

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT



SUBSURFACE INVESTIGATION

STATE JOB NO. CA0605

FEDERAL AID PROJECT NO. ACNHPP-6043(2)

VANDENBERG BLVD. – HWY. 5 (WIDENING) (S)

STATE HIGHWAY 67 SECTION 10 & 11

IN PULASKI & LONOKE COUNTY

LETTING OF DECEMBER 7, 2016

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July 17, 2015

*Final Roadway Geotechnical Report
Hwy. 67 Widening from Vandenberg Blvd. To Hwy. 5
Pulaski and Lonoke Counties, Arkansas
Job No. CA0605*

Prepared For:



submitted by





July 17, 2015

Mr. Glynn Fulmer, PE
Deputy Project Manager – Engineering
Connecting Arkansas Program
Garver, LLC
4701 Northshore Drive
North Little Rock, Arkansas 72118

**Subject: Final Roadway Geotechnical Report
Highway 67 Widening from Vandenberg Blvd. to Highway 5 (Segment 2)
Pulaski and Lonoke Counties, Arkansas
Job No. CA0605**

Dear Mr. Fulmer:

We have completed the Final Roadway Geotechnical Report for the Widening of Hwy. 67 from Vandenberg Blvd. to Hwy. 5. This report and discussion reflects the latest geotechnical data as it relates to the current alignment geometry.

Thank you for the opportunity to provide geotechnical services to the Arkansas State Highway and Transportation Department. Please call at your convenience if you have questions or comments.

Sincerely,

ICA ENGINEERING, INC.

A handwritten signature in black ink that reads "Devin L. Chittenden".

Devin L. Chittenden, P.E.
Senior Project Engineer

A handwritten signature in black ink that reads "Anil K. Varri".

Anil K. Varri, P.E.
Project Engineer

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1. INTRODUCTION

This report defines subsurface conditions and provides geotechnical recommendations for the design and construction of the proposed widening of Highway 67 from Vandenberg Boulevard to Highway 5 in Pulaski and Lonoke Counties, Arkansas. Standard Penetration Test (SPT), Shelby tube, and bulk sample borings were advanced; collected soil samples were delivered to the ICA Engineering laboratory for testing. Geotechnical parameters are provided in this report, resulting from the evaluation of the soil conditions along the proposed roadway alignment. Stability of cut/fill slopes and settlements of the proposed embankments are discussed. Recommendations for problematic areas along the alignment are included.

2. PROJECT DESCRIPTION

This roadway report includes discussion and recommendations for the widening of Highway 67 from Vandenberg Boulevard to Highway 5. The project also involves replacing the dual bridges over Jack's Bayou. The recommendations for these structures are included under separate cover.

The project corridor crosses terrain described as gently rolling with low relief hills, wide stream drainage floodplains (bayous) compared to stream channel width, and meandering stream channels. The existing alignment passes through areas containing subdivisions and commercial retail/service establishments, with the exception of the wide floodplain associated with Jack's Bayou.

3. FIELD AND LABORATORY PROCEDURES

ICA Engineering performed test borings in order to evaluate the subsurface conditions and analyze the proposed slopes for stability and settlement. Nine (9) roadway borings were advanced along the mainline, where SPT (ASTM D1586) and Shelby tube (ASTM D1587) samples were obtained. Forty-five (45) bulk sample borings were also performed along the mainline, spaced approximately every 500 feet. The borings were advanced to depths ranging from 5.0 feet to 25.0 feet. Two (2) CME 45-C track mounted drill rigs were utilized to advance the borings using 3¼" I.D. hollow stem augers. Auger refusal was encountered within five (5) advanced borings at depths ranging from 1.2 feet to 24.2 feet, although the 1.2 feet refusal is interpreted to be on a concrete box culvert. Typical soils include lean clay with sand, sandy silty clay, lean clay, and silty to clayey sand, exhibiting variable fine to coarse grain fractions and occasionally with small gravel fractions. Boring Logs are presented in Appendix I.

Collected samples were delivered to the ICA Engineering laboratory for further testing and analysis. Laboratory tests performed on representative samples included natural moisture content, liquid limit, plastic limit, grain size analysis, California Bearing Ratio, moisture-density relationship (proctor), consolidation, unconfined compression, and triaxial compression. Selected soil samples were tested to determine the AASHTO and Unified Soil Classification. Results of the laboratory testing are presented in Appendix II.

The soil groups encountered during the field investigation consist of a wide variety of AASHTO Classifications. Table 1 is a brief summary of the soil classifications within the roadway borings:

Table 1 – Summary of Soil Classifications and Descriptions

A-2-4 (0), SM and SC-SM	Silty sand, silty clayey sand with gravel; Liquid Limit range NP to 23; Plasticity Index range NP to 6.
A-2-7 (2), SC	Clayey sand; Liquid Limit 42; Plasticity Index 20.
A-4 (0-2, 4-8, and 10), SC, SM, SC-SM, CL, ML, CL-ML	Sandy lean clay, silty sand, sandy silty clay, silty clay with sand, sandy silty clay with gravel, clayey sand with gravel, sandy lean clay, lean clay with sand, silty clayey sand with gravel, lean clay, silty clay, sandy silt, silty clayey sand; Liquid Limit range 15 to 33; Plasticity Index range 1 to 10.
A-6 (0, 2, 3, 5, 8, 9, 12, 14, 16, 17, 18), SC and CL	Lean clay with sand, sandy lean clay, clayey sand, and lean clay; Liquid Limit range 25 to 40; Plasticity Index range 11 to 19.
A-7-6 (16-18, 27), CL and CH	Lean clay, fat clay, lean clay with sand; Liquid Limit range 41 to 51; Plasticity Index range 20 to 24.

4. SITE CONDITIONS

4.1 Geology

The Highway 67 widening alignment is located along the physiographic boundary between the Ouachita Mountains Province and Mississippi Embayment Province. The alignment crosses over into the Ouachita Mountains Province between borings B-544 and B-545 (approximate Station 900+00). Topographic mapping indicates elevations ranging from approximately 330 feet near the beginning of the subject alignment to approximately 250 feet at the Jack’s Bayou crossing to approximately 300 feet near the end of the project.

Underlying the typically fine grain, cohesive to occasionally sandy roadway fill, alluvial, and residual soils, are sandstone and shale of the Pennsylvanian Atoka Formation at widely varying depths depending upon location along the alignment. Borings back station from Station 900+00 intercepted Atoka at approximately 32 feet to 45 feet (bridge over Jack's Bayou), while borings up station from Station 900+00 intercepted Atoka as shallow as 1.6 feet. Regional structural formation dip for Tertiary strata (Midway Group and Wilcox Group) trends southeastward at near flat gradients while dip for Pennsylvanian strata (Atoka Formation) is northwestward, westward, or southwestward (depending upon location along the alignment) into the axis of a west plunging syncline as indicated on the *Arkansas State Geologic Map* (Haley, et. al., 1993), *Geologic Map of the McAlmont Quadrangle* (Stone, Haley and Bush, 2002) and on pertinent unpublished geologist's proofs (Stone - 1968, Haley & Stone - 1968). Faulting is not indicated within the limits of the subject project alignment. However, examination of rock core recovered from the bridge located within the alignment corridor suggested faulting within Atoka strata.

Soils interpreted as roadway fill, alluvium (Quaternary), and residual soils developed upon the Wilcox Group Eocene sediments, Midway Group (Paleocene) sediments, and Atoka Formation strata were penetrated by the advanced borings. Existing roadway fill is composed primarily of low plasticity clay with small to nearly equal fractions of sand, or fine to coarse grain sand and gravel with silt and clay. Interpreted thickness, based upon sample examination and cross section data, suggests 1.0 feet to 5.0 feet of thickness dependent upon where along the existing ditch slope the investigation boring was drilled. Borings B-521, B-522, and B-549 were terminated within interpreted roadway fill. Boring B-514 penetrated roadway fill to refusal termination at 1.2 feet on the top of a concrete box culvert. Numerous borings did not intercept roadway fill.

Alluvium, deposited within the floodplain of Jack's Bayou and underlying roadway fill, consisted of low plasticity clay, low plasticity clay with some to equal fractions of fine grain sand, and fine grain sand with equal fractions of clay. Where intercepted in SPT borings, consistency was very soft to medium stiff. Alluvial sediments were penetrated to depths between 5.0 feet and 9.6 feet, reflecting a thickness range of 5.1 feet to 6.6 feet. However, bridge borings suggest alluvial sediment thickness of up to 27.9 feet. Alluvial deposits are interpreted to extend from Station 767+00 to Station 813+00.

Residual soils, developed upon Wilcox Group sediments, are indicated on published mapping topping hills at elevations above 295 feet surrounding the proposed corridor. Interception of these sediments within advanced borings occurred between Station 829+00 and Station 843+00. Interpreted Wilcox sediments were penetrated to 5.0

feet in depth within borings B-531, B-532, and B-533 with no auger refusal. Wilcox sediments consisted of low plasticity sandy, silty clay with traces of gravel and fine grain to coarse grain sand, and gravel with silt and clay. Interpreted Wilcox sediments were not intercepted within SPT borings. Published mapping suggests Wilcox Group thickness of up to 30.0' surrounding the project corridor.

Residual soils developed upon Midway Group sediments were intercepted within a majority of borings throughout the proposed widening alignment. Midway sediments are interpreted to underlie roadway fill, alluvium within the previous limits described, and Wilcox sediments within the previous limits described. Midway sediments may also appear at the existing ground surface. Midway sediments consisted of low plasticity clay with some to equal fractions of fine grain sand, low plasticity sandy silty clay, low plasticity silty clay with some to nearly equal fractions of fine grain sand, medium plasticity clay, clay and fine grain sand in roughly equal fractions, and clayey to silty fine grain sand. Where intercepted in SPT borings, consistency was very soft to stiff, with a persistence of stiff conditions for dominantly cohesive sediments, and loose to medium dense conditions for significantly less common granular sediments. Laboratory results indicate granular sediments typically contain sufficient clay/silt fractions to exhibit plasticity. Midway sediments were penetrated to depths up to 25.7 feet, reflecting a minimum thickness range of 6.4 feet to 22.2 feet. However, bridge borings suggest Midway Group sediment thickness of up to 26.7 feet. Midway sediments were penetrated to termination elevations ranging from 271.5 feet to 235.8 feet. Midway Group deposits are interpreted to extend throughout the proposed alignment from Beginning of Project to Station 900+00.

Residual soils, developed upon Atoka Formation sandstone and shale, are indicated on published mapping extending from Station 900+00 to End of Project. Penetration of these soils within advanced borings revealed auger and/or SPT refusal at depths of 1.6 feet to 24.2 feet. Recovered samples included low to medium plasticity silty clay with trace to small fractions of fine to coarse grain sand and fine to coarse grain clayey sand with gravel. Thickness of Atoka residual soils ranges from 1.6 feet to 10.5 feet. Residual Atoka soils were penetrated to 7.3 feet and 10.5 feet in depth within borings B-508 and B-509 prior to encountering weathered rock based upon SPT penetration of less than 0.5 feet per 50 blows. Recovered samples interpreted as weathered rock consisted of fragments of shale and sandstone with evidence of clay seams. Weathered rock thickness appears to vary from 0.4 feet to 16.9 feet based upon advanced roadway borings. Estimated top of rock elevation within the borings where Atoka Formation was encountered ranges from 285.7 feet to 258.4 feet. Core borings were not advanced for the roadway

investigation. Auger refusal or SPT refusal was intercepted within borings B-508, B-509, B-545, B-551, and B-554, at depths of 13.9 feet, 24.2 feet, 1.6 feet, 3.4 feet, and 2.3 feet, respectively, all within the interval described above where Atoka Formation outcrops.

The review of the driller’s logs and notes suggest that borehole conditions, immediately upon completion of moisture/bulk sampling and SPT sampling, were dry. Seasonal variation in rainfall and position of borings within the Jack’s Bayou floodplain are likely to change those observations from dry to groundwater near the existing ground surface. The presence of sandy layers within predominately cohesive sediments will likely lead to perched water levels which may create seepage problems for cut intervals and excavations during construction.

4.2 Soil and Groundwater Conditions

The soil stratigraphy along the roadway alignment suggest fine grained cohesive and granular soils are present, as indicated by the soil boring logs. Advanced borings encountered 1 feet to 5 feet of roadway fill underlain by silty sands, silty clayey sand with gravel, clayey sand, sandy lean clay, silty sand, sandy silty clay, silty clay with sand, sandy silty clay with gravel, clayey sand with gravel, silt, silt with sand, silty clay, lean clay, lean clay with sand, silty clayey sand with gravel, sandy silt, silty clayey sand, clayey sand, lean clay with sand, sandy lean clay, lean clay, clayey sand with gravel, lean clay, fat clay, and lean clay with sand. For the clay soils, plasticity index ranges from 8 to 22, indicating low to medium plasticity. Natural moisture content in these soils, are higher on average, than the optimum moisture contents. For the sand and gravel soils, plasticity index ranges from NP to 8 and the natural moisture contents are higher, on average, than the optimum moisture contents. Strength characteristics generally increased with depth as indicated by standard penetration tests with blow counts of 1 to 100+ BPF in the clayey, sandy and gravelly soils.

Table 2 – Summary of Laboratory Test Results

SOIL TYPE	PLASTICITY INDEX	NATURAL MOISTURE (%)	OPTIMUM MOISTURE (%)	MAX DRY UNIT WEIGHT (pcf)	C. B. R. VALUES
Lean clays	10-20	19-29	-	-	-
Lean clays with sand	9-22	14-23	13.6-18.3	106.7-114.3	4-5
Sandy lean clays	8-16	12-24	13.6	116.6	7
Fat clay	24	26	-	-	-
Clayey sand with gravel	8	17	-	-	-
Silty clayey sand with gravel	6	17	11-13.2	117.1-122.6	8-11
Sandy silts	2	14-15	-	-	-
Sandy silty clays	6-7	22-24	13.6	117.6	6

Table 2 – Summary of Laboratory Test Results

Sandy silty clay with gravel	6	8	-	-	-
Silty clay	6	24	-	-	-
Silty clay with sand	5-7	20-24	-	-	-
Silty sand	NP-1	7-13	-	-	-

The observed ground water levels discussed in the Geology Section above indicated dry conditions at the time of drilling. Water levels may vary widely within the alignment corridor, seemingly dependent upon climatic conditions. Indications of possible perched groundwater levels are evidenced by sandy layers with predominately cohesive sediments. Overall, the area suggests a moderate potential for groundwater seepage if these soils are encountered. Design of newly constructed embankments may require consideration of “near the surface” groundwater levels for consolidation, potential rapid drawdown during flooding, and long term slope stability. In addition, low wet areas and embankment construction may require additional stabilization techniques discussed below. Recommendations included within this report along with other possible remedial solutions shall be utilized as directed by the Engineer to ensure the long term success and stability of the slopes on this project.

4.3 Seismic Conditions

Earthquake hazards are considered to be significant in portions of Arkansas and seismic ground motion is a design factor. For this project, the proposed peak ground acceleration (PGA) having a 7% probability of exceedance in 75 years (or mean return period of approximately 1000 years) is equal to 0.158g and the horizontal response spectral acceleration value at a 1.0 second period is equal to 0.101g. These values were provided by the United States Geology Survey (USGS). Based on a Site Class D for this project, the PGA value is then multiplied by the site factor of 1.48 using Table 3.10.3.2-1 in the AASHTO 6th Edition with 2012 Interims LRFD Bridge Design Specifications. Similarly, the horizontal response spectral acceleration value is multiplied by the site factor of 2.40 as shown in Table 3.10.3.2-3 for a Site Class D. This gives the peak seismic ground acceleration value of 0.234g and a Seismic Zone of 2.

5. ENGINEERING ANALYSIS AND RECOMMENDATIONS

5.1 General Discussion

The native soils encountered during drilling operations along the alignment primarily consist of silty to clayey sand and fat and lean clay with gravel and sand. These soils have low to moderate plasticity. However, some

volumes of highly plastic materials may be encountered within and along the project corridor. Highly plastic soils tend to shrink and swell with changes in moisture content, can be problematic during compaction, and could pose significant long term stability issues if placed within embankments. Therefore, we recommend any highly plastic soils *not be utilized* for embankment construction, irregardless of the source. Any highly plastic materials excavated from cuts shall be used for final dressing of slopes or be wasted. We recommend all embankment construction be performed in accordance with the Special Provision “Embankment Construction.” In general, the Special Provision requires material placement in embankment areas shall have a plasticity index (PI) of 15 or less, or a cherty clay material with a minimum of 55 percent retained on the No. 4 sieve prior to compaction will be allowed. This requirement shall be imposed for all embankments, except where select material is specified. The embankment stability appears acceptable when parameters for these materials are applied for the analysis. Specific analysis and recommendations are discussed below. Furthermore, muck and poor quality soils from pond/wet area stabilization *shall not be utilized* within embankment limits and shall be used for final dressing of slopes or be wasted.

Rock fill or soil material containing boulders, iron oxide chunks, cemented layers, and other similar bulky particles shall not be placed at the bridge abutments due to proposed pile foundations. Proposed fill materials shall be limited to a maximum size of Class 7 aggregate or smaller where pile foundations are recommended.

California Bearing Ratio (CBR) testing values performed on the bulk soil samples ranged from 3.8 and 11 and a resilient modulus of 2,600 psi and R-value (California) of 5 were selected for the pavement designs on this project. We recommend all borrow material meet these minimum requirements as well as the requirements set forth in the Standard Specifications for Highway Construction. In addition, the borrow material must meet the requirement that the Maximum Plasticity Index cannot be greater than 15 to ensure the integrity and long term stability of the embankments, as indicated in the Special Provision, excluding the areas where Select Materials are specified. We suggest the higher plasticity soils be wasted first, allowing the lower plasticity materials that meet the Maximum Plasticity Index less than 15 criteria to be utilized for embankment construction.

The natural moisture content of the cohesive samples along the project corridor was typically above optimum values. The majority of earthwork operations will likely require drying of these materials to achieve the required compaction. However, wetting operations may be required when non-cohesive and cohesive soils are encountered which contain lower-than-optimum moisture contents.

At the writing of this report, preliminary estimates of earthwork material available from cuts and material required for embankments were not available.

5.2 Cut/Embankment Slopes

The roadway design cross sections indicate some small amounts of excavation and fill are required to construct this project. Cut slopes are less than 5 feet in depth and embankment slopes are as high as 6 feet. Individual recommendations are depicted on the attached critical cross sections. In general, soil cut slopes of 2H:1V or flatter have been utilized to develop roadway cross sections.

Highway 67 Station 725+00 to Station 948+00

For embankment and cut slopes, we recommend soil slopes be constructed with 2H:1V or flatter slopes. The embankment stability analyses are based upon construction of the fills using the minimum embankment material requirements and other recommendations within this report. It is imperative these requirements be utilized to provide long term embankment stability as well as to reduce construction difficulties. If slopes steeper than 2H:1V are necessary in areas other than those specifically outlined in this report, ICA Engineering shall be contacted to determine the slope stability on a case-by-case basis.

The cut and embankment slopes discussed herein have acceptable factors of safety for stability. The calculated short term, long term, and seismic factors of safety for the analyzed sections are listed in Table 3 and are depicted on the stability cross sections in Appendix III. We further recommend suitable vegetation and/or erosion control measures be employed on final slopes as soon as practical during construction, as many of the soil horizons within project limits are susceptible to erosion. Appropriate erosion control procedures, roadway and drainage excavation as well as embankment benching shall be performed in accordance with the Standard Specifications for Highway Construction.

Table 3 – Factors of Safety for Slope Stability

Location	Short Term	Long Term	Pseudo-Static
Mainline 736+00	>3.0	>3.0	>3.0
Mainline 747+00	3.0	2.3	1.6
Mainline 822+00	>3.0	>3.0	2.1
Mainline 870+00	2.6	2.5	1.3
Mainline 885+00	>3.0	>3.0	>3.0
Mainline 903+00	2.9	2.5	1.5

5.3 Settlement

Subsurface conditions indicate potential settlement for new embankment construction within the analyzed areas (stability sections) could range from 1.7' to 3.2'. Cohesive soils are present beneath the alignment; however, the noncohesive materials layered or laminated within the cohesive soils should allow the majority of this settlement to dissipate during the construction period. Overall, the non-cohesive material bodies contained within the cohesive soils should improve pore pressure dissipation and allow pore water drainage to occur during the construction period.

5.4 Ponds/Low wet areas

The project corridor is mostly excluded from ponds and low lying areas. However, Jack's Bayou floodplain (Station 767+00 to Station 813+00) may be susceptible to periodic flooding during wet seasons. During climatic seasons, the potential for wet conditions will exist. Undercutting and stabilization of soils that become saturated during such events may be required as determined by the Engineer. For these areas, we recommend the saturated soft soils be undercut and replaced with rock fill comprised of durable stone. Type I granular material meeting the size requirement range of 1.5" to 30", or other approved materials, specified in the Standard Specifications for Highway Construction are also permissible. This undercut shall typically extend 3' below the surface, unless additional excavation is directed by the Engineer. The replacement rock material shall be overlain with 6" of choke stone or geotextile fabric to prevent the migration of fines. The muck and poor quality soils removed during this undercut process *shall not be used* within embankment limits and shall be used as final dressing on slopes or be wasted. Grading operations in this area shall promote positive drainage away from embankment slopes and insure ponding water does not re-occur within ROW limits. Where undercut operations and the drainage layer mentioned above are required by the Engineer, the undercut shall be in addition to the drainage layer requirement.

APPENDIX I – BORING LOGS



BORING NO.: B-562

PAGE: 1 of 2

JOB NO.: 11206-04
 JOB NAME: Hwy 67 Widening from Vandenberg Blvd. to Hwy 5
 STATION: 788+70
 LOCATION: 15' Lt.
 LATITUDE: 34.90783 ° LONGITUDE: 92.08438 °

DATE: 10/22/2014
 TYPE OF DRILLING: CS/SPT/CORE
 EQUIPMENT: CME 45C
 LOGGED BY: M. Morgan

COMPLETION DEPTH: 70.7 ft.

GROUNDWATER @

DEPTH (ft.)	SYMBOL	SAMPLES	DESCRIPTION OF MATERIALS	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	DRY WEIGHT (lbs. per cu. ft.)	NO. OF BLOWS PER 0.5 ft.	% SCR	% RQD
			SURFACE ELEVATION: 248.9								
5.0			Light brown, stiff, silty clay.			19.4			3,3,10		
8.3											
10.0			Gray, orange & tan, stiff, lean clay.	19	22.5	36					
13.3											
15.0			Brown, medium stiff, silty clay.			20.8			2,3,5		
20.0											
21.3						21.3			3,4,5		
23.3											
25.0			Brown, very stiff to very hard, sandy lean clay.	18	20.4	25			3,10,13		
30.0											
31.3						16.5	26		11,19,26		
35.0											
35.5			Weathered Shale			11.6			22,50/0.2		
36.0											
37.7			Auger Refusal @ 35.7', Begin Coring in Shale.							100	22
40.0			SHALE: Olive gray, brown-orange, dk. gray-black, mod. to sev. weathered, soft to med. hard, clayey, iron oxide stain, clay seams.								
43.2			8 0°-20° jts., smooth walls, iron stain & clay film; 2 70° jts. w/clay to 2mm; clay seams 37.0'-37.1', 38.1', 38.8'							100	68
44.8			SHALE: Dk. gray-black, brown-orange seams, sli. to mod. weathered, med. to mod. hard, silty, f. micaceous, iron oxide stain in seams.								
45.0			16 0°-20° jts., smooth walls, clay film, 1mm±								
50.0			SANDSTONE: Lt. gray, gray, sli. weathered, mod. hard, v.f. to f. grain, SHALE laminations & partings, ripple to contorted bedding, iron oxide on jt. walls.							100	52



BORING NO.: B-564

PAGE: 1 of 2

JOB NO.: 11206-04
 JOB NAME: Hwy 67 Widening from Vandenberg Blvd. to Hwy 5
 STATION: 789+05
 LOCATION: 46' Lt.
 LATITUDE: 34.90795 ° LONGITUDE: 92.08444 °

DATE: 10/18/2014
 TYPE OF DRILLING: CS/SPT/CORE
 EQUIPMENT: CME 45C
 LOGGED BY: H. Morris

COMPLETION DEPTH: 58.2 ft.

GROUNDWATER @

DEPTH (ft.)	SYMBOL	SAMPLES	DESCRIPTION OF MATERIALS	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	DRY WEIGHT (lbs. per cu. ft.)	NO. OF BLOWS PER 0.5 ft.	% SCR	% RQD
			SURFACE ELEVATION: 256.0								
5.0			Gray & tan, medium stiff to stiff, silt.			22.8			0,1,5		
10.0					22	22.9	28		5,5,5		
12.9			Gray & black, v. stiff, lean clay.		19	21.7	38				
17.9			Gray & tan, medium stiff to stiff, silt.			20.5			4,6,8		
25.0						26.7			0,2,3		
27.9			Brown, v. loose, clayey sand.		19	21.6	27				
32.6			Gray & tan, medium dense, silty, clayey sand with gravel.		17	15.8	22		5,9,13		
37.9			Gray & tan, very dense, clayey sand with gravel.		19	16.2	30		7,9,50/0.2		
40.6			Weathered Shale & Sandstone							40	0
40.8			Auger Refusal @ 40.8', Begin Coring in Weathered Fragments.								
42.2			Weathered Fragments: Black, lt. olive gray, orange-brown, SHALE & SANDSTONE frags. w/clay.							96	42
			SHALE: Black-dk. gray, brown-orange, mod. weathered to fresh w/some sev. weathered seams & jt. walls, med. to mod. hard, clayey to silty, f. micaceous, iron oxide stain on some jts.							100	90

APPENDIX II – LABORATORY DATA



Project Name : Highway 67 Widening
 Location : Pulaski County, Arkansas
 Job Number : 11206-04
 Project Job No. : 11206-04

Moisture Data
 (AASHTO T255-T265 / ASTM C566-D2216)

Soil No.	Boring No.	Station & Offset	Sample No.	Depth		Description of Soil	pH	Natural Moisture Content (%)
50	B-501		ST-1	4.5	6.0	Brown & Tan Silty Clay with Sand		20.0
51			ST-2	9.5	10.7	Brown Sandy Lean Clay		15.9
1			SS-1	14.5	16.0	Brown & Gray Lean Clay with Sand		18.6
2	B-502		SS-1	4.2	5.7	Brown, Tan & Gray Lean Clay with Sand		22.3
52			ST-1	9.2	10.7	Tan & Gray Lean Clay		23.8
2			SS-2	14.2	15.7	Brown & Gray Lean Clay with Sand		14.8
53			ST-2	19.2	20.4	Gray & Tan Lean Clay with Sand		18.9
3			SS-3	24.2	25.7	Brown & Gray Lean Clay		18.8
54	B-503		ST-1	4.1	5.1	Brown Lean Clay		28.8
4			SS-1	9.1	10.6	Brown & Gray Fat Clay		25.5
55			ST-2	14.1	15.8	Brown & Tan Silty Clay		23.5
5	B-504		SS-1	4.0	5.5	Brown & Gray Sandy Lean Clay		16.9
56			ST-1	9.0	9.3	Brown & Tan Sandy Silt		13.6
6			SS-2	9.6	11.1	Brown & Gray Silty Sand		12.7
57			ST-2	14.0	15.0	Tan Sandy Silt		15.3
7	B-505		SS-1	4.5	6.0	Tan & Gray Clayey Sand		15.8
7			SS-2	9.5	11.0	Tan & Gray Clayey Sand		23.6
58			ST-1	14.5	16.0	Brown, Tan & Gray Sandy Lean Clay		21.2
7			SS-3	19.5	21.0	Tan & Gray Clayey Sand		29.2
8	B-506		SS-1	4.8	6.3	Gray & Tan Sandy Lean Clay		23.4
8			SS-2	9.8	11.3	Gray Sandy Lean Clay		23.7
59			ST-1	14.8	16.3	Gray & Orange Silty, Clayey Sand		16.7
9			SS-3	19.8	21.3	Gray Sandy Silty Clay		16.3
10	B-507		SS-1	4.7	6.2	Gray & Brown Silty Clay with Sand		24.3
60			ST-1	9.7	10.7	Tan & Gray Lean Clay		22.9
11			SS-2	14.7	16.2	Gray & Brown Lean Clay with Sand		18.6
12	B-508		SS-1	4.7	6.2	Gray & Brown Lean Clay with Sand		13.8
13			SS-2	9.7	11.2	Brown & Gray Sandy Silty Clay with Gravel		8.2
14			SS-3	13.5	13.9	Gray Silty Sand		7.2
15	B-509		SS-1	4.0	5.5	Brown & Red Clayey Sand with Gravel		17.4
15			SS-2	9.0	9.3	Brown Clayey Sand with Gravel		11.9
16			SS-3	14.0	14.9	Brown Sandy Lean Clay		11.6
16			SS-4	19.0	19.2	Brown Sandy Lean Clay		6.2
16			SS-5	24.0	24.2	Brown Sandy Lean Clay		4.4
43	B-510		MC-1	0.0	5.0	Red Lean Clay with Sand		
43	B-511		Bag-1	0.0	5.0	Brown Lean Clay with Sand		19.1
43	B-512		Bag-15	0.0	5.0	Brown Lean Clay with Sand		
43	B-513		MC-1	0.0	5.0	Brown Lean Clay with Sand		
43	B-514		MC-1	0.0	5.0	Brown Lean Clay with Sand		
49	B-515		Bag-2	0.0	5.0	Brown Sandy Silty Clay		
49	B-516		MC-1	0.0	5.0	Brown Sandy Silty Clay		

Strengthening America's Infrastructure®

Project Name : Highway 67 Widening
 Location : Pulaski County, Arkansas
 Job Number : 11206-04
 Project Job No. : 11206-04

Moisture Data

(AASHTO T255-T265 / ASTM C566-D2216)

Soil No.	Boring No.	Station & Offset	Sample No.	Depth	Description of Soil	pH	Natural Moisture Content (%)
49	B-517		MC-1	0.0 5.0	Brown Sandy Silty Clay		
49	B-518		Bag-16	0.0 5.0	Brown Sandy Silty Clay		
47	B-519		Bag-3	0.0 5.0	Brown Sandy Lean Clay		
48	B-520		Bag-17	0.0 5.0	Brown Clayey Sand		
47	B-521		Bag-4	0.0 5.0	Dark Brown Sandy Lean Clay		
47	B-522		MC-1	0.0 5.0	Brown Sandy Lean Clay		
43	B-523		Bag-18	0.0 5.0	Brown Lean Clay with Sand		
47	B-524		Bag-19	0.0 5.0	Brown Sandy Lean Clay		
47	B-525		Bag-5	0.0 5.0	Brown Sandy Lean Clay		
47	B-526		MC-1	0.0 5.0	Brown Sandy Lean Clay		
48	B-527		Bag-20	0.0 5.0	Brown Clayey Sand		
48	B-528		MC-1	0.0 5.0	Brown Clayey Sand		
48	B-529		MC-1	0.0 5.0	Brown Clayey Sand		
48	B-530		Bag-6	0.0 5.0	Brown Clayey Sand		16.4
49	B-531		Bag-21	0.0 5.0	Red & Brown Sandy Silty Clay		
49	B-532		MC-1	0.0 5.0	Red & Brown Sandy Silty Clay		
45	B-533		Bag-7	0.0 5.0	Red Silty, Clayey Sand with Gravel		
47	B-534		Bag-8	0.0 5.0	Brown Sandy Lean Clay		18.1
43	B-535		Bag-22	0.0 5.0	Brown Lean Clay with Sand		
45	B-536		Bag-23	0.0 5.0	Red Silty, Clayey Sand with Gravel		
43	B-537		Bag-9	0.0 5.0	Brown Lean Clay with Sand		
46	B-538		Bag-10	0.0 5.0	Red Lean Clay with Sand		
47	B-539		MC-1	0.0 5.0	Brown Sandy Lean Clay		
47	B-540		Bag-31	0.0 5.0	Brown Sandy Lean Clay		
45	B-541		Bag-11	0.0 5.0	Gray Silty, Clayey Sand with Gravel		
45	B-542		MC-1	0.0 5.0	Gray Silty, Clayey Sand with Gravel		
49	B-543		Bag-30	0.0 5.0	Red & Brown Sandy Silty Clay		19.5
46	B-544		Bag-29	0.0 5.0	Dark Brown Lean Clay with Sand		23.2
47	B-545		MC-1	0.0 1.6	Brown Sandy Lean Clay		
47	B-546		Bag-12	0.0 5.0	Brown Sandy Lean Clay		
49	B-547		MC-1	0.0 5.0	Brown Sandy Silty Clay		

Strengthening America's Infrastructure®

Project Name : Highway 67 Widening
 Location : Pulaski County, Arkansas
 Job Number : 11206-04
 Project Job No. : 11206-04

Moisture Data
 (AASHTO T255-T265 / ASTM C566-D2216)

Soil No.	Boring No.	Station & Offset	Sample No.	Depth	Description of Soil	pH	Natural Moisture Content (%)
49	B-548		Bag-27	0.0 5.0	Brown Sandy Silty Clay		
47	B-549		Bag-13	0.0 5.0	Red & Gray Sandy Lean Clay		
44	B-550		Bag-26	0.0 5.0	Brown Silty, Clayey Sand with Gravel		10.7
44	B-551		Bag-14	0.0 5.0	Brown Silty, Clayey Sand with Gravel		
44	B-552		MC-1	0.0 5.0	Brown Silty, Clayey Sand with Gravel		
45	B-553		Bag-25	0.0 5.0	Brown & Red Silty, Clayey Sand with Gravel		11.1
44	B-554		MC-1	0.0 2.3	Brown Silty, Clayey Sand with Gravel		
28	B-556		SS-1	4.8 6.3	Brown Silt		28.6
28			SS-2	9.8 11.3	Brown & Gray Silt		22.9
28			SS-3	14.8 16.3	Brown & Gray Silt		21.1
61			ST-1	19.8 21.8	Brown Lean Clay		22.2
28			SS-4	24.8 26.3	Brown & Gray Silt		20.8
62			ST-2	29.8 31.3	Orange & Gray Lean Clay with Sand		23.3
29			SS-5	34.8 36.3	Brown Sandy Silty Clay		22.7
29			SS-6	39.8 41.3	Brown & Gray Sandy Silty Clay		22.3
30			SS-7	44.8 45.0	Gray Silt with Sand		8.3
33	B-557		SS-1	4.4 5.9	Brown & Black Lean Clay		22.9
34			SS-2	9.4 10.9	Gray Lean Clay		26.2
63			ST-1	14.4 15.7	Brown & Gray Silt		19.5
64			ST-2	19.4 20.9	Gray & Orange Lean Clay		22.6
34			SS-3	24.4 25.9	Tan, Gray & Black Lean Clay		20.3
34			SS-4	29.4 30.9	Tan, Brown & Black Lean Clay		23.6
35			SS-5	34.4 35.9	Tan, Brown & Black Lean Clay		24.8
65			ST-3	39.4 40.4	Brown & Tan Silty, Clayey Sand		14.0
36			SS-6	44.4 44.6	Dark Gray & Black Silt with Sand		2.3
17	B-558		SS-1	1.1 2.6	Brown & Gray Silt		22.4
18			SS-2	6.1 7.6	Brown & Gray Lean Clay		19.8
18			SS-3	11.1 12.6	Brown & Gray Lean Clay		22.3
66			ST-1	16.1 17.9	Brown & Tan Lean Clay with Sand		19.0
19			SS-4	21.6 22.6	Brown & Dark Brown Sandy Silty Clay		24.1
67			ST-2	26.1 27.6	Brown & Tan Sandy Lean Clay		21.6
19			SS-5	31.1 32.6	Brown & Gray Sandy Silty Clay		22.0
20			SS-6	35.9 36.1	Gray Silty Sand with Gravel		10.8
37	B-559		SS-1	4.7 6.2	Brown & Tan Silt		20.9
37			SS-2	9.7 11.2	Brown & Tan Silt		19.5
68			ST-1	14.7 16.2	Tan, Brown & Gray Lean Clay with Sand		18.4
38			SS-3	19.7 21.2	Brown, Tan & Gray Sandy Lean Clay		22.1
69			ST-2	24.7 26.3	Brown, Tan & Black Sandy Lean Clay		19.8
38			SS-4	29.7 31.2	Brown, Tan & Gray Sandy Lean Clay		19.2
31	B-562		SS-1	5.0 6.5	Light Brown Silty Clay		19.4
70			ST-1	10.0 11.5	Gray, Orange & Tan Lean Clay		22.5
31			SS-2	15.0 16.5	Brown Silty Clay		20.8
31			SS-3	20.0 21.5	Brown Silty Clay		21.3
32			SS-4	25.0 26.5	Brown Sandy Lean Clay		20.4
32			SS-5	30.0 31.5	Brown Sandy Lean Clay		16.5
32			SS-6	35.0 35.7	Brown Sandy Lean Clay		11.6
71	B-563		ST-1	4.1 5.4	Gray & Orange Silt		20.5
21			SS-1	9.1 10.6	Brown & Gray Lean Clay		23.2
22			SS-2	14.1 15.6	Brown Sandy Lean Clay		21.4
23			SS-3	19.1 20.6	Brown & Gray Lean Clay		24.7

Strengthening America's Infrastructure®

Project Name : Highway 67 Widening
 Location : Pulaski County, Arkansas
 Job Number : 11206-04
 Project Job No. : 11206-04

Moisture Data
 (AASHTO T255-T265 / ASTM C566-D2216)

Soil No.	Boring No.	Station & Offset	Sample No.	Depth		Description of Soil	pH	Natural Moisture Content (%)
72			ST-2	24.1	25.6	Brown Sandy Silt		19.1
24			SS-4	29.1	30.6	Brown Clayey Sand		15.9
24			SS-5	34.1	34.5	Brown Clayey Sand		10.1
25	B-564		SS-1	4.6	6.1	Gray Silt		22.8
25			SS-2	9.6	11.1	Gray & Tan Silt		22.9
73			ST-1	14.6	16.1	Tan, Gray & Black Lean Clay		21.7
25			SS-3	19.6	21.1	Gray & Tan Silt		20.5
25			SS-4	24.6	26.1	Gray & Tan Silt		26.7
74			ST-2	29.6	30.6	Brown Clayey Sand		21.6
26			SS-5	34.6	36.1	Gray & Tan Silty, Clayey Sand with Gravel		15.8
27			SS-6	39.6	40.8	Gray & Tan Clayey Sand with Gravel		16.2
39	B-565		SS-1	5.2	6.7	Tan Lean Clay		24.3
39			SS-2	10.2	11.7	Tan Lean Clay		20.1
39			SS-3	15.2	16.7	Tan Lean Clay		22.4
75			ST-1	20.2	21.9	Gray, Tan & Brown Lean Clay		19.6
40			SS-4	25.2	26.7	Tan Silt with Sand		20.3
41			SS-5	30.2	31.7	Tan & Brown Silty Clay with Sand		21.4
76			ST-2	35.2	36.7	Brown & Gray Silty Sand		21.1
42			SS-6	40.2	40.4	Brown Silt with Sand		12.8

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-1
Project No. : 11206-04	Sample Loc. : Boring No. B-501
Project County : Pulaski	Sample Depth : 14.5' to 16.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Brown & Gray Lean Clay with Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	100.0

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.2
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	74.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

AASHTO T88

$D_{50} = 0.0088 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.6
 Liquid Limit (AASHTO T89) : 34
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 14
 Liquidity Index : -0.09
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (9)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 0.8
 Fine Sand (-No.40 + No.200) : 25.2
 Silt + Clay (-No.200) : 74.0

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 0.8
 Fine Sand (-No.40 + No.200) : 25.2
 Silt + Clay (-No.200) : 74.0

Approved By : J.S.

Soil No. 1

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-1
Project No. : 11206-04	Sample Loc. : Boring No. B-502
Project County : Pulaski	Sample Depth : 4.2' to 5.7'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/03/14
Submitted By : ICA Engineering	
Soil Type : Brown, Tan & Gray Lean Clay with Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.8

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	95.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	81.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0059 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.3
 Liquid Limit (AASHTO T89) : 31
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 13
 Liquidity Index : 0.30
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (9)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 4.7
 Fine Sand (-No.40 + No.200) : 13.9
 Silt + Clay (-No.200) : 81.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 4.7
 Fine Sand (-No.40 + No.200) : 13.9
 Silt + Clay (-No.200) : 81.2

Approved By : J.S.

Soil No. 2



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Lean Clay

Sample No. : SS-3
 Sample Loc. : Boring No. B-502
 Sample Depth : 24.2' to 25.7'
 Date Tested : 10/25/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.5	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	87.6	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0044 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.8
 Liquid Limit (AASHTO T89) : 42
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 20
 Liquidity Index : -0.16
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-7-6 (18)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 11.9
 Silt + Clay (-No.200) : 87.6

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 11.9
 Silt + Clay (-No.200) : 87.6

Approved By : J.S.

Soil No. 3



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Fat Clay

Sample No. : SS-1
 Sample Loc. : Boring No. B-503
 Sample Depth : 9.1' to 10.6'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.9
No.6		3.35	mm		
No.10		2	mm		99.7

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		98.6
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		96.3
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0031 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 25.5
 Liquid Limit (AASHTO T89) : 51
 Plastic Limit (AASHTO T90) : 27
 Plasticity Index : 24
 Liquidity Index : -0.05

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 1.1
 Fine Sand (-No.40 + No.200) : 2.3
 Silt + Clay (-No.200) : 96.3

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-7-6 (27)
 ASTM Classification: D2487 : CH

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.1
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 1.1
 Fine Sand (-No.40 + No.200) : 2.3
 Silt + Clay (-No.200) : 96.3

Approved By : J.S.

Soil No. 4



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan & Gray Sandy Lean Clay

Sample No. : SS-1
 Sample Loc. : Boring No. B-504
 Sample Depth : 4.0' to 5.5'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.2
No.6		3.35	mm		
No.10		2	mm		95.8

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		89.5
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		53.1
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.051 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 15.8
 Liquid Limit (AASHTO T89) : 26
 Plastic Limit (AASHTO T90) : 16
 Plasticity Index : 10
 Liquidity Index : 0.03
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 4.2
 Coarse Sand (-No.10 + No.40) : 6.3
 Fine Sand (-No.40 + No.200) : 36.4
 Silt + Clay (-No.200) : 53.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.8
 Coarse Sand (-No.4 + No.10) : 3.4
 Medium Sand (-No.10 + No.40) : 6.3
 Fine Sand (-No.40 + No.200) : 36.4
 Silt + Clay (-No.200) : 53.1

Approved By : J.S.

Soil No. 5



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Silty Sand

Sample No. : SS-2
 Sample Loc. : Boring No. B-504
 Sample Depth : 9.6' to 11.1'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.0
No.6		3.35	mm		
No.10		2	mm		97.3

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		92.1
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		49.1
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0778 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 12.7
 Liquid Limit (AASHTO T89) : 15
 Plastic Limit (AASHTO T90) : 14
 Plasticity Index : 1
 Liquidity Index : -1.35
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : SM

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 2.7
 Coarse Sand (-No.10 + No.40) : 5.2
 Fine Sand (-No.40 + No.200) : 43.0
 Silt + Clay (-No.200) : 49.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 1.0
 Coarse Sand (-No.4 + No.10) : 1.7
 Medium Sand (-No.10 + No.40) : 5.2
 Fine Sand (-No.40 + No.200) : 43.0
 Silt + Clay (-No.200) : 49.1

Approved By : J.S.

Soil No. 6

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan & Gray Clayey Sand

Sample No. : SS-2
 Sample Loc. : Boring No. B-505
 Sample Depth : 9.5' to 11.0'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		99.5

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		93.6
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		33.1
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.1218 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.6
 Liquid Limit (AASHTO T89) : 42
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 20
 Liquidity Index : 0.10
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-2-7 (2)
 ASTM Classification: D2487 : SC

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.5
 Coarse Sand (-No.10 + No.40) : 5.9
 Fine Sand (-No.40 + No.200) : 60.5
 Silt + Clay (-No.200) : 33.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.5
 Medium Sand (-No.10 + No.40) : 5.9
 Fine Sand (-No.40 + No.200) : 60.5
 Silt + Clay (-No.200) : 33.1

Approved By : J.S.

Soil No. 7

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-2
Project No. : 11206-04	Sample Loc. : Boring No. B-506
Project County : Pulaski	Sample Depth : 9.8' to 11.3'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/03/14
Submitted By : ICA Engineering	
Soil Type : Gray Sandy Lean Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.4
No.6		3.35	mm	
No.10		2	mm	97.3

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	93.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	60.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0249 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.7
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 13
 Liquidity Index : 0.53
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (5)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 2.7
 Coarse Sand (-No.10 + No.40) : 3.8
 Fine Sand (-No.40 + No.200) : 33.5
 Silt + Clay (-No.200) : 60.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.6
 Coarse Sand (-No.4 + No.10) : 2.1
 Medium Sand (-No.10 + No.40) : 3.8
 Fine Sand (-No.40 + No.200) : 33.5
 Silt + Clay (-No.200) : 60.0

Approved By : J.S.

Soil No. 8

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-3
Project No. : 11206-04	Sample Loc. : Boring No. B-506
Project County : Pulaski	Sample Depth : 19.8' to 21.3'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray Sandy Silty Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.8

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	50.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0693 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 16.3
 Liquid Limit (AASHTO T89) : 24
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 7
 Liquidity Index : -0.08
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 0.3
 Fine Sand (-No.40 + No.200) : 48.9
 Silt + Clay (-No.200) : 50.6

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 0.3
 Fine Sand (-No.40 + No.200) : 48.9
 Silt + Clay (-No.200) : 50.6

Approved By : J.S.

Soil No. 9



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-1
Project No. : 11206-04	Sample Loc. : Boring No. B-507
Project County : Pulaski	Sample Depth : 4.7' to 6.2'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray & Brown Silty Clay with Sand	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	100.0	
1/4		6.3	mm		
No.4		4.75	mm	99.6	
No.6		3.35	mm		
No.10		2	mm	98.6	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	96.7	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	80.2	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0062 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 24.3

Liquid Limit (AASHTO T89) : 26

Plastic Limit (AASHTO T90) : 19

Plasticity Index : 7

Liquidity Index : 0.80

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (4)

ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 1.4
 Coarse Sand (-No.10 + No.40) : 1.9
 Fine Sand (-No.40 + No.200) : 16.5
 Silt + Clay (-No.200) : 80.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.4
 Coarse Sand (-No.4 + No.10) : 1.0
 Medium Sand (-No.10 + No.40) : 1.9
 Fine Sand (-No.40 + No.200) : 16.5
 Silt + Clay (-No.200) : 80.2

Approved By : J.S.

Soil No. 10



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray & Brown Lean Clay with Sand

Sample No. : SS-2
 Sample Loc. : Boring No. B-507
 Sample Depth : 14.7' to 16.2'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.9
No.6		3.35	mm		
No.10		2	mm		99.5

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		98.9
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		79.8
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0063 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.6
 Liquid Limit (AASHTO T89) : 42
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 22
 Liquidity Index : -0.05
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.5
 Coarse Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 19.1
 Silt + Clay (-No.200) : 79.8

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-7-6 (17)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.1
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 19.1
 Silt + Clay (-No.200) : 79.8

Approved By : J.S.

Soil No. 11



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray & Brown Lean Clay with Sand

Sample No. : SS-1
 Sample Loc. : Boring No. B-508
 Sample Depth : 4.7' to 6.2'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		98.4
No.6		3.35	mm		
No.10		2	mm		94.7

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		93.0
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		81.9
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0057 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 13.8
 Liquid Limit (AASHTO T89) : 41
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 20
 Liquidity Index : -0.36
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-7-6 (16)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 5.3
 Coarse Sand (-No.10 + No.40) : 1.7
 Fine Sand (-No.40 + No.200) : 11.1
 Silt + Clay (-No.200) : 81.9

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 1.6
 Coarse Sand (-No.4 + No.10) : 3.7
 Medium Sand (-No.10 + No.40) : 1.7
 Fine Sand (-No.40 + No.200) : 11.1
 Silt + Clay (-No.200) : 81.9

Approved By : J.S.

Soil No. 12

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-2
Project No. : 11206-04	Sample Loc. : Boring No. B-508
Project County : Pulaski	Sample Depth : 9.7' to 11.2'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Brown & Gray Sandy Silty Clay with Gravel	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	89.4
1/4		6.3	mm	
No.4		4.75	mm	83.1
No.6		3.35	mm	
No.10		2	mm	78.9

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	72.9
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	51.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0659 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 8.2
 Liquid Limit (AASHTO T89) : 28
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 6
 Liquidity Index : -2.23
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 21.1
 Coarse Sand (-No.10 + No.40) : 6.0
 Fine Sand (-No.40 + No.200) : 21.9
 Silt + Clay (-No.200) : 51.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 16.9
 Coarse Sand (-No.4 + No.10) : 4.2
 Medium Sand (-No.10 + No.40) : 6.0
 Fine Sand (-No.40 + No.200) : 21.9
 Silt + Clay (-No.200) : 51.0

Approved By : J.S.

Soil No. 13

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray Silty Sand

Sample No. : SS-3
 Sample Loc. : Boring No. B-508
 Sample Depth : 13.5' to 13.9'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	98.0
No.6		3.35	mm	
No.10		2	mm	94.1

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	73.4
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	21.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.1941 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 7.2
 Liquid Limit (AASHTO T89) : NP
 Plastic Limit (AASHTO T90) : NP
 Plasticity Index : NP
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-2-4 (0)
 ASTM Classification: D2487 : SM

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 5.9
 Coarse Sand (-No.10 + No.40) : 20.7
 Fine Sand (-No.40 + No.200) : 51.8
 Silt + Clay (-No.200) : 21.6

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 2.0
 Coarse Sand (-No.4 + No.10) : 3.9
 Medium Sand (-No.10 + No.40) : 20.7
 Fine Sand (-No.40 + No.200) : 51.8
 Silt + Clay (-No.200) : 21.6

Approved By : J.S.

Soil No. 14



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Red Clayey Sand with Gravel

Sample No. : SS-1
 Sample Loc. : Boring No. B-509
 Sample Depth : 4.0' to 5.5'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	100.0
3/4	in.	19	mm	95.3
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	88.4
1/4		6.3	mm	
No.4		4.75	mm	81.6
No.6		3.35	mm	
No.10		2	mm	72.9

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	63.0
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	39.7
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.1615 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 17.4
 Liquid Limit (AASHTO T89) : 31
 Plastic Limit (AASHTO T90) : 23
 Plasticity Index : 8
 Liquidity Index : -0.65
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : SC

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 27.1
 Coarse Sand (-No.10 + No.40) : 9.9
 Fine Sand (-No.40 + No.200) : 23.3
 Silt + Clay (-No.200) : 39.7

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 4.7
 Fine Gravel (-3/4in. + No.4) : 13.7
 Coarse Sand (-No.4 + No.10) : 8.7
 Medium Sand (-No.10 + No.40) : 9.9
 Fine Sand (-No.40 + No.200) : 23.3
 Silt + Clay (-No.200) : 39.7

Approved By : J.S.

Soil No. 15

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Lean Clay

Sample No. : SS-3
 Sample Loc. : Boring No. B-509
 Sample Depth : 14.0' to 14.9'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

		% Passing	
4	in.	101.6	mm
3.5	in.	88.9	mm
3	in.	76.2	mm
2.5	in.	63.5	mm
2	in.	50.8	mm
1 3/4	in.	45	mm
1 1/2	in.	38.1	mm
1 1/4	in.	31.5	mm
1	in.	25	mm
3/4	in.	19	mm
1/2	in.	12.5	mm
3/8	in.	9.5	mm
1/4		6.3	mm
No.4		4.75	mm
No.6		3.35	mm
No.10		2	mm

		% Passing	
No.16		1.18	mm
No.30		0.6	mm
No.40		0.425	mm
No.50		0.3	mm
No.60		0.25	mm
No.80		0.18	mm
No.100		0.15	mm
No.200		0.075	mm
No.270		0.053	mm
Hyd. Rd. # 1			mm
Hyd. Rd. # 2			mm
Hyd. Rd. # 3			mm
Hyd. Rd. # 4			mm
Hyd. Rd. # 5			mm
Hyd. Rd. # 6			mm
Hyd. Rd. # 7			mm

$D_{50} = 0.073 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 11.6
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 8
 Liquidity Index : -1.24
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 18.2
 Coarse Sand (-No.10 + No.40) : 15.3
 Fine Sand (-No.40 + No.200) : 16.3
 Silt + Clay (-No.200) : 50.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 5.3
 Coarse Sand (-No.4 + No.10) : 12.9
 Medium Sand (-No.10 + No.40) : 15.3
 Fine Sand (-No.40 + No.200) : 16.3
 Silt + Clay (-No.200) : 50.2

Approved By : J.S.

Soil No. 16

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-1
Project No. : 11206-04	Sample Loc. : Boring No. B-558
Project County : Pulaski	Sample Depth : 1.1' to 2.6'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Brown & Gray Silt	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.8
No.6		3.35	mm	
No.10		2	mm	98.4

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	94.6
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	88.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0043 \text{ mm}$

CBR : NA	Natural Moisture (%) (AASHTO T265) : 22.4
Dry Dens. : NA	Liquid Limit (AASHTO T89) : 26
Opt. Moist. : NA	Plastic Limit (AASHTO T90) : 23
	Plasticity Index : 3
	Liquidity Index : -0.24

AASHTO Composition of Total Sample: M145

- Gravel (3in. + No.10) : 1.6
- Coarse Sand (-No.10 + No.40) : 3.8
- Fine Sand (-No.40 + No.200) : 6.4
- Silt + Clay (-No.200) : 88.2

- Activity : NA
- Sp. Gr. (AASHTO T100) : NA
- AASHTO Classification: M145 : A-4 (2)
- ASTM Classification: D2487 : ML

ASTM Composition of Total Sample: D2487

- Coarse Gravel (3in. + 3/4in.) : 0.0
- Fine Gravel (-3/4in. + No.4) : 0.2
- Coarse Sand (-No.4 + No.10) : 1.4
- Medium Sand (-No.10 + No.40) : 3.8
- Fine Sand (-No.40 + No.200) : 6.4
- Silt + Clay (-No.200) : 88.2

Approved By : J.S.

Soil No. 17



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Lean Clay

Sample No. : SS-3
 Sample Loc. : Boring No. B-558
 Sample Depth : 11.1' to 12.6'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.6	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.0	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	93.5	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

AASHTO T88

D₅₀ = 0.0034 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.3
 Liquid Limit (AASHTO T89) : 40
 Plastic Limit (AASHTO T90) : 23
 Plasticity Index : 17
 Liquidity Index : -0.05
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (17)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.4
 Coarse Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 5.5
 Silt + Clay (-No.200) : 93.5

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 5.5
 Silt + Clay (-No.200) : 93.5

Approved By : J.S.

Soil No. 18



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Sandy Silty Clay

Sample No. : SS-5
 Sample Loc. : Boring No. B-558
 Sample Depth : 31.1' to 32.6'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		99.8

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		99.2
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		65.1
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0162 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22
 Liquid Limit (AASHTO T89) : 21
 Plastic Limit (AASHTO T90) : 16
 Plasticity Index : 5
 Liquidity Index : 1.12
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 34.1
 Silt + Clay (-No.200) : 65.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 34.1
 Silt + Clay (-No.200) : 65.1

Approved By : J.S.

Soil No. 19



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray Silty Sand with Gravel

Sample No. : SS-6
 Sample Loc. : Boring No. B-558
 Sample Depth : 35.9' to 36.1'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		100.0
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		93.7
1/4		6.3	mm		
No.4		4.75	mm		69.0
No.6		3.35	mm		
No.10		2	mm		48.7

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		28.8
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		21.5
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 2.1139 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 10.8
 Liquid Limit (AASHTO T89) : NA
 Plastic Limit (AASHTO T90) : NA
 Plasticity Index : NA
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-1-b (0) *
 ASTM Classification: D2487 : SM *
 * Visual Classification

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 51.3
 Coarse Sand (-No.10 + No.40) : 19.9
 Fine Sand (-No.40 + No.200) : 7.3
 Silt + Clay (-No.200) : 21.5

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 31.0
 Coarse Sand (-No.4 + No.10) : 20.3
 Medium Sand (-No.10 + No.40) : 19.9
 Fine Sand (-No.40 + No.200) : 7.3
 Silt + Clay (-No.200) : 21.5

Approved By : J.S.

Soil No. 20

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Lean Clay

Sample No. : SS-1
 Sample Loc. : Boring No. B-563
 Sample Depth : 9.1' to 10.6'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.8

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	98.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	91.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0038 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.2
 Liquid Limit (AASHTO T89) : 35
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 13
 Liquidity Index : 0.12
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 1.3
 Fine Sand (-No.40 + No.200) : 7.5
 Silt + Clay (-No.200) : 91.0

Sp. Gr. (AASHTO T100) : NA
AASHTO Classification: M145 : A-6 (12)
ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 1.3
 Fine Sand (-No.40 + No.200) : 7.5
 Silt + Clay (-No.200) : 91.0

Approved By : J.S.

Soil No. 21



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Lean Clay

Sample No. : SS-2
 Sample Loc. : Boring No. B-563
 Sample Depth : 14.1' to 15.6'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.8
No.6		3.35	mm		
No.10		2	mm		99.2

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		95.2
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		60.9
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0229 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.4
 Liquid Limit (AASHTO T89) : 25
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 8
 Liquidity Index : 0.61

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.8
 Coarse Sand (-No.10 + No.40) : 4.0
 Fine Sand (-No.40 + No.200) : 34.3
 Silt + Clay (-No.200) : 60.9

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.2
 Coarse Sand (-No.4 + No.10) : 0.6
 Medium Sand (-No.10 + No.40) : 4.0
 Fine Sand (-No.40 + No.200) : 34.3
 Silt + Clay (-No.200) : 60.9

Approved By : J.S.

Soil No. 22



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Lean Clay

Sample No. : SS-3
 Sample Loc. : Boring No. B-563
 Sample Depth : 19.1' to 20.6'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	100.0	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.6	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	87.7	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0044 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 24.7
 Liquid Limit (AASHTO T89) : 28
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 8
 Liquidity Index : 0.57

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 11.9
 Silt + Clay (-No.200) : 87.7

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (6)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 11.9
 Silt + Clay (-No.200) : 87.7

Approved By : J.S.

Soil No. 23



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Clayey Sand

Sample No. : SS-4
 Sample Loc. : Boring No. B-563
 Sample Depth : 29.1' to 30.6'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		88.6
No.6		3.35	mm		
No.10		2	mm		63.0

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		32.8
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		19.0
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 1.0268 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 15.9
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 13
 Liquidity Index : -0.07
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-2-6 (1)
 ASTM Classification: D2487 : SC

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 37.0
 Coarse Sand (-No.10 + No.40) : 30.2
 Fine Sand (-No.40 + No.200) : 13.8
 Silt + Clay (-No.200) : 19.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 11.4
 Coarse Sand (-No.4 + No.10) : 25.6
 Medium Sand (-No.10 + No.40) : 30.2
 Fine Sand (-No.40 + No.200) : 13.8
 Silt + Clay (-No.200) : 19.0

Approved By : J.S.

Soil No. 24

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-2
Project No. : 11206-04	Sample Loc. : Boring No. B-564
Project County : Pulaski	Sample Depth : 9.6' to 11.1'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray & Tan Silt	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.9

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	98.7
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	92.9
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0035 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.9
 Liquid Limit (AASHTO T89) : 28
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 6
 Liquidity Index : 0.22
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (5)
 ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 1.2
 Fine Sand (-No.40 + No.200) : 5.8
 Silt + Clay (-No.200) : 92.9

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 1.2
 Fine Sand (-No.40 + No.200) : 5.8
 Silt + Clay (-No.200) : 92.9

Approved By : J.S.

Soil No. 25

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-5
Project No. : 11206-04	Sample Loc. : Boring No. B-564
Project County : Pulaski	Sample Depth : 34.6' to 36.1'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray & Tan Silty, Clayey Sand with Gravel	

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	96.1
1/4		6.3	mm	
No.4		4.75	mm	83.4
No.6		3.35	mm	
No.10		2	mm	58.5

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	39.4
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	20.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 1.0039 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 15.8
 Liquid Limit (AASHTO T89) : 22
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 5
 Liquidity Index : -0.28
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-1-b (0)
 ASTM Classification: D2487 : SC-SM

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 41.5
 Coarse Sand (-No.10 + No.40) : 19.1
 Fine Sand (-No.40 + No.200) : 19.2
 Silt + Clay (-No.200) : 20.2

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 16.6
 Coarse Sand (-No.4 + No.10) : 24.9
 Medium Sand (-No.10 + No.40) : 19.1
 Fine Sand (-No.40 + No.200) : 19.2
 Silt + Clay (-No.200) : 20.2

Approved By : J.S.

Soil No. 26

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-6
Project No. : 11206-04	Sample Loc. : Boring No. B-564
Project County : Pulaski	Sample Depth : 39.6' to 41.1'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray & Tan Clayey Sand with Gravel	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	100.0
1 1/4	in.	31.5	mm	
1	in.	25	mm	90.2
3/4	in.	19	mm	90.2
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	90.2
1/4		6.3	mm	
No.4		4.75	mm	84.2
No.6		3.35	mm	
No.10		2	mm	66.9

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	49.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	35.7
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.4596 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 16.2
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 11
 Liquidity Index : -0.24
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (0)
 ASTM Classification: D2487 : SC

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 33.1
 Coarse Sand (-No.10 + No.40) : 17.8
 Fine Sand (-No.40 + No.200) : 13.4
 Silt + Clay (-No.200) : 35.7

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 9.8
 Fine Gravel (-3/4in. + No.4) : 6.0
 Coarse Sand (-No.4 + No.10) : 17.3
 Medium Sand (-No.10 + No.40) : 17.8
 Fine Sand (-No.40 + No.200) : 13.4
 Silt + Clay (-No.200) : 35.7

Approved By : J.S.

Soil No. 27

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Silt

Sample No. : SS-3
 Sample Loc. : Boring No. B-556
 Sample Depth : 14.8' to 16.3'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.4	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	91.3	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0038 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.1
 Liquid Limit (AASHTO T89) : 20
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 2
 Liquidity Index : 1.35
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 8.1
 Silt + Clay (-No.200) : 91.3

Sp. Gr. (AASHTO T100) : NA
AASHTO Classification: M145 : A-4 (0)
ASTM Classification: D2487 : ML

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 8.1
 Silt + Clay (-No.200) : 91.3

Approved By : J.S.

Soil No. 28



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Silty Clay

Sample No. : SS-5
 Sample Loc. : Boring No. B-556
 Sample Depth : 34.8' to 36.3'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		99.8

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		93.9
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		60.5
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0238 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.7
 Liquid Limit (AASHTO T89) : 22
 Plastic Limit (AASHTO T90) : 16
 Plasticity Index : 6
 Liquidity Index : 1.16
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 5.9
 Fine Sand (-No.40 + No.200) : 33.4
 Silt + Clay (-No.200) : 60.5

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 5.9
 Fine Sand (-No.40 + No.200) : 33.4
 Silt + Clay (-No.200) : 60.5

Approved By : J.S.

Soil No. 29



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray Silt with Sand

Sample No. : SS-7
 Sample Loc. : Boring No. B-556
 Sample Depth : 44.8' to 45.0'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		95.0
No.6		3.35	mm		
No.10		2	mm		89.0

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		80.8
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		77.6
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0071 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 8.3
 Liquid Limit (AASHTO T89) : NA
 Plastic Limit (AASHTO T90) : NA
 Plasticity Index : NA
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0) *
 ASTM Classification: D2487 : ML *
 * Visual Classification

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 11.0
 Coarse Sand (-No.10 + No.40) : 8.2
 Fine Sand (-No.40 + No.200) : 3.2
 Silt + Clay (-No.200) : 77.6

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 5.0
 Coarse Sand (-No.4 + No.10) : 6.0
 Medium Sand (-No.10 + No.40) : 8.2
 Fine Sand (-No.40 + No.200) : 3.2
 Silt + Clay (-No.200) : 77.6

Approved By : J.S.

Soil No. 30



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Silty Clay

Sample No. : SS-2
 Sample Loc. : Boring No. B-562
 Sample Depth : 15.0' to 16.5'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.9
No.6		3.35	mm	
No.10		2	mm	99.7

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	85.9
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0047 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20.8
 Liquid Limit (AASHTO T89) : 25
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 7
 Liquidity Index : 0.35
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (4)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 13.2
 Silt + Clay (-No.200) : 85.9

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.1
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 13.2
 Silt + Clay (-No.200) : 85.9

Approved By : J.S.

Soil No. 31



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Sandy Lean Clay

Sample No. : SS-5
Sample Loc. : Boring No. B-562
Sample Depth : 30.0' to 31.5'
Date Tested : 10/29/14
Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm	100.0	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	98.1	
1/4		6.3	mm		
No.4		4.75	mm	91.9	
No.6		3.35	mm		
No.10		2	mm	79.3	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	66.2	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	55.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0411 mm

CBR : NA
Dry Dens. : NA
Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 16.5
Liquid Limit (AASHTO T89) : 26
Plastic Limit (AASHTO T90) : 18
Plasticity Index : 8
Liquidity Index : -0.25
Activity : NA

AASHTO Composition of Total Sample: M145
Gravel (3in. + No.10) : 20.7
Coarse Sand (-No.10 + No.40) : 13.1
Fine Sand (-No.40 + No.200) : 11.2
Silt + Clay (-No.200) : 55.0

Sp. Gr. (AASHTO T100) : NA
AASHTO Classification: M145 : A-4 (2)
ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
Coarse Gravel (3in. + 3/4in.) : 0.0
Fine Gravel (-3/4in. + No.4) : 8.1
Coarse Sand (-No.4 + No.10) : 12.6
Medium Sand (-No.10 + No.40) : 13.1
Fine Sand (-No.40 + No.200) : 11.2
Silt + Clay (-No.200) : 55.0

Approved By : J.S.

Soil No. 32

Strengthening America's Infrastructure®

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Black Lean Clay

Sample No. : SS-1
 Sample Loc. : Boring No. B-557
 Sample Depth : 4.4' to 5.9'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.5	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	97.9	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	96.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.0031 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.9
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 9
 Liquidity Index : 0.24

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.5
 Coarse Sand (-No.10 + No.40) : 1.6
 Fine Sand (-No.40 + No.200) : 1.9
 Silt + Clay (-No.200) : 96.0

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (8)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.5
 Medium Sand (-No.10 + No.40) : 1.6
 Fine Sand (-No.40 + No.200) : 1.9
 Silt + Clay (-No.200) : 96.0

Approved By : J.S.

Soil No. 33



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan, Gray & Black Lean Clay

Sample No. : SS-3
 Sample Loc. : Boring No. B-557
 Sample Depth : 24.4' to 25.9'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	100.0	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.0	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	92.5	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0036 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20.3
 Liquid Limit (AASHTO T89) : 39
 Plastic Limit (AASHTO T90) : 23
 Plasticity Index : 16
 Liquidity Index : -0.20
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (16)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 6.5
 Silt + Clay (-No.200) : 92.5

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 6.5
 Silt + Clay (-No.200) : 92.5

Approved By : J.S.

Soil No. 34



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan, Brown & Black Lean Clay

Sample No. : SS-5
 Sample Loc. : Boring No. B-557
 Sample Depth : 34.4' to 35.9'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	100.0	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.0	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	96.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0031 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 24.8
 Liquid Limit (AASHTO T89) : 28
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 8
 Liquidity Index : 0.62
 Activity : NA

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 3.0
 Silt + Clay (-No.200) : 96.0

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (7)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 3.0
 Silt + Clay (-No.200) : 96.0

Approved By : J.S.

Soil No. 35



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Dark Gray & Black Silt with Sand

Sample No. : SS-6
 Sample Loc. : Boring No. B-557
 Sample Depth : 44.4' to 44.6'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		100.0
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		97.7
1/4		6.3	mm		
No.4		4.75	mm		92.8
No.6		3.35	mm		
No.10		2	mm		87.3

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		81.5
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		79.2
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0065 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 2.3
 Liquid Limit (AASHTO T89) : NA
 Plastic Limit (AASHTO T90) : NA
 Plasticity Index : NA
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0) *
 ASTM Classification: D2487 : ML *
 * Visual Classification

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 12.7
 Coarse Sand (-No.10 + No.40) : 5.8
 Fine Sand (-No.40 + No.200) : 2.3
 Silt + Clay (-No.200) : 79.2

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 7.2
 Coarse Sand (-No.4 + No.10) : 5.5
 Medium Sand (-No.10 + No.40) : 5.8
 Fine Sand (-No.40 + No.200) : 2.3
 Silt + Clay (-No.200) : 79.2

Approved By : J.S.

Soil No. 36



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Silt

Sample No. : SS-1
 Sample Loc. : Boring No. B-559
 Sample Depth : 4.7' to 6.2'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	100.0	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.6	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	95.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0033 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20.9
 Liquid Limit (AASHTO T89) : 23
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 3
 Liquidity Index : 0.41
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 4.6
 Silt + Clay (-No.200) : 95.0

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : ML

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 4.6
 Silt + Clay (-No.200) : 95.0

Approved By : J.S.

Soil No. 37

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-3
Project No. : 11206-04	Sample Loc. : Boring No. B-559
Project County : Pulaski	Sample Depth : 19.7' to 21.2'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown, Tan & Gray Sandy Lean Clay	

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	97.7
No.6		3.35	mm	
No.10		2	mm	80.8

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	66.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	61.1
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0225 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.1
 Liquid Limit (AASHTO T89) : 36
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 16
 Liquidity Index : 0.13
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (8)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 19.2
 Coarse Sand (-No.10 + No.40) : 14.7
 Fine Sand (-No.40 + No.200) : 5.0
 Silt + Clay (-No.200) : 61.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 2.3
 Coarse Sand (-No.4 + No.10) : 16.9
 Medium Sand (-No.10 + No.40) : 14.7
 Fine Sand (-No.40 + No.200) : 5.0
 Silt + Clay (-No.200) : 61.1

Approved By : J.S.

Soil No. 38

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-3
Project No. : 11206-04	Sample Loc. : Boring No. B-565
Project County : Pulaski	Sample Depth : 15.2' to 16.7'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Tan Lean Clay	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.7	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	98.3	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	92.6	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0036 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.4
 Liquid Limit (AASHTO T89) : 38
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 16
 Liquidity Index : 0.04
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (16)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 5.7
 Silt + Clay (-No.200) : 92.6

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.3
 Medium Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 5.7
 Silt + Clay (-No.200) : 92.6

Approved By : J.S.

Soil No. 39

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-4
Project No. : 11206-04	Sample Loc. : Boring No. B-565
Project County : Pulaski	Sample Depth : 25.2' to 26.7'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Tan Silt with Sand	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		99.7

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		98.3
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		82.7
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.0055 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20.3
 Liquid Limit (AASHTO T89) : 20
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 2
 Liquidity Index : 1.15
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 15.6
 Silt + Clay (-No.200) : 82.7

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.3
 Medium Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 15.6
 Silt + Clay (-No.200) : 82.7

Approved By : J.S.

Soil No. 40

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan & Brown Silty Clay with Sand

Sample No. : SS-5
 Sample Loc. : Boring No. B-565
 Sample Depth : 30.2' to 31.7'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	98.6

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	95.8
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	74.7
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0084 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.4
 Liquid Limit (AASHTO T89) : 23
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 5
 Liquidity Index : 0.67
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 1.4
 Coarse Sand (-No.10 + No.40) : 2.8
 Fine Sand (-No.40 + No.200) : 21.1
 Silt + Clay (-No.200) : 74.7

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 1.4
 Medium Sand (-No.10 + No.40) : 2.8
 Fine Sand (-No.40 + No.200) : 21.1
 Silt + Clay (-No.200) : 74.7

Approved By : J.S.

Soil No. 41

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-6
Project No. : 11206-04	Sample Loc. : Boring No. B-565
Project County : Pulaski	Sample Depth : 40.2' to 40.4'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown Silt with Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	99.0
1/4		6.3	mm	
No.4		4.75	mm	93.3
No.6		3.35	mm	
No.10		2	mm	86.5

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	79.6
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	76.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0078 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 12.8
 Liquid Limit (AASHTO T89) : NA
 Plastic Limit (AASHTO T90) : NA
 Plasticity Index : NA
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0) *
 ASTM Classification: D2487 : ML *
 * Visual Classification

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 13.5
 Coarse Sand (-No.10 + No.40) : 6.9
 Fine Sand (-No.40 + No.200) : 3.6
 Silt + Clay (-No.200) : 76.0

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 6.7
 Coarse Sand (-No.4 + No.10) : 6.8
 Medium Sand (-No.10 + No.40) : 6.9
 Fine Sand (-No.40 + No.200) : 3.6
 Silt + Clay (-No.200) : 76.0

Approved By : J.S.

Soil No. 42

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Lean Clay with Sand

Sample No. : Bag-1
 Sample Loc. : Boring No. B-511
 Sample Depth : 0.0' to 5.0'
 Date Tested : 10/24/14
 Date Reported : 11/10/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.1
No.6		3.35	mm		
No.10		2	mm		97.3

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		95.9
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		72.9
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0094 mm

CBR (AASHTO: T-193) : 3.8
 Dry Dens. (AASHTO: T-99; Method (C)) : 114.3 pcf
 Opt. Moist. (AASHTO: T-99; Method (C)) : 13.6 %

Natural Moisture (%) (AASHTO T265) : 19.1

Liquid Limit (AASHTO T89) : 24

Plastic Limit (AASHTO T90) : 15

Plasticity Index : 9

Liquidity Index : 0.42

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (4)

ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 2.7
 Coarse Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 23.0
 Silt + Clay (-No.200) : 72.9

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.9
 Coarse Sand (-No.4 + No.10) : 1.8
 Medium Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 23.0
 Silt + Clay (-No.200) : 72.9

Approved By : J.S.

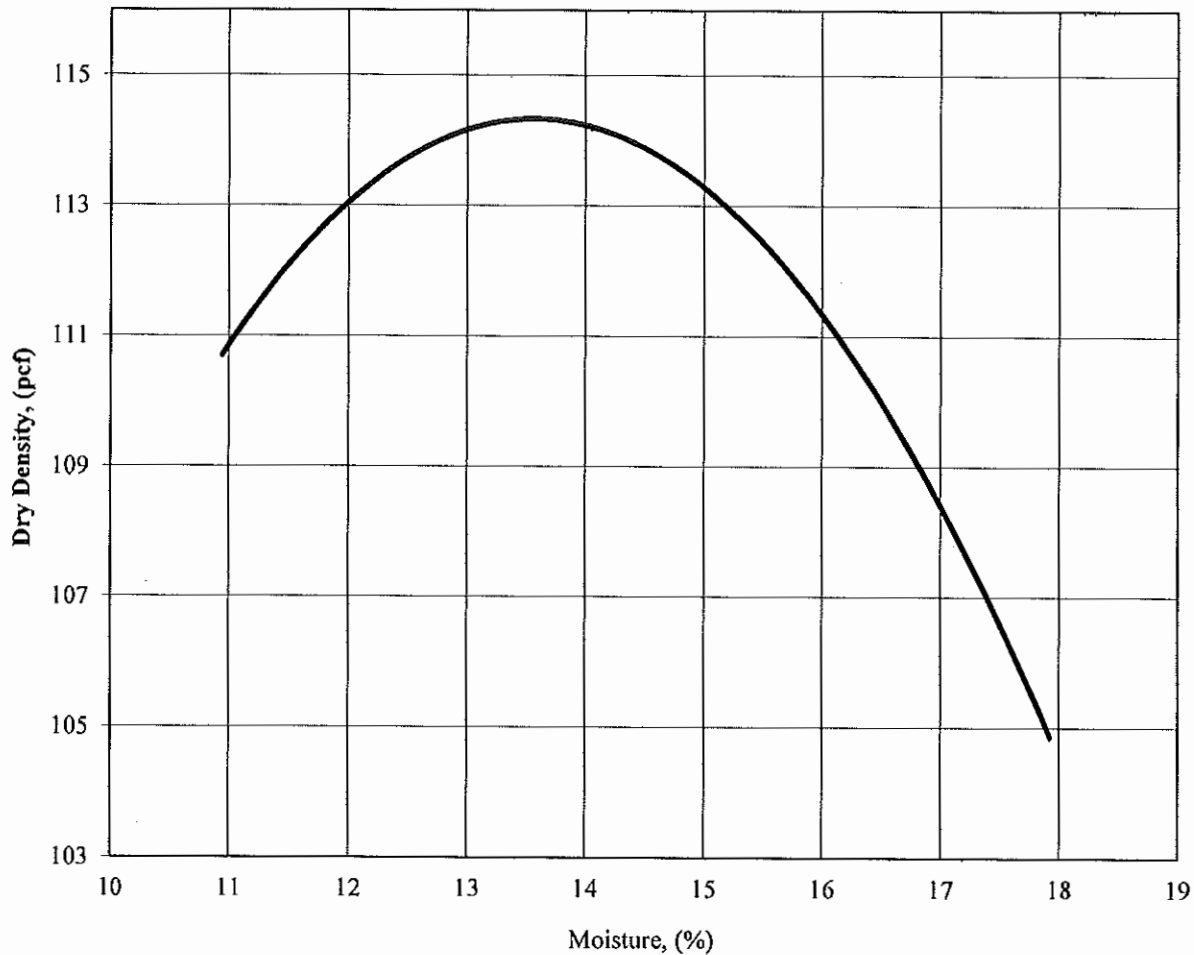
Soil No. 43



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Lean Clay with Sand

Sample No. : Bag-1
Sample Loc. : Boring No. B-511
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



MAXIMUM DENSITY: 114.3 pcf

OPTIMUM MOISTURE: 13.6 %

COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

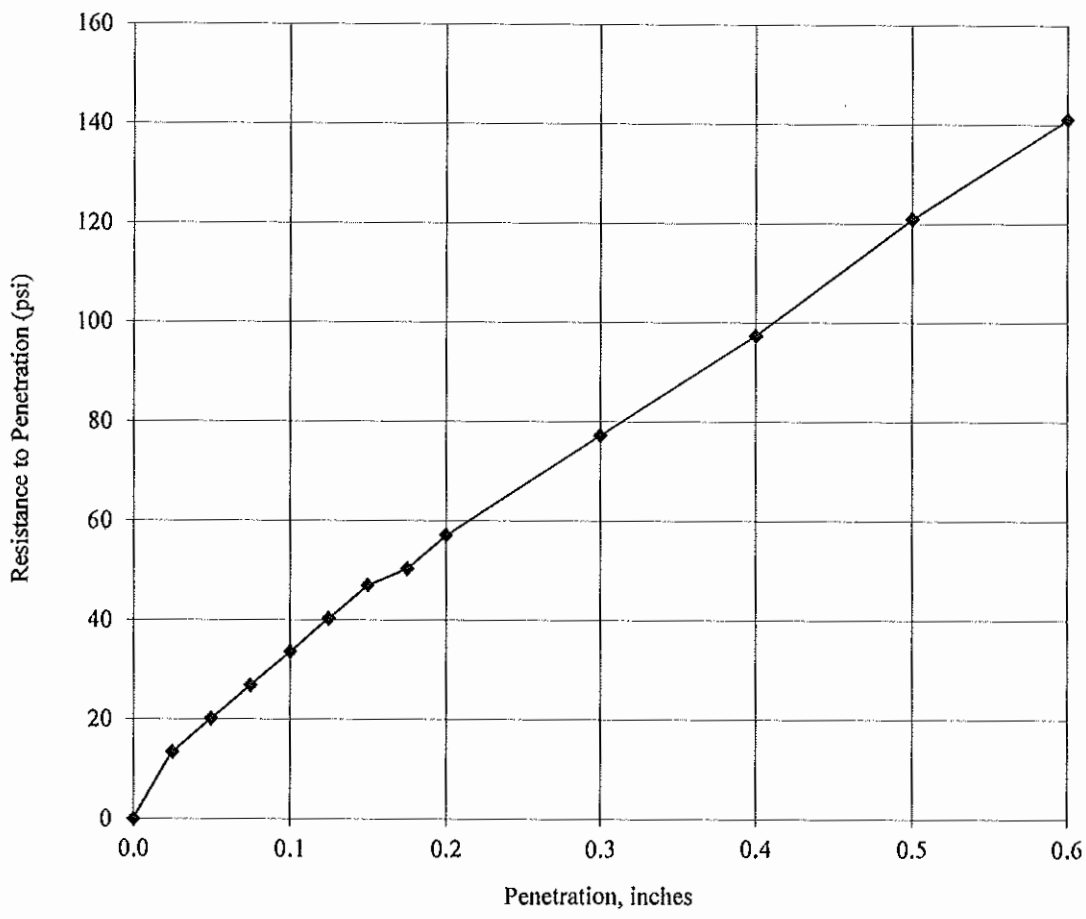
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CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Lean Clay with Sand

Sample No. : Bag-1
Sample Loc. : Boring No. B-511
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



Compaction Effort = 35 Blows per layer
Percent Compacted = 99.4
Percent Swell = 0.28

C.B.R. @ 0.1 In. = 3.4
C.B.R. @ 0.2 In. = 3.8*

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : Bag-26
Project No. : 11206-04	Sample Loc. : Boring No. B-550
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown Silty, Clayey Sand with Gravel	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm	100.0	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	93.9	
1/4		6.3	mm		
No.4		4.75	mm	84.3	
No.6		3.35	mm		
No.10		2	mm	73.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	65.0	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	37.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.1678 mm

CBR (AASHTO: T-193) : 11.0	Natural Moisture (%) (AASHTO T265) : 10.7
Dry Dens. (AASHTO: T-99; Method (C)) : 122.6 pcf	Liquid Limit (AASHTO T89) : 23
Opt. Moist. (AASHTO: T-99; Method (C)) : 10.4 %	Plastic Limit (AASHTO T90) : 17
	Plasticity Index : 6
	Liquidity Index : -1.01
	Activity : NA
	Sp. Gr. (AASHTO T100) : NA
	AASHTO Classification: M145 : A-4 (0)
	ASTM Classification: D2487 : SC-SM

ASTM Composition of Total Sample: D2487

- Coarse Gravel (3in. + 3/4in.) : 0.0
- Fine Gravel (-3/4in. + No.4) : 15.7
- Coarse Sand (-No.4 + No.10) : 10.4
- Medium Sand (-No.10 + No.40) : 8.9
- Fine Sand (-No.40 + No.200) : 28.0
- Silt + Clay (-No.200) : 37.0

Approved By : J.S.

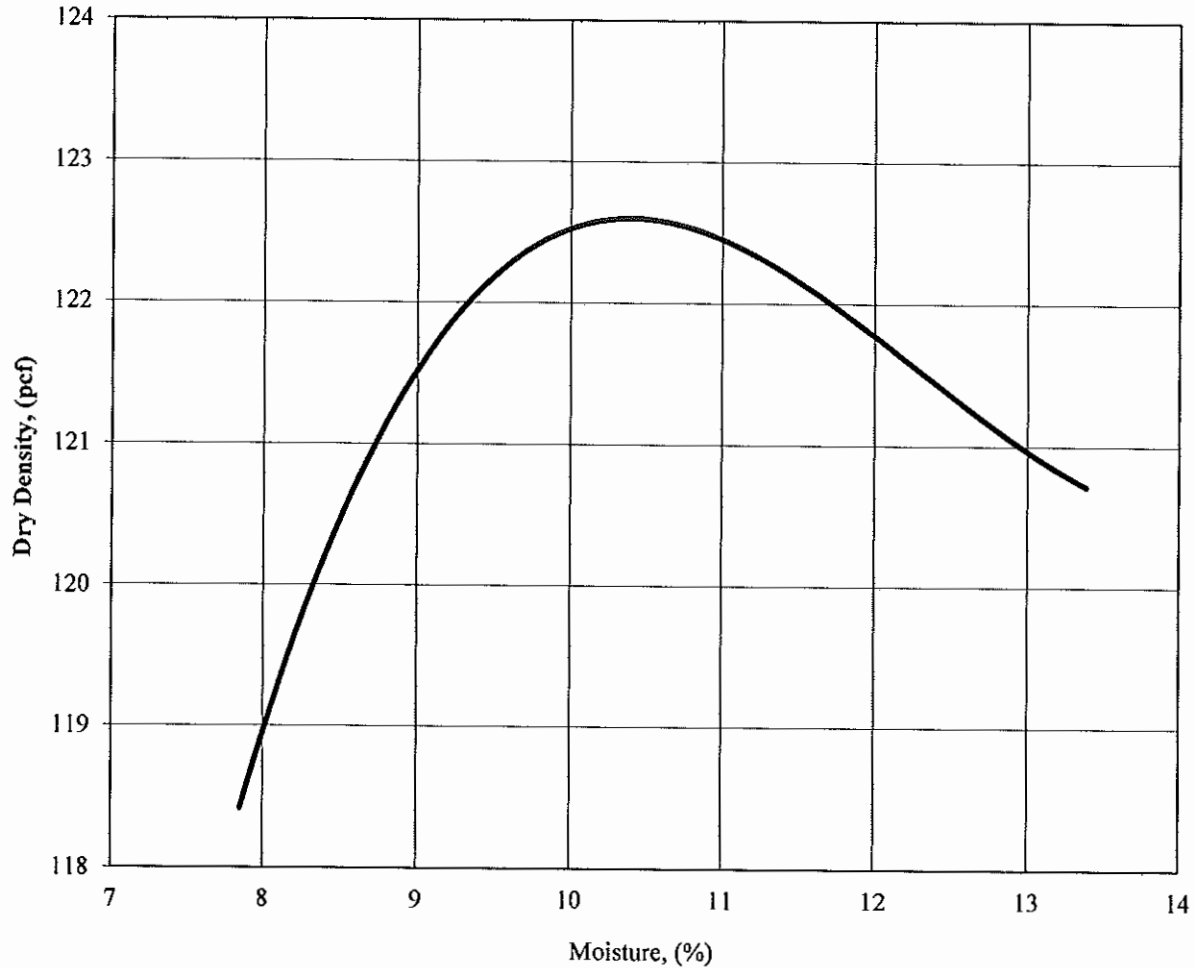
Soil No. 44



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Silty, Clayey Sand with Gravel

Sample No. : Bag-26
Sample Loc. : Boring No. B-550
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



MAXIMUM DENSITY: 122.6 pcf

OPTIMUM MOISTURE: 10.4 %

COMMENTS: AASHTO: T-99; Method (C)

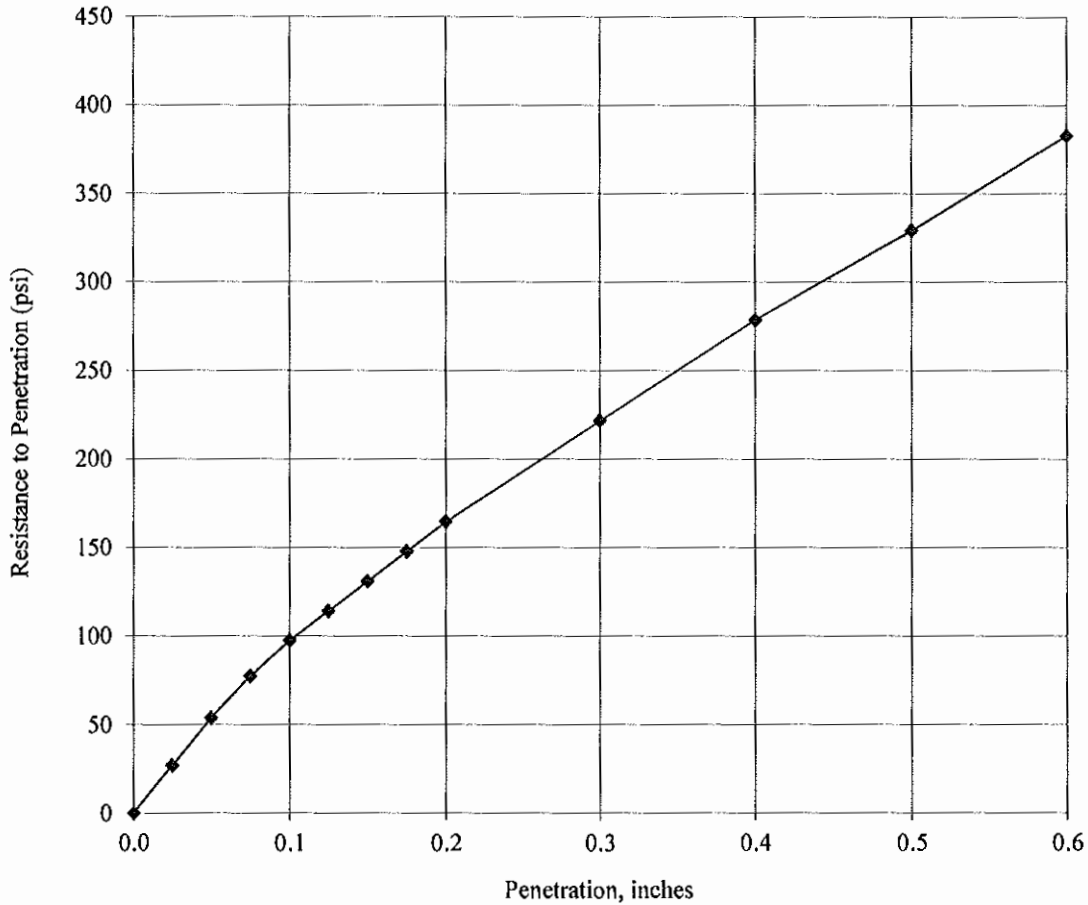
APPROVED BY: J.S.

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CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening	Sample No. : Bag-26
Project No. : 11206-04	Sample Loc. : Boring No. B-550
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown Silty, Clayey Sand with Gravel	



Compaction Effort = 35 Blows per layer
Percent Compacted = 99
Percent Swell = 0.11

C.B.R. @ 0.1 In. = 9.7
C.B.R. @ 0.2 In. = 11*

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:

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SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : Bag-25
Project No. : 11206-04	Sample Loc. : Boring No. B-553
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown & Red Silty, Clayey Sand with Gravel	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		100.0
1 1/4	in.	31.5	mm		
1	in.	25	mm		92.1
3/4	in.	19	mm		92.1
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		85.3
1/4		6.3	mm		
No.4		4.75	mm		70.0
No.6		3.35	mm		
No.10		2	mm		52.9

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		43.3
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		28.2
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 1.2527 \text{ mm}$

CBR (AASHTO: T-193) : 8.1	Natural Moisture (%) (AASHTO T265) : 11.1
Dry Dens. (AASHTO: T-99; Method (C)) : 117.1 pcf	Liquid Limit (AASHTO T89) : 23
Opt. Moist. (AASHTO: T-99; Method (C)) : 13.2 %	Plastic Limit (AASHTO T90) : 17
	Plasticity Index : 6
	Liquidity Index : -0.96
	Activity : NA
	Sp. Gr. (AASHTO T100) : NA
	AASHTO Classification: M145 : A-2-4 (0)
	ASTM Classification: D2487 : SC-SM

ASTM Composition of Total Sample: D2487

- Coarse Gravel (3in. + 3/4in.) : 7.9
- Fine Gravel (-3/4in. + No.4) : 22.1
- Coarse Sand (-No.4 + No.10) : 17.1
- Medium Sand (-No.10 + No.40) : 9.6
- Fine Sand (-No.40 + No.200) : 15.1
- Silt + Clay (-No.200) : 28.2

Approved By : J.S.

Soil No. 45



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening

Project No. : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory No. : 11206-04

Submitted By : ICA Engineering

Soil Type : Brown & Red Silty, Clayey Sand with Gravel

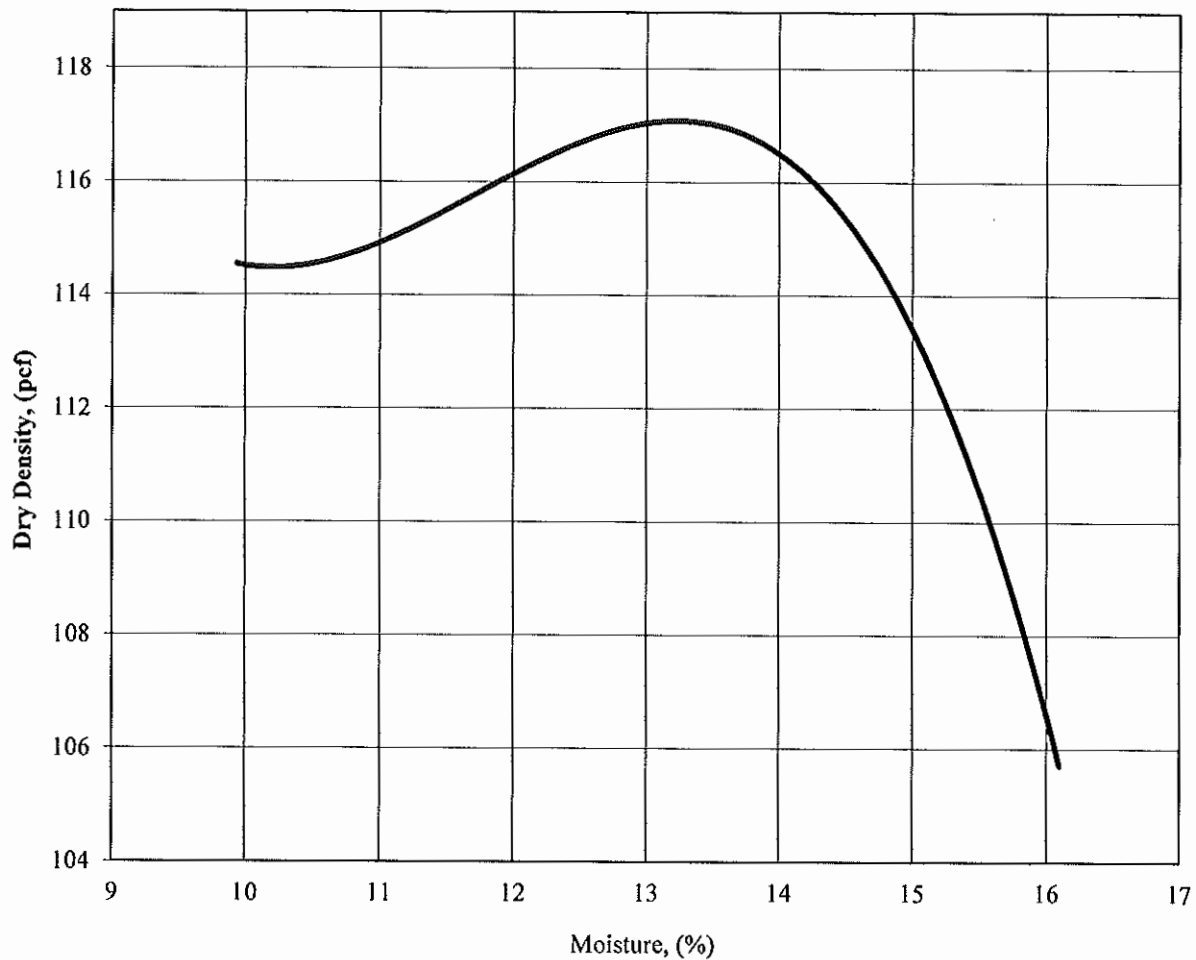
Sample No. : Bag-25

Sample Loc. : Boring No. B-553

Sample Depth : 0.0' to 5.0'

Date Tested : 10/24/14

Date Reported : 11/10/14



MAXIMUM DENSITY: 117.1 pcf

OPTIMUM MOISTURE: 13.2 %

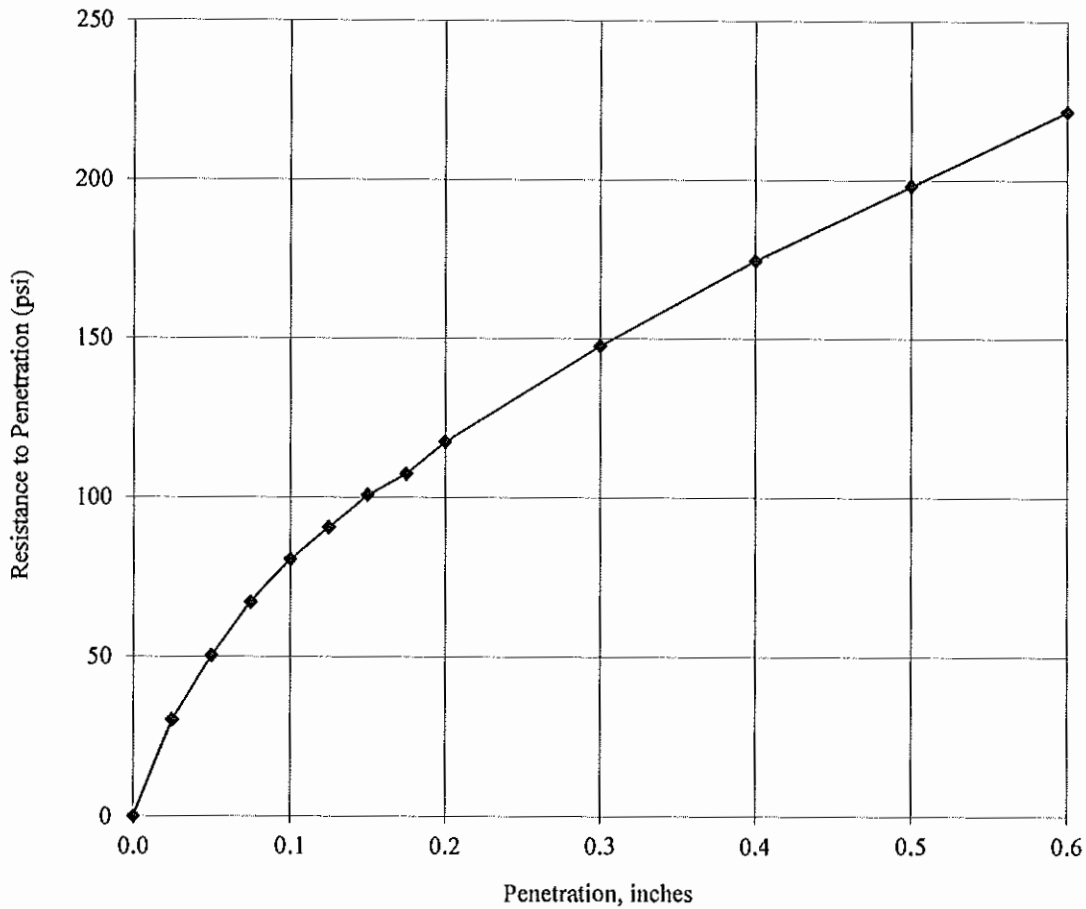
COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

Strengthening America's Infrastructure[®]

CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening	Sample No. : Bag-25
Project No. : 11206-04	Sample Loc. : Boring No. B-553
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown & Red Silty, Clayey Sand with Gravel	



Compaction Effort = 35 Blows per layer
 Percent Compacted = 98.5
 Percent Swell = 0.11

C.B.R. @ 0.1 In. = 8.1*
 C.B.R. @ 0.2 In. = 7.8

COMMENTS: AASHTO: T-193

APPROVED BY: JS

COMMENTS:

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Dark Brown Lean Clay with Sand

Sample No. : Bag-29
 Sample Loc. : Boring No. B-544
 Sample Depth : 0.0' to 5.0'
 Date Tested : 10/24/14
 Date Reported : 11/10/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.2
No.6		3.35	mm	
No.10		2	mm	98.2

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	96.6
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	84.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.005 \text{ mm}$

CBR (AASHTO: T-193) : 5.4
 Dry Dens. (AASHTO: T-99; Method (C)) : 106.7 pcf
 Opt. Moist. (AASHTO: T-99; Method (C)) : 18.3 %

Natural Moisture (%) (AASHTO T265) : 23.2

Liquid Limit (AASHTO T89) : 38

Plastic Limit (AASHTO T90) : 22

Plasticity Index : 16

Liquidity Index : 0.08

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-6 (14)

ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 1.8

Coarse Sand (-No.10 + No.40) : 1.6

Fine Sand (-No.40 + No.200) : 12.0

Silt + Clay (-No.200) : 84.6

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0

Fine Gravel (-3/4in. + No.4) : 0.8

Coarse Sand (-No.4 + No.10) : 1.0

Medium Sand (-No.10 + No.40) : 1.6

Fine Sand (-No.40 + No.200) : 12.0

Silt + Clay (-No.200) : 84.6

Approved By : J.S.

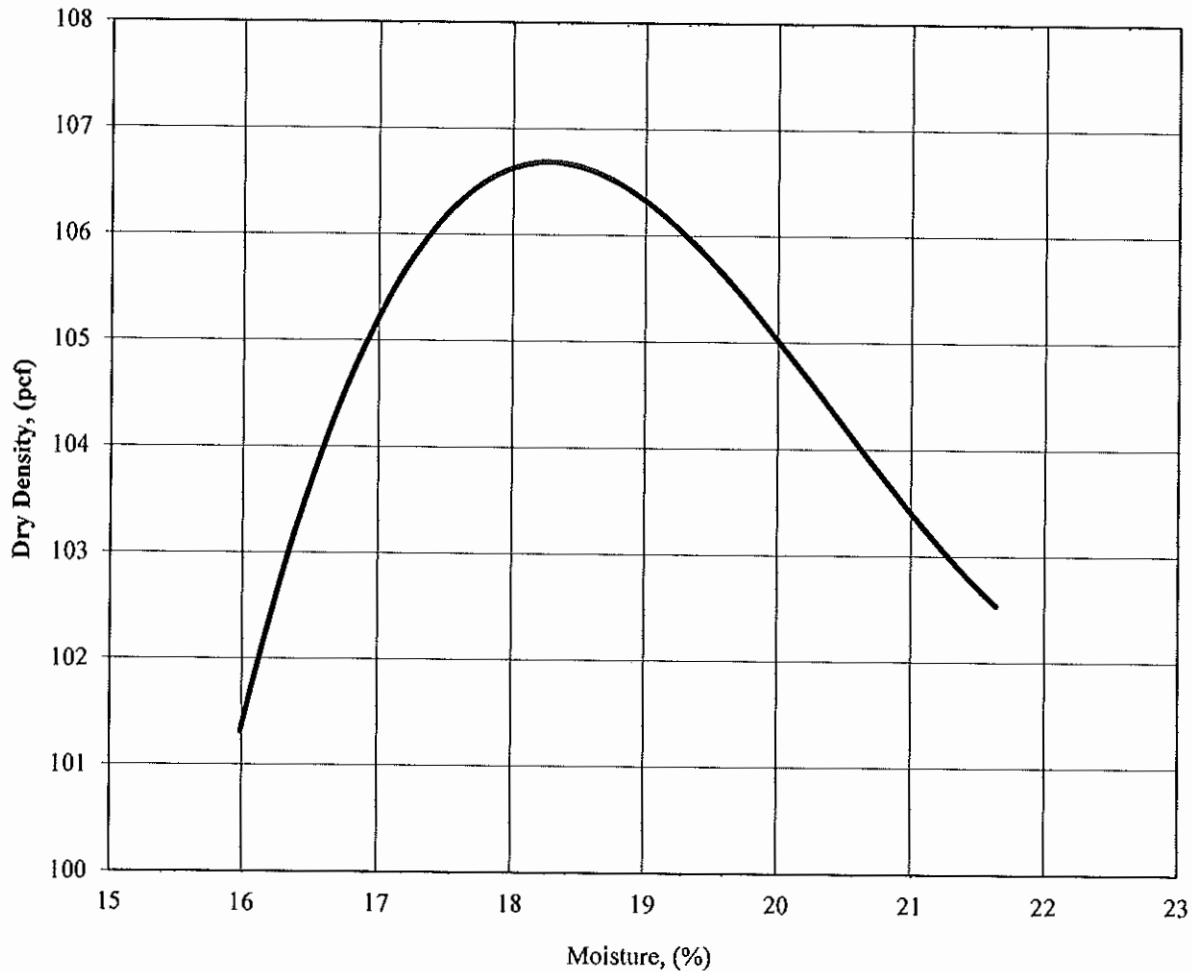
Soil No. 46



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Dark Brown Lean Clay with Sand

Sample No. : Bag-29
Sample Loc. : Boring No. B-544
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



MAXIMUM DENSITY: 106.7 pcf

OPTIMUM MOISTURE: 18.3 %

COMMENTS: AASHTO: T-99; Method (C)

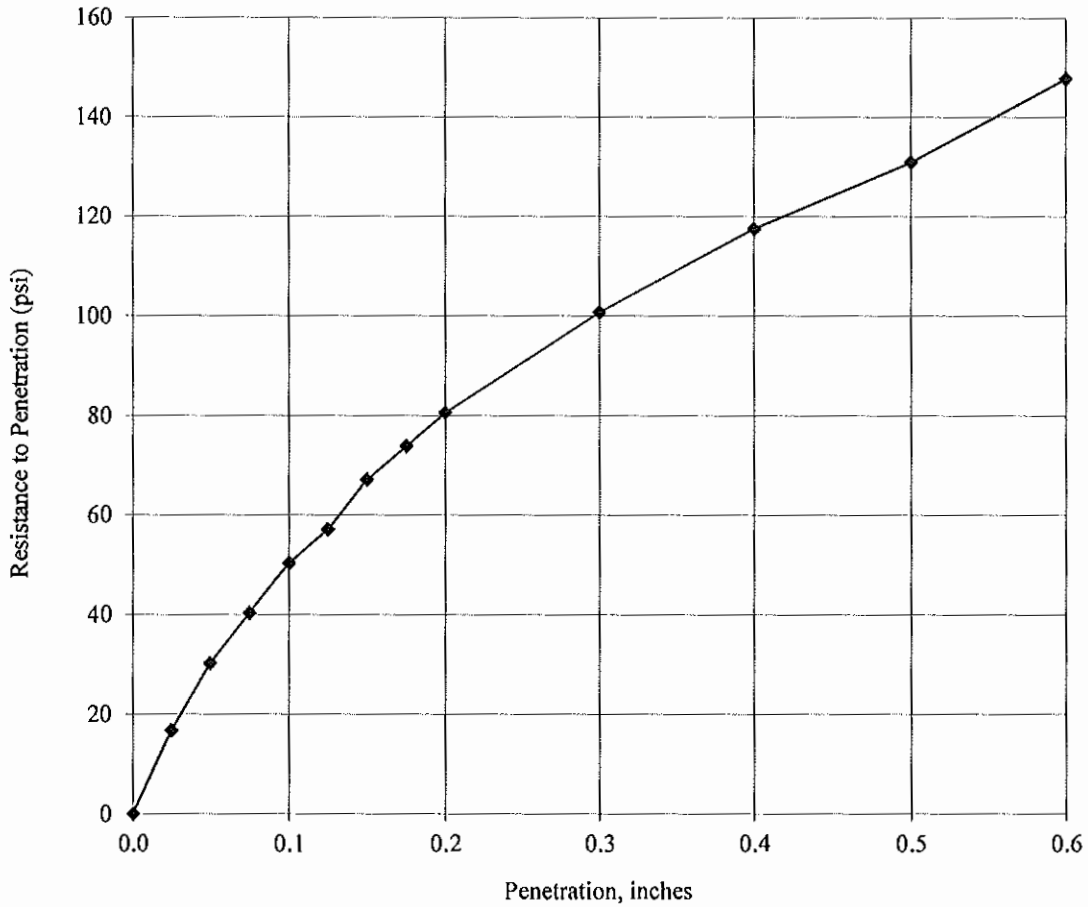
APPROVED BY: J.S.

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CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening	Sample No. : Bag-29
Project No. : 11206-04	Sample Loc. : Boring No. B-544
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Dark Brown Lean Clay with Sand	



Compaction Effort = 35 Blows per layer
Percent Compacted = 97.6
Percent Swell = 2.88

C.B.R. @ 0.1 In. = 5
C.B.R. @ 0.2 In. = 5.4*

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:

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Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Lean Clay

Sample No. : Bag-8
 Sample Loc. : Boring No. B-534
 Sample Depth : 0.0' to 5.0'
 Date Tested : 10/24/14
 Date Reported : 11/10/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.8
No.6		3.35	mm	
No.10		2	mm	98.8

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	96.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	57.4
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0319 mm

CBR (AASHTO: T-193) : 6.9 Natural Moisture (%) (AASHTO T265) : 18.1
 Dry Dens. (AASHTO: T-99; Method (C)) : 116.6 pcf Liquid Limit (AASHTO T89) : 23
 Opt. Moist. (AASHTO: T-99; Method (C)) : 13.6 % Plastic Limit (AASHTO T90) : 14
 Plasticity Index : 9
 AASHTO Composition of Total Sample: M145 Liquidity Index : 0.48
 Activity : NA
 Gravel (3in. + No.10) : 1.2 Sp. Gr. (AASHTO T100) : NA
 Coarse Sand (-No.10 + No.40) : 2.3 AASHTO Classification: M145 : A-4 (2)
 Fine Sand (-No.40 + No.200) : 39.1 ASTM Classification: D2487 : CL
 Silt + Clay (-No.200) : 57.4

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.2
 Coarse Sand (-No.4 + No.10) : 1.0
 Medium Sand (-No.10 + No.40) : 2.3
 Fine Sand (-No.40 + No.200) : 39.1
 Silt + Clay (-No.200) : 57.4

Approved By : J.S.

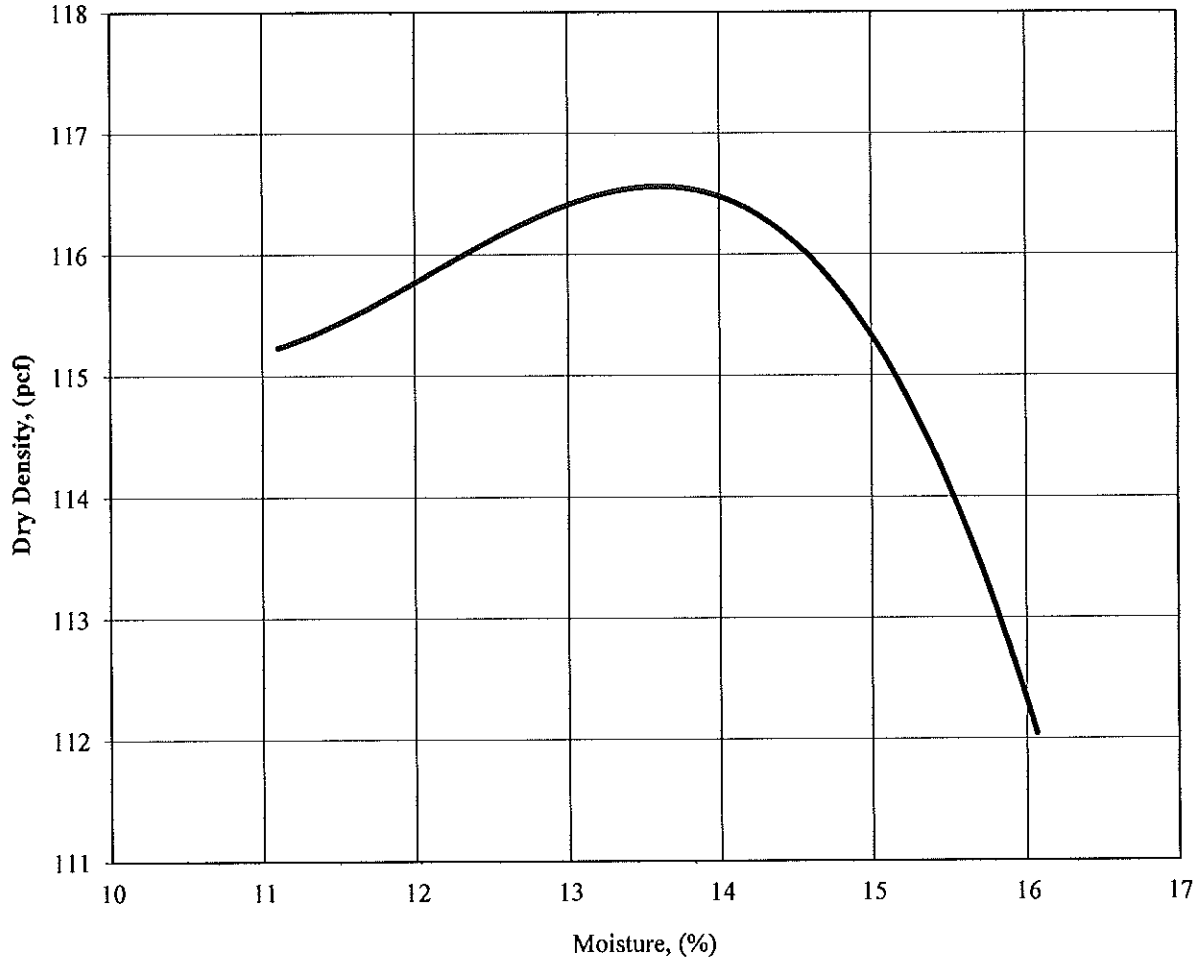
Soil No. 47



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Sandy Lean Clay

Sample No. : Bag-8
Sample Loc. : Boring No. B-534
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



MAXIMUM DENSITY: 116.6 pcf

OPTIMUM MOISTURE: 13.6 %

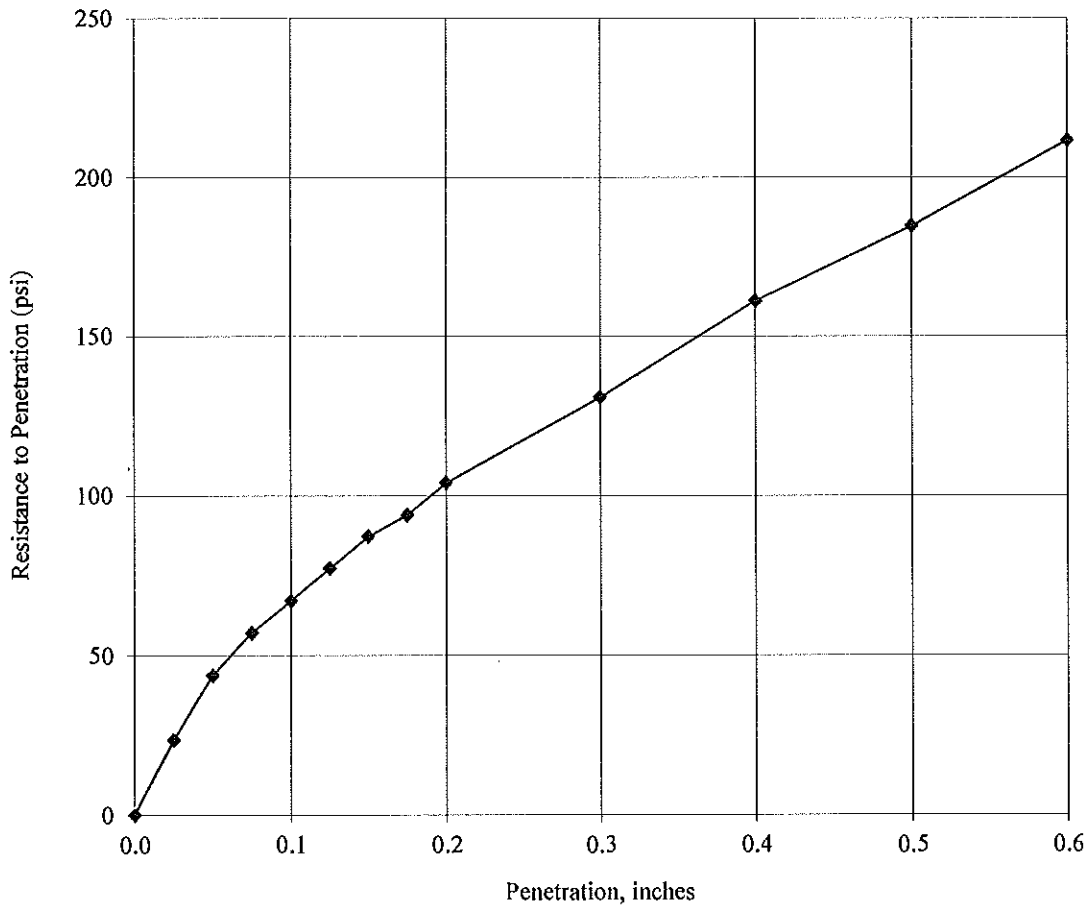
COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

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CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening	Sample No. : Bag-8
Project No. : 11206-04	Sample Loc. : Boring No. B-534
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown Sandy Lean Clay	



Compaction Effort = 35 Blows per layer
 Percent Compacted = 97.6
 Percent Swell = 0.44

C.B.R. @ 0.1 In. = 6.7
 C.B.R. @ 0.2 In. = 6.9*

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : Bag-6
Project No. : 11206-04	Sample Loc. : Boring No. B-530
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown Clayey Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	99.5
1/4		6.3	mm	
No.4		4.75	mm	98.9
No.6		3.35	mm	
No.10		2	mm	98.2

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	93.8
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	49.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0774 \text{ mm}$

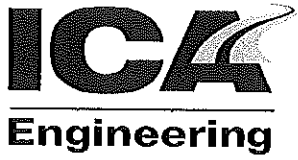
CBR (AASHTO: T-193) : 5.4	Natural Moisture (%) (AASHTO T265) : 16.4
Dry Dens. (AASHTO: T-99; Method (C)) : 118.1 pcf	Liquid Limit (AASHTO T89) : 25
Opt. Moist. (AASHTO: T-99; Method (C)) : 13.3 %	Plastic Limit (AASHTO T90) : 14
	Plasticity Index : 11
AASHTO Composition of Total Sample: M145	Liquidity Index : 0.20
Gravel (3in. + No.10) : 1.8	Activity : NA
Coarse Sand (-No.10 + No.40) : 4.4	Sp. Gr. (AASHTO T100) : NA
Fine Sand (-No.40 + No.200) : 44.6	AASHTO Classification: M145 : A-6 (2)
Silt + Clay (-No.200) : 49.2	ASTM Classification: D2487 : SC

ASTM Composition of Total Sample: D2487

- Coarse Gravel (3in. + 3/4in.) : 0.0
- Fine Gravel (-3/4in. + No.4) : 1.1
- Coarse Sand (-No.4 + No.10) : 0.7
- Medium Sand (-No.10 + No.40) : 4.4
- Fine Sand (-No.40 + No.200) : 44.6
- Silt + Clay (-No.200) : 49.2

Approved By: J.S.

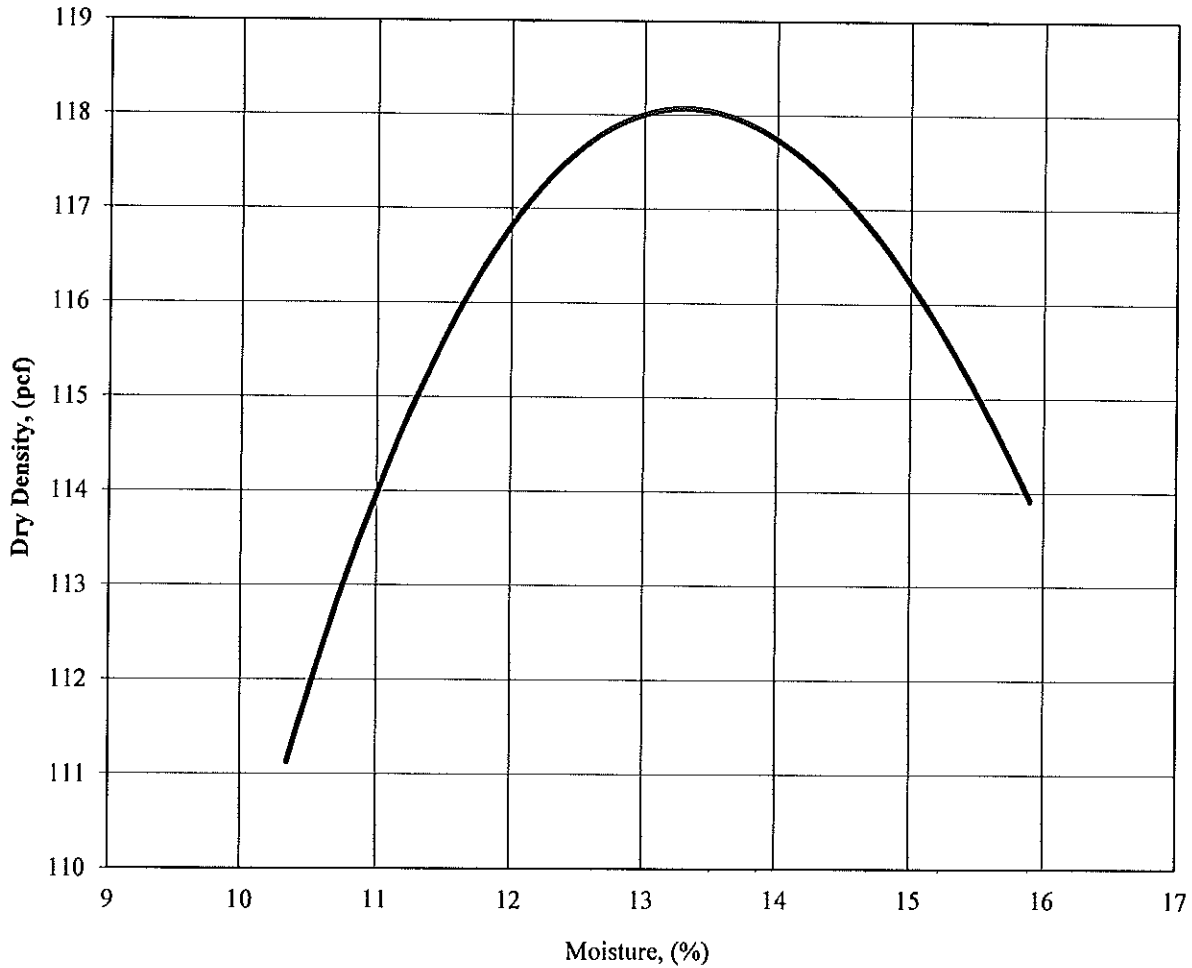
Soil No. 48



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Clayey Sand

Sample No. : Bag-6
Sample Loc. : Boring No. B-530
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



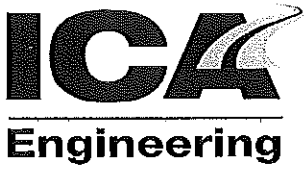
MAXIMUM DENSITY: 118.1 pcf

OPTIMUM MOISTURE: 13.3 %

COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

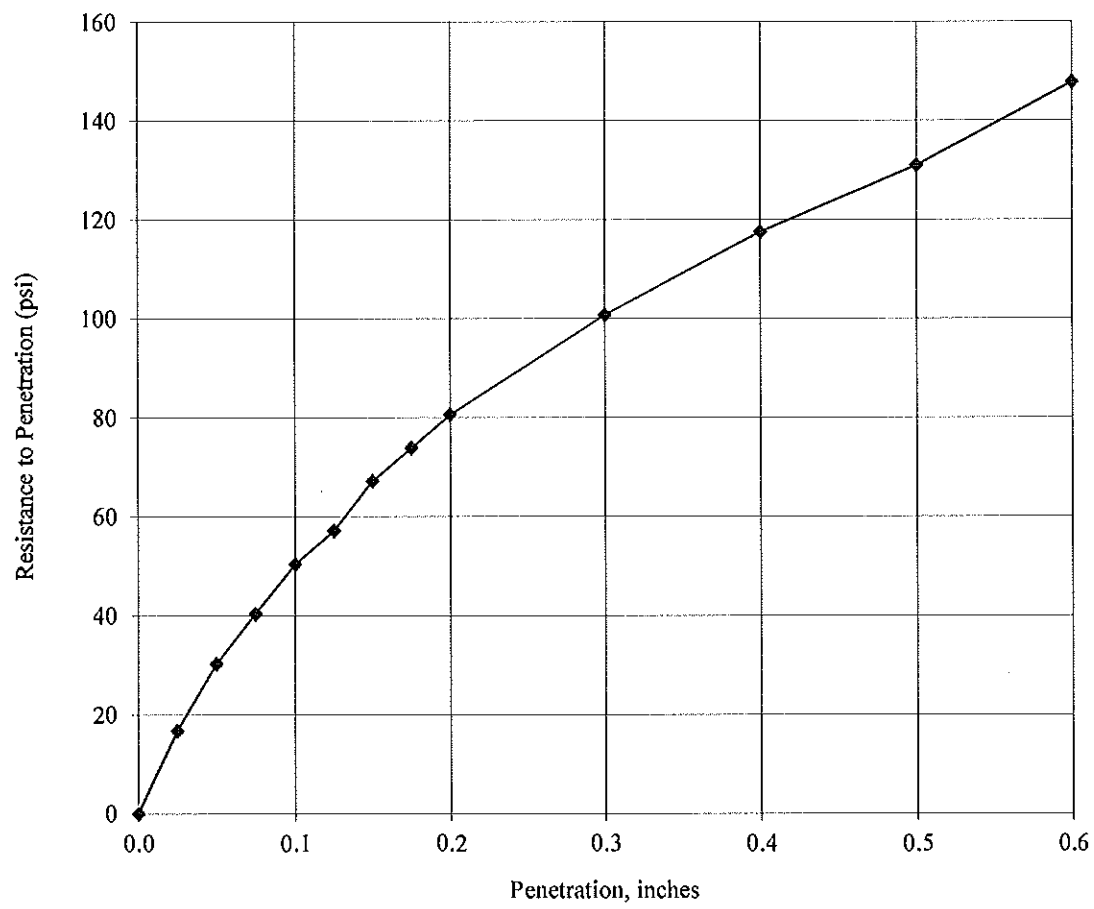
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CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Clayey Sand

Sample No. : Bag-6
Sample Loc. : Boring No. B-530
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



Compaction Effort = 35 Blows per layer
Percent Compacted = 98.2
Percent Swell = 0.31

C.B.R. @ 0.1 In. = 5
C.B.R. @ 0.2 In. = 5.4*

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:

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Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Red & Brown Sandy Silty Clay

Sample No. : Bag-30
 Sample Loc. : Boring No. B-543
 Sample Depth : 0.0' to 5.0'
 Date Tested : 10/24/14
 Date Reported : 11/10/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm	100.0	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	98.2	
1/4		6.3	mm		
No.4		4.75	mm	95.9	
No.6		3.35	mm		
No.10		2	mm	94.4	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	91.2	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	68.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.013 mm

CBR (AASHTO: T-193) : 6.0
 Dry Dens. (AASHTO: T-99; Method (C)) : 117.6 pcf
 Opt. Moist. (AASHTO: T-99; Method (C)) : 12.6 %

Natural Moisture (%) (AASHTO T265) : 19.5

Liquid Limit (AASHTO T89) : 22

Plastic Limit (AASHTO T90) : 16

Plasticity Index : 6

Liquidity Index : 0.63

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (2)

ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 5.6

Coarse Sand (-No.10 + No.40) : 3.2

Fine Sand (-No.40 + No.200) : 23.2

Silt + Clay (-No.200) : 68.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0

Fine Gravel (-3/4in. + No.4) : 4.1

Coarse Sand (-No.4 + No.10) : 1.5

Medium Sand (-No.10 + No.40) : 3.2

Fine Sand (-No.40 + No.200) : 23.2

Silt + Clay (-No.200) : 68.0

Approved By : J.S.

Soil No. 49

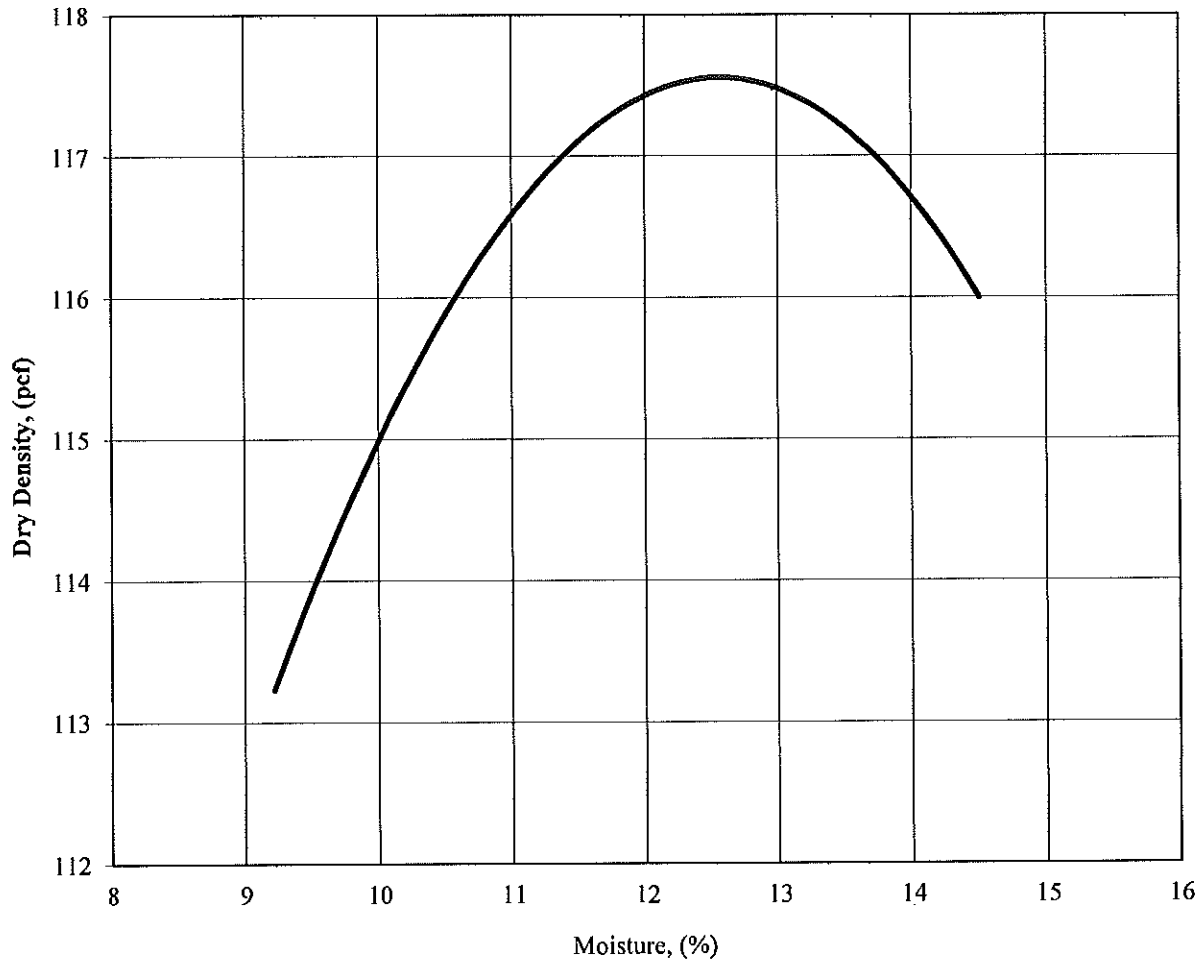
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MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Red & Brown Sandy Silty Clay

Sample No. : Bag-30
Sample Loc. : Boring No. B-543
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



MAXIMUM DENSITY: 117.6 pcf

OPTIMUM MOISTURE: 12.6 %

COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

Strengthening America's Infrastructure[®]



CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening

Project No. : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory No. : 11206-04

Submitted By : ICA Engineering

Soil Type : Red & Brown Sandy Silty Clay

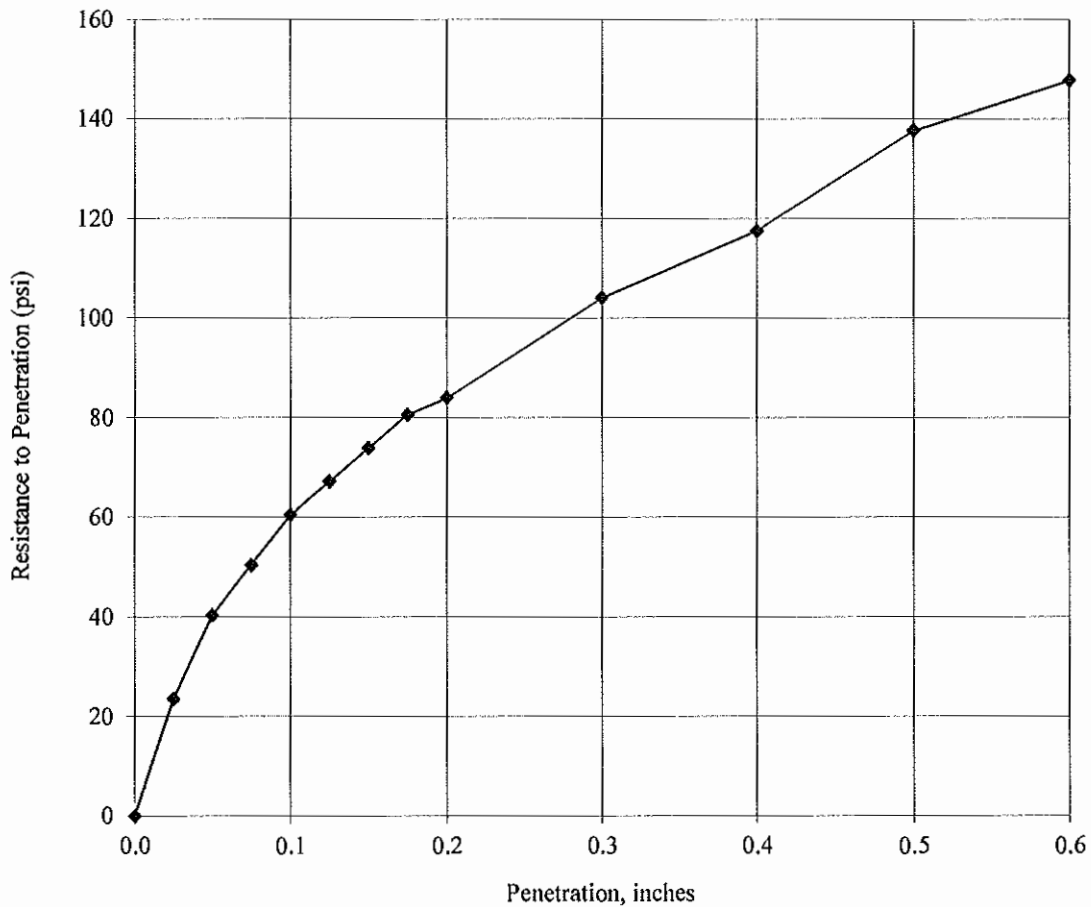
Sample No. : Bag-30

Sample Loc. : Boring No. B-543

Sample Depth : 0.0' to 5.0'

Date Tested : 10/24/14

Date Reported : 11/10/14



Compaction Effort = 35 Blows per layer

Percent Compacted = 97.7

Percent Swell = 0.89

C.B.R. @ 0.1 In. = 6*

C.B.R. @ 0.2 In. = 5.6

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:

Strengthening America's Infrastructure®

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Silty Clay with Sand

Sample No. : ST-1
 Sample Loc. : Boring No. B-501
 Sample Depth : 4.5' to 6.0'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.2
No.6		3.35	mm	
No.10		2	mm	98.8

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	97.8
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	75.5
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.008 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20
 Liquid Limit (AASHTO T89) : 19
 Plastic Limit (AASHTO T90) : 14
 Plasticity Index : 5
 Liquidity Index : 1.25
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 1.2
 Coarse Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 22.3
 Silt + Clay (-No.200) : 75.5

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.8
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 22.3
 Silt + Clay (-No.200) : 75.5

Approved By : J.S.

Soil No. 50

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Sandy Lean Clay

Sample No. : ST-2
 Sample Loc. : Boring No. B-501
 Sample Depth : 9.5' to 10.7'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.9

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	97.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	54.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

AASHTO T88

$D_{50} = 0.0459 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.6

Liquid Limit (AASHTO T89) : 26

Plastic Limit (AASHTO T90) : 15

Plasticity Index : 11

Liquidity Index : 0.37

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-6 (3)

ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 2.4
 Fine Sand (-No.40 + No.200) : 43.5
 Silt + Clay (-No.200) : 54.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 2.4
 Fine Sand (-No.40 + No.200) : 43.5
 Silt + Clay (-No.200) : 54.0

Approved By : J.S.

Soil No. 51



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan & Gray Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-502
 Sample Depth : 9.2' to 10.7'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	98.6	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	88.1	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0043 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.8
 Liquid Limit (AASHTO T89) : 40
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 19
 Liquidity Index : 0.14
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (17)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 1.3
 Fine Sand (-No.40 + No.200) : 10.5
 Silt + Clay (-No.200) : 88.1

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 1.3
 Fine Sand (-No.40 + No.200) : 10.5
 Silt + Clay (-No.200) : 88.1

Approved By : J.S.

Soil No. 52

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray & Tan Lean Clay with Sand

Sample No. : ST-2
 Sample Loc. : Boring No. B-502
 Sample Depth : 19.2' to 20.4'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.4

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	97.2
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	84.1
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0051 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.9
 Liquid Limit (AASHTO T89) : 32
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 11
 Liquidity Index : -0.18
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (9)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.6
 Coarse Sand (-No.10 + No.40) : 2.2
 Fine Sand (-No.40 + No.200) : 13.1
 Silt + Clay (-No.200) : 84.1

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.6
 Medium Sand (-No.10 + No.40) : 2.2
 Fine Sand (-No.40 + No.200) : 13.1
 Silt + Clay (-No.200) : 84.1

Approved By : J.S.

Soil No. 53

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-503
 Sample Depth : 4.1' to 5.1'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.8
No.6		3.35	mm	
No.10		2	mm	99.2

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	96.7
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	93.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0035 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 28.8
 Liquid Limit (AASHTO T89) : 33
 Plastic Limit (AASHTO T90) : 23
 Plasticity Index : 10
 Liquidity Index : 0.60
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.8
 Coarse Sand (-No.10 + No.40) : 2.5
 Fine Sand (-No.40 + No.200) : 3.5
 Silt + Clay (-No.200) : 93.2

Sp. Gr. (AASHTO T100) : NA
AASHTO Classification: M145 : A-4 (10)
ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.2
 Coarse Sand (-No.4 + No.10) : 0.6
 Medium Sand (-No.10 + No.40) : 2.5
 Fine Sand (-No.40 + No.200) : 3.5
 Silt + Clay (-No.200) : 93.2

Approved By : J.S.

Soil No. 54



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Silty Clay

Sample No. : ST-2
 Sample Loc. : Boring No. B-503
 Sample Depth : 14.1' to 15.8'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		99.4

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		96.3
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		90.0
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

AASHTO T88

D₅₀ = 0.004 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.5
 Liquid Limit (AASHTO T89) : 25
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 6
 Liquidity Index : 0.80
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (4)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.6
 Coarse Sand (-No.10 + No.40) : 3.1
 Fine Sand (-No.40 + No.200) : 6.3
 Silt + Clay (-No.200) : 90.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.6
 Medium Sand (-No.10 + No.40) : 3.1
 Fine Sand (-No.40 + No.200) : 6.3
 Silt + Clay (-No.200) : 90.0

Approved By : J.S.

Soil No. 55

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-504
Project County : Pulaski	Sample Depth : 9.0' to 9.3'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown & Tan Sandy Silt	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	98.3
No.6		3.35	mm	
No.10		2	mm	96.0

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	90.6
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	63.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0191 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 13.6

Liquid Limit (AASHTO T89) : 15

Plastic Limit (AASHTO T90) : 13

Plasticity Index : 2

Liquidity Index : 0.16

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (0)

ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 4.0
 Coarse Sand (-No.10 + No.40) : 5.4
 Fine Sand (-No.40 + No.200) : 27.6
 Silt + Clay (-No.200) : 63.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 1.7
 Coarse Sand (-No.4 + No.10) : 2.3
 Medium Sand (-No.10 + No.40) : 5.4
 Fine Sand (-No.40 + No.200) : 27.6
 Silt + Clay (-No.200) : 63.0

Approved By : J.S.

Soil No. 56



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan Sandy Silt

Sample No. : ST-2
 Sample Loc. : Boring No. B-504
 Sample Depth : 14.0' to 15.0'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	99.2
1/4		6.3	mm	
No.4		4.75	mm	98.0
No.6		3.35	mm	
No.10		2	mm	97.1

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	93.8
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	56.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0369 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 15.3

Liquid Limit (AASHTO T89) : 16

Plastic Limit (AASHTO T90) : 14

Plasticity Index : 2

Liquidity Index : 0.58

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (0)

ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 2.9
 Coarse Sand (-No.10 + No.40) : 3.3
 Fine Sand (-No.40 + No.200) : 37.8
 Silt + Clay (-No.200) : 56.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 2.0
 Coarse Sand (-No.4 + No.10) : 0.9
 Medium Sand (-No.10 + No.40) : 3.3
 Fine Sand (-No.40 + No.200) : 37.8
 Silt + Clay (-No.200) : 56.0

Approved By : J.S.

Soil No. 57

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-505
Project County : Pulaski	Sample Depth : 14.5' to 16.0'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown, Tan & Gray Sandy Lean Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.9

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	95.3
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	61.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0223 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.2
 Liquid Limit (AASHTO T89) : 37
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 16
 Liquidity Index : 0.04
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (8)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 4.6
 Fine Sand (-No.40 + No.200) : 34.1
 Silt + Clay (-No.200) : 61.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 4.6
 Fine Sand (-No.40 + No.200) : 34.1
 Silt + Clay (-No.200) : 61.2

Approved By : J.S.

Soil No. 58

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-506
Project County : Pulaski	Sample Depth : 14.8' to 16.3'
Project State : Arkansas	Date Tested : 10/30/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Gray & Orange Silty, Clayey Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.9

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.7
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	43.1
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0927 \text{ mm}$

CBR : NA Dry Dens. : NA Opt. Moist. : NA AASHTO Composition of Total Sample: M145 Gravel (3in. + No.10) : 0.1 Coarse Sand (-No.10 + No.40) : 0.2 Fine Sand (-No.40 + No.200) : 56.6 Silt + Clay (-No.200) : 43.1	Natural Moisture (%) (AASHTO T265) : 16.7 Liquid Limit (AASHTO T89) : 23 Plastic Limit (AASHTO T90) : 17 Plasticity Index : 6 Liquidity Index : -0.05 Activity : NA Sp. Gr. (AASHTO T100) : NA AASHTO Classification: M145 : A-4 (0) ASTM Classification: D2487 : SC-SM
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ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
Fine Gravel (-3/4in. + No.4) : 0.0
Coarse Sand (-No.4 + No.10) : 0.1
Medium Sand (-No.10 + No.40) : 0.2
Fine Sand (-No.40 + No.200) : 56.6
Silt + Clay (-No.200) : 43.1

Approved By : J.S.

Soil No. 59

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan & Gray Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-507
 Sample Depth : 9.7' to 10.7'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.9
No.6		3.35	mm	
No.10		2	mm	99.8

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	86.4
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0046 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.9
 Liquid Limit (AASHTO T89) : 39
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 18
 Liquidity Index : 0.12

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 0.7
 Fine Sand (-No.40 + No.200) : 12.7
 Silt + Clay (-No.200) : 86.4

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
AASHTO Classification: M145 : A-6 (16)
ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.1
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 0.7
 Fine Sand (-No.40 + No.200) : 12.7
 Silt + Clay (-No.200) : 86.4

Approved By : J.S.

Soil No. 60

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-556
Project County : Pulaski	Sample Depth : 19.8' to 21.8'
Project State : Arkansas	Date Tested : 10/30/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown Lean Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.7

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	97.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	88.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0042 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.2
 Liquid Limit (AASHTO T89) : 37
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 16
 Liquidity Index : 0.10
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (14)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 2.6
 Fine Sand (-No.40 + No.200) : 8.5
 Silt + Clay (-No.200) : 88.6

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.3
 Medium Sand (-No.10 + No.40) : 2.6
 Fine Sand (-No.40 + No.200) : 8.5
 Silt + Clay (-No.200) : 88.6

Approved By : J.S.

Soil No. 61

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-2
Project No. : 11206-04	Sample Loc. : Boring No. B-556
Project County : Pulaski	Sample Depth : 29.8' to 31.3'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Orange & Gray Lean Clay with Sand	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		100.0
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		96.4
1/4		6.3	mm		
No.4		4.75	mm		95.8
No.6		3.35	mm		
No.10		2	mm		93.9

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		89.0
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		76.3
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0077 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.3
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 13
 Liquidity Index : 0.46
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 6.1
 Coarse Sand (-No.10 + No.40) : 4.9
 Fine Sand (-No.40 + No.200) : 12.7
 Silt + Clay (-No.200) : 76.3

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (8)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 4.2
 Coarse Sand (-No.4 + No.10) : 1.9
 Medium Sand (-No.10 + No.40) : 4.9
 Fine Sand (-No.40 + No.200) : 12.7
 Silt + Clay (-No.200) : 76.3

Approved By : J.S.

Soil No. 62



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Silt

Sample No. : ST-1
 Sample Loc. : Boring No. B-557
 Sample Depth : 14.4' to 15.7'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	98.8	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	92.7	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0036 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 19.5
 Liquid Limit (AASHTO T89) : 22
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 1
 Liquidity Index : -1.23
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 1.1
 Fine Sand (-No.40 + No.200) : 6.1
 Silt + Clay (-No.200) : 92.7

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 1.1
 Fine Sand (-No.40 + No.200) : 6.1
 Silt + Clay (-No.200) : 92.7

Approved By : J.S.

Soil No. 63



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray & Orange Lean Clay

Sample No. : ST-2
 Sample Loc. : Boring No. B-557
 Sample Depth : 19.4' to 20.9'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	100.0	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.5	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	93.6	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0034 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.6
 Liquid Limit (AASHTO T89) : 34
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 13
 Liquidity Index : 0.16
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 5.9
 Silt + Clay (-No.200) : 93.6

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (12)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 5.9
 Silt + Clay (-No.200) : 93.6

Approved By : J.S.

Soil No. 64



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Silty, Clayey Sand

Sample No. : ST-3
 Sample Loc. : Boring No. B-557
 Sample Depth : 39.4' to 40.4'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm	100.0	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	97.6	
1/4		6.3	mm		
No.4		4.75	mm	86.3	
No.6		3.35	mm		
No.10		2	mm	67.7	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	43.0	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	18.3	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.6592 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 14
 Liquid Limit (AASHTO T89) : 24
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 6
 Liquidity Index : -0.63
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-1-b (0)
 ASTM Classification: D2487 : SC-SM

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 32.3
 Coarse Sand (-No.10 + No.40) : 24.7
 Fine Sand (-No.40 + No.200) : 24.7
 Silt + Clay (-No.200) : 18.3

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 13.7
 Coarse Sand (-No.4 + No.10) : 18.6
 Medium Sand (-No.10 + No.40) : 24.7
 Fine Sand (-No.40 + No.200) : 24.7
 Silt + Clay (-No.200) : 18.3

Approved By : J.S.

Soil No. 65

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Lean Clay with Sand

Sample No. : ST-1
 Sample Loc. : Boring No. B-558
 Sample Depth : 16.1' to 17.9'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.6

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	95.7
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	81.1
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0059 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 19
 Liquid Limit (AASHTO T89) : 25
 Plastic Limit (AASHTO T90) : 15
 Plasticity Index : 10
 Liquidity Index : 0.41
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (6)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.4
 Coarse Sand (-No.10 + No.40) : 3.9
 Fine Sand (-No.40 + No.200) : 14.6
 Silt + Clay (-No.200) : 81.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 3.9
 Fine Sand (-No.40 + No.200) : 14.6
 Silt + Clay (-No.200) : 81.1

Approved By : J.S.

Soil No. 66

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Sandy Lean Clay

Sample No. : ST-2
 Sample Loc. : Boring No. B-558
 Sample Depth : 26.1' to 27.6'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.7

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	94.9
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	51.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0611 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.6
 Liquid Limit (AASHTO T89) : 26
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 9
 Liquidity Index : 0.49
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 4.8
 Fine Sand (-No.40 + No.200) : 43.3
 Silt + Clay (-No.200) : 51.6

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.3
 Medium Sand (-No.10 + No.40) : 4.8
 Fine Sand (-No.40 + No.200) : 43.3
 Silt + Clay (-No.200) : 51.6

Approved By : J.S.

Soil No. 67

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-559
Project County : Pulaski	Sample Depth : 14.7' to 16.2'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Tan, Brown & Gray Lean Clay with Sand	

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.2
No.6		3.35	mm	
No.10		2	mm	97.8

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	94.9
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	78.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0069 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.4
 Liquid Limit (AASHTO T89) : 27
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 10
 Liquidity Index : 0.12
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 2.2
 Coarse Sand (-No.10 + No.40) : 2.9
 Fine Sand (-No.40 + No.200) : 16.7
 Silt + Clay (-No.200) : 78.2

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (6)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.8
 Coarse Sand (-No.4 + No.10) : 1.4
 Medium Sand (-No.10 + No.40) : 2.9
 Fine Sand (-No.40 + No.200) : 16.7
 Silt + Clay (-No.200) : 78.2

Approved By : J.S.

Soil No. 68

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-2
Project No. : 11206-04	Sample Loc. : Boring No. B-559
Project County : Pulaski	Sample Depth : 24.7' to 26.3'
Project State : Arkansas	Date Tested : 10/30/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown, Tan & Black Sandy Lean Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.9
No.6		3.35	mm	
No.10		2	mm	99.4

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	96.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	61.3
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0221 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 19.8

Liquid Limit (AASHTO T89) : 24

Plastic Limit (AASHTO T90) : 16

Plasticity Index : 8

Liquidity Index : 0.47

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (2)

ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.6

Coarse Sand (-No.10 + No.40) : 2.9

Fine Sand (-No.40 + No.200) : 35.2

Silt + Clay (-No.200) : 61.3

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0

Fine Gravel (-3/4in. + No.4) : 0.1

Coarse Sand (-No.4 + No.10) : 0.5

Medium Sand (-No.10 + No.40) : 2.9

Fine Sand (-No.40 + No.200) : 35.2

Silt + Clay (-No.200) : 61.3

Approved By : J.S.

Soil No. 69



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray, Orange & Tan Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-562
 Sample Depth : 10.0' to 11.5'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.9
No.6		3.35	mm		
No.10		2	mm		99.7

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		98.8
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		94.3
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0033 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.5
 Liquid Limit (AASHTO T89) : 36
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 17
 Liquidity Index : 0.20
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 0.9
 Fine Sand (-No.40 + No.200) : 4.5
 Silt + Clay (-No.200) : 94.3

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (16)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.1
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 0.9
 Fine Sand (-No.40 + No.200) : 4.5
 Silt + Clay (-No.200) : 94.3

Approved By : J.S.

Soil No. 70



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray & Orange Silt

Sample No. : ST-1
 Sample Loc. : Boring No. B-563
 Sample Depth : 4.1' to 5.4'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.4	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	92.2	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0036 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20.5

Liquid Limit (AASHTO T89) : 21

Plastic Limit (AASHTO T90) : 20

Plasticity Index : 1

Liquidity Index : 0.81

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (0)

ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 7.2
 Silt + Clay (-No.200) : 92.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 7.2
 Silt + Clay (-No.200) : 92.2

Approved By : J.S.

Soil No. 71



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Silt

Sample No. : ST-2
 Sample Loc. : Boring No. B-563
 Sample Depth : 24.1' to 25.6'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		100.0
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		97.2
1/4		6.3	mm		
No.4		4.75	mm		95.3
No.6		3.35	mm		
No.10		2	mm		93.0

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		85.6
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		55.6
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0385 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 19.1
 Liquid Limit (AASHTO T89) : 23
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 4
 Liquidity Index : -0.02
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 7.0
 Coarse Sand (-No.10 + No.40) : 7.4
 Fine Sand (-No.40 + No.200) : 30.0
 Silt + Clay (-No.200) : 55.6

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : ML

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 4.7
 Coarse Sand (-No.4 + No.10) : 2.3
 Medium Sand (-No.10 + No.40) : 7.4
 Fine Sand (-No.40 + No.200) : 30.0
 Silt + Clay (-No.200) : 55.6

Approved By : J.S.

Soil No. 72



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan, Gray & Black Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-564
 Sample Depth : 14.6' to 16.1'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.6	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm	97.5	
No.40		0.425	mm		
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	92.3	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0036 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.7
 Liquid Limit (AASHTO T89) : 38
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 19
 Liquidity Index : 0.13
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (18)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.4
 Coarse Sand (-No.10 + No.40) : 2.1
 Fine Sand (-No.40 + No.200) : 5.2
 Silt + Clay (-No.200) : 92.3

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 2.1
 Fine Sand (-No.40 + No.200) : 5.2
 Silt + Clay (-No.200) : 92.3

Approved By : J.S.

Soil No. 73

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-2
Project No. : 11206-04	Sample Loc. : Boring No. B-564
Project County : Pulaski	Sample Depth : 29.6' to 30.6'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown Clayey Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	98.8
No.6		3.35	mm	
No.10		2	mm	94.6

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	60.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	46.7
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.1136 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.6
 Liquid Limit (AASHTO T89) : 27
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 8
 Liquidity Index : 0.26
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : SC

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 5.4
 Coarse Sand (-No.10 + No.40) : 34.1
 Fine Sand (-No.40 + No.200) : 13.8
 Silt + Clay (-No.200) : 46.7

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 1.2
 Coarse Sand (-No.4 + No.10) : 4.2
 Medium Sand (-No.10 + No.40) : 34.1
 Fine Sand (-No.40 + No.200) : 13.8
 Silt + Clay (-No.200) : 46.7

Approved By : J.S.

Soil No. 74

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray, Tan & Brown Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-565
 Sample Depth : 20.2' to 21.9'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		99.8

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		97.7
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		85.6
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.0048 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 19.6

Liquid Limit (AASHTO T89) : 28

Plastic Limit (AASHTO T90) : 19

Plasticity Index : 9

Liquidity Index : 0.06

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (6)

ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.2

Coarse Sand (-No.10 + No.40) : 2.1

Fine Sand (-No.40 + No.200) : 12.1

Silt + Clay (-No.200) : 85.6

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0

Fine Gravel (-3/4in. + No.4) : 0.0

Coarse Sand (-No.4 + No.10) : 0.2

Medium Sand (-No.10 + No.40) : 2.1

Fine Sand (-No.40 + No.200) : 12.1

Silt + Clay (-No.200) : 85.6

Approved By : J.S.

Soil No. 75



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Silty Sand

Sample No. : ST-2
 Sample Loc. : Boring No. B-565
 Sample Depth : 35.2' to 36.7'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.8
No.6		3.35	mm		
No.10		2	mm		99.0

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		85.5
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		34.2
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.128 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.1
 Liquid Limit (AASHTO T89) : 22
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : NP
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-2-4 (0)
 ASTM Classification: D2487 : SM

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 1.0
 Coarse Sand (-No.10 + No.40) : 13.5
 Fine Sand (-No.40 + No.200) : 51.3
 Silt + Clay (-No.200) : 34.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.2
 Coarse Sand (-No.4 + No.10) : 0.8
 Medium Sand (-No.10 + No.40) : 13.5
 Fine Sand (-No.40 + No.200) : 51.3
 Silt + Clay (-No.200) : 34.2

Approved By : J.S.

Soil No. 76

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-2

Sample Loc. : Boring No. B-501

Sample Depth : 9.7' to 10.2'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown & Gray Sandy Lean Clay

Wet Density : 136.1 pcf

Dry Density : 117.3 pcf

Moisture : 15.9 %

Initial Height : 5.96 in

Initial Diameter : 2.86 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	39.4	0.04	0.3	0.88
3	67.3	0.04	0.5	1.50
4	89.5	0.04	0.8	1.99
5	110.6	0.05	1.0	2.46
6	131.8	0.05	1.3	2.92
7	144.3	0.05	1.5	3.19
8	152.9	0.05	1.8	3.37
9	157.7	0.05	2.0	3.47
10	162.6	0.05	2.3	3.56
11	163.5	0.05	2.7	3.57
12	163.5	0.05	3.0	3.56
13	161.6	0.05	3.4	3.50
14	157.7	0.05	3.7	3.41

UNCONFINED COMPRESSION TEST

Page 2 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-2

Sample Loc. : Boring No. B-501

Sample Depth : 9.7' to 10.2'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown & Gray Sandy Lean Clay

Wet Density : 136.1 pcf

Dry Density : 117.3 pcf

Moisture : 15.9 %

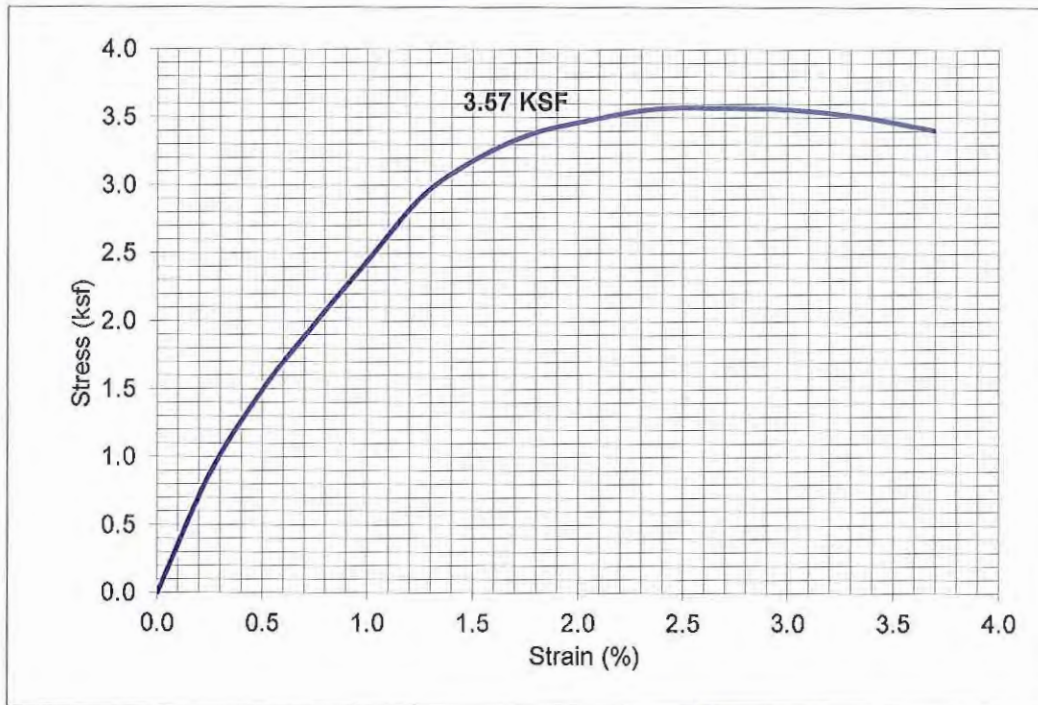
Deg. of Sat. : NA

Initial Height : 5.96 in

Initial Diameter : 2.86 in

Proving Ring : #22734

Comments : AASHTO: T-208



APPROVED BY:

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-1

Sample Loc. : Boring No. B-502

Sample Depth : 9.2' to 9.7'

Date Tested : 10/24/14

Date Reported : 11/04/14

Soil Type : Tan & Gray Lean Clay

Wet Density : 125.1 pcf

Dry Density : 101.0 pcf

Moisture : 23.8 %

Initial Height : 6.02 in

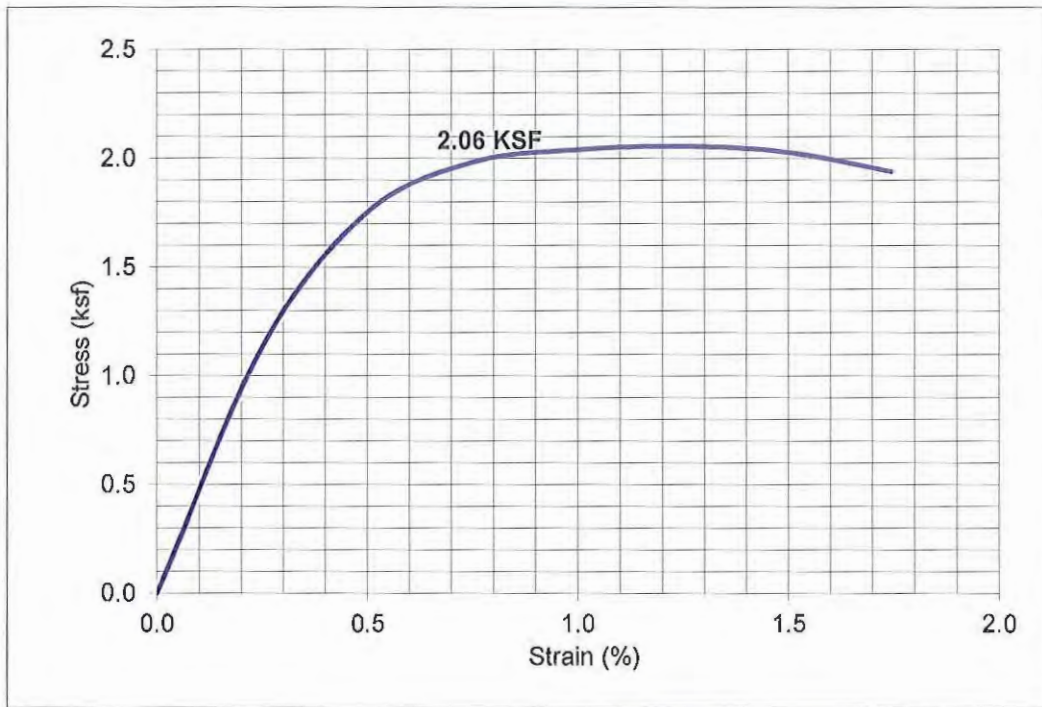
Initial Diameter : 2.87 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	51.0	0.04	0.2	1.13
3	78.9	0.05	0.5	1.75
4	89.5	0.05	0.7	1.98
5	92.3	0.05	1.0	2.04
6	93.3	0.05	1.2	2.06
7	92.3	0.05	1.5	2.03
8	88.5	0.05	1.7	1.94

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-1
Project # : 11206-04	Sample Loc. : Boring No. B-502
Project County : Pulaski	Sample Depth : 9.2' to 9.7'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Tan & Gray Lean Clay	
Wet Density : 125.1 pcf	Initial Height : 6.02 in
Dry Density : 101.0 pcf	Initial Diameter : 2.87 in
Moisture : 23.8 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-1

Sample Loc. : Boring No. B-503

Sample Depth : 4.1' to 4.6'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown Lean Clay

Wet Density : 121.5 pcf

Dry Density : 94.4 pcf

Moisture : 28.8 %

Initial Height : 5.87 in

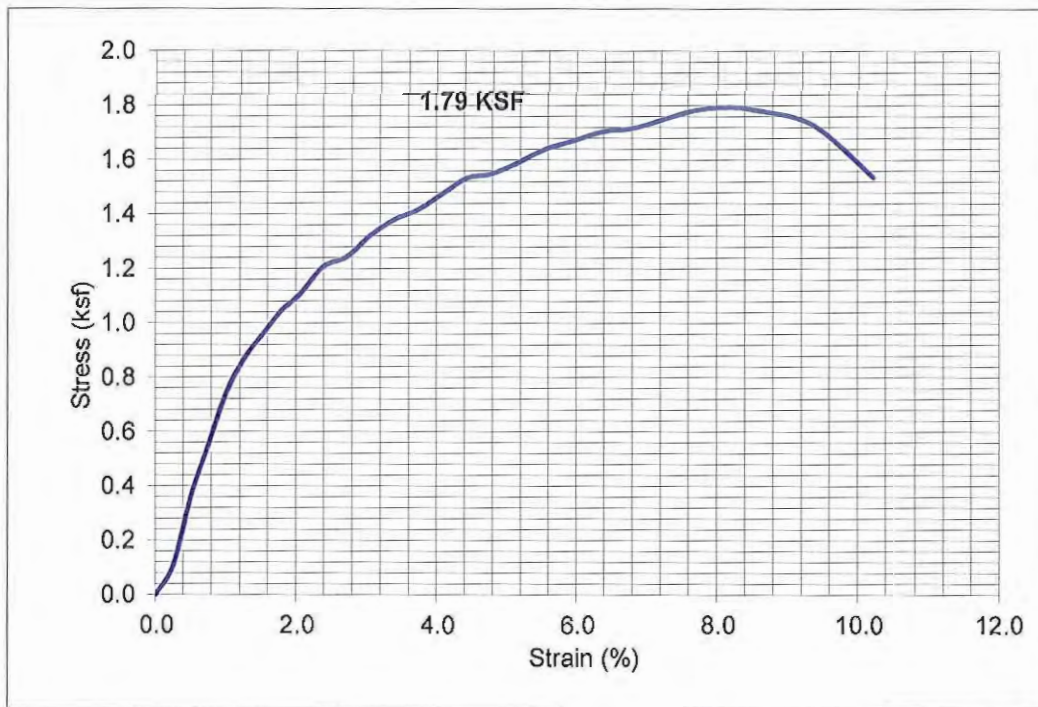
Initial Diameter : 2.85 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	4.8	0.04	0.3	0.11
3	16.4	0.04	0.5	0.37
4	25.0	0.04	0.8	0.56
5	33.7	0.04	1.0	0.75
6	39.4	0.04	1.3	0.88
7	43.3	0.05	1.5	0.96
8	47.1	0.05	1.8	1.04
9	50.0	0.05	2.0	1.10
10	54.8	0.05	2.4	1.21
11	56.8	0.05	2.7	1.24
12	60.6	0.05	3.1	1.32
13	63.5	0.05	3.4	1.38
14	65.4	0.05	3.7	1.42
15	68.3	0.05	4.1	1.48
16	71.2	0.05	4.4	1.53
17	72.1	0.05	4.8	1.55
18	74.1	0.05	5.1	1.58
19	76.9	0.05	5.5	1.64
20	78.9	0.05	6.0	1.67
21	80.8	0.05	6.4	1.70
22	81.8	0.05	6.8	1.72
23	83.7	0.05	7.2	1.75
24	85.6	0.05	7.7	1.78
25	86.6	0.05	8.1	1.79
26	86.6	0.05	8.5	1.78
27	84.6	0.05	9.4	1.73
28	76.0	0.05	10.2	1.54

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-1
Project # : 11206-04	Sample Loc. : Boring No. B-503
Project County : Pulaski	Sample Depth : 4.1' to 4.6'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown Lean Clay	
Wet Density : 121.5 pcf	Initial Height : 5.87 in
Dry Density : 94.4 pcf	Initial Diameter : 2.85 in
Moisture : 28.8 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *Amy Soto*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-1
 Sample Loc. : Boring No. B-506
 Sample Depth : 15.8' to 16.3'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Gray & Orange Silty, Clayey Sand

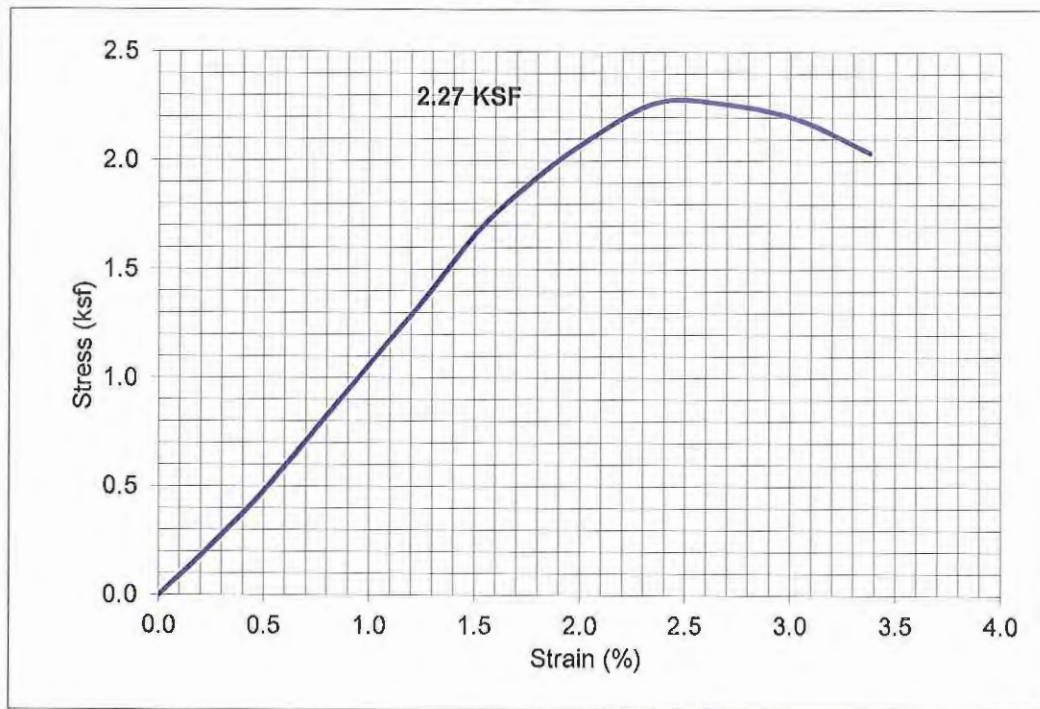
Wet Density : 132.3 pcf
 Dry Density : 113.3 pcf
 Moisture : 16.7 %

Initial Height : 5.92 in
 Initial Diameter : 2.88 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.05	0.0	0.00
2	10.6	0.05	0.3	0.23
3	22.1	0.05	0.5	0.49
4	35.6	0.05	0.8	0.78
5	49.1	0.05	1.0	1.08
6	62.5	0.05	1.3	1.37
7	76.9	0.05	1.5	1.68
8	87.5	0.05	1.8	1.90
9	96.2	0.05	2.0	2.09
10	104.8	0.05	2.4	2.27
11	104.8	0.05	2.7	2.26
12	102.0	0.05	3.0	2.19
13	95.2	0.05	3.4	2.04

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-1
Project # : 11206-04	Sample Loc. : Boring No. B-506
Project County : Pulaski	Sample Depth : 15.8' to 16.3'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Gray & Orange Silty, Clayey Sand	
Wet Density : 132.3 pcf	Initial Height : 5.92 in
Dry Density : 113.3 pcf	Initial Diameter : 2.88 in
Moisture : 16.7 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-2
 Sample Loc. : Boring No. B-504
 Sample Depth : 14.0' to 14.5'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

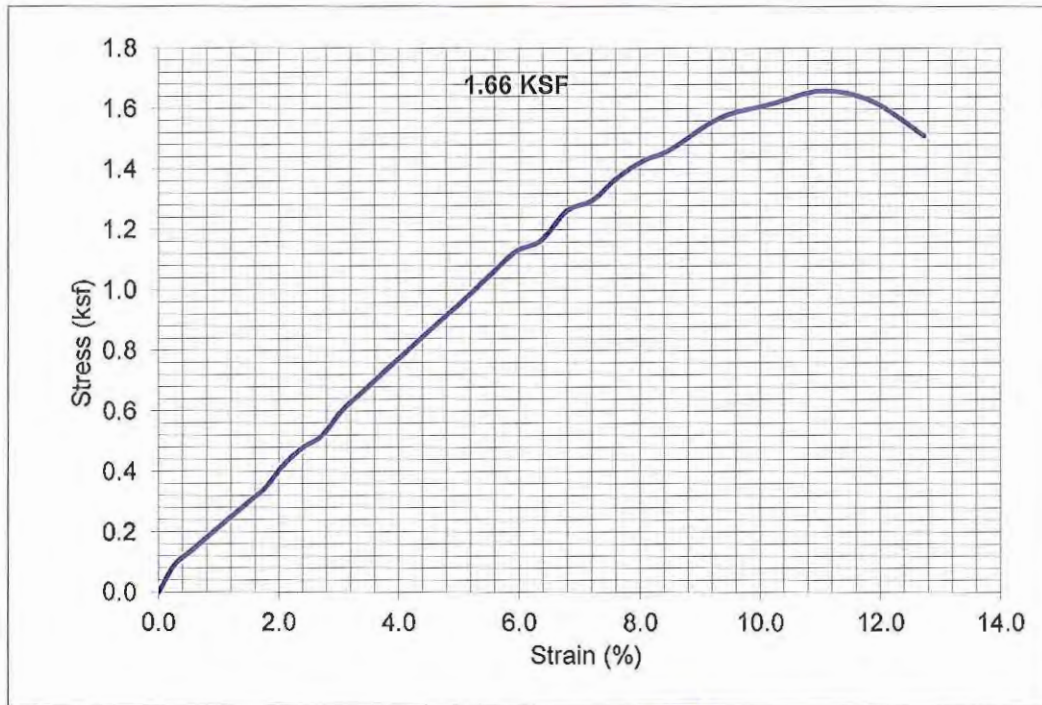
Soil Type : Tan Sandy Silt
 Wet Density : 141.7 pcf
 Dry Density : 122.9 pcf
 Moisture : 15.3 %

Initial Height : 5.89 in
 Initial Diameter : 2.82 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	3.8	0.04	0.3	0.09
3	5.8	0.04	0.5	0.13
4	7.7	0.04	0.8	0.18
5	9.6	0.04	1.0	0.22
6	11.5	0.04	1.3	0.26
7	13.5	0.04	1.5	0.31
8	15.4	0.04	1.8	0.35
9	18.3	0.04	2.0	0.41
10	21.2	0.04	2.4	0.48
11	23.1	0.04	2.7	0.52
12	26.9	0.04	3.1	0.60
13	29.8	0.04	3.4	0.67
14	32.7	0.04	3.7	0.73
15	35.6	0.05	4.1	0.79
16	38.5	0.05	4.4	0.85
17	41.4	0.05	4.8	0.91
18	44.2	0.05	5.1	0.97
19	48.1	0.05	5.5	1.05
20	51.9	0.05	5.9	1.13
21	53.9	0.05	6.4	1.16
22	58.7	0.05	6.8	1.26
23	60.6	0.05	7.2	1.30
24	64.4	0.05	7.6	1.37
25	67.3	0.05	8.1	1.43
26	69.3	0.05	8.5	1.46
27	75.0	0.05	9.3	1.57
28	77.9	0.05	10.2	1.62
29	80.8	0.05	11.0	1.66
30	79.8	0.05	11.9	1.62
31	75.0	0.05	12.7	1.51

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-504
Project County : Pulaski	Sample Depth : 14.0' to 14.5'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Tan Sandy Silt	
Wet Density : 141.7 pcf	Initial Height : 5.89 in
Dry Density : 122.9 pcf	Initial Diameter : 2.82 in
Moisture : 15.3 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *Arany Selva*



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-1
 Sample Loc. : Boring No. B-507
 Sample Depth : 9.7' to 10.2'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Tan & Gray Lean Clay

Wet Density : 125.0 pcf
 Dry Density : 101.8 pcf
 Moisture : 22.9 %

Initial Height : 5.86 in
 Initial Diameter : 2.89 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.05	0.0	0.00
2	30.8	0.05	0.3	0.67
3	60.6	0.05	0.5	1.32
4	84.6	0.05	0.8	1.84
5	104.8	0.05	1.0	2.27
6	119.3	0.05	1.3	2.58
7	127.0	0.05	1.5	2.74
8	136.6	0.05	1.8	2.94
9	139.5	0.05	2.0	2.99
10	139.5	0.05	2.4	2.98
11	138.5	0.05	2.7	2.95
12	136.6	0.05	3.1	2.90
13	134.7	0.05	3.4	2.85

UNCONFINED COMPRESSION TEST

Page 2 of 2

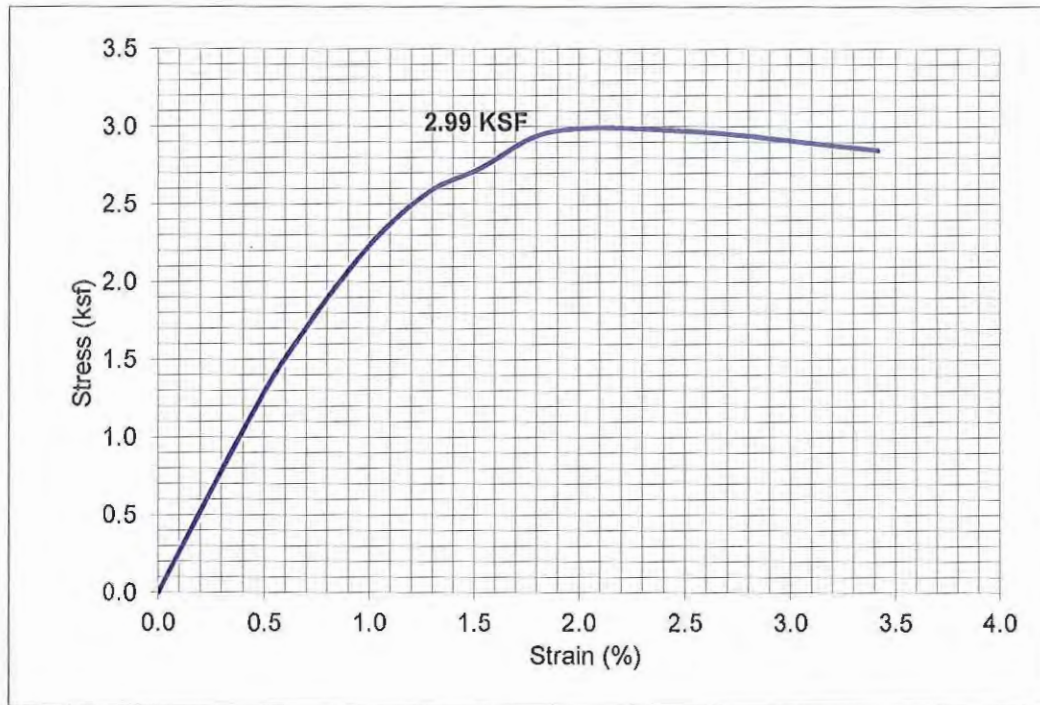
Project Name : Highway 67 Widening
Project # : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory # : 11206-04
Submitted By : ICA Engineering

Sample # : ST-1
Sample Loc. : Boring No. B-507
Sample Depth : 9.7' to 10.2'
Date Tested : 10/28/14
Date Reported : 11/04/14

Soil Type : Tan & Gray Lean Clay
Wet Density : 125.0 pcf
Dry Density : 101.8 pcf
Moisture : 22.9 %
Deg. of Sat. : NA

Initial Height : 5.86 in
Initial Diameter : 2.89 in
Proving Ring : #22734

Comments : AASHTO: T-208



APPROVED BY:





UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-1

Sample Loc. : Boring No. B-556

Sample Depth : 20.3' to 20.8'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown Lean Clay

Wet Density : 129.3 pcf

Dry Density : 105.8 pcf

Moisture : 22.2 %

Initial Height : 5.93 in

Initial Diameter : 2.86 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	2.9	0.04	0.3	0.06
3	9.6	0.04	0.5	0.21
4	18.3	0.05	0.8	0.41
5	27.9	0.05	1.0	0.62
6	40.4	0.05	1.3	0.89
7	53.9	0.05	1.5	1.19
8	68.3	0.05	1.8	1.50
9	83.7	0.05	2.0	1.83
10	103.9	0.05	2.4	2.27
11	119.3	0.05	2.7	2.60
12	130.8	0.05	3.0	2.84
13	136.6	0.05	3.4	2.95
14	139.5	0.05	3.7	3.01
15	139.5	0.05	4.0	2.99
16	134.7	0.05	4.4	2.88
17	124.1	0.05	4.7	2.65

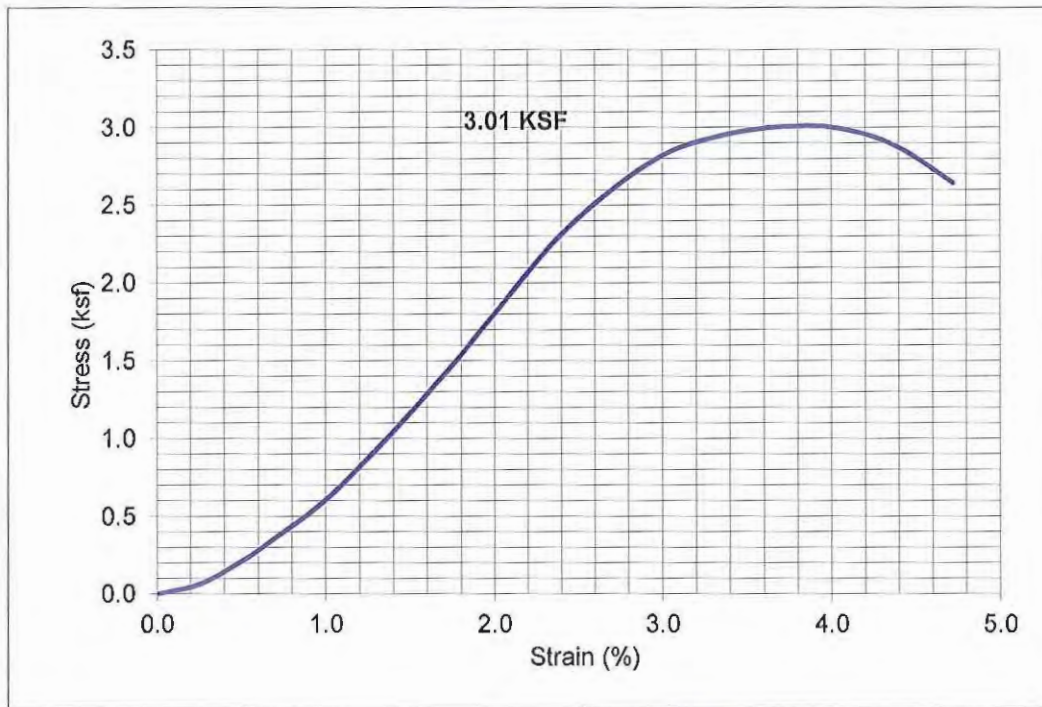
UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-1
 Sample Loc. : Boring No. B-556
 Sample Depth : 20.3' to 20.8'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Brown Lean Clay
 Wet Density : 129.3 pcf
 Dry Density : 105.8 pcf
 Moisture : 22.2 %
 Deg. of Sat. : NA
 Comments : AASHTO: T-208

Initial Height : 5.93 in
 Initial Diameter : 2.86 in
 Proving Ring : #22734



APPROVED BY:

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-2

Sample Loc. : Boring No. B-557

Sample Depth : 19.4' to 19.9'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Gray & Orange Lean Clay

Wet Density : 128.1 pcf

Dry Density : 104.4 pcf

Moisture : 22.6 %

Initial Height : 5.82 in

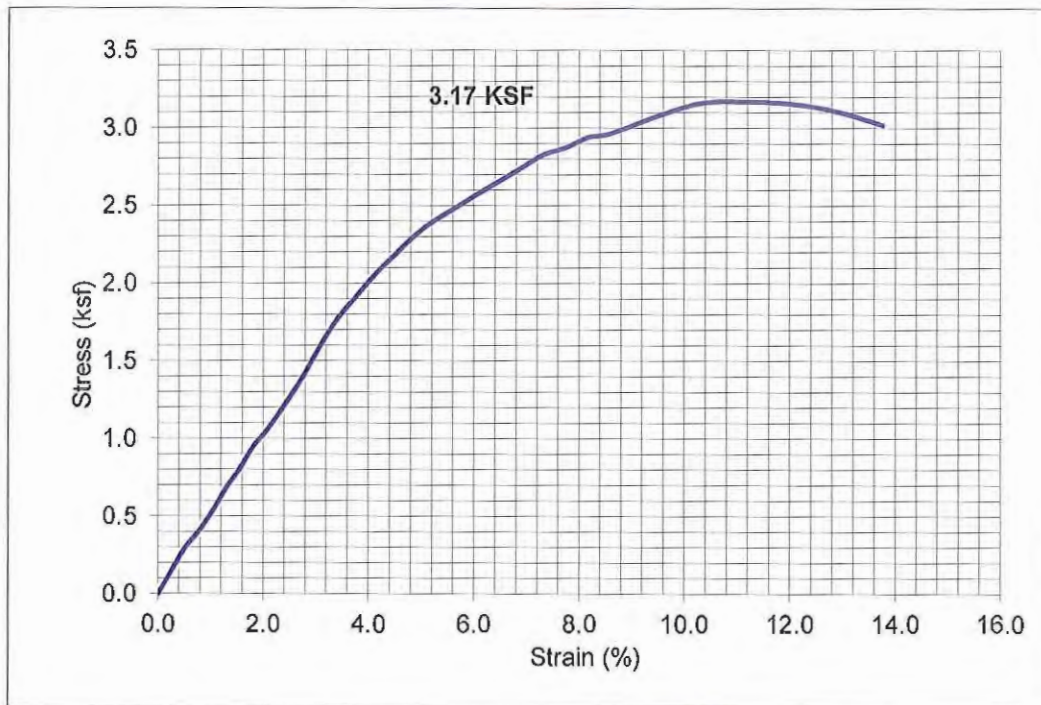
Initial Diameter : 2.86 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	6.7	0.04	0.3	0.15
3	13.5	0.04	0.5	0.30
4	18.3	0.05	0.8	0.41
5	24.0	0.05	1.0	0.53
6	30.8	0.05	1.3	0.68
7	36.6	0.05	1.5	0.80
8	43.3	0.05	1.8	0.95
9	48.1	0.05	2.1	1.05
10	55.8	0.05	2.4	1.22
11	64.4	0.05	2.8	1.40
12	74.1	0.05	3.1	1.60
13	82.7	0.05	3.4	1.78
14	89.5	0.05	3.8	1.92
15	96.2	0.05	4.1	2.06
16	102.0	0.05	4.5	2.18
17	107.7	0.05	4.8	2.29
18	112.5	0.05	5.2	2.38
19	117.3	0.05	5.6	2.48
20	122.2	0.05	6.0	2.57
21	127.0	0.05	6.4	2.65
22	131.8	0.05	6.9	2.74
23	136.6	0.05	7.3	2.83
24	139.5	0.05	7.7	2.87
25	143.3	0.05	8.2	2.94
26	145.2	0.05	8.6	2.97
27	152.0	0.05	9.5	3.07
28	157.7	0.05	10.3	3.16
29	159.7	0.05	11.2	3.17
30	160.6	0.05	12.0	3.16
31	159.7	0.05	12.9	3.11
32	156.8	0.05	13.8	3.02

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-557
Project County : Pulaski	Sample Depth : 19.4' to 19.9'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Gray & Orange Lean Clay	
Wet Density : 128.1 pcf	Initial Height : 5.82 in
Dry Density : 104.4 pcf	Initial Diameter : 2.86 in
Moisture : 22.6 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

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Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-3

Sample Loc. : Boring No. B-557

Sample Depth : 39.9' to 40.4'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown & Tan Silty, Clayey Sand

Wet Density : 136.6 pcf

Dry Density : 119.8 pcf

Moisture : 14.0 %

Initial Height : 5.95 in

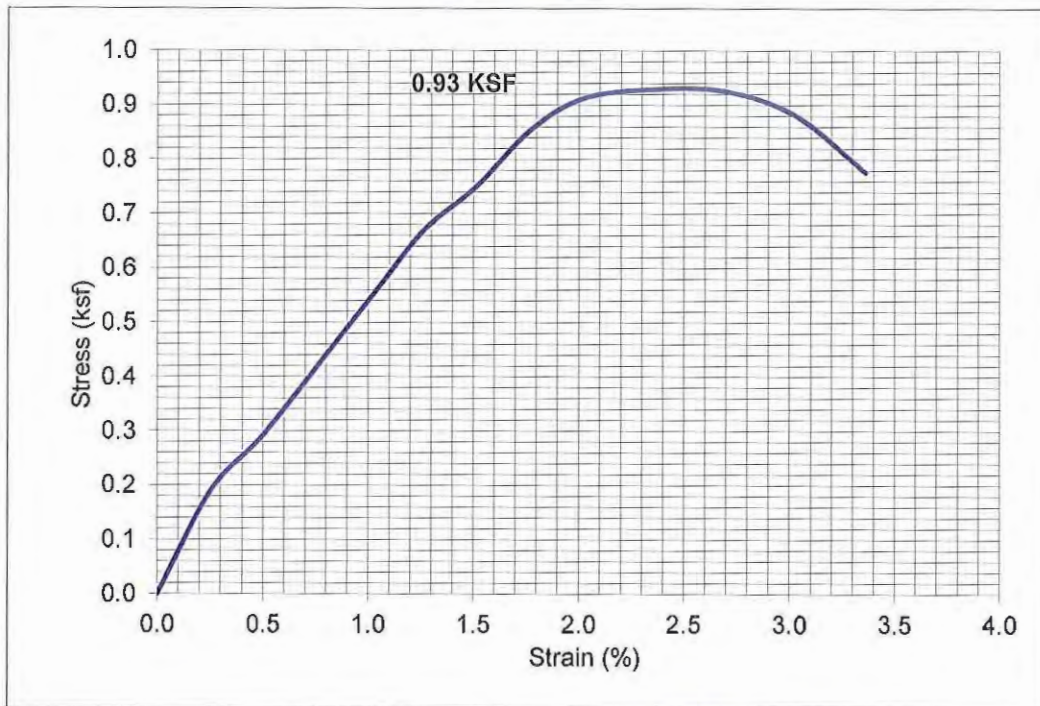
Initial Diameter : 2.89 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.05	0.0	0.00
2	8.7	0.05	0.3	0.19
3	13.5	0.05	0.5	0.29
4	19.2	0.05	0.8	0.42
5	25.0	0.05	1.0	0.54
6	30.8	0.05	1.3	0.67
7	34.6	0.05	1.5	0.75
8	39.4	0.05	1.8	0.85
9	42.3	0.05	2.0	0.91
10	43.3	0.05	2.4	0.93
11	43.3	0.05	2.7	0.93
12	41.4	0.05	3.0	0.88
13	36.6	0.05	3.4	0.78

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-3
Project # : 11206-04	Sample Loc. : Boring No. B-557
Project County : Pulaski	Sample Depth : 39.9' to 40.4'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown & Tan Silty, Clayey Sand	
Wet Density : 136.6 pcf	Initial Height : 5.95 in
Dry Density : 119.8 pcf	Initial Diameter : 2.89 in
Moisture : 14.0 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *Amy Sch*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-2
 Sample Loc. : Boring No. B-558
 Sample Depth : 26.1' to 26.6'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Brown & Tan Sandy Lean Clay

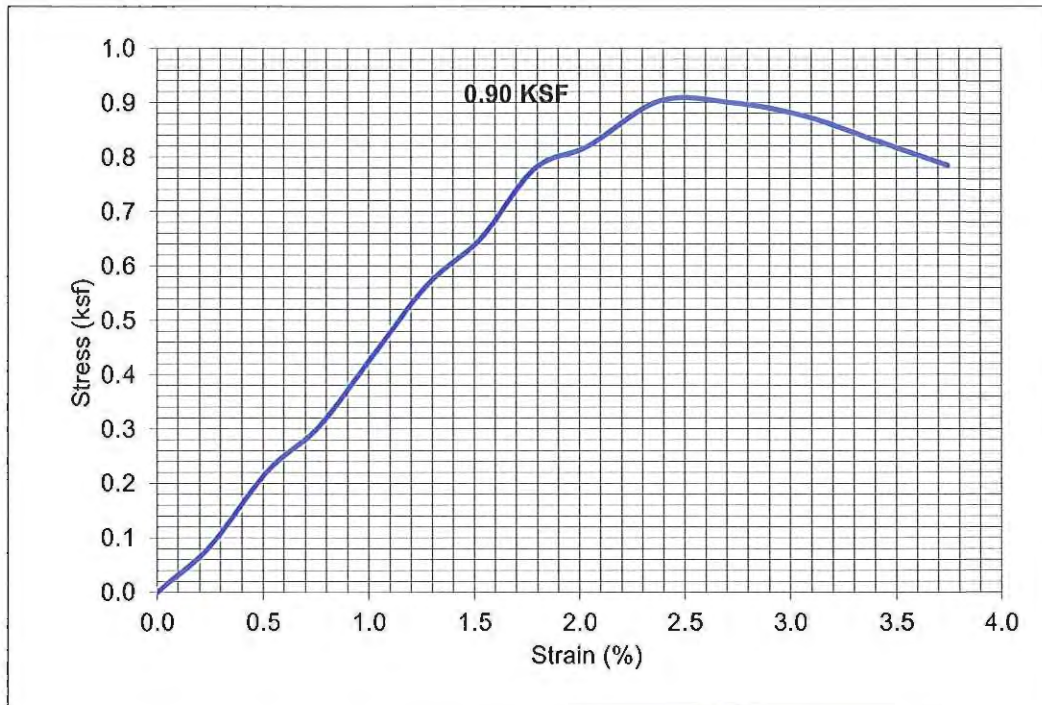
Wet Density : 131.4 pcf
 Dry Density : 108.1 pcf
 Moisture : 21.6 %

Initial Height : 5.87 in
 Initial Diameter : 2.83 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	3.8	0.04	0.3	0.09
3	9.6	0.04	0.5	0.22
4	13.5	0.04	0.8	0.31
5	19.2	0.04	1.0	0.44
6	25.0	0.04	1.3	0.57
7	28.9	0.04	1.5	0.65
8	34.6	0.04	1.8	0.78
9	36.6	0.04	2.0	0.82
10	40.4	0.04	2.4	0.90
11	40.4	0.04	2.7	0.90
12	39.4	0.05	3.1	0.88
13	37.5	0.05	3.4	0.83
14	35.6	0.05	3.7	0.78

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-558
Project County : Pulaski	Sample Depth : 26.1' to 26.6'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown & Tan Sandy Lean Clay	
Wet Density : 131.4 pcf	Initial Height : 5.87 in
Dry Density : 108.1 pcf	Initial Diameter : 2.83 in
Moisture : 21.6 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-2
 Sample Loc. : Boring No. B-559
 Sample Depth : 24.7' to 25.2'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Brown, Tan & Black Sandy Lean Clay

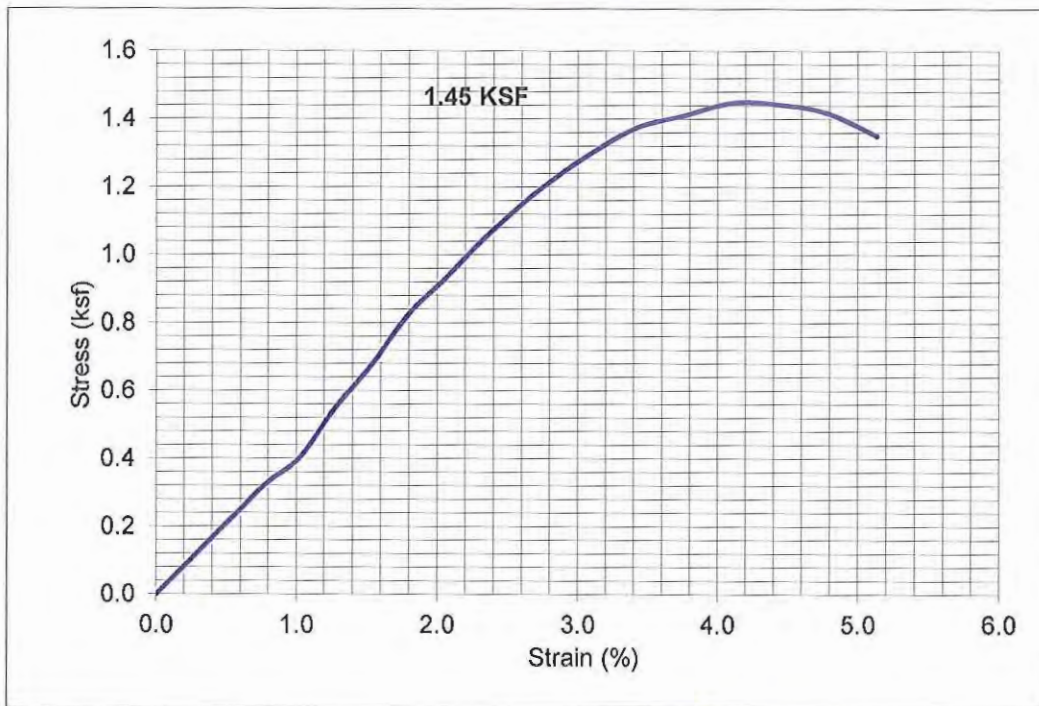
Wet Density : 129.6 pcf
 Dry Density : 108.1 pcf
 Moisture : 19.8 %

Initial Height : 5.85 in
 Initial Diameter : 2.86 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	4.8	0.04	0.3	0.11
3	9.6	0.04	0.5	0.21
4	14.4	0.04	0.8	0.32
5	18.3	0.05	1.0	0.41
6	25.0	0.05	1.3	0.55
7	30.8	0.05	1.5	0.68
8	37.5	0.05	1.8	0.83
9	42.3	0.05	2.1	0.93
10	49.1	0.05	2.4	1.07
11	54.8	0.05	2.7	1.20
12	59.6	0.05	3.1	1.30
13	63.5	0.05	3.4	1.37
14	65.4	0.05	3.8	1.41
15	67.3	0.05	4.1	1.45
16	67.3	0.05	4.4	1.44
17	66.4	0.05	4.8	1.42
18	63.5	0.05	5.1	1.35

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-559
Project County : Pulaski	Sample Depth : 24.7' to 25.2'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown, Tan & Black Sandy Lean Clay	
Wet Density : 129.6 pcf	Initial Height : 5.85 in
Dry Density : 108.1 pcf	Initial Diameter : 2.86 in
Moisture : 19.8 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-1

Sample Loc. : Boring No. B-562

Sample Depth : 10.0' to 10.5'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Gray, Orange & Tan Lean Clay

Wet Density : 128.2 pcf

Dry Density : 104.6 pcf

Moisture : 22.5 %

Initial Height : 5.90 in

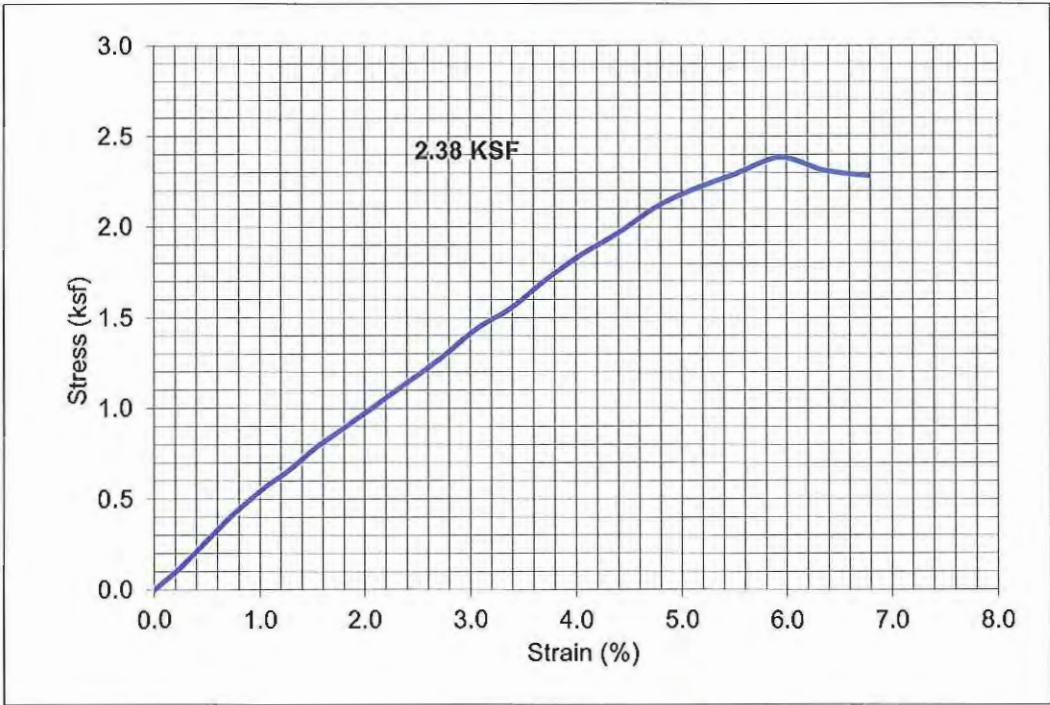
Initial Diameter : 2.87 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	5.8	0.04	0.3	0.13
3	12.5	0.05	0.5	0.28
4	19.2	0.05	0.8	0.43
5	25.0	0.05	1.0	0.55
6	29.8	0.05	1.3	0.66
7	35.6	0.05	1.5	0.78
8	40.4	0.05	1.8	0.89
9	45.2	0.05	2.0	0.99
10	51.9	0.05	2.4	1.13
11	58.7	0.05	2.7	1.27
12	66.4	0.05	3.1	1.44
13	72.1	0.05	3.4	1.56
14	79.8	0.05	3.7	1.72
15	86.6	0.05	4.1	1.85
16	92.3	0.05	4.4	1.97
17	99.1	0.05	4.7	2.11
18	103.9	0.05	5.1	2.20
19	108.7	0.05	5.5	2.29
20	113.5	0.05	5.9	2.38
21	110.6	0.05	6.4	2.31
22	109.7	0.05	6.8	2.28

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-1
Project # : 11206-04	Sample Loc. : Boring No. B-562
Project County : Pulaski	Sample Depth : 10.0' to 10.5'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Gray, Orange & Tan Lean Clay	
Wet Density : 128.2 pcf	Initial Height : 5.90 in
Dry Density : 104.6 pcf	Initial Diameter : 2.87 in
Moisture : 22.5 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *James Solo*



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-2
 Sample Loc. : Boring No. B-564
 Sample Depth : 30.1' to 30.6'
 Date Tested : 10/27/14
 Date Reported : 11/04/14

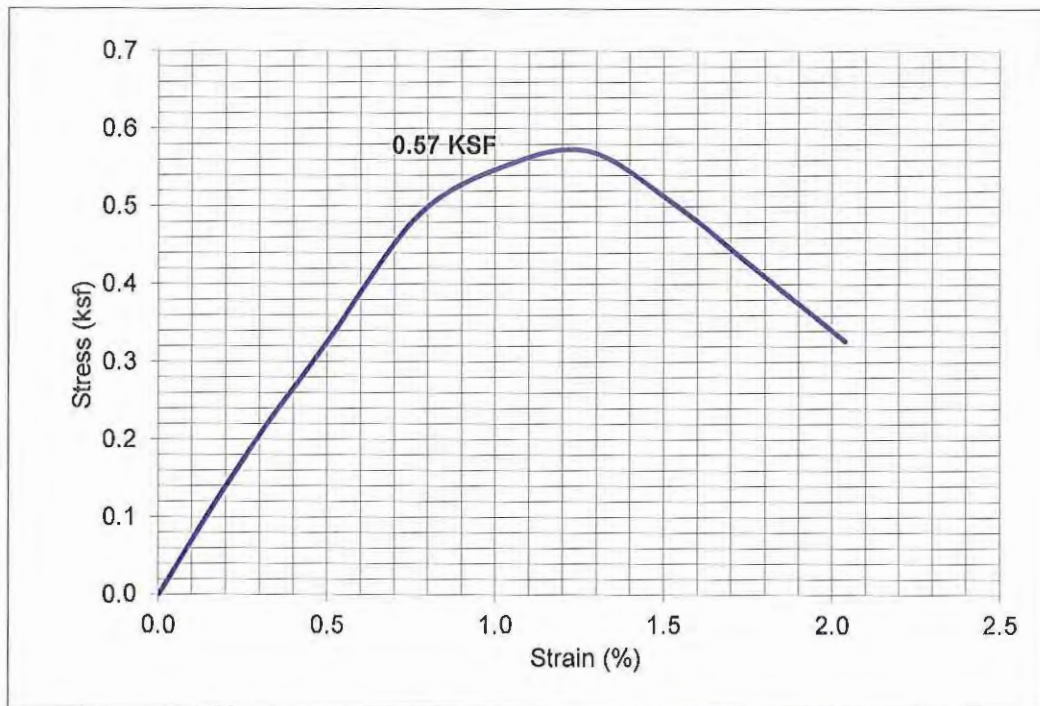
Soil Type : Brown Clayey Sand
 Wet Density : 129.1 pcf
 Dry Density : 106.2 pcf
 Moisture : 21.6 %

Initial Height : 5.88 in
 Initial Diameter : 2.81 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	7.7	0.04	0.3	0.18
3	14.4	0.04	0.5	0.33
4	21.2	0.04	0.8	0.49
5	24.0	0.04	1.0	0.55
6	25.0	0.04	1.3	0.57
7	22.1	0.04	1.5	0.50
8	18.3	0.04	1.8	0.42
9	14.4	0.04	2.0	0.33

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-564
Project County : Pulaski	Sample Depth : 30.1' to 30.6'
Project State : Arkansas	Date Tested : 10/27/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown Clayey Sand	
Wet Density : 129.1 pcf	Initial Height : 5.88 in
Dry Density : 106.2 pcf	Initial Diameter : 2.81 in
Moisture : 21.6 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-1
 Sample Loc. : Boring No. B-565
 Sample Depth : 20.4' to 20.9'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Gray, Tan & Brown Lean Clay

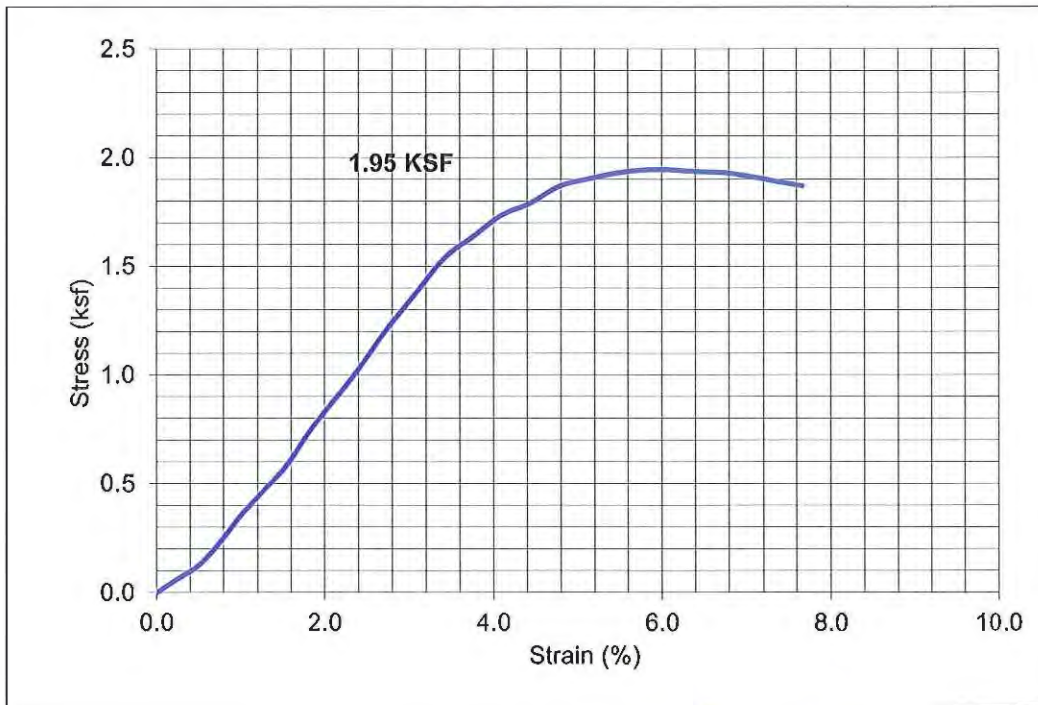
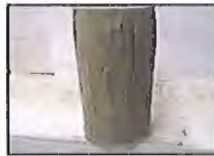
Wet Density : 132.9 pcf
 Dry Density : 111.1 pcf
 Moisture : 19.6 %

Initial Height : 5.87 in
 Initial Diameter : 2.85 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	2.9	0.04	0.3	0.07
3	5.8	0.04	0.5	0.13
4	10.6	0.04	0.8	0.24
5	16.4	0.04	1.0	0.37
6	21.2	0.04	1.3	0.47
7	26.0	0.04	1.5	0.58
8	32.7	0.04	1.8	0.73
9	38.5	0.05	2.0	0.85
10	46.2	0.05	2.4	1.02
11	54.8	0.05	2.7	1.21
12	62.5	0.05	3.1	1.37
13	70.2	0.05	3.4	1.54
14	75.0	0.05	3.7	1.64
15	79.8	0.05	4.1	1.73
16	82.7	0.05	4.4	1.79
17	86.6	0.05	4.8	1.87
18	88.5	0.05	5.1	1.90
19	90.4	0.05	5.5	1.93
20	91.4	0.05	6.0	1.95
21	91.4	0.05	6.4	1.94
22	91.4	0.05	6.8	1.93
23	90.4	0.05	7.2	1.90
24	89.5	0.05	7.7	1.87

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-1
Project # : 11206-04	Sample Loc. : Boring No. B-565
Project County : Pulaski	Sample Depth : 20.4' to 20.9'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Gray, Tan & Brown Lean Clay	
Wet Density : 132.9 pcf	Initial Height : 5.87 in
Dry Density : 111.1 pcf	Initial Diameter : 2.85 in
Moisture : 19.6 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *Amey Saha*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-2
 Sample Loc. : Boring No. B-565
 Sample Depth : 35.2' to 35.7'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Brown & Gray Silty Sand

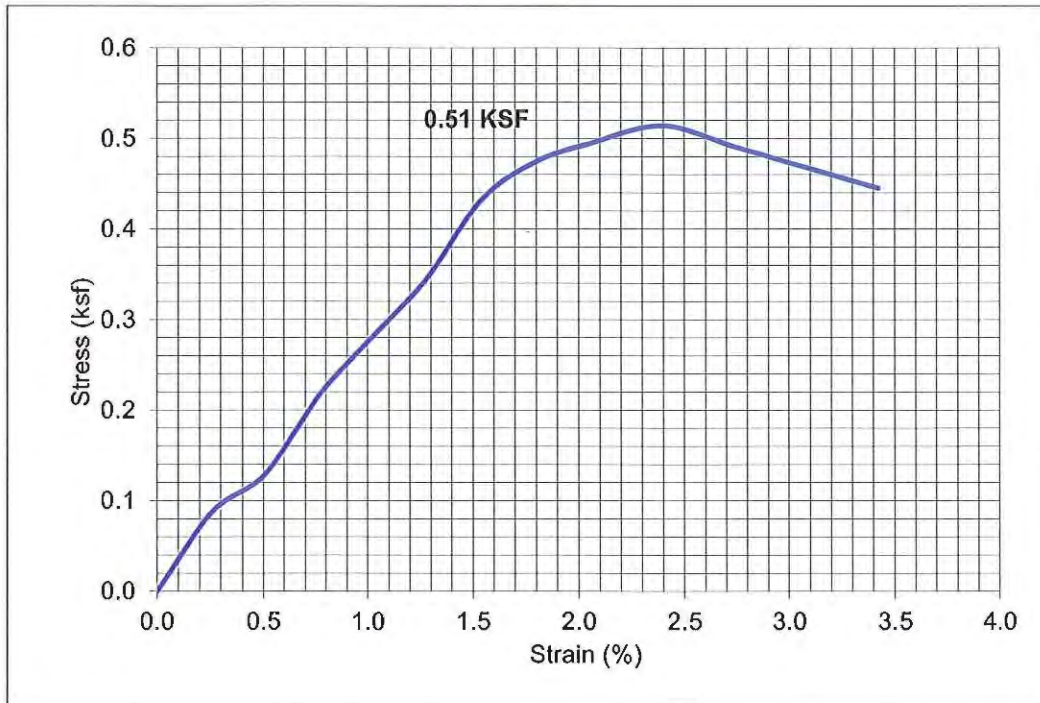
Wet Density : 125.4 pcf
 Dry Density : 103.6 pcf
 Moisture : 21.1 %

Initial Height : 5.84 in
 Initial Diameter : 2.83 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	3.8	0.04	0.3	0.09
3	5.8	0.04	0.5	0.13
4	9.6	0.04	0.8	0.22
5	12.5	0.04	1.0	0.28
6	15.4	0.04	1.3	0.35
7	19.2	0.04	1.5	0.43
8	21.2	0.04	1.8	0.47
9	22.1	0.04	2.1	0.49
10	23.1	0.04	2.4	0.51
11	22.1	0.05	2.7	0.49
12	21.2	0.05	3.1	0.47
13	20.2	0.05	3.4	0.45

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-565
Project County : Pulaski	Sample Depth : 35.2' to 35.7'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown & Gray Silty Sand	
Wet Density : 125.4 pcf	Initial Height : 5.84 in
Dry Density : 103.6 pcf	Initial Diameter : 2.83 in
Moisture : 21.1 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-501
 SAMPLE DEPTH : 4.5' to 5.0'
 DATE TESTED : 10/27/14
 DATE REPORTEE: 11/04/14

SOIL TYPE : Brown & Tan Silty Clay with Sand
 WET DENSITY : 133.21 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 15.13 cm
 DRY DENSITY : 111.02 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.19 cm
 MOISTURE : 19.99 % CHAMBER PRES. : 4.65 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	4.65	4.65	1.00
2	0.09	4.65	4.87	1.05
3	0.17	4.65	5.08	1.09
4	0.26	4.65	5.08	1.09
5	0.35	4.65	5.08	1.09
6	0.43	4.65	5.3	1.14
7	0.52	4.65	5.3	1.14
8	1.04	4.65	6.15	1.32
9	1.56	4.65	6.78	1.46
10	2.08	4.65	7.4	1.59
11	2.60	4.65	8.02	1.72
12	3.11	4.65	8.63	1.85
13	3.46	4.65	9.03	1.94
14	4.33	4.65	10.02	2.15
15	5.19	4.65	11	2.36
16	6.06	4.65	11.55	2.48
17	6.92	4.65	12.09	2.6
18	7.79	4.65	12.61	2.71
19	8.65	4.65	13.13	2.82
20	9.52	4.65	13.64	2.93
21	10.38	4.65	14.13	3.04
22	11.25	4.65	14.42	3.1
23	12.11	4.65	14.87	3.2
24	12.98	4.65	15.32	3.29
25	13.84	4.65	15.39	3.31
26	14.71	4.65	15.82	3.4
27	15.57	4.65	16.06	3.45
28	16.44	4.65	16.3	3.5
29	17.30	4.65	16.52	3.55
30	18.17	4.65	16.57	3.56
31	19.04	4.65	16.95	3.64
32	19.90	4.65	16.99	3.65

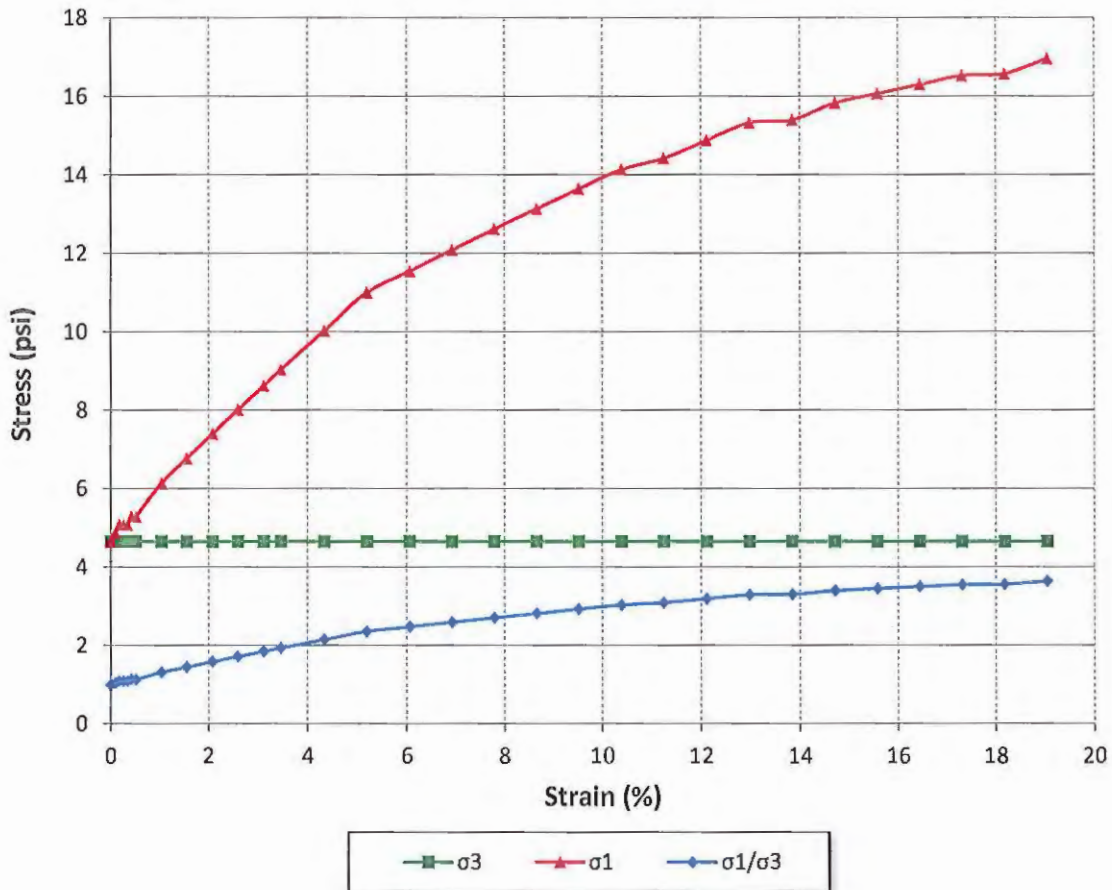
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-501
 SAMPLE DEPTH : 4.5' to 5.0'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 19.99 %
 FINAL HEIGHT : 11.76 cm
 FINAL DIAMETER : 8 cm

EFF. CONS. STRESS: 4.65 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

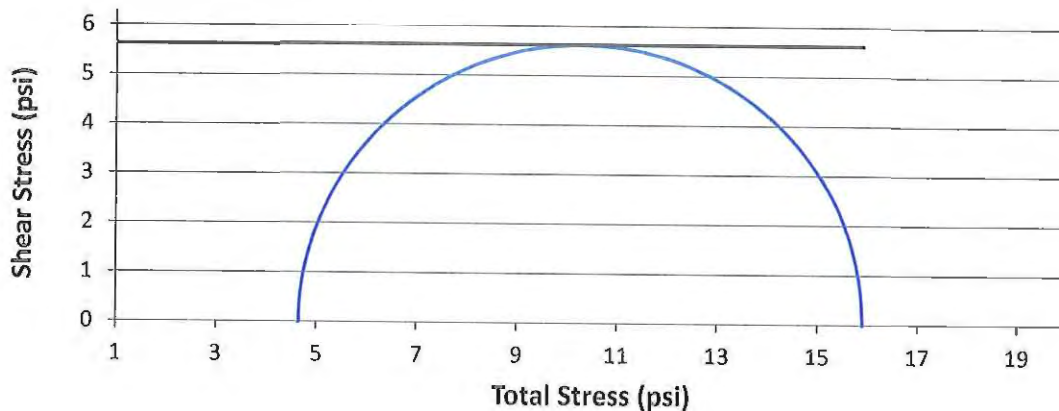
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-501
 SAMPLE DEPTH : 4.5' to 5.0'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	1620 psf
1	4.65 psi	15.9 psi	Cohesion =	810 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

Triaxial Mohr's Circles
Unconsolidated Undrained Triaxial Test



Approved By: *[Signature]*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-502
 SAMPLE DEPTH : 19.9' to 20.4'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Gray & Tan Lean Clay with Sand
 WET DENSITY : 132.79 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.91 cm
 DRY DENSITY : 111.69 pcf DELTA VOLUME : NA INITIAL DIAMETER : 7.27 cm
 MOISTURE : 18.9 % CHAMBER PRES. : 14.32 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	14.32	14.32	1.00
2	0.09	14.32	18.32	1.28
3	0.18	14.32	21.05	1.47
4	0.26	14.32	23.36	1.63
5	0.35	14.32	25.44	1.78
6	0.44	14.32	27.26	1.9
7	0.53	14.32	28.88	2.02
8	1.05	14.32	37.89	2.65
9	1.58	14.32	44.81	3.13
10	2.11	14.32	49.29	3.44
11	2.64	14.32	51.87	3.62
12	3.16	14.32	54.21	3.79
13	3.51	14.32	55.56	3.88
14	4.39	14.32	58.05	4.05
15	5.27	14.32	59.35	4.15
16	6.15	14.32	60.11	4.2
17	7.03	14.32	60.65	4.24
18	7.91	14.32	61.1	4.27
19	8.79	14.32	61.19	4.27
20	9.66	14.32	61.08	4.27
21	10.54	14.32	60.8	4.25
22	11.42	14.32	60.34	4.22
23	12.30	14.32	59.89	4.18
24	13.18	14.32	59.43	4.15
25	14.06	14.32	58.48	4.08
26	14.94	14.32	58.03	4.05
27	15.81	14.32	57.57	4.02
28	16.69	14.32	56.96	3.98

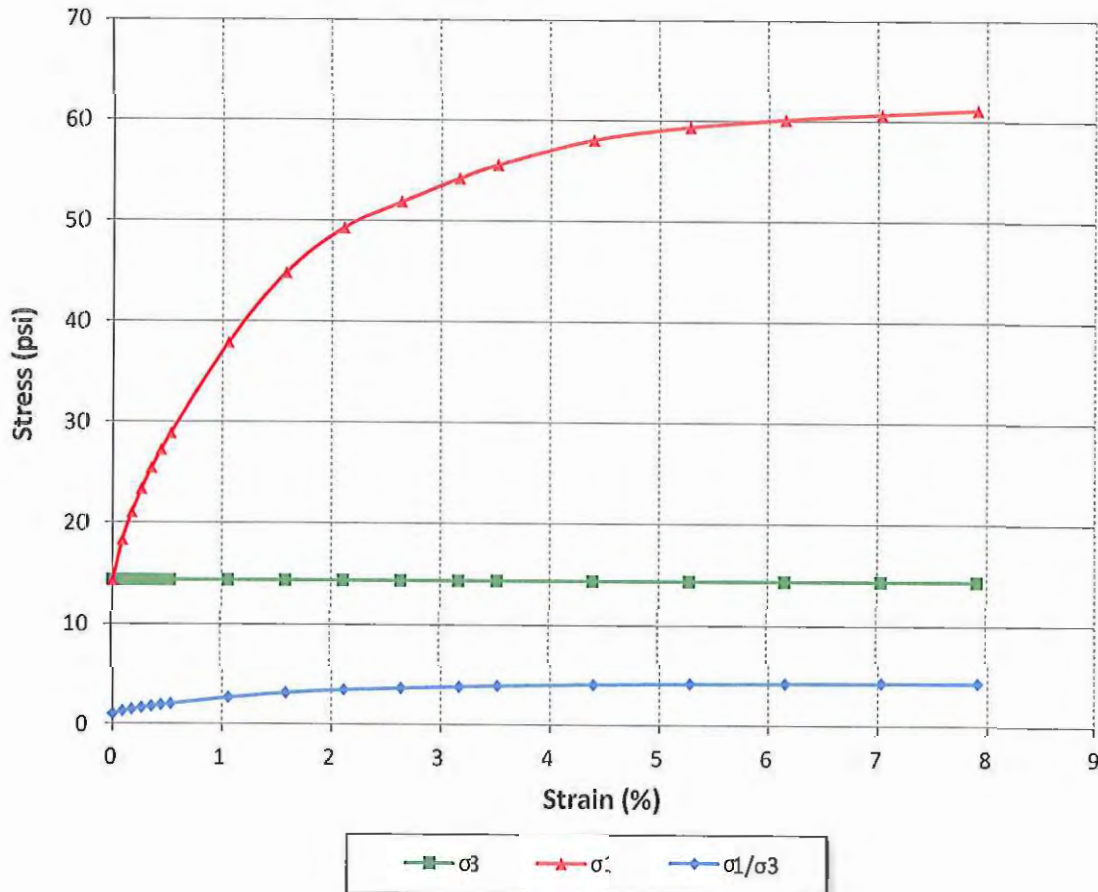
PROJECT NAME : Highway 67 Widening
PROJECT # : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY # : 11206-04
SUBMITTED BY : ICA Engineering

POINT # : 1
SAMPLE LOC. : B-502
SAMPLE DEPTH : 19.9' to 20.4'
DATE TESTED : 10/24/14
DATE REPORTED: 11/04/14

FINAL MOISTUR : 18.9 %
FINAL HEIGHT : 11.53 cm
FINAL DIAMETE : 8.11 cm

EFF. CONS. STRESS: 14.32 psi
SPECIFIC GRAVITY: NA
COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

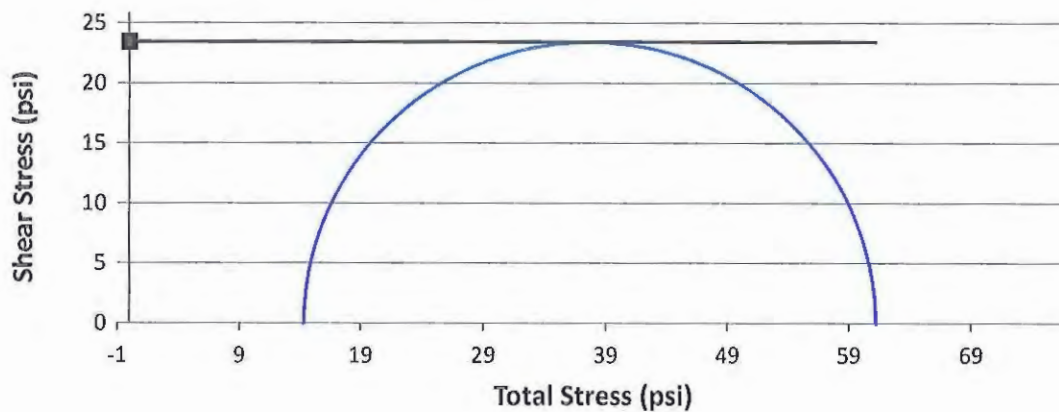
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-502
 SAMPLE DEPTH : 19.9' to 20.4'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	6749 psf
1	14.32 psi	61.19 psi	Cohesion =	3375 psf
			Phi =	0 deg
			Tan (Phi) =	0

Maximum Deviator Stress

Triaxial Mohr's Circles
 Unconsolidated Undrained Triaxial Test



Approved By: 



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-503
 SAMPLE DEPTH : 14.3' to 14.8'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Brown & Tan Silty Clay
 WET DENSITY : 127.25 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.96 cm
 DRY DENSITY : 102.99 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.24 cm
 MOISTURE : 23.55 % CHAMBER PRES. : 11.03 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	11.03	11.03	1.00
2	0.09	11.03	12.73	1.15
3	0.18	11.03	13.37	1.21
4	0.26	11.03	14.43	1.31
5	0.35	11.03	14.85	1.35
6	0.44	11.03	15.27	1.38
7	0.53	11.03	16.11	1.46
8	1.05	11.03	18.62	1.69
9	1.58	11.03	21.09	1.91
10	2.10	11.03	22.87	2.07
11	2.63	11.03	24.22	2.2
12	3.15	11.03	25.15	2.28
13	3.50	11.03	25.7	2.33
14	4.38	11.03	26.75	2.43
15	5.25	11.03	27.59	2.5
16	6.13	11.03	28.21	2.56
17	7.00	11.03	28.63	2.6
18	7.88	11.03	28.65	2.6
19	8.75	11.03	29.24	2.65
20	9.63	11.03	29.44	2.67
21	10.50	11.03	29.63	2.69
22	11.38	11.03	29.63	2.69
23	12.25	11.03	30.03	2.72
24	13.13	11.03	30.22	2.74
25	14.00	11.03	30.21	2.74
26	14.88	11.03	30.2	2.74
27	15.75	11.03	30.37	2.75
28	16.63	11.03	30.54	2.77
29	17.50	11.03	30.51	2.77
30	18.38	11.03	30.49	2.76
31	19.26	11.03	30.63	2.78
32	20.13	11.03	30.59	2.77

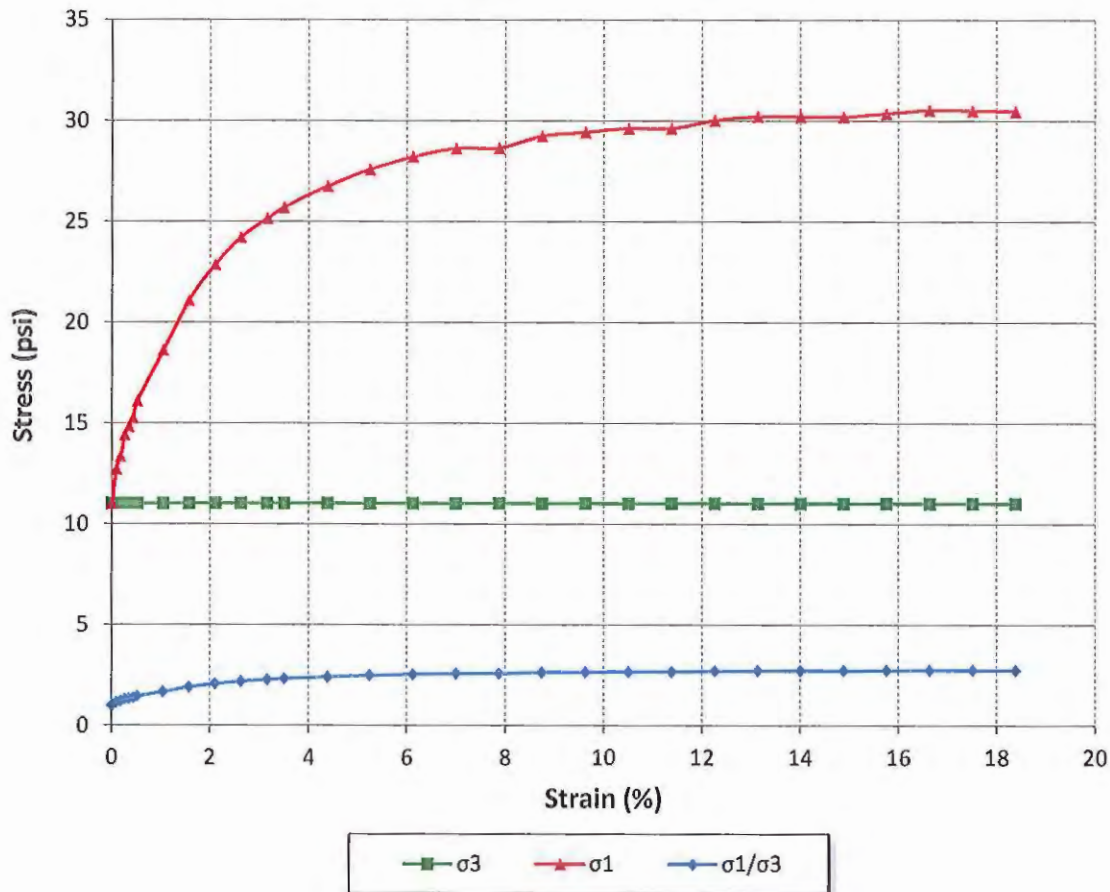
PROJECT NAME : Highway 67 Widening
PROJECT # : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY # : 11206-04
SUBMITTED BY : ICA Engineering

POINT # : 1
SAMPLE LOC. : B-503
SAMPLE DEPTH : 14.3' to 14.8'
DATE TESTED : 10/27/14
DATE REPORTED: 11/04/14

FINAL MOISTURE : 23.55 %
FINAL HEIGHT : 11.59 cm
FINAL DIAMETER : 8.07 cm

EFF. CONS. STRESS: 11.03 psi
SPECIFIC GRAVITY: NA
COMMENTS : AASHTO T-296

RESULTS:



TRIAXIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

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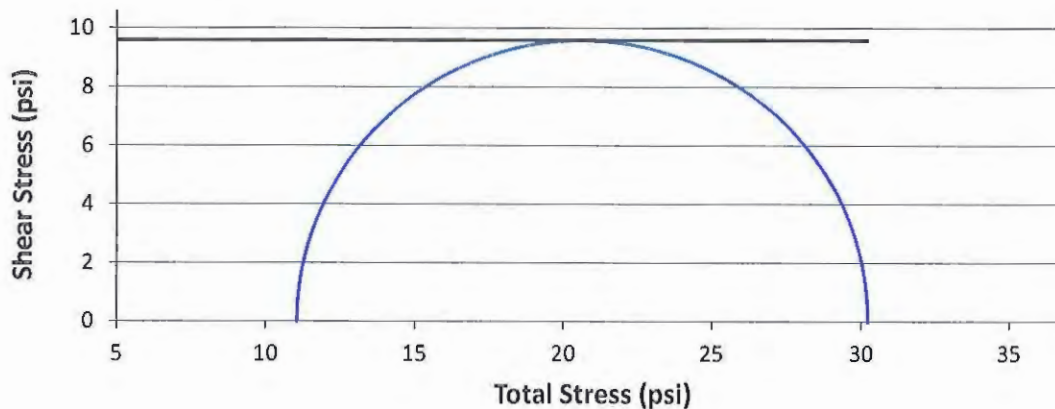
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-503
 SAMPLE DEPTH : 14.3' to 14.8'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	2764 psf
1	11.03 psi	30.23 psi	Cohesion =	1382 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

Triaxial Mohr's Circles
 Unconsolidated Undrained Triaxial Test



Approved By: *[Signature]*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-505
 SAMPLE DEPTH : 14.5' to 15.0'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Brown & Tan Silty Clay
 WET DENSITY : 119.71 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.84 cm
 DRY DENSITY : 93.74 pcf DELTA VOLUME : NA INITIAL DIAMETER : 7.32 cm
 MOISTURE : 27.7 % CHAMBER PRES. : 10.33 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	10.33	10.33	1.00
2	0.09	10.33	12.2	1.18
3	0.18	10.33	13.44	1.3
4	0.26	10.33	14.48	1.4
5	0.35	10.33	15.51	1.5
6	0.44	10.33	16.33	1.58
7	0.53	10.33	17.36	1.68
8	1.06	10.33	21.61	2.09
9	1.59	10.33	25.13	2.43
10	2.12	10.33	27.82	2.69
11	2.65	10.33	30.49	2.95
12	3.18	10.33	33.07	3.2
13	3.53	10.33	34.22	3.31
14	4.41	10.33	36.66	3.55
15	5.30	10.33	38.04	3.68
16	6.18	10.33	38.78	3.75
17	7.06	10.33	39.31	3.8
18	7.95	10.33	39.68	3.84
19	8.83	10.33	39.72	3.84
20	9.71	10.33	39.59	3.83
21	10.59	10.33	39.46	3.82
22	11.48	10.33	39.33	3.81
23	12.36	10.33	39.35	3.81
24	13.24	10.33	39.21	3.79
25	14.13	10.33	39.06	3.78
26	15.01	10.33	38.92	3.77
27	15.89	10.33	38.77	3.75
28	16.77	10.33	38.61	3.74
29	17.66	10.33	38.46	3.72
30	18.54	10.33	38.44	3.72
31	19.42	10.33	38.42	3.72
32	20.31	10.33	38.11	3.69

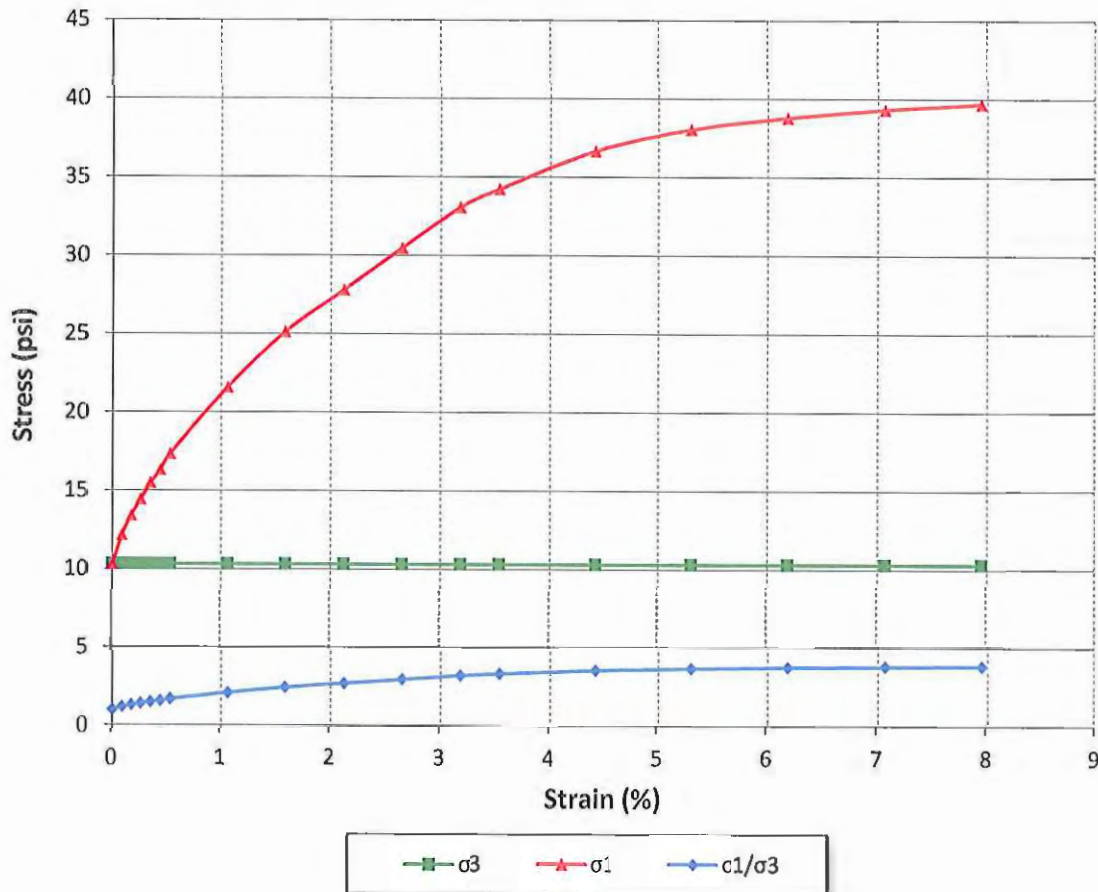
PROJECT NAME : Highway 67 Widening
PROJECT # : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY # : 11206-04
SUBMITTED BY : ICA Engineering

POINT # : 1
SAMPLE LOC. : B-505
SAMPLE DEPTH : 14.5' to 15.0'
DATE TESTED : 10/27/14
DATE REPORTED: 11/04/14

FINAL MOISTUR : 27.7 %
FINAL HEIGHT : 11.46 cm
FINAL DIAMETE : 8.17 cm

EFF. CONS. STRESS: 10.33 psi
SPECIFIC GRAVITY: NA
COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
PROJECT # : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY # : 11206-04
SUBMITTED BY : ICA Engineering

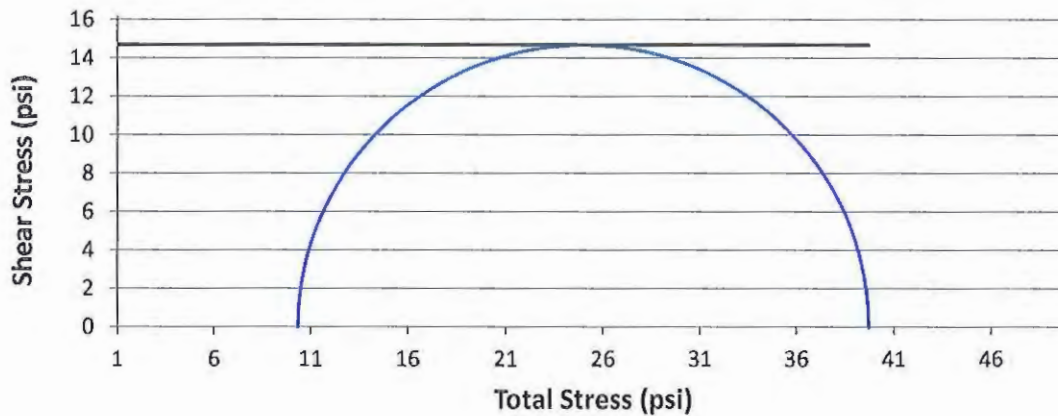
COMMENTS : AASHTO T-296
SAMPLE LOC. : B-505
SAMPLE DEPTH : 14.5' to 15.0'
DATE TESTED : 10/27/14
DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	4232 psf
1	10.33 psi	39.72 psi	Cohesion =	2116 psf
			Phi =	0 deg
			Tan (Phi) =	0

Maximum Deviator Stress

Triaxial Mohr's Circles
Unconsolidated Undrained Triaxial Test



Approved By: *Amy Sabin*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-556
 SAMPLE DEPTH : 29.8' to 30.3'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Orange & Gray Lean Clay with Sand
 WET DENSITY : 132.25 pcf
 DRY DENSITY : 107.23 pcf
 MOISTURE : 23.33 %

DELTA HEIGHT : 0.45 cm
 DELTA VOLUME : NA
 CHAMBER PRES. : 19 psi
 INITIAL HEIGHT : 14.96 cm
 INITIAL DIAMETER : 7.18 cm
 COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	19.00	19.00	1.00
2	0.09	19	19.43	1.02
3	0.18	19	19.65	1.03
4	0.26	19	19.86	1.05
5	0.35	19	19.86	1.05
6	0.44	19	20.07	1.06
7	0.53	19	20.29	1.07
8	1.05	19	21.14	1.11
9	1.58	19	21.76	1.15
10	2.10	19	22.6	1.19
11	2.63	19	23	1.21
12	3.15	19	23.6	1.24
13	3.50	19	24	1.26
14	4.38	19	24.58	1.29
15	5.25	19	25.35	1.33
16	6.13	19	25.69	1.35
17	7.00	19	26.03	1.37
18	7.88	19	26.17	1.38
19	8.75	19	26.69	1.4
20	9.63	19	26.81	1.41
21	10.50	19	27.12	1.43
22	11.38	19	27.24	1.43
23	12.25	19	27.34	1.44
24	13.13	19	27.64	1.45
25	14.00	19	27.73	1.46
26	14.88	19	27.83	1.46
27	15.75	19	27.92	1.47
28	16.63	19	28.01	1.47
29	17.50	19	28.09	1.48
30	18.38	19	27.99	1.47
31	19.25	19	28.06	1.48
32	20.13	19	28.13	1.48

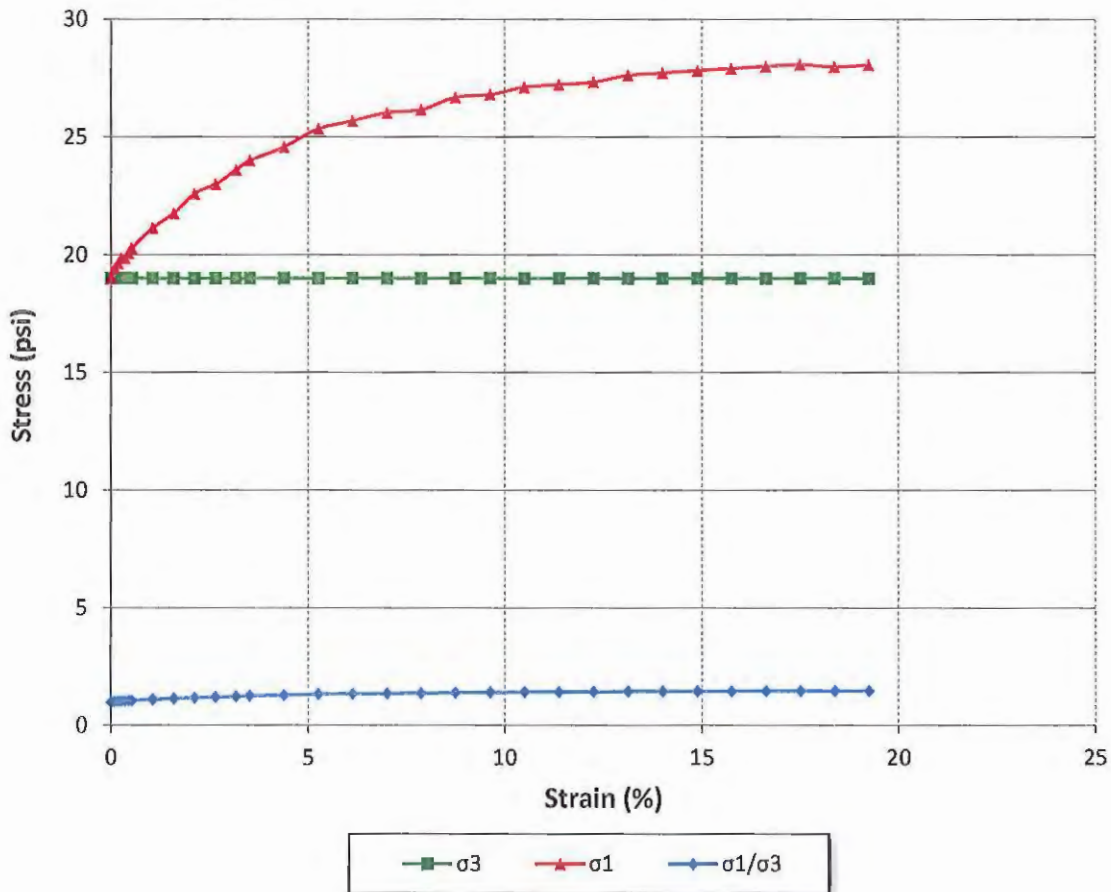
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-556
 SAMPLE DEPTH : 29.8' to 30.3'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 23.33 %
 FINAL HEIGHT : 11.59 cm
 FINAL DIAMETER : 8.01 cm

EFF. CONS. STRESS: 19 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

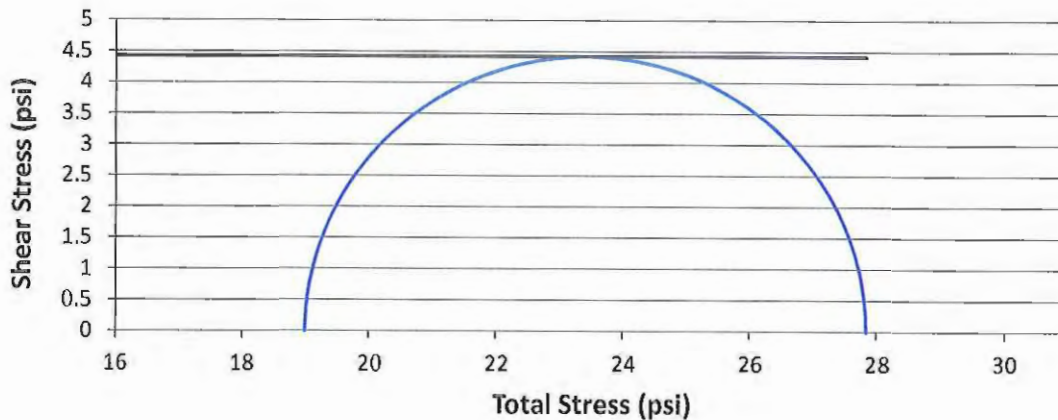
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-556
 SAMPLE DEPTH : 29.8' to 30.3'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	1274 psf
1	19 psi	27.84 psi	Cohesion =	637 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

Triaxial Mohr's Circles
Unconsolidated Undrained Triaxial Test



Approved By: *Amy Sola*



Unconsolidated Undrained
TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-557
 SAMPLE DEPTH : 15.2' to 15.7'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Brown & Gray Silt
 WET DENSITY : 130.93 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.86 cm
 DRY DENSITY : 109.59 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.28 cm
 MOISTURE : 19.47 % CHAMBER PRES. : 11.83 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	11.83	11.83	1.00
2	0.09	11.83	13.3	1.12
3	0.18	11.83	14.98	1.27
4	0.26	11.83	16.44	1.39
5	0.35	11.83	17.49	1.48
6	0.44	11.83	18.32	1.55
7	0.53	11.83	19.36	1.64
8	1.06	11.83	24.86	2.1
9	1.59	11.83	30.22	2.56
10	2.12	11.83	35.09	2.97
11	2.64	11.83	39.17	3.31
12	3.17	11.83	43.06	3.64
13	3.53	11.83	45	3.81
14	4.41	11.83	49.28	4.17
15	5.29	11.83	53.84	4.55
16	6.17	11.83	56.61	4.79
17	7.05	11.83	58.57	4.95
18	7.93	11.83	59.54	5.03
19	8.81	11.83	59.96	5.07
20	9.69	11.83	60.19	5.09
21	10.58	11.83	60.23	5.09
22	11.46	11.83	59.76	5.05
23	12.34	11.83	59.79	5.06
24	13.22	11.83	59.64	5.04
25	14.10	11.83	59.48	5.03
26	14.98	11.83	59.32	5.02
27	15.86	11.83	59.48	5.03
28	16.74	11.83	59.3	5.01
29	17.63	11.83	58.95	4.99
30	18.51	11.83	58.6	4.96
31	19.39	11.83	58.72	4.97
32	20.27	11.83	58.51	4.95

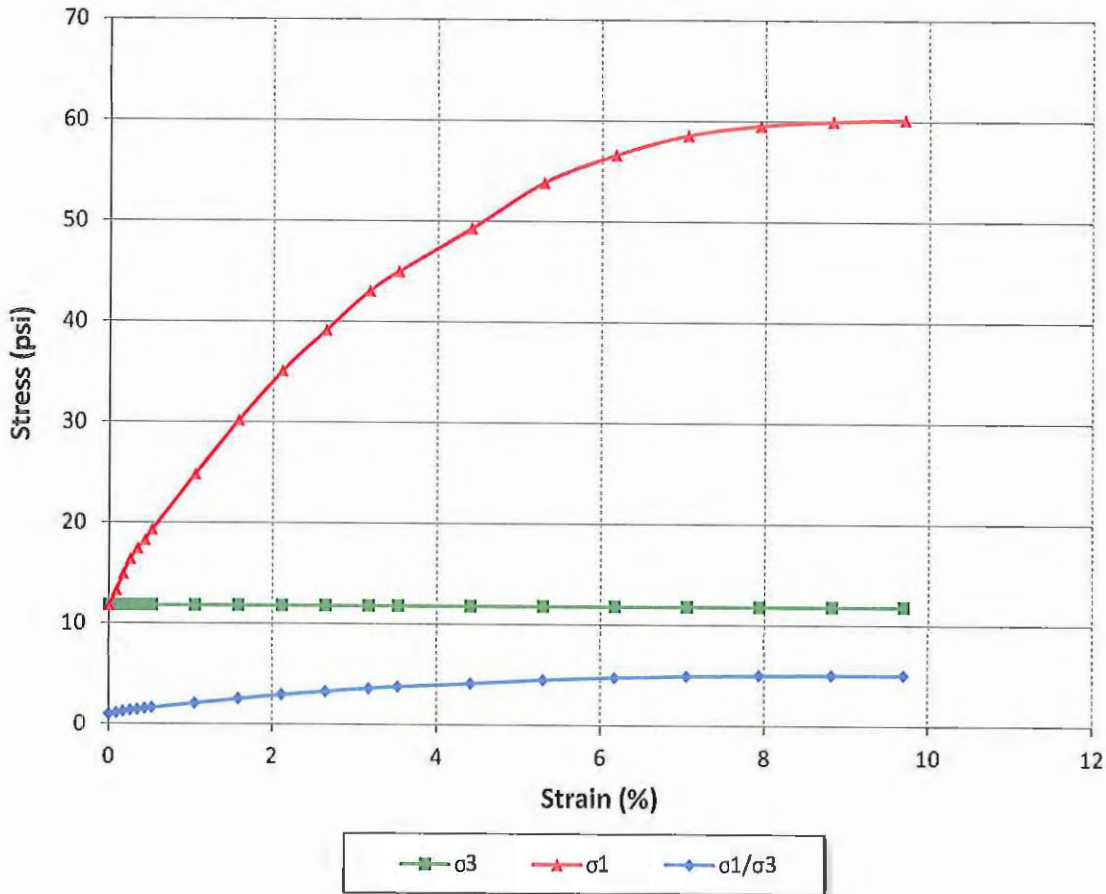
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-557
 SAMPLE DEPTH : 15.2' to 15.7'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 19.47 %
 FINAL HEIGHT : 11.49 cm
 FINAL DIAMETER : 8.12 cm

EFF. CONS. STRESS: 11.83 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

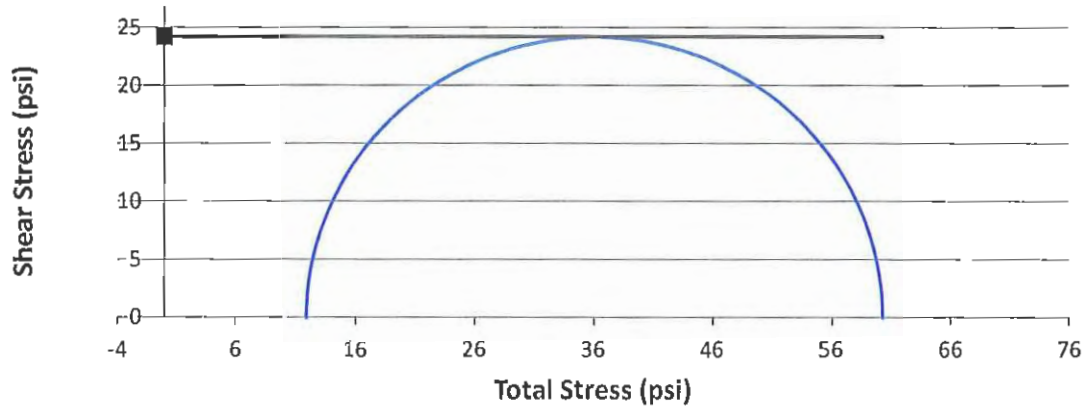
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-557
 SAMPLE DEPTH : 15.2' to 15.7'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14


COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	6971 psf
1	11.83 psi	60.23 psi	Cohesion =	3485 psf
			Phi =	0 deg
			Tan (Phi) =	0

Maximum Deviator Stress

Triaxial Mohr's Circles
 Unconsolidated Undrained Triaxial Test



Approved By: 



Unconsolidated Undrained
TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-558
 SAMPLE DEPTH : 16.4' to 16.9'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Brown & Tan Lean Clay with Sand
 WET DENSITY : 131.55 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 15.06 cm
 DRY DENSITY : 110.3 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.29 cm
 MOISTURE : 19.27 % CHAMBER PRES. : 8.14 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	8.14	8.14	1.00
2	0.09	8.14	8.98	1.1
3	0.17	8.14	11.07	1.36
4	0.26	8.14	12.54	1.54
5	0.35	8.14	13.58	1.67
6	0.43	8.14	14.41	1.77
7	0.52	8.14	15.45	1.9
8	1.04	8.14	20.95	2.57
9	1.57	8.14	26.9	3.31
10	2.09	8.14	30.73	3.78
11	2.61	8.14	32.92	4.04
12	3.13	8.14	34.04	4.18
13	3.48	8.14	34.79	4.27
14	4.35	8.14	35.99	4.42
15	5.22	8.14	37.17	4.57
16	6.09	8.14	38.38	4.72
17	6.96	8.14	38.92	4.78
18	7.83	8.14	39.61	4.87
19	8.70	8.14	40.29	4.95
20	9.57	8.14	40.62	4.99
21	10.44	8.14	41.1	5.05
22	11.30	8.14	41.25	5.07
23	12.17	8.14	41.39	5.09
24	13.04	8.14	41.68	5.12
25	13.91	8.14	41.8	5.14
26	14.78	8.14	42.06	5.17
27	15.65	8.14	42.33	5.2
28	16.52	8.14	42.62	5.24
29	17.39	8.14	42.57	5.23
30	18.26	8.14	42.84	5.26
31	19.13	8.14	43.01	5.28
32	20.00	8.14	43.02	5.29

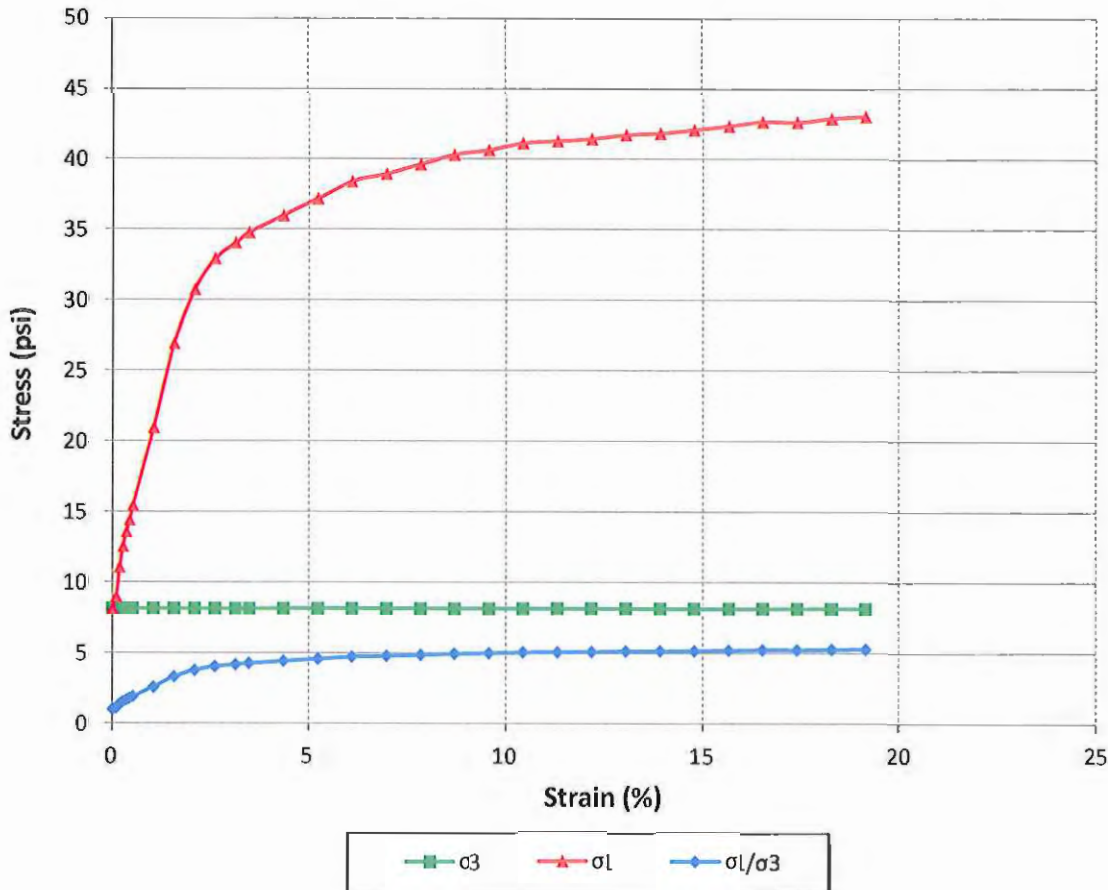
PROJECT NAME : Highway 67 Widening
PROJECT # : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY # : 11206-04
SUBMITTED BY : ICA Engineering

POINT # : 1
SAMPLE LOC. : B-558
SAMPLE DEPTH : 16.4' to 16.9'
DATE TESTED : 10/27/14
DATE REPORTED: 11/04/14

FINAL MOISTURE : 19.27 %
FINAL HEIGHT : 11.68 cm
FINAL DIAMETER : 8.12 cm

EFF. CONS. STRESS: 8.14 psi
SPECIFIC GRAVITY: NA
COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

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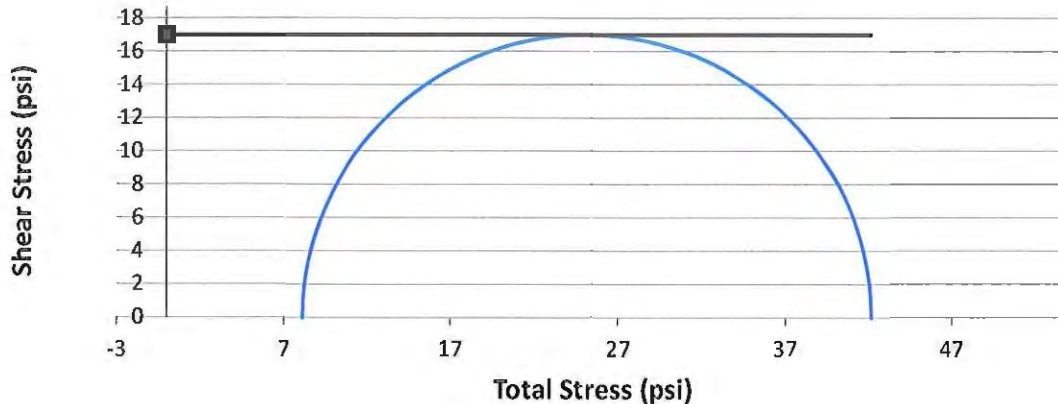
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-558
 SAMPLE DEPTH : 16.4' to 16.9'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	4895 psf
1	8.14 psi	42.13 psi	Cohesion =	2447 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

Triaxial Mohr's Circles
Unconsolidated Undrained Triaxial Test



Approved By: *[Signature]*



TRIAXIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-559
 SAMPLE DEPTH : 15.7' to 16.2'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Tan, Brown & Gray Lean Clay with Sand

WET DENSITY : 133.17 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.87 cm
 DRY DENSITY : 112.48 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.28 cm
 MOISTURE : 18.39 % CHAMBER PRES. : 8.04 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	8.04	8.04	1.00
2	0.09	8.04	9.3	1.16
3	0.18	8.04	10.56	1.31
4	0.26	8.04	11.61	1.44
5	0.35	8.04	12.65	1.57
6	0.44	8.04	13.48	1.68
7	0.53	8.04	14.31	1.78
8	1.06	8.04	19.45	2.42
9	1.59	8.04	24.01	2.99
10	2.11	8.04	27.33	3.4
11	2.64	8.04	29.06	3.61
12	3.17	8.04	30.41	3.78
13	3.52	8.04	31.37	3.9
14	4.41	8.04	33.02	4.11
15	5.29	8.04	34.22	4.26
16	6.17	8.04	35.4	4.4
17	7.05	8.04	35.95	4.47
18	7.93	8.04	36.48	4.54
19	8.81	8.04	36.8	4.58
20	9.69	8.04	37	4.6
21	10.57	8.04	37.04	4.61
22	11.45	8.04	37.22	4.63
23	12.34	8.04	37.09	4.61
24	13.22	8.04	37.26	4.63
25	14.10	8.04	37.26	4.63
26	14.98	8.04	37.27	4.63
27	15.86	8.04	37.11	4.62
28	16.74	8.04	37.25	4.63
29	17.62	8.04	37.23	4.63
30	18.50	8.04	37.21	4.63
31	19.39	8.04	37.04	4.61
32	20.27	8.04	36.72	4.57

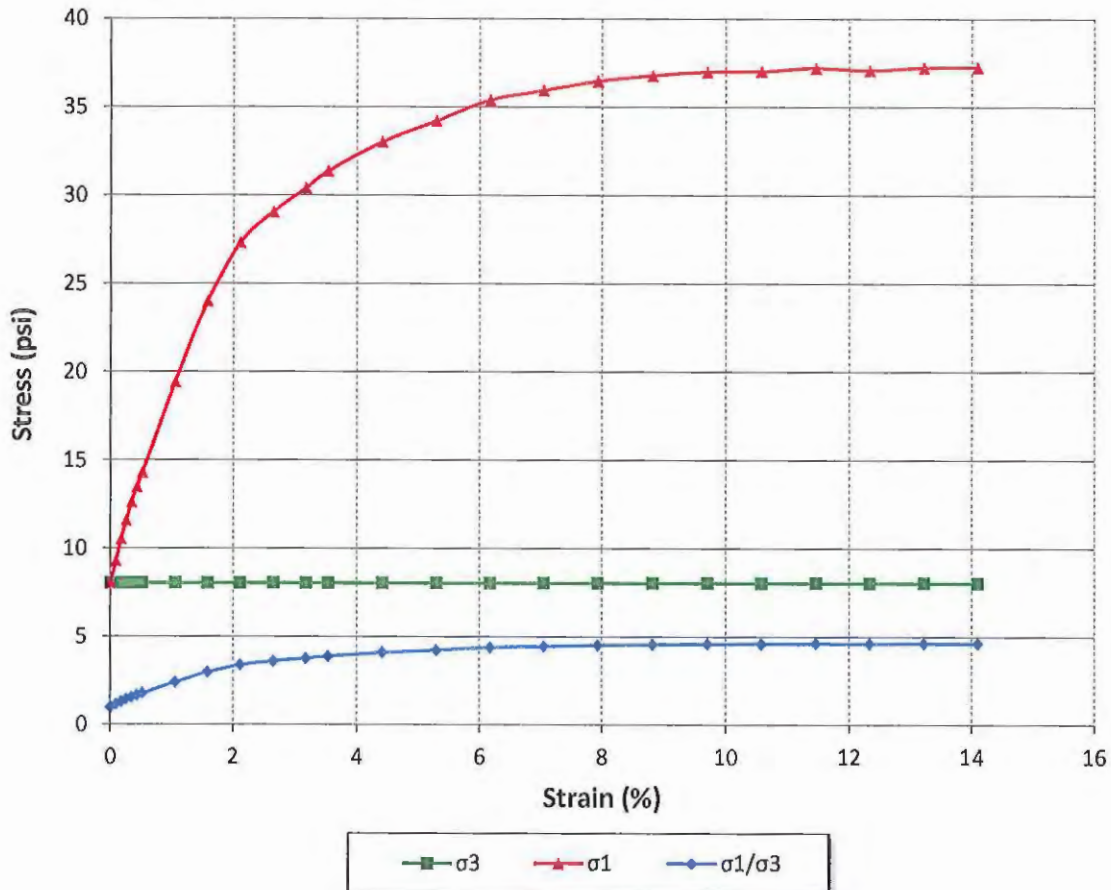
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-559
 SAMPLE DEPTH : 15.7' to 16.2'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 18.39 %
 FINAL HEIGHT : 11.49 cm
 FINAL DIAMETER : 8.12 cm

EFF. CONS. STRESS: 8.04 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



TRIAXIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-559
 SAMPLE DEPTH : 15.7' to 16.2'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

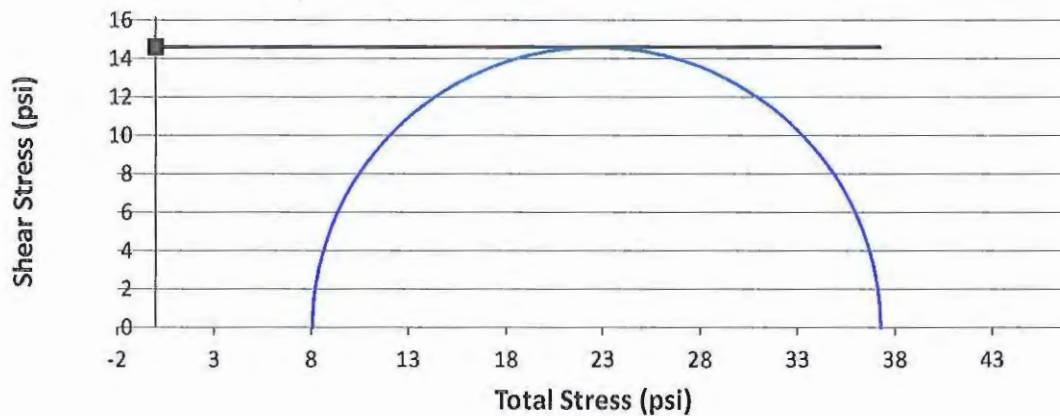
COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	4208 psf
1	8.04 psi	37.27 psi	Cohesion =	2104 psf
			Phi =	0 deg
			Tan (Phi) =	0

Maximum Deviator Stress

Triaxial Mohr's Circles

Unconsolidated Undrained Triaxial Test



Approved By: *Amy Sdr*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 4.4' to 4.9'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Gray & Orange Silt
 WET DENSITY : 129.7 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.92 cm
 DRY DENSITY : 107.61 pcf DELTA VOLUME : NA INITIAL DIAMETER : 7.22 cm
 MOISTURE : 20.53 % CHAMBER PRES. : 4.45 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	4.45	4.45	1.00
2	0.09	4.45	5.73	1.29
3	0.18	4.45	6.37	1.43
4	0.26	4.45	7.01	1.57
5	0.35	4.45	7.65	1.72
6	0.44	4.45	8.07	1.81
7	0.53	4.45	8.7	1.95
8	1.05	4.45	12.06	2.71
9	1.58	4.45	14.55	3.27
10	2.11	4.45	16.33	3.67
11	2.63	4.45	17.48	3.93
12	3.16	4.45	18.22	4.09
13	3.51	4.45	18.77	4.21
14	4.39	4.45	19.03	4.27
15	5.27	4.45	19.69	4.42
16	6.14	4.45	19.93	4.48
17	7.02	4.45	19.98	4.49
18	7.90	4.45	20.03	4.5
19	8.78	4.45	20.64	4.63
20	9.66	4.45	20.67	4.64
21	10.53	4.45	20.88	4.69
22	11.41	4.45	21.09	4.73
23	12.29	4.45	21.47	4.82
24	13.17	4.45	21.84	4.9
25	14.04	4.45	22.2	4.98
26	14.92	4.45	22.74	5.11
27	15.80	4.45	23.11	5.19
28	16.68	4.45	23.47	5.27
29	17.56	4.45	23.63	5.31
30	18.43	4.45	24.14	5.42
31	19.31	4.45	24.64	5.53
32	20.19	4.45	24.59	5.52

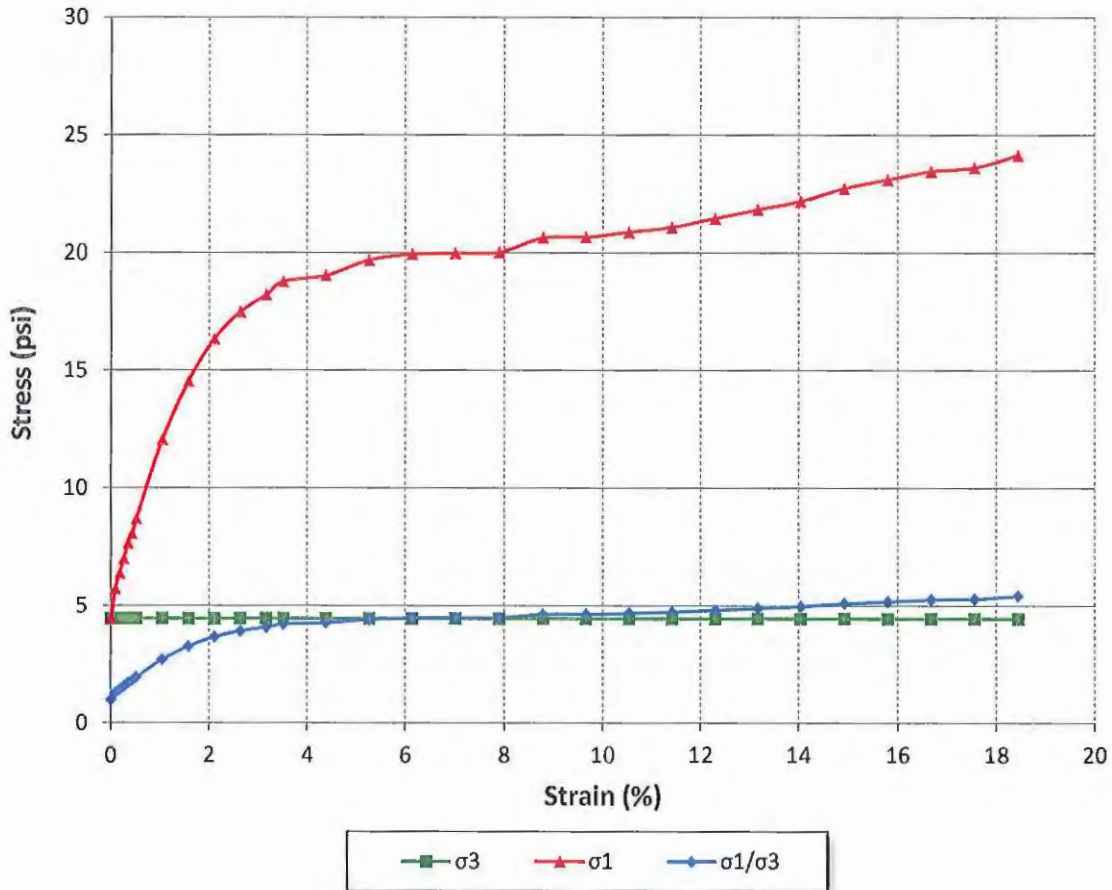
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 4.4' to 4.9'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTUR : 20.53 %
 FINAL HEIGHT : 11.55 cm
 FINAL DIAMETE : 8.06 cm

EFF. CONS. STRESS: 4.45 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 4.4' to 4.9'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

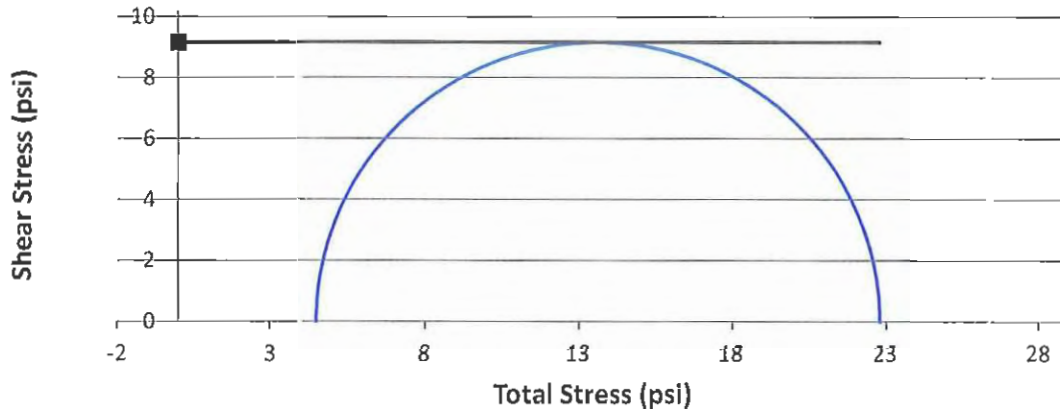
COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	2639 psf
1	4.45 psi	22.78 psi	Cohesion =	1319 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

Triaxial Mohr's Circles

Unconsolidated Undrained Triaxial Test



Approved By: _____





Unconsolidated Undrained
TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 24.1' to 24.6'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Brown Sandy Silt
 WET DENSITY : 138.12 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.61 cm
 DRY DENSITY : 115.98 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.17 cm
 MOISTURE : 19.09 % CHAMBER PRES. : 12.92 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	12.92	12.92	1.00
2	0.09	12.92	13.57	1.05
3	0.18	12.92	13.79	1.07
4	0.27	12.92	14	1.08
5	0.36	12.92	14.43	1.12
6	0.45	12.92	14.65	1.13
7	0.54	12.92	14.86	1.15
8	1.08	12.92	16.35	1.27
9	1.61	12.92	17.82	1.38
10	2.15	12.92	19.07	1.48
11	2.69	12.92	20.3	1.57
12	3.23	12.92	21.52	1.67
13	3.59	12.92	22.11	1.71
14	4.48	12.92	23.47	1.82
15	5.38	12.92	24.56	1.9
16	6.28	12.92	25.44	1.97
17	7.17	12.92	26.3	2.04
18	8.07	12.92	27.14	2.1
19	8.97	12.92	27.38	2.12
20	9.87	12.92	27.81	2.15
21	10.76	12.92	28.41	2.2
22	11.66	12.92	28.81	2.23
23	12.56	12.92	29.2	2.26
24	13.45	12.92	29.58	2.29
25	14.35	12.92	29.77	2.3
26	15.25	12.92	30.13	2.33
27	16.14	12.92	30.12	2.33
28	17.04	12.92	30.29	2.34
29	17.94	12.92	30.45	2.36
30	18.83	12.92	30.44	2.36
31	19.73	12.92	30.6	2.37
32	20.63	12.92	30.76	2.38

TRIAxIAL COMPRESSION TEST

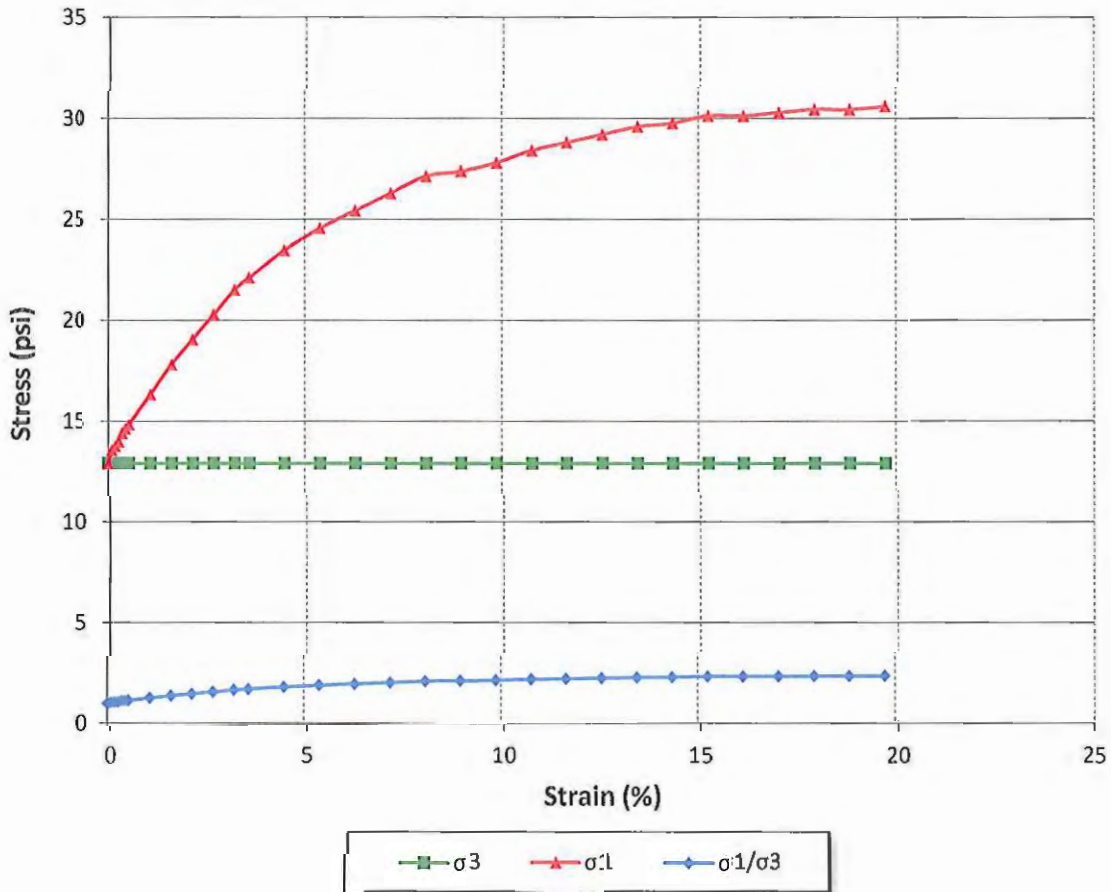
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 24.1' to 24.6'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 19.09 %
 FINAL HEIGHT : 11.24 cm
 FINAL DIAMETER : 8.02 cm

EFF. CONS. STRESS: 12.92 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 24.1' to 24.6'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

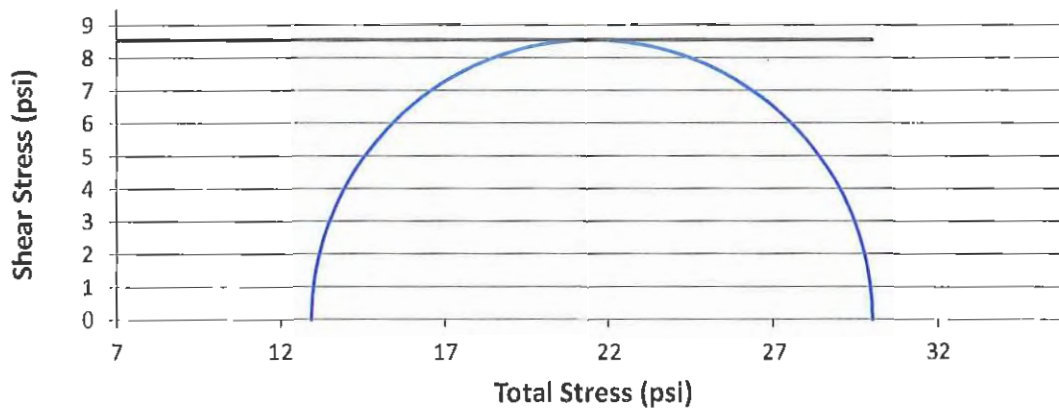
COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	2464 psf
1	12.92 psi	30.03 psi	Cohesion =	1232 psf
			Phi =	0 deg
			Tan (Phi) =	0

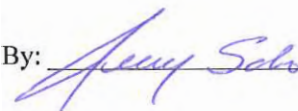
At Maximum Deviator Stress 15%

Triaxial Mohr's Circles

Unconsolidated Undrained Triaxial Test



Approved By: _____





TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-564
 SAMPLE DEPTH : 15.6' to 16.1'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Tan, Gray & Black Lean Clay
 WET DENSITY : 129.54 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.93 cm
 DRY DENSITY : 106.46 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.29 cm
 MOISTURE : 21.69 % CHAMBER PRES. : 11.83 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	11.83	11.83	1.00
2	0.09	11.83	14.55	1.23
3	0.18	11.83	16.43	1.39
4	0.26	11.83	18.1	1.53
5	0.35	11.83	19.77	1.67
6	0.44	11.83	21.01	1.78
7	0.53	11.83	22.26	1.88
8	1.05	11.83	27.85	2.35
9	1.58	11.83	31.57	2.67
10	2.11	11.83	33.75	2.85
11	2.63	11.83	35.11	2.97
12	3.16	11.83	36.24	3.06
13	3.51	11.83	36.77	3.11
14	4.39	11.83	37.58	3.18
15	5.26	11.83	38.36	3.24
16	6.14	11.83	39.13	3.31
17	7.02	11.83	39.47	3.34
18	7.90	11.83	39.81	3.37
19	8.77	11.83	40.13	3.39
20	9.65	11.83	40.41	3.42
21	10.53	11.83	40.61	3.43
22	11.41	11.83	40.8	3.45
23	12.28	11.83	40.82	3.45
24	13.16	11.83	40.84	3.45
25	14.04	11.83	40.85	3.45
26	14.92	11.83	40.7	3.44
27	15.79	11.83	40.85	3.45
28	16.67	11.83	40.99	3.47
29	17.55	11.83	40.83	3.45
30	18.43	11.83	40.81	3.45
31	19.30	11.83	40.78	3.45
32	20.18	11.83	40.89	3.46

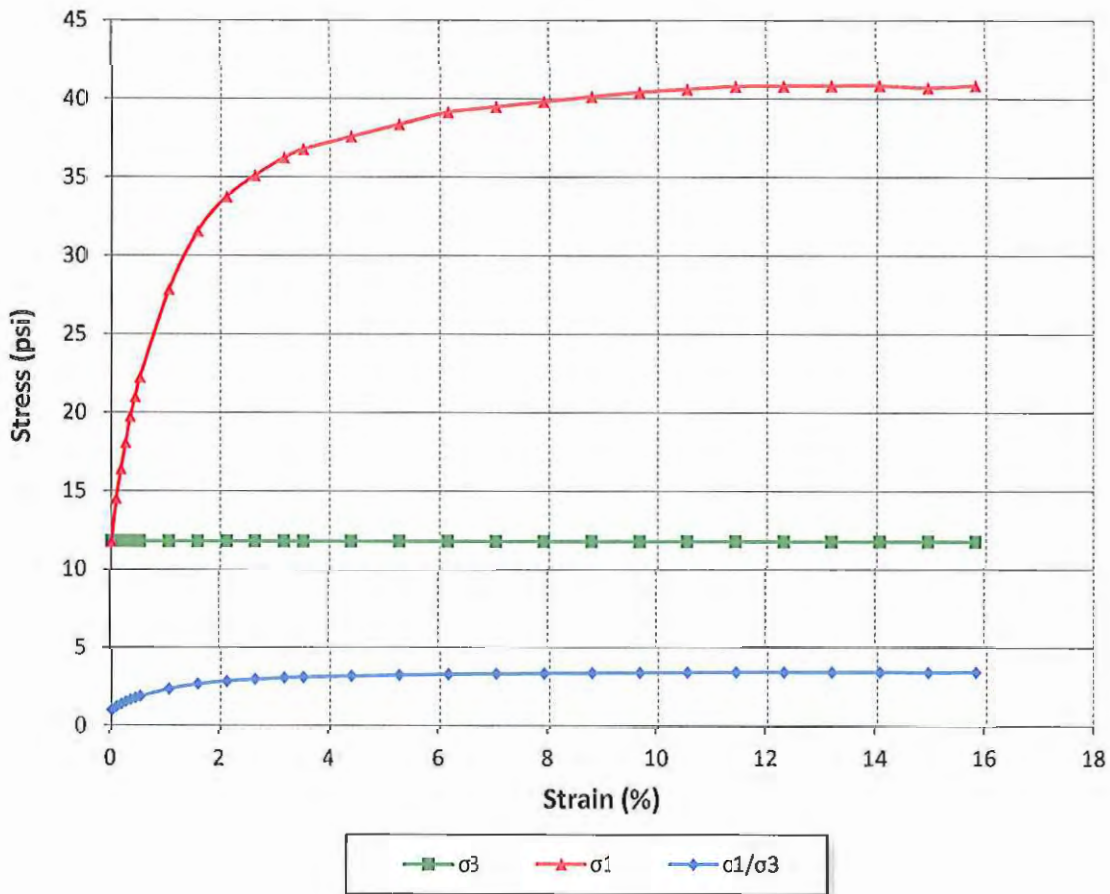
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-564
 SAMPLE DEPTH : 15.6' to 16.1'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 21.69 %
 FINAL HEIGHT : 11.55 cm
 FINAL DIAMETER : 8.13 cm

EFF. CONS. STRESS: 11.83 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

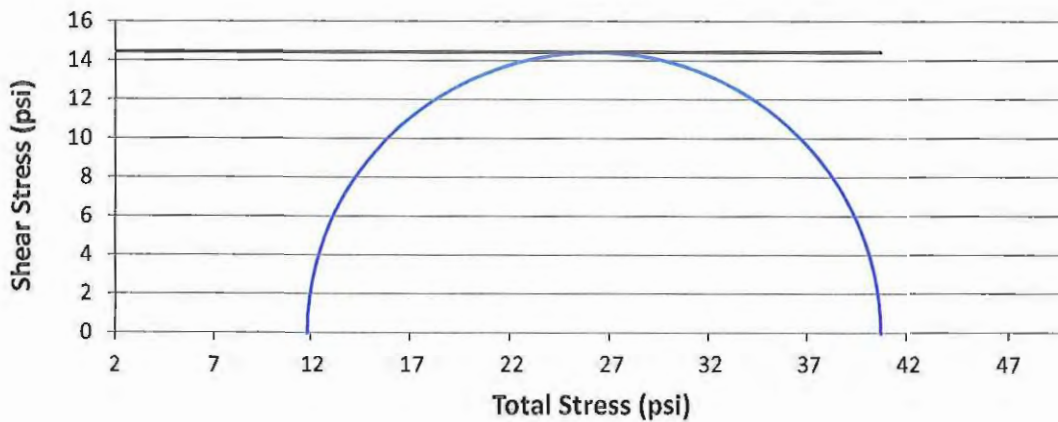
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-564
 SAMPLE DEPTH : 15.6' to 16.1'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

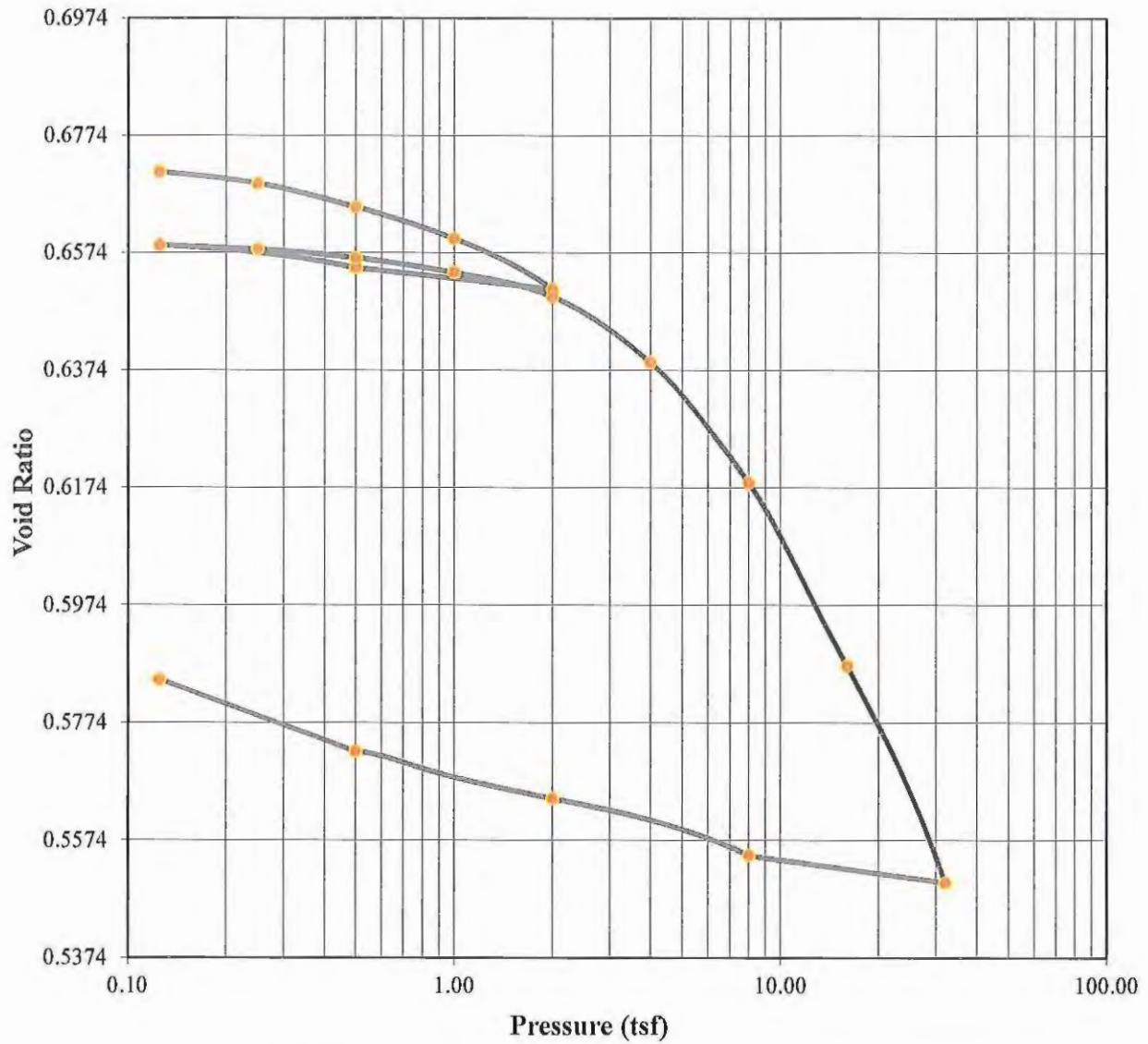
Test	Lateral	Total	Compressive Strength =	4160 psf
1	11.83 psi	40.71 psi	Cohesion =	2080 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

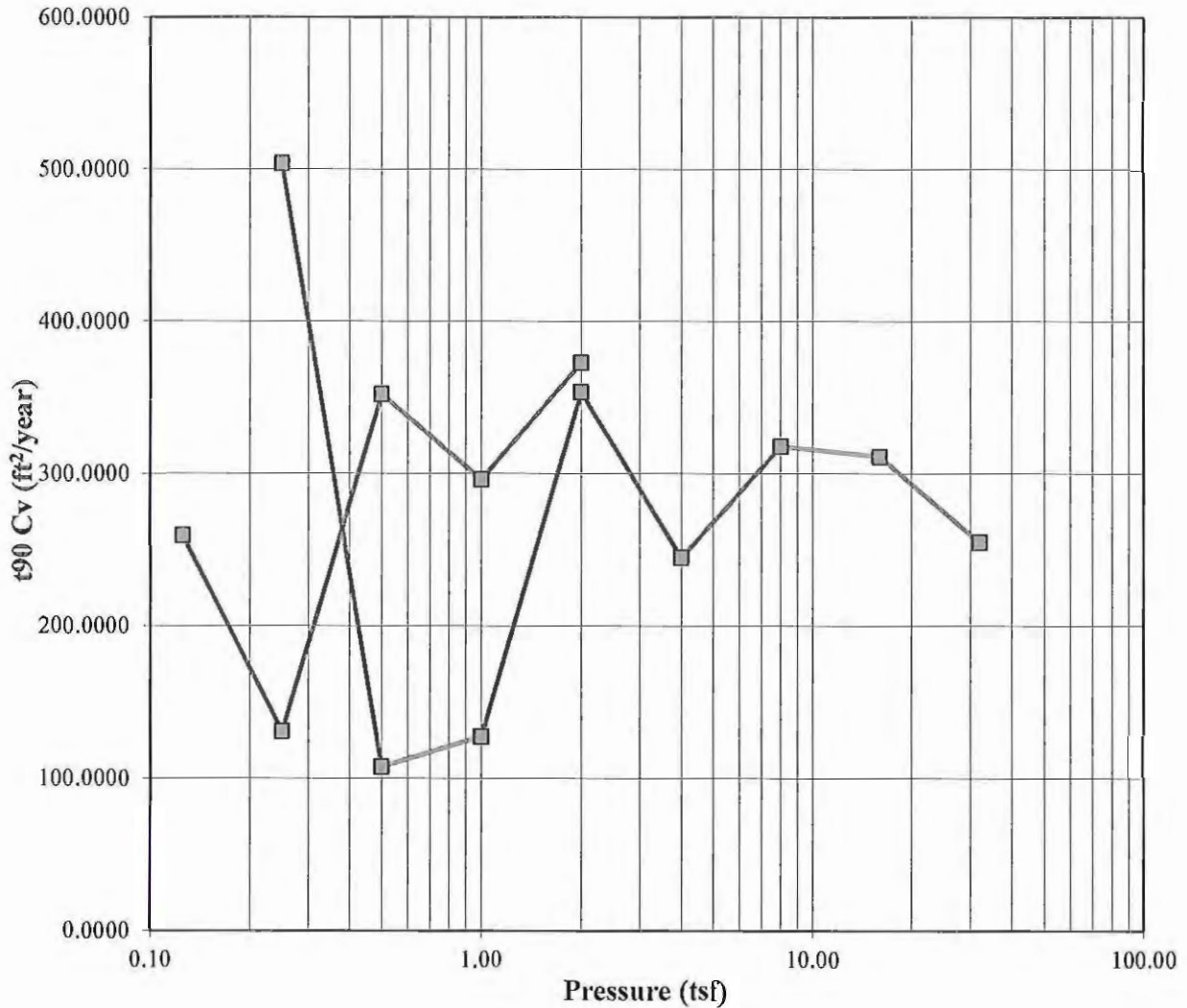
Triaxial Mohr's Circles
Unconsolidated Undrained Triaxial Test



Approved By: *[Signature]*



Summary of Consolidation Test Results				Test Date: 10/28/14
Overburden Press. (tsf)	0.35	Compression Index, C_c	0.10	
Preconsol. Press., P_c (tsf)	4.20	Rebound Index, C_r	0.01	
Over Consolidation Ratio	12.17			
Soil Description:	Brown & Tan Silty Clay with Sand			
Project Number:	11206-04	Depth:	5.5'-6.0'	
Sample Number:	ST-1	Boring Number:	B-501	
Project:	Highway 67 Widening			
Client:				
Location:	B-501 ST-1 5.5-6.0			
Remarks:				



—■— t90 Cv

	Before	After	Liquid Limits:	19	Test Date:	10/28/14
Moisture (%):	24.42	17.79	Plastic Limits:	14		
Dry Density (pcf):	102.08	116.06	Plasticity Index (%):	5		
Saturation (%):	99.07	102.95				
Void Ratio:	0.6727	0.5379	Specific Gravity:	2.739	Measured	
Soil Description:	Brown & Tan Silty Clay with Sand					
Project Number:	11206-04	Depth:	5.5'-6.0'			
Sample Number:	ST-1	Boring Number:	B-501			
Project:	Highway 67 Widening					Remarks:
Client:						
Location:	B-501 ST-1 5.5-6.0					

Test Summary

Project: Highway 67 Widening
 Location: B-501 ST-1 5.5-6.0
 Job Number: 11206-04

Project Number: 11206-04

Sample Number: ST-1
 Boring Number: B-501
 Depth: 5.5'-6.0'
 Sample Type: Undisturbed

Sample Description:
 Brown & Tan Silty Clay with Sand
 Remarks:

Test Number:
 Test Date: 10/28/14

Index	Load Sequence (tsf)	Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	(90 Fitting Time (min)	(50 Fitting Time (min)	(90 Cv (ft ² /year)	(50 Cv (ft ² /year)
0	0.000	0.0000	1.0050	0.4040	0.00	0.6721	0.000	0.000	0.000	0.000
1	0.125	0.0006	1.0044	0.4034	0.06	0.6711	3.011	* 1.6728	259.259	108.410
2	0.250	0.0018	1.0032	0.4022	0.18	0.6692	5.945	* 3.3026	131.002	54.780
3	0.500	0.0042	1.0008	0.3998	0.42	0.6652	2.202	* 1.2231	352.025	147.208
4	1.000	0.0074	0.9976	0.3966	0.74	0.6598	2.599	* 1.4439	296.299	123.901
5	2.000	0.0126	0.9924	0.3914	1.25	0.6512	2.044	* 1.1356	372.834	155.900
6	0.500	0.0104	0.9946	0.3936	1.03	0.6548	0.000	0.000	0.000	0.000
7	0.125	0.0081	0.9969	0.3959	0.81	0.6587	0.000	0.000	0.000	0.000
8	0.250	0.0085	0.9965	0.3955	0.85	0.6580	1.525	* 0.8473	503.835	210.677
9	0.500	0.0094	0.9956	0.3946	0.94	0.6565	7.128	* 3.9602	107.598	44.994
10	1.000	0.0109	0.9941	0.3931	1.08	0.6540	6.001	* 3.3339	127.429	53.285
11	2.000	0.0134	0.9916	0.3906	1.33	0.6499	2.152	* 1.1955	353.576	147.850
12	4.000	0.0201	0.9849	0.3839	2.00	0.6387	3.068	* 1.7045	244.652	102.303
13	8.000	0.0324	0.9726	0.3716	3.22	0.6182	2.303	* 1.2792	317.908	132.932
14	16.000	0.0511	0.9539	0.3529	5.08	0.5871	2.263	* 1.2571	311.160	130.117
15	32.000	0.0733	0.9317	0.3307	7.29	0.5502	2.637	* 1.4650	254.727	106.516
16	8.000	0.0705	0.9345	0.3335	7.01	0.5548	0.000	0.000	0.000	0.000
17	2.000	0.0647	0.9403	0.3393	6.44	0.5645	0.000	0.000	0.000	0.000
18	0.500	0.0599	0.9451	0.3441	5.96	0.5725	0.000	0.000	0.000	0.000
19	0.125	0.0810	0.9240	0.3230	5.26	0.5847	0.000	0.000	0.000	0.000

Predicted value indicated with *

Consolidation Specimen Information

Project: Highway 67 Widening
 Location: B-501 ST-1 5.5-6.0
 Job Number: 11206-04

Project Number: 11206-04
 Test Date: 10/28/14

Sample Number: ST-1
 Boring Number: B-501
 Depth: 5.5'-6.0'
 Sample Type: Undisturbed

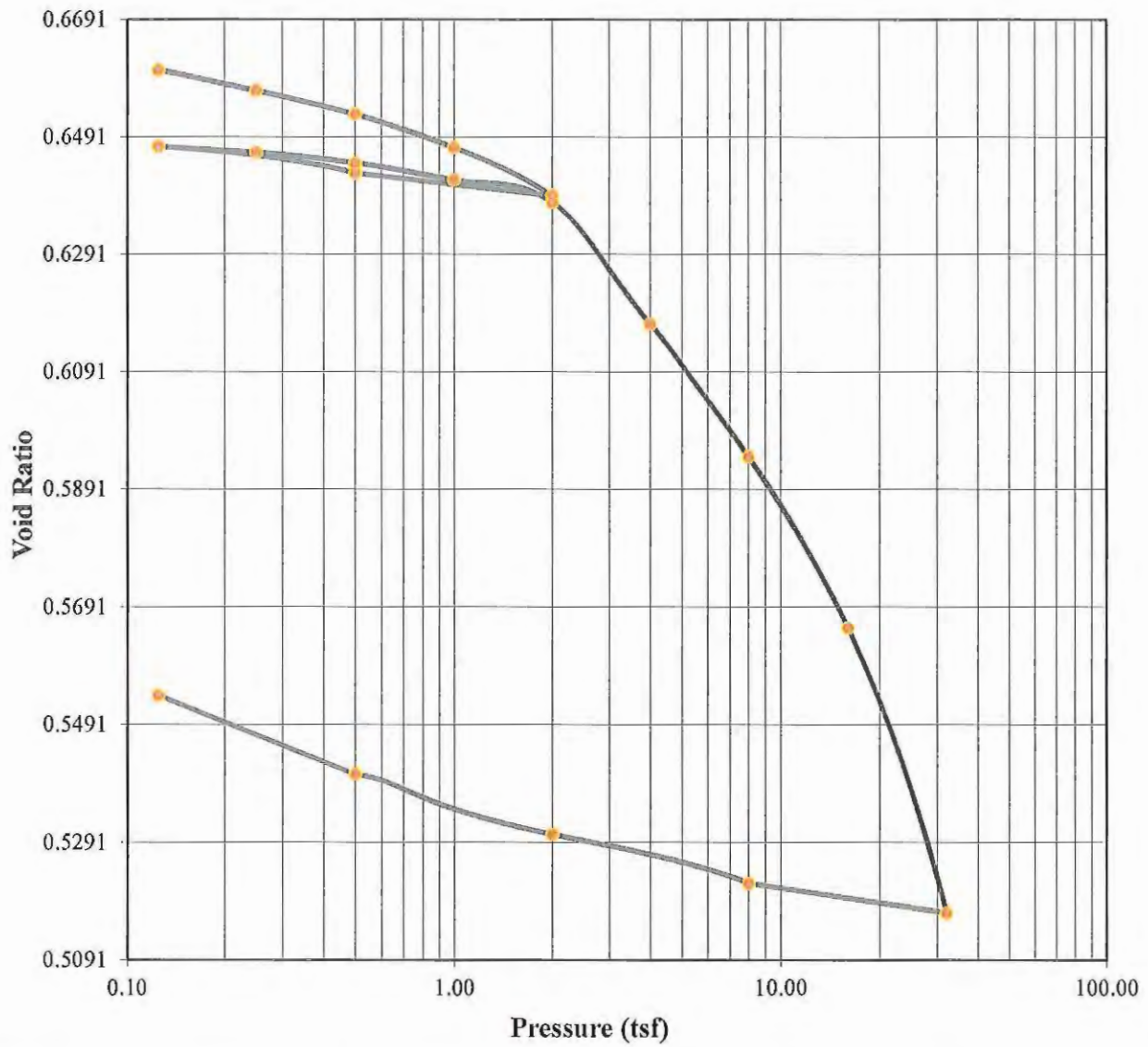
Sample Description:
 Brown & Tan Silty Clay with Sand
 Remarks:

Test Number:
 Liquid Limit: 19.0000 Initial Void Ratio: 0.6727 Initial Height (in): 1.0050
 Plastic Limit: 14.0000 Plasticity Index (%): 5.0000 Initial Diameter (in): 2.4983
 Specific Gravity: 2.7390 Weight of Ring (g): 109.6600
 Measured

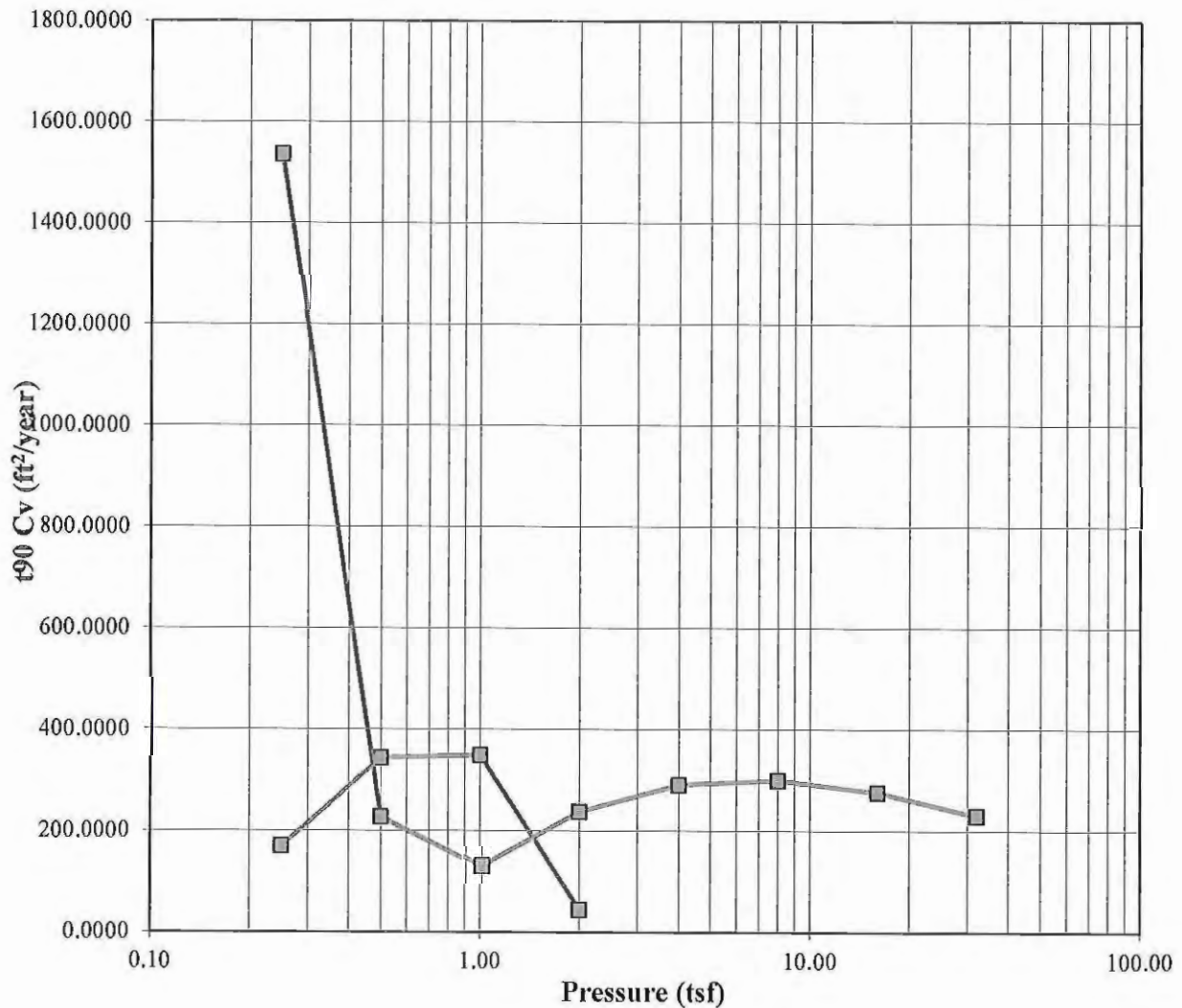
Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	410.07	221.64
Dry Soil + Container (g)	341.10	197.20
Weight of Container (g)	58.70	59.80
Moisture Content (%)	24.42	17.79
Void Ratio	0.6727	0.5379
Saturation (%)	99.07	102.95
Dry Density (pcf)	102.08	116.06

Tested By: *Amy Sch*

Checked By: *Stephen Bader*



Summary of Consolidation Test Results				Test Date: 10/28/2014
Overburden Press. (tsf)	0.87	Compression Index, C_c	0.09	
Preconsol. Press., P_c (tsf)	2.10	Rebound Index, C_r	0.01	
Over Consolidation Ratio	2.41			
Soil Description:	Brown & Gray Silt			
Project Number:	11206-04	Depth:	14.4'-14.7'	
Sample Number:	ST-1	Boring Number:	B-557	
Project:	Highway 67 Widening			
Client:				
Location:	B-557 ST-1 14.4-14.7			
				Remarks:



—■— t90 Cv

	Before	After	Liquid Limits:	22	Test Date:	10/28/2014	
Moisture (%):	20.46	19.78	Plastic Limits:	21			
Dry Density (pcf):	101.78	112.48	Plasticity Index (%):	1			
Saturation (%):	83.40	105.79					
Void Ratio:	0.6657	0.5111	Specific Gravity:	2.717	Measured		
Soil Description:	Brown & Gray Silt						
Project Number:	11206-04	Depth:	14.4'-14.7'		Remarks:		
Sample Number:	ST-1	Boring Number:	B-557				
Project:	Highway 67 Widening						
Client:							
Location:	B-557 ST-1 14.4-14.7						

Test Summary

Project: Highway 67 Widening
 Location: B-557 ST-1 14.4-14.7
 Job Number: 11206-04

Project Number: 11206-04

Sample Number: ST-1
 Boring Number: B-557
 Depth: 14.4'-14.7'
 Sample Type: Undisturbed

Sample Description:
 Brown & Gray Silt
 Remarks:

Test Number:
 Test Date: 10/28/2014

Index	Load Sequence (tsf)	Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	t90 Fitting Time (min)	t50 Fitting Time (min)	t90 Cv (ft ² /year)	t50 Cv (ft ² /year)
0	0.000	0.0000	0.9955	0.3971	0.00	0.6635	0.000	0.000	0.000	0.000
1	0.125	0.0018	0.9937	0.3953	0.18	0.6605	0.000	0.000	0.000	0.000
2	0.250	0.0039	0.9916	0.3932	0.39	0.6570	4.484	* 2.4913	169.672	70.949
3	0.500	0.0063	0.9892	0.3908	0.63	0.6530	2.204	* 1.2242	343.629	143.686
4	1.000	0.0097	0.9858	0.3874	0.97	0.6473	2.152	* 1.1955	349.451	146.126
5	2.000	0.0146	0.9809	0.3825	1.47	0.6391	16.492	* 9.1620	45.146	18.878
6	0.500	0.0123	0.9832	0.3848	1.24	0.6430	0.000	0.000	0.000	0.000
7	0.125	0.0096	0.9859	0.3875	0.96	0.6475	0.000	0.000	0.000	0.000
8	0.250	0.0102	0.9853	0.3869	1.02	0.6465	0.489	* 0.2717	1536.190	642.313
9	0.500	0.0113	0.9842	0.3858	1.14	0.6447	3.302	* 1.8347	226.967	94.908
10	1.000	0.0130	0.9825	0.3841	1.31	0.6418	5.778	* 3.2102	129.267	54.055
11	2.000	0.0153	0.9802	0.3818	1.54	0.6380	3.125	* 1.7360	237.924	99.490
12	4.000	0.0277	0.9678	0.3694	2.78	0.6173	2.489	* 1.3829	291.169	121.753
13	8.000	0.0412	0.9543	0.3559	4.14	0.5947	2.350	* 1.3056	299.869	125.389
14	16.000	0.0586	0.9369	0.3385	5.89	0.5656	2.462	* 1.3677	275.893	115.370
15	32.000	0.0876	0.9079	0.3095	8.80	0.5172	2.773	* 1.5406	230.002	96.180
16	8.000	0.0846	0.9109	0.3125	8.50	0.5222	0.000	0.000	0.000	0.000
17	2.000	0.0796	0.9159	0.3175	8.00	0.5305	0.000	0.000	0.000	0.000
18	0.500	0.0735	0.9220	0.3236	7.38	0.5407	0.000	0.000	0.000	0.000
19	0.125	0.0924	0.9031	0.3047	6.70	0.5541	0.000	0.000	0.000	0.000

Predicted value indicated with *

Consolidation Specimen Information

Project: Highway 67 Widening
 Location: B-557 ST-1 14.4-14.7
 Job Number: 11206-04

Project Number: 11206-04
 Test Date: 10/28/2014

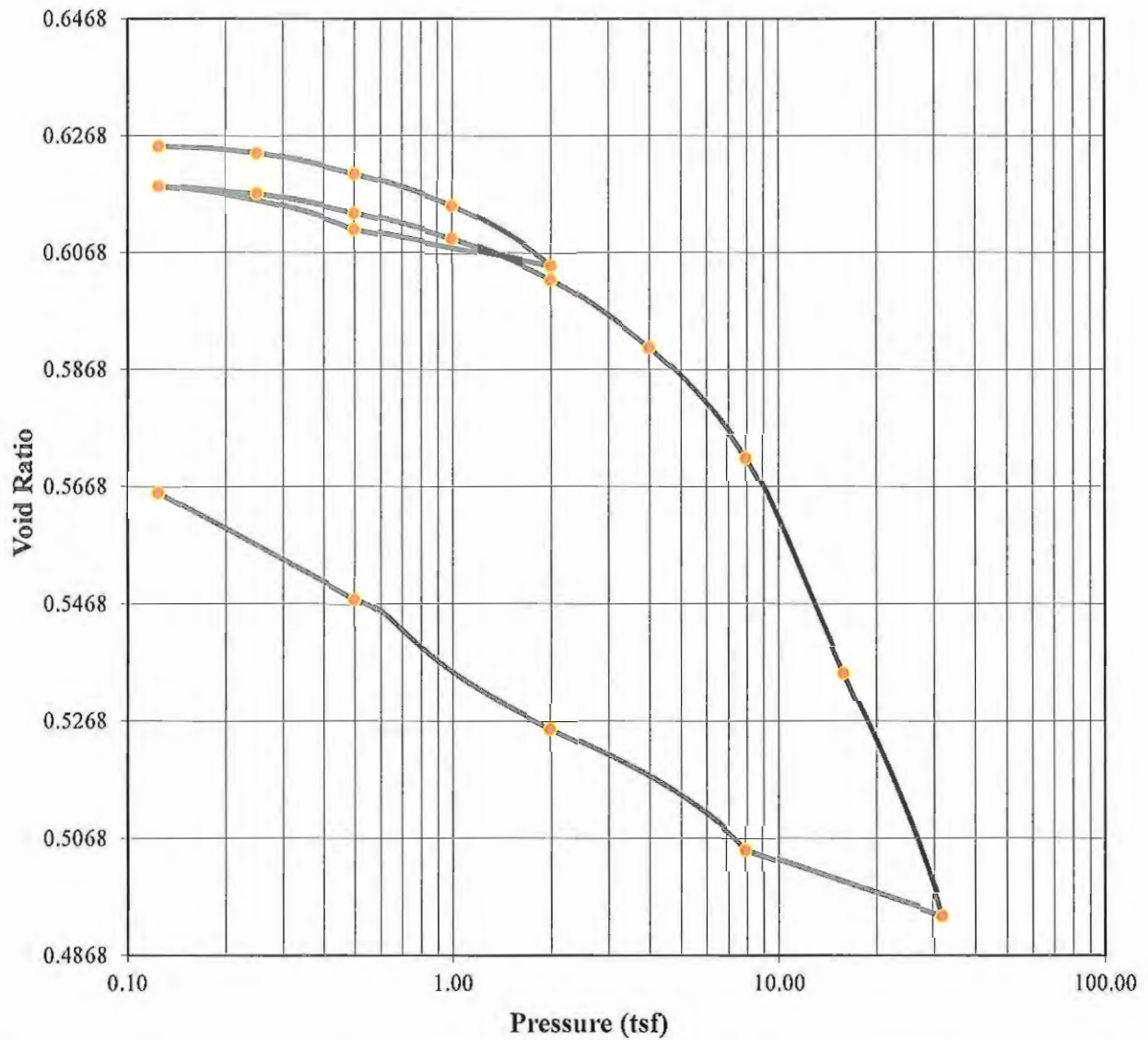
Sample Number: ST-1
 Boring Number: B-557
 Depth: 14.4'-14.7'
 Sample Type: Undisturbed

Sample Description:
 Brown & Gray Silt
 Remarks:

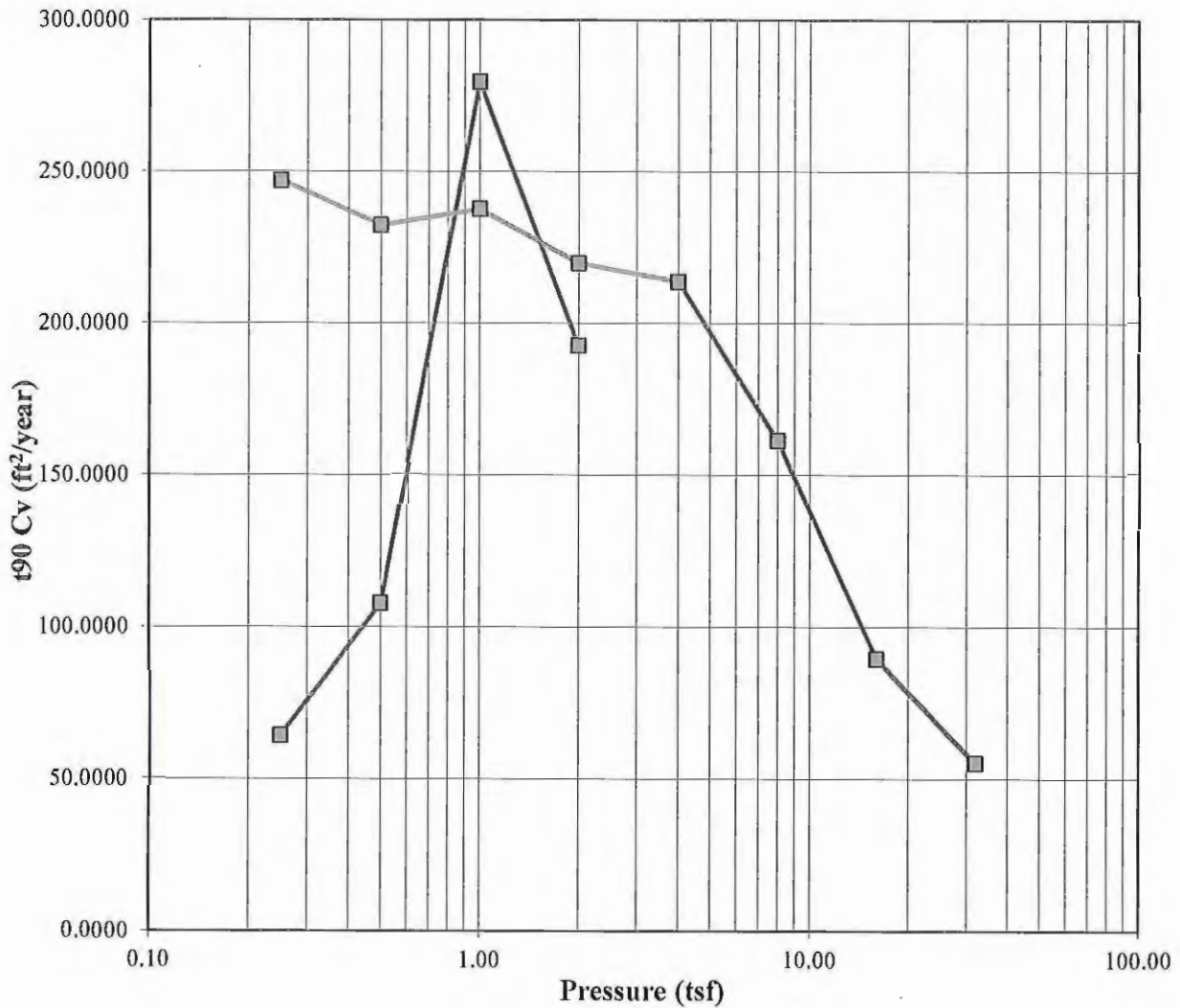
Test Number:
 Liquid Limit: 22.0000 Initial Void Ratio: 0.6657 Initial Height (in): 0.9955
 Plastic Limit: 21.0000 Plasticity Index (%): 1.0000 Initial Diameter (in): 2.4955
 Specific Gravity: 2.7170 Weight of Ring (g): 109.2800
 Measured

Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	262.16	214.56
Dry Soil + Container (g)	227.50	188.80
Weight of Container (g)	58.10	58.55
Moisture Content (%)	20.46	19.78
Void Ratio	0.6657	0.5111
Saturation (%)	83.40	105.79
Dry Density (pcf)	101.78	112.48

Tested By: *Amy Sdr*
 Checked By: *Stephen Boulton*



Summary of Consolidation Test Results				Test Date: 10/29/2014
Overburden Press. (tsf)	0.92	Compression Index, C_c	0.12	
Preconsol. Press., P_c (tsf)	4.80	Rebound Index, C_r	0.01	
Over Consolidation Ratio	5.21			
Soil Description:	Tan, Gray & Black Lean Clay			
Project Number:	1120604	Depth:	15.1- 15.6	
Sample Number:	ST-1	Boring Number:	B-564	
Project:	Highway 67 Widening			
Client:				
Location:	B-564 ST-1 15.1-15.6			
		Remarks:		



—■— t90 Cv

	Before	After	Liquid Limits:	38	Test Date:	10/29/2014
Moisture (%):	21.42	27.97	Plastic Limits:	19		
Dry Density (pcf):	105.71	109.44	Plasticity Index (%):	19		
Saturation (%):	93.90	134.49				
Void Ratio:	0.6276	0.4878	Specific Gravity:	2.759	Assumed	
Soil Description:	Tan, Gray & Black Lean Clay					
Project Number:	1120604	Depth: 15.1- 15.6		Remarks:		
Sample Number:	ST-1	Boring Number: B-564				
Project:	Highway 67 Widening					
Client:						
Location:	B-564 ST-1 15.1-15.6					

Test Summary

Project: Highway 67 Widening
Location: B-564 ST-1 15.1-15.6
Job Number: 1120604

Project Number: 1120604

Sample Number: ST-1
Boring Number: B-564
Depth: 15.1- 15.6
Sample Type: Undisturbed

Sample Description:
Tan, Gray & Black Lean Clay
Remarks:

Test Number:
Test Date: 10/29/2014

Index	Load Sequence (tsf)	Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	t90 Fitting Time (min)	t150 Fitting Time (min)	t90 Cv (ft ² /year)	t150 Cv (ft ² /year)
0	0.000	0.0000	1.0015	0.3857	0.00	0.6265	0.000	0.000	0.000	0.000
1	0.125	0.0009	1.0006	0.3848	0.09	0.6250	0.000	0.000	0.000	0.000
2	0.250	0.0016	0.9999	0.3841	0.16	0.6239	12.044	* 6.6911	64.235	26.861
3	0.500	0.0037	0.9978	0.3820	0.37	0.6204	7.143	* 3.9685	107.848	45.098
4	1.000	0.0071	0.9944	0.3786	0.71	0.6149	2.736	* 1.5200	279.655	116.944
5	2.000	0.0134	0.9881	0.3723	1.34	0.6047	3.922	* 2.1788	192.636	80.553
6	0.500	0.0095	0.9920	0.3762	0.95	0.6110	0.000	0.000	0.000	0.000
7	0.125	0.0050	0.9965	0.3807	0.50	0.6183	0.000	0.000	0.000	0.000
8	0.250	0.0058	0.9957	0.3799	0.58	0.6170	3.106	* 1.7254	247.014	103.292
9	0.500	0.0078	0.9937	0.3779	0.78	0.6138	3.289	* 1.8274	232.289	97.135
10	1.000	0.0105	0.9910	0.3752	1.05	0.6094	3.199	* 1.7770	237.588	99.348
11	2.000	0.0149	0.9866	0.3708	1.49	0.6023	3.426	* 1.9032	219.862	91.938
12	4.000	0.0220	0.9795	0.3637	2.20	0.5907	3.474	* 1.9298	213.724	89.371
13	8.000	0.0336	0.9679	0.3521	3.35	0.5719	4.493	* 2.4959	161.355	67.473
14	16.000	0.0562	0.9453	0.3295	5.61	0.5352	7.721	* 4.2895	89.554	37.448
15	32.000	0.0817	0.9198	0.3040	8.16	0.4938	11.859	* 6.5884	55.203	23.084
16	8.000	0.0748	0.9267	0.3109	7.47	0.5050	0.000	0.000	0.000	0.000
17	2.000	0.0621	0.9394	0.3236	6.20	0.5256	0.000	0.000	0.000	0.000
18	0.500	0.0485	0.9530	0.3372	4.84	0.5477	0.000	0.000	0.000	0.000
19	0.125	0.0860	0.9155	0.2997	3.79	0.5658	0.000	0.000	0.000	0.000

Predicted value indicated with *

Consolidation Specimen Information

Project: Highway 67 Widening
 Location: B-564 ST-1 15.1-15.6
 Job Number: 1120604

Project Number: 1120604

Test Date: 10/29/2014

Sample Number: ST-1
 Boring Number: B-564
 Depth: 15.1- 15.6
 Sample Type: Undisturbed

Sample Description:
 Tan, Gray & Black Lean Clay
 Remarks:

Test Number:
 Liquid Limit: 38.0000 Initial Void Ratio: 0.6276 Initial Height (in): 1.0015
 Plastic Limit: 19.0000 Plasticity Index (%): 19.0000 Initial Diameter (in): 2.4953
 Specific Gravity: 2.7590 Weight of Ring (g): 110.8600
 Assumed

Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	289.77	233.11
Dry Soil + Container (g)	249.00	195.09
Weight of Container (g)	58.70	59.17
Moisture Content (%)	21.42	27.97
Void Ratio	0.6276	0.4878
Saturation (%)	93.90	134.49
Dry Density (pcf)	105.71	109.44

Tested By: *James Sobu*

Checked By: *Stephen Bonds*



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-1
SAMPLE LOC. : B-562
SAMPLE DEPTH : 37.7' to 38.0'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: silty, f. micaceous, mod. wthd.

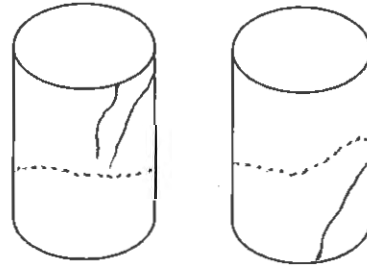
Diameter : 1.98 in
Height : 4.15 in

Area : 3.08 in²
Volume : 0.00741 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 153.3 lbs/ft.³

Maximum Stress : 344 psi
Elapsed Time : 1:43 min.
Rate of Loading : 10 lb/sec



----- Fracture developed during
sample trimming

Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-2
SAMPLE LOC. : B-562
SAMPLE DEPTH : 40.7' to 41.1'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: silty, f. micaceous, sli. wthd.

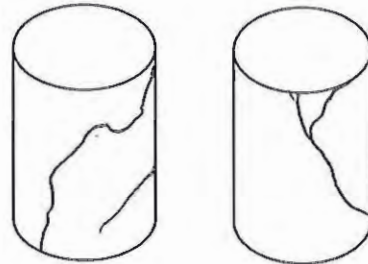
Diameter : 1.97 in
Height : 4.05 in

Area : 3.06 in²
Volume : 0.00717 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 162.95 lbs/ft.³

Maximum Stress : 810 psi
Elapsed Time : 4:58 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure[®]



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-3
SAMPLE LOC. : B-562
SAMPLE DEPTH : 43.6' to 43.9'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Sandstone w/Shale; v.f. to f. grain, laminated, ripple to contorted bedding, sli. withd.

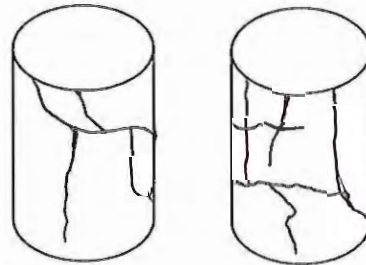
Diameter : 1.98 in
Height : 4.16 in

Area : 3.09 in²
Volume : 0.00744 ft³


RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 164.97 lbs/ft.³

Maximum Stress : 5270 psi
Elapsed Time : 14:29 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By : 

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-4
SAMPLE LOC. : B-557
SAMPLE DEPTH : 47.1' to 47.4'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Sandstone: v.f to f. grain w/crenulated bedding & healed jts., mod. wthd.

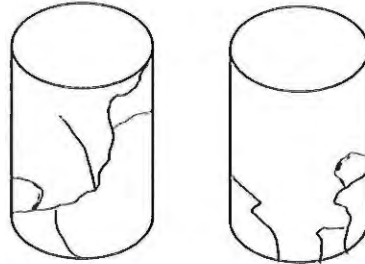
Diameter : 1.98 in
Height : 4.04 in

Area : 3.08 in²
Volume : 0.00719 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 156.42 lbs/ft.³

Maximum Stress : 1914 psi
Elapsed Time : 3:36 min.
Rate of Loading : 40 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-5
SAMPLE LOC. : B-557
SAMPLE DEPTH : 51.9' to 52.3'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Sandstone: v.f. to f. grain w/healed jts., sli. wthd.

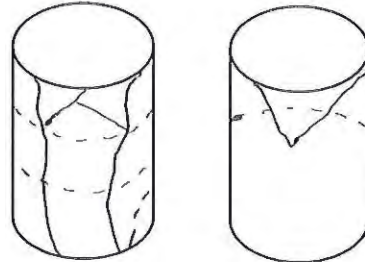
Diameter : 1.98 in
Height : 4.05 in

Area : 3.09 in²
Volume : 0.00723 ft³

RESULTS :


Moisture Air-Dry : NA
Air-Dry Density : 159.99 lbs/ft.³

Maximum Stress : 1546 psi
Elapsed Time : 6:33 min.
Rate of Loading : 10 lb/sec



----- Existing Healed Joints w/ Clay

Comments :

Approved By : 

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-6
SAMPLE LOC. : B-558
SAMPLE DEPTH : 50.1' to 50.5'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: silty, sli. wthd.

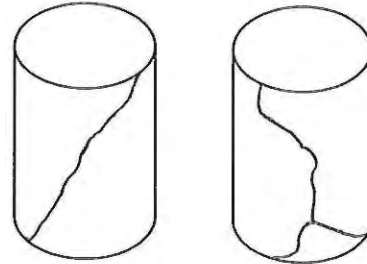
Diameter : 1.99 in
Height : 4.02 in

Area : 3.10 in²
Volume : 0.0072 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 166.26 lbs/ft.³

Maximum Stress : 1899 psi
Elapsed Time : 10:55 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-7
SAMPLE LOC. : B-558
SAMPLE DEPTH : 46.6' to 47.0'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Sandstone w/Shale: v.f. to f. grain interlaminated w/silty, sli. withd.

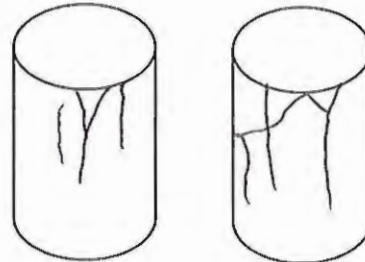
Diameter : 1.99 in
Height : 4.07 in

Area : 3.11 in²
Volume : 0.00731 ft³

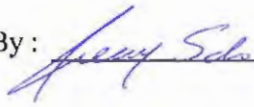
RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 168.63 lbs/ft.³

Maximum Stress : 9543 psi
Elapsed Time : 12:33 min.
Rate of Loading : 50 lb/sec



Comments :

Approved By : 

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-8
SAMPLE LOC. : B-563
SAMPLE DEPTH : 61.2' to 61.6'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: silty to v.f. sandy, sli. wthd.

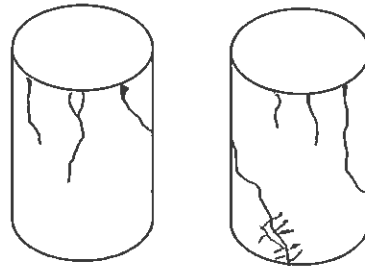
Diameter : 1.99 in
Height : 4.23 in

Area : 3.09 in²
Volume : 0.00757 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 165.09 lbs/ft.³

Maximum Stress : 5464 psi
Elapsed Time : 14:35 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure[®]



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-9
SAMPLE LOC. : B-563
SAMPLE DEPTH : 57.2' to 57.6'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: clayey, sli. wthd.

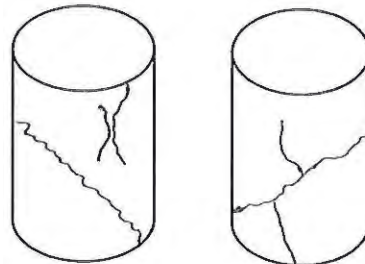
Diameter : 1.98 in
Height : 4.00 in

Area : 3.09 in²
Volume : 0.00714 ft³


RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 165.25 lbs/ft.³

Maximum Stress : 1889 psi
Elapsed Time : 10:25 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By : 

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-10
SAMPLE LOC. : B-559
SAMPLE DEPTH : 41.6' to 42.0'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale w/Sandstone: silty w/v.f. grain laminations, sli. withd.

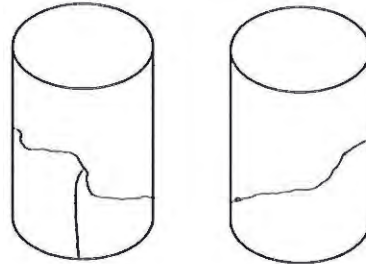
Diameter : 1.98 in
Height : 3.99 in

Area : 3.09 in²
Volume : 0.00714 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 163.52 lbs/ft.³

Maximum Stress : 899 psi
Elapsed Time : 4:12 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-11
SAMPLE LOC. : B-559
SAMPLE DEPTH : 36.6' to 37.0'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale; silty to f. sandy, mod. wthd.

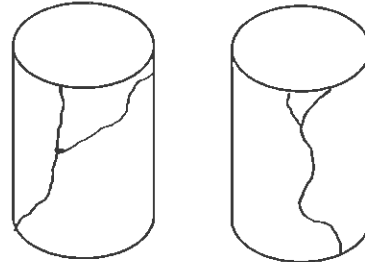
Diameter : 1.98 in
Height : 4.00 in

Area : 3.07 in²
Volume : 0.00711 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 159.67 lbs/ft.³

Maximum Stress : 863 psi
Elapsed Time : 2:10 min.
Rate of Loading : 20 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-12
SAMPLE LOC. : B-564
SAMPLE DEPTH : 44.1' to 44.5'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: clayey to silty, mod. wthd.

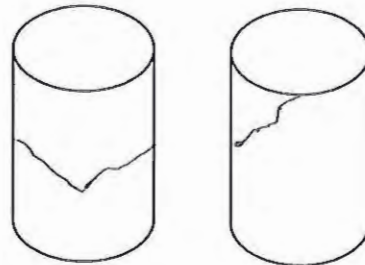
Diameter : 1.97 in
Height : 4.00 in

Area : 3.06 in²
Volume : 0.00708 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 163.15 lbs/ft.³

Maximum Stress : 402 psi
Elapsed Time : 2:13 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-13
SAMPLE LOC. : B-565
SAMPLE DEPTH : 52.0' to 52.3'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale w/Sandstone: silty to clayey w/v.f to f. grain laminations, fresh

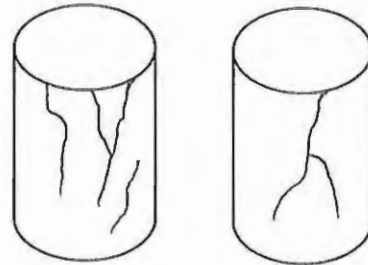
Diameter : 1.98 in
Height : 3.99 in

Area : 3.09 in²
Volume : 0.00714 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 162.56 lbs/ft.³

Maximum Stress : 1836 psi
Elapsed Time : 7:50 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-14
SAMPLE LOC. : B-556
SAMPLE DEPTH : 50.8' to 51.1'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: w/folded laminations, sli. withd.

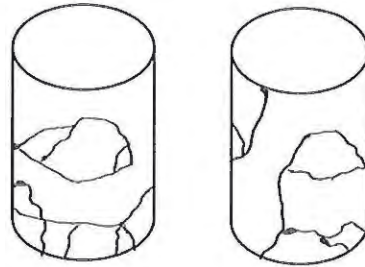
Diameter : 1.98 in
Height : 4.04 in

Area : 3.07 in²
Volume : 0.00718 ft³

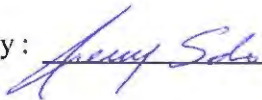
RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 163.66 lbs/ft.³

Maximum Stress : 2873 psi
Elapsed Time : 6:26 min.
Rate of Loading : 30 lb/sec



Comments :

Approved By : 

Strengthening America's Infrastructure®

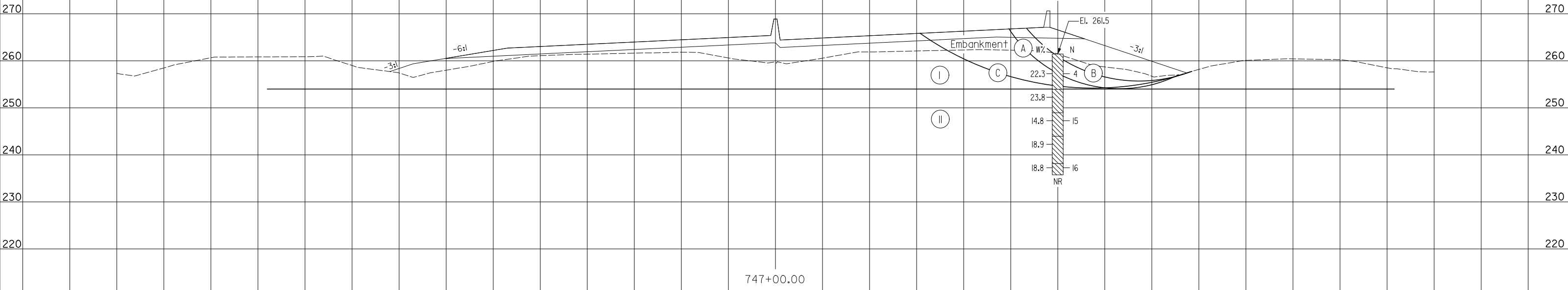
APPENDIX III – DESIGN CROSS SECTIONS

DATE REVISED	DATE FILMED	FED. ROAD DIST. No.	STATE	FED. AID PROJECT	SHEET No.	TOTAL SHEETS

ASSUMED SOIL STRENGTH PARAMETERS			
Soil	Embankment	I	II
Short Term	c= 800 PSF φ= 0° γ= 120 PCF	c=500 PSF φ= 0° γ= 120 PCF	c= 1200 PSF φ= 0° γ= 120 PCF
Long Term	c̄= 160 PSF φ̄= 26° γ= 120 PCF	c̄= 100 PSF φ̄= 26° γ= 120 PCF	c̄= 240 PSF φ̄= 26° γ= 120 PCF
Pseudo-Static	c= 800 PSF φ= 0° γ= 120 PCF	c= 500 PSF φ= 0° γ= 120 PCF	c= 1200 PSF φ= 0° γ= 120 PCF

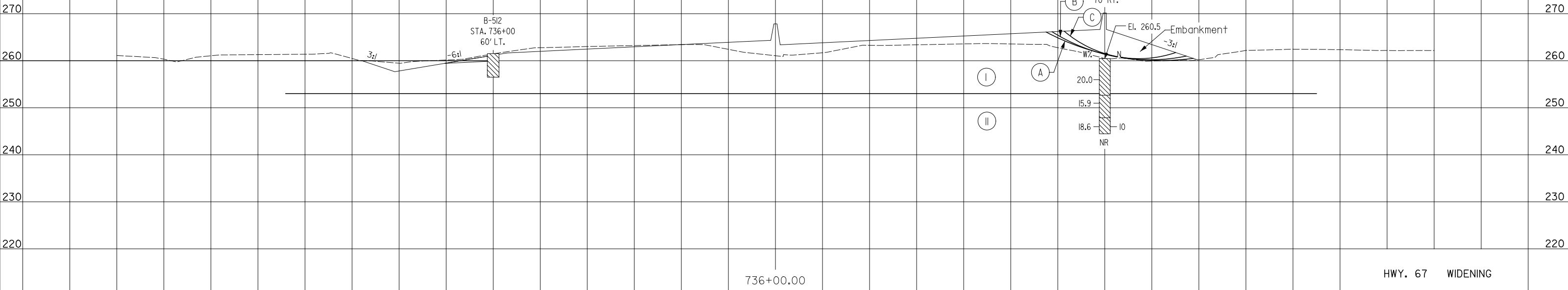
FACTORS OF SAFETY		
Short Term	A	3.0
Long Term	B	2.3
Pseudo-Static	C	1.6

② X-SEC STA 736+00 TO STA 747+00



ASSUMED SOIL STRENGTH PARAMETERS			
Soil	Embankment	I	II
Short Term	c= 800 PSF φ= 0° γ= 120 PCF	c=1800 PSF φ= 0° γ= 120 PCF	c= 1200 PSF φ= 0° γ= 120 PCF
Long Term	c̄= 160 PSF φ̄= 26° γ= 120 PCF	c̄= 360 PSF φ̄= 26° γ= 120 PCF	c̄= 240 PSF φ̄= 26° γ= 120 PCF
Pseudo-Static	c= 800 PSF φ= 0° γ= 120 PCF	c= 1800 PSF φ= 0° γ= 120 PCF	c= 1200 PSF φ= 0° γ= 120 PCF

FACTORS OF SAFETY		
Short Term	A	>3.0
Long Term	B	>3.0
Pseudo-Static	C	>3.0



HWY. 67 WIDENING

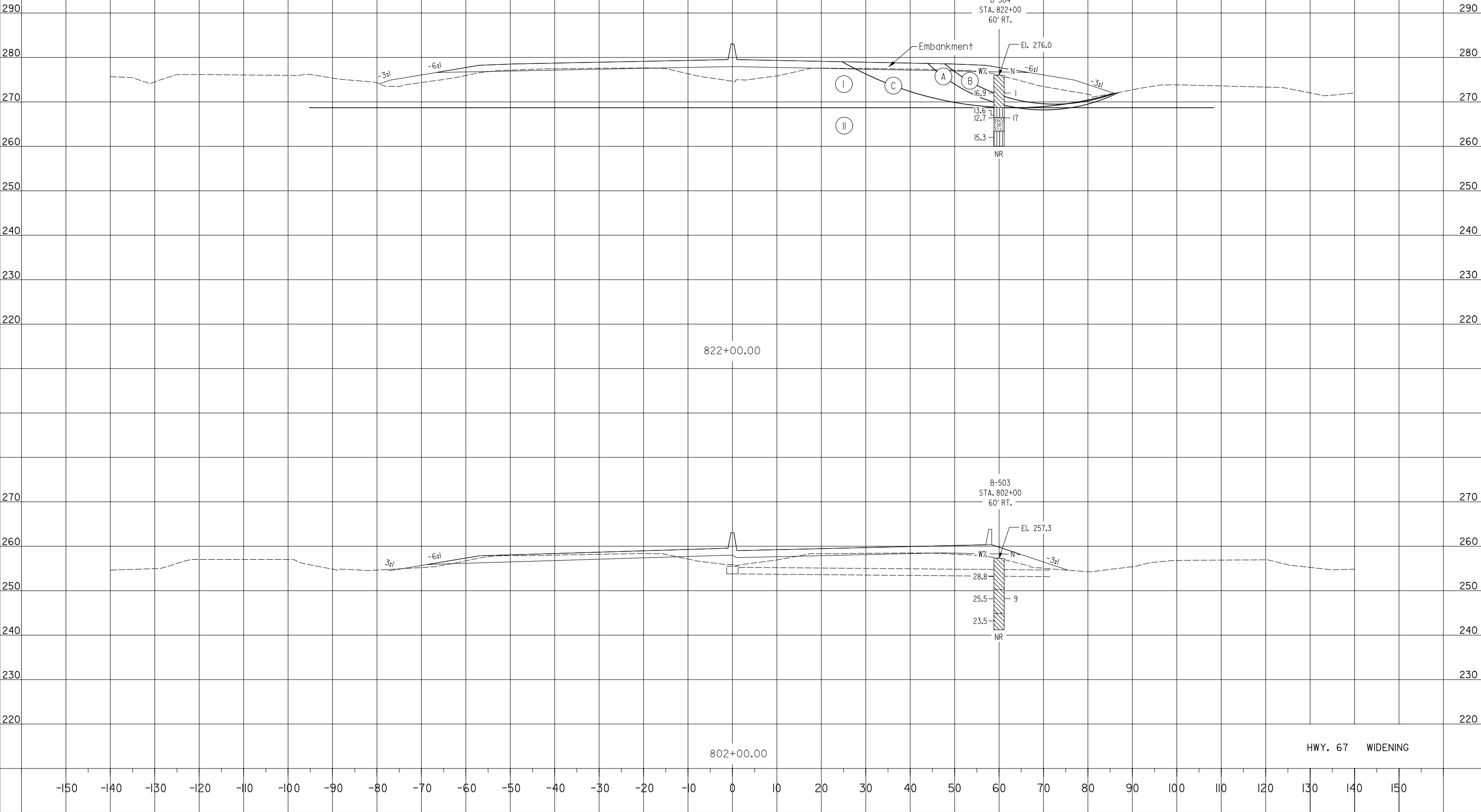
-150 -140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

ASSUMED SOIL STRENGTH PARAMETERS			
Soil	Embankment	I	II
Short Term	c= 800 PSF φ= 0° γ= 120 PCF	c=500 PSF φ= 0° γ= 120 PCF	c= 0 PSF φ= 34° γ= 110 PCF
Long Term	c̄= 160 PSF φ̄= 26° γ̄= 120 PCF	c̄= 100 PSF φ̄= 26° γ̄= 120 PCF	c̄= 0 PSF φ̄= 34° γ̄= 110 PCF
Pseudo-Static	c= 800 PSF φ= 0° γ= 120 PCF	c= 500 PSF φ= 0° γ= 120 PCF	c= 0 PSF φ= 34° γ= 110 PCF

FACTORS OF SAFETY		
Short Term	A	>3.0
Long Term	B	>3.0
Pseudo-Static	C	2.1

DATE REVISED	DATE FILMED	FED. ROAD DIST. No.	STATE	FED. AID PROJECT	SHEET No.	TOTAL SHEETS

② X-SEC STA 802+00 TO STA 822+00



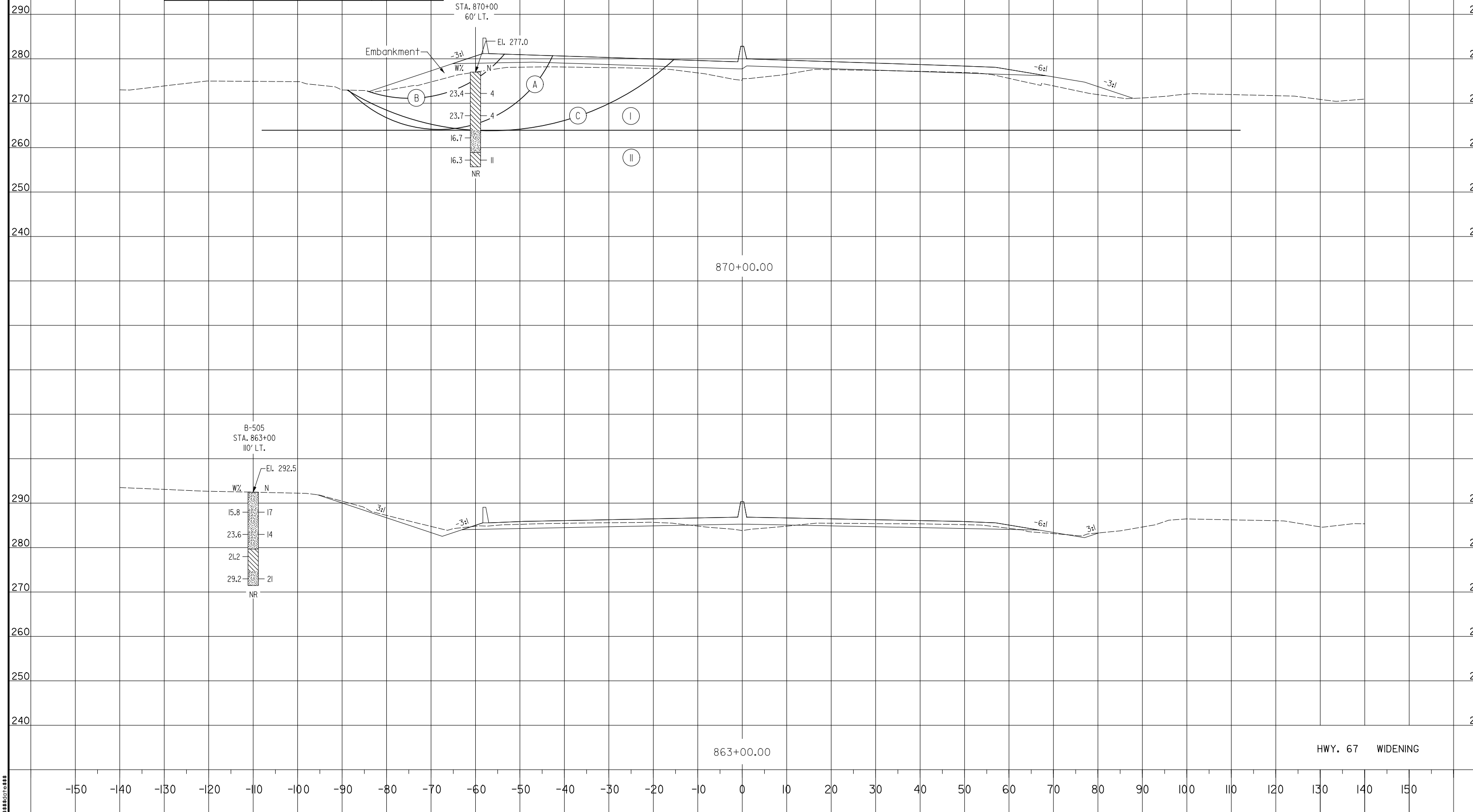
HWY. 67 WIDENING

ASSUMED SOIL STRENGTH PARAMETERS			
Soil	Embankment	I	II
Short Term	c = 800 PSF φ = 0° γ = 120 PCF	c = 500 PSF φ = 0° γ = 120 PCF	c = 0 PSF φ = 32° γ = 110 PCF
	c̄ = 160 PSF φ̄ = 26° γ̄ = 120 PCF	c̄ = 100 PSF φ̄ = 26° γ̄ = 120 PCF	c̄ = 0 PSF φ̄ = 32° γ̄ = 110 PCF
Pseudo-Static	c = 800 PSF φ = 0° γ = 120 PCF	c = 500 PSF φ = 0° γ = 120 PCF	c = 0 PSF φ = 32° γ = 110 PCF

FACTORS OF SAFETY		
Short Term	A	2.6
Long Term	B	2.5
Pseudo-Static	C	1.3

DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJECT	SHEET No.	TOT. SHEETS

② X-SEC STA 863+00 TO STA 870+00

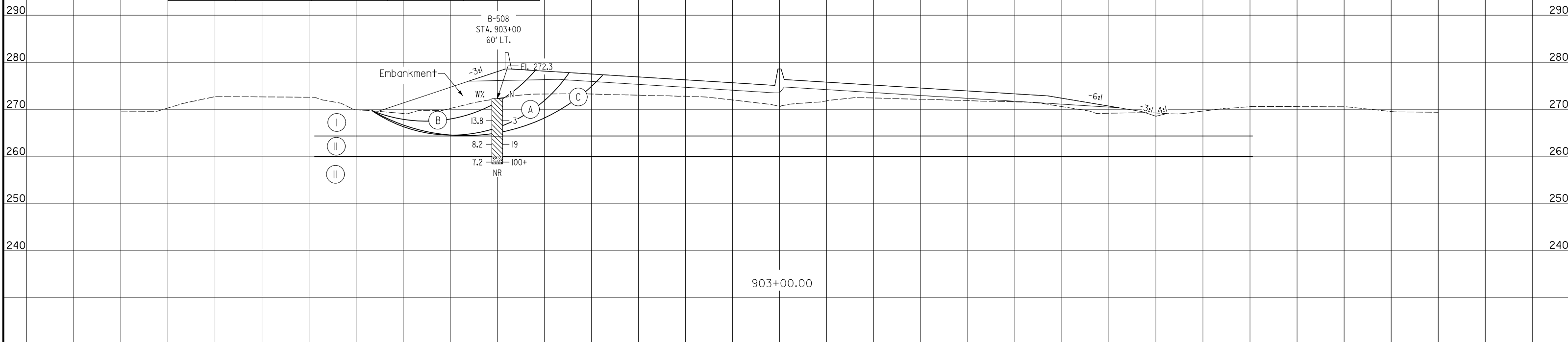


HWY. 67 WIDENING

Soil	ASSUMED SOIL STRENGTH PARAMETERS			
	Embankment	I	II	III
Short Term	c= 800 PSF φ= 0° γ= 120 PCF	c= 500 PSF φ= 0° γ= 120 PCF	c= 0 PSF φ= 36° γ= 110 PCF	c= 0 PSF φ= 45° γ= 110 PCF
Long Term	c̄= 160 PSF φ̄= 26° γ̄= 120 PCF	c̄= 100 PSF φ̄= 26° γ̄= 120 PCF	c̄= 0 PSF φ̄= 36° γ̄= 110 PCF	c̄= 0 PSF φ̄= 45° γ̄= 110 PCF
Pseudo-Static	c= 800 PSF φ= 0° γ= 120 PCF	c= 500 PSF φ= 0° γ= 120 PCF	c= 0 PSF φ= 36° γ= 110 PCF	c= 0 PSF φ= 45° γ= 110 PCF

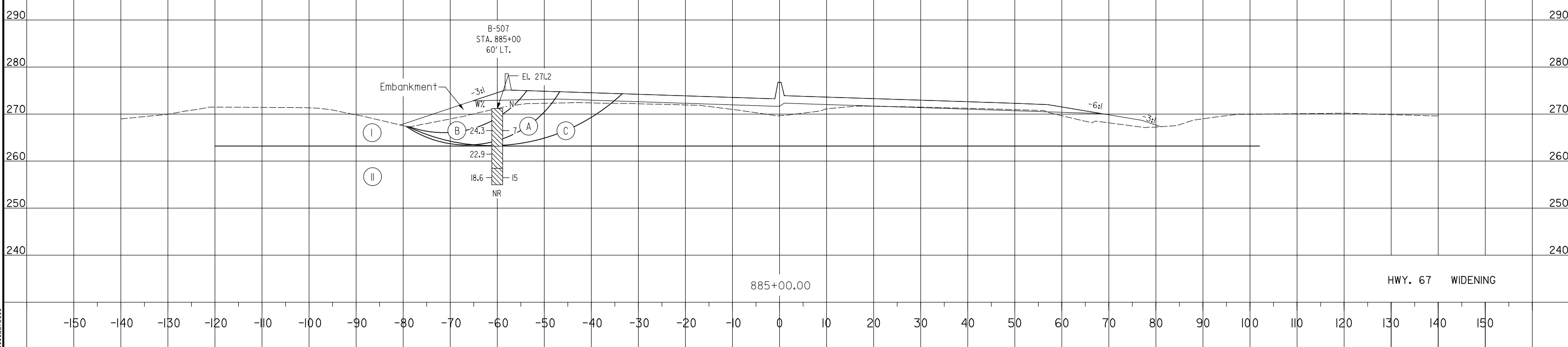
FACTORS OF SAFETY		
Short Term	A	2.9
Long Term	B	2.5
Pseudo-Static	C	1.5

② X-SEC STA 885+00 TO STA 903+00



Soil	ASSUMED SOIL STRENGTH PARAMETERS		
	Embankment	I	II
Short Term	c= 800 PSF φ= 0° γ= 120 PCF	c= 900 PSF φ= 0° γ= 120 PCF	c= 1850 PSF φ= 0° γ= 120 PCF
Long Term	c̄= 160 PSF φ̄= 26° γ̄= 120 PCF	c̄= 180 PSF φ̄= 26° γ̄= 120 PCF	c̄= 370 PSF φ̄= 26° γ̄= 120 PCF
Pseudo-Static	c= 800 PSF φ= 0° γ= 120 PCF	c= 900 PSF φ= 0° γ= 120 PCF	c= 1850 PSF φ= 0° γ= 120 PCF

FACTORS OF SAFETY		
Short Term	A	>3.0
Long Term	B	>3.0
Pseudo-Static	C	>3.0



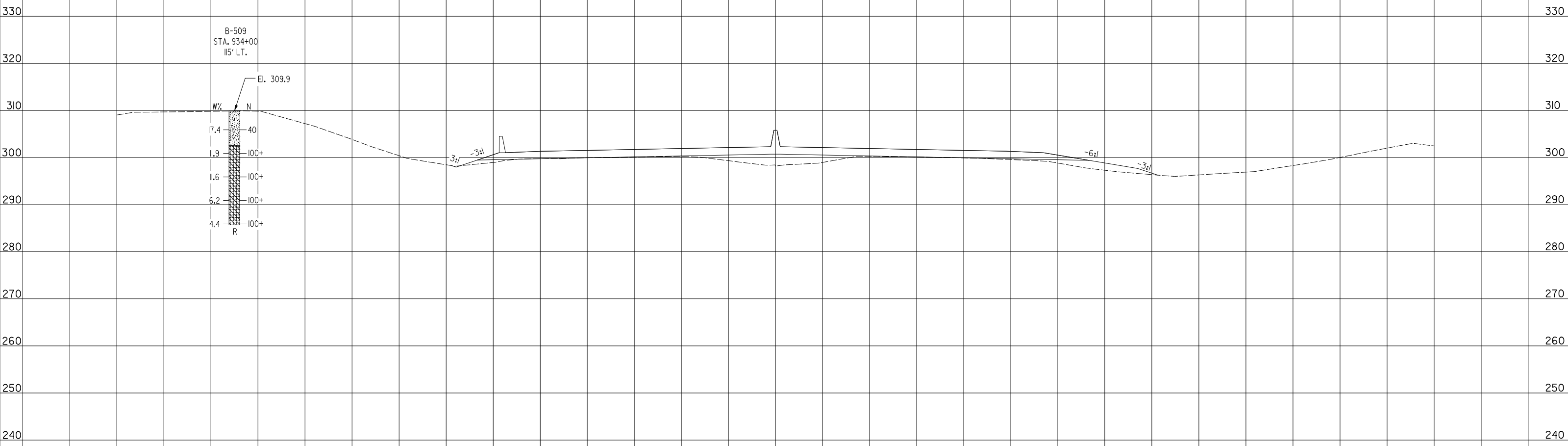
HWY. 67 WIDENING

-150 -140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

DATE REVISED	DATE FILMED	FED. ROAD DIST. No.	STATE	FED. AID PROJECT	SHEET No.	TOTAL SHEETS

②

X-SEC STA 934+00



934+00.00

HWY. 67 WIDENING

-150 -140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



**2550 Irvin Cobb Drive
Paducah, KY 42003
Phone: 270.444.9691
Fax: 270.443.3943
icaeng.com**



July 17, 2015

*Final Bridge Geotechnical Report
Hwy. 67 over Jack's Bayou
Pulaski County, Arkansas
Job No. CA0605*

Prepared For:



submitted by

ICA
Engineering



July 17, 2015

Mr. Glynn Fulmer, PE
Deputy Project Manager-Engineering
Connecting Arkansas Program
Garver, LLC
4701 Northshore Drive
North Little Rock, Arkansas 72118

**Subject: Final Bridge Geotechnical Report
Highway 67 over Jack's Bayou
Pulaski County, Arkansas
Job No. CA0605**

Dear Mr. Fulmer:

We have completed the Final Bridge Report for the referenced project. This report and discussion reflects the latest geotechnical data as it relates to the bridge layout of Highway 67 over the Jack's Bayou.

Thank you for the opportunity to provide geotechnical services to the Arkansas State Highway and Transportation Department. Please call at your convenience if you have questions or comments.

Sincerely,

ICA ENGINEERING, INC.

A handwritten signature in black ink that reads "Devin L. Chittenden".

Devin L. Chittenden, P.E.
Senior Project Engineer

A handwritten signature in black ink that reads "Anil K. Varri".

Anil K. Varri, P.E.
Project Engineer

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	GEOLOGY	1
3.	SEISMIC CONDITIONS.....	1
4.	DISCUSSION OF FIELD AND LABORATORY PROCEDURES.....	2
5.	SUMMARY OF SUBSURFACE CONDITIONS	2
6.	RECOMMENDATIONS	3
7.	LIMITATIONS.....	5

APPENDIX I: BORING LOGS

APPENDIX II: LABORATORY DATA

APPENDIX III: BRIDGE LAYOUT AND PROFILE SHEET

1. INTRODUCTION

The proposed widening of Highway 67 from Vandenberg Boulevard to Highway 5 will require new twin three (3) span bridges over Jack's Bayou. The new bridges will replace the existing structures in the same location. This report provides foundation recommendations for proposed structures. A separate roadway report has been prepared for the widened roadway within the Vandenberg Boulevard to Highway 5 project, which includes the additional information with regard to the proposed approaches on each side of Jack's Bayou.

2. GEOLOGY

The Highway 67 widening alignment is located along the physiographic boundary between the Ouachita Mountains Province and Mississippi Embayment Province. The proposed bridge and approach abutments are situated immediately east of this shared boundary (*Geologic Map of Arkansas, B. R. Haley, et. al., 1993* and *unpublished geologist's proof of the Cabot Quadrangle, Stone - 1968*). Topographic mapping (*USGS Cabot Quadrangle, 2011*) indicates elevations ranging from 260 feet at the edges of the Jack's Bayou floodplain to 250 feet at the Jack's Bayou bridge site.

Unconsolidated Quaternary alluvium and Tertiary (Paleocene) sediments overlie sandstone and shale of the Pennsylvanian Atoka Formation at the proposed bridge site. Regional structural formation dip, at the proposed bridge site, for Tertiary strata (Midway Group) trends southeastward at near flat gradients while dip for Pennsylvanian strata (Atoka Formation) is northwestward into the axis of a west plunging syncline as indicated on the published mapping referenced above. Faulting is not indicated within the limits of the subject bridge footprint. However, examination of rock core recovered from the bridge borings suggested high angle faulting within Atoka strata.

3. SEISMIC CONDITIONS

Earthquake hazards are considered to be significant in portions of Arkansas and seismic ground motion is a design factor. For this project, the proposed peak ground acceleration (PGA) having a 7% probability of exceedance in 75 years (or mean return period of approximately 1000 years) is equal to 0.158g and the horizontal response spectral acceleration value at a 1.0 second period is equal to 0.101g. These values were provided by the United

States Geology Survey (USGS). Based on a Site Class D for this project, the PGA value is then multiplied by the site factor of 1.48 using Table 3.10.3.2-1 in the AASHTO 6th Edition with 2012 Interims LRFD Bridge Design Specifications. Similarly, the horizontal response spectral acceleration value is multiplied by the site factor of 2.40 as shown in Table 3.10.3.2-3 for a Site Class D. This gives the peak seismic ground acceleration value of 0.234g and a Seismic Zone of 2.

4. DISCUSSION OF FIELD AND LABORATORY PROCEDURES

Bridge borings were advanced utilizing CME 45-C tracked mounted drill rig using 3” casing advancement and NQ2 wireline rock core tooling. Standard penetration testing (ASTM D1586), Shelby tube sampling (ASTM D1587), and rock sampling were performed in each of the borings. Laboratory testing included natural moisture content, liquid limit, plastic limit, grain size analysis, Unified and AASHTO soil classification, unconsolidated undrained triaxial soil testing, one-dimensional consolidation, and unconfined compression testing on both soil and rock. Advanced core borings recorded core recovery (REC) ranging from 6% to 100% and rock quality designation (RQD) ranging from 0% to 90%. Detailed core descriptions can be found in the boring logs attached as Appendix I and within the Geology section above. Laboratory test results for the project (testing performed on both roadway and bridge soil samples) are attached as Appendix II.

5. SUMMARY OF SUBSURFACE CONDITIONS

Eight (8) borings, designated as B-556 thru B-559 and B-562 thru B-565 were advanced to determine subsurface conditions for the proposed bridge bent locations. Samples were obtained through SPT drives, Shelby tube advancement, and rock coring. The proposed bridge sites are underlain by accumulations of alluvium, Midway Group sediments, weathered rock, and Atoka Formation shale and sandstone.

The alluvium consisted of interlayered low plasticity silt, medium plasticity clay, and low plasticity silty clay. Consistency varied from soft to very stiff with SPT values ranging from 2 to 34 blows per foot. The alluvium is interpreted from the ground surface down to elevations ranging from 238.5 to 225.6

Midway sediments, underlying the alluvium, consisted of interbedded low plasticity silt, medium plasticity clay, low plasticity clay, and silty and/or clayey fine to coarse grain sand with gravel. Coarser, granular sediments typically occurred in the lower Midway, immediately above weathered rock from the Atoka Formation. Consistency

for cohesive sediments was soft to stiff, while conditions for granular sediments ranged from very loose to medium dense. SPT values ranged from 5 to 45 blows per foot. Laboratory results indicate granular sediments typically contain sufficient clay/silt fractions to exhibit plasticity, however non-plastic characteristics were observed. Midway sediments extended down to elevations ranging from 217.5 to 208.8.

Weathered rock was intercepted under the Midway sediments and composed of shale and sandstone fragments with clay seams and/or inter-particle clay. Recovered samples suggest thickness ranging from 0.4' to 3.7' combining the SPT and core samples recovered. SPT values were greater than 100 blows per foot. These thicknesses place the base of weathered rock at elevations ranging from 214.3 to 209.9.

Underlying the weathered rock is the Atoka Formation consisting of shale and sandstone. The fresh to moderately weathered strata contains seams of clay within the upper intervals of the recovered core. Widely variable apparent bedding dips, numerous discontinuities, and relatively poor RQD characterized the interbedded shale and sandstone formation. Recovered rock core exhibited various discontinuity types including fracturing (joints) with orientations of 0°-20°, 30°-40°, 50°-75° and 85°-90° and faulting with 35°-40°, 60°, 70° orientations. Fault walls and some joint walls in shale exhibited slickensides. Rock core sample recovery varied from 6% to 100% with 78% of the values within a range of 90% to 100%. Rock quality designation (RQD) values for the same sampled intervals ranged from 0% to 90% with 71% of the values within a range of 0% to 50%. Unconfined compression tests resulted shale strengths ranging from 344 to 5,464 psi and sandstone strengths ranging from 1,546 to 9,543 psi. Detailed descriptions of the recovered rock are presented on boring logs in the Appendix I. Termination elevations for borings ranged from 196.0 to 172.7.

6. RECOMMENDATIONS

Based on the subsurface conditions encountered, we recommend Bents 1 through 4 be supported with Steel HP 12x53 piles driven to practical refusal on bedrock. We recommend a factored resistance of 190 tons using a resistance factor of 0.50 for severe driving conditions. The factored resistance is predicated on use of piles with a minimum yield strength of 50 ksi. Pile points are recommended for tip protection as the piles are advanced through the embankment fill, gravelly alluvium and to assist with pile penetration and seating into bedrock (typically shale and/or sandstone). The compressive strengths resulting from laboratory testing near the top of the rock line were used as a comparison to the structural capacity of the pile, which is the limiting factor in the resistance design of the

pile. The piles shall be installed in accordance with the AHTD Standard Specifications for Highway Construction. The estimated pile tip elevations are provided below in Table 1.

Table 1		
Summary of Recommendations		
HP 12 x 53 Piles on Highway 67 Bridge over Jack's Bayou		
Bent Number	Foundation Type	Estimated Pile Tip Elevation
1	HP 12x53 Steel Piles	211' (Left Side) 213' (Right Side)
2	HP 12x53 Steel Piles	213' (Left Side) 215' (Right Side)
3	HP 12x53 Steel Piles	213' (Left Side) 215' (Right Side)
4	HP 12x53 Steel Piles	215' (Left Side) 215' (Right Side)

Pile advancement will require hard driving through very dense soils and weathered rock materials near the estimated pile tip elevations. We recommend the pile hammer be sized adequately to attain the required resistance without overstressing the piles. A driving system capable of an energy range between 45 to 65 kip-ft is recommended. The pile tip elevations and the factored pile resistance calculations are based upon the boring data, and each pile shall be driven until the required design resistance has been obtained. Pile logging shall be performed for the full depth of the pile penetration and a Saximeter is recommended to record the blow counts.

To ensure the successful advancement of piles through embankment areas at the end bents, rock fill and/or soil material containing boulders or large stones shall not be placed at the bridge abutments. Proposed fill materials within pile foundation areas shall consist of particles no larger than the Class 7 size in accordance with the AHTD Standard Specifications for Highway Construction.

Stability analyses were performed for the proposed 2H:1V slopes at each of the abutments. Boring logs indicate uniform soil conditions between the northbound and southbound profiles and a critical section was selected for the analysis. Stability analyses were performed for short term, long term, and pseudo static (Seismic) loading conditions. The abutment slopes discussed herein have achieved the minimum required factors of safety for slope stability. Stability analyses for the pseudo-static loading condition were performed using the full PGA value, 0.234g. For pseudo-static conditions a factor of safety of 1.0 is typically utilized recommended by the FERC and other Departments of Transportation (i.e. CALTRANS). The calculated short term, long term, and seismic factors of

safety for the analyzed abutment sections are listed in Table 2 and are depicted on the bridge profile sheet in Appendix III.

Table 2				
Factor of Safety for Slope Stability				
Location	Section Type	Short Term	Long Term	Pseudo-Static Seismic
Bent 1	2H:1V Abutment	1.7	1.4	1.0
Bent 4	2H:1V Abutment	1.7	1.5	1.0

We recommended that suitable vegetation and/or erosion control measures be employed on final slopes as soon as practical during construction, as many of the soil horizons within project limits are susceptible to erosion. Appropriate erosion control procedures, roadway and drainage excavation, as well as embankment benching shall be performed in accordance with the AHTD Standard Specifications for Highway Construction.

Subsurface conditions indicate potential settlement within the analyzed areas of the proposed abutments could range from 2 inches to 4 inches. To minimize downdrag loading potential we recommend a waiting period of sixty (60) days prior to commencing pile driving operations. The waiting period is estimated to be sufficient time for 90 percent of the primary settlement to occur with the remaining settlement being less than 0.4 inches.

Due to the introduction of water into the advanced borings during coring operations and/or ground surface (mudline) below water level, static groundwater level measurements were not recorded. Apparent groundwater levels appear relatively shallow within the Jack’s Bayou floodplain and are considered seasonal dependent. We anticipate groundwater levels at the surface could occur if construction is staged during wet winter and spring months or during prolonged rain events. Any excavation below the existing groundline may encounter seepage water.

7. LIMITATIONS

Soil descriptions, indicated boundaries and groundwater levels discussed and depicted herein are based upon engineering and geological interpretation of available subsurface information obtained at selected locations and may not necessarily reflect the actual variations in subsurface conditions between borings and samples. Adjustments to the estimated elevations listed above may be required during construction to ensure the bridge foundations are seated in competent materials.

APPENDIX I: BORING LOGS



BORING NO.: B-562

PAGE: 1 of 2

JOB NO.: 11206-04
 JOB NAME: Hwy 67 Widening from Vandenberg Blvd. to Hwy 5
 STATION: 788+70
 LOCATION: 15' Lt.
 LATITUDE: 34.90783 ° LONGITUDE: 92.08438 °

DATE: 10/22/2014
 TYPE OF DRILLING: CS/SPT/CORE
 EQUIPMENT: CME 45C
 LOGGED BY: M. Morgan

COMPLETION DEPTH: 70.7 ft.

GROUNDWATER @

DEPTH (ft.)	SYMBOL	SAMPLES	DESCRIPTION OF MATERIALS	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	DRY WEIGHT (lbs. per cu. ft.)	NO. OF BLOWS PER 0.5 ft.	% SCR	% RQD
			SURFACE ELEVATION: 248.9								
5.0			Light brown, stiff, silty clay.			19.4			3,3,10		
8.3											
10.0			Gray, orange & tan, stiff, lean clay.	19	22.5	36					
13.3											
15.0			Brown, medium stiff, silty clay.			20.8			2,3,5		
20.0											
21.3						21.3			3,4,5		
23.3											
25.0			Brown, very stiff to very hard, sandy lean clay.	18	20.4	25			3,10,13		
30.0											
31.3						16.5	26		11,19,26		
35.0											
35.5			Weathered Shale			11.6			22,50/0.2		
36.0											
37.7			Auger Refusal @ 35.7', Begin Coring in Shale.							100	22
40.0			SHALE: Olive gray, brown-orange, dk. gray-black, mod. to sev. weathered, soft to med. hard, clayey, iron oxide stain, clay seams.								
43.2			8 0°-20° jts., smooth walls, iron stain & clay film; 2 70° jts. w/clay to 2mm; clay seams 37.0'-37.1', 38.1', 38.8'							100	68
44.8			SHALE: Dk. gray-black, brown-orange seams, sli. to mod. weathered, med. to mod. hard, silty, f. micaceous, iron oxide stain in seams.								
45.0			16 0°-20° jts., smooth walls, clay film, 1mm±								
50.0			SANDSTONE: Lt. gray, gray, sli. weathered, mod. hard, v.f. to f. grain, SHALE laminations & partings, ripple to contorted bedding, iron oxide on jt. walls.							100	52



BORING NO.: B-564

PAGE: 1 of 2

JOB NO.: 11206-04
 JOB NAME: Hwy 67 Widening from Vandenberg Blvd. to Hwy 5
 STATION: 789+05
 LOCATION: 46' Lt.
 LATITUDE: 34.90795 ° LONGITUDE: 92.08444 °

DATE: 10/18/2014
 TYPE OF DRILLING: CS/SPT/CORE
 EQUIPMENT: CME 45C
 LOGGED BY: H. Morris

COMPLETION DEPTH: 58.2 ft.

GROUNDWATER @

DEPTH (ft.)	SYMBOL	SAMPLES	DESCRIPTION OF MATERIALS	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	DRY WEIGHT (lbs. per cu. ft.)	NO. OF BLOWS PER 0.5 ft.	% SCR	% RQD
			SURFACE ELEVATION: 256.0								
5.0			Gray & tan, medium stiff to stiff, silt.			22.8			0,1,5		
10.0					22	22.9	28		5,5,5		
12.9			Gray & black, v. stiff, lean clay.		19	21.7	38				
17.9			Gray & tan, medium stiff to stiff, silt.			20.5			4,6,8		
25.0						26.7			0,2,3		
27.9			Brown, v. loose, clayey sand.		19	21.6	27				
32.6			Gray & tan, medium dense, silty, clayey sand with gravel.		17	15.8	22		5,9,13		
37.9			Gray & tan, very dense, clayey sand with gravel.		19	16.2	30		7,9,50/0.2		
40.6			Weathered Shale & Sandstone							40	0
40.8			Auger Refusal @ 40.8', Begin Coring in Weathered Fragments.								
42.2			Weathered Fragments: Black, lt. olive gray, orange-brown, SHALE & SANDSTONE frags. w/clay.							96	42
			SHALE: Black-dk. gray, brown-orange, mod. weathered to fresh w/some sev. weathered seams & jt. walls, med. to mod. hard, clayey to silty, f. micaceous, iron oxide stain on some jts.							100	90

APPENDIX II: LABORATORY DATA



Project Name : Highway 67 Widening
 Location : Pulaski County, Arkansas
 Job Number : 11206-04
 Project Job No. : 11206-04

Moisture Data
 (AASHTO T255-T265 / ASTM C566-D2216)

Soil No.	Boring No.	Station & Offset	Sample No.	Depth		Description of Soil	pH	Natural Moisture Content (%)
50	B-501		ST-1	4.5	6.0	Brown & Tan Silty Clay with Sand		20.0
51			ST-2	9.5	10.7	Brown Sandy Lean Clay		15.9
1			SS-1	14.5	16.0	Brown & Gray Lean Clay with Sand		18.6
2	B-502		SS-1	4.2	5.7	Brown, Tan & Gray Lean Clay with Sand		22.3
52			ST-1	9.2	10.7	Tan & Gray Lean Clay		23.8
2			SS-2	14.2	15.7	Brown & Gray Lean Clay with Sand		14.8
53			ST-2	19.2	20.4	Gray & Tan Lean Clay with Sand		18.9
3			SS-3	24.2	25.7	Brown & Gray Lean Clay		18.8
54	B-503		ST-1	4.1	5.1	Brown Lean Clay		28.8
4			SS-1	9.1	10.6	Brown & Gray Fat Clay		25.5
55			ST-2	14.1	15.8	Brown & Tan Silty Clay		23.5
5	B-504		SS-1	4.0	5.5	Brown & Gray Sandy Lean Clay		16.9
56			ST-1	9.0	9.3	Brown & Tan Sandy Silt		13.6
6			SS-2	9.6	11.1	Brown & Gray Silty Sand		12.7
57			ST-2	14.0	15.0	Tan Sandy Silt		15.3
7	B-505		SS-1	4.5	6.0	Tan & Gray Clayey Sand		15.8
7			SS-2	9.5	11.0	Tan & Gray Clayey Sand		23.6
58			ST-1	14.5	16.0	Brown, Tan & Gray Sandy Lean Clay		21.2
7			SS-3	19.5	21.0	Tan & Gray Clayey Sand		29.2
8	B-506		SS-1	4.8	6.3	Gray & Tan Sandy Lean Clay		23.4
8			SS-2	9.8	11.3	Gray Sandy Lean Clay		23.7
59			ST-1	14.8	16.3	Gray & Orange Silty, Clayey Sand		16.7
9			SS-3	19.8	21.3	Gray Sandy Silty Clay		16.3
10	B-507		SS-1	4.7	6.2	Gray & Brown Silty Clay with Sand		24.3
60			ST-1	9.7	10.7	Tan & Gray Lean Clay		22.9
11			SS-2	14.7	16.2	Gray & Brown Lean Clay with Sand		18.6
12	B-508		SS-1	4.7	6.2	Gray & Brown Lean Clay with Sand		13.8
13			SS-2	9.7	11.2	Brown & Gray Sandy Silty Clay with Gravel		8.2
14			SS-3	13.5	13.9	Gray Silty Sand		7.2
15	B-509		SS-1	4.0	5.5	Brown & Red Clayey Sand with Gravel		17.4
15			SS-2	9.0	9.3	Brown Clayey Sand with Gravel		11.9
16			SS-3	14.0	14.9	Brown Sandy Lean Clay		11.6
16			SS-4	19.0	19.2	Brown Sandy Lean Clay		6.2
16			SS-5	24.0	24.2	Brown Sandy Lean Clay		4.4
43	B-510		MC-1	0.0	5.0	Red Lean Clay with Sand		
43	B-511		Bag-1	0.0	5.0	Brown Lean Clay with Sand		19.1
43	B-512		Bag-15	0.0	5.0	Brown Lean Clay with Sand		
43	B-513		MC-1	0.0	5.0	Brown Lean Clay with Sand		
43	B-514		MC-1	0.0	5.0	Brown Lean Clay with Sand		
49	B-515		Bag-2	0.0	5.0	Brown Sandy Silty Clay		
49	B-516		MC-1	0.0	5.0	Brown Sandy Silty Clay		

Strengthening America's Infrastructure®

Project Name : Highway 67 Widening
 Location : Pulaski County, Arkansas
 Job Number : 11206-04
 Project Job No. : 11206-04

Moisture Data

(AASHTO T255-T265 / ASTM C566-D2216)

Soil No.	Boring No.	Station & Offset	Sample No.	Depth	Description of Soil	pH	Natural Moisture Content (%)
49	B-517		MC-1	0.0	5.0	Brown Sandy Silty Clay	
49	B-518		Bag-16	0.0	5.0	Brown Sandy Silty Clay	
47	B-519		Bag-3	0.0	5.0	Brown Sandy Lean Clay	
48	B-520		Bag-17	0.0	5.0	Brown Clayey Sand	
47	B-521		Bag-4	0.0	5.0	Dark Brown Sandy Lean Clay	
47	B-522		MC-1	0.0	5.0	Brown Sandy Lean Clay	
43	B-523		Bag-18	0.0	5.0	Brown Lean Clay with Sand	
47	B-524		Bag-19	0.0	5.0	Brown Sandy Lean Clay	
47	B-525		Bag-5	0.0	5.0	Brown Sandy Lean Clay	
47	B-526		MC-1	0.0	5.0	Brown Sandy Lean Clay	
48	B-527		Bag-20	0.0	5.0	Brown Clayey Sand	
48	B-528		MC-1	0.0	5.0	Brown Clayey Sand	
48	B-529		MC-1	0.0	5.0	Brown Clayey Sand	
48	B-530		Bag-6	0.0	5.0	Brown Clayey Sand	16.4
49	B-531		Bag-21	0.0	5.0	Red & Brown Sandy Silty Clay	
49	B-532		MC-1	0.0	5.0	Red & Brown Sandy Silty Clay	
45	B-533		Bag-7	0.0	5.0	Red Silty, Clayey Sand with Gravel	
47	B-534		Bag-8	0.0	5.0	Brown Sandy Lean Clay	18.1
43	B-535		Bag-22	0.0	5.0	Brown Lean Clay with Sand	
45	B-536		Bag-23	0.0	5.0	Red Silty, Clayey Sand with Gravel	
43	B-537		Bag-9	0.0	5.0	Brown Lean Clay with Sand	
46	B-538		Bag-10	0.0	5.0	Red Lean Clay with Sand	
47	B-539		MC-1	0.0	5.0	Brown Sandy Lean Clay	
47	B-540		Bag-31	0.0	5.0	Brown Sandy Lean Clay	
45	B-541		Bag-11	0.0	5.0	Gray Silty, Clayey Sand with Gravel	
45	B-542		MC-1	0.0	5.0	Gray Silty, Clayey Sand with Gravel	
49	B-543		Bag-30	0.0	5.0	Red & Brown Sandy Silty Clay	19.5
46	B-544		Bag-29	0.0	5.0	Dark Brown Lean Clay with Sand	23.2
47	B-545		MC-1	0.0	1.6	Brown Sandy Lean Clay	
47	B-546		Bag-12	0.0	5.0	Brown Sandy Lean Clay	
49	B-547		MC-1	0.0	5.0	Brown Sandy Silty Clay	

Strengthening America's Infrastructure®

Project Name : Highway 67 Widening
 Location : Pulaski County, Arkansas
 Job Number : 11206-04
 Project Job No. : 11206-04

Moisture Data
 (AASHTO T255-T265 / ASTM C566-D2216)

Soil No.	Boring No.	Station & Offset	Sample No.	Depth	Description of Soil	pH	Natural Moisture Content (%)
49	B-548		Bag-27	0.0 5.0	Brown Sandy Silty Clay		
47	B-549		Bag-13	0.0 5.0	Red & Gray Sandy Lean Clay		
44	B-550		Bag-26	0.0 5.0	Brown Silty, Clayey Sand with Gravel		10.7
44	B-551		Bag-14	0.0 5.0	Brown Silty, Clayey Sand with Gravel		
44	B-552		MC-1	0.0 5.0	Brown Silty, Clayey Sand with Gravel		
45	B-553		Bag-25	0.0 5.0	Brown & Red Silty, Clayey Sand with Gravel		11.1
44	B-554		MC-1	0.0 2.3	Brown Silty, Clayey Sand with Gravel		
28	B-556		SS-1	4.8 6.3	Brown Silt		28.6
28			SS-2	9.8 11.3	Brown & Gray Silt		22.9
28			SS-3	14.8 16.3	Brown & Gray Silt		21.1
61			ST-1	19.8 21.8	Brown Lean Clay		22.2
28			SS-4	24.8 26.3	Brown & Gray Silt		20.8
62			ST-2	29.8 31.3	Orange & Gray Lean Clay with Sand		23.3
29			SS-5	34.8 36.3	Brown Sandy Silty Clay		22.7
29			SS-6	39.8 41.3	Brown & Gray Sandy Silty Clay		22.3
30			SS-7	44.8 45.0	Gray Silt with Sand		8.3
33	B-557		SS-1	4.4 5.9	Brown & Black Lean Clay		22.9
34			SS-2	9.4 10.9	Gray Lean Clay		26.2
63			ST-1	14.4 15.7	Brown & Gray Silt		19.5
64			ST-2	19.4 20.9	Gray & Orange Lean Clay		22.6
34			SS-3	24.4 25.9	Tan, Gray & Black Lean Clay		20.3
34			SS-4	29.4 30.9	Tan, Brown & Black Lean Clay		23.6
35			SS-5	34.4 35.9	Tan, Brown & Black Lean Clay		24.8
65			ST-3	39.4 40.4	Brown & Tan Silty, Clayey Sand		14.0
36			SS-6	44.4 44.6	Dark Gray & Black Silt with Sand		2.3
17	B-558		SS-1	1.1 2.6	Brown & Gray Silt		22.4
18			SS-2	6.1 7.6	Brown & Gray Lean Clay		19.8
18			SS-3	11.1 12.6	Brown & Gray Lean Clay		22.3
66			ST-1	16.1 17.9	Brown & Tan Lean Clay with Sand		19.0
19			SS-4	21.6 22.6	Brown & Dark Brown Sandy Silty Clay		24.1
67			ST-2	26.1 27.6	Brown & Tan Sandy Lean Clay		21.6
19			SS-5	31.1 32.6	Brown & Gray Sandy Silty Clay		22.0
20			SS-6	35.9 36.1	Gray Silty Sand with Gravel		10.8
37	B-559		SS-1	4.7 6.2	Brown & Tan Silt		20.9
37			SS-2	9.7 11.2	Brown & Tan Silt		19.5
68			ST-1	14.7 16.2	Tan, Brown & Gray Lean Clay with Sand		18.4
38			SS-3	19.7 21.2	Brown, Tan & Gray Sandy Lean Clay		22.1
69			ST-2	24.7 26.3	Brown, Tan & Black Sandy Lean Clay		19.8
38			SS-4	29.7 31.2	Brown, Tan & Gray Sandy Lean Clay		19.2
31	B-562		SS-1	5.0 6.5	Light Brown Silty Clay		19.4
70			ST-1	10.0 11.5	Gray, Orange & Tan Lean Clay		22.5
31			SS-2	15.0 16.5	Brown Silty Clay		20.8
31			SS-3	20.0 21.5	Brown Silty Clay		21.3
32			SS-4	25.0 26.5	Brown Sandy Lean Clay		20.4
32			SS-5	30.0 31.5	Brown Sandy Lean Clay		16.5
32			SS-6	35.0 35.7	Brown Sandy Lean Clay		11.6
71	B-563		ST-1	4.1 5.4	Gray & Orange Silt		20.5
21			SS-1	9.1 10.6	Brown & Gray Lean Clay		23.2
22			SS-2	14.1 15.6	Brown Sandy Lean Clay		21.4
23			SS-3	19.1 20.6	Brown & Gray Lean Clay		24.7

Strengthening America's Infrastructure®

Project Name : Highway 67 Widening
 Location : Pulaski County, Arkansas
 Job Number : 11206-04
 Project Job No. : 11206-04

Moisture Data
 (AASHTO T255-T265 / ASTM C566-D2216)

Soil No.	Boring No.	Station & Offset	Sample No.	Depth		Description of Soil	pH	Natural Moisture Content (%)
72			ST-2	24.1	25.6	Brown Sandy Silt		19.1
24			SS-4	29.1	30.6	Brown Clayey Sand		15.9
24			SS-5	34.1	34.5	Brown Clayey Sand		10.1
25	B-564		SS-1	4.6	6.1	Gray Silt		22.8
25			SS-2	9.6	11.1	Gray & Tan Silt		22.9
73			ST-1	14.6	16.1	Tan, Gray & Black Lean Clay		21.7
25			SS-3	19.6	21.1	Gray & Tan Silt		20.5
25			SS-4	24.6	26.1	Gray & Tan Silt		26.7
74			ST-2	29.6	30.6	Brown Clayey Sand		21.6
26			SS-5	34.6	36.1	Gray & Tan Silty, Clayey Sand with Gravel		15.8
27			SS-6	39.6	40.8	Gray & Tan Clayey Sand with Gravel		16.2
39	B-565		SS-1	5.2	6.7	Tan Lean Clay		24.3
39			SS-2	10.2	11.7	Tan Lean Clay		20.1
39			SS-3	15.2	16.7	Tan Lean Clay		22.4
75			ST-1	20.2	21.9	Gray, Tan & Brown Lean Clay		19.6
40			SS-4	25.2	26.7	Tan Silt with Sand		20.3
41			SS-5	30.2	31.7	Tan & Brown Silty Clay with Sand		21.4
76			ST-2	35.2	36.7	Brown & Gray Silty Sand		21.1
42			SS-6	40.2	40.4	Brown Silt with Sand		12.8

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-1
Project No. : 11206-04	Sample Loc. : Boring No. B-501
Project County : Pulaski	Sample Depth : 14.5' to 16.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Brown & Gray Lean Clay with Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	100.0

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.2
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	74.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

AASHTO T88

$D_{50} = 0.0088 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.6
 Liquid Limit (AASHTO T89) : 34
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 14
 Liquidity Index : -0.09
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (9)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 0.8
 Fine Sand (-No.40 + No.200) : 25.2
 Silt + Clay (-No.200) : 74.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 0.8
 Fine Sand (-No.40 + No.200) : 25.2
 Silt + Clay (-No.200) : 74.0

Approved By : J.S.

Soil No. 1

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-1
Project No. : 11206-04	Sample Loc. : Boring No. B-502
Project County : Pulaski	Sample Depth : 4.2' to 5.7'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/03/14
Submitted By : ICA Engineering	
Soil Type : Brown, Tan & Gray Lean Clay with Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.8

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	95.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	81.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0059 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.3
 Liquid Limit (AASHTO T89) : 31
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 13
 Liquidity Index : 0.30
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (9)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 4.7
 Fine Sand (-No.40 + No.200) : 13.9
 Silt + Clay (-No.200) : 81.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 4.7
 Fine Sand (-No.40 + No.200) : 13.9
 Silt + Clay (-No.200) : 81.2

Approved By : J.S.

Soil No. 2



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Lean Clay

Sample No. : SS-3
 Sample Loc. : Boring No. B-502
 Sample Depth : 24.2' to 25.7'
 Date Tested : 10/25/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.5	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	87.6	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0044 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.8
 Liquid Limit (AASHTO T89) : 42
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 20
 Liquidity Index : -0.16
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-7-6 (18)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 11.9
 Silt + Clay (-No.200) : 87.6

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 11.9
 Silt + Clay (-No.200) : 87.6

Approved By : J.S.

Soil No. 3



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Fat Clay

Sample No. : SS-1
 Sample Loc. : Boring No. B-503
 Sample Depth : 9.1' to 10.6'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.9
No.6		3.35	mm		
No.10		2	mm		99.7

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		98.6
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		96.3
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0031 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 25.5
 Liquid Limit (AASHTO T89) : 51
 Plastic Limit (AASHTO T90) : 27
 Plasticity Index : 24
 Liquidity Index : -0.05

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 1.1
 Fine Sand (-No.40 + No.200) : 2.3
 Silt + Clay (-No.200) : 96.3

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-7-6 (27)
 ASTM Classification: D2487 : CH

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.1
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 1.1
 Fine Sand (-No.40 + No.200) : 2.3
 Silt + Clay (-No.200) : 96.3

Approved By : J.S.

Soil No. 4



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan & Gray Sandy Lean Clay

Sample No. : SS-1
 Sample Loc. : Boring No. B-504
 Sample Depth : 4.0' to 5.5'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.2
No.6		3.35	mm		
No.10		2	mm		95.8

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		89.5
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		53.1
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.051 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 15.8
 Liquid Limit (AASHTO T89) : 26
 Plastic Limit (AASHTO T90) : 16
 Plasticity Index : 10
 Liquidity Index : 0.03
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 4.2
 Coarse Sand (-No.10 + No.40) : 6.3
 Fine Sand (-No.40 + No.200) : 36.4
 Silt + Clay (-No.200) : 53.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.8
 Coarse Sand (-No.4 + No.10) : 3.4
 Medium Sand (-No.10 + No.40) : 6.3
 Fine Sand (-No.40 + No.200) : 36.4
 Silt + Clay (-No.200) : 53.1

Approved By : J.S.

Soil No. 5



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Silty Sand

Sample No. : SS-2
 Sample Loc. : Boring No. B-504
 Sample Depth : 9.6' to 11.1'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.0
No.6		3.35	mm		
No.10		2	mm		97.3

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		92.1
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		49.1
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0778 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 12.7
 Liquid Limit (AASHTO T89) : 15
 Plastic Limit (AASHTO T90) : 14
 Plasticity Index : 1
 Liquidity Index : -1.35
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : SM

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 2.7
 Coarse Sand (-No.10 + No.40) : 5.2
 Fine Sand (-No.40 + No.200) : 43.0
 Silt + Clay (-No.200) : 49.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 1.0
 Coarse Sand (-No.4 + No.10) : 1.7
 Medium Sand (-No.10 + No.40) : 5.2
 Fine Sand (-No.40 + No.200) : 43.0
 Silt + Clay (-No.200) : 49.1

Approved By : J.S.

Soil No. 6

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan & Gray Clayey Sand

Sample No. : SS-2
 Sample Loc. : Boring No. B-505
 Sample Depth : 9.5' to 11.0'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.5	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	93.6	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	33.1	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.1218 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.6
 Liquid Limit (AASHTO T89) : 42
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 20
 Liquidity Index : 0.10
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-2-7 (2)
 ASTM Classification: D2487 : SC

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.5
 Coarse Sand (-No.10 + No.40) : 5.9
 Fine Sand (-No.40 + No.200) : 60.5
 Silt + Clay (-No.200) : 33.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.5
 Medium Sand (-No.10 + No.40) : 5.9
 Fine Sand (-No.40 + No.200) : 60.5
 Silt + Clay (-No.200) : 33.1

Approved By : J.S.

Soil No. 7

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-2
Project No. : 11206-04	Sample Loc. : Boring No. B-506
Project County : Pulaski	Sample Depth : 9.8' to 11.3'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/03/14
Submitted By : ICA Engineering	
Soil Type : Gray Sandy Lean Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.4
No.6		3.35	mm	
No.10		2	mm	97.3

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	93.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	60.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0249 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.7
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 13
 Liquidity Index : 0.53
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (5)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 2.7
 Coarse Sand (-No.10 + No.40) : 3.8
 Fine Sand (-No.40 + No.200) : 33.5
 Silt + Clay (-No.200) : 60.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.6
 Coarse Sand (-No.4 + No.10) : 2.1
 Medium Sand (-No.10 + No.40) : 3.8
 Fine Sand (-No.40 + No.200) : 33.5
 Silt + Clay (-No.200) : 60.0

Approved By : J.S.

Soil No. 8

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-3
Project No. : 11206-04	Sample Loc. : Boring No. B-506
Project County : Pulaski	Sample Depth : 19.8' to 21.3'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray Sandy Silty Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.8

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	50.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0693 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 16.3
 Liquid Limit (AASHTO T89) : 24
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 7
 Liquidity Index : -0.08
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 0.3
 Fine Sand (-No.40 + No.200) : 48.9
 Silt + Clay (-No.200) : 50.6

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 0.3
 Fine Sand (-No.40 + No.200) : 48.9
 Silt + Clay (-No.200) : 50.6

Approved By : J.S.

Soil No. 9



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-1
Project No. : 11206-04	Sample Loc. : Boring No. B-507
Project County : Pulaski	Sample Depth : 4.7' to 6.2'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray & Brown Silty Clay with Sand	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	100.0	
1/4		6.3	mm		
No.4		4.75	mm	99.6	
No.6		3.35	mm		
No.10		2	mm	98.6	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm	96.7	
No.40		0.425	mm		
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	80.2	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0062 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 24.3

Liquid Limit (AASHTO T89) : 26

Plastic Limit (AASHTO T90) : 19

Plasticity Index : 7

Liquidity Index : 0.80

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (4)

ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 1.4
 Coarse Sand (-No.10 + No.40) : 1.9
 Fine Sand (-No.40 + No.200) : 16.5
 Silt + Clay (-No.200) : 80.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.4
 Coarse Sand (-No.4 + No.10) : 1.0
 Medium Sand (-No.10 + No.40) : 1.9
 Fine Sand (-No.40 + No.200) : 16.5
 Silt + Clay (-No.200) : 80.2

Approved By : J.S.

Soil No. 10



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray & Brown Lean Clay with Sand

Sample No. : SS-2
 Sample Loc. : Boring No. B-507
 Sample Depth : 14.7' to 16.2'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.9
No.6		3.35	mm		
No.10		2	mm		99.5

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		98.9
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		79.8
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0063 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.6
 Liquid Limit (AASHTO T89) : 42
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 22
 Liquidity Index : -0.05
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-7-6 (17)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.5
 Coarse Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 19.1
 Silt + Clay (-No.200) : 79.8

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.1
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 19.1
 Silt + Clay (-No.200) : 79.8

Approved By : J.S.

Soil No. 11



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-1
Project No. : 11206-04	Sample Loc. : Boring No. B-508
Project County : Pulaski	Sample Depth : 4.7' to 6.2'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray & Brown Lean Clay with Sand	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		98.4
No.6		3.35	mm		
No.10		2	mm		94.7

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		93.0
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		81.9
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0057 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 13.8
 Liquid Limit (AASHTO T89) : 41
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 20
 Liquidity Index : -0.36
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-7-6 (16)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 5.3
 Coarse Sand (-No.10 + No.40) : 1.7
 Fine Sand (-No.40 + No.200) : 11.1
 Silt + Clay (-No.200) : 81.9

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 1.6
 Coarse Sand (-No.4 + No.10) : 3.7
 Medium Sand (-No.10 + No.40) : 1.7
 Fine Sand (-No.40 + No.200) : 11.1
 Silt + Clay (-No.200) : 81.9

Approved By : J.S.

Soil No. 12

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-2
Project No. : 11206-04	Sample Loc. : Boring No. B-508
Project County : Pulaski	Sample Depth : 9.7' to 11.2'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Brown & Gray Sandy Silty Clay with Gravel	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm	100.0	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	89.4	
1/4		6.3	mm		
No.4		4.75	mm	83.1	
No.6		3.35	mm		
No.10		2	mm	78.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	72.9	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	51.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0659 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 8.2
 Liquid Limit (AASHTO T89) : 28
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 6
 Liquidity Index : -2.23
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 21.1
 Coarse Sand (-No.10 + No.40) : 6.0
 Fine Sand (-No.40 + No.200) : 21.9
 Silt + Clay (-No.200) : 51.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 16.9
 Coarse Sand (-No.4 + No.10) : 4.2
 Medium Sand (-No.10 + No.40) : 6.0
 Fine Sand (-No.40 + No.200) : 21.9
 Silt + Clay (-No.200) : 51.0

Approved By : J.S.

Soil No. 13

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-3
Project No. : 11206-04	Sample Loc. : Boring No. B-508
Project County : Pulaski	Sample Depth : 13.5' to 13.9'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray Silty Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	98.0
No.6		3.35	mm	
No.10		2	mm	94.1

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	73.4
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	21.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.1941 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 7.2
 Liquid Limit (AASHTO T89) : NP
 Plastic Limit (AASHTO T90) : NP
 Plasticity Index : NP
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-2-4 (0)
 ASTM Classification: D2487 : SM

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 5.9
 Coarse Sand (-No.10 + No.40) : 20.7
 Fine Sand (-No.40 + No.200) : 51.8
 Silt + Clay (-No.200) : 21.6

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 2.0
 Coarse Sand (-No.4 + No.10) : 3.9
 Medium Sand (-No.10 + No.40) : 20.7
 Fine Sand (-No.40 + No.200) : 51.8
 Silt + Clay (-No.200) : 21.6

Approved By : J.S.

Soil No. 14



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Red Clayey Sand with Gravel

Sample No. : SS-1
 Sample Loc. : Boring No. B-509
 Sample Depth : 4.0' to 5.5'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	100.0
3/4	in.	19	mm	95.3
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	88.4
1/4		6.3	mm	
No.4		4.75	mm	81.6
No.6		3.35	mm	
No.10		2	mm	72.9

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	63.0
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	39.7
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.1615 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 17.4
 Liquid Limit (AASHTO T89) : 31
 Plastic Limit (AASHTO T90) : 23
 Plasticity Index : 8
 Liquidity Index : -0.65
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : SC

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 27.1
 Coarse Sand (-No.10 + No.40) : 9.9
 Fine Sand (-No.40 + No.200) : 23.3
 Silt + Clay (-No.200) : 39.7

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 4.7
 Fine Gravel (-3/4in. + No.4) : 13.7
 Coarse Sand (-No.4 + No.10) : 8.7
 Medium Sand (-No.10 + No.40) : 9.9
 Fine Sand (-No.40 + No.200) : 23.3
 Silt + Clay (-No.200) : 39.7

Approved By : J.S.

Soil No. 15

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Lean Clay

Sample No. : SS-3
 Sample Loc. : Boring No. B-509
 Sample Depth : 14.0' to 14.9'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

		% Passing	
4	in.	101.6	mm
3.5	in.	88.9	mm
3	in.	76.2	mm
2.5	in.	63.5	mm
2	in.	50.8	mm
1 3/4	in.	45	mm
1 1/2	in.	38.1	mm
1 1/4	in.	31.5	mm
1	in.	25	mm
3/4	in.	19	mm
1/2	in.	12.5	mm
3/8	in.	9.5	mm
1/4		6.3	mm
No.4		4.75	mm
No.6		3.35	mm
No.10		2	mm

		% Passing	
No.16		1.18	mm
No.30		0.6	mm
No.40		0.425	mm
No.50		0.3	mm
No.60		0.25	mm
No.80		0.18	mm
No.100		0.15	mm
No.200		0.075	mm
No.270		0.053	mm
Hyd. Rd. # 1			mm
Hyd. Rd. # 2			mm
Hyd. Rd. # 3			mm
Hyd. Rd. # 4			mm
Hyd. Rd. # 5			mm
Hyd. Rd. # 6			mm
Hyd. Rd. # 7			mm

$D_{50} = 0.073 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 11.6
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 8
 Liquidity Index : -1.24
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 18.2
 Coarse Sand (-No.10 + No.40) : 15.3
 Fine Sand (-No.40 + No.200) : 16.3
 Silt + Clay (-No.200) : 50.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 5.3
 Coarse Sand (-No.4 + No.10) : 12.9
 Medium Sand (-No.10 + No.40) : 15.3
 Fine Sand (-No.40 + No.200) : 16.3
 Silt + Clay (-No.200) : 50.2

Approved By : J.S.

Soil No. 16

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-1
Project No. : 11206-04	Sample Loc. : Boring No. B-558
Project County : Pulaski	Sample Depth : 1.1' to 2.6'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Brown & Gray Silt	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.8
No.6		3.35	mm	
No.10		2	mm	98.4

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	94.6
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	88.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0043 \text{ mm}$

CBR : NA	Natural Moisture (%) (AASHTO T265) : 22.4
Dry Dens. : NA	Liquid Limit (AASHTO T89) : 26
Opt. Moist. : NA	Plastic Limit (AASHTO T90) : 23

AASHTO Composition of Total Sample: M145

- Gravel (3in. + No.10) : 1.6
- Coarse Sand (-No.10 + No.40) : 3.8
- Fine Sand (-No.40 + No.200) : 6.4
- Silt + Clay (-No.200) : 88.2

- Plasticity Index : 3
- Liquidity Index : -0.24
- Activity : NA
- Sp. Gr. (AASHTO T100) : NA
- AASHTO Classification: M145 : A-4 (2)
- ASTM Classification: D2487 : ML

ASTM Composition of Total Sample: D2487

- Coarse Gravel (3in. + 3/4in.) : 0.0
- Fine Gravel (-3/4in. + No.4) : 0.2
- Coarse Sand (-No.4 + No.10) : 1.4
- Medium Sand (-No.10 + No.40) : 3.8
- Fine Sand (-No.40 + No.200) : 6.4
- Silt + Clay (-No.200) : 88.2

Approved By : J.S.

Soil No. 17



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Lean Clay

Sample No. : SS-3
 Sample Loc. : Boring No. B-558
 Sample Depth : 11.1' to 12.6'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.6	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.0	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	93.5	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0034 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.3
 Liquid Limit (AASHTO T89) : 40
 Plastic Limit (AASHTO T90) : 23
 Plasticity Index : 17
 Liquidity Index : -0.05
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (17)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.4
 Coarse Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 5.5
 Silt + Clay (-No.200) : 93.5

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 5.5
 Silt + Clay (-No.200) : 93.5

Approved By : J.S.

Soil No. 18



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Sandy Silty Clay

Sample No. : SS-5
 Sample Loc. : Boring No. B-558
 Sample Depth : 31.1' to 32.6'
 Date Tested : 10/24/14
 Date Reported : 11/03/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		99.8

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		99.2
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		65.1
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0162 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22
 Liquid Limit (AASHTO T89) : 21
 Plastic Limit (AASHTO T90) : 16
 Plasticity Index : 5
 Liquidity Index : 1.12
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 34.1
 Silt + Clay (-No.200) : 65.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 34.1
 Silt + Clay (-No.200) : 65.1

Approved By : J.S.

Soil No. 19

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-6
Project No. : 11206-04	Sample Loc. : Boring No. B-558
Project County : Pulaski	Sample Depth : 35.9' to 36.1'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray Silty Sand with Gravel	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	93.7
1/4		6.3	mm	
No.4		4.75	mm	69.0
No.6		3.35	mm	
No.10		2	mm	48.7

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	28.8
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	21.5
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 2.1139 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 10.8
 Liquid Limit (AASHTO T89) : NA
 Plastic Limit (AASHTO T90) : NA
 Plasticity Index : NA
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-1-b (0) *
 ASTM Classification: D2487 : SM *
 * Visual Classification

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 51.3
 Coarse Sand (-No.10 + No.40) : 19.9
 Fine Sand (-No.40 + No.200) : 7.3
 Silt + Clay (-No.200) : 21.5

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 31.0
 Coarse Sand (-No.4 + No.10) : 20.3
 Medium Sand (-No.10 + No.40) : 19.9
 Fine Sand (-No.40 + No.200) : 7.3
 Silt + Clay (-No.200) : 21.5

Approved By : J.S.

Soil No. 20

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Lean Clay

Sample No. : SS-1
 Sample Loc. : Boring No. B-563
 Sample Depth : 9.1' to 10.6'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		99.8

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		98.5
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		91.0
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.0038 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.2
 Liquid Limit (AASHTO T89) : 35
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 13
 Liquidity Index : 0.12
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 1.3
 Fine Sand (-No.40 + No.200) : 7.5
 Silt + Clay (-No.200) : 91.0

Sp. Gr. (AASHTO T100) : NA
AASHTO Classification: M145 : A-6 (12)
ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 1.3
 Fine Sand (-No.40 + No.200) : 7.5
 Silt + Clay (-No.200) : 91.0

Approved By : J.S.

Soil No. 21



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Lean Clay

Sample No. : SS-2
 Sample Loc. : Boring No. B-563
 Sample Depth : 14.1' to 15.6'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.8
No.6		3.35	mm		
No.10		2	mm		99.2

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		95.2
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		60.9
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0229 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.4
 Liquid Limit (AASHTO T89) : 25
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 8
 Liquidity Index : 0.61
 Activity : NA

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.8
 Coarse Sand (-No.10 + No.40) : 4.0
 Fine Sand (-No.40 + No.200) : 34.3
 Silt + Clay (-No.200) : 60.9

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.2
 Coarse Sand (-No.4 + No.10) : 0.6
 Medium Sand (-No.10 + No.40) : 4.0
 Fine Sand (-No.40 + No.200) : 34.3
 Silt + Clay (-No.200) : 60.9

Approved By : J.S.

Soil No. 22

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-3
Project No. : 11206-04	Sample Loc. : Boring No. B-563
Project County : Pulaski	Sample Depth : 19.1' to 20.6'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Brown & Gray Lean Clay	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	100.0	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.6	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	87.7	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0044 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 24.7
 Liquid Limit (AASHTO T89) : 28
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 8
 Liquidity Index : 0.57

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 11.9
 Silt + Clay (-No.200) : 87.7

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (6)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 11.9
 Silt + Clay (-No.200) : 87.7

Approved By : J.S.

Soil No. 23



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Clayey Sand

Sample No. : SS-4
 Sample Loc. : Boring No. B-563
 Sample Depth : 29.1' to 30.6'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		88.6
No.6		3.35	mm		
No.10		2	mm		63.0

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		32.8
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		19.0
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 1.0268 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 15.9
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 13
 Liquidity Index : -0.07
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-2-6 (1)
 ASTM Classification: D2487 : SC

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 37.0
 Coarse Sand (-No.10 + No.40) : 30.2
 Fine Sand (-No.40 + No.200) : 13.8
 Silt + Clay (-No.200) : 19.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 11.4
 Coarse Sand (-No.4 + No.10) : 25.6
 Medium Sand (-No.10 + No.40) : 30.2
 Fine Sand (-No.40 + No.200) : 13.8
 Silt + Clay (-No.200) : 19.0

Approved By : J.S.

Soil No. 24

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-2
Project No. : 11206-04	Sample Loc. : Boring No. B-564
Project County : Pulaski	Sample Depth : 9.6' to 11.1'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray & Tan Silt	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.9

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	98.7
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	92.9
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0035 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.9
 Liquid Limit (AASHTO T89) : 28
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 6
 Liquidity Index : 0.22
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (5)
 ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 1.2
 Fine Sand (-No.40 + No.200) : 5.8
 Silt + Clay (-No.200) : 92.9

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 1.2
 Fine Sand (-No.40 + No.200) : 5.8
 Silt + Clay (-No.200) : 92.9

Approved By : J.S.

Soil No. 25

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-5
Project No. : 11206-04	Sample Loc. : Boring No. B-564
Project County : Pulaski	Sample Depth : 34.6' to 36.1'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 10/31/14
Submitted By : ICA Engineering	
Soil Type : Gray & Tan Silty, Clayey Sand with Gravel	

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	96.1
1/4		6.3	mm	
No.4		4.75	mm	83.4
No.6		3.35	mm	
No.10		2	mm	58.5

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	39.4
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	20.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 1.0039 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 15.8
 Liquid Limit (AASHTO T89) : 22
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 5
 Liquidity Index : -0.28
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-1-b (0)
 ASTM Classification: D2487 : SC-SM

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 41.5
 Coarse Sand (-No.10 + No.40) : 19.1
 Fine Sand (-No.40 + No.200) : 19.2
 Silt + Clay (-No.200) : 20.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 16.6
 Coarse Sand (-No.4 + No.10) : 24.9
 Medium Sand (-No.10 + No.40) : 19.1
 Fine Sand (-No.40 + No.200) : 19.2
 Silt + Clay (-No.200) : 20.2

Approved By : J.S.

Soil No. 26



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray & Tan Clayey Sand with Gravel

Sample No. : SS-6
 Sample Loc. : Boring No. B-564
 Sample Depth : 39.6' to 41.1'
 Date Tested : 10/24/14
 Date Reported : 10/31/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm	100.0	
1 1/4	in.	31.5	mm		
1	in.	25	mm	90.2	
3/4	in.	19	mm	90.2	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	90.2	
1/4		6.3	mm		
No.4		4.75	mm	84.2	
No.6		3.35	mm		
No.10		2	mm	66.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	49.1	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	35.7	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.4596 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 16.2
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 11
 Liquidity Index : -0.24
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (0)
 ASTM Classification: D2487 : SC

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 33.1
 Coarse Sand (-No.10 + No.40) : 17.8
 Fine Sand (-No.40 + No.200) : 13.4
 Silt + Clay (-No.200) : 35.7

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 9.8
 Fine Gravel (-3/4in. + No.4) : 6.0
 Coarse Sand (-No.4 + No.10) : 17.3
 Medium Sand (-No.10 + No.40) : 17.8
 Fine Sand (-No.40 + No.200) : 13.4
 Silt + Clay (-No.200) : 35.7

Approved By : J.S.

Soil No. 27

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Silt

Sample No. : SS-3
 Sample Loc. : Boring No. B-556
 Sample Depth : 14.8' to 16.3'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.4	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	91.3	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.0038 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.1
 Liquid Limit (AASHTO T89) : 20
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 2
 Liquidity Index : 1.35
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 8.1
 Silt + Clay (-No.200) : 91.3

Sp. Gr. (AASHTO T100) : NA
AASHTO Classification: M145 : A-4 (0)
ASTM Classification: D2487 : ML

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 8.1
 Silt + Clay (-No.200) : 91.3

Approved By : J.S.

Soil No. 28



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Silty Clay

Sample No. : SS-5
 Sample Loc. : Boring No. B-556
 Sample Depth : 34.8' to 36.3'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		99.8

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		93.9
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		60.5
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0238 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.7
 Liquid Limit (AASHTO T89) : 22
 Plastic Limit (AASHTO T90) : 16
 Plasticity Index : 6
 Liquidity Index : 1.16
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 5.9
 Fine Sand (-No.40 + No.200) : 33.4
 Silt + Clay (-No.200) : 60.5

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 5.9
 Fine Sand (-No.40 + No.200) : 33.4
 Silt + Clay (-No.200) : 60.5

Approved By : J.S.

Soil No. 29



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray Silt with Sand

Sample No. : SS-7
 Sample Loc. : Boring No. B-556
 Sample Depth : 44.8' to 45.0'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		95.0
No.6		3.35	mm		
No.10		2	mm		89.0

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		80.8
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		77.6
No.270		0.053	mm		
Hyd. Rd.	# 1		mm		
Hyd. Rd.	# 2		mm		
Hyd. Rd.	# 3		mm		
Hyd. Rd.	# 4		mm		
Hyd. Rd.	# 5		mm		
Hyd. Rd.	# 6		mm		
Hyd. Rd.	# 7		mm		

AASHTO T88

D₅₀ = 0.0071 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 8.3
 Liquid Limit (AASHTO T89) : NA
 Plastic Limit (AASHTO T90) : NA
 Plasticity Index : NA
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0) *
 ASTM Classification: D2487 : ML *
 * Visual Classification

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 11.0
 Coarse Sand (-No.10 + No.40) : 8.2
 Fine Sand (-No.40 + No.200) : 3.2
 Silt + Clay (-No.200) : 77.6

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 5.0
 Coarse Sand (-No.4 + No.10) : 6.0
 Medium Sand (-No.10 + No.40) : 8.2
 Fine Sand (-No.40 + No.200) : 3.2
 Silt + Clay (-No.200) : 77.6

Approved By : J.S.

Soil No. 30



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Silty Clay

Sample No. : SS-2
 Sample Loc. : Boring No. B-562
 Sample Depth : 15.0' to 16.5'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.9
No.6		3.35	mm	
No.10		2	mm	99.7

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	85.9
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0047 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20.8
 Liquid Limit (AASHTO T89) : 25
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 7
 Liquidity Index : 0.35

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 13.2
 Silt + Clay (-No.200) : 85.9

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (4)
 ASTM Classification: D2487 : CL-ML

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.1
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 0.6
 Fine Sand (-No.40 + No.200) : 13.2
 Silt + Clay (-No.200) : 85.9

Approved By : J.S.

Soil No. 31



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Lean Clay

Sample No. : SS-5
 Sample Loc. : Boring No. B-562
 Sample Depth : 30.0' to 31.5'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm	100.0	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	98.1	
1/4		6.3	mm		
No.4		4.75	mm	91.9	
No.6		3.35	mm		
No.10		2	mm	79.3	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	66.2	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	55.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0411 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 16.5
 Liquid Limit (AASHTO T89) : 26
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 8
 Liquidity Index : -0.25
 Activity : NA

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 20.7
 Coarse Sand (-No.10 + No.40) : 13.1
 Fine Sand (-No.40 + No.200) : 11.2
 Silt + Clay (-No.200) : 55.0

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 8.1
 Coarse Sand (-No.4 + No.10) : 12.6
 Medium Sand (-No.10 + No.40) : 13.1
 Fine Sand (-No.40 + No.200) : 11.2
 Silt + Clay (-No.200) : 55.0

Approved By : J.S.

Soil No. 32

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Black Lean Clay

Sample No. : SS-1
 Sample Loc. : Boring No. B-557
 Sample Depth : 4.4' to 5.9'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.5	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	97.9	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	96.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.0031 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.9
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 9
 Liquidity Index : 0.24

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.5
 Coarse Sand (-No.10 + No.40) : 1.6
 Fine Sand (-No.40 + No.200) : 1.9
 Silt + Clay (-No.200) : 96.0

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (8)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.5
 Medium Sand (-No.10 + No.40) : 1.6
 Fine Sand (-No.40 + No.200) : 1.9
 Silt + Clay (-No.200) : 96.0

Approved By : J.S.

Soil No. 33



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan, Gray & Black Lean Clay

Sample No. : SS-3
 Sample Loc. : Boring No. B-557
 Sample Depth : 24.4' to 25.9'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	100.0	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.0	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	92.5	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0036 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20.3
 Liquid Limit (AASHTO T89) : 39
 Plastic Limit (AASHTO T90) : 23
 Plasticity Index : 16
 Liquidity Index : -0.20
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (16)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 6.5
 Silt + Clay (-No.200) : 92.5

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 6.5
 Silt + Clay (-No.200) : 92.5

Approved By : J.S.

Soil No. 34

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan, Brown & Black Lean Clay

Sample No. : SS-5
 Sample Loc. : Boring No. B-557
 Sample Depth : 34.4' to 35.9'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	100.0

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.0
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	96.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0031 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 24.8
 Liquid Limit (AASHTO T89) : 28
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 8
 Liquidity Index : 0.62
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 3.0
 Silt + Clay (-No.200) : 96.0

Sp. Gr. (AASHTO T100) : NA
AASHTO Classification: M145 : A-4 (7)
ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 3.0
 Silt + Clay (-No.200) : 96.0

Approved By : J.S.

Soil No. 35



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Dark Gray & Black Silt with Sand

Sample No. : SS-6
 Sample Loc. : Boring No. B-557
 Sample Depth : 44.4' to 44.6'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm	100.0	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	97.7	
1/4		6.3	mm		
No.4		4.75	mm	92.8	
No.6		3.35	mm		
No.10		2	mm	87.3	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	81.5	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	79.2	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0065 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 2.3
 Liquid Limit (AASHTO T89) : NA
 Plastic Limit (AASHTO T90) : NA
 Plasticity Index : NA
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0) *
 ASTM Classification: D2487 : ML *
 * Visual Classification

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 12.7
 Coarse Sand (-No.10 + No.40) : 5.8
 Fine Sand (-No.40 + No.200) : 2.3
 Silt + Clay (-No.200) : 79.2

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 7.2
 Coarse Sand (-No.4 + No.10) : 5.5
 Medium Sand (-No.10 + No.40) : 5.8
 Fine Sand (-No.40 + No.200) : 2.3
 Silt + Clay (-No.200) : 79.2

Approved By : J.S.

Soil No. 36



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Silt

Sample No. : SS-1
 Sample Loc. : Boring No. B-559
 Sample Depth : 4.7' to 6.2'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	100.0	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.6	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	95.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0033 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20.9
 Liquid Limit (AASHTO T89) : 23
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 3
 Liquidity Index : 0.41
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 4.6
 Silt + Clay (-No.200) : 95.0

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : ML

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 0.4
 Fine Sand (-No.40 + No.200) : 4.6
 Silt + Clay (-No.200) : 95.0

Approved By : J.S.

Soil No. 37

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-3
Project No. : 11206-04	Sample Loc. : Boring No. B-559
Project County : Pulaski	Sample Depth : 19.7' to 21.2'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown, Tan & Gray Sandy Lean Clay	

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	97.7
No.6		3.35	mm	
No.10		2	mm	80.8

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	66.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	61.1
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0225 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.1
 Liquid Limit (AASHTO T89) : 36
 Plastic Limit (AASHTO T90) : 20
 Plasticity Index : 16
 Liquidity Index : 0.13
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (8)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 19.2
 Coarse Sand (-No.10 + No.40) : 14.7
 Fine Sand (-No.40 + No.200) : 5.0
 Silt + Clay (-No.200) : 61.1

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 2.3
 Coarse Sand (-No.4 + No.10) : 16.9
 Medium Sand (-No.10 + No.40) : 14.7
 Fine Sand (-No.40 + No.200) : 5.0
 Silt + Clay (-No.200) : 61.1

Approved By : J.S.

Soil No. 38

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-3
Project No. : 11206-04	Sample Loc. : Boring No. B-565
Project County : Pulaski	Sample Depth : 15.2' to 16.7'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Tan Lean Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.7

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	98.3
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	92.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0036 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.4
 Liquid Limit (AASHTO T89) : 38
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : 16
 Liquidity Index : 0.04
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (16)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 5.7
 Silt + Clay (-No.200) : 92.6

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.3
 Medium Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 5.7
 Silt + Clay (-No.200) : 92.6

Approved By : J.S.

Soil No. 39

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-4
Project No. : 11206-04	Sample Loc. : Boring No. B-565
Project County : Pulaski	Sample Depth : 25.2' to 26.7'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Tan Silt with Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.7

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	98.3
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	82.7
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0055 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20.3
 Liquid Limit (AASHTO T89) : 20
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 2
 Liquidity Index : 1.15
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 15.6
 Silt + Clay (-No.200) : 82.7

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.3
 Medium Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 15.6
 Silt + Clay (-No.200) : 82.7

Approved By : J.S.

Soil No. 40

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan & Brown Silty Clay with Sand

Sample No. : SS-5
 Sample Loc. : Boring No. B-565
 Sample Depth : 30.2' to 31.7'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		98.6

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		95.8
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		74.7
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.0084 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.4
 Liquid Limit (AASHTO T89) : 23
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 5
 Liquidity Index : 0.67
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 1.4
 Coarse Sand (-No.10 + No.40) : 2.8
 Fine Sand (-No.40 + No.200) : 21.1
 Silt + Clay (-No.200) : 74.7

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 1.4
 Medium Sand (-No.10 + No.40) : 2.8
 Fine Sand (-No.40 + No.200) : 21.1
 Silt + Clay (-No.200) : 74.7

Approved By : J.S.

Soil No. 41

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : SS-6
Project No. : 11206-04	Sample Loc. : Boring No. B-565
Project County : Pulaski	Sample Depth : 40.2' to 40.4'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown Silt with Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	99.0
1/4		6.3	mm	
No.4		4.75	mm	93.3
No.6		3.35	mm	
No.10		2	mm	86.5

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	79.6
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	76.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0078 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 12.8
 Liquid Limit (AASHTO T89) : NA
 Plastic Limit (AASHTO T90) : NA
 Plasticity Index : NA
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0) *
 ASTM Classification: D2487 : ML *
 * Visual Classification

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 13.5
 Coarse Sand (-No.10 + No.40) : 6.9
 Fine Sand (-No.40 + No.200) : 3.6
 Silt + Clay (-No.200) : 76.0

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 6.7
 Coarse Sand (-No.4 + No.10) : 6.8
 Medium Sand (-No.10 + No.40) : 6.9
 Fine Sand (-No.40 + No.200) : 3.6
 Silt + Clay (-No.200) : 76.0

Approved By : J.S.

Soil No. 42

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Lean Clay with Sand

Sample No. : Bag-1
 Sample Loc. : Boring No. B-511
 Sample Depth : 0.0' to 5.0'
 Date Tested : 10/24/14
 Date Reported : 11/10/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.1
No.6		3.35	mm		
No.10		2	mm		97.3

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		95.9
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		72.9
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.0094 \text{ mm}$

CBR (AASHTO: T-193) : 3.8
 Dry Dens. (AASHTO: T-99; Method (C)) : 114.3 pcf
 Opt. Moist. (AASHTO: T-99; Method (C)) : 13.6 %

Natural Moisture (%) (AASHTO T265) : 19.1

Liquid Limit (AASHTO T89) : 24

Plastic Limit (AASHTO T90) : 15

Plasticity Index : 9

Liquidity Index : 0.42

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (4)

ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 2.7
 Coarse Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 23.0
 Silt + Clay (-No.200) : 72.9

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.9
 Coarse Sand (-No.4 + No.10) : 1.8
 Medium Sand (-No.10 + No.40) : 1.4
 Fine Sand (-No.40 + No.200) : 23.0
 Silt + Clay (-No.200) : 72.9

Approved By : J.S.

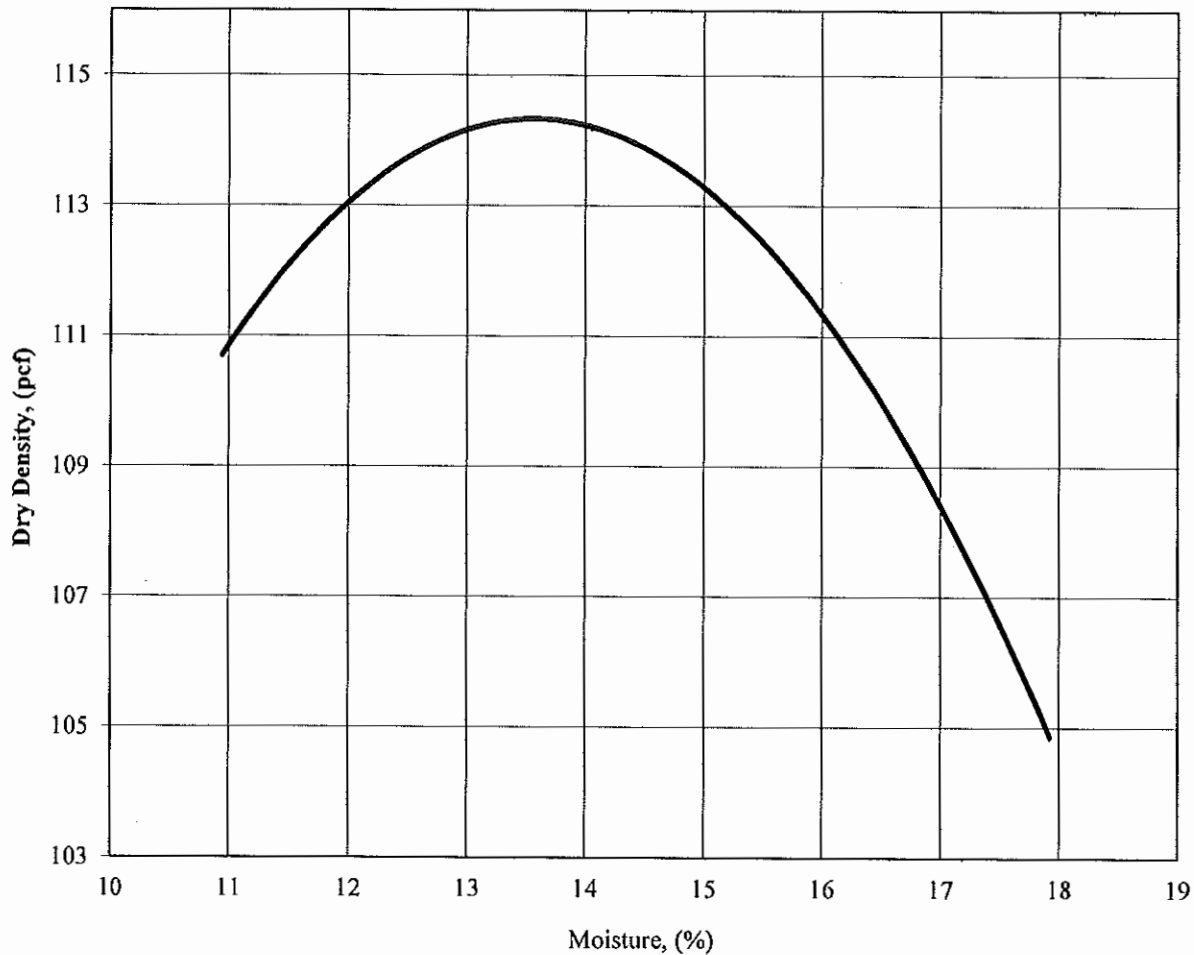
Soil No. 43



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Lean Clay with Sand

Sample No. : Bag-1
Sample Loc. : Boring No. B-511
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



MAXIMUM DENSITY: 114.3 pcf

OPTIMUM MOISTURE: 13.6 %

COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

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SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : Bag-26
Project No. : 11206-04	Sample Loc. : Boring No. B-550
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown Silty, Clayey Sand with Gravel	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm	100.0	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	93.9	
1/4		6.3	mm		
No.4		4.75	mm	84.3	
No.6		3.35	mm		
No.10		2	mm	73.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	65.0	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	37.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.1678 mm

CBR (AASHTO: T-193) : 11.0	Natural Moisture (%) (AASHTO T265) : 10.7
Dry Dens. (AASHTO: T-99; Method (C)) : 122.6 pcf	Liquid Limit (AASHTO T89) : 23
Opt. Moist. (AASHTO: T-99; Method (C)) : 10.4 %	Plastic Limit (AASHTO T90) : 17
	Plasticity Index : 6
	Liquidity Index : -1.01
	Activity : NA
	Sp. Gr. (AASHTO T100) : NA
	AASHTO Classification: M145 : A-4 (0)
	ASTM Classification: D2487 : SC-SM

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
Fine Gravel (-3/4in. + No.4) : 15.7
Coarse Sand (-No.4 + No.10) : 10.4
Medium Sand (-No.10 + No.40) : 8.9
Fine Sand (-No.40 + No.200) : 28.0
Silt + Clay (-No.200) : 37.0

Approved By : J.S.

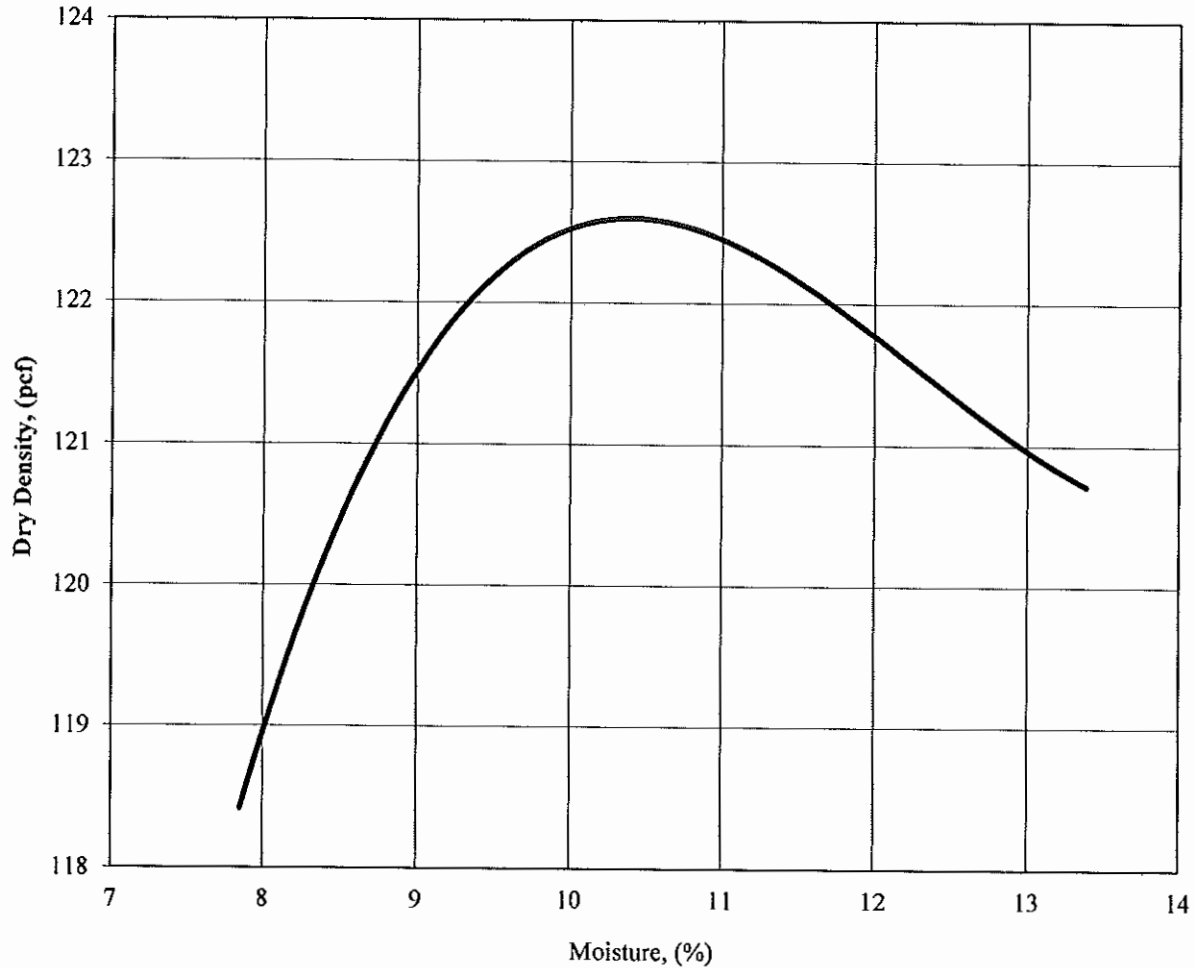
Soil No. 44



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Silty, Clayey Sand with Gravel

Sample No. : Bag-26
Sample Loc. : Boring No. B-550
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



MAXIMUM DENSITY: 122.6 pcf

OPTIMUM MOISTURE: 10.4 %

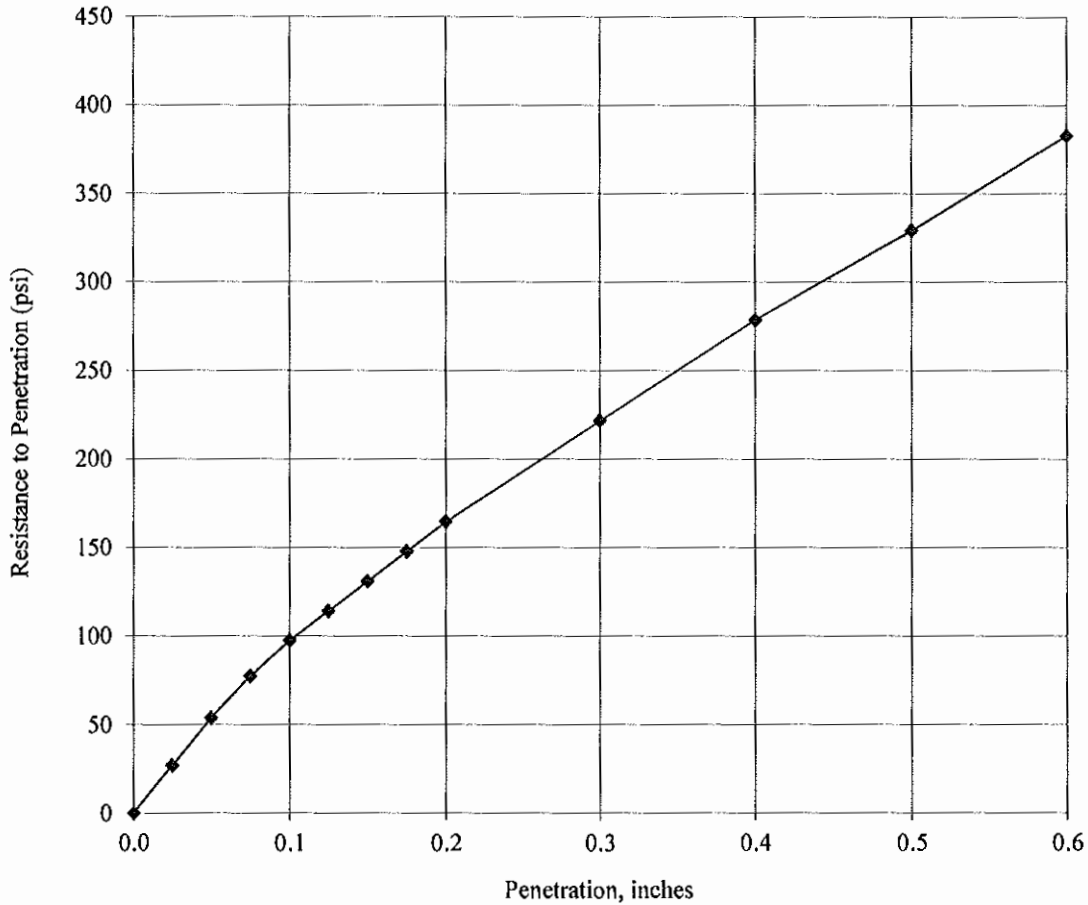
COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

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CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening	Sample No. : Bag-26
Project No. : 11206-04	Sample Loc. : Boring No. B-550
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown Silty, Clayey Sand with Gravel	



Compaction Effort = 35 Blows per layer
 Percent Compacted = 99
 Percent Swell = 0.11

C.B.R. @ 0.1 In. = 9.7
 C.B.R. @ 0.2 In. = 11*

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : Bag-25
Project No. : 11206-04	Sample Loc. : Boring No. B-553
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown & Red Silty, Clayey Sand with Gravel	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		100.0
1 1/4	in.	31.5	mm		
1	in.	25	mm		92.1
3/4	in.	19	mm		92.1
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		85.3
1/4		6.3	mm		
No.4		4.75	mm		70.0
No.6		3.35	mm		
No.10		2	mm		52.9

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		43.3
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		28.2
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 1.2527 \text{ mm}$

CBR (AASHTO: T-193) : 8.1	Natural Moisture (%) (AASHTO T265) : 11.1
Dry Dens. (AASHTO: T-99; Method (C)) : 117.1 pcf	Liquid Limit (AASHTO T89) : 23
Opt. Moist. (AASHTO: T-99; Method (C)) : 13.2 %	Plastic Limit (AASHTO T90) : 17
	Plasticity Index : 6
	Liquidity Index : -0.96
	Activity : NA
	Sp. Gr. (AASHTO T100) : NA
	AASHTO Classification: M145 : A-2-4 (0)
	ASTM Classification: D2487 : SC-SM

ASTM Composition of Total Sample: D2487

- Coarse Gravel (3in. + 3/4in.) : 7.9
- Fine Gravel (-3/4in. + No.4) : 22.1
- Coarse Sand (-No.4 + No.10) : 17.1
- Medium Sand (-No.10 + No.40) : 9.6
- Fine Sand (-No.40 + No.200) : 15.1
- Silt + Clay (-No.200) : 28.2

Approved By : J.S.

Soil No. 45



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening

Project No. : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory No. : 11206-04

Submitted By : ICA Engineering

Soil Type : Brown & Red Silty, Clayey Sand with Gravel

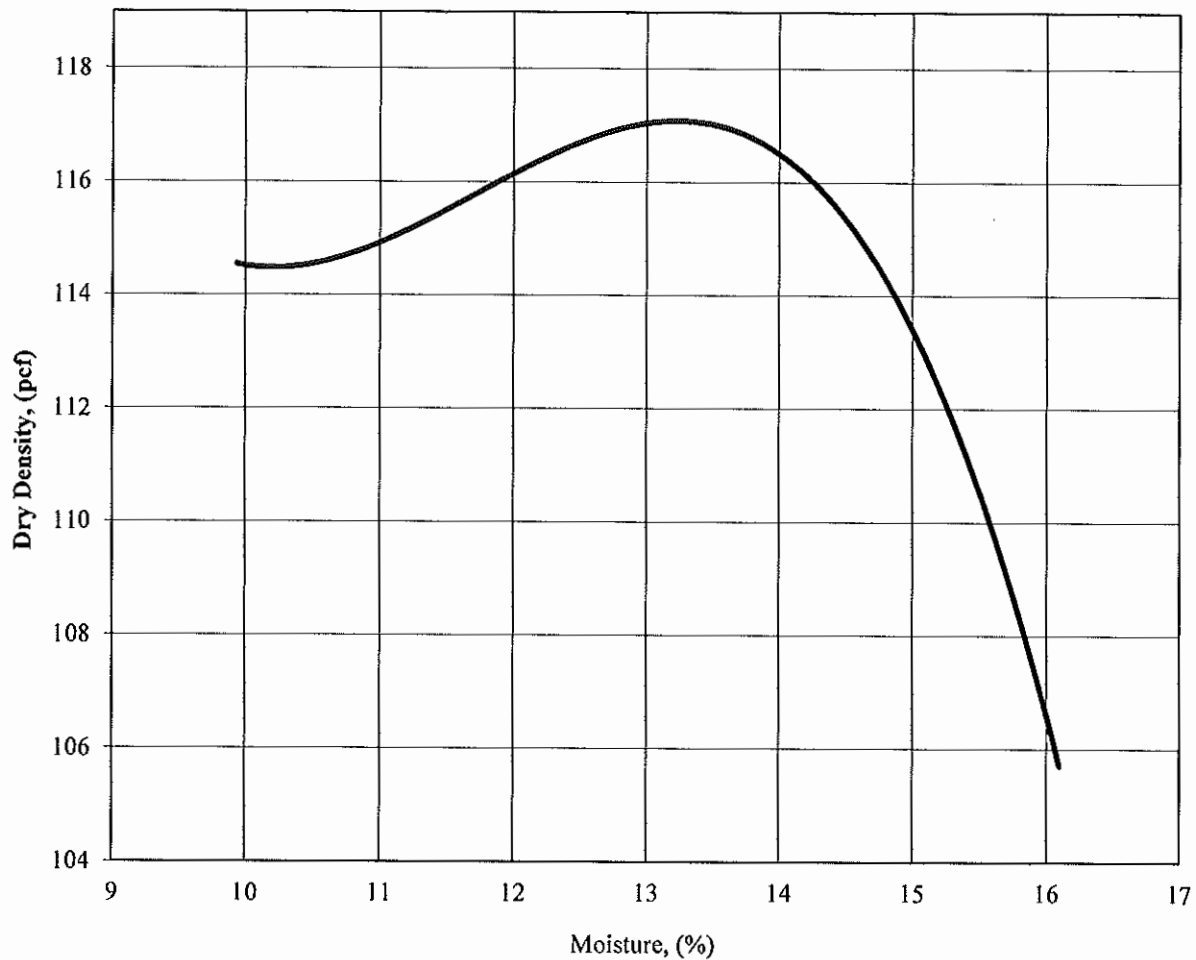
Sample No. : Bag-25

Sample Loc. : Boring No. B-553

Sample Depth : 0.0' to 5.0'

Date Tested : 10/24/14

Date Reported : 11/10/14



MAXIMUM DENSITY: 117.1 pcf

OPTIMUM MOISTURE: 13.2 %

COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

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SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : Bag-29
Project No. : 11206-04	Sample Loc. : Boring No. B-544
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Dark Brown Lean Clay with Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.2
No.6		3.35	mm	
No.10		2	mm	98.2

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	96.6
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	84.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.005 \text{ mm}$

CBR (AASHTO: T-193) : 5.4	Natural Moisture (%) (AASHTO T265) : 23.2
Dry Dens. (AASHTO: T-99; Method (C)) : 106.7 pcf	Liquid Limit (AASHTO T89) : 38
Opt. Moist. (AASHTO: T-99; Method (C)) : 18.3 %	Plastic Limit (AASHTO T90) : 22
	Plasticity Index : 16
	Liquidity Index : 0.08
	Activity : NA
	Sp. Gr. (AASHTO T100) : NA
	AASHTO Classification: M145 : A-6 (14)
	ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
Fine Gravel (-3/4in. + No.4) : 0.8
Coarse Sand (-No.4 + No.10) : 1.0
Medium Sand (-No.10 + No.40) : 1.6
Fine Sand (-No.40 + No.200) : 12.0
Silt + Clay (-No.200) : 84.6

Approved By : J.S.

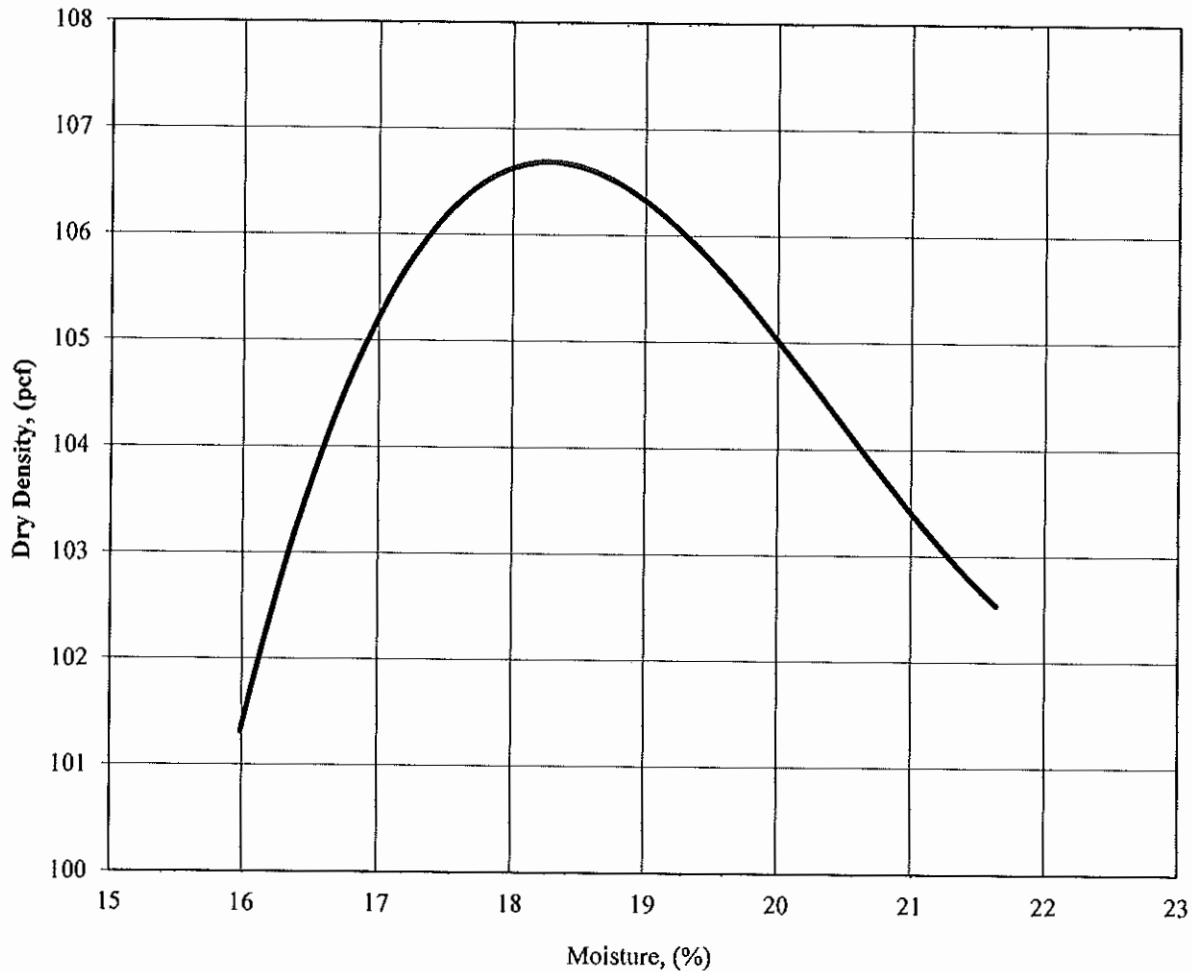
Soil No. 46



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Dark Brown Lean Clay with Sand

Sample No. : Bag-29
Sample Loc. : Boring No. B-544
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



MAXIMUM DENSITY: 106.7 pcf

OPTIMUM MOISTURE: 18.3 %

COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

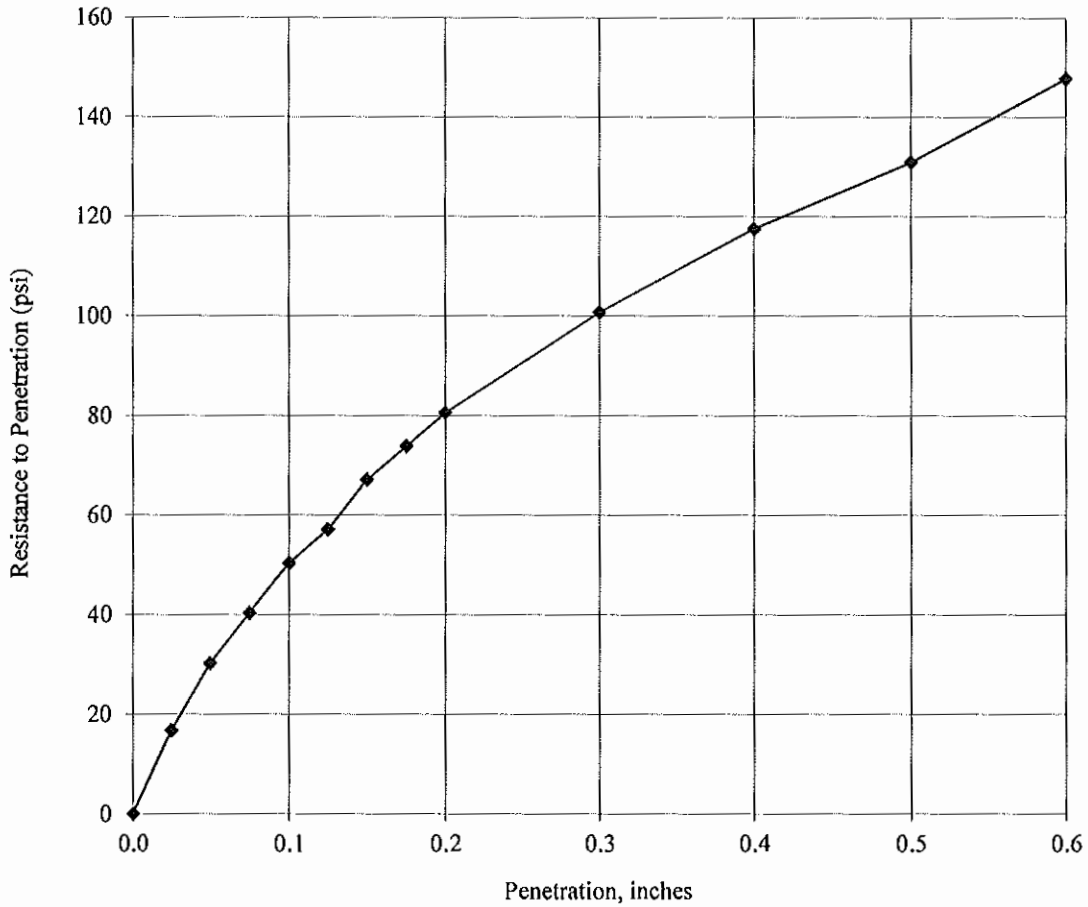
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CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Dark Brown Lean Clay with Sand

Sample No. : Bag-29
 Sample Loc. : Boring No. B-544
 Sample Depth : 0.0' to 5.0'
 Date Tested : 10/24/14
 Date Reported : 11/10/14



Compaction Effort = 35 Blows per layer
 Percent Compacted = 97.6
 Percent Swell = 2.88

C.B.R. @ 0.1 In. = 5
 C.B.R. @ 0.2 In. = 5.4*

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Lean Clay

Sample No. : Bag-8
 Sample Loc. : Boring No. B-534
 Sample Depth : 0.0' to 5.0'
 Date Tested : 10/24/14
 Date Reported : 11/10/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	100.0	
1/4		6.3	mm		
No.4		4.75	mm	99.8	
No.6		3.35	mm		
No.10		2	mm	98.8	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	96.5	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	57.4	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0319 mm

CBR (AASHTO: T-193) : 6.9 Natural Moisture (%) (AASHTO T265) : 18.1
 Dry Dens. (AASHTO: T-99; Method (C)) : 116.6 pcf Liquid Limit (AASHTO T89) : 23
 Opt. Moist. (AASHTO: T-99; Method (C)) : 13.6 % Plastic Limit (AASHTO T90) : 14
 Plasticity Index : 9
 AASHTO Composition of Total Sample: M145 Liquidity Index : 0.48
 Activity : NA
 Gravel (3in. + No.10) : 1.2 Sp. Gr. (AASHTO T100) : NA
 Coarse Sand (-No.10 + No.40) : 2.3 AASHTO Classification: M145 : A-4 (2)
 Fine Sand (-No.40 + No.200) : 39.1 ASTM Classification: D2487 : CL
 Silt + Clay (-No.200) : 57.4

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.2
 Coarse Sand (-No.4 + No.10) : 1.0
 Medium Sand (-No.10 + No.40) : 2.3
 Fine Sand (-No.40 + No.200) : 39.1
 Silt + Clay (-No.200) : 57.4

Approved By : J.S.

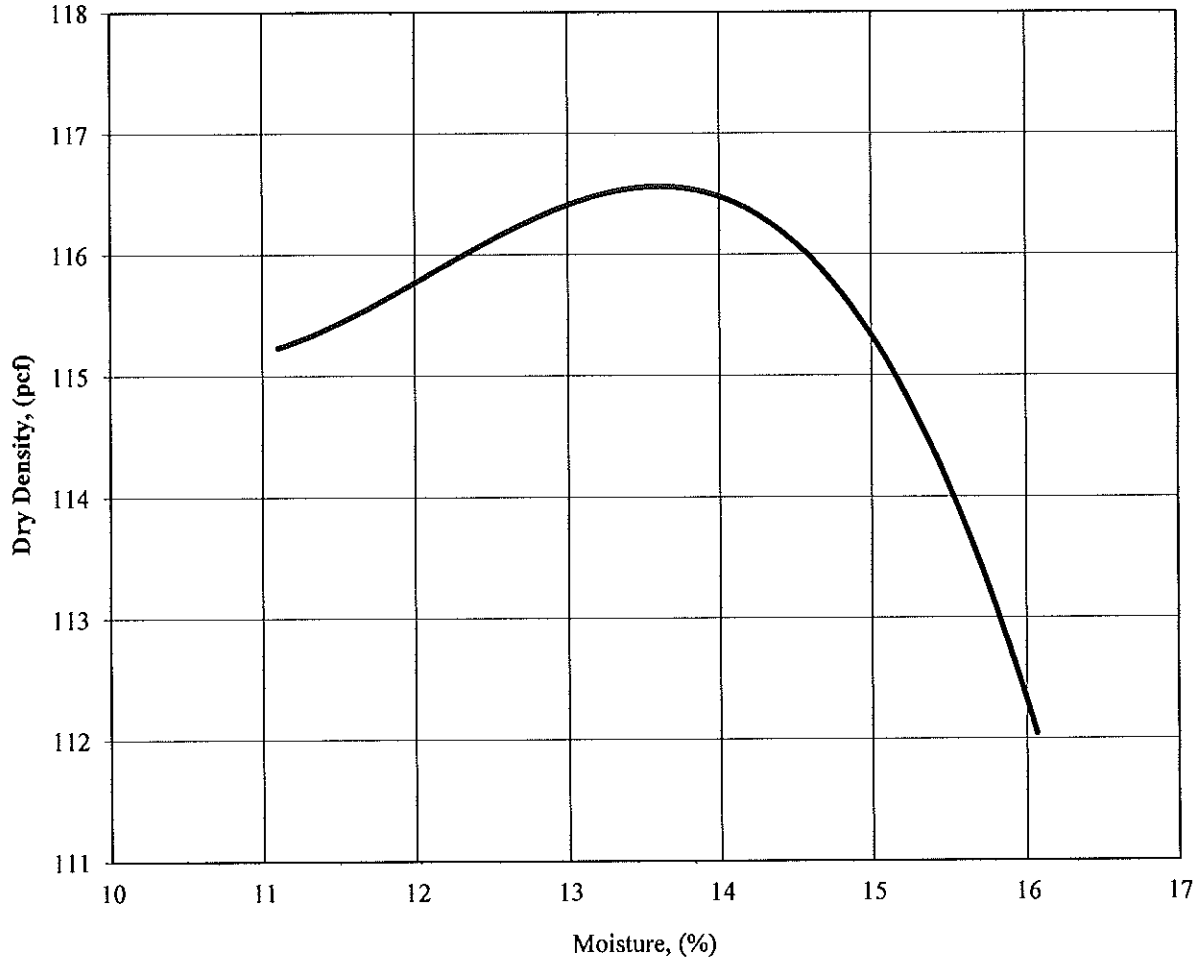
Soil No. 47



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Sandy Lean Clay

Sample No. : Bag-8
Sample Loc. : Boring No. B-534
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



MAXIMUM DENSITY: 116.6 pcf

OPTIMUM MOISTURE: 13.6 %

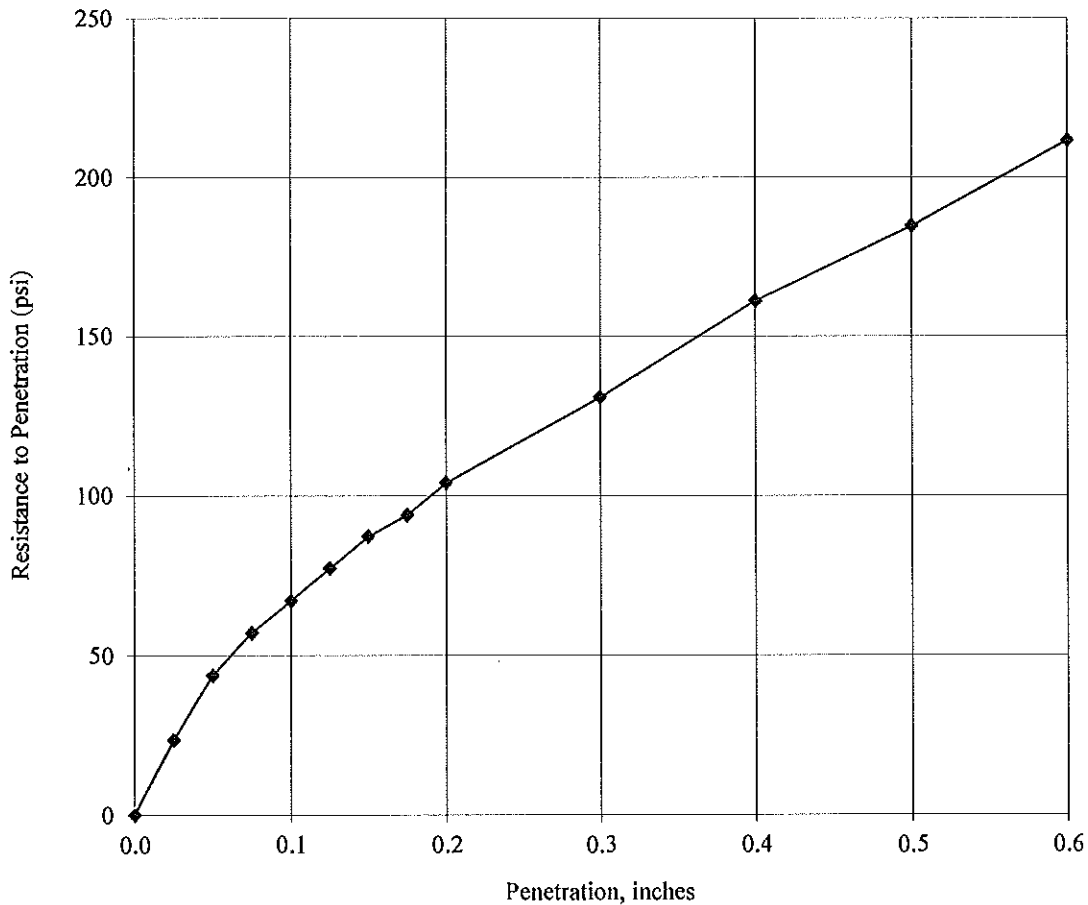
COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

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CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening	Sample No. : Bag-8
Project No. : 11206-04	Sample Loc. : Boring No. B-534
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown Sandy Lean Clay	



Compaction Effort = 35 Blows per layer
 Percent Compacted = 97.6
 Percent Swell = 0.44

C.B.R. @ 0.1 In. = 6.7
 C.B.R. @ 0.2 In. = 6.9*

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : Bag-6
Project No. : 11206-04	Sample Loc. : Boring No. B-530
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown Clayey Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	99.5
1/4		6.3	mm	
No.4		4.75	mm	98.9
No.6		3.35	mm	
No.10		2	mm	98.2

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	93.8
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	49.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0774 \text{ mm}$

CBR (AASHTO: T-193) : 5.4	Natural Moisture (%) (AASHTO T265) : 16.4
Dry Dens. (AASHTO: T-99; Method (C)) : 118.1 pcf	Liquid Limit (AASHTO T89) : 25
Opt. Moist. (AASHTO: T-99; Method (C)) : 13.3 %	Plastic Limit (AASHTO T90) : 14
	Plasticity Index : 11
AASHTO Composition of Total Sample: M145	Liquidity Index : 0.20
Gravel (3in. + No.10) : 1.8	Activity : NA
Coarse Sand (-No.10 + No.40) : 4.4	Sp. Gr. (AASHTO T100) : NA
Fine Sand (-No.40 + No.200) : 44.6	AASHTO Classification: M145 : A-6 (2)
Silt + Clay (-No.200) : 49.2	ASTM Classification: D2487 : SC

ASTM Composition of Total Sample: D2487

- Coarse Gravel (3in. + 3/4in.) : 0.0
- Fine Gravel (-3/4in. + No.4) : 1.1
- Coarse Sand (-No.4 + No.10) : 0.7
- Medium Sand (-No.10 + No.40) : 4.4
- Fine Sand (-No.40 + No.200) : 44.6
- Silt + Clay (-No.200) : 49.2

Approved By: J.S.

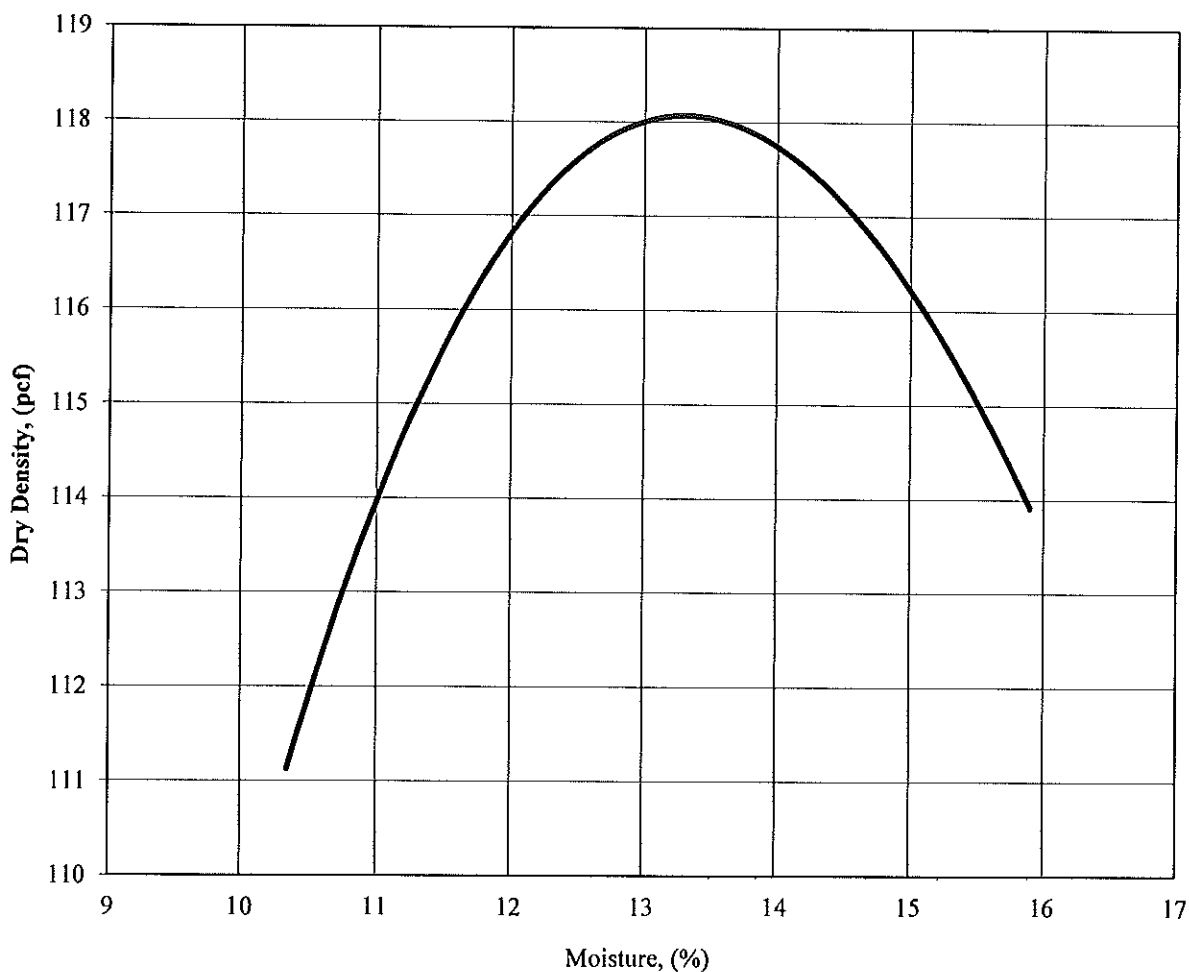
Soil No. 48



MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Brown Clayey Sand

Sample No. : Bag-6
Sample Loc. : Boring No. B-530
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



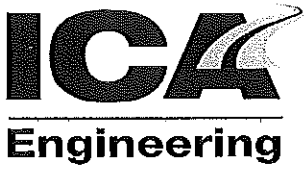
MAXIMUM DENSITY: 118.1 pcf

OPTIMUM MOISTURE: 13.3 %

COMMENTS: AASHTO: T-99; Method (C)

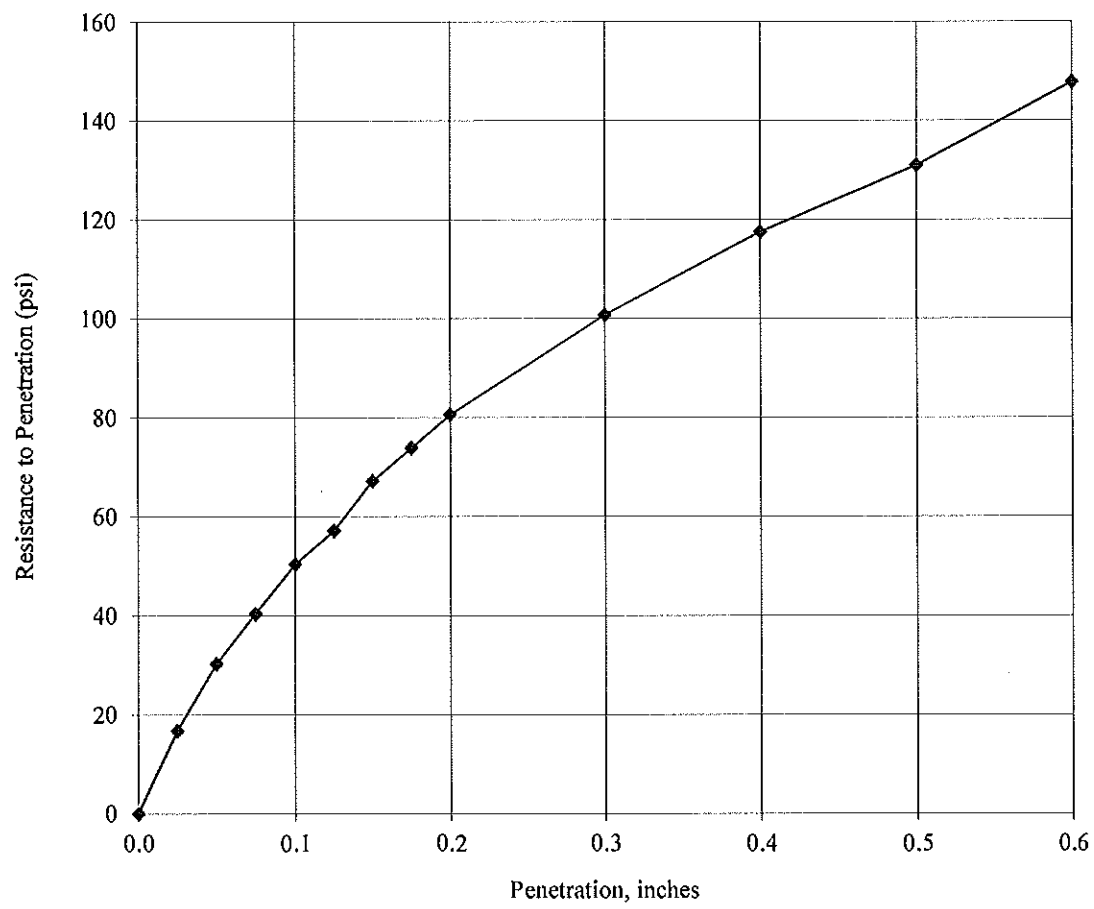
APPROVED BY: J.S.

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CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening	Sample No. : Bag-6
Project No. : 11206-04	Sample Loc. : Boring No. B-530
Project County : Pulaski	Sample Depth : 0.0' to 5.0'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory No. : 11206-04	Date Reported : 11/10/14
Submitted By : ICA Engineering	
Soil Type : Brown Clayey Sand	



Compaction Effort = 35 Blows per layer
Percent Compacted = 98.2
Percent Swell = 0.31

C.B.R. @ 0.1 In. = 5
C.B.R. @ 0.2 In. = 5.4*

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:

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Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Red & Brown Sandy Silty Clay

Sample No. : Bag-30
 Sample Loc. : Boring No. B-543
 Sample Depth : 0.0' to 5.0'
 Date Tested : 10/24/14
 Date Reported : 11/10/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm	100.0	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	98.2	
1/4		6.3	mm		
No.4		4.75	mm	95.9	
No.6		3.35	mm		
No.10		2	mm	94.4	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	91.2	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	68.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.013 mm

CBR (AASHTO: T-193) : 6.0
 Dry Dens. (AASHTO: T-99; Method (C)) : 117.6 pcf
 Opt. Moist. (AASHTO: T-99; Method (C)) : 12.6 %

Natural Moisture (%) (AASHTO T265) : 19.5

Liquid Limit (AASHTO T89) : 22
 Plastic Limit (AASHTO T90) : 16
 Plasticity Index : 6
 Liquidity Index : 0.63
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 5.6
 Coarse Sand (-No.10 + No.40) : 3.2
 Fine Sand (-No.40 + No.200) : 23.2
 Silt + Clay (-No.200) : 68.0

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL-ML

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 4.1
 Coarse Sand (-No.4 + No.10) : 1.5
 Medium Sand (-No.10 + No.40) : 3.2
 Fine Sand (-No.40 + No.200) : 23.2
 Silt + Clay (-No.200) : 68.0

Approved By : J.S.

Soil No. 49

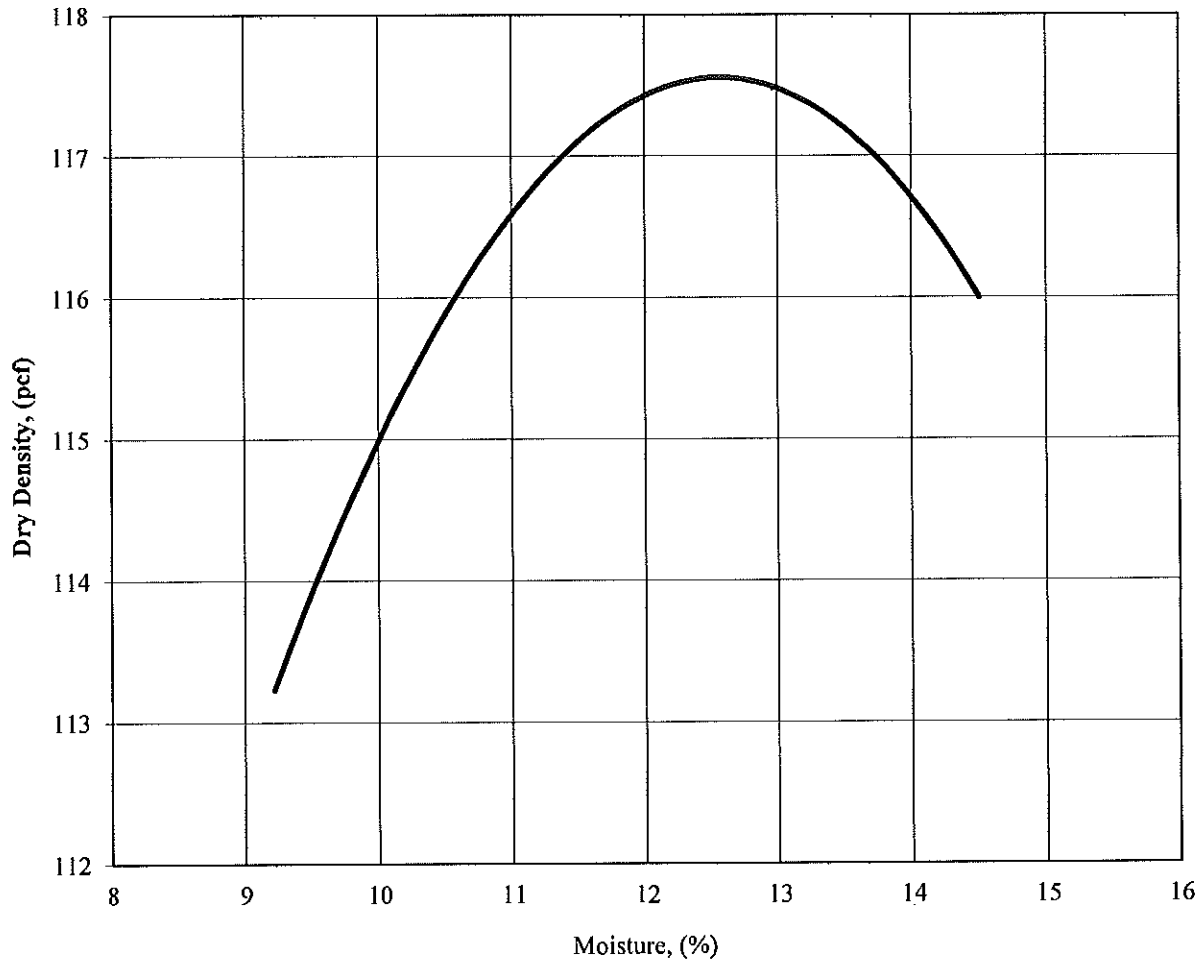
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MOISTURE-DENSITY RELATIONSHIP

Project Name : Highway 67 Widening
Project No. : 11206-04
Project County : Pulaski
Project State : Arkansas
Laboratory No. : 11206-04
Submitted By : ICA Engineering
Soil Type : Red & Brown Sandy Silty Clay

Sample No. : Bag-30
Sample Loc. : Boring No. B-543
Sample Depth : 0.0' to 5.0'
Date Tested : 10/24/14
Date Reported : 11/10/14



MAXIMUM DENSITY: 117.6 pcf

OPTIMUM MOISTURE: 12.6 %

COMMENTS: AASHTO: T-99; Method (C)

APPROVED BY: J.S.

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CALIFORNIA BEARING RATIO

Project Name : Highway 67 Widening

Project No. : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory No. : 11206-04

Submitted By : ICA Engineering

Soil Type : Red & Brown Sandy Silty Clay

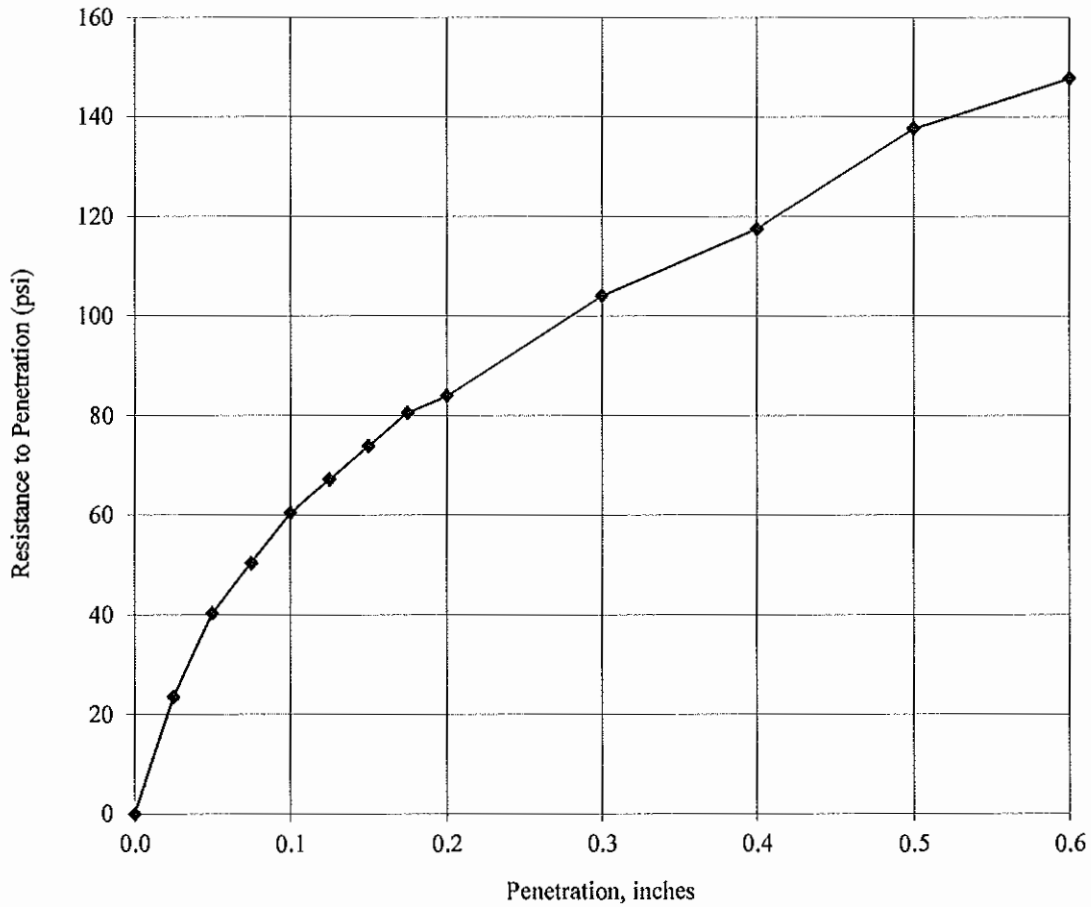
Sample No. : Bag-30

Sample Loc. : Boring No. B-543

Sample Depth : 0.0' to 5.0'

Date Tested : 10/24/14

Date Reported : 11/10/14



Compaction Effort = 35 Blows per layer

Percent Compacted = 97.7

Percent Swell = 0.89

C.B.R. @ 0.1 In. = 6*

C.B.R. @ 0.2 In. = 5.6

COMMENTS: AASHTO: T-193

APPROVED BY: _____ JS

COMMENTS:

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SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Silty Clay with Sand

Sample No. : ST-1
 Sample Loc. : Boring No. B-501
 Sample Depth : 4.5' to 6.0'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.2
No.6		3.35	mm	
No.10		2	mm	98.8

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	97.8
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	75.5
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.008 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20
 Liquid Limit (AASHTO T89) : 19
 Plastic Limit (AASHTO T90) : 14
 Plasticity Index : 5
 Liquidity Index : 1.25
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 1.2
 Coarse Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 22.3
 Silt + Clay (-No.200) : 75.5

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.8
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 1.0
 Fine Sand (-No.40 + No.200) : 22.3
 Silt + Clay (-No.200) : 75.5

Approved By : J.S.

Soil No. 50



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Sandy Lean Clay

Sample No. : ST-2
 Sample Loc. : Boring No. B-501
 Sample Depth : 9.5' to 10.7'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	97.5	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	54.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0459 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.6

Liquid Limit (AASHTO T89) : 26

Plastic Limit (AASHTO T90) : 15

Plasticity Index : 11

Liquidity Index : 0.37

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-6 (3)

ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 2.4
 Fine Sand (-No.40 + No.200) : 43.5
 Silt + Clay (-No.200) : 54.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 2.4
 Fine Sand (-No.40 + No.200) : 43.5
 Silt + Clay (-No.200) : 54.0

Approved By : J.S.

Soil No. 51



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan & Gray Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-502
 Sample Depth : 9.2' to 10.7'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	98.6	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	88.1	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0043 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.8
 Liquid Limit (AASHTO T89) : 40
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 19
 Liquidity Index : 0.14
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (17)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 1.3
 Fine Sand (-No.40 + No.200) : 10.5
 Silt + Clay (-No.200) : 88.1

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 1.3
 Fine Sand (-No.40 + No.200) : 10.5
 Silt + Clay (-No.200) : 88.1

Approved By : J.S.

Soil No. 52

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray & Tan Lean Clay with Sand

Sample No. : ST-2
 Sample Loc. : Boring No. B-502
 Sample Depth : 19.2' to 20.4'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.4

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	97.2
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	84.1
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0051 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.9
 Liquid Limit (AASHTO T89) : 32
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 11
 Liquidity Index : -0.18
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (9)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.6
 Coarse Sand (-No.10 + No.40) : 2.2
 Fine Sand (-No.40 + No.200) : 13.1
 Silt + Clay (-No.200) : 84.1

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.6
 Medium Sand (-No.10 + No.40) : 2.2
 Fine Sand (-No.40 + No.200) : 13.1
 Silt + Clay (-No.200) : 84.1

Approved By : J.S.

Soil No. 53



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-503
 Sample Depth : 4.1' to 5.1'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.8
No.6		3.35	mm		
No.10		2	mm		99.2

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		96.7
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		93.2
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0035 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 28.8
 Liquid Limit (AASHTO T89) : 33
 Plastic Limit (AASHTO T90) : 23
 Plasticity Index : 10
 Liquidity Index : 0.60
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.8
 Coarse Sand (-No.10 + No.40) : 2.5
 Fine Sand (-No.40 + No.200) : 3.5
 Silt + Clay (-No.200) : 93.2

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (10)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.2
 Coarse Sand (-No.4 + No.10) : 0.6
 Medium Sand (-No.10 + No.40) : 2.5
 Fine Sand (-No.40 + No.200) : 3.5
 Silt + Clay (-No.200) : 93.2

Approved By : J.S.

Soil No. 54

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Silty Clay

Sample No. : ST-2
 Sample Loc. : Boring No. B-503
 Sample Depth : 14.1' to 15.8'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.4	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	96.3	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	90.0	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.004 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.5
 Liquid Limit (AASHTO T89) : 25
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 6
 Liquidity Index : 0.80
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (4)
 ASTM Classification: D2487 : CL-ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.6
 Coarse Sand (-No.10 + No.40) : 3.1
 Fine Sand (-No.40 + No.200) : 6.3
 Silt + Clay (-No.200) : 90.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.6
 Medium Sand (-No.10 + No.40) : 3.1
 Fine Sand (-No.40 + No.200) : 6.3
 Silt + Clay (-No.200) : 90.0

Approved By : J.S.

Soil No. 55

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-504
Project County : Pulaski	Sample Depth : 9.0' to 9.3'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown & Tan Sandy Silt	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	98.3
No.6		3.35	mm	
No.10		2	mm	96.0

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	90.6
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	63.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0191 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 13.6

Liquid Limit (AASHTO T89) : 15

Plastic Limit (AASHTO T90) : 13

Plasticity Index : 2

Liquidity Index : 0.16

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (0)

ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 4.0
 Coarse Sand (-No.10 + No.40) : 5.4
 Fine Sand (-No.40 + No.200) : 27.6
 Silt + Clay (-No.200) : 63.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 1.7
 Coarse Sand (-No.4 + No.10) : 2.3
 Medium Sand (-No.10 + No.40) : 5.4
 Fine Sand (-No.40 + No.200) : 27.6
 Silt + Clay (-No.200) : 63.0

Approved By : J.S.

Soil No. 56



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan Sandy Silt

Sample No. : ST-2
 Sample Loc. : Boring No. B-504
 Sample Depth : 14.0' to 15.0'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	99.2
1/4		6.3	mm	
No.4		4.75	mm	98.0
No.6		3.35	mm	
No.10		2	mm	97.1

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	93.8
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	56.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0369 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 15.3

Liquid Limit (AASHTO T89) : 16

Plastic Limit (AASHTO T90) : 14

Plasticity Index : 2

Liquidity Index : 0.58

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (0)

ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 2.9
 Coarse Sand (-No.10 + No.40) : 3.3
 Fine Sand (-No.40 + No.200) : 37.8
 Silt + Clay (-No.200) : 56.0

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 2.0
 Coarse Sand (-No.4 + No.10) : 0.9
 Medium Sand (-No.10 + No.40) : 3.3
 Fine Sand (-No.40 + No.200) : 37.8
 Silt + Clay (-No.200) : 56.0

Approved By : J.S.

Soil No. 57

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-505
Project County : Pulaski	Sample Depth : 14.5' to 16.0'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown, Tan & Gray Sandy Lean Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.9

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	95.3
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	61.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0223 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.2
 Liquid Limit (AASHTO T89) : 37
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 16
 Liquidity Index : 0.04
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (8)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 4.6
 Fine Sand (-No.40 + No.200) : 34.1
 Silt + Clay (-No.200) : 61.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 4.6
 Fine Sand (-No.40 + No.200) : 34.1
 Silt + Clay (-No.200) : 61.2

Approved By : J.S.

Soil No. 58

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-506
Project County : Pulaski	Sample Depth : 14.8' to 16.3'
Project State : Arkansas	Date Tested : 10/30/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Gray & Orange Silty, Clayey Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.9

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.7
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	43.1
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0927 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 16.7
 Liquid Limit (AASHTO T89) : 23
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 6
 Liquidity Index : -0.05
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : SC-SM

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 0.2
 Fine Sand (-No.40 + No.200) : 56.6
 Silt + Clay (-No.200) : 43.1

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 0.2
 Fine Sand (-No.40 + No.200) : 56.6
 Silt + Clay (-No.200) : 43.1

Approved By : J.S.

Soil No. 59

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan & Gray Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-507
 Sample Depth : 9.7' to 10.7'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.9
No.6		3.35	mm	
No.10		2	mm	99.8

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	99.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	86.4
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0046 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.9
 Liquid Limit (AASHTO T89) : 39
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 18
 Liquidity Index : 0.12

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.2
 Coarse Sand (-No.10 + No.40) : 0.7
 Fine Sand (-No.40 + No.200) : 12.7
 Silt + Clay (-No.200) : 86.4

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (16)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.1
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 0.7
 Fine Sand (-No.40 + No.200) : 12.7
 Silt + Clay (-No.200) : 86.4

Approved By : J.S.

Soil No. 60

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-556
Project County : Pulaski	Sample Depth : 19.8' to 21.8'
Project State : Arkansas	Date Tested : 10/30/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown Lean Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.7

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	97.1
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	88.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0042 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.2
 Liquid Limit (AASHTO T89) : 37
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 16
 Liquidity Index : 0.10
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (14)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 2.6
 Fine Sand (-No.40 + No.200) : 8.5
 Silt + Clay (-No.200) : 88.6

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.3
 Medium Sand (-No.10 + No.40) : 2.6
 Fine Sand (-No.40 + No.200) : 8.5
 Silt + Clay (-No.200) : 88.6

Approved By : J.S.

Soil No. 61

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-2
Project No. : 11206-04	Sample Loc. : Boring No. B-556
Project County : Pulaski	Sample Depth : 29.8' to 31.3'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Orange & Gray Lean Clay with Sand	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		100.0
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		96.4
1/4		6.3	mm		
No.4		4.75	mm		95.8
No.6		3.35	mm		
No.10		2	mm		93.9

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		89.0
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		76.3
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0077 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 23.3
 Liquid Limit (AASHTO T89) : 30
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 13
 Liquidity Index : 0.46
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 6.1
 Coarse Sand (-No.10 + No.40) : 4.9
 Fine Sand (-No.40 + No.200) : 12.7
 Silt + Clay (-No.200) : 76.3

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (8)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 4.2
 Coarse Sand (-No.4 + No.10) : 1.9
 Medium Sand (-No.10 + No.40) : 4.9
 Fine Sand (-No.40 + No.200) : 12.7
 Silt + Clay (-No.200) : 76.3

Approved By : J.S.

Soil No. 62



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Silt

Sample No. : ST-1
 Sample Loc. : Boring No. B-557
 Sample Depth : 14.4' to 15.7'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	98.8	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	92.7	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0036 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 19.5
 Liquid Limit (AASHTO T89) : 22
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 1
 Liquidity Index : -1.23
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 1.1
 Fine Sand (-No.40 + No.200) : 6.1
 Silt + Clay (-No.200) : 92.7

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 1.1
 Fine Sand (-No.40 + No.200) : 6.1
 Silt + Clay (-No.200) : 92.7

Approved By : J.S.

Soil No. 63



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray & Orange Lean Clay

Sample No. : ST-2
 Sample Loc. : Boring No. B-557
 Sample Depth : 19.4' to 20.9'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	100.0	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.5	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	93.6	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0034 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.6
 Liquid Limit (AASHTO T89) : 34
 Plastic Limit (AASHTO T90) : 21
 Plasticity Index : 13
 Liquidity Index : 0.16
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.0
 Coarse Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 5.9
 Silt + Clay (-No.200) : 93.6

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (12)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.0
 Medium Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 5.9
 Silt + Clay (-No.200) : 93.6

Approved By : J.S.

Soil No. 64



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Silty, Clayey Sand

Sample No. : ST-3
 Sample Loc. : Boring No. B-557
 Sample Depth : 39.4' to 40.4'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm	100.0	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	97.6	
1/4		6.3	mm		
No.4		4.75	mm	86.3	
No.6		3.35	mm		
No.10		2	mm	67.7	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	43.0	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	18.3	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.6592 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 14
 Liquid Limit (AASHTO T89) : 24
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 6
 Liquidity Index : -0.63
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-1-b (0)
 ASTM Classification: D2487 : SC-SM

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 32.3
 Coarse Sand (-No.10 + No.40) : 24.7
 Fine Sand (-No.40 + No.200) : 24.7
 Silt + Clay (-No.200) : 18.3

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 13.7
 Coarse Sand (-No.4 + No.10) : 18.6
 Medium Sand (-No.10 + No.40) : 24.7
 Fine Sand (-No.40 + No.200) : 24.7
 Silt + Clay (-No.200) : 18.3

Approved By : J.S.

Soil No. 65

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Lean Clay with Sand

Sample No. : ST-1
 Sample Loc. : Boring No. B-558
 Sample Depth : 16.1' to 17.9'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.6

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	95.7
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	81.1
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0059 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 19
 Liquid Limit (AASHTO T89) : 25
 Plastic Limit (AASHTO T90) : 15
 Plasticity Index : 10
 Liquidity Index : 0.41
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (6)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.4
 Coarse Sand (-No.10 + No.40) : 3.9
 Fine Sand (-No.40 + No.200) : 14.6
 Silt + Clay (-No.200) : 81.1

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 3.9
 Fine Sand (-No.40 + No.200) : 14.6
 Silt + Clay (-No.200) : 81.1

Approved By : J.S.

Soil No. 66

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Tan Sandy Lean Clay

Sample No. : ST-2
 Sample Loc. : Boring No. B-558
 Sample Depth : 26.1' to 27.6'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	
1/4		6.3	mm	
No.4		4.75	mm	100.0
No.6		3.35	mm	
No.10		2	mm	99.7

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	94.9
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	51.6
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.0611 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.6
 Liquid Limit (AASHTO T89) : 26
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 9
 Liquidity Index : 0.49

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 4.8
 Fine Sand (-No.40 + No.200) : 43.3
 Silt + Clay (-No.200) : 51.6

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (2)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.3
 Medium Sand (-No.10 + No.40) : 4.8
 Fine Sand (-No.40 + No.200) : 43.3
 Silt + Clay (-No.200) : 51.6

Approved By : J.S.

Soil No. 67

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-559
Project County : Pulaski	Sample Depth : 14.7' to 16.2'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Tan, Brown & Gray Lean Clay with Sand	

AASHTO T27 :

		% Passing		
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.2
No.6		3.35	mm	
No.10		2	mm	97.8

		% Passing		
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	94.9
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	78.2
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0069 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 18.4
 Liquid Limit (AASHTO T89) : 27
 Plastic Limit (AASHTO T90) : 17
 Plasticity Index : 10
 Liquidity Index : 0.12
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 2.2
 Coarse Sand (-No.10 + No.40) : 2.9
 Fine Sand (-No.40 + No.200) : 16.7
 Silt + Clay (-No.200) : 78.2

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (6)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.8
 Coarse Sand (-No.4 + No.10) : 1.4
 Medium Sand (-No.10 + No.40) : 2.9
 Fine Sand (-No.40 + No.200) : 16.7
 Silt + Clay (-No.200) : 78.2

Approved By : J.S.

Soil No. 68

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-2
Project No. : 11206-04	Sample Loc. : Boring No. B-559
Project County : Pulaski	Sample Depth : 24.7' to 26.3'
Project State : Arkansas	Date Tested : 10/30/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown, Tan & Black Sandy Lean Clay	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	99.9
No.6		3.35	mm	
No.10		2	mm	99.4

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	96.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	61.3
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.0221 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 19.8

Liquid Limit (AASHTO T89) : 24

Plastic Limit (AASHTO T90) : 16

Plasticity Index : 8

Liquidity Index : 0.47

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (2)

ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.6

Coarse Sand (-No.10 + No.40) : 2.9

Fine Sand (-No.40 + No.200) : 35.2

Silt + Clay (-No.200) : 61.3

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0

Fine Gravel (-3/4in. + No.4) : 0.1

Coarse Sand (-No.4 + No.10) : 0.5

Medium Sand (-No.10 + No.40) : 2.9

Fine Sand (-No.40 + No.200) : 35.2

Silt + Clay (-No.200) : 61.3

Approved By : J.S.

Soil No. 69



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray, Orange & Tan Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-562
 Sample Depth : 10.0' to 11.5'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.9
No.6		3.35	mm		
No.10		2	mm		99.7

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		98.8
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		94.3
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0033 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.5
 Liquid Limit (AASHTO T89) : 36
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 17
 Liquidity Index : 0.20
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 0.3
 Coarse Sand (-No.10 + No.40) : 0.9
 Fine Sand (-No.40 + No.200) : 4.5
 Silt + Clay (-No.200) : 94.3

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (16)
 ASTM Classification: D2487 : CL

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.1
 Coarse Sand (-No.4 + No.10) : 0.2
 Medium Sand (-No.10 + No.40) : 0.9
 Fine Sand (-No.40 + No.200) : 4.5
 Silt + Clay (-No.200) : 94.3

Approved By : J.S.

Soil No. 70



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-1
Project No. : 11206-04	Sample Loc. : Boring No. B-563
Project County : Pulaski	Sample Depth : 4.1' to 5.4'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Gray & Orange Silt	

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.9	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	99.4	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	92.2	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0036 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 20.5

Liquid Limit (AASHTO T89) : 21

Plastic Limit (AASHTO T90) : 20

Plasticity Index : 1

Liquidity Index : 0.81

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (0)

ASTM Classification: D2487 : ML

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.1
 Coarse Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 7.2
 Silt + Clay (-No.200) : 92.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.1
 Medium Sand (-No.10 + No.40) : 0.5
 Fine Sand (-No.40 + No.200) : 7.2
 Silt + Clay (-No.200) : 92.2

Approved By : J.S.

Soil No. 71



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown Sandy Silt

Sample No. : ST-2
 Sample Loc. : Boring No. B-563
 Sample Depth : 24.1' to 25.6'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		100.0
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		97.2
1/4		6.3	mm		
No.4		4.75	mm		95.3
No.6		3.35	mm		
No.10		2	mm		93.0

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		85.6
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		55.6
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0385 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 19.1
 Liquid Limit (AASHTO T89) : 23
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 4
 Liquidity Index : -0.02

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 7.0
 Coarse Sand (-No.10 + No.40) : 7.4
 Fine Sand (-No.40 + No.200) : 30.0
 Silt + Clay (-No.200) : 55.6

Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (0)
 ASTM Classification: D2487 : ML

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 4.7
 Coarse Sand (-No.4 + No.10) : 2.3
 Medium Sand (-No.10 + No.40) : 7.4
 Fine Sand (-No.40 + No.200) : 30.0
 Silt + Clay (-No.200) : 55.6

Approved By : J.S.

Soil No. 72



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Tan, Gray & Black Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-564
 Sample Depth : 14.6' to 16.1'
 Date Tested : 10/29/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm		100.0
No.6		3.35	mm		
No.10		2	mm		99.6

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		97.5
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		92.3
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.0036 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.7
 Liquid Limit (AASHTO T89) : 38
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 19
 Liquidity Index : 0.13
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-6 (18)
 ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.4
 Coarse Sand (-No.10 + No.40) : 2.1
 Fine Sand (-No.40 + No.200) : 5.2
 Silt + Clay (-No.200) : 92.3

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.0
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 2.1
 Fine Sand (-No.40 + No.200) : 5.2
 Silt + Clay (-No.200) : 92.3

Approved By : J.S.

Soil No. 73

SOIL CLASSIFICATION

Project Name : Highway 67 Widening	Sample No. : ST-2
Project No. : 11206-04	Sample Loc. : Boring No. B-564
Project County : Pulaski	Sample Depth : 29.6' to 30.6'
Project State : Arkansas	Date Tested : 10/29/14
Laboratory No. : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown Clayey Sand	

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	100.0
1/4		6.3	mm	
No.4		4.75	mm	98.8
No.6		3.35	mm	
No.10		2	mm	94.6

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	60.5
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	46.7
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

$D_{50} = 0.1136 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.6
 Liquid Limit (AASHTO T89) : 27
 Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 8
 Liquidity Index : 0.26
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-4 (1)
 ASTM Classification: D2487 : SC

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 5.4
 Coarse Sand (-No.10 + No.40) : 34.1
 Fine Sand (-No.40 + No.200) : 13.8
 Silt + Clay (-No.200) : 46.7

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 1.2
 Coarse Sand (-No.4 + No.10) : 4.2
 Medium Sand (-No.10 + No.40) : 34.1
 Fine Sand (-No.40 + No.200) : 13.8
 Silt + Clay (-No.200) : 46.7

Approved By : J.S.

Soil No. 74

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Gray, Tan & Brown Lean Clay

Sample No. : ST-1
 Sample Loc. : Boring No. B-565
 Sample Depth : 20.2' to 21.9'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		
1/4		6.3	mm		
No.4		4.75	mm	100.0	
No.6		3.35	mm		
No.10		2	mm	99.8	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	97.7	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	85.6	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

$D_{50} = 0.0048 \text{ mm}$

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 19.6

Liquid Limit (AASHTO T89) : 28

Plastic Limit (AASHTO T90) : 19

Plasticity Index : 9

Liquidity Index : 0.06

Activity : NA

Sp. Gr. (AASHTO T100) : NA

AASHTO Classification: M145 : A-4 (6)

ASTM Classification: D2487 : CL

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 0.2

Coarse Sand (-No.10 + No.40) : 2.1

Fine Sand (-No.40 + No.200) : 12.1

Silt + Clay (-No.200) : 85.6

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0

Fine Gravel (-3/4in. + No.4) : 0.0

Coarse Sand (-No.4 + No.10) : 0.2

Medium Sand (-No.10 + No.40) : 2.1

Fine Sand (-No.40 + No.200) : 12.1

Silt + Clay (-No.200) : 85.6

Approved By : J.S.

Soil No. 75



Engineering

SOIL CLASSIFICATION

Project Name : Highway 67 Widening
 Project No. : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory No. : 11206-04
 Submitted By : ICA Engineering
 Soil Type : Brown & Gray Silty Sand

Sample No. : ST-2
 Sample Loc. : Boring No. B-565
 Sample Depth : 35.2' to 36.7'
 Date Tested : 10/30/14
 Date Reported : 11/04/14

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm		
3/4	in.	19	mm		
1/2	in.	12.5	mm		
3/8	in.	9.5	mm		100.0
1/4		6.3	mm		
No.4		4.75	mm		99.8
No.6		3.35	mm		
No.10		2	mm		99.0

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm		85.5
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm		34.2
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

D₅₀ = 0.128 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 21.1
 Liquid Limit (AASHTO T89) : 22
 Plastic Limit (AASHTO T90) : 22
 Plasticity Index : NP
 Liquidity Index : NA
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-2-4 (0)
 ASTM Classification: D2487 : SM

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 1.0
 Coarse Sand (-No.10 + No.40) : 13.5
 Fine Sand (-No.40 + No.200) : 51.3
 Silt + Clay (-No.200) : 34.2

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 0.2
 Coarse Sand (-No.4 + No.10) : 0.8
 Medium Sand (-No.10 + No.40) : 13.5
 Fine Sand (-No.40 + No.200) : 51.3
 Silt + Clay (-No.200) : 34.2

Approved By : J.S.

Soil No. 76



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-2

Sample Loc. : Boring No. B-501

Sample Depth : 9.7' to 10.2'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown & Gray Sandy Lean Clay

Wet Density : 136.1 pcf

Dry Density : 117.3 pcf

Moisture : 15.9 %

Initial Height : 5.96 in

Initial Diameter : 2.86 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	39.4	0.04	0.3	0.88
3	67.3	0.04	0.5	1.50
4	89.5	0.04	0.8	1.99
5	110.6	0.05	1.0	2.46
6	131.8	0.05	1.3	2.92
7	144.3	0.05	1.5	3.19
8	152.9	0.05	1.8	3.37
9	157.7	0.05	2.0	3.47
10	162.6	0.05	2.3	3.56
11	163.5	0.05	2.7	3.57
12	163.5	0.05	3.0	3.56
13	161.6	0.05	3.4	3.50
14	157.7	0.05	3.7	3.41

UNCONFINED COMPRESSION TEST

Page 2 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-2

Sample Loc. : Boring No. B-501

Sample Depth : 9.7' to 10.2'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown & Gray Sandy Lean Clay

Wet Density : 136.1 pcf

Dry Density : 117.3 pcf

Moisture : 15.9 %

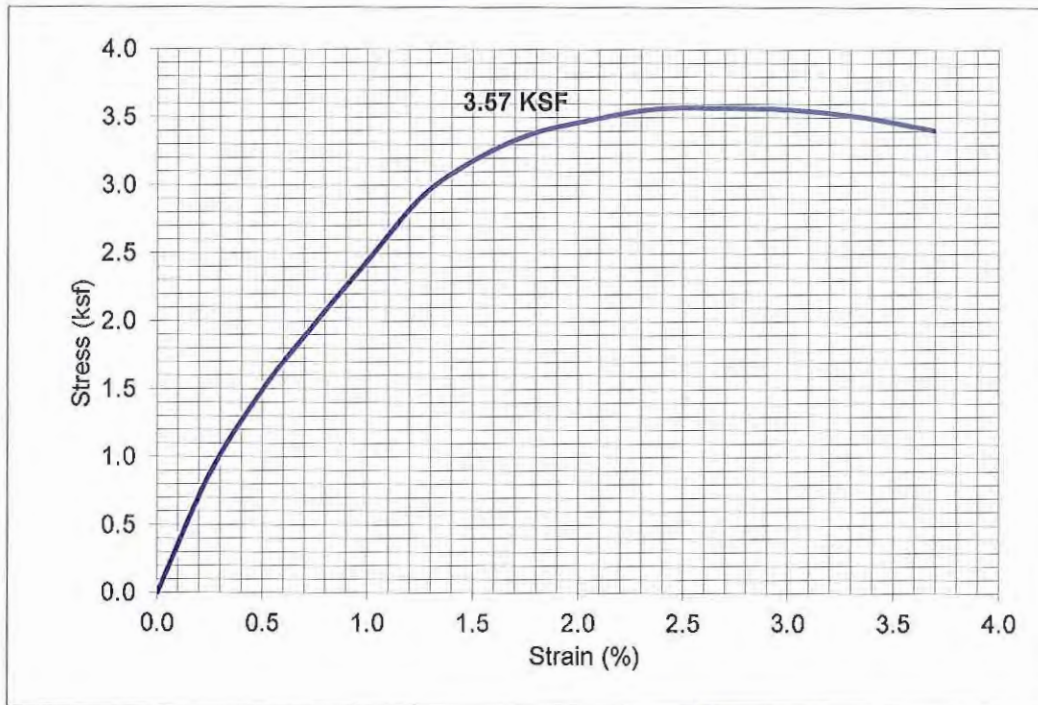
Deg. of Sat. : NA

Initial Height : 5.96 in

Initial Diameter : 2.86 in

Proving Ring : #22734

Comments : AASHTO: T-208



APPROVED BY:

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-1

Sample Loc. : Boring No. B-502

Sample Depth : 9.2' to 9.7'

Date Tested : 10/24/14

Date Reported : 11/04/14

Soil Type : Tan & Gray Lean Clay

Wet Density : 125.1 pcf

Dry Density : 101.0 pcf

Moisture : 23.8 %

Initial Height : 6.02 in

Initial Diameter : 2.87 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	51.0	0.04	0.2	1.13
3	78.9	0.05	0.5	1.75
4	89.5	0.05	0.7	1.98
5	92.3	0.05	1.0	2.04
6	93.3	0.05	1.2	2.06
7	92.3	0.05	1.5	2.03
8	88.5	0.05	1.7	1.94

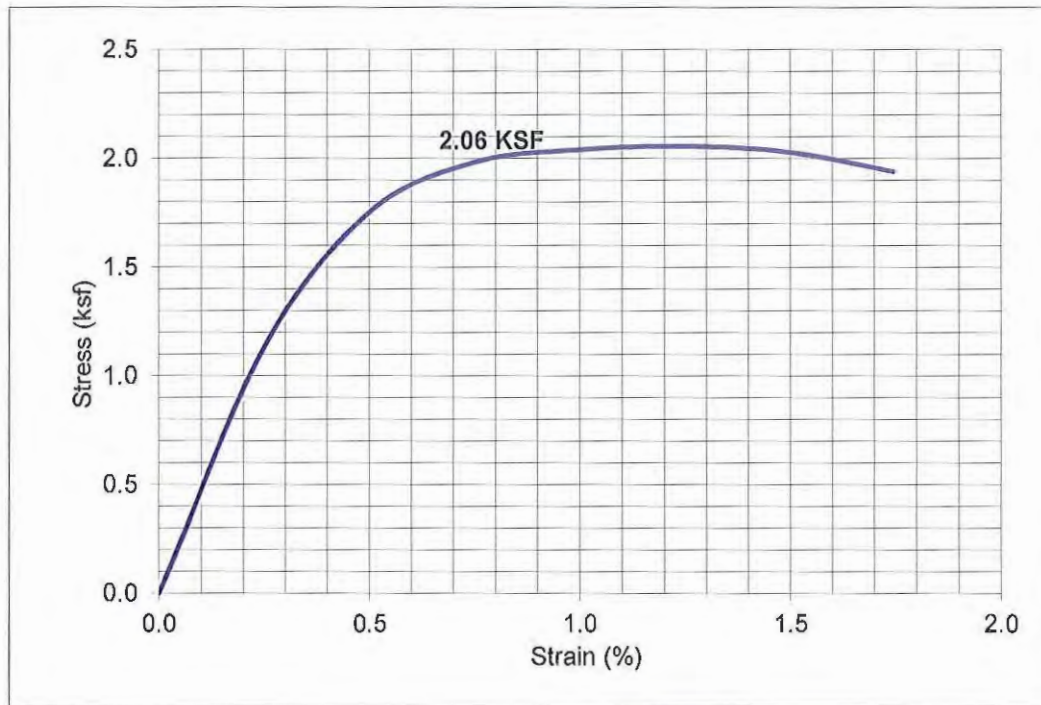
UNCONFINED COMPRESSION TEST

Page 2 of 2

Project Name : Highway 67 Widening	Sample # : ST-1
Project # : 11206-04	Sample Loc. : Boring No. B-502
Project County : Pulaski	Sample Depth : 9.2' to 9.7'
Project State : Arkansas	Date Tested : 10/24/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	

Soil Type : Tan & Gray Lean Clay	Initial Height : 6.02 in
Wet Density : 125.1 pcf	Initial Diameter : 2.87 in
Dry Density : 101.0 pcf	Proving Ring : #22734
Moisture : 23.8 %	
Deg. of Sat. : NA	

Comments : AASHTO: T-208



APPROVED BY:

A handwritten signature in blue ink, appearing to read "Amy Sde", written over a horizontal line.

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-1

Sample Loc. : Boring No. B-503

Sample Depth : 4.1' to 4.6'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown Lean Clay

Wet Density : 121.5 pcf

Dry Density : 94.4 pcf

Moisture : 28.8 %

Initial Height : 5.87 in

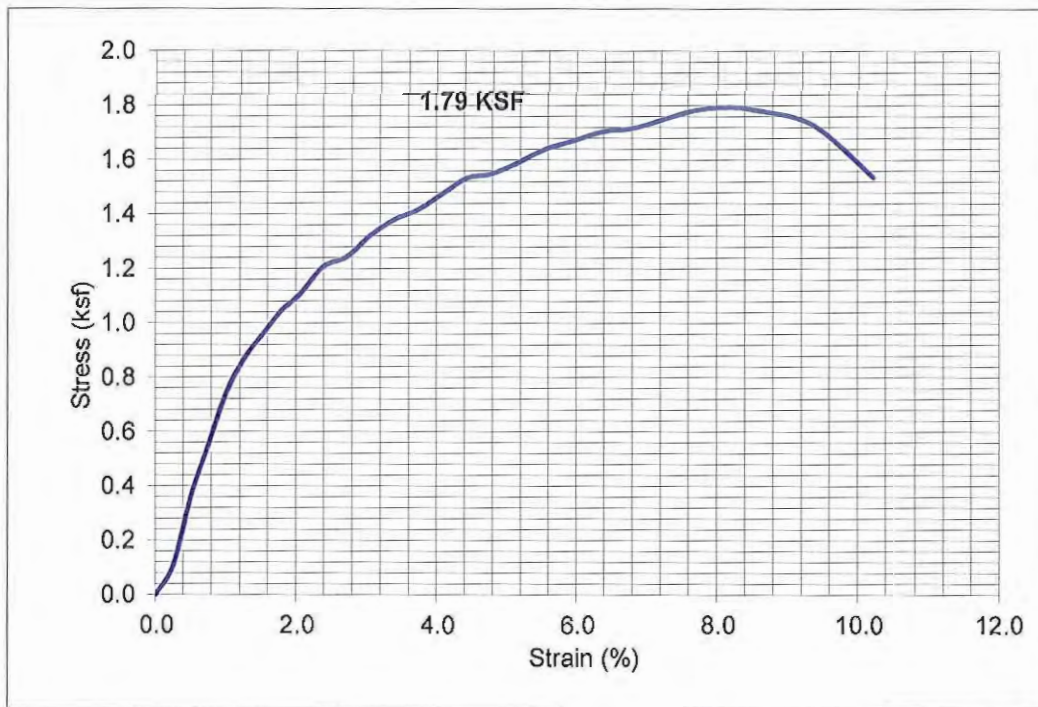
Initial Diameter : 2.85 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	4.8	0.04	0.3	0.11
3	16.4	0.04	0.5	0.37
4	25.0	0.04	0.8	0.56
5	33.7	0.04	1.0	0.75
6	39.4	0.04	1.3	0.88
7	43.3	0.05	1.5	0.96
8	47.1	0.05	1.8	1.04
9	50.0	0.05	2.0	1.10
10	54.8	0.05	2.4	1.21
11	56.8	0.05	2.7	1.24
12	60.6	0.05	3.1	1.32
13	63.5	0.05	3.4	1.38
14	65.4	0.05	3.7	1.42
15	68.3	0.05	4.1	1.48
16	71.2	0.05	4.4	1.53
17	72.1	0.05	4.8	1.55
18	74.1	0.05	5.1	1.58
19	76.9	0.05	5.5	1.64
20	78.9	0.05	6.0	1.67
21	80.8	0.05	6.4	1.70
22	81.8	0.05	6.8	1.72
23	83.7	0.05	7.2	1.75
24	85.6	0.05	7.7	1.78
25	86.6	0.05	8.1	1.79
26	86.6	0.05	8.5	1.78
27	84.6	0.05	9.4	1.73
28	76.0	0.05	10.2	1.54

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-1
Project # : 11206-04	Sample Loc. : Boring No. B-503
Project County : Pulaski	Sample Depth : 4.1' to 4.6'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown Lean Clay	
Wet Density : 121.5 pcf	Initial Height : 5.87 in
Dry Density : 94.4 pcf	Initial Diameter : 2.85 in
Moisture : 28.8 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *Amy Soto*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-1
 Sample Loc. : Boring No. B-506
 Sample Depth : 15.8' to 16.3'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Gray & Orange Silty, Clayey Sand

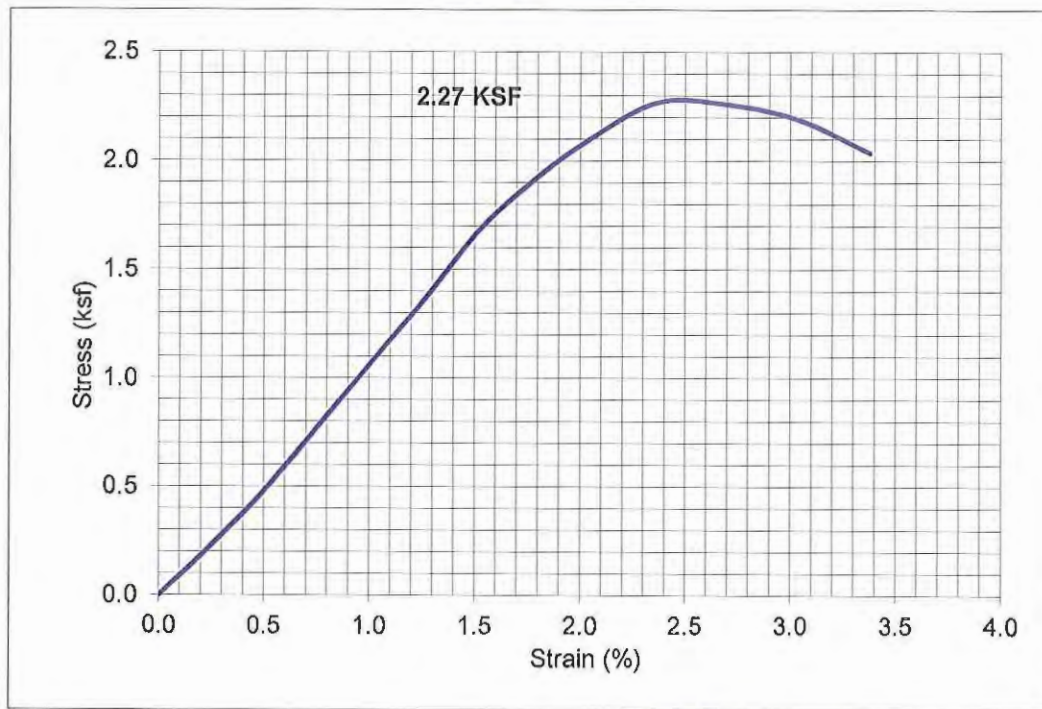
Wet Density : 132.3 pcf
 Dry Density : 113.3 pcf
 Moisture : 16.7 %

Initial Height : 5.92 in
 Initial Diameter : 2.88 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.05	0.0	0.00
2	10.6	0.05	0.3	0.23
3	22.1	0.05	0.5	0.49
4	35.6	0.05	0.8	0.78
5	49.1	0.05	1.0	1.08
6	62.5	0.05	1.3	1.37
7	76.9	0.05	1.5	1.68
8	87.5	0.05	1.8	1.90
9	96.2	0.05	2.0	2.09
10	104.8	0.05	2.4	2.27
11	104.8	0.05	2.7	2.26
12	102.0	0.05	3.0	2.19
13	95.2	0.05	3.4	2.04

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-1
Project # : 11206-04	Sample Loc. : Boring No. B-506
Project County : Pulaski	Sample Depth : 15.8' to 16.3'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Gray & Orange Silty, Clayey Sand	
Wet Density : 132.3 pcf	Initial Height : 5.92 in
Dry Density : 113.3 pcf	Initial Diameter : 2.88 in
Moisture : 16.7 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-2
 Sample Loc. : Boring No. B-504
 Sample Depth : 14.0' to 14.5'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

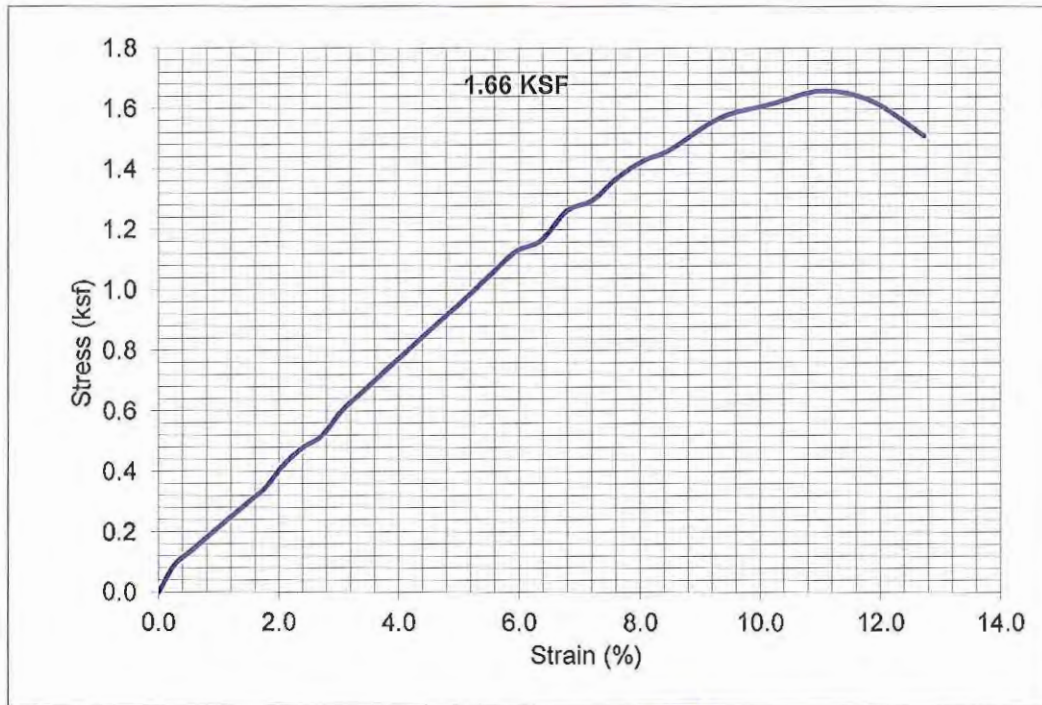
Soil Type : Tan Sandy Silt
 Wet Density : 141.7 pcf
 Dry Density : 122.9 pcf
 Moisture : 15.3 %

Initial Height : 5.89 in
 Initial Diameter : 2.82 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Unit Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	3.8	0.04	0.3	0.09
3	5.8	0.04	0.5	0.13
4	7.7	0.04	0.8	0.18
5	9.6	0.04	1.0	0.22
6	11.5	0.04	1.3	0.26
7	13.5	0.04	1.5	0.31
8	15.4	0.04	1.8	0.35
9	18.3	0.04	2.0	0.41
10	21.2	0.04	2.4	0.48
11	23.1	0.04	2.7	0.52
12	26.9	0.04	3.1	0.60
13	29.8	0.04	3.4	0.67
14	32.7	0.04	3.7	0.73
15	35.6	0.05	4.1	0.79
16	38.5	0.05	4.4	0.85
17	41.4	0.05	4.8	0.91
18	44.2	0.05	5.1	0.97
19	48.1	0.05	5.5	1.05
20	51.9	0.05	5.9	1.13
21	53.9	0.05	6.4	1.16
22	58.7	0.05	6.8	1.26
23	60.6	0.05	7.2	1.30
24	64.4	0.05	7.6	1.37
25	67.3	0.05	8.1	1.43
26	69.3	0.05	8.5	1.46
27	75.0	0.05	9.3	1.57
28	77.9	0.05	10.2	1.62
29	80.8	0.05	11.0	1.66
30	79.8	0.05	11.9	1.62
31	75.0	0.05	12.7	1.51

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-504
Project County : Pulaski	Sample Depth : 14.0' to 14.5'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Tan Sandy Silt	
Wet Density : 141.7 pcf	Initial Height : 5.89 in
Dry Density : 122.9 pcf	Initial Diameter : 2.82 in
Moisture : 15.3 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *Arany Selva*



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-1
 Sample Loc. : Boring No. B-507
 Sample Depth : 9.7' to 10.2'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Tan & Gray Lean Clay

Wet Density : 125.0 pcf
 Dry Density : 101.8 pcf
 Moisture : 22.9 %

Initial Height : 5.86 in
 Initial Diameter : 2.89 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.05	0.0	0.00
2	30.8	0.05	0.3	0.67
3	60.6	0.05	0.5	1.32
4	84.6	0.05	0.8	1.84
5	104.8	0.05	1.0	2.27
6	119.3	0.05	1.3	2.58
7	127.0	0.05	1.5	2.74
8	136.6	0.05	1.8	2.94
9	139.5	0.05	2.0	2.99
10	139.5	0.05	2.4	2.98
11	138.5	0.05	2.7	2.95
12	136.6	0.05	3.1	2.90
13	134.7	0.05	3.4	2.85

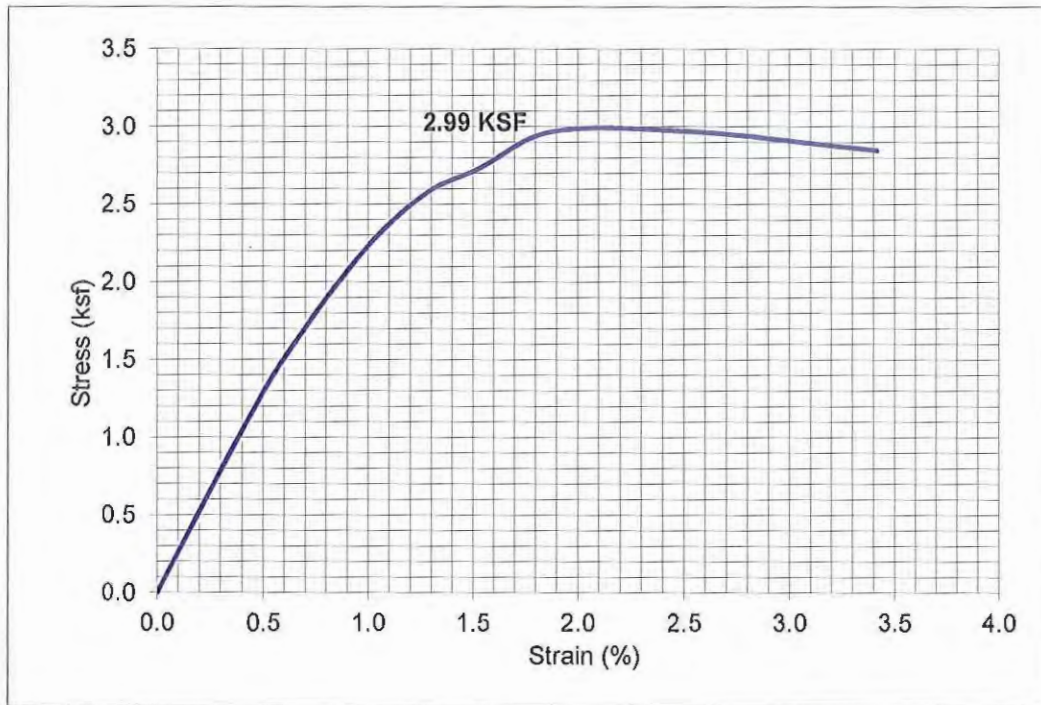
UNCONFINED COMPRESSION TEST

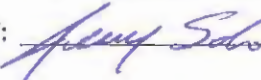
Page 2 of 2

Project Name : Highway 67 Widening	Sample # : ST-1
Project # : 11206-04	Sample Loc. : Boring No. B-507
Project County : Pulaski	Sample Depth : 9.7' to 10.2'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	

Soil Type : Tan & Gray Lean Clay	Initial Height : 5.86 in
Wet Density : 125.0 pcf	Initial Diameter : 2.89 in
Dry Density : 101.8 pcf	Proving Ring : #22734
Moisture : 22.9 %	
Deg. of Sat. : NA	

Comments : AASHTO: T-208



APPROVED BY: 



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-1

Sample Loc. : Boring No. B-556

Sample Depth : 20.3' to 20.8'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown Lean Clay

Wet Density : 129.3 pcf

Dry Density : 105.8 pcf

Moisture : 22.2 %

Initial Height : 5.93 in

Initial Diameter : 2.86 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	2.9	0.04	0.3	0.06
3	9.6	0.04	0.5	0.21
4	18.3	0.05	0.8	0.41
5	27.9	0.05	1.0	0.62
6	40.4	0.05	1.3	0.89
7	53.9	0.05	1.5	1.19
8	68.3	0.05	1.8	1.50
9	83.7	0.05	2.0	1.83
10	103.9	0.05	2.4	2.27
11	119.3	0.05	2.7	2.60
12	130.8	0.05	3.0	2.84
13	136.6	0.05	3.4	2.95
14	139.5	0.05	3.7	3.01
15	139.5	0.05	4.0	2.99
16	134.7	0.05	4.4	2.88
17	124.1	0.05	4.7	2.65

UNCONFINED COMPRESSION TEST

Page 2 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-1

Sample Loc. : Boring No. B-556

Sample Depth : 20.3' to 20.8'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown Lean Clay

Wet Density : 129.3 pcf

Dry Density : 105.8 pcf

Moisture : 22.2 %

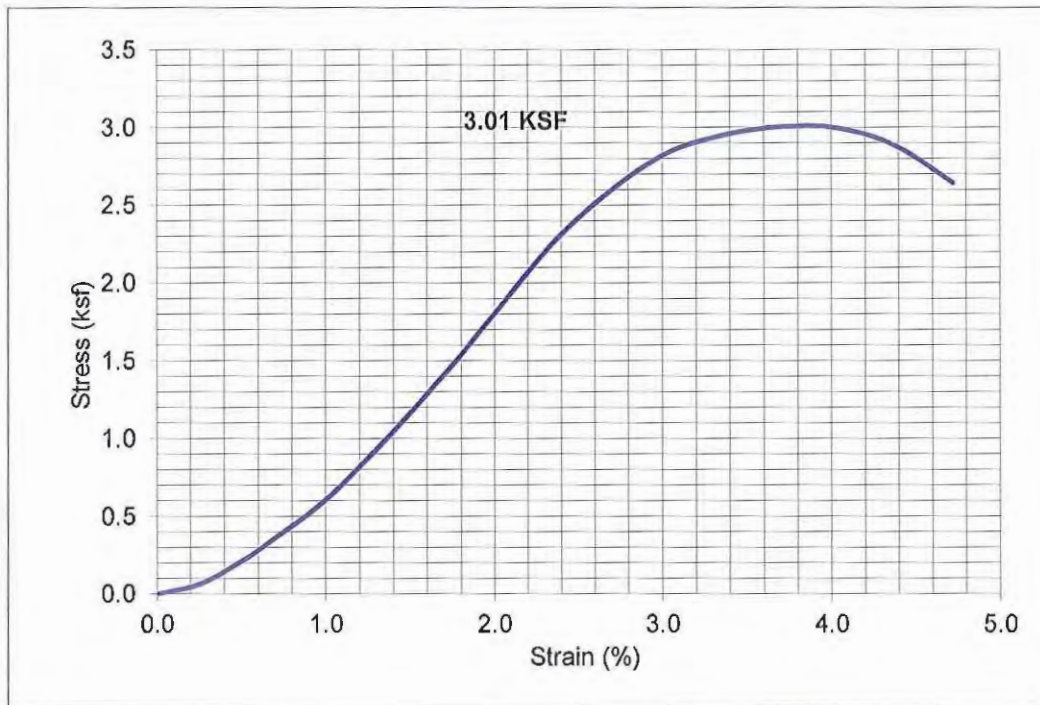
Deg. of Sat. : NA

Initial Height : 5.93 in

Initial Diameter : 2.86 in

Proving Ring : #22734

Comments : AASHTO: T-208



APPROVED BY:



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-2

Sample Loc. : Boring No. B-557

Sample Depth : 19.4' to 19.9'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Gray & Orange Lean Clay

Wet Density : 128.1 pcf

Dry Density : 104.4 pcf

Moisture : 22.6 %

Initial Height : 5.82 in

Initial Diameter : 2.86 in

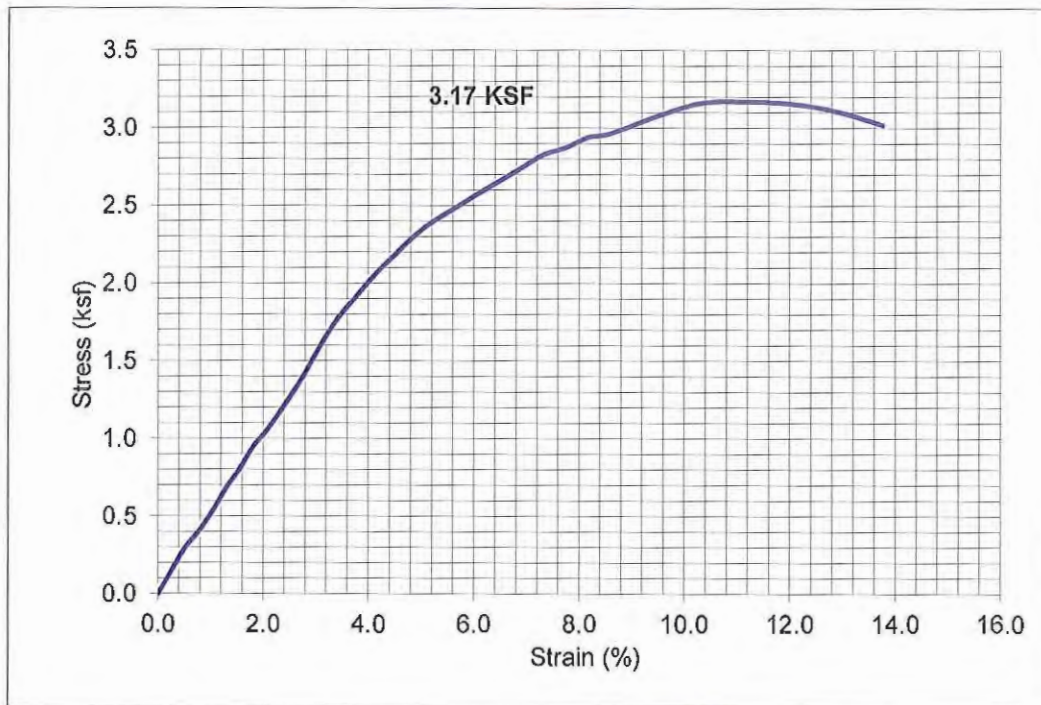
Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	6.7	0.04	0.3	0.15
3	13.5	0.04	0.5	0.30
4	18.3	0.05	0.8	0.41
5	24.0	0.05	1.0	0.53
6	30.8	0.05	1.3	0.68
7	36.6	0.05	1.5	0.80
8	43.3	0.05	1.8	0.95
9	48.1	0.05	2.1	1.05
10	55.8	0.05	2.4	1.22
11	64.4	0.05	2.8	1.40
12	74.1	0.05	3.1	1.60
13	82.7	0.05	3.4	1.78
14	89.5	0.05	3.8	1.92
15	96.2	0.05	4.1	2.06
16	102.0	0.05	4.5	2.18
17	107.7	0.05	4.8	2.29
18	112.5	0.05	5.2	2.38
19	117.3	0.05	5.6	2.48
20	122.2	0.05	6.0	2.57
21	127.0	0.05	6.4	2.65
22	131.8	0.05	6.9	2.74
23	136.6	0.05	7.3	2.83
24	139.5	0.05	7.7	2.87
25	143.3	0.05	8.2	2.94
26	145.2	0.05	8.6	2.97
27	152.0	0.05	9.5	3.07
28	157.7	0.05	10.3	3.16
29	159.7	0.05	11.2	3.17
30	160.6	0.05	12.0	3.16
31	159.7	0.05	12.9	3.11
32	156.8	0.05	13.8	3.02

UNCONFINED COMPRESSION TEST

Page 2 of 2

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-557
Project County : Pulaski	Sample Depth : 19.4' to 19.9'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Gray & Orange Lean Clay	
Wet Density : 128.1 pcf	Initial Height : 5.82 in
Dry Density : 104.4 pcf	Initial Diameter : 2.86 in
Moisture : 22.6 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-3

Sample Loc. : Boring No. B-557

Sample Depth : 39.9' to 40.4'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Brown & Tan Silty, Clayey Sand

Wet Density : 136.6 pcf

Dry Density : 119.8 pcf

Moisture : 14.0 %

Initial Height : 5.95 in

Initial Diameter : 2.89 in

Proving Ring : #22734

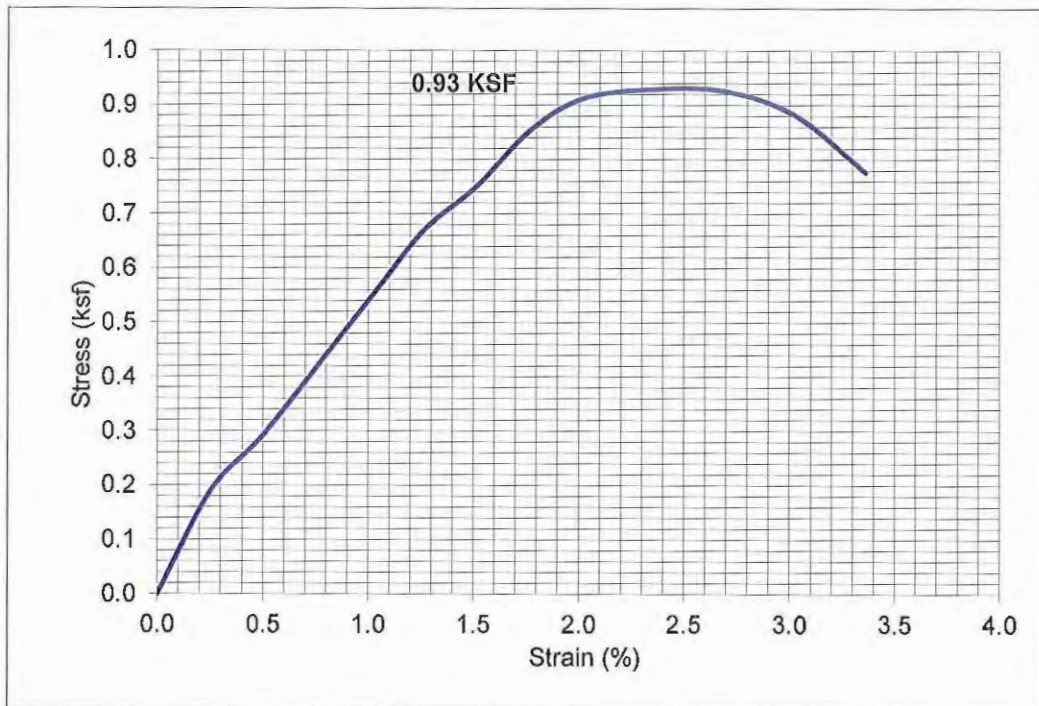
RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.05	0.0	0.00
2	8.7	0.05	0.3	0.19
3	13.5	0.05	0.5	0.29
4	19.2	0.05	0.8	0.42
5	25.0	0.05	1.0	0.54
6	30.8	0.05	1.3	0.67
7	34.6	0.05	1.5	0.75
8	39.4	0.05	1.8	0.85
9	42.3	0.05	2.0	0.91
10	43.3	0.05	2.4	0.93
11	43.3	0.05	2.7	0.93
12	41.4	0.05	3.0	0.88
13	36.6	0.05	3.4	0.78

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-3
Project # : 11206-04	Sample Loc. : Boring No. B-557
Project County : Pulaski	Sample Depth : 39.9' to 40.4'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	

Soil Type : Brown & Tan Silty, Clayey Sand	
Wet Density : 136.6 pcf	Initial Height : 5.95 in
Dry Density : 119.8 pcf	Initial Diameter : 2.89 in
Moisture : 14.0 %	Proving Ring : #22734
Deg. of Sat. : NA	

Comments : AASHTO: T-208



APPROVED BY:



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-2
 Sample Loc. : Boring No. B-558
 Sample Depth : 26.1' to 26.6'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Brown & Tan Sandy Lean Clay

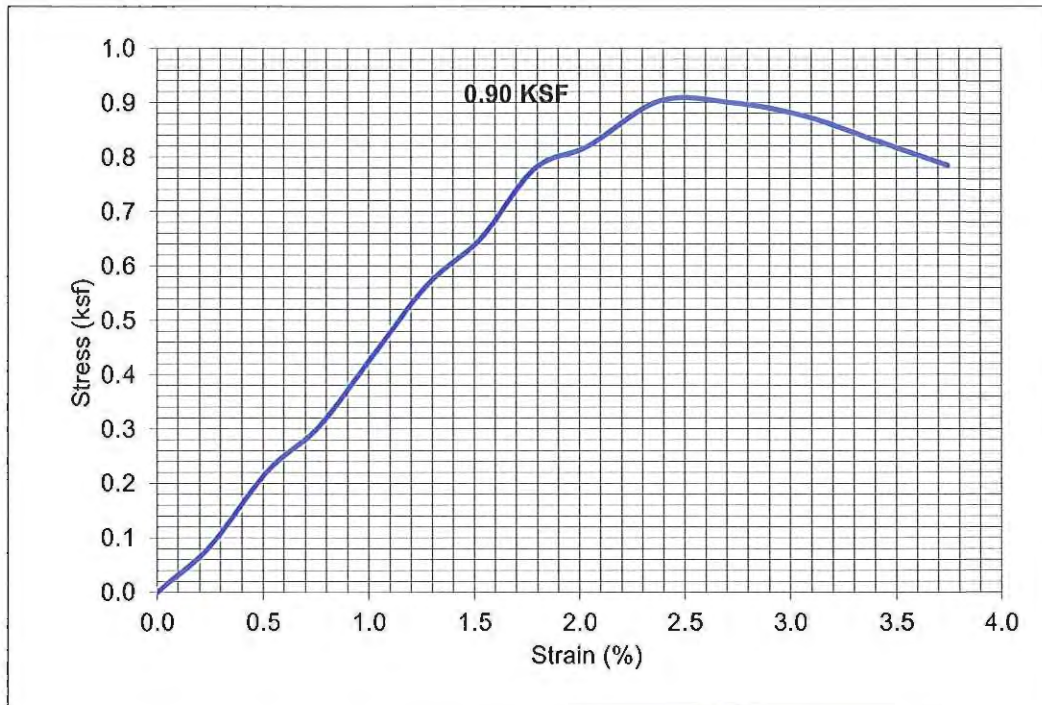
Wet Density : 131.4 pcf
 Dry Density : 108.1 pcf
 Moisture : 21.6 %

Initial Height : 5.87 in
 Initial Diameter : 2.83 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	3.8	0.04	0.3	0.09
3	9.6	0.04	0.5	0.22
4	13.5	0.04	0.8	0.31
5	19.2	0.04	1.0	0.44
6	25.0	0.04	1.3	0.57
7	28.9	0.04	1.5	0.65
8	34.6	0.04	1.8	0.78
9	36.6	0.04	2.0	0.82
10	40.4	0.04	2.4	0.90
11	40.4	0.04	2.7	0.90
12	39.4	0.05	3.1	0.88
13	37.5	0.05	3.4	0.83
14	35.6	0.05	3.7	0.78

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-558
Project County : Pulaski	Sample Depth : 26.1' to 26.6'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown & Tan Sandy Lean Clay	
Wet Density : 131.4 pcf	Initial Height : 5.87 in
Dry Density : 108.1 pcf	Initial Diameter : 2.83 in
Moisture : 21.6 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-2
 Sample Loc. : Boring No. B-559
 Sample Depth : 24.7' to 25.2'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Brown, Tan & Black Sandy Lean Clay

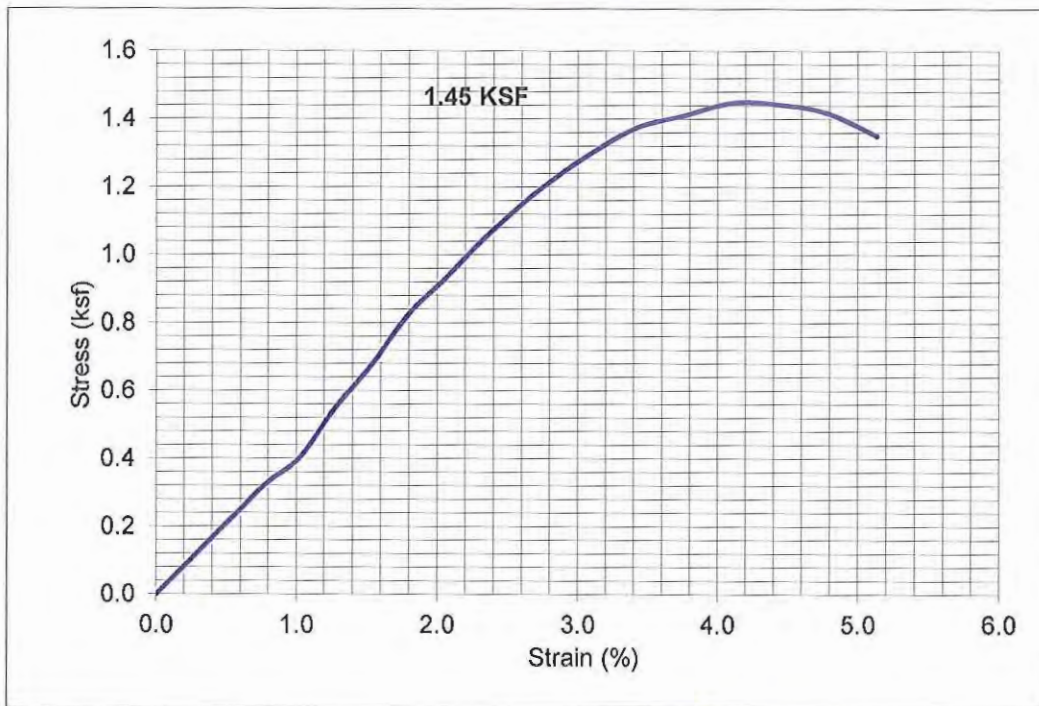
Wet Density : 129.6 pcf
 Dry Density : 108.1 pcf
 Moisture : 19.8 %

Initial Height : 5.85 in
 Initial Diameter : 2.86 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	4.8	0.04	0.3	0.11
3	9.6	0.04	0.5	0.21
4	14.4	0.04	0.8	0.32
5	18.3	0.05	1.0	0.41
6	25.0	0.05	1.3	0.55
7	30.8	0.05	1.5	0.68
8	37.5	0.05	1.8	0.83
9	42.3	0.05	2.1	0.93
10	49.1	0.05	2.4	1.07
11	54.8	0.05	2.7	1.20
12	59.6	0.05	3.1	1.30
13	63.5	0.05	3.4	1.37
14	65.4	0.05	3.8	1.41
15	67.3	0.05	4.1	1.45
16	67.3	0.05	4.4	1.44
17	66.4	0.05	4.8	1.42
18	63.5	0.05	5.1	1.35

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-559
Project County : Pulaski	Sample Depth : 24.7' to 25.2'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown, Tan & Black Sandy Lean Clay	
Wet Density : 129.6 pcf	Initial Height : 5.85 in
Dry Density : 108.1 pcf	Initial Diameter : 2.86 in
Moisture : 19.8 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening

Project # : 11206-04

Project County : Pulaski

Project State : Arkansas

Laboratory # : 11206-04

Submitted By : ICA Engineering

Sample # : ST-1

Sample Loc. : Boring No. B-562

Sample Depth : 10.0' to 10.5'

Date Tested : 10/28/14

Date Reported : 11/04/14

Soil Type : Gray, Orange & Tan Lean Clay

Wet Density : 128.2 pcf

Dry Density : 104.6 pcf

Moisture : 22.5 %

Initial Height : 5.90 in

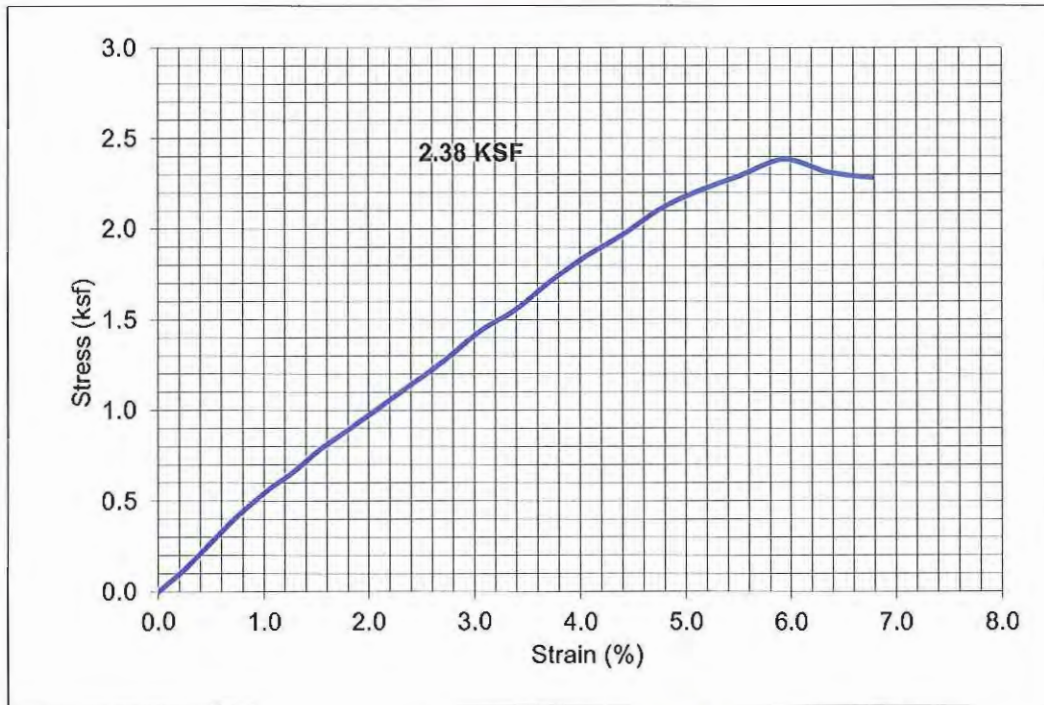
Initial Diameter : 2.87 in

Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	5.8	0.04	0.3	0.13
3	12.5	0.05	0.5	0.28
4	19.2	0.05	0.8	0.43
5	25.0	0.05	1.0	0.55
6	29.8	0.05	1.3	0.66
7	35.6	0.05	1.5	0.78
8	40.4	0.05	1.8	0.89
9	45.2	0.05	2.0	0.99
10	51.9	0.05	2.4	1.13
11	58.7	0.05	2.7	1.27
12	66.4	0.05	3.1	1.44
13	72.1	0.05	3.4	1.56
14	79.8	0.05	3.7	1.72
15	86.6	0.05	4.1	1.85
16	92.3	0.05	4.4	1.97
17	99.1	0.05	4.7	2.11
18	103.9	0.05	5.1	2.20
19	108.7	0.05	5.5	2.29
20	113.5	0.05	5.9	2.38
21	110.6	0.05	6.4	2.31
22	109.7	0.05	6.8	2.28

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-1
Project # : 11206-04	Sample Loc. : Boring No. B-562
Project County : Pulaski	Sample Depth : 10.0' to 10.5'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Gray, Orange & Tan Lean Clay	
Wet Density : 128.2 pcf	Initial Height : 5.90 in
Dry Density : 104.6 pcf	Initial Diameter : 2.87 in
Moisture : 22.5 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *James Solo*



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-2
 Sample Loc. : Boring No. B-564
 Sample Depth : 30.1' to 30.6'
 Date Tested : 10/27/14
 Date Reported : 11/04/14

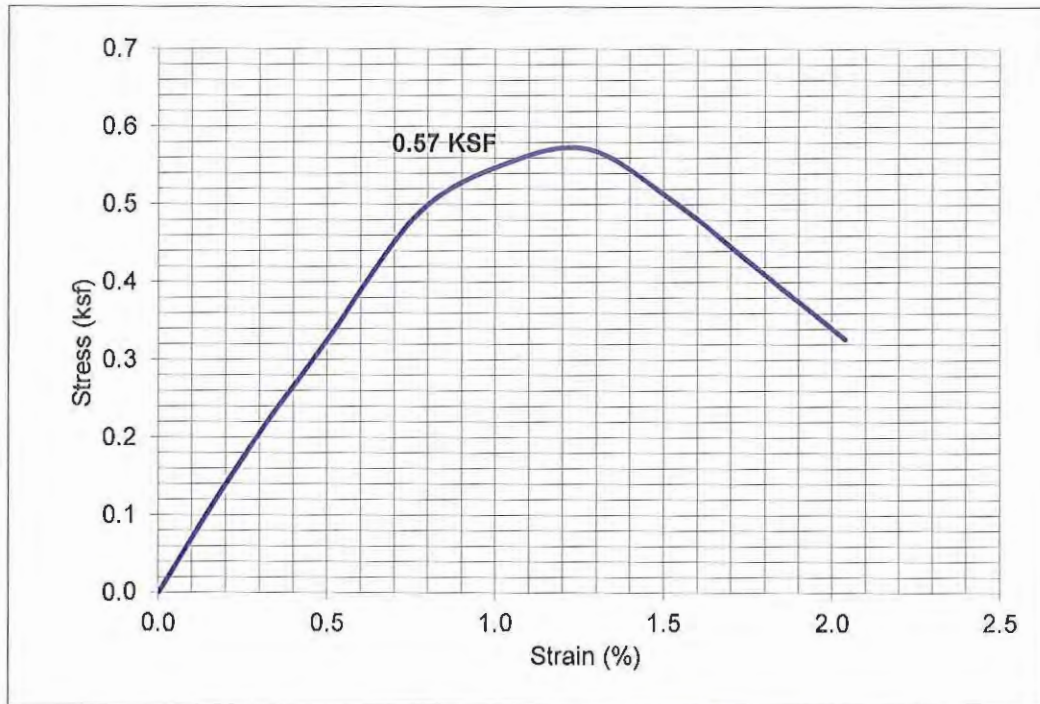
Soil Type : Brown Clayey Sand
 Wet Density : 129.1 pcf
 Dry Density : 106.2 pcf
 Moisture : 21.6 %

Initial Height : 5.88 in
 Initial Diameter : 2.81 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	7.7	0.04	0.3	0.18
3	14.4	0.04	0.5	0.33
4	21.2	0.04	0.8	0.49
5	24.0	0.04	1.0	0.55
6	25.0	0.04	1.3	0.57
7	22.1	0.04	1.5	0.50
8	18.3	0.04	1.8	0.42
9	14.4	0.04	2.0	0.33

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-564
Project County : Pulaski	Sample Depth : 30.1' to 30.6'
Project State : Arkansas	Date Tested : 10/27/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown Clayey Sand	
Wet Density : 129.1 pcf	Initial Height : 5.88 in
Dry Density : 106.2 pcf	Initial Diameter : 2.81 in
Moisture : 21.6 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*



UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-1
 Sample Loc. : Boring No. B-565
 Sample Depth : 20.4' to 20.9'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Gray, Tan & Brown Lean Clay

Wet Density : 132.9 pcf
 Dry Density : 111.1 pcf
 Moisture : 19.6 %

Initial Height : 5.87 in
 Initial Diameter : 2.85 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	2.9	0.04	0.3	0.07
3	5.8	0.04	0.5	0.13
4	10.6	0.04	0.8	0.24
5	16.4	0.04	1.0	0.37
6	21.2	0.04	1.3	0.47
7	26.0	0.04	1.5	0.58
8	32.7	0.04	1.8	0.73
9	38.5	0.05	2.0	0.85
10	46.2	0.05	2.4	1.02
11	54.8	0.05	2.7	1.21
12	62.5	0.05	3.1	1.37
13	70.2	0.05	3.4	1.54
14	75.0	0.05	3.7	1.64
15	79.8	0.05	4.1	1.73
16	82.7	0.05	4.4	1.79
17	86.6	0.05	4.8	1.87
18	88.5	0.05	5.1	1.90
19	90.4	0.05	5.5	1.93
20	91.4	0.05	6.0	1.95
21	91.4	0.05	6.4	1.94
22	91.4	0.05	6.8	1.93
23	90.4	0.05	7.2	1.90
24	89.5	0.05	7.7	1.87

UNCONFINED COMPRESSION TEST

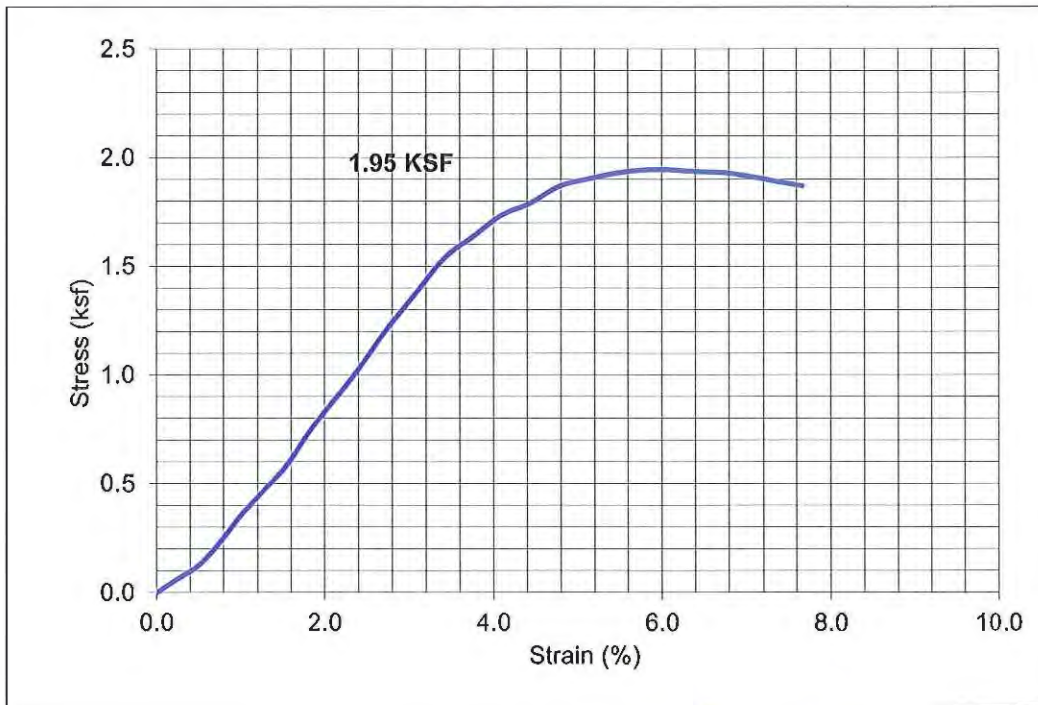
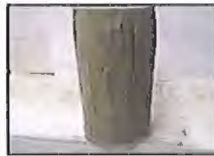
Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-1
 Sample Loc. : Boring No. B-565
 Sample Depth : 20.4' to 20.9'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Gray, Tan & Brown Lean Clay
 Wet Density : 132.9 pcf
 Dry Density : 111.1 pcf
 Moisture : 19.6 %
 Deg. of Sat. : NA

Initial Height : 5.87 in
 Initial Diameter : 2.85 in
 Proving Ring : #22734

Comments : AASHTO: T-208



APPROVED BY: *[Signature]*

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Page 1 of 2

Project Name : Highway 67 Widening
 Project # : 11206-04
 Project County : Pulaski
 Project State : Arkansas
 Laboratory # : 11206-04
 Submitted By : ICA Engineering

Sample # : ST-2
 Sample Loc. : Boring No. B-565
 Sample Depth : 35.2' to 35.7'
 Date Tested : 10/28/14
 Date Reported : 11/04/14

Soil Type : Brown & Gray Silty Sand

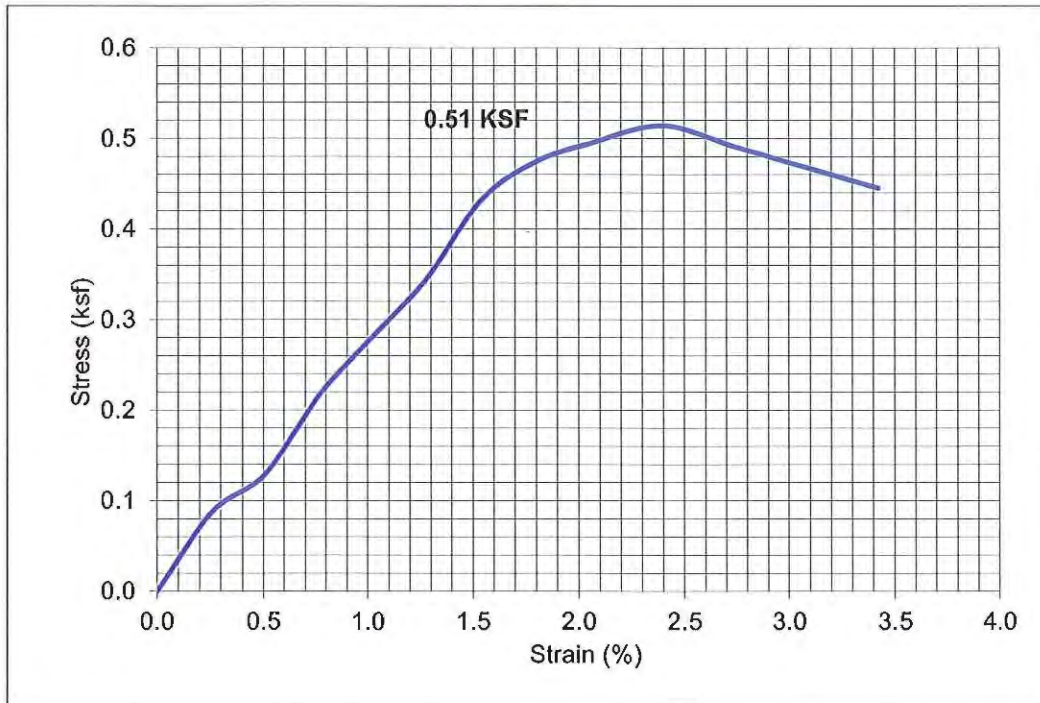
Wet Density : 125.4 pcf
 Dry Density : 103.6 pcf
 Moisture : 21.1 %

Initial Height : 5.84 in
 Initial Diameter : 2.83 in
 Proving Ring : #22734

RESULTS:	Axial Load	Corrected Area	Unit Strain	Stress
#	lbs	sf	%	Ksf
1	0.0	0.04	0.0	0.00
2	3.8	0.04	0.3	0.09
3	5.8	0.04	0.5	0.13
4	9.6	0.04	0.8	0.22
5	12.5	0.04	1.0	0.28
6	15.4	0.04	1.3	0.35
7	19.2	0.04	1.5	0.43
8	21.2	0.04	1.8	0.47
9	22.1	0.04	2.1	0.49
10	23.1	0.04	2.4	0.51
11	22.1	0.05	2.7	0.49
12	21.2	0.05	3.1	0.47
13	20.2	0.05	3.4	0.45

UNCONFINED COMPRESSION TEST

Project Name : Highway 67 Widening	Sample # : ST-2
Project # : 11206-04	Sample Loc. : Boring No. B-565
Project County : Pulaski	Sample Depth : 35.2' to 35.7'
Project State : Arkansas	Date Tested : 10/28/14
Laboratory # : 11206-04	Date Reported : 11/04/14
Submitted By : ICA Engineering	
Soil Type : Brown & Gray Silty Sand	
Wet Density : 125.4 pcf	Initial Height : 5.84 in
Dry Density : 103.6 pcf	Initial Diameter : 2.83 in
Moisture : 21.1 %	Proving Ring : #22734
Deg. of Sat. : NA	
Comments : AASHTO: T-208	



APPROVED BY: *[Signature]*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-501
 SAMPLE DEPTH : 4.5' to 5.0'
 DATE TESTED : 10/27/14
 DATE REPORTEE: 11/04/14

SOIL TYPE : Brown & Tan Silty Clay with Sand
 WET DENSITY : 133.21 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 15.13 cm
 DRY DENSITY : 111.02 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.19 cm
 MOISTURE : 19.99 % CHAMBER PRES. : 4.65 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	4.65	4.65	1.00
2	0.09	4.65	4.87	1.05
3	0.17	4.65	5.08	1.09
4	0.26	4.65	5.08	1.09
5	0.35	4.65	5.08	1.09
6	0.43	4.65	5.3	1.14
7	0.52	4.65	5.3	1.14
8	1.04	4.65	6.15	1.32
9	1.56	4.65	6.78	1.46
10	2.08	4.65	7.4	1.59
11	2.60	4.65	8.02	1.72
12	3.11	4.65	8.63	1.85
13	3.46	4.65	9.03	1.94
14	4.33	4.65	10.02	2.15
15	5.19	4.65	11	2.36
16	6.06	4.65	11.55	2.48
17	6.92	4.65	12.09	2.6
18	7.79	4.65	12.61	2.71
19	8.65	4.65	13.13	2.82
20	9.52	4.65	13.64	2.93
21	10.38	4.65	14.13	3.04
22	11.25	4.65	14.42	3.1
23	12.11	4.65	14.87	3.2
24	12.98	4.65	15.32	3.29
25	13.84	4.65	15.39	3.31
26	14.71	4.65	15.82	3.4
27	15.57	4.65	16.06	3.45
28	16.44	4.65	16.3	3.5
29	17.30	4.65	16.52	3.55
30	18.17	4.65	16.57	3.56
31	19.04	4.65	16.95	3.64
32	19.90	4.65	16.99	3.65

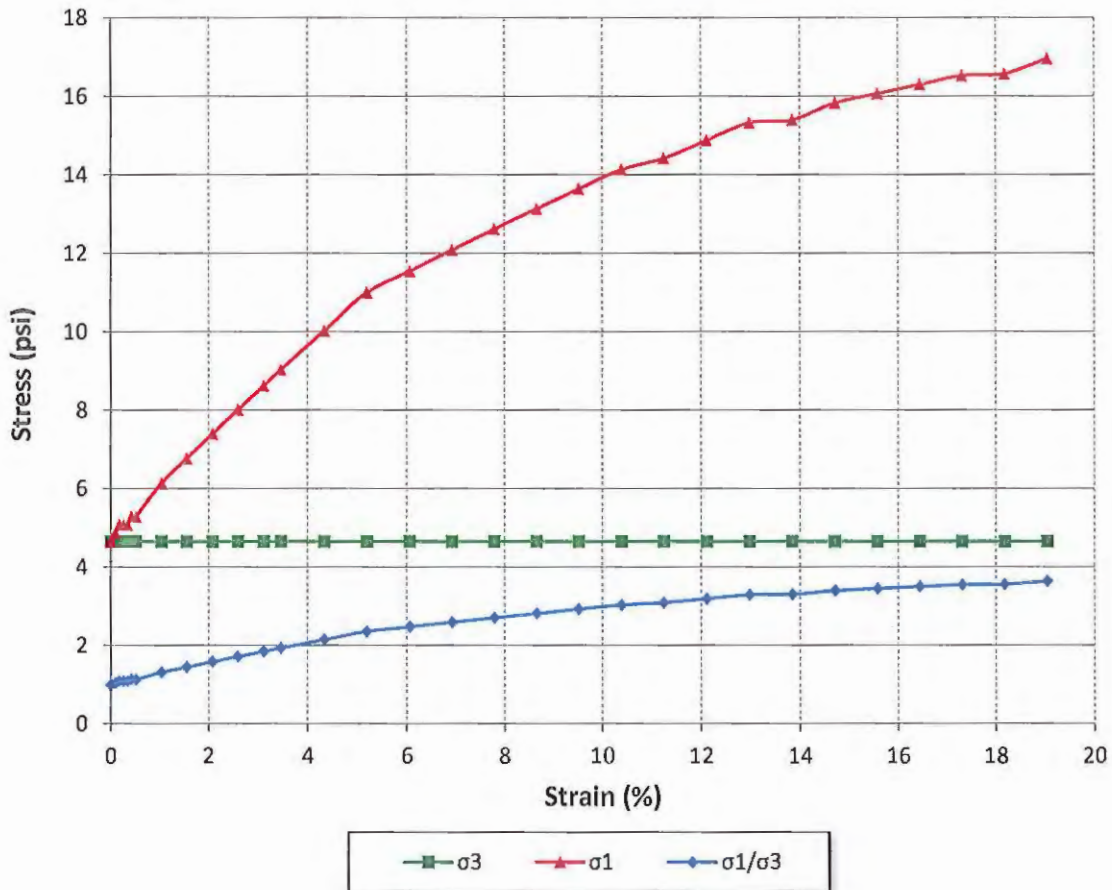
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-501
 SAMPLE DEPTH : 4.5' to 5.0'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 19.99 %
 FINAL HEIGHT : 11.76 cm
 FINAL DIAMETER : 8 cm

EFF. CONS. STRESS: 4.65 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

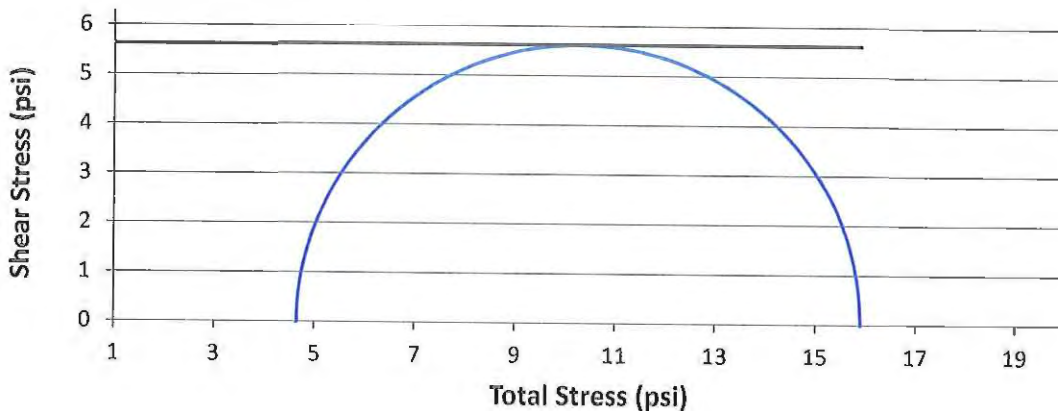
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-501
 SAMPLE DEPTH : 4.5' to 5.0'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	1620 psf
1	4.65 psi	15.9 psi	Cohesion =	810 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

Triaxial Mohr's Circles
Unconsolidated Undrained Triaxial Test



Approved By: *[Signature]*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-502
 SAMPLE DEPTH : 19.9' to 20.4'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Gray & Tan Lean Clay with Sand
 WET DENSITY : 132.79 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.91 cm
 DRY DENSITY : 111.69 pcf DELTA VOLUME : NA INITIAL DIAMETER : 7.27 cm
 MOISTURE : 18.9 % CHAMBER PRES. : 14.32 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	14.32	14.32	1.00
2	0.09	14.32	18.32	1.28
3	0.18	14.32	21.05	1.47
4	0.26	14.32	23.36	1.63
5	0.35	14.32	25.44	1.78
6	0.44	14.32	27.26	1.9
7	0.53	14.32	28.88	2.02
8	1.05	14.32	37.89	2.65
9	1.58	14.32	44.81	3.13
10	2.11	14.32	49.29	3.44
11	2.64	14.32	51.87	3.62
12	3.16	14.32	54.21	3.79
13	3.51	14.32	55.56	3.88
14	4.39	14.32	58.05	4.05
15	5.27	14.32	59.35	4.15
16	6.15	14.32	60.11	4.2
17	7.03	14.32	60.65	4.24
18	7.91	14.32	61.1	4.27
19	8.79	14.32	61.19	4.27
20	9.66	14.32	61.08	4.27
21	10.54	14.32	60.8	4.25
22	11.42	14.32	60.34	4.22
23	12.30	14.32	59.89	4.18
24	13.18	14.32	59.43	4.15
25	14.06	14.32	58.48	4.08
26	14.94	14.32	58.03	4.05
27	15.81	14.32	57.57	4.02
28	16.69	14.32	56.96	3.98

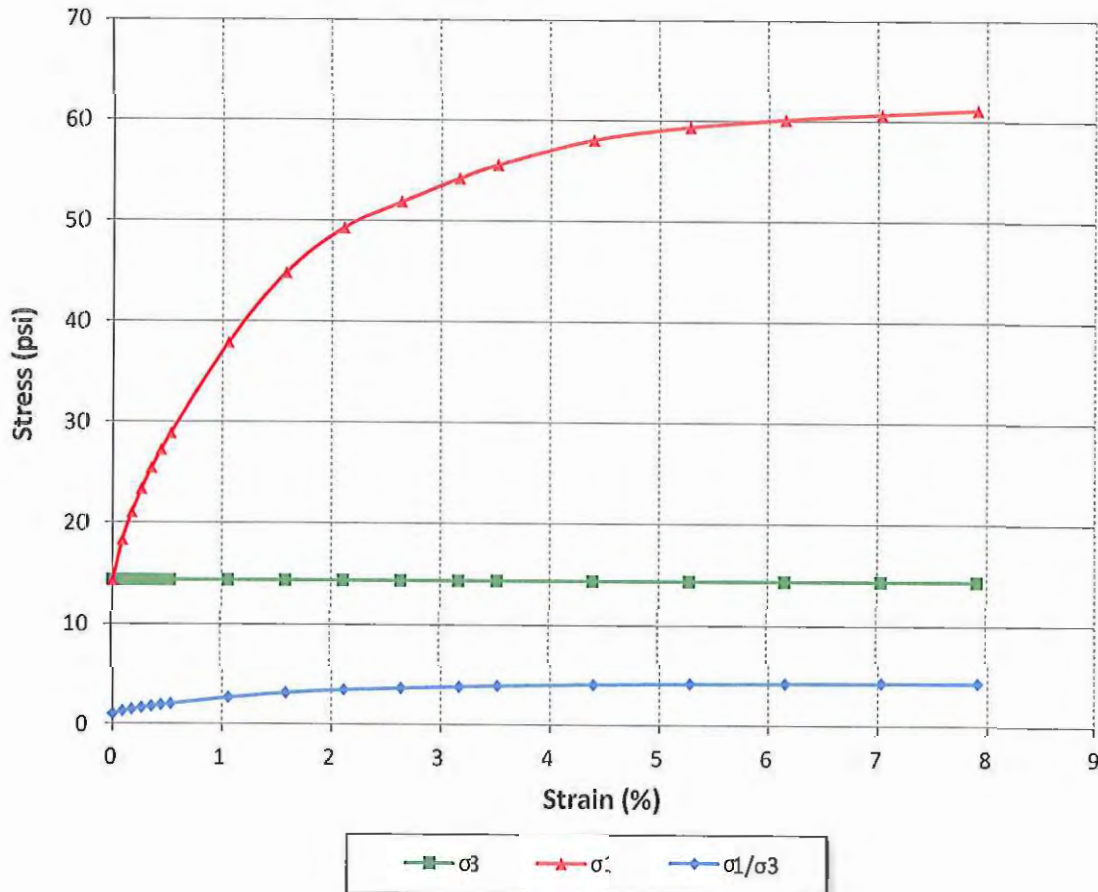
PROJECT NAME : Highway 67 Widening
PROJECT # : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY # : 11206-04
SUBMITTED BY : ICA Engineering

POINT # : 1
SAMPLE LOC. : B-502
SAMPLE DEPTH : 19.9' to 20.4'
DATE TESTED : 10/24/14
DATE REPORTED: 11/04/14

FINAL MOISTURE : 18.9 %
FINAL HEIGHT : 11.53 cm
FINAL DIAMETER : 8.11 cm

EFF. CONS. STRESS: 14.32 psi
SPECIFIC GRAVITY: NA
COMMENTS : AASHTO T-296

RESULTS:



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-502
 SAMPLE DEPTH : 19.9' to 20.4'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

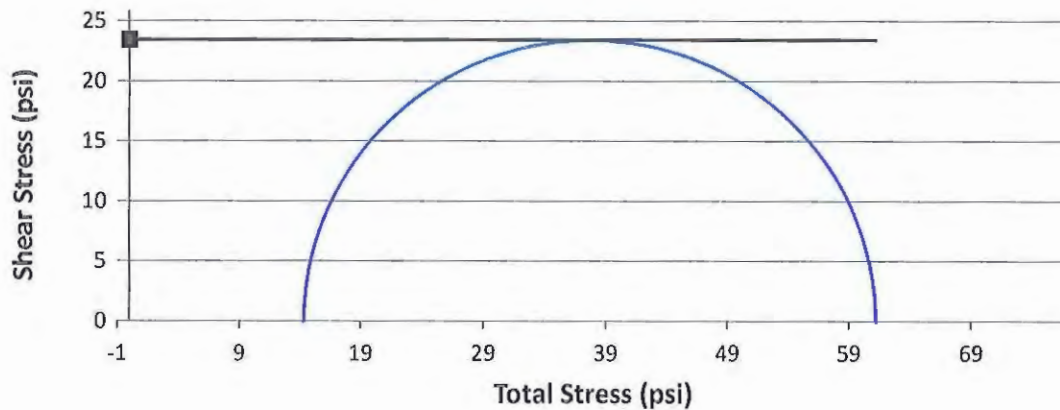
COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	6749 psf
1	14.32 psi	61.19 psi	Cohesion =	3375 psf
			Phi =	0 deg
			Tan (Phi) =	0

Maximum Deviator Stress

Triaxial Mohr's Circles

Unconsolidated Undrained Triaxial Test



Approved By: *Amy Selva*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-503
 SAMPLE DEPTH : 14.3' to 14.8'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Brown & Tan Silty Clay
 WET DENSITY : 127.25 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.96 cm
 DRY DENSITY : 102.99 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.24 cm
 MOISTURE : 23.55 % CHAMBER PRES. : 11.03 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	11.03	11.03	1.00
2	0.09	11.03	12.73	1.15
3	0.18	11.03	13.37	1.21
4	0.26	11.03	14.43	1.31
5	0.35	11.03	14.85	1.35
6	0.44	11.03	15.27	1.38
7	0.53	11.03	16.11	1.46
8	1.05	11.03	18.62	1.69
9	1.58	11.03	21.09	1.91
10	2.10	11.03	22.87	2.07
11	2.63	11.03	24.22	2.2
12	3.15	11.03	25.15	2.28
13	3.50	11.03	25.7	2.33
14	4.38	11.03	26.75	2.43
15	5.25	11.03	27.59	2.5
16	6.13	11.03	28.21	2.56
17	7.00	11.03	28.63	2.6
18	7.88	11.03	28.65	2.6
19	8.75	11.03	29.24	2.65
20	9.63	11.03	29.44	2.67
21	10.50	11.03	29.63	2.69
22	11.38	11.03	29.63	2.69
23	12.25	11.03	30.03	2.72
24	13.13	11.03	30.22	2.74
25	14.00	11.03	30.21	2.74
26	14.88	11.03	30.2	2.74
27	15.75	11.03	30.37	2.75
28	16.63	11.03	30.54	2.77
29	17.50	11.03	30.51	2.77
30	18.38	11.03	30.49	2.76
31	19.26	11.03	30.63	2.78
32	20.13	11.03	30.59	2.77

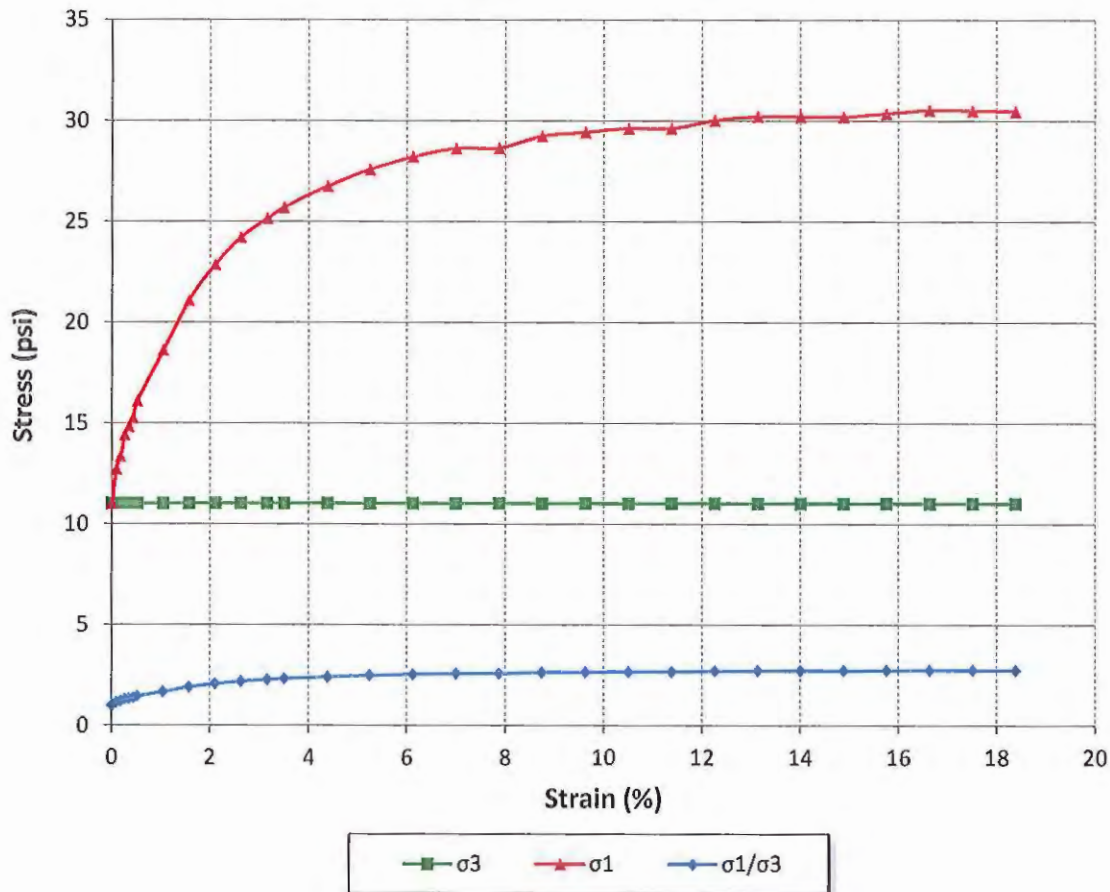
PROJECT NAME : Highway 67 Widening
PROJECT # : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY # : 11206-04
SUBMITTED BY : ICA Engineering

POINT # : 1
SAMPLE LOC. : B-503
SAMPLE DEPTH : 14.3' to 14.8'
DATE TESTED : 10/27/14
DATE REPORTED: 11/04/14

FINAL MOISTURE : 23.55 %
FINAL HEIGHT : 11.59 cm
FINAL DIAMETER : 8.07 cm

EFF. CONS. STRESS: 11.03 psi
SPECIFIC GRAVITY: NA
COMMENTS : AASHTO T-296

RESULTS:



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

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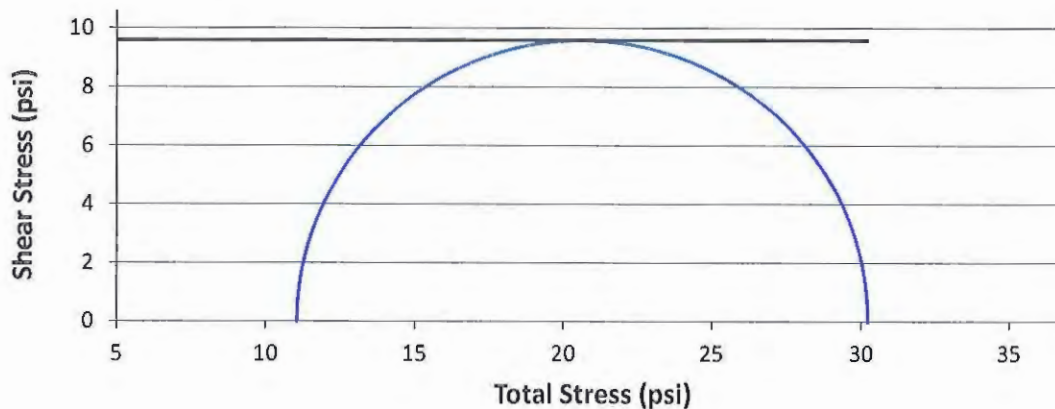
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-503
 SAMPLE DEPTH : 14.3' to 14.8'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	2764 psf
1	11.03 psi	30.23 psi	Cohesion =	1382 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

Triaxial Mohr's Circles
 Unconsolidated Undrained Triaxial Test



Approved By: 



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-505
 SAMPLE DEPTH : 14.5' to 15.0'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Brown & Tan Silty Clay
 WET DENSITY : 119.71 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.84 cm
 DRY DENSITY : 93.74 pcf DELTA VOLUME : NA INITIAL DIAMETER : 7.32 cm
 MOISTURE : 27.7 % CHAMBER PRES. : 10.33 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	10.33	10.33	1.00
2	0.09	10.33	12.2	1.18
3	0.18	10.33	13.44	1.3
4	0.26	10.33	14.48	1.4
5	0.35	10.33	15.51	1.5
6	0.44	10.33	16.33	1.58
7	0.53	10.33	17.36	1.68
8	1.06	10.33	21.61	2.09
9	1.59	10.33	25.13	2.43
10	2.12	10.33	27.82	2.69
11	2.65	10.33	30.49	2.95
12	3.18	10.33	33.07	3.2
13	3.53	10.33	34.22	3.31
14	4.41	10.33	36.66	3.55
15	5.30	10.33	38.04	3.68
16	6.18	10.33	38.78	3.75
17	7.06	10.33	39.31	3.8
18	7.95	10.33	39.68	3.84
19	8.83	10.33	39.72	3.84
20	9.71	10.33	39.59	3.83
21	10.59	10.33	39.46	3.82
22	11.48	10.33	39.33	3.81
23	12.36	10.33	39.35	3.81
24	13.24	10.33	39.21	3.79
25	14.13	10.33	39.06	3.78
26	15.01	10.33	38.92	3.77
27	15.89	10.33	38.77	3.75
28	16.77	10.33	38.61	3.74
29	17.66	10.33	38.46	3.72
30	18.54	10.33	38.44	3.72
31	19.42	10.33	38.42	3.72
32	20.31	10.33	38.11	3.69

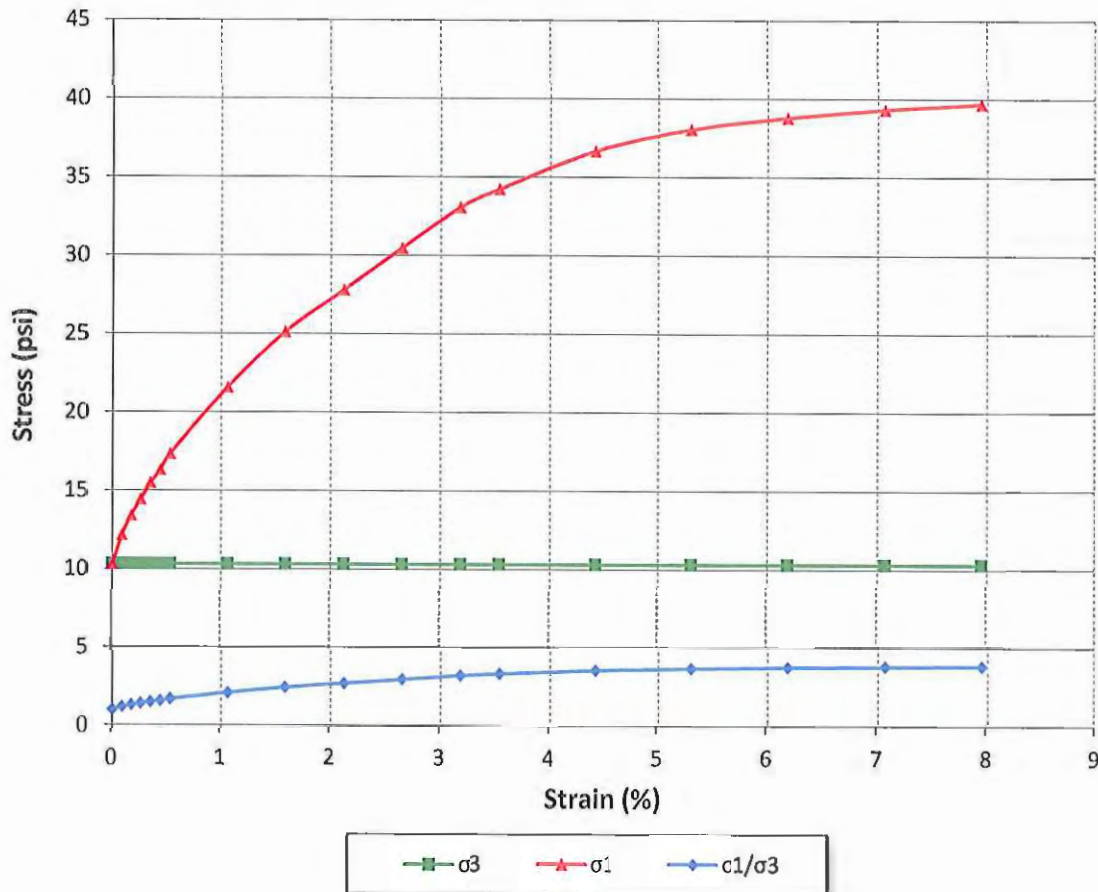
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-505
 SAMPLE DEPTH : 14.5' to 15.0'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 27.7 %
 FINAL HEIGHT : 11.46 cm
 FINAL DIAMETER : 8.17 cm

EFF. CONS. STRESS: 10.33 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
PROJECT # : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY # : 11206-04
SUBMITTED BY : ICA Engineering

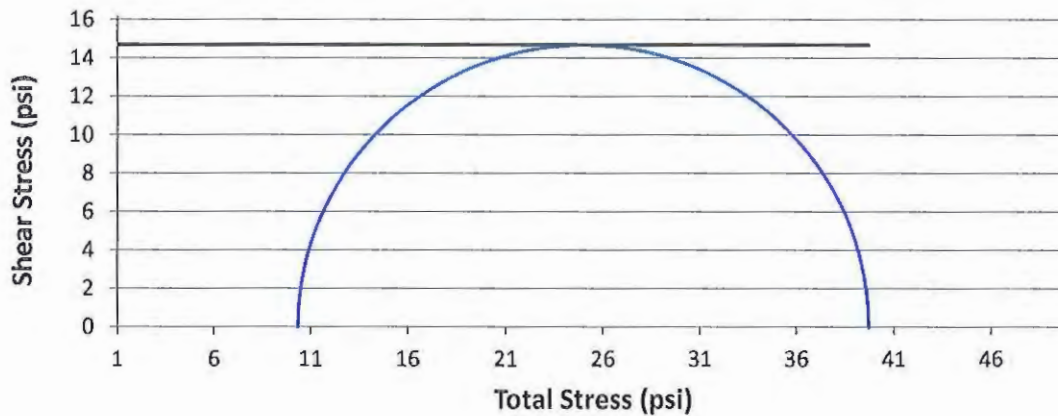
COMMENTS : AASHTO T-296
SAMPLE LOC. : B-505
SAMPLE DEPTH : 14.5' to 15.0'
DATE TESTED : 10/27/14
DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	4232 psf
1	10.33 psi	39.72 psi	Cohesion =	2116 psf
			Phi =	0 deg
			Tan (Phi) =	0

Maximum Deviator Stress

Triaxial Mohr's Circles
Unconsolidated Undrained Triaxial Test



Approved By: *Amy Sabin*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-556
 SAMPLE DEPTH : 29.8' to 30.3'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Orange & Gray Lean Clay with Sand
 WET DENSITY : 132.25 pcf
 DRY DENSITY : 107.23 pcf
 MOISTURE : 23.33 %

DELTA HEIGHT : 0.45 cm
 DELTA VOLUME : NA
 CHAMBER PRES. : 19 psi
 INITIAL HEIGHT : 14.96 cm
 INITIAL DIAMETER : 7.18 cm
 COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	19.00	19.00	1.00
2	0.09	19	19.43	1.02
3	0.18	19	19.65	1.03
4	0.26	19	19.86	1.05
5	0.35	19	19.86	1.05
6	0.44	19	20.07	1.06
7	0.53	19	20.29	1.07
8	1.05	19	21.14	1.11
9	1.58	19	21.76	1.15
10	2.10	19	22.6	1.19
11	2.63	19	23	1.21
12	3.15	19	23.6	1.24
13	3.50	19	24	1.26
14	4.38	19	24.58	1.29
15	5.25	19	25.35	1.33
16	6.13	19	25.69	1.35
17	7.00	19	26.03	1.37
18	7.88	19	26.17	1.38
19	8.75	19	26.69	1.4
20	9.63	19	26.81	1.41
21	10.50	19	27.12	1.43
22	11.38	19	27.24	1.43
23	12.25	19	27.34	1.44
24	13.13	19	27.64	1.45
25	14.00	19	27.73	1.46
26	14.88	19	27.83	1.46
27	15.75	19	27.92	1.47
28	16.63	19	28.01	1.47
29	17.50	19	28.09	1.48
30	18.38	19	27.99	1.47
31	19.25	19	28.06	1.48
32	20.13	19	28.13	1.48

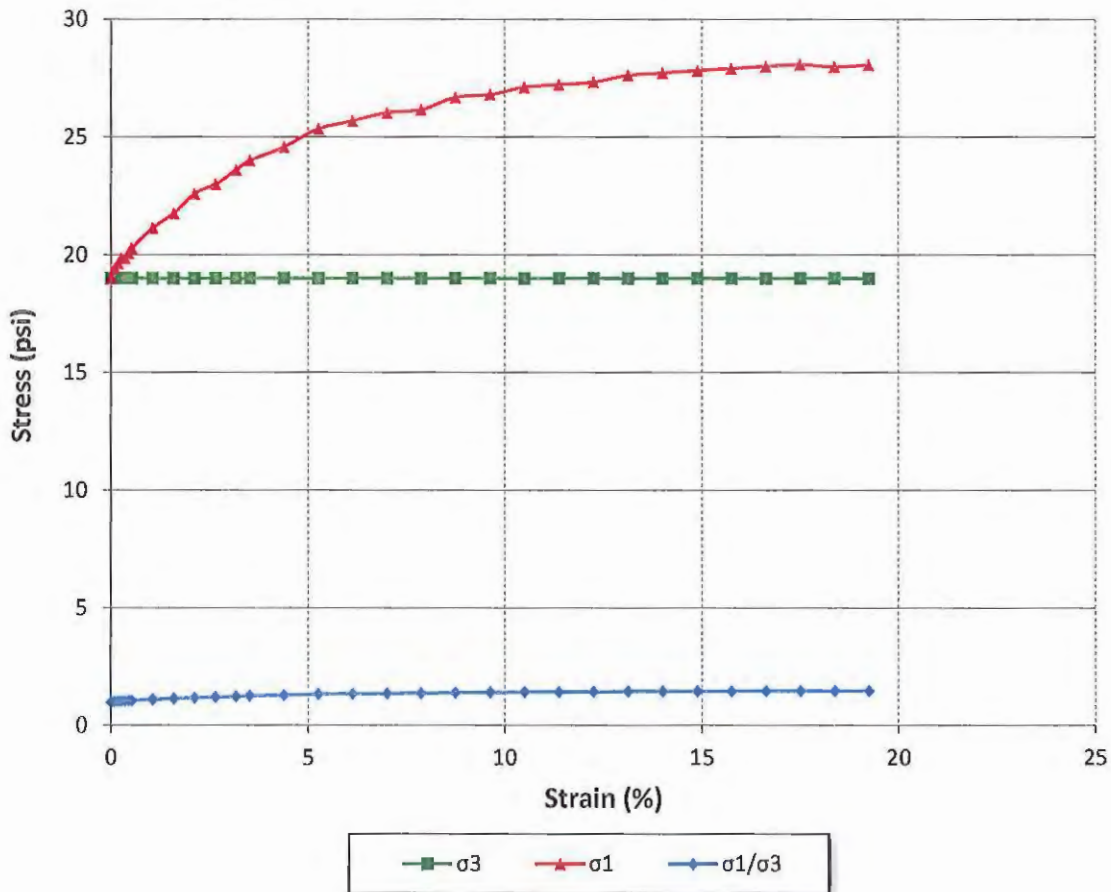
PROJECT NAME : Highway 67 Widening
PROJECT # : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY # : 11206-04
SUBMITTED BY : ICA Engineering

POINT # : 1
SAMPLE LOC. : B-556
SAMPLE DEPTH : 29.8' to 30.3'
DATE TESTED : 10/27/14
DATE REPORTED: 11/04/14

FINAL MOISTURE : 23.33 %
FINAL HEIGHT : 11.59 cm
FINAL DIAMETER : 8.01 cm

EFF. CONS. STRESS: 19 psi
SPECIFIC GRAVITY: NA
COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

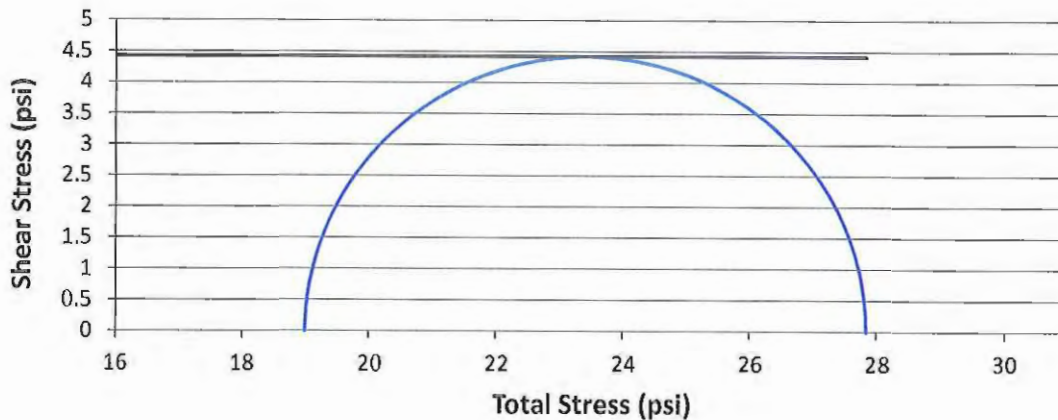
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-556
 SAMPLE DEPTH : 29.8' to 30.3'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	1274 psf
1	19 psi	27.84 psi	Cohesion =	637 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

Triaxial Mohr's Circles
Unconsolidated Undrained Triaxial Test



Approved By: *Amy Sola*



Unconsolidated Undrained
TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-557
 SAMPLE DEPTH : 15.2' to 15.7'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Brown & Gray Silt
 WET DENSITY : 130.93 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.86 cm
 DRY DENSITY : 109.59 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.28 cm
 MOISTURE : 19.47 % CHAMBER PRES. : 11.83 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	11.83	11.83	1.00
2	0.09	11.83	13.3	1.12
3	0.18	11.83	14.98	1.27
4	0.26	11.83	16.44	1.39
5	0.35	11.83	17.49	1.48
6	0.44	11.83	18.32	1.55
7	0.53	11.83	19.36	1.64
8	1.06	11.83	24.86	2.1
9	1.59	11.83	30.22	2.56
10	2.12	11.83	35.09	2.97
11	2.64	11.83	39.17	3.31
12	3.17	11.83	43.06	3.64
13	3.53	11.83	45	3.81
14	4.41	11.83	49.28	4.17
15	5.29	11.83	53.84	4.55
16	6.17	11.83	56.61	4.79
17	7.05	11.83	58.57	4.95
18	7.93	11.83	59.54	5.03
19	8.81	11.83	59.96	5.07
20	9.69	11.83	60.19	5.09
21	10.58	11.83	60.23	5.09
22	11.46	11.83	59.76	5.05
23	12.34	11.83	59.79	5.06
24	13.22	11.83	59.64	5.04
25	14.10	11.83	59.48	5.03
26	14.98	11.83	59.32	5.02
27	15.86	11.83	59.48	5.03
28	16.74	11.83	59.3	5.01
29	17.63	11.83	58.95	4.99
30	18.51	11.83	58.6	4.96
31	19.39	11.83	58.72	4.97
32	20.27	11.83	58.51	4.95

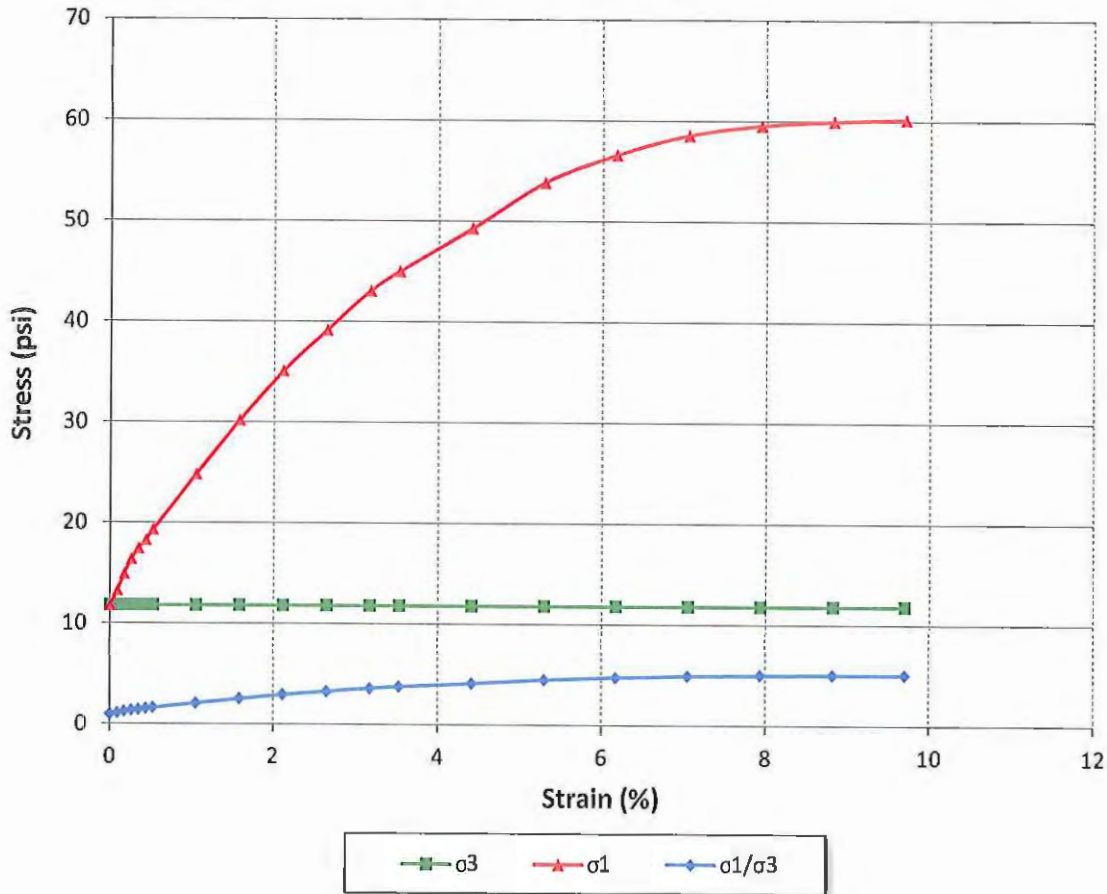
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-557
 SAMPLE DEPTH : 15.2' to 15.7'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 19.47 %
 FINAL HEIGHT : 11.49 cm
 FINAL DIAMETER : 8.12 cm

EFF. CONS. STRESS: 11.83 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

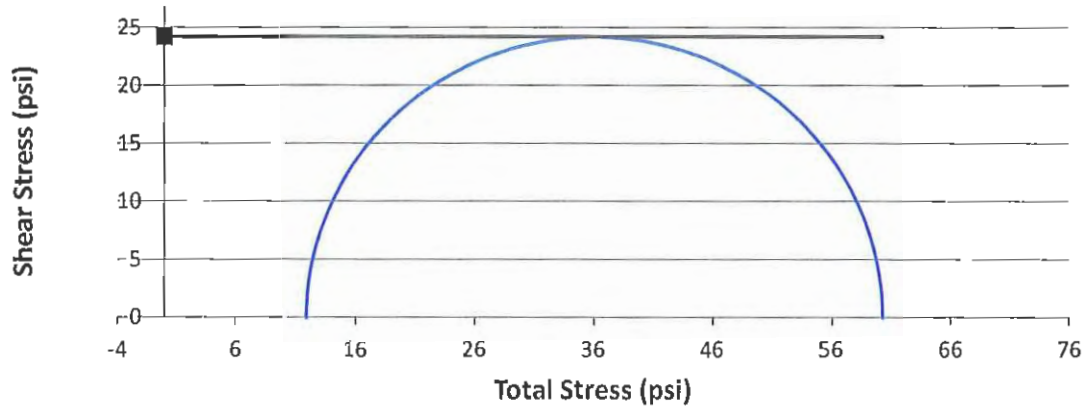
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-557
 SAMPLE DEPTH : 15.2' to 15.7'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14


COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	6971 psf
1	11.83 psi	60.23 psi	Cohesion =	3485 psf
			Phi =	0 deg
			Tan (Phi) =	0

Maximum Deviator Stress

Triaxial Mohr's Circles
 Unconsolidated Undrained Triaxial Test



Approved By: 



Unconsolidated Undrained
TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-558
 SAMPLE DEPTH : 16.4' to 16.9'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Brown & Tan Lean Clay with Sand
 WET DENSITY : 131.55 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 15.06 cm
 DRY DENSITY : 110.3 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.29 cm
 MOISTURE : 19.27 % CHAMBER PRES. : 8.14 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	8.14	8.14	1.00
2	0.09	8.14	8.98	1.1
3	0.17	8.14	11.07	1.36
4	0.26	8.14	12.54	1.54
5	0.35	8.14	13.58	1.67
6	0.43	8.14	14.41	1.77
7	0.52	8.14	15.45	1.9
8	1.04	8.14	20.95	2.57
9	1.57	8.14	26.9	3.31
10	2.09	8.14	30.73	3.78
11	2.61	8.14	32.92	4.04
12	3.13	8.14	34.04	4.18
13	3.48	8.14	34.79	4.27
14	4.35	8.14	35.99	4.42
15	5.22	8.14	37.17	4.57
16	6.09	8.14	38.38	4.72
17	6.96	8.14	38.92	4.78
18	7.83	8.14	39.61	4.87
19	8.70	8.14	40.29	4.95
20	9.57	8.14	40.62	4.99
21	10.44	8.14	41.1	5.05
22	11.30	8.14	41.25	5.07
23	12.17	8.14	41.39	5.09
24	13.04	8.14	41.68	5.12
25	13.91	8.14	41.8	5.14
26	14.78	8.14	42.06	5.17
27	15.65	8.14	42.33	5.2
28	16.52	8.14	42.62	5.24
29	17.39	8.14	42.57	5.23
30	18.26	8.14	42.84	5.26
31	19.13	8.14	43.01	5.28
32	20.00	8.14	43.02	5.29

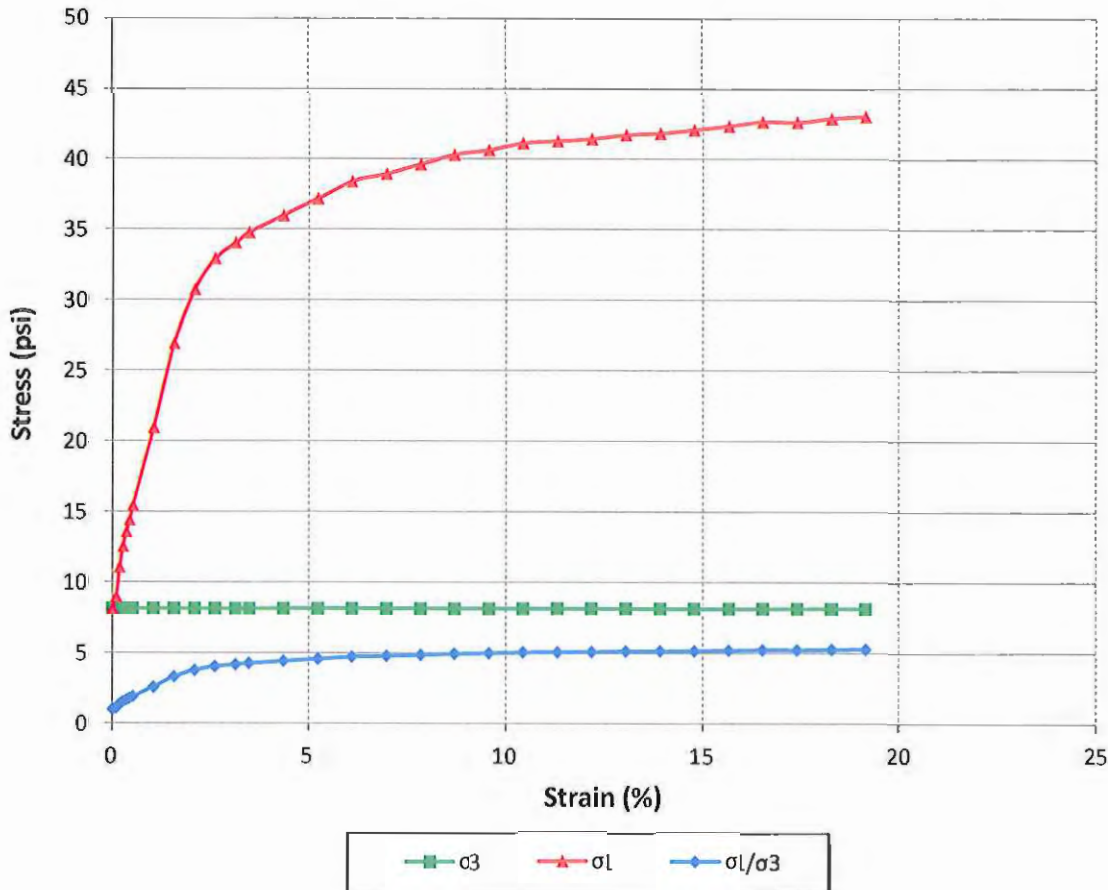
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-558
 SAMPLE DEPTH : 16.4' to 16.9'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 19.27 %
 FINAL HEIGHT : 11.68 cm
 FINAL DIAMETER : 8.12 cm

EFF. CONS. STRESS: 8.14 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
PROJECT # : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY # : 11206-04
SUBMITTED BY : ICA Engineering

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COMMENTS : AASHTO T-296
SAMPLE LOC. : B-558
SAMPLE DEPTH : 16.4' to 16.9'
DATE TESTED : 10/27/14
DATE REPORTED: 11/04/14

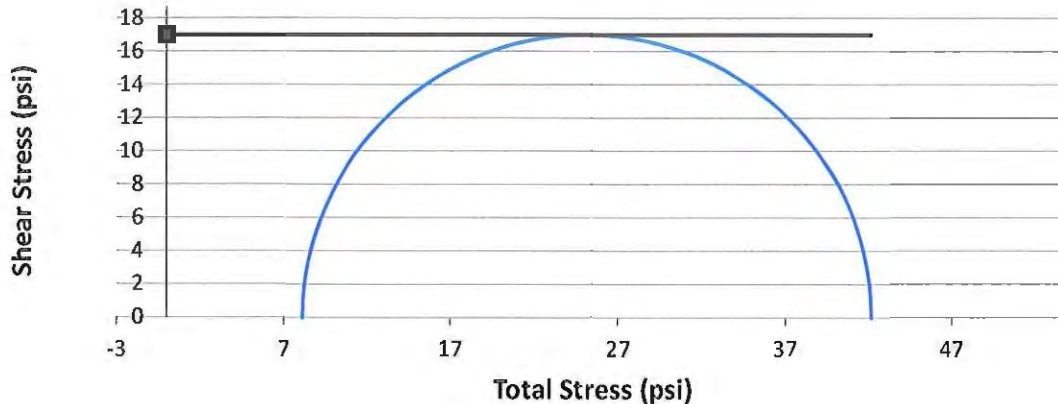
COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	4895 psf
1	8.14 psi	42.13 psi	Cohesion =	2447 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

Triaxial Mohr's Circles

Unconsolidated Undrained Triaxial Test



Approved By: *[Signature]*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-559
 SAMPLE DEPTH : 15.7' to 16.2'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Tan, Brown & Gray Lean Clay with Sand

WET DENSITY : 133.17 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.87 cm
 DRY DENSITY : 112.48 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.28 cm
 MOISTURE : 18.39 % CHAMBER PRES. : 8.04 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	8.04	8.04	1.00
2	0.09	8.04	9.3	1.16
3	0.18	8.04	10.56	1.31
4	0.26	8.04	11.61	1.44
5	0.35	8.04	12.65	1.57
6	0.44	8.04	13.48	1.68
7	0.53	8.04	14.31	1.78
8	1.06	8.04	19.45	2.42
9	1.59	8.04	24.01	2.99
10	2.11	8.04	27.33	3.4
11	2.64	8.04	29.06	3.61
12	3.17	8.04	30.41	3.78
13	3.52	8.04	31.37	3.9
14	4.41	8.04	33.02	4.11
15	5.29	8.04	34.22	4.26
16	6.17	8.04	35.4	4.4
17	7.05	8.04	35.95	4.47
18	7.93	8.04	36.48	4.54
19	8.81	8.04	36.8	4.58
20	9.69	8.04	37	4.6
21	10.57	8.04	37.04	4.61
22	11.45	8.04	37.22	4.63
23	12.34	8.04	37.09	4.61
24	13.22	8.04	37.26	4.63
25	14.10	8.04	37.26	4.63
26	14.98	8.04	37.27	4.63
27	15.86	8.04	37.11	4.62
28	16.74	8.04	37.25	4.63
29	17.62	8.04	37.23	4.63
30	18.50	8.04	37.21	4.63
31	19.39	8.04	37.04	4.61
32	20.27	8.04	36.72	4.57

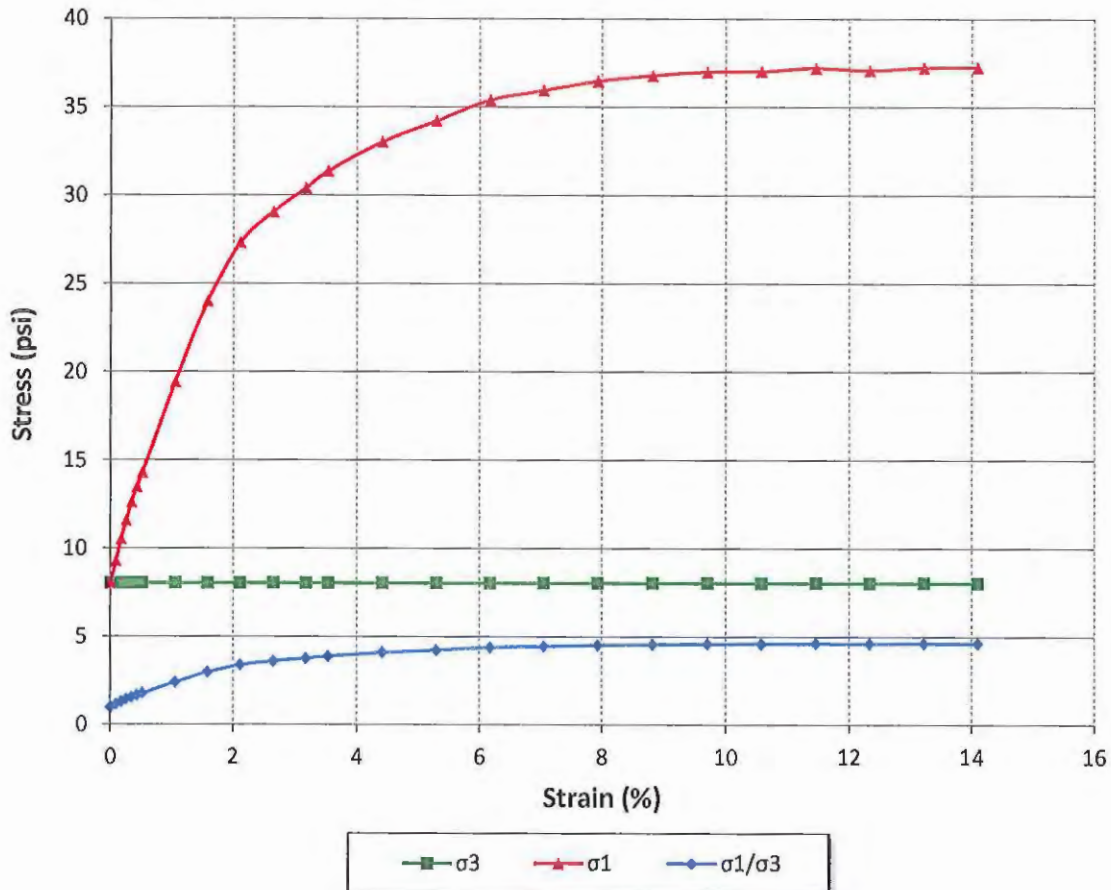
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-559
 SAMPLE DEPTH : 15.7' to 16.2'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 18.39 %
 FINAL HEIGHT : 11.49 cm
 FINAL DIAMETER : 8.12 cm

EFF. CONS. STRESS: 8.04 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-559
 SAMPLE DEPTH : 15.7' to 16.2'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

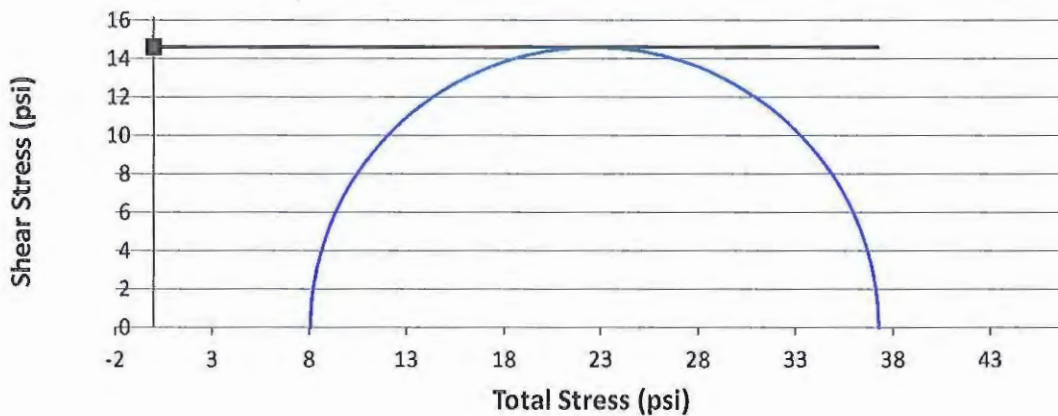
COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	4208 psf
1	8.04 psi	37.27 psi	Cohesion =	2104 psf
			Phi =	0 deg
			Tan (Phi) =	0

Maximum Deviator Stress

Triaxial Mohr's Circles

Unconsolidated Undrained Triaxial Test



Approved By: *Amy Sdr*



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 4.4' to 4.9'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Gray & Orange Silt
 WET DENSITY : 129.7 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.92 cm
 DRY DENSITY : 107.61 pcf DELTA VOLUME : NA INITIAL DIAMETER : 7.22 cm
 MOISTURE : 20.53 % CHAMBER PRES. : 4.45 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	4.45	4.45	1.00
2	0.09	4.45	5.73	1.29
3	0.18	4.45	6.37	1.43
4	0.26	4.45	7.01	1.57
5	0.35	4.45	7.65	1.72
6	0.44	4.45	8.07	1.81
7	0.53	4.45	8.7	1.95
8	1.05	4.45	12.06	2.71
9	1.58	4.45	14.55	3.27
10	2.11	4.45	16.33	3.67
11	2.63	4.45	17.48	3.93
12	3.16	4.45	18.22	4.09
13	3.51	4.45	18.77	4.21
14	4.39	4.45	19.03	4.27
15	5.27	4.45	19.69	4.42
16	6.14	4.45	19.93	4.48
17	7.02	4.45	19.98	4.49
18	7.90	4.45	20.03	4.5
19	8.78	4.45	20.64	4.63
20	9.66	4.45	20.67	4.64
21	10.53	4.45	20.88	4.69
22	11.41	4.45	21.09	4.73
23	12.29	4.45	21.47	4.82
24	13.17	4.45	21.84	4.9
25	14.04	4.45	22.2	4.98
26	14.92	4.45	22.74	5.11
27	15.80	4.45	23.11	5.19
28	16.68	4.45	23.47	5.27
29	17.56	4.45	23.63	5.31
30	18.43	4.45	24.14	5.42
31	19.31	4.45	24.64	5.53
32	20.19	4.45	24.59	5.52

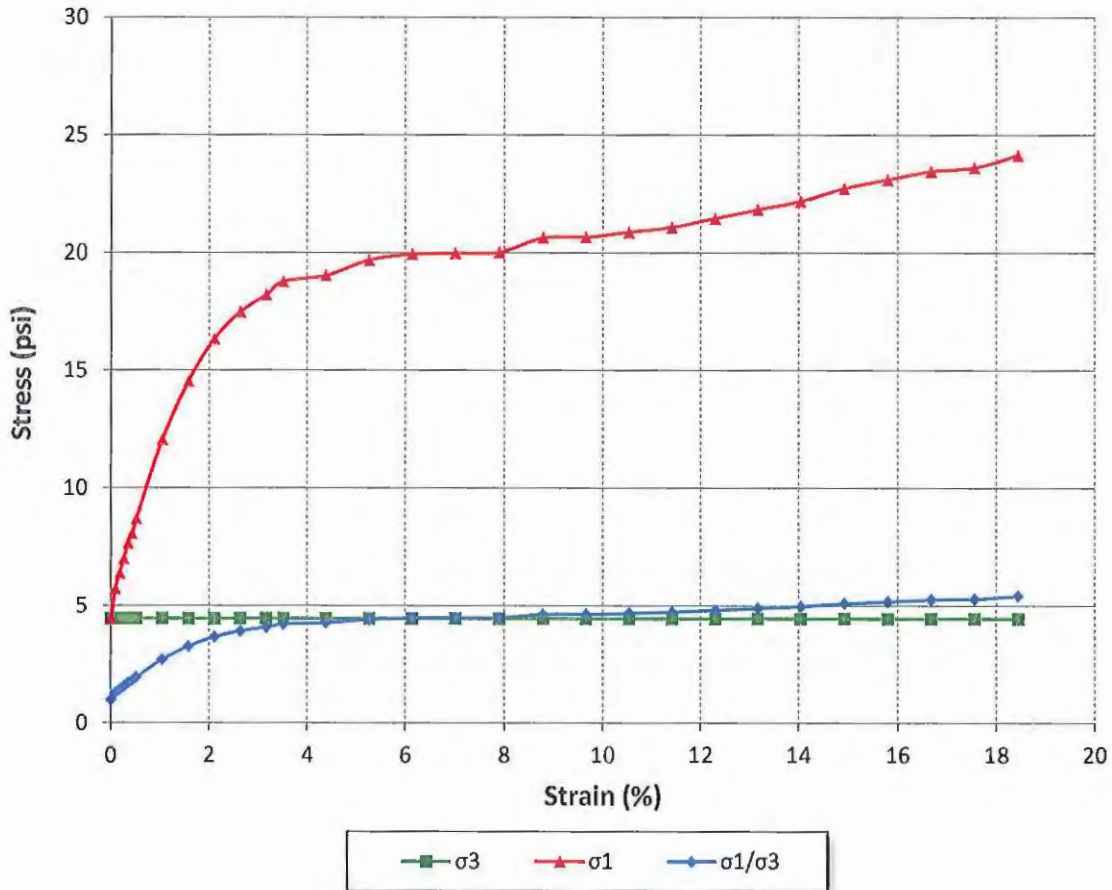
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 4.4' to 4.9'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

FINAL MOISTUR : 20.53 %
 FINAL HEIGHT : 11.55 cm
 FINAL DIAMETE : 8.06 cm

EFF. CONS. STRESS: 4.45 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 4.4' to 4.9'
 DATE TESTED : 10/27/14
 DATE REPORTED: 11/04/14

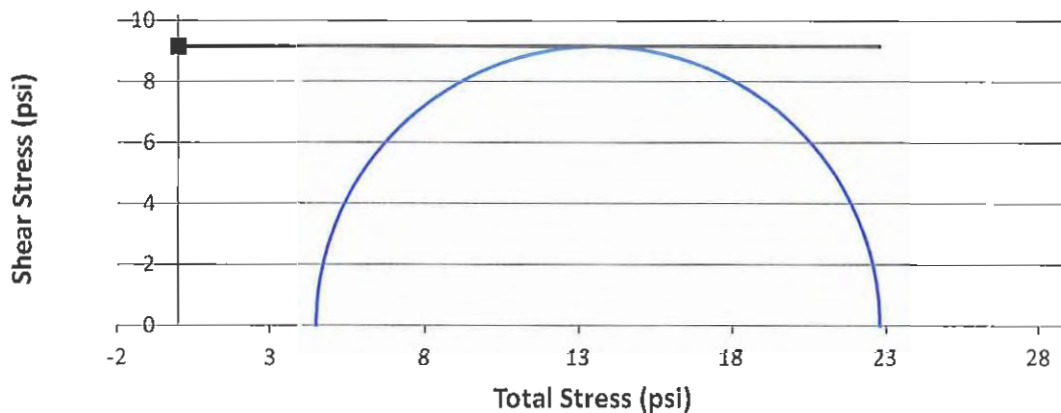
COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	2639 psf
1	4.45 psi	22.78 psi	Cohesion =	1319 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

Triaxial Mohr's Circles

Unconsolidated Undrained Triaxial Test



Approved By: 



Unconsolidated Undrained
TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 24.1' to 24.6'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

SOIL TYPE : Brown Sandy Silt
 WET DENSITY : 138.12 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.61 cm
 DRY DENSITY : 115.98 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.17 cm
 MOISTURE : 19.09 % CHAMBER PRES. : 12.92 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	12.92	12.92	1.00
2	0.09	12.92	13.57	1.05
3	0.18	12.92	13.79	1.07
4	0.27	12.92	14	1.08
5	0.36	12.92	14.43	1.12
6	0.45	12.92	14.65	1.13
7	0.54	12.92	14.86	1.15
8	1.08	12.92	16.35	1.27
9	1.61	12.92	17.82	1.38
10	2.15	12.92	19.07	1.48
11	2.69	12.92	20.3	1.57
12	3.23	12.92	21.52	1.67
13	3.59	12.92	22.11	1.71
14	4.48	12.92	23.47	1.82
15	5.38	12.92	24.56	1.9
16	6.28	12.92	25.44	1.97
17	7.17	12.92	26.3	2.04
18	8.07	12.92	27.14	2.1
19	8.97	12.92	27.38	2.12
20	9.87	12.92	27.81	2.15
21	10.76	12.92	28.41	2.2
22	11.66	12.92	28.81	2.23
23	12.56	12.92	29.2	2.26
24	13.45	12.92	29.58	2.29
25	14.35	12.92	29.77	2.3
26	15.25	12.92	30.13	2.33
27	16.14	12.92	30.12	2.33
28	17.04	12.92	30.29	2.34
29	17.94	12.92	30.45	2.36
30	18.83	12.92	30.44	2.36
31	19.73	12.92	30.6	2.37
32	20.63	12.92	30.76	2.38

TRIAXIAL COMPRESSION TEST

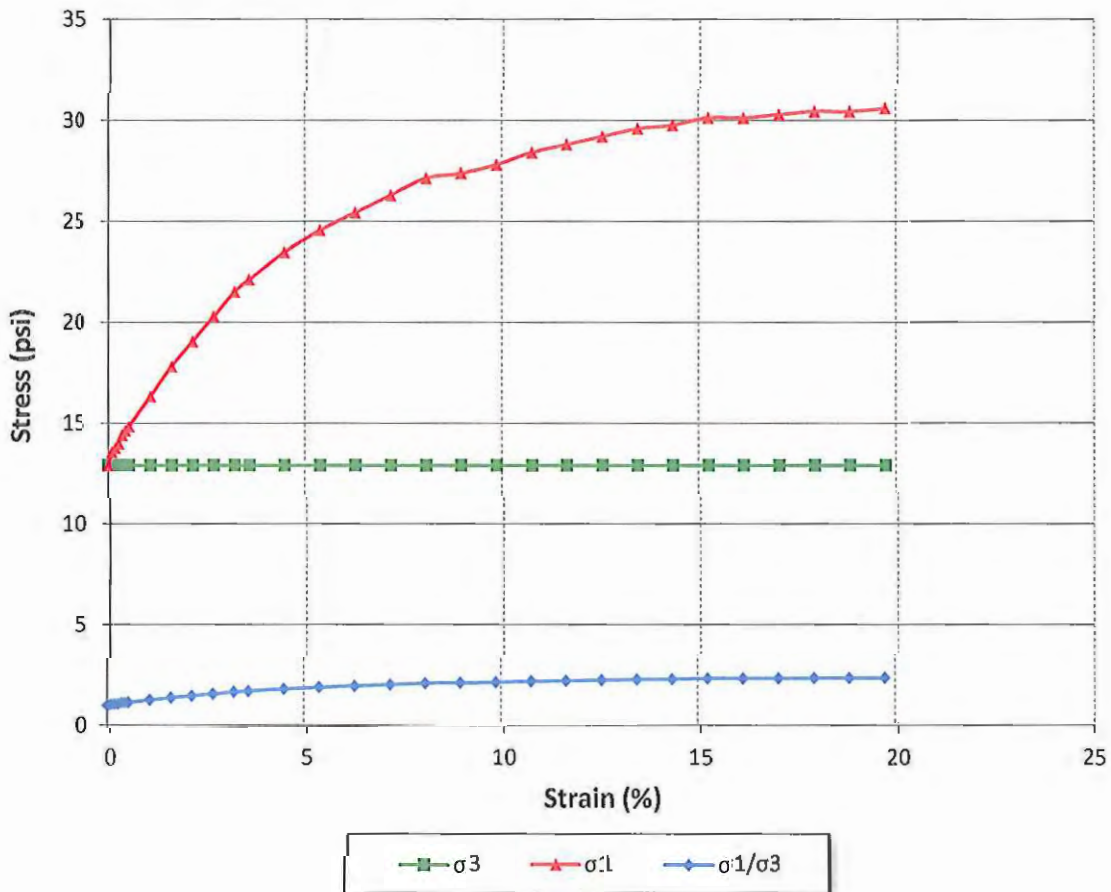
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 24.1' to 24.6'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 19.09 %
 FINAL HEIGHT : 11.24 cm
 FINAL DIAMETER : 8.02 cm

EFF. CONS. STRESS: 12.92 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-563
 SAMPLE DEPTH : 24.1' to 24.6'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

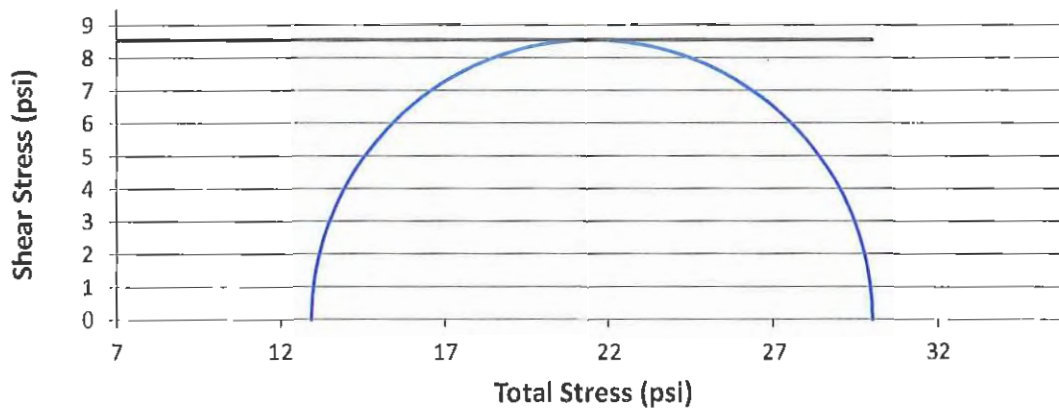
COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

Test	Lateral	Total	Compressive Strength =	2464 psf
1	12.92 psi	30.03 psi	Cohesion =	1232 psf
			Phi =	0 deg
			Tan (Phi) =	0

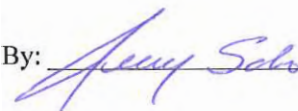
At Maximum Deviator Stress 15%

Triaxial Mohr's Circles

Unconsolidated Undrained Triaxial Test



Approved By: _____





TRIAxIAL COMPRESSION TEST

PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-564
 SAMPLE DEPTH : 15.6' to 16.1'
 DATE TESTED : 10/24/14
 DATE REPORTEE: 11/04/14

SOIL TYPE : Tan, Gray & Black Lean Clay
 WET DENSITY : 129.54 pcf DELTA HEIGHT : 0.45 cm INITIAL HEIGHT : 14.93 cm
 DRY DENSITY : 106.46 pcf DELTA VOLUME : NA INITIAL DIAMETER: 7.29 cm
 MOISTURE : 21.69 % CHAMBER PRES. : 11.83 psi COMMENTS : AASHTO T-296

RESULTS:

	ϵ_a	σ_3 (psi)	σ_1 (psi)	σ_1/σ_3
1	0.00	11.83	11.83	1.00
2	0.09	11.83	14.55	1.23
3	0.18	11.83	16.43	1.39
4	0.26	11.83	18.1	1.53
5	0.35	11.83	19.77	1.67
6	0.44	11.83	21.01	1.78
7	0.53	11.83	22.26	1.88
8	1.05	11.83	27.85	2.35
9	1.58	11.83	31.57	2.67
10	2.11	11.83	33.75	2.85
11	2.63	11.83	35.11	2.97
12	3.16	11.83	36.24	3.06
13	3.51	11.83	36.77	3.11
14	4.39	11.83	37.58	3.18
15	5.26	11.83	38.36	3.24
16	6.14	11.83	39.13	3.31
17	7.02	11.83	39.47	3.34
18	7.90	11.83	39.81	3.37
19	8.77	11.83	40.13	3.39
20	9.65	11.83	40.41	3.42
21	10.53	11.83	40.61	3.43
22	11.41	11.83	40.8	3.45
23	12.28	11.83	40.82	3.45
24	13.16	11.83	40.84	3.45
25	14.04	11.83	40.85	3.45
26	14.92	11.83	40.7	3.44
27	15.79	11.83	40.85	3.45
28	16.67	11.83	40.99	3.47
29	17.55	11.83	40.83	3.45
30	18.43	11.83	40.81	3.45
31	19.30	11.83	40.78	3.45
32	20.18	11.83	40.89	3.46

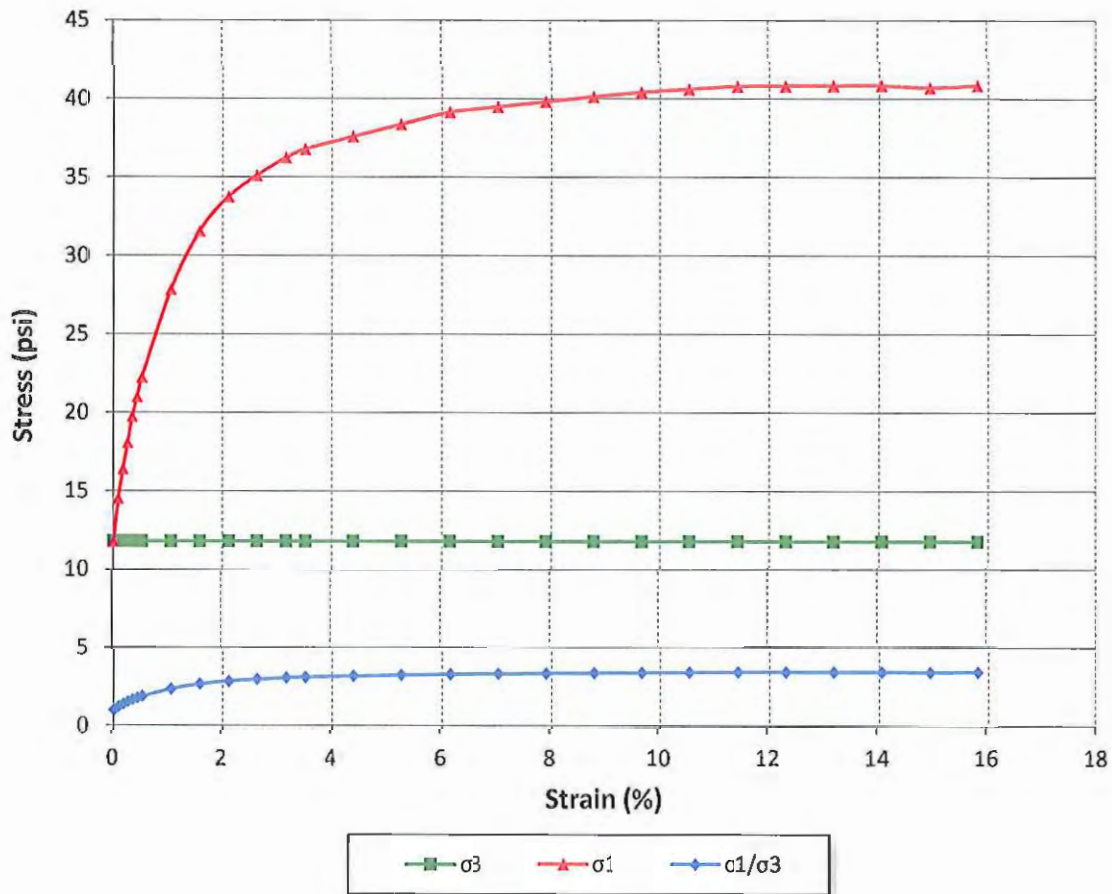
PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

POINT # : 1
 SAMPLE LOC. : B-564
 SAMPLE DEPTH : 15.6' to 16.1'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

FINAL MOISTURE : 21.69 %
 FINAL HEIGHT : 11.55 cm
 FINAL DIAMETER : 8.13 cm

EFF. CONS. STRESS: 11.83 psi
 SPECIFIC GRAVITY: NA
 COMMENTS : AASHTO T-296

RESULTS:



PROJECT NAME : Highway 67 Widening
 PROJECT # : 11206-04
 PROJECT COUNTY : Pulaski
 PROJECT STATE : Arkansas
 LABORATORY # : 11206-04
 SUBMITTED BY : ICA Engineering

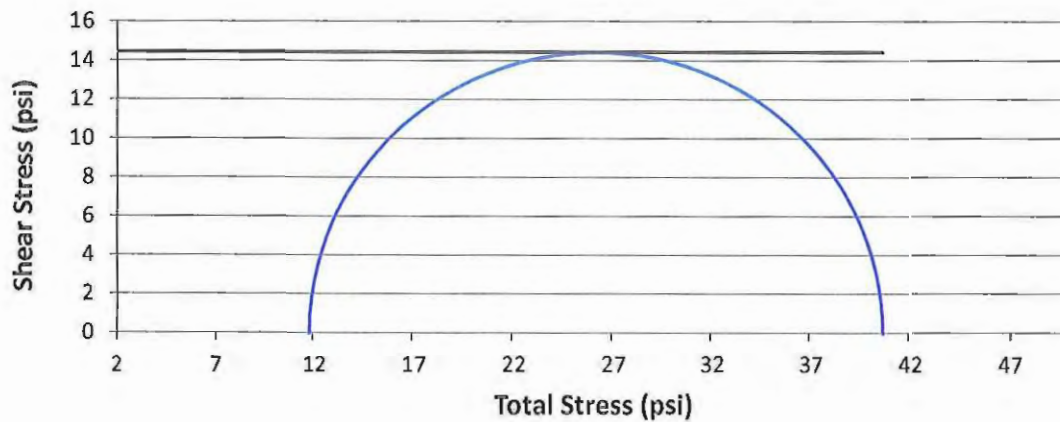
COMMENTS : AASHTO T-296
 SAMPLE LOC. : B-564
 SAMPLE DEPTH : 15.6' to 16.1'
 DATE TESTED : 10/24/14
 DATE REPORTED: 11/04/14

COEFFICIENT OF INTERNAL FRICTION AND COHESION BY THE METHOD OF LEAST SQUARES

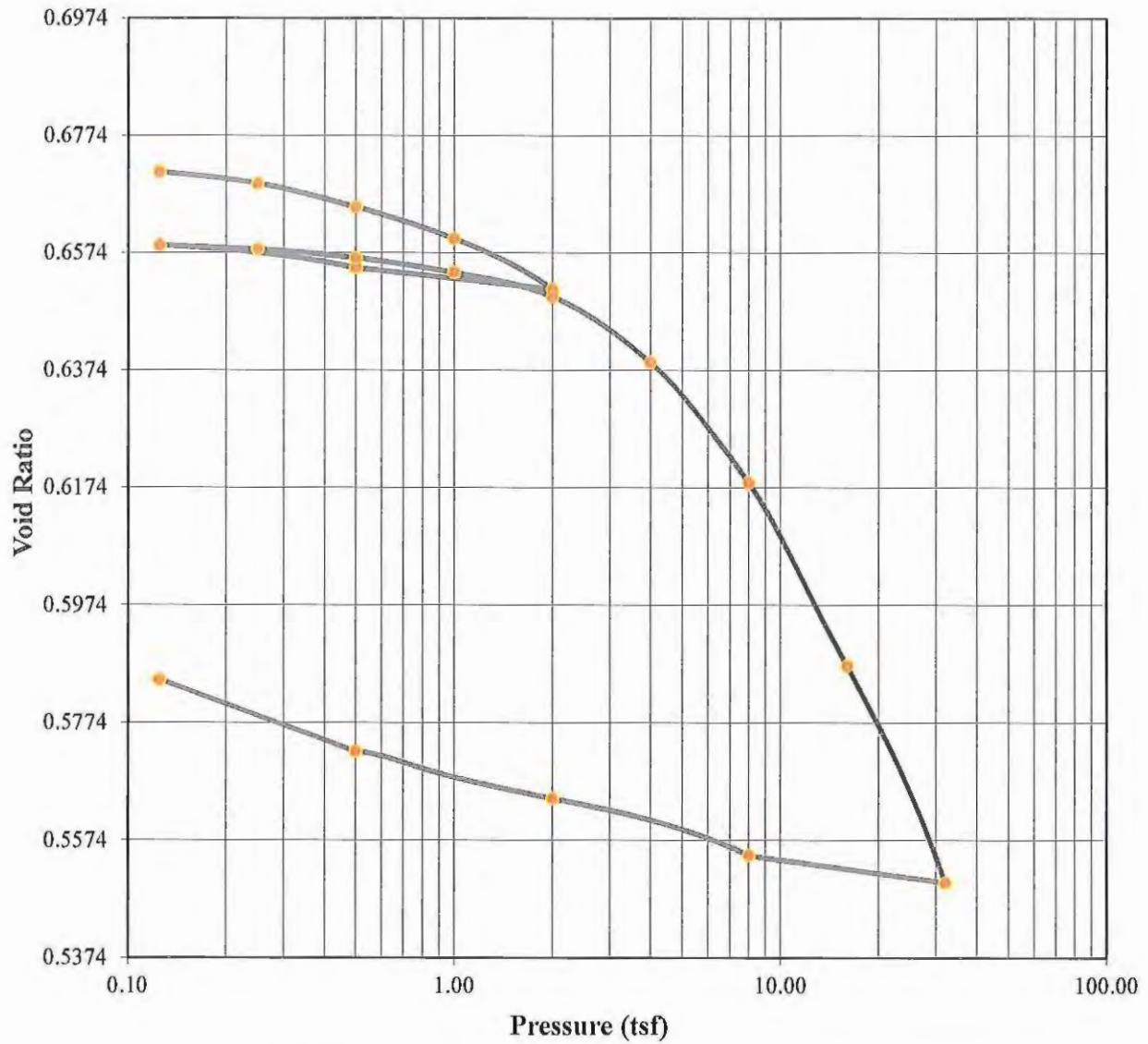
Test	Lateral	Total	Compressive Strength =	4160 psf
1	11.83 psi	40.71 psi	Cohesion =	2080 psf
			Phi =	0 deg
			Tan (Phi) =	0

At Maximum Deviator Stress 15%

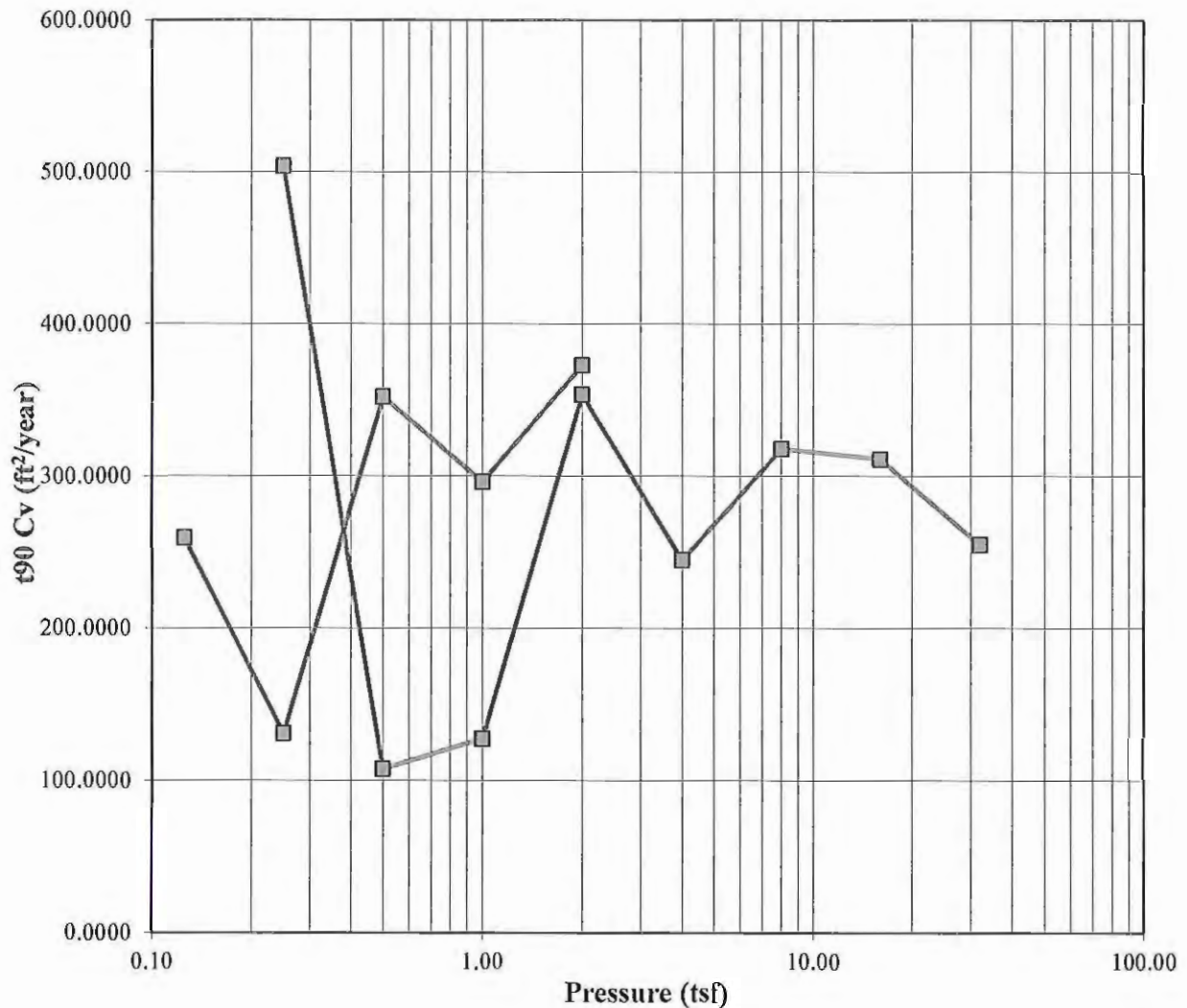
Triaxial Mohr's Circles
 Unconsolidated Undrained Triaxial Test



Approved By: *[Signature]*



Summary of Consolidation Test Results				Test Date: 10/28/14
Overburden Press. (tsf)	0.35	Compression Index, C_c	0.10	
Preconsol. Press., P_c (tsf)	4.20	Rebound Index, C_r	0.01	
Over Consolidation Ratio	12.17			
Soil Description:	Brown & Tan Silty Clay with Sand			
Project Number:	11206-04	Depth:	5.5'-6.0'	
Sample Number:	ST-1	Boring Number:	B-501	
Project:	Highway 67 Widening			
Client:				
Location:	B-501 ST-1 5.5-6.0			
				Remarks:



—■— t90 Cv

	Before	After	Liquid Limits:	19	Test Date:	10/28/14	
Moisture (%):	24.42	17.79	Plastic Limits:	14			
Dry Density (pcf):	102.08	116.06	Plasticity Index (%):	5			
Saturation (%):	99.07	102.95					
Void Ratio:	0.6727	0.5379	Specific Gravity:	2.739	Measured		
Soil Description:	Brown & Tan Silty Clay with Sand						
Project Number:	11206-04	Depth:	5.5'-6.0'		Remarks:		
Sample Number:	ST-1	Boring Number:	B-501				
Project:	Highway 67 Widening						
Client:							
Location:	B-501 ST-1 5.5-6.0						

Test Summary

Project: Highway 67 Widening
 Location: B-501 ST-1 5.5-6.0
 Job Number: 11206-04

Project Number: 11206-04

Sample Number: ST-1
 Boring Number: B-501
 Depth: 5.5'-6.0'
 Sample Type: Undisturbed

Sample Description:
 Brown & Tan Silty Clay with Sand
 Remarks:

Test Number:
 Test Date: 10/28/14

Index	Load Sequence (tsf)	Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	(90 Fitting Time (min)	(50 Fitting Time (min)	(90 Cv (ft ² /year)	(50 Cv (ft ² /year)
0	0.000	0.0000	1.0050	0.4040	0.00	0.6721	0.000	0.000	0.000	0.000
1	0.125	0.0006	1.0044	0.4034	0.06	0.6711	3.011	* 1.6728	259.259	108.410
2	0.250	0.0018	1.0032	0.4022	0.18	0.6692	5.945	* 3.3026	131.002	54.780
3	0.500	0.0042	1.0008	0.3998	0.42	0.6652	2.202	* 1.2231	352.025	147.208
4	1.000	0.0074	0.9976	0.3966	0.74	0.6598	2.599	* 1.4439	296.299	123.901
5	2.000	0.0126	0.9924	0.3914	1.25	0.6512	2.044	* 1.1356	372.834	155.900
6	0.500	0.0104	0.9946	0.3936	1.03	0.6548	0.000	0.000	0.000	0.000
7	0.125	0.0081	0.9969	0.3959	0.81	0.6587	0.000	0.000	0.000	0.000
8	0.250	0.0085	0.9965	0.3955	0.85	0.6580	1.525	* 0.8473	503.835	210.677
9	0.500	0.0094	0.9956	0.3946	0.94	0.6565	7.128	* 3.9602	107.598	44.994
10	1.000	0.0109	0.9941	0.3931	1.08	0.6540	6.001	* 3.3339	127.429	53.285
11	2.000	0.0134	0.9916	0.3906	1.33	0.6499	2.152	* 1.1955	353.576	147.850
12	4.000	0.0201	0.9849	0.3839	2.00	0.6387	3.068	* 1.7045	244.652	102.303
13	8.000	0.0324	0.9726	0.3716	3.22	0.6182	2.303	* 1.2792	317.908	132.932
14	16.000	0.0511	0.9539	0.3529	5.08	0.5871	2.263	* 1.2571	311.160	130.117
15	32.000	0.0733	0.9317	0.3307	7.29	0.5502	2.637	* 1.4650	254.727	106.516
16	8.000	0.0705	0.9345	0.3335	7.01	0.5548	0.000	0.000	0.000	0.000
17	2.000	0.0647	0.9403	0.3393	6.44	0.5645	0.000	0.000	0.000	0.000
18	0.500	0.0599	0.9451	0.3441	5.96	0.5725	0.000	0.000	0.000	0.000
19	0.125	0.0810	0.9240	0.3230	5.26	0.5847	0.000	0.000	0.000	0.000

Predicted value indicated with *

Consolidation Specimen Information

Project: Highway 67 Widening
 Location: B-501 ST-1 5.5-6.0
 Job Number: 11206-04

Project Number: 11206-04
 Test Date: 10/28/14

Sample Number: ST-1
 Boring Number: B-501
 Depth: 5.5'-6.0'
 Sample Type: Undisturbed

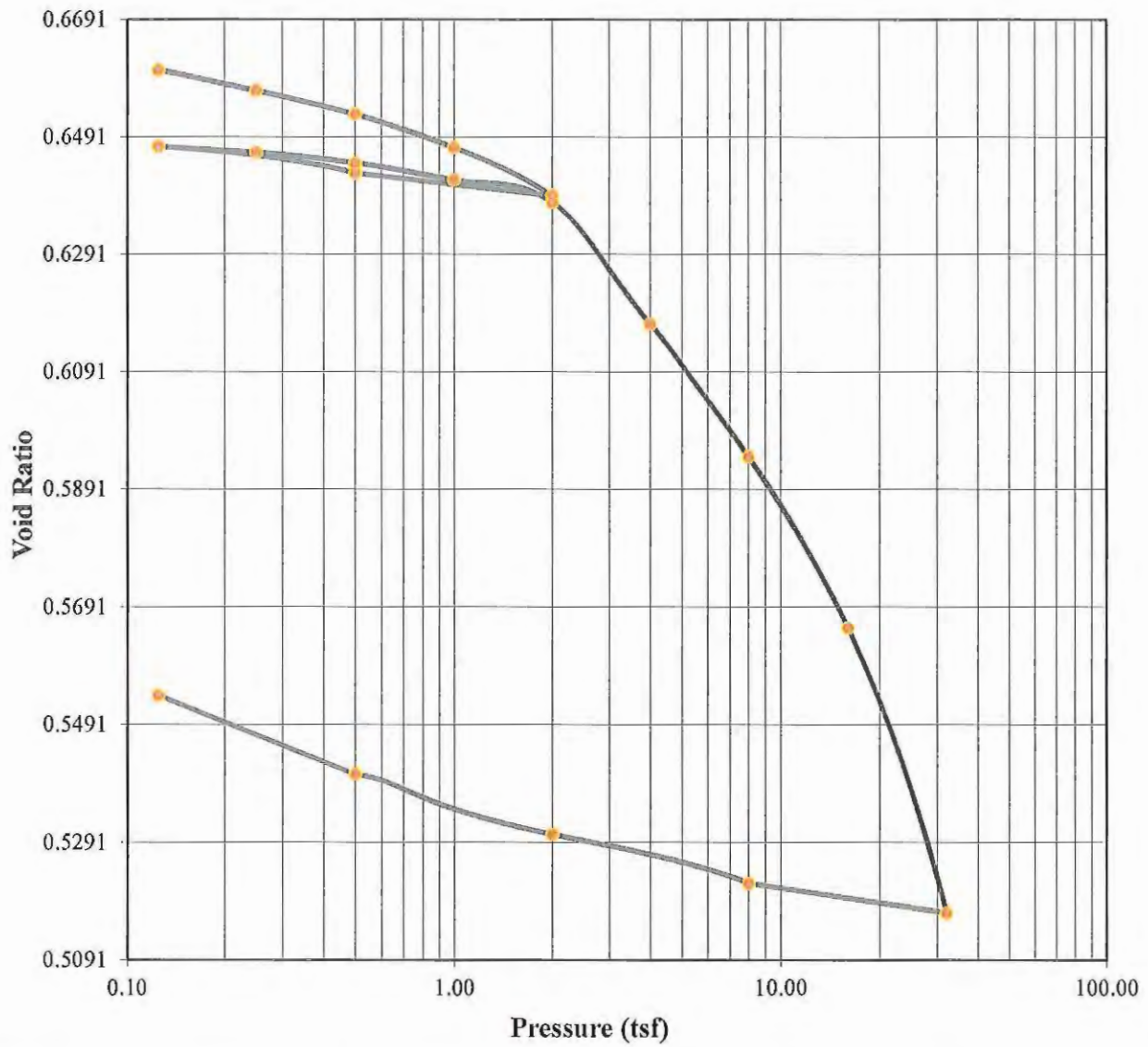
Sample Description:
 Brown & Tan Silty Clay with Sand
 Remarks:

Test Number:
 Liquid Limit: 19.0000 Initial Void Ratio: 0.6727 Initial Height (in): 1.0050
 Plastic Limit: 14.0000 Plasticity Index (%): 5.0000 Initial Diameter (in): 2.4983
 Specific Gravity: 2.7390 Weight of Ring (g): 109.6600
 Measured

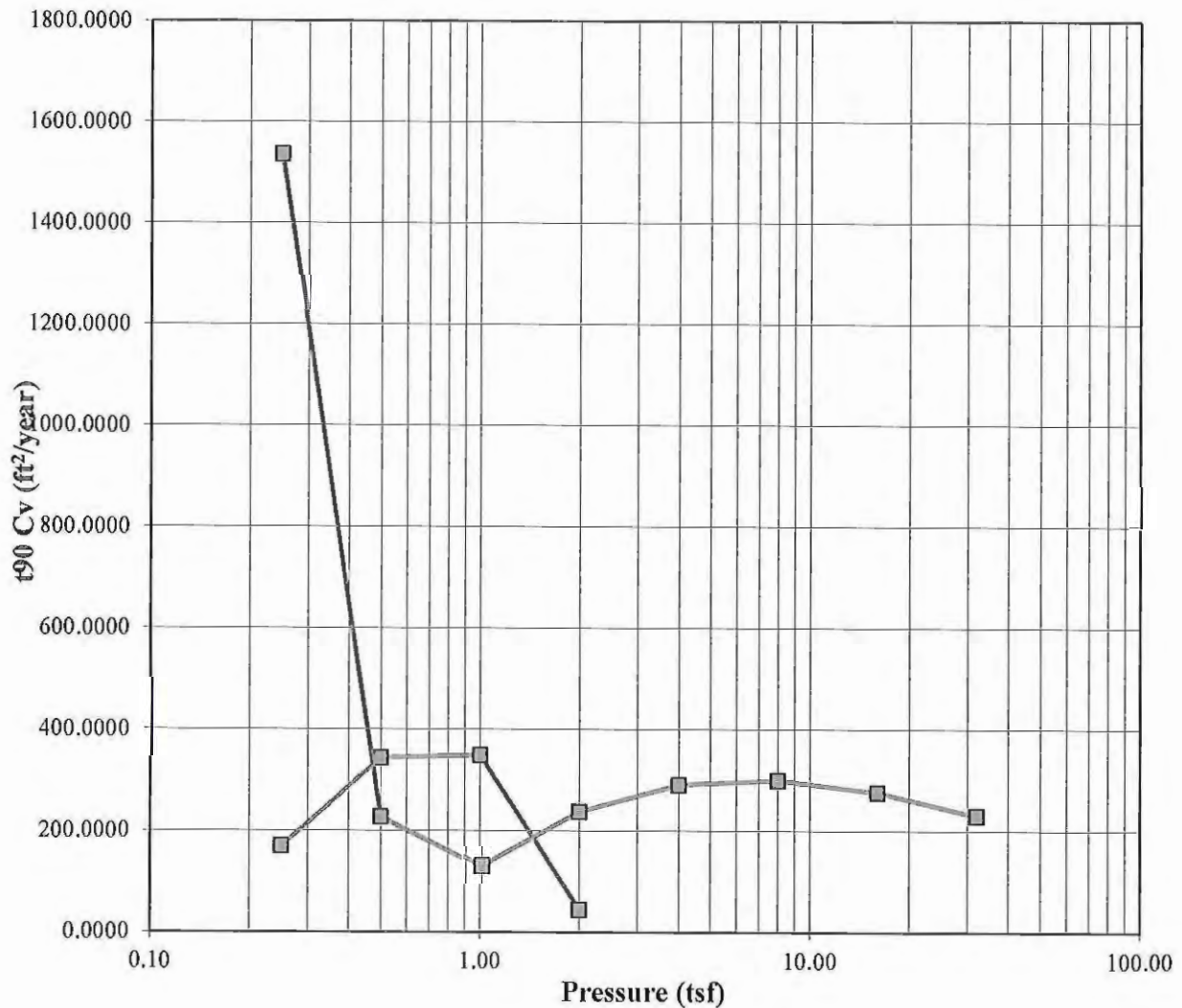
Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	410.07	221.64
Dry Soil + Container (g)	341.10	197.20
Weight of Container (g)	58.70	59.80
Moisture Content (%)	24.42	17.79
Void Ratio	0.6727	0.5379
Saturation (%)	99.07	102.95
Dry Density (pcf)	102.08	116.06

Tested By: *Amy Sch*

Checked By: *Stephen Bader*



Summary of Consolidation Test Results				Test Date: 10/28/2014
Overburden Press. (tsf)	0.87	Compression Index, C_c	0.09	
Preconsol. Press., P_c (tsf)	2.10	Rebound Index, C_r	0.01	
Over Consolidation Ratio	2.41			
Soil Description:	Brown & Gray Silt			
Project Number:	11206-04	Depth:	14.4'-14.7'	
Sample Number:	ST-1	Boring Number:	B-557	
Project:	Highway 67 Widening			
Client:				
Location:	B-557 ST-1 14.4-14.7			
Remarks:				



—■— t90 Cv

	Before	After	Liquid Limits:	22	Test Date:	10/28/2014
Moisture (%):	20.46	19.78	Plastic Limits:	21		
Dry Density (pcf):	101.78	112.48	Plasticity Index (%):	1		
Saturation (%):	83.40	105.79				
Void Ratio:	0.6657	0.5111	Specific Gravity:	2.717	Measured	
Soil Description:	Brown & Gray Silt					
Project Number:	11206-04	Depth:	14.4'-14.7'			
Sample Number:	ST-1	Boring Number:	B-557			
Project:	Highway 67 Widening					
Client:						
Location:	B-557 ST-1 14.4-14.7					
			Remarks:			

Test Summary

Project: Highway 67 Widening
 Location: B-557 ST-1 14.4-14.7
 Job Number: 11206-04

Project Number: 11206-04

Sample Number: ST-1
 Boring Number: B-557
 Depth: 14.4'-14.7'
 Sample Type: Undisturbed

Sample Description:
 Brown & Gray Silt
 Remarks:

Test Number:
 Test Date: 10/28/2014

Index	Load Sequence (tsf)	Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	t90 Fitting Time (min)	t50 Fitting Time (min)	t90 Cv (ft ² /year)	t50 Cv (ft ² /year)
0	0.000	0.0000	0.9955	0.3971	0.00	0.6635	0.000	0.000	0.000	0.000
1	0.125	0.0018	0.9937	0.3953	0.18	0.6605	0.000	0.000	0.000	0.000
2	0.250	0.0039	0.9916	0.3932	0.39	0.6570	4.484	* 2.4913	169.672	70.949
3	0.500	0.0063	0.9892	0.3908	0.63	0.6530	2.204	* 1.2242	343.629	143.686
4	1.000	0.0097	0.9858	0.3874	0.97	0.6473	2.152	* 1.1955	349.451	146.126
5	2.000	0.0146	0.9809	0.3825	1.47	0.6391	16.492	* 9.1620	45.146	18.878
6	0.500	0.0123	0.9832	0.3848	1.24	0.6430	0.000	0.000	0.000	0.000
7	0.125	0.0096	0.9859	0.3875	0.96	0.6475	0.000	0.000	0.000	0.000
8	0.250	0.0102	0.9853	0.3869	1.02	0.6465	0.489	* 0.2717	1536.190	642.313
9	0.500	0.0113	0.9842	0.3858	1.14	0.6447	3.302	* 1.8347	226.967	94.908
10	1.000	0.0130	0.9825	0.3841	1.31	0.6418	5.778	* 3.2102	129.267	54.055
11	2.000	0.0153	0.9802	0.3818	1.54	0.6380	3.125	* 1.7360	237.924	99.490
12	4.000	0.0277	0.9678	0.3694	2.78	0.6173	2.489	* 1.3829	291.169	121.753
13	8.000	0.0412	0.9543	0.3559	4.14	0.5947	2.350	* 1.3056	299.869	125.389
14	16.000	0.0586	0.9369	0.3385	5.89	0.5656	2.462	* 1.3677	275.893	115.370
15	32.000	0.0876	0.9079	0.3095	8.80	0.5172	2.773	* 1.5406	230.002	96.180
16	8.000	0.0846	0.9109	0.3125	8.50	0.5222	0.000	0.000	0.000	0.000
17	2.000	0.0796	0.9159	0.3175	8.00	0.5305	0.000	0.000	0.000	0.000
18	0.500	0.0735	0.9220	0.3236	7.38	0.5407	0.000	0.000	0.000	0.000
19	0.125	0.0924	0.9031	0.3047	6.70	0.5541	0.000	0.000	0.000	0.000

Predicted value indicated with *

Consolidation Specimen Information

Project: Highway 67 Widening
 Location: B-557 ST-1 14.4-14.7
 Job Number: 11206-04

Project Number: 11206-04
 Test Date: 10/28/2014

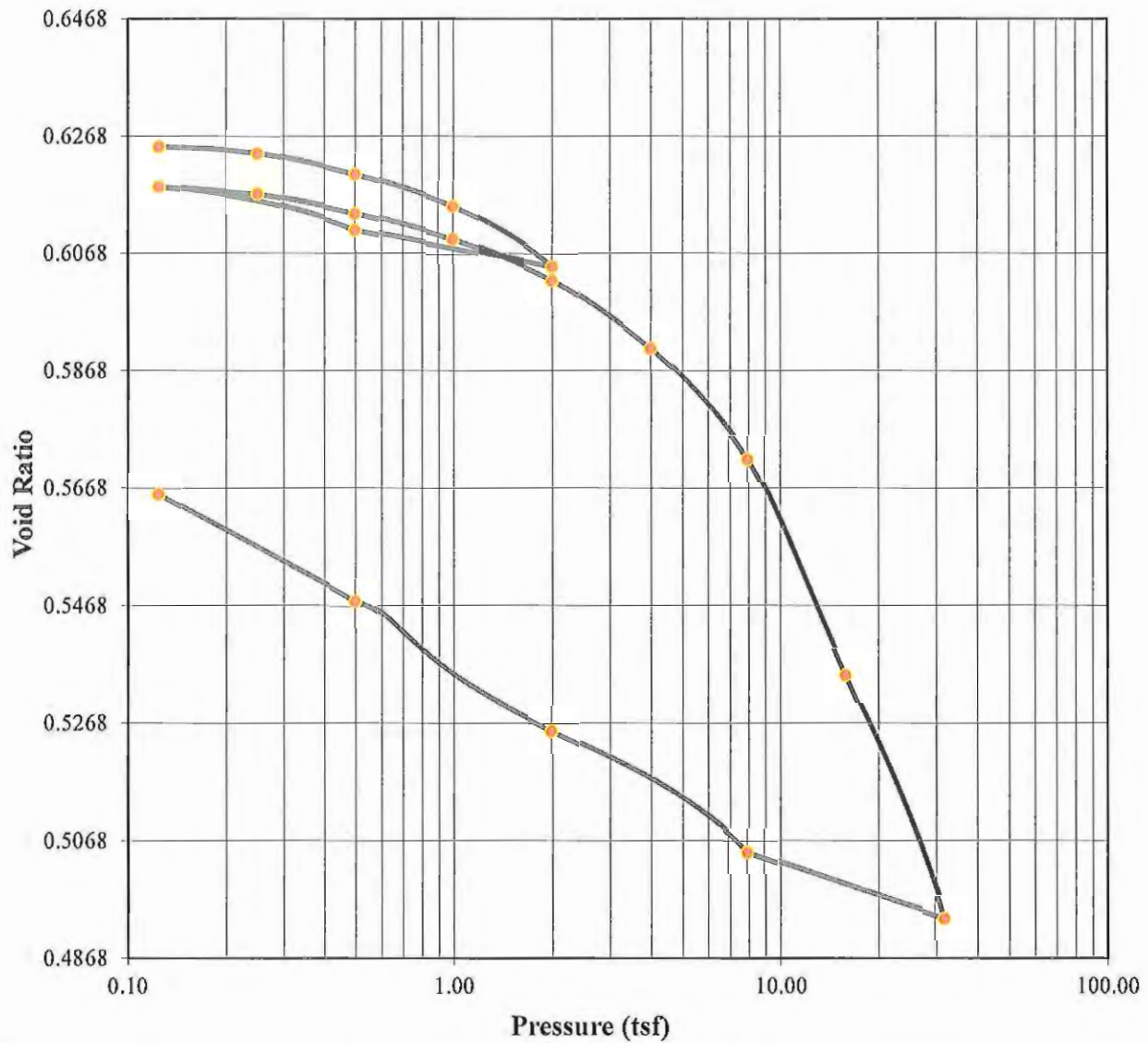
Sample Number: ST-1
 Boring Number: B-557
 Depth: 14.4'-14.7'
 Sample Type: Undisturbed

Sample Description:
 Brown & Gray Silt
 Remarks:

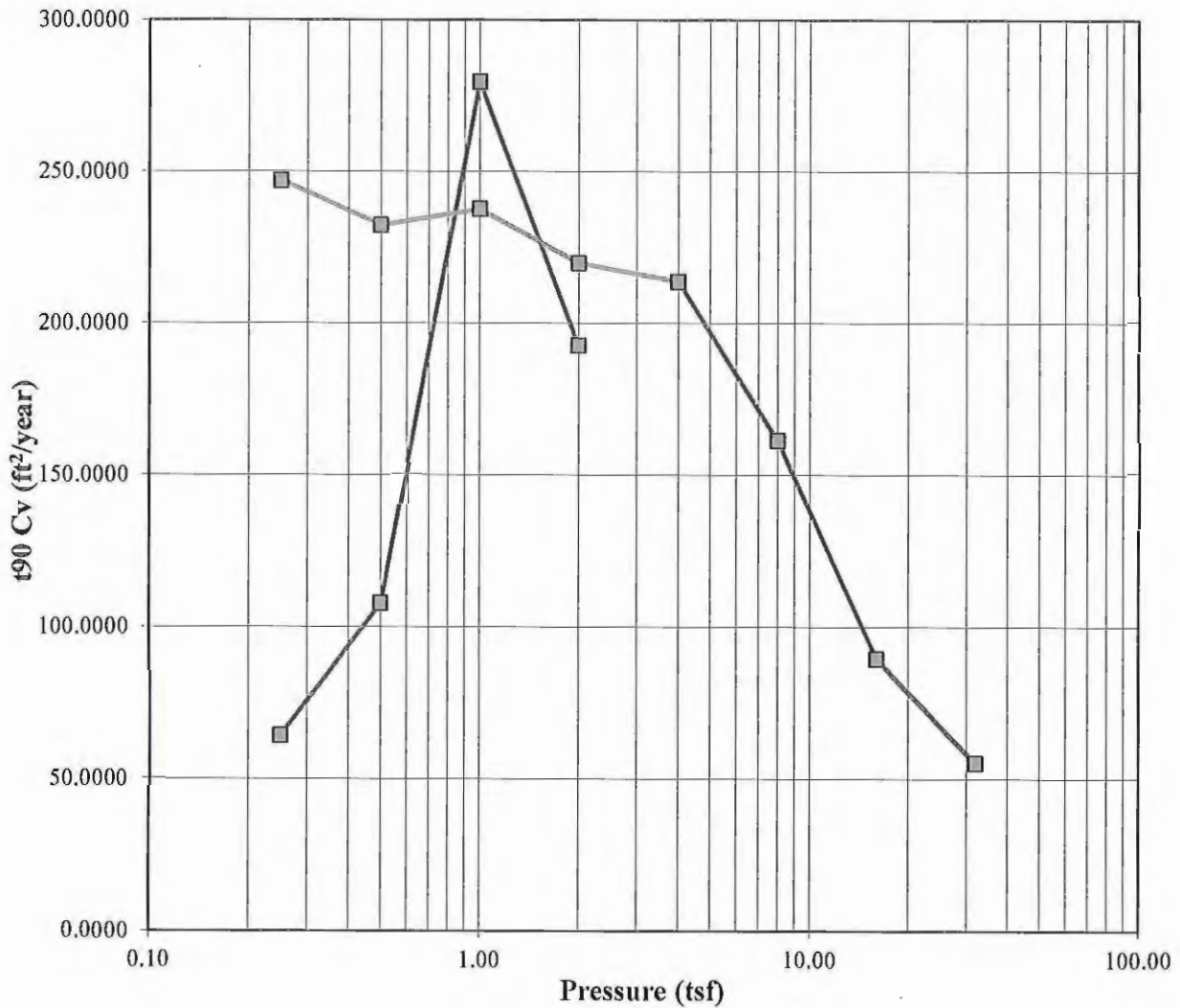
Test Number:
 Liquid Limit: 22.0000 Initial Void Ratio: 0.6657 Initial Height (in): 0.9955
 Plastic Limit: 21.0000 Plasticity Index (%): 1.0000 Initial Diameter (in): 2.4955
 Specific Gravity: 2.7170 Weight of Ring (g): 109.2800
 Measured

Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	262.16	214.56
Dry Soil + Container (g)	227.50	188.80
Weight of Container (g)	58.10	58.55
Moisture Content (%)	20.46	19.78
Void Ratio	0.6657	0.5111
Saturation (%)	83.40	105.79
Dry Density (pcf)	101.78	112.48

Tested By: *Amy Sdr*
 Checked By: *Stephen Boulton*



Summary of Consolidation Test Results				Test Date: 10/29/2014
Overburden Press. (tsf)	0.92	Compression Index, C_c	0.12	
Preconsol. Press., P_c (tsf)	4.80	Rebound Index, C_r	0.01	
Over Consolidation Ratio	5.21			
Soil Description:	Tan, Gray & Black Lean Clay			
Project Number:	1120604	Depth:	15.1- 15.6	
Sample Number:	ST-1	Boring Number:	B-564	
Project:	Highway 67 Widening			
Client:				
Location:	B-564 ST-1 15.1-15.6			
		Remarks:		



—□— t90 Cv

	Before	After	Liquid Limits:	38	Test Date:	10/29/2014
Moisture (%):	21.42	27.97	Plastic Limits:	19		
Dry Density (pcf):	105.71	109.44	Plasticity Index (%):	19		
Saturation (%):	93.90	134.49	Specific Gravity:	2.759	Assumed	
Void Ratio:	0.6276	0.4878				
Soil Description:	Tan, Gray & Black Lean Clay					
Project Number:	1120604	Depth:	15.1- 15.6	Remarks:		
Sample Number:	ST-1	Boring Number:	B-564			
Project:	Highway 67 Widening					
Client:						
Location:	B-564 ST-1 15.1-15.6					

Test Summary

Project: Highway 67 Widening
Location: B-564 ST-1 15.1-15.6
Job Number: 1120604

Project Number: 1120604

Sample Number: ST-1
Boring Number: B-564
Depth: 15.1- 15.6
Sample Type: Undisturbed

Sample Description:
Tan, Gray & Black Lean Clay
Remarks:

Test Number:
Test Date: 10/29/2014

Index	Load Sequence (tsf)	Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	t90 Fitting Time (min)	t150 Fitting Time (min)	t90 Cv (ft ² /year)	t150 Cv (ft ² /year)
0	0.000	0.0000	1.0015	0.3857	0.00	0.6265	0.000	0.000	0.000	0.000
1	0.125	0.0009	1.0006	0.3848	0.09	0.6250	0.000	0.000	0.000	0.000
2	0.250	0.0016	0.9999	0.3841	0.16	0.6239	12.044	* 6.6911	64.235	26.861
3	0.500	0.0037	0.9978	0.3820	0.37	0.6204	7.143	* 3.9685	107.848	45.098
4	1.000	0.0071	0.9944	0.3786	0.71	0.6149	2.736	* 1.5200	279.655	116.944
5	2.000	0.0134	0.9881	0.3723	1.34	0.6047	3.922	* 2.1788	192.636	80.553
6	0.500	0.0095	0.9920	0.3762	0.95	0.6110	0.000	0.000	0.000	0.000
7	0.125	0.0050	0.9965	0.3807	0.50	0.6183	0.000	0.000	0.000	0.000
8	0.250	0.0058	0.9957	0.3799	0.58	0.6170	3.106	* 1.7254	247.014	103.292
9	0.500	0.0078	0.9937	0.3779	0.78	0.6138	3.289	* 1.8274	232.289	97.135
10	1.000	0.0105	0.9910	0.3752	1.05	0.6094	3.199	* 1.7770	237.588	99.348
11	2.000	0.0149	0.9866	0.3708	1.49	0.6023	3.426	* 1.9032	219.862	91.938
12	4.000	0.0220	0.9795	0.3637	2.20	0.5907	3.474	* 1.9298	213.724	89.371
13	8.000	0.0336	0.9679	0.3521	3.35	0.5719	4.493	* 2.4959	161.355	67.473
14	16.000	0.0562	0.9453	0.3295	5.61	0.5352	7.721	* 4.2895	89.554	37.448
15	32.000	0.0817	0.9198	0.3040	8.16	0.4938	11.859	* 6.5884	55.203	23.084
16	8.000	0.0748	0.9267	0.3109	7.47	0.5050	0.000	0.000	0.000	0.000
17	2.000	0.0621	0.9394	0.3236	6.20	0.5256	0.000	0.000	0.000	0.000
18	0.500	0.0485	0.9530	0.3372	4.84	0.5477	0.000	0.000	0.000	0.000
19	0.125	0.0860	0.9155	0.2997	3.79	0.5658	0.000	0.000	0.000	0.000

Predicted value indicated with *

Consolidation Specimen Information

Project: Highway 67 Widening
 Location: B-564 ST-1 15.1-15.6
 Job Number: 1120604

Project Number: 1120604

Test Date: 10/29/2014

Sample Number: ST-1
 Boring Number: B-564
 Depth: 15.1- 15.6
 Sample Type: Undisturbed

Sample Description:
 Tan, Gray & Black Lean Clay
 Remarks:

Test Number:
 Liquid Limit: 38.0000 Initial Void Ratio: 0.6276 Initial Height (in): 1.0015
 Plastic Limit: 19.0000 Plasticity Index (%): 19.0000 Initial Diameter (in): 2.4953
 Specific Gravity: 2.7590 Weight of Ring (g): 110.8600
 Assumed

Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	289.77	233.11
Dry Soil + Container (g)	249.00	195.09
Weight of Container (g)	58.70	59.17
Moisture Content (%)	21.42	27.97
Void Ratio	0.6276	0.4878
Saturation (%)	93.90	134.49
Dry Density (pcf)	105.71	109.44

Tested By: *James Sobu*

Checked By: *Stephen Bonds*



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-1
SAMPLE LOC. : B-562
SAMPLE DEPTH : 37.7' to 38.0'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: silty, f. micaceous, mod. withd.

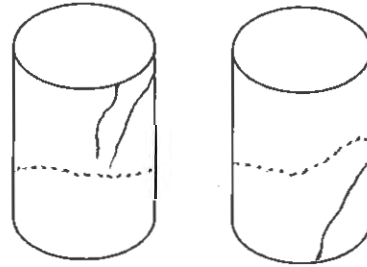
Diameter : 1.98 in
Height : 4.15 in

Area : 3.08 in²
Volume : 0.00741 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 153.3 lbs/ft.³

Maximum Stress : 344 psi
Elapsed Time : 1:43 min.
Rate of Loading : 10 lb/sec



----- Fracture developed during
sample trimming

Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-2
SAMPLE LOC. : B-562
SAMPLE DEPTH : 40.7' to 41.1'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: silty, f. micaceous, sli. wthd.

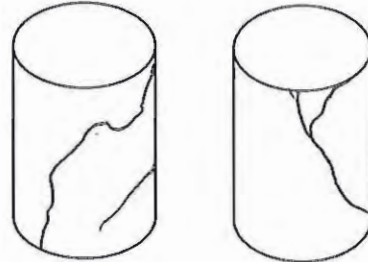
Diameter : 1.97 in
Height : 4.05 in

Area : 3.06 in²
Volume : 0.00717 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 162.95 lbs/ft.³

Maximum Stress : 810 psi
Elapsed Time : 4:58 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure[®]



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-3
SAMPLE LOC. : B-562
SAMPLE DEPTH : 43.6' to 43.9'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Sandstone w/Shale; v.f. to f. grain, laminated, ripple to contorted bedding, sli. withd.

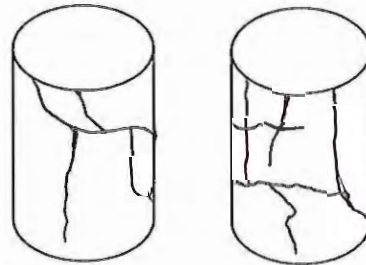
Diameter : 1.98 in
Height : 4.16 in

Area : 3.09 in²
Volume : 0.00744 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 164.97 lbs/ft.³

Maximum Stress : 5270 psi
Elapsed Time : 14:29 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-4
SAMPLE LOC. : B-557
SAMPLE DEPTH : 47.1' to 47.4'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Sandstone: v.f to f. grain w/crenulated bedding & healed jts., mod. wthd.

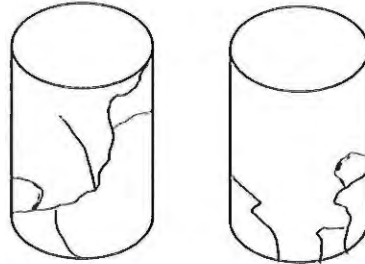
Diameter : 1.98 in
Height : 4.04 in

Area : 3.08 in²
Volume : 0.00719 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 156.42 lbs/ft.³

Maximum Stress : 1914 psi
Elapsed Time : 3:36 min.
Rate of Loading : 40 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-5
SAMPLE LOC. : B-557
SAMPLE DEPTH : 51.9' to 52.3'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Sandstone: v.f. to f. grain w/healed jts., sli. withd.

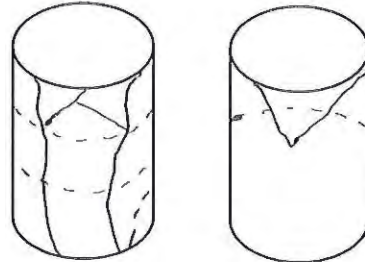
Diameter : 1.98 in
Height : 4.05 in

Area : 3.09 in²
Volume : 0.00723 ft³

RESULTS :


Moisture Air-Dry : NA
Air-Dry Density : 159.99 lbs/ft.³

Maximum Stress : 1546 psi
Elapsed Time : 6:33 min.
Rate of Loading : 10 lb/sec



----- Existing Healed Joints w/ Clay

Comments :

Approved By : 

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-6
SAMPLE LOC. : B-558
SAMPLE DEPTH : 50.1' to 50.5'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale; silty, sli. wthd.

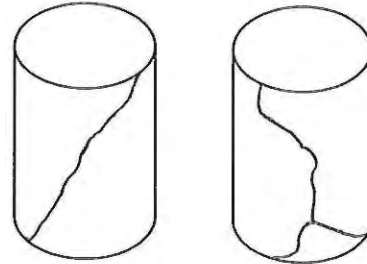
Diameter : 1.99 in
Height : 4.02 in

Area : 3.10 in²
Volume : 0.0072 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 166.26 lbs/ft.³

Maximum Stress : 1899 psi
Elapsed Time : 10:55 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-7
SAMPLE LOC. : B-558
SAMPLE DEPTH : 46.6' to 47.0'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Sandstone w/Shale: v.f. to f. grain interlaminated w/silty, sli. withd.

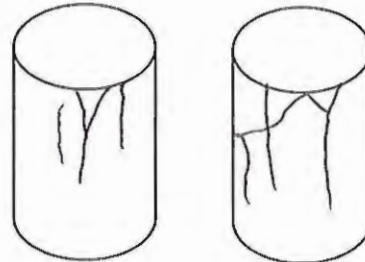
Diameter : 1.99 in
Height : 4.07 in

Area : 3.11 in²
Volume : 0.00731 ft³

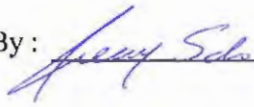
RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 168.63 lbs/ft.³

Maximum Stress : 9543 psi
Elapsed Time : 12:33 min.
Rate of Loading : 50 lb/sec



Comments :

Approved By : 

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-8
SAMPLE LOC. : B-563
SAMPLE DEPTH : 61.2' to 61.6'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

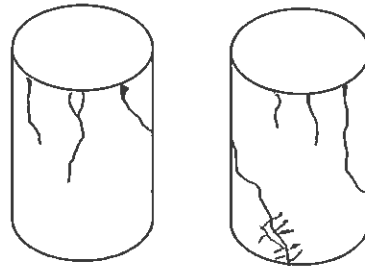
ROCK DESCRIPTION : Shale: silty to v.f. sandy, sli. wthd.

Diameter : 1.99 in
Height : 4.23 in

Area : 3.09 in²
Volume : 0.00757 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 165.09 lbs/ft.³
Maximum Stress : 5464 psi
Elapsed Time : 14:35 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure[®]



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-9
SAMPLE LOC. : B-563
SAMPLE DEPTH : 57.2' to 57.6'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: clayey, sli. wthd.

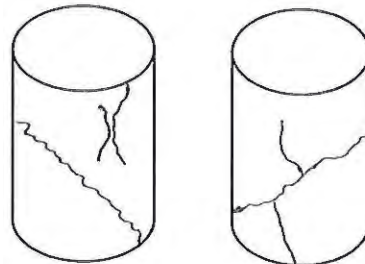
Diameter : 1.98 in
Height : 4.00 in

Area : 3.09 in²
Volume : 0.00714 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 165.25 lbs/ft.³

Maximum Stress : 1889 psi
Elapsed Time : 10:25 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure[®]



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-10
SAMPLE LOC. : B-559
SAMPLE DEPTH : 41.6' to 42.0'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale w/Sandstone: silty w/v.f. grain laminations, sli. withd.

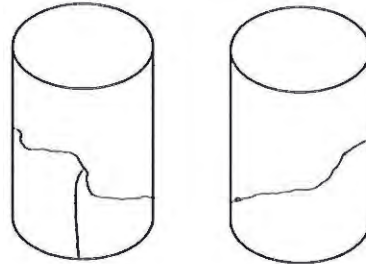
Diameter : 1.98 in
Height : 3.99 in

Area : 3.09 in²
Volume : 0.00714 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 163.52 lbs/ft.³

Maximum Stress : 899 psi
Elapsed Time : 4:12 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-11
SAMPLE LOC. : B-559
SAMPLE DEPTH : 36.6' to 37.0'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale; silty to f. sandy, mod. wthd.

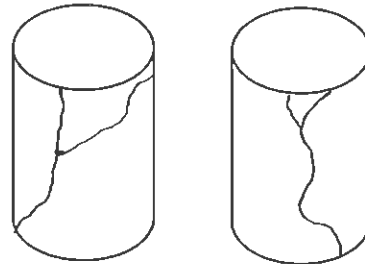
Diameter : 1.98 in
Height : 4.00 in

Area : 3.07 in²
Volume : 0.00711 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 159.67 lbs/ft.³

Maximum Stress : 863 psi
Elapsed Time : 2:10 min.
Rate of Loading : 20 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-12
SAMPLE LOC. : B-564
SAMPLE DEPTH : 44.1' to 44.5'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

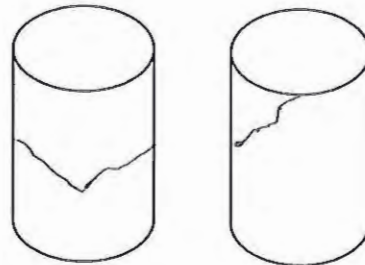
ROCK DESCRIPTION : Shale: clayey to silty, mod. wthd.

Diameter : 1.97 in
Height : 4.00 in

Area : 3.06 in²
Volume : 0.00708 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 163.15 lbs/ft.³
Maximum Stress : 402 psi
Elapsed Time : 2:13 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure®



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-13
SAMPLE LOC. : B-565
SAMPLE DEPTH : 52.0' to 52.3'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale w/Sandstone: silty to clayey w/v.f to f. grain laminations, fresh

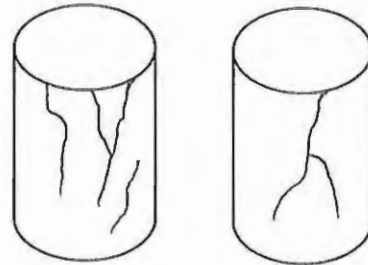
Diameter : 1.98 in
Height : 3.99 in

Area : 3.09 in²
Volume : 0.00714 ft³

RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 162.56 lbs/ft.³

Maximum Stress : 1836 psi
Elapsed Time : 7:50 min.
Rate of Loading : 10 lb/sec



Comments :

Approved By :

Strengthening America's Infrastructure[®]



UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : Highway 67 Widening
PROJECT NO. : 11206-04
PROJECT COUNTY : Pulaski
PROJECT STATE : Arkansas
LABORATORY NO. : 11206-04
SUBMITTED BY : ICA Engineering Inc.

SAMPLE NO. : RS-14
SAMPLE LOC. : B-556
SAMPLE DEPTH : 50.8' to 51.1'
DATE TESTED : 11/10/14
DATE REPORTED : 11/10/14

ROCK DESCRIPTION : Shale: w/folded laminations, sli. withd.

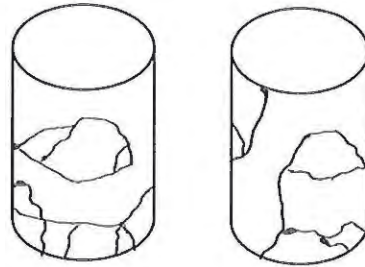
Diameter : 1.98 in
Height : 4.04 in

Area : 3.07 in²
Volume : 0.00718 ft³

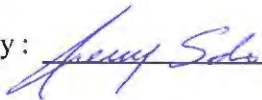
RESULTS :

Moisture Air-Dry : NA
Air-Dry Density : 163.66 lbs/ft.³

Maximum Stress : 2873 psi
Elapsed Time : 6:26 min.
Rate of Loading : 30 lb/sec



Comments :

Approved By : 

Strengthening America's Infrastructure®

APPENDIX III: BRIDGE LAYOUT AND PROFILE SHEETS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0605			
				①	LAYOUT			

HORIZONTAL CURVE DATA

C.L. Median Hwy. 67

PI Sta 790+10.52
 PC Sta 777+52.33
 PT Sta 802+29.39
 R = 5729.58
 L = 2477.06
 T = 1258.19
 Delta = 24°46'14" Left
 D = 1°00'00"

← Approx. 1.9 Miles
To S.H. 161

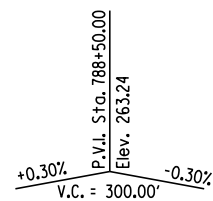
← Distance To P.C.
Greater Than 500'

→ Approx. 3.2 Miles
To S.R. 5

→ Distance To P.T.
Greater Than 500'

□ Angle is measured between C.L. Joint and a line radial to C.L. median at Station 787+80.25.

All bents are parallel. See Alignment Sketch.

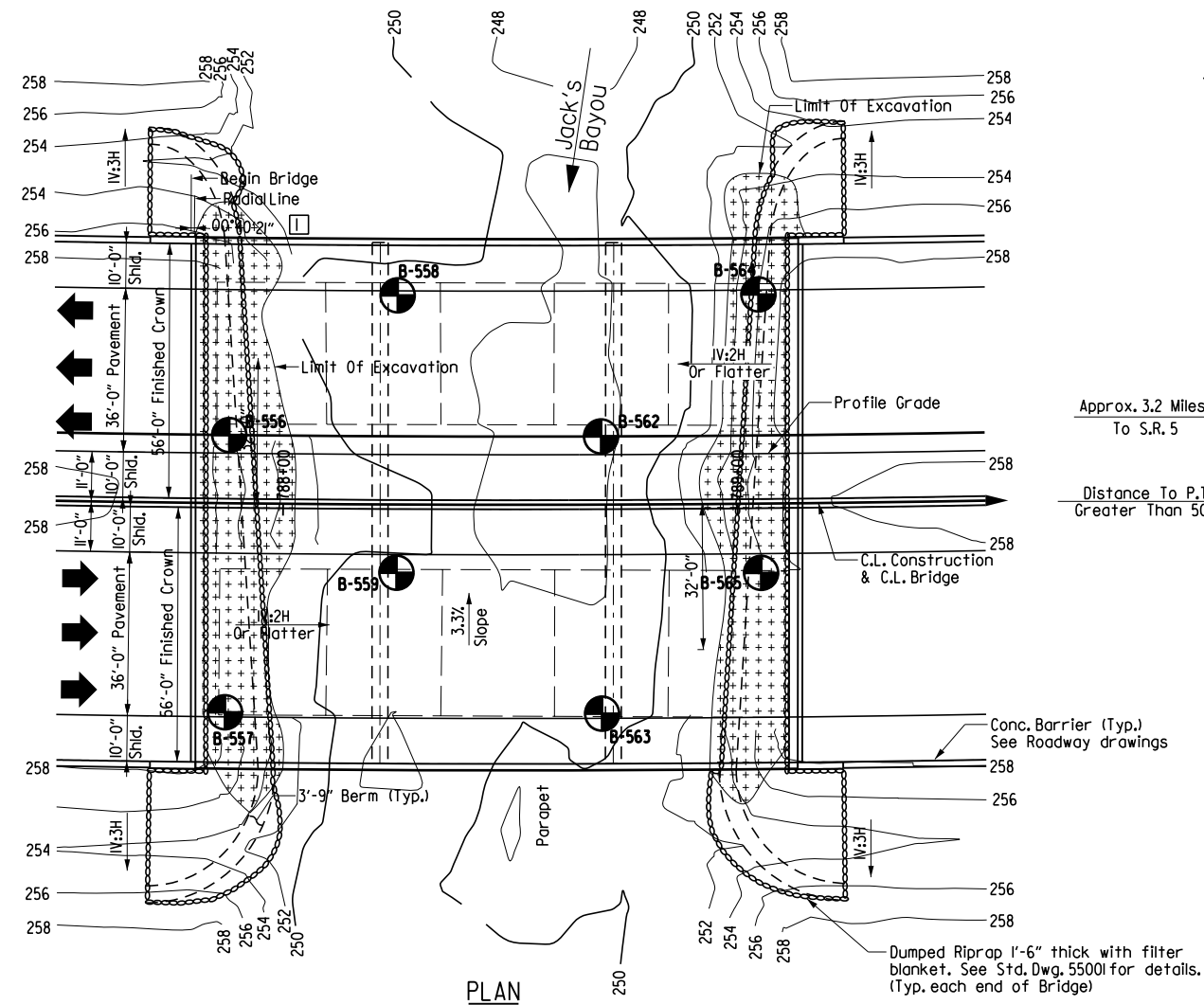


VERTICAL CURVE DATA

(Along Profile Grade)

Note: Unless noted otherwise, stations and elevations shown are taken along C.L. Bridge.

For Soil Boring Legend, See Dwg. No.



PLAN

SHEET 1 OF 3
 LAYOUT OF BRIDGE OVER JACK'S BAYOU
 VANDENBERG BLVD. - HWY. 5 (WIDENING) (S)
 PULASKI & LONOKE COUNTIES
 ROUTE 67 SEC. 10 & 11
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

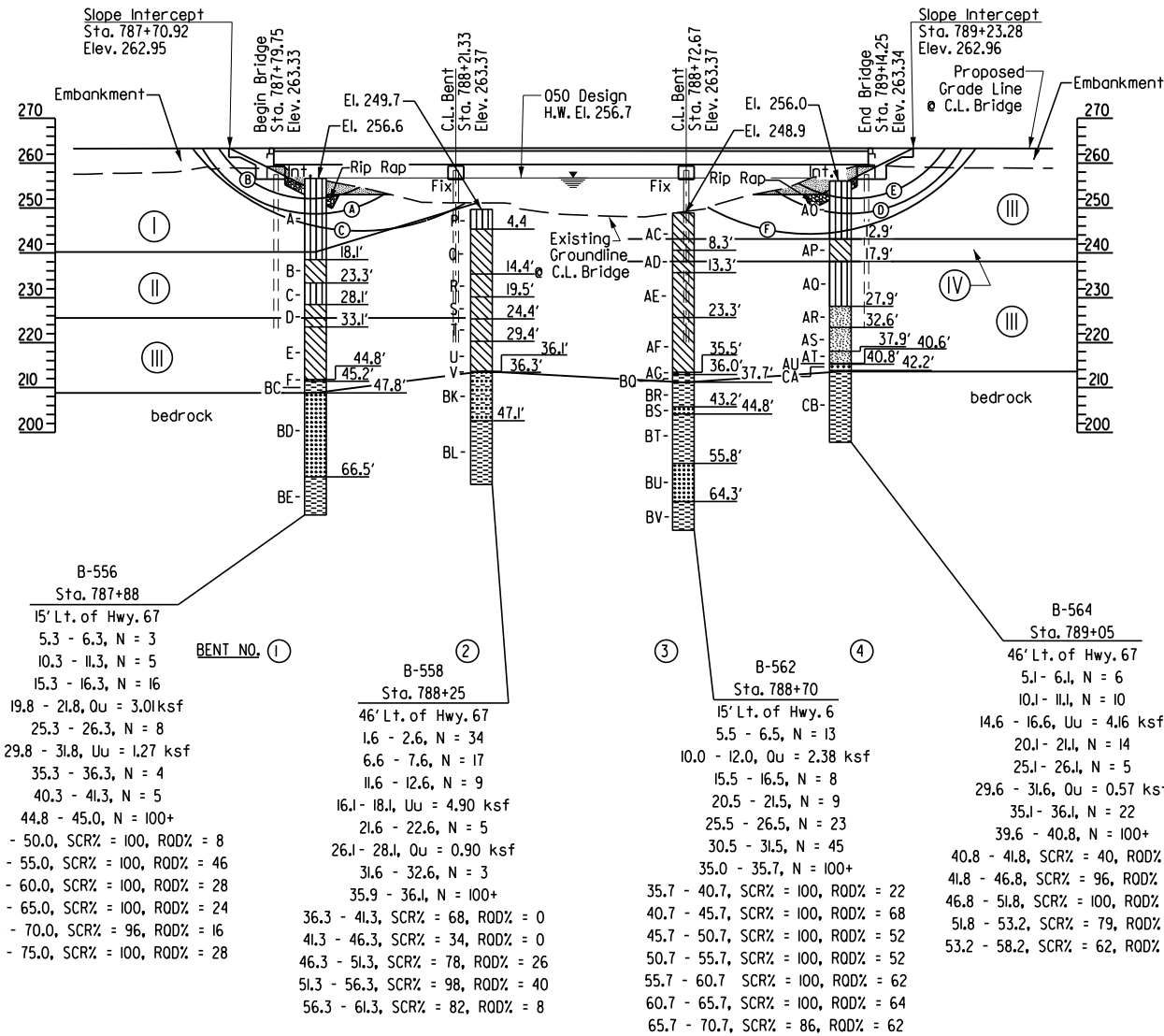
DRAWN BY: DFR DATE: 06-14 FILENAME: _____
 CHECKED BY: SKB DATE: 06-14 SCALE: 1" = 40'-0"
 DESIGNED BY: AKV DATE: 06-14
 BRIDGE NO. DRAWING NO.

BORING LEGEND

- A - Brown & gray, soft to very stiff, silt.
- B - Brown, stiff, lean clay.
- C - Brown & gray, medium stiff, silt.
- D - Orange & gray, medium stiff, lean clay with sand.
- E - Brown & gray, soft to medium stiff, sandy, silty clay.
- F - Weathered Shale.
- G - Brown & black, soft, lean clay.
- H - Gray, soft, lean clay.
- I - Brown & gray, v. stiff, silt.
- J - Gray & orange, stiff, lean clay.
- K - Tan, gray, black & brown, medium stiff to stiff, lean clay.
- L - Tan, brown & black, medium stiff, lean clay.
- M - Brown & tan, v. loose, silty, clayey sand.
- N - Brown, tan, black, loose sand w/ gravel & silt.
- O - Weathered Shale.
- P - Brown & gray, hard, silt.
- Q - Brown & gray, stiff to very stiff, lean clay.
- R - Brown & tan, v. stiff, lean clay with sand.
- S - Brown & dark brown, medium stiff, sandy, silty clay.
- T - Brown & tan, soft, sandy, lean clay.
- U - Brown & gray, soft, sandy, silty clay.
- V - Weathered Shale.
- W - Brown & tan, stiff, silt.
- X - Tan, brown & gray, v. stiff, lean clay with sand.
- Y - Brown, tan & gray, medium stiff, sandy, lean clay.
- Z - Brown, tan & black, med. stiff, sandy, lean clay.
- AA - Brown, tan, gray, very stiff to very hard, sandy, lean clay.
- AB - Weathered Shale w/ clay seams.
- AC - Light brown, stiff, silty clay.
- AD - Gray orange & tan, stiff, lean clay.
- AE - Brown, medium stiff, silty clay.
- AF - Brown, very stiff to very hard, sandy, lean clay.
- AG - Weathered Shale.
- AH - Gray & orange, stiff, silt.
- AI - Brown & gray, stiff, lean clay.
- AJ - Brown, medium stiff, sandy, lean clay.
- AK - Brown & gray, soft, lean clay.
- AL - Brown, medium stiff, sandy silt.
- AM - Brown, medium dense to very dense, clayey sand.
- AN - Weathered Shale & Sandstone.
- AO - Gray & tan, medium stiff to stiff, silt.
- AP - Gray & black, v. stiff, lean clay.
- AQ - Gray & tan, medium stiff to stiff, silt.
- AR - Brown, v. loose, clayey sand.
- AS - Gray & tan, medium dense, silty, clayey sand with gravel.
- AT - Gray & tan, very dense, clayey sand with gravel.
- AU - Weathered Shale & Sandstone.
- AV - Tan, medium stiff to stiff, lean clay.
- AW - Gray, tan & brown, medium stiff, lean clay.
- AX - Tan, medium stiff, silt with sand.
- AY - Tan & brown, medium stiff, silty clay with sand.
- AZ - Brown & gray, v. loose, silty sand.
- BA - Brown, very hard, silt with sand.
- BB - Weathered Shale.
- BC - Shale: Black-dk. gray, scat. orange-brown, slightly to moderately weathered, moderately hard.
- BD - Sandstone: Light gray, gray, black-dk. gray, slightly weathered, moderately hard, v.f. to f. grain.
- BE - Shale: Dark gray-black, slightly weathered to fresh, moderately hard.
- BF - Shale: Olive gray-dk. gray, orange-brown, moderately to severely weathered, med. hard, v.f.
- BG - Sandstone: Light gray, black-dk. gray, orange-brown, moderate grading to slightly weathered, med. to mod. hard, v.f. to f. grain.
- BH - Shale: Dark gray-black, scat. lt. gray, moderately to slightly weathered, soft grading to mod. hard.
- BI - Sandstone: Light gray, black-dk. gray, moderate grading to slightly weathered, med. to mod. hard, v.f. to f. grain.
- BJ - Shale: Dark gray to black, lt. gray, severely weathered to fresh, med. to mod. hard.
- BK - Sandstone & Shale: Light gray, dk. gray-black, orange-brown, mod. to severely weathered, mod. hard, v.f. to f. grain.
- BL - Shale: Black-dk. gray, scattered lt. gray, fresh to slightly weathered, mod. hard.
- BM - Interlayered Clay & Shale.
- BN - Shale: Black-dk. gray, lt. gray, orange-brown, mod. to slightly weathered, med. hard.
- BO - Sandstone & Shale: Dark gray-black, slightly weathered, med. to mod. hard.
- BP - Shale: Black-dk. gray, fresh, mod. hard.
- BR - Shale: Olive gray, brown-orange, dk. gray-black, mod. to severely weathered, soft to med. hard.
- BS - Sandstone: Light gray, gray, slightly weathered, mod. hard, v.f. to f. grain.
- BT - Shale: Dark gray-black, fresh to slightly weathered, mod. hard.
- BU - Sandstone: Light gray, dk. gray-black, fresh to slightly weathered, mod. hard, v.f. to f. grain.
- BV - Shale: Black-dk. gray, fresh, mod. hard.
- BW - Shale: Olive gray, orange-brown, mod. to severely weathered, med. hard.
- BX - Shale: Olive gray, green-gray, orange-brown, grades to dk. gray, mod. weathered, med. to mod. hard.
- BY - Sandstone & Shale: Light gray, black, orange-brown, slightly to moderately weathered, mod. hard, v.f. to f. grain.
- BZ - Shale: Black-dk. gray, lt. gray, slightly to moderately weathered, med. hard.
- CA - Weathered Fragments: Black, lt. olive gray, orange-brown.
- CB - Shale: Black-dk. gray, brown-orange, mod. weathered to fresh, med. to mod. hard.
- CC - Shale & Clay: Dark gray, olive gray, orange-brown, slightly to moderately weathered.
- CD - Shale & Sandstone: Dark gray-black, lt. gray, orange-brown, slightly weathered, med. to mod. hard.
- CE - Shale: Black-dk. gray, slightly to moderately weathered, med. to mod. hard.

FACTORS OF SAFETY		
Short Term	A	1.7
Long Term	B	1.4
Seismic	C	1.0

ASSUMED SOIL STRENGTH PARAMETERS						
Soil	Embankment	RIP RAP	I	II	III	IV
Short Term	c = 800 PSF φ = 0° γ = 120 PCF	c = 0 PSF φ = 45° γ = 120 PCF	c = 0 PSF φ = 28° γ = 110 PCF	c = 1500 PSF φ = 28° γ = 120 PCF	c = 0 PSF φ = 29° γ = 110 PCF	c = 1000 PSF φ = 0° γ = 120 PCF
Long Term	c̄ = 160 PSF φ̄ = 26° γ̄ = 120 PCF	c̄ = 0 PSF φ̄ = 45° γ̄ = 120 PCF	c̄ = 50 PSF φ̄ = 28° γ̄ = 110 PCF	c̄ = 300 PSF φ̄ = 26° γ̄ = 120 PCF	c̄ = 50 PSF φ̄ = 29° γ̄ = 110 PCF	c̄ = 200 PSF φ̄ = 26° γ̄ = 120 PCF



FACTORS OF SAFETY		
Short Term	D	1.7
Long Term	E	1.5
Seismic	F	1.0

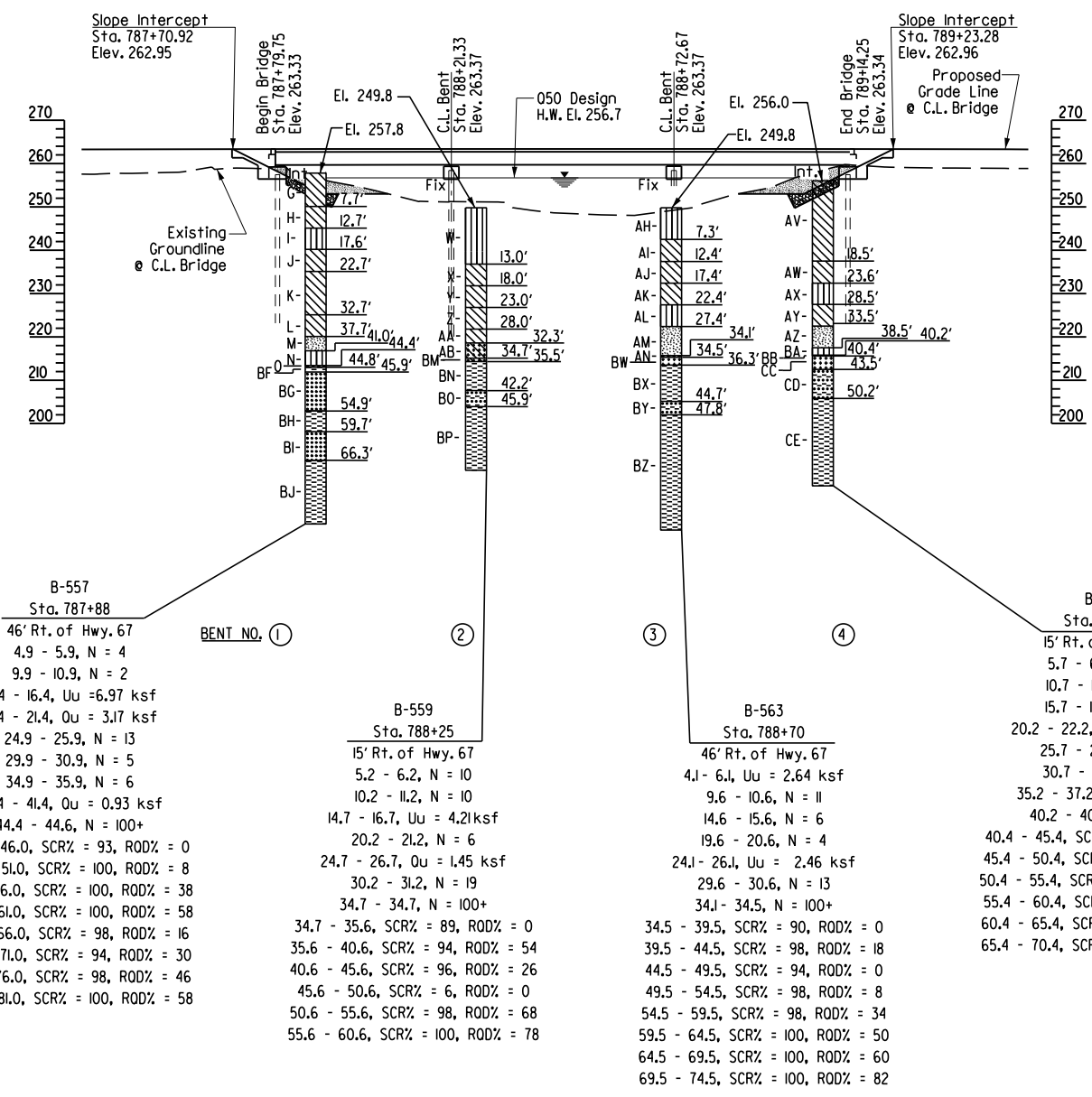
ELEVATION - SOUTHBOUND LANES

SHEET 2 OF 3
 LAYOUT OF BRIDGE OVER JACK'S BAYOU
 VANDENBERG BLVD. - HWY. 5 (WIDENING) (S)
 PULASKI & LONOKE COUNTIES
 ROUTE 67 SEC. 10 & 11
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: DFR DATE: 06-14 FILENAME:
 CHECKED BY: SKB DATE: 06-14 SCALE: 1" = 40'-0"
 DESIGNED BY: AKV DATE: 06-14
 BRIDGE NO. DRAWING NO.

BORING LEGEND

- A - Brown & gray, soft to very stiff, silt.
- B - Brown, stiff, lean clay.
- C - Brown & gray, medium stiff, silt.
- D - Orange & gray, medium stiff, lean clay with sand.
- E - Brown & gray, soft to medium stiff, sandy, silty clay.
- F - Weathered Shale.
- G - Brown & black, soft, lean clay.
- H - Gray, soft, lean clay.
- I - Brown & gray, v. stiff, silt.
- J - Gray & orange, stiff, lean clay.
- K - Tan, gray, black & brown, medium stiff to stiff, lean clay.
- L - Tan, brown & black, medium stiff, lean clay.
- M - Brown & tan, v. loose, silty, clayey sand.
- N - Brown, tan, black, loose sand w/gravel & silt.
- O - Weathered Shale.
- P - Brown & gray, hard, silt.
- Q - Brown & gray, stiff to very stiff, lean clay.
- R - Brown & tan, v. stiff, lean clay with sand.
- S - Brown & dark brown, medium stiff, sandy, silty clay.
- T - Brown & tan, soft, sandy, lean clay.
- U - Brown & gray, soft, sandy, silty clay.
- V - Weathered Shale.
- W - Brown & tan, stiff, silt.
- X - Tan, brown & gray, v. stiff, lean clay with sand.
- Y - Brown, tan & gray, medium stiff, sandy, lean clay.
- Z - Brown, tan & black, med. stiff, sandy, lean clay.
- AA - Brown, tan, gray, very stiff to very hard, sandy, lean clay.
- AB - Weathered Shale w/clay seams.
- AC - Light brown, stiff, silty clay.
- AD - Gray orange & tan, stiff, lean clay.
- AE - Brown, medium stiff, silty clay.
- AF - Brown, very stiff to very hard, sandy, lean clay.
- AG - Weathered Shale.
- AH - Gray & orange, stiff, silt.
- AI - Brown & gray, stiff, lean clay.
- AJ - Brown, medium stiff, sandy, lean clay.
- AK - Brown & gray, soft, lean clay.
- AL - Brown, medium stiff, sandy silt.
- AM - Brown, medium dense to very dense, clayey sand.
- AN - Weathered Shale & Sandstone.
- AO - Gray & tan, medium stiff to stiff, silt.
- AP - Gray & black, v. stiff, lean clay.
- AQ - Gray & tan, medium stiff to stiff, silt.
- AR - Brown, v. loose, clayey sand.
- AS - Gray & tan, medium dense, silty, clayey sand with gravel.
- AT - Gray & tan, very dense, clayey sand with gravel.
- AU - Weathered Shale & Sandstone.
- AV - Tan, medium stiff to stiff, lean clay.
- AW - Gray, tan & brown, medium stiff, lean clay.
- AX - Tan, medium stiff, silt with sand.
- AY - Tan & brown, medium stiff, silty clay with sand.
- AZ - Brown & gray, v. loose, silty sand.
- BA - Brown, very hard, silt with sand.
- BB - Weathered Shale.
- BC - Shale: Black-dk. gray, scat. orange-brown, slightly to moderately weathered, moderately hard.
- BD - Sandstone: Light gray, gray, black-dk. gray, slightly weathered, moderately hard, v.f. to f. grain.
- BE - Shale: Dark gray-black, slightly weathered to fresh, moderately hard.
- BF - Shale: Olive gray-dk. gray, orange-brown, moderately to severely weathered, med. hard, v.f.
- BG - Sandstone: Light gray, black-dk. gray, orange-brown, moderate grading to slightly weathered, med. to mod. hard, v.f. to f. grain.
- BH - Shale: Dark gray-black, scat. lt. gray, moderately to slightly weathered, soft grading to mod. hard.
- BI - Sandstone: Light gray, black-dk. gray, moderate grading to slightly weathered, med. to mod. hard, v.f. to f. grain.
- BJ - Shale: Dark gray to black, lt. gray, severely weathered to fresh, med. to mod. hard.
- BK - Sandstone & Shale: Light gray, dk. gray-black, orange-brown, mod. to severely weathered, mod. hard, v.f. to f. grain.
- BL - Shale: Black-dk. gray, scattered lt. gray, fresh to slightly weathered, mod. hard.
- BM - Interlayered Clay & Shale.
- BN - Shale: Black-dk. gray, lt. gray, orange-brown, mod. to slightly weathered, med. hard.
- BO - Sandstone & Shale: Dark gray-black, slightly weathered, med. to mod. hard.
- BP - Shale: Black-dk. gray, fresh, mod. hard.
- BQ - Shale: Olive gray, brown-orange, dk. gray-black, mod. to severely weathered, soft to med. hard.
- BR - Shale: Dark gray-black, brown-orange seams, slightly to moderately weathered, med. to mod. hard.
- BS - Sandstone: Light gray, gray, slightly weathered, mod. hard, v.f. to f. grain.
- BT - Shale: Dark gray-black, fresh to slightly weathered, mod. hard.
- BU - Sandstone: Light gray, dk. gray-black, fresh to slightly weathered, mod. hard, v.f. to f. grain.
- BV - Shale: Black-dk. gray, fresh, mod. hard.
- BW - Shale: Olive gray, orange-brown, mod. to severely weathered, med. hard.
- BX - Shale: Olive gray, green-gray, orange-brown, grades to dk. gray, mod. weathered, med. to mod. hard.
- BY - Sandstone & Shale: Light gray, black, orange-brown, slightly to moderately weathered, mod. hard, v.f. to f. grain.
- BZ - Shale: Black-dk. gray, lt. gray, slightly to moderately weathered, med. hard.
- CA - Weathered Fragments: Black, lt. olive gray, orange-brown.
- CB - Shale: Black-dk. gray, brown-orange, mod. weathered to fresh, med. to mod. hard.
- CC - Shale & Clay: Dark gray, olive gray, orange-brown, slightly to moderately weathered.
- CD - Shale & Sandstone: Dark gray-black, lt. gray, orange-brown, slightly weathered, med. to mod. hard.
- CE - Shale: Black-dk. gray, slightly to moderately weathered, med. to mod. hard.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0605			
				①	LAYOUT			



ELEVATION - NORTHBOUND LANES

787+00

788+00

789+00

790+00

SHEET 3 OF 3
 LAYOUT OF BRIDGE OVER JACK'S BAYOU
 VANDENBERG BLVD. - HWY. 5 (WIDENING) (S)
 PULASKI & LONOKE COUNTIES
 ROUTE 67 SEC. 10 & 11
 ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: DFR DATE: 06-14 FILENAME: _____
 CHECKED BY: SKB DATE: 06-14 SCALE: 1" = 40'-0"
 DESIGNED BY: AKV DATE: 06-14
 BRIDGE NO. DRAWING NO.



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