Appendix F.4

Infiltration Testing Report

Earth Strata Geotechnical Services, Inc.
Geotechnical, Environmental and Materials Testing Consultants

November 28, 2018

Project No. 182139-12A

OLSEN 212 LLC

c/o Mike Naggar & Associates
445 South D Street
Perris, CA 92570

Subject: **Infiltration Testing for Water Quality Treatment Areas, Proposed Olsen-Chandler Ranch Residential Development, Assessor's Parcel Numbers 009-795-001, 009-795-002, 009-795-003, 009-795-004, 009-795-005, 009-795-006, Located on the West Side of Hanson Road, South of Linne Road and North of Meadowlark Road, Assessor's Parcel Numbers 025-381-005, 025-381-001, 009-798-001, 009-798-002, 009-798-003, 009-796-002, 009-796-003, East of Fontana Road and North of Linne Road, City of El Paso Robles, San Luis Obispo County, California**

Earth Strata Geotechnical Services is pleased to present this infiltration feasibility report for the proposed Olsen-Chandler Ranch Residential Development, Assessor's Parcel Numbers 009-795-001 thru 009-795-006, located on the west side of Hanson Road, south of Linne Road, and north of Meadowlark Road, Assessor's Parcel Numbers 025-381-005, 025-381-001, 009-798-001 thru 009-798-003, 009-0796-002, and 009-796-003, located east of Fontana Road and north of Linne Road in the City of El Paso Robles, San Luis Obispo County, California. The purpose of our study was to determine the infiltration rates and physical characteristics of the subsurface earth materials at the approximate depth of the proposed WQMP area within the proposed development. This feasibility report provides the infiltration rates to be used for the design and the development of the water quality management plan, where applicable.

PROPERTY DESCRIPTION

The subject property is located on the west side of Hanson Road, north and south of Linne Road, north of Meadowlark Road, and east of Fontana Road in the City of El Paso Robles, San Luis Obispo County, California. The approximate location of the site is shown on the Vicinity Map, Figure 1.

The subject property is comprised of approximately 350 acres of undeveloped land, as well as developed land with existing single-family residences. Topographic relief at the subject property is relatively moderate with the terrain being generally flat and hilly. Elevations at the site range from approximately 820 to 970 feet above mean sea level (msl), for a difference of about 150± feet across the entire site. Drainage within the subject property generally flows to the southwest in the area of the existing Chandler Ranch and Centex property, and to the north and northeast in the area of the existing Olsen Ranch.

The site is currently bordered by residential development and vacant property. Most of the vegetation on the site consists of moderate to dense amounts of annual weeds/grasses, along with small to large oak trees scattered across the entire subject site. A ravine intersects the northern portion of the proposed Olsen Ranch development.

PROPOSED CONSTRUCTION

The proposed residential development is expected to consist of concrete, wood or steel framed one- and/or two-story structures utilizing slab on grade construction with associated streets, landscape areas, and utilities. The current development plans include 1,179 residential lots with positioned throughout the site.

SUBSURFACE EXPLORATION AND INFILTRATION TESTING

SUBSURFACE EXPLORATION

Subsurface exploration within the subject site was performed on October 11, October 12, and October 13, 2018 for the exploratory excavations. A truck mounted hollow-stem-auger drill rig was utilized to drill forty-seven (47) borings throughout the site to a maximum depth of 16.5 feet. A backhoe was utilized to excavate nine (9) test pits to a maximum depth of 13 feet. The exploratory holes were excavated for geotechnical evaluation purposes with respect to the proposed developments and to interpret whether groundwater or impermeable soil layers were present. An underground utilities clearance was obtained from Underground Service Alert of Southern California, prior to the subsurface exploration. The approximate locations of the exploratory excavations are shown on the attached Infiltration Location Map, Plate 1 and descriptive logs are presented in Appendix A.

Earth materials encountered during exploration were classified and logged in general accordance with the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) of ASTM D 2488. Upon completion of laboratory testing, exploratory logs and sample descriptions may have been reconciled to reflect laboratory test results with regard to ASTM D 2487.

EARTH MATERIALS

A general description of the earth materials observed on site is provided below.

- Topsoil (no map symbol): Residual topsoil, encountered in the upper 1 to 3 feet, blankets the site and underlying alluvium and bedrock. These materials were noted to be generally grayish white, brownish gray to grayish brown to medium brown, brown to dark brown silty sand, sandy clay, and clayey sand which were very porous, dry to slightly moist and in a loose to medium dense state.

- Quaternary Alluvium (map symbol Qal): Quaternary alluvium was encountered below the topsoil and above the bedrock in the topographically lower areas of the subject site to a maximum depth of 14 feet below existing surface. These alluvial deposits consist predominately of interlayered pale yellow, brown, gray brown, orangeish brown, olive brown, yellowish brown, and brownish olive, fine to coarse grained silty sand, sandy silt, sandy clay, and occasional poorly-graded sand with varying amounts of clay and silt. These deposits were generally noted to be in a slightly moist to moist, loose to dense state.

- Quaternary Paso Robles Formation (map symbol QTp): Paso Robles Formation bedrock was generally encountered below the topsoil and alluvial materials to the full depth of our exploration. These materials primarily consisted of olive gray, yellow brown, olive brown, to orangeish brown and pale yellow to pale brown, fine to coarse grained sandstone with varying amounts of silt and clay, sandy siltstone, claystone, and breccia. These materials were generally noted to be slightly moist to moist, and moderately hard to very hard.

GROUNDWATER

Groundwater was not observed within the exploratory borings excavated to a depth of 16.5 feet.

INFILTRATION TESTING

The double ring infiltrometer test method was utilized to perform a total of twenty (20) infiltration tests on October 11 through October 13, 2018 and November 19 through November 21, 2018 to evaluate near surface infiltration rates in order to estimate the amount of storm water runoff that can infiltrate into the onsite water quality treatment plan areas. The infiltration tests were performed in general accordance with the requirements of double ring infiltration testing, ASTM D3385 and Appendix A of the Riverside County Flood Control and Water Conservation District.

The infiltration tests were performed using double ring infiltrometer and Mariotte tubes at a depth of 5 feet below existing grades. The locations of the infiltration tests are indicated on the attached infiltration Location Map, Plate 1. The double ring infiltrometer tests were located by property boundary measurement on the site plan and by using geographic features. Infiltration test data recorded in the field are summarized in the following table and is included within Appendix B including the graph of Infiltration Rate versus Elapsed Time.

INFILTRATION TEST SUMMARY

TEST NUMBER	INFILTRATION HOLE DEPTH (ft.)	INFILTRATION RATE (in/hr)	DESCRIPTION
DR-1	5	0.00	Sandy CLAY
DR-2	5	0.27	Silty SAND
DR-3	5	0.54	Silty SAND
DR-4	5	0.00	Sandy CLAY
DR-5	5	1.08	Silty SAND
DR-6	5	0.27	Silty SAND
DR-7	5	0.11	Silty SAND
DR-8	5	0.43	Silty SAND
DR-9	5	0.27	Silty SAND
DR-10	5	1.08	Silty SAND
DR-11	5	0.00	Sandy CLAY
DR-12	5	0.11	Sandy SILT
DR-13	5	0.27	Silty SAND
DR-14	5	0.11	Silty SAND
DR-15	5	0.00	Sandy CLAY
DR-16	5	0.27	Silty SAND

DR-17	5	0.00	Sandy CLAY
DR-18	5	0.81	Silty SAND
DR-19	5	0.54	Silty SAND
DR-20	5	0.27	Silty SAND

The infiltration test rates ranged from 0.00 to 1.08 inches per hour (in/hr).

FINDINGS

NRCS WEB SOIL SURVEY

The soil survey provided by The U.S. Department of Agriculture – Soil Conservation Service, indicates the majority of the site consists of Arbuckle-Positas complex (Map Unit 102), Arbuckle-San Ysidro complex (Map Unit 106), and San Ysidro loam (Map Unit 197).

The Arbuckle-Positas complex (102) is described to have slopes with 9 to 15 percent grade and is mapped in the northern portion of the Chandler Ranch development and the middle and southwestern portion of the Olsen Ranch development. The Arbuckle-San Ysidro complex (106) is described to have slopes with 2 to 9 percent grade and is mapped within the southern portion of the Olsen Ranch development. San Ysidro loam (197) consists of 0 to 2 percent grade and is mapped within the southern portion of the Chandler Ranch development and northern portion of the Olsen Ranch development.

The Arbuckle-Positas complex (102) and Arbuckle-San Ysidro (106) complex falls within the Hydrologic Soil Group C & D. Hydrologic Soil Group C is described to consist of 20 to 40 percent clay while Hydrologic Soil Group D is described to contain more than 40 percent clay. The earth materials encountered during our subsurface exploration confirms the general soil profile descriptions of the NRCS soil surveys. The descriptions for each soil unit is included in Appendix C.

PHASE I

A Phase I Environmental Site Assessment was performed for the subject site and no contamination sites are known to be within the subject site.

Groundwater

Groundwater was not observed during our subsurface exploration to a maximum depth of 16.5 feet, which meets the minimum separation of greater than 10 feet from the bottom of the infiltration facility to the groundwater mark. However, due to limited local well groundwater data and limited borings, it should be noted that localized groundwater could be encountered during grading due to the limited number of exploratory locations or other factors.

Landslides

Landslide debris was not observed during our subsurface exploration and no ancient landslides are known to exist on the site. No landslides are known to exist, or have been mapped, in the vicinity of the site. Geologic mapping of the site conducted during our investigation reveal no geomorphic expressions indicative of landsliding.

Geologic/ Geotechnical Screening

The proposed structures will be supported by compacted fill and competent earth materials, with groundwater at a depth of over 20 feet below ground surface. According to USGS geologic hazards map, the subject site is located in an area where liquefaction potential is considered low. As such, the potential for earthquake induced liquefaction and lateral spreading beneath the proposed structures is considered low due to the recommended compacted fill, relatively low groundwater level, and the dense nature of the deeper onsite earth materials.

Preliminary laboratory test results indicate onsite earth materials exhibit expansion potentials of **LOW, MEDIUM, and HIGH** as classified in accordance with 2016 CBC Section 1803.5.3 and ASTM D4829.

The proposed WQMP areas (see Plate 1) are located at a lower elevation than the proposed structures in competent native earth materials.

Therefore, infiltration within the proposed WQMP areas will not encroach on any proposed structures and will not increase the risk of geologic hazards.

CONCLUSIONS AND RECOMMENDATIONS

General

Based on the data presented in this report and the recommendations set forth herein, it is the opinion of Earth Strata Geotechnical Services that the observed infiltration rates for the proposed WQMP are between 0.00 inches per hour to 1.08 inches per hour.

From geotechnical and engineering geologic points of view, the proposed WQMP areas, where tested, with observed infiltrations rates greater than 0.10 inches per hour is considered suitable for partial infiltration for the proposed development.

The proposed WQMP areas, where tested, with observed infiltration rates of 0.00 inches per hour is considered not suitable for infiltration for the proposed development. Please see the attached Infiltration Map and the Infiltration Test Summary within the report for correlation between the test numbers, locations, and infiltration rates.

GRADING PLAN REVIEW AND CONSTRUCTION SERVICES

This report has been prepared for the exclusive use of **Olsen 212, LLC** and their authorized representative. It likely does not contain sufficient information for other parties or other uses. Earth Strata Geotechnical Services should be engaged to review the final design plans and specifications prior to construction. This is to verify that the recommendations contained in this report have been properly incorporated into the project plans and specifications. Should Earth Strata Geotechnical Services not be accorded the opportunity to review the project plans and specifications, we are not responsibility for misinterpretation of our recommendations.

Earth Strata Geotechnical Services should be retained to provide observations during construction to validate this report. In order to allow for design changes in the event that the subsurface conditions differ from those anticipated prior to construction.

Earth Strata Geotechnical Services should review any changes in the project and modify and approve in writing the conclusions and recommendations of this report. This report and the drawings contained within are intended for design input purposes only and are not intended to act as construction drawings or specifications. In the event that conditions encountered during grading or construction operations appear to be different than those indicated in this report, this office should be notified immediately, as revisions may be required.

REPORT LIMITATIONS

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable soils engineers and geologists, practicing at the time and location this report was prepared. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

Earth materials vary in type, strength, and other geotechnical properties between points of observation and exploration. Groundwater and moisture conditions can also vary due to natural processes or the works of man on this or adjacent properties. As a result, we do not and cannot have complete knowledge of the subsurface conditions beneath the subject property. No practical study can completely eliminate uncertainty with regard to the anticipated geotechnical conditions in connection with a subject property.

The conclusions and recommendations within this report are based upon the findings at the points of observation and are subject to confirmation by Earth Strata during construction. This report is considered valid for a period of one year from the time the report was issued.

This report was prepared with the understanding that it is the responsibility of the owner or their representative, to ensure that the conclusions and recommendations contained herein are brought to the attention of the other project consultants and are incorporated into the plans and specifications. The owners' contractor should properly implement the conclusions and recommendations during grading and construction, and notify the owner if they consider any of the recommendations presented herein to be unsafe or unsuitable.

Respectfully submitted,

EARTH STRATA GEOTECHNICAL SERVICES

Stephen M. Poole, PE 40219
President
Principal Engineer

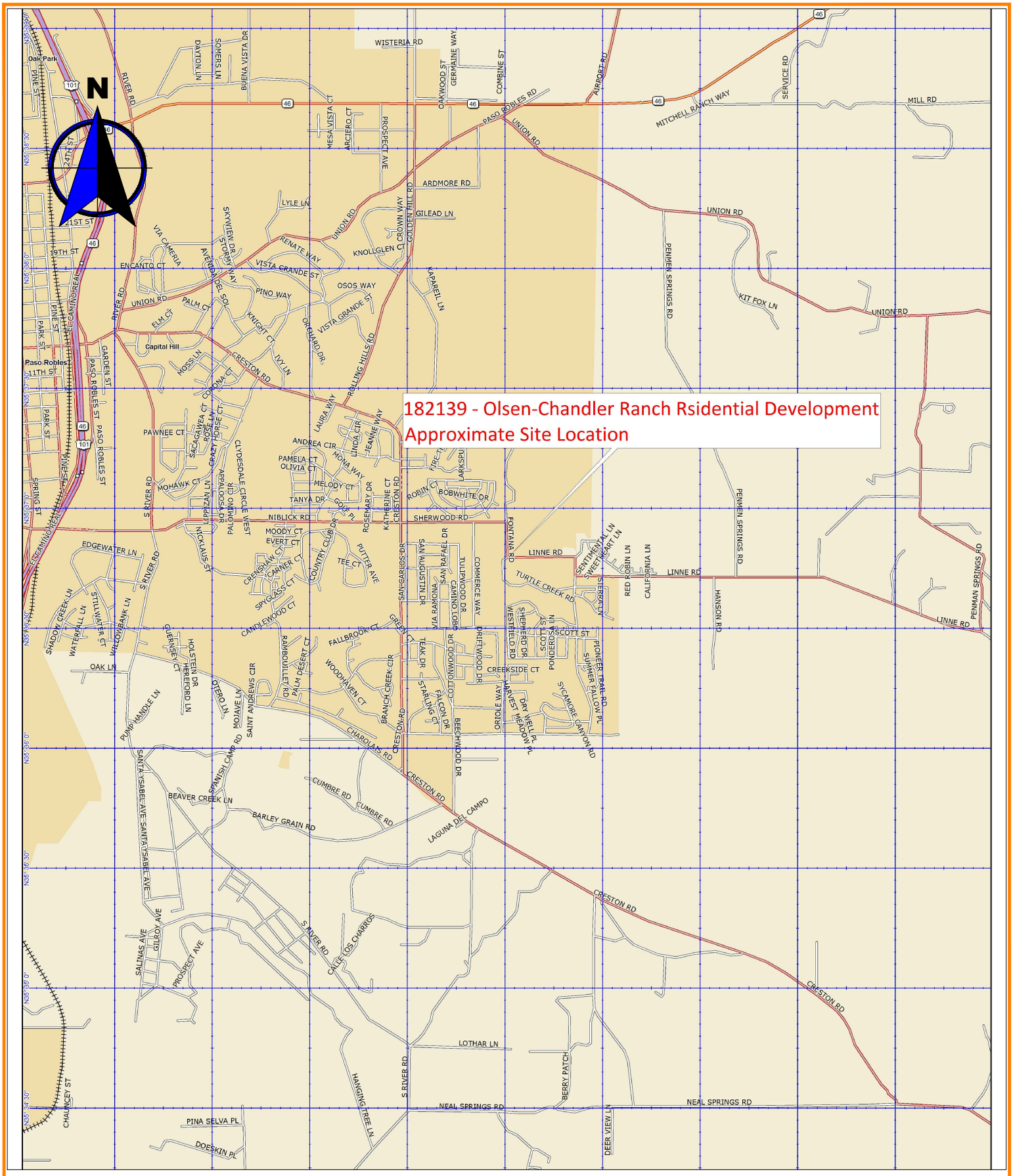
SMP/jf

Distribution: (5) Addressee:

Mr. Danny Brose
Mr. Nicholas Brose
Ms. Carissa Hainsworth
Mr. Mike Naggar
Mr. Byron Glenn

Attachments: Figure 1 – Vicinity Map *(Rear of Text)*
Appendix A – Exploratory Logs *(Rear of Text)*
Appendix B – Infiltration Test Sheets *(Rear of Text)*
Appendix C – NRCS Web Soil Survey *(Rear of Text)*

Plate 1 – Infiltration Location Map *(Rear of Text)*



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OLSEN-CHANDLER RANCH RESIDENTIAL DEVELOPMENT	182139-10A
VICINITY MAP	SCALE 1:40,625
OCT 2018	FIGURE 1

APPENDIX A

EXPLORATORY LOGS

Geotechnical Boring Log B-1

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0		0-5'				**Topsoil:**
					SM	Silty SAND; brownish gray, dry, loose to medium dense, fine to coarse sand
	49	2.5'	113.1	17.5		**Quaternary Alluvium (Qa):**
					CL	Sandy CLAY; orangeish brown, moist, very dense, fine to coarse sand
5	55	5'	121.1	9.0		
	24	7.5'	87.0	27.0		**Quaternary Paso Robles Formation (QTp):**
						Sandy CLAYSTONE; light olive brown, slighlty moist, medium dense, fine to coarse
						sand with gravel, trace calcite
10	83/11"	10'	107.0	19.9		Yellowish brown, very dense below 10 feet
15	50	15'	114.2	15.5		SANDSTONE with Clay; brownish yellow, moist, hard, fine to coarse sand,
						trace gravel
						Total Depth: 16.5 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-2

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil**
					SM	Silty SAND; grayish brown, dry, loose to medium dense, fine to coarse sand
	26	2.5'	115.3	13.1		**Quaternary Alluvium (Qa)**
					CL	Sandy CLAY; dark grayish brown, moist, medium dense, fine to medium sand
5						
	33	5'	111.5	5.7	SP-SM	Poorly-Graded SAND with Silt; pale brown, moist, dense, fine to medium sand,
						trace calcite
	43	7.5'	113.2	10.7		Pale yellow below 7 feet
10						
	34	10'	120.4	8.4		
						Quaternary Paso Robles Formation (QTp)
	46	12.5'	122.1	5.3		SANDSTONE with Clay; pale yellow, moist, hard, fine to coarse sand, trace
						gravel
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-3

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil**
					SM	Silty SAND; grayish brown, dry, medium dense, fine to coarse sand
	15	2.5'	109.4	10.2		**Quaternary Alluvium (Qa)**
					CL	Sandy CLAY; dark grayish brown, slighlty moist, medium dense, fine to medium
						sand
5	32	5'	114.1	10.8	SP-SM	Poorly-Graded SAND with Silt; pale yellow, slighlty moist, dense, fine to medium
						sand
	57	7.5'	-	2.5		**Quaternary Paso Robles Formation (QTp)**
						Silty SANDSTONE; pale yellow, slightly moist, very hard, fine to coarse grained,
						trace gravel
10	34	10'	119.5	11.4		Fine grained below 10 feet
	31	12.5'	108.1	13.3		
						Total Depth: 14 feet
15						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-4

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0		0-5'				**Topsoil**
					SM	Silty SAND; medium brown, dry to slightly moist, loose, fine to medium sand
	14	2.5'	118.2	10.5		**Quaternary Alluvium (Qa)**
					CL	Sandy CLAY; dark grayish brown, slightly moist, medium dense, fine to medium
						sand
5	44	5'	120.4	10.5	SC	Clayey SAND; yellowish brown, moist, dense, fine to medium sand
	33	7.5'	114.3	6.5		
					SP-SC	Poorly-Graded SAND with Clay; yellowish brown, moist, dense, fine to medium
						sand
10	28	10'	113.4	10.6		Pale yellow, medium dense below 10 feet
	58	12.5'	119.9	12.7		**Quaternary Paso Robles Formation (QTp)**
						SANDSTONE with Clay; yellowish brown, very hard, fine to coarse grained
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-5

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil**
					SM	Silty SAND; grayish white, dry, loose to medium dense, fine to coarse sand
	22	2.5'	115.0	13.7		**Quaternary Alluvium (Qa)**
					SC	Clayey SAND; yellowish brown, slightly moist, medium dense, fine to coarse
						sand, trace calcite
5	31	5'	120.3	11.3	SP-SC	Poorly-Graded SAND with Clay; yellowish brown, moist, dense, fine to medium
						sand
	31	7.5'	124.2	8.6		Pale yellow below 7.5 feet
10	32	10'	118.4	12..6		Trace gravel below 10 feet
	28	12.5'	119.6	8.1		
						Total Depth: 14 feet
15						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-6

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Alluvium (Qa)**
	70/10"	2.5'	101.2	13.4	ML	Sandy SILT; grayish brown, dry, soft, fine to coarse sand
					SC-SM	Clayey SAND with Silt; yellowish brown, slightly moist, very dense, fine to medium sand
5	63	5'	113.7	14.5		
	16	7.5'	104.2	15.1	SP-SC	Poorly-Graded SAND with Clay; yellowish brown, moist, medium dense, fine to medium sand
10	21	10'	116.2	13.4		
	23	12.5'	112.4	19.3		
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-7

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Alluvium (Qa)**
					SM	Silty SAND; gray, dry, dense, fine to coarse sand
	32	2.5'	71.1	18.6	SC	Clayey SAND; orangeish brown, slightly moist, dense, fine to coarse sand
5	29	5'	123.3	9.0	CL	Sandy CLAY; orangeish brown, slightly moist, medium dense, fine to medium sand
	28	7.5'	105.3	8.0		Pale yellow, trace gravel below 7 feet
10	28	10'	114.0	13.0	SP-SC	Poorly-Graded SAND with Clay; orangeish brown, moist, medium dense, fine to coarse sand
	26	12.5'	108.1	7.3		Brownish yellow below 12 feet
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-8

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0		0-5'				**Quaternary Allulvium (Qa)**
					CL	Sandy CLAY; olive brown, moist, medium dense, fine to coarse sand
	18	2.5'	106.3	16.7		
5	17	5'	114.1	12.8		
	41	7.5'	109.9	9.0		**Quaternary Paso Robles Formation (QTp)**
						BRECCIA; olive brown, moist, hard, fine to coarse sand
10	34	10'	-	-		No Recovery at 10 feet
	35	12.5'	111.6	17.8		Clayey SANDSTONE; olive yellow, moist, hard, fine to medium sand
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-9

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Alluvium (Qa)**
	38	2.5'	102.3	14.3	SM	Silty SAND; grayish brown, slightly moist, dense, fine to medium sand
5	48	5'	111.3	7.9	SP-SC	Poorly-Graded SAND with Clay; light reddish brown, slightly moist, dense, fine to coarse sand
	13	7.5'	105.5	20.4	CL	Sandy CLAY; olive yellow, moist, very stiff, fine to coarse sand
10	24	10'	108.8	14.1		
	31	12.5'	107.9	8.8		Pale yellow, dense below 12 feet
15						Total Depth: 14 feet No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-10

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Alluvium (Qa)**
	41	2.5'	112.5	8.8	SC	Clayey SAND; yellowish brown, moist, dense, fine to coarse sand, trace calcite
5	15	5'	111.0	10.1	SP-SC	Poorly-Graded SAND with Clay; pale yellow, medium brown, moist, medium dense, fine to medium sand
	9	7.5'	105.5	18.4		Loose, fine sand with gravel 7 to 10 feet
10	13	10'	95.2	7.1		
	18	12.5'	113.1	14.9	SP	Poorly-Graded SAND; brownish orange, moist, medium dense, fine to coarse sand
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-11

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Alluvium (Qa)**
	21	2.5'	101.8	18.0	CL	Sandy CLAY; yellow brown, moist, medium dense, fine to medium sand, trace calcite
5	15	5'	111.9	17.3		
	45	7.5'	117.4	6.6		**Quaternary Paso Robles Formation (QTp)**
						SANDSTONE with Clay; yellowish brown, moist, hard, fine to medium sand, trace gravel
10	58	10'	111.7	10.3		Very hard 10 to 12 feet
	46	12.5'	102.1	7.4		Hard below 12 feet
15						Total Depth: 14 feet No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-12

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Alluvium (Qa)**
	27	2.5'	107.4	17.7	CL	Sandy CLAY; olive brown, moist, medium dense, fine to medium sand
5	19	5'	103.1	13.0	ML	Sandy SILT; pale yellow, slightly moist, stiff, fine sand
	23	7.5'	104.9	14.2		Orangish brown, very stiff 7 to 10 feet
10	51	10'	114.4	9.3		Olive brown 10 to 12 feet
	43	12.5'	112.4	17.0		Orangeish brown below 12 feet
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-13

Date: October 11, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Alluvium (Qa)**
	20	2.5'	97.6	18.5	ML	Sandy SILT; yellow brown, slightly moist, stiff, fine to medium sand
5						**Quaternary Paso Robles Formation (QTp)**
	68	5'	113.2	16.4		Sandy SILTSTONE; pale yellow, slightly moist, very hard, fine to medium sand
	71	7.5'	111.9	13.3		Orange brown below 7 feet
10	56	10'	109.9	13.8		
	43	12.5'	114.3	10.8		Hard below 12 feet
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-14

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil**
					SM	Silty SAND; light brown, dry, medium dense, fine to medium sand, trace gravel
	39	2.5'	116.3	8.5	CL	Sandy CLAY; dark brown, dry, very stiff, fine sand
5						**Quaternary Paso Robles Formation (QTp)**
	41	5'	99.9	13.3		Silty SANDSTONE; yellowish brown, dry, hard, fine to medium sand, trace clay
	51	7.5'	104.4	21.2		Brownish yellow below 7.5 feet
10	54	10'	103.9	21.6		Sandy SILTSTONE; pale yellow to pale brown, dry, very hard, fine sand
	59	12.5'	108.8	4.2		
						Silty SANDSTONE; pale yellow, dry, fine to coarse sand
						Total Depth: 14 feet
15						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-15

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil**
	69	2.5'	111.9	16.6	SM	Silty SAND; brownish gray, dry, medium dense, fine to coarse sand
						Quaternary Paso Robles Formation (QTp)
5	40	5'	109.1	15.5		Sandy SILTSTONE; pale yellow, dry, hard to very hard, fine sand, abundant calcite
	62	7.5'	112.0	8.1		Silty SANDSTONE; pale yellow, dry, very hard, fine to medium sand
10	76	10'	114.9	8.6		Orangeish brown below 10 feet
	54	12.5'	106.2	7.5		
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-16

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil**
					SM	Silty SAND; brownish gray, dry, dense, fine to coarse sand
	48	2.5'	102.5	11.4		**Quaternary Paso Robles Formation (QTp)**
						Silty SANDSTONE; yellow, dry, hard, fine to coarse sand with gravel
5	49	5'	104.3	23.6		Sandy SILTSTONE; yellowish brown to olive gray, moist, hard, fine sand
	39	7.5'	116.9	10.8		Silty SANDSTONE; yellowish brown, slightly moist, hard to very hard, fine to coarse sand, trace gravel and clay
10	55	10'	106.4	8.5		
	60	12.5'	109.0	8.0		
15						Total Depth: 14 feet No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-17

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil**
					SM	Silty SAND; brownish gray, dry, medium dense, fine to coarse sand
	46	2.5'	117.4	10.0		**Quaternary Paso Robles Formation (QTp)**
						Silty SANDSTONE with Clay; reddish brown, slightly moist, hard, fine to coarse
						sand with gravel, abundant calcite
5	26	5'	106.0	21.8		SILTSTONE; orangeish brown, slightly moist, moderately hard, fine sand, trace
						calcite
	20	7.5'	102.3	20.4		
10	26	10'	99.9	25.1		Pale yellow below 10 feet
	37	12.5'	116.5	16.1		Hard below 12 feet
						Total Depth: 14 feet
15						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-18

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ/JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Alluvium (Qa)**
	53	2.5'	111.2	13.4	SM	Silty SAND; brownish gray, dry, medium dense, fine to coarse sand
						Quaternary Paso Robles Formation (QTp)
5	31	5'	108.2	21.0		Sandy CLAYSTONE; orangeish brown, slightly moist, dense, fine sand
	37	7.5'	104.5	16.2		Silty SANDSTONE; yellow brown, slightly moist, hard, fine sand
10	18	10'	95.9	27.3		SILTSTONE; gray, slightly moist, moderately hard
						Sandy SILTSTONE; grayish brown, slightly moist, moderately hard, fine sand
15	23	15'	120.5	13.5		
						Total Depth: 16.5 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-19

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: dms-9630**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Alluvium (Qa):**
					SM	Silty SAND; brownish gray, slightly moist, medium dense, fine to coarse sand,
	21	2.5'	94.9	11.6		trace gravel
						Quaternary Paso Robles Formation (QTp):
5	40	5'	112.0	11.9		Silty SANDSTONE; brownish gray, slightly moist, hard, fine to coarse sand,
						trace gravel
	56	7.5'	98.3	14.2		Orangish rbown below 7 feet
						Abundant gravel below 10 feet
10	53	10'	102.7	8.0		
	50	12.5'	90.9	14.1		
						Total Depth: 14 feet
15						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-20

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: dms-9630**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					ML	Sandy SILT; grayish brown, dry, medium dense, fine to medium sand
	29	2.5'	90.9	26.6		**Quaternary Paso Robles Formation (QTp):**
						Sandy SILTSTONE; brownish gray, slightly moist, moderately hard, fine sand,
						abundant calcite
5	23	5'	89.3	26.2		Olive gray, hard from 5 to 8 feet
	31	7.5'	112.3	16.6		
10	51	10'	111.7	8.9		Orangish brown, very hard below 10 feet
						Silty SANDSTONE; orangish brown, slightly moist, hard, fine to coarse sand,
						trace gravel
15	44	15'	115.1	10.3		
						Total Depth: 16.5 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-21

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: dms-9630**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0		0-5'				**Topsoil:**
					SM	Silty SAND; grayish brown, dry, loose, fine to coarse sand
	10	2.5'	122.4	10.6		**Quaternary Alluvium (Qa):**
					SC	Clayey SAND; dark blackish brown, moist, loose, fine to coarse sand, trace gravel
5						
	41	5'	118.7	11.5		**Quaternary Paso Robles Formation (QTp):**
						Sandy CLAYSTONE; olive brown, moist, hard, fine to coarse sand, trace gravel
	20	7.5'	103.1	25.7		Sandy SILTSTONE; olive brown, moist, moderately hard, fine to medium sand
10						
	42	10'	101.4	28.1		Hard, wet from 10 to 15 feet
15						
	25	15'	96.9	28.1		Orange, moist, moderately hard below 15 feet
						Total Depth: 16.5 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-22

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: dms-9630**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SC	Clayey SAND; black, slightly moist, loose to medium dense
	13	2.5'	118.0	13.5		**Quaternary Alluvium (Qa):**
					CL	Sandy CLAY; olive gray, moist, medium dense, fine to coarse sand, trace gravel
5						
	52	5'	107.4	21.7		**Quaternary Paso Roles Formation (QTp):**
						SILTSTONE; olive brown, dry to slightly moist, very hard, fine sand
	58	7.5'	99.7	26.9		
10	64	10'	103.4	19.8		
15	32	15'	90.1	32.3		Moderately hard, moist, below 15 feet
						Total Depth: 16.5 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-23

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: dms-9630**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; dark brown, slightly moist, loose to medium dense, fine to coarse sand
	41	2.5'	-	-		**Quaternary Paso Robles Formation (QTp):**
						Sandy CLAY; dark gray brown, slightly moist, dense, fine to coarse sand, weathered
5						
	52	5'	93.6	24.5		Sandy SILTSTONE; olive brown, moist, hard, fine to medium sand
						Orange to pale yellow, moderately hard below 7 feet
	25	7.5'	96.9	28.5		
10						
	29	10'	98.1	28.5		
15						
	28	15'	106.9	13.9		
						Total Depth: 16.5 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-24

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SC	Sandy CLAY; light brown, dry, medium dense, fine to coarse sand
	45	2.5'	122.3	11.9		
						Quaternary Paso Robles Formation (QTp:)
5						
	45	5'	119.6	8.0	SM	Silty SANDSTONE; brownish yellow to yellowish brown, slightly moist, dense,
						fine to medium sand
	40	7.5'	122.0	9.7		
						Trace gravel below 7 1/2 feet
10						
	41	10'	100.6	26.6	ML	Sandy SILTSTONE; olive gray, slightly moist, very stiff, fine to medium sand
	54	12.5'	116.0	9.9		
					SP-SM	Poorly-graded SANDSTONE with Silt; yellowish brown, dry, very dense, fine
15						to coarse sand with trace gravel
						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-25

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					CL	Sandy CLAY; brown, dry, stiff, fine to medium sand with trace gravel
	55	2.5'	112.6	8.9		
						Quaternary Paso Robles Formation (QTp):
						Silty SANDSTONE; brownish yellow to yellowish brown, slightly moist, dense
5	45	5'	109.2	14.4		fine to medium sand with trace clay
	33	7.5'	119.5	9.8		Dark yellowish brown below 5 feet
						Olive gray to yellow brown, moist, fine sand below 7.5 feet
10	33	10'	108.2	15.0		
	62	12.5'	109.5	9.8		Very Dense below 12.5 feet
						Total Depth: 14 feet
15						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-26

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
						Clayey SAND; dry, brown, medium dense, fine to medium sand
	25	2.5'	107.6	11.0		**Quaternary Paso Robles Formation (QTp):**
						Silty SANDSTONE; brownish yellow, slightly moist, dense, fine to medium
						sand with trace clay
5	62	5'	117.3	14.8		
	44	7.5'	109.5	16.5		
10	40	10'	108.9	17.5		Fine sand below 10 feet
	19	12.5'	107.6	9.9		Pale yellow to brownish yellow, fine to medium sand below 12.5 feet
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-27

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
						Clayey SAND; dark brown, dry, medium dense, fine to medium sand
	80	2.5'	109.6	14.9		**Quaternary Paso Robles Formation (QTp):**
					SM	Silty SANDSTONE; brownish yellow, dry, very dense, fine to medium sand
5						
	43	5'	117.9	14.7		Fine sand below 5 feet
	39	7.5'	107.1	16.0	ML	Sandy SILTSTONE; yellowish brown, moist, very stiff, fine sand
10	40	10'	-	-		
	31	12.5'	100.3	13.3	SM	Silty SANDSTONE; pale yellow, slightly moist, dense, fine to medium sand
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-28

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SC	Clayey SAND; dark brown, dry, medium dense, fine to coarse sand
	42	2.5'	117.3	9.4		
						Quaternary Paso Robles Formation (QTp):
						Silty SANDSTONE; light yellowish brown, dry, dense, fine to coarse sand with
5	34	5'	115.9	10.8		trace clay and gravel
						Poorly-graded SANDSTONE with Clay; pale olive, moist, dense, fine to coarse sand
	36	7.5'	107.4	10.5		with trace gravel
						Clayey SANDSTONE; yellowish brown, slightly moist, dense, fine to coarse sand
10	71	10'	113.3	9.7		Very dense below 10 feet
	41	12.5'	113.2	13.3		Sandy SILTSTONE; pale olive, moist, very stiff, fine sand
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-29

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SC	Clayey SAND; brown, dry, medium dense, fine to coarse sand
	42	2.5'	115.3	6.6		
						Quaternary Paso Robles Formation (QTp):
					SP-SM	Poorly-graded SAND with Silt; yellowish brown, slightly moist, dense, fine to
5	36	5'	112.9	13.4		coarse sand with trace clay
	47	7.5'	110.5	14.9	SM	Silty SANDSTONE; yellowish brown, slighty moist, dense, fine to medium sand
						with trace clay
10	36	10'	119.0	12.9		
	50/5"	12.5'	110.4	7.2		
15						
						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-30

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					CL	Sandy CLAY; dark brown, dry, stiff, fine to coarse sand with trace gravel
	14	2.5'	108.5	20.4		
						Quaternary Paso Robles Formation (QTp):
						Poorly-graded SANDSTONE with Clay; yellowish brown, slightly moist, very
5	56	5'	116.8	8.8		dense, fine to coarse sand with trace gravel
	41	7.5'	116.3	16.5		
10	44	10'	101.3	24.1		Sandy SILTSTONE; yellow brown, slightly moist, very stiff, fine sand
	43	12.5'	112.7	15.1		
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-31

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SC	Clayey SAND; dark brown, dry, medium dense, fine to coarse sand
	54	2.5'	106.1	18.9		**Quaternary Paso Robles Formation (QTp):**
						Silty SANDSTONE; yellowish brown, slightly moist, very dense fine to medium
						sand with trace clay
5	52	5'	111.2	19.7		
	43	7.5'	118.1	13.1		Light grayish brown, dense
10	38	10'	116.0	14.5		Light grayish brown to pale olive, moist below 10 feet
	40	12.5'	102.4	20.1		
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-32

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; light grayish brown, moist, dense, fine to medium sand
	38	2.5'	99.2	21.2		
						Quaternary Paso Robles Formation (QTp):
						Silty SANDSTONE; light grayish brown, moist, dense, fine to medium sand
5	49	5'	107.8	14.8		
	36	7.5'	96.2	7.2		
						Poorly-graded SANDSTONE with Silt; yellowish brown, dry, dense, fine to coarse
						sand with gravel
10	49	10'	105.1	21.4		
	45	12.5'	103.3	22.5		
15						
						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-33

Date: October 12, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					CL	Sandy CLAY; dark brown, moist, stiff, fine sand
	13	2.5'	104.2	16.1		
						Quaternary Paso Robles Formation (QTp):
						Sandy SILTSTONE; light grayish brown, slightly moist, firm, fine sand
5	26	5'	100.5	23.4		Very stiff below 5 feet
	35	7.5'	104.0	8.6		Yellowish brown below 7.5 feet
10	52	10'	107.3	22.4		Poorly-graded SANDSTONE with Silt; yellowish brown, slightly moist, very dense
	50	12.5'	113.3	15.2		
15						
						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-34

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0		0-5'				**Topsoil:**
						Sandy SILT; brown, slightly mosit, stiff, fine to medium sand
	84/7"	2.5'	118.4	10.6		**Quaternary Paso Robles Formation (QTp):**
						Silty SANDSTONE; yellowish brown, slightly moist, very dense, fine to coarse sand
						with gravel
5	62	5'	124.8	6.6		BRECCIA; yellowish brown, slightly moist, very dense, fine to coarse gravel
						and sand
	89/11"	7.5'	112.7	10.6		
10	REF/5"	10'	101.2	6.3		Practical Refusal at 10.5 feet
						Total Depth: 10.5 feet
						No Groundwater
15						
20						
25						
30						

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Geotechnical Boring Log B-35

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
						Sandy SILT; brown, dry, stiff, fine to medium sand
	40	2.5'	89.2	20.4		**Quaternary Alluvium (Qa):**
					ML	Sandy SILT; light grayish brown, slightly moist, very stiff, fine sand
5						
	22	5'	101.1	22.8		Pale yellow, moist below 5 feet
	8	7.5'	98.5	24.5		Light yellowish brown, moist, firm below 7.5 feet
10						
	16	10'	107.6	17.5	CL	CLAY; light grayish brown, moist, stiff below 10 feet
	17	12.5'	96.0	20.9		
15						
						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-36

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
						Silty SAND; yellowish brown, moist, medium dense, fine to coarse sand with
	26	2.5'	96.0	17.6		trace clay
						Quaternary Paso Robles Formation (QTp):
						Sandy SILTSTONE; yellowish brown, slightly moist, very stiff to hard, fine to
5	78/11"	5'	106.6	17.8		medium sand with trace gravel
	17	7.5'	106.3	18.3		
10	40	10'	100.1	11.1		Abundant gravel below 10 feet
	80/11"	12.5'	-	-		BRECCIA; brownish yellow, moist, very dense, fine to coarse gravel
15						Total Depth: 13.5 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-37

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					ML	Sandy SILT; dark brown, dry, stiff, fine to coarse sand
	20	2.5'	110.4	14.4		**Quaternary Paso Robles Formation (QTp):**
						Silty SANDSTONE; yellowish brown, moist, medium dense, fine to coarse sand
						with trace gravel
5	26	5'	109.1	16.2		
	23	7.5'	90.2	19.2		Abundant gravel below 7.5 feet
						Sandy SILTSTONE; brownish yellow to yellowish brown, moist, very stiff, fine
10	26	10'	100.3	16.1		sand
	39	12.5'	104.8	14.0		Silty SANDSTONE; brownish yellow, dry, dense, fine to medium sand
15						
						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-38

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0		0-5'				**Topsoil:**
					CL	Sandy CLAY; dark brown, stiff, fine to coarse sand with gravel
	67	2.5'	109.2	12.9		
						Quaternary Paso Robles Formation (QTp):
						Silty SANDSTONE; yellowish brown, slightly moist, dense to very dense, fine
5	33	5'	101.2	21.5		to medium sand
	41	7.5'	109.0	20.1		Sandy SILTSTONE; yellowish brown, slightly moist, fine sand
10	REF/5"	10'	108.7	10.4		Silty SANDSTONE; yellowish brown, slightly moist, very dense, fine to medium
						sand
	52	12.5'	107.4	3.6		Fine to coarse sand below 12.5 feet
15						
						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-39

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					CL	Sandy CLAY; brown, dry, very stiff, fine to medium sand
	50	2.5'	114.3	14.9		
						Quaternary Paso Robles Formation (QTp):
						Sandy SILTSTONE; very pale brown, dry, hard, fine sand
5	52	5'	102.6	13.1		
	52	7.5'	106.8	18.7		Yellowish brown below 7.5 feet
10	47	10'	92.2	18.4		
	42	12.5'	110.6	18.0		
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-40

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Paso Robles Formation (QTp):**
						Poorly-graded SANDSTONE with Silt; light grayish brown to pale yellow, dry
	REF/3"	2.5'	113.5	12.0		very dense, fine to coarse sand with gravel
5	87/11"	5'	112.2	8.8		Poorly-graded SANDSTONE with Clay; moist, very dense, fine to coarse sand
						Practical Refusal at 6.5 feet
						Total Depth: 6.5 feet
10						No Groundwater
15						
20						
25						
30						

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Geotechnical Boring Log B-41

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					ML	Sandy SILT; brown, dry, dense, fine to coarse sand with gravel
	70/11"	2.5'	95.4	11.3		
						Quaternary Paso Robles Formation (QTp):
						BRECCIA; pale yellow, dry, very dense, fine to coarse gravel
5	REF/5"	5'	119.8	5.6		
						Practical Refusal at 6 feet
						Total Depth: 6 feet
						No Groundwater
10						
15						
20						
25						
30						

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Geotechnical Boring Log B-42

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
						Silty SAND;dark brown, dry, medium dense, fine to coarse sand
	89	2.5'	107.3	8.5		with trace gravel
						Quaternary Paso Robles Formation (QTp):
						Silty SANDSTONE; yellowish brown, slightly moist, very dense, fine to coarse
5	50	5'	119.8	12.1		sand
	41	7.5'	115.6	16.4		
10	43	10'	117.7	16.1		Sandy SILTSTONE; yellowish brown, moist, very stiff, fine sand
	46	12.5'	113.2	17.6		Light olive brown below 12.5 feet
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-43

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
						Clayey SAND; dark brown, dry, dense, fine to coarse sand
	33	2.5'	111.5	11.1		
						Quaternary Paso Robles Formation (QTp):
						Silty SANDSTONE; yellowish brown, slightly moist, dense, fine to medium
5	39	5'	99.9	22.7		sand
						Sandy SILTSTONE; yellowish brown, slightly moist, very stiff, fine sand
	22	7.5'	106.5	17.6		with gravel
10	46	10'	99.7	18.1		
	39	12.5'	103.2	21.8		
15						
						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-44

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; brown, dry, medium dense, fine to coarse sand
	5	2.5'	81.9	12.5		
						Quaternary Paso Robles Formation (QTp):
						Sandy SILTSTONE; pale olive, moist, very stiff, fine sand
5	35	5'	100.6	22.3		
	31	7.5'	118.2	15.0		Silty SANDSTONE; brown, slightly moist, dense, fine to coarse sand with trace gravel
10	33	10'	82.9	34.3		BRECCIA; olive, moist, dense, fine to coarse gravel
	43	12.5'	115.7	13.7		Sandy SILTSTONE; pale olive, moist, very stiff, fine sand
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-45

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					ML	Sandy SILT; dark brown, dry, medium dense, fine sand
	39	2.5'	112.9	16.5		
						Quaternary Paso Robles Formation (QTp):
						Sandy SILTSTONE; light grayish brown, slightly moist, fine sand
5	78	5'	110.5	20.8		
						Pale olive below 5 feet
	41	7.5'	100.5	7.4		
						Poorly-graded SANDSTONE; olive, slightly moist, dense, fine to coarse sand with
						gravel
10	28	10'	100.6	15.0		
	44	12.5'	94.0	28.4		Sandy SILTSTONE; yellowish brown, moist, very stiff, fine sand with gravel
15						
						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-46

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					CL	Sandy CLAY; dark brown, dry, stiff, fine sand with trace gravel
	35	2.5'	105.1	16.5		
						Quaternary Paso Robles Formation (QTp):
						Sandy SILTSTONE; yellowish brown, slightly moist, stiff, fine sand
5	31	5'	97.1	17.8		
	28	7.5'	92.8	25.1		
10	REF/5"	10'	101.8	20.0		
	49	12.5'	106.9	21.4		
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Boring Log B-47

Date: October 13, 2018	**Project Name: Olsen-Chandler Ranch; Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: Mobile B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					CL	Sandy CLAY; dark brown, dry, stiff, fine sand
	27	2.5'	85.4	19.1		
						Quaternary Paso Robles Formation (QTp):
						BRECCIA; yellowish brown, slightly moist, moderately hard, fine to coarse sand
5	22	5'	94.2	27.3		Sandy SILTSTONE; yellowish brown, moist, moderately hard, fine sand
	30	7.5'	98.0	26.3		
10	27	10'	96.2	26.0		
						BRECCIA; pale yellow, moist, moderately hard, fine to coarse sand
	24	12.5'	95.9	22.8		
15						Total Depth: 14 feet
						No Groundwater
20						
25						
30						

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Geotechnical Test Pit Log TP-1

Date: October 13, 2018	**Project Name: Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: Backhoe**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; grayish brown, dry, medium dense, fine to medium sand
						Quaternary Paso Robles Formation (QTp):
						Silty SANDSTONE with Gravel; grayish brown, slightly moist, fine to coarse sand
						Clayey SILTSTONE; reddish brown, slightly moist, dense, fine to coarse sand
5						Silty SANDSTONE; reddish orange/brown, slightly moist, dense, trace gravel,
						fine to coarse sand
10						Total Depth: 10 feet
						No Groundwater
15						
20						
25						
30						

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Geotechnical Test Pit Log TP-2

Date: October 13, 2018	**Project Name: Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: Backhoe**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; orangish brown, slightly moist, loose, fine to coarse sand, trace gravel
						Quaternary Paso Robles Formation (QTp):
						Silty SANDSTONE with Gravel; orangish brown, dry, hard
						Olive brown, trace clay from 4 to 6 feet
5						
						Sandy SILTSTONE; grayish brown, moist, hard, fine to coarse sand
10						Total Depth: 10 feet
						No Grounddwater
15						
20						
25						
30						

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Geotechnical Test Pit Log TP-3

Date: October 13, 2018	**Project Name: Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: Backhoe**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; grayish brown, dry, medium dense, fine to coarse sand
						Quaternary Paso Robles Formation (QTp):
						Silty SANDSTONE with Gravel; orangish brown, dry, very hard
5						
						Sandy SILTSTONE; olive brown, slightly moist, dense, fine sand, trace gravel
						Total Depth: 6 feet
						No Groundwater
10						
15						
20						
25						
30						

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Geotechnical Test Pit Log TP-4

Date: October 13, 2018	**Project Name: Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: Backhoe**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; grayish brown, dry, very dense, fine to coarse sand
						Quaternary Paso Robles Formation (QTp):
						Gravelly CLAYSTONE; olive gray, moist, very hard, fine to medium sand
5						
						Clayey SANDSTONE; orangish brown, moist, very hard, fine to coarse sand,
						trace gravel
						SILTSTONE; gray, moist, very hard
10						
						Total Depth: 11 feet
						No Groundwater
15						
20						
25						
30						

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Geotechnical Test Pit Log TP-5

Date: October 13, 2018	**Project Name: Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: Backhoe**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; brownish gray, dry, medium dense, fine to coarse sand
						Quaternary Paso Robles Formation (QTp):
						Sandy CLAYSTONE; brown, slightly moist, very hard, fine to coarse sand, trace gravel
						Sandy SILTSTONE; yellow brown, slightly moist, hard, fine to medium sand
5						
						Total Depth: 7 feet
						No Groundwater
10						
15						
20						
25						
30						

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Geotechnical Test Pit Log TP-6

Date: October 13, 2018	**Project Name: Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: Backhoe**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; grayish brown, dry, fine to coarse sand
						Quaternary Paso Robles Formation (QTp):
						CLAYSTONE; dark gray brown, slightly moist, hard
						Sandy SILTSTONE; orange brown, dry, hard, fine to medium sand
5						
						Total Depth: 7 feet
						No Groundwater
10						
15						
20						
25						
30						

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Geotechnical Test Pit Log TP-7

Date: October 13, 2018	**Project Name: Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: Backhoe**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; gray brown, dry, medium dense, fine to coarse sand
						Quaternary Alluvium (Qa):
					CL	Sandy CLAY; dark grayish brown, moist, dense, fine to coarse sand
					ML	Sandy SILT; olive gray, slightly moist, dense, fine to medium sand
5						
10						
						Total Depth: 11 feet
						No Groundwater
15						
20						
25						
30						

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Geotechnical Test Pit Log TP-8

Date: October 13, 2018	**Project Name: Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: Backhoe**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; grayish brown, dry, loose, fine to coarse
						Quaternary Alluvium (Qa):
					CL	Sandy CLAY; gray brown, moist, fine to medium sand
					ML	Sandy SILT; grayish olive brown, moist, dense, fine to medium sand
5						
						Quaternary Paso Robles Formation (QTp):
						Sandy SILTSTONE; olive yellow, moist, hard, fine to medium sand
10						
						Total Depth: 13 feet
						No Groundwater
15						
20						
25						
30						

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Geotechnical Test Pit Log TP-9

Date: October 13, 2018	**Project Name: Paso Robles** **Page: 1 of 1**
Project Number: 182139-10A	**Logged By: SNJ**
Drilling Company: Drilling It	**Type of Rig: Backhoe**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Topsoil:**
					SM	Silty SAND; grayish brown, dry, loose to medium dense, fine to coarse sand,
						trace gravel
						Quaternary Paso Robles Formation (QTp):
						Sandy CLAYSTONE; dark gray brown, moist, hard, fine to coarse sand, trace gravel
5						Sandy SILTSTONE; yellowish brown to olive brown, slightly moist, moderately hard,
						fine sand
10						Total Depth: 9 feet
						No Groundwater
15						
20						
25						
30						

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APPENDIX B

INFILTRATION TEST SHEETS

Test No.	DR-1	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT				**Constants**	**Area cm2**	**Depth of Liquid (cm)**	**Liquid Container Number**		**Marriotte Tube Volume**	
Test Location:	DR-1				**Inner Ring**	729	10.0	1		3000	
Liquid Used:	TAP WATE	**pH:**	8.0		**Annular Ring**	2189	10.0	2		10000	
Tested By:	rg / cr		**Date**	10/11/2018		**Liquid level maintained**	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes		
Depth to water table:	> 20 Feet		Depth of Test	5'		**Penetration Depth of Outer Ring:**		9 cm		**Other**	

						Flow Readings					**Infiltration Rates**				**Ground Temperature**		**Remarks**
Trial #	**Start / End**	**Date MM/DD/YY**	**Time HR:MIN**	**Time Increment /(Total)**	**Elapsed Time (Min)**	**Inner Ring Reading cm**	**Inner Maroitte Tube Flow (ml)**	**Annular Space Reading cm**	**Annular Space Marriotte Tube Flow (ml)**	**Liquid Temp ºF**	**Inner Infiltration Rate cm/h**	**Inner Infiltration Rate In/h**	**Annular Infiltration Rate cm/h**	**Annular Infiltration Rate In/h**	**Ground Temp Depth (cm)**	**Temp at Depth (c)**	**Weather conditions Etc...**
	Start Test	10/11/2018	10:00	0:15	15												
1	End Test	10/11/2018	10:15	0:15		6.00	250	6.00	1500		1.37	**0.54**	2.74	**1.08**			
	Start Test	10/11/2018	10:15	0:15	30												
2	End Test	10/11/2018	10:30	0:30		6.00	0	6.00	0		0.00	**0.00**	0.00	**0.00**			
	Start Test	10/11/2018	10:30	0:15	45												
3	End Test	10/11/2018	10:45	0:45		6.00	0	6.00	0		0.00	**0.00**	0.00	**0.00**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-1		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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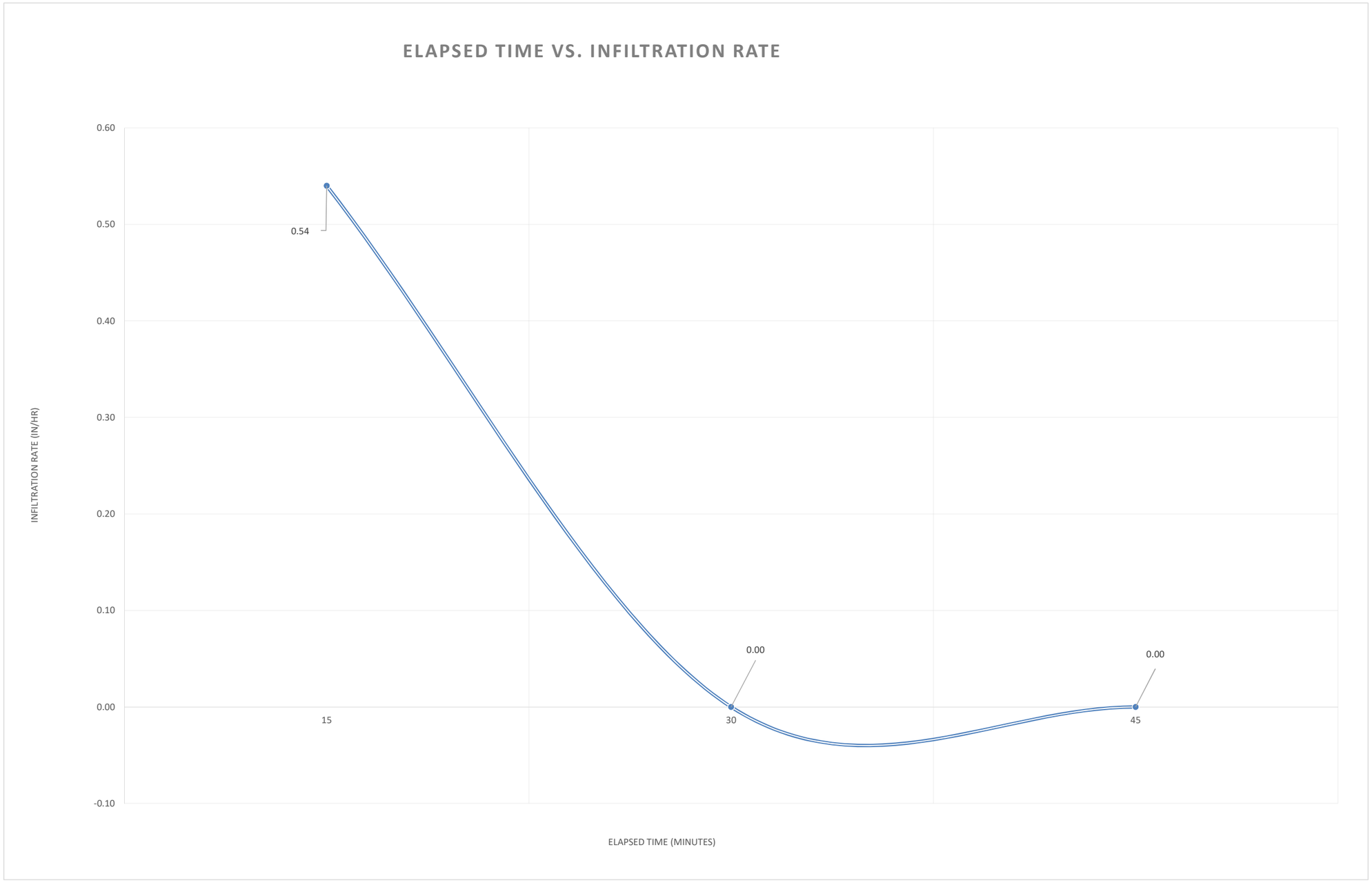

Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Test No.	**DR-2**	**Location**	**See Map**					
Project Identification:	**OLSEN/CHANDLER RANCH DEVELOPMENT**		**Constants**	**Area cm2**	**Depth of Liquid (cm)**	**Liquid Container Number**		**Marriotte Tube Volume**
Test Location:	DR-2		**Inner Ring**	729	10.0	1		3000
Liquid Used:	TAP WATE	**pH:** 8.0	**Annular Ring**	2189	10.0	2		10000
Tested By:	rg /cr	**Date** 10/12/2018	**Liquid level maintained**	**(X) Flow Valve ( ) Float Valve ( ) Mariotte Tubes**				
Depth to water table:	> 20 Feet	**Depth of Test** 5'	**Penetration Depth of Outer Ring:**	9 cm				**Other**

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings: Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp ºF	Infiltration Rates: Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temperature: Ground Temp Depth (cm)	Temp at Depth (c)	Remarks: Weather conditions Etc...
	Start Test	10/12/2018	10:30	0:30	30	5.00		5.00									
1	End Test	10/12/2018	11:00	0:30		5.00	200	5.00	500		0.55	**0.22**	0.46	**0.18**			
	Start Test	10/12/2018	11:00	0:30	60	5.00		5.00									
2	End Test	10/12/2018	11:30	1:00		6.00	550	5.00	1000		1.51	**0.59**	0.91	**0.36**			
	Start Test	10/12/2018	11:30	0:30	90	5.00		5.00									
3	End Test	10/12/2018	12:00	1:30		5.00	1000	5.00	2000		2.74	**1.08**	1.83	**0.72**			
	Start Test	10/12/2018	12:00	0:30	120	5.00		5.00									
4	End Test	10/12/2018	12:30	2:00		5.00	750	5.00	2500		2.06	**0.81**	2.28	**0.90**			
	Start Test	10/12/2018	12:30	0:30	150	5.00		5.00									
5	End Test	10/12/2018	13:00	2:30		5.00	500	5.00	1500		1.37	**0.54**	1.37	**0.54**			
	Start Test	10/12/2018	13:00	0:30	180	5.00		5.00									
6	End Test	10/12/2018	13:30	3:00		5.00	500	5.00	1000		1.37	**0.54**	0.91	**0.36**			
	Start Test	10/12/2018	13:30	0:30	210	5.00		5.00									
7	End Test	10/12/2018	14:00	3:30		5.00	250	5.00	1000		0.69	**0.27**	0.91	**0.36**			
	Start Test	10/12/2018	14:00	0:30	240	0.00		5.00									
8	End Test	10/12/2018	14:30	4:00		5.00	250	5.00	1000		0.69	**0.27**	0.91	**0.36**			
	Start Test	10/12/2018	14:30	0:30	270	5.00		5.00									
9	End Test	10/12/2018	15:00	4:30		5.00	250	5.00	1000		0.69	**0.27**	0.91	**0.36**			
	Start Test	10/12/2018	15:00	0:30	300	5.00		5.00									
10	End Test	10/12/2018	15:30	5:00		5.00	250	5.00	1000		0.69	**0.27**	0.91	**0.36**			

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-2		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg /cr		
Depth to water table:	> 20 Feet		

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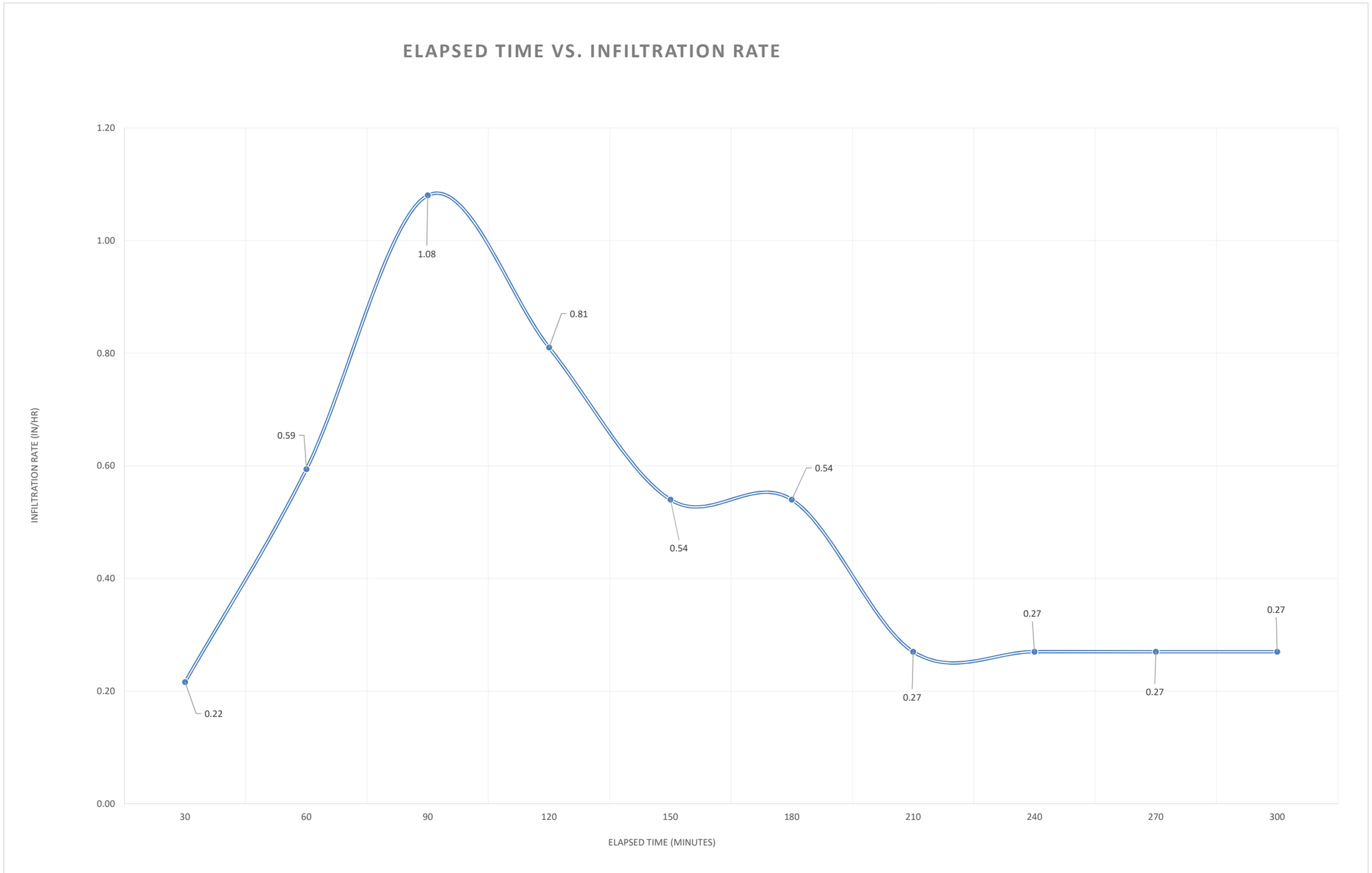

Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

Test No.	DR-3	Location	See Map

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Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT				**Constants**	**Area cm2**	**Depth of Liquid (cm)**	**Liquid Container Number**		**Marriotte Tube Volume**	
Test Location:	DR-3				**Inner Ring**	729	10.0	1		3000	
Liquid Used:	TAP WATE	**pH:**	8.0		**Annular Ring**	2189	10.0	2		10000	
Tested By:	rg / cr		**Date**		**Liquid level maintained**	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet		**Depth of Test**	5'	**Penetration Depth of Outer Ring:**	9 cm		**Other**			

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings: Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp °F	Infiltration Rates: Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temperature: Ground Temp Depth (cm)	Temp at Depth (c)	Remarks: Weather conditions Etc...
1	Start Test	10/13/2018	9:00	0:30	30												
	End Test	10/13/2018	9:30	0:30		6.00	1000	6.00	2500		2.74	**1.08**	2.28	**0.90**			
2	Start Test	10/13/2018	9:30	0:30	60												
	End Test	10/13/2018	10:00	1:00		6.00	650	6.00	2000		1.78	**0.70**	1.83	**0.72**			
3	Start Test	10/13/2018	10:00	0:30	90												
	End Test	10/13/2018	10:30	1:30		6.00	750	6.00	1000		2.06	**0.81**	0.91	**0.36**			
4	Start Test	10/13/2018	10:30	0:30	120												
	End Test	10/13/2018	11:00	2:00		6.00	750	6.00	1000		2.06	**0.81**	0.91	**0.36**			
5	Start Test	10/13/2018	11:00	0:30	150												
	End Test	10/13/2018	11:30	2:30		6.00	500	6.00	2000		1.37	**0.54**	1.83	**0.72**			
6	Start Test	10/13/2018	11:30	0:30	180												
	End Test	10/13/2018	12:00	3:00		6.00	750	6.00	2000		2.06	**0.81**	1.83	**0.72**			
7	Start Test	10/13/2018	12:00	0:30	210												
	End Test	10/13/2018	12:30	3:30		6.00	500	6.00	2000		1.37	**0.54**	1.83	**0.72**			
8	Start Test	10/13/2018	12:30	0:30	240												
	End Test	10/13/2018	13:00	4:00		6.00	500	6.00	2000		1.37	**0.54**	1.83	**0.72**			
9	Start Test	10/13/2018	13:00	0:30	270												
	End Test	10/13/2018	13:30	4:30		6.00	500	6.00	2000		1.37	**0.54**	1.83	**0.72**			
10	Start Test	10/13/2018	13:30	0:30	300												
	End Test	10/13/2018	14:00	5:00		6.00	500	6.00	2000		1.37	**0.54**	1.83	**0.72**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-3		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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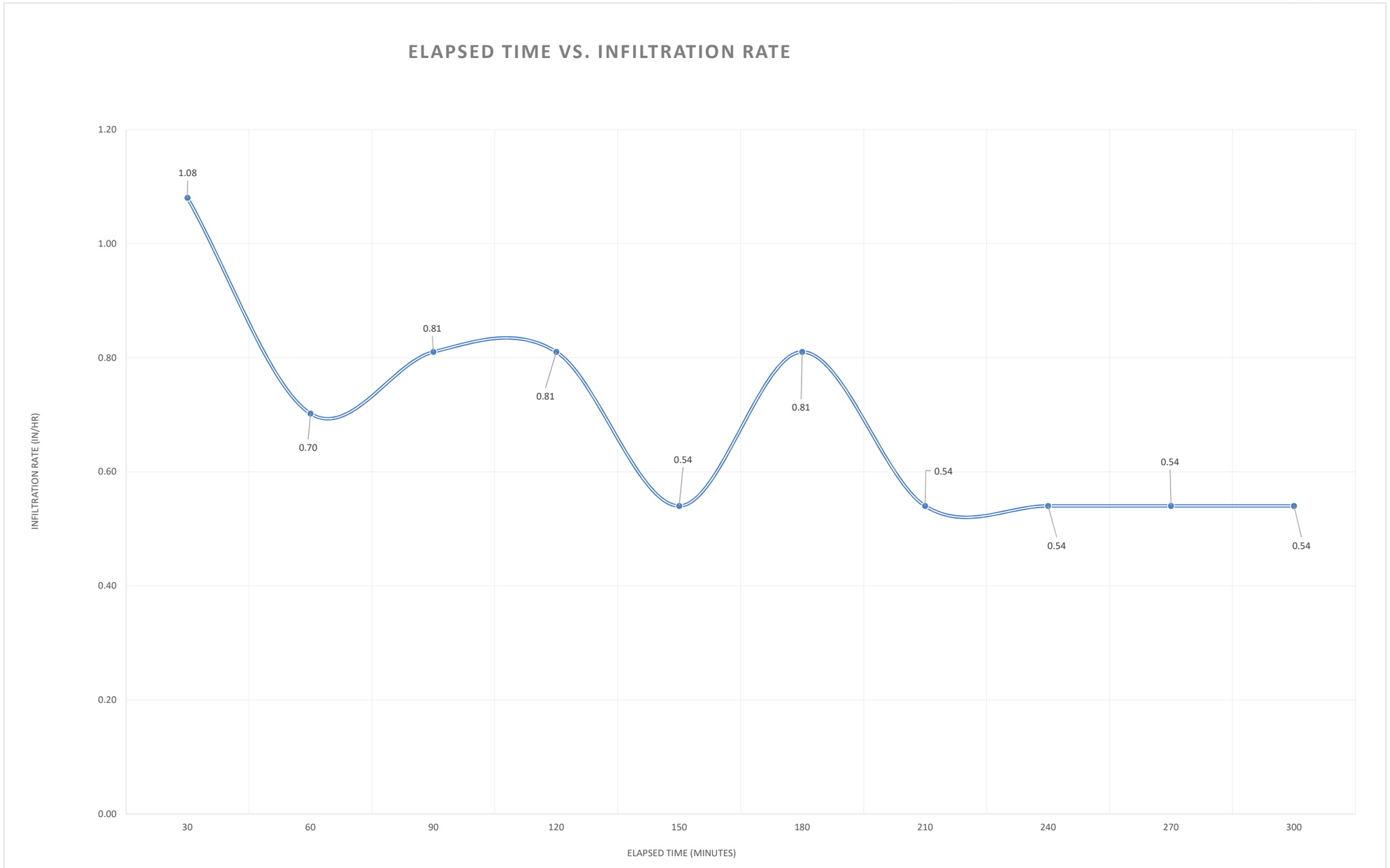

Test No.	DR-4	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT				Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume	
Test Location:	DR-4				Inner Ring	729	10.0	1		3000	
Liquid Used:	TAP WATE	pH:	8.0		Annular Ring	2189	10.0	2		10000	
Tested By:	rg / cr		Date	10/13/2018	Liquid level maintained	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet		Depth of Test	5'	Penetration Depth of Outer Ring:	9 cm				Other	

						Flow Readings					Infiltration Rates				Ground Temperature		Remarks
Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp °F	Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temp Depth (cm)	Temp at Depth (c)	Weather conditions Etc...
1	Start Test	10/13/2018	15:30	0:30	30	5.00		5.00									
	End Test	10/13/2018	16:00	0:30		5.00	750	5.00	2000		2.06	**0.81**	1.83	**0.72**			
2	Start Test	10/13/2018	16:00	0:30	60	5.00		5.00									
	End Test	10/13/2018	16:30	1:00		6.00	500	5.00	2000		1.37	**0.54**	1.83	**0.72**			
3	Start Test	10/13/2018	16:30	0:30	90	5.00		5.00									
	End Test	10/13/2018	17:00	1:30		5.00	250	5.00	1500		0.69	**0.27**	1.37	**0.54**			
4	Start Test	10/13/2018	17:00	0:30	120	5.00		5.00									
	End Test	10/13/2018	17:30	2:00		5.00	100	5.00	1500		0.27	**0.11**	1.37	**0.54**			
5	Start Test	10/13/2018	17:30	0:30	150	5.00		5.00									
	End Test	10/13/2018	18:00	2:30		5.00	100	5.00	1500		0.27	**0.11**	1.37	**0.54**			
6	Start Test	10/13/2018	18:00	0:30	180	5.00		5.00									
	End Test	10/13/2018	18:30	3:00		5.00	100	5.00	1000		0.27	**0.11**	0.91	**0.36**			
7	Start Test	10/13/2018	18:30	0:30	210	5.00		5.00									
	End Test	10/13/2018	19:00	3:30		5.00	0	5.00	1000		0.00	**0.00**	0.91	**0.36**			
8	Start Test	10/13/2018	19:00	0:30	240	5.00		5.00									
	End Test	10/13/2018	19:30	4:00		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
9	Start Test	10/13/2018	19:30	0:30	270	5.00		5.00									
	End Test	10/13/2018	20:00	4:30		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-4		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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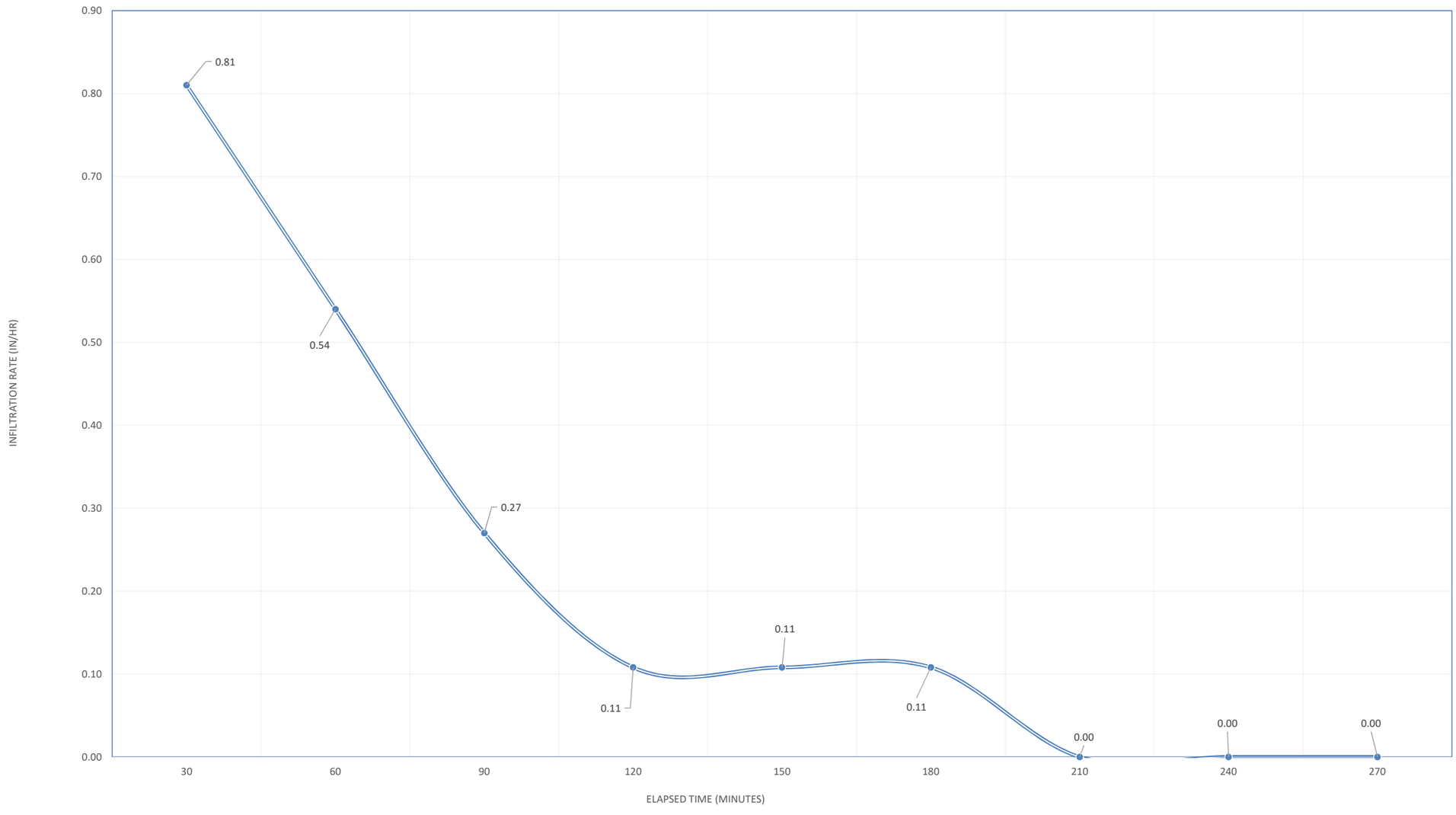
ELAPSED TIME VS. INFILTRATION RATE



Test No.	DR-5	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT			Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume	Earth Strata Geotechnical Services, Inc.
Test Location:	DR-5			Inner Ring	729	10.0	1		3000	Geotechnical, Environmental and Materials Testing Consultants
Liquid Used:	TAP WATE	pH:	8.0	Annular Ring	2189	10.0	2		10000	www.ESGSINC.com (951) 397-8315
Tested By:	rg / cr	Date	10/14/2018	Liquid level maintained	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet	Depth of Test	5'	Penetration Depth of Outer Ring:	9 cm				Other	

						Flow Readings					Infiltration Rates				Ground Temperature		Remarks
Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp ºF	Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temp Depth (cm)	Temp at Depth (c)	Weather conditions Etc...
1	Start Test	10/14/2018	13:00	0:30	30												
	End Test	10/14/2018	13:30	0:30		6.00	750	6.00	2000		2.06	**0.81**	1.83	**0.72**			
2	Start Test	10/14/2018	13:30	0:30	60												
	End Test	10/14/2018	14:00	1:00		6.00	750	6.00	4000		2.06	**0.81**	3.65	**1.44**			
3	Start Test	10/14/2018	14:00	0:30	90												
	End Test	10/14/2018	14:30	1:30		6.00	1000	6.00	4000		2.74	**1.08**	3.65	**1.44**			
4	Start Test	10/14/2018	14:30	0:30	120												
	End Test	10/14/2018	15:00	2:00		6.00	1000	6.00	3000		2.74	**1.08**	2.74	**1.08**			
5	Start Test	10/14/2018	15:00	0:30	150												
	End Test	10/14/2018	15:30	2:30		6.00	1000	6.00	3000		2.74	**1.08**	2.74	**1.08**			
6	Start Test	10/14/2018	15:30	0:30	180												
	End Test	10/14/2018	16:00	3:00		6.00	1000	6.00	2500		2.74	**1.08**	2.28	**0.90**			
7	Start Test	10/14/2018	16:00	0:30	210												
	End Test	10/14/2018	16:30	3:30		6.00	1000	6.00	3000		2.74	**1.08**	2.74	**1.08**			
8	Start Test	10/14/2018	16:30	0:30	240												
	End Test	10/14/2018	17:00	4:00		6.00	1000	6.00	3000		2.74	**1.08**	2.74	**1.08**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-5		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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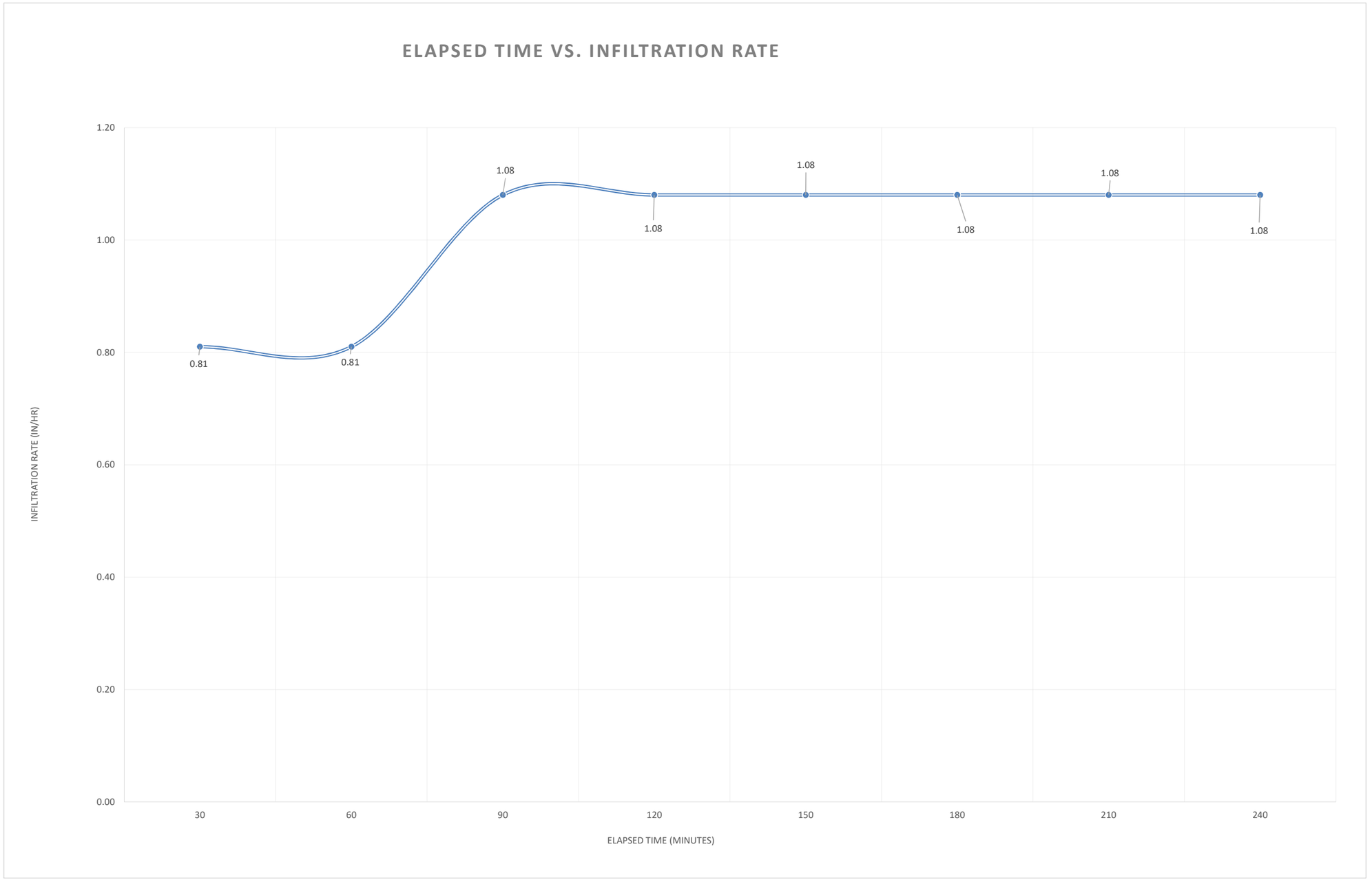

Test No.	DR-6	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT				Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume	
Test Location:	DR-6				Inner Ring	729	10.0	1		3000	
Liquid Used:	TAP WATE	pH:	8.0		Annular Ring	2189	10.0	2		10000	
Tested By:	rg / cr		Date	10/13/2018	Liquid level maintained	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet		Depth of Test	4.5'	Penetration Depth of Outer Ring:	9 cm		Other			

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings				Liquid Temp °F	Infiltration Rates				Ground Temperature		Remarks
						Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)		Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temp Depth (cm)	Temp at Depth (c)	Weather conditions Etc...
	Start Test	10/13/2018	11:45	0:30	30	5.00		5.00									
1	End Test	10/13/2018	12:15	0:30		5.00	250	5.00	2000		0.69	**0.27**	1.83	**0.72**			
	Start Test	10/13/2018	12:15	0:30	60	5.00		5.00									
2	End Test	10/13/2018	12:45	1:00		6.00	100	5.00	3000		0.27	**0.11**	2.74	**1.08**			
	Start Test	10/13/2018	12:45	0:30	90	5.00		5.00									
3	End Test	10/13/2018	13:15	1:30		5.00	100	5.00	2000		0.27	**0.11**	1.83	**0.72**			
	Start Test	10/13/2018	13:15	0:30	120	5.00		5.00									
4	End Test	10/13/2018	13:45	2:00		5.00	100	5.00	2000		0.27	**0.11**	1.83	**0.72**			
	Start Test	10/13/2018	13:45	0:30	150	5.00		5.00									
5	End Test	10/13/2018	14:15	2:30		5.00	100	5.00	2000		0.27	**0.11**	1.83	**0.72**			
	Start Test	10/13/2018	14:15	0:30	180	5.00		5.00									
6	End Test	10/13/2018	14:45	3:00		5.00	250	5.00	2000		0.69	**0.27**	1.83	**0.72**			
	Start Test	10/13/2018	14:45	0:30	210	5.00		5.00									
7	End Test	10/13/2018	15:15	3:30		5.00	250	5.00	3000		0.69	**0.27**	2.74	**1.08**			
	Start Test	10/13/2018	15:15	0:30	240	5.00		5.00									
8	End Test	10/13/2018	15:45	4:00		5.00	250	5.00	3000		0.69	**0.27**	2.74	**1.08**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-6		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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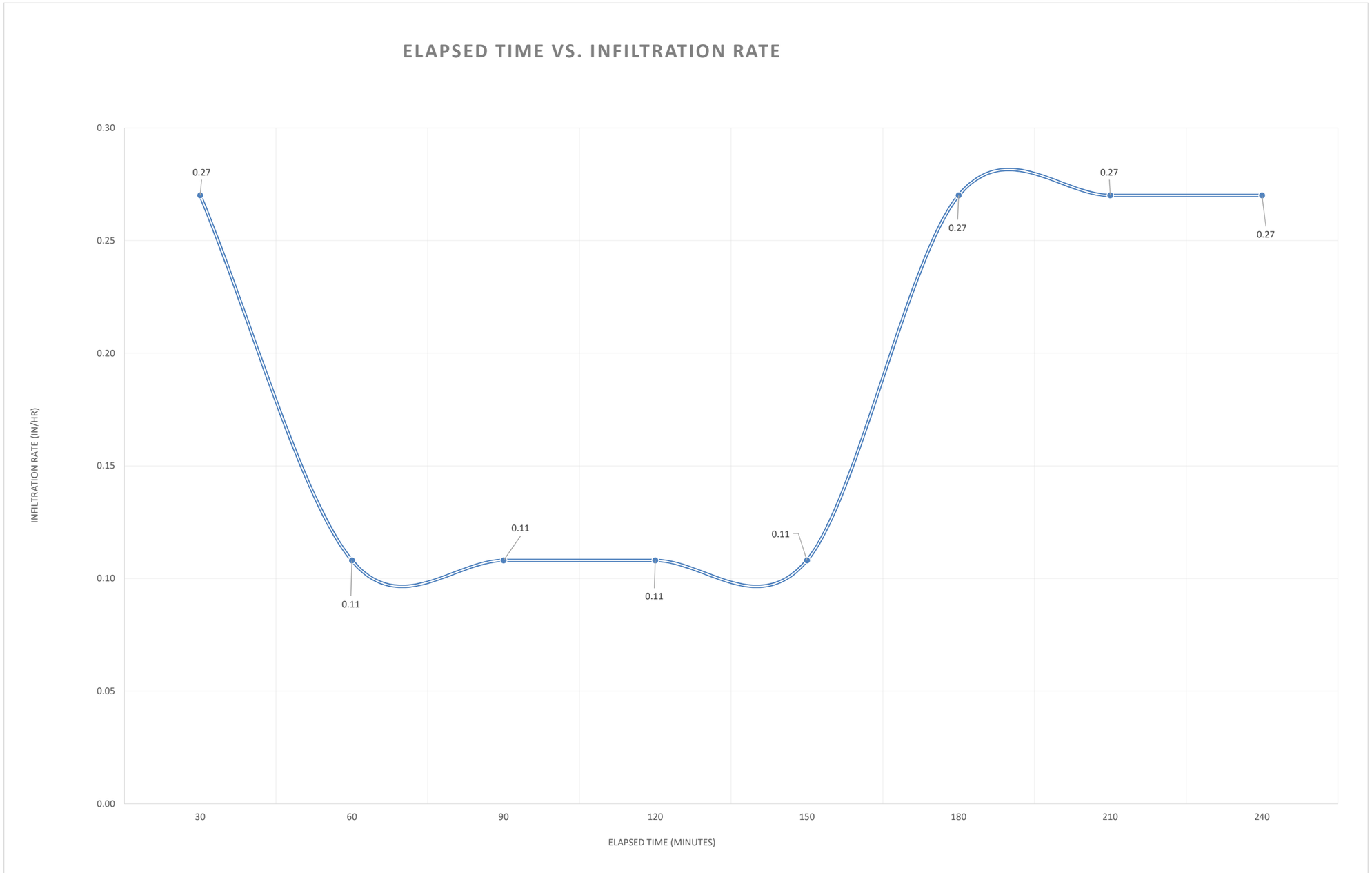

Test No.	DR-7	Location	See Map

Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Project Identification:	**OLSEN/CHANDLER RANCH DEVELOPMENT**		**Constants**	**Area cm2**	**Depth of Liquid (cm)**	**Liquid Container Number**	**Marriotte Tube Volume**
Test Location:	DR-7		**Inner Ring**	729	10.0	1	3000
Liquid Used:	TAP WATE	**pH:** 8.0	**Annular Ring**	2189	10.0	2	10000
Tested By:	rg / cr	**Date** 10/12/2018	**Liquid level maintained**	**(X) Flow Valve ( ) Float Valve ( ) Mariotte Tubes**			
Depth to water table:	> 20 Feet	**Depth of Test** 5'	**Penetration Depth of Outer Ring:**	9 cm			**Other**

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings: Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp ºF	Infiltration Rates: Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temperature: Ground Temp Depth (cm)	Temp at Depth (c)	Remarks: Weather conditions Etc...
	Start Test	10/12/2018	16:15	0:30	30	5.00		5.00									
1	End Test	10/12/2018	16:45	0:30		5.00	1000	5.00	2500		2.74	**1.08**	2.28	**0.90**			
	Start Test	10/12/2018	16:45	0:30	60	5.00		5.00									
2	End Test	10/12/2018	17:15	1:00		6.00	500	5.00	2500		1.37	**0.54**	2.28	**0.90**			
	Start Test	10/12/2018	17:15	0:30	90	5.00		5.00									
3	End Test	10/12/2018	17:45	1:30		5.00	500	5.00	2000		1.37	**0.54**	1.83	**0.72**			
	Start Test	10/12/2018	17:45	0:30	120	5.00		5.00									
4	End Test	10/12/2018	18:15	2:00		5.00	250	5.00	2000		0.69	**0.27**	1.83	**0.72**			
	Start Test	10/12/2018	18:15	0:30	150	5.00		5.00									
5	End Test	10/12/2018	18:45	2:30		5.00	100	5.00	1500		0.27	**0.11**	1.37	**0.54**			
	Start Test	10/12/2018	18:45	0:30	180	5.00		5.00									
6	End Test	10/12/2018	19:15	3:00		5.00	100	5.00	1500		0.27	**0.11**	1.37	**0.54**			
	Start Test	10/12/2018	19:15	0:30	210	5.00		5.00									
7	End Test	10/12/2018	19:45	3:30		5.00	100	5.00	1500		0.27	**0.11**	1.37	**0.54**			
	Start Test	10/12/2018	19:45	0:30	240	0.00		5.00									
8	End Test	10/12/2018	20:15	4:00		5.00	100	5.00	1500		0.27	**0.11**	1.37	**0.54**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-7		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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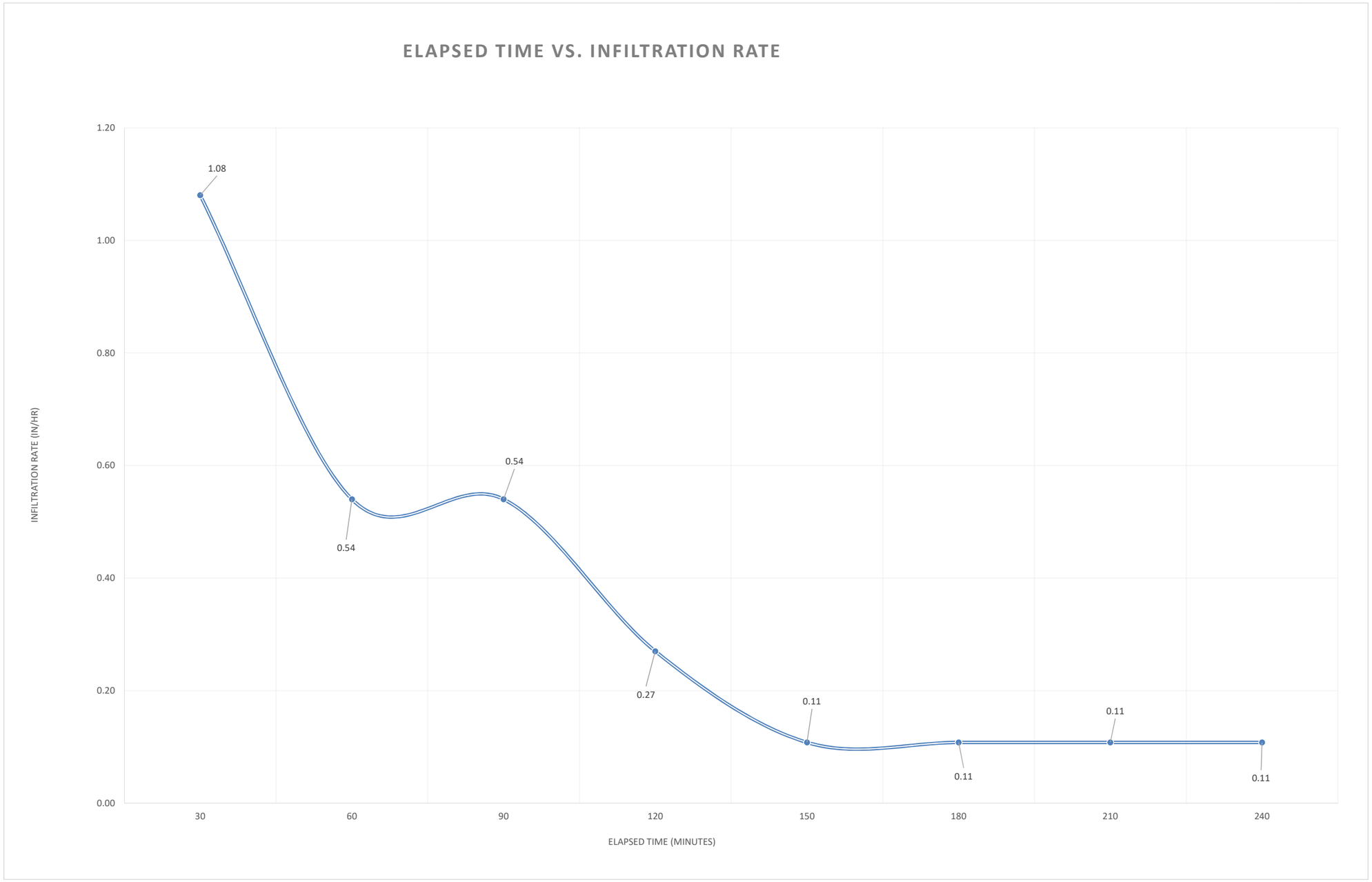

Test No.	DR-8	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume
Test Location:	DR-8		Inner Ring	729	10.0	1		3000
Liquid Used:	TAP WATE	pH: 8.0	Annular Ring	2189	10.0	2		10000
Tested By:	rg / cr	Date		Liquid level maintained	(X) Flow Valve ( ) Float Valve ( ) Mariotte Tubes			
Depth to water table:	> 20 Feet	Depth of Test	5'	Penetration Depth of Outer Ring:	9 cm			Other

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings: Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp ºF	Infiltration Rates: Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temperature: Ground Temp Depth (cm)	Temp at Depth (c)	Remarks: Weather conditions Etc...
	Start Test	10/16/2018	17:15	0:30	30	5.00		5.00									
1	End Test	10/16/2018	17:45	0:30		5.00	500	5.00	3000		1.37	**0.54**	2.74	**1.08**			
	Start Test	10/16/2018	17:45	0:30	60	5.00		5.00									
2	End Test	10/16/2018	18:15	1:00		6.00	500	5.00	3000		1.37	**0.54**	2.74	**1.08**			
	Start Test	10/16/2018	18:15	0:30	90	5.00		5.00									
3	End Test	10/16/2018	18:45	1:30		5.00	400	5.00	2500		1.10	**0.43**	2.28	**0.90**			
	Start Test	10/16/2018	18:45	0:30	120	5.00		5.00									
4	End Test	10/16/2018	19:15	2:00		5.00	400	5.00	2500		1.10	**0.43**	2.28	**0.90**			
	Start Test	10/16/2018	19:15	0:30	150	5.00		5.00									
5	End Test	10/16/2018	19:45	2:30		5.00	400	5.00	3000		1.10	**0.43**	2.74	**1.08**			
	Start Test	10/16/2018	19:45	0:30	180	5.00		5.00									
6	End Test	10/16/2018	20:15	3:00		5.00	400	5.00	3000		1.10	**0.43**	2.74	**1.08**			
	Start Test	10/16/2018	20:15	0:30	210	5.00		5.00									
7	End Test	10/16/2018	20:45	3:30		5.00	400	5.00	2500		1.10	**0.43**	2.28	**0.90**			
	Start Test	10/16/2018	20:45	0:30	240	0.00		5.00									
8	End Test	10/16/2018	21:15	4:00		5.00	400	5.00	2500		1.10	**0.43**	2.28	**0.90**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-8		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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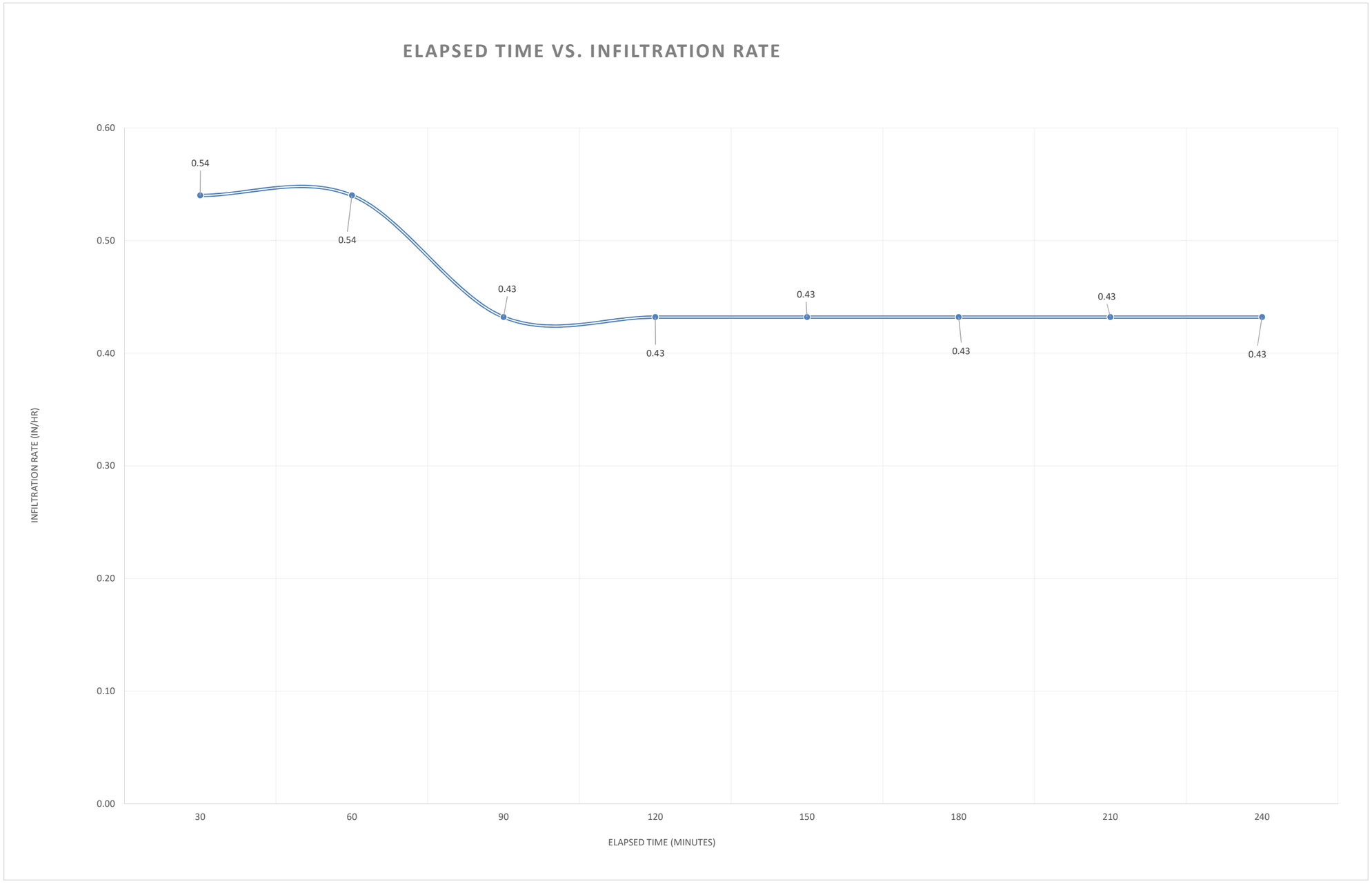

Test No.	DR-9	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT			Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume	Earth Strata Geotechnical Services, Inc.
Test Location:	DR-9			Inner Ring	729	10.0	1		3000	Geotechnical, Environmental and Materials Testing Consultants
Liquid Used:	TAP WATE	pH:	8.0	Annular Ring	2189	10.0	2		10000	www.ESGSINC.com (951) 397-8315
Tested By:	rg / cr	Date	10/17/2018	Liquid level maintained	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet	Depth of Test	5'	Penetration Depth of Outer Ring:	9 cm				Other	

						Flow Readings					Infiltration Rates				Ground Temperature		Remarks
Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp °F	Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temp Depth (cm)	Temp at Depth (c)	Weather conditions Etc...
1	Start Test	10/17/2018	11:00	0:30	30	5.00		5.00									
	End Test	10/17/2018	11:30	0:30		5.00	625	5.00	2500		1.71	**0.68**	2.28	**0.90**			
2	Start Test	10/17/2018	11:30	0:30	60	5.00		5.00									
	End Test	10/17/2018	12:00	1:00		6.00	100	5.00	2500		0.27	**0.11**	2.28	**0.90**			
3	Start Test	10/17/2018	12:00	0:30	90	5.00		5.00									
	End Test	10/17/2018	12:30	1:30		5.00	250	5.00	2500		0.69	**0.27**	2.28	**0.90**			
4	Start Test	10/17/2018	12:30	0:30	120	5.00		5.00									
	End Test	10/17/2018	13:00	2:00		5.00	250	5.00	1500		0.69	**0.27**	1.37	**0.54**			
5	Start Test	10/17/2018	13:00	0:30	150	5.00		5.00									
	End Test	10/17/2018	13:30	2:30		5.00	250	5.00	1500		0.69	**0.27**	1.37	**0.54**			
6	Start Test	10/17/2018	13:30	0:30	180	5.00		5.00									
	End Test	10/17/2018	14:00	3:00		5.00	250	5.00	1500		0.69	**0.27**	1.37	**0.54**			
7	Start Test	10/17/2018	14:00	0:30	210	5.00		5.00									
	End Test	10/17/2018	14:30	3:30		5.00	250	5.00	1500		0.69	**0.27**	1.37	**0.54**			
8	Start Test	10/17/2018	14:30	0:30	240	0.00		5.00									
	End Test	10/17/2018	15:00	4:00		5.00	250	5.00	1500		0.69	**0.27**	1.37	**0.54**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-9		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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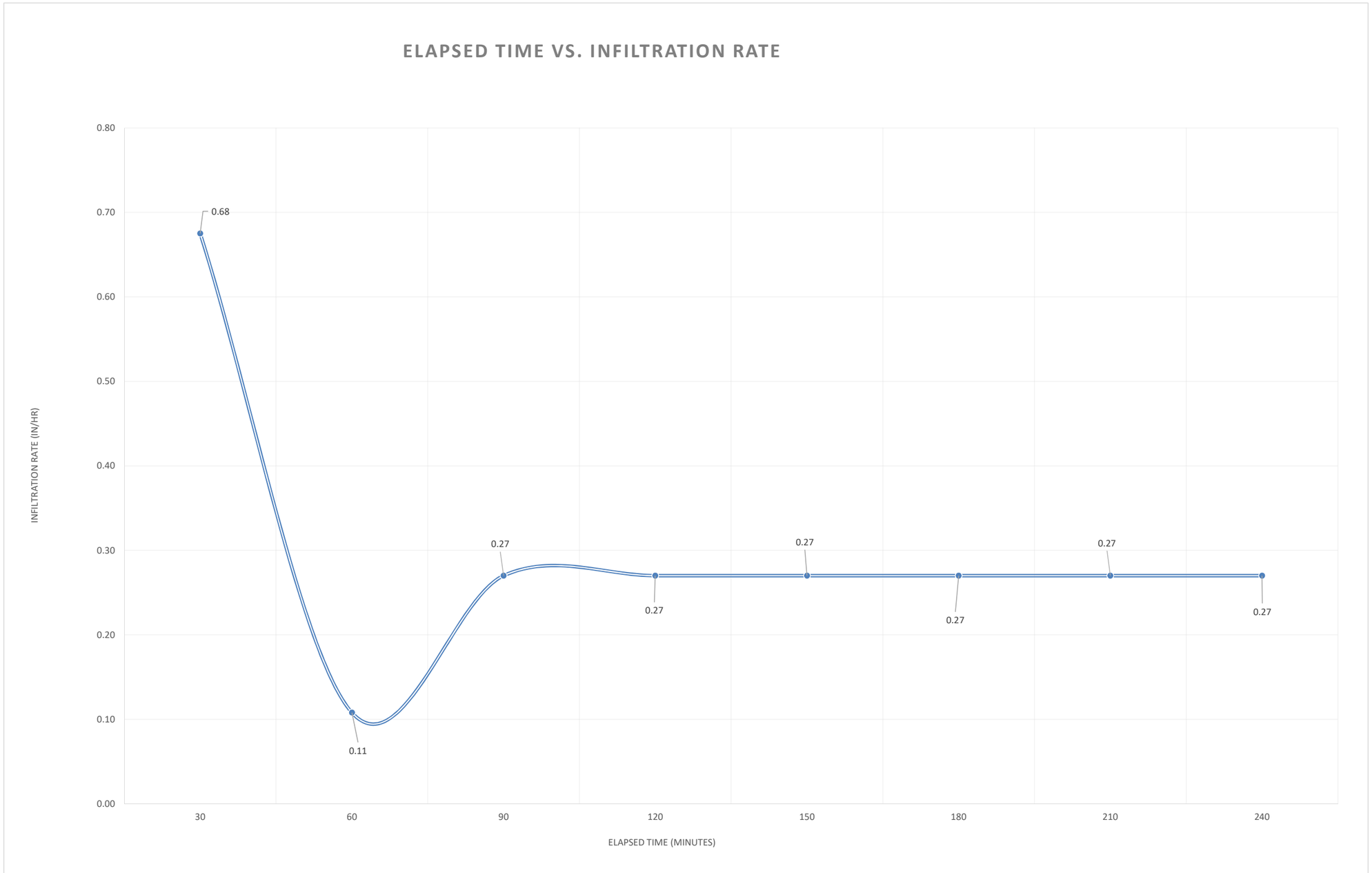

Test No.	DR-10	Location	See Map

Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT	Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number	Marriotte Tube Volume
Test Location:	DR-10	Inner Ring	729	10.0	1	3000
Liquid Used:	TAP WATE pH: 8.0	Annular Ring	2189	10.0	2	10000
Tested By:	rg / cr	Date 10/17/2018	Liquid level maintained	(X) Flow Valve ( ) Float Valve ( ) Mariotte Tubes		
Depth to water table:	> 20 Feet	Depth of Test 5'	Penetration Depth of Outer Ring:	9 cm	Other	

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings: Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp ºF	Infiltration Rates: Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temperature: Ground Temp Depth (cm)	Temp at Depth (c)	Remarks: Weather conditions Etc...
	Start Test	10/17/2018	15:00	0:30	30	5.00		5.00									
1	End Test	10/17/2018	15:30	0:30		5.00	750	5.00	1000		2.06	**0.81**	0.91	**0.36**			
	Start Test	10/17/2018	15:30	0:30	60	5.00		5.00									
2	End Test	10/17/2018	16:00	1:00		6.00	1000	5.00	1500		2.74	**1.08**	1.37	**0.54**			
	Start Test	10/17/2018	16:00	0:30	90	5.00		5.00									
3	End Test	10/17/2018	16:30	1:30		5.00	1000	5.00	500		2.74	**1.08**	0.46	**0.18**			
	Start Test	10/17/2018	16:30	0:30	120	5.00		5.00									
4	End Test	10/17/2018	17:00	2:00		5.00	1000	5.00	500		2.74	**1.08**	0.46	**0.18**			
	Start Test	10/17/2018	17:00	0:30	150	5.00		5.00									
5	End Test	10/17/2018	17:30	2:30		5.00	1000	5.00	500		2.74	**1.08**	0.46	**0.18**			
	Start Test	10/17/2018	17:30	0:30	180	5.00		5.00									
6	End Test	10/17/2018	18:00	3:00		5.00	1000	5.00	500		2.74	**1.08**	0.46	**0.18**			
	Start Test	10/17/2018	18:00	0:30	210	5.00		5.00									
7	End Test	10/17/2018	18:30	3:30		5.00	1000	5.00	500		2.74	**1.08**	0.46	**0.18**			
	Start Test	10/17/2018	18:30	0:30	240	0.00		5.00									
8	End Test	10/17/2018	19:00	4:00		5.00	1000	5.00	500		2.74	**1.08**	0.46	**0.18**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-10		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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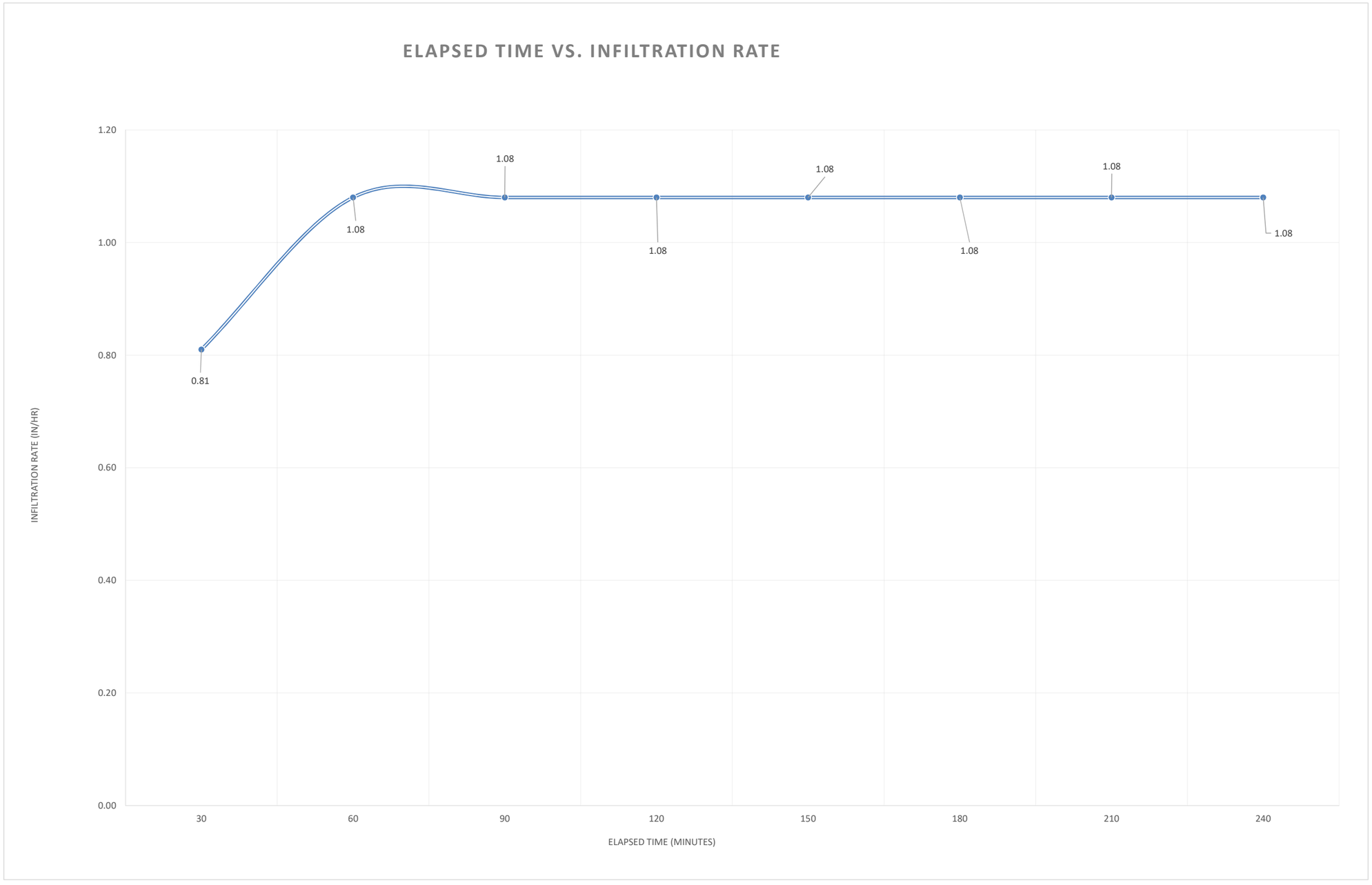

Test No.	DR-11	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT			**Constants**	**Area cm2**	**Depth of Liquid (cm)**	**Liquid Container Number**		**Marriotte Tube Volume**	Earth Strata Geotechnical Services, Inc.
Test Location:	DR-11			**Inner Ring**	729	10.0	1		3000	Geotechnical, Environmental and Materials Testing Consultants
Liquid Used:	TAP WATE	**pH:**	8.0	**Annular Ring**	2189	10.0	2		10000	www.ESGSINC.com (951) 397-8315
Tested By:	rg / cr		**Date** 11/20/2018	**Liquid level maintained**	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet		**Depth of Test** 5'	**Penetration Depth of Outer Ring:**	9 cm		**Other**			

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings: Inner Ring Reading cm	Flow Readings: Inner Maroitte Tube Flow (ml)	Flow Readings: Annular Space Reading cm	Flow Readings: Annular Space Marriotte Tube Flow (ml)	Liquid Temp °F	Infiltration Rates: Inner Infiltration Rate cm/h	Infiltration Rates: Inner Infiltration Rate In/h	Infiltration Rates: Annular Infiltration Rate cm/h	Infiltration Rates: Annular Infiltration Rate In/h	Ground Temperature: Ground Temp Depth (cm)	Ground Temperature: Temp at Depth (c)	Remarks: Weather conditions Etc...
1	Start Test	11/20/2018	9:30	0:30	30	5.00		5.00									
	End Test	11/20/2018	10:00	0:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
2	Start Test	11/20/2018	10:00	0:30	60	5.00		5.00									
	End Test	11/20/2018	10:30	1:00		6.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
3	Start Test	11/20/2018	10:30	0:30	90	5.00		5.00									
	End Test	11/20/2018	11:00	1:30		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
4	Start Test	11/20/2018	11:00	0:30	120	5.00		5.00									
	End Test	11/20/2018	11:30	2:00		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
5	Start Test	11/20/2018	11:30	0:30	150	5.00		5.00									
	End Test	11/20/2018	12:00	2:30		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
6	Start Test	11/20/2018	12:00	0:30	180	5.00		5.00									
	End Test	11/20/2018	12:30	3:00		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
7	Start Test	11/20/2018	12:30	0:30	210	5.00		5.00									
	End Test	11/20/2018	13:00	3:30		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
8	Start Test	11/20/2018	13:00	0:30	240	0.00		5.00									
	End Test	11/20/2018	13:30	4:00		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-11		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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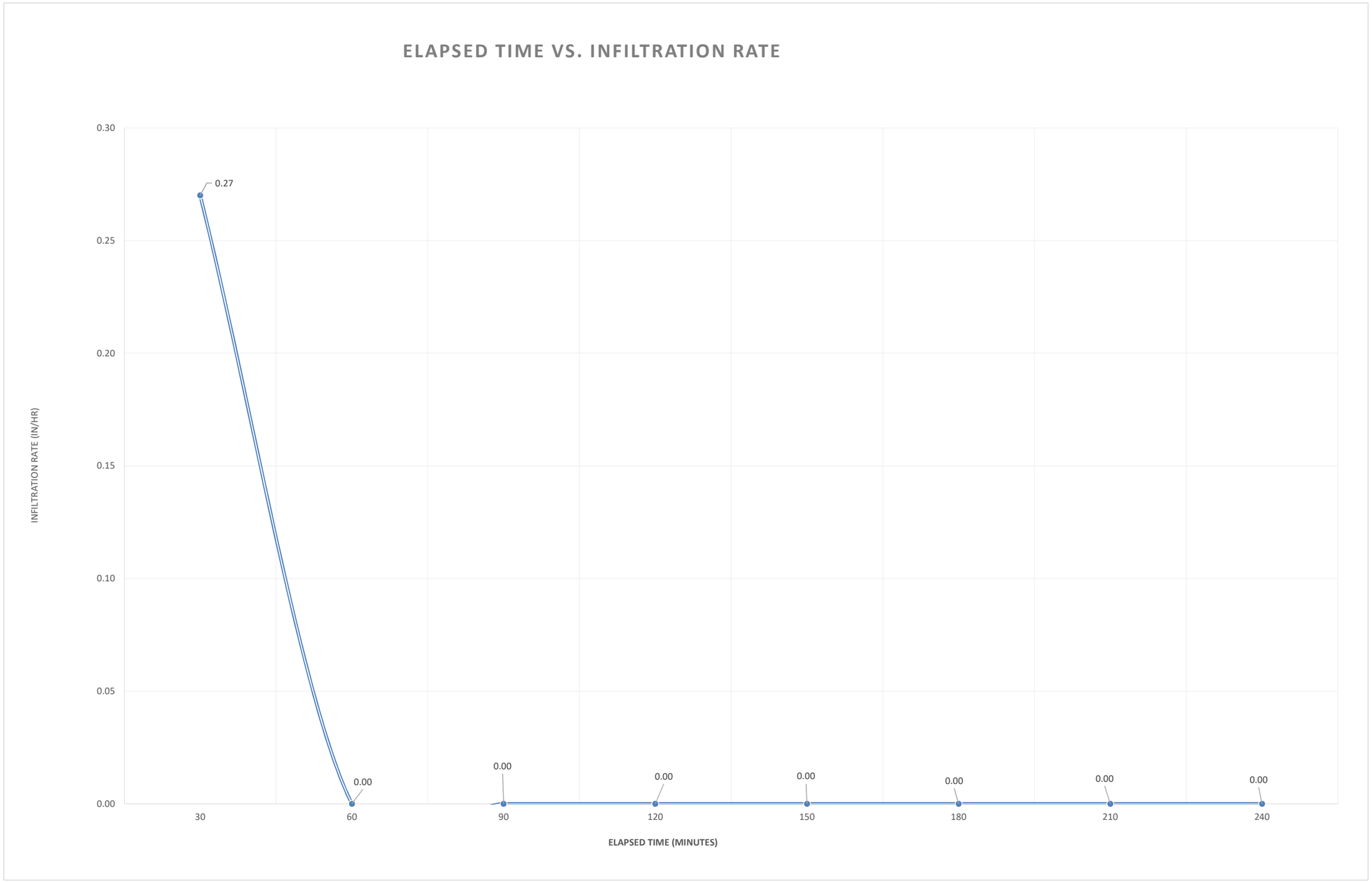

Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Test No.	DR-12	Location	See Map

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number	Marriotte Tube Volume
Test Location:	DR-12		Inner Ring	729	10.0	1	3000
Liquid Used:	TAP WATE	pH: 8.0	Annular Ring	2189	10.0	2	10000
Tested By:	rg / cr	Date 11/20/2018	Liquid level maintained	(X) Flow Valve ( ) Float Valve ( ) Mariotte Tubes			
Depth to water table:	> 20 Feet	Depth of Test 5'	Penetration Depth of Outer Ring:	9 cm			Other

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings: Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp ºF	Infiltration Rates: Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temperature: Ground Temp Depth (cm)	Temp at Depth (c)	Remarks: Weather conditions Etc...
	Start Test	11/20/2018	9:45	0:30	30	5.00		5.00									
1	End Test	11/20/2018	10:15	0:30		5.00	250	5.00	1000		0.69	**0.27**	0.91	**0.36**			
	Start Test	11/20/2018	10:15	0:30	60	5.00		5.00									
2	End Test	11/20/2018	10:45	1:00		6.00	250	5.00	1000		0.69	**0.27**	0.91	**0.36**			
	Start Test	11/20/2018	10:45	0:30	90	5.00		5.00									
3	End Test	11/20/2018	11:15	1:30		5.00	100	5.00	1000		0.27	**0.11**	0.91	**0.36**			
	Start Test	11/20/2018	11:15	0:30	120	5.00		5.00									
4	End Test	11/20/2018	11:45	2:00		5.00	100	5.00	1000		0.27	**0.11**	0.91	**0.36**			
	Start Test	11/20/2018	11:45	0:30	150	5.00		5.00									
5	End Test	11/20/2018	12:15	2:30		5.00	100	5.00	1000		0.27	**0.11**	0.91	**0.36**			
	Start Test	11/20/2018	12:15	0:30	180	5.00		5.00									
6	End Test	11/20/2018	12:45	3:00		5.00	100	5.00	1000		0.27	**0.11**	0.91	**0.36**			
	Start Test	11/20/2018	12:45	0:30	210	5.00		5.00									
7	End Test	11/20/2018	13:15	3:30		5.00	100	5.00	1000		0.27	**0.11**	0.91	**0.36**			
	Start Test	11/20/2018	13:15	0:30	240	0.00		5.00									
8	End Test	11/20/2018	13:45	4:00		5.00	100	5.00	1000		0.27	**0.11**	0.91	**0.36**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-12		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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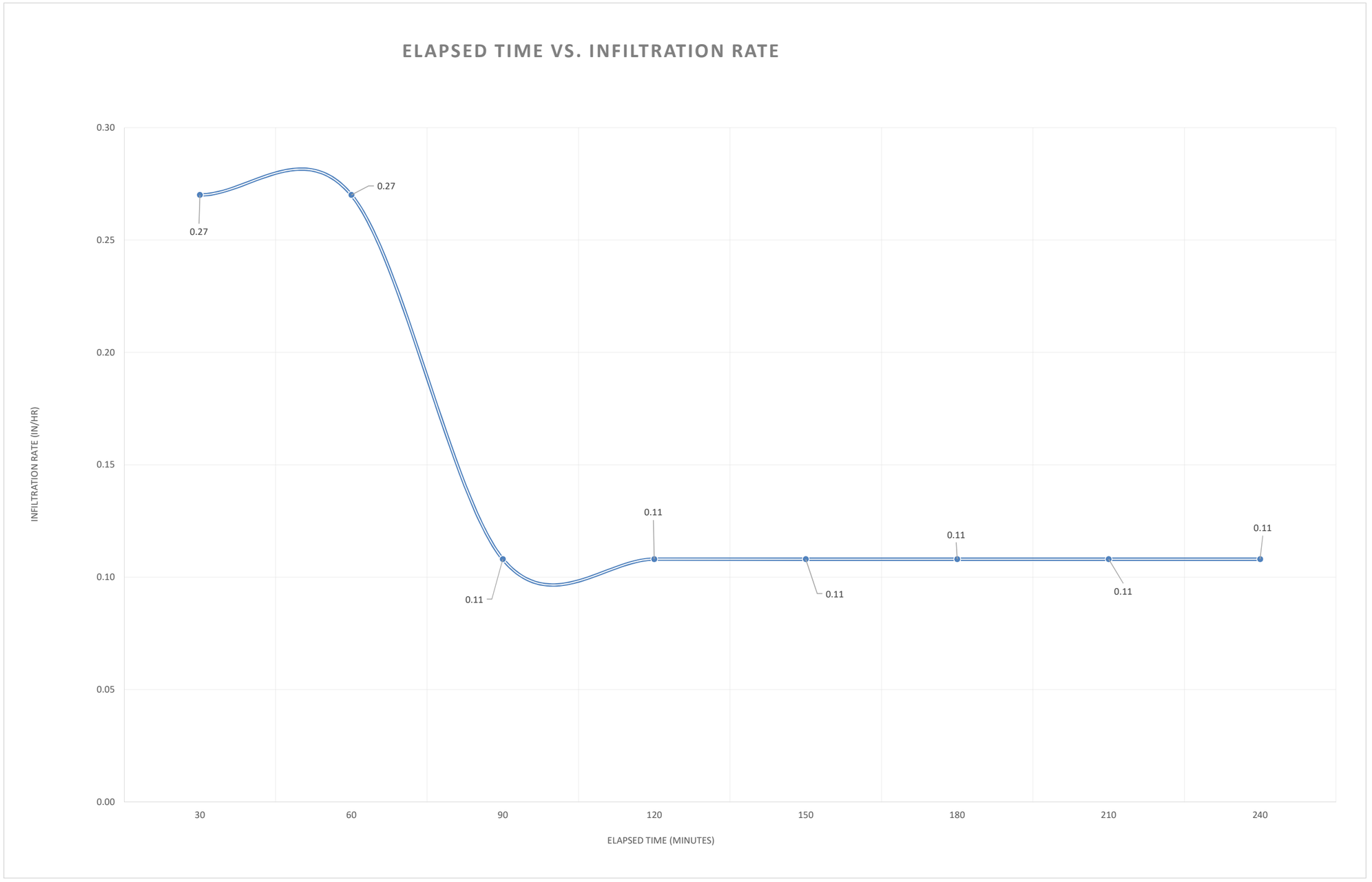

Test No.	DR-13	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT			Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume	Earth Strata Geotechnical Services, Inc.
Test Location:	DR-13			Inner Ring	729	10.0	1		3000	Geotechnical, Environmental and Materials Testing Consultants
Liquid Used:	TAP WATE	pH:	8.0	Annular Ring	2189	10.0	2		10000	www.ESGSINC.com (951) 397-8315
Tested By:	rg / cr	Date	11/20/2018	Liquid level maintained	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet	Depth of Test	5'	Penetration Depth of Outer Ring:	9 cm				Other	

						Flow Readings					Infiltration Rates				Ground Temperature		Remarks
Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp °F	Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temp Depth (cm)	Temp at Depth (c)	Weather conditions Etc...
1	Start Test	11/20/2018	14:10	0:30	30	5.00		5.00									
	End Test	11/20/2018	14:40	0:30		5.00	1000	5.00	4000		2.74	**1.08**	3.65	**1.44**			
2	Start Test	11/20/2018	14:40	0:30	60	5.00		5.00									
	End Test	11/20/2018	15:10	1:00		6.00	500	5.00	2000		1.37	**0.54**	1.83	**0.72**			
3	Start Test	11/20/2018	15:10	0:30	90	5.00		5.00									
	End Test	11/20/2018	15:40	1:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
4	Start Test	11/20/2018	15:40	0:30	120	5.00		5.00									
	End Test	11/20/2018	16:10	2:00		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
5	Start Test	11/20/2018	16:10	0:30	150	5.00		5.00									
	End Test	11/20/2018	16:40	2:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
6	Start Test	11/20/2018	16:40	0:30	180	5.00		5.00									
	End Test	11/20/2018	17:10	3:00		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
7	Start Test	11/20/2018	17:10	0:30	210	5.00		5.00									
	End Test	11/20/2018	17:40	3:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
8	Start Test	11/20/2018	17:40	0:30	240	0.00		5.00									
	End Test	11/20/2018	18:10	4:00		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-13		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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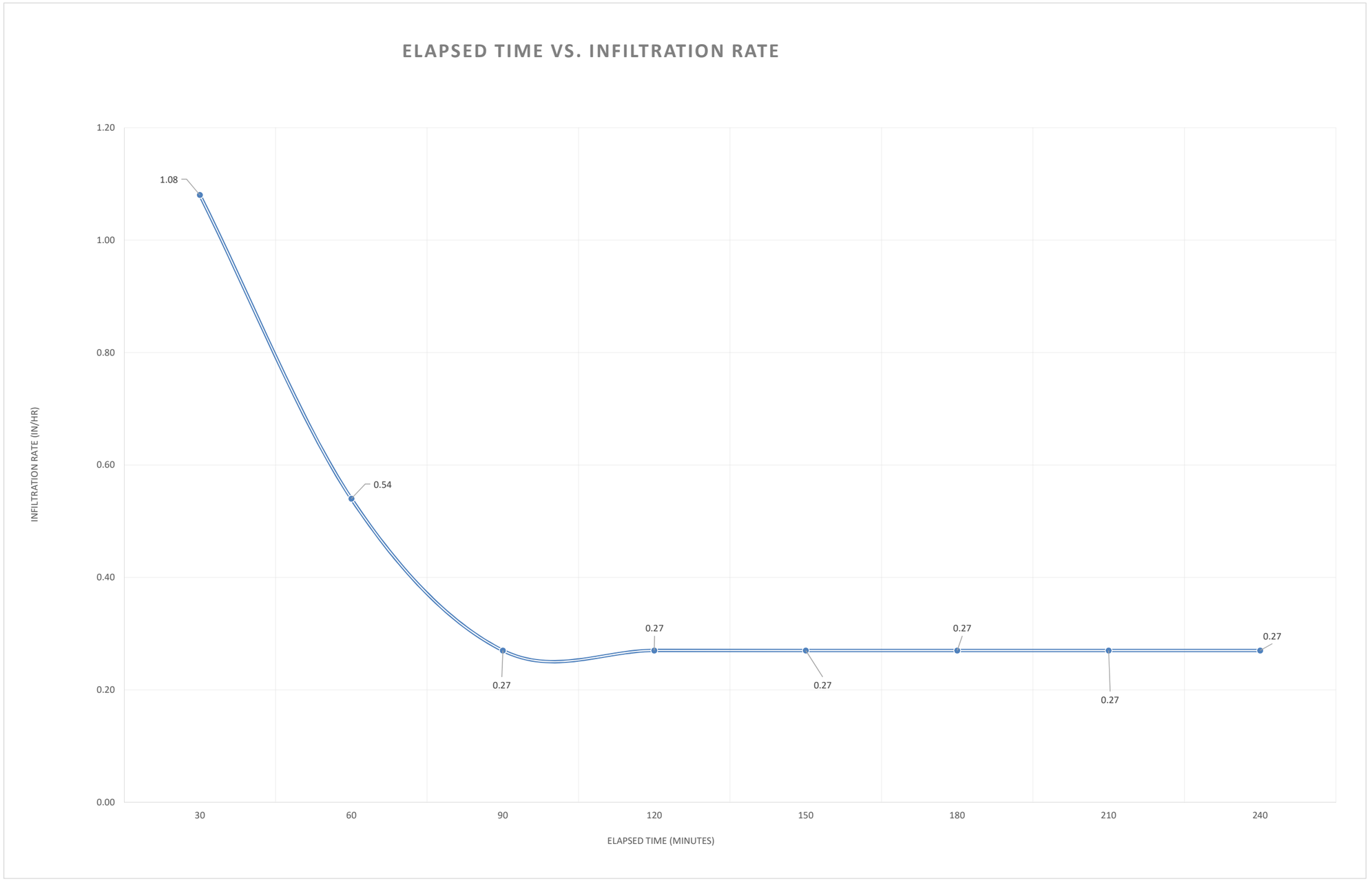

Test No.	DR-14	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT			Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume	Earth Strata Geotechnical Services, Inc.
Test Location:	DR-14		Inner Ring	729	10.0	1		3000	Geotechnical, Environmental and Materials Testing Consultants
Liquid Used:	TAP WATE	pH: 8.0	Annular Ring	2189	10.0	2		10000	www.ESGSINC.com (951) 397-8315
Tested By:	rg / cr	Date 11/20/2018	Liquid level maintained	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet	Depth of Test 5'	Penetration Depth of Outer Ring:	9 cm	Other				

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings: Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp °F	Infiltration Rates: Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temperature: Ground Temp Depth (cm)	Temp at Depth (c)	Remarks: Weather conditions Etc...
	Start Test	11/20/2018	14:00	0:30	30	5.00		5.00									
1	End Test	11/20/2018	14:30	0:30		5.00	1750	5.00	4000		4.80	**1.89**	3.65	**1.44**			
	Start Test	11/20/2018	14:30	0:30	60	5.00		5.00									
2	End Test	11/20/2018	15:00	1:00		6.00	100	5.00	2500		0.27	**0.11**	2.28	**0.90**			
	Start Test	11/20/2018	15:00	0:30	90	5.00		5.00									
3	End Test	11/20/2018	15:30	1:30		5.00	100	5.00	500		0.27	**0.11**	0.46	**0.18**			
	Start Test	11/20/2018	15:30	0:30	120	5.00		5.00									
4	End Test	11/20/2018	16:00	2:00		5.00	100	5.00	500		0.27	**0.11**	0.46	**0.18**			
	Start Test	11/20/2018	16:00	0:30	150	5.00		5.00									
5	End Test	11/20/2018	16:30	2:30		5.00	100	5.00	500		0.27	**0.11**	0.46	**0.18**			
	Start Test	11/20/2018	16:30	0:30	180	5.00		5.00									
6	End Test	11/20/2018	17:00	3:00		5.00	100	5.00	500		0.27	**0.11**	0.46	**0.18**			
	Start Test	11/20/2018	17:00	0:30	210	5.00		5.00									
7	End Test	11/20/2018	17:30	3:30		5.00	100	5.00	500		0.27	**0.11**	0.46	**0.18**			
	Start Test	11/20/2018	17:30	0:30	240	0.00		5.00									
8	End Test	11/20/2018	18:00	4:00		5.00	100	5.00	500		0.27	**0.11**	0.46	**0.18**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-14		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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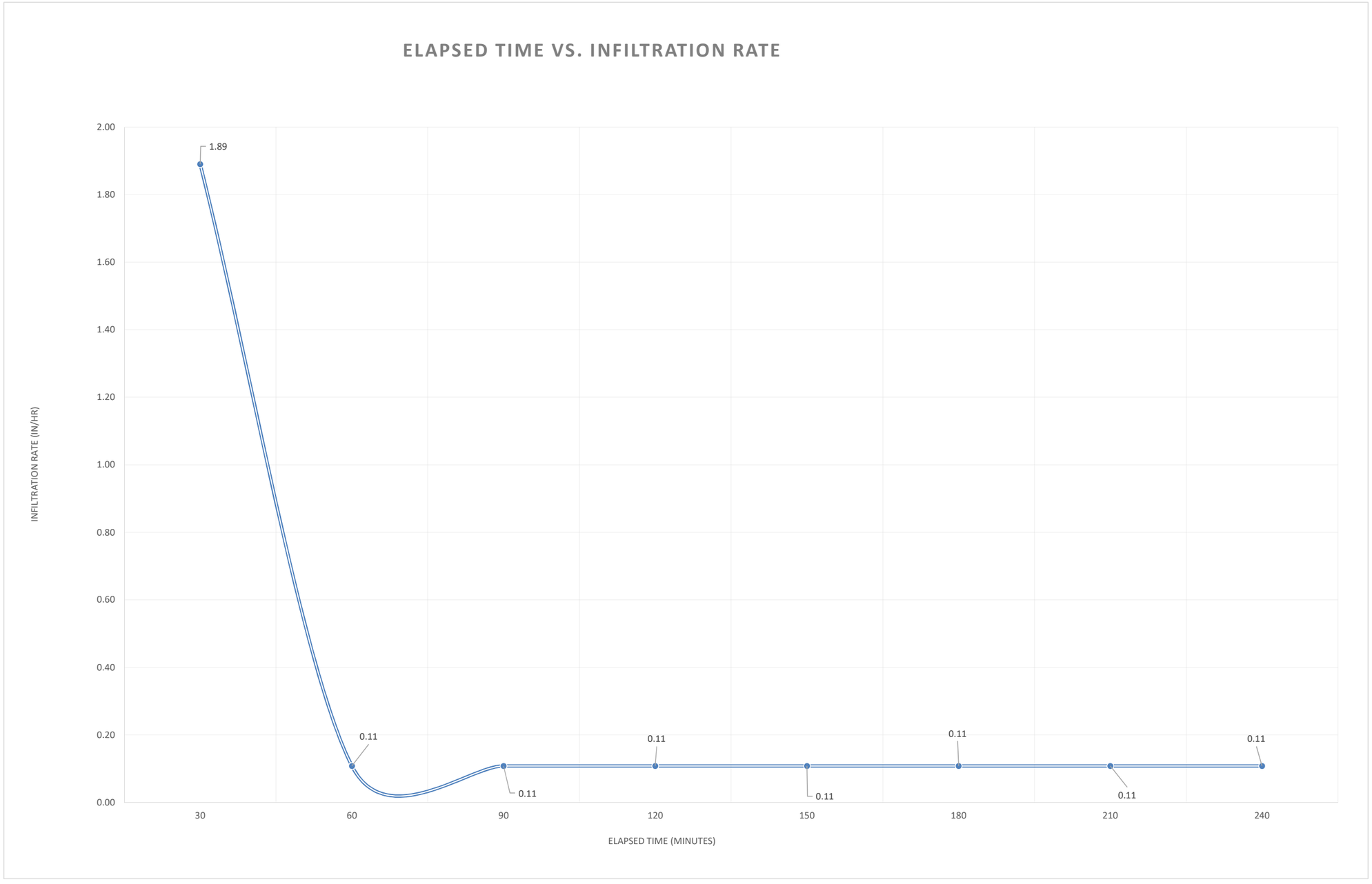

Test No.	DR-15	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT			Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume	
Test Location:	DR-15			Inner Ring	729	10.0	1		3000	
Liquid Used:	TAP WATE	pH:	8.0	Annular Ring	2189	10.0	2		10000	
Tested By:	rg / cr	Date	11/21/2018	Liquid level maintained	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet	Depth of Test	5'	Penetration Depth of Outer Ring:	9 cm	Other				

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings				Liquid Temp °F	Infiltration Rates				Ground Temperature		Remarks
						Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)		Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temp Depth (cm)	Temp at Depth (c)	Weather conditions Etc...
	Start Test	11/21/2018	5:30	0:30	30	5.00		5.00									
1	End Test	11/21/2018	6:00	0:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
	Start Test	11/21/2018	6:00	0:30	60	5.00		5.00									
2	End Test	11/21/2018	6:30	1:00		6.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
	Start Test	11/21/2018	6:30	0:30	90	5.00		5.00									
3	End Test	11/21/2018	7:00	1:30		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
	Start Test	11/21/2018	7:00	0:30	120	5.00		5.00									
4	End Test	11/21/2018	7:30	2:00		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
	Start Test	11/21/2018	7:30	0:30	150	5.00		5.00									
5	End Test	11/21/2018	8:00	2:30		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
	Start Test	11/21/2018	8:00	0:30	180	5.00		5.00									
6	End Test	11/21/2018	8:30	3:00		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
	Start Test	11/21/2018	8:30	0:30	210	5.00		5.00									
7	End Test	11/21/2018	9:00	3:30		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
	Start Test	11/21/2018	9:00	0:30	240	0.00		5.00									
8	End Test	11/21/2018	9:30	4:00		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-15		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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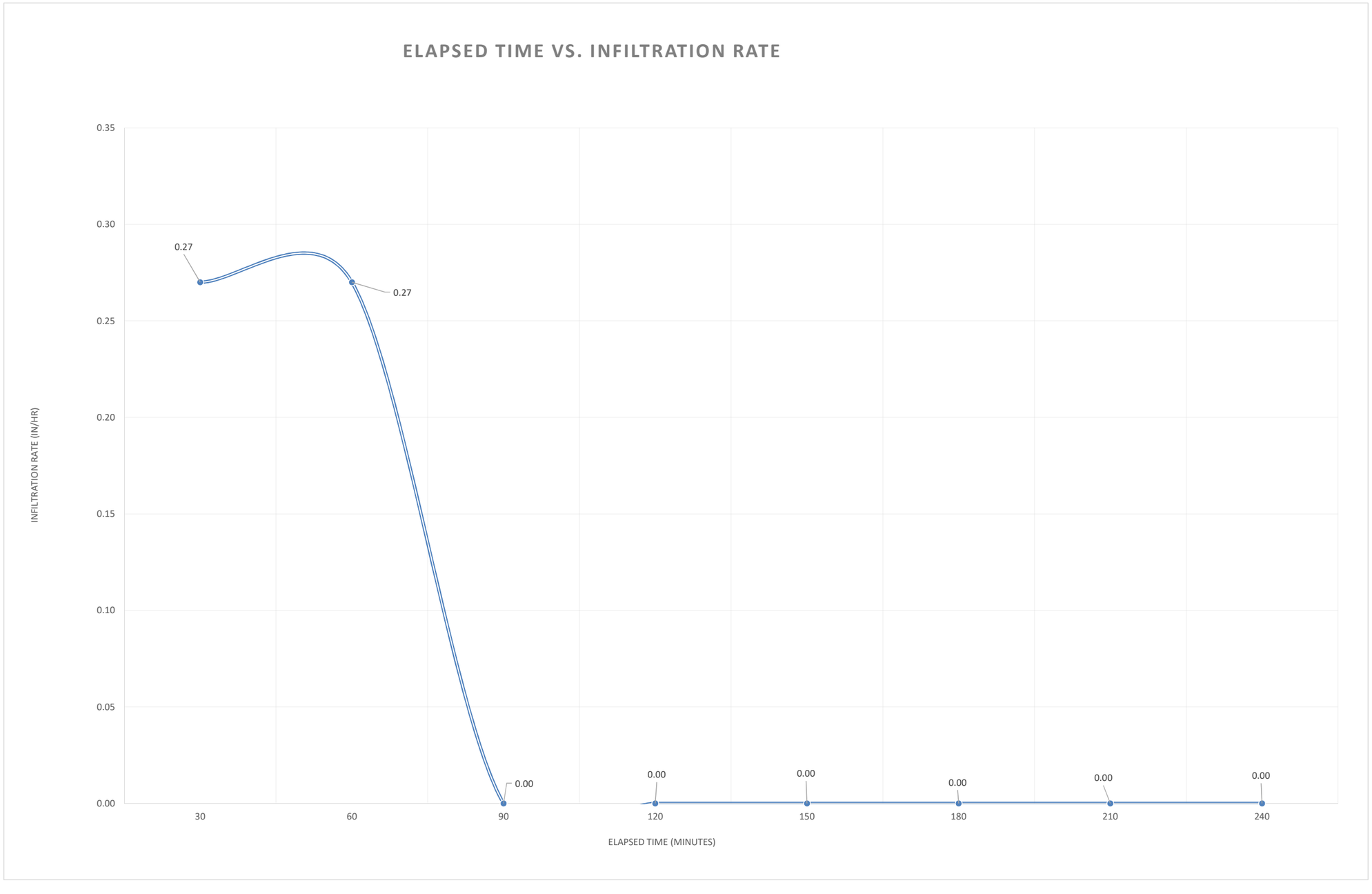

Test No.	DR-16	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT			Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume	Earth Strata Geotechnical Services, Inc.
Test Location:	DR-16		Inner Ring	729	10.0	1		3000	Geotechnical, Environmental and Materials Testing Consultants	
Liquid Used:	TAP WATE	pH: 8.0	Annular Ring	2189	10.0	2		10000	www.ESGSINC.com (951) 397-8315	
Tested By:	rg / cr	Date 11/21/2018	Liquid level maintained	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes				
Depth to water table:	> 20 Feet	Depth of Test 5'	Penetration Depth of Outer Ring:	9 cm	Other					

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings				Liquid Temp °F	Infiltration Rates				Ground Temperature		Remarks
						Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)		Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temp Depth (cm)	Temp at Depth (c)	Weather conditions Etc...
1	Start Test	11/21/2018	5:45	0:30	30	5.00		5.00									
	End Test	11/21/2018	6:15	0:30		5.00	1000	5.00	2000		2.74	**1.08**	1.83	**0.72**			
2	Start Test	11/21/2018	6:15	0:30	60	5.00		5.00									
	End Test	11/21/2018	6:45	1:00		6.00	500	5.00	1250		1.37	**0.54**	1.14	**0.45**			
3	Start Test	11/21/2018	6:45	0:30	90	5.00		5.00									
	End Test	11/21/2018	7:15	1:30		5.00	250	5.00	950		0.69	**0.27**	0.87	**0.34**			
4	Start Test	11/21/2018	7:15	0:30	120	5.00		5.00									
	End Test	11/21/2018	7:45	2:00		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
5	Start Test	11/21/2018	7:45	0:30	150	5.00		5.00									
	End Test	11/21/2018	8:15	2:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
6	Start Test	11/21/2018	8:15	0:30	180	5.00		5.00									
	End Test	11/21/2018	8:45	3:00		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
7	Start Test	11/21/2018	8:45	0:30	210	5.00		5.00									
	End Test	11/21/2018	9:15	3:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
8	Start Test	11/21/2018	9:15	0:30	240	0.00		5.00									
	End Test	11/21/2018	9:45	4:00		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-16		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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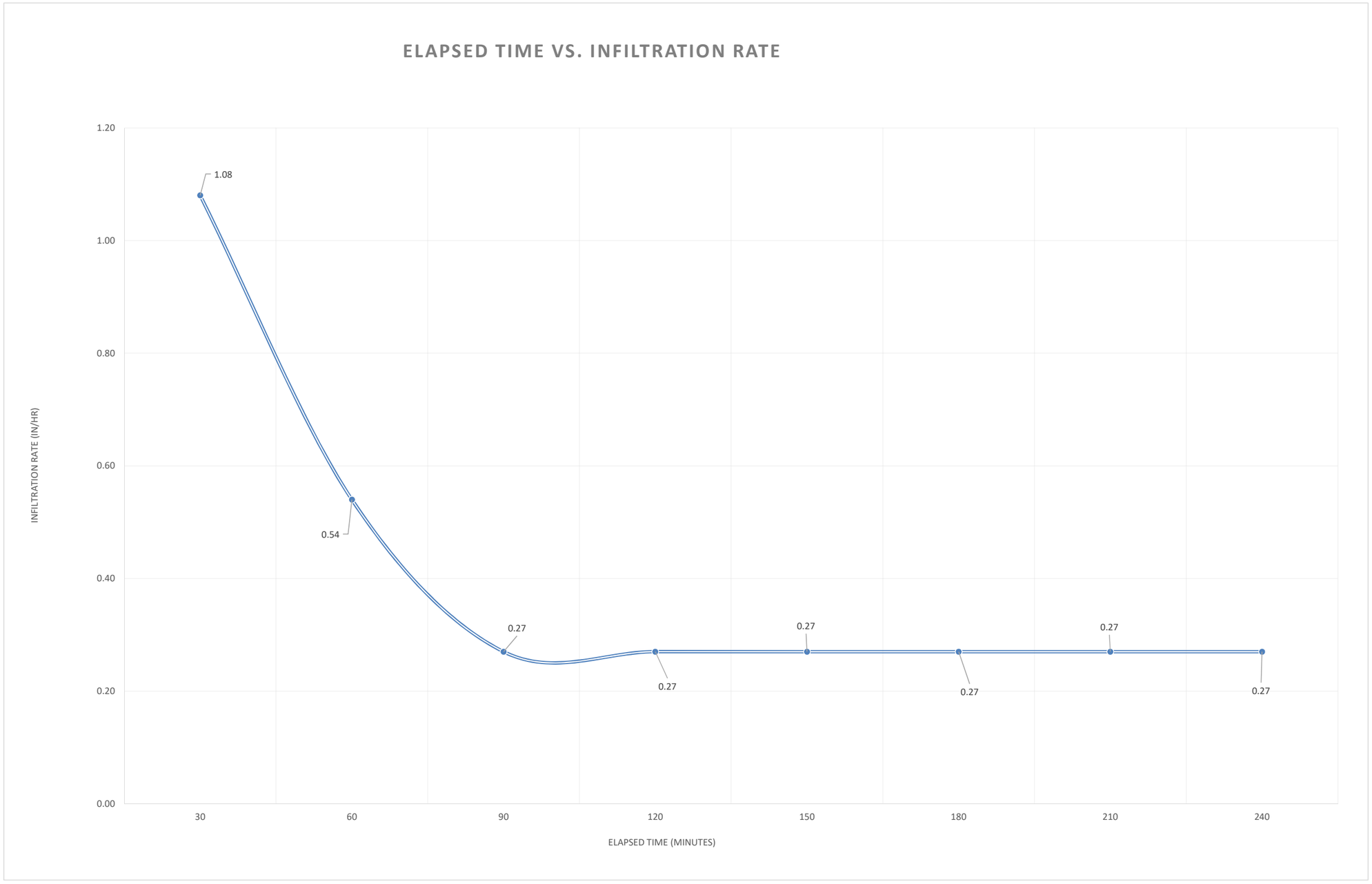

Test No.	DR-17	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT			Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume	
Test Location:	DR-17			Inner Ring	729	10.0	1		3000	
Liquid Used:	TAP WATE	pH:	8.0	Annular Ring	2189	10.0	2		10000	
Tested By:	rg / cr	Date	11/21/2018	Liquid level maintained	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet	Depth of Test	5'	Penetration Depth of Outer Ring:	9 cm				Other	

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings				Liquid Temp °F	Infiltration Rates				Ground Temperature		Remarks
						Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)		Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temp Depth (cm)	Temp at Depth (c)	Weather conditions Etc...
1	Start Test	11/21/2018	11:30	0:30	30	5.00		5.00									
	End Test	11/21/2018	12:00	0:30		5.00	2000	5.00	3500		5.49	**2.16**	3.20	**1.26**			
2	Start Test	11/21/2018	12:00	0:30	60	5.00		5.00									
	End Test	11/21/2018	12:30	1:00		6.00	500	5.00	1000		1.37	**0.54**	0.91	**0.36**			
3	Start Test	11/21/2018	12:30	0:30	90	5.00		5.00									
	End Test	11/21/2018	13:00	1:30		5.00	500	5.00	1000		1.37	**0.54**	0.91	**0.36**			
4	Start Test	11/21/2018	13:00	0:30	120	5.00		5.00									
	End Test	11/21/2018	13:30	2:00		5.00	0	5.00	500		0.00	**0.00**	0.46	**0.18**			
5	Start Test	11/21/2018	13:30	0:30	150	5.00		5.00									
	End Test	11/21/2018	14:00	2:30		5.00	0	5.00	500		0.00	**0.00**	0.46	**0.18**			
6	Start Test	11/21/2018	14:00	0:30	180	5.00		5.00									
	End Test	11/21/2018	14:30	3:00		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
7	Start Test	11/21/2018	14:30	0:30	210	5.00		5.00									
	End Test	11/21/2018	15:00	3:30		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			
8	Start Test	11/21/2018	15:00	0:30	240	0.00		5.00									
	End Test	11/21/2018	15:30	4:00		5.00	0	5.00	0		0.00	**0.00**	0.00	**0.00**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-17		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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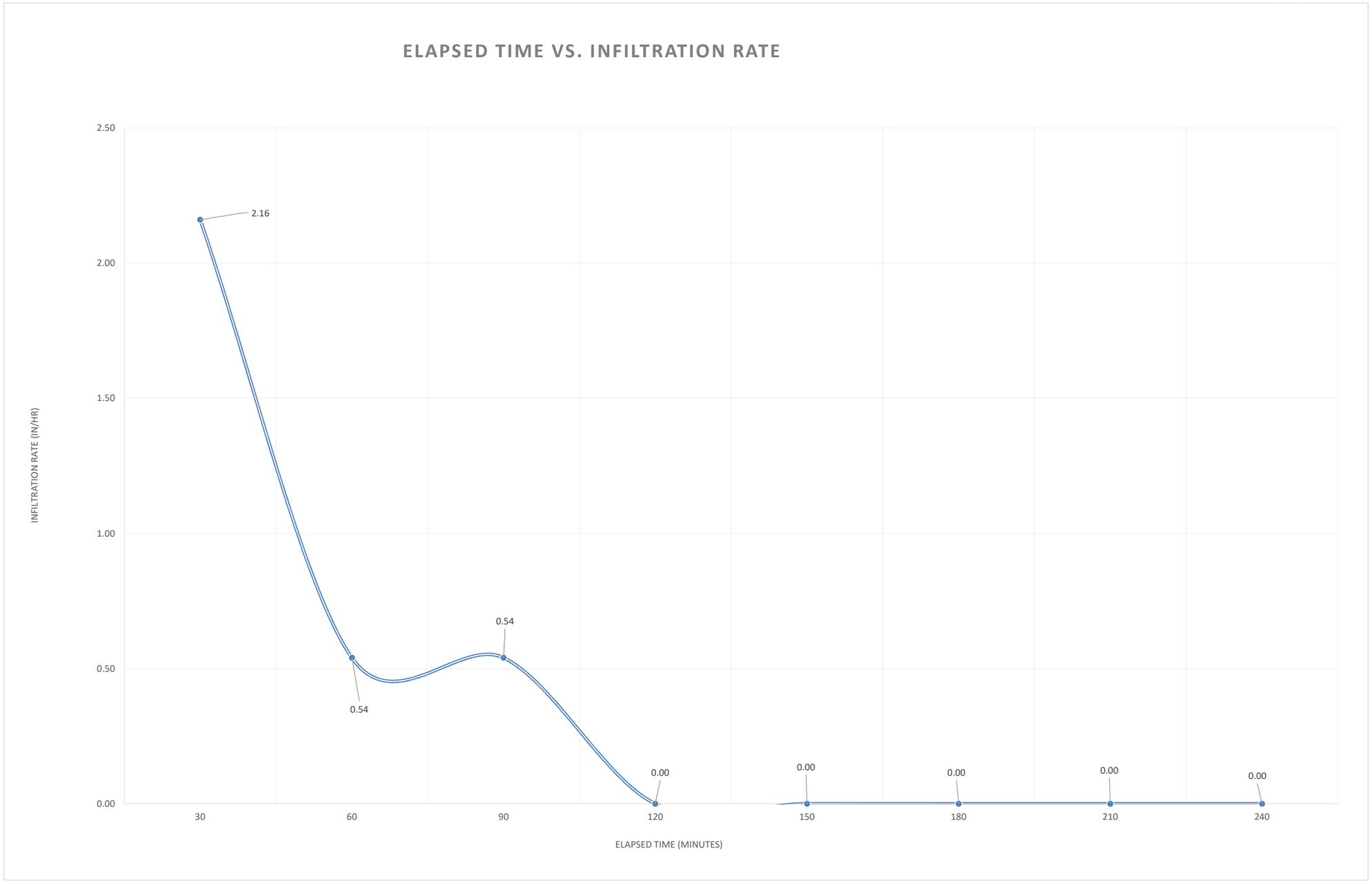

Test No.	DR-18	Location	See Map

Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT	Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number	Marriotte Tube Volume
Test Location:	DR-18	Inner Ring	729	10.0	1	3000
Liquid Used:	TAP WATE pH: 8.0	Annular Ring	2189	10.0	2	10000
Tested By:	rg / cr	Date 11/21/2018	Liquid level maintained	(X) Flow Valve ( ) Float Valve ( ) Mariotte Tubes		
Depth to water table:	> 20 Feet	Depth of Test 5'	Penetration Depth of Outer Ring:	9 cm	Other	

						Flow Readings					Infiltration Rates				Ground Temperature		Remarks
Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp ºF	Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temp Depth (cm)	Temp at Depth (c)	Weather conditions Etc...
	Start Test	11/21/2018	11:35	0:30	30	5.00		5.00									
1	End Test	11/21/2018	12:05	0:30		5.00	2000	5.00	4000		5.49	**2.16**	3.65	**1.44**			
	Start Test	11/21/2018	12:05	0:30	60	5.00		5.00									
2	End Test	11/21/2018	12:35	1:00		6.00	1250	5.00	4000		3.43	**1.35**	3.65	**1.44**			
	Start Test	11/21/2018	12:35	0:30	90	5.00		5.00									
3	End Test	11/21/2018	13:05	1:30		5.00	1750	5.00	2000		4.80	**1.89**	1.83	**0.72**			
	Start Test	11/21/2018	13:05	0:30	120	5.00		5.00									
4	End Test	11/21/2018	13:35	2:00		5.00	1200	5.00	2500		3.29	**1.30**	2.28	**0.90**			
	Start Test	11/21/2018	13:35	0:30	150	5.00		5.00									
5	End Test	11/21/2018	14:05	2:30		5.00	750	5.00	2500		2.06	**0.81**	2.28	**0.90**			
	Start Test	11/21/2018	14:05	0:30	180	5.00		5.00									
6	End Test	11/21/2018	14:35	3:00		5.00	750	5.00	2500		2.06	**0.81**	2.28	**0.90**			
	Start Test	11/21/2018	14:35	0:30	210	5.00		5.00									
7	End Test	11/21/2018	15:05	3:30		5.00	750	5.00	2500		2.06	**0.81**	2.28	**0.90**			
	Start Test	11/21/2018	15:05	0:30	240	0.00		5.00									
8	End Test	11/21/2018	15:35	4:00		5.00	750	5.00	2500		2.06	**0.81**	2.28	**0.90**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-18		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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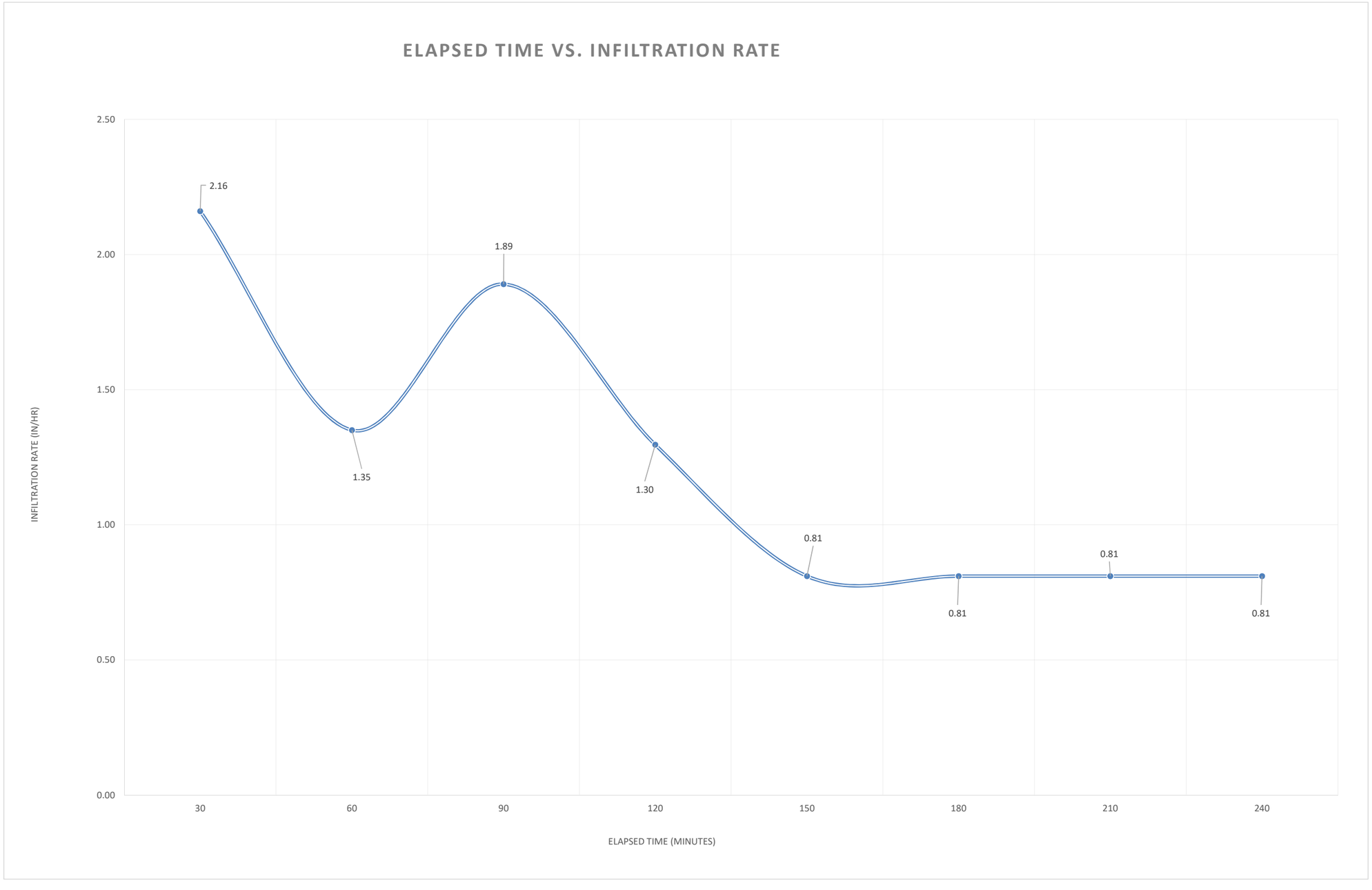

Test No.	DR-19	Location	See Map

Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

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Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT			Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number	Marriotte Tube Volume
Test Location:	DR-19			Inner Ring	729	10.0	1	3000
Liquid Used:	TAP WATE	pH:	8.0	Annular Ring	2189	10.0	2	10000
Tested By:	rg / cr	Date	11/21/2018	Liquid level maintained	(X) Flow Valve ( ) Float Valve ( ) Mariotte Tubes			
Depth to water table:	> 20 Feet	Depth of Test	5'	Penetration Depth of Outer Ring:	9 cm	Other		

Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Flow Readings: Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp ºF	Infiltration Rates: Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temperature: Ground Temp Depth (cm)	Temp at Depth (c)	Remarks: Weather conditions Etc...
	Start Test	11/21/2018	16:00	0:30	30	5.00		5.00									
1	End Test	11/21/2018	16:30	0:30		5.00	750	5.00	1000		2.06	**0.81**	0.91	**0.36**			
	Start Test	11/21/2018	16:30	0:30	60	5.00		5.00									
2	End Test	11/21/2018	17:00	1:00		6.00	750	5.00	1000		2.06	**0.81**	0.91	**0.36**			
	Start Test	11/21/2018	17:00	0:30	90	5.00		5.00									
3	End Test	11/21/2018	17:30	1:30		5.00	750	5.00	1000		2.06	**0.81**	0.91	**0.36**			
	Start Test	11/21/2018	17:30	0:30	120	5.00		5.00									
4	End Test	11/21/2018	18:00	2:00		5.00	500	5.00	1000		1.37	**0.54**	0.91	**0.36**			
	Start Test	11/21/2018	18:00	0:30	150	5.00		5.00									
5	End Test	11/21/2018	18:30	2:30		5.00	500	5.00	1000		1.37	**0.54**	0.91	**0.36**			
	Start Test	11/21/2018	18:30	0:30	180	5.00		5.00									
6	End Test	11/21/2018	19:00	3:00		5.00	500	5.00	750		1.37	**0.54**	0.69	**0.27**			
	Start Test	11/21/2018	19:00	0:30	210	5.00		5.00									
7	End Test	11/21/2018	19:30	3:30		5.00	500	5.00	750		1.37	**0.54**	0.69	**0.27**			
	Start Test	11/21/2018	19:30	0:30	240	0.00		5.00									
8	End Test	11/21/2018	20:00	4:00		5.00	500	5.00	750		1.37	**0.54**	0.69	**0.27**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-19		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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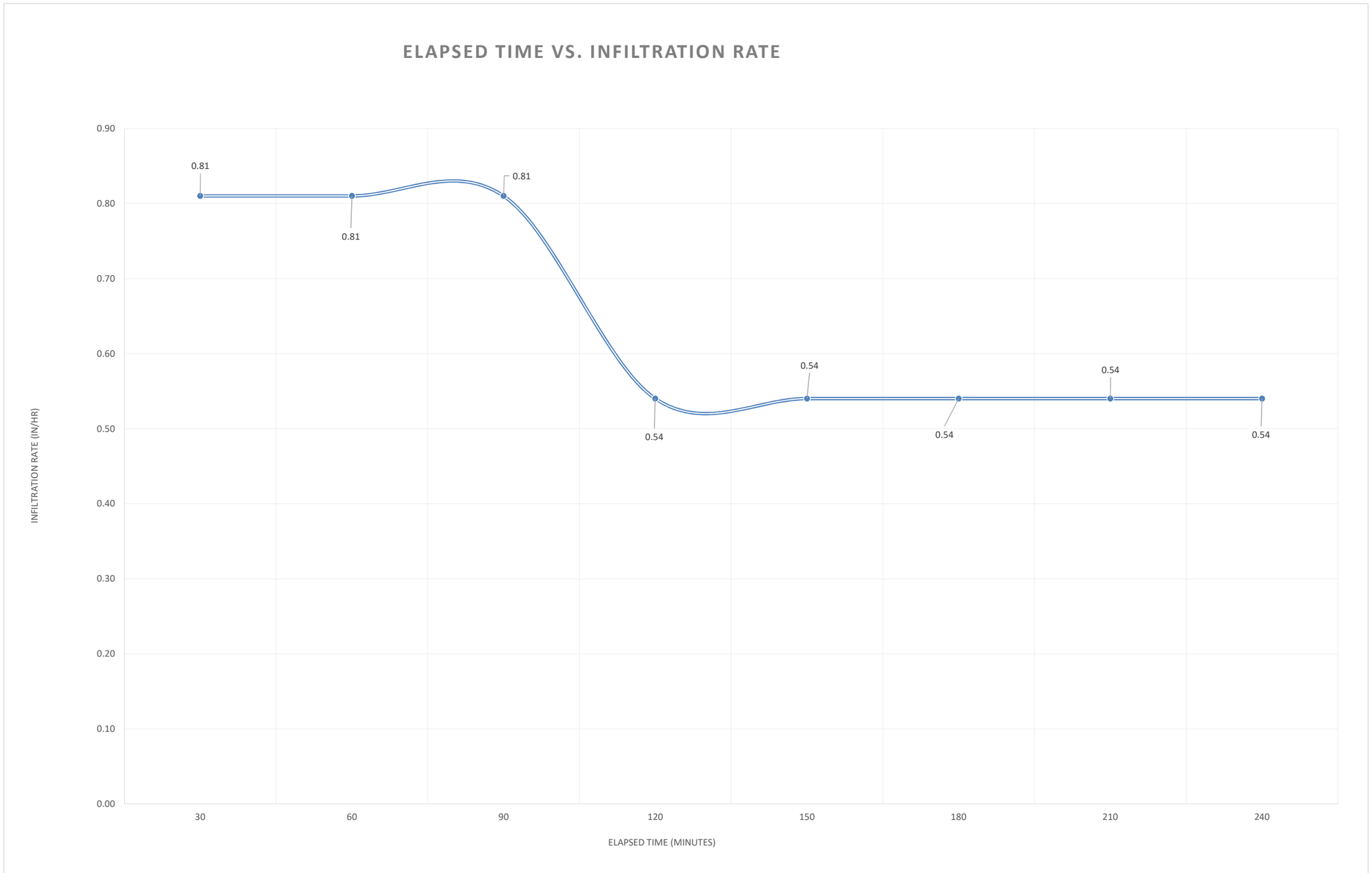

Test No.	DR-20	Location	See Map	Turf-Tec International - Record Chart for IN10-W - (12 & 24 Inch Infiltration Rings)

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT			Constants	Area cm2	Depth of Liquid (cm)	Liquid Container Number		Marriotte Tube Volume	Earth Strata Geotechnical Services, Inc.
Test Location:	DR-20			Inner Ring	729	10.0	1		3000	Geotechnical, Environmental and Materials Testing Consultants
Liquid Used:	TAP WATE	pH:	8.0	Annular Ring	2189	10.0	2		10000	www.ESGSINC.com (951) 397-8315
Tested By:	rg / cr	Date	11/21/2018	Liquid level maintained	(X) Flow Valve	( ) Float Valve	( ) Mariotte Tubes			
Depth to water table:	> 20 Feet	Depth of Test	5'	Penetration Depth of Outer Ring:	9 cm				Other	

						Flow Readings					Infiltration Rates				Ground Temperature		Remarks
Trial #	Start / End	Date MM/DD/YY	Time HR:MIN	Time Increment /(Total)	Elapsed Time (Min)	Inner Ring Reading cm	Inner Maroitte Tube Flow (ml)	Annular Space Reading cm	Annular Space Marriotte Tube Flow (ml)	Liquid Temp ºF	Inner Infiltration Rate cm/h	Inner Infiltration Rate In/h	Annular Infiltration Rate cm/h	Annular Infiltration Rate In/h	Ground Temp Depth (cm)	Temp at Depth (c)	Weather conditions Etc...
1	Start Test	11/21/2018	16:10	0:30	30	5.00		5.00									
	End Test	11/21/2018	16:40	0:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
2	Start Test	11/21/2018	16:40	0:30	60	5.00		5.00									
	End Test	11/21/2018	17:10	1:00		6.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
3	Start Test	11/21/2018	17:10	0:30	90	5.00		5.00									
	End Test	11/21/2018	17:40	1:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
4	Start Test	11/21/2018	17:40	0:30	120	5.00		5.00									
	End Test	11/21/2018	18:10	2:00		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
5	Start Test	11/21/2018	18:10	0:30	150	5.00		5.00									
	End Test	11/21/2018	18:40	2:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
6	Start Test	11/21/2018	18:40	0:30	180	5.00		5.00									
	End Test	11/21/2018	19:10	3:00		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
7	Start Test	11/21/2018	19:10	0:30	210	5.00		5.00									
	End Test	11/21/2018	19:40	3:30		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			
8	Start Test	11/21/2018	19:40	0:30	240	0.00		5.00									
	End Test	11/21/2018	20:10	4:00		5.00	250	5.00	500		0.69	**0.27**	0.46	**0.18**			

Turf-Tec International

Project Identification:	OLSEN/CHANDLER RANCH DEVELOPMENT		
Test Location:	DR-20		
Liquid Used:	TAP WATE	**pH:**	8.0
Tested By:	rg / cr		
Depth to water table:	> 20 Feet		

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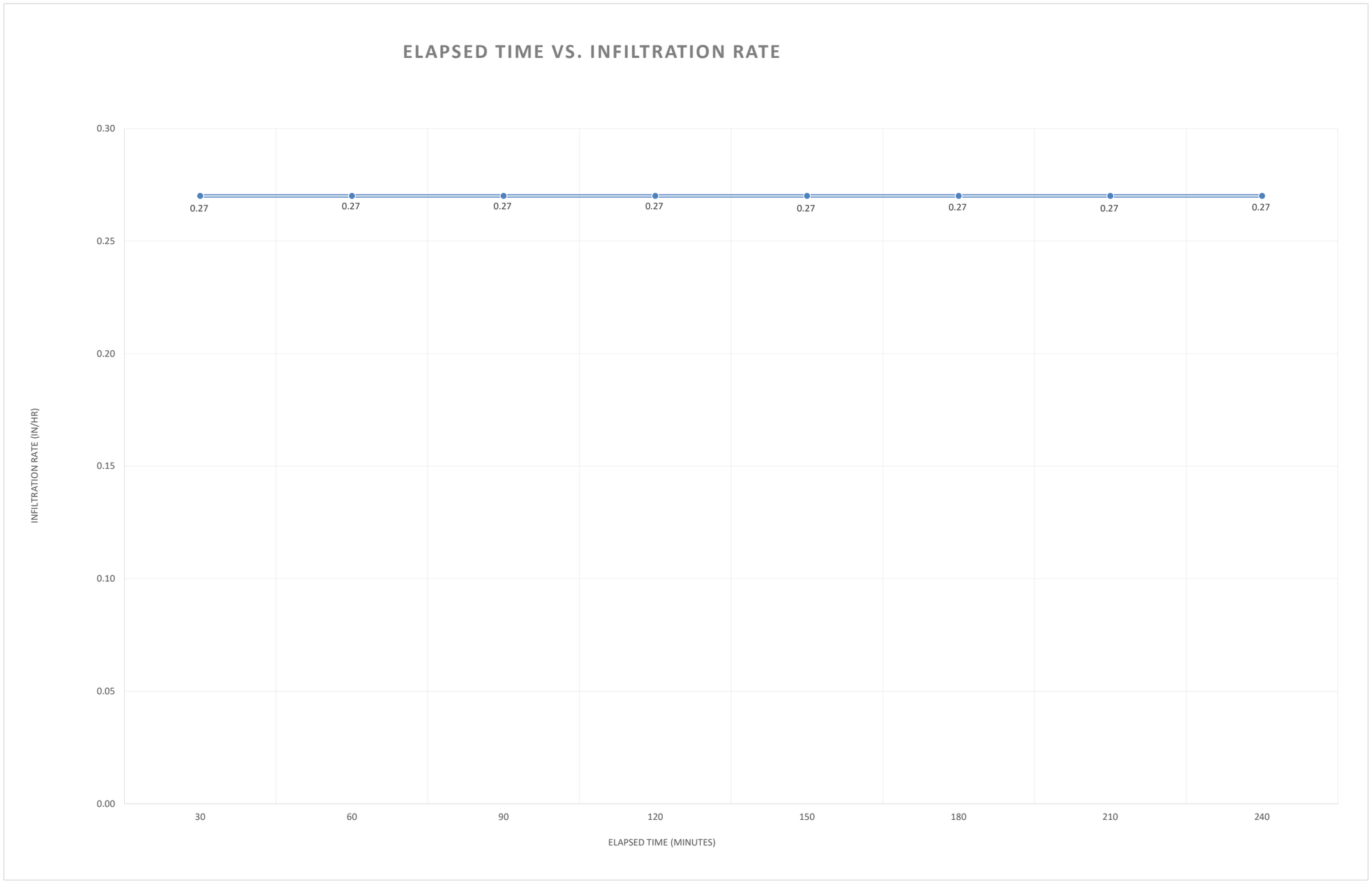
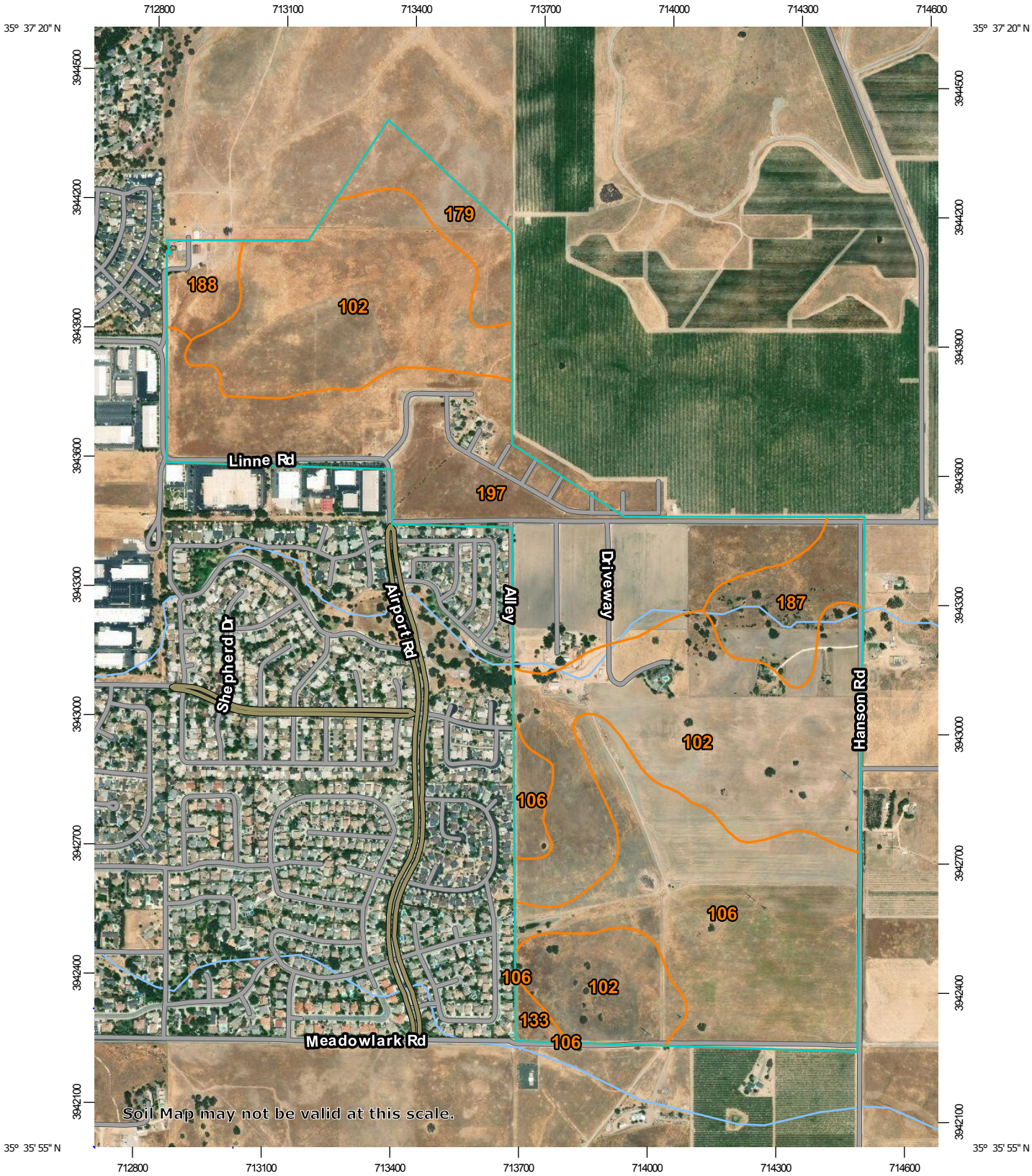


APPENDIX C

NRCS WEB SOIL SURVEY

Soil Map—San Luis Obispo County, California, Paso Robles Area
(OLSEN-CHANDLER RANCH RESIDENTIAL DEVELOPMENT)



Map Scale: 1:12,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 150 300 600 900

Feet
0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Luis Obispo County, California, Paso Robles Area
Survey Area Data: Version 12, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 17, 2016—Oct 1, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
102	Arbuckle-Positas complex, 9 to 15 percent slopes	159.5	41.6%
106	Arbuckle-San Ysidro complex, 2 to 9 percent slopes	81.4	21.2%
133	Cropley clay, 2 to 9 percent slopes, MLRA 14	2.4	0.6%
179	Nacimiento-Los Osos complex, 9 to 30 percent slopes	15.2	4.0%
187	Rincon clay loam, 0 to 2 percent slopes	19.4	5.1%
188	Rincon clay loam, 2 to 9 percent slopes, MLRA 14	8.6	2.2%
197	San Ysidro loam, 0 to 2 percent slopes, MLRA 14	96.9	25.3%
Totals for Area of Interest		**383.4**	**100.0%**

San Luis Obispo County, California, Paso Robles Area

102—Arbuckle-Positas complex, 9 to 15 percent slopes

Map Unit Setting

National map unit symbol: hbrk
Elevation: 600 to 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 60 to 61 degrees F
Frost-free period: 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Arbuckle and similar soils: 40 percent
Positas and similar soils: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arbuckle

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium from mixed rock sources

Typical profile

H1 - 0 to 29 inches: fine sandy loam
H2 - 29 to 53 inches: sandy clay loam
H3 - 53 to 62 inches: stratified sandy loam to very gravelly sandy clay loam

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: COARSE LOAMY (R014XE003CA)
Hydric soil rating: No

Description of Positas

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium from mixed rock sources

Typical profile

H1 - 0 to 10 inches: coarse sandy loam
H2 - 10 to 28 inches: clay
H3 - 28 to 40 inches: sandy clay loam
H4 - 40 to 60 inches: stratified sandy loam to gravelly clay loam

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: 9 to 20 inches to abrupt textural change
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: COARSE LOAMY CLAYPAN (R014XE005CA)
Hydric soil rating: No

Minor Components

Greenfield, fine sandy loam

Percent of map unit: 10 percent
Hydric soil rating: No

Positas

Percent of map unit: 10 percent
Hydric soil rating: No

Cropley

Percent of map unit: 4 percent
Hydric soil rating: No

Hanford, fine sandy loam
Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed, areas of 15 to 30 percent slope
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed, areas of 15 to 30 percent slope
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed, areas with cobbles on the surface
Percent of map unit: 1 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Luis Obispo County, California, Paso Robles Area
Survey Area Data: Version 12, Sep 14, 2018

San Luis Obispo County, California, Paso Robles Area

106—Arbuckle-San Ysidro complex, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hbrp
Elevation: 600 to 1,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 60 to 61 degrees F
Frost-free period: 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Arbuckle and similar soils: 40 percent
San ysidro and similar soils: 20 percent
Minor components: 39 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arbuckle

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium from mixed rock sources

Typical profile

H1 - 0 to 29 inches: fine sandy loam
H2 - 29 to 38 inches: sandy clay loam
H3 - 38 to 62 inches: stratified sandy loam to very gravelly sandy clay loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: COARSE LOAMY (R014XE003CA)
Hydric soil rating: No

Description of San Ysidro

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed rocks

Typical profile

H1 - 0 to 23 inches: loam
H2 - 23 to 38 inches: clay loam
H3 - 38 to 71 inches: sandy loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 20 to 37 inches to abrupt textural change
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: LOAMY CLAYPAN (R014XE029CA)
Hydric soil rating: No

Minor Components

Greenfield, fine sandy loam

Percent of map unit: 14 percent
Hydric soil rating: No

Unnamed, similar to san ysidro soil

Percent of map unit: 10 percent
Hydric soil rating: No

Hanford, fine sandy loam

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed, simialr to arbuckle

Percent of map unit: 5 percent
Hydric soil rating: No

Cropley, clay
Percent of map unit: 2 percent
Hydric soil rating: No

Rincon, clay loam
Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 1 percent
Landform: Drainageways
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: San Luis Obispo County, California, Paso Robles Area
Survey Area Data: Version 12, Sep 14, 2018

San Luis Obispo County, California, Paso Robles Area

197—San Ysidro loam, 0 to 2 percent slopes, MLRA 14

Map Unit Setting

National map unit symbol: 2tyys
Elevation: 70 to 1,990 feet
Mean annual precipitation: 13 to 22 inches
Mean annual air temperature: 59 to 61 degrees F
Frost-free period: 300 to 360 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

San ysidro and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of San Ysidro

Setting

Landform: Alluvial fans, valley floors, terraces
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 23 inches: loam
B1 - 23 to 38 inches: clay loam
Bt2 - 38 to 64 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 16 to 24 inches to abrupt textural change
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C
Ecological site: LOAMY CLAYPAN (R014XE029CA)
Hydric soil rating: No

Minor Components

Arbuckle
Percent of map unit: 6 percent
Hydric soil rating: No

Rincon
Percent of map unit: 2 percent
Hydric soil rating: No

Solano
Percent of map unit: 2 percent
Hydric soil rating: No

Pleasanton, loam
Percent of map unit: 2 percent
Hydric soil rating: No

Pescadero
Percent of map unit: 1 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Cropley, clay
Percent of map unit: 1 percent
Hydric soil rating: No

Palexeralfs
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: San Luis Obispo County, California, Paso Robles Area
Survey Area Data: Version 12, Sep 14, 2018