbol]					sandy clay, fine to coarse grained, tan, moist	2	[Symbol]		ma		4A
	3	[Symbol]					bedrock @ 2'-6"	3	[Symbol]				
sandy clay, fine to medium grained, brown, moist	4	[Symbol]		ma		4A		4	[Symbol]				
bedrock @ 4'-6"	5	[Symbol]						5	[Symbol]				
	6	[Symbol]						6	[Symbol]				
	7	[Symbol]						7	[Symbol]				
	8	[Symbol]						8	[Symbol]				
	9	[Symbol]						9	[Symbol]				
	10	[Symbol]						10	[Symbol]				

Soil Structure Shape  
 granular - gr  
 platy - pl  
 blocky - bl  
 prismatic - pr  
 single grain - sg  
 massive - ma

Soil Structure Grade  
 weak - w  
 moderate - m  
 strong - s  
 loose - l



TEST PIT LOG

JOB NO.: 230520  
 FIG NO.: 2

TEST PIT NO. 3  
 DATE EXCAVATED 4/13/2023  
 Job # 230520

TEST PIT NO. 4  
 DATE EXCAVATED 4/13/2023  
 CLIENT LAZY Y AND ROCKIN' J  
 LOCATION 12960 NORTH PEYTON HIGHWAY

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
bedrock refusal @ 6'-6"							bedrock refusal @ 5'-0"						
topsoil, sandy clay loam, brown, moist	1	[Symbol]					topsoil, sandy clay loam, brown, moist	1	[Symbol]				
sandy clay loam, fine to coarse grained, tan, moist	2	[Symbol]		bl	m	3		2	[Symbol]				
	3	[Symbol]					sandy clay loam, fine to coarse grained, tan, moist	3	[Symbol]		gr	m	3
	4	[Symbol]						4	[Symbol]				
	5	[Symbol]					sandy clay, fine to medium grained, brown, moist	5	[Symbol]		ma		4A
sandy clay, fine to medium grained, brown, moist	6	[Symbol]		ma		4A	bedrock @ 5'-0"	6					
bedrock @ 6'-6"	7							7					
	8							8					
	9							9					
	10							10					

Soil Structure Shape  
 granular - gr  
 platy - pl  
 blocky - bl  
 prismatic - pr  
 single grain - sg  
 massive - ma

Soil Structure Grade  
 weak - w  
 moderate - m  
 strong - s  
 loose - l



TEST PIT LOG

JOB NO.: 230520  
 FIG NO.: 3

TEST PIT NO. 5  
 DATE EXCAVATED 4/13/2023  
 Job # 230520

TEST PIT NO. 6  
 DATE EXCAVATED 4/13/2023  
 CLIENT LAZY Y AND ROCKIN' J  
 LOCATION 12960 NORTH PEYTON HIGHWAY

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
bedrock refusal @ 6'-0"							bedrock refusal @ 4'-0"						
topsoil, sandy clay loam, brown, moist	1	[Symbol]					topsoil, sandy clay loam, brown, moist	1	[Symbol]				
	2	[Symbol]						2	[Symbol]				
sandy clay loam, fine to coarse grained, tan, moist	3	[Symbol]		gr	m	3	sandy clay, fine to medium grained, brown, moist	3	[Symbol]		ma		4A
	4	[Symbol]					bedrock @ 4'-0"	4	[Symbol]				
sandy clay, fine to medium grained, dark brown, moist	5	[Symbol]		ma		4A		5	[Symbol]				
bedrock @ 6'-0"	6	[Symbol]						6	[Symbol]				
	7							7					
	8							8					
	9							9					
	10							10					

Soil Structure Shape  
 granular - gr  
 platy - pl  
 blocky - bl  
 prismatic - pr  
 single grain - sg  
 massive - ma

Soil Structure Grade  
 weak - w  
 moderate - m  
 strong - s  
 loose - l



TEST PIT LOG

JOB NO.: 230520  
 FIG NO.: 4

TEST PIT NO. 7  
 DATE EXCAVATED 4/13/2023  
 Job # 230520

TEST PIT NO. 8  
 DATE EXCAVATED 4/13/2023  
 CLIENT LAZY Y AND ROCKIN' J  
 LOCATION 12960 NORTH PEYTON HIGHWAY

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
bedrock refusal @ 3'-0"							bedrock refusal @ 2'-6"						
topsoil, sandy clay loam, brown, moist	1	[Symbol]		gr	s	4	topsoil, sandy clay loam, brown, moist	1	[Symbol]		ma		3A/R1
sandy clay, fine to medium grained, brown, moist	2	[Symbol]		ma		4A	sandy clay loam with gravel, fine to medium grained, red	2	[Symbol]		ma		4A
sandy clay, fine to medium grained, dark brown, moist	3	[Symbol]					sandy clay, fine to medium grained, greyish brown, moist	3	[Symbol]				
bedrock @ 3'-0"	4						bedrock @ 2'-6"	4					
	5							5					
	6							6					
	7							7					
	8							8					
	9							9					
	10							10					

Soil Structure Shape  
 granular - gr  
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 single grain - sg  
 massive - ma

Soil Structure Grade  
 weak - w  
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 strong - s  
 loose - l



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505 ELKTON DRIVE  
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TEST PIT LOG

JOB NO.:  
 230520

FIG NO.:  
 5



TEST PIT NO. 9  
 DATE EXCAVATED 4/14/2023  
 Job # 230520

TEST PIT NO. 10  
 DATE EXCAVATED 4/14/2023  
 CLIENT LAZY Y AND ROCKIN' J  
 LOCATION 12960 NORTH PEYTON HIGHWAY

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
bedrock refusal @ 2'-6"							bedrock refusal @ 3'-0"						
topsoil, sandy clay loam, brown, moist	1						topsoil, sandy clay loam, brown, moist	1					
sandy clay loam, fine to coarse grained, brown, moist	2			ma		3A	sandy clay, fine to medium grained, dark brown, moist	2			ma		4A
bedrock @ 2'-6"	3						bedrock @ 3'-0"	3					
	4							4					
	5							5					
	6							6					
	7							7					
	8							8					
	9							9					
	10							10					

Soil Structure Shape  
 granular - gr  
 platy - pl  
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Soil Structure Grade  
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 COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

JOB NO.:  
 230520

FIG NO.:  
 6

TEST PIT NO. 11  
 DATE EXCAVATED 4/14/2023  
 Job # 230520

TEST PIT NO. 12  
 DATE EXCAVATED 4/14/2023  
 CLIENT LAZY Y AND ROCKIN' J  
 LOCATION 12960 NORTH PEYTON HIGHWAY

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
redoximorphic features @ 7'-6"							redoximorphic features @ 7'-6"						
topsoil, sandy clay loam, brown, moist	1						topsoil, sandy clay loam, brown, moist	1					
	2							2					
sandy clay loam with gravel pockets, fine to very coarse grained, reddish brown, moist	3			gr	s	3/R1	sandy clay loam with gravel pockets, fine to very coarse grained, reddish brown, moist	3			gr	s	3/R1
	4							4					
	5							5					
	6							6					
	7							7					
sandy clay, fine to medium grained, greyish brown, moist	8			ma		4A	sandy clay, fine to medium grained, greyish brown, moist	8			ma		4A
	9							9					
	10							10					

Soil Structure Shape  
 granular - gr  
 platy - pl  
 blocky - bl  
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 single grain - sg  
 massive - ma

Soil Structure Grade  
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505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

JOB NO.:  
 230520

FIG NO.:  
 7

TEST PIT NO. 13  
 DATE EXCAVATED 4/14/2023  
 Job # 230520

TEST PIT NO. 14  
 DATE EXCAVATED 4/14/2023  
 CLIENT LAZY Y AND ROCKIN' J  
 LOCATION 12960 NORTH PEYTON HIGHWAY

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
redoximorphic features / bedrock refusal @ 6'-0"							bedrock refusal @ 6'-0"						
topsoil, sandy clay loam, brown, moist	1						topsoil, sandy clay loam, brown, moist	1					
sandy loam with gravel, fine to very coarse grained, tan, moist	3			gr	s	2/R1	sandy loam with gravel, fine to very coarse grained, tan, moist	3			gr	s	2/R1
sandy clay, fine to medium grained, dark brown, moist	5			ma		4A	sandy clay, fine to medium grained, dark brown, moist	5			ma		4A
bedrock @ 6'-0"	6						bedrock @ 6'-0"	6					

Soil Structure Shape  
 granular - gr  
 platy - pl  
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 prismatic - pr  
 single grain - sg  
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Soil Structure Grade  
 weak - w  
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 loose - l



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**ENGINEERING, INC.**

505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

JOB NO.:  
 230520

FIG NO.:  
 8

TEST PIT NO. 15  
 DATE EXCAVATED 5/9/2023  
 Job # 230520

TEST PIT NO. 16  
 DATE EXCAVATED 5/9/2023  
 CLIENT LAZY Y AND ROCKIN' J  
 LOCATION 12960 NORTH PEYTON HIGHWAY

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
bedrock refusal @ 5'-0"							redoximorphic features @ 7'-0"						
topsoil, sandy clay loam, brown, moist	1						topsoil, sandy clay loam, brown, moist	1					
gravelly sandy clay loam, fine to very coarse grained, brown, moist	2			gr	s	3/R1	gravelly sandy clay loam, fine to coarse grained, dark brown, moist	2			gr	s	3
gravelly sandy clay loam, fine to very coarse grained, brown, moist	3			ma		3A/R1	sandy clay loam with gravel, fine to very coarse grained, brown, moist	3			ma		3A/R1
bedrock @ 5'-0"	5							5					
	6						sandy clay loam with gravel, fine to very coarse grained, greyish brown, moist	6			gr	s	3
	7							7					
	8							8					
	9							9					
	10							10					

Soil Structure Shape  
 granular - gr  
 platy - pl  
 blocky - bl  
 prismatic - pr  
 single grain - sg  
 massive - ma

Soil Structure Grade  
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 loose - l



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505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

JOB NO.:  
 230520

FIG NO.:  
 9

TEST PIT NO. 17  
 DATE EXCAVATED 5/9/2023  
 Job # 230520

TEST PIT NO. 18  
 DATE EXCAVATED 5/9/2023  
 CLIENT LAZY Y AND ROCKIN' J  
 LOCATION 12960 NORTH PEYTON HIGHWAY

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
topsoil, sandy clay loam, brown, moist	1						topsoil, sandy clay loam, brown, moist	1					
	2						redoximorphic features @ 6'-0"	2					
sandy clay, fine to medium grained, brown, moist	3			ma		4A	gravelly sandy clay loam, fine to coarse grained, dark brown, moist	3			gr	s	3
	4						gravelly sandy clay loam, fine to coarse grained, brown, moist	4			gr	s	3/R1
gravelly sandy loam, fine to very coarse grained, tan, moist	5							5					
	6			gr	s	2/R1		6					
gravelly sandy clay loam, fine to very coarse grained, brown, moist	7			ma		3A	sandy loam with gravel, fine to very coarse grained, brown, moist	7			ma		4A
	8							8					
	9							9					
	10							10					

Soil Structure Shape  
 granular - gr  
 platy - pl  
 blocky - bl  
 prismatic - pr  
 single grain - sg  
 massive - ma

Soil Structure Grade  
 weak - w  
 moderate - m  
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 loose - l



**ENTECH**  
**ENGINEERING, INC.**

505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

JOB NO.:  
 230520

FIG NO.:  
 10

TEST PIT NO. 19  
 DATE EXCAVATED 5/9/2023  
 Job # 230520

TEST PIT NO.  
 DATE EXCAVATED  
 CLIENT LAZY Y AND ROCKIN' J  
 LOCATION 12960 NORTH PEYTON HIGHWAY

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
redoximorphic features @ 6'-0"													
topsoil, sandy clay loam, brown, moist	1			gr	s	2/R1		1					
gravelly sandy loam, fine to very coarse grained, tan, moist	2							2					
	3							3					
gravelly sandy clay loam, fine to very coarse grained, brown, moist	4			gr	s	3/R1		4					
	5							5					
	6							6					
sandy clay loam, fine to coarse grained, reddish brown, moist	7			gr	s	3		7					
	8							8					
	9							9					
	10							10					

Soil Structure Shape  
 granular - gr  
 platy - pl  
 blocky - bl  
 prismatic - pr  
 single grain - sg  
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Soil Structure Grade  
 weak - w  
 moderate - m  
 strong - s  
 loose - l



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**ENGINEERING, INC.**

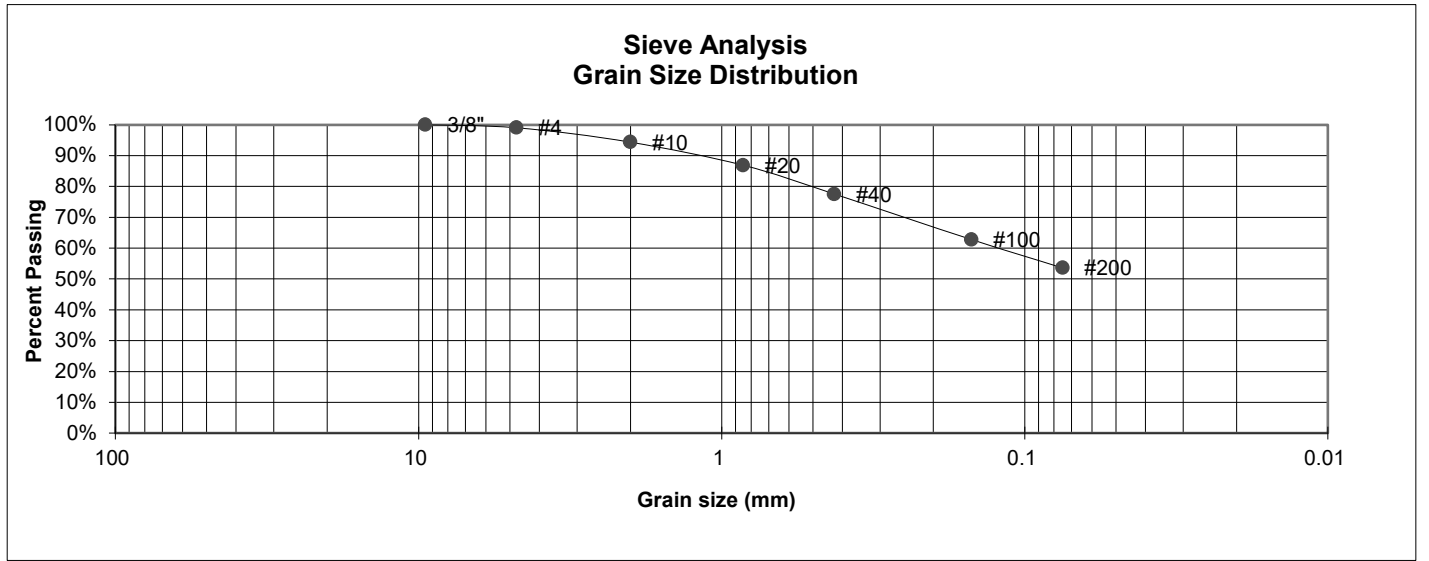
505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

JOB NO.:  
 230520

FIG NO.:  
 11

<b>UNIFIED CLASSIFICATION</b>	CL	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	4A	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-1	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	4	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.1%
10	94.4%
20	86.8%
40	77.5%
100	62.8%
200	53.6%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



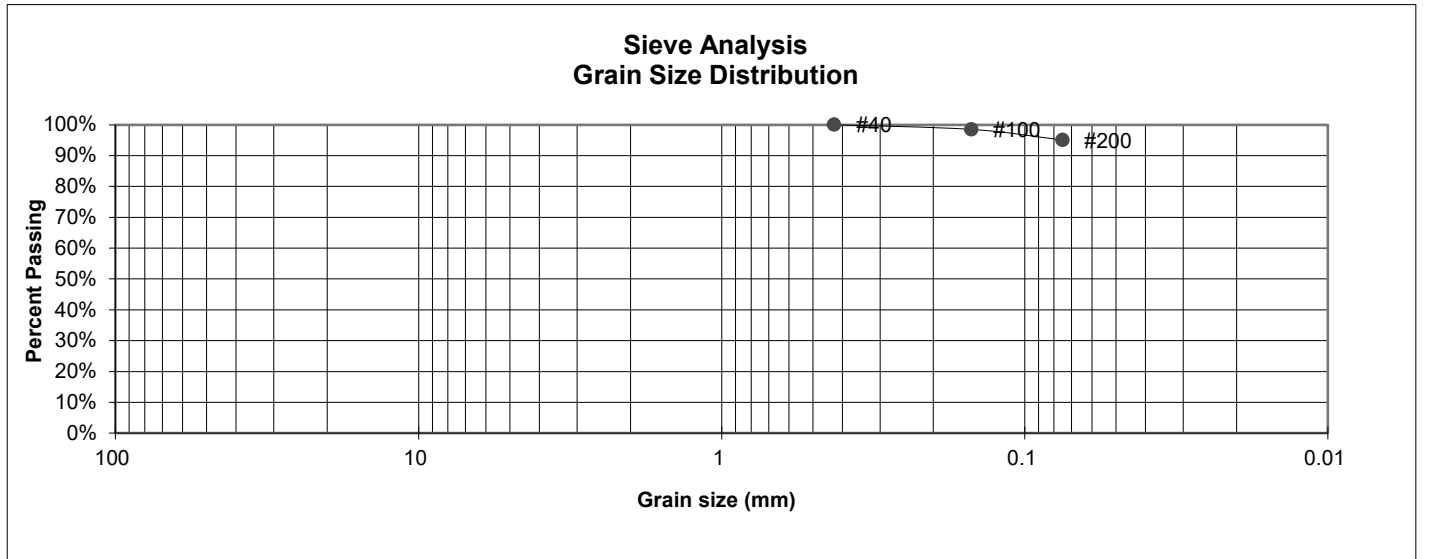
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**LABORATORY TEST  
RESULTS**

JOB NO.  
230520  
FIG NO.  
12

<b>UNIFIED CLASSIFICATION</b>	CL	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	4A	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-2	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	2	<b>TEST BY</b>	BL



<u>U.S. Sieve #</u>	<u>Percent Finer</u>	<u>Atterberg Limits</u>
3"		Plastic Limit
1 1/2"		Liquid Limit
3/4"		Plastic Index
1/2"		
3/8"		<u>Swell</u>
4		Moisture at start
10		Moisture at finish
20		Moisture increase
40	100.0%	Initial dry density (pcf)
100	98.5%	Swell (psf)
200	95.1%	



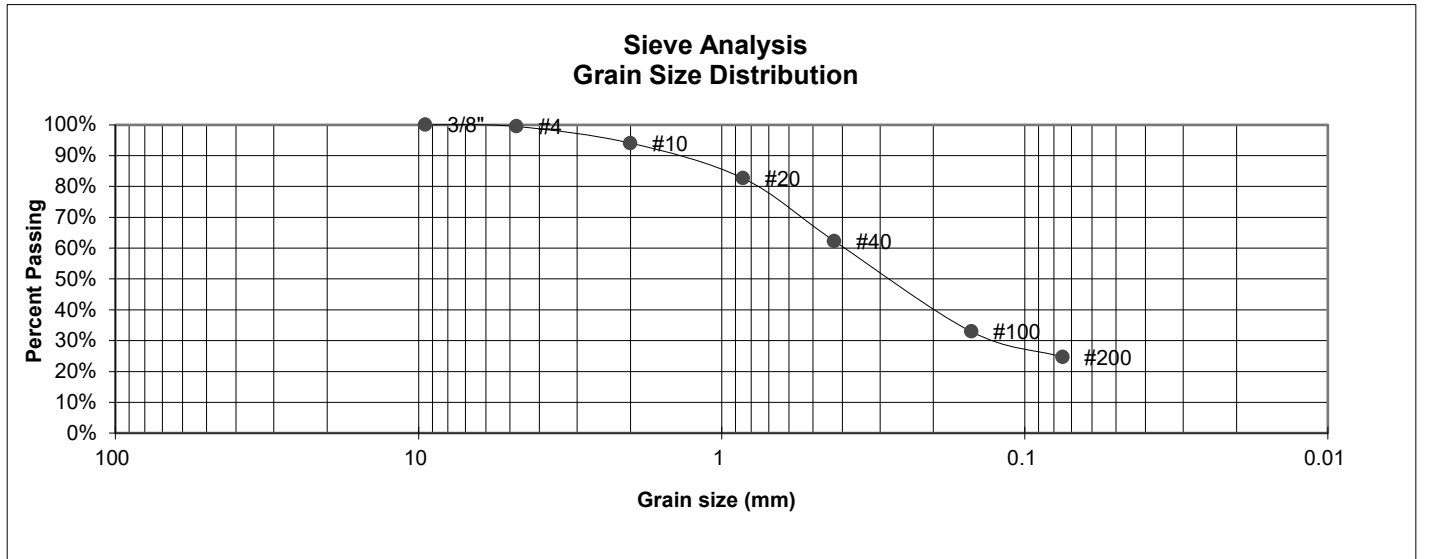
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LABORATORY TEST  
RESULTS

JOB NO.  
230520  
FIG NO.  
13



<b>UNIFIED CLASSIFICATION</b>	SC	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	3	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-3	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	2	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.4%
10	94.0%
20	82.6%
40	62.3%
100	32.9%
200	24.7%

- Atterberg Limits  
 Plastic Limit  
 Liquid Limit  
 Plastic Index
- Swell  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



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LABORATORY TEST  
RESULTS

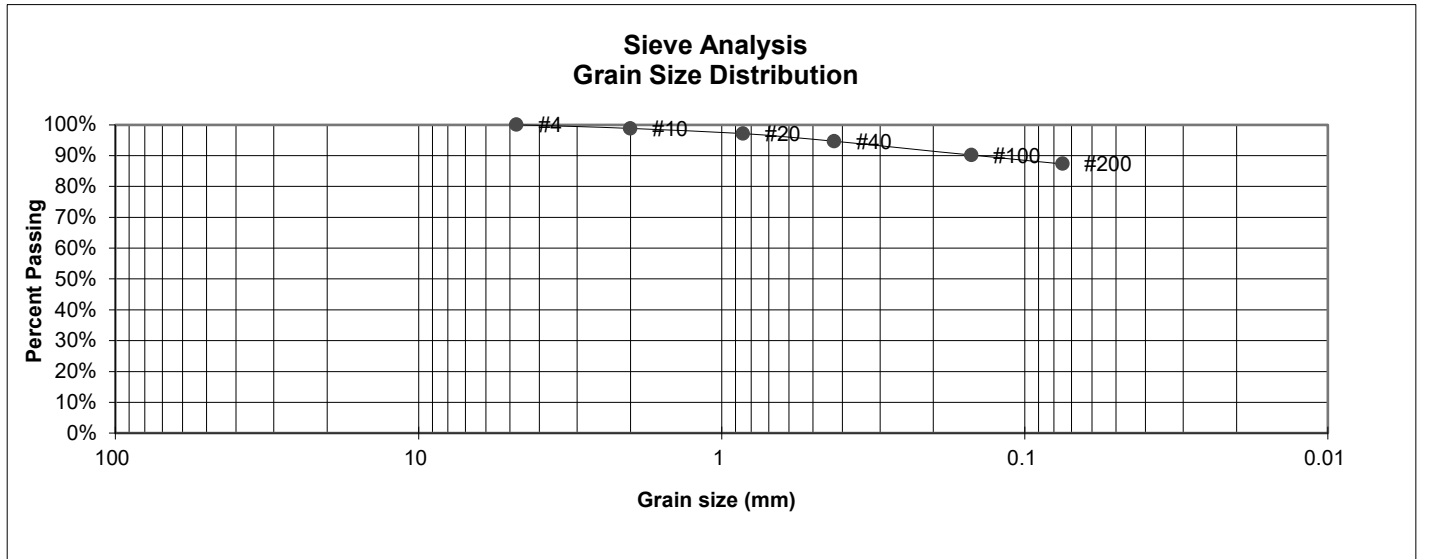
JOB NO.

230520

FIG NO.

14

<b>UNIFIED CLASSIFICATION</b>	CL	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	4A	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-4	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	4.5	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	98.8%
20	97.1%
40	94.7%
100	90.2%
200	87.3%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



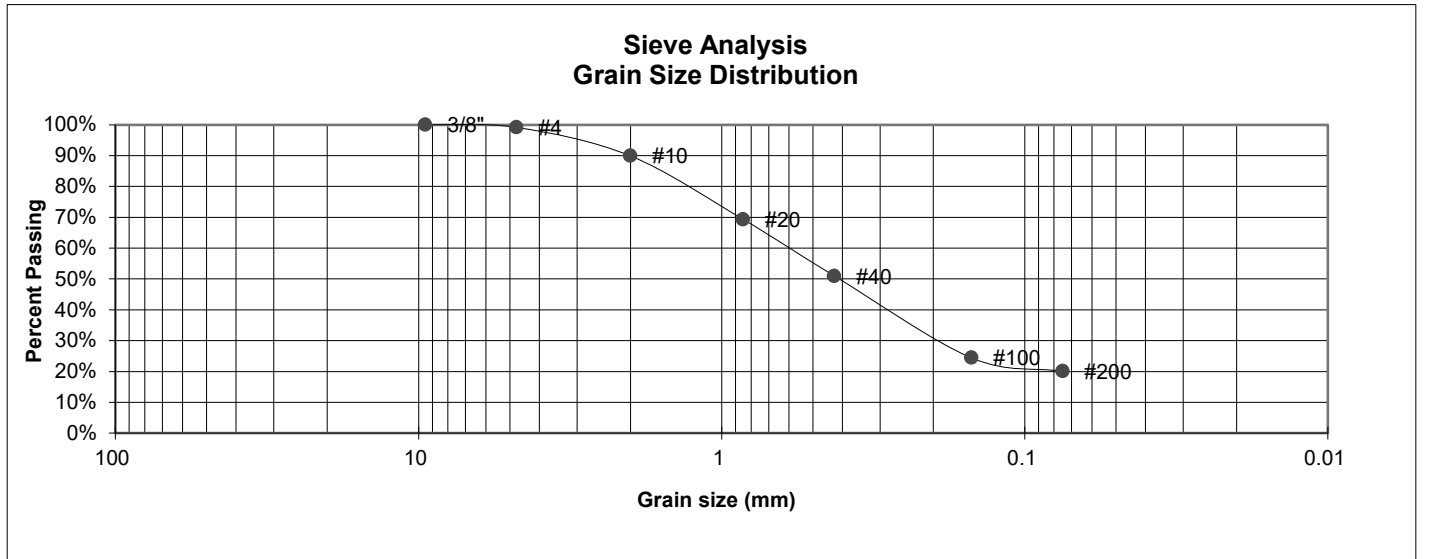
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LABORATORY TEST  
RESULTS

JOB NO.  
230520  
FIG NO.  
15

<b>UNIFIED CLASSIFICATION</b>	SC	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	3	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-5	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	3	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.2%
10	89.9%
20	69.3%
40	50.9%
100	24.4%
200	20.1%

- Atterberg Limits  
 Plastic Limit  
 Liquid Limit  
 Plastic Index
- Swell  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



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LABORATORY TEST  
RESULTS

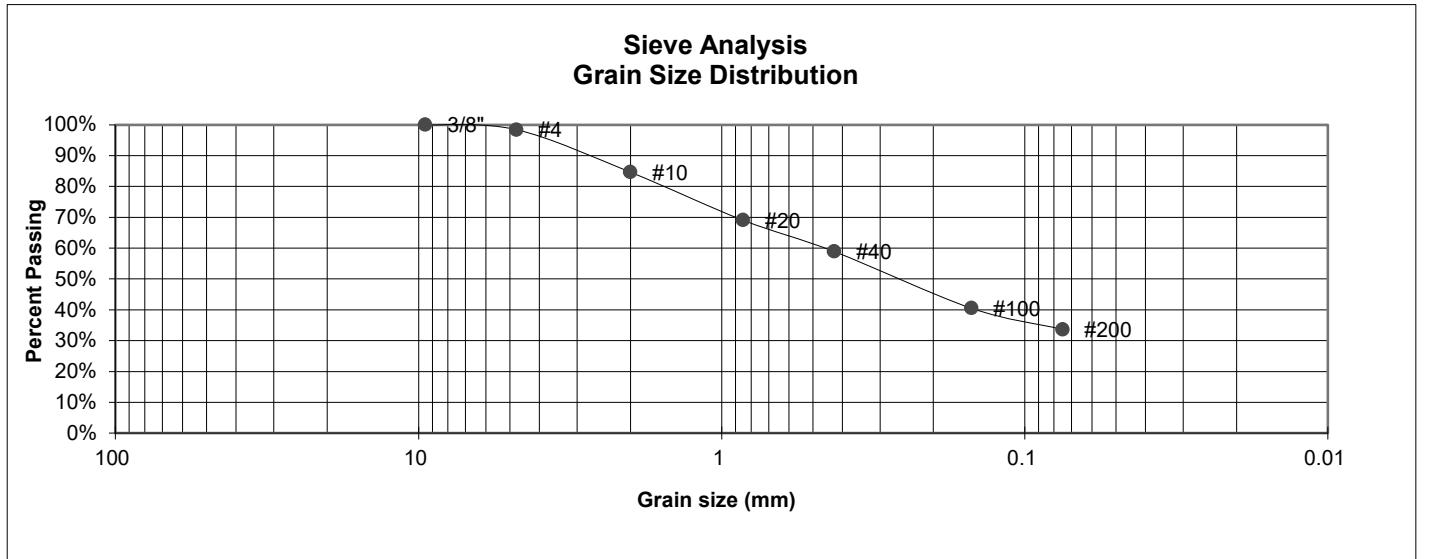
JOB NO.

230520

FIG NO.

16

<b>UNIFIED CLASSIFICATION</b>	SC	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	4A	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-6	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	3.5	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	98.4%
10	84.6%
20	69.0%
40	58.9%
100	40.5%
200	33.6%

Atterberg Limits  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

Swell  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



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LABORATORY TEST  
RESULTS

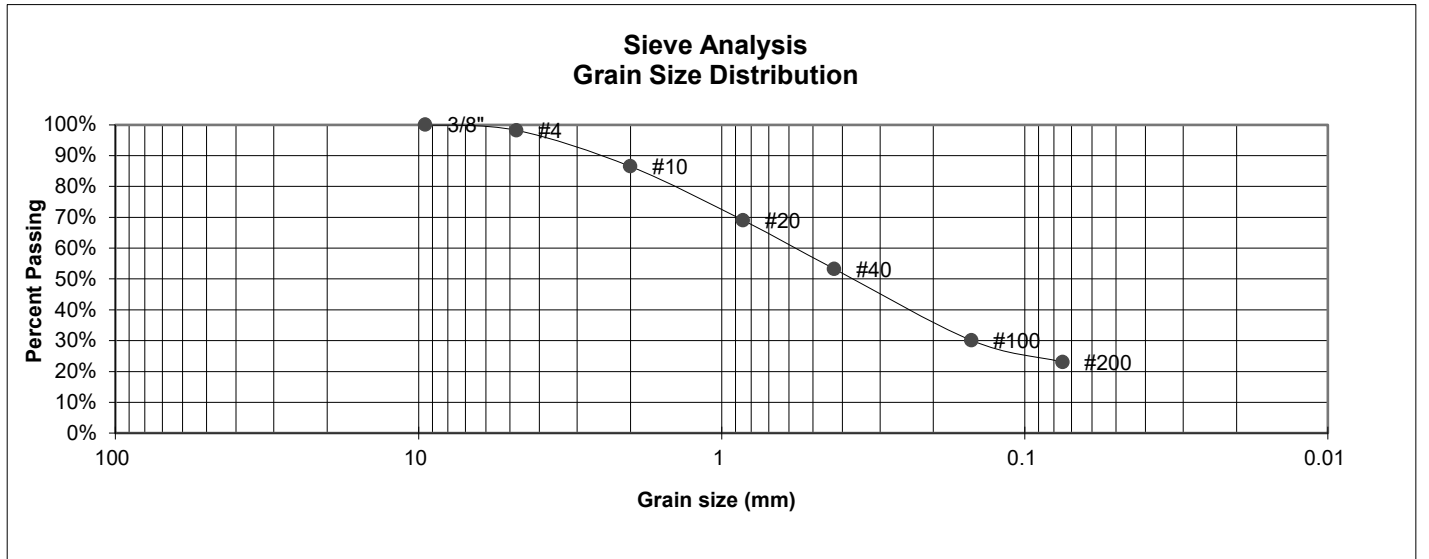
JOB NO.

230520

FIG NO.

17

<u>UNIFIED CLASSIFICATION</u>	SC	<u>CLIENT</u>	LAZY Y AND ROCKIN' J
<u>SOIL TYPE #</u>	4A	<u>PROJECT</u>	12960 NORTH PEYTON HIGHWAY
<u>TEST BORING #</u>	TP-7	<u>JOB NO.</u>	230520
<u>DEPTH (FT)</u>	2.5	<u>TEST BY</u>	BL



<u>U.S. Sieve #</u>	<u>Percent Finer</u>
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	98.2%
10	86.5%
20	69.0%
40	53.2%
100	30.1%
200	23.1%

Atterberg Limits  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

Swell  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



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LABORATORY TEST  
 RESULTS

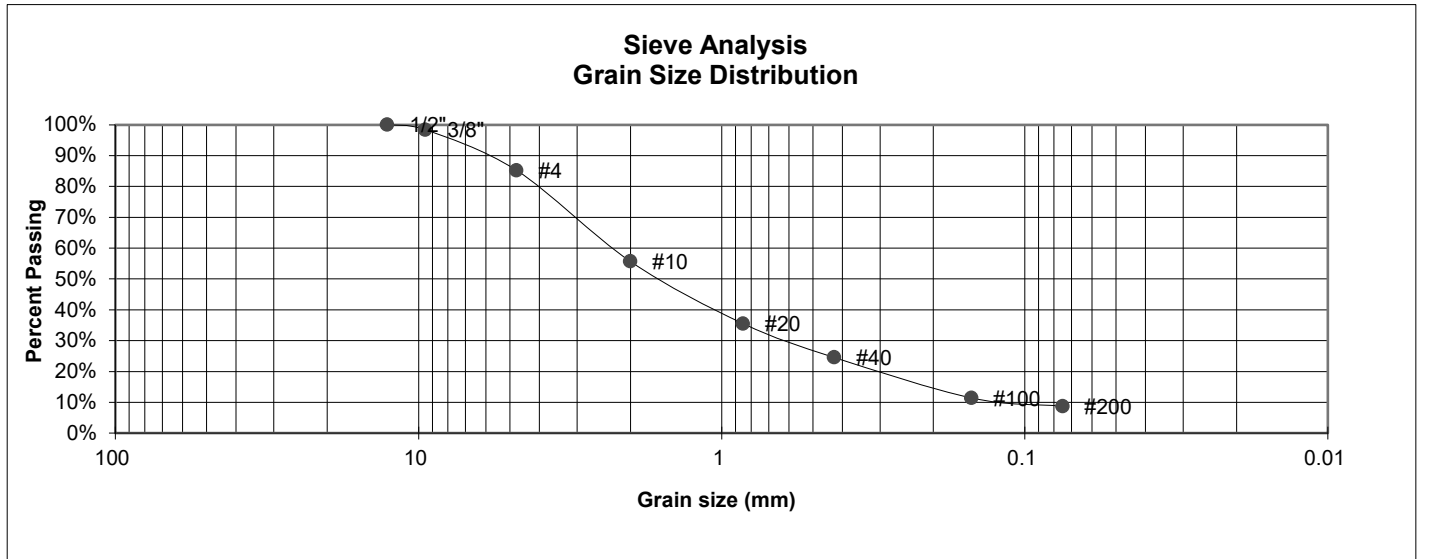
JOB NO.

230520

FIG NO.

18

<b>UNIFIED CLASSIFICATION</b>	SM-SW	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	3A/R1	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-8	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	1.5	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	98.4%
4	85.2%
10	55.7%
20	35.5%
40	24.6%
100	11.4%
200	8.7%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



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LABORATORY TEST  
 RESULTS

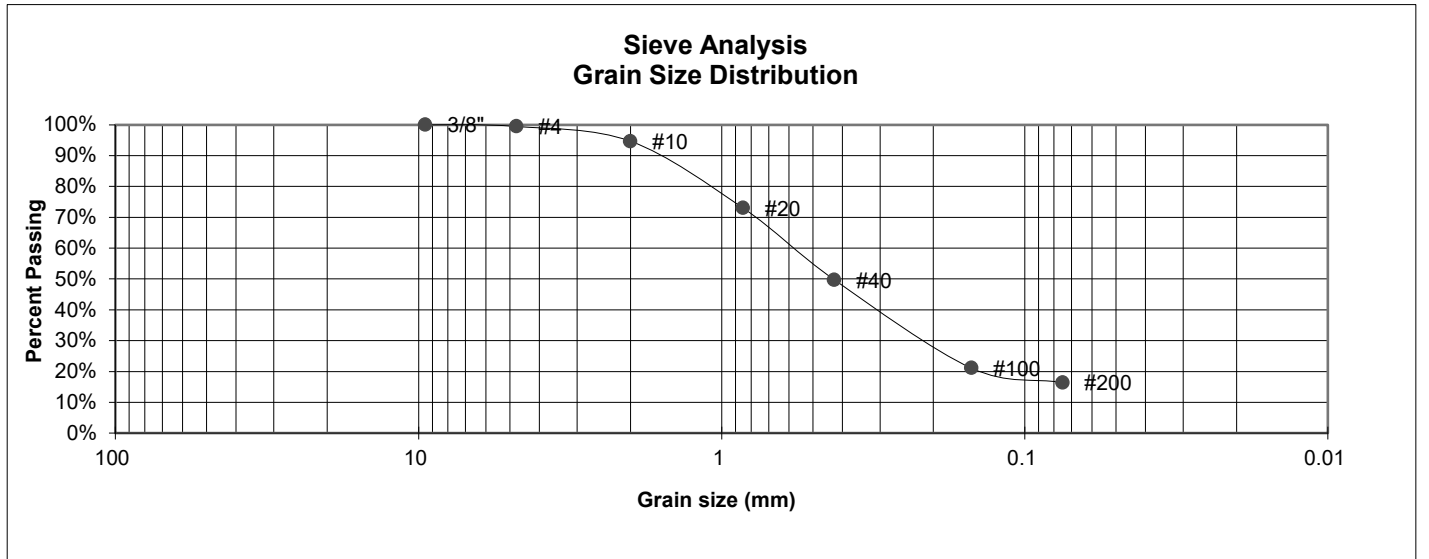
JOB NO.

230520

FIG NO.

19

<b>UNIFIED CLASSIFICATION</b>	SC	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	3A	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-9	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	2	<b>TEST BY</b>	BL



<u>U.S. Sieve #</u>	<u>Percent Finer</u>
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.5%
10	94.6%
20	73.0%
40	49.7%
100	21.1%
200	16.4%

Atterberg Limits  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

Swell  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



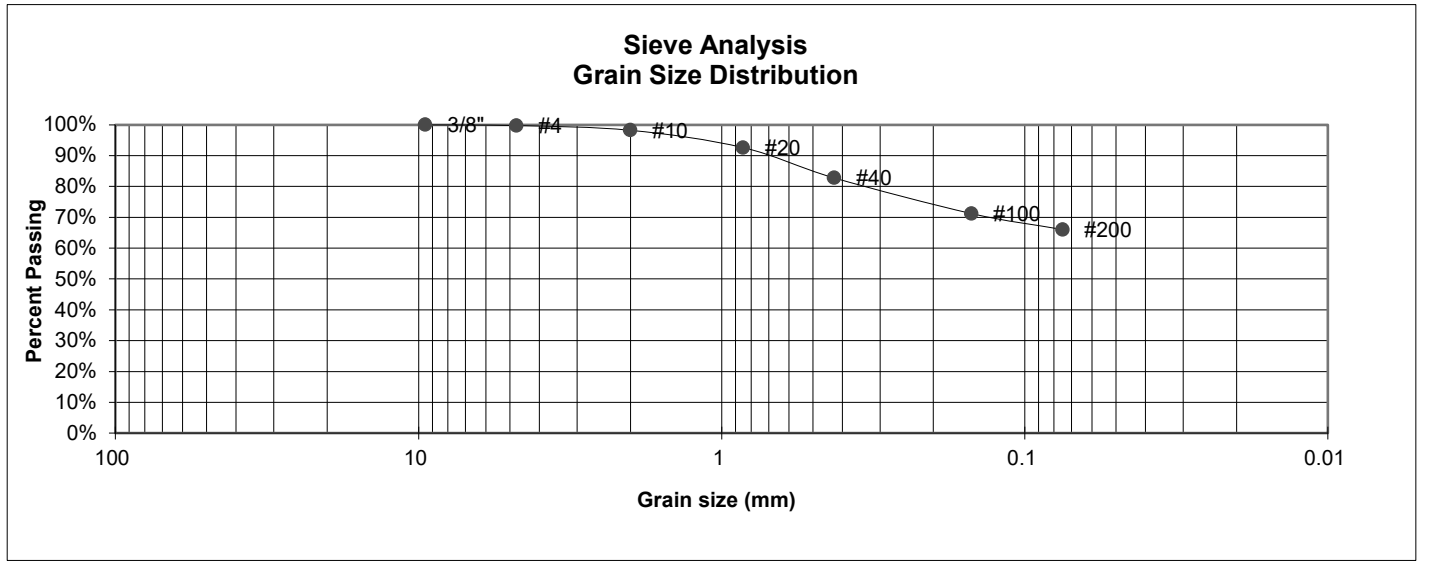
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LABORATORY TEST  
RESULTS

JOB NO.  
230520  
FIG NO.  
20

<b>UNIFIED CLASSIFICATION</b>	CL	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	4A	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-10	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	2	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.7%
10	98.2%
20	92.6%
40	82.8%
100	71.2%
200	66.0%

**Atterberg  
Limits**  
Plastic Limit  
Liquid Limit  
Plastic Index

**Swell**  
Moisture at start  
Moisture at finish  
Moisture increase  
Initial dry density (pcf)  
Swell (psf)



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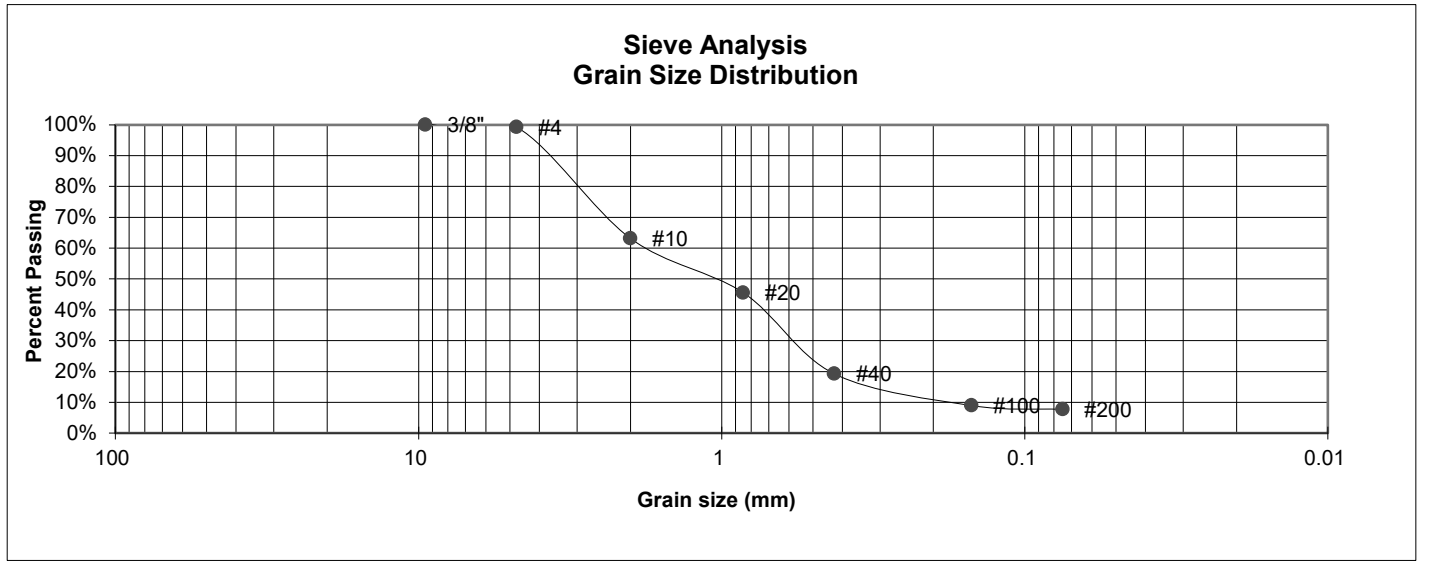
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LABORATORY TEST  
RESULTS

JOB NO.  
230520  
FIG NO.  
21



<b>UNIFIED CLASSIFICATION</b>	SM-SW	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	3/R1	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-11	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	4	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.3%
10	63.2%
20	45.6%
40	19.2%
100	9.0%
200	7.7%

**Atterberg  
Limits**  
Plastic Limit  
Liquid Limit  
Plastic Index

**Swell**  
Moisture at start  
Moisture at finish  
Moisture increase  
Initial dry density (pcf)  
Swell (psf)



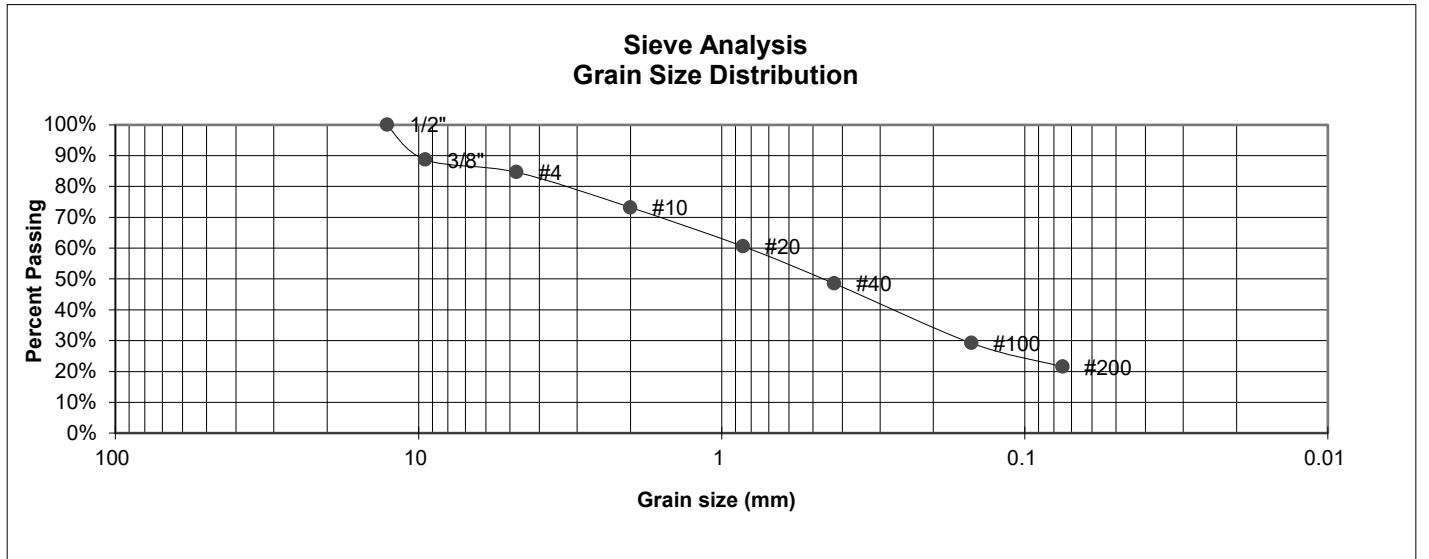
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**LABORATORY TEST  
RESULTS**

JOB NO.  
230520  
FIG NO.  
22

<b>UNIFIED CLASSIFICATION</b>	SC	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	4A	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-12	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	7.5	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	88.7%
4	84.6%
10	73.2%
20	60.6%
40	48.5%
100	29.2%
200	21.5%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



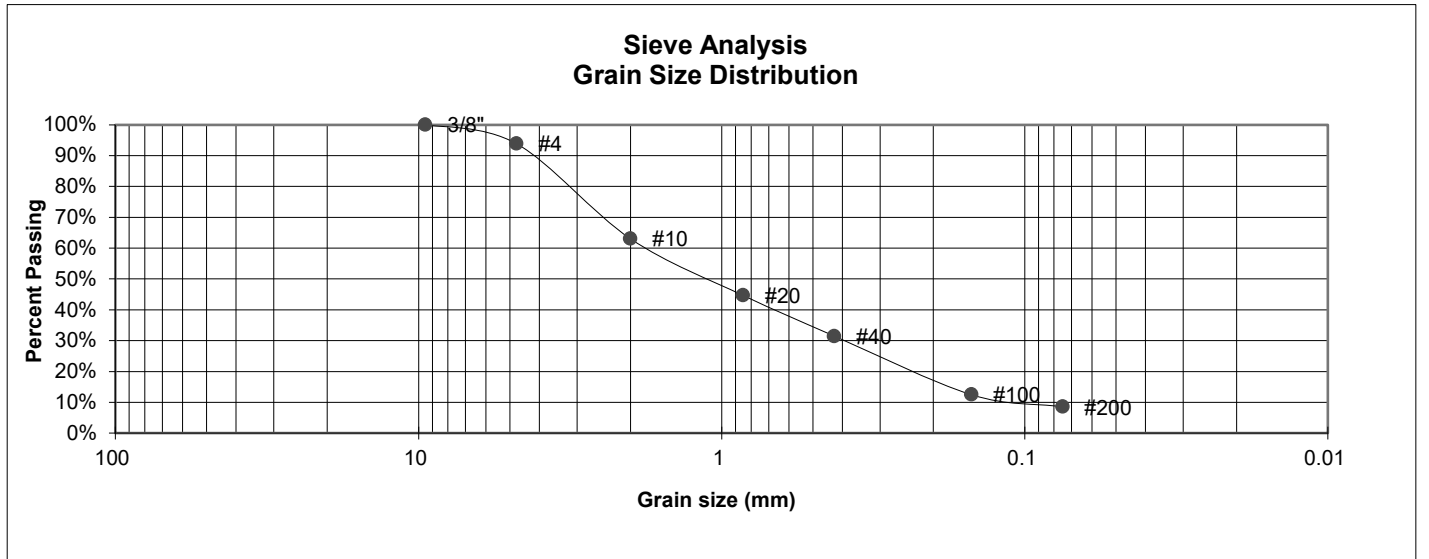
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LABORATORY TEST  
RESULTS

JOB NO.  
230520  
FIG NO.  
23

<b>UNIFIED CLASSIFICATION</b>	SM-SW	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	2/R1	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-13	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	3	<b>TEST BY</b>	BL



<u>U.S. Sieve #</u>	<u>Percent Finer</u>
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	93.9%
10	63.0%
20	44.7%
40	31.5%
100	12.5%
200	8.5%

<u>Atterberg Limits</u>
Plastic Limit
Liquid Limit
Plastic Index
<u>Swell</u>
Moisture at start
Moisture at finish
Moisture increase
Initial dry density (pcf)
Swell (psf)



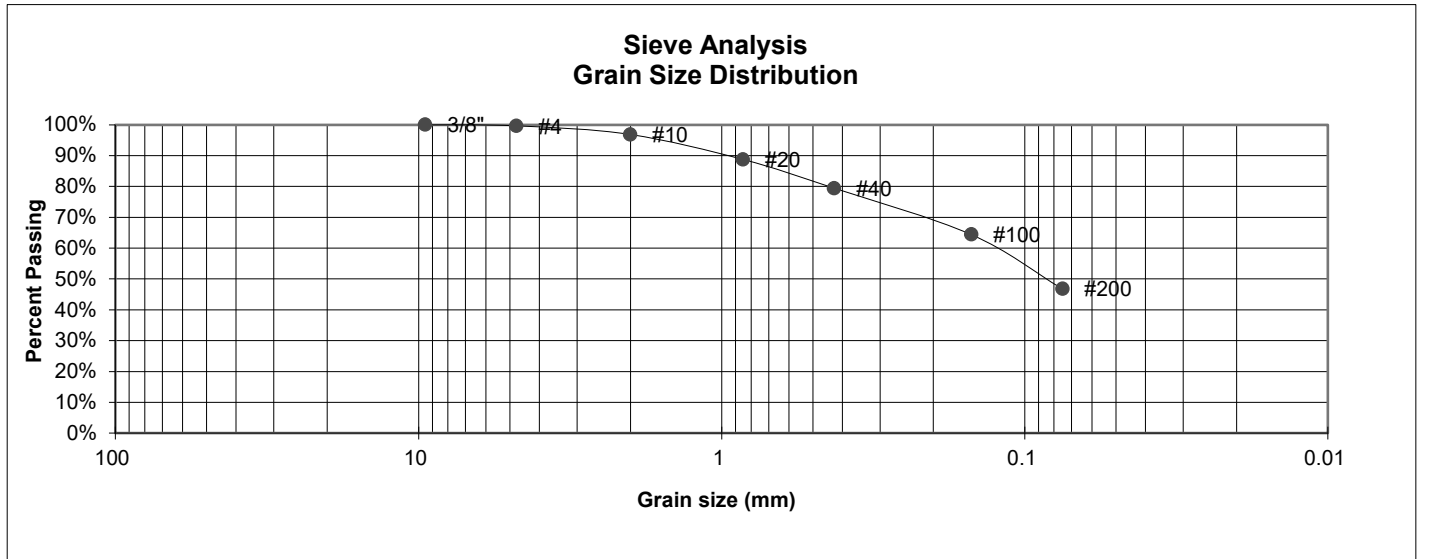
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LABORATORY TEST  
RESULTS

JOB NO.  
230520  
FIG NO.  
24

<b>UNIFIED CLASSIFICATION</b>	SC	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	4A	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	TP-14	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	5	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.6%
10	96.8%
20	88.7%
40	79.4%
100	64.4%
200	46.7%

**Atterberg  
Limits**  
Plastic Limit  
Liquid Limit  
Plastic Index

**Swell**  
Moisture at start  
Moisture at finish  
Moisture increase  
Initial dry density (pcf)  
Swell (psf)



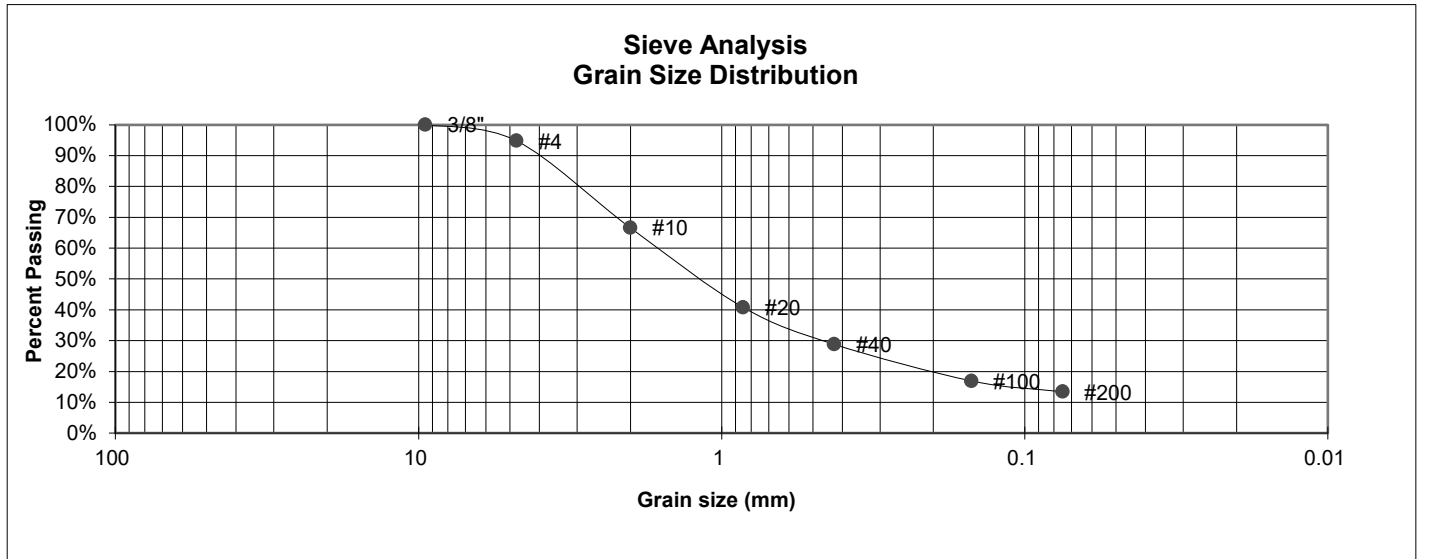
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**LABORATORY TEST  
RESULTS**

JOB NO.  
230520  
FIG NO.  
25

<b>UNIFIED CLASSIFICATION</b>	SC	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	3A/R1	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	15	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	3.5	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	94.8%
10	66.6%
20	40.8%
40	28.8%
100	16.9%
200	13.4%

Atterberg Limits  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

Swell  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



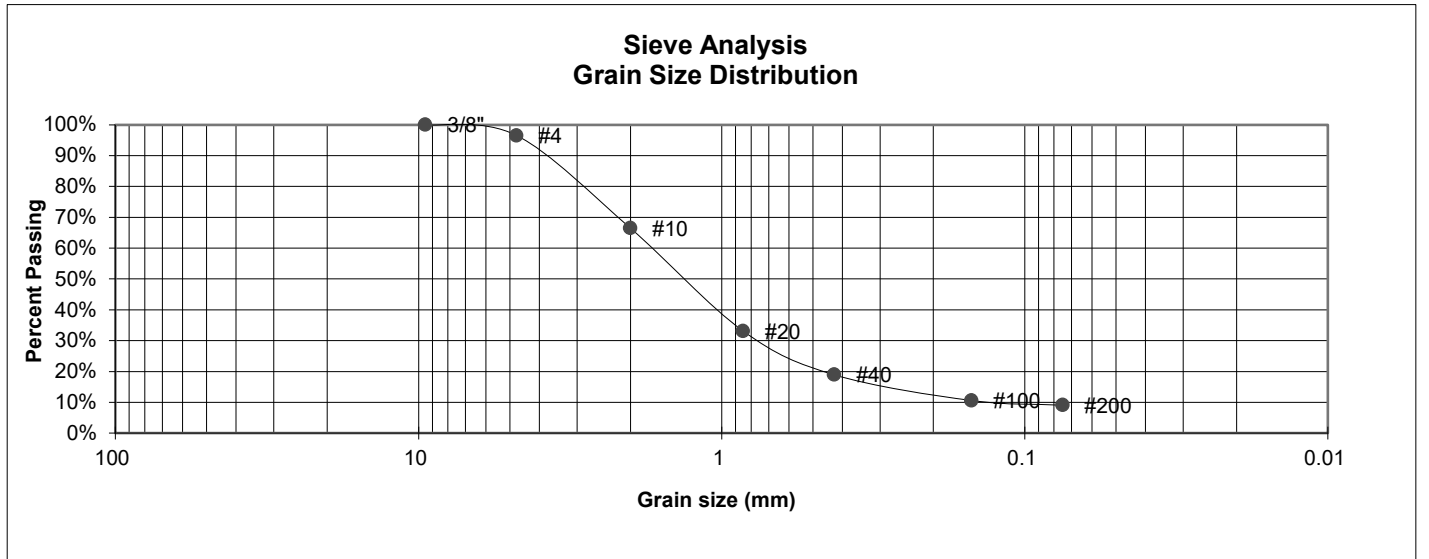
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LABORATORY TEST  
 RESULTS

JOB NO.  
 230520  
 FIG NO.  
 26

<b>UNIFIED CLASSIFICATION</b>	SC-SW	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	3A/R1	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	16	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	3	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	96.5%
10	66.5%
20	33.1%
40	18.9%
100	10.6%
200	9.1%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



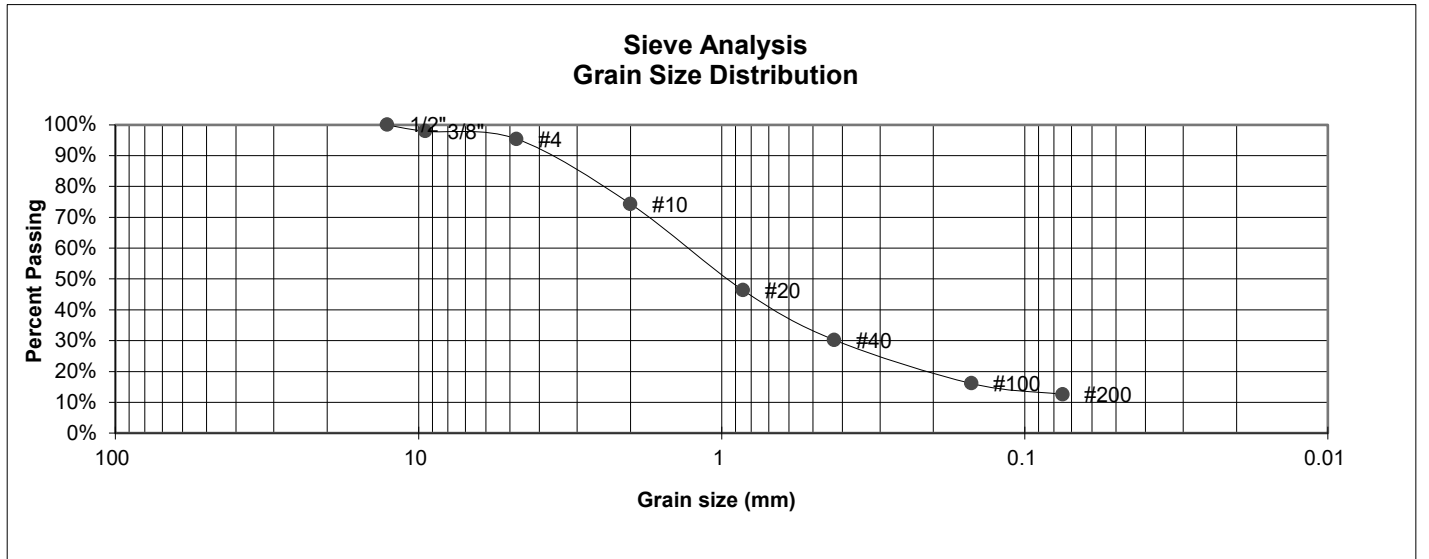
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LABORATORY TEST  
RESULTS

JOB NO.  
230520  
FIG NO.  
27

<b>UNIFIED CLASSIFICATION</b>	SC	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	3	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	16	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	6.5	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	97.9%
4	95.4%
10	74.3%
20	46.3%
40	30.2%
100	16.1%
200	12.6%

Atterberg Limits  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

Swell  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



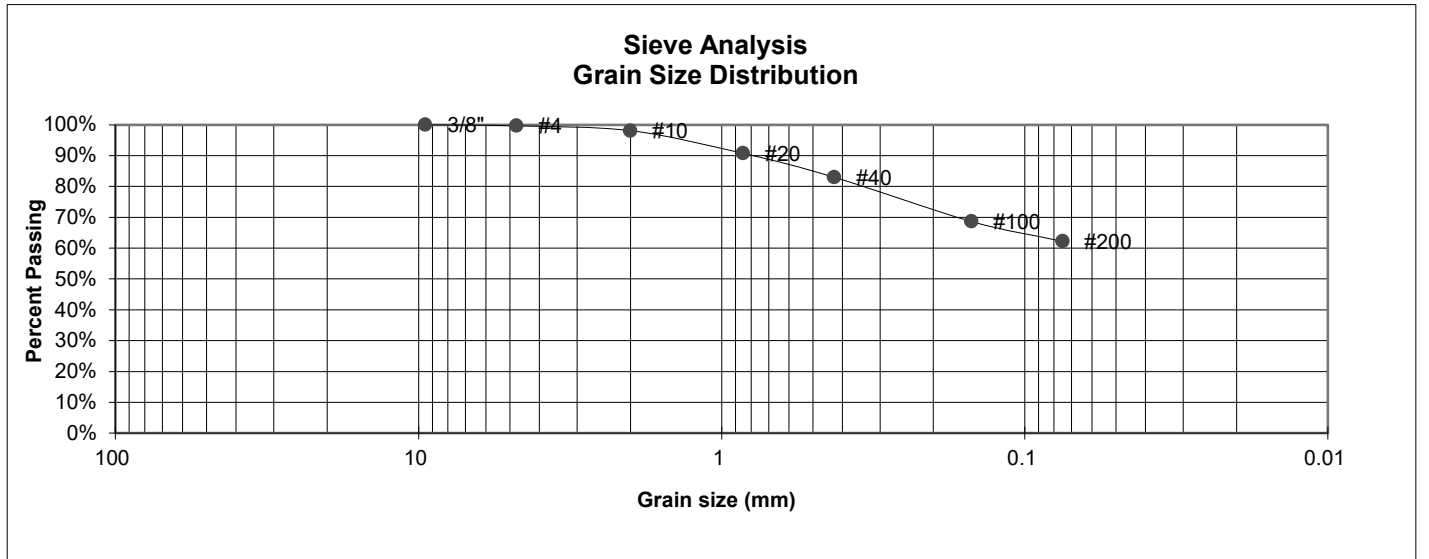
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LABORATORY TEST  
 RESULTS

JOB NO.  
 230520  
 FIG NO.  
 28

<b>UNIFIED CLASSIFICATION</b>	CL	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	4A	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	17	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	3	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.7%
10	98.1%
20	90.7%
40	83.0%
100	68.6%
200	62.2%

Atterberg  
Limits  
Plastic Limit  
Liquid Limit  
Plastic Index

Swell  
Moisture at start  
Moisture at finish  
Moisture increase  
Initial dry density (pcf)  
Swell (psf)



**ENTECH  
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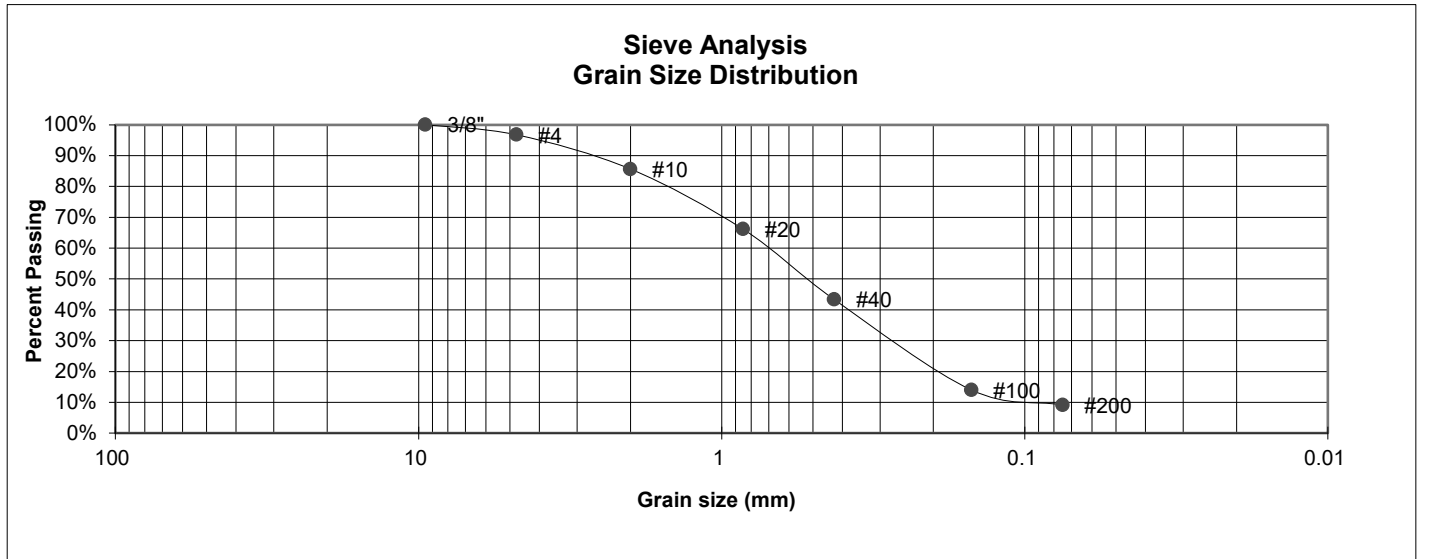
505 ELKTON DRIVE  
COLORADO SPRINGS, COLORADO 80907

LABORATORY TEST  
RESULTS

JOB NO.  
230520  
FIG NO.  
29



<b>UNIFIED CLASSIFICATION</b>	SC-SW	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	3/R1	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	18	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	4	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	96.7%
10	85.6%
20	66.2%
40	43.3%
100	14.0%
200	9.2%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



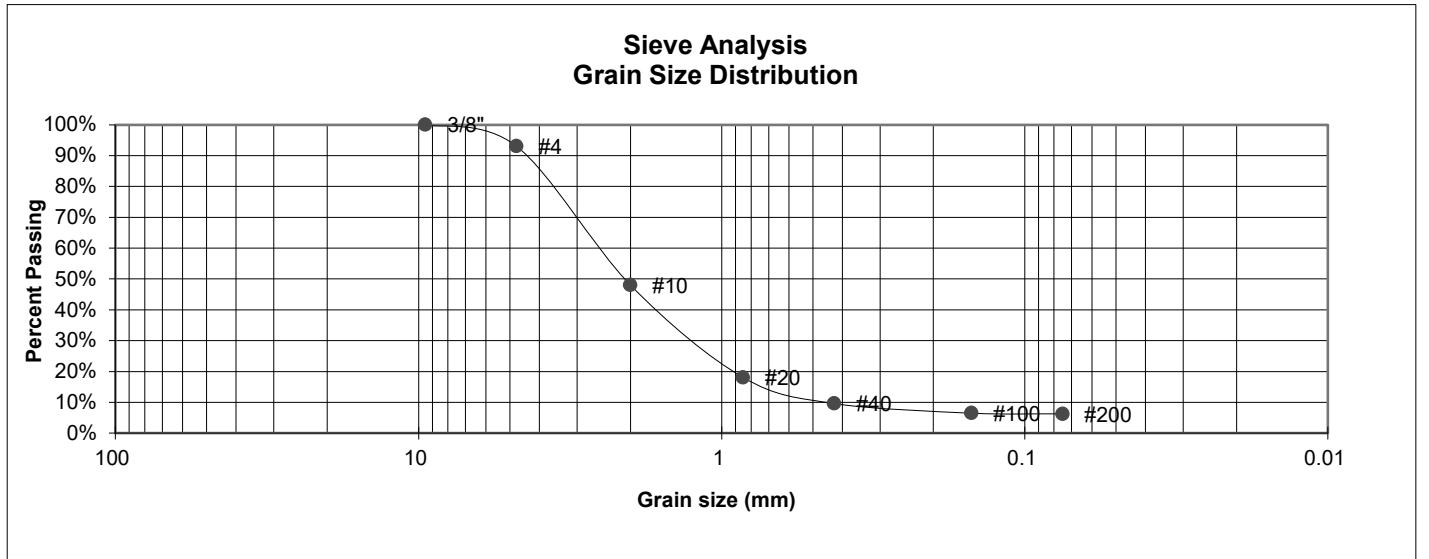
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505 ELKTON DRIVE  
COLORADO SPRINGS, COLORADO 80907

**LABORATORY TEST  
RESULTS**

JOB NO.  
230520  
FIG NO.  
30

<b>UNIFIED CLASSIFICATION</b>	SC-SW	<b>CLIENT</b>	LAZY Y AND ROCKIN' J
<b>SOIL TYPE #</b>	3/R1	<b>PROJECT</b>	12960 NORTH PEYTON HIGHWAY
<b>TEST BORING #</b>	19	<b>JOB NO.</b>	230520
<b>DEPTH (FT)</b>	4	<b>TEST BY</b>	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	93.0%
10	48.0%
20	18.0%
40	9.6%
100	6.5%
200	6.2%

**Atterberg Limits**  
 Plastic Limit  
 Liquid Limit  
 Plastic Index

**Swell**  
 Moisture at start  
 Moisture at finish  
 Moisture increase  
 Initial dry density (pcf)  
 Swell (psf)



**ENTECH  
ENGINEERING, INC.**

505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

LABORATORY TEST  
 RESULTS

JOB NO.  
 230520  
 FIG NO.  
 31

## **APPENDIX E: USDA Soil Descriptions**

## El Paso County Area, Colorado

### 84—Stapleton sandy loam, 8 to 15 percent slopes

#### Map Unit Setting

*National map unit symbol:* 36b0

*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:* 95 percent

*Minor components:* 5 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:* 8 to 15 percent

*Depth to restrictive feature:* More than 80 inches

*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 supply, 0 to 60 inches:* Low (about 4.7 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* B

*Ecological site:* R049XY214CO - Gravelly Foothill

*Hydric soil rating:* No

### **Minor Components**

#### **Other soils**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### **Pleasant**

*Percent of map unit:* 1 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## **Data Source Information**

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 21, Aug 24, 2023