



November 3, 2023
Project No. 8828003

Mark M. Johnson
Capital and Special Projects Manager
Carson City School District
1402 West King Street
Carson City, NV 89703

RE: Carson High School – North Parking Lot
Carson City, Nevada

Dear Mark:

Wood Rodgers, Incorporated is pleased to present our findings of the pavement investigation and exploration program performed for the Carson High School North Parking Lot.

SCOPE OF SERVICES

Per the contracted scope of services, the purposes of this letter report are to:

- Describe the project site with approximate locations of our explorations indicated on a site plan.
- Provide descriptive logs of our field explorations performed for this study.
- Briefly describe our investigation and evaluation procedures for the study area.
- Describe existing pavement and subgrade conditions, and report results of the field investigation.
- Describe noted drainage features that may affect long term pavement performance.
- Present pavement rehabilitation and reconstruction alternatives.
- Reference specifications for rehabilitation and reconstruction alternatives consistent with the requirements of the Standard Specifications for Public Works Construction (SSPWC).
- Provide an overview of pavement management and maintenance strategies that can be used to extend the longevity and prolong the service level of the asphalt pavement.

PROJECT DESCRIPTION

The project is in the eastern portion of Carson City, Nevada between North Carson Street and I-580 and bordered to the north by East Williams Street. Access to the north parking lot is provided from North Saliman Road. The project area is divided into a ~93,890 square foot western lot and a ~103,450 square foot eastern lot, separated by an access drive (Figure 1, Site Map and Approximate Exploration Locations).

Based on Google Earth imagery, it appears the parking areas were constructed between 1990 and 1994. Although it cannot be ascertained, it is our opinion the parking areas have likely not been reconstructed and the pavement section is likely approaching 30-years.

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EXPLORATION

The project was explored on October 4, 2023, by advancing six hand auger test holes to depths on the order of 4 ½-feet. Explorations were initially cored through the pavement mat with a 5-inch diameter core barrel and subsequently tested (TH-1 thru TH-6) with a Dynamic Cone Penetrometer (DCP) to depths on the order of 30-inches. DCP testing can provide meaningful indications of subgrade strength and through CBR correlations can be related to R-Value. Pavement and base course thicknesses were measured at each location and base course was sampled. Measured structural pavement section thicknesses are presented in Table 1.

In addition to measuring structural pavement sections, pavement condition proximate to the test holes was noted. Pavement condition summaries are presented in the Pavement Condition Summary section in the FINDINGS of this report.

Wood Rodgers' personnel examined and classified soils in the field in general accordance with ASTM D2488 (Description and Identification of Soils, Visual-Manual Procedure). Soil samples were returned to our laboratory for testing. Additional soil classifications, as well as verification of the field classifications, were performed in accordance with ASTM D2487 (Unified Soil Classification System [USCS]) upon completion of laboratory testing. Logs of explorations are attached as Figures B-1a thru B-1f. The USCS explanatory chart of soil unit symbols and related descriptions has been included as B-2 - Unified Soil Classification and Key to Soil Descriptions.

Table 1 - Structural Pavement Section Measurements

Test Hole	¹ Structural Pavement Section (IN.)	
	Pavement	Base Course
TH-1	3 ¼	5 ¾
TH-2	2 ¾	9 ¼
TH-3	3 ¼	5 ¾
TH-4	3 ¼	12 ½
TH-5	3 ½	17
TH-6	3	18 ½
AVERAGE	3 ¼	11 ½

¹ Pavement thicknesses measured in the exploration boring.

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LABORATORY TESTING

Soil testing performed in the Wood Rodgers' laboratory is conducted in accordance with the standards and methods described in Volume 4.08 (Soil and Rock; Dimension Stone; Geosynthetics) of the ASTM Standards. Subgrade soil samples were combined to develop a composite subgrade sample. Subgrade samples were tested to determine their in-situ moisture contents (ASTM D2216), grain size distributions (ASTM D6913), plasticity indices (ASTM D 4318), and R-Value (ASTM D2844). Table 2 presents a summary of subgrade test data; test data is also presented on C-1. Test results were used to classify soils according to the Unified Soil Classification System (USCS, B-1, ASTM D 2487) and to verify the field logs which were then updated.

Table 2 - Summary of Test Data

Test Hole	Depth (Ft.)	Moisture (%)	%Gravel (+ #4)*	% Sand (#4-#200)	%Fines (-#200)	Liquid Limit	Plastic Index	R-Value	USCS
ASTM Standard		D2216	D6913			D4318		D2844	D2487
TH-2 + TH-3	1.0 – 2.0 & ¾ - 3 ¼	11.0	5.2	68.6	26.2	19	2	39	SM
TH-4	1.3 – 3.0	12.7	3.9	69.6	26.5	20	2	---	SM

* Since ASTM D2487 is limited by a maximum particle size of 3", the gradation test data presented is based on a maximum particle size of 3". Larger particles (i.e., 8 to 12" in diameter) if observed in our test holes would be documented on the logs and should be anticipated as part of grading.

FINDINGS

Soil Profile

The soil profile typically consisted of silty sand supporting an average structural pavement section consisting of 3 ¼ - inches of plantmix bituminous pavement capping 11 ½ - inches of aggregate base. Subgrade R-Value, as correlated through DCP testing, indicated the insitu soils would provide reasonable support (i.e. correlated R-Value greater than 30) for the pavement section.

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Pavement Condition

A cursory pavement condition survey was performed during the field investigation.

- Random cracking extends across the entire parking area.
- High-severity block cracking extended across both east and west parking areas of the north parking lot. Block cracking typically exhibited block widths on the order of six to nine inches with cracks (typically less than 0.5-inches) having been randomly sealed with a crack sealing agent (Image 1).
- Medium to high severity alligator cracking (Image 1) is also present.
- Larger continuous cracks, which had been filled with hot mix asphalt (Image 2), continued to expand, and now gaps up to ¼” in width exist between the parking lot pavement and the crack sealant. Some of the gap is likely due to poor preparation of the cracks prior to sealing as well as the long-term aging of the pavement.
- Bleeding/flushing (Image 2) of the aggregate surface was noted.
- Other noted distress includes utility patches, minor rutting, some raveling.



IMAGE 1: Alligator cracking at entrance to east side of parking lot



IMAGE 2: Previously sealed cracking at TH-3

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Surface Drainage and Ground Water Depth

Water was encountered in TH-1 at a depth of approximately 4 ½-feet below the existing ground surface. Some evidence of ponding was noted in parking stalls at the southwest portion of the parking lot. Ponding water and/or stockpiling snow can lead to more aggressive weathering, stripping of the aggregate, and raveling.

DISCUSSION AND RECOMMENDATIONS

Recommendations have been presented for reconstruction and for rehabilitation of the pavement mat. Unfortunately, because of the existing pavement condition, any approaches less than the option for reconstruction only offer an aesthetic benefit and do not add to the overall structural integrity or life of the pavement mat.

Specifications - Sections referenced herein are specific to the Standard Specifications for Public Works Construction (SSPWC, Orange Book, 2012) and the Carson City Standard Details for Public Works Construction. Unless noted otherwise:

- Aggregate base shall conform to Section 200.01.03, Type 2, Class B and shall be compacted to not less than 95-percent of the soil's maximum dry density (ASTM D1557).
- Plantmix bituminous pavement (hot mix asphalt, HMA) shall consist of Type 2 or Type 3 (200.02.03) HMA meeting the requirements of Section 337.04 (50 blows per side, 4 percent air voids). Hydrated lime shall be added at a rate of 1 ½ -percent by dry weight of aggregate.
- Asphalt cement shall be PG 64-22 (201.02) unless otherwise required by the AHJ.
- The pavement mat shall be tested during paving and compacted per Section 320.04.02 of the SSPWC.
- Unless noted otherwise, patches for localized removal and replacement of pavement mat, shall be consistent with the Carson City Standard Detail C-5.1.6 (March 2023) and the pavement section recommendations presented herein.

Option 1 – Reconstruction (Remove and Replace)

- Remove existing pavement section to a depth of 9-inches below design grade.
- Compact exposed subgrade to not less than 90-percent of the soil's maximum dry density (ASTM D1557).
- Where pumping soils are encountered within the roadbed, the area may be scarified and allowed to dry, or removed and replaced with a 12 to 18-inch zone of clean, angular, 12-inch minus rock fill. Aggregate base (compactd to not less than 90-percent) may also be used if

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the layer can adequately bridge the yielding subgrade and allow for the compaction of the final lift of aggregate base and the pavement mat.

- Construct the structural section using 3-inches of Type 3, plantmix bituminous pavement capping 6-inches of Type 2, Class B aggregate base.
- In bus travel zones, increase the structural pavement section to 6-inches of Type 3 or Type 2 hot mix asphalt capping 12-inches of Type 2, Class B aggregate base.

Option 2 – Rehabilitation

Localized Remove and Replace

- In areas of alligator cracking, block cracking, potholes, wide (> 1 ½ inch) cracks and patched cracks, and surface distortions (such as tree root uplift), saw cut the perimeter of the distressed area, remove the pavement, base, and subgrade soils to at least 9-inches below finish design grade. (Note: Saw cutting the perimeter of wide cracks and/or patched cracks may not be feasible.)
- Compact exposed subgrade to not less than 90-percent of the soil's maximum dry density (ASTM D1557).
- Where pumping soils are encountered within the roadbed, the area may be scarified and allowed to dry, or removed and replaced with a 12-inch layer of clean, angular, 6-inch minus rock fill. Aggregate base (compacted to not less than 90-percent) may also be used if the layer can adequately bridge the yielding subgrade and allow for the compaction of the final lift of aggregate base and the pavement mat.
- Tack coat sawcut edges. Re-construct the structural section using 3-inches of Type 3, plantmix bituminous pavement capping 6-inches of Type 2, Class B aggregate base.
- Where bus traffic is directed in specific paths, increase the minimum pavement thickness to 4-inches capping 6-inches of aggregate base.

Crack Sealing (Cracks ⅛ < 1½ inch wide)

- Cracks to be sealed (Crafco or equal) shall be cleaned and prepared per the manufacturer's instructions prior to application of the sealer.

Finishing

After performing rehabilitation and prior to striping,

- Apply a fog seal (SSPWC Section 317) or slurry seal (SSPWC Section 318) meeting the composition and placement requirements of the referenced sections of the SSPWC.

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PAVEMENT MAINTENANCE

Pavement maintenance is required for long-term pavement performance. Maintenance refers to any activity performed on the pavement that is intended to preserve its original service life or load carrying capacity. Typical maintenance practices and cycles are presented below and can be applied if rehabilitation measures are selected for the parking lots (Maintenance Technical Advisory, Caltrans). If rehabilitation is selected, the following practices should be incorporated into a long-term pavement maintenance program.

- Crack Seal (5 – 6 Years)
- Fog Seal (2 – 3 Years)
- Type II Slurry Seal (3 – 5 Years)

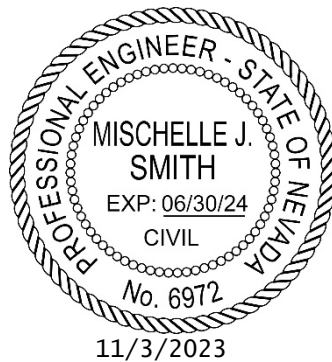
CONCLUSION

We appreciate the opportunity to provide our services for the Carson High School North Parking Lot. Please contact our office if you have any related questions.

Sincerely,

WOOD RODGERS, INCORPORATED

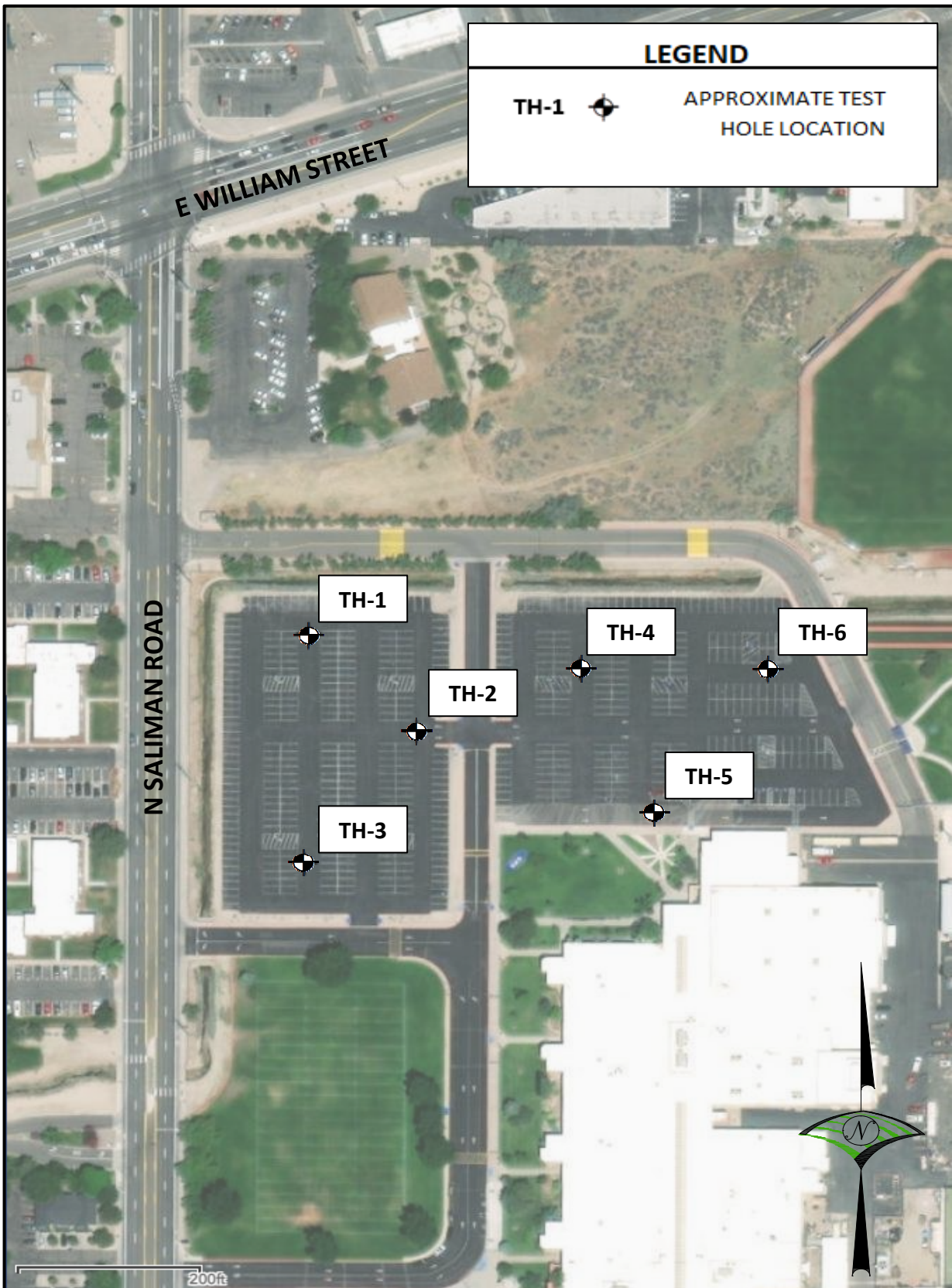
DocuSigned by:
Mischelle J. Smith
3A03CA8CE235407
Mischelle J. Smith, PE
Principal Engineer
RE No. 6972
Expires: 6-30-2024



J. Beadell
Jackson Beadell
Technical Professional

Attachments

- Figure 1- Site Map and Approximate Exploration Locations
- B-1a through B-1f – Logs of Exploration Locations
- B-2 – Unified Soil Classification and Key to Soil Descriptions
- C-1a through C-1c – Laboratory Test Results



CARSON HIGH SCHOOL - NORTH
PARKING LOT

SITE MAP AND APPROXIMATE
EXPLORATION LOCATIONS

FIGURE 1

GEOTECH BH COLUMNS PLATE - GINT STD US LAB.GDT - 10/12/23 11:44 - \\WOODRODGERS.LOC\PRODUCTIONDATA\JOBS-RENO\JOBS18828_CARSON_CITY_SCHOOL_DISTRICT\CARSON_HIGH_PAVEMENT\GEOTECH\04_GINT\CARSON HIGH N TH

BORING NUMBER TH-1



Wood Rodgers Inc.
 1361 Corporate Blvd
 Reno NV 89521
 Telephone: 775-823-4068
 Fax: 775-823-4066

CLIENT <u>Carson City School District</u> PROJECT NUMBER <u>8828003</u> DATE STARTED <u>10/4/23</u> COMPLETED <u>10/4/23</u> DRILLING CONTRACTOR <u>Wood Rodgers, Inc</u> DRILLING METHOD <u>Coring Machine & Hand Auger</u> LOGGED BY <u>Jackson Beadell</u> CHECKED BY <u>Mickey Smith</u> NOTES: _____	PROJECT NAME <u>Carson High School - North Parking Lot</u> PROJECT LOCATION <u>Carson City, Nevada</u> GROUND ELEVATION _____ HOLE SIZE <u>5 inches</u> GROUND WATER LEVELS: ▽ AT TIME OF DRILLING <u>4.5 ft</u> AT END OF DRILLING <u>---</u> AFTER DRILLING <u>---</u>
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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALTIC CONCRETE, (3.3")	GB 1A									
		AGGREGATE BASE, (SP-SM) Poorly Graded Sand with Silt and Gravel, (5.8")	GB 1B									
		SILTY SAND, (SM) medium dense, moist, dark brown, nonplastic	GB 1C									
		POORLY GRADED SAND WITH SILT, (SP-SM) loose, wet, brown, nonplastic										
Bottom of Borehole at 4.5 Feet.												

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BORING NUMBER TH-2



Wood Rodgers Inc.
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 Reno NV 89521
 Telephone: 775-823-4068
 Fax: 775-823-4066

CLIENT Carson City School District **PROJECT NAME** Carson High School - North Parking Lot
PROJECT NUMBER 8828003 **PROJECT LOCATION** Carson City, Nevada
DATE STARTED 10/4/23 **COMPLETED** 10/4/23 **GROUND ELEVATION** _____ **HOLE SIZE** 5 inches
DRILLING CONTRACTOR Wood Rodgers, Inc **GROUND WATER LEVELS:**
DRILLING METHOD Coring Machine & Hand Auger **AT TIME OF DRILLING** --- NO FREE WATER ENCOUNTERED
LOGGED BY Jackson Beadell **CHECKED BY** Mickey Smith **AT END OF DRILLING** --- NO FREE WATER ENCOUNTERED
NOTES: _____ **AFTER DRILLING** --- NO FREE WATER ENCOUNTERED

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALTIC CONCRETE, (2.8")	GB									
		AGGREGATE BASE, (SP-SM) Poorly Graded Sand with Silt and Gravel, (9.3")	2A					11.0	19	17	2	26.1
		SILTY SAND, (SM) medium dense, moist, dark brown, nonplastic	2B									
		SILTY SAND, (SM) medium dense, moist, gray brown, nonplastic	2C									

Bottom of Borehole at 4.0 Feet.

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BORING NUMBER TH-3



Wood Rodgers Inc.
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 Telephone: 775-823-4068
 Fax: 775-823-4066

CLIENT Carson City School District
PROJECT NUMBER 8828003
DATE STARTED 10/4/23 **COMPLETED** 10/4/23
DRILLING CONTRACTOR Wood Rodgers, Inc
DRILLING METHOD Coring Machine & Hand Auger
LOGGED BY Jackson Beadell **CHECKED BY** Mickey Smith
NOTES: _____

PROJECT NAME Carson High School - North Parking Lot
PROJECT LOCATION Carson City, Nevada
GROUND ELEVATION _____ **HOLE SIZE** 5 inches
GROUND WATER LEVELS:
AT TIME OF DRILLING --- NO FREE WATER ENCOUNTERED
AT END OF DRILLING --- NO FREE WATER ENCOUNTERED
AFTER DRILLING --- NO FREE WATER ENCOUNTERED

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALTIC CONCRETE, (3.3") AGGREGATE BASE, (SP-SM) Poorly Graded Sand with Silt and Gravel, (5.8") SILTY SAND, (SM) medium dense to dense, moist, dark brown, nonplastic	GB 3A GB 3B									

Bottom of Borehole at 3.5 Feet.

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BORING NUMBER TH-5



Wood Rodgers Inc.
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 Reno NV 89521
 Telephone: 775-823-4068
 Fax: 775-823-4066

CLIENT Carson City School District
PROJECT NUMBER 8828003
DATE STARTED 10/4/23 **COMPLETED** 10/4/23
DRILLING CONTRACTOR Wood Rodgers, Inc
DRILLING METHOD Coring Machine & Hand Auger
LOGGED BY Jackson Beadell **CHECKED BY** Mickey Smith
NOTES: _____

PROJECT NAME Carson High School - North Parking Lot
PROJECT LOCATION Carson City, Nevada
GROUND ELEVATION _____ **HOLE SIZE** 5 inches
GROUND WATER LEVELS:
AT TIME OF DRILLING --- NO FREE WATER ENCOUNTERED
AT END OF DRILLING --- NO FREE WATER ENCOUNTERED
AFTER DRILLING --- NO FREE WATER ENCOUNTERED

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0	••••	ASPHALTIC CONCRETE, (3.5") AGGREGATE BASE, (SP-SM) Poorly Graded Sand with Silt and Gravel, (16.9")	GB 5A									

Practical Refusal at 1.7 feet.
 Bottom of Borehole at 1.7 Feet.

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BORING NUMBER TH-6



Wood Rodgers Inc.
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 Telephone: 775-823-4068
 Fax: 775-823-4066

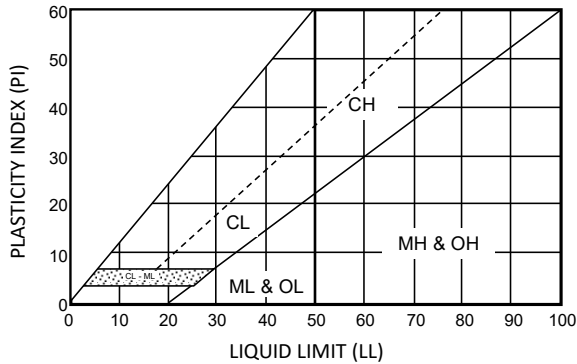
CLIENT Carson City School District
PROJECT NUMBER 8828003
DATE STARTED 10/4/23 **COMPLETED** 10/4/23
DRILLING CONTRACTOR Wood Rodgers, Inc
DRILLING METHOD Coring Machine & Hand Auger
LOGGED BY Jackson Beadell **CHECKED BY** Mickey Smith
NOTES: _____

PROJECT NAME Carson High School - North Parking Lot
PROJECT LOCATION Carson City, Nevada
GROUND ELEVATION _____ **HOLE SIZE** 5 inches
GROUND WATER LEVELS:
AT TIME OF DRILLING --- NO FREE WATER ENCOUNTERED
AT END OF DRILLING --- NO FREE WATER ENCOUNTERED
AFTER DRILLING --- NO FREE WATER ENCOUNTERED

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	R-VALUE	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALTIC CONCRETE, (3")										
		AGGREGATE BASE, (SP-SM) Poorly Graded Sand with Silt and Gravel, (18.6")	GB 6A									
		SILTY SAND, (SM) medium dense, moist, dark brown, nonplastic	GB 6B									

Bottom of Borehole at 3.0 Feet.

MAJOR DIVISION				TYPICAL NAMES		
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVEL MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES		GW	WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES	
		GRAVELS WITH OVER 12% FINES		GP	POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES	
				GM	SILTY GRAVELS, SILTY GRAVELS WITH SAND	
		SAND MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES		SW	WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
	SANDS WITH OVER 12% FINES			SP	POORLY GRADED SAND WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES	
			SM	SILTY SANDS WITH OR WITHOUT GRAVEL		
			SC	CLAYEY SANDS WITH OR WITHOUT GRAVEL		
		FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILT AND CLAY LIQUID LIMIT 50% OR LESS			ML
	SILT AND CLAY LIQUID LIMIT GREATER THAN 50%			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS	
				OL	ORGANIC SILTS OR CLAYS OF LOW PLASTICITY	
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOLID, ELASTIC SILTS	
				CH	INORGANIC CLAYS OR HIGH PLASTICITY, FAT CLAYS	
				OH	ORGANIC SILTS OR CLAYS MEDIUM TO HIGH PLASTICITY	
HIGHLY ORGANIC SOILS				Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS	



CONSISTENCY		RELATIVE DENSITY	
SILTS & CLAYS	SPT BLOW* COUNTS (N)	SANDS & GRAVELS	SPT BLOW* COUNTS (N)
VERY SOFT	0 - 2	VERY LOOSE	0 - 4
SOFT	3 - 4	LOOSE	5 - 10
MEDIUM STIFF	5 - 8	MEDIUM DENSE	11 - 30
STIFF	9 - 15	DENSE	31 - 50
VERY STIFF	16 - 30	VERY DENSE	50 +
HARD	30 +		


* The Standard Penetration Resistance (N) in blows per foot is obtained by the ASTM D1585 procedure using 2" O.D., 1 3/8" I.D. samplers.

EXPLORATION PLASTICITY (PI) DESCRIPTIONS			
DESCRIPTION	RANGE	DESCRIPTION	RANGE
Nonplastic	<5	Medium	10-20
Low	< 10	Medium - High	15 - 25
Low - Medium	5 - 15	High	>25

DESCRIPTION OF ESTIMATED PERCENTAGES OF GRAVEL, SAND, AND FINES	
TRACE	Particles are present but est. < 5%
FEW	5% - 10%
LITTLE	15% - 20%
SOME	30% - 45%
MOSTLY	50% - 100%

NOTE: Percentages are presented within soil description for soil horizon with laboratory tested soil samples.

DEFINITIONS OF SOIL FRACTIONS	
SOIL COMPONENT	PARTICLE SIZE RANGE
BOULDERS	> 12 INCHES
COBBLES	3 to 12 Inches
GRAVEL	3 IN. TO NO. 4 SIEVE
COARSE GRAVEL	3 IN. TO 3/4 IN.
FINE GRAVEL	3/4 IN. TO NO. 4 SIEVE
SAND	NO. 4 TO NO. 200
COARSE SAND	NO. 4 TO NO. 10
MEDIUM SAND	NO. 10 TO NO. 40
FINE SAND	NO. 40 TO NO. 200
FINES (SILT OR CLAY)	MINUS NO. 200 SIEVE

 WOOD RODGERS 1361 Corporate Boulevard, Reno, NV 89502 Phone 775.823.4068 Fax 775.823.4066	UNIFIED SOIL CLASSIFICATION AND KEY TO SOIL DESCRIPTIONS	Geotechnical Investigation CARSON HIGH SCHOOL NORTH PARKING LOT CARSON CITY, NEVADA
		Project No.: 8828003 Date: 10/11/23

GRAIN SIZE - BORING - GINT STD US LAB.GDT - 10/12/23 09:11 - I:\WOODRODGERS.LOC\PRODUCTION\DATA\JOBS-RENO\JOBS\8828_CARSON_CITY_SCHOOL_DISTRICT\CARSON_HIGH_PAVEMENT\GEO\TECH\04_GINT\CARSON_HIGH_NORTH_PARKING



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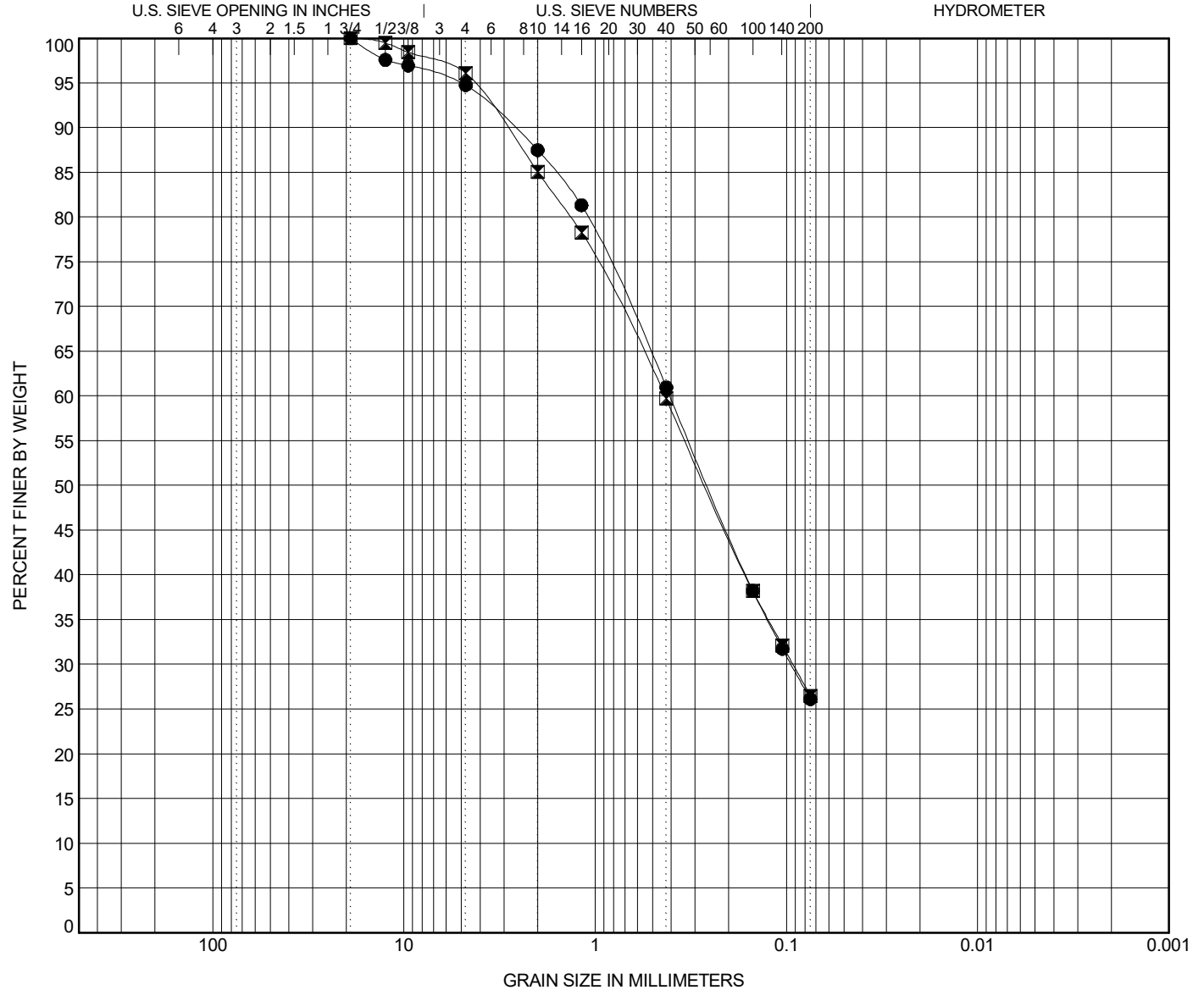
GRAIN SIZE DISTRIBUTION

CLIENT Carson City School District

PROJECT NAME Carson High School - North Parking Lot

PROJECT NUMBER 8828003

PROJECT LOCATION Carson City, Nevada



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification					LL	PL	PI	Cc	Cu
●	TH-2 + TH-3 combo	SILTY SAND(SM)					19	17	2		
☒	TH-4	SILTY SAND(SM)					20	18	2		
BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
●	TH-2 + TH-3 combo	19	0.407	0.095		5.2	68.6	26.2			
☒	TH-4	19	0.432	0.093		3.9	69.6	26.5			

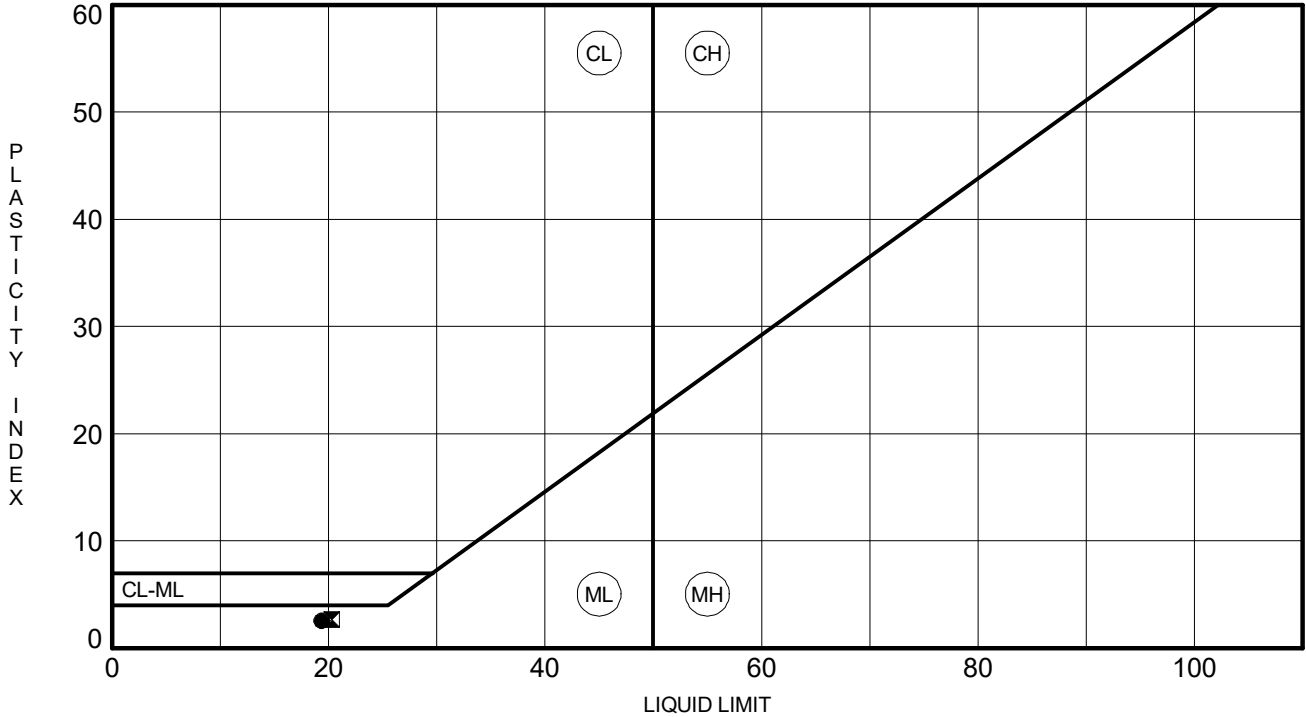
ATTERBERG BORING - GINT STD US LAB.GDT - 10/12/23 09:11 - \\WOODRODGERS.LOC\PRODUCTIONDATA\JOBS\8828_CARSON_CITY_SCHOOL_DISTRICT\CARSON_HIGH_PAVEMENT\GEO\GEO TECH\04_GINT\CARSON HIGH NORTH PARKING



Wood Rodgers Inc.
 1361 Corporate Blvd
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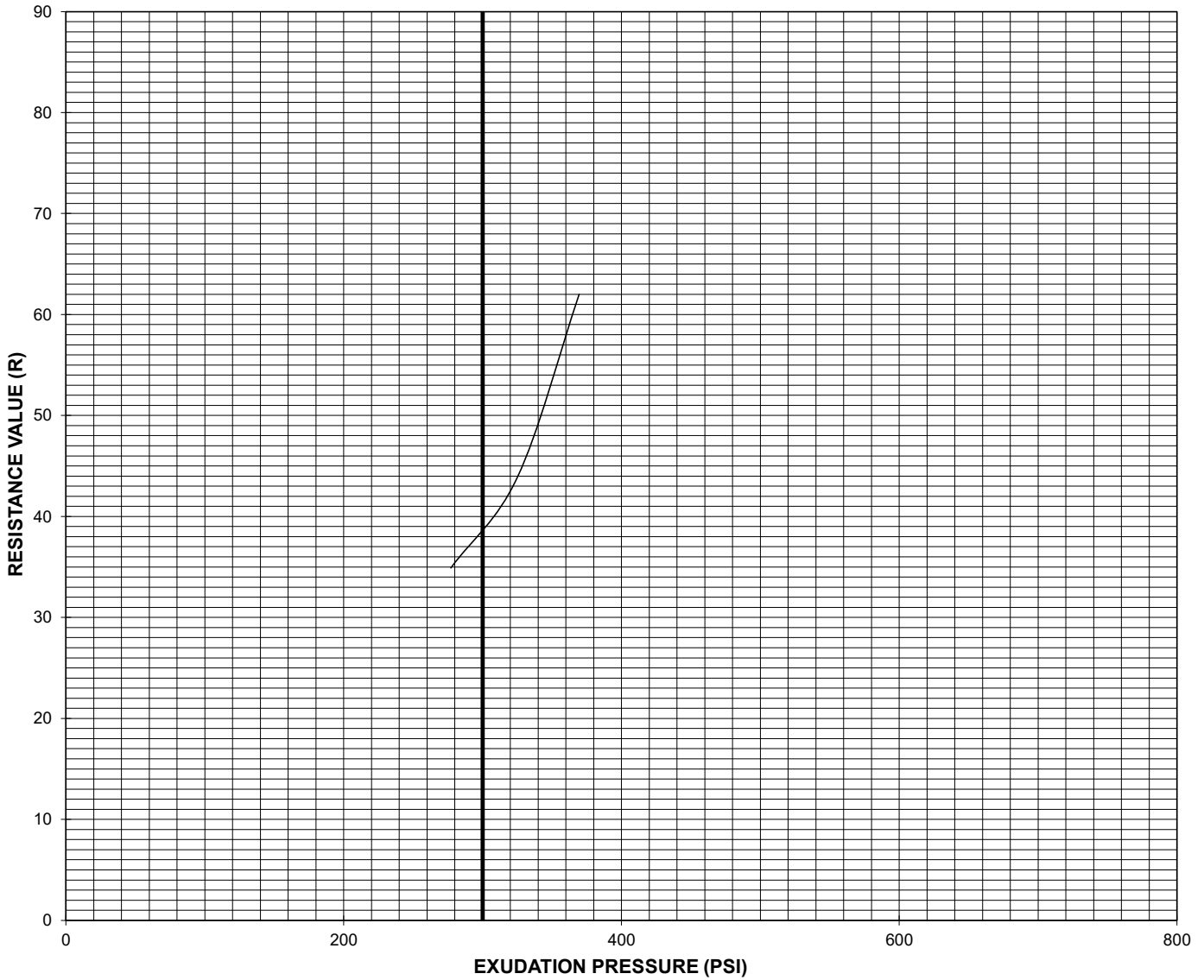
ATTERBERG LIMITS' RESULTS

CLIENT Carson City School District **PROJECT NAME** Carson High School - North Parking Lot
PROJECT NUMBER 8828003 **PROJECT LOCATION** Carson City, Nevada



BORING	DEPTH	LL	PL	PI	Fines	Classification
● TH-2 + TH-3 combo		19	17	2	26.2	SILTY SAND(SM)
☒ TH-4	1.3	20	18	2	26.5	SILTY SAND(SM)

R-Value and Expansion Pressure of Compacted Soils AASHTO T190 / ASTM D2844



Lab Log #	Sample Source	Material	Expansion Pressure (psf) @ 300 (psi)	R-Value @ 300 (psi)
6798	TH - 2 & TH - 3 Combo	Silty Sand	0	39

POINT #	WATER CONTENT (%)	DRY DENSITY (PCF)	EXUDATION PRESS. (PSI)	EXPANSION PRESS. (PSF)	RESISTANCE VALUE (R)
1	10.9	125.7	369	0	62
2	12.2	123.5	325	-4	44
3	13.3	122.0	277	-9	35
4					
5					


WOOD RODGERS
 BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
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 Reno, NV 89502 Fax: 775.823.4066

**Carson High North Parking Lot
 Silty Sand**



TESTED BY	JOB NUMBER	APPROVED	DATE	REVISED	DATE
BL	8828003		10/10/2023		