Geotechnical Investigation



Rancho Vistoso Valley Vista – Lot 19 Residence

780 East Kalalau Drive Oro Valley, Arizona ProTeX Job No.: 12804





November 3, 2022

Pulte Tucson Land 3011 West Ina Road Tucson, Arizona 85741

Re: Geotechnical Investigation - Forensics

Project: Rancho Vistoso Valley Vista- Lot 19

780 East Kalalau Drive Oro Valley, Arizona

ProTeX Job No.: 12804

Attention: Mr. Andy Martinez

At your request, ProTeX has completed a soil investigation for the subject project. The accompanying report includes field observations and laboratory testing with conclusions and recommended design parameters for analysis of the existing concrete slabs, privacy walls and the surrounding area subgrade improvements.

Prepared By,

Kimberly Nepsa Staff Geologist

Respectfully submitted,

ProTeX - the PT Xperts, LLC

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Expires: 09/30/2025 Clint L. Mueller., P.E. Rancho Vistoso Valley Vista – Lot 19 780 East Kalalau Drive

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1.0 INTRODUCTION

1.1 Scope

ProTeX was retained by Pulte Group to analyze the surface and subsurface soil conditions associated with the existing house slab/foundations and privacy walls on the sides of the lot located at 780 East Kalalau Drive (Lot 19) in Oro Valley, Arizona. The common area with a Pump/Booster station owned and maintained by Pima County that is located between lots 19 and 20, was also evaluated. As a part of the investigation, the following were performed:

- ξ Review of the earthwork/grading report associated with the Project
- ξ Subsurface sampling of soils associated with the slab and privacy walls (backfill and foundation bearing) of the lot as well as common areas such as streets and detention basins.
- ξ Visual observation of the privacy wall structures and slab foundation associated with the lot.

This report contains the findings from the field exploration and laboratory testing, conclusions and recommendations.

1.2 Terms and Conditions

This report was prepared for Pulte Group. The contents of this report may not be relied upon by any other party without the expressed written permission of ProTeX - the PT Xperts, LLC and the written permission of Pulte Group. The report presents site conditions at the time of the investigation and for the aforementioned proposed development. The report should be updated prior to construction if a maximum of one year has elapsed from the issued date.

2.0 FIELD AND LABORATORY TESTING

2.1 Geotechnical Site Reconnaissance

The site consists of one Booster station in the common area located just east of a single-family residential lot (Lot 19 – Residence) within the Rancho Vistoso Valley Vista Master planned

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community near Kalalau Drive and Romsdalen Road in Oro Valley, Arizona. Specific address information at the time of this report includes:

1) 780 East Kalalau Drive, Lot 19, Residence

2) 12550 North Moore Loop, Booster Station within the common area.

The subject lot is located near the southeastern corner of the residential community, adjacent to and near the existing wash which is located directly a few feet east and south of Lot 19. At the time of the field visit and sampling on February 25, 2022, May 5, 2022, July 1, 2022 and September 1, 2022, the front yard for the residential lot as well as the common areas were completely landscaped. The backyard for Lot 19 did not have any landscaping at the time of our field investigations. The privacy walls associated with the lot were noted to be on the east and west sides of the lot, with the east privacy wall sharing a block wall with the booster station. View fencing was observed in the back portions of the residential lot. The booster station in the common area was surrounded by block walls with view/entry fence gates observed on the north side.

Preliminary field site visits, observations, drilling or reviews were conducted on February 8, 2022, February 25, 2022, May 5, 2022, July 1, 2022 and September 1, 2022. Manometer (floor elevation) surveys for Lot 19, including interior inspections, were performed on April 12, 2022. An additional manometer survey was performed for Lot 19 on May 12, 2022.

Document Review:

Geotechnical investigation: The original geotechnical investigation was performed by ProTeX - the PT Xperts, LLC under the title "Rancho Vistoso Neighborhood 5 Parcels X and W" (Job No. 7466 dated February 20, 2018). The foundation section of the report requires the pads to bear on 12 inches of compacted fill. The report recommends an allowable bearing capacity of 1250psf for a minimum of 1.5 feet embedment below lowest adjacent grade. Compaction specifications stated in the geotechnical report are 95% of the maximum dry density at $\pm 2\%$ of optimum moisture content based on ASTM D698 or AASHTO T-99 compaction method.

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Grading Report: The "5X and 5W Mass Grading at Rancho Vistoso Valley Vista (Phase 1A)" testing and observation was conducted by ProTeX - the PT Xperts and the report was prepared on June 13, 2019. The report was reviewed and indicates that the grading specific to Lot 19 included fill depths as much as 8 feet across portions of the pad. Passing density and moisture tests were recorded in the report.

The project's grading sheets for the common area, between Lots 19 and 20 and adjacent to the Booster station, showed that the projected fills were as much as 10 feet. Projected fill depths around the street areas near Kalalau Drive and Romsdalen Road were as much as 4 to 5 feet.

2.2 Field Investigation

Field Soil Sampling: For the purpose of this forensic study and in evaluating the subsurface conditions, a total of nineteen (19) test holes were completed in the residential development. Ten (10) of the test holes were completed in the common area of the Booster station and the street corner, including one (1) test hole located in the street directly adjacent to Lot 20, and the detention basin on the northwest portion of the street corner. Overall, two (2) test holes were completed on Lot 19, near the front bedroom of the existing house and adjacent to the front sidewalk. One (1) test hole was completed on Lot 18, adjacent to the front sidewalk. Two (2) test holes were completed along Lauterbrunnen Lane, one (1) adjacent to the existing drainage channel immediately south and adjacent to Lot 31 and one (1) in the front yard of Lot 31. Four (4) test holes were completed in wash areas, located south and east of the southeastern corner of the residential community. More specifically, the wash areas behind Lots 15, 19, 20 and 22. The test holes were advanced to depths ranging from 25 to 71 feet below the existing site grade.

Blow Counts using a ring-lined barrel sampler and a bullnose tip as well as the field observations indicate that the subsurface soils are very loose/soft, experiencing varying levels of moisture content. See the table below and the attached boring logs in Appendix C.



Table 1 - Moisture Content Summary of Subsurface Soils

Test Hole Number	Degree of Saturation (Field observations) -Very damp to wet soils-	Depth of Saturation (Field observations)	Depth of Maximum Saturation (WET)	Moisture Content (%) (Lab Testing/Results)	Soil Type (USCS)
			(Field observations)		
FB1A	N/A	N/A	N/A		
FB2A	N/A	N/A	N/A		
FB3/A	Slightly moist to very moist soils	0 – 26'	N/A	1' - 7.6 5' - 8.6 10' - 8.7 15' - 8.6 20' - 9.0 25' - 26.4	(SM) Silty Sand (SM) Silty Sand (CL) Lean Clay
FB4A	N/A	N/A	N/A		
FB5/A	Slightly moist to very moist soils	0 – 26'	N/A	1' - 8.3 5' - 9.7 15' - 22.8 20' - 5.7 25' - 13.2	(SM) Silty Sand (SM) Silty Sand Silty Clayey Sand (SC-SM) (SM) Silty Sand
FB6A	Blow counts indicate softer/possibly moist soils	2' - 3.5'	N/A		
FB7/A	Moist to wet soils	0 – 26'	0 - 10'	1'-7.9 5'-9.9 10'-6.1 25'-8.9	(SM) Silty Sand Silty Clayey Sand (SC-SM)
FB8	Moist to wet soils	0-61'	5'-20' 25'-30' 45'-50' 60'-61'	1.5' - 6.8 5' - 10.2 10' - 8.1 15' - 6.1 20' - 7.5 25' - 5.3 30' - 4.7 35' - 4.5 40' - 5.4 45' - 9.4 50' - 17.3 60' - 6.8	(SM) Silty Sand (SM) Silty Sand Silty Clayey Sand (SC-SM) (CL) Sandy Clay
FB11	Moist to wet soils	0 – 25'	10'-20'	1.5' - 6.3 5' - 7.2 10' - 8.5	



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				15' - 4.9	Silty Clayey Sand
				20' - 5.2	(SC-SM)
				25' – 9.4	
				30' - 6.6	Silty Clayey Sand
				35' – 2.1	(SC-SM)
				40' - 1.7	(3C-3M)
				45' – 2.9	
FB12/A	Moist soils	5' – 10' and	N/A	35' – 5.8	Silty Clayey Sand
TB12/A		40' – 45'	IV/A	33 – 3.8	(SC-SM)
	Moist to slightly wet	0 – 35'		1.5' - 7.3	
				5' - 6.6	
				10' - 11.0	Silty Clayey Sand
				15' - 24.0	(SC-SM)
				20' - 7.8	(CL) Sandy Clay
FB13			15'	25' - 11.8	(CI) Sandy Class
				30' – 13.8	(CL) Sandy Clay (CL) Sandy Clay
				35' – 5.3	(CL) Salidy Clay
				40' - 3.2	
				45' - 8.0	
				50' - 6.0	
				10' - 4.0	
	Very damp 35' N/A		15' – 5.2		
		35'	N/A	20' - 6.3	
				25' - 21.3	(SM) Silty Sand
				30' – 15.9	(SM) Silty Sand
FB14				35' - 6.8	
				50' – 9.1	
				55' – 3.7	(SC) Clayey Sand
				60' - 6.1	
				65' - 6.2	
				25' – 20.6	(SM) Silty Sand
FB15	Very damp	0' and 24.5'	N/A	30' – 4.9	(,,
1013	very damp	0 and 24.3	17/2	50' - 6.2	
				20' - 6.4	(SM) Silty Sand
FB16	Very damp	5'-25'	N/A	40' – 4.6	and (SC) Clayey
				50' - 8.1	Sand
FB17	Very damp	5'	N/A	-	(SM) Silty Sand
				2.5' - 10.2	(SM) Silty Sand
				5'-3.7	
				10' - 20.6	(CL) Lean Clay
FB18			N/A	15' – 17.0	(CL) Lean Clay
	N/A	N/A		20' – 5.9	
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				30' - 6.6 35' - 13.0 40' - 5.6	(CL) Lean Clay
				2.5' - 9.6	(SM) Silty Sand
FB19	N/A	N/A	N/A	10' – 13.9	(SM) Silty Sand
				20' – 4.9	

At each test hole location, the soils encountered were visually observed, classified, logged and representative samples were obtained where applicable. Refer to the site plan in Appendix B for approximate test hole locations.

2.3 Historical Aerial Investigation

The following descriptions and Historical Aerial Photographs were obtained from Google Earth (https://earth.google.com/web/) which show historical site conditions prior to construction of the current residential community.

Aerial photographs show evidence of native desert conditions at the time of the earliest available aerial images in the region, in April of 1992. The photographs also show a natural, mid to large size, waterway from higher elevations to lower elevations, draining into Big Wash, through the southeast portion of the recently built residential community of Rancho Vistoso Valley Vista. The residential community appear in the aerial photographs from December 2020 to present-day. See figures below.





Figure 1: March, 2011, showing the historical pattern of the existing waterway into Big Wash



Figure 2: August, 2018, showing abundant vegetation along waterway, before the construction of the residential community

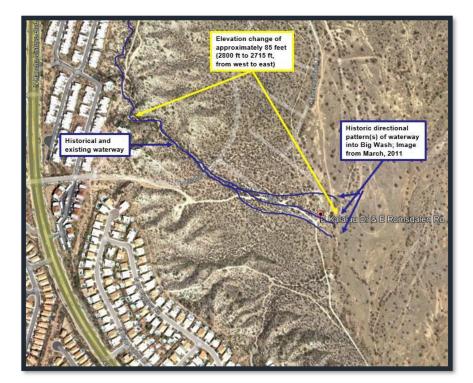


Figure 2: March, 2011, highlighting waterway patterns

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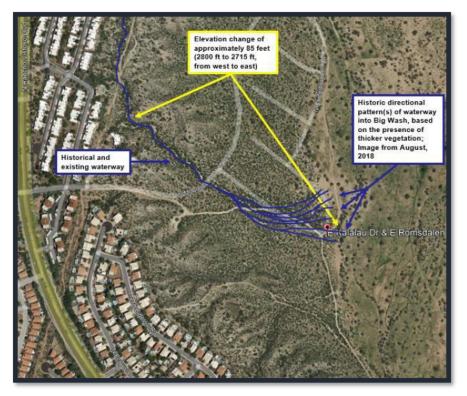


Figure 4: August, 2018, highlighting waterway patterns

3.0 GENERAL SITE CONDITIONS

3.1 Soil Stratigraphy

Based on the field exploration and laboratory testing, the subsurface profile primarily consists of interlayered beds of non-plastic silty sand, low plasticity silty clayey sand and poorly graded silty fine sands, low-medium plasticity clayey sand and lean to sandy clay of low-medium to high plasticity. Refer to the boring logs in Appendix C for a detailed description of the subsurface soil profile.

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3.1 Flood Plains

ProTeX reviewed the Federal Emergency Management Agency (FEMA) Flood Maps and determined the subject site is <u>not</u> directly located within the 100-year flood zone. The site is located adjacent to Zone A, a Special Flood Hazard Area (without Base Flood Elevation (BFE)). A partial copy of the FEMA Flood Map with site location is shown below.

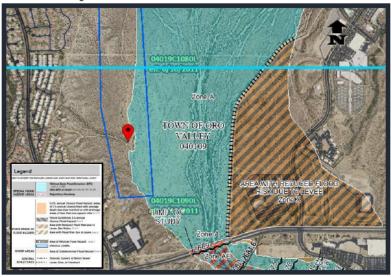


Figure 3: Flood map for areas adjacent to project site

The map indicates the subject site is located in an area generally unaffected by direct flooding. The FEMA map reviewed is Map Number 04019C080L and revision date of June 16, 2011. There was a Letter of Map Revision (LOMR), 20-09-1126P, on November 19, 2020 to include recent changes to the flood zone.

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3.2 Groundwater

ProTeX reviewed the Arizona Department of Water Resources (ADWR), GIS Groundwater Data and referenced monitored wells within the vicinity of the subject site. Wells located within this radius indicated depths of water ranging from approximately 116 to 476 feet below ground surface. Wells were measured using different techniques such as ADWR calibrated electric sounder and steel tape.

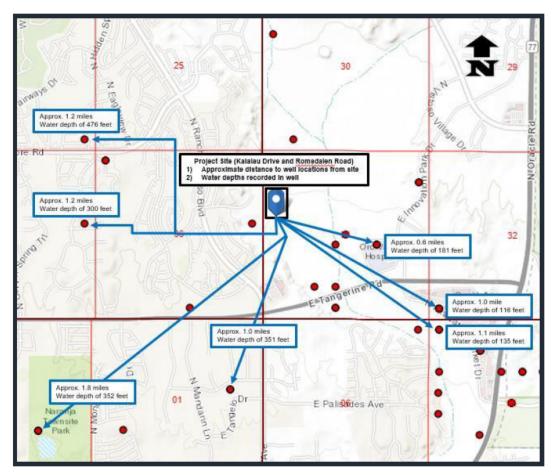


Figure 1: Well data in the vicinity of the project site

3.3 Potential for Soil Hydro-Collapse (Settlement Potential)

Laboratory testing generally indicate that the subsurface soils, in their current state, have variable potentials for settlement (negative vertical movement recorded from the response to wetting testing of in-situ soil samples) at the estimated overburden loads ranging between 500 and 8000 psf

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depending on the depth below finished site grade. See the attached laboratory test results in Appendix A. Blow Counts using the ring-lined barrel sampler and a Bullnose tip at the test locations indicated soils have variable densities at various depths below existing site grade. In general, the tested subsurface in-situ densities around the Booster common area and surrounding Lot 19 ranged between 70% and 97% based on the relative compaction using ASTM D698-A maximum density parameters (see boring logs in Appendix C).

Field Observations:

Field investigations to evaluate damages to concrete slabs/foundation, landscaped areas and site walls on Lot 19 and the adjacent common areas, were performed on February 8, 2022, February 25, 2022, May 5, 2022, May 12, 2022, July 1, 2022, and August 9, 2022.

Concrete Slab Observations:

Field investigations to evaluate the concrete slab for the house located on Lot 19 and concrete slab for the driveway, were initially performed on February 8, 2022. Separation cracks reported by the homeowner and Pulte Homes were visually inspected inside Lot 19.

 ξ Homeowners indicated that the reported cracks in the concrete slabs started off as hairline thicknesses and have progressively widened over time. Separation of concrete slab panels as well as cracks in the landscape soil were observed around the property. See pictures on the next page.





Figure 1: Lot 19, separation of concrete walkway at the front entrance of the existing house

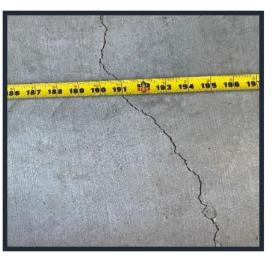


Figure 2: Lot 19, crack in the concrete slab in the garage



Figure 3: Lot 19, evidence of slab cracking reflecting on the tiles inside the existing home



Figure 4: Lot 19, cracks observed in the soil on the west side of house

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Manometer Survey and Interior Inspections: Floor elevation surveys were taken on the slabs that were placed monolithically with the foundations using a water level system. The elevations were measured to the nearest tenth of an inch. The points recorded in the house on Lot 19 were mapped to determine the current contour of the slabs. A manometer survey was initially performed in this residential structure on Lot 19 on April 12, 2022, and an additional manometer survey was performed on May 12, 2022.

The elevation difference between the highest and lowest surveyed points is 5.4". The lowest elevations were noted to be confined mostly towards the northwest portions of the house whereas the highest elevations were located near the southwest portions of the house.

Cracks were observed in the foundation and framing of the residential structure on Lot 19. The accompanying pictures show some of the cracks reported during the field site visit.



Figure 1: Lot 19 Cracks in the front bathroom, above the shower stall



Figure 2: Lot 19 Crack at the top corner of half bath door, front entrance hallway





Figure 5: Lot 19, outside utility piping has separated from the base of electric box on the east side of house



Figure 3: Lot 19 Separation of baseboard from wall, near the sliding glass door, in the dining nook



Figure 4: Lot 19 Cracks and pop-outs observed in the front bedroom









Figure 6: Lot 19 Cracks in the drywall at top edge of the window in Bedroom 2

Site Wall Evaluation: The site walls on the right and left sides of the lots were visually observed to document the reported signs of distress.

Lot 19 - East Block Wall:

The privacy wall system on the east side of the lot consists of a single wall that borders the Pump/Booster station, located immediately east of the residential lot. Vertical and stair-step separation cracks, measuring up to approximately ½ inch or more were observed in this wall. Wall separations at control joints measured between 1" to 1 3/8" from the bottom to the top of the wall. The accompanying pictures show some of the cracks noted in the privacy walls.





Figure 1: Lot 19 Stair-step separation of individual blocks in the wall



Figure 2: Lot 19 vertical separation of block wall panels



Figure 3: Lot 19 displacement and westward deflection observed in the east wall

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Lot 19 - West Block Wall: The privacy wall system on the west side of the lot consists of a single wall system that borders a neighboring homeowner. Evaluation of the general condition of the privacy wall system was noted to have undergone minimal to mostly zero deflections. However, separation cracks, measuring up to approximately 1/8" were observed in this wall.



Figure 1: Separation of west block wall from residential structure



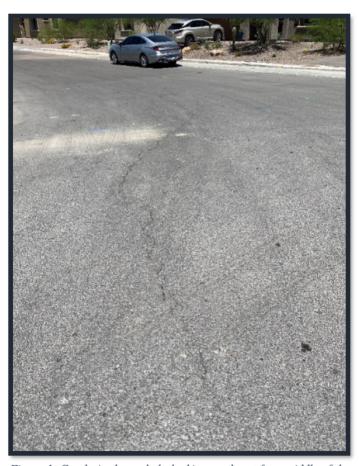
Figure 2: Close-up of separation crack on west side of house

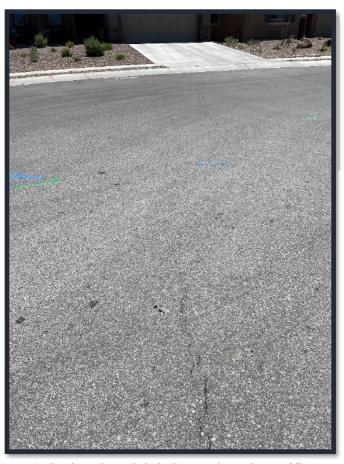


Common Area Observations: The common areas within the project area exhibited some signs of distress. Numerous cracks in the asphalt were observed at various locations.

Corner of Residential Roadway: Kalalau Drive and Romsdalen Road

The local residential roadway where Kalalau Drive and Romsdalen Road connect, is currently paved with asphalt. The condition of the asphalt pavement was noted to have developed cracks at various locations. It also appears that this area has had the asphalt pavement replaced.





road

Figure 1: Cracks in the asphalt, looking northeast from middle of the Figure 2: Cracks in the asphalt, looking southwest from middle of the road

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Common Area adjacent to the Booster Station:

The area is currently paved with asphalt and includes small gravel areas with smaller utility housing. Cracks in the asphalt were observed, trending southwest to northeast. The patterns in both the block wall and the cracks in the asphalt pavement appear to follow similar trends.



Figure 1: Cracking in common area of booster station, in the asphalt pavement, and leading to Lot 20. Similar residual cracking patterns in both wall and asphalt pavement

3.4 Laboratory Testing

Subsequent to the field investigation, soil samples were submitted for laboratory testing. Tests were performed to determine the following:

Response to Wetting Testing- Relatively undisturbed soil samples were subjected to surcharge pressures equivalent to the estimated in-situ overburden pressure representing estimated applied structural loads of about 1000 psf. The samples were allowed free access

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to water and the vertical volume decrease (compression) recorded. Applied load pressures at saturation ranged between 500 psf and 8000 psf.

- Sieve Analysis and Atterberg Limits- Used for formal classification of soils in general accordance with the Unified Soil Classification System (USCS) per ASTM Test Method D2487. Sieve analysis is performed in general accordance with ASTM Test Methods D421, D422 and D1140. The Atterberg Limits were determined in general accordance with ASTM Test Method D4318.
- **Moisture Density (Proctor)** To determine a relative density to compare in-situ density test results. ASTM D1557.

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Laboratory Test Summary

Location	Depth (feet)	Plasticity Index (PI)	Percent Passing #200 Sieve	USCS Soil Classification
FB3	1-3	NP	22	SM
FB3	11-13	NP	26	SM
FB5	1-3	NP	22	SM
FB5	6-8	NP	24	SM
FB5	17-19	6	22	SC-SM
FB7	1-3	NP	17	GM
FB7	13-15	NP	23	SM
FB8	0-3	NP	16	SM
FB8	10-12	NP	24	SM
FB8	51-53	10	53	CL
FB12	0-3	6	27	SC-SM
FB12	12-14	7	36	SC-SM
FB12	17-19	NP	18	SM
FB14	0-3	NP	19	SM
FB14	6-8	NP	22	SM
FB14	11-13	3	25	SM
FB14	16-18	NP	23	SM
FB14	22-24	NP	22	SM
FB15	0-3	NP	19	SM
FB15	6-8	NP	22	SM
FB15	11-13	NP	23	SM
FB15	16-18	5	28	SC-SM
FB15	22-24	NP	21	SM
FB16	0-3	NP	14	SM
FB16	5-7	NP	14	SM
FB16	11-13	NP	23	SM
FB16	16-18	NP	21	SM
FB16	22-24	8	28	SC
FB17	0-3	NP	20	SM
FB17	6-8	NP	15	SM
FB17	11-13	NP	15	SM
FB17	16-18	NP	21	SM
FB17	22-24	NP	15	SM
FB18	0-3	NP	33	SM
FB18	6-8	NP	38	SM
FB18	11-13	11	78	CL
FB18	16-18	6	83	CL-ML
FB18	22-24	11	87	CL
FB19	0-3	NP	24	SM
FB19	5-7	NP	35	SM
FB19	12-14	5	77	CL-ML
FB19	17-19	6	71	CL-ML
FB19	23-25	10	75	CL

See Appendix A for a detailed compilation of the laboratory test results.



Summary of Response to Wetting Testing and In-situ Soil Properties

Location	Depth (feet)	Surcharge (psf)	Compression at Surcharge (%)	Dry Density (PCF)	Moisture Content (%)	Maximum Density (lb/ft³)	Relative Compaction (%)
FB3	1-2	600	0.29	115.3	7.6	128.2	90
FB3	5-6	750	0.99	113.2	8.6	128.8	88
FB3	10-11	1250	0.80	118.1	8.7	128.8	92
FB3	15-16	2000	1.30	116.1	8.6	131.3	88
FB3	20-21	2500	1.84	116.8	9.0	130.1	90
FB3	25-26	3000	6.31	90.7	26.4	130.1	70
FB5	1-2	600	1.10	117.8	8.3	128.2	92
FB5	5-6	750	0.71	119.6	9.7	128.8	93
FB5	15-16	2000	5.91	96.2	22.8	131.3	73
FB5	20-21	2500	2,28	116.3	5.7	130.1	89
FB5	25-26	3000	2.87	111.5	13.2	130.1	86
FB7	1-2	600	0.63	122.3	7.9	128.2	95
FB7	5-6	750	1.14	125.2	9.9	128.8	97
FB7	10-11	1250	1.23	121.3	6.1	128.0	95
FB7	25-26	3000	2.05	111.3	8.9	129.9	86
FB8	1.5-2.5	600	0.60	115.3	6.8	128.7	90
FB8	50-51	6000	1.93	105.9	17.3	129.9	82
FB8	60-61	7000	2.94	114.6	6.8	129.9	88
FB11	25-26	3000	3.09	110.1	9.4	128.0	86
FB11	40-41	4500	4.86	112.6	1.7	128.0	88
FB12	35-36	4000	6.33	112.1	5.8	130.7	86
FB13	30-31	3500	3.26	115.3	13.8	130.7	88
FB14	10-11	750	2.10	107.6	4.0	129.5	83
FB14	15-16	2000	2.46	110.1	5.2	129.5	85
FB14	20-21	2500	1.50	111.3	6.3	129.5	86
FB14	25-21	3000	4.51	99.0	21.3	128.0	77
FB14	30-31	3500	4.44	107.2	15.9	128.0	84
FB14	35-36	4000	3.89	114.8	6.8	128.0	90
FB14	50-51	6000	4.46	112.8	9.1	128.0	88
FB14	55-56	6000	5.04	112.7	3.7	128.0	88
FB14	60-61	7000	9.75	101.7	6.2	128.0	79
FB14	65-66	7500	7.42	107.0	6.1	128.0	84
FB15	25-26	3000	3.15	99.4	20.6	128.0	78
FB15	30-31	3500	3.71	111.9	4.9	128.0	87
FB15	50-51	6000	8.51	102.9	6.2	128.0	80
FB16	20-21	2500	2.90	110.6	6.4	129.5	85
FB16	40-41	4500	9.56	109.4	4.6	128.0	85
FB16	50-51	6000	7.20	92.7	8.1	128.0	72
FB18	2.5-3.5	600	1.91	120.4	10.2	128.7	94
FB18	5-6	1250	1.62	105.1	3.7	128.7	82
FB18	10-11	1250	5.20	85.1	20.6	129.5	66
FB18	15-16	2000	2.47	86.5	17.0	129.5	75

ProTeX Job No.: 12804



Location	Depth (feet)	Surcharge (psf)	Compression at Surcharge (%)	Dry Density (PCF)	Moisture Content (%)	Maximum Density (lb/ft³)	Relative Compaction (%)
FB18	20-21	2500	6.48	97.7	5.9	129.5	75
FB18	25-26	3000	1.73	89.7	7.1	128.0	70
FB18	30-31	3500	2.29	94.2	6.6	128.0	74
FB18	35-36	4000	4.35	80.6	13.0	128.0	63
FB18	40-41	4000	13.10	90.8	5.6	128.0	71
FB19	2.5-3.5	600	0.88	119.9	9.6	128.7	93
FB19	10-11	1250	1.31	87.3	13.9	129.5	67
FB19	20-21	2500	6.72	97.5	4.9	129.5	75

See Appendix A for a detailed compilation of the laboratory test results.

4.0 CONCLUSIONS

Based on visual field observations and results of the field and laboratory testing, soils around and adjacent to the Booster station as well as around and adjacent to Lot 19 have experienced significant settlement and downwards movement which has affected the interior and exterior concrete slabs, the site wall foundations and backfill zones for underground utilities prior to this geotechnical evaluation. There is also highly elevated moisture content associated with the subgrade soil around the subject site(s). We have concluded that the subgrade soil has, at some point, experienced water inundation possibly during and/or after the construction phase. Elevated moisture content was recorded as deep as 50 feet below the existing site grade.

A historical analysis of the local geology, based on aerial photographs from Google Earth, site observations, research and local experience, indicates a historic directional pattern of the existing waterway running from higher elevations of approximately 2800 feet above sea level in the northwest, to lower elevations of approximately 2715 feet above sea level in the southeast and along the edge of the flood plains of the existing Big Wash.

Historically, the path of this waterway appears to run through the southeast portion of the current residential community, before being deposited into Big Wash. Historical patterns of both surface

780 East Kalalau Drive

Oro Valley, Arizona ProTeX Job No.: 12804



and subsurface water pathways, over time, may contribute to the area's continuous movement and/or settlement of deeper subsurface soils.

The subsurface soils in the vicinity surrounding Lot 19 and the Booster station, primarily near depths of approximately 7 to 10 feet and at other places extending to depths of 25 to 60 feet below existing site grade, is relatively loose based on the field blow counts and lab consolidation data. The loose soil conditions as well as the elevated levels of moisture saturation permeating the subgrade soils likely may have caused the soil to be highly susceptible to progressive settlement and lateral displacement. The settlement has manifested itself through movements observed in the slabs, asphalt pavement and site walls. It is highly likely that there is significant loss of soil support under certain foundation elements for the houses and site walls as well as underground utilities.

This firm offers the following recommendations:

- 1. Stabilize the foundations on the sides and front portions of the house. Based on the relatively low in-situ densities recorded in the site soils at various depths, we recommend that the foundations be stabilized against the current and potential future movements using helical piers driven until stable or competent subgrade soil is encountered as determined by the foundation remediation contractor. We have determined that Lot 19 will require elevation adjustments following the pier installation.
- 2. Foundations for the site or privacy walls should be stabilized against further displacement. We recommend piers to be integrated into the foundation system of the site walls. A structural engineer should be retained alongside the foundation remediation contractor to provide an effective method of achieving the stabilization process.
- 3. Following removal and prior to replacement of any patio or other concrete slabs, recompact the subsurface soil to minimize future differential settlements.
- 4. The surrounding subsurface soil around the houses and booster station will require grouting compaction or other suitable methods to minimize future settlement. The required depth to advance the grouting compaction would be determined by the remediation contractor/structural engineer of record.

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5. Perform a full drainage evaluation following subgrade re-compaction to provide the proper

lot's positive drainage away from foundation elements.

6. Maintain 3 feet or more between the rear and side yard walls and any landscaping plants.

Avoid excessive watering of plants to minimize further settlement and a build-up of soil

surcharge pressures against the wall foundations.

7. Additional manometer or floor level surveys are recommended to evaluate the status of the

floor slab after installation of helical piers to assess the relative elevations of the slab. We

recommend annual manometer surveys for the period of at least two years (two full

seasonal cycles).

It should be noted that once subgrade repairs are made to the structure, there will be a period of

readjustment. We recommend allowing about 90 days before the interior repairs are undertaken.

During the readjustment period, cracks could re-occur or new cracks develop. The complete

adjustment period is typically a full cycle of seasons, which is about 1 year.

5.0 CLOSURE

5.1 Limitations

This report is issued with the understanding that it is the responsibility of the owner to see that its

provisions are carried out or brought to the attention of those concerned.

The scope of services for this project does not include any structural adjustments and

environmental assessment of the site or identification of contaminated or hazardous materials or

conditions.

The findings of this report are considered valid as of the present date. However, changes in the

conditions of the site can occur with the passage of time, whether due to natural events or to human

activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and

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standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

Appendix A

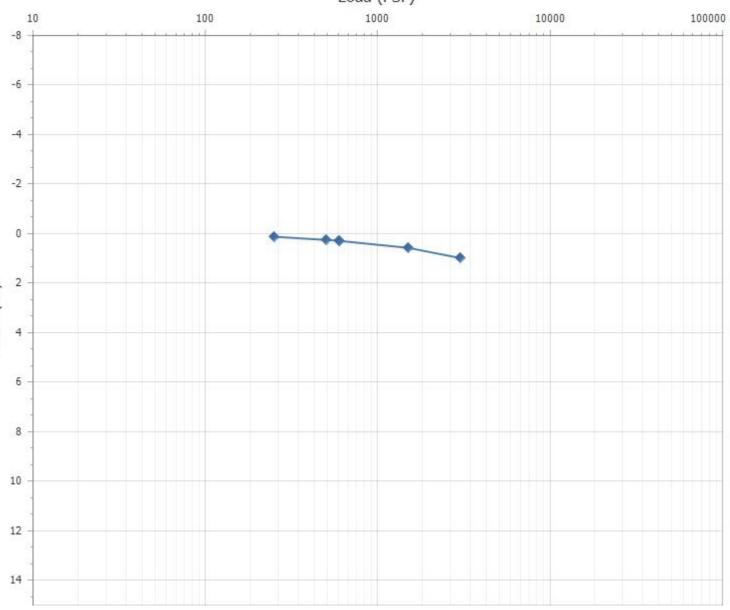


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Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202215 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB3 (Ring 1') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB3 - Ring 1'

Moisture Content: 7.6 % Sample Type: Undisturbed

Dry Unit Weight: 115.3 lb/ft³ Load at Saturation: 600 PSF

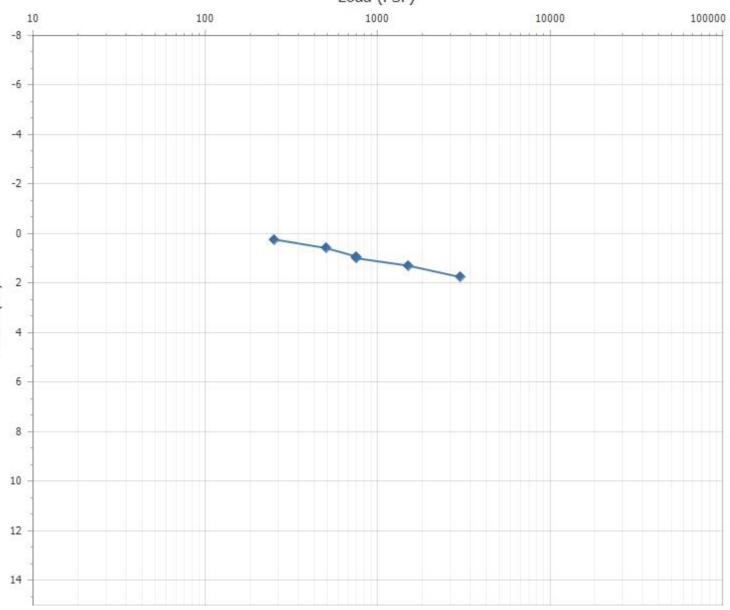


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202216 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB3 (Ring 5') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB3 - Ring 5'

Moisture Content: 8.6 % Sample Type: Undisturbed

Dry Unit Weight: 113.2 lb/ft³ Load at Saturation: 750 PSF

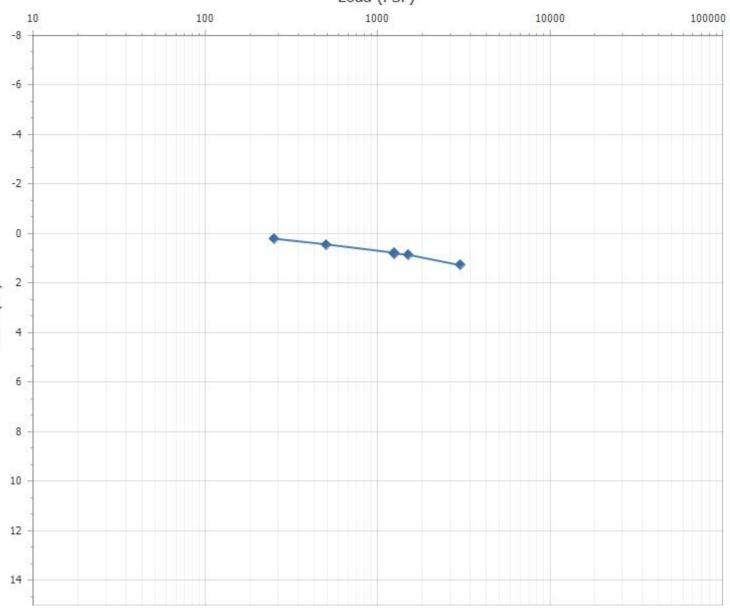


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202217 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB3 (Ring 10') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB3 - Ring 10'

Moisture Content: 8.7 % Sample Type: Undisturbed

Dry Unit Weight: 118.1 lb/ft³ Load at Saturation: 1250 PSF

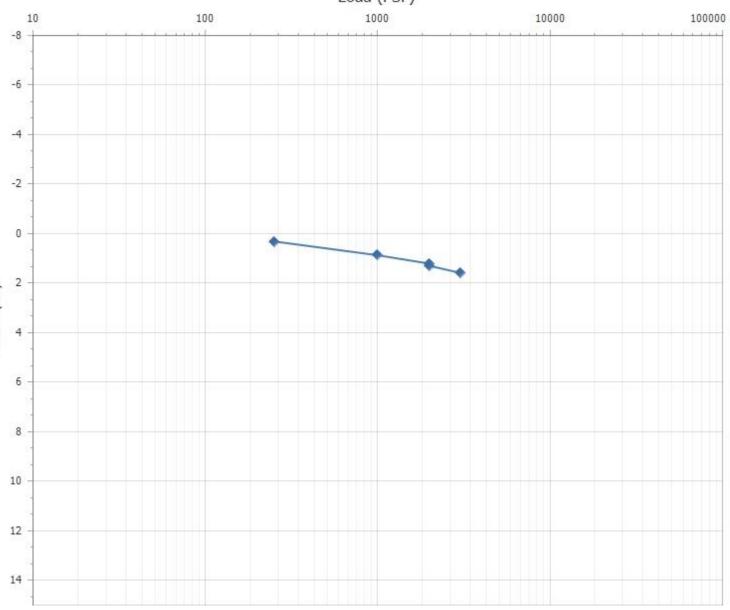


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Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202218 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB3 (Ring 15') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB3 - Ring 15'

Moisture Content: 8.6 % Sample Type: Undisturbed

Dry Unit Weight: 116.1 lb/ft³ Load at Saturation: 2000 PSF

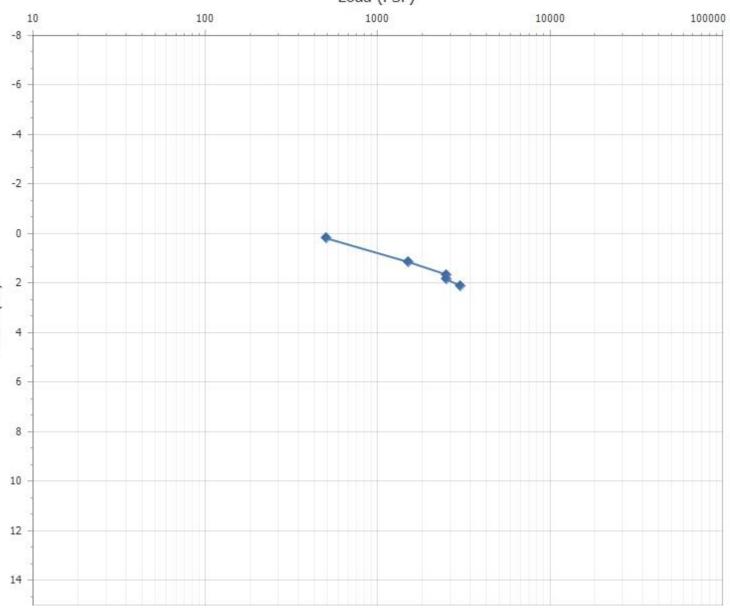


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2202219 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB3 (Ring 20') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB3 - Ring 20'

Moisture Content: 9.0 % Sample Type: Undisturbed

Dry Unit Weight: 116.8 lb/ft³ Load at Saturation: 2500 PSF

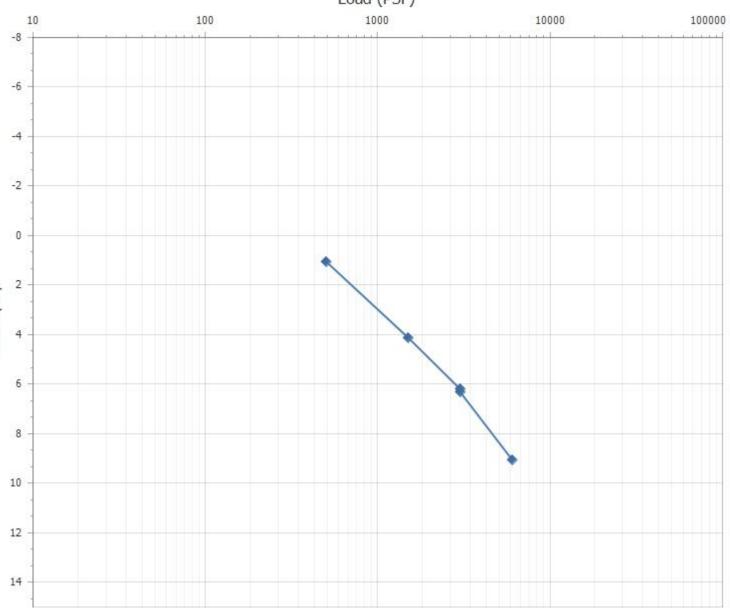


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2202220 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB3 (Ring 25') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB3 - Ring 25'

Moisture Content: 26.4 % Sample Type: Undisturbed

Dry Unit Weight: 90.7 lb/ft³ Load at Saturation: 3000 PSF

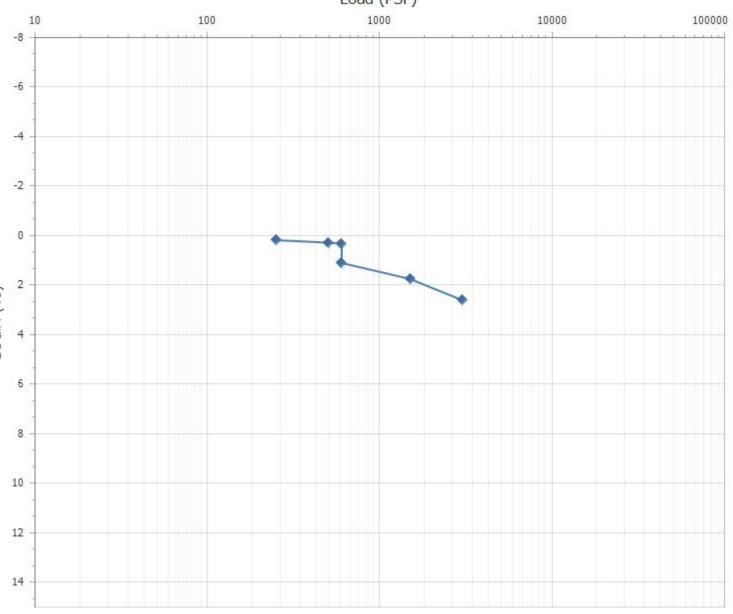


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: Rancho Vistoso Valley Vista ProTeX Lab No: 2202221 - Phoenix Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB5 (Ring 1') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB5 - Ring 1'

Moisture Content: 8.3 % Sample Type: Undisturbed

Dry Unit Weight: 117.8 lb/ft³ Load at Saturation: 600 PSF

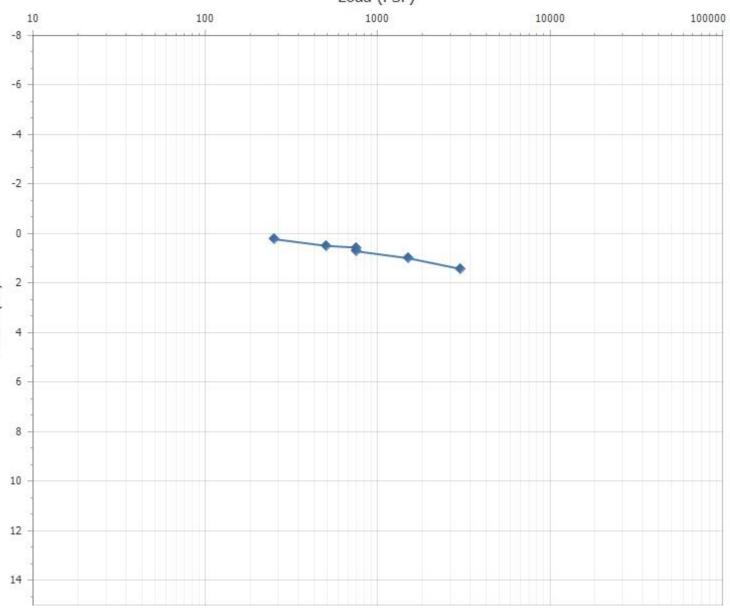


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202222 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB5 (Ring 5') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB5 - Ring 5'

Moisture Content: 9.7 % Sample Type: Undisturbed

Dry Unit Weight: 119.6 lb/ft³ Load at Saturation: 750 PSF

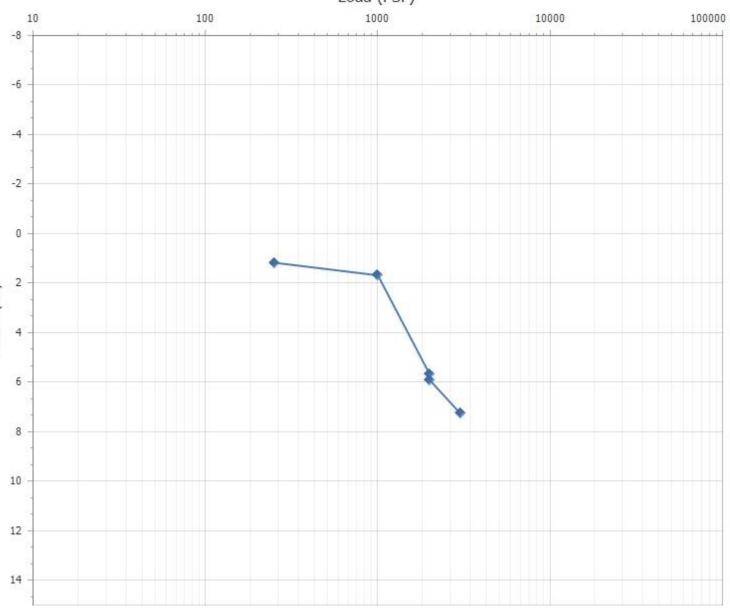


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Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: Rancho Vistoso Valley Vista ProTeX Lab No: 2202224 - Phoenix Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB5 (Ring 15') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB5 - Ring 15'

Moisture Content: 22.8 % Sample Type: Undisturbed

Dry Unit Weight: 96.2 lb/ft³ Load at Saturation: 2000 PSF

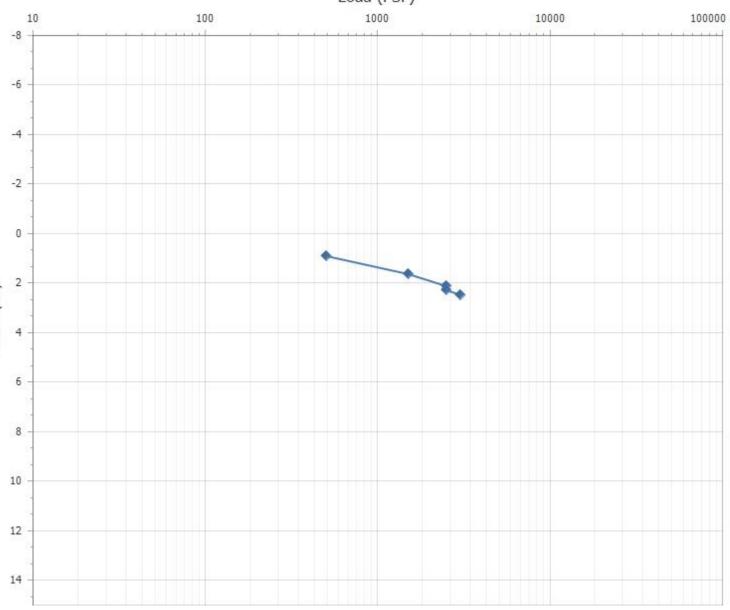


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Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202225 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB5 (Ring 20') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB5 - Ring 20'

Moisture Content: 5.7 % Sample Type: Undisturbed

Dry Unit Weight: 116.3 lb/ft³ Load at Saturation: 2500 PSF

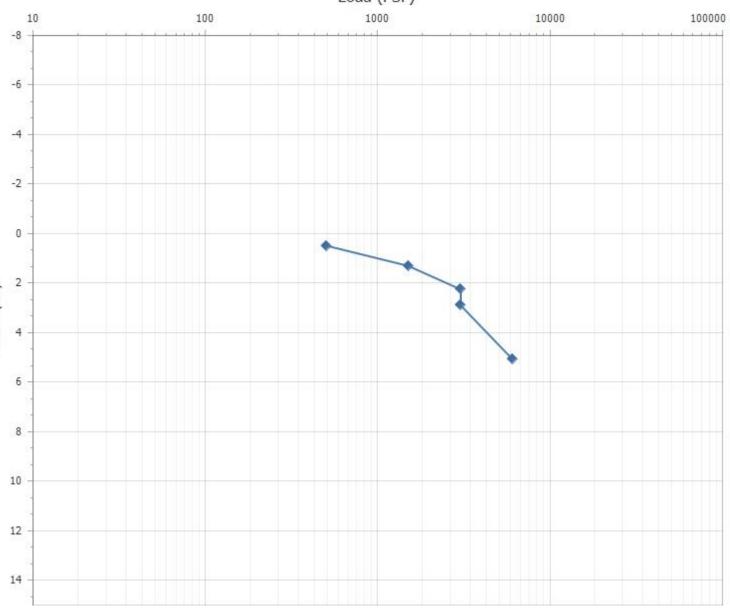


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Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202226 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB5 (Ring 25') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB5 - Ring 25'

Moisture Content: 13.2 % Sample Type: Undisturbed

Dry Unit Weight: 111.5 lb/ft³ Load at Saturation: 3000 PSF

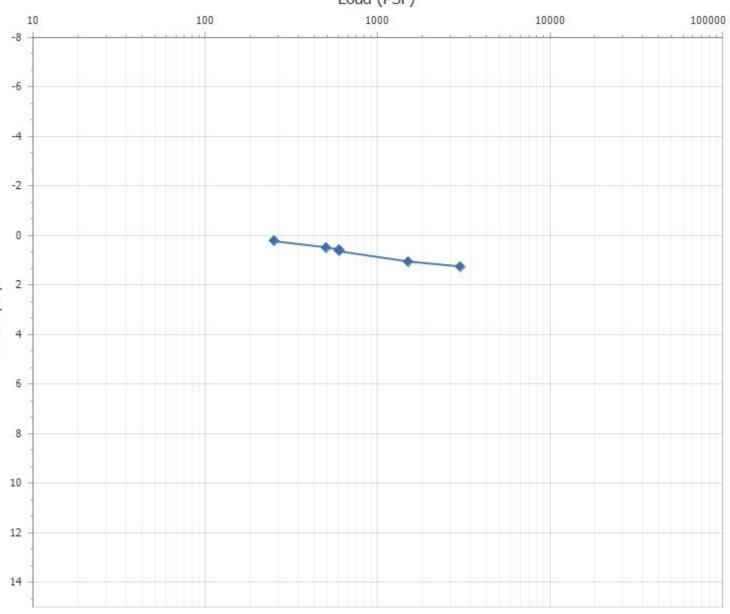


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Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202227 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB7 (Ring 1') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB7 - Ring 1'

Moisture Content: 7.9 % Sample Type: Undisturbed

Dry Unit Weight: 122.3 lb/ft³ Load at Saturation: 600 PSF

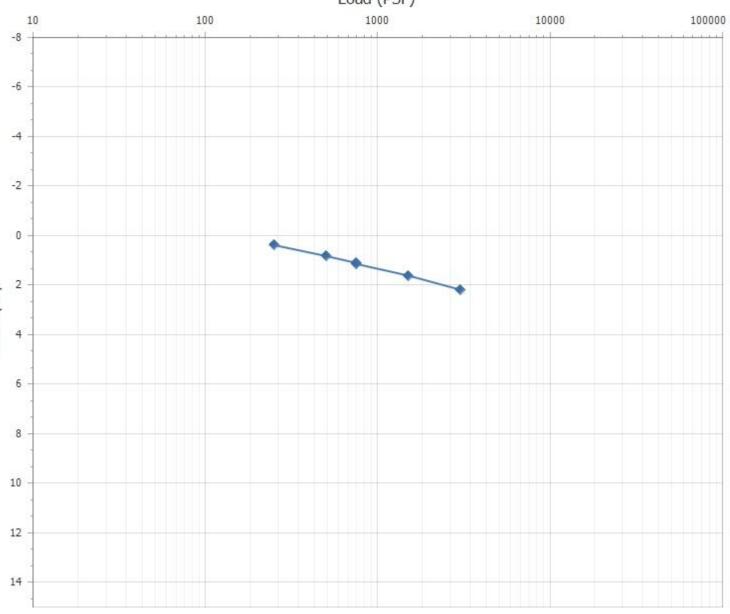


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Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202228 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB7 (Ring 5') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB7 - Ring 5'

Moisture Content: 9.9 % Sample Type: Undisturbed

Dry Unit Weight: 125.2 lb/ft³ Load at Saturation: 750 PSF

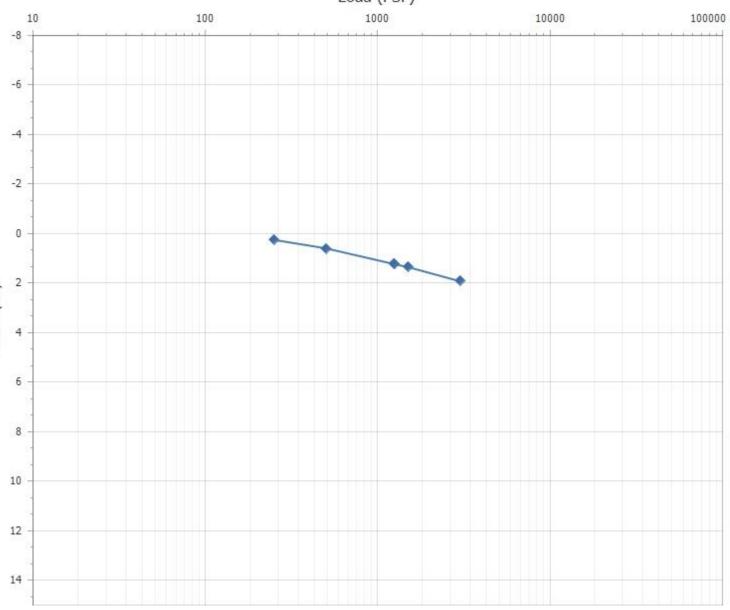


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Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202229 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB7 (Ring 10') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB7 - Ring 10'

Moisture Content: 6.1 % Sample Type: Undisturbed

Dry Unit Weight: 121.3 lb/ft³ Load at Saturation: 1250 PSF

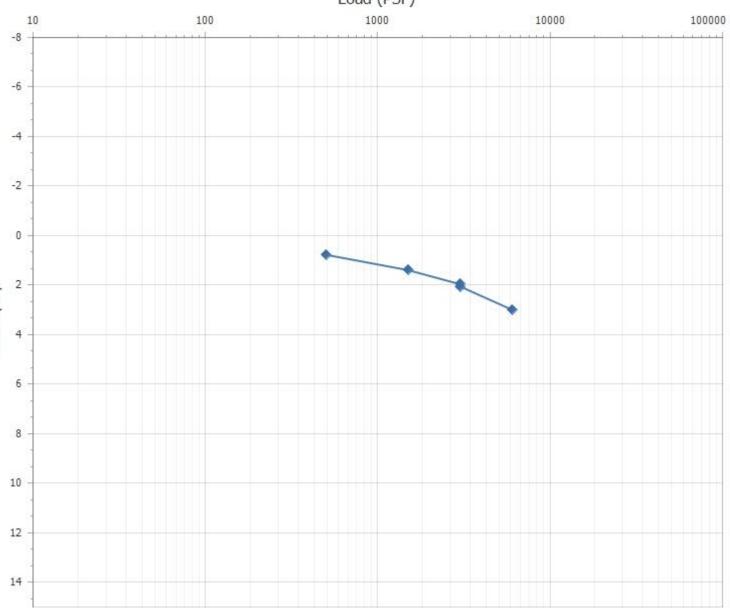


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2202232 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 3/8/2022 Sampled By: Kimberly Nepsa Material: Geo (Onsite) Material Supplier: Date Sampled: <u>2/25/2</u>022 Sample Location: FB7 (Ring 25') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB7 - Ring 25'

Moisture Content: 8.9 % Sample Type: Undisturbed

Dry Unit Weight: 111.3 lb/ft³ Load at Saturation: 3000 PSF

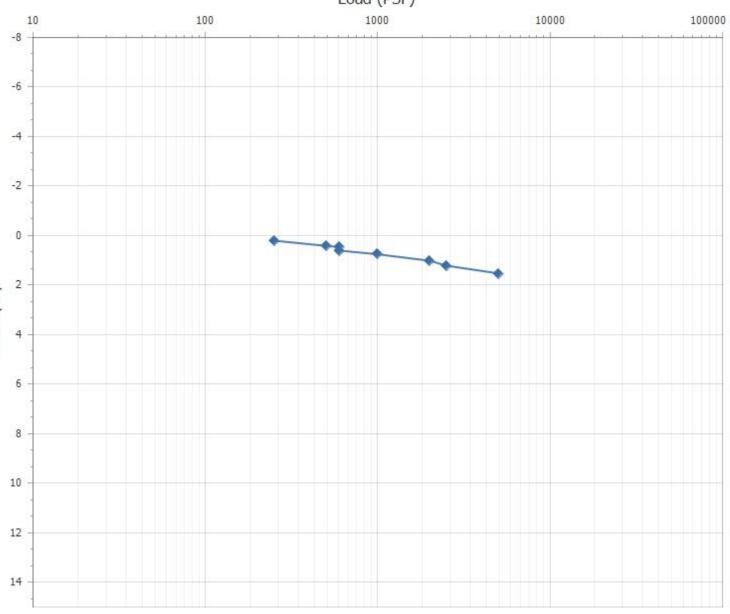


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Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2205273 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Material: Sampled By: Kimberly Nepsa Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB8 (Ring 1.5') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB8 - Ring 1.5'

Moisture Content: 6.8 % Sample Type: Undisturbed

Dry Unit Weight: 115.3 lb/ft³ Load at Saturation: 600 PSF

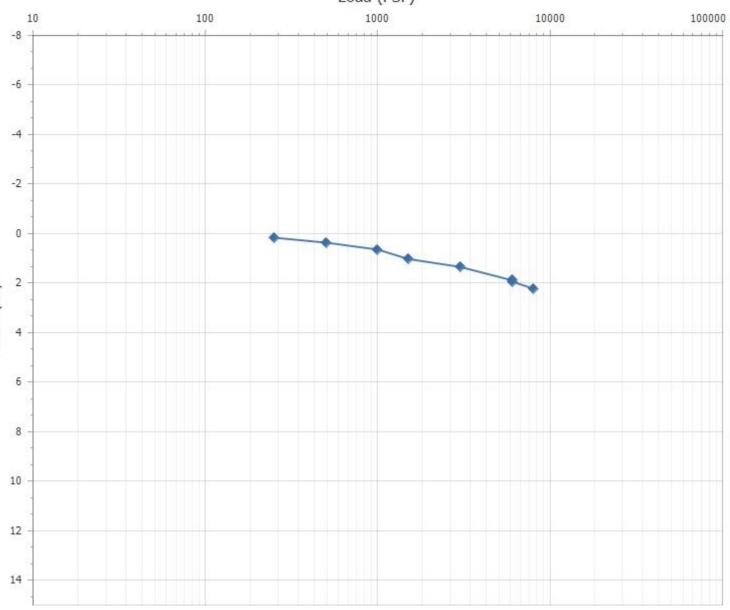


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2205274 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Sampled By: Kimberly Nepsa Material: Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB8 (Ring 50') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB8 - Ring 50'

Moisture Content: 17.3 % Sample Type: Undisturbed

Dry Unit Weight: 105.9 lb/ft³ Load at Saturation: 6000 PSF

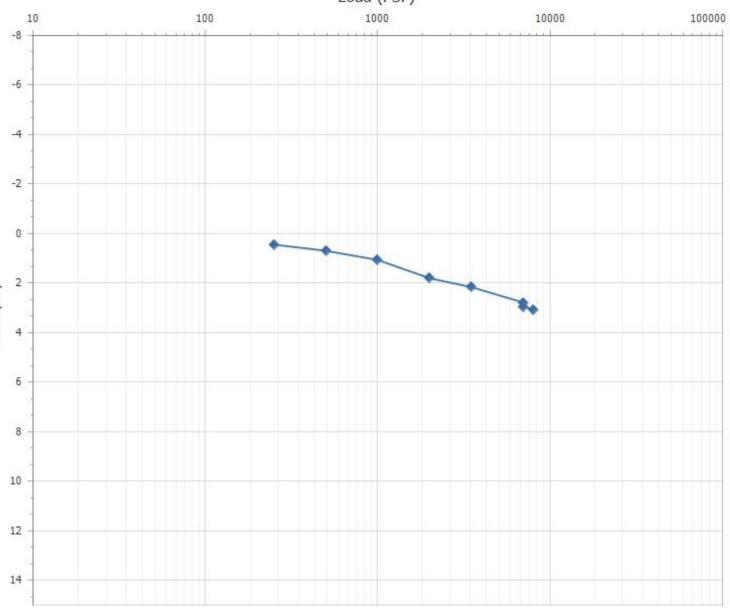


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2205275 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Material: Sampled By: Kimberly Nepsa Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB8 (Ring 60') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB8 - Ring 60'

Moisture Content: 6.8 % Sample Type: Undisturbed

Dry Unit Weight: 114.6 lb/ft³ Load at Saturation: 7000 PSF

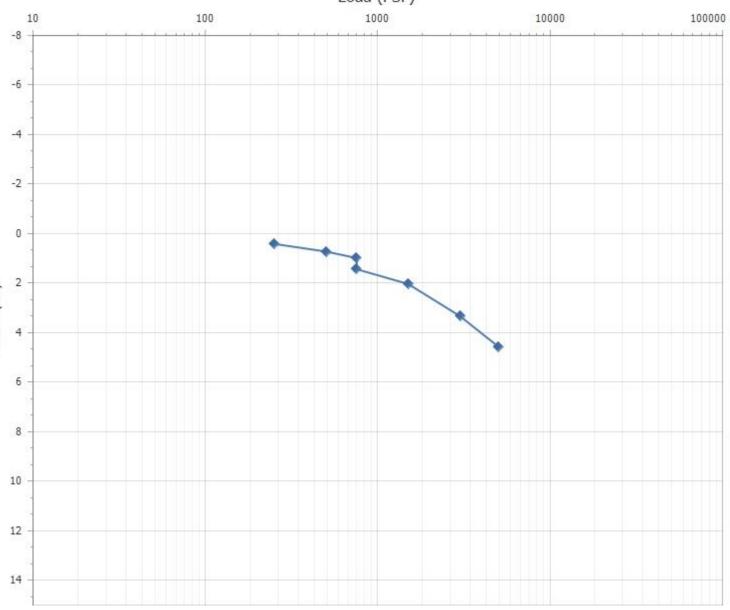


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2205276 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Material: Sampled By: Kimberly Nepsa Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB9 (Ring 5') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB9 - Ring 5'

Moisture Content: 4.7 % Sample Type: Undisturbed

Dry Unit Weight: 112.7 lb/ft³ Load at Saturation: 750 PSF

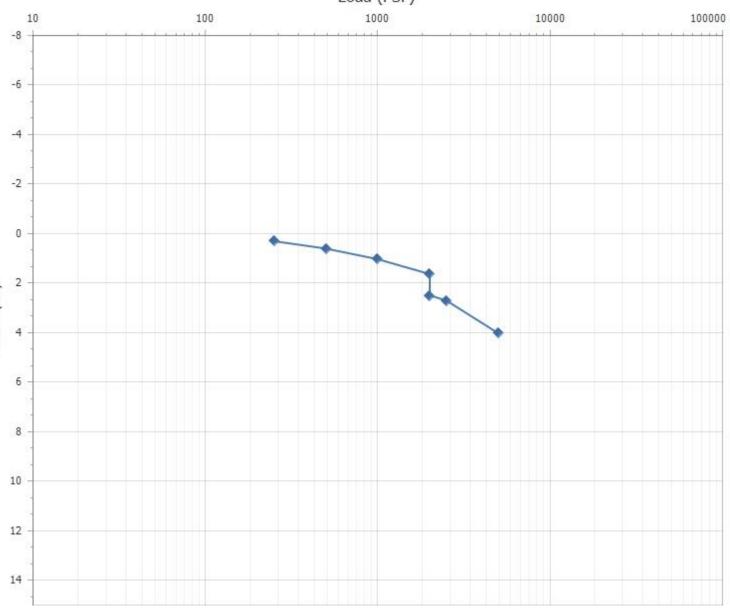


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Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2205277 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Material: Sampled By: Kimberly Nepsa Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB9 (Ring 15') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB9 - Ring 15'

Moisture Content: 4.1 % Sample Type: Undisturbed

Dry Unit Weight: 110.8 lb/ft³ Load at Saturation: 2000 PSF

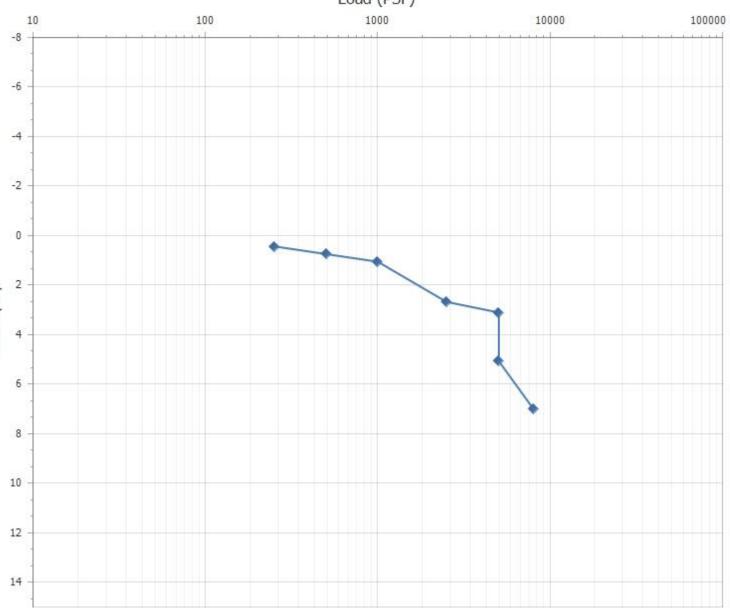


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2205278 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Material: Sampled By: Kimberly Nepsa Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB9 (Ring 45') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB9 - Ring 45'

Moisture Content: 6.5 % Sample Type: Undisturbed

Dry Unit Weight: 107.0 lb/ft³ Load at Saturation: 5000 PSF

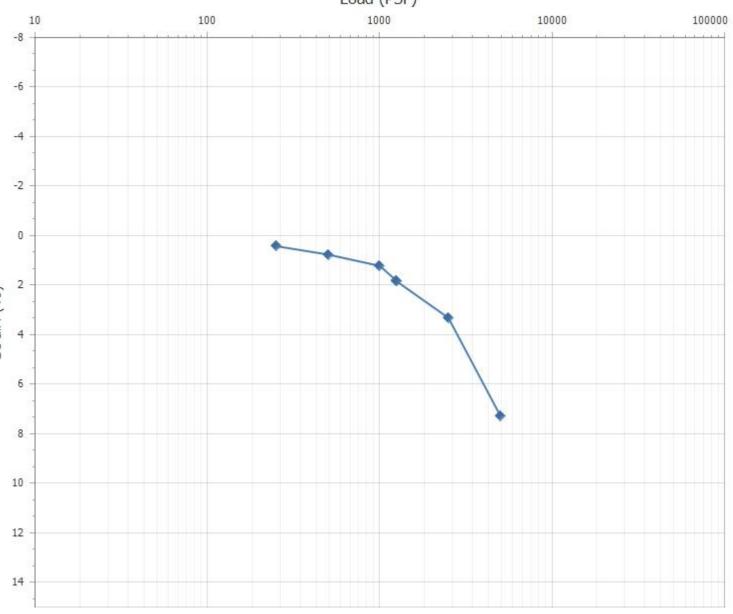


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2205279 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Sampled By: Kimberly Nepsa Material: Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB10 (Ring 10') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB10 - Ring 10'

Moisture Content: 15.3 % Sample Type: Undisturbed

Dry Unit Weight: 101.8 lb/ft³ Load at Saturation: 1250 PSF

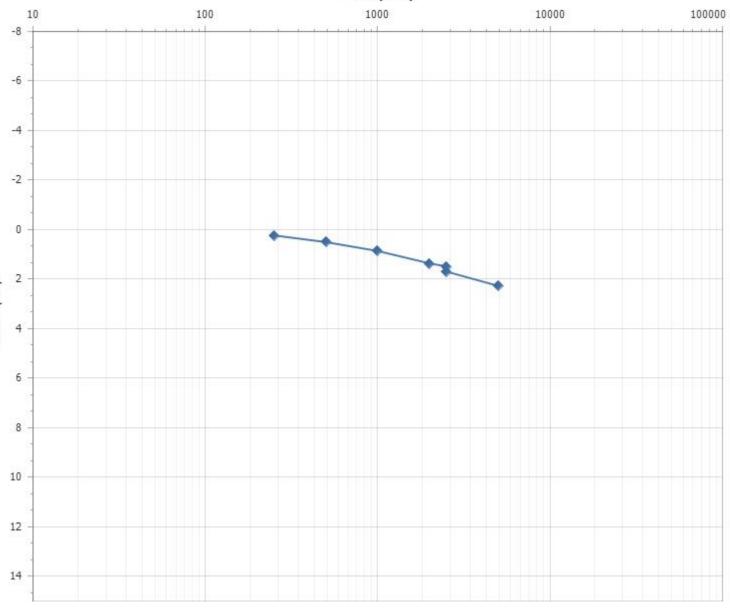


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2205280 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Material: Sampled By: Kimberly Nepsa Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB10 (Ring 20') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB10 - Ring 20'

Moisture Content: 4.4 % Sample Type: Undisturbed

Dry Unit Weight: 111.9 lb/ft³ Load at Saturation: 2500 PSF

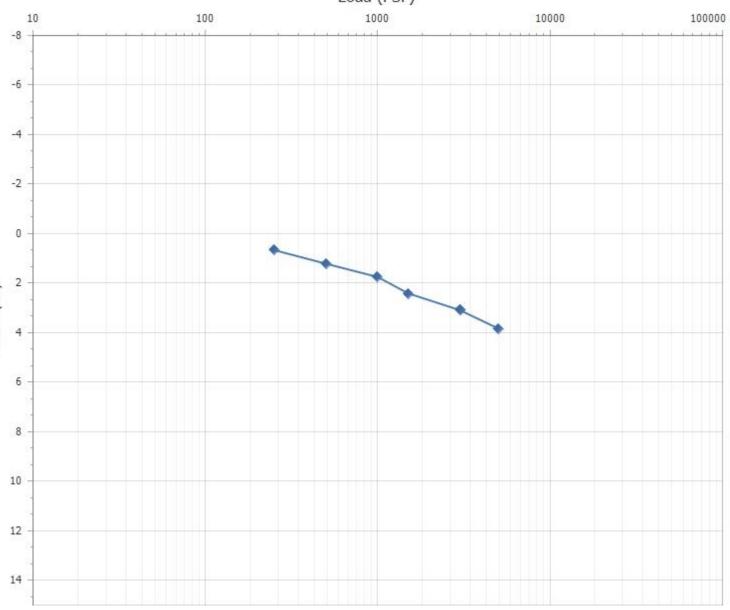


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2205281 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Sampled By: Material: Kimberly Nepsa Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB11 (Ring 25') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB11 - Ring 25'

Moisture Content: 9.4 % Sample Type: Undisturbed

Dry Unit Weight: 110.1 lb/ft³ Load at Saturation: 3000 PSF

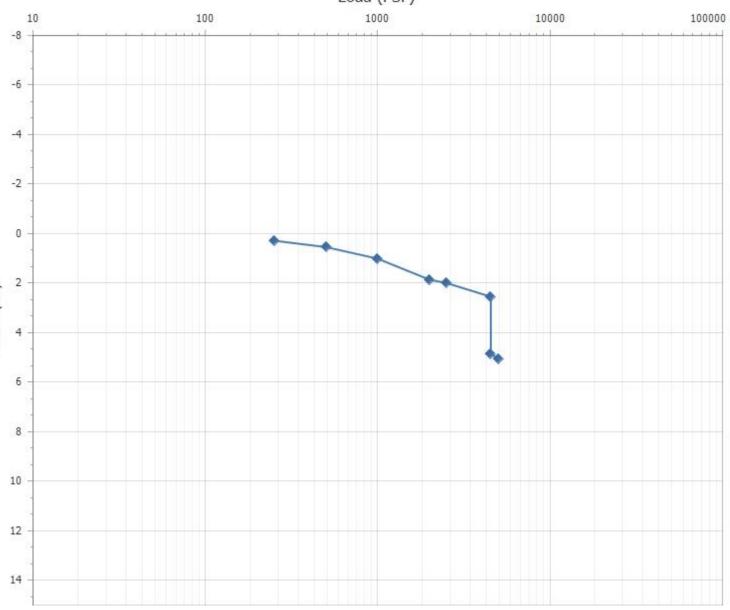


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2205282 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Sampled By: Kimberly Nepsa Material: Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB11 (Ring 40') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB11 - Ring 40'

Moisture Content: 1.7 % Sample Type: Undisturbed

Dry Unit Weight: 112.6 lb/ft³ Load at Saturation: 4500 PSF

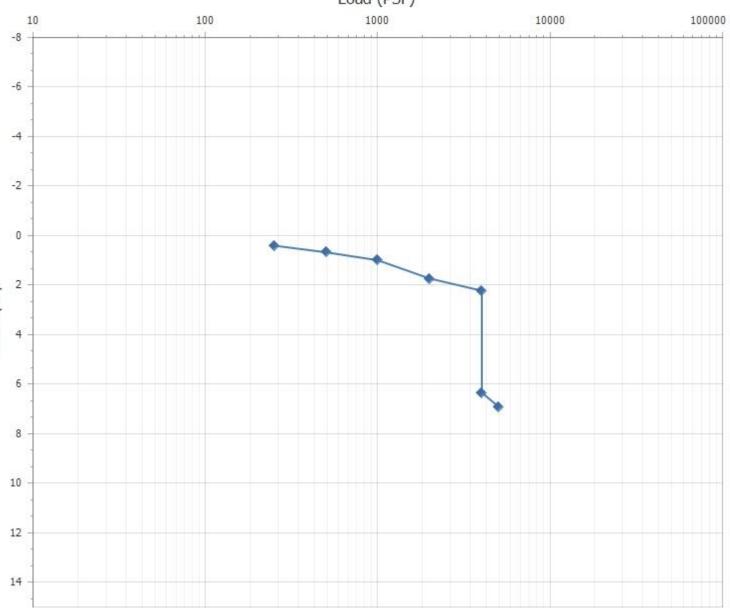


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2205283 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Material: Sampled By: Kimberly Nepsa Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB12 (Ring 35') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB12 - Ring 35'

Moisture Content: 5.8 % Sample Type: Undisturbed

Dry Unit Weight: 112.1 lb/ft³ Load at Saturation: 4000 PSF

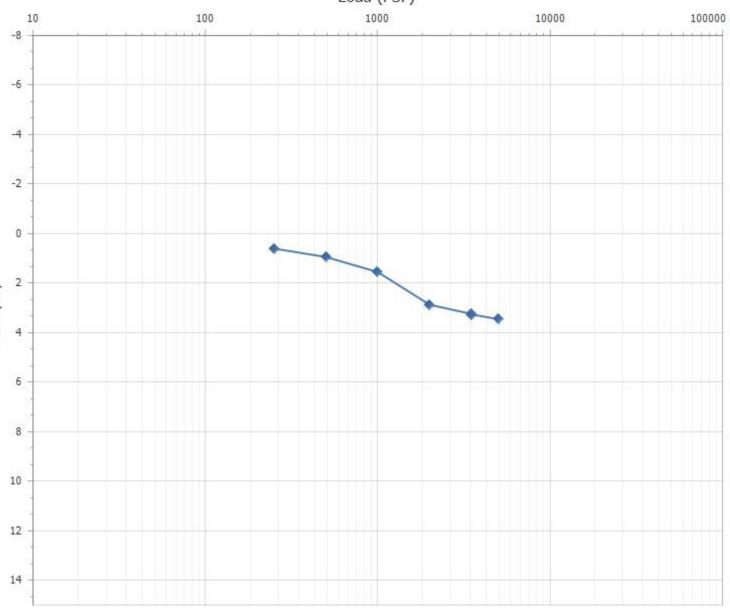


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2205284 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Lots 19 and 20 Forensic Study 6/2/2022 Sampled By: Kimberly Nepsa Material: Geo - Forensic Study (On-site) Material Supplier: Date Sampled: <u>5/5/2022</u> Sample Location: FB13 (Ring 30') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB13 - Ring 30'

Moisture Content: 13.8 % Sample Type: Undisturbed

Dry Unit Weight: 115.3 lb/ft³ Load at Saturation: 3500 PSF



Remarks:

ProTeX the PT Xperts LLC 1102 W. Southern Ave., Ste. 4 Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Reviewed By:

igrossarth

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2208470 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: 9/7/2022 Forensic Study - Various Lots Material: Sampled By: Geo (On-Site) Amos McCurdy Material Supplier: Date Sampled: <u>8/30/2022</u> Submitted By: Kimberly Nepsa Sample Location: FB14 (Ring 10') Load (PSF) 10 100 1000 10000 100000 -8 -6 -4 -2 0 2 6 8 10 12 14 FB14 - Ring 10' Source: Moisture Content: 4.0 % Sample Type: Undisturbed Dry Unit Weight: 107.6 lb/ft³ Load at Saturation: 750 PSF

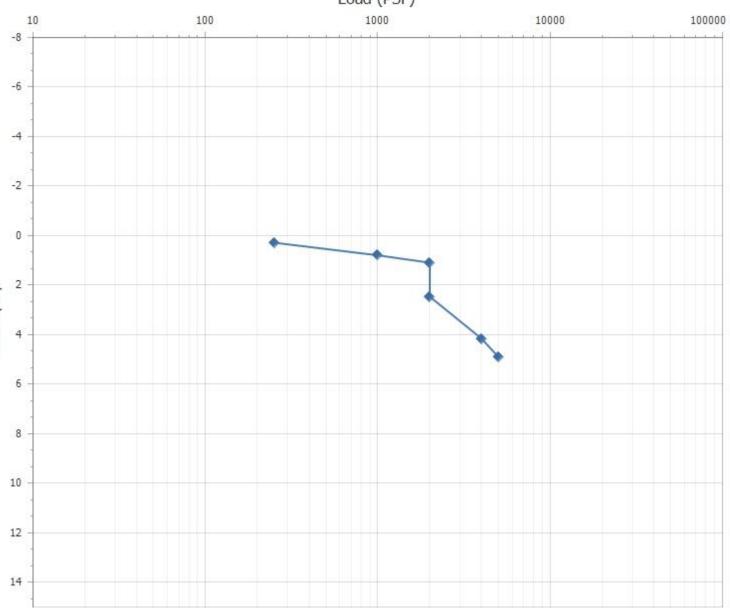


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: Rancho Vistoso Valley Vista ProTeX Lab No: 2208471 - Phoenix Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB14 (Ring 15') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB14 - Ring 15'

Moisture Content: 5.2 % Sample Type: Undisturbed

Dry Unit Weight: 110.1 lb/ft³ Load at Saturation: 2000 PSF

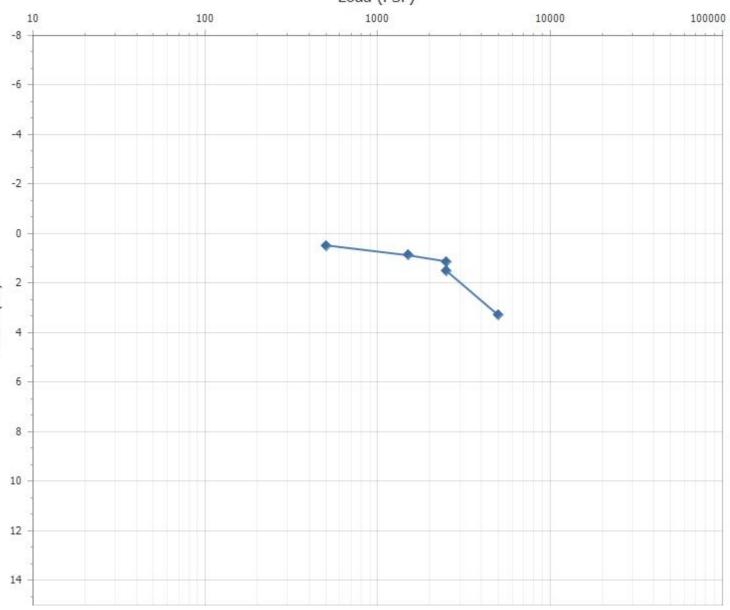


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208472 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB14 (Ring 20') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB14 - Ring 20'

Moisture Content: 6.3 % Sample Type: Undisturbed

Dry Unit Weight: 111.3 lb/ft³ Load at Saturation: 2500 PSF

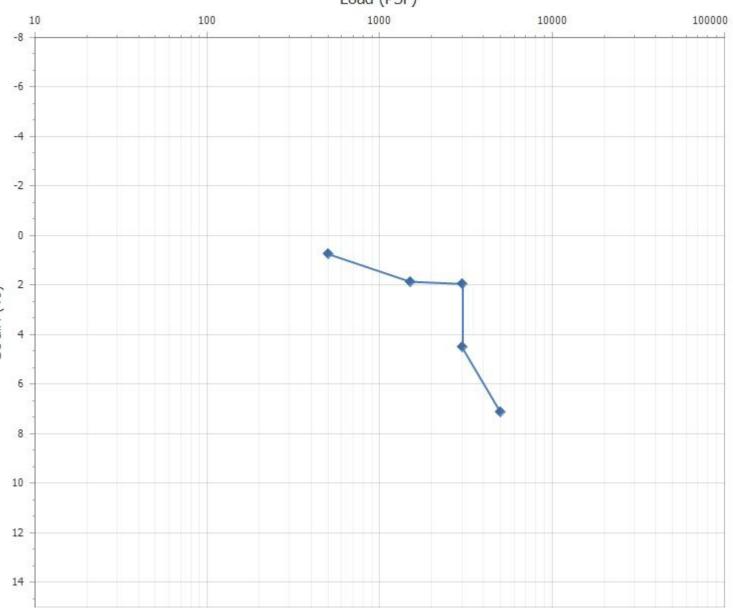


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208473 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB14 (Ring 25') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB14 - Ring 25'

Moisture Content: 21.3 % Sample Type: Undisturbed

Dry Unit Weight: 99.0 lb/ft³ Load at Saturation: 3000 PSF

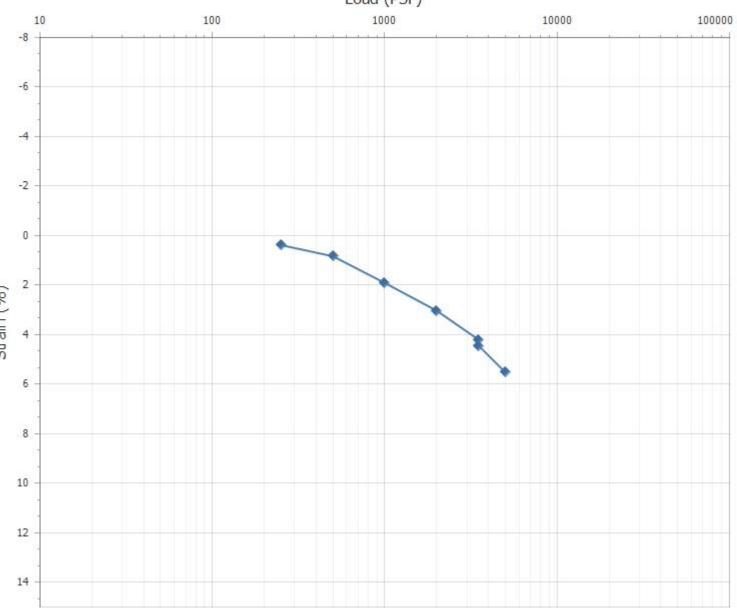


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208474 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB14 (Ring 30') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB14 - Ring 30'

Moisture Content: 15.9 % Sample Type: Undisturbed

Dry Unit Weight: 107.2 lb/ft³ Load at Saturation: 3500 PSF

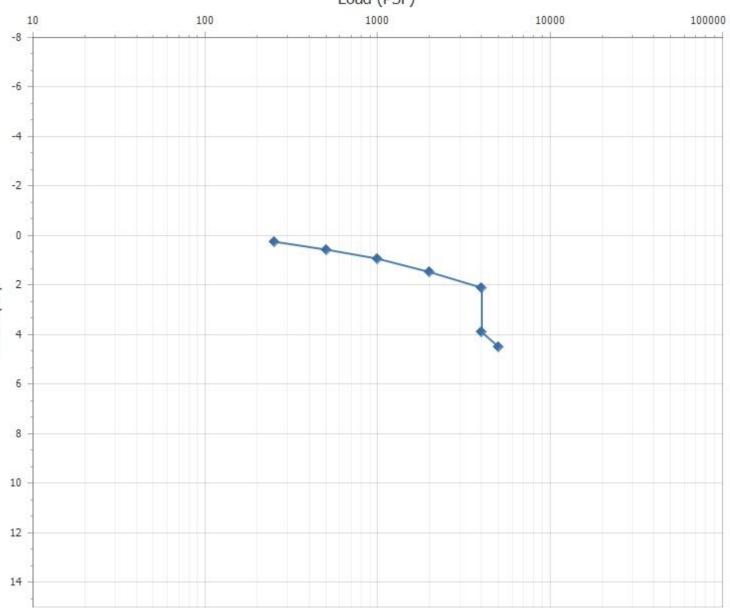


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: Rancho Vistoso Valley Vista ProTeX Lab No: 2208475 - Phoenix Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: 8/30/2022 Date Sampled: Sample Location: FB14 (Ring 35') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB14 - Ring 35'

Moisture Content: 6.8 % Sample Type: Undisturbed

Dry Unit Weight: 114.8 lb/ft³ Load at Saturation: 4000 PSF

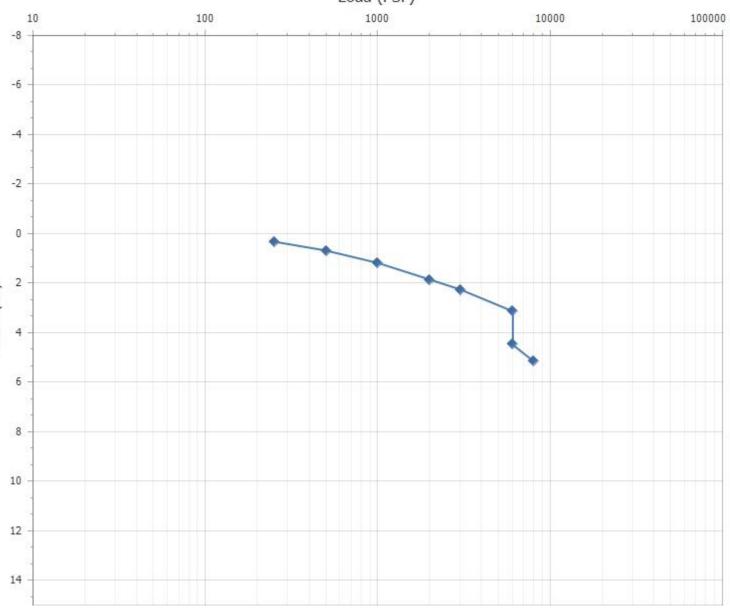


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: Rancho Vistoso Valley Vista ProTeX Lab No: 2208477 - Phoenix Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB14 (Ring 50') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB14 - Ring 50'

Moisture Content: 9.1 % Sample Type: Undisturbed

Dry Unit Weight: 112.8 lb/ft³ Load at Saturation: 6000 PSF

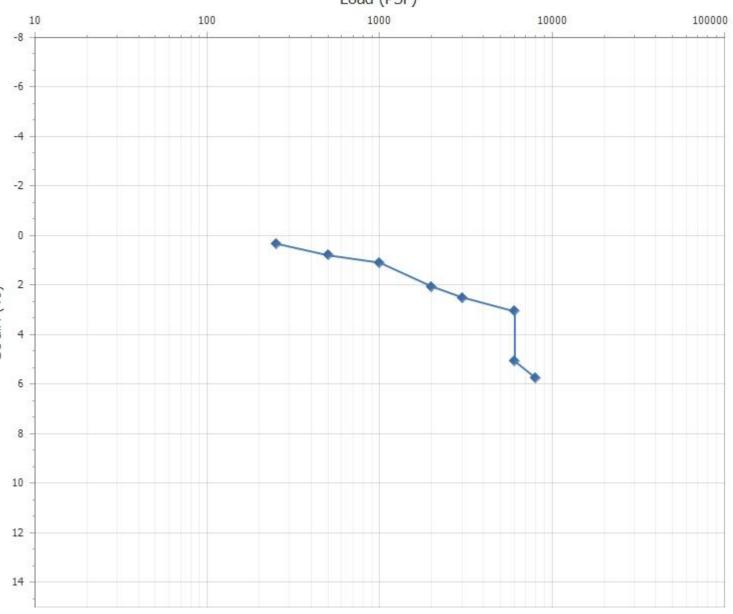


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208478 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB14 (Ring 55') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB14 - Ring 55'

Moisture Content: 3.7 % Sample Type: Undisturbed

Dry Unit Weight: 112.7 lb/ft³ Load at Saturation: 6000 PSF

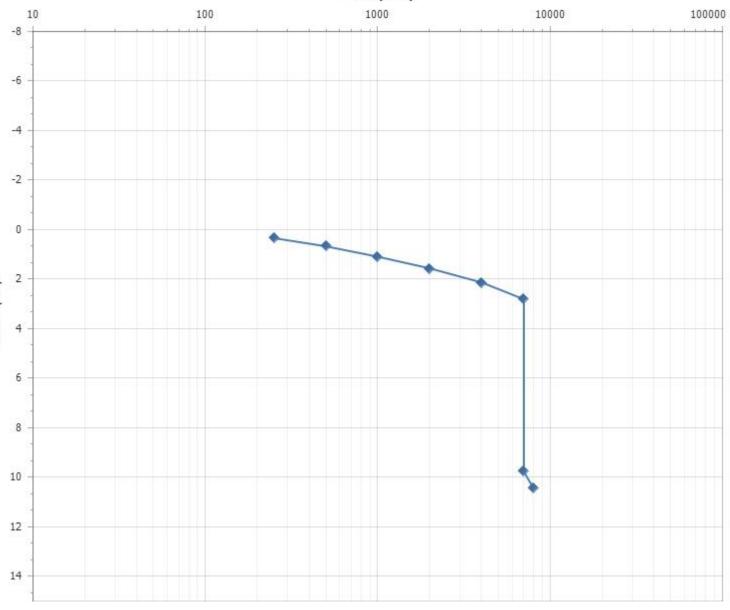


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208479 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB14 (Ring 60') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB14 - Ring 60'

Moisture Content: 6.2 % Sample Type: Undisturbed

Dry Unit Weight: 101.7 lb/ft³ Load at Saturation: 7000 PSF



Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2208480 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: 9/7/2022 Forensic Study - Various Lots Material: Sampled By: Geo (On-Site) Amos McCurdy Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB14 (Ring 65') Submitted By: Kimberly Nepsa Load (PSF) 10 100 1000 10000 100000 -8 -6 -4 -2 0 2 6 8 10 12 14

Moisture Content: 6.1 %

Source:

Sample Type: Undisturbed

Dry Unit Weight: 107.0 lb/ft³

Load at Saturation: 7500 PSF

Remarks: Reviewed By: jgrossarth

FB14 - Ring 65'

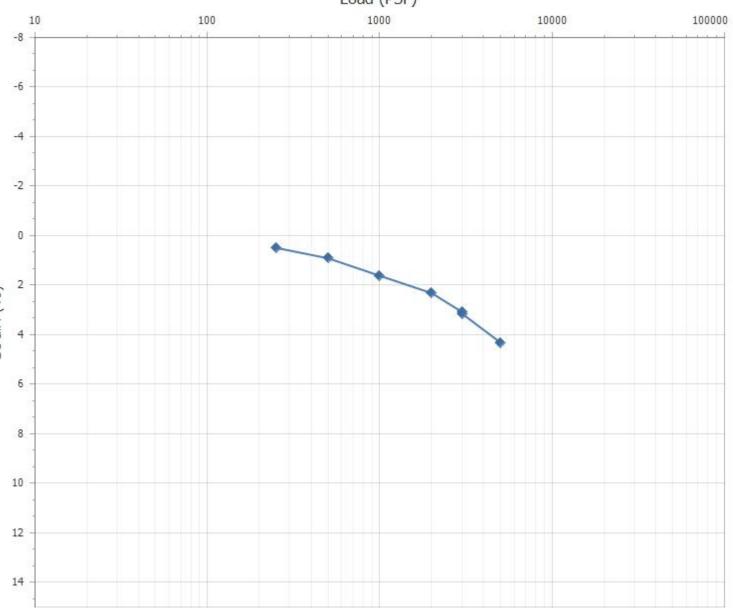


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208485 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB15 (Ring 25') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB15 - Ring 25'

Moisture Content: 20.6 % Sample Type: Undisturbed

Dry Unit Weight: 99.4 lb/ft³ Load at Saturation: 3000 PSF

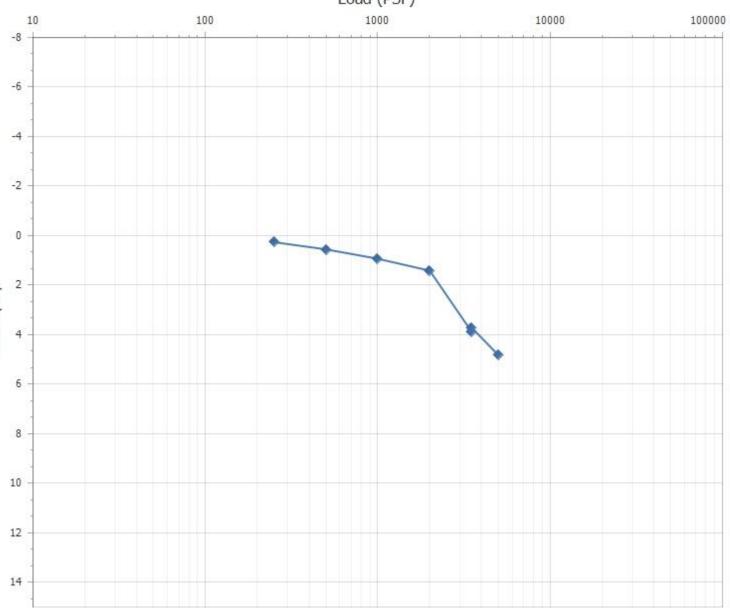


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208486 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB15 (Ring 30') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB15 - Ring 30'

Moisture Content: 4.9 % Sample Type: Undisturbed

Dry Unit Weight: 111.9 lb/ft³ Load at Saturation: 3500 PSF

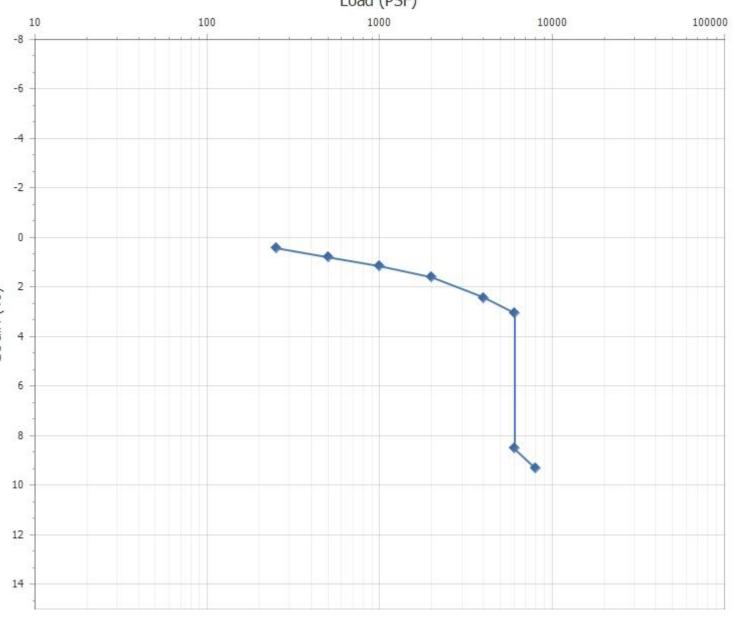


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208489 - Phoenix Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: Date Sampled: <u>8/30/2022</u> Sample Location: FB15 (Ring 50') Submitted By: Kimberly Nepsa

Load (PSF)



Source: FB15 - Ring 50'

Moisture Content: 6.2 % Sample Type: Undisturbed

Dry Unit Weight: 102.9 lb/ft³ Load at Saturation: 6000 PSF

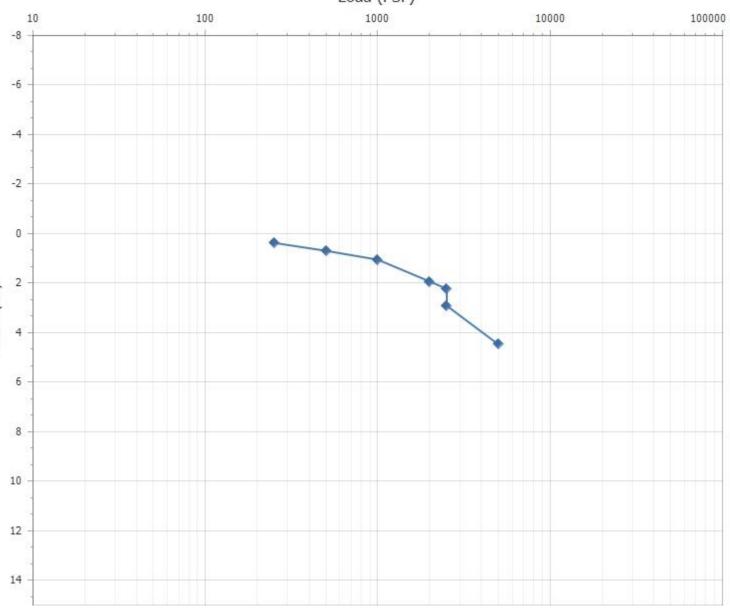


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>504 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (On-Site) Material Supplier: 9/1/2022 Date Sampled: Sample Location: FB16 (Ring 20') Submitted By: Amos McCurdy

Load (PSF)



Source: FB16 - Ring 20'

Moisture Content: 6.4 % Sample Type: Undisturbed

Dry Unit Weight: 110.6 lb/ft³ Load at Saturation: 2500 PSF

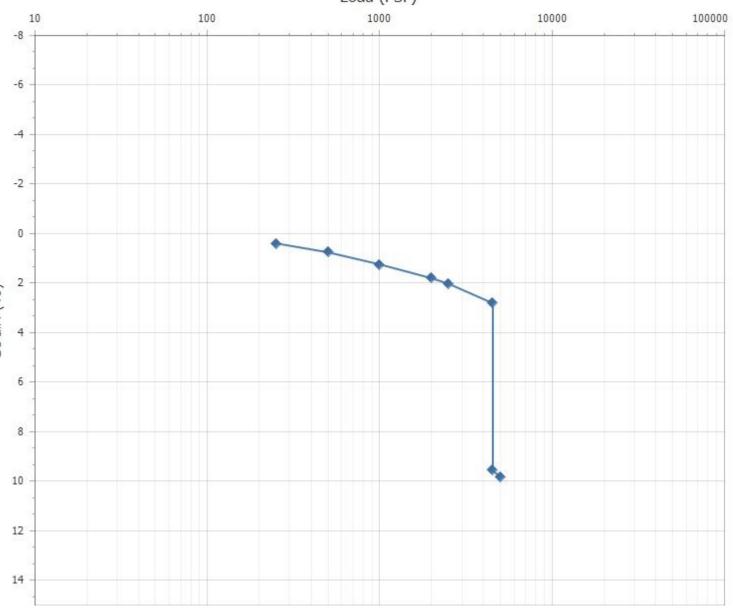


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>508 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Material: Sampled By: Amos McCurdy Geo (On-Site) Material Supplier: 9/1/2022 Date Sampled: Sample Location: FB16 (Ring 40') Submitted By: Amos McCurdy

Load (PSF)



Source: FB16 - Ring 40'

Moisture Content: 4.6 % Sample Type: Undisturbed

Dry Unit Weight: 109.4 lb/ft³ Load at Saturation: 4500 PSF

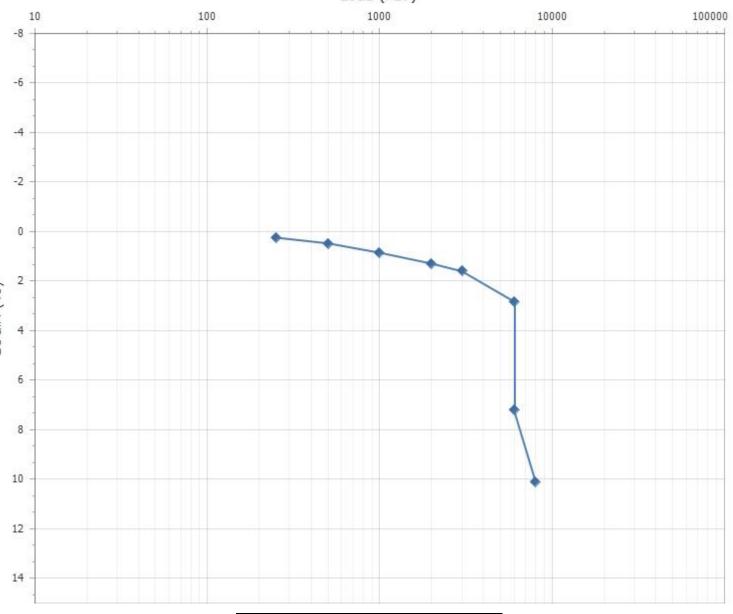


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>510 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Material: Sampled By: Amos McCurdy Geo (On-Site) Material Supplier: 9/1/2022 Date Sampled: Sample Location: FB16 (Ring 50') Submitted By: Amos McCurdy

Load (PSF)



Source: FB16 - Ring 50'

Moisture Content: 8.1 % Sample Type: Undisturbed

Dry Unit Weight: 92.7 lb/ft³ Load at Saturation: 6000 PSF

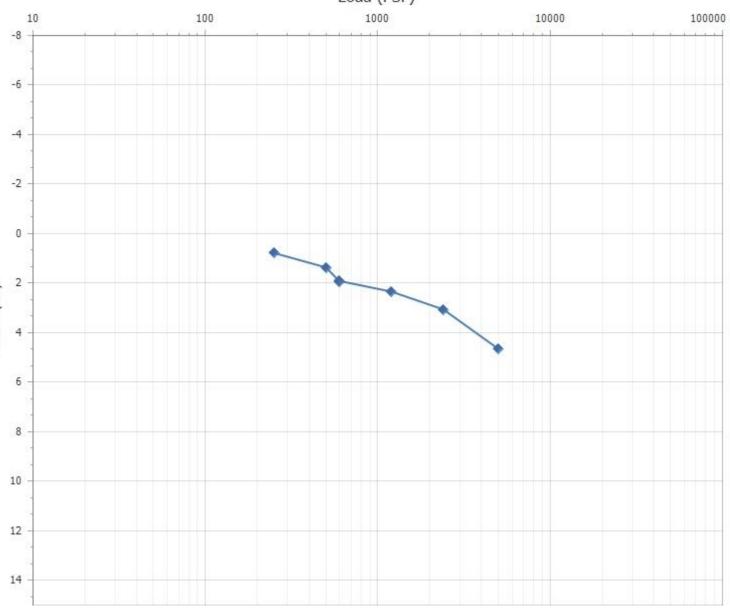


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>528 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (Native) Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB18 (Ring 2.5') Submitted By: Amos McCurdy

Load (PSF)



Source: FB18 - Ring 2.5'

Moisture Content: 10.2 % Sample Type: Undisturbed

Dry Unit Weight: 120.4 lb/ft³ Load at Saturation: 600 PSF

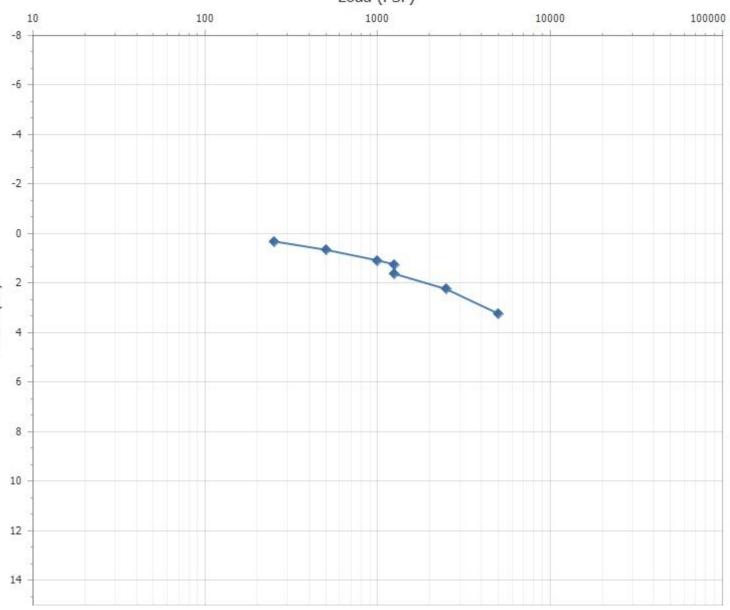


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>529 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Material: Sampled By: Amos McCurdy Geo (Native) Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB18 (Ring 5') Submitted By: Amos McCurdy

Load (PSF)



Source: FB18 - Ring 5'

Moisture Content: 3.7 % Sample Type: Undisturbed

Dry Unit Weight: 105.1 lb/ft³ Load at Saturation: 1250 PSF

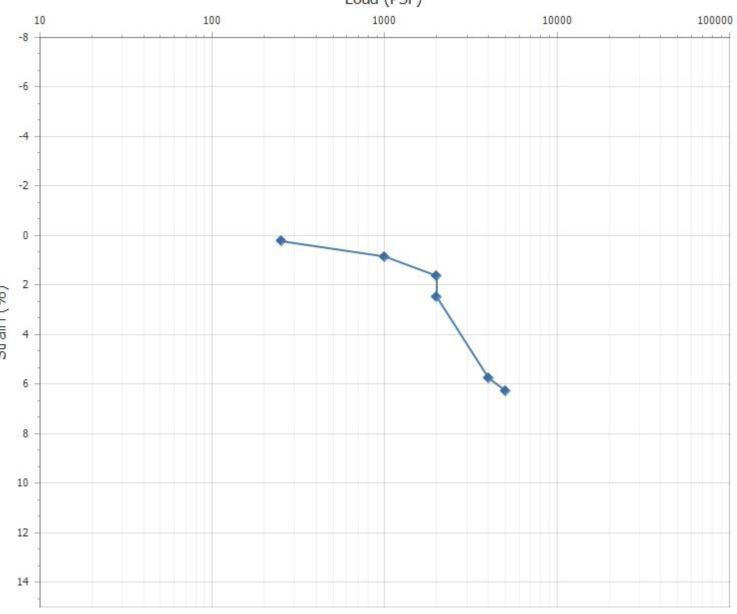


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>531 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Geo (Native) Amos McCurdy Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB18 (Ring 15') Submitted By: Amos McCurdy

Load (PSF)



Source: FB18 - Ring 15'

Moisture Content: 17.0 % Sample Type: Undisturbed

Dry Unit Weight: 86.5 lb/ft³ Load at Saturation: 2000 PSF

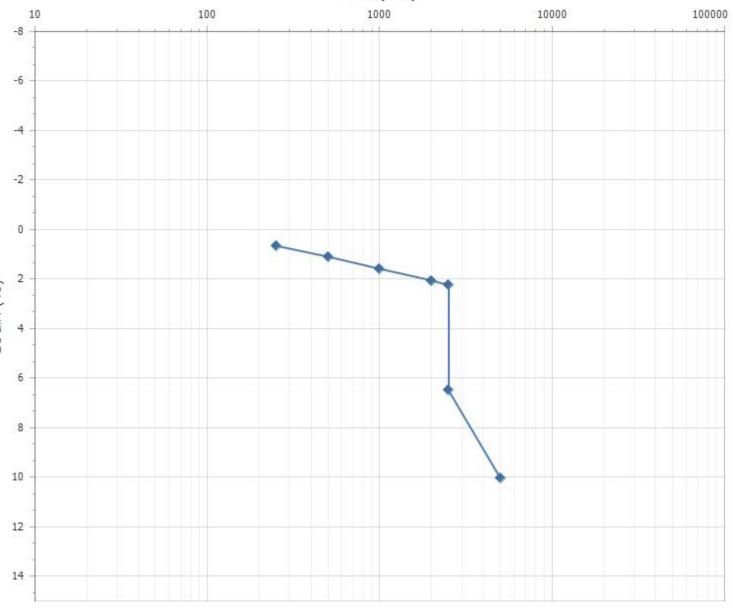


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>532 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Material: Sampled By: Amos McCurdy Geo (Native) Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB18 (Ring 20') Submitted By: Amos McCurdy

Load (PSF)



Source: FB18 - Ring 20'

Moisture Content: 5.9 % Sample Type: Undisturbed

Dry Unit Weight: 97.7 lb/ft³ Load at Saturation: 2500 PSF

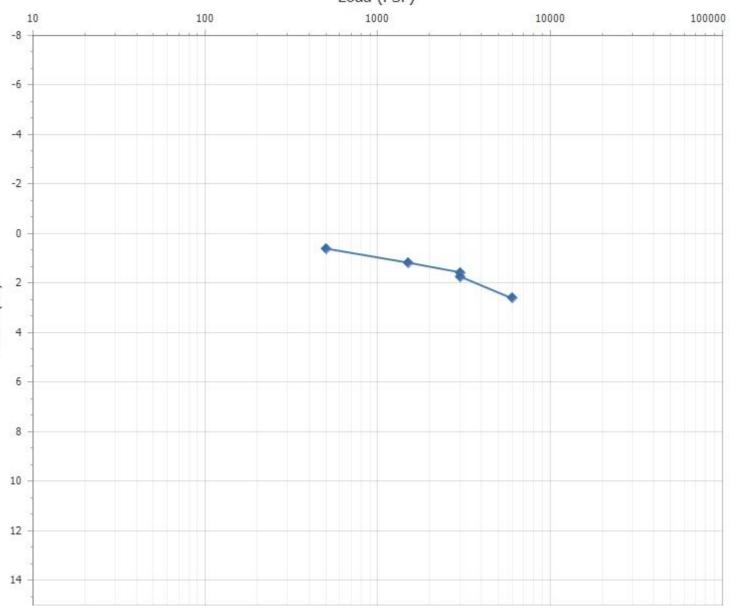


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>533 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (Native) Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB18 (Ring 25') Submitted By: Amos McCurdy

Load (PSF)



Source: FB18 - Ring 25'

Moisture Content: 7.1 % Sample Type: Undisturbed

Dry Unit Weight: 89.7 lb/ft³ Load at Saturation: 3000 PSF

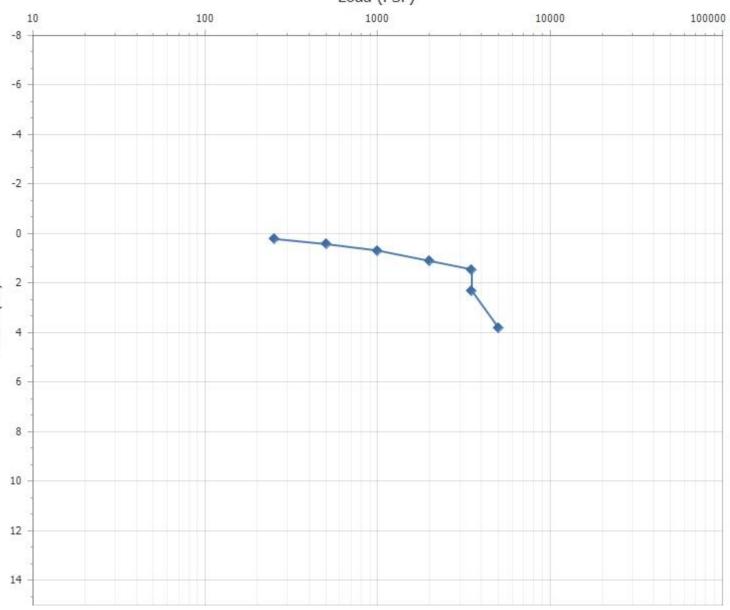


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 Project Name: ProTeX Lab No: 2208534 - Phoenix Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Material: Sampled By: Amos McCurdy Geo (Native) Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB18 (Ring 30') Submitted By: Amos McCurdy

Load (PSF)



Source: FB18 - Ring 30'

Moisture Content: 6.6 % Sample Type: Undisturbed

Dry Unit Weight: 94.2 lb/ft³ Load at Saturation: 3500 PSF

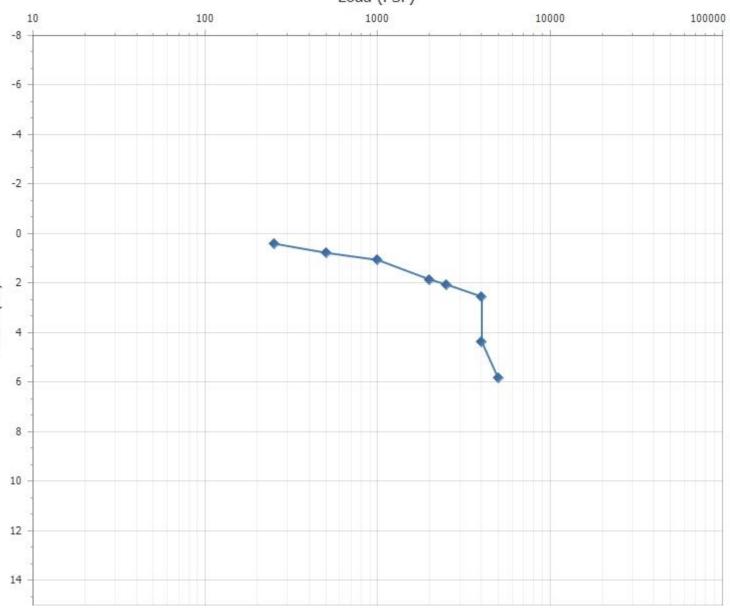


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>535 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (Native) Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB18 (Ring 35') Submitted By: Amos McCurdy

Load (PSF)



Source: FB18 - Ring 35'

Moisture Content: 13.0 % Sample Type: Undisturbed

Dry Unit Weight: 80.6 lb/ft³ Load at Saturation: 4000 PSF

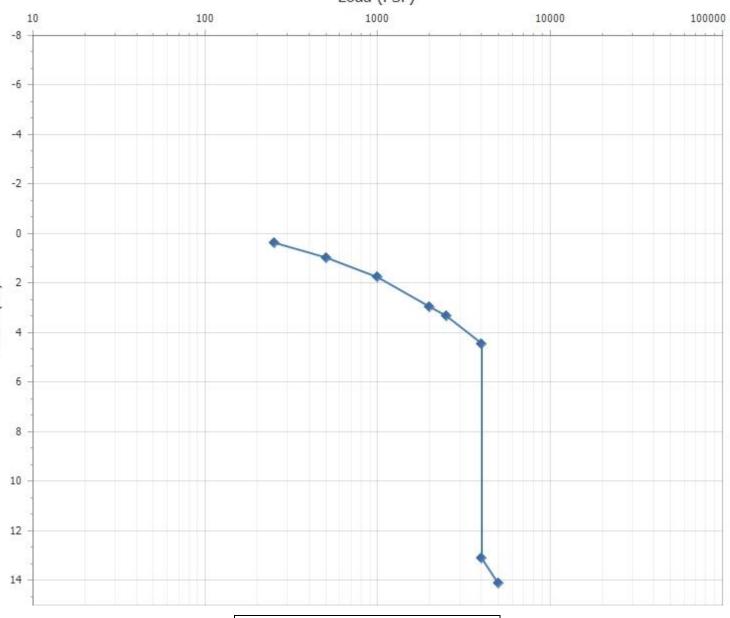


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>536 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Material: Sampled By: Amos McCurdy Geo (Native) Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB18 (Ring 40') Submitted By: Amos McCurdy

Load (PSF)



Source: FB18 - Ring 40'

Moisture Content: 5.6 % Sample Type: Undisturbed

Dry Unit Weight: 90.8 lb/ft³ Load at Saturation: 4000 PSF

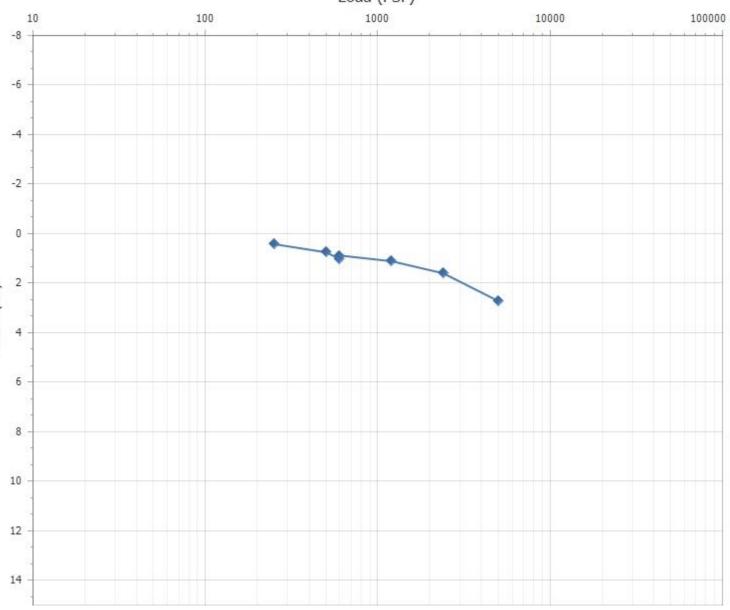


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>539 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Amos McCurdy Geo (Native) Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB19 (Ring 2.5') Submitted By: Amos McCurdy

Load (PSF)



Source: FB19 - Ring 2.5'

Moisture Content: 9.6 % Sample Type: Undisturbed

Dry Unit Weight: 119.9 lb/ft³ Load at Saturation: 600 PSF

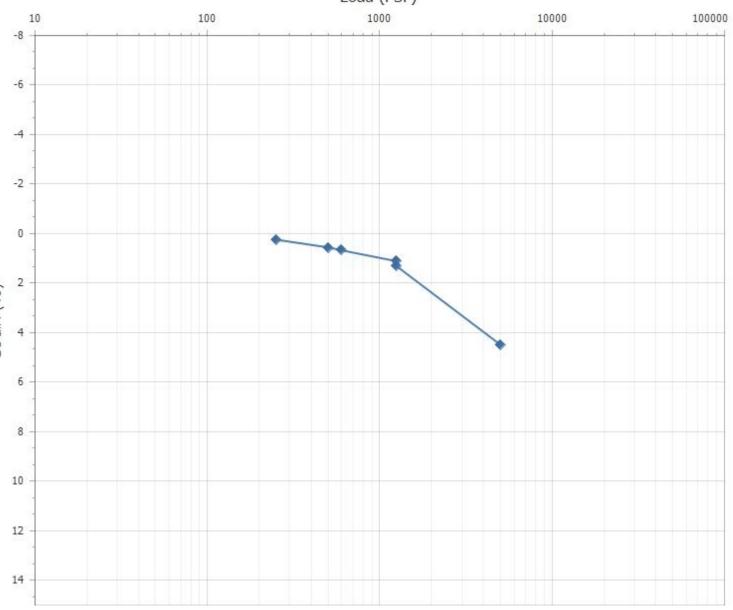


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>541 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Sampled By: Material: Geo (Native) Amos McCurdy Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB19 (Ring 10') Submitted By: Amos McCurdy

Load (PSF)



Source: FB19 - Ring 10'

Moisture Content: 13.9 % Sample Type: Undisturbed

Dry Unit Weight: 87.3 lb/ft³ Load at Saturation: 1250 PSF

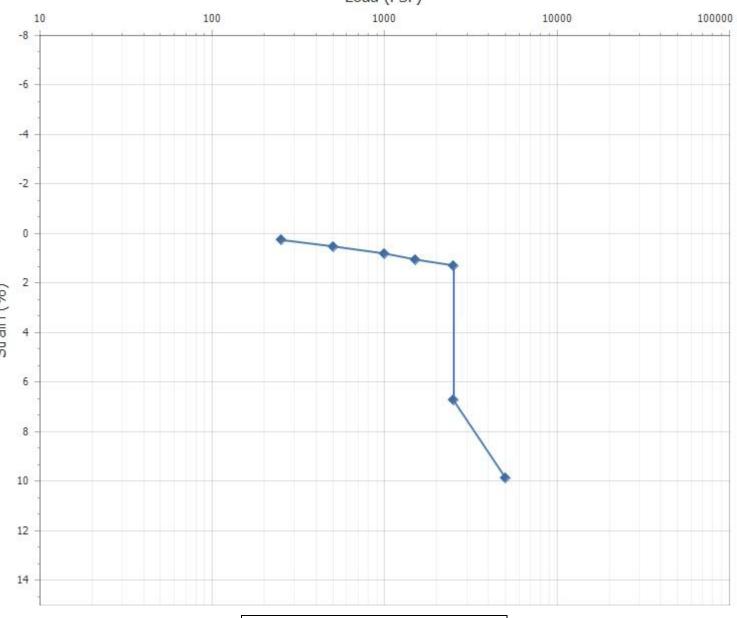


Office: (602)-272-7891 Fax: (602) 272-7892

Consolidation

Client: Pulte Tucson Land ProTeX Job No: 12804 ProTeX Lab No: 2208<u>543 - Phoenix</u> Project Name: Rancho Vistoso Valley Vista Job Name: Date Received: Forensic Study - Various Lots 9/7/2022 Material: Sampled By: Amos McCurdy Geo (Native) Material Supplier: 9/2/2022 Date Sampled: Sample Location: FB19 (Ring 20') Submitted By: Amos McCurdy

Load (PSF)



Source: FB19 - Ring 20'

Moisture Content: 4.9 % Sample Type: Undisturbed

Dry Unit Weight: 97.5 lb/ft³ Load at Saturation: 2500 PSF



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202205 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (1-3')	Submitted By:	Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Sv	well of Soil
% Swell	NV
Notes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand

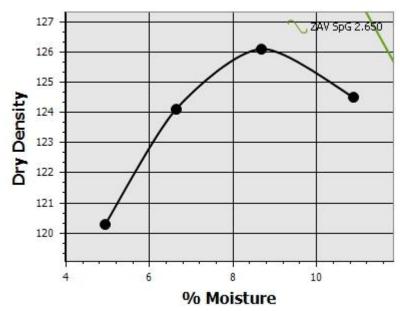
Symbol: SM

ASTM D698-A	
Moisture Density (Proctor)	
Max. Dry Density	126.1
Opt. Moisture %	8.7
Corr. Max. Dry Density	128.5
Corr. Opt. Moisture %	8.1
% Rock	8

^{* =} out of specification

	ASTM D1140 / D422		
Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	92		
#10	78		
#40	42		
#100	28		
#200	22		

Moisture Vs. Density



Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202206 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (11-13')	Submitted By:	Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit Plastic Limit	NV NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Percent Swell of Soil		
% Swell	NV	
Notes:		

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	
·		

Class: Silty sand

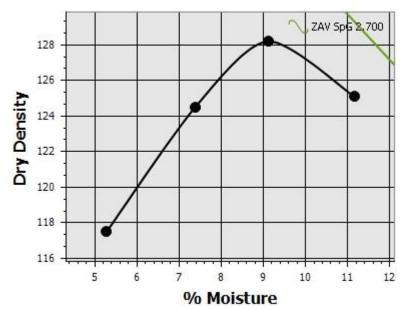
Symbol: SM

ASTM D698-A		
Moisture Density (Proctor)		
Max. Dry Density	128.2	
Opt. Moisture %	9.2	
Corr. Max. Dry Density	129.7	
Corr. Opt. Moisture %	8.7	
% Rock	5	

^{* =} out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	95		
#10	80		
#40	46		
#100	32		
#200	26		

Moisture Vs. Density



Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202207 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (21-23')	Submitted By:	Kimberly Nepsa

Plasticity Index			
NA			
NA			
NA			

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

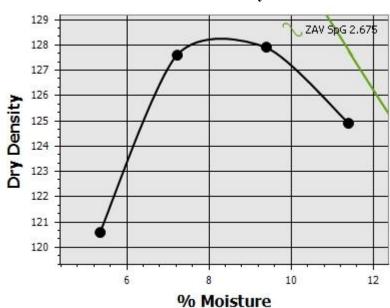
Percent Swell of Soil			
% Swell	NV		
Notes:			

pH and Resisti	vity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Symbol:

ASTM D698-A		
Moisture Density (Proctor)		
Max. Dry Density	128.4	
Opt. Moisture %	8.3	
Corr. Max. Dry Density	132.2	
Corr. Opt. Moisture %	7.5	
% Rock	13	

Moisture Vs. Density



Remarks:

Reviewed By:

^{* =} out of specification



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202208 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (1-3')	Submitted By:	Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

9.6 130.1 9.0

7

ASTM D698-A

Moisture Density (Proctor)

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Silty sand

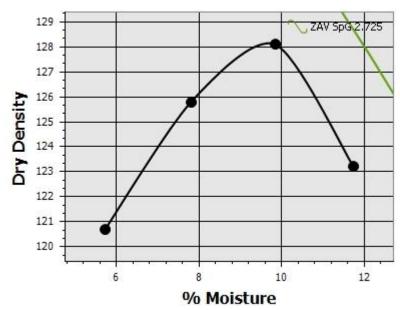
Symbol: SM

	Max. Dry Density	
	Opt. Moisture %	
	Corr. Max. Dry Density	
	Corr. Opt. Moisture %	
_	% Rock	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	93		
#10	80		
#40	42		
#100	28		
#200	22		

Moisture Vs. Density



Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202209 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (6-8')	Submitted By:	Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

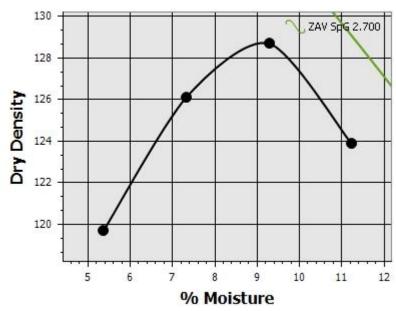
Class: Silty sand
Symbol: SM

ASTM D698-A			
Moisture Density (Proctor)			
Max. Dry Density 128.8			
Opt. Moisture %	9.1		
Corr. Max. Dry Density 130.3			
Corr. Opt. Moisture %	8.6		
% Rock 6			

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	94		
#10	81		
#40	46		
#100	31		
#200	24		

Moisture Vs. Density



Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202210 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (17-19')	Submitted By:	Kimberly Nepsa

ASTM D4318			
Plasticity Index			
Liquid Limit 23			
Plastic Limit	17		
Plasticity Index	6		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI = NA		

Percent Swell of Soil			
% Swell NV			
Notes:			

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

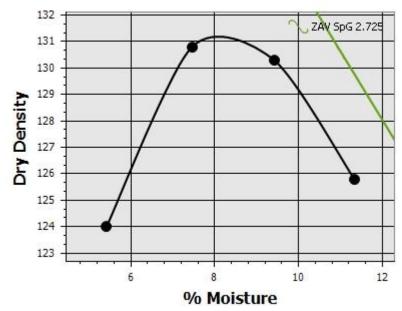
Class: Silty, clayey sand
Symbol: SC-SM

ASTM D698-A		
Moisture Density (Proctor)		
Max. Dry Density	131.3	
Opt. Moisture %	8.2	
Corr. Max. Dry Density	133.0	
Corr. Opt. Moisture %	7.7	
% Rock	7	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	93		
#10	46		
#40	32		
#100	26		
#200	22		

Moisture Vs. Density



Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202211 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (23-25')	Submitted By:	Kimberly Nepsa

Dioatiaity Inday		
Plasticity Index		
Liquid Limit	NA	
Plastic Limit	NA	
Plasticity Index	NA	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

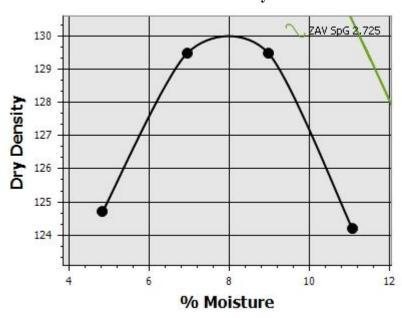
Percent Swell of Soil		
% Swell	NV	
Notes:		

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: _
Symbol:

ASTM D698-A	
Moisture Density (Proctor)	
Max. Dry Density	130.1
Opt. Moisture %	8.0
Corr. Max. Dry Density	131.8
Corr. Opt. Moisture %	7.6
% Rock	6

Moisture Vs. Density



Remarks:

Reviewed By:

^{* =} out of specification



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202212 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB7 (1-3')	Submitted By:	Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Silty sand Symbol: SM

Moisture Density (Proctor)	
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	3

* = out of specification

	A C(T) (D 114	0 / D 400	
	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	97		
#10	85		
#40	40		
#100	23		
#200	17		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202213 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB7 (13-15')	Submitted By:	Kimberly Nepsa

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent	t Swell of Soil
% Swell Notes:	NV

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand

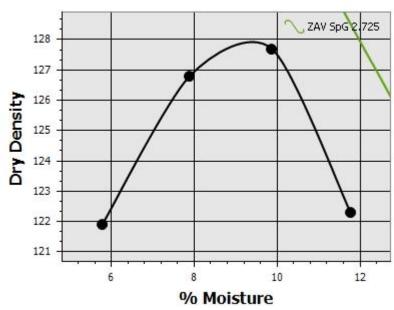
Symbol: SM

ASTM D698-A	
Moisture Density (Proctor)	
Max. Dry Density	128.0
Opt. Moisture %	9.3
Corr. Max. Dry Density	130.7
Corr. Opt. Moisture %	8.5
% Rock	9

^{* =} out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	91		
#10	74		
#40	40		
#100	29		
#200	23		

Moisture Vs. Density



Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202214 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB7 (22-24')	Submitted By:	Kimberly Nepsa

Plasticity Index		
Liquid Limit	NA	
Plastic Limit	NA	
Plasticity Index	NA	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

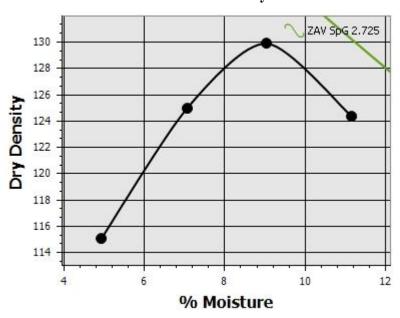
Percent Swell of Soil		
% Swell	NV	
Notes:		

pH and Resistivity	
pH Reading:	NA
Resistivity (ohms-cm)	NA
• ` ` /	

Class: Symbol:

ASTM D698-A		
Moisture Density (Proctor)		
Max. Dry Density	129.9	
Opt. Moisture %	9.0	
Corr. Max. Dry Density	132.2	
Corr. Opt. Moisture %	8.4	
% Rock 8		

Moisture Vs. Density



Remarks:

Reviewed By:

^{* =} out of specification



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205266 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB8 (0-3')	Submitted By:	Kimberly Nepsa

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Percent Swell of Soil		
% Swell	NV	
Notes:		

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

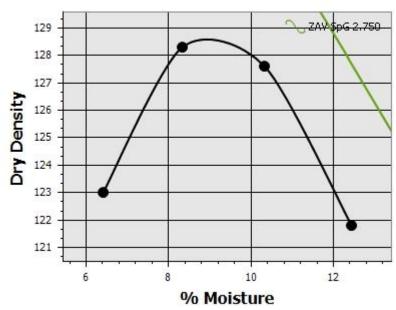
Class: Silty sand
Symbol: SM

ASTM D698-A	
Moisture Density (Proctor)	
Max. Dry Density	128.7
Opt. Moisture %	9.1
Corr. Max. Dry Density	131.0
Corr. Opt. Moisture %	8.3
% Rock	9

* = out of specification

	ASTM D114	40 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	96		
#4	91		
#10	77		
#40	37		
#100	22		
#200	16		

Moisture Vs. Density



Remarks: Combine w/ FB8 @ 5-7'

Reviewed By:

cwcu by.



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client: Pulte Tucson Land ProTeX Job No: 12804 2205267 - Phoenix Project Name: Rancho Vistoso Valley Vista ProTeX Lab No: Job Name: Lots 19 and 20 Forensic Study Date Received: 6/2/2022 Material: Geo - Forensic Study (On-site) Sampled By: Kimberly Nepsa Date Sampled: 5/5/2022 Material Supplier: Sample Location: FB8 (10-12') Kimberly Nepsa Submitted By:

ASTM	D4318
Plastici	ty Index
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansi	ion Index
EI =	NA

Percent Sv	well of Soil
% Swell	NV
Notes:	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA
·	

Class: Silty sand with gravel

Symbol: SM

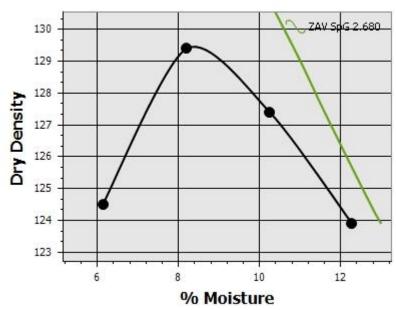
NA	Cam Mar Do
	Corr. Max. Dr
	Corr. Opt. Mo
	0/ Dog

ASTM D698-A	
Moisture Density (Proctor)	
Max. Dry Density	129.5
Opt. Moisture %	8.5
Corr. Max. Dry Density	133.8
Corr. Opt. Moisture %	7.2
% Rock	16

^{* =} out of specification

	ASTM D114	40 / D422	
Sieve	% Pass	Specs	*
1"	90		
1/2"	89		
#4	84		
#10	69		
#40	39		
#100	29		
#200	24		

Moisture Vs. Density



Remarks: Combine w/ FB8 @ 16-18' & 21-23'

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205268 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB8 (51-53')	Submitted By:	Kimberly Nepsa

ASTM	D4318
Plastici	ty Index
Liquid Limit	26
Plastic Limit	16
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	

Percent Swell of Soil		
% Swell Notes:	NV	

.v		
pH and Resistivity		
NA		
NA		

Class: Sandy lean clay
Symbol: CL

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	1	

* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	100			
#4	99			
#10	96			
#40	76			
#100	62			
#200	53			

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client: Pulte Tucson Land ProTeX Job No: 12804 2205269 - Phoenix Project Name: Rancho Vistoso Valley Vista ProTeX Lab No: Job Name: Lots 19 and 20 Forensic Study Date Received: 6/2/2022 Material: Geo - Forensic Study (On-site) Sampled By: Kimberly Nepsa Date Sampled: 5/5/2022 Material Supplier: Sample Location: FB10 (17-19') Submitted By: Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit Plastic Limit	23	
Plasticity Index	8	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Percent Swell of Soil		
% Swell	NV	
riotes.		

pH and Resistivity	
pH Reading:	NA
Resistivity (ohms-cm)	NA

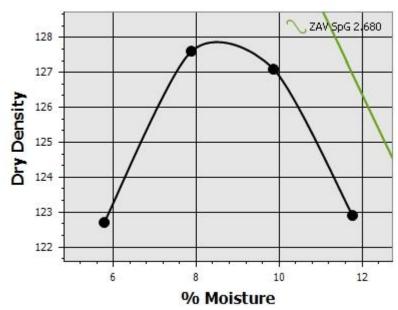
Class: Clayey sand
Symbol: SC

ASTM D698-A		
Moisture Density (Proctor)		
Max. Dry Density	128.0	
Opt. Moisture %	8.6	
Corr. Max. Dry Density	129.8	
Corr. Opt. Moisture %	8.1	
% Rock	7	

* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	100			
#4	93			
#10	71			
#40	43			
#100	35			
#200	30			

Moisture Vs. Density



Remarks: Combine w/ FB10 @ 23-25'

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client: Pulte Tucson Land ProTeX Job No: 12804 2205270 - Phoenix Project Name: Rancho Vistoso Valley Vista ProTeX Lab No: Job Name: Lots 19 and 20 Forensic Study 6/2/2022 Date Received: Material: Geo - Forensic Study (On-site) Sampled By: Kimberly Nepsa 5/5/2022 Material Supplier: Date Sampled: Sample Location: FB12 (0-3') Submitted By: Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit	22	
Plastic Limit	16	
Plasticity Index	6	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Percent Swell of Soil		
% Swell	NV	
Notes:		

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty, clayey sand

Symbol: SC-SM

•	•
Max. Dry Density	130.3
Opt. Moisture %	8.3
Corr. Max. Dry Density	131.6
Corr. Opt. Moisture %	7.9
% Rock	5

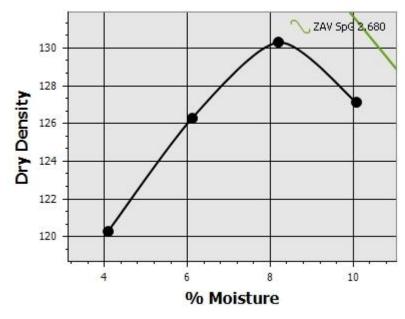
ASTM D698-A

Moisture Density (Proctor)

^{* =} out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	95		
#10	78		
#40	44		
#100	33		
#200	27		

Moisture Vs. Density



Remarks: Cimbine w/ FB12 @ 6-8'

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205271 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB12 (12-14')	Submitted By:	Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit	23	
Plastic Limit	16	
	_	
Plasticity Index	7	

Expansion Index, (EI)	Potential Expansion	Exp
0 - 20	Very Low	
21 - 51	Low	
52 - 90	Medium	EI =
91 - 130	High	
> 130	Very High	

	Expansion Index		
	EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA
(0.000)	·

Class: Silty, clayey sand Symbol: SC-SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	6	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	94		
#10	77		
#40	49		
#100	41		
#200	36		

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205272 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB12 (17-19')	Submitted By:	Kimberly Nepsa

ASTM D4318			
Plasticity Index			
Liquid Limit NV			
Plastic Limit	NP		
Plasticity Index NP			

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand

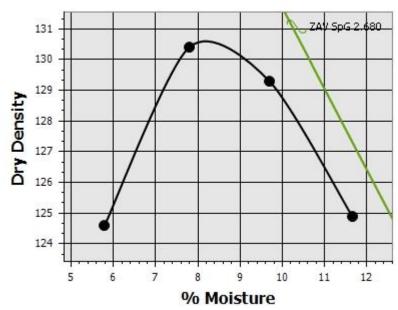
Symbol: SM

ASTM D698-A		
Moisture Density (Proctor)		
Max. Dry Density	130.7	
Opt. Moisture %	8.3	
Corr. Max. Dry Density	133.1	
Corr. Opt. Moisture %	7.6	
% Rock 10		

^{* =} out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	90		
#10	70		
#40	32		
#100	23		
#200	18		

Moisture Vs. Density



Remarks: Combine w/ FB12 @ 21-23'

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208459 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (0-3')	Submitted By:	Kimberly Nepsa

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

E	Potential Expansion	Expansion Index, (EI)
7	Very Low	0 - 20
7	Low	21 - 51
EI	Medium	52 - 90
7	High	91 - 130
—	Very High	> 130

Percent Swell of Soil		
% Swell	NV	
rotes.		

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Silty sand Symbol: SM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	12

Expansion Index

NA

* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	95		
#4	88		
#10	74		
#40	37		
#100	24		
#200	19		

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208460 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (6-8')	Submitted By:	Kimberly Nepsa

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expans	ion Index
EI =	NA

Percent Swell of Soil	
% Swell Notes:	NV

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Silty sand
Symbol: SM

Moisture Density	(Proctor)
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	9

* = out of specification

	ASTM D1140 / D422		
Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	91		
#10	74		
#40	38		
#100	27		
#200	22		

Remarks: Revi

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208461 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (11-13')	Submitted By:	Kimberly Nepsa

ASTM D4318	
Plasticity Index	
Liquid Limit	20
Plastic Limit	17
Plasticity Index	3

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansi	ion Index
EI =	NA

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Max. Dry Density NVOpt. Moisture % NVCorr. Max. Dry Density NVCorr. Opt. Moisture % NV% Rock

Moisture Density (Proctor)

* = out of specification

	ASTM D1140 / D422		
Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	93		
#10	72		
#40	38		
#100	29		
#200	24		

Remarks:

Class: Silty sand

Symbol: SM

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208462 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (16-18')	Submitted By:	Kimberly Nepsa

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Silty sand

Symbol: SM

____ Co

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	12	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	95		
#4	88		
#10	67		
#40	37		
#100	28		
#200	23		

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208463 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (22-24')	Submitted By:	Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Percent Swell of Soil		
% Swell	NV	
Notes:		

pH and Resis	tivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	11	

EI =

Expansion Index

NA

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	89		
#10	64		
#40	34		
#100	26		
#200	22	_	

Reviewed By: Remarks:

Symbol: SM



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208464 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (0-3')	Submitted By:	Kimberly Nepsa

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent	Swell of Soil
% Swell Notes:	NV

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand
Symbol: SM

Moisture Density (Proctor)	
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	10

* = out of specification

	ASTM D114	0 / D422	
	ASIM DITA	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	97		
#4	90		
#10	76		
#40	38		
#100	24		
#200	19		

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208465 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (6-8')	Submitted By:	Kimberly Nepsa

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Silty sand Symbol: SM

Moisture Density (Proctor)				
Max. Dry Density	NV			
Opt. Moisture %	NV			
Corr. Max. Dry Density	NV			
Corr. Opt. Moisture %	NV			
% Rock	9			

* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	96			
#4	91			
#10	74			
#40	40			
#100	27			
#200	22			

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208466 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (11-13')	Submitted By:	Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index NP		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resist	tivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand

Symbol: SM

Corr. M

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	8	

EI =

Expansion Index

NA

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	92		
#10	69		
#40	37		
#100	27		
#200	23		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208467 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (16-18')	Submitted By:	Kimberly Nepsa

ASTM D4318		
Plasticity Index		
Liquid Limit	22	
Plastic Limit	17	
Plasticity Index	5	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA
(0.000)	·

Class: Silty, clayey sand Symbol: SC-SM

Moisture Density (Proctor)	
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	9

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100	1	
1/2"	98		
#4	91		
#10	69		
#40	41		
#100	33		
#200	27		

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208468 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (22-24')	Submitted By:	Kimberly Nepsa

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

NV

NV

NV

8

Percent S	Swell of Soil	
% Swell Notes:	NV	II D 1
Notes.		pH Read Resistivi
		Class: Silty

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Max. Dry Density Opt. Moisture % Corr. Max. Dry Density NVCorr. Opt. Moisture % % Rock

Moisture Density (Proctor)

* = out of specification

Remarks:

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	92		
#10	59		
#40	31		
#100	25		
#200	21		

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208490 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Percent Swell of Soil	
% Swell Notes:	NV

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand
Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	13	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	93		
#4	87		
#10	74		
#40	35		
#100	20		
#200	14		

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208491 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (5-7')	Submitted By:	Amos McCurdy

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Exp	Potential Expansion	Expansion Index, (EI)
	Very Low	0 - 20
	Low	21 - 51
$\mathbf{EI} =$	Medium	52 - 90
	High	91 - 130
	Very High	> 130

Percent Swell of Soil	
% Swell Notes:	NV

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand
Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	5	

Expansion Index

NA

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	95		
#10	82		
#40	37		
#100	19		
#200	14		

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208492 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (11-13')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI = NA		

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand with gravel

Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	17	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	92		
#4	83		
#10	69		
#40	39		
#100	29		
#200	23		

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208493 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (16-18')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell	NV	
notes.		

pH and Resistivity		
NA		
NA		

Class: Silty sand with gravel

Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	21	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	93		
#4	79		
#10	57		
#40	29		
#100	24		
#200	21		

Reviewed By: Remarks:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208494 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (22-24')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	24	
Plastic Limit	16	
Plasticity Index	8	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell	NV	
riotes.		

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	
Resistivity (onnis-cm)	NA	

Class: Clayey sand
Symbol: SC

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	7	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	93		
#10	70		
#40	39		
#100	33	•	
#200	28	<u> </u>	

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208495 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB17 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318			
Plasticity Index			
Liquid Limit NV			
Plastic Limit	NP		
Plasticity Index	NP		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand
Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	3	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	97		
#10	84		
#40	40		
#100	25		
#200	20		

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208496 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB17 (6-8')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell	NV	
Notes:		

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand
Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	7	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100	_	
1/2"	99		
#4	93		
#10	78		
#40	33		
#100	20		
#200	15		

Remarks:

Reviewed By:



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Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208497 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB17 (11-13')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	8	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	92		
#10	75		
#40	30		
#100	19		
#200	15		

Remarks:

Reviewed By:



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Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208498 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB17 (16-18')	Submitted By:	Amos McCurdy

ASTM D4318			
Plasticity Index			
Liquid Limit	NV		
Plastic Limit	NP		
Plasticity Index NP			

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	
110105.		

pH and Resisti	vity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	6	

* = out of specification

A CITA A D 1140 / D 400				
ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	100			
#4	94			
#10	74			
#40	35			
#100	26			
#200	21	_		

Remarks:

Reviewed By:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208499 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB17 (22-24')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Silty sand Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	5	

* = out of specification

ASTM D1140 / D422			
C:			*
Sieve	% Pass	Specs	-1-
1"	100		
1/2"	99		
#4	95		
#10	82		
#40	37		
#100	20		
#200	15		

Remarks:

Reviewed By:



Tempe, AZ 85282

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208518 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand
Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	6	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	94		
#10	85		
#40	56		
#100	41		
#200	33		

Remarks:

Reviewed By:



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Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208519 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (6-8')	Submitted By:	Amos McCurdy

ASTM D4318			
Plasticity Index			
Liquid Limit	NV		
Plastic Limit	NP		
Plasticity Index	NP		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI = NA		

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	istivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand
Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	6	

* = out of specification

ASTM D1140 / D422				
ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	99			
#4	94			
#10	83			
#40	58			
#100	44			
#200	38			

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208520 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (11-13')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	31	
Plastic Limit	20	
Plasticity Index	11	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Lean clay with sand Symbol: CL

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	1	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	99		
#10	98		
#40	90		
#100	84		
#200	78		

Reviewed By: Remarks:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208521 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (16-18')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	27	
Plastic Limit	21	
Plasticity Index	6	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

stivity
NA
NA

Class: Silty clay with sand

Symbol: CL-ML

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	0	

* =	out of	f spe	cifica	ation

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	100			
#4	100			
#10	99			
#40	98			
#100	93			
#200	83			

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208522 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (22-24')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	31	
Plastic Limit	20	
Plasticity Index	11	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Lean clay

Symbol: CL

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	NV	

* = out of specification

ASTM D1140 / D422				
Sieve	% Pass	Specs	*	
1"	100			
1/2"	100			
#4	100			
#10	100			
#40	99			
#100	95			
#200	87			

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208523 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Perce	nt Swell of Soil
% Swell Notes:	NV

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Silty sand
Symbol: SM

Moisture Density (Proctor)	
Max. Dry Density	NV
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	4

* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	96		
#10	84		
#40	51		
#100	33		
#200	24		

Remarks: Revie

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208524 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (5-7')	Submitted By:	Amos McCurdy

ASTM D4318	
Plasticity Index	
Liquid Limit	NV
Plastic Limit	NP
Plasticity Index	NP

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index	
EI =	NA

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resistivity		
NA		
NA		

Class: Silty sand Symbol: SM

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	10	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	94		
#4	90		
#10	81		
#40	58		
#100	44		
#200	35		

Reviewed By: Remarks:



Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208525 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (12-14')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	26	
Plastic Limit	21	
Plasticity Index 5		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Class: Silty clay with sand Symbol: CL-ML

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	1	

* = out of specification

ASTM D1140 / D422			
Sieve % Pass Specs			
1"	100	•	
1/2"	100		
#4	99		
#10	99		
#40	96		
#100	87		
#200	77		

Remarks:

Reviewed By:



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208526 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (17-19')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit	25	
Plastic Limit	19	
Plasticity Index	6	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index		
EI =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resistivity		
NA		
NA		

Class: Silty clay with sand

Symbol: CL-ML

Moisture Density (Proctor)		
Max. Dry Density	NV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	NV	

* = out of specification

ASTM D1140 / D422			
Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	100		
#10	100		
#40	97		
#100	86		
#200	71		

Remarks:

Reviewed By:



Tempe, AZ 85282

Office: (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208527 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (23-25')	Submitted By:	Amos McCurdy

ASTM D4318		
Plasticity Index		
Liquid Limit Plastic Limit	29	
Plasticity Index	10	

Expansion Index, (EI)	Potential Expansion	Expans	ion Inde
0 - 20	Very Low		
21 - 51	Low		
52 - 90	Medium	$\mathbf{EI} =$	NA
91 - 130	High		
> 130	Very High		<u> </u>

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Class: Lean clay with sand Symbol: CL

Moisture Density (Proctor)										
Max. Dry Density	NV									
Opt. Moisture %	NV									
Corr. Max. Dry Density	NV									
Corr. Opt. Moisture %	NV									
% Rock	NV									

* = out of specification

	ASTM D114	0 / D422	
Sieve	% Pass	Specs	*
	 	Specs	
1"	100		
1/2"	100		
#4	100		
#10	99		
#40	95		
#100	86		
#200	75		

Remarks:

Reviewed By:

Appendix B



Legend:



Approximate Proposed Boring Location



Site Plan

Scale: N.T.S. Drawn by: KJN Date: 06/08/2022

Rancho Vistoso Valley Vista - Lots 18, 19 and 20

Kalalau Drive and Romsdalen Road Oro Valley, Arizona

ProTeX Job No.: 12804





Legend:



Approximate Proposed Boring Location



Site Plan

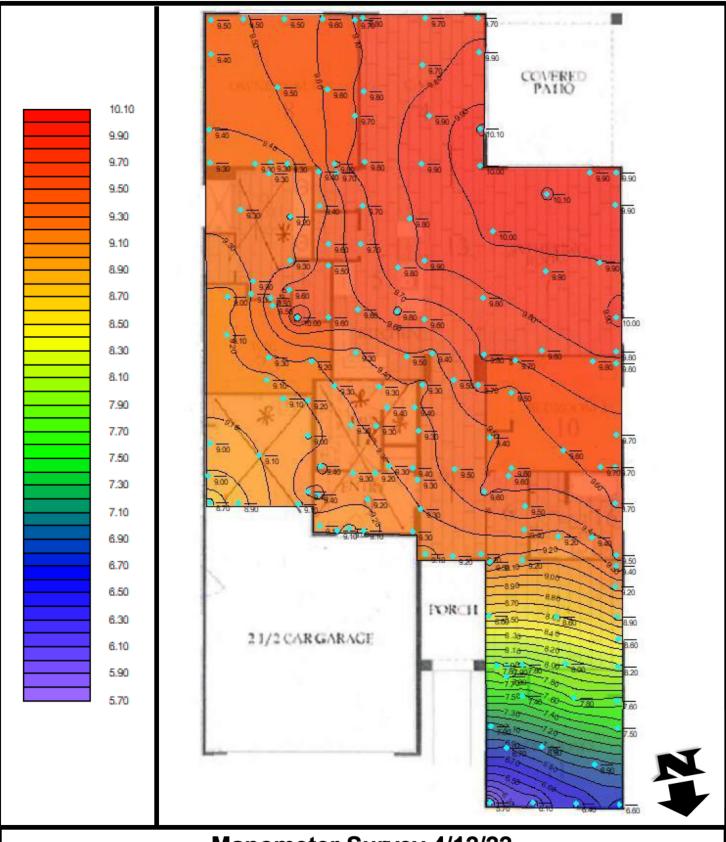
Scale: N.T.S. Drawn by: KJN Date: 09/27/2022

Rancho Vistoso Valley Vista - Lot 19

780 East Kalalau Drive Oro Valley, Arizona







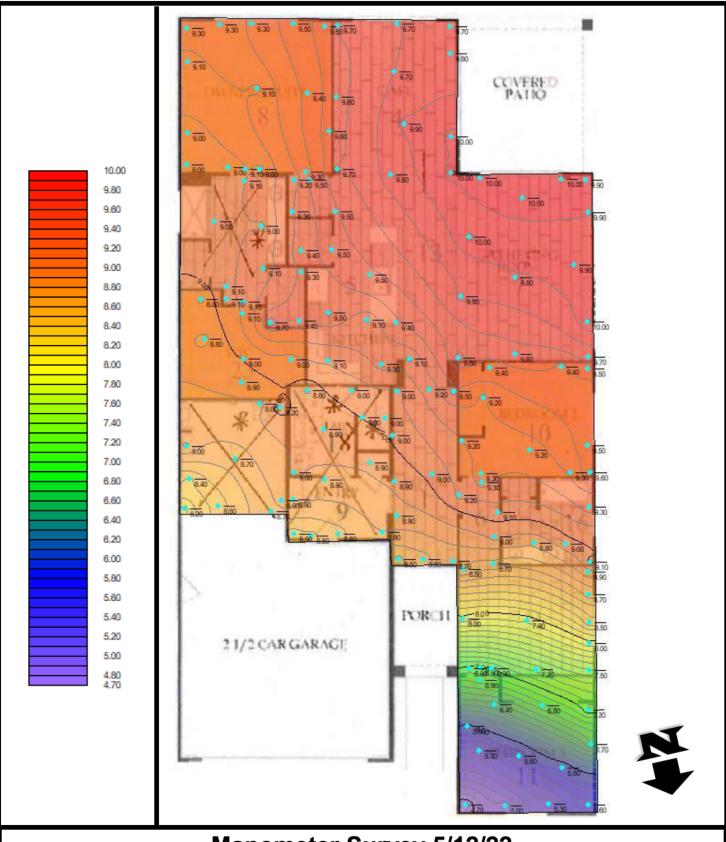
Manometer Survey 4/12/22

Scale: N.T.S. Drawn by: BBR Date: 10/28/2022

Rancho Vistoso Valley Vista – Lot 19 780 East Kalalau Drive Oro Valley, Arizona



ProTeX Job No.: 12804



Manometer Survey 5/12/22

Scale: N.T.S. Drawn by: BBR Date: 05/12/2022

Rancho Vistoso Valley Vista – Lot 19 780 East Kalalau Drive Oro Valley, Arizona



ProTeX Job No.: 12804

Appendix C

	500 00 B	PROJECT: Rancho Vistoso Valley Vista - Forens	ic			_ F	PROJEC	T NO.:		12804	
		CLIENT: Pulte Tucson Land									
1	role)	PROJECT LOCATION: Rancho Vistoso Bouleva	ard and T	angerir	e Road						
		LOCATION: See Site Plan					ELEVAT				
lı م	G OF BORING	DRILLER: RCS				_ L	OGGED			KN	
-~		DRILLING WILTHOD. Dumose							E:	2/25/22	2
	No. FB1A	DEPTH TO - WATER> INITIAL: \(\noting\)	AFTER 2	24 HO	JRS:	<u>*</u>	-		/ING> _		
۲ ^			.≌	<u>e</u>	ts /	% < #200			T RESUL		
Depth (feet)		Description	Graphic	E S	Blow	 	Plastic L Water C			⊢ Liqui	id Limit
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ſ			PROJECT: Rancho Vistoso Valley Vista - Forer	nsic			_ F	PROJECT	NO.:		12	804	
	20		CLIENT: Pulte Tucson Land										
	(role/	PROJECT LOCATION: Rancho Vistoso Boule	vard and T	angerin	e Roac	l						
		THE PT PERTS LLC	LOCATION: See Site Plan					ELEVATIO					
	10	G OF BORING	DRILLER: RCS				_ L	OGGED I	3Y: _		K	N	
	LO		Brileento Metriob: Bannose						DAT	ΓE: _	2.	/25/22	
		No. FB2A	DEPTH TO - WATER> INITIAL: ¥	AFTER 2	24 HOU	JRS:	¥		CAV	/ING>	<u>C</u>		
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	Depth (feet)		Description	Graphic	Sample No.	Blow	% < #200	Plastic Lir			-	Liqui	d Limit
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and should not be interpreted as being indicitive of the site.	12					18			:				:
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ſ			PROJECT: Rancho Vistoso Valley Vista - Fore	nsic				_ F	ROJECT	NO.:	1	2804	
Ì	(Fole	CLIENT: Pulte Tucson Land PROJECT LOCATION: Rancho Vistoso Boule	vard and	Tang	erine	Roac	<u> </u>					
Ì		THE MY X CENTS LLC	LOCATION: See Site Plan			,		E	LEVATIO				
Ì	LO	G OF BORING	DRILLER: RCS					_ L	OGGED E			KN	
		No. FB3	DRILLING METHOD: 8" Hollow Stem Auger DEPTH TO - WATER> INITIAL: ₩	AFTER	24 1	HOU	RS:	<u> </u>		DATE	≣: NG> <u>ℂ</u>	2/25/22	2
ŀ		110.1 50	DEI III TO WATER INITIAL.		$\overline{}$						RESUL		
	Depth (feet)		Description	Graphic	- {	sample No.	Blow Counts	% < #200	Plastic Lin	nit			id Limit
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ŀ		(SM) Silty Sand, trac	e Gravel, non-plastic, brown, slightly moist		2 20	0220	5 6 5	22		·		·	 :
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only to this boring and should not be interpreted as being indicitive of the site.			very moist		200	0220	1	26		:	:		:
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		(CL) Lean (Clay, high plasticity, brown, moist	-25 (1111)			R 4						<u>:</u>
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		PROJECT: Rancho Vistoso Valley Vista - Forensic				_ F	ROJE	CT N	0.:	1:	2804	
1		CLIENT: Pulte Tucson Land										
((role)	PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road										
	THE PTY PERTS LLC	LOCATION: See Site Plan E				LEVA	TION					
م اا	C OF DODING	DRILLER: RCS				_ L	.OGGE	ED BY	′ :	K	(N	
ILO	G OF BORING	DRILLING METHOD: Bullnose							ATE:		2/25/22	
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Depth (feet)		Danieloffer	Graphic	ble .	Blow Counts	% < #200	Plastic				Liquic	d Limit
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				L"		%	Penet		- 7///			
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			PROJECT: Rancho Vistoso Valley Vista - Fore	ensic				_ F	PROJE	CT N	10.:		128	04	
			CLIENT: Pulte Tucson Land												
	(role/	PROJECT LOCATION: Rancho Vistoso Boul	evard	and Tar	ngerin	e Road								
		THE POT PERTY LAC	LOCATION: See Site Plan						ELEVA						
	10	G OF BORING	DRILLER: RCS					_ L	.OGGI					[
	LO		DIVILLING METHOD. Dunnosc									E:		25/22	
		No. FB4A	DEPTH TO - WATER> INITIAL: \(\in\)	_ AF	TER 24	HOL	JRS:	<u>*</u>			CAV	ING>	<u>C</u> _		
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	Depth (feet)		Description		Graphic	Sample No.	Blow Counts	% < #200	Plastic				⊣ '	Liquic	d Limit
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		PROJECT: Rancho Vistoso Valley Vista - Forensio	:			F	PROJECT NO.:	12804
		CLIENT: Pulte Tucson Land						
(Prole (PROJECT LOCATION: Rancho Vistoso Boulevan	d and Ta	angerine	Road	i		
	THE PTY PERTY LLC	LOCATION: See Site Plan				_ E	ELEVATION:	
م با	C OF PODING	DRILLER: RCS				_ L	OGGED BY:	KN
ILO	G OF BORING	DRILLING METHOD: 8" Hollow Stem Auger					DATE:	2/25/22
	No. FB5	DEPTH TO - WATER> INITIAL: ¥ A	FTER 2	4 HOU	RS:	¥	CAVING>	<u>C</u>
			ပ	Φ	ø	8	TEST RES	ULTS
Depth (feet)		Description	Graphic	Sample No.	low	#200	Plastic Limit	Liquid Limit
ے ت			Š	Sa	ක පු	> %	Water Content - •	7771
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ľ	(SM) Silty Sand,	trace Gravel, non-plastic, brown, moist			R 7	22	/////	: :
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	(SC-SM) Silty Clayey S	and, trace Gravel, low plasticity, brown, moist				_	<u> </u>	
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		21	<i>MX</i>	}			<u> </u>	
	(SM) Silty Sar	nd, non-plastic, brown, slightly moist	1		R 5 7		////	
		oring terminated at 26 ft.	T		7			
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		PROJECT: Rancho Vistoso Valley Vista - Forensic				_ F	PROJECT N	о.:	128	04
9		CLIENT: Pulte Tucson Land								
1	role)	PROJECT LOCATION: Rancho Vistoso Boulevard	l							
	THE PT PERTS LLC					_ E	ELEVATION:			
م با	C OE PODINC	DRILLER: RCS				_ L	OGGED BY	·:	KN	[
ILO	G OF BORING	DRILLING METHOD: Bullnose						ATE:	2/2	25/22
	No. FB5A	DEPTH TO - WATER> INITIAL: \(\overline{\overl	TER 24	4 HOL	JRS:	¥		AVING		
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Depth (feet)		Description	Graphic	اهر _.	Blow Counts	% < #200	Plastic Limit			
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	Bor	ring terminated at 28.5 ft.					· · · · · :	:		
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		PROJECT: Rancho Vistoso Valley Vista - Ford	ensic				_ F	ROJEC	T NO	о.:	1	2804	
		CLIENT: Pulte Tucson Land											
	(Fole)	PROJECT LOCATION: Rancho Vistoso Boul	evard ar	nd Tan	gerine	e Road							
	THE OFFICE STATE OF THE STATE O	LOCATION: See Site Plan						LEVAT					
ا، ر	OG OF BORING	DRILLER: RCS					_ L	.OGGEI				KN	
-~		Divide in Elitob. Dunnosc								ATE:		2/25/22	2
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Depth (feet)		Description		Graphic	Sample No.	Blow Counts	% < #200	Plastic				Liqu	id Limit
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	1 B	oring terminated at 25 ft.	+					<u> </u>		•	•	:	•
	1 "	Jing terminated at 25 ft.						· · · · · · · · · · · · · · · · · · ·		• • • • • • •	:	• • • • • • • • • • • • • • • • • • • •	
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			PROJECT: Rancho Vistoso Valley Vista - Fore	nsic			_ '	PROJECT	NO.:	1280	04
	1		CLIENT: Pulte Tucson Land	· -4T		7-2	-				
		THE PYXTERTS LLC	PROJECT LOCATION: Rancho Vistoso Bould	vard and 1	angerin	e Road		CI EVATIO	M1.		
			LOCATION: See Site Plan DRILLER: RCS					ELEVATIOI LOGGED B			
L	. O	G OF BORING	DRILLING METHOD: 8" Hollow Stem Auger				_ '		DATE:		5/22
		No. FB7	DIVILLING METHOD. 6 Honow Stelli Auger	AFTER 2	4 HOL	IRS:	¥		CAVING		3/22
\vdash	\neg	140.10.	DEFINITO-WATERFIRMENE =	<u> </u>	т —	Т	_			ESULTS	
듚	æ (fe		December 11 and 12 and	Graphic	Sample No.	Blow Counts	< #200	Plastic Lim			iquid Limit
De	(feet)		Description	Grap	Sam	응	v		ntent - •	•	ilquia z
\vdash	\dashv			_	 		%	Penetration			
	ŀ	(SM) Sile	ty Sand, non-plastic, brown, wet	- 	: 2000	R		77777	20 3	30 40	50
	一	(0141) 0111	y Sand, non-plastic, orown, wet		22022 ²	2 ₅	17	////	:		·····
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<u>و</u> —	\dashv					8		/////	△:		
물 🗀	12										
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and —	\dashv		Trace Gravel		22022	13	23	ļ		ļ <u>.</u>	
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si Pc	\dashv					R 2				·····	
This information pertains only to this boring and should not be interpreted as being indicitive of the site.	16				⊩	3		2		<u>.</u>	
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ᆙ	\dashv	(SC-SM) Silty C	layey Sand, low plasticity, brown, moist		1 -	6 8		////		ļ	
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\vdash	\dashv		Weak cementation		1	R 4 7		////		ļ	
\vdash	\dashv	В	oring terminated at 26 ft.			1 ′				ļ	
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<u>_</u> 2	28							ļ		ļ	
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		60 0 C 2 C 2 C 2 C 2 C 2 C 2 C 2 C 2 C 2	PROJECT: Rancho Vistoso Valley Vista - Foren	nsic			_ F	PROJECT	NO.:		12804	
			CLIENT: Pulte Tucson Land									
	((Prole)	PROJECT LOCATION: Rancho Vistoso Boule	vard and T	angerin	e Roac						
		THE PROPERTY LACE	LOCATION: See Site Plan					ELEVATIO				
	10	G OF BORING	DRILLER: RCS				_ เ	LOGGED I			KN	
	LO		BittleElito METTOB: Buillose							E:	2/25/2	22
		No. FB7A	DEPTH TO - WATER> INITIAL: \(\noting\)	AFTER 2	24 HO	JRS:			CAV	'ING> 🗵	<u> </u>	
				ي	Ф	s	8			T RESUI		
	Depth (feet)		Description	Graphic	Sample No.	Blow	% < #200	Plastic Lin			⊣ Liqı	uid Limit
			·	ق ا	Sa	" ŏ	°	Water Co			73	
	0					1		Penetration		30	⊿ 40	50
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		Box	ring terminated at 25.5 ft.					- :	:	:	:	:
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				PROJECT: Rancho Vistoso Valley Vista - Fo	rensic				_ F	PROJECT NO.:	1	12804
			7	CLIENT: Pulte Tucson Land								
	(Fo e		PROJECT LOCATION: Rancho Vistoso Box	ılevard	l and Tar	ngerine	Road				
				LOCATION: See Site Plan						LEVATION: _		
	10	G OF BOI	DING	DRILLER: RCS					_ L	OGGED BY: _		KN
	LU			DIVILLING METHOD. 6 Honow Stell Auge							E:	5/5/22
		No. FB8	ا 	DEPTH TO - WATER> INITIAL: \(\frac{\rightarrow}{2}\)	AF	TER 24	HOU	RS:	¥	CAV	ING> _C	<u></u>
						<u>o</u>	ө	S	8	TEST	T RESUL	
	Depth (feet)			Description		Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit		→ Liquid Limit
	چ ق			5000p		Gr	Sal	ක පි	> %	Water Content -		•
	0						H		Ü	Penetration - 20		40 50
	Ů	(SM) Si	ltv Sand.	trace Gravel, non-plastic, brown, moist		1:::::2	20526	6	17	10 20	:	: :
		(~)	10, 20,	,,,,,,				R 2		⊠	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •
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gici				With Gravel		2	20526	7 R	24			<u> </u>
gin				With Orayon				2 3	_	- :	:	
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as k		ļ			 15			R		ZZZ	:	
ted		(SP-	SC) Clay	vey Sand, low plasticity, brown, wet		111		3			• • • • • • • • • • • • • • • • • • • •	
pre	18					111						
nter				Maint		111		R		772		
is only to this boring and should not be interpreted as being indicitive of the site.				Moist		///		3 4				
not						111		4				
몸		7 (CL) Sandy C			25	111						<u>:</u> : :
sho	27			Clay, medium plasticity, brown, wet	20			R 6				
2	-	-		///		6		T	:			
ng a						0///						• • • • • • • • • • • • • • • • • • • •
oori		(SP) Po	orly grad	ed Sand, non-plastic, brown, very moist	30			R 3		ZZ	• • • • • • • • • • • • • • • • • • • •	
nis		\ <u>`</u>	, G	F,,				5				
to					25							
μŽ	36	(SP-SM) Po	orly grad	ed Sand with Silt, non-plastic, brown, moi	st st			R 6		////		
us c		(01 2)	01., 6	ou build min bin, not proces, ording,		11.0		7				;;
ırtai						19:41				h		;
n pe						Tank in a		R 5		7777.		<u>.</u>
atio						iii ri.i		6				: :
Ë	45									: :	:	
inf	45	(SC SM) Si	14 Claye	ey Sand, low-medium plasticity, brown, we	 45	WW		R 5		////		
This information pertair		(SC-SIVI) SI	ity Claye	y Sand, low-medium plasticity, brown, we	n			5			• • • • • • • • • • • • • • • • • • • •	
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					F4 F0.	XXX		R			γ.·	
		(CL) Sano	dv Clav. 1	ow-medium plasticity, brown, very moist	51-53	1//	20526	8 4 8 4	53		1 : ····!·····	
	54	(02) 5	19 010,, 1	ow-medium planary, ozoma, vezy		////				L		
								R		7777		
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		<u> </u>	D.	Wet		///		7		/////		
	63		В	oring terminated at 61 ft.				,				
											<u> </u>	· ·

			PROJECT: Rancho Vistoso Valley Vista - Fore				PROJECT NO.:		12804		
			CLIENT: Pulte Tucson Land								
	(role)	PROJECT LOCATION: Rancho Vistoso Boule	evard and	Tang	erine Ro					
			LOCATION: See Site Plan				'	ELEVATION: _			
ı,	0	C OF PODING	DRILLER: RCS					LOGGED BY:		KN	
ľ	_0	G OF BORING	DRILLING METHOD: 8" Hollow Stem Auger					DA	TE:	5/5/22	2
		No. FB9	DEPTH TO - WATER> INITIAL: ¥	AFTER	24 H	HOURS:	-	CA	VING>	C	
\vdash			<u> </u>	<u> </u>		.	. 0	TES	T RESU	LTS	
ŧ	(feet)		Description	ra cido cido		No. Blow	< #200	Plastic Limit			uid Limit
٥	æ,		Description	Ĩ		ᇍ칟		Water Content			
⊢	_				<u> </u>	<u> </u>	%	Penetration -		2	
⊩	0			1.1.1.	1111			10 20	30	40	50
L		(SM) Silty	Sand, non-plastic, brown, moist					<u> </u>	;		
						R 3					•
9						8			:	:	:
				_ []					:::::	:	:
	\exists	(SC-SM) Silty Clay	rey Sand, low plasticity, brown, very moist		111	R 6		////	• • • • • • • • • • • • • • • • • • • •	:::::::::::::::::::::::::::::::::::::::	• 🗄 • • • • •
∤ ⊢	7					7				••••	• ‡ • • • • •
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- L					\mathcal{U}				:		<u>:</u>
		(SM) Silts	Sand, non-plastic, brown, moist	'0		R 2					<u>. :</u>
B		()	r,,			3			:	:	:
	1.4										
1	14							F		:::::::::::::::::::::::::::::::::::::::	:
		(SC-SM) Silty C	layey Sand, low plasticity, brown, moist	⁻¹⁵	ИL	R 3				• :	- :
The site of the si	\dashv	(SC-SWI) Silty C	layey Sand, low plasticity, brown, moist		24	3		-			
į L										:	
3											
	21	(SM) Silty S	Sand, non-plastic, brown, moist	-20 A		R			:	:	:
<u> </u>		(SIVI) SIII,	Sand, non-prastic, brown, moist		4 2						
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5	\neg									• • • • • • • • • • • • • • • • • • • •	
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	ı			-30 II:IIII	╨╂	R		<i>////</i>			
3		(SP) Poorly gr	aded Sand, non-plastic, brown, moist		∷⊤	5 7					
	\neg			:::·	्र					:::	:
▮⊢	\dashv			[::			-		• :••••	· :· · · · ·
	35		Slightly moist		∷⊦	R					• • • • • • • • • • • • • • • • • • • •
2			Stightly moist		∷⊦	5 8				;	
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				[22]				L			
Г				-40 x1x	,,			77771			:
		(SC-SM) Silty C	layey Sand, low plasticity, brown, moist	1/	\mathcal{U}	R 5		//// ····	•••••	••••••	:
\vdash	42					7		<u> </u>		••••••	• • • • • • • • • • • • • • • • • • • •
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\vdash				_45 <i>K</i> X	$\mathcal{U}_{\mathbf{L}}$	⅃ ͺ					
L		(SM) Silty	Sand, non-plastic, brown, damp	-~		R		////			
		(, , , , , , , , , , , , , , , , , , ,				6		L			
	49										:
F	13									:	:
\vdash	\dashv		Slightly damp			R 12			Z :		• • • • • • • • • • • • • • • • • • • •
\vdash		В	oring terminated at 51 ft.			15		<u> </u>	<u></u> :	<u></u>	<u> </u>
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		PROJECT: Rancho Vistoso Valley Vista - Fore	nsic			_	PROJECT	NO.: _		12804	
		CLIENT: Pulte Tucson Land									
1	TO E	PROJECT LOCATION: Rancho Vistoso Bould	evard and Ta	ngerin	e Road						
		LOCATION: See Site Plan					ELEVATIO				
lLO	G OF BORING	DRILLER: RCS				_ ו	LOGGED B			KN	
۱		DRILLING WETHOD. 8 Honow Stelli Auger				_			<u>∷</u>		2
<u> </u>	No. FB10	DEPTH TO - WATER> INITIAL: 픟	AFTER 2	4 HOL	JRS:				NG> _		
٠.			.≌	<u>e</u>	ts /	< #200			RESUL		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	¥ ,	Plastic Lim			⊢ Liq	uid Limit
ے ۵			ق	Š	ت ت	%	Water Con Penetration			а	
0							10	20	30	40	50
	(SM) Silty	Sand, non-plastic, brown, moist						:	:	:	÷
					R 3						:
					4			:		:	:
								:	:::::::	:	:
	(SC-SM) Silty Cl	layey Sand, low plasticity, brown, moist		} —	R 4		///	• :	•••••••	••••	· • • • • • • • •
7				4	3			• :		•••	· • • • • • • •
				1				• :	••••••	·· : ····	· - : · · · · ·
			_10 1/1/1	 	R		771			‡	· - : · · · · ·
	(SC) Clayey	Sand, low plasticity, brown, moist		}—	3		Z				
					ľ		<u> </u>				
14							L	. :			
			-15 -15	1—	R 2						
	(SP) Poorly gr	aded Sand, and Gravel, brown, moist	7-19 ピンプ	2050	2 2						
	(SC) Clayey Sand,	trace Gravel, low plasticity, brown, moist		20520	19	30	<u> </u>				
				1			L				
21				_	R 3		// //				
				1	4		_				
'				1			<u></u>			;	
			-25 / / /		R					;	
	(SC-SM) Silty C	Clayey Sand, low plasticity, brown, wet		\vdash	3 4						
28				1			L			;	
				1			.			;	
		Moist		禋	R 5 8		////	į		;	
·				1	8					;	
35				1			.			;	
35				1			<u> </u>			;	
	(SM) Silty S	and, non-plastic, brown, very damp		├	R 5					;	į
					6		L				
							L				
		Slightly damp		⊩	R		//////	·			
42		Slightly damp			10 12		7////			:	:
										:	:
	(SM MI) Doorly grades	1 Silty Sand, non-plastic, brown, slightly day	45		R 9		//////		:	:	•
	(SWI-WIL) FOOTTY graded	i Sitty Sand, non-plastic, brown, siightiy dai	^{np}		13					••••••	
1.0				1			<u> </u>	• • • • • • • • • • • • • • • • • • • •	•••••••	•••	• • • • • • • • • • • • • • • • • • • •
49				Ł			<u> </u>		··:	<u>:</u>	:
			<u> </u>		R 14		//////	////	////	₫:	
	Во	oring terminated at 51 ft.			25		<u> </u>		··· <u>·····</u>	<u> </u>	
	Во	oring terminated at 51 ft.	F1 61 6 F		14				•••••••	<u>;</u>	<u> </u>

		PROJECT: Rancho Vistoso Valley Vista - Fore	nsic	PROJECT NO.: 12804							
		CLIENT: Pulte Tucson Land PROJECT LOCATION: Rancho Vistoso Bould	ward and To-	ngerin.	Rose	<u> </u>					
'	THE PTX TERTS LLC.	LOCATION: See Site Plan	vard and 1 a	igerin	c Roac		ELEVATIO	N:			
١. ؍	O OF POPINO	DRILLER: RCS					LOGGED				
ILO	G OF BORING	DRILLING METHOD: 8" Hollow Stem Auger							E:		2
	No. FB11	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	HOL	JRS:	¥		CAV	/ING> _	<u> </u>	
			ي.	e	ø	8			T RESUI		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Lir			⊢ Liq	uid Limit
			Ğ	Ss	ت س	%				а	
0			100000				10	_	30	_	50
	(SM) Silty	Sand, non-plastic, brown, moist					<u> </u>		;		
					R 5				:		<u>:</u>
					3		L		:		.
			5 1 1 1 1 1	<u> </u>	R				:		<u>:</u>
	(SC-SM) Silty Cl	ayey Sand, low plasticity, brown, moist		 	2		<u> </u>		:		.
							L				
6.5				1			L				<u>:</u>
		Wet		├	R 8		////		;		.
: L		***************************************			8 4		////		;		
13							L				.:
<u> </u>							<u></u>				.
<u> </u>		And Gravel		<u> </u>	R		<i></i>	į	;		
<u> </u>					3 5		Penetration				. <u>. :</u>
19.5											
19.5							L				
		Very moist to wet		\vdash	R		<i></i>				
		•		R 3 4							
				1							
26		Moist			R 3		<i></i>				
					5		L				
							L				
				1			L				
		Very damp			R 3 5						
32.5					5		L				
32.5				1							
				<u> </u>			7777		;		
	(SM) Silty Sar	nd, non-plastic, brown, slightly damp	55	<u> </u>	R 6 8						
					°		<u></u>	į	;		
39							L				
		Trees Count des			R		//////	J	;		
		Trace Gravel, dry			R 8 9		/////	1 :			
					`		L		;		
							L		;		
45.5			45 1v	\vdash	R		/////	///	7		
		d Silty Sand, non-plastic, light brown, slight	ly filling	\vdash	R 11 16		/////	///	⊿ :		
		amp, weak cementation pring terminated at 46 ft.	—								
	1	oring criminacca at 40 ft.				<u> </u>	Γ				

		PROJECT: Rancho Vistoso Valley Vista - Forensi	С			_ F	PROJECT	NO.:	12	2804		
		CLIENT: Pulte Tucson Land PROJECT LOCATION: Rancho Vistoso Bouleva	rd and Ta	n aerin	Pond	1						
1	THE PTX PERTS LLC	LOCATION: See Site Plan	u anu 1 a	ngerme	Koac		ELEVATIO	N-				
١. ۾		DRILLER: Southlands Engineering				_	LOGGED B			N		
ĮLΟ	G OF BORING	DRILLING METHOD: 7" Hollow Stem Auger				_		DATE		5/6/22		
	No. FB12		FTER 24	4 HOU	RS:	¥			NG> C			
			o	Φ	s	00		TEST	RESULT	S		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Lim			Liquid Limit		
ے ۵		·	້ອ	Sa	۳ ö	%	Water Con Penetration					
0							10	20	30 4	0 50		
	(SC-SM) Silty Clayey S	and, trace Gravel, low plasticity, brown, damp		20527		27				<u> </u>		
				1	R 2		<u>//</u> /	.		.		
					5			.				
		Moist			R 2		2	<u>.</u>		: : :		
7.5				1	2		L	.				
				1				<u>.</u>		· • • • • • • • • • • • • • • • • • • •		
		 1		_	R 4			<u>.</u>				
7.5	(CL) Sandy C	lay, medium plasticity, brown, moist	1///		. 4 . 5			<u>:</u>				
	(SC-SM) Silty Clayey S	and, trace Gravel, low plasticity, brown, damp		20527	1	36	<u>.</u>			·		
15							:	.				
15				_	R 5							
	(SM) Silty Sand	trace Gravel, non-plastic, brown, damp	9 1 1 2	20527	2 6	18		<u>.</u>				
	(SWI) SIITY Saild,	trace Graver, non-prastic, brown, damp										
					R 5							
22.5					9		L					
						L						
·	(SM) Silts	(SM) Silty Sand, non-plastic, brown, damp			R		//////	a i				
	(Sivi) Silty	Sand, non-prastic, brown, damp			R 7 11	7				⊒ : 		
							L					
30								į				
					R 6							
					٥			į				
							L;	:		: : :		
	(SC-SM) Silty Cl	ayey Sand, low plasticity, brown, damp	⁵WW		R 5					<u>;</u>		
37.5	(50 511) 5111) 01	ayey saild, lew plasticity, elewin, damp		1	8		L			: : .		
			KKK				ļ			; ;		
		Moist		₩	R		//////	J		: : :		
					8 9			• : 		: :		
				•			ļ			: :		
45			, MM		_					: 		
	(CL) Sandy Clay	, medium-high plasticity, brown, moist		├─	R 3 4		<u>//</u>					
				1	-							
				1			L					
	/65 5 614 -	50.	5 /////		R 9							
52.5	(SM) Silty Sa	and, non-plastic, brown, very damp oring terminated at 51 ft.	4		16		L					
		and williams at 21 th					_					
							<u> </u>					
			1			_	<u> </u>	-	- '			

		PROJECT: Rancho Vistoso Valley Vista - Ford	ensic				_ F	PROJECT NO.:	1	2804	
		CLIENT: Pulte Tucson Land									
	role)	PROJECT LOCATION: Rancho Vistoso Boul	evard	and Tar	ngerine	e Road					
	THE STATE LLC	LOCATION: See Site Plan					_ E	LEVATION: _			
ا ا	G OF BORING	DRILLER: Southlands Engineering					_ L	.OGGED BY: _	J	KN	
lLO		DRILLING METHOD: 7" Hollow Stem Auger						DAT	E:	5/6/22	
	No. FB12A	DEPTH TO - WATER> INITIAL: ¥	AF	TER 24	4 HOU	JRS:	¥	CAV	'ING> <u>C</u>		
				- 0			0	TES	T RESUL	TS	
Depth (feet)		Description		Graphic	ᇢ.	Blow Counts	% < #200	Plastic Limit ⊢			d Limit
De (fe		Description		Gra	Sar	m S	۷ ,	Water Content -	•		
					-		6	Penetration -			
0						3		10 20	30 4	40 5	50
						7 5				:	:
						4		<u> </u>			: :
						2 3		: :	:	:	
						I 3				:	
l _						3 3			•	•	:
5						2 3		-··· <u>:</u> ····:		· <u>:</u>	:
						1 2		<u> </u>			· •
						1				•	·
						1					:
						2				:	:
10						3 3			:	:	:
						2				:	
						3 2 3				•	: :
						3				. <u>.</u>	: :
						3					: :
						2 3					
15						4 3					: :
						3		<u>.</u>		•	•
						3 3 3		: :	:	:	
						3 4					
						4 3				•	:
						4					: :
20						4					
						5 4					·
						5 5				: :::	: :
											: :
						5 5 7		: :	:	:	
25						6 5			:		:
						4 6				•	:
						7 7					:
						9					••••••
<u> </u>						10 8					
						8 9					
30						7 8		<u> </u>			
						8			:	: 	: :
						10 7			:	:	:
						7 8				•	:
						8 7		÷····	!	• • • • • • • • •	•
						9			• • • • • • • • • • • • • • • • • • • •		•
35	D.	oring terminated at 35 ft.			1	8					
<u> </u>	l Bo	ormg terminated at 55 ft.									· ••••••
											: :
	l										

		PROJECT: Rancho Vistoso Valley Vista - Fore	Forensic PROJECT NO.: 12804					12804
(PROJECT LOCATION: Rancho Vistoso Bould	evard and Ta	ngerin	e Road	1		
· '	THE PTY PERTS LACE	LOCATION: See Site Plan	0 7 43 14 14 1 1	,	· reduc		ELEVATION:	
م ا	C OF BORING	DDULLED. Condition to Francisco				_	LOGGED BY:	
llo	G OF BORING	DRILLING METHOD: 7" Hollow Stem Auger					DATE:	5/6/22
	No. FB13	DEPTH TO - WATER> INITIAL: \(\frac{\pi}{2} \)	AFTER 2	4 HOL	JRS:	¥	CAVING>	<u>c</u>
٠.			<u>ن</u>	е	S	00	TEST RES	
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit Water Content - ●	Liquid Limit
			Ō	Š	T 0	%	Penetration -	
0			27170	2			10 20 30	40 50
	(SC-SM) Silty Cl	layey Sand, low plasticity, brown, moist		1	R			
				 	11 19			
					~			
					R 22		///////////////////////////////////////	////
7					23			
				} —	R		<u></u>	
7	(CI) Sanda Class n	medium-high plasticity, brown, very moist	-11 (1)	1	2		2	
	(CL) Sandy Clay, I	nedium-nigh plasticity, brown, very moist		1			-	
14				1			F	
	V	ery moist to slightly wet		\sqsubset	R 2			
				1	3			
21				1				
		Moist		1—	R		7777	
21		WOISt		+	R 5 8		2///	
				1				
				1				
	1	Low-medium plasticity		\blacksquare	R 2			
28				1	4			
				1				: : :
				\vdash	R		7777	: :
				\top	R 4 7			
				1				
35				<u></u>				
35				Ъ—	R 6			
				1	16			
				1				
	(SM) Silty Sand non	-plastic, light brown, dry, weak to moderate	40		R 10			
42	(SWI) SHLY Sand, non	cementation	, 40		23			·
				<u> </u>				; ; ;
				⊩	R 11 25			2
					25			
49				1			ļ	
					R 14			Z
	Ве	oring terminated at 51 ft.			14 23	L		

		PROJECT: Rancho Vistoso Valley Vista - Fore	nsic			_ F	PROJECT	NO.: _	1	2804	
		CLIENT: Pulte Tucson Land PROJECT LOCATION: Rancho Vistoso Bould	word and Ta		Dood						—
\ \ \	THE PTX PURTS LLC.	LOCATION: See Site Plan	varu anu 1 a	ngerme	Koau		ELEVATIO	N:			
۱. م	O OF POPING	DBILLED, DCC					LOGGED B		A	AM	
LO	G OF BORING	DRILLING METHOD: 8" Hollow Stem Auger						DATE		8/30/22	2
	No. FB14	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	4 HOU	RS:	¥		CAVIN	IG> C		
٩ (. <u>e</u>	e	' ts	#200			RESUL		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #2	Plastic Lim Water Con		_	Liqui	id Limit
			g	Š	-0	%	Penetratio				
0	(0) 0 (1) (0 - 1		1:1:1:1:12	20845	a	19	10	20	30	40 5	50
	(SM) Sifty Sand,	some Gravel, non-plastic, brown, damp								. .	<u>.</u>
					R 4 6				• • • • • • • • • • • • • • • • • • • •	<u> </u>	<u> </u>
	Tr	ace Gravel, slightly damp		20846	Ř	22	//////	//// :	//// :	<u>////</u>	₫
		and court, original, amorp			27				•	÷	÷ · · · · ·
10				20040	R 1 4	05		 H	•	÷	÷ · · · · ·
		Low plasticity		20846	4	25	l	·		÷	
					R		777				
	N	Von-plastic, some Gravel		20846		23		:::::::	:	: :	: :
20								:	:	:	:
					R 3		ZZI :	:	:	:	:
		Damp	_24	20846	3 ³	22					
	(CL) Sandy Clay, tra	ace Gravel, medium plasticity, brown, damp	~~///	=	R		Z			.i	<u>.</u>
				1	3					<u>:</u>	<u>:</u>
30				Щ	R		77				<u>.</u>
					3						<u>.</u>
	(SM) Silty Sa	nd, non-plastic, brown, slightly damp	-34		В		7777			÷	<u> </u>
			-35	⇈	R 6 6		<i></i>	:		÷	÷·····
40	(CL) Sandy Clay	y, medium plasticity, brown, very damp		1	,						
	(SM) Silty	Sand, low plasticity, brown, damp	40	\vdash	R 4					· · · · · ·	
	` , ,				4					Ĭ	Ĭ
					R 7		7////				
					7					. .	<u>:</u>
50			50		R		/////	_: :		.;	<u>:</u>
	(SC) Clayey Sand, lo	ow-medium plasticity, brown, slightly damp		\top	9			<u>ط:</u> 			<u>.</u>
			///	1			<u> </u>				
\vdash	(CL) Sandy C	lay, medium plasticity, brown, damp	55		9 10		777777	⊿:			
60	(SM) Silty San	d, low plasticity, brown, slightly damp	-56 : : : : : :		10						
	(CL) Sandy Clay,	medium plasticity, brown, slightly damp	⁻⁵⁸	\vdash	R 11		//////	////			
	(SC) Clayey Sand, lo	ow-medium plasticity, brown, slightly damp	-60 / / /	1	16					<u>:</u>	<u>:</u>
				otat	R 12		//////	////	₫	. <u>;</u>	<u>;</u>
			///,	1	18		<u> </u>				į
70				\vdash	R		/////	////	////	<u>.</u>	÷ · · · · ·
$\vdash\vdash\vdash$	В	oring terminated at 71 ft.			17 22					·	<u>:</u>
\blacksquare							<u> </u>		• • • • • • •	· <u>} · · · · · ·</u>	<u> </u>

		sic			_	PROJECT N	10.:	12	804	
		CLIENT: Pulte Tucson Land PROJECT LOCATION: Rancho Vistoso Boulev	dd T		. D	1				
1	THE PTX PERTY LLC	LOCATION: See Site Plan	ard and 1	angerine	Roac		ELEVATION	1.		
		DDULED. DGG					LOGGED B		Al	
LO	G OF BORING	DRILLING METHOD: 8" Hollow Stem Auger				- '		DATE:		/30/22
	No. FB15	DIVILLING METHOD. 6 Honow Stelli Auger	AFTER 2	4 HOU	IRS:	¥		CAVIN		50/22
	11011 2 10			т —					ESULTS	
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limi			Liquid Limit
Dej (fe(Description	Srap	Samp No.	중읍		Water Cont	ent -	•	
			$+\check{\hspace{0.1cm}}$	 "	Ľ	%	Penetration			
0	(CM) Cilty Cond. co	ma Consul man plactic beauty standard		220846	4	19	10	20 3	30 40	50
	(SIVI) SIITY Sand, so	me Gravel, non-plastic, brown, very damp			ľ		-	. .	·····	
					R 7		/////	. :	<u></u>	
					8			. 	<u></u>	
					R - 2	l	Z	. :	ii	
7.5		Trace Gravel		220846 :	5 ²	22	L	. :	<u> </u>	
					l			:	: :	:
				 	R			:		:
				2 20846	6 ²	23	<u> </u>	:	: :	:
				T	2			:	::	:
					l					•••••
15				⊩	R		a :	. <u></u> . 	<u> </u>	
	(SC-SM) Silty Clavey S		18 ///	220846	7 2 3	28		: 	<u></u>	
	(SC-SW) Sitty Clayey S	and, a dec Graver, low practicity, crown, dam		1	l		<u> </u>		······	
					l			. ;	·····	
					R 4		///			
22.5	(0) 0 011 0 1	22-	24	/ 220846	8 ⁴	21	L		<u></u>	
	(SM) Silty Sand,	trace Gravel, non-plastic, brown, damp						. <u>:</u>	:	
	(CI) Sandy Clay	y, medium plasticity, brown, very damp	4.5	لا	R		773			
	(CL) Salidy Clay	, medium plasueity, blown, very damp		+	3 4				: :	
				1	l					
30				7	l			:		:
30				\blacksquare	R 4				: : :	:
				7	4		·····	. :		
				1	l			• • • • • • •	1	•••••
	(0) 0 0'1, 0 1	34	4.5	<u> </u>	R			7	·····	
	(SM) Silty Sand,	non-plastic, light brown, slightly damp		⊩	9		(/////	⊿ :	····	
37.5					10		<u> </u>		·····	
					l				·····	
	(CC) Cl C 1 1.		40///	-	R		//////	///	į <u>.</u>	
	(SC) Clayey Sand, low-	-medium plasticity, light brown, slightly dam	p ///		11 15				į <u>.</u>	
					l		<u></u>	: . (:	
45					l _			<u>:</u>	<u>:</u>	
				_	R 11					:
					14			:		:
					l			:		
				<u> </u>	R		//////	,,,,,	7777	
	R	oring terminated at 51 ft.	-/././	1	17 22		7/////	<i>////</i>	////	
52.5	Di	oring willing at J1 It.					F		······	
					1		-			
					L	L	<u> </u>	<u> </u>	<u> </u>	<u></u>

		PROJECT: Rancho Vistoso Valley Vista - Foren	sic			_	PROJECT NO	.:	12804
		CLIENT: Pulte Tucson Land				_			
(THE PTX TERTS LAC	PROJECT LOCATION: Rancho Vistoso Boule	vard and Ta	ingerin	e Road		EL EVATION.		
		LOCATION: See Site Plan				_	ELEVATION: LOGGED BY:		
LO	G OF BORING	DRILLER: RCS DRILLING METHOD: 8" Hollow Stem Auger				- '			AM
	No. FB16	DEPTH TO - WATER> INITIAL: \(\frac{\fraccc}\firac{\frac{\frac{\frac{\fracc}\frac{\frac{\frac{\frac{\f		4 HOI	IDG.	•		NTE: NVING> J	
—	140.1010	DEFINITO-WATERSINITIAE. =		T 1100		_			
£ £			Graphic	be .	w nts	< #200	Plastic Limit	ST RESUI	LIS ☐ Liquid Limit
Depth (feet)		Description	Jrap	Sample No.	Blow Counts	۸	Water Content		, Elquid Ellilli
				, ,	Ŭ	%	Penetration -		2
0	(C) (C) (C) (C) (C) (C)			220849	n	14	10 20	30	40 50
	(SIM) SIRLY Sand,	some Gravel, non-plastic, brown, damp				` `	<u> </u>		
				⊩	R 6	l	////		
	т	Frace Gravel, very damp		: 220849	8 1 R	14			
	•	and States, tely damp			7 11	l			
9						l	L		
					R	l		/////	<u> </u>
		With Gravel		20849	2 ²² 14	23			
						l	l		
				220849	R		ZZ : :		
18				220849 :	3 3	21		:	
								:	: :
					R 4	l		:	· · · · · · · · · · · · · · · · · · ·
	(7.6) 61 6 1		-24	: 220849		28	· · · · · · · · · · · · · · · · · · ·	4	
	(SC) Clayey Sand, trac	ee Gravel, low-medium plasticity, brown, ver	y ///	1			<u>- </u>	• • • • • • • • • • • • • • • • • • • •	
	Li	damp ght brown, slightly damp		\equiv	R 8			• • • • • • • • • • • • • • • • • • • •	
27	Li	ght brown, slightly damp		1	8		<u> </u>		
			29	1			·····	• • • • • • • • • • • • • • • • • • • •	
	(SM) Silty Sand, l	low plasticity, light brown, slightly damp			R 7		/////		
				1	8		<u> </u>	• • • • • • • • • • • • • • • • • • • •	
36				-	R 12		///////	<i>Z</i> ZZI	
					16				
			40	<u> </u>			-		
	(SC) Clayey Sand, trac	e Gravel, low-medium plasticity, light brown	ı, "///	;—	R 12	l	////////	<u> </u>	
		slightly damp		1	15	l	[
45				<u> </u>	_	l	:	, , ,	
				_	R 12 16	l	(//////	<u> </u>	
				1	16	l	-		
				1	R	l		///	
				十	11 19	l	(////////		
54				1	19	l			
					R	l			
				\vdash	16 18	l			
				1	10	l		• • • • • • • • • • • • • • • • • • • •	
				—	R		///////	/////	· · · · · · · · · · · · · · · · · · ·
	В	oring terminated at 61 ft.	V. Z. Z.	1	16 20				
63	<i>D</i> .						F		
							ļ		
						L	<u> </u>	<u></u>	<u></u>

		PROJECT: Rancho Vistoso Valley Vista - Fore	nsic				- '	PROJECT N	··· —	12	804	
1		CLIENT: Pulte Tucson Land										
(TO CONTROLLE	PROJECT LOCATION: Rancho Vistoso Boule	evard and	Tan	gerine	Roac						
		LOCATION: See Site Plan						ELEVATION				
ı	G OF BORING	DRILLER: RCS					_ L	LOGGED B		Al		
LO		DRILLING METHOD: 8" Hollow Stem Auger							DATE:		0/1/22	
	No. FB17	DEPTH TO - WATER> INITIAL: \(\frac{\rightarrow}{2} \)	AFTER	R 24	HOU	RS:	<u>*</u>		CAVIN	G> <u>C</u>		
				ر	Φ	S	8		TEST R	ESULTS		
Depth (feet)		Description	Graphic	<u> </u>	Sample No.	Blow Counts	% < #200	Plastic Limi			Liquid	Limi
Ğ,		Decempaeri	نْ	š	Sal	က ပိ	v %	Water Cont				
				\dashv				Penetration		//////////////////////////////////////) E(0
0	(SM) Silty	Sand, non-plastic, brown, damp		:::2	20849	Ð	20	10	<u> 20 3</u>	30 40	<u>) 50</u>	<u>U</u>
	(SIVI) SIILY	Sand, non-plastic, brown, damp						-				 •
						R			. .	: :		
						8 8				: :		
						R		////	:	: :	•	
7 -	T	race Gravel, very damp		2	20849	6 ⁵ 5	15			:	•	
7.5		_						F		: :		
								-	•	: : : :		
						R				:		
				: : 2	20849	7 ⁵ ₆	15		:	: :		
								: `			:	
1 5								:		:	:	
15						R				:		
				2	20849	8 ⁵ 7	21			:		, •
								<u> </u>		::		
								<u> </u>	:	:	:	
						R 7		//////				
						11			·	:		· · · · · ·
22.5	Some Gr	avel, light brown, slightly damp		: : 2	20849	9	15	<u> </u>	• • • • • • •	:		
								-		<u>:</u>		
						R		///////	77	:		
						12 12		:	:	: :	•	
								:	:	:		
								F······		:		
30						R		///////	:	· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • • •	
						8 10			<u>:</u>	:i		
								.	: 	: : :		
								<u> </u>	:	: :	•	
						R		//////	77	: :		
						R 9 14		[:		:		
37.5								F	• • • • • • •			
								-		į		
						R		//////	7	: :		
						11 11			<u>~</u>	<u> </u>	:	
								::::::	:	: : :		
4.5								F		:		· · · · · · · · · · · · · · · · · · ·
45						R		//////	7	:		
						10 12		F	<u>~</u>	: :	• • • • • • • • • • • • • • • • • • • •	
								<u> </u>		:		
								:			:	
						R		//////	7///	// /	•	· · · · · · ·
	R	oring terminated at 51 ft.	11:1:1:	:1:1:		15 21		1/////	<u> </u>		• • • • • • • • • • • • • • • • • • • •	
2.5	D	oring commuted at 31 It.				_'		F	•	<u> </u>	:	
								 		: :		·
								L				
								1				

		PROJECT: Rancho Vistoso Valley Vista - Fo	rensic			'	PROJECT NO	.:	12804	
(Pole	PROJECT LOCATION: Rancho Vistoso Box	ulevard and	Tanger	ine Roa	ad				
,	THE PTY TENTS LA.C.	LOCATION: See Site Plan					ELEVATION:			
10	G OF BORING	DRILLER: RCS				'	LOGGED BY:		AM	
LO		DRILLING METHOD. 6 Hollow Stelli Auge						TE:	9/1/22	2
	No. FB18	DEPTH TO - WATER> INITIAL: \(\frac{\pi}{2}\)	AFTER	24 HC	OURS:	_		VING>		
ŧ÷			ج.	<u>ple</u>	. > 2	#200	TE Plastic Limit	ST RESU		ıid Limit
Depth (feet)		Description	Graphic	Sample	Blow	# v %	Water Conten		Liqu	ila Limit
				"	+	%	Penetration -			
0	(SM) Silty Sand	, trace Gravel, non-plastic, brown, damp		2208	518	33	10 20	30 :	40	50
	(Sivi) Sifty Saild	trace Graver, non-prastic, brown, damp						• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	• 🗄 • • • • •
					R 5		////	• • • • • • • • • • • • • • • • • • • •		· ! · · · · ·
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			11-13	iii ∕ 2 208	R 520 4	78				:
	(CL) Lean Clay	, low-medium plasticity, brown, damp		\mathcal{T}	T 4	"		• • • • • • • • • • • • • • • • • • • •		•
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	(CL-ML) Sandy	Silty Clay, low plasticity, brown, damp		2208	521 3	83	<u> </u>	!		:
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22.5			22-24	2208	10 12	87	Ĺ		:	:
	(CL) Lean Clay	, low-medium plasticity, brown, damp		<i>A</i> "	7	101				
	Li	ght brown, slightly damp		/ }-	R		77777			
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45	(0) 0 0 11 0 1		45		R		////////	77	••••	·
	(SM) Silty Sand	, non-plastic, light brown, slightly damp			11 15					
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	R	oring terminated at 51 ft.			14 18		(///////	////	••••	• • • • • • • • • • • • • • • • • • • •
52.5		oring withingtood at 31 ft.			"		F	•••••		
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		PROJECT: Rancho Vistoso Valley Vista - Fore CLIENT: Pulte Tucson Land	nsic			_ F	PROJECT NO.:	1	2804
		PROJECT LOCATION: Rancho Vistoso Bould	evard and T	angerir	e Roa	1			
· '	THE PT X PERTS LA.C.	LOCATION: See Site Plan	7 414 414 1	ungern	1000		ELEVATION:		
م ا	C OF BORING	DRILLER: RCS					OGGED BY:		λM
lro	G OF BORING	DRILLING METHOD: 8" Hollow Stem Auger							9/1/22
	No. FB19	DEPTH TO - WATER> INITIAL: ♀	AFTER	24 HO	URS:	¥	CAV	ING> C	
<i>-</i>			ی	Ф	s	8	TES ⁻	T RESUL	
Depth (feet)		Description	Graphic	Sample	Blow	¢ #200	Plastic Limit		Liquid Limi
ے ق		,	5	Sa	ျ <u>"</u> ပ	× %	Water Content - Penetration -	•	
0							10 20	30	40 50
	(SM) Silty	Sand, non-plastic, brown, damp		22085	213	24	L		<u>:</u>
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		Some Gravel		22085		35	////	:	: :
7.5		50.00			5 6			:	: :
7.5								:	: : : : : : : : : : : : : : : : : : : :
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	(CL MI) Condu	Silty Clay, low plasticity, brown, damp	2-14	22085	25 ²	77	├ ·····	-	:····
	(CL-IVIL) Sandy	Sitty Clay, low plasticity, brown, damp		И				• • • • • • • • • • • • • • • • • • • •	÷····
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		01:141 1-2		22085	11	71	F i	(· : · · · · ·	÷
		Slightly damp		22003	1	[''		· · · · · · · · ·	÷····
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	(CL) Lean Clay, lov	v-medium plasticity, brown, slightly damp		22085	1′	75			ļ
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				\mathcal{A}	R 19 23		<i>/////////////////////////////////////</i>	<u>/////</u>	⊿
37.5				4	23				
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		Light brown			R 29		/////////	//////	<u>////</u> 64 ⊣
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45	(SM) Silty Sand some (Gravel, non-plastic, light brown, slightly dar	44.5	1—	R		///////////////////////////////////////	: /////	.
	(SWI) SIITY Sand, Some C	Jraver, non-prasuc, fight brown, stightly dar	np		18 25				<u> </u>
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52.5	Bo	ring terminated at 51.5 ft.			12				<u>.</u>
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