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PRELIMINARY SUBSURFACE SOIL INVESTIGATION
CHERRY CREEK CROSSING
FILING NO. 1, LOT 111
EL PASO COUNTY, COLORADO

Prepared for:

Colorado Springs 382 Limited Partnership
6070 N. Camino Almonte
Tucson, Arizona 85718

Attn: Nate Miller

April 6, 2018

Respectfully Submitted,

ENTECH ENGINEERING, INC.

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Entech Job No. 180318
AAprojects/2018/180318

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PRELIMINARY SUBSURFACE SOIL INVESTIGATION
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EL PASO COUNTY, COLORADO

1.0 INTRODUCTION

Colorado Springs 382 Limited Partnership is planning the development of a vacant parcel in El Paso County, northeast of Colorado Springs, Colorado consisting of a commercial development and associated site improvements. The site is located in the Cherry Creek Crossing, Filing No. 1 Subdivision. More specifically the site is located northwest of the intersection of State Highway 83 and Hodgen Road. The approximate location of the project site is shown on the Vicinity Location Map, Figure 1. The planned site development is shown on Figure 2, Test Boring Location Map.

This report describes the preliminary subsurface investigation conducted for the proposed grading and provides preliminary recommendations for development design and construction. The Preliminary Subsurface Soil Investigation included the drilling of four test borings across the site, collecting samples of soil, and conducting a geotechnical evaluation of the investigation findings. All drilling and subsurface investigation activities were performed by Entech Engineering, Inc. (Entech). The contents of this report, including the geotechnical evaluation and recommendations, are subject to the limitations and assumptions presented in Section 15.0.

2.0 PROJECT AND SITE DESCRIPTION

It is Entech's understanding that the planned development will consist of commercial development and associated site improvements. At the time of this investigation the site was vacant. A detention pond is proposed in the northwestern portion of the site. A north/south floodplain easement is located along the western portion of the site. Fill piles, considered uncontrolled, are located in the eastern portion of the site. Adjacent properties consist of the rural residential development to the north and west and vacant properties to the south and east. The site is bordered by Highway 83 to the east, Hodgen Road to the south, Cherry Creek Crossing Drive to the west and Double Tree Court to the north. The site is gently to moderately sloping to the west. Vegetation consists of field grasses and weeds.

3.0 SUBSURFACE EXPLORATIONS AND LABORATORY TESTING

The subsurface conditions were investigated by drilling four exploratory test borings across the site. The approximate locations of the test borings are indicated on Figure 2. Soil samples were obtained from the borings utilizing the Standard Penetration Test (ASTM D-1586) using a 2-inch O.D. split-barrel sampler and California sampler. Results of the Standard Penetration Test (SPT) are included on the Test Boring Logs in terms of N-values expressed in blows per foot (bpf). Soil samples recovered from the borings were visually classified and recorded on the Test Boring Logs. The soil classifications were later verified utilizing laboratory testing and grouped by soil type. The soil type numbers are included on the Test Boring Logs. It should be understood that the soil descriptions shown on the Test Boring Logs may vary between boring location and sample depth. It should also be noted that the lines of stratigraphic separation shown on the Test Boring Logs represent approximate boundaries between soil types and the actual stratigraphic transitions may be more gradual and vary with location. The Test Boring Logs are presented in Appendix A.

Moisture Content, ASTM D-2216, was obtained in the laboratory for all recovered samples. Grain-Size, ASTM D-422, and Atterberg Limits, ASTM D-4318, were determined for various samples for the purpose of classification and to obtain pertinent engineering characteristics. Swell/Consolidation Testing and FHA Swell Testing were performed on selected samples to

evaluate the expansion characteristics of the soils. Sulfate testing was performed to evaluate the soils corrosive characteristics. A Summary of Laboratory Test Results is presented in Table 1 and included in Appendix B.

4.0 SUBSURFACE CONDITIONS

Five primary soil types were encountered in the borings drilled for the subsurface investigation: Type 1A: a silty to very silty sand fill/possible fill (SM), Type 1: a silty to clayey native sand (SM, SC), Type 2: a sandy silt (ML), Type 3: silty to clayey sandstone (SM, SC) and Type 4: a sandy claystone (CL). The soil types were classified in accordance with the Unified Soil Classification System (USCS) using the laboratory testing results and the observations made during drilling.

4.1 Soil

Soil Type 1A is a silty to very silty sand fill/possible fill (SM). The sand fill was encountered in two of the test borings at the existing ground surface and extending to depths of 4 to possibly 10 feet. Standard Penetration Testing resulted in SPT N-values of 9 to 23 blows per foot (bpf), indicating loose to medium dense states. Water content and grain size testing resulted in water contents of 6 to 16 percent with approximately 25 to 38 percent of the soil size particles passing the No. 200 sieve. Atterberg limits testing resulted in non-plastic results. FHA swell testing resulted in a swell pressure of 240 psf, indicating low expansion potential. Sulfate testing resulted in less than 0.01 percent soluble sulfate by weight, indicating a negligible potential for below grade concrete degradation due to sulfate attack.

Soil Type 1 is a native to silty to clayey sand (SM, SC). The native sand was encountered in two of the test borings at depths ranging from 4 to 8 feet bgs and extending to 14 feet below the ground surface (bgs). Standard Penetration Testing resulted in SPT N-values ranging from 13 to 18 bpf, indicating medium dense states. Water content and grain size analysis conducted on samples of the soil resulted in approximately 7 to 16 percent water with approximately 19 percent of the soil size particles passing the No. 200 sieve.

Soil Type 2 is a sandy silt (ML). The silt was encountered in two of the test borings at the existing ground surface and extending to depths ranging from 4 feet to 8 feet bgs. Standard

Penetration Testing resulted in SPT N-values of 9 to 16 bpf, indicating firm to stiff consistencies. Water content and grain size analysis conducted on samples of the soil resulted in approximately 9 to 12 percent water with approximately 73 to 75 percent of the soil size particles passing the No. 200 sieve. Atterberg limits testing was performed on a select sample resulted in non-plastic results. Swell/Consolidation Testing resulted in a volume change of 0.3 percent, indicating low expansion potential. FHA Swell Testing resulted in an expansion pressure of 300 psf, which indicates a low expansion potential. Sulfate testing resulted in 0.01 percent, indicating negligible potential for below grade concrete degradation due to sulfate attack.

Soil Type 3 is a silty to clayey sandstone (SM, SC). The sandstone was encountered in all of the test borings at depths ranging from 4 to 18 feet and extending to to the termination of the test borings (20 feet). Standard Penetration conducted on the sandstone resulted in SPT N-values greater than 50 bpf, indicating very dense states. Water content and grain size analysis conducted on samples of the sandstone resulted in approximately 6 to 16 percent water with approximately 25 to 27 percent of the soil size particles passing the No. 200 sieve. Atterberg limits testing performed on a select sample resulted in a liquid limit of 23 and a plastic index of 9. Sulfate testing on a sample resulted in less than 0.01 percent sulfate by weight, indicating negligible potential for below grade concrete degradation due to sulfate attack.

Soil Type 4 is a sandy claystone (CL). The claystone was encountered in Test Boring No. 4 at 14 feet extending to 18 feet bgs. Standard Penetration Testing resulted in a SPT N-value greater than 50 bpf, indicating hard consistencies. Water content and grain size analysis conducted on samples of the soil resulted in 14 percent water with approximately 81 percent of the soil size particles passing the No. 200 sieve. Atterberg limits testing resulted in a liquid limit of 34 and a plastic index of 15. Swell/Consolidation testing resulted in a volume change of 0.8 percent, indicating low expansion potential. Sulfate testing resulted in 0.00 percent, indicating negligible potential for below grade concrete degradation due to sulfate attack.

Additional descriptions and engineering properties of the soil encountered during drilling are included on the boring logs. Laboratory testing results are summarized in Table 1 and presented in Appendix B. It should be understood that the soil descriptions reported on the boring logs may vary between boring locations and sampling depths. Similarly, the lines of

stratigraphic separation shown on the boring logs represent approximate boundaries between soil types and the actual transitions between types may be more gradual or variable.

4.2 Groundwater

Groundwater was encountered in Test Boring No. 4 at 18.5 feet. Groundwater was not encountered in the other test borings which were drilled to 20 feet. Groundwater should not affect shallow foundations with crawlspace or slab on grade construction on this site.

Unstable conditions will exist as the excavation depths approach groundwater levels. If the building grades or utilities approach or intersect ground water levels, stabilization of the excavation may be required. Stabilization may include shot rock and/or geofabric or geogrid and capillary break/interceptor drain systems. Development of this and adjacent properties, as well as seasonal precipitation changes, and changes in runoff may affect groundwater elevations.

5.0 DEVELOPMENT CONSIDERATIONS

The following discussion is based on the subsurface conditions encountered in the borings drilled at the site. This investigation is for the site discussed in 2.0 Project and Site Description. If subsurface conditions different from those described herein are encountered during construction or if the project elements change from those described, Entech Engineering, Inc. should be notified so that the evaluation and recommendations presented can be reviewed and revised if necessary.

The site will be developed by constructing commercial development and associated site improvements. The proposed grading indicates fill across the majority of the site. Fill depths are generally zero to five feet with some areas up to fifteen feet. The deeper fills are proposed along Cherry Crossing Drive. Fill will also be used to develop the detention pond proposed in the northwest corner of the site. The detention pond should be constructed in accordance with the fill recommendations presented in Section 6.0. The native medium dense granular soils encountered in the test borings are suitable to support the fills. Areas of fill piles exist on the site that are considered uncontrolled. The fill piles have been dumped on the site for use in the overlot fill. Loose subgrade soils should be removed and recompacted according to the

"Structural Fill" paragraph prior to placing overlot fill. Expansive claystone was encountered in one of the test borings however it was at depth that will not affect the site grading. Expansive soils encountered within 3 to 4 feet of foundation components will require mitigation during site development.

5.1 Uncontrolled Fill

Fill piles that are considered uncontrolled, exist in the eastern portion of this site near Test Boring Nos. 1 and 2. These fill piles will be used for overlot fill. A Standard Proctor, ASTM D-698, and sieve test were conducted on a sample of soil obtained from the fill piles. Results of this testing are included in Appendix B. The fill sample classifies as a clayey sand. All uncontrolled fill, topsoil, and organics should be completely stripped and removed prior to fill placement.

5.2 Expansive Soils

Expansive soils (clayey sandstone and claystone) exhibiting expansion potential ranging from low to moderate are present on the site. Mitigation of expansive soils may be required on portions of the lots when they are developed.

5.3 Sandstone and Claystone

Sandstone and claystone were encountered at depths ranging from five to fourteen feet. Excavation of sandstone and claystone should be expected to be moderate to difficult. Track type equipment likely will be needed to accomplish excavations particularly where harder materials or lenses are present. Sandstone may affect deeper excavations in the eastern portions of the site, particularly in the area of Test Boring No. 2.

6.0 SITE GRADING

Shallow bedrock (less than 6 feet) was encountered in one of the four test borings drilled on the site. Excavation of bedrock is not expected to affect grading on this site, however may affect instillation of underground utilities. For conditions with no groundwater seepage, cut and fill slopes no steeper than 3 to 1 (horizontal to vertical) should be considered. If seepage occurs,

then flatter slopes or a drain system should be considered. Recommendations may be subject to change depending upon particular field conditions.

6.1 Stripping

Debris, topsoil and organic materials should be stripped from the ground surface of areas to be filled. Any uncontrolled fill materials should be completely removed. Fill was encountered on the eastern portion of the site that is considered uncontrolled. The materials may be used as fill pending approval if they are free of organic material and debris. Any soft or loose soils should be stabilized or removed to expose suitable material prior to placement of fill. Topsoil may be stored in stock piles and placed at the surface in landscape areas.

6.2 Fill Preparation

Surfaces which will receive fill should be scarified to depths of 6 inches, moisture conditioned to within 2 percent of optimum moisture, and compacted to minimum of 95 percent of Standard Proctor Dry Density (ASTM D 698). On-site natural soils and existing stockpiles and imported soils are anticipated to be used as site grading fill. Bedrock, if used, must be processed and broken down when placed in the fill. The fill quality will influence the performance of foundations, slabs-on-grade, and pavements. Fill settlement can be minimized by placing thin lifts at suitable moisture content and by verification of compaction with frequent density tests.

6.3 Compaction

Overlot grading fill consisting of granular soils should be placed in lifts to exceed 6 inches following compaction and compacted to at least 95 percent of the maximum dry density determined by Modified Proctor (ASTM D-1557). Clay materials should be placed in compacted lifts less than 6 inches thick compacted to at least 95 percent of maximum Standard Proctor (ASTM D 698) Dry Density. Fills below 10 feet in depth should be moisture conditioned as above and compacted to 98 percent of Standard Proctor Dry Density (ASTM D 698) for cohesive materials or 98 percent of maximum Modified Proctor Dry Density (ASTM D 1557) for granular materials. The soil materials should be placed at a moisture content conducive to adequate compaction, usually within ±2 percent of optimum moisture content. Fill placement and compaction should be observed and tested by Entech during construction to verify that adequate moisture and density has been achieved.

7.0 UNDERGROUND UTILITY CONSTRUCTION

Based on the proposed overlot fill depths, much of the excavations for utilities will be in fill materials or upper native sand or silt materials. Generally, excavation is expected to be moderate utilizing rubber-tired equipment. Where excavations extend into very hard sandstone or cemented materials, track-mounted equipment may be necessary. Special procedures or equipment may be required to remove water and/or achieve stability in utility trenches where excavations approach or intercept groundwater.

Utilities including water and sewer lines are usually constructed beneath paved roads. Placement of fill and degree of compaction applied to trench backfill will influence performance of overlying structures including pavements. Fill placed into utility trenches should be compacted according to requirements of the local jurisdiction. Fill should be placed in horizontal lifts having compacted thickness of six inches or less and at a water content conducive adequate compaction, usually within ±2 percent of optimum water content. Typical compaction specifications would be similar to specifications in the Site Grading section. Mechanical methods should be used for fill placement; however, heavy equipment should be kept at a distance away from structures to avoid damage. No water flooding techniques of any type should be used for compaction or placement of utility trench backfill.

Trench backfill should be performed in accordance with El Paso County specifications and requirements. Excavations and excavation shoring/bracing should be performed in accordance with OSHA guidelines.

8.0 PAVEMENT CONSIDERATIONS

Materials exposed at pavement subgrade elevations will be dependent upon fill materials exposed at final overlot grading near finish grade elevations after utility installation. The predominate materials are generally expected to be materials associated with overlot fill. In areas where little to no fill or cuts are proposed, silty sands and sandy silt, may be exposed. Materials anticipated at subgrade elevation generally would be rated as typically having fair pavement support characteristics with some areas likely rated as having poor pavement support

the pavement subgrade. Asphalt sections should be determined after completion of overlot grading and utility installation and anticipated traffic loads are finalized.

9.0 ANTICIPATED COMMERCIAL FOUNDATION SYSTEMS

Based on proposed grading we anticipate conventional spread footing foundation systems resting on well-compacted overlot fill or medium dense native sands will be appropriate for commercial constructed on the majority of the site. Loose or uncontrolled fill encountered beneath foundations will require recompaction. Where expansive materials are encountered at or near foundation grades, use of spread footings with overexcavation and replacement with non-expansive fill should be expected. Drilled pier foundations may be a suitable alternative where expansive soils are encountered.

On-grade floor slabs should be supported by non-expansive soils or compacted, non-expansive structural fill. Loose or expansive soils encountered at or near floor slab grade will require recompaction or replacement. Subsurface Soils Investigations should be performed after completion of overlot grading to address appropriate foundation systems for each site. Perimeter below grade foundation drain systems may be required for usable areas below exterior grade. Overexcavation drains may also be required. Groundwater was encountered in Test Boring No. 4 at a depth of 18.5 feet. Groundwater should not affect shallow foundations with crawlspace or slab on grade construction on this site.

10.0 CONCRETE DEGRADATION DUE TO SULFATE ATTACK

Sulfate solubility testing was conducted on four samples recovered from the test borings to evaluate the potential for sulfate attack on concrete placed below surface grade. The test results indicated 0.00 to 0.01 percent soluble sulfate (by weight). The test results indicate the sulfate component of the in-place soils presents a negligible exposure threat to concrete placed below the site grade. Type II cement is recommended for the on-site soils. Additional testing should be conducted following completion of overlot grading.

11.0 EXCAVATION STABILITY

Excavation walls must be properly sloped/benched or otherwise supported in order to maintain stable conditions. All excavation openings and work execution shall conform to OSHA standards as in CFR 29, Part 1926.650-652 (Subpart D).

12.0 SURFACE AND SUBSURFACE DRAINAGE

Surface drainage will influence performance of structures at the site including streets and structures. Surface grading around each building perimeter at a minimum slope of 5 percent in the first 10 feet adjacent to exterior foundation walls is recommended, where possible. For paved areas and other impervious surfaces, a minimum slope of 2 percent is recommended. Drainage should be planned to avoid ponding of water. Collected water and irrigation should discharge well beyond foundation backfill zones. Surface runoff should be designed to avoid sheet flow and erosion. Slopes should be protected from erosion by materials such as mulch or appropriate plants or other methods. All fills and backfills should be properly compacted. Unprotected surfaces may be subject to undesirable, heavy erosion.

13.0 WINTER CONSTRUCTION

In the event construction occurs during winter, concrete and soil materials should be protected from freezing conditions. Concrete should not be placed on frozen soil and once concrete has been placed, it should not be allowed to freeze. Similarly, once exposed, the soil subgrades should not be allowed to freeze. During grading operations and subgrade preparation, care should be taken to avoid burial of snow, ice or frozen material within the planned construction area.

14.0 CONSTRUCTION OBSERVATIONS

It is recommended that Entech observe and document the following activities during construction of the building foundations.

- Excavated subgrades and subgrade preparation.
- Overexcavated subgrades (if required)
- Placement of drains (if installed).
- Placement/compaction of fill material for the foundation components and floor slab.
- Placement/compaction of utility bedding and trench backfill.

15.0 CLOSURE

The preliminary subsurface investigation, geotechnical evaluation and recommendations presented in this report are intended for the site grading for use by Colorado Springs 382 Limited Partnership with application to the planned development at 3415 Double Tree Court, located northwest of the intersection of Hodgen Road and State Highway 83, in El Paso County, Colorado. In conducting the preliminary subsurface investigation, laboratory testing, engineering evaluation and reporting, Entech Engineering, Inc. endeavored to work in accordance with generally accepted professional geotechnical and geologic practices and principles consistent with the level of care and skill ordinarily exercised by members of the geotechnical profession currently practicing in same locality and under similar conditions. No other warranty, expressed or implied is made. During final design and/or construction, if conditions are encountered which appear different from those described in this report, Entech Engineering, Inc. requests that it be notified so that the evaluation and recommendations presented herein can be reviewed and modified as appropriate. Investigation of each building site is required to provide specific foundation recommendations.

If there are any questions regarding the information provided herein or if Entech Engineering, Inc. can be of further assistance, please do not hesitate to contact us.

TABLE

TABLE 1

SUMMARY OF LABORATORY TEST RESULTS

CLIENT COLORAD SPRINGS 382, LLC
PROJECT 3415 DOUBLE TREE COURT
JOB NO. 180318

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	SULFATE (WT %)	FHA SWELL (PSF)	SWELL/ CONSOL (%)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION
1A	1	2-3	15.1	108.6	38.4	NV	NP			0.0	SM	FILL, SAND, VERY SILTY
1A	2	5			25.1			<0.01	240		SM	FILL, SAND, SILTY
1	4	10			18.7						SM	SAND, SILTY
2	3	2-3	7.6	118.6						0.3	ML	SILT, SANDY
2	3	5			75.3	NV	NP	0.01			ML	SILT, SANDY
2	4	2-3			73.0				300		ML	SILT, SANDY
3	1	20			24.6			<0.01			SM	SANDSTONE, SILTY
3	2	15			26.7	23	9				SC	SANDSTONE, CLAYEY
4	4	15	13.3	121.6	80.8	34	15	0.00		0.8	CL	CLAYSTONE, SANDY

FIGURES

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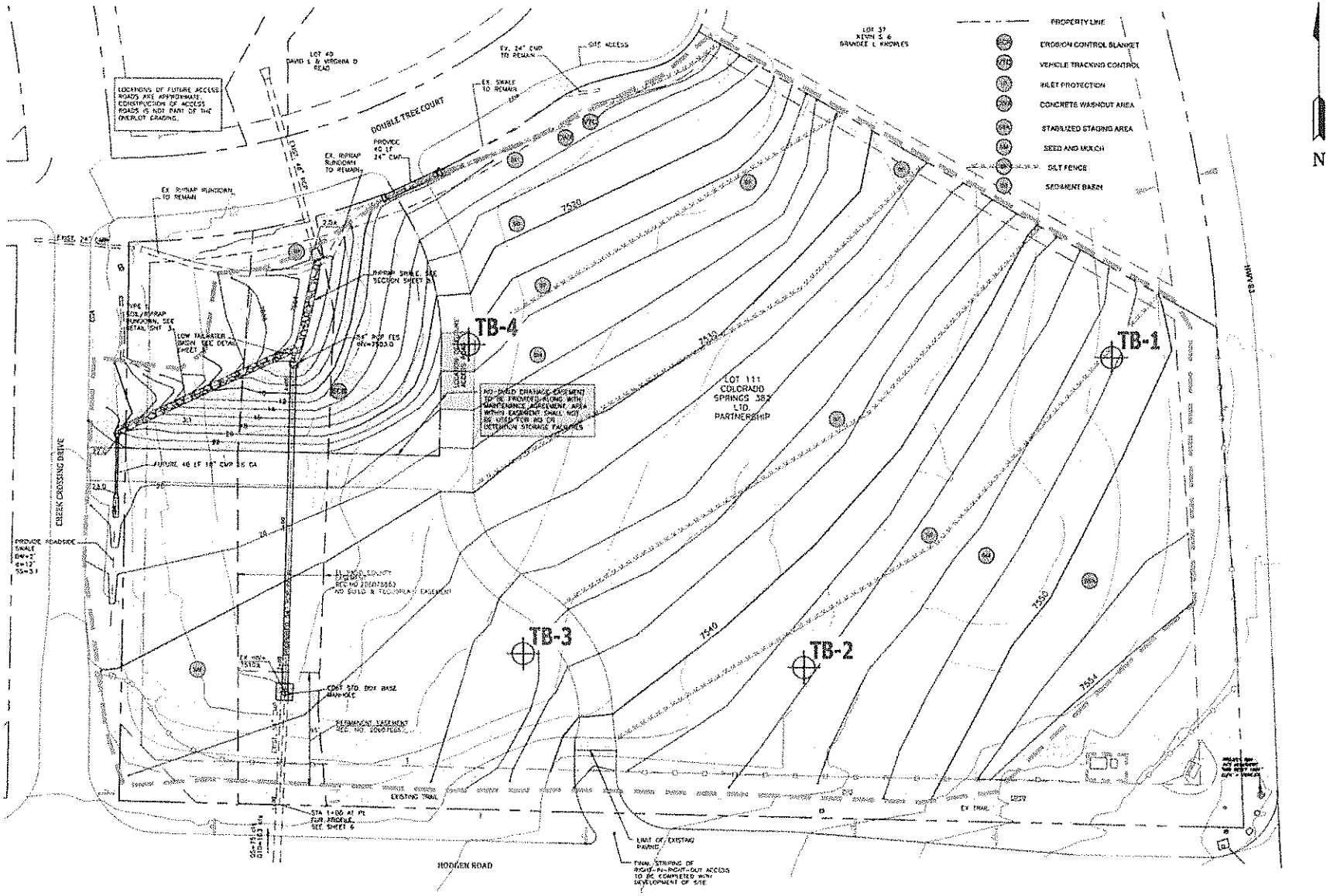
VICINITY LOCATION MAP
3415 DOUBLE TREE COURT
COLORADO SPRINGS, CO
FOR: COLORADO SPRINGS 382 LTD PARTNERSHIP

DRAWN BY:	DATE DRAWN:	DESIGNED BY:	CHECKED:
TLC	3/29/18	KAH	KAH

JOB NO.: 180318
FIG. NO.: 1



TB-2- APPROXIMATE TEST BORING LOCATION AND NUMBER

REVISION	BY

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

TEST BORING LOCATION MAP
3415 DOUBLE TREE COURT
COLORADO SPRINGS, CO.
FOR: COLORADO SPRINGS 382
LTD PARTNERSHIP

DRAWN	TLC
CHKD	KAH
DATE	3/29/18
SCALE	AS SHOWN
JOB NO	180318
FIGURE NO.	2

APPENDIX A: Test Boring Logs

TEST BORING NO. 1
DATE DRILLED 2/23/2018
Job # 180318

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 20', 3/2/18						
FILL 0-4', POSS. FILL 4-10', SAND, VERY SILTY, FINE TO MEDIUM GRAINED, BROWN, LOOSE, MOIST				9	16.1	1A
POSS. FILL, SAND, SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST	5			22	6.3	1A
	10			23	6.3	1A
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST	15			50/10"	11.4	3
	20			50/10"	9.1	3

TEST BORING NO. 2
DATE DRILLED 2/23/2018
CLIENT COLORAD SPRINGS 382, LLC
LOCATION 3415 DOUBLE TREE COURT

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 20', 3/2/18						
FILL 0-5', SAND, SILTY, FINE TO COARSE GRAINED, BROWN, LOOSE TO MEDIUM DENSE, MOIST				9	8.6	1A
	5			14	10.1	1A
SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, BUFF TO TAN, VERY DENSE, MOIST	10			50/9"	9.9	3
	15			50/6"	9.0	3
FINE GRAINED LENSES	20			50/9"	16.1	3

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TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE:
			3/5/18

JOB NO.: 180318
FIG NO.: A- 1

TEST BORING NO. 3
DATE DRILLED 2/23/2018
Job # 180318

REMARKS

DRY TO 19.5', 3/2/18

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			9	8.7	2	SILT, SANDY, BROWN TO TAN, FIRM TO STIFF, MOIST
5			15	8.7	2	
10			13	13.8	1	SAND, SILTY TO CLAYEY, FINE TO MEDIUM GRAINED, TAN, MEDIUM DENSE, MOIST
15			50/7"	10.0	3	SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST
20			50/7"	5.6	3	

TEST BORING NO. 4
DATE DRILLED 2/23/2018
CLIENT COLORAD SPRINGS 382, LLC
LOCATION 3415 DOUBLE TREE COURT

REMARKS

WATER @ 18.5', 3/2/18

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			16	11.5	2	SILT, SANDY, TAN, STIFF, MOIST
5			13	16.3	1	SAND, CLAYEY TO SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST
10			18	7.4	1	
15			50/11"	13.6	4	CLAYSTONE, SANDY, TAN, HARD, MOIST
20			50/9"	6.3	3	SANDSTONE, CLAYEY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST

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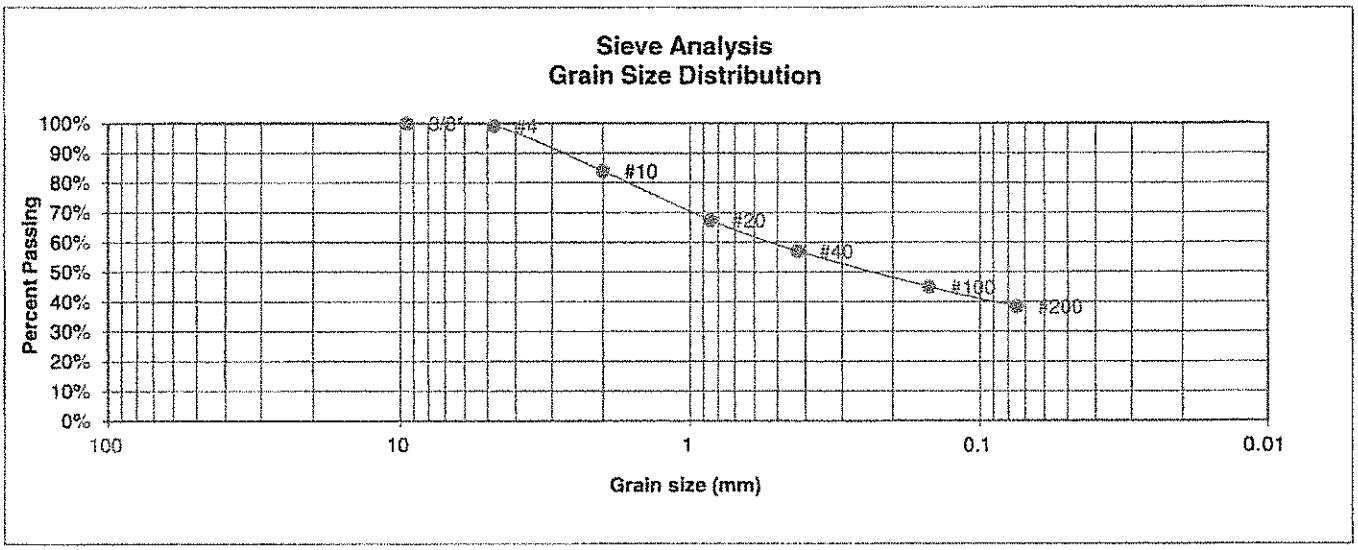
TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE: 3/15/18

JOB NO.: 180318
FIG NO.: A- 2

APPENDIX B: Laboratory Testing Results

UNIFIED CLASSIFICATION	SM	CLIENT	COLORAD SPRINGS 382, LLC
SOIL TYPE #	1A	PROJECT	3415 DOUBLE TREE COURT
TEST BORING #	1	JOB NO.	180318
DEPTH (FT)	2-3	TEST BY	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.2%
10	83.9%
20	67.4%
40	57.0%
100	45.0%
200	38.4%

Atterberg Limits

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

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

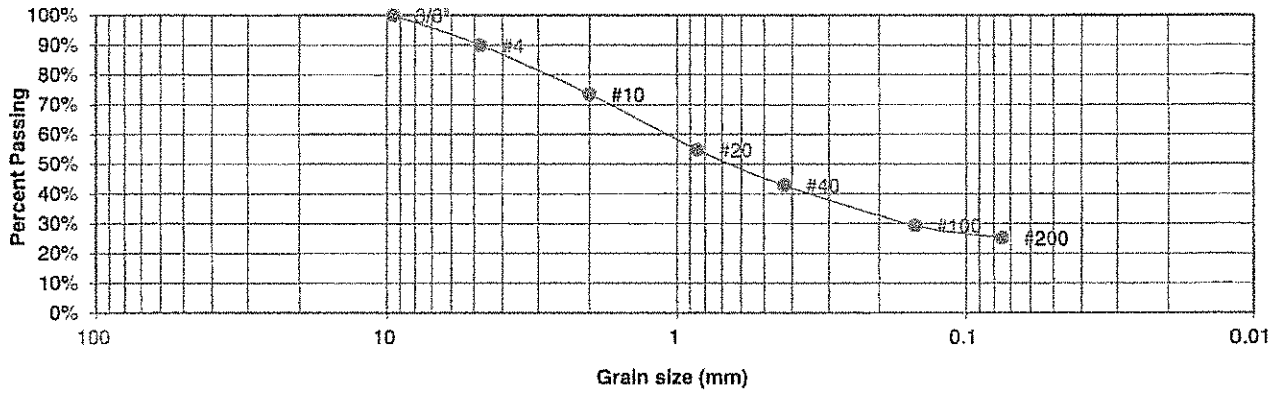
DRAWN:	DATE:	CHECKED:	DATE:
			3/15/18

JOB NO.: 180318

FIG NO.: B-1

UNIFIED CLASSIFICATION	SM	CLIENT	COLORAD SPRINGS 382, LLC
SOIL TYPE #	1A	PROJECT	3415 DOUBLE TREE COURT
TEST BORING #	2	JOB NO.	180318
DEPTH (FT)	5	TEST BY	BL

Sieve Analysis
Grain Size Distribution



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	89.9%
10	73.5%
20	54.8%
40	42.8%
100	29.3%
200	25.1%

Atterberg Limits
Plastic Limit
Liquid Limit
Plastic Index

Swell

Moisture at start	7.3%
Moisture at finish	15.0%
Moisture increase	7.7%
Initial dry density (pcf)	105
Swell (psf)	240

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COLORADO SPRINGS, COLORADO 80907

LABORATORY TEST RESULTS

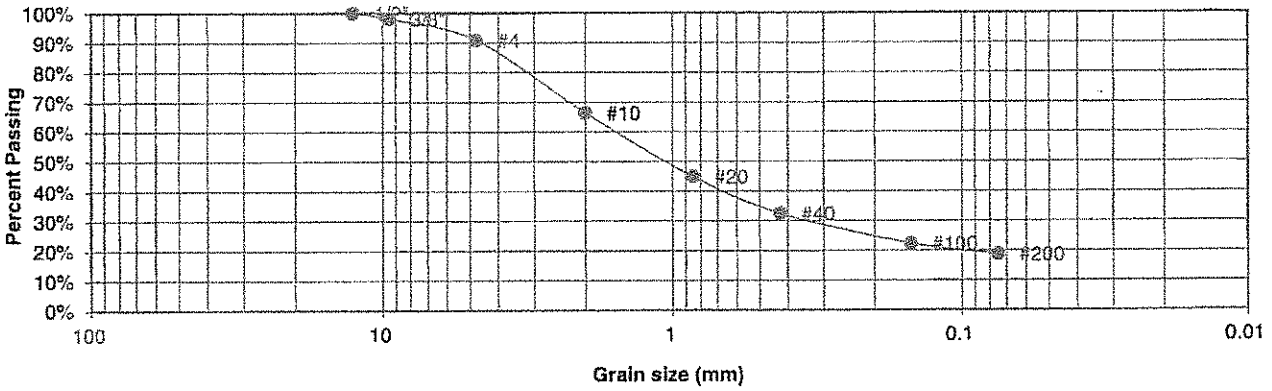
DRAWN:	DATE:	CHECKED:	DATE:
			3/15/18

JOB NO.: 180318

FIG NO.: B-2

UNIFIED CLASSIFICATION	SM	CLIENT	COLORAD SPRINGS 382, LLC
SOIL TYPE #	1	PROJECT	3415 DOUBLE TREE COURT
TEST BORING #	4	JOB NO.	180318
DEPTH (FT)	10	TEST BY	BL

Sieve Analysis
Grain Size Distribution



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	98.1%
4	90.9%
10	66.4%
20	44.9%
40	32.5%
100	22.3%
200	18.7%

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

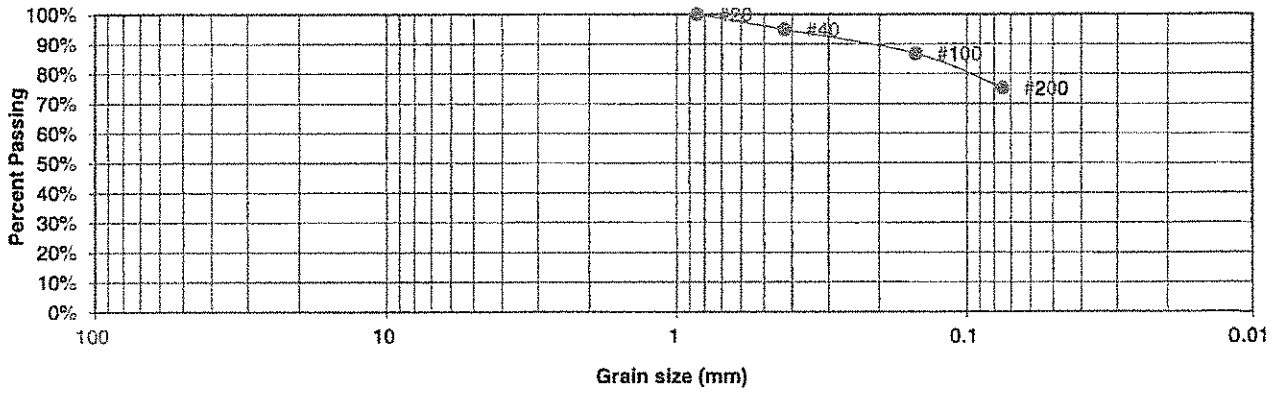
DRAWN:	DATE:	CHECKED:	DATE:
			3/15/18

JOB NO.: 180318

FIG NO.: B-3

UNIFIED CLASSIFICATION	ML	CLIENT	COLORAD SPRINGS 382, LLC
SOIL TYPE #	2	PROJECT	3415 DOUBLE TREE COURT
TEST BORING #	3	JOB NO.	180318
DEPTH (FT)	5	TEST BY	BL

Sieve Analysis
Grain Size Distribution



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	
20	100.0%
40	94.9%
100	86.8%
200	75.3%

Atterberg Limits

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

Swell

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

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LABORATORY TEST RESULTS

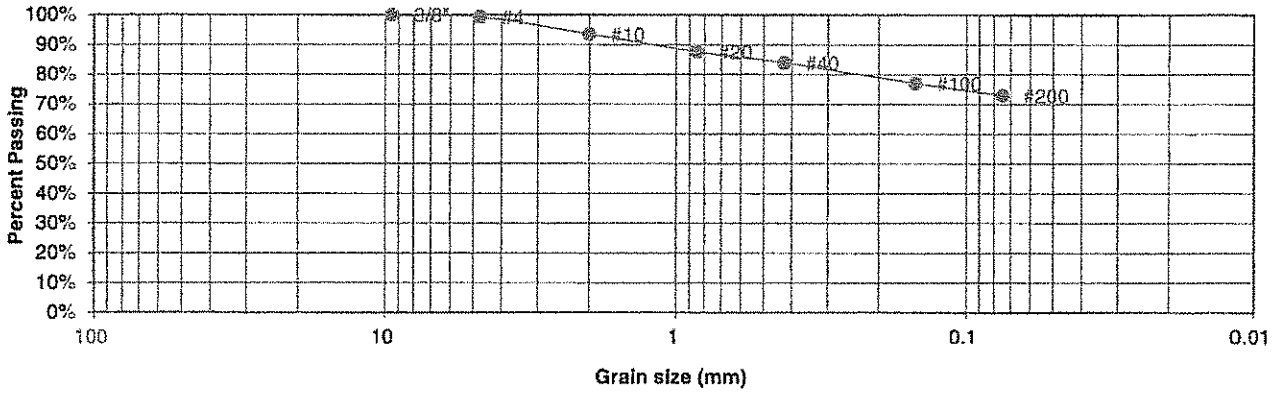
DRAWN:	DATE:	CHECKED:	DATE:
			3/15/10

JOB NO.: 180318

FIG NO.: B-4

UNIFIED CLASSIFICATION	ML	CLIENT	COLORAD SPRINGS 382, LLC
SOIL TYPE #	2	PROJECT	3415 DOUBLE TREE COURT
TEST BORING #	4	JOB NO.	180318
DEPTH (FT)	2-3	TEST BY	BL

Sieve Analysis
Grain Size Distribution



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.2%
10	93.5%
20	87.7%
40	84.0%
100	77.1%
200	73.0%

Atterberg Limits
Plastic Limit
Liquid Limit
Plastic Index

Swell

Moisture at start	9.7%
Moisture at finish	17.5%
Moisture increase	7.8%
Initial dry density (pcf)	105
Swell (psf)	300

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LABORATORY TEST RESULTS

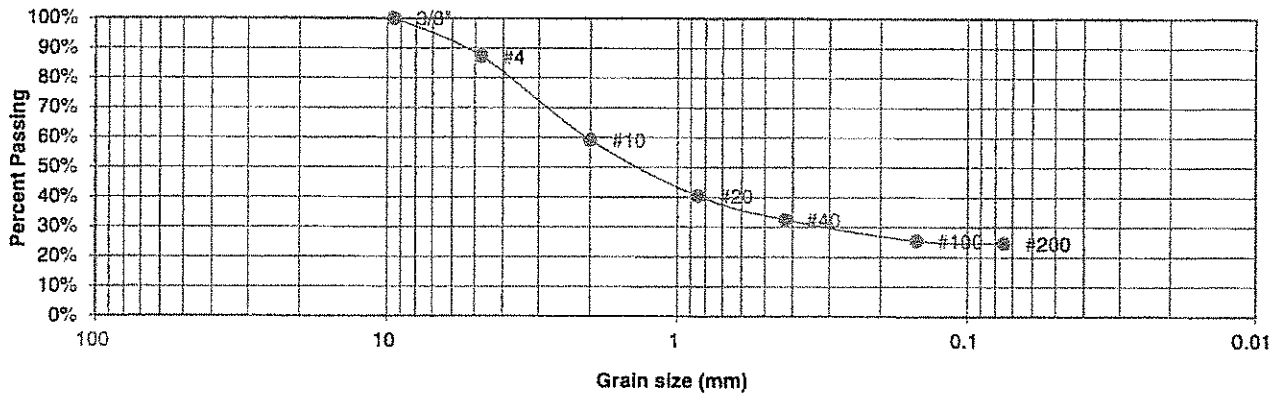
DRAWN:	DATE:	CHECKED:	DATE:
			3/15/18

JOB NO.: 180318

FIG NO.: B-5

UNIFIED CLASSIFICATION	SM	CLIENT	COLORAD SPRINGS 382, LLC
SOIL TYPE #	3	PROJECT	3415 DOUBLE TREE COURT
TEST BORING #	1	JOB NO.	180318
DEPTH (FT)	20	TEST BY	BL

Sieve Analysis
Grain Size Distribution



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	87.2%
10	59.1%
20	40.4%
40	32.5%
100	25.4%
200	24.6%

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

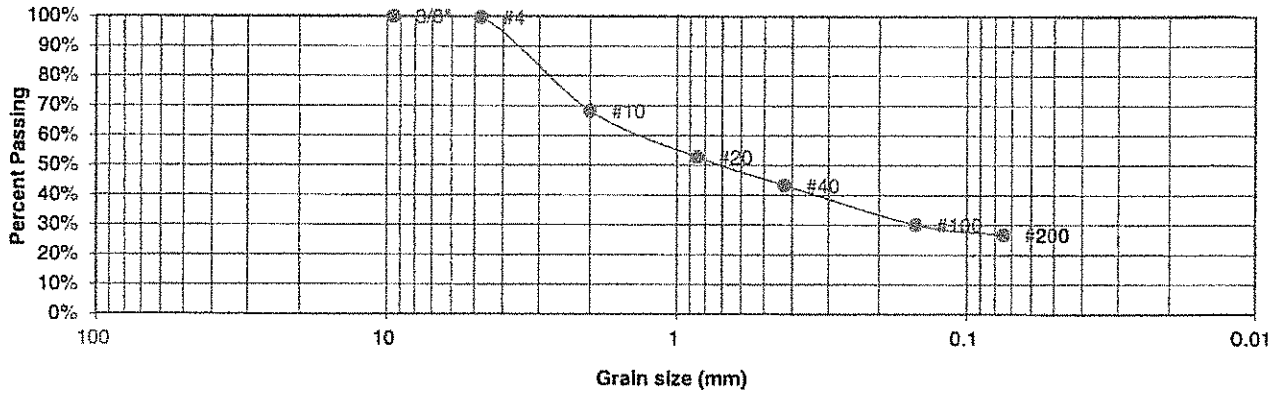
DRAWN:	DATE:	CHECKED:	DATE: 3/15/18

JOB NO.: 180318

FIG NO.: B-6

UNIFIED CLASSIFICATION	SC	CLIENT	COLORAD SPRINGS 382, LLC
SOIL TYPE #	3	PROJECT	3415 DOUBLE TREE COURT
TEST BORING #	2	JOB NO.	180318
DEPTH (FT)	15	TEST BY	BL

Sieve Analysis
Grain Size Distribution



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.7%
10	68.2%
20	52.8%
40	43.3%
100	30.1%
200	26.7%

Atterberg Limits

Plastic Limit	14
Liquid Limit	23
Plastic Index	9

Swell

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

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LABORATORY TEST RESULTS

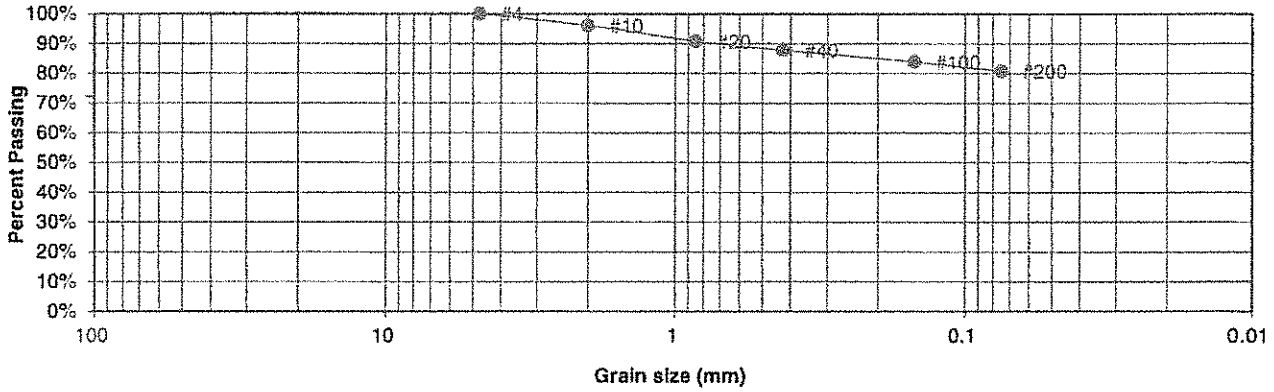
DRAWN:	DATE:	CHECKED:	DATE:
			3/15/18

JOB NO.: 180318

FIG NO.: B-7

UNIFIED CLASSIFICATION	CL	CLIENT	COLORAD SPRINGS 382, LLC
SOIL TYPE #	4	PROJECT	3415 DOUBLE TREE COURT
TEST BORING #	4	JOB NO.	180318
DEPTH (FT)	15	TEST BY	BL

Sieve Analysis
Grain Size Distribution



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	96.1%
20	90.8%
40	87.9%
100	83.9%
200	80.8%

Atterberg Limits	
Plastic Limit	19
Liquid Limit	34
Plastic Index	15

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

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LABORATORY TEST RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
			3/15/18

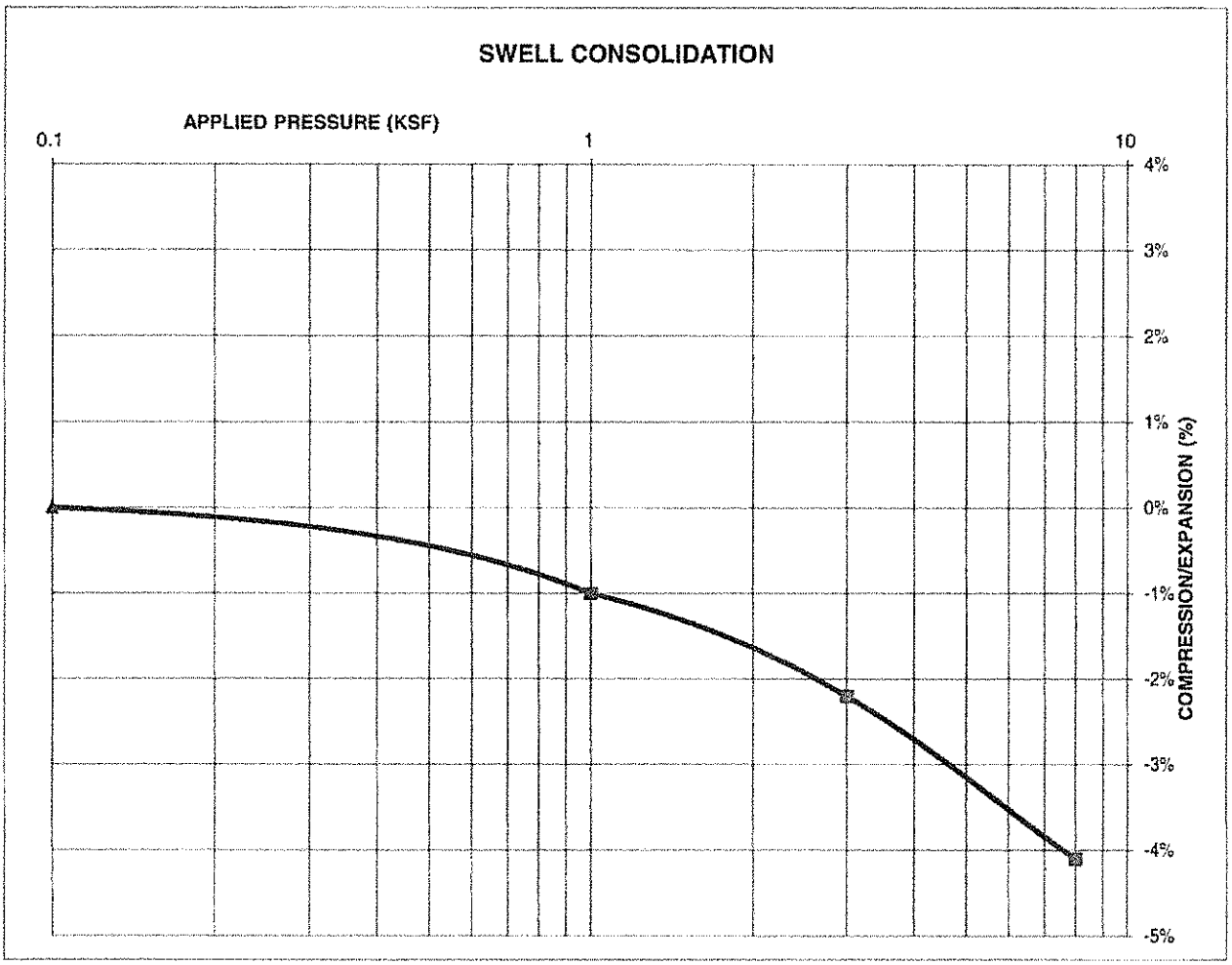
JOB NO.: 180318

FIG NO.: B-8

CONSOLIDATION TEST RESULTS

TEST BORING #	1	DEPTH(ft)	2-3
DESCRIPTION	SM	SOIL TYPE	1A
NATURAL UNIT DRY WEIGHT (PCF)			109
NATURAL MOISTURE CONTENT			15.1%
SWELL/CONSOLIDATION (%)			0.0%

JOB NO. 180318
CLIENT COLORAD SPRINGS 382, LLC
PROJECT 3415 DOUBLE TREE COURT



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SWELL CONSOLIDATION
TEST RESULTS

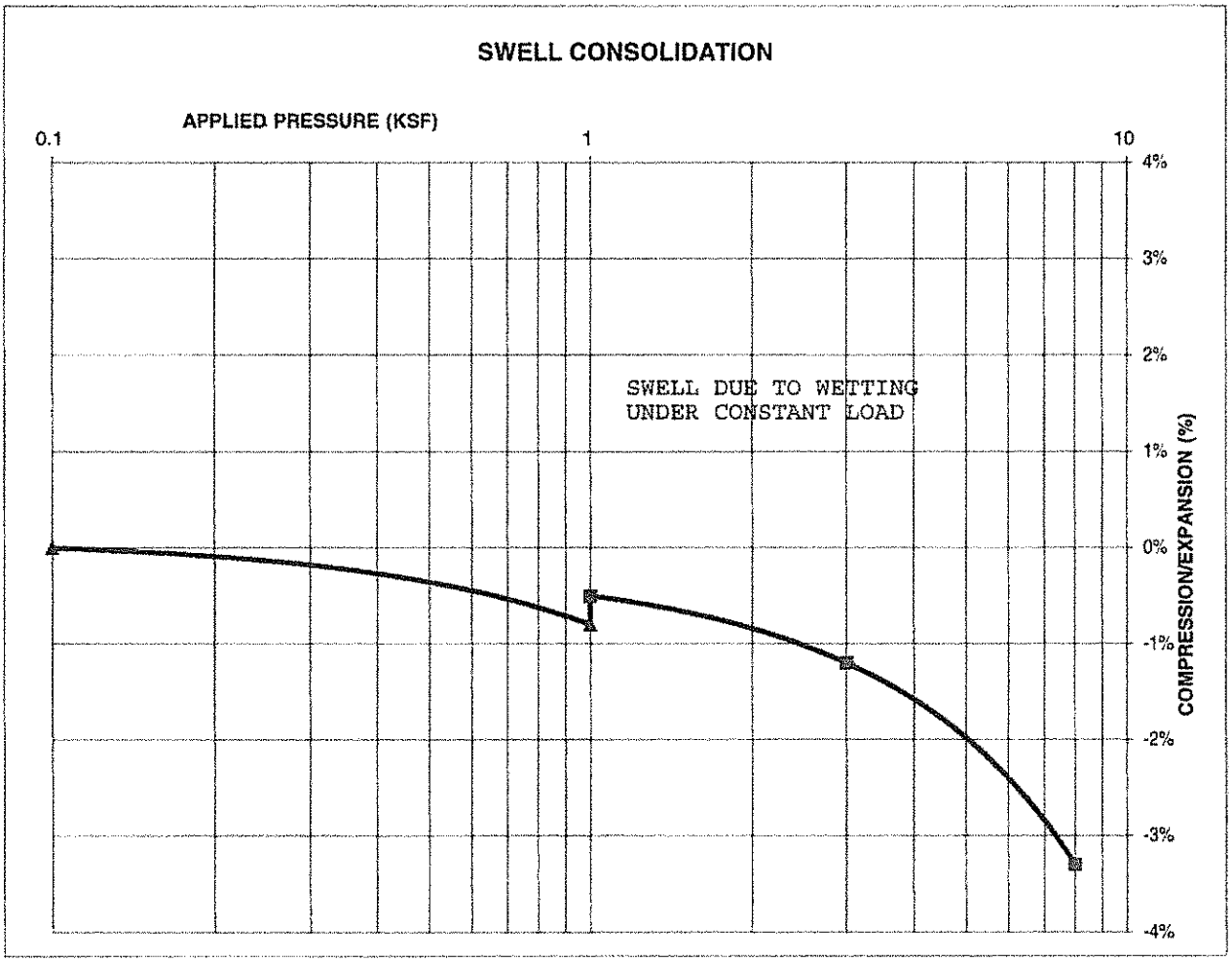
DRAWN:	DATE:	CHECKED	DATE
			5/15/18

JOB NO.: 180318
FIG NO.: B-9

CONSOLIDATION TEST RESULTS

TEST BORING #	3	DEPTH(ft)	2-3
DESCRIPTION	ML	SOIL TYPE	2
NATURAL UNIT DRY WEIGHT (PCF)			119
NATURAL MOISTURE CONTENT			7.6%
SWELL/CONSOLIDATION (%)			0.3%

JOB NO. 180318
CLIENT COLORAD SPRINGS 382, LLC
PROJECT 3415 DOUBLE TREE COURT



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COLORADO SPRINGS, COLORADO 80907

SWELL CONSOLIDATION
TEST RESULTS

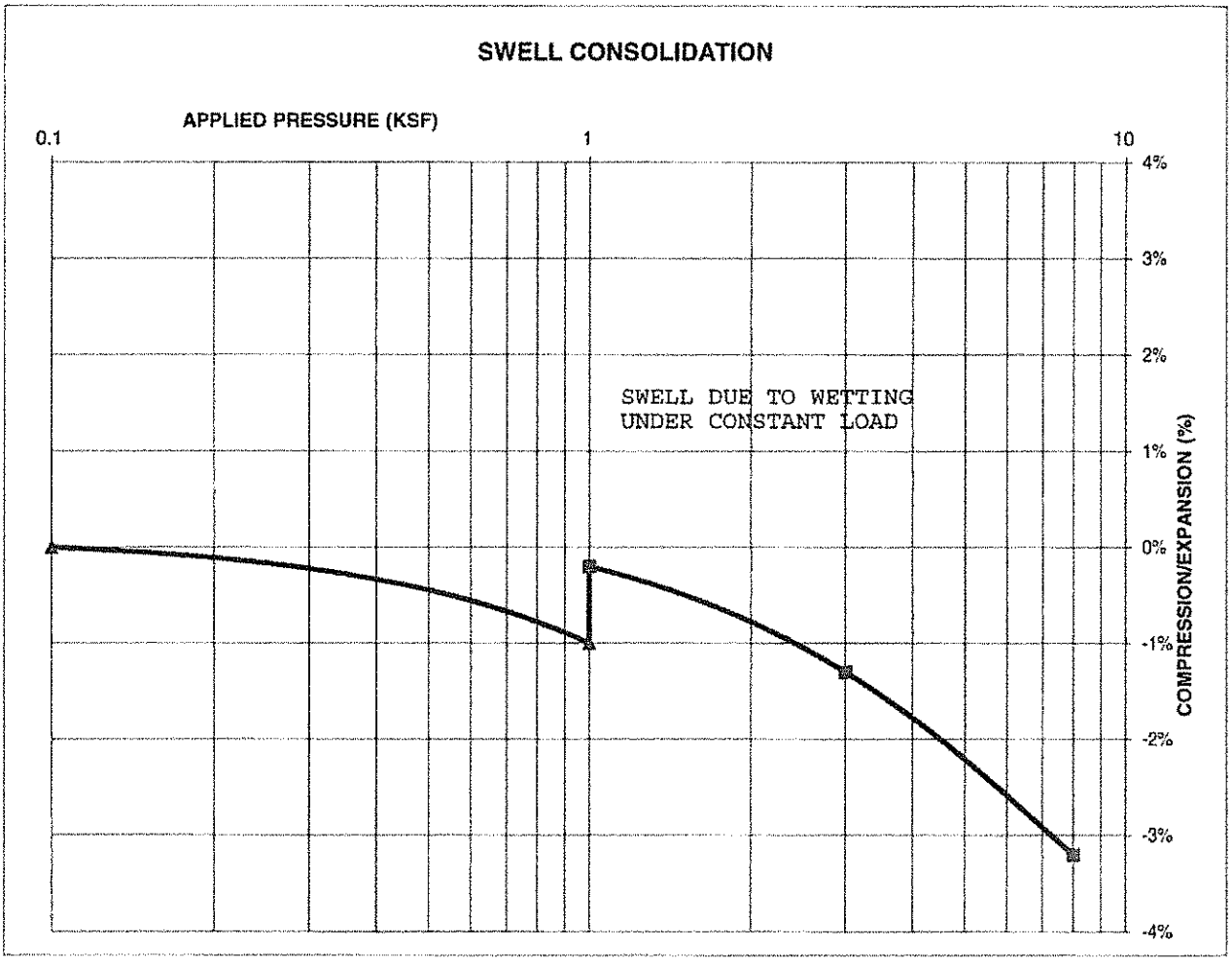
DRAWN:	DATE:	CHECKED:	DATE: 3/15/16

JOB NO.: 180318
FIG NO.: B-10

CONSOLIDATION TEST RESULTS

TEST BORING #	4	DEPTH(ft)	15
DESCRIPTION	CL	SOIL TYPE	4
NATURAL UNIT DRY WEIGHT (PCF)			122
NATURAL MOISTURE CONTENT			13.3%
SWELL/CONSOLIDATION (%)			0.8%

JOB NO. 180318
CLIENT COLORAD SPRINGS 382, LLC
PROJECT 3415 DOUBLE TREE COURT



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SWELL CONSOLIDATION
TEST RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
			3/15/18

JOB NO.: 180318
FIG NO.: B-11

CLIENT	COLORAD SPRINGS 382, LLC	JOB NO.	180318
PROJECT	3415 DOUBLE TREE COURT	DATE	3/7/2018
LOCATION	3415 DOUBLE TREE COURT	TEST BY	BL

BORING NUMBER	DEPTH, (ft)	SOIL TYPE NUMBER	UNIFIED CLASSIFICATION	WATER SOLUBLE SULFATE, (wt%)
TB-1	20	3	SM	<0.01
TB-2	5	1A	SM	<0.01
TB-3	5	2	ML	0.01
TB-4	15	4	CL	0.00

QC BLANK PASS

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LABORATORY TEST
SULFATE RESULTS

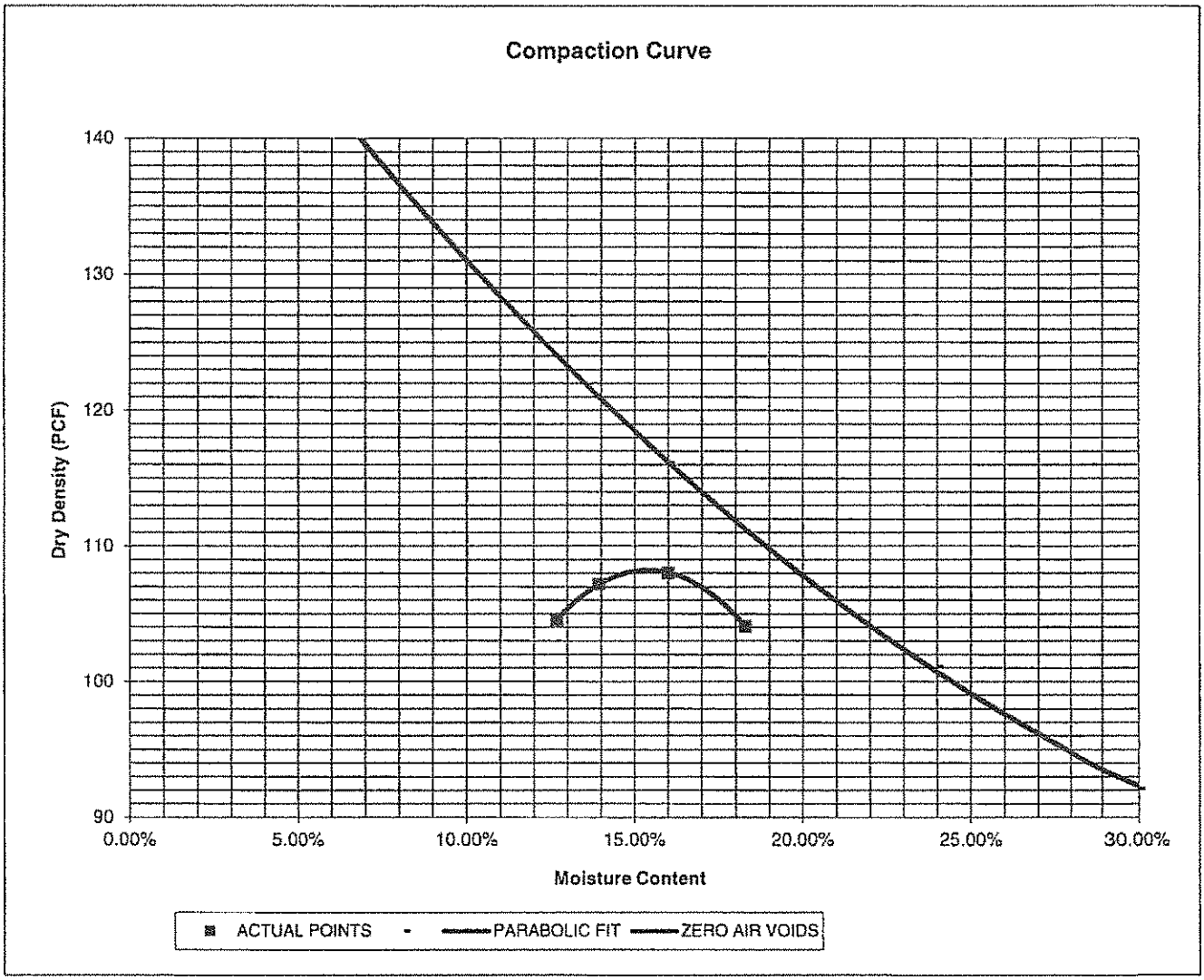
DRAWN:	DATE:	CHECKED:	DATE:
			3/18/18

JOB NO.: 180318

FIG NO.: B-12

PROJECT	3415 DOUBLE TREE COURT	CLIENT	COLORAD SPRINGS 382, LLC
SAMPLE LOCATION	NW OF FILL PILE	JOB NO.	180318
SOIL DESCRIPTION	FILL, SAND, SILTY, BROWN	DATE	02/26/18

IDENTIFICATION	SM	PROCTOR TEST #	I
TEST DESIGNATION / METHOD	ASTM D-698-A	TEST BY	DC
MAXIMUM DRY DENSITY (PCF)	108.1	OPTIMUM MOISTURE	15.6%



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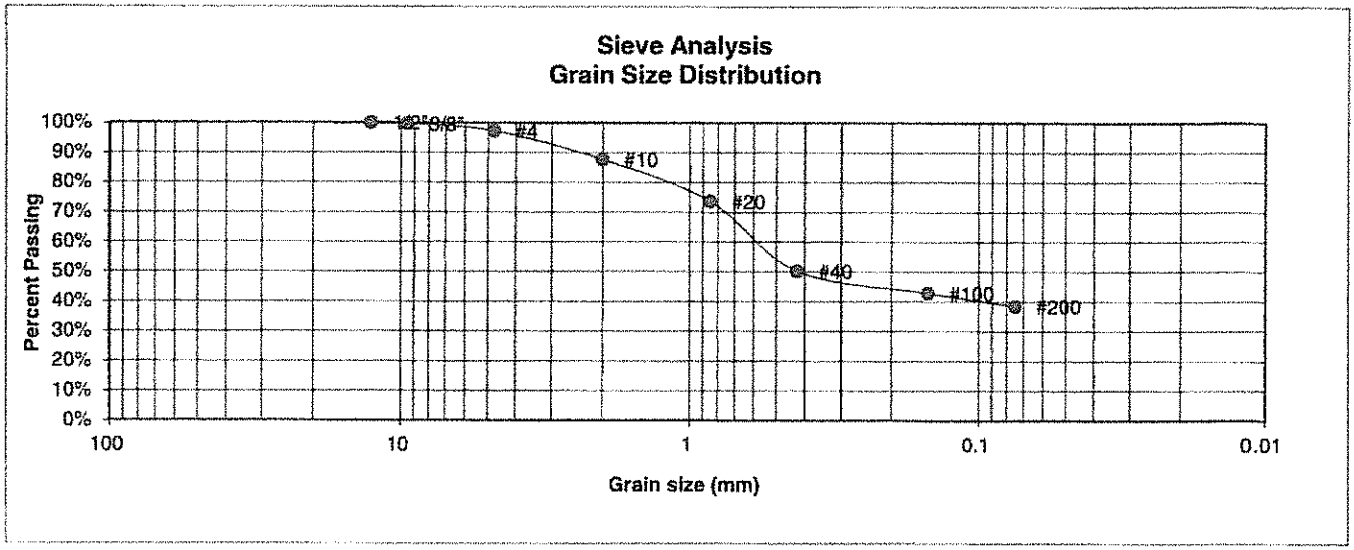
MOISTURE DENSITY RELATION

DRAWN:	DATE:	CHECKED:	DATE:
			3/16/18

JOB NO.: 180318

FIG NO.: B-13

UNIFIED CLASSIFICATION	SC	CLIENT	COLORAD SPRINGS 382, LLC
SOIL TYPE #	1	PROJECT	3415 DOUBLE TREE COURT
TEST BORING #	ON-SITE	JOB NO.	180318
DEPTH (FT)	NW OF FILL PILE	TEST BY	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	99.7%
4	97.2%
10	87.7%
20	73.6%
40	50.2%
100	42.9%
200	38.5%

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

DRAWN:	DATE:	CHECKED:	DATE:
		L	9/6/18

JOB NO.: 180318

FIG NO.: B-14