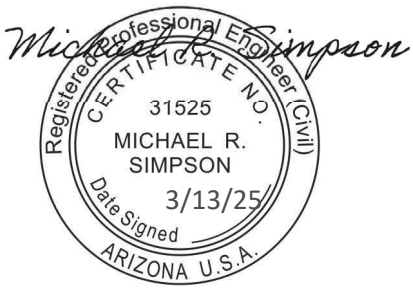
GEOTECHNICAL REPORT

ADOT Project No. 079 PN 140 F0707 01D

Federal Reference Project No. 079-A(214)T

North of Florence to Queen Valley



March 13, 2025

Prepared by

Michael R. Simpson, P.E.

ARIZONA DEPARTMENT OF TRANSPORTATION

BRIDGE GROUP

GEOTECHNICAL SERVICES

ARIZONA DEPARTMENT OF TRANSPORTATION

March 13, 2025

Subject:
Geotechnical Report
North of Florence to Queen Valley
SR 79 MP 140 to 148
ADOT Project No. 079 PN 140 F0707 01D
Federal ID No. 079-A (214) T

This report presents the results of our geotechnical engineering services to support the proposed improvement of State Route 79 (SR 79) from milepost (MP) 140 to MP 148. The project is located north of the Town of Florence in Pinal County within the Arizona Department of Transportation (ADOT) Central District.

This project is currently scoped as the construction of passing lanes on the existing SR 79 highway by widening of the existing roadway between the aforementioned mile posts. More specifically, a northbound passing lane is being added between MP 140.45 to MP 140.95 and MP 145.80 to MP 146.20; and a southbound passing lane is being added between MP 143.65 to MP 144.00 and MP 147.38 to MP 147.75. Other proposed improvements to the roadway will include pavement rehabilitation, extending drainage structures and adding turning lanes.

A geotechnical field investigation was performed at the site which included exploratory backhoe test pits.

The results of the field and laboratory investigation as well as design recommendations for the proposed construction are presented in this report.

Should there be any questions regarding the contents of this report or its appropriate incorporation into designs, please do not hesitate to contact us.

Sincerely,

Michael R. Simpson

Registered Professional Engineer (Civil)
CERTIFICATE NO.
31525
MICHAEL R.
SIMPSON
Date Signed
3/13/25
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1.0 INTRODUCTION

This report presents the results of our geotechnical engineering services to support the proposed improvement of State Route 79 (SR 79) from milepost (MP) 140 to MP 148. The project is north of the Town of Florence in Pinal County within the Arizona Department of Transportation (ADOT) Central District. This project is currently scoped as the construction of passing lanes on the existing SR 79 highway by widening the existing roadway between MP 140 and MP 148. More specifically, a northbound passing lane is being added between MP 140.45 to MP 140.95 and MP 145.80 to MP 146.20; and a southbound passing lane is being added between MP 143.65 to MP 144.00 and MP 147.38 to MP 147.75. Other proposed improvements to the roadway will include pavement rehabilitation, extending drainage structures and adding turning lanes.

The purpose of these services is to provide information and recommendations regarding:

- pavement design,
- earthwork factors and
- related geotechnical considerations.

1.1 Project Description

This project is currently scoped as the construction of alternating, northbound and southbound passing lanes on the existing SR 79 located north of the Town of Florence in Pinal County (see Figure 1, Site Location Map). To achieve this, the alternating passing lanes will be constructed by widening the existing roadway. Proposed improvements to the roadway will also include extending drainage structures which consist of both corrugated metal pipes (CMP) and concrete box culverts (CBC).

To achieve the various improvements along the project limits of SR 79, widening of the travel corridor will be required involving performing minor cut and fill operations at several locations. Maximum cut slope heights of approximately 4 feet and maximum embedment depths of approximately 4 feet have been identified within the project boundary. Other improvements to the project will consist of extensions or new construction of corrugated metal pipes (CMP) and concrete box culverts (CBC) for stormwater drainage purposes.

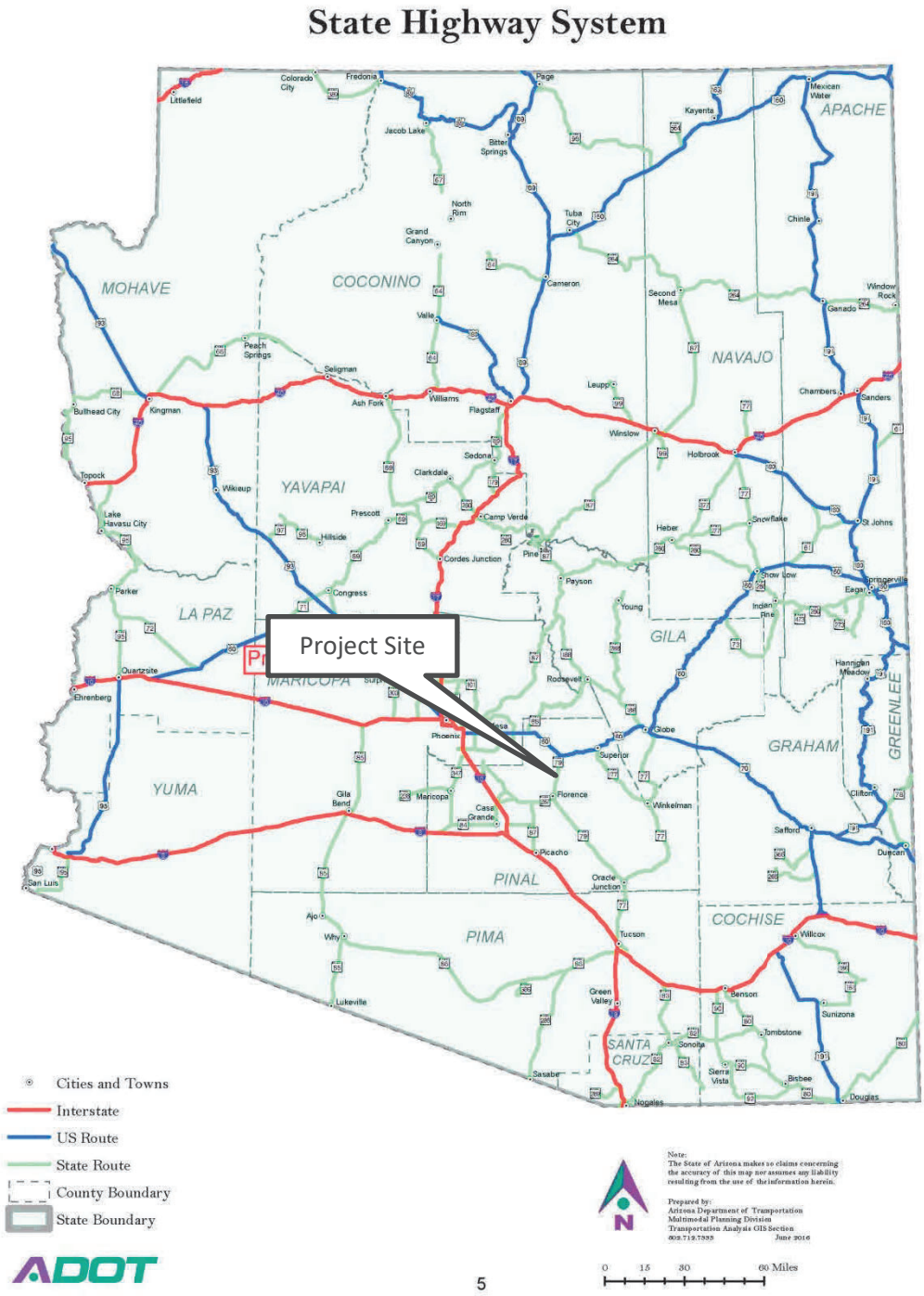

Figure 1- Site Location Map of SR 79 north of Florence to Queen Valley MP 140-148

1.2 Site Description

The project site for the geotechnical exploration area is located within the existing ADOT SR 79 right-of-way between MP 140 and MP 148. The general project area slopes gently towards the southwest with elevations ranging from approximately 1,670 feet above mean sea level (MSL) at the southern project limit to 1,835 feet above MSL at the northern project limit. Vegetation at the sites consists of variable light to moderate growth of native grasses, bushes and trees. The photographs shown in Figure 2 and Figure 3 display a cut slope location and a proposed embankment fill area, respectively.

Figure 2 - Cut slope location SR 79 MP 140.7 to 140.8 with maximum height of 4 feet above roadway grade

Figure 3 - Typical embankment fill location - MP 144.0 to MP 144.1 with maximum depth of 4 feet below existing roadway grade

1.3 Site Geology

The Geologic Map of Arizona (AGS, 2000) indicates the east section of this project along SR 79 is Holocene deposits (Qy) consisting of unconsolidated deposits associated with modern fluvial systems. This unit consists primarily of fine-grained, well-sorted sediment on alluvial plains, but also includes gravelly channel, terrace, and alluvial fan deposits on middle and upper piedmonts (0-10ka).

2.0 SUBSURFACE INVESTIGATION

A geotechnical field investigation was performed at the site which included exploratory backhoe test pits and hand samples. The following table summarizes the field work.

Table 1: Summary of Field Exploration

Exploration Method	Dates	Number of Test Locations	Field Operator/Contractor	Field Engineer
Test Pits	Jan 8, 9 and 15, 2025	23	ADOT Geotechnical Operations	M. Simpson
Hand Samples		10		

A Site Plan showing the test pit and hand sample locations are presented in Appendix A of this report. Logs of the test pits and hand samples are presented in Appendix B of this report.

2.1 Test Pits and Hand Samples

The investigation included 23 backhoe test pits excavated to depths up to 6 feet below grade surface (bgs) along the project limits and ten hand samples excavated in the location of drainage structures. The test pits were designated either “TP” for test pits performed for roadway design and earthwork purposes or designated “HS” for hand samples performed in drainage structure

areas. The test pits were excavated with a Caterpillar 420 backhoe using a two-foot-wide bucket. Sample material was excavated, bagged, labeled and delivered to the ADOT Central Laboratory for testing. No groundwater was encountered in the test pits at the time of the field investigation.

2.2 Laboratory Testing

The soil samples obtained during the field investigations were delivered to ADOT Construction and Materials Group Central Laboratory. Select samples were tested in general conformance with the procedures listed in Table 3 below.

Table 2: Laboratory Test Methods

Geotechnical Test	Test Procedure
Sieve Analysis (Grain Size)	ARIZ 201d
Atterberg Limits (Plasticity)	AASHTO T 89 and T 90
R-Value (Subgrade Support)	AASHTO T 190
Maximum Density and Optimum Moisture of Soils	ARIZ 225b
pH and Minimum Resistivity	ARIZ 236

A summary of all laboratory test results is presented in Appendix C of this report.

3.0 SUBSURFACE CONDITIONS

3.1 Soil Conditions

Based on the results of the laboratory testing and field observations at the test pit locations, the site surface and near subsurface consist fluvial deposits of clayey sand, silty sand, silty clayey sand, poorly graded sand with silt, poorly graded sand, sandy lean clay, and sandy silty clay. Soils had varying gravel content and generally did not contain calcium carbonate cementation (caliche). All test pit excavations were generally terminated at depths of 5 to 6 feet bgs.

3.2 Rock Conditions

Bedrock was not encountered in the upper 5 to 6 feet at all test pit locations.

3.3 Groundwater Conditions

No free groundwater was observed in any of the test pits at the time of our investigation. Moisture conditions can be expected to fluctuate seasonally. The observed moisture conditions indicated on the logs are as recorded at the time of exploration. These moisture conditions may vary considerably, with time, according to the prevailing climate, rainfall or other factors and are otherwise dependent upon the duration of and methods used in the exploration program.

4.0 GEOTECHNICAL EVALUATION

4.1 Cut Slopes

There are no cut slopes of significance within the project limits. The recommended maximum cut slopes presented herein within the project site are based on the existing cut slopes. The planned roadway improvements will involve the widening of an existing cut. The existing cut slope between MP 140.7 to 140.8 (Stations 502+00 to 507+00) extends above the existing ground surface to maximum slope heights of 4 feet. There was no evidence of instability in the existing cut slope.

4.2 Embankment Fill Slopes

It is anticipated that the planned embankment fills will be constructed using locally available materials derived from the project excavations and/or borrow sources. In general, permanent slopes in roadway fill and embankment slopes for the project should be no steeper than 2H:1V. Fill sections are minimal with the largest fill locations expected with a fill slope height of approximating 3 to 4 feet.

Table 3: Deepest Embankment Fill Locations

Location	Station
SR 79	156+00 to 162+00
	326+00 to 332+00
	354+00 to 358+00

4.2.1 Embankment Construction and Post-Construction Settlement

Settlement of the planned fill embankments due to loose surface native soils is expected to occur in response to embankment construction, with the majority of the settlement expected to occur during construction of the embankments. Based on the results of the field investigation and laboratory testing, overexcavation and recompaction of the near surface native soils below embankment fills at locations listed in Table 4 should be performed according to the recommendations listed in Table 5 to minimize the potential for excessive post-construction settlements. Soil placed within three feet of the finished subgrade elevation in pavement areas should meet the construction control R-value discussed in Section 5.2 of this report.

Table 4: Recommended Min. Overexcavation Depths

Height of Embankment Fill Relative to Existing Grade (feet)	Recommended Minimum Amount of Overexcavation Below Existing Grade (feet)
0 to 5	2

Construction of the embankment shall follow the requirements of ADOT Standard Specifications for Road and Bridge Construction (2021) Section 203-10.03. (ADOT 2021)

Settlement of the planned fill embankments and of the near surface native soils is expected to occur in response to embankment construction, with the majority of the settlement expected to occur during construction of the embankments.

The potential for future, post construction settlement will also be minimized by providing the following:

- The embankments are constructed at or near the optimum moisture content for the fill within the limits of one percent below to three percent above optimum moisture content.
- Larger particles (cobble and/or boulder-size) are isolated within such fills such that nesting is not permitted, the interstitial spaces between these particles are filled with finer-grained material, and the presence of voids is minimized.
- Otherwise, embankment construction shall be performed in accordance with the ADOT Standard Specifications for Road and Bridge Construction. (ADOT 2021).

5.0 RECOMMENDATIONS

5.1 General Discussion

Based on field observations and the laboratory tests performed on bulk samples of the existing soils, the subsurface geotechnical conditions are generally favorable for the construction of the proposed passing lanes and widening.

The following sections provide geotechnical design information and recommendations for use in the construction of the proposed roadway.

5.2 Pavement Design Information

Bulk samples were retrieved and tested according to the ADOT Geotechnical Project Development Manual. (ADOT, 2024) The test results are tabulated in Appendix C. Statistical analyses of the laboratory correlated and tested R-values were performed in accordance with the procedure presented in Section 2.1.5.2 of the ADOT Pavement Design Manual. (ADOT, 2017)

Laboratory R-value tests were performed on selected samples obtained from site. A summary of correlated and tested R-values of the applicable soil samples obtained within the test pits are presented below along with the recommended R-values.

Table 5: Summary of Tested and Correlated R-Values

Test Location	Station (Approximate)	Mile Post (Approximate)	Depth (feet)	R-Value Correlated	R-Value Tested
TP-03	512+75, 25' L CL	140.60	0.0 - 5.0		44
TP-04	504+70, 25' L CL	140.75	0.0 - 4.0	78	
TP-05	496+70, 25' L CL	140.90	0.0 - 5.0	26	
TP-06	488+75, 25' L CL	141.95	0.0 - 5.0	32	
TP-07	363+00, 25' R CL	143.46	0.0 - 5.0	40	
TP-10	342+00, 25' R CL	143.85	0.0 - 5.0		83
TP-11	328+20, 25' R CL	144.10	0.0 - 5.0	25	
TP-12	245+60, 25' L CL	144.66	0.0 - 5.0	45	
TP-13	237+60, 25' L CL	145.81	0.0 - 5.0	35	
TP-14	229+45, 25' L CL	145.96	0.0 - 3.0		63
TP-15	221+60, 25' L CL	146.11	0.0 - 5.0	41	
TP-16	213+40, 25' L CL	146.26	0.0 - 5.0		34
TP-17	161+95, 25' R CL	147.24	1.0 - 5.0	37	
TP-18	154+95, 25' R CL	147.38	1.0 - 5.0	29	
TP-19	146+95, 25' R CL	147.53	1.0 - 5.0		48
TP-20	138+95, 25' R CL	147.68	1.0 - 5.0	21	
TP-21	130+90, 25' R CL	147.83	1.0 - 5.0		23
TP-B	462+40, 25' R CL	141.50	0.0 - 2.0	41	
TP-C	439+40, 25' L CL	141.96	0.0 - 5.0	34	
TP-E	387+30, 25' L CL	143.00	0.0 - 5.0	62	
TP-G	275+20, 25' R CL	145.10	0.0 - 5.0	59	
TP-H	186+10, 25' R CL	146.68	0.0 - 5.0	51	
			Adjusted Average	41.0	49.2
			Standard Deviation	15.2	21.3
			Calculated R-mean	43.2	
			Calculated R-control	23.8	
			Design R-Value	**30**	
			Construction Control R-Value	**30**	

R-mean should be used to design pavement structure. R-control values should be used to develop the Subgrade Acceptance Charts. Material that is used as a fill material within three feet below the finished subgrade elevation shall meet the Subgrade Acceptance Chart. Recommendations for pavement design are presented in a separate Materials Design Memorandum (MDR) and Pavement Design Summary (PDS) prepared by ADOT Pavement Design Section.

5.3 Earthwork Factors

Earthwork factors are dependent on the existing soil conditions, contractor methods of handling the materials, wind losses and compaction achieved during construction. Potential bidders should consider these factors in preparing the estimates and are encouraged to review all available data and make their own conclusions regarding excavation conditions. For the purpose of preliminary design estimation, Earthwork Factors are recommended in the table below.

Table 6: Earthwork Factors

Material	Station	Ground Compaction	Excavation Factor
Soils (Embankment and Cut Slope)	Entire Project	0.15 feet	15% shrink

5.4 Slopes

With the exception of the cut and embankment fill slopes analyzed in Section 4.2 of this report, the slopes within the affected reconstruction area should be constructed in conformance to ADOT standard construction drawings C-02.20. The slope within the affected reconstruction area should be constructed in accordance with the standard specifications.

Temporary un-shored or un-braced cut slopes in the existing roadway embankment fills and within the native site soils can be considered Type B soils (similar to crushed rock).

All excavations must comply with applicable local, state, and federal safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety generally is the sole responsibility of the contractor, who shall also be solely responsible for the means, methods and sequencing of construction operations.

5.5 Excavation

The majority of the existing surface and subsurface soils encountered at the site consisted of native sands and sandy clay soils with variable gravel and cobble content. For the purposes and scope of this project, excavations into the majority of the surface and subsurface soils are expected to be with possible with conventional earth excavating equipment.

The contractor shall review all available information and provide their own assessment to determine the equipment and technical requirements that will be used to construct this project according to the plans and specifications for this project.

5.6 Water Requirements

Approximately 75 gallons of water per cubic yard may be estimated for compaction of base and subgrade materials. This estimate is based on the difference between in-situ and optimum compaction moisture content and includes a conservative overrun for losses due to seepage, evaporation, inadequate mixing, spillage, etc. Precipitation before and/or during construction may also reduce the required amount of water significantly.

5.7 Pipe Extensions and Corrosion Potential

The existing site concrete box culverts (CBC) and corrugated metal pipes (CMP) were reported to be in satisfactory condition with no or minimal evidence of corrosion.

Laboratory test results indicate the on-site soils have pH in the range of 7.3 to 8.0 and minimum resistivity values in the range of 1,159 to 15,209 ohm-centimeters. These values should be used for the selection of various pipe installations for this project. Refer to the Pipe Extensions and Corrosion Potential Summary page in Appendix C of this report for further details.

5.8 Borrow Information

There is no Department-furnished source for borrow on this project. Borrow shall be as specified in Section 203-9 of the Standard Specifications. Borrow placed within three feet of finished subgrade shall meet the following requirements. The Plasticity Index (PI) and the percent passing the #200 sieve (Minus 200), when used in the equation below, shall give a value of X that does not exceed 87.

$$X = (\text{Minus } 200) + [2.83\ (PI)]$$

5.9 Aggregate Availability, Weight and Hauls

No source of aggregate material will be designated. A Materials Pavement Design Report will be prepared under separate cover for this project that contains estimated haul distances, unit weights and asphalt content for asphaltic concrete materials that can be used for estimating purposes.

6.0 TEST PIT/BORING (SUBGRADE) LOG LIMITATIONS

General soil strata descriptions and indicated boundaries are based on engineering interpretation of available subsurface information by the geotechnical engineer and may not reflect actual variation in subsurface conditions between test pit/borings and sample locations. The locations of the contacts between strata shown on the logs are approximate, and changes between material types may be gradual rather than abrupt. Classification of soil materials is in general accordance with ASTM D2488 and is based on field observation unless accompanied by mechanical analysis.

The observed groundwater levels and/or moisture conditions indicated on the logs are as recorded at the time of exploration. These groundwater levels and/or moisture conditions may vary considerably, with time, according to the prevailing climate, rainfall or other factors and are otherwise dependent upon the duration of and methods used in the exploration program.

Sound engineering judgment was exercised in preparing the subsurface information presented on the subgrade logs. This information was prepared for and is intended for design and preliminary quantity estimate purposes. Its presentation on the plans or elsewhere is for the purpose of providing intended users with access to the same information as the State and its designers. This subsurface information and interpretation is presented in good faith and is not intended as a substitute for independent investigation, interpretation or judgment of the contractor or other users of this report.

7.0 REFERENCES

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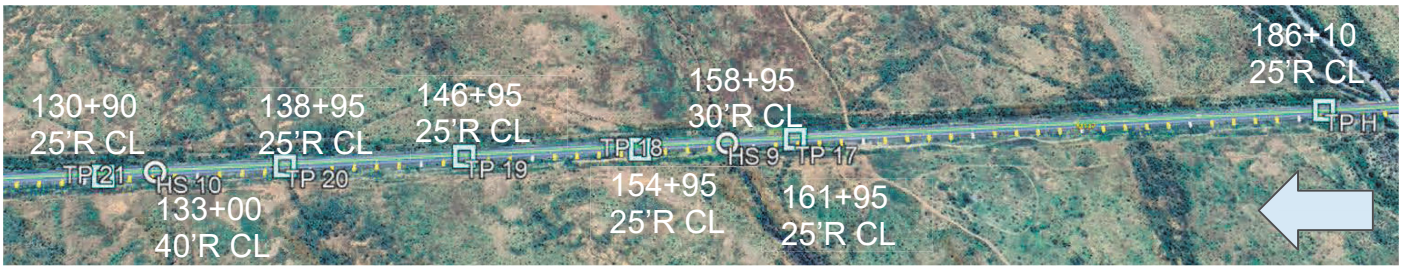
APPENDIX A

Site Plan

079 PN 140 F0707 – North of Florence - Queen Valley
Geotechnical Investigation Site Plan



APPENDIX B

Logs

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 140.6	**TP-03**	
Station, Offset	512+75, 25' L CL		
Lat/Long, elev	33.12022, -111.36168 at 1677'		
Field Engineer	Michael Simpson	Date	01/09/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)	Samples: In-Situ Dry Density (PCF)	Samples: In-Situ Moisture Content (%)
0				**FILL**: disturbed material. 1.0						
1–5	1675		Bulk	**CLAYEY SAND** (**SC**): light brown to tan; medium plasticity; weak to moderate cementation; slightly damp. 5.0	10	49	41	29-21-8	91.8	3.2

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 140.75	**TP-04**	
Station, Offset	504+70, 25' L CL		
Lat/Long, elev	33.12234, -111.36099 at 1674'		
Field Engineer	Michael Simpson	Date	01/09/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
				FILL: disturbed material. 1.0				
1–5	1670		Bulk	**SILTY SAND WITH GRAVEL** (**SM**): light brown to brown; non-plastic; moderate cementation; slightly damp. 5.0	28	54	18	NP

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 140.9	**TP-05**	
Station, Offset	496+70, 25' L CL		
Lat/Long, elev	33.12449, -111.36045 at 1671'		
Field Engineer	Michael Simpson	Date	01/09/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0	1670			**FILL**: disturbed material. 1.0				
1 – 5			Bulk	**SANDY LEAN CLAY** (**CL**): light brown to tan; medium plasticity; no cementation; slightly damp. 5.0	5	33	62	37-24-13

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 141.95	**TP-06**	
Station, Offset	488+75, 25' L CL		
Lat/Long, elev	33.12666, -111.36010 at 1667'		
Field Engineer	Michael Simpson	Date	01/07/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
1				**FILL**: disturbed material. 1.0				
2	1665		Bulk	**SANDY SILTY CLAY** (**CL-ML**): brown to dark brown; medium plasticity; no cementation; slightly damp.	7	30	63	23-16-7
3								
4								
5				5.0				

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 143.46	**TP-07**	
Station, Offset	363+00, 25' R CL		
Lat/Long, elev	33.16095, -111.35501 at 1748'		
Field Engineer	Michael Simpson	Date	01/07/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
				FILL: disturbed material. 1.0				
1–5	1745		Bulk	**SANDY SILTY CLAY** (**CL-ML**): light brown to brown; low plasticity; no cementation; slightly damp. 5.0	7	41	52	21-16-5

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 143.85	**TP-10**	
Station, Offset	342+00, 25' R CL		
Lat/Long, elev	33.16670, -111.35414 at 1750'		
Field Engineer	Michael Simpson	Date	01/07/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)	Samples: In-Situ Dry Density (PCF)	Samples: In-Situ Moisture Content (%)
0				**FILL**: disturbed material. 1.0						
1–5	1745		Bulk	**SILTY SAND WITH GRAVEL** (**SM**): light brown to tan; non-plastic; no cementation; slightly damp. 5.0	25	63	12	NP	104.8	1.6

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 144.1	**TP-11**	
Station, Offset	328+20, 25' R CL		
Lat/Long, elev	33.17045, -111.35366 at 1756'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
	1755			**FILL**: disturbed material. 1.0				
1 – 5			Bulk	**SANDY LEAN CLAY** (**CL**): red brown; high plasticity; no cementation; slightly damp. 5.0	7	43	50	33-15-18

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 144.66	**TP-12**	
Station, Offset	245+60, 25' L CL		
Lat/Long, elev	33.19295, -111.34990 at 1799'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
1 2 3 4 5	1795		Bulk	**SILTY CLAYEY SAND** (**SC-SM**): brown; low plasticity; no cementation; slightly damp; roots encountered from 0 to 3 feet. 5.0	10	46	44	21-16-5

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 145.81	**TP-13**	
Station, Offset	237+60, 25' L CL		
Lat/Long, elev	33.19511, -111.34957 at 1800'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab % Gravel	Lab % Sand	Lab % Fines	Lab Atterberg Limits (LL-PL-PI)
1 2 3 4 5	1795		Bulk	**SANDY SILTY CLAY** (**CL-ML**): brown; low plasticity; no cementation; slightly damp. 5.0	1	37	62	21-16-5

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 145.96	**TP-14**	
Station, Offset	229+45, 25' L CL		
Lat/Long, elev	33.19732, -111.34922 at 1799'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)	Samples: In-Situ Dry Density (PCF)	Samples: In-Situ Moisture Content (%)
1–3			Bulk	**SILTY SAND WITH GRAVEL** (**SM**): brown; low plasticity; no cementation; slightly damp. 3.0	15	53	32	20-19-1	101.5	1.6
3–4	1795		Bulk	**POORLY GRADED SAND WITH SILT AND GRAVEL** (**SP-SM**): brown; non-plastic; no cementation; slightly damp. 5.0	32	58	10	NP		
5				Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.						

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 146.11	**TP-15**	
Station, Offset	221+60, 25' L CL		
Lat/Long, elev	33.19946, -111.34886 at 1802'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0				**FILL**				
1.0								
1	1800		Bulk	**SILTY CLAYEY SAND** (**SC-SM**): red brown to brown; low plasticity; no cementation; slightly damp.	7	45	48	21-15-6
5.0								

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 146.26	**TP-16**	
Station, Offset	213+40, 25' L CL		
Lat/Long, elev	33.20169, -111.34853 at 1806'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab % Gravel	Lab % Sand	Lab % Fines	Lab Atterberg Limits (LL-PL-PI)
	1805			**FILL** 1.0				
1 – 5			Bulk	**SILTY SAND** (**SM**): brown to red brown; low plasticity; no cementation; slightly damp. 5.0	6	45	49	21-18-3

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 147.24	**TP-17**	
Station, Offset	161+95, 25' R CL		
Lat/Long, elev	33.21547, -111.34659 at 1820'		
Field Engineer	Michael Simpson	Date	01/13/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0				**FILL** 1.0				
1 – 5	1815		Bulk	**SANDY SILTY CLAY** (**CL-ML**): brown to light brown; low plasticity; no cementation; slightly damp. 5.0	7	37	56	24-18-6

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 147.38	**TP-18**	
Station, Offset	154+95, 25' R CL		
Lat/Long, elev	33.21766, -111.34627 at 1821'		
Field Engineer	Michael Simpson	Date	01/13/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab % Gravel	Lab % Sand	Lab % Fines	Lab Atterberg Limits (LL-PL-PI)
	1820			**FILL** 1.0				
1 – 5			Bulk	**SANDY LEAN CLAY** (**CL**): brown to light brown; medium plasticity; weak cementation; slightly damp. 5.0	8	36	56	29-17-12

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 147.53	**TP-19**	
Station, Offset	146+95, 25' R CL		
Lat/Long, elev	33.21983, -111.34592 at 1822'		
Field Engineer	Michael Simpson	Date	01/13/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)	Samples: In-Situ Dry Density (PCF)	Samples: In-Situ Moisture Content (%)
				FILL 1.0						
1–5	1820		Bulk	**SILTY SAND** (**SM**): light brown; low plasticity; no cementation; slightly damp. 5.0	4	52	44	20-17-3	93.8	1.4

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 147.68	**TP-20**	
Station, Offset	138+95, 25' R CL		
Lat/Long, elev	33.22202, -111.34560 at 1825'		
Field Engineer	Michael Simpson	Date	01/13/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
				FILL 1.0				
1 – 2 – 3 – 4 – 5	1820		Bulk	**SANDY LEAN CLAY** (**CL**): brown to light brown; high plasticity; no cementation; slightly damp. 5.0	2	37	61	35-17-18

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 147.83	**TP-21**	
Station, Offset	130+90, 25' R CL		
Lat/Long, elev	33.22423, -111.34530 at 1832'		
Field Engineer	Michael Simpson	Date	01/13/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab				Samples	
					% Gravel	% Sand	% Fines	Atterberg Limits (LL-PL-PI)	In-Situ Dry Density (PCF)	In-Situ Moisture Content (%)
				FILL 1.0						
1	1830		Bulk	**CLAYEY SAND** (**SC**): brown to light brown; medium plasticity; no cementation; slightly damp.	6	50	44	24-15-9	92.8	2.2
2										
3										
4										
5				5.0						

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 141.5	**TP-B**	
Station, Offset	462+40, 25' R CL		
Lat/Long, elev	33.13388, -111.35916 at 1687'		
Field Engineer	Michael Simpson	Date	01/07/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0				**FILL**: disturbed material. 1.0				
1 – 5	1685		Bulk	**SILTY CLAYEY SAND** (**SC-SM**): brown to dark brown; medium plasticity; no cementation; slightly damp. 5.0	8	47	45	23-16-7

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 141.96	**TP-C**	
Station, Offset	439+40, 25' L CL		
Lat/Long, elev	33.14009, -111.35797 at 1695'		
Field Engineer	Michael Simpson	Date	01/07/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0			Bulk	**FILL**: disturbed material. 1.0				
1–5	1690			**SANDY LEAN CLAY** (**CL**): brown to dark brown; medium plasticity; no cementation; slightly damp. 5.0	4	40	56	23-15-8

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 143	**TP-E**	
Station, Offset	387+30, 25' L CL		
Lat/Long, elev	33.15431, -111.35585 at 1732'		
Field Engineer	Michael Simpson	Date	01/07/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0				**FILL**: disturbed material. 1.0				
1	1730		Bulk	**SILTY SAND WITH GRAVEL** (**SM**): brown; low plasticity; no cementation; slightly damp.	24	50	26	20-17-3
2								
3								
4								
5				5.0				

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 145.1	**TP-G**	
Station, Offset	275+20, 25' R CL		
Lat/Long, elev	33.18488, -111.35132 at 1781'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
1 2 3 4 5	1780		Bulk	**SILTY SAND WITH GRAVEL** (**SM**): brown to red brown; low plasticity; no cementation; slightly damp. 5.0	26	45	29	19-16-3

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Test Pit**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 146.68	**TP-H**	
Station, Offset	186+10, 25' R CL		
Lat/Long, elev	33.20914, -111.34758 at 1812'		
Field Engineer	Michael Simpson	Date	01/13/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
1				**FILL** 1.0				
2	1810		Bulk	**SILTY CLAYEY SAND** (**SC-SM**): brown to light brown; low plasticity; no cementation; slightly damp.	8	54	38	20-16-4
3								
4								
5				5.0				

Stopped test pit excavation at 5 feet. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Hand Sample**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 140.55	**HS-01**	
Station, Offset	515+38, 40' L CL		
Lat/Long, elev	33.11951, -111.36189 at 1677'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
1			Bulk	**SANDY LEAN CLAY** (**CL**): brown to light brown; medium plasticity; no cementation; slightly damp. 1.0	10	37	53	30-18-12

Stopped hand sample excavation at 1 foot. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Hand Sample**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 141.05	**HS-02**	
Station, Offset	491+12, 40' L CL		
Lat/Long, elev	33.12601, -111.36011 at 1670'		
Field Engineer	Michael Simpson	Date	01/07/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
1			Bulk	**SANDY LEAN CLAY** (**CL**): brown to dark brown; medium plasticity; no cementation; slightly damp. 1.0	3	29	68	34-19-15

Stopped hand sample excavation at 1 foot. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Hand Sample**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 143.60	**HS-03**	
Station, Offset	356+70, 40' R CL		
Lat/Long, elev	33.16267, -111.35475 at 1749'		
Field Engineer	Michael Simpson	Date	01/07/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab			
					% Gravel	% Sand	% Fines	Atterberg Limits (LL-PL-PI)
1			Bulk	**POORLY GRADED SAND WITH SILT AND GRAVEL** (**SP-SM**): light brown; non-plastic; no cementation; slightly damp. 1.0	25	66	9	NP

Stopped hand sample excavation at 1 foot. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Hand Sample**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 143.95	**HS-04**	
Station, Offset	337+80, 40' R CL		
Lat/Long, elev	33.16784, -111.35400 at 1751'		
Field Engineer	Michael Simpson	Date	01/07/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)	Samples: In-Situ Dry Density (PCF)	Samples: In-Situ Moisture Content (%)
1	1750		Bulk	**CLAYEY SAND** (**SC**): brown; medium plasticity; no cementation; slightly damp. 1.0	10	48	42	21-13-8		

Stopped hand sample excavation at 1 foot. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Hand Sample**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 144.03	**HS-05**	
Station, Offset	330+00, 40' R CL		
Lat/Long, elev	33.16991, -111.35368 at 1755'		
Field Engineer	Michael Simpson	Date	01/07/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab			
					% Gravel	% Sand	% Fines	Atterberg Limits (LL-PL-PI)
1			Bulk	**POORLY GRADED SAND WITH GRAVEL** (**SP**): light brown to tan; non-plastic; no cementation; slightly damp. 1.0	21	76	3	NP

Stopped hand sample excavation at 1 foot. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Hand Sample**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 145.79	**HS-06**	
Station, Offset	238+60, 40' L CL		
Lat/Long, elev	33.19480, -111.34956 at 1801'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab			
					% Gravel	% Sand	% Fines	Atterberg Limits (LL-PL-PI)
0	1800		Bulk	**POORLY GRADED SAND WITH GRAVEL** (**SP**): tan; non-plastic; no cementation; slightly damp. 1.0	33	66	1	NP
1				Stopped hand sample excavation at 1 foot. No groundwater encountered in test pit.				

Project Name	North of Florence to Queen Valley	**Hand Sample**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 146.1	**HS-07**	
Station, Offset	223+10, 40' L CL		
Lat/Long, elev	33.19904, -111.34887 at 1801'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab			
					% Gravel	% Sand	% Fines	Atterberg Limits (LL-PL-PI)
0	1800		Bulk	**SANDY LEAN CLAY** (**CL**): brown to red brown; medium plasticity; no cementation; slightly damp. 1.0	5	40	55	26-17-9
1				Stopped hand sample excavation at 1 foot. No groundwater encountered in test pit.				

Project Name	North of Florence to Queen Valley	**Hand Sample**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 146.36	**HS-08**	
Station, Offset	209+00, 40' L CL		
Lat/Long, elev	33.20290, -111.34827 at 1807'		
Field Engineer	Michael Simpson	Date	01/08/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
1			Bulk	**SILTY SAND WITH GRAVEL** (**SM**): brown to red brown; non-plastic; no cementation; slightly damp. 1.0	17	61	22	NP

Stopped hand sample excavation at 1 foot. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Hand Sample**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 147.3	**HS-09**	
Station, Offset	158+95, 30' R CL		
Lat/Long, elev	33.21657, -111.34643 at 1817'		
Field Engineer	Michael Simpson	Date	01/13/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab: % Gravel	Lab: % Sand	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
1			Bulk	**POORLY GRADED SAND WITH SILT** (**SP-SM**): light brown to tan; non-plastic; no cementation; slightly damp. 1.0	13	76	11	NP

Stopped hand sample excavation at 1 foot. No groundwater encountered in test pit.

Project Name	North of Florence to Queen Valley	**Hand Sample**	
Project No.	079 140 F0707 01D		
Location	SR 79, MP 147.8	**HS-10**	
Station, Offset	133+00, 40' R CL		
Lat/Long, elev	33.22360, -111.34538 at 1831'		
Field Engineer	Michael Simpson	Date	01/13/2025
Field Operator	ADOT Geotechnical Operations	Backhoe	CAT 420

Depth (ft)	Elevation (ft)	Graphic Log	Sample Type	Visual Classification	Lab			
					% Gravel	% Sand	% Fines	Atterberg Limits (LL-PL-PI)
0	1830		Bulk	**CLAYEY SAND** (**SC**): light brown to tan; medium plasticity; no cementation; slightly damp. 1.0	5	48	47	31-18-13
1								

Stopped hand sample excavation at 1 foot. No groundwater encountered in test pit.

APPENDIX C

Laboratory Test Summary

079 140 F0707 01D, North of Florence to Queen Valley

LABORATORY TEST SUMMARY

Test Location	Station, Offset	Depth (feet)	Sample Source	MECHANICAL PROPERTIES																FIELD TESTS		PARTICLE SIZE PERCENTAGE				Test Location
				Percent Passing							PI	LL	USCS	R-Value		Corrosivity		Moisture/Density		In-situ Moisture/Density		Particle Type				
				3"	1½"	¾"	#4	#8	#40	#200				Corr.	Tested	pH	Minimum Resistivity (ohm-cm)	Max. Dry Density (pcf)	Opt. Moisture Content (%)	Dry Density (pcf)	Moisture Content (%)	Cobbles	Gravel	Sands	Fines (Clay/Silt)	
TP-03	512+75, 25' L CL	1.0 - 5.0	Bulk	100	100	99	90	81	66	40.9	8	29	SC	42	44			108.5	16	91.8	3.18	0	10	49	41	TP-03
TP-04	504+70, 25' L CL	1.0 - 5.0	Bulk	100	95	91	72	59	36	18.4		NP	SM	78								0	28	54	18	TP-04
TP-05	496+70, 25' L CL	1.0 - 5.0	Bulk	100	100	99	95	91	80	61.9	13	37	CL	26								0	5	33	62	TP-05
TP-06	488+75, 25' L CL	1.0 - 5.0	Bulk	100	100	99	93	91	85	63.3	7	23	CL-ML	32								0	7	30	63	TP-06
TP-07	363+00, 25' R CL	1.0 - 5.0	Bulk	100	100	100	93	91	83	52.1	5	21	CL-ML	40								0	7	41	52	TP-07
TP-10	342+00, 25' R CL	1.0 - 5.0	Bulk	100	100	95	75	62	39	12.1		NP	SM	85	83			126	9.3	104.8	1.55	0	25	63	12	TP-10
TP-11	328+20, 25' R CL	1.0 - 5.0	Bulk	100	100	99	93	89	76	50.1	18	33	CL	25								0	7	43	50	TP-11
TP-12	245+60, 25' L CL	0.0 - 5.0	Bulk	100	100	99	90	86	77	43.8	5	21	SC-SM	45								0	10	46	44	TP-12
TP-13	237+60, 25' L CL	0.0 - 5.0	Bulk	100	100	100	99	98	95	62.5	5	21	CL-ML	35								0	1	37	62	TP-13
TP-14	229+45, 25' L CL	0.0 - 3.0	Bulk	100	100	97	85	77	59	32.1	1	20	SM	62	63					101.5	1.55	0	15	53	32	TP-14
TP-14	229+45, 25' L CL	3.0 - 5.0	Bulk	100	98	94	68	58	29	9.9		NP	SP-SM	87								0	32	58	10	TP-14
TP-15	221+60, 25' L CL	1.0 - 5.0	Bulk	100	100	99	93	86	74	48.2	6	21	SC-SM	41								0	7	45	48	TP-15
TP-16	213+40, 25' L CL	0.0 - 5.0	Bulk	100	100	99	94	90	80	49.2	3	21	SM	45	34					104.3	2.58	0	6	45	49	TP-16
TP-17	161+95, 25' R CL	1.0 - 5.0	Bulk	100	97	97	93	92	83	55.9	6	24	CL-ML	37								0	7	37	56	TP-17
TP-18	154+95, 25' R CL	1.0 - 5.0	Bulk	100	100	99	92	90	84	56.4	12	29	CL	29								0	8	36	56	TP-18
TP-19	146+95, 25' R CL	1.0 - 5.0	Bulk	100	100	100	96	93	80	44.0	3	20	SM	48	48			125.0	9.9	93.8	1.43	0	4	52	44	TP-19
TP-20	138+95, 25' R CL	1.0 - 5.0	Bulk	100	100	100	98	96	89	61.5	18	35	CL	21								0	2	37	61	TP-20
TP-21	130+90, 25' R CL	1.0 - 5.0	Bulk	100	100	99	94	90	77	43.6	9	24	SC	38	23			124.0	11.2	92.8	2.23	0	6	50	44	TP-21
TP-B	462+40, 25' R CL	1.0 - 5.0	Bulk	100	100	99	92	89	74	45.4	7	23	SC-SM	41								0	8	47	45	TP-B
TP-C	439+40, 25' L CL	1.0 - 5.0	Bulk	100	99	99	96	93	84	56.4	8	23	CL	34								0	4	40	56	TP-C
TP-E	387+30, 25' L CL	1.0 - 5.0	Bulk	100	100	95	76	70	55	26.4	3	20	SM	62								0	24	50	26	TP-E
TP-G	275+20, 25' R CL	0.0 - 5.0	Bulk	100	98	89	74	65	51	29.3	3	19	SM	59								0	26	45	29	TP-G
TP-H	186+10, 25' R CL	1.0 - 5.0	Bulk	100	100	98	92	87	74	37.6	4	20	SC-SM	51								0	8	54	38	TP-H
HS-01	515+38, 40' L CL	0.0 - 1.0	Bulk	100	98	95	90	86	73	53.0	12	30	CL	30		7.4	1,705					0	10	37	53	HS-01
HS-02	491+12, 40' L CL	0.0 - 1.0	Bulk	100	100	100	97	96	89	68.1	15	34	CL	22		7.4	1,159					0	3	29	68	HS-02
HS-03	356+70, 40' R CL	0.0 - 1.0	Bulk	100	99	94	75	69	43	9.5		NP	SP-SM	88		6.9	8,116					0	25	66	9	HS-03
HS-04	337+80, 40' R CL	0.0 - 1.0	Bulk	100	100	98	90	84	69	42.3	8	21	SC	41		7.4	2,864					0	10	48	42	HS-04
HS-05	330+00, 40' R CL	0.0 - 1.0	Bulk	100	100	98	79	70	28	2.7		NP	SP	96		7.3	15,209					0	21	76	3	HS-05
HS-06	238+60, 40' L CL	0.0 - 1.0	Bulk	100	99	94	67	58	18	1.1		NP	SP	98								0	33	66	1	HS-06
HS-07	223+10, 40' L CL	0.0 - 1.0	Bulk	100	100	100	95	91	80	54.7	9	26	CL	33								0	5	40	55	HS-07
HS-08	209+00, 40' L CL	0.0 - 1.0	Bulk	100	100	99	83	79	61	22.5		NP	SM	73								0	17	61	22	HS-08
HS-09	158+95, 30' R CL	0.0 - 1.0	Bulk	100	100	99	87	78	49	11.2		NP	SP-SM	86		8.0	7,911					0	13	76	11	HS-09
HS-10	133+00, 40' R CL	0.0 - 1.0	Bulk	100	100	100	95	91	75	47.2	13	31	SC	31		8.0	2,592					0	5	48	47	HS-10