



GEOTECHNICAL ENGINEERING INVESTIGATION

INTERSTATE 65 – ADDED TRAVEL LANES
SECTION 5 – STATE ROAD 26 TO STATE ROAD 25
INDOT DES. NO. 1383340
TIPPECANOE COUNTY, INDIANA

CARDNO ATC PROJECT NO. 86.55608.0058B

August 25, 2014

PREPARED FOR:

RQAW CORPORATION
10401 NORTH MERIDIAN STREET, SUITE 401
INDIANAPOLIS, IN 46290
ATTENTION: IMTIYAZ I. DALAL, P.E.

August 25, 2014

Mr. Imtiyaz I. Dalal, P.E.
RQAW Corporation
10401 North Meridian Street, Suite 401
Indianapolis, IN 46290

Re: **Geotechnical Engineering Investigation**
Interstate 65 – Added Travel Lanes
Section 5 – State Road 26 to State Road 25
INDOT Des. No. 1383340
Tippecanoe County, Indiana
Cardno ATC Project No. 86.55608.0058B

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Dear Mr. Dalal:

Submitted herewith is the report of our geotechnical engineering investigation for the referenced project. This study was authorized in accordance with the Engineering Consultant Services Agreement dated February 20, 2014 between RQAW Corporation and Cardno ATC.

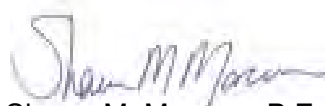
This report contains the results of our field and laboratory testing program, an engineering interpretation of this data with respect to the available project characteristics and recommendations to aid design and construction of the bridge foundations and other earth-connected phases of this project. We wish to remind you that we will store the samples for 30 days after which time they will be discarded unless you request otherwise.

We appreciate the opportunity to be of service to you on this project. If we can be of any further assistance, or if you have any questions regarding this report, please do not hesitate to contact either of the undersigned.

Sincerely,



David McIlwaine, P.E.
Project Engineer
for Cardno ATC



Shawn M. Marcum, P.E.
Senior Project Engineer
for Cardno ATC

SUMMARY OF GEOTECHNICAL ENGINEERING INVESTIGATION

Interstate 65 – Added Travel Lanes

Section 5 – State Road 26 to State Road 25

Tippecanoe County, Indiana

INDOT DES. No. 1383340

Cardno ATC Project No. 86.55608.0058B

GENERAL INFORMATION

RQAW Corporation (RQAW) is developing plans for the addition of travel lanes along Interstate 65 in Tippecanoe County, Indiana. The proposed added travel lanes project will begin at approximately 0.5 miles south of State Road 38 (approximately Station 280+00, Line “A1”) and end approximately 0.7 miles north of State Road 26 (approximately Station 575+00, Line “A2”). The project will include the addition of travel lanes and widening of the Interstate 65 bridges at State Road 25 and Wildcat Creek. It is our understanding that the added travel lanes will be at or near the existing pavement grades and consist of a 12 ft wide travel lane with a 10 ft wide shoulder in both northbound and southbound directions. The added travel lanes will be located within the existing center median. The project options include pavement replacement, milling and overlay and rubblization of the existing travel lanes. The existing pavement section may be lowered to increase or maintain the clearance heights at the existing overpass structures.

PROPOSED BRIDGE STRUCTURE

The existing two-span bridges carrying Interstate 65 over State Road 25 and the five-span bridges carrying Interstate 65 over Wildcat Creek will be widened. Considering the project characteristics, the general geology in the vicinity of the project and the subsurface conditions encountered in the test borings drilled at the proposed bridge location, it is recommended that pile foundations be used for support of the end bents and interior pier for the proposed bridge widening. Specific design recommendations for steel pipe piles (INDOT Standard Specifications Section 915.01) and H-piles (INDOT Standard Specifications Section 915.02) are presented in Section 5.2.

Based on geologic mapping and the results of the test borings, it is our opinion that the subsurface conditions within this project site meet the criteria for Site Class Definition C based on Table 3.10.3.1-1 (Site Class Definitions) in the 2010 AASHTO LRFD Bridge Design Specifications.

ROADWAY RECOMMENDATIONS

The pavement subgrades are anticipated to consist primarily of naturally-occurring, low to medium plasticity cohesive soils, granular soils or engineered fill similar to the near-surface cohesive and granular soils observed at the test boring locations. The table below summarizes the subgrade treatment for the added travel lanes in the median and areas where total reconstruction of the pavement is planned in conjunction with the associated resilient modulus values (M_R) that should be used for the design of the pavements. The subgrade treatment should be in accordance with INDOT Standard Specifications Section (ISS) 207.04.

**Pavement Design Considerations
New Construction and Full Depth Replacement**

ROADWAY LINE	I-65
Subgrade Treatment	Type IB (cement)
Modified/Prepared Subgrade Soil Resilient Modulus Value, lbs/sq.in.	8,500
Natural Subgrade Soil Resilient Modulus Value, lbs/sq.in.	3,500
Approximate Depth to Ground Water	5 ft
Subgrade Soil	Loam (A-4) Sandy Loam (A-4) Sand (A-2-4)

Due to the silty nature of the subgrade soils and the presence of granular soils, which are not suitable for lime stabilization, it is recommended that the chemical subgrade treatment be limited to cement.

Report Prepared By:
Shawn M. Marcum, P.E.
Senior Project Engineer

Report Reviewed By:
David McIlwaine, P.E.
Project Engineer

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Appendix

1 INTRODUCTION

This report presents the results of our geotechnical engineering investigation for the Interstate 65 – Added Travel Lanes project in Tippecanoe County, Indiana. Section 5 of Interstate 65 – Added Travel Lanes project extends from approximately State Road 26 to State Road 25. The general location of the project site is shown on the Project Location Map and Vicinity Map (see Figures 1 and 2 in Appendix A).

This investigation was performed to characterize and evaluate the soil beneath the project site and to develop recommendations relative to the pavement subgrade and support of the proposed Interstate 65 bridges widening over State Road 25 and Wildcat Creek. The investigation consisted of an exploratory drilling and sampling program, laboratory testing of soil samples obtained from the test borings, engineering analyses and preparation of this report.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. This company is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

2 PROJECT DESCRIPTION

RQAW Corporation (RQAW) is developing plans for the addition of travel lanes along Interstate 65 in Tippecanoe County, Indiana. The proposed added travel lanes project will begin at approximately 0.7 miles north of State Road 26 (approximately Station 575+00, Line “A2”) and end approximately 0.5 miles north of State Road 25 (approximately Station 724+00, Line “A3”). The project will include the additional of travel lanes and widening of the Interstate 65 bridges at State Road 25 and Wildcat Creek. It is our understanding that the added travel lanes will be at or near the existing pavement grades and consist of a 12 ft wide travel lane with a 10 ft wide shoulder in both northbound and southbound directions. The added travel lanes will be located within the existing center median. The project options include pavement replacement, milling and overlay and rubblization of the existing travel lanes. The existing pavement section may be lowered to increase or maintain the clearance heights at the existing overpass structures.

3 PURPOSE AND SCOPE OF WORK

3.1 Field Investigation

The subsurface conditions for the proposed project were investigated by Cardno ATC and K&S Engineers, Inc. (K&S) and drilling was performed with truck and ATV-mounted drilling equipment using hollow-stem-augers to advance the boreholes. Split-barrel samples were obtained by using standard penetration test (SPT) procedures (American Association of State Highway and Transportation Officials-AASHTO-Method T206) at 2.5 to 5 ft intervals.

The number, locations and depths of the borings were selected by Cardno ATC. The test boring locations were staked in the field by Cardno ATC, with approximate boring elevations estimated from roadway plans provided by RQAW. The borings were drilled at the approximate locations noted on the boring logs in Appendix B and at the approximate locations shown on the Boring Plans Figures 3 through 6 in Appendix A.

Logs of all borings, which show visual descriptions of all soil strata encountered using the AASHTO classification system are included in Appendix B. Sampling information and other pertinent field data and observations are also included on the boring logs. In addition, a sheet defining the terms and symbols used on the logs and explaining the SPT procedure is provided immediately preceding the test boring logs in Appendix B.

3.2 Laboratory Investigation

The disturbed soil samples were visually classified by an engineer in accordance with the AASHTO Soil Classification System and the visual classifications were verified or modified based upon the results of laboratory tests. Final boring logs were subsequently prepared and are included in Appendix B. Soil index property tests including natural moisture content (AASHTO T265) tests, grain size analyses (AASHTO T88) Atterberg limits test (AASHTO T89 and T90), unconfined compressive strength tests (AASHTO T208) and organic content tests (AASHTO T267) were performed on representative samples. In addition to classification tests, calibrated hand penetrometer tests (“pocket penetrometer” tests) were performed on selected samples. Representative bag samples were submitted to INDOT for standard Proctor and resilient modulus testing. The results of all laboratory tests are included on the boring logs in Appendix B and summary sheets in Appendix C.

4 GENERAL SITE CONDITIONS

4.1 Regional and Site Geology

The project site is located within the Tipton Till Plain, which is part of the Central Till Plain Physiographic Unit of the State of Indiana. The overburden soils consist mainly of Wisconsinan age glacial till soils. The mapped depth to bedrock is reported to be approximately 150 to 250 ft. The bedrock in this area consists mostly of Mississippian and Devonian age shale and limestone.

4.2 Existing Pavement and Subsurface Conditions

The general subsurface conditions at the site were investigated by drilling ninety-two roadway borings to depths ranging from 7.5 to 15 ft and eight bridge structure borings to depths ranging from 85 ft to 100 ft. The subsurface conditions disclosed by the field investigation are summarized in the following paragraphs. Detailed descriptions of the subsurface conditions encountered in each test boring are presented on the test boring logs in Appendix B. It should be noted that the stratification lines shown on the test boring logs represent approximate transitions between material types. In-situ stratum changes could occur gradually or at slightly different depths.

The test borings drilled in the existing travel lanes typically encountered a pavement section consisting of asphalt overlying concrete with a granular subbase. Reinforcing steel was noted in most of the concrete pavement cores. The following table summarizes the existing pavement sections encountered in the travel lanes:

Table 1 – Summary of Existing Pavement Section in Travel Lanes

Surface Material	Asphalt Thickness, inches	Concrete Thickness, inches	Combined Asphalt and Concrete Thickness, inches	Subbase Thickness*, inches	Total Pavement Thickness**, inches
Average (in.)	5.4	9.9	14.6	5	19.6
Maximum (in.)	7.25	15	16.75	5	21.75
Minimum (in.)	2.75	8	12	5	17
Std. Dev (in.)	1.1	1.8	1.3	--	1.3

*Estimated, not directly measured.

**Based on estimated subbase thickness.

The test borings drilled in the shoulder typically encountered a pavement section consisting of asphalt overlying a granular subbase. The following table summarizes the pavement sections encountered in the existing shoulders.

Table 2 – Summary of Existing Pavement Section in Shoulders

Surface Material	Asphalt Thickness, inches	Subbase Thickness, inches	Total Pavement Thickness, inches
Average (in.)	8.7	4.9	13.6
Maximum (in.)	13	7	19
Minimum (in.)	6.5	4	10.75
Std. Dev (in.)	1.8	0.9	2.5

The following table summarizes the topsoil depths encountered in the test borings drilled in the existing median.

Table 3 – Summary of Existing Topsoil Thickness

Surface Material	Topsoil Thickness, inches
Average (in.)	4.5
Maximum (in.)	7
Minimum (in.)	2
Std. Dev (in.)	1.4

Below the surface materials described above, the test roadway and shoulder borings typically encountered fill material or natural soils consisting of loam, sandy loam and/or sand of A-4, A-6, A-1-b or A-2-4 AASHTO categories. Zones of silty clay loam and silty loam of the A-7-6 and A-4 AASHTO categories were also encountered. The cohesive soils in the upper 5 ft of the test borings were typically stiff to hard with N-values typically ranging from the low-teens to mid-thirties. The granular soils in the upper 5 ft of the test borings were typically medium dense to dense with N-values typically in the mid-teens to thirties. Softer and stiffer zones were encountered throughout the project.

The test borings drilled for the I-65 bridges over Wildcat Creek typically encountered sand and sandy loam granular soils of A-2-4, A-2-6 or A-1-b AASHTO categories and significant zones of loam of A-4 AASHTO category. The granular soils typically varied from very loose to very dense and the loam soils varied from medium stiff to hard.

The test boring drilled for the I-65 bridges over SR 25 typically encountered sand and sandy loam granular soils of A-2-4, A-2-6 or A-1-b AASHTO categories and significant zones of loam of A-4 AASHTO category. The granular soils typically varied from medium dense to very dense with loose zones noted in the upper portions of the borings. The cohesive soils typically varied from stiff to hard with medium stiff zones noted in the upper portion of the borings.

The cohesive soils encountered in the test borings exhibited Liquid Limit (LL) values ranging from 16 to 43 percent and Plasticity Index (PI) values ranging from 3 to 28 percent. The granular soils encountered were typically non-plastic. The natural moisture content values of the near surface soils typically ranged from the low teens to mid-twenties.

Representative split-spoon soil samples were tested to determine the in-situ unit weight of the subgrade soils. The results of these tests are listed on the attached Summary of In-Situ Density Tests. The unit weights of the soil samples varied from approximately 118.9 to 135.1 lbs/cu.ft.

Standard Proctor and resilient modulus tests were performed on representative bulk samples of the subgrade soils. The test results are included in the Appendix and summarized in the following table.

Table 4 – Summary of Standard Proctor and Resilient Modulus Testing

Boring No.	S5-RB-006	S5-RB-014
Sample Depth (ft)	1.0 – 3.0	1.0 – 3.0
Soil Classification	Loam	Sandy Loam
AASHTO Classification	A-4(1)	A-6(2)
Maximum Dry Density (pcf)	129.7	126.2
Optimum Moisture Content (%)	9.0	11.0
Resilient Modulus at Optimum Moisture (psi)	5,000	6,650
Resilient Modulus at +2% of Optimum (psi)	3,710	2,650

4.3 Ground Water Conditions

Ground water observations were made during drilling operations (by noting the depth of water on the drilling tools), in the open boreholes following withdrawal of the drilling augers and after a period of approximately 24 hours in select boreholes. Ground water was encountered in 16 roadway test borings. When encountered during drilling, the ground water level typically varied from approximately 6 to 10 ft below the existing ground surface and was encountered as high as 3.5 ft below the existing ground surface. Higher ground water level readings were noted in the boreholes after 24 hours, however, these readings were likely influenced from snow melt and/or rainfall. Ground water was encountered in the structure borings drilled at the SR 25 overpass structures at elevations ranging from El 545 to El 527 (19 to 38 ft below the existing ground surface). Ground water was encountered in the structure borings at Wildcat Creek at depths varying from 8 to 32 ft below the existing ground surface. Fluctuations in the level of the ground water should be expected due to variations in rainfall and other factors not evident at the time of our investigation. Water level readings were made in the drill holes at the times and under the conditions stated on the attached boring logs.

Artesian water conditions were noted at the interior piers of the Interstate 65 Bridge over Wildcat Creek. Ground water was noted flowing adjacent to the existing interior piers adjacent to Wildcat Creek. Heaving sands were encountered within the augers during sampling in Boring S5-TB-WC-2 and S5-TB-WC-5.

5 DESIGN RECOMMENDATIONS

The following design recommendations have been developed on the basis of the previously described project characteristics (Section 2.0) and subsurface conditions (Section 3.0). If there is any change in these project criteria, including project location on the site, a review should be made by this office.

5.1 Pavement Design Considerations

The pavement subgrades are anticipated to consist primarily of naturally-occurring, low to medium plasticity cohesive soils or engineered fill similar to the near-surface cohesive soils observed at the test boring locations. Significant zones of granular soils were also encountered within the near surface subgrade at multiple boring locations. The table below summarizes the subgrade treatment for the added travel lanes in the median and areas where total reconstruction of the pavement is planned in conjunction with the associated resilient modulus values (M_R) that should be used for the design of the pavements. The subgrade treatment should be in accordance with INDOT Standard Specifications Section (ISS) 207.04.

**Table 5 – Pavement Design Considerations
New Construction and Full Depth Replacement**

ROADWAY LINE	I-65
Subgrade Treatment	Type IB (cement)
Modified/Prepared Subgrade Soil Resilient Modulus Value, lbs/sq.in.	8,500
Natural Subgrade Soil Resilient Modulus Value, lbs/sq.in.	3,500
Approximate Depth to Ground Water	5 ft
Subgrade Soil	Loam (A-4) Sandy Loam (A-4) Sand (A-2-4)

Due to the silty nature of the subgrade soils and the presence of granular soils, which are not suitable for lime stabilization, it is recommended that the chemical subgrade treatment be limited to cement.

Some of the subgrade soils have relatively high silt contents and some subgrade soils have natural moisture contents significantly higher than the optimum moisture content to achieve proper compaction. Even those soils that may currently be relatively firm can easily become unstable during construction when exposed to precipitation and construction traffic. It is not possible to accurately determine beforehand the amount of subgrade modification or improvement that may be required since this is dependent upon seasonal conditions (problematic subgrade soils are more likely to occur during late fall, winter or spring), the sequencing of construction, construction equipment and methods and the specific soil type encountered at the subgrade level. It is suggested that an undistributed quantity of subgrade improvement equal to approximately 30 percent of the subgrade area be included in the contract to be used where determined to be necessary to provide a suitable foundation for the pavement subgrade. The subgrade improvement options shall include lime drying and an additional layer of chemical subgrade treatment.

The following table summarizes the pavement design recommendations for areas where rubblization or overlay of the existing pavement section is planned.

**Table 6 – Pavement Design Considerations
Rubblization and Overlay**

ROADWAY LINE	I-65
Subgrade Treatment	--
Modified/Prepared Subgrade Soil Resilient Modulus Value, lbs/sq.in.	--
Natural Subgrade Soil Resilient Modulus Value, lbs/sq.in.	3,500
Approximate Depth to Ground Water	5 ft
Subgrade Soil	Loam (A-4) Sandy Loam (A-4) Sand (A-2-4)

5.2 Bridge Foundation Recommendations

The existing two-span bridges carrying Interstate 65 over State Road 25 and the existing five-span bridges carrying Interstate 65 over Wildcat Creek will be widened. Considering the project characteristics, the general geology in the vicinity of the project and the subsurface conditions encountered in the test borings drilled at the proposed bridge locations, it is recommended that pile foundations be used for support of the bridge additions. Specific design recommendations for steel pipe piles (INDOT Standard Specifications Section 915.01) and H-piles (INDOT Standard Specifications Section 915.02) are presented in the following sections.

Existing plans indicate that the end bents of the Interstate 65 bridges over Wildcat Creek are supported on driven piles and that the interior piers are supported on spread footings with bearing elevations varying from approximately El 520 to El 526. The scour elevation for the Wildcat Creek bridges is El 515. Plans for the Interstate 65 bridges over State Road 25 indicate that the existing end bents and interior piers are supported on driven pipe piles.

Spread footings are not recommended for support of the interior piers of the Interstate 65 bridge additions over Wildcat Creek due to the presence of artesian ground water conditions, potential differential settlements between new and existing footings, the risk of undermining the existing spread footings, causing a “quick” condition during construction excavations to reach the existing spread footing bearing elevations and the projected scour depth.

The contractor shall be required to perform a test boring at each proposed interior pier location (the boring shall be located within the footprint area of the footing) prior to construction in order to confirm the soil conditions at these specific locations. The test boring information developed shall be submitted to INDOT for review and evaluation prior to commencement of any type of foundation work at these locations.

5.2.1 **Pipe Pile Foundation Recommendations – I-65 over SR 25**

Recommended Design Loads for a 14-inch diameter steel pipe-pile section are presented in the table in this section. The piles should be installed and monitored in accordance with Section 701 of the INDOT Standard Specifications. It is recommended that the dynamic formula in accordance with the INDOT Standard Specifications Section 701.05(a) be used to establish driving criteria and to verify pile capacities for the piles. The actual pile tip elevations must be determined based on the results of the dynamic formula calculations. It is recommended that the end bent piles be pre-drilled through the existing embankment material before being driven in accordance to INDOT Standard Specifications Section 701.09 (a) 2.

The 14-inch diameter pipe piles shall be spaced not less than 4 ft apart center-to-center. The sequence for driving the piles shall begin with the inner-most pile within the pile cap and progress outward.

Pile tip elevations were estimated using the computer program DRIVEN for static capacity and the estimated pile tip elevations are presented in the following table based on the results of the computer analysis. It is important to note that the pile tip elevations presented herein are estimated penetrations based on static analyses for the soil conditions modeled and that actual pile penetrations should be expected to vary. Hard driving conditions should be anticipated in some cases due to the hard glacial till and dense glacial outwash sand and gravel, which contains cobbles and boulders above the estimated pile tip elevations. All of the pipe piles for this project shall be fitted with conical pile tips in accordance with the INDOT Standard Specifications Section 915.01.2 to facilitate driving the piles to proper bearing.

Summary of Static and Driving Resistances for Pipe Piles Bent Nos. 1 and 3 (End Bents) and Pier No. 2 (Interior Pier) Interstate 65 over State Road 25 Tippecanoe County, Indiana

Pile Size and Type	14 in. Diameter Pipe Pile
Grade of Steel (ksi)	45
Minimum Shell Thickness (in.)	0.25
Factored Design Load (kips)	80
Factor of Safety	2.5
Friction in Scour Zone (kips)	N/A
Downdrag Friction (kips)	N/A
Ultimate Driving Load* (kips)	200
Estimated Pile Tip Elevation** (ft)	504
Recommended Verification Method	Dynamic Formula, INDOT Standard Specifications Section 701.05(a)

*Ultimate Driving Load is equivalent to the Nominal Driving Resistance (R_{ndr}) in INDOT Standard

Specifications Section 701.05(a)

**Based on top-of-pile at approximately EI 540

5.2.2 H-Pile Foundation Recommendations – I-65 over SR25

Recommended Design Loads for HP 12x53 and HP 12x74 steel H-pile sections are presented in the table in this section. The H-piles should be installed and monitored in accordance with Section 701 of the INDOT Standard Specifications. It is recommended that the dynamic formula in accordance with the INDOT Standard Specifications Section 701.05(a) be used to establish driving criteria and to verify pile capacities for these piles. The actual pile tip elevations must be determined based on the results of the dynamic formula calculations.

The H-piles shall be spaced not less than 4 ft apart center-to-center. The sequence for driving the piles shall begin with the inner-most pile within the pile cap and progress outward.

Pile tip elevations were estimated using the computer program DRIVEN for static capacity and the estimated pile tip elevations are presented in the following table based on the results of the computer analysis. It is important to note that the pile tip elevations presented herein are estimated penetrations based on static analyses for the soil conditions modelled and that actual pile penetrations should be expected to vary. Hard driving conditions should be anticipated in some cases due to the hard glacial till and dense glacial outwash sand and gravel, which contains cobbles and boulders above the estimated pile tip elevations. All of the steel H-piles for this project shall be fitted with pile shoes in accordance with the INDOT Standard Specifications Section 915.03.1 to facilitate driving the piles to proper bearing. The piles should be installed and monitored in accordance with Section 701 of the INDOT Standard Specifications.

Summary of Static and Driving Resistances for Steel H-Piles Bent Nos. 1 and 3 (End Bents) and Pier No. 2 (Interior Pier) Interstate 65 over State Road 25 Tippecanoe County, Indiana

Pile Type and Size	HP 12x53	HP 12x74
Grade of Steel (ksi)	50	50
Factored Design Load (kips)	100	200
Factor of Safety	2.5	2.5
Friction in Scour Zone (kips)	N/A	N/A
Downdrag Friction (kips)	N/A	N/A
Ultimate Driving Load* (kips)	250	500
Estimated Pile Tip Elevation**	496	474
Recommended Verification Method	Dynamic Formula, INDOT Standard Specifications Section 701.05(a)	

*Ultimate Driving Load is equivalent to the Nominal Driving Resistance (R_{ndr}) in INDOT Standard Specifications Section 701.05(a)

**Based on top-of-pile at approximately EI 540

5.2.3 Pipe Pile Foundation Recommendations – I-65 over Wildcat Creek

Recommended Design Loads for a 14-inch diameter steel pipe-pile section are presented in the table in this section. The piles should be installed and monitored in accordance with Section 701 of the INDOT Standard Specifications. It is recommended that dynamic pile load test method using the pile driving analyzer (PDA) in accordance with the INDOT Standard Specifications Section 701.05(b) be used to establish the pile driving criteria for this bridge. The actual pile tip elevations and driving criteria must be determined based on the results the PDA testing. It is recommended that a total of three PDA tests be performed for this bridge structure (one test at an end bent and two tests at the interior piers). The two PDA tests for the interior piers shall not be conducted on adjacent pier lines. The actual production pile driving criteria must be determined based on an evaluation of the results of the PDA initial drive, the PDA restrike analyses and the CAPWAP. Restrike of the piles shall be after a waiting period of 24 hours after initial drive on piles.

The 14-inch diameter pipe piles shall be spaced not less than 4 ft apart center-to-center. The sequence for driving the piles shall begin with the inner-most pile within the pile cap and progress outward.

Pile tip elevations were estimated using the computer program DRIVEN for static capacity and the estimated pile tip elevations are presented in the following table based on the results of the computer analysis. It is important to note that the pile tip elevations presented herein are estimated penetrations based on static analyses for the soil conditions modeled and that actual pile penetrations should be expected to vary. Hard driving conditions should be anticipated in some cases due to the hard glacial till and dense glacial outwash sand and gravel, which contains cobbles and boulders above the estimated pile tip elevations. All of the pipe piles for this project shall be fitted with conical pile tips in accordance with the INDOT Standard Specifications Section 915.01.2 to facilitate driving the piles to proper bearing.

**Summary of Static and Driving Resistances for Pipe Piles
Interstate 65 over Wildcat Creek
Tippecanoe County, Indiana**

Pier Location	End Bent No. 1 (Southern End Bents)	Interior Piers 2 and 5	Interior Piers 3 and 4	End Bent No. 6 (Northern End Bents)
Pile Size and Type	14 in. Diameter Pipe Pile	14 in. Diameter Pipe Pile	14 in. Diameter Pipe Pile	14 in. Diameter Pipe Pile
Grade of Steel (ksi)	45	45	45	45
Minimum Shell Thickness (in.)	0.25	0.25	0.25	0.25
Factored Design Load (kips)	80	80	80	80
Factor of Safety	2.0	2.0	2.0	2.0
Friction in Scour Zone (kips)	N/A	34	30	N/A
Downdrag Friction (kips)	N/A	N/A	N/A	N/A
Ultimate Driving Load* (kips)	160	194	190	160
Assumed Top of Pile Elevation (ft)	565	530	520	555
Estimated Pile Tip Elevation (ft)	519	485	485	524
Recommended Verification Method	Method of Testing – Dynamic Pile Load Test (PDA) – 701.05(b) – A total of three PDA tests are recommended for this structure.			

*Ultimate Driving Load is equivalent to the Nominal Driving Resistance (R_{ndr}) in INDOT Standard Specifications Section 701.05(b)

5.2.4 H-Pile Foundation Recommendations – I-65 over Wildcat Creek

The piles should be installed and monitored in accordance with Section 701 of the INDOT Standard Specifications. It is recommended that dynamic pile load test method using the pile driving analyzer (PDA) in accordance with the INDOT Standard Specifications Section 701.05(b) be used to establish the pile driving criteria for this bridge. The actual pile tip elevations and driving criteria must be determined based on the results the PDA testing. . It is recommended that a total of three PDA tests be performed for this bridge structure (one test at an end bent and two tests at the interior piers). The two PDA tests for the interior piers shall not be conducted on adjacent pier lines. The actual production pile driving criteria must be determined based on an evaluation of the results of the PDA initial drive, the PDA restrrike analyses and the CAPWAP. Restrike of the piles shall be after a waiting period of 24 hours after initial drive on piles.

The H-piles shall be spaced not less than 4 ft apart center-to-center. The sequence for driving the piles shall begin with the inner-most pile within the pile cap and progress outward.

Pile tip elevations were estimated using the computer program DRIVEN for static capacity and the estimated pile tip elevations are presented in the following table based on the results of the computer analysis. It is important to note that the pile tip elevations presented herein are estimated penetrations based on static analyses for the soil conditions modelled and that actual pile penetrations should be expected to vary. Hard driving conditions should be anticipated in some cases due to the hard glacial till and dense glacial outwash sand and gravel, which contains cobbles and boulders above the estimated pile tip elevations. All of the steel H-piles for this project shall be fitted with pile shoes in accordance with the INDOT Standard Specifications Section 915.03.1 to facilitate driving the piles to proper bearing. The piles should be installed and monitored in accordance with Section 701 of the INDOT Standard Specifications.

**Summary of Static and Driving Resistances for H-Piles
 Interstate 65 over Wildcat Creek
 Tippecanoe County, Indiana**

Pier Location	End Bent No. 1 (Southern End Bents)		Interior Piers 2 and 5		Interior Piers 3 and 4		End Bent No. 6 (Northern End Bents)	
Pile Size and Type	HP 12x53	HP 12x74	HP 12x53	HP 12x74	HP 12x53	HP 12x74	HP 12x53	HP 12x74
Grade of Steel (ksi)	50	50	50	50	50	50	50	50
Factored Design Load (kips)	100	200	100	200	100	200	100	200
Factor of Safety	2	2	2	2	2	2	2	2
Friction in Scour Zone (kips)	N/A	N/A	36	37	33	33	N/A	N/A
Downdrag Friction (kips)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ultimate Driving Load* (kips)	200	400	236	437	233	433	200	400
Assumed Top of Pile Elevation (ft)	565	565	530	530	520	520	555	555
Estimated Pile Tip Elevation (ft)	508	489	479	451	465	447	509	490
Recommended Verification Method	Method of Testing – Dynamic Pile Load Test (PDA) – 701.05(b) – A total of three PDA tests are recommended for this structure.							

*Ultimate Driving Load is equivalent to the Nominal Driving Resistance (R_{ndr}) in INDOT Standard Specifications Section 701.05(b)

5.3 Site Grading

Based on available plans, it is estimated that approximately 1 to 6 ft of fill will be required to reach the proposed travel lane subgrade. It is important that all earth fill that is placed adjacent to the existing roadway embankments be carefully benched into the existing embankments in accordance with INDOT Standard Specifications Section 203.21 in order to preclude a weak zone from forming at the interface between the existing embankment soils and the new fill soil. The subgrade beneath the new expanded travel lane areas should be prepared in accordance with Section 6.2 and the fill placed and compacted in accordance with Section 6.3 of this report. All conventional earth subgrade and embankment work should be performed in accordance with current INDOT Standard Specifications.

5.4 Corrosion Protection

The soil samples tested for pH (as tabulated below) during the laboratory investigation do not indicate that the soil at the site has a significant potential for causing corrosion. Corrosion protection does not appear to be needed for metallic pipes and drainage structures based on the pH results of the samples tested, as summarized in the table below.

Summary of Soil pH Values

Boring Number	Depth, ft	pH Value
S5-RB-006	1 – 3	7.5
S5-RB-006	6.0 – 7.5	7.5
S5-RB-008	1.0 – 2.5	7.9
S5-RB-010	8.5 – 10.0	7.8
S5-RB-014	1 – 3	7.9
S5-RB-034	6.0 – 7.5	7.6
S5-RB-056	1.0 – 2.5	8.4
S5-RB-056	3.5 – 5.0	8.2
S5-RB-060	1.0 – 2.5	8.2
S5-RBS-112	2.0 – 3.5	9.3
S5-TB-WC-2	8.5 – 10.0	7.6

6 GENERAL CONSTRUCTION PROCEDURES AND RECOMMENDATIONS

Since this investigation identified actual subsurface conditions only at the test boring locations, it was necessary for our geotechnical engineers to extrapolate these conditions in order to characterize the entire project site. Even under the best of circumstances, the conditions encountered during construction can be expected to vary somewhat from the test boring results and may, in the extreme case, differ to the extent that modifications to the foundation recommendations become necessary. Therefore, we recommend that ATC be retained as geotechnical consultant through the earth-related phases of this project to correlate actual soil conditions with test boring data, identify variations, conduct additional tests that may be needed and recommend solutions to earth-related problems that may develop.

6.1 Site Preparation and Earthwork

Any topsoil, wet, soft or otherwise unsuitable surficial bearing soils should be stripped from the project site within the construction limits prior to construction of the roadway subgrade and pavement. Proofrolling of the subgrade should be performed in accordance with the INDOT Standard Specifications, Section 203.26 within all areas where new fill or pavement will be placed. Care should be exercised during grading operations at the site. Due to the nature of the near-surface soils, the traffic of heavy equipment, including heavy compaction equipment, may create pumping and general deterioration of the shallower soils, especially if excess surface water is present. The grading, therefore, should be done during a dry season, if possible.

Some of the subgrade soils have relatively high silt contents and some subgrade soils have natural moisture contents significantly higher than the optimum moisture content to achieve proper compaction. Even those soils that may currently be relatively firm can easily become unstable during construction when exposed to precipitation and construction traffic. It is not possible to accurately determine beforehand the amount of subgrade modification or improvement that may be required since this is dependent upon seasonal conditions (problematic subgrade soils are more likely to occur during late fall, winter or spring), the sequencing of construction, construction equipment and methods and the specific soil type encountered at the subgrade level. It is suggested that an undistributed quantity of subgrade improvement equal to approximately 30 percent of the subgrade area be included in the contract to be used where determined to be necessary to provide a suitable foundation for the pavement subgrade. The subgrade improvement options shall include lime drying and an additional layer of chemical subgrade treatment.

6.2 Pile Installation

In order to confirm that the bridge structure piles are properly installed, it is recommended that a representative of the geotechnical engineer who is independent of the contractor perform continuous inspection during pile installation. An accurate record should be kept of the date, time, depth of penetration, driving resistance and other pertinent data for each pile as well as the characteristics of the pile driver that is used. The pile driver should have sufficient energy to drive the piles to bearing as prescribed in Section 5.1 of this report. To verify proper pile capacity, the driving criteria to be used during production pile driving should be determined based upon the pile hammer and pile section that is used. The driving criteria will be established by the geotechnical engineer at the time of

construction once the specific details regarding pile installation have been established. All pile driving should be done in accordance with INDOT Standard Specifications Section 701.

Cobbles and boulders that could obstruct pile penetration could be encountered during pile driving. The contractor should be advised of these conditions when establishing equipment and installation procedures to be utilized. Care should be taken not to damage the piles by overdriving.

6.3 Placement and Compaction of Engineered Fill

Engineered fill should be placed in lift thicknesses not to exceed about 8 in. and compacted to a minimum of 95 percent of the standard Proctor maximum dry density (AASHTO T99) as specified in the current INDOT Standard Specifications. It is likely that some drying of the fill material will be required before being placed in order to meet the INDOT Specification for fill placement. It is probable that this will also be the case for most of the soil materials encountered within the range of subgrade treatment. However, adequate moisture conditioning may be difficult during wet seasons and, during such seasons, a granular material may be necessary to satisfy the minimum compaction requirements.

Where the added travel lanes crosses existing drainage swales, the soft sediment in the base of the swales should be removed and replaced with structure backfill to a thickness of at least 2 ft above the free ground water level. Otherwise, backfilling should be done in accordance with Section 203.09 of the INDOT Standard Specifications.

Where fill material is placed on existing slopes, benches should be cut into the existing slopes so as to preclude a shear plane from developing at the interface. This is particularly important on this project since relatively thin sections of fill will be placed on the sides of the existing slopes and, in some cases, the fill may not extend down to the toe of the slope. Benches having a minimum width of 10 ft should be cut into the natural slopes and existing embankment side slopes that are 4 (horizontal) to 1 (vertical), or steeper, before new engineered fill is placed. These benches should be excavated in accordance with Section 203.21 of the INDOT Standard Specifications.

6.4 Erosion Protection

Highly erodible, granular material (such as structure backfill) should not be used in proposed ditches or within 12 in. of the required final grade of side slopes. The material used to encase the embankment should be non-erodible, cohesive material that is free from debris and other deleterious materials and suitable for sustaining vegetation. The final slopes should be seeded or sodded for erosion control. If seeded, the slope should be protected with an erosion control blanket to provide for adequate seed germination and rooting.

6.5 Construction Dewatering

Based upon the ground water data obtained during drilling operations, it does not appear that significant dewatering will be required during construction along most of the added travel lane construction in the existing median and at the State Road 25 bridge structure additions. However, depending on the seasonal conditions, seepage into excavations at the bridge over Wildcat Creek will likely occur. Artesian ground water was noted adjacent some of the existing piers and heaving sands were noted in the drilling augers during sampling. Significant dewatering will likely need to be performed prior to excavations for the proposed interior pile caps at Wildcat Creek. In cases where an excavation extends into a saturated granular layer (which is likely to occur in most cases), it will not be possible to pump water directly from the base of the excavation without causing deterioration of the subgrade soil. In this case, it will be necessary to depress the ground water level using wells or well points. A specialty dewatering contractor should be retained to install and maintain the dewatering system. The best dewatering system for each case must be determined at the time of construction based upon actual field conditions and shall be approved by the engineer.

Appendix

APPENDIX A

PROJECT LOCATION MAP – Figure 1

VICINITY MAP – Figure 2

EXPLORATORY LOCATION PLANS – Figures 3 through 6

APPENDIX B

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION
TEST BORINGS LOGS

APPENDIX C

SUMMARY OF CLASSIFICATIONS TEST RESULTS

GRAIN SIZE DISTRIBUTION TEST REPORTS

SUBBASE SIEVE SUMMARY

SUMMARY OF SPECIAL LABORATORY TEST RESULTS

RESILIENT MODULUS TEST RESULTS

SUMMARY OF SOIL DENSITY TESTS

SUMMARY OF PAVEMENT THICKNESS

SUMMARY OF TOPSOIL THICKNESS

APPENDIX D

DRIVEN OUTPUT

APPENDIX E

PAVEMENT CORE PHOTOS

APPENDIX A

PROJECT LOCATION MAP – Figure 1

VICINITY MAP – Figure 2

EXPLORATORY LOCATION PLANS – Figures 3 through 6



PROJECT LOCATION MAP

INTERSTATE 65 - ADDED TRAVEL LANES
SECTION 5 - STATE ROAD 26 TO STATE ROAD 25
INDOT DES. NO. 1383340
TIPPECANOE COUNTY, INDIANA

Project Number:
86.55608.0058

Drawing File:
55608~58A-SEC5

Date:
5/14

Scale:
NONE

Des. By:
SP

Clk. By:
SM

App'd By:

Figure:



1



VICINITY MAP

INTERSTATE 65 - ADDED TRAVEL LANES
SECTION 5 - STATE ROAD 26 TO STATE ROAD 25
INDOT DES. NO. 1383340
TIPPECANOE COUNTY, INDIANA

Project Number:
86.55608.0058

Drawing File:
55608~58A-SECS

Date:
5/14

Scale:
1" = 3000'



Des. By:
SP

Clk. By:
SM

App'd By:

Figure:

2

560+00

570+00

580+00

590+00

SECTION 4 - STATIONING LINE "A2"

INTERSTATE 65
(SOUTHBOUND LANES)

INTERSTATE 65
(NORTHBOUND LANES)

S5-RB-001

S5-RB-002

S5-RB-003

S5-RB-005

S5-RB-006

S5-RB-004

S5-RBS-102

S5-RB-009

S5-RB-010

S5-RB-011

S5-RBS-103A

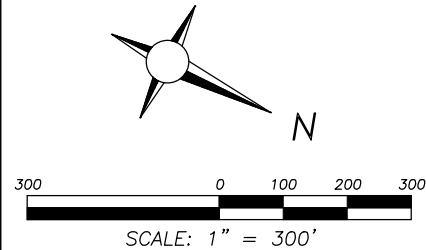
S5-RB-012

S5-RB-013

S5-RBS-101

S5-RBS-103

S5-RB-008



SEE SHEET 4

LOCATION

LEGEND

NOTES

EXPLORATORY LOCATION PLAN
SECTION 5 ALONG LINE "A2"

INTERSTATE 65 - ADDED TRAVEL LANES
SECTION 5 - STATE ROAD 26 TO STATE ROAD 25
INDOT DES. NO. 1383340
TIPPECANOE COUNTY, INDIANA

Project Number:
86.55608.0058

Ckd. By: DL
Drn. By: SP
Date: 5/14

Drawing File:
SEE LOWER LEFT

Scale:
1" = 300'



Figure:

3

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600+00

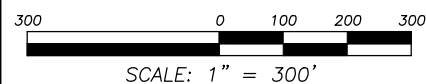
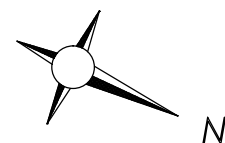
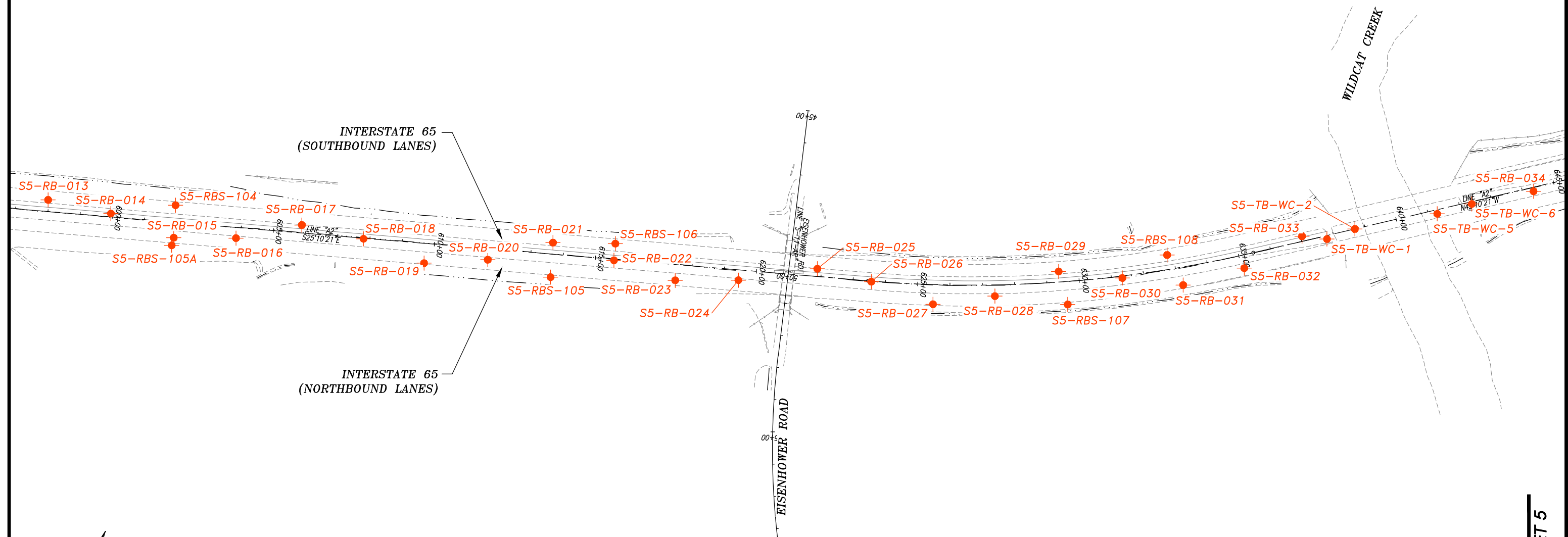
610+00

620+00

630+00

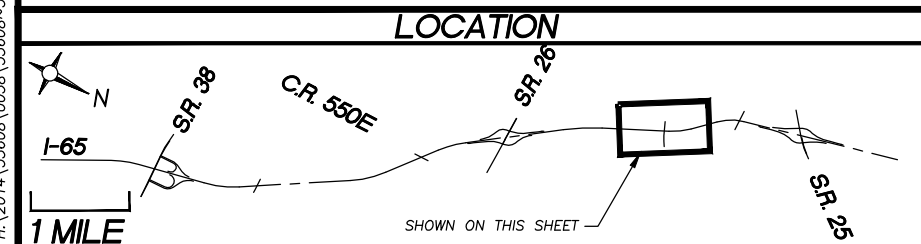
640+00

SECTION 4 - STATIONING LINE "A2"



SEE SHEET 5


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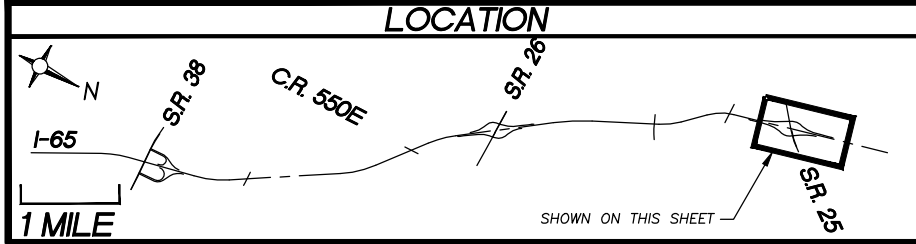
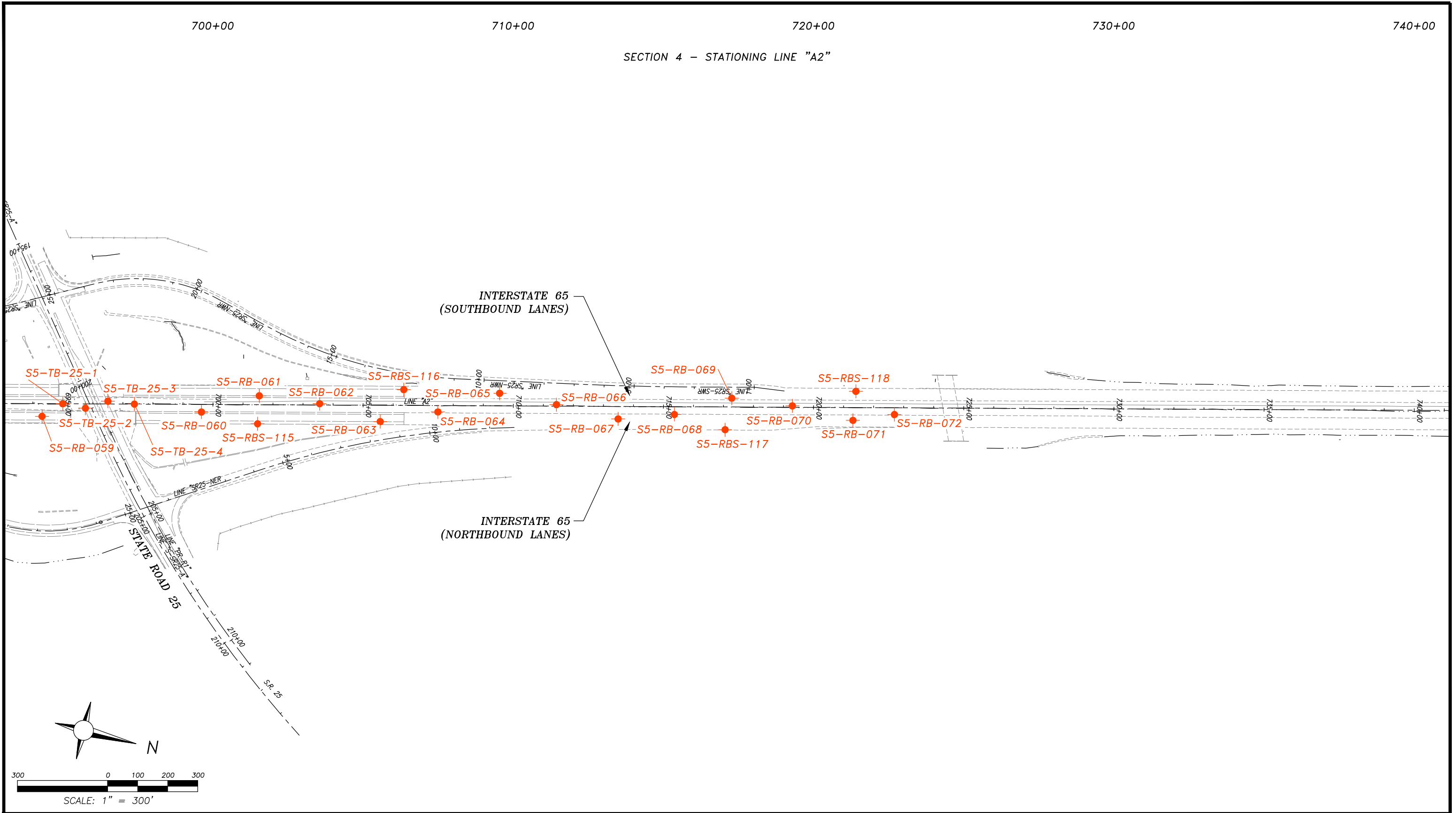



LEGEND
TEST BORING AND DESIGNATION

NOTES
1. BASE MAP DEVELOPED FROM 2005 AERIAL PHOTOGRAPHY.

EXPLORATORY LOCATION PLAN SECTION 5 ALONG LINE "A2"
INTERSTATE 65 - ADDED TRAVEL LANES SECTION 5 - STATE ROAD 26 TO STATE ROAD 25 INDOT DES. NO. 1383340 TIPPECANOE COUNTY, INDIANA


Project Number: 86.55608.0058	Ckd. By: DL	Drn. By: SP	Date: 5/14
Drawing File: SEE LOWER LEFT	Scale: 1" = 300'		
			Figure: 4



LEGEND
 TEST BORING AND DESIGNATION

NOTES
1. BASE MAP DEVELOPED FROM 2005 AERIAL PHOTOGRAPHY.

EXPLORATORY LOCATION PLAN SECTION 5 ALONG LINE "A2"
INTERSTATE 65 – ADDED TRAVEL LANES SECTION 5 – STATE ROAD 26 TO STATE ROAD 25 INDOT DES. NO. 1383340 TIPPECANOE COUNTY, INDIANA

Project Number: 86.55608.0058	Ckd. By: DL	Drn. By: SP	Date: 5/14
Drawing File: SEE LOWER LEFT	Scale: 1" = 300'		
			Figure: 6

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APPENDIX B

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION
TEST BORINGS LOGS

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

Particle Size Identification

(Based on INDOT Standard Specifications Section 903)

Boulders	- 3 in. (75 mm) diameter or more
Gravel	- 2.0 mm (No. 10 Sieve) to 3 in.
Sand (Coarse)	- 0.425 mm to 2.0 mm (No. 40 Sieve to No. 10 Sieve)
Sand (Fine)	- 0.075 mm to 0.425 mm (No. 200 Sieve to No. No. 40 sieve)
Silt	- 0.002 mm to 0.075 mm (No. 200 Sieve)
Clay	- Smaller than 0.002 mm

NON-COHESIVE SOILS

(Silt, Sand, Gravel and Combinations)

Density

Very Loose	- 5 blows/ft or less
Loose	- 6 to 10 blows/ft
Medium Dense	- 11 to 30 blows/ft
Dense	- 31 to 50 blows/ft
Very Dense	- 51 blows/ft or more

COHESIVE SOILS

(Clay, Silt and Combinations)

Consistency

Very Soft	- 3 blows/ft or less
Soft	- 4 to 5 blows/ft
Medium Stiff	- 6 to 10 blows/ft
Stiff	- 11 to 15 blows/ft
Very Stiff	- 16 to 30 blows/ft
Hard	- 31 blows/ft or more

Plasticity

Degree of Plasticity	Plasticity Index
None to slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	over 22

Classifications shown on the test boring logs are made by visual inspection of samples and confirmed / modified based on index property tests.

Standard Penetration Test (AASHTO T 206) — Driving a 2.0" O.D., 1-3/8" I.D. sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30 inches. It is customary for ATC to drive the sampler 6 inches to seat the sampler into undisturbed soil, then perform the test. The number of hammer blows for seating the sampler and making the test are recorded for each 6 inches of penetration on the drill log (Example — 6-8-9). The standard penetration test result can be obtained by adding the last two figures (i.e., 8 + 9 = 17 blows/ft).

Strata Changes — In the column "Soil Classification" on the test boring logs, the horizontal lines represent strata changes. A solid line (_____) represents an actually observed change. A dashed line (_ _ _ _ _) represents an estimated change.

Ground Water observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.

INDOT BORING LOG

BORING NO.: **S5-RB-001**

SHEET 1 OF 1

NORTHING : 1886101

EASTING : 3023580

DATUM :

DATE STARTED : 04-15-14

DATE COMPLETED: 04-15-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 659.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 575+01

BIG TYPE : Truck

DRILLER/INSP : K&S Engineers/S. Marcum

OFFSET : 18.0 ft Left

TEMPERATURE 22.25

LINE : 'A2'

CASING DIA. : _____

TEMPERATURE : 30 °F

DEPTH : 7.5 ft

CORE SIZE	: --
-----------	------

WEATHER	: Clear
---------	---------

GROUNDWATER: Encountered at None At completion None Caved in at 4.6 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-002**
 SHEET **1** OF **1**
 NORTHING : **1886240**
 EASTING : **3023512**
 DATUM :
 DATE STARTED : **02-18-14**
 DATE COMPLETED : **02-19-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>658.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>576+54</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>5.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>37 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>10.0 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ 0.0 ft After 24 hours ☒ Caved in at 1.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil .											
		0.6											
		Loam A-4, Brown, Slightly Moist, Stiff, (Lab No. 1)	SS1	3-5-7	89	10.8		1.75					
655.0	2.5												
		3.5											
		Sandy Loam A-2-6, Brown, Slightly Moist, Medium Stiff, (Lab No. 2)	SS2	7-11-12	100	12.3		2.25					
5.0	5.0												
		5.0											
		Silty Clay Loam A-7-6, Brown, Slightly Moist, Stiff, (Lab No. 3)	SS3	7-7-5	83			1.75					
650.0	7.5												
		10.0											
		Bottom of Boring at 10.0 ft	SS4	8-7-8	44	23.2		1.5					
10.0	10.0												
12.5													
645.0													
15.0													
17.5													
640.0													
20.0													

INDOT BORING LOG

BORING NO.: **S5-RB-003**
 SHEET **1** OF **1**
 NORTHING : **1886443**
 EASTING : **3023473**
 DATUM :
 DATE STARTED : **04-10-14**
 DATE COMPLETED : **04-10-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>660.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>578+51</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>64.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>67 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 4.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		6.25 in. Asphalt over 9.25 in. Concrete											
		Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 9)											
		Sandy Loam A-2-4 , Gray, slightly moist, medium dense, (Lab No. 10)											
		Sand A-2-4 , Brown, slightly moist, medium dense, (Lab No. 5)											
655.0	5.0		SS2	9-12-14	56								
		Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 10)											
			SS3	10-13-8	67								
		Bottom of Boring at 7.5 ft											
650.0	10.0												
645.0	15.0												
640.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-004**
 SHEET **1** OF **1**
 NORTHING : **1886596**
 EASTING : **3023354**
 DATUM :
 DATE STARTED : **02-18-14**
 DATE COMPLETED : **02-19-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**
 DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : 662.0	BORING METHOD : HSA	HAMMER : Auto
STATION : 580+43	RIG TYPE : ATV	DRILLER/INSP : J. Cook/S. Marcum
OFFSET : 35.0 ft Right	CASING DIA. :	TEMPERATURE : 37 °F
LINE : 'A2'	CORE SIZE : --	WEATHER : Clear
DEPTH : 7.5 ft		

GROUNDWATER: ☒ Encountered at **3.5 ft** ☒ At completion **3.9 ft** ☒ 0.0 ft After **24** hours ☒ Caved in at **0.7 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.5											
660.0	2.5	Loam A-4 , Brown, moist, Very Stiff, (Lab No. 1)	SS1	10-8-9	67	10.2		2.75					
		Sand A-1-b , Brown, wet, Dense, (Lab No. 4)											
	5.0	Sandy Loam A-2-4 , Gray, wet, Dense, (Lab No. 6)	SS2	17-22-28	67								
		Sand A-1-b , Brown, wet, Medium Dense, (Lab No. 4)											
655.0	7.5	Sand A-2-4 , Brown, wet, Medium Dense, (Lab No. 5)	SS3	10-13-13	100								
		Bottom of Boring at 7.5 ft											
10.0													
650.0	12.5												
15.0													
645.0	17.5												
20.0													

INDOT BORING LOG

BORING NO.: **S5-RB-005**

SHEET 1 OF 1

NORTHING : 1886736

EASTING : 3023200

DATUM : _____

DATE STARTED : 04-16-14

DATE COMPLETED : 04-16-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 663.0

STATION : 582+39

OFFSET : 35.0 ft Left

LINE : 'A2'

DEPTH : 7.5 ft

BORING METHOD : HSARIG TYPE : Truck

CASING DIA. : _____

CORE SIZE : --

HAMMER : AutoDRILLER/INSP : K&S Engineers/S. Marcum

TEMPERATURE : 46 °F

WEATHER	: Clear
---------	---------

GROUNDWATER: Encountered at None At completion None Caved in at 4.2 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-006**
 SHEET **1** OF **1**
 NORTHING : **1886923**
 EASTING : **3023135**
 DATUM :
 DATE STARTED : **02-18-14**
 DATE COMPLETED : **02-19-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>661.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>584+34</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>7.0 ft Left</u>	CASING DIA. : _____	TEMPERATURE : <u>39 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>15.0 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ 0.0 ft After 24 hours ☒ Caved in at 0.9 ft

ELEVATION ▼	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.4											
660.0			SS1	11-10-7	100	9.8 18.3		4.5		20	11	9	1.0, Moisture Content (Bag Sample from 1-3 ft) = 18% 2.5, Soluble Sulfate = 1080 ppm
2.5		Loam A-4 , Gray, moist to slightly moist, Very Stiff, (Lab No. 1)	SS2	5-7-10	100	9.4		3.75					
5.0													
655.0		5.5	SS3	11-12-18	100	8.5		4.25		16	12	4	6.0, Soluble Sulfate = 530 ppm
7.5		Sandy Loam A-4 , Gray, slightly moist, Very Stiff, (Lab No. 7)	SS4	11-11-16	100			4.5+					
10.0													
650.0		10.5	SS5	6-7-7	100			4.5+					
12.5		Loam A-4 , Gray, slightly moist, Stiff to very stiff, (Lab No. 1)	SS6	5-8-10	100			4.5+					
15.0		15.0											
645.0		Bottom of Boring at 15.0 ft											
17.5													
20.0													

INDOT BORING LOG

BORING NO.: **S5-RB-007**
 SHEET **1** OF **1**
 NORTHING : **1887123**
 EASTING : **3023100**
 DATUM :
 DATE STARTED : **04-11-14**
 DATE COMPLETED : **04-11-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>664.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>586+30</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>50.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>55 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		5.5 in. Asphalt over 9.5 in. Concrete .											
						14.5							
	2.5	Sandy Loam A-4 , Gray, slightly moist, stiff, with sand seams below 1.5 ft, (Lab No. 7)	SS1	7-6-9	78			2.75					
660.0	5.0	Sandy Loam A-2-4 , Gray, slightly moist, medium dense, (Lab No. 10)	SS2	6-8-7	78								
	7.5	Loam A-4 , Brown, moist, very stiff, with sand seams, (Lab No. 1)	SS3	10-10-9	100	15.3		1.75					
		Bottom of Boring at 7.5 ft											
655.0	10.0												
	12.5												
650.0	15.0												
	17.5												
645.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-008**
 SHEET 1 OF 1
 NORTHING : 1887289
 EASTING : 3023003
 DATUM : _____
 DATE STARTED : 02-18-14
 DATE COMPLETED : 02-19-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>664.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>588+22</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>34.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>41 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ 0.0 ft After 24 hours ☒ Caved in at 1.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
664.0	2.5	Loam A-4, Brown, Slightly Moist to moist, Very Stiff, (Lab No. 1)	SS1	12-11-9	100	9.3		3.25					3.5, Soluble Sulfate <100 ppm
660.0	5.0		SS2	9-11-12	100	10.1		4.5+		19	12	7	
	7.5		SS3	10-10-10	67	11.1		4.25					
655.0		Bottom of Boring at 7.5 ft											
	10.0												
	12.5												
650.0	15.0												
	17.5												
645.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-009**
 SHEET **1** OF **1**
 NORTHING : **1887447**
 EASTING : **3022863**
 DATUM :
 DATE STARTED : **04-15-14**
 DATE COMPLETED : **04-15-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>665.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>590+24</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>26.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>34 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		5 in. Asphalt over 9.5 in. Concrete .											
		1.2											
	2.5		SS1	9-10-11	100								
		Sandy Loam A-2-4 , Gray, slightly moist, medium dense, (Lab No. 10)											
	5.0		SS2	10-9-12	100								
660.0		5.5											
		Sandy Loam A-4 , Gray, slightly moist, very stiff, (Lab No. 7)				8.5							
	7.5		SS3	8-9-13	100			4.5+					
		7.5											
		Bottom of Boring at 7.5 ft											
	10.0												
655.0													
	12.5												
	15.0												
650.0													
	17.5												
	20.0												
645.0													

INDOT BORING LOG

BORING NO.: **S5-RB-010**
 SHEET **1** OF **1**
 NORTHING : **1887626**
 EASTING : **3022799**
 DATUM :
 DATE STARTED : **02-19-14**
 DATE COMPLETED : **02-20-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>664.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>592+14</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>8.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>35 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>10.0 ft</u>		

GROUNDWATER: ☒ Encountered at 9.0 ft ☒ At completion None ☒ 0.9 ft After 24 hours ☒ Caved in at 3.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil . 0.6											
		Sandy Loam A-4, Brown, Slightly Moist, Very Stiff, (Lab No. 7) 2.0	SS1	6-13-16	100	9.8		2.75					
		Sandy Loam A-2-4, Brown, Slightly Moist, Medium Dense, (Lab No. 6) 3.0											
660.0	2.5		SS2	12-11-19	100	13.8							
	5.0	Sandy Loam A-4, Brown, Slightly Moist, Very Stiff, with sand seams, (Lab No. 7) 8.0	SS3	7-8-8	100	10.1		4.5+					
655.0	7.5		SS4	9-12-13	78	9.5		3.0		NP	NP	NP	8.5, Soluble Sulfate = 310 ppm
	10.0	Sand A-1-b, Gray, Wet, Medium Dense, with pockets of clay, (Lab No. 4) 10.0											
		Bottom of Boring at 10.0 ft											
	12.5												
650.0	15.0												
	17.5												
645.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-011**
 SHEET **1** OF **1**
 NORTHING : **1887826**
 EASTING : **3022779**
 DATUM :
 DATE STARTED : **04-10-14**
 DATE COMPLETED : **04-10-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>666.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>594+03</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>60.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>50 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 1.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
665.0		5.25 in. Asphalt over 9 in. Concrete .											
	2.5	Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 9)	SS1	7-10-13	89								
	5.0	Sandy Loam A-4 , Gray, slightly moist, very stiff, (Lab No. 7)	SS2	9-11-13	56	8.2		4.5+					
660.0	6.5	Sandy Loam A-2-4 , Gray, slightly moist, medium dense, with sand seams, (Lab No. 10)				9.1							
	7.5	Loam A-4 , Gray, slightly moist, stiff, with sand seams, (Lab No. 1)	SS3	8-8-7	100			3.0					
		Bottom of Boring at 7.5 ft											
655.0													
	12.5												
	15.0												
650.0													
	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-012**
 SHEET **1** OF **1**
 NORTHING : **1887993**
 EASTING : **3022672**
 DATUM :
 DATE STARTED : **02-19-14**
 DATE COMPLETED : **02-20-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**
 DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : 667.0	BORING METHOD : HSA	HAMMER : Auto
STATION : 596+00	RIG TYPE : ATV	DRILLER/INSP : J. Cook/S. Marcum
OFFSET : 34.0 ft Right	CASING DIA. :	TEMPERATURE : 37 °F
LINE : 'A2'	CORE SIZE : --	WEATHER : Clear
DEPTH : 7.5 ft		

GROUNDWATER: ☐ Encountered at **None** ☒ At completion **None** ☒ **None** After **24** hours ☒ Caved in at **4.2 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil .											
665.0	2.5	Sandy Loam A-4 , Brown, moist to slightly moist, Very Stiff, (Lab No. 7)	SS1	7-14-11	100	10.7		2.0					
660.0	5.0	Loam A-4 , Brown, moist, Very Stiff, (Lab No. 1)	SS2	7-14-11	100	9.4		4.5+					
	7.5		SS3	8-10-11	100	13.2		1.75					
		Bottom of Boring at 7.5 ft											
655.0	12.5												
650.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-013**
 SHEET **1** OF **1**
 NORTHING : **1888139**
 EASTING : **3022527**
 DATUM :
 DATE STARTED : **04-16-14**
 DATE COMPLETED : **04-16-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>667.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>597+94</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>36.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>46 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 1.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		5 in. Asphalt over 9.25 in. Concrete .											
665.0	2.5	Sand A-1-b , Brown, moist, medium dense, (Lab No. 4)	SS1	10-14-14	78								
	5.0	Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 10)	SS2	10-13-14	100								
660.0	7.5	Sandy Loam A-4 , Gray, slightly moist, stiff, (Lab No. 7)	SS3	7-7-8	100	9.4		2.75					
		Bottom of Boring at 7.5 ft											
655.0	12.5												
	15.0												
650.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-014**
 SHEET **1** OF **1**
 NORTHING : **1888328**
 EASTING : **3022466**
 DATUM :
 DATE STARTED : **02-19-14**
 DATE COMPLETED : **02-20-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>664.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>599+91</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>10.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>39 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>15.0 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ 6.8 ft After 24 hours ☒ Caved in at 5.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.5											
	2.5	Sandy Loam A-4 , Brown, Slightly Moist, Very Stiff, with sand seams, (Lab No. 7)	SS1	11-9-14	100	10.8 10.3		3.0		24	12	12	1.0, Moisture Content (Bag Sample from 1-3 ft) = 10.3% 2.5, Soluble Sulfate <100 ppm
	3.0												
660.0	5.0	Sandy Loam A-4 , Brown, Slightly Moist, Hard, with sand seams, (Lab No. 7)	SS2	11-12-21	89	9.7		3.0					
	5.5												
	7.5	Sandy Loam A-4 , Brown to gray, Slightly Moist, Stiff, (Lab No. 7)	SS3	7-7-7	100	10.4		4.0					
655.0	10.0		SS4	4-6-7	78	17.4							
	10.5												
	12.5	Sand A-1-b , Brown, Slightly Moist, Hard, (Lab No. 4)	SS5	20-30-26	100								
	13.0												
650.0	15.0	Sandy Loam A-2-6 , Brown, Slightly Moist, Hard, with sand seams, (Lab No. 2)	SS6	15-24-30	100								
	15.0	Bottom of Boring at 15.0 ft											
	17.5												
645.0													
20.0													

INDOT BORING LOG

BORING NO.: **S5-RB-015**

SHEET 1 OF 1

NORTHING : 1888534

EASTING : 3022434

DATUM : _____

DATE STARTED : 04-11-14

DATE COMPLETED : 04-11-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 665.0	BORING METHOD : HSA	HA
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BORING METHOD : HSA	HA
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HAMMER : Auto

STATION	: 601+91	RIG TYPE	: Truck	DR
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BIG TYPE	Truck	DR
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DRILLER/INSP. : K&S Engineers/S. Marcum

OFFSET	: 48.0 ft Right	RIG TYPE	Track	STATION	15
		CASING DIA			

PRICING: _____

RACING DIA: _____

TEMPERATURE 55.25

LINE : 'A2' CASING DIA. : TE

CASING DIA. : _____ IE

TEMPERATURE : 55 °F

DEPTH	: 7.5 ft	CORE SIZE	: --	WE
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CORE SIZE	: --	WE
-----------	------	----

WEATHER	: Clear
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GROUNDWATER: Encountered at None At completion None Caved in at 4.2 ft

[illegible]

NDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

BORING NO.: **S5-RB-016**

SHEET 1 OF 1

NORTHING : 1888701

EASTING : 3022339

DATUM : _____

DATE STARTED : 02-19-14

DATE COMPLETED: 02-20-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 663.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 603+82

BIG TYPE · ATV

DRILLER/INSP : J. Cook/S. Marcum

OFFSET : 33.0 ft Right

CASINO DIA _____

TEMPERATURE 10.25

LINE : 'A2'

CASING DIA. : _____

TEMPERATURE : 42 °F

DEPTH : 7.5 ft

CORE SIZE : --

WEATHER	: Clear
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GROUNDWATER: Encountered at None At completion None 0.3 ft After 24 hours Caved in at 4.1 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-017**
 SHEET **1** OF **1**
 NORTHING : **1888858**
 EASTING : **3022202**
 DATUM :
 DATE STARTED : **04-15-14**
 DATE COMPLETED : **04-15-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>660.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>605+82</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>25.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>34 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 5.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		5 in. Asphalt over 9 in. Concrete .											
		1.0											
	2.5	Sandy Loam A-2-6, Brown, slightly moist, medium dense, (Lab No. 2)	SS1	9-10-12	78	7.6		2.0					
		3.0											
		Sandy Loam A-2-4, Brown, slightly moist, medium dense, (Lab No. 9)											
		4.5	SS2	9-12-14	100								
655.0	5.0	Sandy Loam A-2-4, Brown, slightly moist, medium dense, (Lab No. 10)											
		7.5	SS3	9-13-15	78								
		Bottom of Boring at 7.5 ft											
650.0	10.0												
	12.5												
645.0	15.0												
	17.5												
640.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-018**
 SHEET 1 OF 1
 NORTHING : 1889044
 EASTING : 3022143
 DATUM : _____
 DATE STARTED : 02-19-14
 DATE COMPLETED : 02-20-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes
 LOCATION : SR 26 to SR 25
 COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>655.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>607+76</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>2.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>44 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>10.0 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ 3.0 ft After 24 hours ☒ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.5											
	2.5		SS1	12-14-18	100	9.8		2.25					
	5.0		SS2	8-9-8	100	10.8		4.5					
650.0		Sandy Loam A-4 , Gray, Slightly Moist, hard to stiff, (Lab No. 7)											
	7.5		SS3	7-9-8	100	10.3		2.75					
	10.0		SS4	6-5-7	100			4.5					
645.0		Bottom of Boring at 10.0 ft											
	12.5												
640.0	15.0												
	17.5												
635.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-019**
 SHEET **1** OF **1**
 NORTHING : **1889244**
 EASTING : **3022115**
 DATUM :
 DATE STARTED : **04-10-14**
 DATE COMPLETED : **04-10-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>653.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>609+69</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>61.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>51 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 3.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		6 in. Asphalt over 10.5 in. Concrete .											
		Sandy Loam A-2-4 , Brown, moist to slightly moist, dense, (Lab No. 9)	SS1	13-16-19	78								
		Sand A-1-b , Brown, slightly moist, dense, (Lab No. 8)											
		Sandy Loam A-2-6 , Brown, slightly moist, very stiff, (Lab No. 2)	SS2	9-13-17	78	9.3		2.75					
		Sandy Loam A-2-4 , Brown, slightly moist, medium dense to very dense, (Lab No. 9)	SS3	17-31-21	67								
		Bottom of Boring at 7.5 ft											

INDOT BORING LOG

BORING NO.: **S5-RB-020**
 SHEET 1 OF 1
 NORTHING : 1889409
 EASTING : 3022007
 DATUM : _____
 DATE STARTED : 02-19-14
 DATE COMPLETED : 02-20-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>649.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>611+64</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>34.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>44 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ 0.0 ft After 24 hours ☒ Caved in at 5.0 ft

ELEVATION ▼	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.5											
	2.5		SS1	11-11-13	100	9.6		4.5+					
645.0	5.0	Sandy Loam A-4 , Gray, Slightly Moist, Very Stiff to hard, (Lab No. 7)	SS2	12-12-12	100	7.6		2.75					
	7.5		SS3	12-12-20	100	8.6		4.5+					
		Bottom of Boring at 7.5 ft											
640.0	10.0												
	12.5												
635.0	15.0												
	17.5												
630.0													
20.0													

INDOT BORING LOG

BORING NO.: **S5-RB-021**
 SHEET **1** OF **1**
 NORTHING : **1889557**
 EASTING : **3021860**
 DATUM :
 DATE STARTED : **04-16-14**
 DATE COMPLETED : **04-16-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>644.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>613+61</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>36.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>42 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 4.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		7.25 in. Asphalt over 9 in. Concrete .											
		1.4											
	2.5	Sandy Loam A-2-4, Brown, slightly moist, dense, (Lab No. 9)	SS1	12-15-20	56								
640.0		4.0											
	5.0	Sand A-1-b, Brown, slightly moist, dense, (Lab No. 8)	SS2	13-15-18	56								
		5.5											
		Sandy Loam A-2-4, Brown, slightly moist, dense, (Lab No. 9)	SS3	14-14-19	56								
	7.5	7.5											
		Bottom of Boring at 7.5 ft											
635.0													
	10.0												
	12.5												
630.0													
	15.0												
	17.5												
625.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-022**
 SHEET **1** OF **1**
 NORTHING : **1889748**
 EASTING : **3021813**
 DATUM :
 DATE STARTED : **02-19-14**
 DATE COMPLETED : **02-20-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>636.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>615+53</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>3.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>44 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>14.5 ft</u>		

GROUNDWATER: ☒ Encountered at 11.2 ft ☒ At completion None ☒ 3.9 ft After 24 hours ☒ Caved in at 7.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
635.0		Topsoil											
	2.5		SS1	16-17-18	78	11.6		4.25					
	5.0	Loam A-4 , Gray, slightly moist, Hard to very stiff, (Lab No. 1)	SS2	11-12-12	100	11.9		4.5+					
630.0			SS3	6-8-8	100	10.2		2.75					
	7.5		SS4	16-20-21	89			4.0					
	10.0	Sandy Loam A-4 , Gray, slightly moist, Hard, with sand seams, (Lab No. 7)	SS5	16-17-16	100			4.5					
625.0			SS6	17-50	100	12.6		0.25					
	12.5	Silty Clay Loam A-7-6 , Gray, moist, Hard, (Lab No. 3)											
	15.0	Bottom of Boring at 14.5 ft											
620.0													
	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-023**
 SHEET 1 OF 1
 NORTHING : 1889943
 EASTING : 3021772
 DATUM : _____
 DATE STARTED : 04-11-14
 DATE COMPLETED : 04-11-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>633.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>617+47</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>49.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>50 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>6.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 3.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		7 in. Asphalt over 9.75 in. Concrete .											
		Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 9)	SS1	9-13-16	67	7.5							
		Sandy Loam A-4 , Brown, slightly moist, medium dense, (Lab No. 7)											
630.0	2.5												
		Sandy Loam A-2-4 , Brown, slightly moist, medium dense, with a boulder at approximately 6.1 ft, (Lab No. 9)	SS2	11-13-9		4.0							
	5.0												
			SS3	50									
	6.1												
		Bottom of Boring at 6.5 ft											
625.0	7.5												
	10.0												
	12.5												
620.0													
	15.0												
	17.5												
615.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-024**
 SHEET 1 OF 1
 NORTHING : 1890112
 EASTING : 3021674
 DATUM : _____
 DATE STARTED : 02-19-14
 DATE COMPLETED : 02-20-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>627.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>619+42</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>32.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>47 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Overcast</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ 1.4 ft After 24 hours ☒ Caved in at 3.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil											
625.0	2.5		SS1	10-27-30	67	17.3		0.75					
	5.0	Loam A-4 , Brown to gray, Moist to slightly moist, Hard, (Lab No. 1)	SS2	14-26-25	89	10.0		4.5+					
620.0	7.5		SS3	10-15-19	83	11.5		4.5					
		Bottom of Boring at 7.5 ft											
615.0	12.5												
610.0	17.5												
20.0													

INDOT BORING LOG

BORING NO.: **S5-RB-025**

SHEET 1 OF 1

NORTHING : 1890306

EASTING : 3021521

DATUM : _____

DATE STARTED : 04-15-14

DATE COMPLETED : 04-15-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 620.0

STATION : 621+83

OFFSET : 24.0 ft Left

LINE : 'A2'

DEPTH : 7.5 ft

BORING METHOD : HSA

RIG TYPE : Truck

CASING DIA : _____

CASING DIA. _____

CORE SIZE	: --
-----------	------

HAMMER : Auto

DRILLER/INSP : K&S Engineers/S. Marcum

TEMPERATURE : 30 °F

TEMPERATURE : 30 °C

WEATHER	: Clear
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GROUNDWATER: Encountered at None At completion None Caved in at 4.0 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-026**
 SHEET 1 OF 1
 NORTHING : 1890471
 EASTING : 3021473
 DATUM : _____
 DATE STARTED : 02-20-14
 DATE COMPLETED : 02-21-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>613.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>623+52</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>2.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>50 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Overcast</u>
DEPTH : <u>10.0 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 24 hours ☒ Caved in at 3.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.3											
610.0	2.5		SS1	12-12-13	100								
	5.0	Sand A-1-b , Brown, Slightly Moist, Medium Dense, with sseams of silty clay from 3.5 ft to 10.0 ft, (Lab No. 4)	SS2	9-12-12	83								
	7.5		SS3	10-13-8	78								
605.0		-rock fragments from 8.5 ft to 10.0 ft											
	10.0		SS4	22-11-9	83								
		Bottom of Boring at 10.0 ft											
600.0	12.5												
	15.0												
595.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-027**

SHEET 1 OF 1

NORTHING : 1890671

EASTING : 3021438

DATUM : _____

DATE STARTED : 04-10-14

DATE COMPLETED : 04-10-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 609.0

STATION : 625+45

OFFSET : 61.0 ft Right

LINE : 'A2'

DEPTH : 7.5 ft

BORING METHOD : HSARIG TYPE : Truck

CASING DIA. : _____

CORE SIZE : --

HAMMER : Auto

DRILLER/INSP : K&S Engineers/S. Marcum

TEMPERATURE : 52 °F

WEATHER	: Cloudy
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GROUNDWATER: Encountered at None At completion None Caved in at 4.3 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-028**
 SHEET **1** OF **1**
 NORTHING : **1890824**
 EASTING : **3021320**
 DATUM :
 DATE STARTED : **02-20-14**
 DATE COMPLETED : **02-21-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**
 DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : 604.0	BORING METHOD : HSA	HAMMER : Auto
STATION : 627+34	RIG TYPE : ATV	DRILLER/INSP : J. Cook/S. Marcum
OFFSET : 35.0 ft Right	CASING DIA. : 	TEMPERATURE : 50 °F
LINE : 'A2'	CORE SIZE : --	WEATHER : Overcast
DEPTH : 7.5 ft		

GROUNDWATER: ☐ Encountered at **None** ☒ At completion **None** ☒ **None** After **24** hours ☒ Caved in at **1.9 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil											
		Sandy Loam A-4 , Brown, Moist, Hard, (Lab No. 7)	SS1	12-20-23	100	11.3		0.25					
600.0	2.5												
		Sand A-1-b , Brown, Slightly Moist, Dense to medium dense, (Lab No. 4)	SS2	16-17-17	83								
	5.0												
			SS3	13-12-18	100								
	7.5												
		Bottom of Boring at 7.5 ft											
595.0													
	10.0												
	12.5												
590.0													
	15.0												
	17.5												
585.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-029**
 SHEET **1** OF **1**
 NORTHING : **1890957**
 EASTING : **3021155**
 DATUM :
 DATE STARTED : **04-16-14**
 DATE COMPLETED : **04-16-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>597.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>629+35</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>33.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>42 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 4.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		4.5 in. Asphalt over 8.75 in. Concrete											
595.0	2.5	Sandy Loam A-2-4 , Brown, slightly moist, dense, (Lab No. 9)	SS1	10-16-18	44	14.4		2.0					
		Sandy Loam A-2-6 , Brown, slightly moist, dense, (Lab No. 2)											
	5.0	Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 9)	SS2	9-11-11	56			0.75					
		Sandy Loam A-2-6 , Brown, moist, medium dense, (Lab No. 2)				15.2							
590.0	7.5	Sandy Loam A-4 , Gray, slightly moist, very stiff, with roots, (Lab No. 7)	SS3	6-10-12	100	16.5		4.0					
		Bottom of Boring at 7.5 ft											
	10.0												
585.0	12.5												
	15.0												
580.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-030**
 SHEET 1 OF 1
 NORTHING : 1891138
 EASTING : 3021074
 DATUM : _____
 DATE STARTED : 02-20-14
 DATE COMPLETED : 02-21-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>589.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>631+29</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>6.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>50 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Overcast</u>
DEPTH : <u>8.0 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 24 hours ☒ Caved in at 3.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.3											
	2.5		SS1	11-12-13	100								
585.0	5.0	Sand A-1-b , Brown, Slightly Moist, Medium Dense to dense, cobbles at 8.0 ft, (Lab No. 4)	SS2	21-13-18	0								
	7.5		SS3	17-19-26	72								
	8.0												
580.0		Bottom of Boring at 8.0 ft											
	10.0												
	12.5												
575.0	15.0												
	17.5												
570.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-031**
 SHEET **1** OF **1**
 NORTHING : **1891311**
 EASTING : **3020999**
 DATUM :
 DATE STARTED : **04-11-14**
 DATE COMPLETED : **04-11-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>587.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>633+11</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>55.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>53 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		5.75 in. Asphalt over 9 in. Concrete .											
585.0	2.5	Sandy Loam A-2-4 , Brown, moist to slightly moist, medium dense, (Lab No. 9)	SS1	11-13-12	56								
	5.0	Sand A-1-b , Brown, moist, medium dense, (Lab No. 4)	SS2	12-14-12	67								
	6.5	Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 9)											
580.0	7.5	Sand A-1-b , Brown, moist, medium dense, (Lab No. 4)	SS3	9-11-14	56								
		Bottom of Boring at 7.5 ft											
575.0	12.5												
570.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-032**
 SHEET **1** OF **1**
 NORTHING : **1891449**
 EASTING : **3020859**
 DATUM :
 DATE STARTED : **02-20-14**
 DATE COMPLETED : **02-21-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**
 DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : 580.0	BORING METHOD : HSA	HAMMER : Auto
STATION : 635+04	RIG TYPE : ATV	DRILLER/INSP : J. Cook/S. Marcum
OFFSET : 40.0 ft Right	CASING DIA. :	TEMPERATURE : 51 °F
LINE : 'A2'	CORE SIZE : --	WEATHER : Overcast
DEPTH : 15.0 ft		

GROUNDWATER: ☒ Encountered at **13.5 ft** ☒ At completion **None** ☒ None After **24** hours ☒ Caved in at **6.6 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil											
		Sandy Loam A-4 , Brown, Moist, Hard, (Lab No. 7)	SS1	23-19-19	100			0.25					
	2.5												
			SS2	16-15-15	78								
575.0	5.0												
			SS3	12-14-17	100								
	7.5												
		Sand A-1-b , Brown, Slightly Moist to wet, Medium Dense to dense, (Lab No. 4)	SS4	16-16-16	100								
570.0	10.0												
		-3 in. seam of clay loam at approximately 11.5 ft	SS5	7-11-10	67								
	12.5												
			SS6	7-8-8	89								
565.0	15.0	Bottom of Boring at 15.0 ft											
	17.5												
560.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-033**

SHEET 1 OF 1

NORTHING : 1891554

EASTING : 3020685

DATUM : _____

DATE STARTED : 04-15-14

DATE COMPLETED : 04-15-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 572.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 637+00

RIG TYPE : Truck

DRILLER/INSP : K&S Engineers/S. Marcum

OFFSET : 15.0 ft Left

CASING DIA. : _____

TEMPERATURE : 30 °F

LINE : 'A2'




CORE SIZE	: --
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WEATHER	: Clear
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DEPTH : 4.1 ft

CORE SIZE	: --
-----------	------

WEATHER	: Clear
---------	---------

GROUNDWATER:  Encountered at None  At completion None  Caved in at 4.3 ft

 Caved in at 4.3 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-034**

SHEET 1 OF 1

NORTHING : 1892105

EASTING : 3020206

DATUM : _____

DATE STARTED : 02-21-14

DATE COMPLETED : 02-24-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 563.0

STATION : 644+29

OFFSET : 12.0 ft Right

LINE : 'A2'

DEPTH : 10.0 ft

BORING METHOD : HSA

RIG TYPE : ATV

CASING DIA : _____

CASING DIA. . _____

CORE SIZE	: --
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HAMMER : Auto

DRILLER/INSP : J. Cook/S. Marcum

TEMPERATURE : 36 °F

TEMPERATURE . 36 F

WEATHER	: Cloudy
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GROUNDWATER: Encountered at None At completion None None After 72 hours Caved in at 2.4 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-035**
 SHEET 1 OF 1
 NORTHING : 1892284
 EASTING : 3020115
 DATUM : _____
 DATE STARTED : 04-10-14
 DATE COMPLETED : 04-10-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>565.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>646+22</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>69.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>52 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		6.25 in. Asphalt over 9.25 in. Concrete											
		Sandy Loam A-2-4 , Brown, moist, medium dense, (Lab No. 9)	SS1	9-11-12	100	7.4							
		Sandy Loam A-4 , Gray, slightly moist, very stiff to hard, with sand seams above 5.0 ft, (Lab No. 7)	SS2	13-19-23	100	6.0							
			SS3	12-20-50	100	6.3		4.5+					
		Bottom of Boring at 7.5 ft											

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

BORING NO.: **S5-RB-036**

SHEET 1 OF 1

NORTHING : 1892424

EASTING : 3019947

DATUM : _____

DATE STARTED : 02-21-14

DATE COMPLETED: 02-24-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 570.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 648+39

BIG TYPE · ATV

DRILLER/INSP : J. Cook/S. Marcum

OFFSET : 42.0 ft Right

CASINO DIA _____

TEMPERATURE 25.25

LINE : 'A2'

CASING DIA. : _____

TEMPERATURE : 35 °F

DEPTH : 7.5 ft

CORE SIZE	:	--
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WEATHER	: Overcast
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GROUNDWATER: Encountered at None At completion None None After 72 hours Caved in at 2.2 ft

[illegible]

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_I69_SECTION_4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

BORING NO.: **S5-RB-037**
 SHEET 1 OF 1
 NORTHING : 1892527
 EASTING : 3019758
 DATUM : _____
 DATE STARTED : 04-16-14
 DATE COMPLETED : 04-16-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>572.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>650+43</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>27.0 ft Left</u>	CASING DIA. : _____	TEMPERATURE : <u>39 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 4.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		2.75 in. Asphalt over 8.75 in. Concrete											
570.0	2.5		SS1	10-11-16	78								
	5.0	Sandy Loam A-2-4 , Brown, slightly moist, medium dense to dense to medium dense, (Lab No. 9)	SS2	12-15-18	100								
565.0	7.5		SS3	9-12-15	89								
		Bottom of Boring at 7.5 ft											
560.0	12.5												
	15.0												
555.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-038**

SHEET 1 OF 1

NORTHING : 1892700

EASTING : 3019659

DATUM : _____

DATE STARTED : 02-21-14

DATE COMPLETED : 02-24-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 573.0

STATION : 652+38

OFFSET : 9.0 ft Right

LINE : 'A2'

DEPTH : 15.0 ft

BORING METHOD : HSA

RIG TYPE : ATV

CASING DIA : _____

CASING DIA. : _____

CORE SIZE	: --
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HAMMER : Auto

DRILLER/INSP : J. Cook/S. Marcum

TEMPERATURE : 25 °F

TEMPERATURE : 35 F

WEATHER	: Overcast
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GROUNDWATER: Encountered at 8.0 ft At completion None None After 72 hours Caved in at 3.8 ft

[illegible]

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

BORING NO.: **S5-RB-039**
 SHEET **1** OF **1**
 NORTHING : **1892881**
 EASTING : **3019584**
 DATUM :
 DATE STARTED : **04-11-14**
 DATE COMPLETED : **04-11-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>577.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>654+31</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>54.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>55 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 4.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		4 in. Asphalt over 9 in. Concrete .											
		Sandy Loam A-2-4 , Brown, moist, medium dense, (Lab No. 9)											
575.0	2.5		SS1	13-15-13	56								
		Sand A-1-b , Brown, slightly moist, medium dense to dense to medium dense, (Lab No. 8)											
570.0	5.0		SS2	12-15-17	67								
			SS3	9-11-15	56								
	7.5	Bottom of Boring at 7.5 ft											
	10.0												
565.0	12.5												
	15.0												
560.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-040**
 SHEET 1 OF 1
 NORTHING : 1893043
 EASTING : 3019462
 DATUM : _____
 DATE STARTED : 02-21-14
 DATE COMPLETED : 02-24-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>579.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>656+37</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>36.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>37 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 72 hours ☒ Caved in at 2.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.3											
575.0	2.5	Sand A-1-b, Brown, Slightly Moist, dense to very dense, (Lab No. 4)	SS1	43-21-15	100								
	5.0		SS2	29-29-28	67								
	7.5		SS3	20-19-26	56								
570.0		Bottom of Boring at 7.5 ft											
	10.0												
	12.5												
565.0	15.0												
	17.5												
560.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-041**
 SHEET **1** OF **1**
 NORTHING : **1893191**
 EASTING : **3019317**
 DATUM :
 DATE STARTED : **04-15-14**
 DATE COMPLETED : **04-15-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>580.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>658+36</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>23.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>30 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		7.25 in. Asphalt over 9 in. Concrete .											
	2.5	Sandy Loam A-2-4, Brown, slightly moist, medium dense, (Lab No. 9)	SS1	8-10-12	67								
	5.0	Sand A-1-b, Brown, slightly moist, medium dense, (Lab No. 8)	SS2	12-13-16	78								
	7.5	Sandy Loam A-2-4, Brown, slightly moist, medium dense, (Lab No. 9)	SS3	13-11-11	100								
		Bottom of Boring at 7.5 ft											
575.0	10.0												
	12.5												
565.0	15.0												
	17.5												
560.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-042**
 SHEET **1** OF **1**
 NORTHING : **1893383**
 EASTING : **3019257**
 DATUM :
 DATE STARTED : **02-21-14**
 DATE COMPLETED : **02-24-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>579.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>660+36</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>0.0 ft</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>37 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>10.0 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 72 hours ☒ Caved in at 3.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil .											
	2.5		SS1	8-10-11	89	10.6		4.5+					
575.0		Sandy Loam A-4 , Gray, Slightly Moist, very stiff to hard, (Lab No. 7)	SS2	23-24-24	100	11.5		3.5					
	5.0												
			SS3	10-14-14	100								
570.0		Sand A-1-b , Brown, Slightly Moist, Medium Dense, (Lab No. 4)	SS4	11-12-13	100								
	10.0												
		Bottom of Boring at 10.0 ft											
	12.5												
565.0													
	15.0												
	17.5												
560.0													
	20.0												

BORING NO.: **S5-RB-043**

SHEET 1 OF 1

NORTHING : 1893607

EASTING : 3019237

DATUM : _____

DATE STARTED : 04-10-14

DATE COMPLETED : 04-10-14

PROJECT TYPE: I-65 Added Travel Lanes	
LOCATION	: SR 26 to SR 25
COUNTY	: Tippecanoe County
PROJECT NO.: 86.55608.0058	

ELEVATION :	578.0	BORING METHOD :	HSA	HAMMER :	Auto
STATION :	662+55	RIG TYPE :	Truck	DRILLER/INSP :	K&S Engineers/S. Marcum
OFFSET :	58.0 ft Right	CASING DIA. :		TEMPERATURE :	52 °F
LINE :	'A2'	CORE SIZE :	--	WEATHER :	Cloudy
DEPTH :	7.5 ft				

[illegible]

BORING NO.: **S5-RB-044**

SHEET 1 OF 1

NORTHING : 1893779

EASTING : 3019156

DATUM : _____

DATE STARTED : 02-21-14

DATE COMPLETED : 02-24-14

PROJECT TYPE: I-65 Added Travel Lanes	
LOCATION	: SR 26 to SR 25
COUNTY	: Tippecanoe County
PROJECT NO.: 86.55608.0058	

ELEVATION	: 578.0	BORING METHOD	: HSA	HAMMER	: Auto
STATION	: 664+59	RIG TYPE	: ATV	DRILLER/INSP	: J. Cook/S. Marcum
OFFSET	: 26.0 ft Right	CASING DIA.	:	TEMPERATURE	: 36 °F
LINE	: 'A2'	CORE SIZE	: --	WEATHER	: Partly Cloudy
DEPTH	: 7.5 ft				

GROUNDWATER: Encountered at 6.3 ft At completion None None After 72 hours Caved in at 2.4 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-045**

SHEET 1 OF 1

NORTHING : 1893956

EASTING : 3019042

DATUM : _____

DATE STARTED : 04-16-14

DATE COMPLETED : 04-16-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 576.0

STATION : 666+59

OFFSET : 41.0 ft Left

LINE : 'A2'

DEPTH : 7.5 ft

BORING METHOD : HSA

RIG TYPE : Truck

CASING DIA : _____

CASING DIA. _____

CORE SIZE	: --
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HAMMER : Auto

DRILLER/INSP : K&S Engineers/S. Marcum

TEMPERATURE : 20 °F

TEMPERATURE : 59 °F

WEATHER	: Clear
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GROUNDWATER: Encountered at None At completion None Caved in at 4.2 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-046**
 SHEET **1** OF **1**
 NORTHING : **1894154**
 EASTING : **3019031**
 DATUM :
 DATE STARTED : **02-24-14**
 DATE COMPLETED : **02-25-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**
 DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : 572.0	BORING METHOD : HSA	HAMMER : Auto
STATION : 668+53	RIG TYPE : ATV	DRILLER/INSP : J. Cook/S. Marcum
OFFSET : 5.0 ft Left	CASING DIA. :	TEMPERATURE : 28 °F
LINE : 'A2'	CORE SIZE : --	WEATHER : Partly Cloudy
DEPTH : 15.0 ft		

GROUNDWATER: ☐ Encountered at **None** ☒ At completion **None** ☒ **None** After **24** hours ☒ Caved in at **5.3 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil .											
570.0	2.5		SS1	5-4-6	89								
	5.0		SS2	9-9-10	89								
565.0	7.5	Sand A-1-b, Brown, Slightly Moist, loose to medium dense, with silty loam seams, (Lab No. 4)	SS3	10-10-10	100								
	10.0		SS4	7-10-11	83								
560.0	12.5		SS5	11-15-15	89								
	15.0		SS6	12-9-10	100								
		Bottom of Boring at 15.0 ft											
555.0	17.5												
20.0													

INDOT BORING LOG

BORING NO.: **S5-RB-047**
 SHEET **1** OF **1**
 NORTHING : **1894355**
 EASTING : **3019028**
 DATUM :
 DATE STARTED : **04-11-14**
 DATE COMPLETED : **04-11-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>572.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>670+49</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>42.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>53 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
570.0		4 in. Asphalt over 8 in. Concrete .											
		Sandy Loam A-2-4, Brown, moist, dense, (Lab No. 9)	SS1	9-18-22	89								
565.0		Sand A-2-4, Brown, slightly moist, dense to medium dense, (Lab No. 5)											
		Sand A-1-b, Brown, slightly moist, medium dense, (Lab No. 8)	SS2	9-13-17	67								
560.0		Sandy Loam A-2-4, Brown, slightly moist, dense, (Lab No. 10)											
		Sand A-2-4, Brown, slightly moist, dense, (Lab No. 5)	SS3	31-21-24									
		Bottom of Boring at 7.5 ft											

INDOT BORING LOG

BORING NO.: **S5-RB-048**
 SHEET 1 OF 1
 NORTHING : 1894545
 EASTING : 3018966
 DATUM : _____
 DATE STARTED : 02-24-14
 DATE COMPLETED : 02-25-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>570.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>672+48</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>27.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>29 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 24 hours ☒ Caved in at 3.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.3											
	2.5		SS1	12-13-8	100	9.7		4.5+					
565.0	5.0	Sandy Loam A-4 , Gray, Slightly Moist, Very Stiff to hard, with sand seams below 6.0 ft, (Lab No. 7)	SS2	7-10-13	100	9.7		4.5+					
	7.5		SS3	12-26-35	100	8.3		4.5+					
		Bottom of Boring at 7.5 ft											
560.0	10.0												
	12.5												
555.0	15.0												
	17.5												
550.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-049**

SHEET 1 OF 1

NORTHING : 1894724

EASTING : 3018862

DATUM : _____

DATE STARTED : 04-15-14

DATE COMPLETED: 04-15-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 569.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 674+47

BIG TYPE : Truck

DRILLER/INSP : K&S Engineers/S. Marcum

OFFSET : 30.0 ft Left

TEMPERATURE	22.25
-------------	-------

LINE : 'A2'




CASING DIA. : _____

TEMPERATURE : 29 °F

DEPTH : 7.5 ft

CORE SIZE	: --
-----------	------

WEATHER	: Clear
---------	---------

GROUNDWATER:  Encountered at None  At completion None  Caved in at 4.3 ft

[illegible]

NDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

BORING NO.: **S5-RB-050**
 SHEET **1** OF **1**
 NORTHING : **1894916**
 EASTING : **3018841**
 DATUM :
 DATE STARTED : **02-24-14**
 DATE COMPLETED : **02-25-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>565.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>676+39</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>4.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>31 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>10.0 ft</u>		

GROUNDWATER: ☒ Encountered at 9.0 ft ☒ At completion None ☒ None After 24 hours ☒ Caved in at 2.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.5											
	2.5		SS1	10-10-12	100								
		Sand A-1-b , Brown, Slightly Moist, Medium Dense to dense, with silty clay loam seams, (Lab No. 4)											
	5.0		SS2	11-13-18	89								
560.0													
	7.5		SS3	22-18-22	67	17.5		0.25					
		Loam A-4 , Brown, Moist, Hard, with roots, (Lab No. 1)											
	8.5												
		Sand A-1-b , Brown, Wet, Medium Dense, (Lab No. 4)	SS4	9-12-13	33								
555.0	10.0												
		Bottom of Boring at 10.0 ft											
	12.5												
	15.0												
550.0													
	17.5												
	20.0												
545.0													

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

BORING NO.: **S5-RB-051**
 SHEET **1** OF **1**
 NORTHING : **1895116**
 EASTING : **3018838**
 DATUM :
 DATE STARTED : **04-11-14**
 DATE COMPLETED : **04-11-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>566.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>678+33</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>41.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>57 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
565.0		14 in. Concrete .											
	2.5	Sandy Loam A-2-4, Brown, slightly moist, dense, (Lab No. 9)	SS1	13-15-20	100								
						6.1							
	5.0	Sandy Loam A-4, Brown, slightly moist, hard, (Lab No. 7)	SS2	13-18-19	89			4.5+					
560.0		Sandy Loam A-2-4, Brown, slightly moist, dense, (Lab No. 9)	SS3	12-15-18	78								
	7.5	Bottom of Boring at 7.5 ft											
555.0													
	12.5												
	15.0												
550.0													
	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-052**
 SHEET **1** OF **1**
 NORTHING : **1895305**
 EASTING : **3018777**
 DATUM :
 DATE STARTED : **02-24-14**
 DATE COMPLETED : **02-25-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**
 DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : 565.0	BORING METHOD : HSA	HAMMER : Auto
STATION : 680+32	RIG TYPE : ATV	DRILLER/INSP : J. Cook/S. Marcum
OFFSET : 28.0 ft Right	CASING DIA. :	TEMPERATURE : 33 °F
LINE : 'A3'	CORE SIZE : --	WEATHER : Cloudy
DEPTH : 7.5 ft		

GROUNDWATER: ☒ Encountered at **None** ☒ At completion **None** ☒ **None** After **24** hours ☒ Caved in at **2.1 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil											
	2.5		SS1	10-12-14	100								1.0, Soluble Sulfate <100 ppm
560.0	5.0	Sand A-1-b , Brown, Moist, Medium Dense, with silty clay loam seams, (Lab No. 4)	SS2	8-9-11	67								
	7.5		SS3	6-7-8	89								
		Bottom of Boring at 7.5 ft											
555.0	10.0												
	12.5												
550.0	15.0												
	17.5												
545.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-053**
 SHEET **1** OF **1**
 NORTHING : **1895495**
 EASTING : **3018670**
 DATUM :
 DATE STARTED : **04-15-14**
 DATE COMPLETED : **04-15-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>565.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>682+42</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>30.0 ft Left</u>	CASING DIA. : _____	TEMPERATURE : <u>28 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 4.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		5.25 in. Asphalt over 9.25 in. Concrete											
		Sandy Loam A-2-4 , Brown, moist to slightly moist, dense, (Lab No. 9)	SS1	13-16-18	56								
		Sandy Loam A-2-4 , Brown, slightly moist, dense to medium dense, (Lab No. 10)	SS2	13-16-12	89								
		Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 9)	SS3	10-11-11	100								
		Sand A-1-b , Gray, slightly moist, medium dense, (Lab No. 4)											
		Bottom of Boring at 7.5 ft											

INDOT BORING LOG

BORING NO.: **S5-RB-054**
 SHEET 1 OF 1
 NORTHING : 1895689
 EASTING : 3018647
 DATUM : _____
 DATE STARTED : 02-24-14
 DATE COMPLETED : 02-25-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # : _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>563.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>684+35</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>5.0 ft Left</u>	CASING DIA. : _____	TEMPERATURE : <u>32 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Cloudy</u>
DEPTH : <u>15.0 ft</u>		

GROUNDWATER: ☒ Encountered at 6.3 ft ☒ At completion None ☒ None After 24 hours ☒ Caved in at 5.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.5											
560.0	2.5	Sand A-1-b , Brown, Slightly Moist, Very Dense to dense, (Lab No. 8)	SS1	40-40-47	100								
			SS2	22-23-25	89								
	5.0	Sand A-1-b , Brown, Wet, Dense, (Lab No. 4)	SS3	17-19-24	89								
555.0	7.5	Sandy Loam A-4 , Gray, Moist, Hard, (Lab No. 7)	SS4	19-24-33	89	8.7		4.0					
	10.0	Sandy Loam A-2-4 , Gray, Slightly Moist, Dense, (Lab No. 6)	SS5	15-16-17	89			4.5+					
550.0	12.5	Sandy Loam A-4 , Gray, Slightly Moist, Hard, (Lab No. 7)	SS6	17-14-20	100			4.25					
	15.0	Bottom of Boring at 15.0 ft											
545.0	17.5												
	20.0												

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION 4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

BORING NO.: **S5-RB-055**
 SHEET **1** OF **1**
 NORTHING : **1895902**
 EASTING : **3018654**
 DATUM :
 DATE STARTED : **04-10-14**
 DATE COMPLETED : **04-10-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>564.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>686+41</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>53.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>56 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 4.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		6 in. Asphalt over 9.25 in. Concrete .											
		Sandy Loam A-2-4 , Brown, wet to slightly moist, medium dense, (Lab No. 2.0 9)	SS1	15-11-13	78								
		Sand A-1-b , Brown, slightly moist, medium dense, (Lab No. 4)											
		Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 9)	SS2	9-11-13	89								
		Sand A-1-b , Brown, moist, medium dense, (Lab No. 8)											
		Sandy Loam A-2-4 , Brown, moist, dense, (Lab No. 9)	SS3	13-16-19	89								
		Bottom of Boring at 7.5 ft											

BORING NO.: **S5-RB-056**

SHEET 1 OF 1

NORTHING : 1896081

EASTING : 3018577

DATUM : _____

DATE STARTED : 02-24-14

DATE COMPLETED : 02-25-14

PROJECT TYPE: I-65 Added Travel Lanes	
LOCATION	: SR 26 to SR 25
COUNTY	: Tippecanoe County
PROJECT NO.: 86.55608.0058	

ELEVATION :	563.0	BORING METHOD :	HSA	HAMMER :	Auto
STATION :	688+33	RIG TYPE :	ATV	DRILLER/INSP :	J. Cook/S. Marcum
OFFSET :	23.0 ft Right	CASING DIA. :		TEMPERATURE :	30 °F
LINE :	'A3'	CORE SIZE :	--	WEATHER :	Cloudy
DEPTH :	7.5 ft				

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-057**

SHEET 1 OF 1

NORTHING : 1896255

EASTING : 3018469

DATUM : _____

DATE STARTED : 04-16-14

DATE COMPLETED : 04-16-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 564.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 690+28

RIG TYPE : TruckDRILLER/INSP : K&S Engineers/S. Marcum

OFFSET : 41.0 ft Left

CASING DIA. : _____

TEMPERATURE : 39 °F

LINE : 'A3'

CASING DIA.	:	_____
CORE SIZE	:	--

TEMPERATURE :	39 °F
WEATHER :	Clear

DEPTH : 7.5 ft

CORE SIZE	:	--
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WEATHER	: Clear
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GROUNDWATER: Encountered at None At completion None Caved in at 4.3 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-058**
 SHEET **1** OF **1**
 NORTHING : **1896456**
 EASTING : **3018456**
 DATUM :
 DATE STARTED : **02-24-14**
 DATE COMPLETED : **02-25-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>562.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>692+27</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>4.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>28 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Overcast</u>
DEPTH : <u>10.0 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ None After 24 hours ☒ Caved in at 5.1 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
560.0	2.5	Sandy Loam A-2-4 , Brown, Moist, Medium Dense, (Lab No. 9)	SS1	9-13-16	100	9.3		1.25					
	5.0		SS2	13-16-17	72								
555.0	7.5	Sand A-1-b , Brown, Slightly Moist, Dense, (Lab No. 8)	SS3	13-17-23	100								
	10.0		SS4	15-17-20	100								
		Bottom of Boring at 10.0 ft											
550.0	12.5												
	15.0												
545.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-059**
 SHEET 1 OF 1
 NORTHING : 1896666
 EASTING : 3018452
 DATUM : _____
 DATE STARTED : 04-11-14
 DATE COMPLETED : 04-11-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # : _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>565.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>694+31</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>42.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>57 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 4.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		5 in. Asphalt over 9 in. Concrete .											
		Sandy Loam A-2-4, Brown, slightly moist, medium dense, (Lab No. 9)	SS1	16-15-12									
		Sand A-2-4, Brown, slightly moist, medium dense, (Lab No. 5)											
		Sandy Loam A-2-4, Brown, slightly moist, dense, (Lab No. 10)	SS2	13-17-20									
		Sandy Loam A-2-4, Brown, slightly moist, dense, (Lab No. 9)											
		Sandy Loam A-2-4, Brown, slightly moist, dense, (Lab No. 10)	SS3	15-17-20									
		Sandy Loam A-2-4, Brown, slightly moist, dense, (Lab No. 9)											
		Bottom of Boring at 7.5 ft											

INDOT BORING LOG

BORING NO.: **S5-RB-060**
 SHEET **1** OF **1**
 NORTHING : **1897177**
 EASTING : **3018307**
 DATUM :
 DATE STARTED : **02-25-14**
 DATE COMPLETED : **02-25-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>563.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>699+62</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>25.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>22 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 8 hours ☒ Caved in at 2.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.3											
560.0	2.5	Sandy Loam A-2-4, Dark gray, Slightly Moist, Medium Dense, (Lab No. 10)	SS1	6-6-7	78	13.1				23	14	9	1.0, Soluble Sulfate <100 ppm
		4.0				10.8							
	5.0	Sandy Loam A-4, Brown, Slightly Moist, Very Stiff, (Lab No. 7)	SS2	8-9-13	100			4.5+					
		5.0											
		Sandy Loam A-2-4, Brown, Moist, Medium Dense, (Lab No. 9)	SS3	8-6-9	100	9.7							
	7.5	7.5											
555.0		Bottom of Boring at 7.5 ft											
	10.0												
	12.5												
550.0													
	15.0												
	17.5												
545.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-061**
 SHEET **1** OF **1**
 NORTHING : **1897350**
 EASTING : **3018207**
 DATUM :
 DATE STARTED : **04-15-14**
 DATE COMPLETED : **04-15-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>562.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>701+54</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>30.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>28 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 4.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		13.75 in. Concrete .											
560.0	2.5		SS1	11-12-16	56								
	5.0	Sandy Loam A-2-4 , Gray and brown, slightly moist, medium dense to dense, (Lab No. 9)	SS2	13-18-19	78								
555.0	7.5		SS3	11-14-18	100								
		Bottom of Boring at 7.5 ft											
550.0	12.5												
	15.0												
545.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-062**
 SHEET **1** OF **1**
 NORTHING : **1897552**
 EASTING : **3018182**
 DATUM :
 DATE STARTED : **02-25-14**
 DATE COMPLETED : **02-25-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**
 DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : 558.0	BORING METHOD : HSA	HAMMER : Auto
STATION : 703+55	RIG TYPE : ATV	DRILLER/INSP : J. Cook/S. Marcum
OFFSET : 4.0 ft Left	CASING DIA. : 	TEMPERATURE : 25 °F
LINE : 'A3'	CORE SIZE : --	WEATHER : Overcast
DEPTH : 15.0 ft		

GROUNDWATER: ☒ Encountered at **10.0 ft** ☒ At completion **None** ☒ **0.6 ft** After **7** hours ☒ Caved in at **3.9 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.3											
		Sandy Loam A-2-4 , Brown, Slightly Moist, Medium Dense, (Lab No. 6) 1.5				15.6							
	2.5	Sandy Loam A-2-4 , Dark brown, Slightly Moist, Medium Dense, (Lab No. 10) 3.0	SS1	6-5-12	100								
555.0		Sand A-1-b , Brown, Slightly Moist, Medium Dense, (Lab No. 4) 4.5	SS2	12-10-8	78	9.9		4.5+					
	5.0	Sandy Loam A-4 , Gray, Slightly Moist, Medium Dense to dense, with sand seams, (Lab No. 7) 6.5	SS3	15-18-18	100	13.5		4.5+					
550.0	7.5	Sandy Loam A-2-6 , Dark brown, Moist, dense, (Lab No. 2) 8.5											
		Sandy Loam A-4 , Brown, Slightly Moist, Very Stiff, with sand seams and roots, (Lab No. 7) 9.0	SS4	11-12-13	83			3.5					
	10.0	Sandy Loam A-2-4 , Brown, Slightly Moist, Medium Dense to dense, (Lab No. 9) 12.0	SS5	12-16-18	100								
545.0	12.5	Sand A-1-b , Brown, Slightly Moist, Dense, (Lab No. 4) 15.0	SS6	16-28-30	89								
	15.0	Bottom of Boring at 15.0 ft											
	17.5												
540.0													
	20.0												

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION 4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

BORING NO.: S5-RB-063

SHEET 1 OF 1

NORTHING : 1897762

EASTING : 3018190

DATUM : _____

DATE STARTED : 04-10-14

DATE COMPLETED : 04-10-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 560.0

STATION : 705+57

OFFSET : 54.0 ft Right

LINE : 'A3'

DEPTH : 7.5 ft

BORING METHOD : HSA

RIG TYPE : Truck

CASING DIA. : _____

CORE SIZE	: --
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HAMMER : AutoDRILLER/INSP : K&S Engineers/S. Marcum

TEMPERATURE : 56 °F

WEATHER	: Rain
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GROUNDWATER: Encountered at None At completion None Caved in at 4.7 ft

[illegible]

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_I69_SECTION_4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

BORING NO.: **S5-RB-064**
 SHEET **1** OF **1**
 NORTHING : **1897940**
 EASTING : **3018112**
 DATUM :
 DATE STARTED : **02-25-14**
 DATE COMPLETED : **02-25-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>559.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>707+49</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>21.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>25 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 5 hours ☒ Caved in at 3.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.3											
		Sandy Loam A-2-4 , Brown, Slightly Moist, Medium Dense, (Lab No. 10) 1.5				10.8							
		Sand A-1-b , Brown, Slightly Moist, Medium Dense, (Lab No. 4) 2.5	SS1	7-9-19	100								
555.0	2.5												
		Sandy Loam A-2-4 , Brown, Moist, Dense to medium dense, (Lab No. 9) 5.0	SS2	12-18-23	100								
	5.0												
			SS3	7-7-22	89								
	7.5												
		Bottom of Boring at 7.5 ft											
550.0													
	10.0												
	12.5												
545.0													
	15.0												
	17.5												
540.0													
	20.0												

BORING NO.: **S5-RB-065**

SHEET 1 OF 1

NORTHING : 1898124

EASTING : 3018001

DATUM : _____

DATE STARTED : 04-16-14

DATE COMPLETED : 04-16-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE # : _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY	: Tippecanoe County	PROJECT NO.: 86.55608.0058
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ELEVATION :	558.0	BORING METHOD :	HSA	HAMMER :	Auto
STATION :	709+54	RIG TYPE :	Truck	DRILLER/INSP :	K&S Engineers/S. Marcum
OFFSET :	42.0 ft Left	CASING DIA. :		TEMPERATURE :	39 °F
LINE :	'A3'	CORE SIZE :	--	WEATHER :	Clear
DEPTH :	7.5 ft				

GROUNDWATER: Encountered at None At completion None Caved in at 4.0 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RB-066**
 SHEET **1** OF **1**
 NORTHING : **1898316**
 EASTING : **3017991**
 DATUM :
 DATE STARTED : **02-25-14**
 DATE COMPLETED : **02-25-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**
 DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : 555.0	BORING METHOD : HSA	HAMMER : Auto
STATION : 711+44	RIG TYPE : ATV	DRILLER/INSP : J. Cook/S. Marcum
OFFSET : 5.0 ft Left	CASING DIA. :	TEMPERATURE : 25 °F
LINE : 'A3'	CORE SIZE : --	WEATHER : Partly Cloudy
DEPTH : 10.0 ft		

GROUNDWATER: ☒ Encountered at **8.0 ft** ☒ At completion **0.4 ft** ☒ **0.9 ft** After **4** hours ☒ Caved in at **1.9 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil											
		Sand A-1-b , Brown, Wet, Medium Dense, (Lab No. 8)	SS1	11-13-13	67								
		Sand A-2-4 , Brown, Moist, Medium Dense, with thick seams of silt and loam, (Lab No. 5)	SS2	7-7-8	78								
		Sandy Loam A-2-4 , Brown, Moist, Dense, (Lab No. 9)	SS3	21-21-28	100								
		Sandy Loam A-4 , Brown, Slightly Moist, very stiff, with sand seams, (Lab No. 7)	SS4	11-13-13	83								
		Bottom of Boring at 10.0 ft											

INDOT BORING LOG

BORING NO.: **S5-RB-067**
 SHEET **1** OF **1**
 NORTHING : **1898527**
 EASTING : **3017986**
 DATUM :
 DATE STARTED : **04-11-14**
 DATE COMPLETED : **04-11-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>557.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>713+49</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>42.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>60 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ Caved in at 4.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		5.75 in. Asphalt over 9 in. Concrete .											
555.0	2.5	Sandy Loam A-2-4 , Brown, slightly moist, dense, (Lab No. 9)	SS1	13-16-16	100	5.3		4.5+					
	5.0	Sandy Loam A-4 , Gray, slightly moist, hard, with sand seams below 4.0 ft, (Lab No. 7)	SS2	13-15-19	100	7.4		4.0					
550.0	7.5	Sandy Loam A-2-4 , Gray, slightly moist, dense, (Lab No. 9)	SS3	13-22-26	89	7.4		4.25					
		Bottom of Boring at 7.5 ft											
545.0	12.5												
	15.0												
540.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-068**
 SHEET **1** OF **1**
 NORTHING : **1898705**
 EASTING : **3017926**
 DATUM :
 DATE STARTED : **02-25-14**
 DATE COMPLETED : **02-25-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**
 DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : 556.0	BORING METHOD : HSA	HAMMER : Auto
STATION : 715+37	RIG TYPE : ATV	DRILLER/INSP : J. Cook/S. Marcum
OFFSET : 26.0 ft Right	CASING DIA. :	TEMPERATURE : 25 °F
LINE : 'A3'	CORE SIZE : --	WEATHER : Partly Cloudy
DEPTH : 7.5 ft		

GROUNDWATER: ☐ Encountered at **None** ☒ At completion **None** ☒ **None** After **3** hours ☒ Caved in at **2.9 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil											
555.0	2.5		SS1	2-2-2	89	10.3		1.75					
		Sandy Loam A-4 , Brown, Moist, Soft to very stiff, (Lab No. 7)											
550.0	5.0		SS2	13-10-9	100	7.2		4.0					
		Sand A-1-b , Brown, Slightly Moist, Very Dense, (Lab No. 8)											
	7.5		SS3	24-28-38	78								
		Bottom of Boring at 7.5 ft											
545.0	10.0												
540.0	12.5												
	15.0												
	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-069**
 SHEET **1** OF **1**
 NORTHING : **1898877**
 EASTING : **3017826**
 DATUM :
 DATE STARTED : **04-15-14**
 DATE COMPLETED : **04-15-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>555.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>717+27</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>29.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>28 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 4.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		13. 75 in. Concrete .											
		Sandy Loam A-2-4 , Brown, slightly moist, dense, (Lab No. 9)											
		Sand A-2-4 , Brown, slightly moist, dense, (Lab No. 5)	SS1	12-15-19	100								
	2.5												
		Sandy Loam A-2-4 , Gray to brown, slightly moist, medium dense, (Lab No. 9)	SS2	12-13-15	78								
550.0	5.0												
		Sandy Loam A-4 , Brown, slightly moist, very stiff, (Lab No. 7)				7.4							
		Sand A-1-b , Brown, slightly moist, medium dense, (Lab No. 8)	SS3	10-12-17				2.0					
	7.5												
		Bottom of Boring at 7.5 ft											
545.0	10.0												
	12.5												
540.0	15.0												
	17.5												
535.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-070**
 SHEET **1** OF **1**
 NORTHING : **1899079**
 EASTING : **3017801**
 DATUM :
 DATE STARTED : **02-25-14**
 DATE COMPLETED : **02-25-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>552.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>719+29</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>5.0 ft Left</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>26 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>15.0 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ 1.2 ft After 2 hours ☒ Caved in at 7.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil . 0.3											
550.0	2.5	Sandy Loam A-4, Brown, Slightly Moist, Hard, (Lab No. 7) 2.0	SS1	19-21-38	100	8.5		4.5+					
	5.0	Sand A-1-b, Brown, Slightly Moist, Very Dense, (Lab No. 8) 5.5	SS2	24-36-49	89								
545.0	7.5	Sand A-1-b, Brown, Moist, Very Dense, (Lab No. 4) 10.0	SS3	14-24-32	89								
	10.0		SS4	16-27-28	89								
540.0	12.5	Sandy Loam A-2-6, Brown, Moist, medium dense, (Lab No. 2) 13.5	SS5	13-9-13	100	10.1		2.0					
	15.0	Sand A-1-b, Brown, Slightly Moist, Medium Dense, (Lab No. 4) 14.0 Sandy Loam A-2-6, Black, Slightly Moist, medium dense, (Lab No. 2) 15.0	SS6	13-12-9	100	16.0		1.5					
		Bottom of Boring at 15.0 ft											
535.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-071**
 SHEET **1** OF **1**
 NORTHING : **1899286**
 EASTING : **3017798**
 DATUM :
 DATE STARTED : **04-11-14**
 DATE COMPLETED : **04-11-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>555.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>721+31</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>K&S Engineers/S. Marcum</u>
OFFSET : <u>43.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>66 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 4.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		5.75 in. Asphalt over 9.25 in. Concrete											
	2.5	Sandy Loam A-4, Gray and brown, slightly moist, very stiff, with sand seams, (Lab No. 7)	SS1	5-13-17	89	8.3		2.25					
	5.0	Sandy Loam A-2-4, Brown, slightly moist, medium dense to very dense, (Lab No. 9)	SS2	17-26-55									
550.0	5.5	Sandy Loam A-2-4, Brown, slightly moist, very dense, (Lab No. 10)	SS3	50									
	7.5	Bottom of Boring at 7.5 ft											
545.0	10.0												
	12.5												
540.0	15.0												
	17.5												
535.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RB-072**
 SHEET 1 OF 1
 NORTHING : 1899415
 EASTING : 3017745
 DATUM : _____
 DATE STARTED : 02-25-14
 DATE COMPLETED : 02-25-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>555.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>722+69</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>23.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>25 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at None ☒ At completion None ☒ Caved in at 2.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil . 0.4											
		Sandy Loam A-2-4 , Brown, Slightly Moist, Very Dense, (Lab No. 10) 1.5				7.7							
	2.5		SS1	18-18-33	89								
		Sand A-2-4 , Brown, Slightly Moist, Very Dense, (Lab No. 5)											
	5.0		SS2	19-25-33	89								
550.0													
		Sand A-1-b , Brown, Slightly Moist, Dense, (Lab No. 8) 7.5											
	7.5		SS3	12-16-25	83								
		Bottom of Boring at 7.5 ft											
545.0	10.0												
	12.5												
540.0	15.0												
	17.5												
535.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-101**

SHEET 1 OF 1

NORTHING : 1886448

EASTING : 3023483

DATUM : _____

DATE STARTED : 03-06-14

DATE COMPLETED: 03-14-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 659.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 578+50

BIG TYPE : Truck

DRILLER/INSP : J. Cook/S. Marcum

OFFSET : 75.0 ft Right

TEMPERATURE	22.25
-------------	-------

LINE : 'A3'

CASING DIA. : _____

TEMPERATURE : 20 °F

DEPTH : 7.5 ft

CORE SIZE	: --
-----------	------

WEATHER	: Clear
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GROUNDWATER: Encountered at None At completion None 2.0 ft After 192 hours Caved in at 3.0 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RBS-102**

SHEET **1** OF **1**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1887091

DES NO. : 1383340 STRUCTURE # :

EASTING : 3023006

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-18-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-18-14

ELEVATION : 664.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 586+42

RIG TYPE : Truck

DRILLER/INSP : S. Hambrick/S. Marcum

OFFSET : 48.0 ft Left

CASING DIA. :

TEMPERATURE : 37 °F

LINE : 'A3'

CORE SIZE : --

WEATHER : Sunny

DEPTH : 7.5 ft

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 0.5 hours ☒ Caved in at 6.9 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		7.25 in. Asphalt over 5 in. Subbase .											
		Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (FILL), (Lab No. 9)	SS1	7-4-10	78	10.8		2.5					
		Loam A-4 , Gray, moist, stiff, with sand seams, (Lab No. 1)	SS2	13-11-13	100	10.3	135.1	4.5+					
						9.2							
660.0	2.5		SS3	10-11-13	67			4.5+					
		Sandy Loam A-4 , Gray, slightly moist to moist, very stiff, with occasional sand seams, (Lab No. 7)											
	5.0		SS4	13-9-9	89	9.4		4.5+					
	7.5	Bottom of Boring at 7.5 ft											
655.0													
	10.0												
	12.5												
650.0													
	15.0												
	17.5												
645.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-103**

SHEET **1** OF **1**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1887129

DES NO. : 1383340 STRUCTURE # :

EASTING : 3023123

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-06-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-14-14

ELEVATION : 662.0
STATION : 586+28
OFFSET : 73.0 ft Right
LINE : 'A3'
DEPTH : 7.5 ft

BORING METHOD : HSA
RIG TYPE : Truck
CASING DIA. :
CORE SIZE : --

HAMMER : Auto
DRILLER/INSP : J. Cook/S. Marcum
TEMPERATURE : 20 °F
WEATHER : Clear

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ 1.8 ft After 192 hours ☒ Caved in at 2.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		9.5 in. Asphalt over 6 in. Subbase .				7.4							
660.0	2.5	Sandy Loam A-2-4, Brown, Slightly Moist, Medium Dense, (Lab No. 9)	SS1	8-12-13	89			4.5+					
		Sandy Loam A-4, Gray, Slightly Moist to moist, Very Stiff, (Lab No. 7)	SS2	12-11-10	89			4.5+					
	5.0		SS3	9-10-13	78	9.7		4.5					
655.0	7.5	Loam A-4, Gray, Moist, Stiff, (Lab No. 1)	SS4	6-6-7	100	10.5		1.25					
		Bottom of Boring at 7.5 ft											
	10.0												
650.0	12.5												
	15.0												
645.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-103A**
 SHEET 1 OF 1
 NORTHING : 1887829
 EASTING : 3022792
 DATUM : _____
 DATE STARTED : 03-06-14
 DATE COMPLETED : 03-14-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>665.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>594+01</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>73.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>23 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 192 hours ☒ Caved in at 1.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		13 in. Asphalt over 6 in. Subbase .											
	2.5	Sandy Loam A-2-4 , Brown, Moist, Loose, (Lab No. 9)	SS1	8-3-6	78	13.0		1.25					
		Loam A-4 , Brown, Moist, Medium Stiff, (Lab No. 1)				7.9							
		Sandy Loam A-4 , Gray, Slightly Moist, Very Stiff, (Lab No. 7)	SS2	9-10-14	89			4.5+					
		Sandy Loam A-2-4 , Brown, Slightly Moist, Medium Dense, (Lab No. 9)				14.4							
660.0	5.0	Loam A-4 , Brown, Moist, stiff, (Lab No. 1)	SS3	9-3-10	78			2.75					
		Sandy Loam A-2-4 , Brown, Moist, medium dense, (Lab No. 10)	SS4	7-6-7	100			4.5					
	7.5	Bottom of Boring at 7.5 ft											
655.0	10.0												
	12.5												
650.0	15.0												
	17.5												
645.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-104**

SHEET **1** OF **1**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1888488

DES NO. : 1383340 STRUCTURE # :

EASTING : 3022344

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-18-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-18-14

ELEVATION : 665.0
STATION : 601+88
OFFSET : 53.0 ft Left
LINE : 'A3'
DEPTH : 7.5 ft

BORING METHOD : HSA
RIG TYPE : Truck
CASING DIA. :
CORE SIZE : --

HAMMER : Auto
DRILLER/INSP : S. Hambrick/S. Marcum
TEMPERATURE : 35 °F
WEATHER : Sunny

GROUNDWATER: ☒ Encountered at 5.6 ft ☒ At completion 5.0 ft ☒ 5.0 ft After 1 hours ☒ Caved in at 6.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		9 in. Asphalt over 4 in. Subbase .				8.8							
	2.5	Sand A-1-b , Brown, moist, medium dense, with thick clay loam seams, (Lab No. 8)	SS1	8-5-6	78	7.7	131.1						
	3.0		SS2	4-12-11	78	7.6							
	5.0	Sandy Loam A-4 , Brown, slightly moist, medium dense, with sand seams, (Lab No. 7)	SS3	8-12-15	67			4.0					
660.0	5.5	Sandy Loam A-2-4 , Gray, slightly moist, medium dense, (Lab No. 10)				8.7							
	6.5	Sand A-2-4 , Brown, moist, medium dense, (Lab No. 5)	SS4	8-13-17	78								
	7.5	Bottom of Boring at 7.5 ft											
655.0	10.0												
	12.5												
650.0	15.0												
	17.5												
645.0	20.0												

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

BORING NO.:	S5-RBS-105
SHEET	1 OF 1
NORTHING :	1889604
EASTING :	3021957
DATUM :	
DATE STARTED :	03-06-14
DATE COMPLETED :	03-14-14

PROJECT TYPE: I-65 Added Travel Lanes	
LOCATION	: SR 26 to SR 25
COUNTY	: Tippecanoe County
PROJECT NO.: 86.55608.0058	

ELEVATION :	642.0	BORING METHOD :	HSA	HAMMER :	Auto
STATION :	613+62	RIG TYPE :	Truck	DRILLER/INSP :	J. Cook/S. Marcum
OFFSET :	72.0 ft Right	CASING DIA. :		TEMPERATURE :	30 °F
LINE :	'A3'	CORE SIZE :	--	WEATHER :	Clear
DEPTH :	7.5 ft				

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RBS-105A**
 SHEET 1 OF 1
 NORTHING : 1888540
 EASTING : 3022457
 DATUM : _____
 DATE STARTED : 03-06-14
 DATE COMPLETED : 03-14-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # : _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>663.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>601+86</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>72.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>23 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 192 hours ☒ Caved in at 1.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		12 in. Asphalt over 7 in. Subbase .											
		Sandy Loam A-2-4, Brown, Slightly Moist, Medium Dense, (Lab No. 10)											
		Sandy Loam A-2-4, Gray and brown, Moist, Medium Dense, (Lab No. 9)											
660.0	2.5		SS1	20-19-11	100	7.3		2.5					
			SS2	7-8-12	89	12.2		3.25					
	5.0	Sandy Loam A-4, Brown to gray, Slightly Moist, Very Stiff, (Lab No. 7)	SS3	11-7-10	100	10.0		4.5+					
	7.5		SS4	10-11-14	100								
655.0		Bottom of Boring at 7.5 ft											
	10.0												
	12.5												
650.0													
	15.0												
	17.5												
645.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-106**

SHEET **1** OF **1**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1889726

DES NO. : 1383340 STRUCTURE # :

EASTING : 3021767

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-18-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-18-14

ELEVATION : 639.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 615+53

RIG TYPE : Truck

DRILLER/INSP : S. Hambrick/S. Marcum

OFFSET : 49.0 ft Left

CASING DIA. :

TEMPERATURE : 30 °F

LINE : 'A3'

CORE SIZE : --

WEATHER : Sunny

DEPTH : 10.0 ft

GROUNDWATER: ☒ Encountered at 7.8 ft ☒ At completion 7.0 ft ☒ 7.0 ft After 1.5 hours ☒ Caved in at 8.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		7.75 in. Asphalt over 5 in. Subbase .											
		Sandy Loam A-2-4 , Gray and brown, slightly moist, medium dense, (Lab No.1.8 9)	SS1	19-9-6	78			3.5					
	2.5	Sandy Loam A-4 , Gray and brown, moist, medium stiff, with sand seams, (Lab No. 7)	SS2	4-4-4	78	6.8		3.75					
635.0			SS3	3-2-1	89	11.8		0.25					
	5.0	Sandy Loam A-2-6 , Brown, moist to wet, very loose to loose, (Lab No. 2)	SS4	0-0-1	56	9.6		0.5					
	7.5												
630.0		Loam A-4 , Brown, wet to slightly moist, stiff, (Lab No. 1)	SS5	8-7-4	78	14.1		2.0					
	10.0	Bottom of Boring at 10.0 ft											
	12.5												
625.0													
	15.0												
	17.5												
620.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-107**
 SHEET 1 OF 1
 NORTHING : 1891032
 EASTING : 3021230
 DATUM : _____
 DATE STARTED : 03-06-14
 DATE COMPLETED : 03-14-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>596.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>629+55</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>71.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>30 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 192 hours ☒ Caved in at 1.4 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
595.0		10 in. Asphalt over 5 in. Subbase .											
	2.5		SS1	46-38-30	100								
			SS2	20-17-22	89								
	5.0	Sandy Loam A-2-4, Brown, Slightly Moist, very dense to medium dense, (Lab No. 9)	SS3	20-50	143								
590.0			SS4	15-13-17	72								
	7.5	Bottom of Boring at 7.5 ft											
585.0													
	12.5												
	15.0												
580.0													
	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-108**

SHEET **1** OF **1**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1891222

DES NO. : 1383340 STRUCTURE # :

EASTING : 3020944

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-18-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-18-14

ELEVATION : 586.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 632+77

RIG TYPE : Truck

DRILLER/INSP : S. Hambrick/S. Marcum

OFFSET : 45.0 ft Left

CASING DIA. :

TEMPERATURE : 28 °F

LINE : 'A3'

CORE SIZE : --

WEATHER : Sunny

DEPTH : 7.5 ft

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 2 hours ☒ Caved in at 6.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
585.0		8 in. Asphalt over 5 in. Subbase .											
		Sandy Loam A-2-4, Brown, slightly moist, medium dense, (Lab No. 9)	SS1	10-9-15	78								
2.5			SS2	15-12-13	89								
5.0		Sand A-1-b, Brown, slightly moist, medium dense, (Lab No. 4)	SS3	12-13-10	78								
580.0			SS4	5-8-13	67								
7.5		Bottom of Boring at 7.5 ft											
10.0													
575.0													
12.5													
15.0													
570.0													
17.5													
20.0													

INDOT BORING LOG

BORING NO.: **S5-RBS-109**

SHEET **1** OF **1**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1892601

DES NO. : 1383340 STRUCTURE # :

EASTING : 3019834

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-06-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-14-14

ELEVATION : 570.0
STATION : 650+48
OFFSET : 79.0 ft Right
LINE : 'A3'
DEPTH : 7.5 ft

BORING METHOD : HSA
RIG TYPE : Truck
CASING DIA. :
CORE SIZE : --

HAMMER : Auto
DRILLER/INSP : J. Cook/S. Marcum
TEMPERATURE : 32 °F
WEATHER : Clear

GROUNDWATER: ☐ Encountered at None ☒ At completion 3.3 ft ☒ None After 192 hours ☒ Caved in at 1.6 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		11 in. Asphalt over 4 in. Subbase .											
	1.3												
	2.5	Sandy Loam A-2-4 , Brown, Slightly Moist, Dense, (Lab No. 9)	SS1	10-15-22	89								
	3.0	Sand A-1-b , Brown and gray, Slightly Moist, Medium Dense, (Lab No. 4)	SS2	22-13-15	78								
565.0	5.0	Sand A-2-4 , Brown, moist to wet, Medium Dense, (Lab No. 5)	SS3	12-12-13	89								
	7.5	Sand A-1-b , Brown, wet, Medium Dense, (Lab No. 4)	SS4	6-8-9	100								
	7.5	Bottom of Boring at 7.5 ft											
560.0	10.0												
	12.5												
555.0	15.0												
	17.5												
550.0	20.0												

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

BORING NO.:	S5-RBS-110
SHEET	1 OF 1
NORTHING :	1892818
EASTING :	3019505
DATUM :	
DATE STARTED :	03-17-14
DATE COMPLETED :	03-18-14

PROJECT TYPE: I-65 Added Travel Lanes	
LOCATION	: SR 26 to SR 25
COUNTY	: Tippecanoe County
PROJECT NO.: 86.55608.0058	

ELEVATION :	579.0	BORING METHOD :	HSA	HAMMER :	Auto
STATION :	654+23	RIG TYPE :	Truck	DRILLER/INSP :	S. Hambrick/S. Marcum
OFFSET :	47.0 ft Left	CASING DIA. :		TEMPERATURE :	34 °F
LINE :	'A3'	CORE SIZE :	--	WEATHER :	Partly Sunny
DEPTH :	7.5 ft				

GROUNDWATER: Encountered at None At completion None None After 24 hours Caved in at 6.5 ft

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RBS-111**
 SHEET 1 OF 1
 NORTHING : 1893976
 EASTING : 3019146
 DATUM : _____
 DATE STARTED : 03-06-14
 DATE COMPLETED : 03-14-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>575.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>666+53</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>J. Cook/S. Marcum</u>
OFFSET : <u>64.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>32 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Clear</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 192 hours ☒ Caved in at 3.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		10 in. Asphalt over 5 in. Subbase .											
		----- 1.2											
	2.5	Sandy Loam A-2-4 , Brown, Moist, Very Dense to medium dense, (Lab No. 9)	SS1	38-50									
		----- 4.0											
	5.0	Sandy Loam A-2-4 , Brown, Slightly Moist, Medium Dense, (Lab No. 10)	SS2	32-19-13	78								
		----- 5.0											
570.0		Sand A-1-b , Brown, Slightly Moist, Medium Dense, (Lab No. 4)	SS3	12-13-13	67								
	7.5		SS4	19-19-16	67								
		----- 7.5											
		Bottom of Boring at 7.5 ft											
565.0	10.0												
	12.5												
560.0	15.0												
	17.5												
555.0	20.0												

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

BORING NO.: **S5-RBS-112**

SHEET **1** OF **1**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1894334

DES NO. : 1383340 STRUCTURE # :

EASTING : 3018934

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-17-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-18-14

ELEVATION : 572.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 670+52

RIG TYPE : Truck

DRILLER/INSP : S. Hambrick/S. Marcum

OFFSET : 55.0 ft Left

CASING DIA. :

TEMPERATURE : 33 °F

LINE : 'A3'

CORE SIZE : --

WEATHER : Partly Sunny

DEPTH : 7.5 ft

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 24 hours ☒ Caved in at 7.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		6.75 in. Asphalt over 4.25 in. Subbase .											
		0.9											
570.0		Sand A-1-b , Brown, slightly moist, medium dense, (Lab No. 8)	SS1	25-12-15	67								
		2.0											
	2.5	Silty Loam A-4 , Brown, moist, very stiff, with roots, (Lab No. 11)	SS2	9-9-20	89	23.9		0.25		23	20	3	
		3.5											
			SS3	19-20-15	89								
	5.0	Sandy Loam A-2-4 , Brown, moist, dense to medium dense, (Lab No. 9)											
			SS4	10-15-19	78								
565.0	7.5	Bottom of Boring at 7.5 ft											
	10.0												
560.0	12.5												
	15.0												
555.0	17.5												
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-113**

SHEET **1** OF **1**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1895743

DES NO. : 1383340 STRUCTURE #: _____

EASTING : 3018713

PROJECT TYPE: I-65 Added Travel Lanes

DATUM : _____

LOCATION : SR 26 to SR 25

DATE STARTED : 03-14-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-17-14

ELEVATION : 564.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 684+72

RIG TYPE : Truck

DRILLER/INSP : S. Hambrick/S. Marcum

OFFSET : 72.0 ft Right

CASING DIA. : _____

TEMPERATURE : 50 °F

LINE : 'A3'

CORE SIZE : --

WEATHER : Sunny

DEPTH : 7.5 ft

GROUNDWATER: ☒ Encountered at 7.0 ft ☒ At completion 6.5 ft ☒ 6.5 ft After 72 hours ☒ Caved in at 7.2 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		7.25 in. Asphalt over 4.25 in. Subbase .											
	2.5		SS1	14-13-18	78								
		Sandy Loam A-2-4 , Brown, slightly moist, medium dense to dense, (Lab No. 9)	SS2	16-22-25	89								
560.0			SS3	20-20-16	78								
	5.0												
		Sandy Loam A-4 , Brown, slightly moist, hard, (Lab No. 7)	SS4	8-19-20	89	8.0							
	7.5												
		Bottom of Boring at 7.5 ft											
555.0													
	10.0												
	12.5												
550.0													
	15.0												
	17.5												
545.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-114**
 SHEET 1 OF 1
 NORTHING : 1895880
 EASTING : 3018549
 DATUM : _____
 DATE STARTED : 03-17-14
 DATE COMPLETED : 03-18-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>564.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>686+45</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>S. Hambrick/S. Marcum</u>
OFFSET : <u>53.0 ft Left</u>	CASING DIA. : _____	TEMPERATURE : <u>30 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Overcast</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at 6.8 ft ☒ At completion 6.5 ft ☒ 6.5 ft After 24 hours ☒ Caved in at 6.8 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		7.25 in. Asphalt over 4 in. Subbase .											
		0.9											
	2.5		SS1	13-11-12	78								
			SS2	13-16-20	89								
560.0		Sand A-1-b , Brown, slightly moist to moist, medium dense to dense, (Lab No. 8)	SS3	19-23-23	78								
	5.0												
			SS4	10-15-23	89								
	7.5	7.5											
		Bottom of Boring at 7.5 ft											
555.0													
	10.0												
	12.5												
550.0													
	15.0												
	17.5												
545.0													
	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-115**
 SHEET 1 OF 1
 NORTHING : 1897368
 EASTING : 3018298
 DATUM : _____
 DATE STARTED : 03-17-14
 DATE COMPLETED : 03-18-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE #: _____

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>561.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>701+49</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>S. Hambrick/S. Marcum</u>
OFFSET : <u>64.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>22 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Cloudy</u>
DEPTH : <u>7.5 ft</u>		

GROUNDWATER: ☒ Encountered at 7.2 ft ☒ At completion None ☒ 6.0 ft After 24 hours ☒ Caved in at 6.3 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
560.0		14 in. Concrete .											
	2.5		SS1	8-11-12	67								
			SS2	13-12-13	67								
	5.0	Sand A-1-b , Brown, slightly moist, medium dense, (Lab No. 8)	SS3	16-17-11	67								
555.0			SS4	5-7-6	78								
	7.5	Bottom of Boring at 7.5 ft											
	10.0												
550.0													
	12.5												
	15.0												
545.0													
	17.5												
	20.0												

BORING NO.:	S5-RBS-116
SHEET	1 OF 1
NORTHING :	1897811
EASTING :	3018068
DATUM :	
DATE STARTED :	03-17-14
DATE COMPLETED :	03-18-14

PROJECT TYPE: I-65 Added Travel Lanes	
LOCATION	: SR 26 to SR 25
COUNTY	: Tippecanoe County
PROJECT NO.: 86.55608.0058	

ELEVATION :	559.0	BORING METHOD :	HSA	HAMMER :	Auto
STATION :	706+35	RIG TYPE :	Truck	DRILLER/INSP :	S. Hambrick/S. Marcum
OFFSET :	53.0 ft Left	CASING DIA. :		TEMPERATURE :	28 °F
LINE :	'A3'	CORE SIZE :	--	WEATHER :	Overcast
DEPTH :	7.5 ft				

[illegible]

INDOT BORING LOG

BORING NO.: **S5-RBS-117**

SHEET **1** OF **1**

NORTHING : **1898883**

EASTING : **3017934**

DATUM :

DATE STARTED : **03-14-14**

DATE COMPLETED : **03-17-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**

DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : **555.0**

STATION : **717+07**

OFFSET : **77.0 ft Right**

LINE : **'A3'**

DEPTH : **7.5 ft**

BORING METHOD : **HSA**

RIG TYPE : **Truck**

CASING DIA. :

CORE SIZE : **--**

HAMMER : **Auto**

DRILLER/INSP : **S. Hambrick/S. Marcum**

TEMPERATURE : **55 °F**

WEATHER : **Overcast**

GROUNDWATER: ☒ Encountered at **4.0 ft** ☒ At completion **5.3 ft** ☒ 5.0 ft After **72** hours ☒ Caved in at **7.0 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		7.5 in. Asphalt over 4.25 in. Subbase											
	2.5	Sand A-1-b , Brown, moist to slightly moist, medium dense, (Lab No. 8)	SS1	15-8-8	67								
	3.5		SS2	13-7-7	0								
	5.0	Sand A-2-4 , Brown, wet, medium dense, (Lab No. 5)	SS3	5-6-8	33								
	5.5												
	7.5	Sand A-1-b , Brown, wet, very dense, (Lab No. 8)	SS4	19-38-50	78								
		Bottom of Boring at 7.5 ft											
545.0	10.0												
	12.5												
540.0	15.0												
	17.5												
535.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-RBS-118**

SHEET **1** OF **1**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1899272

DES NO. : 1383340 STRUCTURE # :

EASTING : 3017702

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-17-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-18-14

ELEVATION : 555.0

BORING METHOD : HSA

HAMMER : Auto

STATION : 721+41

RIG TYPE : Truck

DRILLER/INSP : S. Hambrick/S. Marcum

OFFSET : 54.0 ft Left

CASING DIA. :

TEMPERATURE : 25 °F

LINE : 'A3'

CORE SIZE : --

WEATHER : Overcast

DEPTH : 7.5 ft

GROUNDWATER: ☐ Encountered at None ☒ At completion None ☒ None After 24 hours ☒ Caved in at 7.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		6.5 in. Asphalt over 4.25 in. Concrete											
	0.9												
		Sand A-1-b , Brown, slightly moist, medium dense, with crushed stone (FILL), (Lab No. 8)	SS1	7-7-6	67								
	2.0					7.3							
	2.5	Sandy Loam A-4 , Gray, slightly moist, very stiff, with sand seams, (Lab No. 7)	SS2	10-11-12	89			4.0					
	3.5												
	5.0	Sand A-1-b , Brown, slightly moist, dense to very dense, (Lab No. 8)	SS3	14-21-25	89								
550.0													
	7.5		SS4	19-29-27	100								
		Bottom of Boring at 7.5 ft											
545.0	10.0												
	12.5												
540.0	15.0												
	17.5												
535.0	20.0												

INDOT BORING LOG

BORING NO.: **S5-TB-25-1**
 SHEET **1** OF **3**
 NORTHING : **1896723**
 EASTING : **3018394**
 DATUM :
 DATE STARTED : **03-12-14**
 DATE COMPLETED : **03-14-14**

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # :

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>562.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>695+00</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>G. Lauber/S. Marcum</u>
OFFSET : <u>0.0 ft</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>28 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Snow</u>
DEPTH : <u>100.0 ft</u>		

GROUNDWATER: ☒ Encountered at 37.0 ft ☒ At completion = ☒ 29.0 ft After 48 hours ☒ Caved in at 30.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
560.0		Topsoil 0.7											
		Sandy Loam A-4 , Brown, Slightly Moist, Medium Stiff, (Lab No. 7) 1.5	SS1	2-4-5	100	15.8		2.25					
	5	Sandy Loam A-2-4 , Brown, Slightly Moist, Loose to very loose, (Lab No. 9) 5.5	SS2	3-2-2	89								
555.0		Sandy Loam A-2-6 , Brown, Slightly Moist to moist, very loose to loose, (Lab No. 2) 10.5	SS3	2-2-1	44	16.5		1.0					
	10		SS4	1-3-6	100	17.6		1.25					
550.0			SS5	9-13-15	89								
	15		SS6	3-5-5	78								
545.0		Sandy Loam A-4 , Brown, Slightly Moist, stiff to very stiff, (Lab No. 7) 22.0	SS7	5-8-8	100								
	20		SS8	4-6-14	100								
540.0			SS9	8-25-24	89								
	25		SS10	13-24-26	78								
535.0		Sand A-1-b , Brown, Slightly Moist, Dense, (Lab No. 4) 32.0											
	30												
530.0		Sandy Loam A-2-6 , Gray, Moist, very loose, (Lab No. 2) 37.0	SS11	0-0-2	100	18.8		0.25					
	35												
525.0		Sandy Loam A-2-4 , Brown, wet, Very Loose, (Lab No. 6)	SS12	1-1-2	78								
	40												

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340

STRUCTURE #:

BORING NO.: **S5-TB-25-1**

SHEET 2 OF 3

NORTHING : 1896723

EASTING : 3018394

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
520.0		Sandy Loam A-2-4 , Brown, wet, Very Loose, (Lab No. 6)											
45			SS13	9-7-6	44								45.0, Augers charged with bentonite slurry.
515.0		Sand A-1-b , Brown, Wet, Medium Dense to very dense, (Lab No. 4)											
50			SS14	25-45-50	97								
510.0													
55			SS15	25-28-30	100								
505.0		Sandy Loam A-2-4 , Gray, Moist, very dense to dense, (Lab No. 6)											
60			SS16	16-20-22	78								
500.0													
65		Loam A-4 , Gray, Moist, stiff, (Lab No. 1)	SS17	4-7-8	100	10.6		1.0					
495.0													
70			SS18	12-18-19	100								
490.0													
75			SS19	14-16-23	78								
485.0		Sand A-1-b , Gray, Wet, dense to very dense, (Lab No. 4)											
80			SS20	16-24-26	78								
480.0													
85			SS21	19-20-23	78								
475.0													

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # : _____

BORING NO.: **S5-TB-25-1**
 SHEET 3 OF 3
 NORTHING : 1896723
 EASTING : 3018394
 DATUM :

PROJECT TYPE: I-65 Added Travel Lanes

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
90	X	Sand A-1-b, Gray, Wet, dense to very dense, (Lab No. 4)	SS22	29-30-42	78								
470.0													
95	X		SS23	15-20-28	89								
465.0													
100	X	100.0	SS24	27-33-18	78								
460.0		Bottom of Boring at 100.0 ft											
105													
455.0													
110													
450.0													
115													
445.0													
120													
440.0													
125													
435.0													
130													
430.0													
135													
425.0													

INDOT BORING LOG

BORING NO.: **S5-TB-25-2**
 SHEET 1 OF 2
 NORTHING : 1896799
 EASTING : 3018390
 DATUM : _____
 DATE STARTED : 03-31-14
 DATE COMPLETED : 04-01-14

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # : _____

PROJECT TYPE: I-65 Added Travel Lanes
 LOCATION : SR 26 to SR 25
 COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : <u>544.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>695+75</u>	RIG TYPE : <u>Truck</u>	DRILLER/INSP : <u>G. Lauber/S. Marcum</u>
OFFSET : <u>14.0 ft Right</u>	CASING DIA. : _____	TEMPERATURE : <u>44 °F</u>
LINE : <u>'A3'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>85.0 ft</u>		

GROUNDWATER: ☐ Encountered at 19.0 ft ☒ At completion 16.5 ft ☒ 17.0 ft After 24 hours ☒ Caved in at 23.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Asphalt 1.1											0.0, Boring hand augered to a depth of 5 ft for utility clearance.
		Sandy Loam A-2-6 , Brown, slightly moist, (Lab No. 2) 3.0	AUGER1			14.0							
540.0		Sand A-1-b , Brown, slightly moist, (Lab No. 4) 4.0											
	5	Loam A-4 , Gray, slightly moist, (Lab No. 1) 5.5	AUGER2			17.0							
		Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 9) 6.5											
			SS3	9-10-15	78	11.0							
535.0	10		SS4	2-4-6	100	103.0							
		Sand A-2-4 , Brown, slightly moist, medium dense to very loose, with organics, (Lab No. 5)	SS5	4-3-3	78								
530.0	15		SS6	1-2-1	100								
			SS7	1-2-2	100								
525.0	20	Sandy Loam A-2-4 , Brown, moist to wet, very loose to loose, (Lab No. 9) 22.0	SS8	1-2-4	100								
520.0	25	Sand A-1-b , Gray, wet, dense, (Lab No. 4) 27.0	SS9	8-17-16	78								
515.0	30	Loam A-4 , Gray, slightly moist, hard, (Lab No. 1) 32.0	SS10	27-35-46	100	9.5		4.5+					
510.0	35	Sand A-1-b , Gray, wet, dense, (Lab No. 4) 37.0	SS11	4-11-27	78								
505.0	40	Sandy Loam A-4 , Gray, moist, very dense, (Lab No. 7)	SS12	45-31-44	83								

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340

STRUCTURE #:

BORING NO.: **S5-TB-25-2**

SHEET **2** OF **2**

NORTHING : 1896799

EASTING : 3018390

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Sandy Loam A-4 , Gray, moist, very dense, (Lab No. 7)											
500.0	45		SS13	21-32-39	100	11.4		4.0					
495.0	50	Loam A-4 , Gray, moist, hard, (Lab No. 1)	SS14	13-24-35	78	10.9		4.5+					
490.0	55		SS15	14-25-26	78								
485.0	60		SS16	12-22-29	89								
480.0	65		SS17	13-21-30	100								
475.0	70	Sand A-1-b , Gray, wet, dense to very dense, (Lab No. 4)	SS18	11-16-30	67								
470.0	75		SS19	13-20-28	72								
465.0	80		SS20	16-25-27	83								
460.0	85		SS21	17-20-17	89								
		Bottom of Boring at 85.0 ft											

INDOT BORING LOG

BORING NO.: **S5-TB-25-3**

SHEET **1** OF **3**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1896866

DES NO. : 1383340 STRUCTURE # :

EASTING : 3018349

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-17-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-19-14

ELEVATION : 544.0
STATION : 696+50
OFFSET : 9.0 ft Left
LINE : 'A3'
DEPTH : 100.0 ft

BORING METHOD : HSA
RIG TYPE : Truck
CASING DIA. :
CORE SIZE : --

HAMMER : Auto
DRILLER/INSP : G. Lauber/S. Marcum
TEMPERATURE : 25 °F
WEATHER : Overcast

GROUNDWATER: ☐ Encountered at 19.0 ft ☒ At completion 16.4 ft ☒ 1.2 ft After 48 hours ☒ Caved in at 19.5 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		1 in. Asphalt over 5 in. Concrete . 0.5											
540.0	5	Sandy Loam A-2-4 , Gray, moist to slightly moist, very stiff, (Lab No. 10)	SS1	6-10-11	78	9.5		4.25					
			SS2	6-8-11	100	8.0		4.5					
			SS3	10-10-9	78								
535.0	10	Sandy Loam A-2-4 , Brown, slightly moist, medium dense, (Lab No. 9)	SS4	3-5-5	100								
			SS5	3-2-3	100								
530.0	15	Sand A-2-4 , Brown, moist to wet, loose to very loose, (Lab No. 5)	SS6	2-1-2	100								
			SS7	2-2-4	100								
525.0	20		SS8	7-11-11	78								
			SS9	16-18-18	89								
520.0	25	Sand A-1-b , Brown, wet, medium dense to dense, (Lab No. 4)											
			SS10	27-33-38	100	8.5		4.5+					
515.0	30	Loam A-4 , Gray, slightly moist, hard, (Lab No. 1)											
			SS11	32-43-45	100	50.8		4.5+					
510.0	35	Sandy Loam A-4 , Gray, slightly moist, hard, with sand seams below 38.5 ft, (Lab No. 7)											
			SS12	16-17-26	78			4.5+					
505.0	40												

23.5, Augers charged with bentonite slurry.

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340

STRUCTURE # : _____

BORING NO.: **S5-TB-25-3**

SHEET 2 OF 3

NORTHING : 1896866

EASTING : 3018349

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
500.0	45	Sandy Loam A-4 , Gray, slightly moist, hard, with sand seams below 38.5 ft, (Lab No. 7)	SS13	15-25-30	89			4.5+					
		47.0											
495.0	50	Loam A-4 , Gray, moist, hard, (Lab No. 1)	SS14	12-25-30	89	9.9		2.5					
		52.0											
490.0	55	Sandy Loam A-2-4 , Gray, wet, medium dense, (Lab No. 9)	SS15	9-11-15	78								
		57.0											
485.0	60		SS16	14-19-22	78								
480.0	65		SS17	10-21-29	78								
475.0	70	Sand A-1-b , Gray, wet, dense to very dense, (Lab No. 4)	SS18	19-39-50	67								
470.0	75		SS19	23-26-28	89								
465.0	80		SS20	16-26-25	78								
		82.0											
460.0	85	Sand A-2-4 , Gray, wet, dense to very dense, (Lab No. 5)	SS21	10-23-40	67								

Continued on next page

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # : _____

BORING NO.: **S5-TB-25-3**
 SHEET 3 OF 3
 NORTHING : 1896866
 EASTING : 3018349
 DATUM : _____

PROJECT TYPE: I-65 Added Travel Lanes

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
90	X	Sand A-2-4 , Gray, wet, dense to very dense, (Lab No. 5)	SS22	8-16-25	67								
450.0	X		SS23	34-50	91								
95													
		97.0											
445.0	X	Sand A-1-b , Gray, wet, very dense, (Lab No. 4)	SS24	8-18-34	67								
100		100.0											
		Bottom of Boring at 100.0 ft											
440.0													
105													
435.0													
110													
430.0													
115													
425.0													
120													
420.0													
125													
415.0													
130													
410.0													
135													

INDOT BORING LOG

BORING NO.: **S5-TB-25-4**
 SHEET **1** OF **3**
 NORTHING : **1896954**
 EASTING : **3018336**
 DATUM :
 DATE STARTED : **03-13-14**
 DATE COMPLETED : **03-17-14**

GEOTECHNICAL CONSULTANT : **ATC Associates**
 DES NO. : **1383340** STRUCTURE #:

PROJECT TYPE: **I-65 Added Travel Lanes**

LOCATION : **SR 26 to SR 25**

COUNTY : **Tippecanoe County** PROJECT NO.: **86.55608.0058**

ELEVATION : 562.0	BORING METHOD : HSA	HAMMER : Auto
STATION : 697+38	RIG TYPE : ATV	DRILLER/INSP : G. Lauber/S. Marcum
OFFSET : 0.0 ft	CASING DIA. :	TEMPERATURE : 34 °F
LINE : 'A3'	CORE SIZE : --	WEATHER : Partly Cloudy
DEPTH : 89.4 ft		

GROUNDWATER: ☒ Encountered at **38.0 ft** ☒ At completion **17.0 ft** ☒ **19.0 ft** After **96** hours ☒ Caved in at **21.5 ft**

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.7											
560.0		Sandy Loam A-4 , Brown, slightly moist, medium stiff, with sand seams, (Lab No. 7)	SS1	3-3-4	67	9.6		4.5					
	5		SS2	2-2-2	100	18.1		0.75					
555.0		Sandy Loam A-2-6 , Brown and gray, moist, very loose to loose, (Lab No. 2)	SS3	3-3-3	33	12.9		1.0					
	10		SS4	3-3-4	100	16.8		2.5					
550.0			SS5	7-22-34	100								
	15		SS6	18-35-49	89								
545.0			SS7	16-27-36	89								
	20	Sand A-1-b , Brown, slightly moist to wet, very dense to medium dense, (Lab No. 4)	SS8	17-19-22	89								
540.0			SS9	5-3-10	11								
	25												
535.0			SS10	14-18-19	100								
	30												
530.0		Sandy Loam A-2-4 , Brown, wet, dense to very loose, (Lab No. 6)	SS11	3-2-1	22								
	35												
525.0													
	40	Sand A-1-b , Brown, wet, medium dense, (Lab No. 4)	SS12	2-7-10	100								

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340

STRUCTURE #:

BORING NO.: **S5-TB-25-4**

SHEET **2** OF **3**

NORTHING : 1896954

EASTING : 3018336

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
520.0		Sand A-1-b , Brown, wet, medium dense, (Lab No. 4)											
45			SS13	16-13-15	78								
515.0		47.0											
50			SS14	28-44-50	78			4.5+					
510.0													
55		Loam A-4 , Gray, moist to slightly moist, hard, with thick 6 in. sand seam at 58.0 ft, (Lab No. 1)	SS15	26-32-47	89	10.5		4.5+					
505.0													
60			SS16	12-14-13	78			4.5+					
500.0		62.0											
65		Sand A-2-4 , Gray, wet, dense, (Lab No. 5)	SS17	18-21-23	89								
495.0		67.0											
70		Loam A-4 , Gray, slightly moist, hard, (Lab No. 1)	SS18	18-30-49	89			4.5+					
490.0		72.0											
75		Sandy Loam A-2-4 , Gray, wet, very dense, (Lab No. 6)	SS19	25-30-40	100								
485.0		77.0											
80		Sand A-1-b , Gray, wet, very dense, (Lab No. 4)	SS20	32-35-35	78								
480.0		82.0											
85		Sand A-2-4 , Gray, wet, very dense, with organics, (Lab No. 5)	SS21	11-30-50	97								
475.0		85.0											
		Sand A-1-b , Brown, wet, very dense, (Lab No. 4)											

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates
DES NO. : 1383340 STRUCTURE #:

BORING NO.: S5-TB-25-4
SHEET 3 OF 3
NORTHING : 1896954
EASTING : 3018336
DATUM :

PROJECT TYPE: I-65 Added Travel Lanes

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
90		89.4	SS22	35-50	93								
470.0		Bottom of Boring at 89.4 ft											
95													
465.0													
100													
460.0													
105													
455.0													
110													
450.0													
115													
445.0													
120													
440.0													
125													
435.0													
130													
430.0													
135													
425.0													

INDOT BORING LOG

BORING NO.: **S5-TB-WC-1**

SHEET 1 OF 3

NORTHING : 1891669

EASTING : 3020640

DATUM : _____

DATE STARTED : 03-20-14

DATE COMPLETED : 03-24-14

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340 STRUCTURE #:

PROJECT TYPE: I-65 Added Travel Lanes

LOCATION : SR 26 to SR 25

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

ELEVATION : 568.0	BORING METHOD : HSA	HA
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STATION	: 638+15	RIG TYPE	: ATV	DR
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OFFSET	: 31.0 ft Right	CASING DIA	:	TE
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LINE	:	'A2'	CASING DIA.	:		FE
DEPTH	:		DATE	:		

DEPTH	: 100.0 ft	CORE SIZE	: --	WE
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BORING METHOD : HSA | HA

RIG TYPE	: ATV	DR
----------	-------	----

CASING DIA : _____ TF _____

CASING DIA. : _____

CORE SIZE	: --	WE
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HAMMER : Auto

DRILLER/INSP : G. Lauber/S. Marcum

TEMPERATURE : 50 °F

TEMPERATURE : 50 °C

WEATHER	: Partly Cloudy
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GROUNDWATER: Encountered at 27.0 ft At completion 25.2 ft 18.2 ft After 96 hours Caved in at 28.6 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
565.0		Sandy Loam A-4 , Brown, Slightly Moist, Medium Stiff to very stiff, (Lab No. 7)	SS1	6-6-5	78	9.4		4.25					
	5		SS2	11-11-9	11								
560.0		Sandy Loam A-2-4 , Brown, Moist, Loose, (Lab No. 9)	SS3	4-4-3	78								
	10	Sand A-1-b , Brown, Slightly Moist, Medium Dense, (Lab No. 4)	SS4	7-6-10	78								
555.0		Sandy Loam A-2-6 , Brown, Moist, very loose to dense, (Lab No. 2)	SS5	3-2-3	89	13.2		0.5					
	15		SS6	6-10-15	78	17.2		0.75					
550.0			SS7	9-19-20	6								
	20		SS8	15-10-10	67								
545.0		Sandy Loam A-2-4 , Brown to gray, slightly moist to wet, Medium Dense to loose, (Lab No. 9)	SS9	10-8-11	78								
	25												
540.0			SS10	2-3-6	78								
	30												
535.0													
	35	Loam A-4 , Brown, Moist, Medium Stiff, (Lab No. 1)	SS11	2-3-3	100	18.3		0.5					
530.0													
	40		SS12	2-2-4	72								

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340

STRUCTURE # : _____

BORING NO.: **S5-TB-WC-1**

SHEET 2 OF 3

NORTHING : 1891669

EASTING : 3020640

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
525.0	45	Sandy Loam A-2-4 , Brown, wet, Loose, (Lab No. 6) Sandy Loam A-2-4 , Brown, wet, Loose, (Lab No. 6)	SS13	50	0								40.0, Augers charged with bentonite slurry to facilitate drilling.
520.0	50		SS14	36-18-24	78	8.9		4.5+					
515.0	55	Loam A-4 , Gray, slightly moist, Hard, (Lab No. 1)	SS15	50	0			4.25					
510.0	60		SS16	71-50	42	4.5							
505.0	65	Sand A-2-4 , Gray, wet, Dense, (Lab No. 5)	SS17	9-19-20	78					NP	NP	NP	
500.0	70		SS18	11-19-23	89								
495.0	75	Sandy Loam A-2-4 , Gray, wet, Dense to very dense, (Lab No. 6)	SS19	8-17-21	89								
490.0	80		SS20	24-24-28	78								
485.0	85	Sand A-2-4 , Gray, wet, Dense, (Lab No. 5)	SS21	10-15-26	78								
480.0		Sand A-1-b , Gray, wet, Dense, (Lab No. 4)											

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # : _____

BORING NO.: **S5-TB-WC-1**
 SHEET 3 OF 3
 NORTHING : 1891669
 EASTING : 3020640
 DATUM : _____

PROJECT TYPE: I-65 Added Travel Lanes

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
90	X		SS22	14-21-31	89								
475.0													
95	X	Sand A-1-b, Gray, wet, Dense, (Lab No. 4)	SS23	12-18-30	72								
470.0													
100	X	100.0	SS24	16-20-22	67								
465.0		Bottom of Boring at 100.0 ft											
105													
460.0													
110													
455.0													
115													
450.0													
120													
445.0													
125													
440.0													
130													
435.0													
135													

INDOT BORING LOG

BORING NO.: **S5-TB-WC-2**

SHEET **1** OF **3**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1891625

DES NO. : 1383340 STRUCTURE # :

EASTING : 3020654

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-24-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-25-14

ELEVATION : 570.0
STATION : 638+69
OFFSET : 0.0 ft
LINE : 'A2'
DEPTH : 100.0 ft

BORING METHOD : HSA
RIG TYPE : ATV
CASING DIA. :
CORE SIZE : --

HAMMER : Auto
DRILLER/INSP : G. Lauber/S. Marcum
TEMPERATURE : 28 °F
WEATHER : Cloudy

GROUNDWATER: ☒ Encountered at 8.0 ft ☒ At completion Dry

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.6											0.0, Artesian water noted flowing up adjacent to existing pier foundations.
		Loam A-4 , Brown, moist, soft, (Lab No. 1)	SS1	2-2-3	78	14.1		1.0					
565.0	5	. . . . . 5.5	SS2	1-2-2	78	13.7		0.5				
			SS3	5-4-4	89								
			SS4	5-2-2	89	21.5				NP	NP	NP	
560.0	10	Sandy Loam A-2-4 , Gray, slightly moist to wet, loose to very loose, (Lab No. 6)	SS5	3-2-2	89								
			SS6	26-39-12	78	12.8		2.25					
555.0	15	. . . . . 14.0	SS7	15-8-10	78	10.4		4.5+				
			SS8	17-50	50	14.4		0.5					
550.0	20		SS9	50	83	7.0		4.5+					
545.0	25	Loam A-4 , Gray, slightly moist to very moist, hard to very stiff, (Lab No. 1)	SS10	50	83	15.3		0.25					
540.0	30	. . . . . 32.0										
		Sand A-1-b , Gray, wet, very dense, with seam of silty clay loam, (Lab No. 4)	SS11	17-25-32	67								38.5, 1.5 ft of heaving sand
535.0	35	. . . . . 37.0										
		Sand A-2-4 , Gray, wet, medium dense to very dense, (Lab No. 5)	SS12	5-9-18	100								
530.0	40												

Continued on next page

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340

STRUCTURE #:

BORING NO.: **S5-TB-WC-2**

SHEET **2** OF **3**

NORTHING : 1891625

EASTING : 3020654

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
525.0	45	Sand A-2-4 , Gray, wet, medium dense to very dense, (Lab No. 5)	SS13	19-25-30	100								noted in augers. Augers flushed with bentonite slurry to remove heaving sand. 43.5, 1.5 ft of heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand. 48.5, 1.5 ft of heaving sand noted in augers. Augers flushed with bentonite slurry, then 3 ft heaving sand noted in augers. No sample taken. 53.5, Unable to obtain sample due to artesian water causing heaving sand in augers. 58.5, Heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand. 63.5, 5 ft of heaving sand noted in augers. No sample taken. 68.5, 3 ft of heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand. 73.5, Unable to obtain sample due to artesian water causing heaving sand in augers. 78.5, 3.5 ft of heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand. 83.5, Unable to obtain sample due to artesian water causing heaving sand in augers. 88.5, 5 ft of
520.0	50		SS14										
515.0	55		SS15										
510.0	60		SS16	13-19-23	100								
505.0	65	Sand A-1-b , Gray, wet, dense to very dense, (Lab No. 4)	SS17										
500.0	70		SS18	15-23-32									
495.0	75		SS19										
490.0	80		SS20	22-34-50	90								
485.0	85		SS21										

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # : _____

BORING NO.: **S5-TB-WC-2**
 SHEET 3 OF 3
 NORTHING : 1891625
 EASTING : 3020654
 DATUM :

PROJECT TYPE: I-65 Added Travel Lanes

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
480.0	90	Sand A-1-b, Gray, wet, dense to very dense, (Lab No. 4)	SS22	22-28-38	67								heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand. 93.5, Unable to obtain sample due to artesian water causing heaving sand in augers. 98.5, 4 ft of heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand.
475.0	95		SS23										
470.0	100		SS24	14-22-33	100								
		Bottom of Boring at 100.0 ft											
465.0	105												
460.0	110												
455.0	115												
450.0	120												
445.0	125												
440.0	130												
435.0	135												

INDOT BORING LOG

BORING NO.: **S5-TB-WC-5**

SHEET **1** OF **3**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1891882

DES NO. : 1383340 STRUCTURE # :

EASTING : 3020415

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-26-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-28-14

ELEVATION : <u>539.0</u>	BORING METHOD : <u>HSA</u>	HAMMER : <u>Auto</u>
STATION : <u>641+23</u>	RIG TYPE : <u>ATV</u>	DRILLER/INSP : <u>G. Lauber/S. Marcum</u>
OFFSET : <u>13.0 ft Right</u>	CASING DIA. : <u></u>	TEMPERATURE : <u>30 °F</u>
LINE : <u>'A2'</u>	CORE SIZE : <u>--</u>	WEATHER : <u>Partly Cloudy</u>
DEPTH : <u>100.0 ft</u>		

GROUNDWATER: ☒ Encountered at 18.5 ft ☒ At completion Dry

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Loam A-4 , Brown, moist, medium stiff, (Lab No. 1)											
		----- 2.0	SS1	3-4-3	78	14.5		1.75					
535.0	5	Sandy Loam A-2-6 , Brown, slightly moist to wet, very loose to medium dense, (Lab No. 2)	SS2	5-3-2	78	10.9		0.25					
		----- 8.0	SS3	5-9-10	33	12.8		0.25					
530.0	10	Sand A-1-b , Brown, wet, dense to very dense, (Lab No. 4)	SS4	26-23-23	78								
		----- 16.0	SS5	15-30-30	39								
525.0	15		SS6	36-18-21	78								
		----- 16.0	SS7	16-15-18	89	9.8		2.5					
520.0	20		SS8	21-50	25	11.1		1.5					
		----- 16.0											
515.0	25	Loam A-4 , Gray, slightly moist to very moist, hard to very stiff, (Lab No. 1)	SS9	18-23-46	67	14.6		1.0					
		----- 16.0	SS10	19-26-29	100	14.4		0.5					
510.0	30												
		----- 36.0	SS11	14-14-12	100	12.8		2.5					
505.0	35												
		----- 36.0											
500.0	40	Sand A-2-4 , Gray, wet, dense, (Lab No. 5)	SS12	9-15-26	100								

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340

STRUCTURE #:

BORING NO.: **S5-TB-WC-5**

SHEET 2 OF 3

NORTHING : 1891882

EASTING : 3020415

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Sand A-2-4 , Gray, wet, dense, (Lab No. 5)											
495.0	45		SS13	17-17-25									43.5, 3 ft of heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand.
490.0	50		SS14	10-9-16	100			4.5+					48.5, 3 ft of heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand.
485.0	55		SS15					4.5+					53.5, Unable to obtain sample due to artesian water causing heaving sand in augers.
480.0	60	Sand A-2-4 , Gray, wet, medium dense to very dense, (Lab No. 5)	SS16	8-13-22	100								58.5, 4 ft of heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand.
475.0	65		SS17					4.5+					63.5, Unable to obtain sample due to artesian water causing heaving sand in augers.
470.0	70		SS18	10-15-19	78			4.5+					68.5, 4 ft of heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand.
465.0	75		SS19										73.5, Unable to obtain sample due to artesian water causing heaving sand in augers.
460.0	80		SS20	14-18-30	100								78.5, 5 ft of heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand.
455.0	85	Sand A-1-b , Gray, wet, dense to very dense, (Lab No. 4)	SS21										83.5, Unable to obtain sample due to artesian water causing heaving sand in augers.
													88.5, 4 ft of

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # : _____

BORING NO.: **S5-TB-WC-5**
 SHEET 3 OF 3
 NORTHING : 1891882
 EASTING : 3020415
 DATUM :

PROJECT TYPE: I-65 Added Travel Lanes

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
90	X		SS22	17-45-32	78								heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand.
445.0	X	Sand A-1-b, Gray, wet, dense to very dense, (Lab No. 4)	SS23										93.5, Unable to obtain sample due to artesian water causing heaving sand in augers.
95	X												
440.0	X	100.0	SS24	28-32-57	89								98.5, 3 ft of heaving sand noted in augers. Augers flushed with bentonite slurry to remove heaving sand.
100	X	Bottom of Boring at 100.0 ft											
435.0													
105													
430.0													
110													
425.0													
115													
420.0													
120													
415.0													
125													
410.0													
130													
405.0													
135													

INDOT BORING LOG

BORING NO.: **S5-TB-WC-6**

SHEET **1** OF **3**

GEOTECHNICAL CONSULTANT : ATC Associates

NORTHING : 1891959

DES NO. : 1383340 STRUCTURE # :

EASTING : 3020336

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

LOCATION : SR 26 to SR 25

DATE STARTED : 03-18-14

COUNTY : Tippecanoe County PROJECT NO.: 86.55608.0058

DATE COMPLETED : 03-21-14

ELEVATION : 562.0
STATION : 642+34
OFFSET : 7.0 ft Right
LINE : 'A2'
DEPTH : 100.0 ft

BORING METHOD : HSA
RIG TYPE : ATV
CASING DIA. :
CORE SIZE : --

HAMMER : Auto
DRILLER/INSP : G. Lauber/S. Marcum
TEMPERATURE : 50 °F
WEATHER : Partly Cloudy

GROUNDWATER: ☒ Encountered at 32.0 ft ☒ At completion 15.0 ft ☒ 15.2 ft After 72 hours ☒ Caved in at 19.7 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
		Topsoil 0.3											
560.0			SS1	3-2-3	78	14.4		3.5					
	5	Loam A-4 , Brown, Slightly Moist to moist, soft to very stiff, (Lab No. 1)	SS2	5-2-5	100	14.8		2.75					
555.0			SS3	50	28								
		. . . . . 8.0											
	10	Silty Loam A-4 , Brown and gray, Slightly Moist to moist, Very Stiff, (Lab No. 7)	SS4	8-7-9	100	9.5		4.5+					
550.0			SS5	6-8-17	78	14.6		1.25					
		. . . . . 11.5											
		Sandy Loam A-2-4 , Brown, Slightly Moist, Medium Dense, (Lab No. 9)	SS6	7-5-11	100	11.1		3.0					
	15	Sandy Loam A-2-6 , Brown, slightly moist to wet, Very Stiff, (Lab No. 2)	SS7	12-12-12	22	11.3		1.5					
545.0			SS8	5-5-8	100	18.1		1.75					
		. . . . . 18.0											
		Sandy Loam A-2-4 , Brown, Wet, Medium Dense, (Lab No. 9)											
	20	Silty Clay Loam A-7-6 , Brown, Moist, Stiff, (Lab No. 3)											
		. . . . . 19.0											
		. . . . . 22.0											
540.0			SS9	6-7-6	78	14.8		3.0					
	25	Loam A-4 , Brown, Slightly Moist, Stiff, (Lab No. 1)											
535.0		. . . . . 27.0											
	30		SS10	26-45-36	78								
530.0			SS11	9-20-26	28								
	35	Sand A-1-b , Brown, Wet, Very Dense to Medium Dense, (Lab No. 4)											
525.0			SS12	31-11-7	78								
	40												

INDOT BORING LOG 55608-58 WITH COORDS.GPJ INDOT_169_SECTION_4_TEMPLATE.GDT 8/6/14

Continued on next page

6.0, Concrete encountered. Boring offset 4 ft east.

31.7, Obstruction (possible boulder) encountered at 31.7 ft. Boring offset 6 ft east. 35.0, Augers charged with bentonite slurry.

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates

DES NO. : 1383340

STRUCTURE #:

BORING NO.: **S5-TB-WC-6**

SHEET 2 OF 3

NORTHING : 1891959

EASTING : 3020336

PROJECT TYPE: I-65 Added Travel Lanes

DATUM :

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
520.0		Sand A-1-b , Brown, Wet, Very Dense to Medium Dense, (Lab No. 4)											
45			SS13	32-50	92	11.1		3.5					
515.0		Silty Clay Loam A-7-6 , Gray, Moist, Hard, (Lab No. 3)											
50			SS14	33-31-35	89	11.7		4.5+		43	14	29	
510.0													
55		Sandy Loam A-2-4 , Gray, Wet, Dense, (Lab No. 10)	SS15	11-18-26	100								
505.0													
60		Sand A-1-b , Gray, Wet, Medium Dense, (Lab No. 4)	SS16	3-5-12	67								
500.0													
65			SS17	9-16-25	89								
495.0													
70			SS18	10-16-28	100								
490.0													
75		Sand A-2-4 , Gray, Wet, Dense to medium dense, (Lab No. 5)	SS19	13-19-29	78								
485.0													
80			SS20	7-13-18	100								
480.0													
85			SS21	8-17-32	78								
475.0													

Continued on next page

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : ATC Associates
 DES NO. : 1383340 STRUCTURE # : _____

BORING NO.: **S5-TB-WC-6**
 SHEET 3 OF 3
 NORTHING : 1891959
 EASTING : 3020336
 DATUM : _____

PROJECT TYPE: I-65 Added Travel Lanes

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
90	X	Sand A-2-4 , Gray, Wet, Dense to medium dense, (Lab No. 5)	SS22	11-12-17	78								
470.0													
95	X		SS23	6-11-15	78								
465.0													
		97.0											
		Sand A-1-b , Gray, Wet, Dense, (Lab No. 4)											
100	X		SS24	15-25-20	89								
460.0													
		100.0											
		Bottom of Boring at 100.0 ft											
460.0													
105													
455.0													
110													
450.0													
115													
445.0													
120													
440.0													
125													
435.0													
130													
430.0													
135													
425.0													

APPENDIX C

SUMMARY OF CLASSIFICATIONS TEST RESULTS

GRAIN SIZE DISTRIBUTION TEST REPORTS

SUBBASE SIEVE SUMMARY

SUMMARY OF SPECIAL LABORATORY TEST RESULTS

RESILIENT MODULUS TEST RESULTS

SUMMARY OF SOIL DENSITY TESTS

SUMMARY OF PAVEMENT THICKNESS

SUMMARY OF TOPSOIL THICKNESS

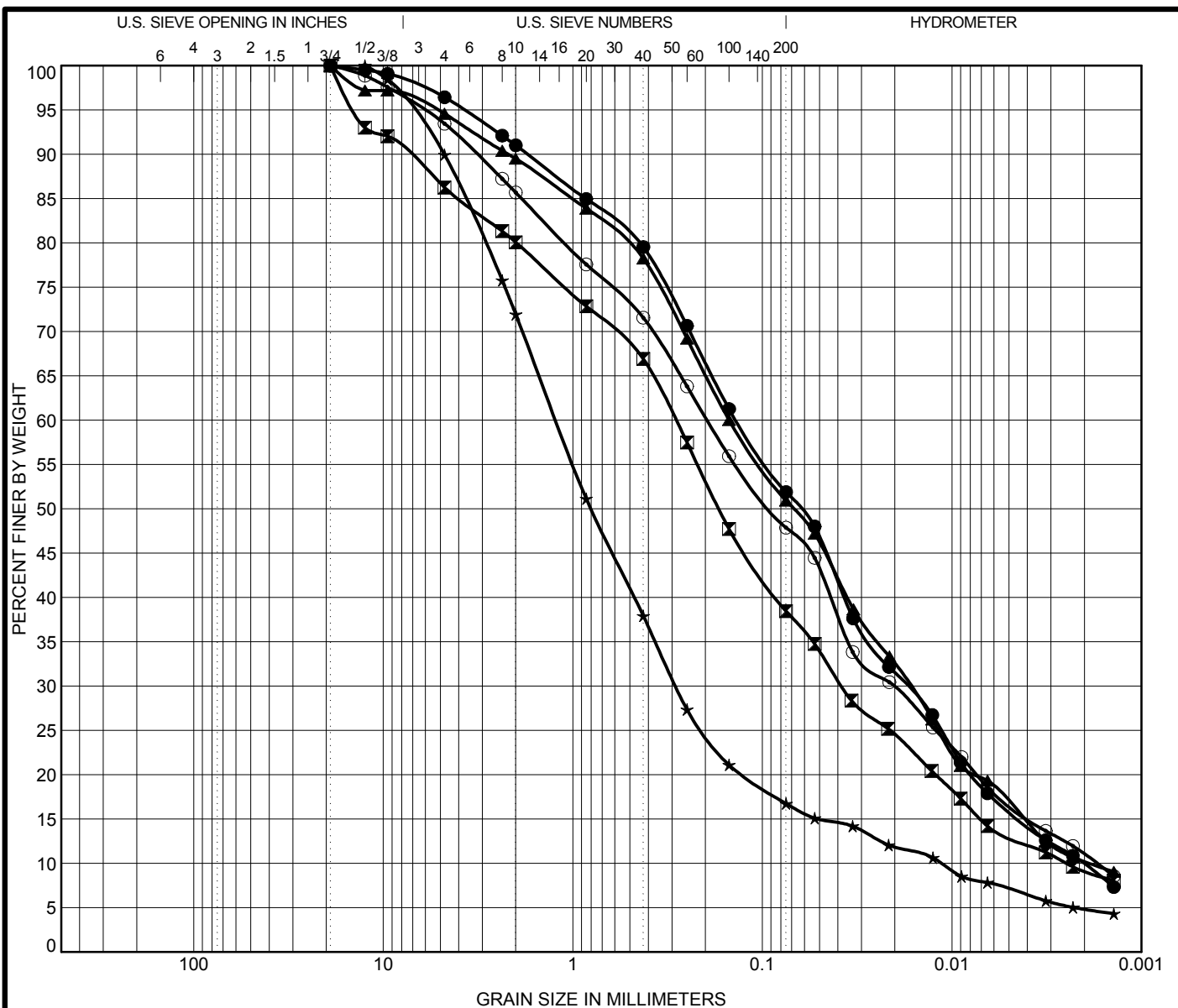
Boring	Sample	Depth	Lab #	Soil Classification	Gravel %	Sand %	Silt %	Clay %	Colloid %	LL	PL	PI	LOI %	Ca/Mg %	Moisture %	pH
S5-RB-006	Bag	1.1	12	A-4 (1) LOAM	9.0	39.1	42.0	9.9		20	11	10			18.3	
S5-RB-006	SS3	6	7	A-4 (0) SANDY LOAM	19.9	41.6	29.3	9.2		16	12	4			8.5	
S5-RB-008	SS2	3.5	1	A-4 (0) LOAM	10.5	38.6	40.7	10.2		19	12	7			10.1	
S5-RB-010	SS4	8.5	4	A-1-b (0) SAND	28.1	55.2	11.9	4.8		NP	NP	NP			9.5	
S5-RB-014	Bag	1.1	13	A-6 (2) SANDY LOAM	14.3	37.8	36.9	11.0		24	12	12			10.3	
S5-RB-034	SS3	6	2	A-2-6 (1) SANDY LOAM	33.9	35.5	18.9	11.7		32	14	17			14.6	
S5-RB-056	SS1	1	8	A-1-b (0) SAND	39.1	47.3	12.6	1.0		NP	NP	NP				
S5-RB-056	SS2	3.5	9	A-2-4 (0) SANDY LOAM	24.4	49.8	17.0	8.9		22	13	9			12.6	
S5-RB-060	SS1	1	10	A-2-4 (0) SANDY LOAM	12.5	53.3	27.7	6.4		23	14	10			13.1	
S5-RBS-112	SS2	2	11	A-4 (0) SILTY LOAM	18.0	12.8	55.6	13.6		23	20	3			23.9	
S5-TB-WC-1	SS17	63.5	5	A-2-4 (0) SAND	5.6	78.8	14.9	0.7		NP	NP	NP				
S5-TB-WC-2	SS4	8.5	6	A-2-4 (0) SANDY LOAM	0.0	76.0	20.4	3.6		NP	NP	NP			21.5	
S5-TB-WC-6	SS14	48.5	3	A-7-6 (20) SILTY CLAY LOAM	1.2	24.6	52.7	21.4		43	14	28			11.7	

**ATC**

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 Fax: (317)849-4278

Summary of Classification Tests

DES # : 1383340 County : Tippecanoe County
 Route # : Project # : 86.55608.0058
 Project Type : I-65 Added Travel Lanes
 Location : SR 26 to SR 25



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

Specimen Identification				Lab #	Textural Classification					LL	PL	PI	Cc	Cu
●	S5-RB-006	Bag	1.1	12	A-4 (1) LOAM					20.5	11.0	9.5	1.09	67.12
☒	S5-RB-006	SS3	6.0	7	A-4 (0) SANDY LOAM					16.1	11.9	4.2	2.02	115.64
▲	S5-RB-008	SS2	3.5	1	A-4 (0) LOAM					19.0	11.8	7.2	1.00	80.25
★	S5-RB-010	SS4	8.5	4	A-1-b (0) SAND					NP	NP	NP	5.87	107.81
◎	S5-RB-014	Bag	1.1	13	A-6 (2) SANDY LOAM					23.9	12.4	11.5	1.24	112.88
Specimen Identification				D60	D30	D10	LOI	Ca/Mg	%Gravel	%Sand	%Silt	%Clay	%Colloid	
●	S5-RB-006	Bag	1.1	0.137	0.017	0.002			9.0	39.1	42.0	9.9		
☒	S5-RB-006	SS3	6.0	0.288	0.038	0.002			19.9	41.6	29.3	9.2		
▲	S5-RB-008	SS2	3.5	0.15	0.017	0.002			10.5	38.6	40.7	10.2		
★	S5-RB-010	SS4	8.5	1.224	0.285	0.011			28.1	55.2	11.9	4.8		
◎	S5-RB-014	Bag	1.1	0.195	0.02	0.002			14.3	37.8	36.9	11.0		

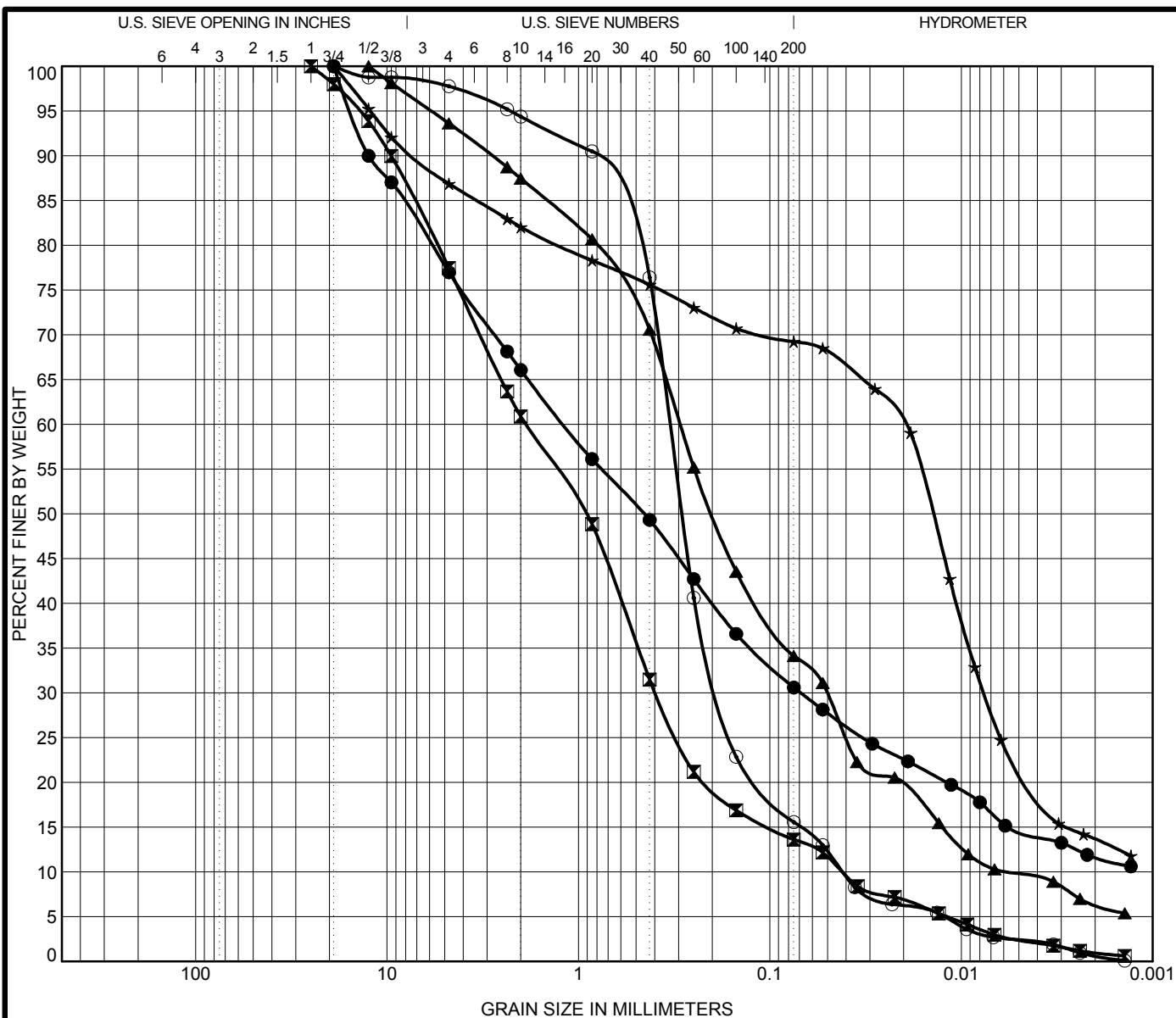


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GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1383340
Project #: 86.55608.0058
County: Tippecanoe County
Location: SR 26 to SR 25

Structure #:



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

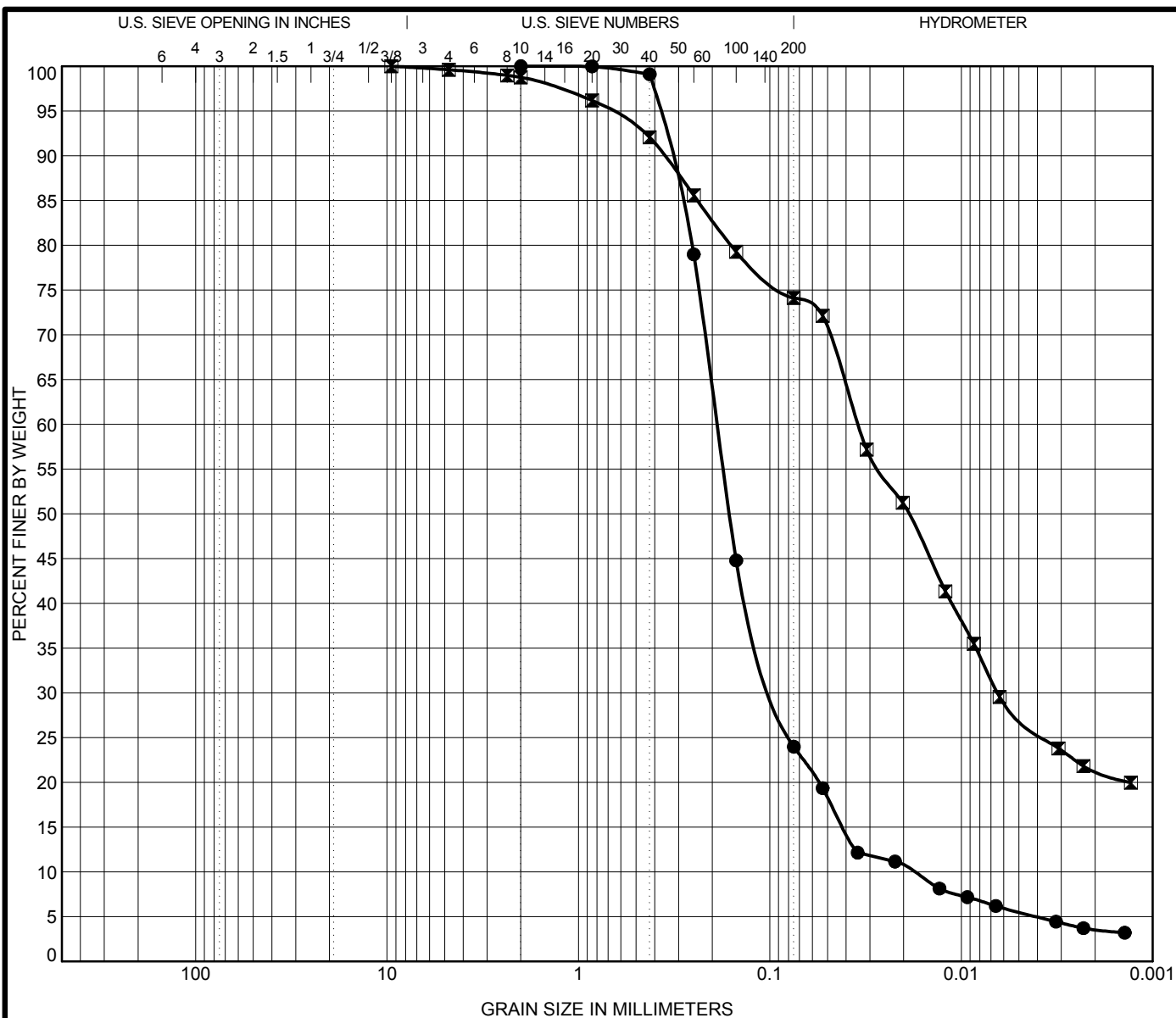
Specimen Identification				Lab #	Textural Classification				LL	PL	PI	Cc	Cu
●	S5-RB-034	SS3	6.0	2	A-2-6 (1) SANDY LOAM				31.7	14.3	17.4		
☒	S5-RB-056	SS1	1.0	8	A-1-b (0) SAND				NP	NP	NP	1.98	45.09
▲	S5-RB-060	SS1	1.0	10	A-2-4 (0) SANDY LOAM				23.1	13.6	9.5	1.49	51.14
★	S5-RBS-112	SS2	2.0	11	A-4 (0) SILTY LOAM				22.8	19.6	3.2		
◎	S5-TB-WC-1	SS17	63.5	5	A-2-4 (0) SAND				NP	NP	NP	2.46	8.04
Specimen Identification				D60	D30	D10	LOI	Ca/Mg	%Gravel	%Sand	%Silt	%Clay	%Colloid
●	S5-RB-034	SS3	6.0	1.187	0.069				33.9	35.5	18.9	11.7	
☒	S5-RB-056	SS1	1.0	1.878	0.394	0.042			39.1	47.3	12.6	1.0	
▲	S5-RB-060	SS1	1.0	0.295	0.05	0.006			12.5	53.3	27.7	6.4	
★	S5-RBS-112	SS2	2.0	0.02	0.008				18.0	12.8	55.6	13.6	
◎	S5-TB-WC-1	SS17	63.5	0.333	0.184	0.041			5.6	78.8	14.9	0.7	



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GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1383340 Structure #:
Project #: 86.55608.0058
County: Tippecanoe County
Location: SR 26 to SR 25



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

Specimen Identification	Lab #	Textural Classification				LL	PL	PI	Cc	Cu
● S5-TB-WC-2 SS4 8.5	6	A-2-4 (0) SANDY LOAM				NP	NP	NP	2.47	10.41
☒ S5-TB-WC-6 SS14 48.5	3	A-7-6 (20) SILTY CLAY LOAM				42.8	14.4	28.4		

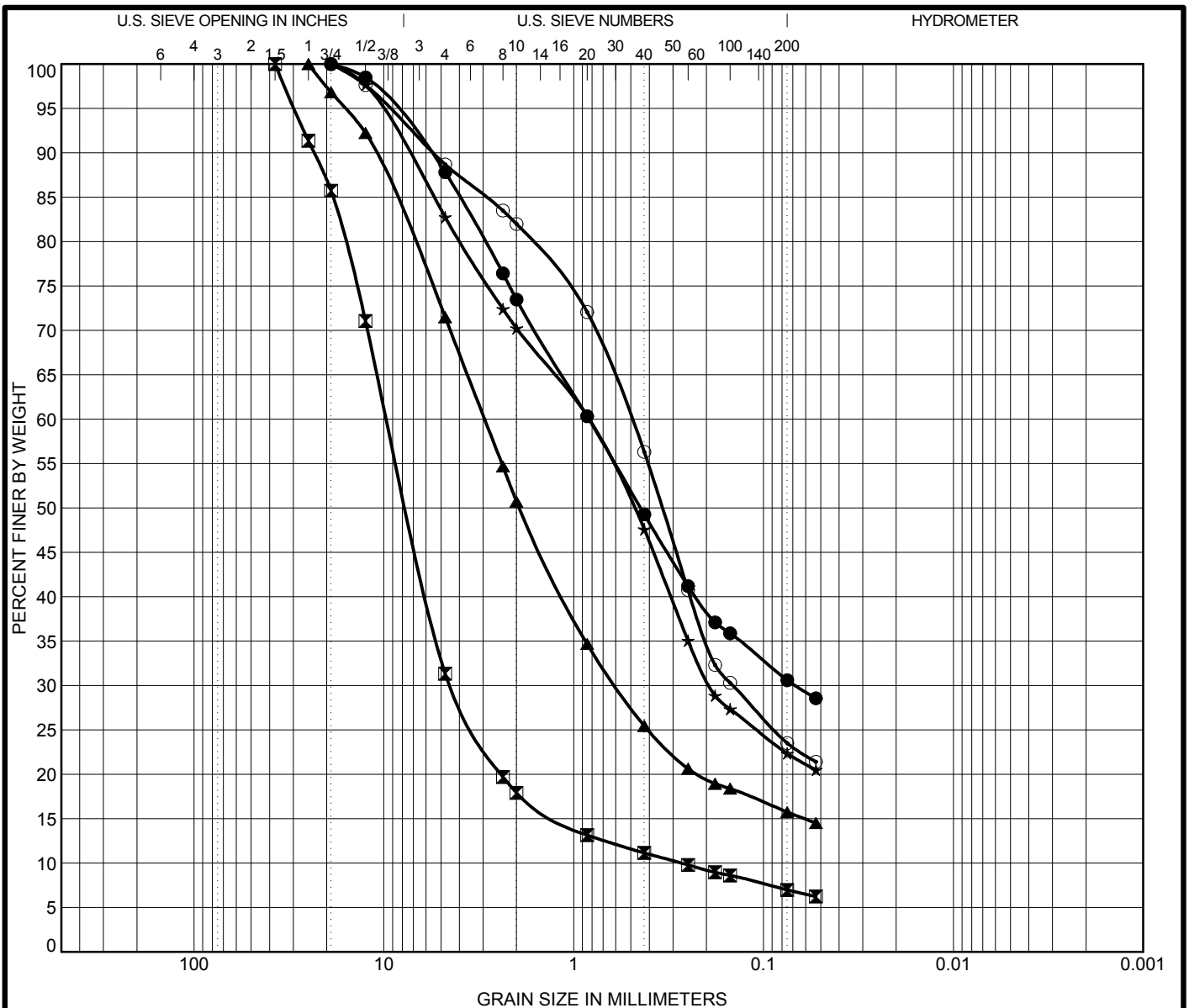
Specimen Identification	D60	D30	D10	LOI	Ca/Mg	%Gravel	%Sand	%Silt	%Clay	%Colloid
● S5-TB-WC-2 SS4 8.5	0.188	0.092	0.018			0.0	76.0	20.4	3.6	
☒ S5-TB-WC-6 SS14 48.5	0.034	0.006				1.2	24.6	52.7	21.4	



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GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1383340 Structure #:
Project #: 86.55608.0058
County: Tippecanoe County
Location: SR 26 to SR 25



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

Specimen Identification		Lab #	Textural Classification					LL	PL	PI	Cc	Cu
●	S5-RB-003	1.5	Granular Subbase									
✕	S5-RB-021	1.5	Granular Subbase								7.43	35.23
▲	S5-RB-039	1.5	Granular Subbase									
★	S5-RB-047	1.5	Granular Subbase									
⊙	S5-RB-059	1.5	Granular Subbase									
Specimen Identification		D60	D30	D10	LOI	Ca/Mg	%Gravel	%Sand	%Silt	%Clay	%Colloid	
●	S5-RB-003	1.5	0.832	0.068			26.5	42.9				
✕	S5-RB-021	1.5	9.55	4.386	0.271		82.1	10.9				
▲	S5-RB-039	1.5	2.945	0.598			49.3	35.0				
★	S5-RB-047	1.5	0.833	0.191			29.8	47.9				
⊙	S5-RB-059	1.5	0.5	0.145			18.0	58.5				



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GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: 1383340
Project #: 86.55608.0058
County: Tippecanoe County
Location: SR 26 to SR 25

Structure #:

Summary of Subbase Sieve Analysis
 Interstate 65 - SR 26 to SR 25
 INDOT Des. No. 1383340
 Tippecanoe County, Indiana

INDOT Course Aggregate Specification (Percent Passing)									
	1.5 in.	1.0 in	0.75 in	0.50 in	#4	#8	#30	#40	#200
No. 53	100	80-100	70-90	55-80	35-60	NA	12-30	NA	5-10
No. 73	100	100	90-100	60-90	35-60	25-50	12-30	NA	5-12

Sieve Analysis of Subbase Sample (Percent Passing)									
Boring No.	1.5 in.	1.0 in	0.75 in	0.50 in	#4	#8	#30	#40	#200
S5-RB-003	100.0	100.0	100.0	98.5	87.8	76.4	NA	49.3	30.6
S5-RB-021	100.0	91.4	85.7	71.1	31.3	19.7	NA	11.1	6.7
S5-RB-039	100.0	100.0	96.8	92.2	71.5	50.7	NA	25.5	15.7
S5-RB-047	100.0	100.0	100.0	97.6	82.7	72.4	NA	47.6	22.3
S5-RB-059	100.0	100.0	100.0	97.6	88.7	83.5	NA	56.3	23.5

Boring	Sample	Depth	Specific Gravity	Dry Density (pcf)	Qu (tsf)	c (tsf)	ϕ (deg)	Moisture %	Max Dry Density (pcf)	Opt. Moisture %	Resilient Modulus (MR)		Void Ratio	Collapse Index	K Falling H (mm/sec)	K Constant H (mm/sec)
S5-RB-001	SS1	1 - 2.5		118.9				13.7			MR @ Optimum	MR @ Optimum +2%				
S5-RB-001	SS2	3.5 - 5						9.3								
S5-RB-001	SS3	6 - 7.5						10.8								
S5-RB-002	SS1	1 - 2.5						10.8								
S5-RB-002	SS2	3.5 - 5						12.3								
S5-RB-002	SS4	8.5 - 10						23.2								
S5-RB-004	SS1	1 - 2.5						10.2								
S5-RB-006	SS1	1 - 2.5						9.8								
S5-RB-006	Bag	1.1 - 3						18.3								
S5-RB-006	SS2	3.5 - 5						9.4								
S5-RB-006	SS3	6 - 7.5						8.5								
S5-RB-007	SS1	1 - 2.5						14.5								
S5-RB-007	SS3	6 - 7.5						15.3								
S5-RB-008	SS1	1 - 2.5						9.3								
S5-RB-008	SS2	3.5 - 5						10.1								
S5-RB-008	SS3	6 - 7.5						11.1								
S5-RB-009	SS3	6 - 7.5						8.5								
S5-RB-010	SS1	1 - 2.5						9.8								
S5-RB-010	SS2	3.5 - 5						13.8								
S5-RB-010	SS3	6 - 7.5						10.1								
S5-RB-010	SS4	8.5 - 10						9.5								
S5-RB-011	SS2	3.5 - 5						8.2								
S5-RB-011	SS3	6 - 7.5						9.1								
S5-RB-012	SS1	1 - 2.5						10.7								
S5-RB-012	SS2	3.5 - 5						9.4								
S5-RB-012	SS3	6 - 7.5						13.2								
S5-RB-013	SS3	6 - 7.5						9.4								
S5-RB-014	SS1	1 - 2.5						10.8								



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Summary of Special Lab Tests

DES # : 1383340 County : Tippecanoe County
Route # : Project # : 86.55608.0058
Project Type : I-65 Added Travel Lanes
Location : SR 26 to SR 25

Boring	Sample	Depth	Specific Gravity	Dry Density (pcf)	Qu (tsf)	c (tsf)	ϕ (deg)	Moisture %	Max Dry Density (pcf)	Opt. Moisture %	Resilient Modulus (MR)		Void Ratio	Collapse Index	K Falling H (mm/sec)	K Constant H (mm/sec)
S5-RB-014	Bag	1.1 - 3						10.3			MR @ Optimum	MR @ Optimum +2%				
S5-RB-014	SS2	3.5 - 5						9.7								
S5-RB-014	SS3	6 - 7.5						10.4								
S5-RB-014	SS4	8.5 - 10						17.4								
S5-RB-015	SS1	1 - 2.5						8.7								
S5-RB-015	SS2	3.5 - 5		134.7				8.8								
S5-RB-015	SS3	6 - 7.5						8.9								
S5-RB-016	SS1	1 - 2.5						9.9								
S5-RB-016	SS2	3.5 - 5						15.8								
S5-RB-016	SS3	6 - 7.5						17.0								
S5-RB-017	SS1	1 - 2.5						7.6								
S5-RB-018	SS1	1 - 2.5						9.8								
S5-RB-018	SS2	3.5 - 5						10.8								
S5-RB-018	SS3	6 - 7.5						10.3								
S5-RB-019	SS2	3.5 - 5						9.3								
S5-RB-020	SS1	1 - 2.5						9.6								
S5-RB-020	SS2	3.5 - 5						7.6								
S5-RB-020	SS3	6 - 7.5						8.6								
S5-RB-022	SS1	1 - 2.5						11.6								
S5-RB-022	SS2	3.5 - 5						11.9								
S5-RB-022	SS3	6 - 7.5						10.2								
S5-RB-022	SS6	13.5 - 15						12.6								
S5-RB-023	SS1	1 - 2.5						7.5								
S5-RB-023	SS2	3.5 - 5						4.0								
S5-RB-024	SS1	1 - 2.5						17.3								
S5-RB-024	SS2	3.5 - 5						10.0								
S5-RB-024	SS3	6 - 7.5						11.5								
S5-RB-028	SS1	1 - 2.5						11.3								



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Summary of Special Lab Tests

DES #	: 1383340	County	: Tippecanoe County
Route #	:	Project #	: 86.55608.0058
Project Type	: I-65 Added Travel Lanes		
Location	: SR 26 to SR 25		

Boring	Sample	Depth	Specific Gravity	Dry Density (pcf)	Qu (tsf)	c (tsf)	ϕ (deg)	Moisture %	Max Dry Density (pcf)	Opt. Moisture %	Resilient Modulus (MR)		Void Ratio	Collapse Index	K Falling H (mm/sec)	K Constant H (mm/sec)
S5-RB-029	SS1	1 - 2.5						14.4			MR @ Optimum	MR @ Optimum +2%				
S5-RB-029	SS3	6 - 7.5						15.2								
S5-RB-029	SS3	7 - 7.5						16.5								
S5-RB-034	SS1	1 - 2.5						18.0								
S5-RB-034	SS2	3.5 - 5						21.3								
S5-RB-034	SS3	6 - 7.5						14.6								
S5-RB-035	SS1	1 - 2.5						7.4								
S5-RB-035	SS2	3.5 - 5						6.0								
S5-RB-035	SS3	6 - 7.5						6.3								
S5-RB-036	SS1	1 - 2.5						9.1								
S5-RB-036	SS3	6 - 7.5						9.5								
S5-RB-042	SS1	1 - 2.5						10.6								
S5-RB-042	SS2	3.5 - 5						11.5								
S5-RB-043	SS1	1 - 2.5		132.9				11.0								
S5-RB-043	SS2	3.5 - 5						10.2								
S5-RB-043	SS3	6 - 7.5						11.2								
S5-RB-048	SS1	1 - 2.5						9.7								
S5-RB-048	SS2	3.5 - 5						9.7								
S5-RB-048	SS3	6 - 7.5						8.3								
S5-RB-050	SS3	6 - 7.5						17.5								
S5-RB-051	SS2	3.5 - 5						6.1								
S5-RB-054	SS4	8.5 - 10						8.7								
S5-RB-056	SS1	1 - 2.5														
S5-RB-056	SS2	3.5 - 5						12.6								
S5-RB-056	SS3	6 - 7.5						8.9								
S5-RB-058	SS1	1 - 2.5						9.3								
S5-RB-060	SS1	1 - 2.5						13.1								
S5-RB-060	SS2	3.5 - 5						10.8								



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Summary of Special Lab Tests

DES # : 1383340 County : Tippecanoe County
Route # : Project # : 86.55608.0058
Project Type : I-65 Added Travel Lanes
Location : SR 26 to SR 25

Boring	Sample	Depth	Specific Gravity	Dry Density (pcf)	Qu (tsf)	c (tsf)	ϕ (deg)	Moisture %	Max Dry Density (pcf)	Opt. Moisture %	Resilient Modulus (MR)		Void Ratio	Collapse Index	K Falling H (mm/sec)	K Constant H (mm/sec)
S5-RB-060	SS3	6 - 7.5						9.7								
S5-RB-062	SS1	1 - 2.5						15.6								
S5-RB-062	SS2	3.5 - 5						9.9								
S5-RB-062	SS3	6 - 7.5						13.5								
S5-RB-064	SS1	1 - 2.5						10.8								
S5-RB-067	SS1	1 - 2.5						5.3								
S5-RB-067	SS2	3.5 - 5						7.4								
S5-RB-067	SS3	6 - 7.5						7.4								
S5-RB-068	SS1	1 - 2.5						10.3								
S5-RB-068	SS2	3.5 - 5						7.2								
S5-RB-069	SS3	6 - 7.5						7.4								
S5-RB-070	SS1	1 - 2.5						8.5								
S5-RB-070	SS5	11 - 12.5						10.1								
S5-RB-070	SS6	13.5 - 15						16.0								
S5-RB-071	SS1	1 - 2.5						8.3								
S5-RB-072	SS1	1 - 2.5						7.7								
S5-RBS-101	SS1	0.8 - 2.3						16.0								
S5-RBS-101	SS2	2.3 - 3.8						10.9								
S5-RBS-101	SS3	3.8 - 5.3						7.5								
S5-RBS-101	SS4	6 - 7.5						8.6								
S5-RBS-102	SS1	0.6 - 2.1						10.8								
S5-RBS-102	SS2	2.1 - 3.1		135.1				10.3								
S5-RBS-102	SS3	3.1 - 4.6						9.2								
S5-RBS-102	SS4	6 - 7.5						9.4								
S5-RBS-103	SS1	0.8 - 2.3						7.4								
S5-RBS-103	SS3	3.8 - 5.3						9.7								
S5-RBS-103	SS4	6 - 7.5						10.5								
S5-RBS-103A	SS1	1.1 - 2.6						13.0								

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Summary of Special Lab Tests

DES # : 1383340 County : Tippecanoe County
 Route # : Project # : 86.55608.0058
 Project Type : I-65 Added Travel Lanes
 Location : SR 26 to SR 25

Boring	Sample	Depth	Specific Gravity	Dry Density (pcf)	Qu (tsf)	c (tsf)	ϕ (deg)	Moisture %	Max Dry Density (pcf)	Opt. Moisture %	Resilient Modulus (MR)		Void Ratio	Collapse Index	K Falling H (mm/sec)	K Constant H (mm/sec)
S5-RBS-103A	SS2	2.6 - 4.1						7.9			MR @ Optimum	MR @ Optimum +2%				
S5-RBS-103A	SS3	4.1 - 5.6						14.4								
S5-RBS-104	SS1	0.7 - 2.1						8.8								
S5-RBS-104	SS2	2.1 - 3.7		131.1				7.7								
S5-RBS-104	SS3	3.7 - 5.2						7.6								
S5-RBS-104	SS4	6 - 7.5						8.7								
S5-RBS-105	SS1	0.9 - 2.4						9.5								
S5-RBS-105	SS2	2.4 - 3.9						9.8								
S5-RBS-105	SS3	3.9 - 5.4						8.7								
S5-RBS-105	SS4	6 - 7.5						8.0								
S5-RBS-105A	SS2	2.5 - 4						7.3								
S5-RBS-105A	SS3	4 - 5.5						12.2								
S5-RBS-105A	SS4	6 - 7.5						10.0								
S5-RBS-106	SS2	2.1 - 3.6						6.8								
S5-RBS-106	SS3	3.6 - 5.1						11.8								
S5-RBS-106	SS4	6 - 7.5						9.6								
S5-RBS-106	SS5	8.5 - 10						14.1								
S5-RBS-112	SS2	2 - 3.5						23.9								
S5-RBS-113	SS4	6 - 7.5						8.0								
S5-RBS-116	SS2	2.5 - 4						21.0								
S5-RBS-118	SS2	2 - 3.5						7.3								
S5-TB-25-1	SS1	1 - 2.5						15.8								
S5-TB-25-1	SS3	6 - 7.5						16.5								
S5-TB-25-1	SS4	8.5 - 10						17.6								
S5-TB-25-1	SS11	33.5 - 35						18.8								
S5-TB-25-1	SS17	63.5 - 65						10.6								
S5-TB-25-2	SS1	1 - 2.5						14.0								
S5-TB-25-2	SS2	3.5 - 5						17.0								

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Summary of Special Lab Tests

DES # : 1383340 County : Tippecanoe County
 Route # : Project # : 86.55608.0058
 Project Type : I-65 Added Travel Lanes
 Location : SR 26 to SR 25

Boring	Sample	Depth	Specific Gravity	Dry Density (pcf)	Qu (tsf)	c (tsf)	ϕ (deg)	Moisture %	Max Dry Density (pcf)	Opt. Moisture %	Resilient Modulus (MR)		Void Ratio	Collapse Index	K Falling H (mm/sec)	K Constant H (mm/sec)
S5-TB-25-2	SS3	6 - 7.5						11.0								
S5-TB-25-2	SS4	8.5 - 10						103.0								
S5-TB-25-2	SS10	28.5 - 30						9.5								
S5-TB-25-2	SS13	43.5 - 45						11.4								
S5-TB-25-2	SS14	48.5 - 50						10.9								
S5-TB-25-3	SS1	1 - 2.5						9.5								
S5-TB-25-3	SS2	3.5 - 5						8.0								
S5-TB-25-3	SS10	28.5 - 30						8.5								
S5-TB-25-3	SS11	33.5 - 35						50.8								
S5-TB-25-3	SS14	48.5 - 50						9.9								
S5-TB-25-4	SS1	1 - 2.5						9.6								
S5-TB-25-4	SS2	3.5 - 5						18.1								
S5-TB-25-4	SS3	6 - 7.5						12.9								
S5-TB-25-4	SS4	8.5 - 10						16.8								
S5-TB-25-4	SS15	53.5 - 55						10.5								
S5-TB-WC-1	SS1	1 - 2.5						9.4								
S5-TB-WC-1	SS5	11 - 12.5						13.2								
S5-TB-WC-1	SS6	13.5 - 15						17.2								
S5-TB-WC-1	SS11	33.5 - 35						18.3								
S5-TB-WC-1	SS14	48.5 - 50						8.9								
S5-TB-WC-1	SS16	58.5 - 60						4.5								
S5-TB-WC-1	SS17	63.5 - 65														
S5-TB-WC-2	SS1	1 - 2.5						14.1								
S5-TB-WC-2	SS2	3.5 - 5						13.7								
S5-TB-WC-2	SS4	8.5 - 10						21.5								
S5-TB-WC-2	SS6	13.5 - 15						12.8								
S5-TB-WC-2	SS7	16 - 17.5						10.4								
S5-TB-WC-2	SS8	18.5 - 20						14.4								



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Summary of Special Lab Tests

DES # : 1383340 County : Tippecanoe County
Route # : Project # : 86.55608.0058
Project Type : I-65 Added Travel Lanes
Location : SR 26 to SR 25

Boring	Sample	Depth	Specific Gravity	Dry Density (pcf)	Qu (tsf)	c (tsf)	ϕ (deg)	Moisture %	Max Dry Density (pcf)	Opt. Moisture %	Resilient Modulus (MR)		Void Ratio	Collapse Index	K Falling H (mm/sec)	K Constant H (mm/sec)
S5-TB-WC-2	SS9	23.5 - 25						7.0			MR @ Optimum	MR @ Optimum +2%				
S5-TB-WC-2	SS10	28.5 - 30						15.3								
S5-TB-WC-5	SS1	1 - 2.5						14.5								
S5-TB-WC-5	SS2	3.5 - 5						10.9								
S5-TB-WC-5	SS3	6 - 7.5						12.8								
S5-TB-WC-5	SS7	16 - 17.5						9.8								
S5-TB-WC-5	SS8	18.5 - 20						11.1								
S5-TB-WC-5	SS9	23.5 - 25						14.6								
S5-TB-WC-5	SS10	28.5 - 30						14.4								
S5-TB-WC-5	SS11	33.5 - 35						12.8								
S5-TB-WC-6	SS1	1 - 2.5						14.4								
S5-TB-WC-6	SS2	3.5 - 5						14.8								
S5-TB-WC-6	SS4	8.5 - 10						9.5								
S5-TB-WC-6	SS5	11 - 13.5						14.6								
S5-TB-WC-6	SS6	13.5 - 15						11.1								
S5-TB-WC-6	SS7	16 - 17.5						11.3								
S5-TB-WC-6	SS8	18.5 - 20						18.1								
S5-TB-WC-6	SS9	23.5 - 25						14.8								
S5-TB-WC-6	SS13	43.5 - 45						11.1								
S5-TB-WC-6	SS14	48.5 - 50						11.7								



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Summary of Special Lab Tests

DES # : 1383340 County : Tippecanoe County
Route # : Project # : 86.55608.0058
Project Type : I-65 Added Travel Lanes
Location : SR 26 to SR 25

Resilient Modulus AASHTO T307 for ATC

Lab No.	14-RM026	Des. No.	1383340	Sample Type I or II	II
Proj. Name (Rd.)	I-65	Location (Co.)	Tippecanoe	Boring	RB-014 Depth 1.0'
Textural Class.	Sandy Loam			AASHTO Class.	A-6 (2)
Specific Gravity	Estimate	Liquid Limit	23.9	Plastic Limit	12.4

Compaction AASHTO T-99 Method A		Hygroscopic Moisture	
Maximum Wet Density	140.4 pcf	Wet Weight with Tare	243.6
Maximum Dry Density	126.2 pcf	Dry Weight with Tare	242.5
Optimum Moisture	11.0%	Tare Weight	59.5
Optimum Moisture +2	13.0%	Percent Moisture	0.6%
Grams of Air Dry Soil 1500		Evaporation expected 0.30%	

Mixing @ Optimum Moisture	Mixing @ 2.0% above Optimum Moisture
Soil Required 1509 grams	Soil Required 1509 grams
Water Required 160 grams	Water Required 190 grams
Molding Moisture Before Test	Molding Moisture Before Test
Wet Weight with Tare 199.6 / 193.1	Wet Weight with Tare 197.8 / 194.0
Dry Weight with Tare 187.3 / 180.9	Dry Weight with Tare 182.1 / 178.6
Tare Weight 61.7 / 59.3 Average	Tare Weight 62.8 / 61.4 Average
Percent Moisture 9.8% / 10.0% / 9.9%	Percent Moisture 13.2% / 13.1% / 13.2%
5 Layers @ 266.0 grams of soil per layer <i>Approx 9/10 Blows per Layer</i>	5 Layers @ 266.0 grams of soil per layer <i>Approx 9/10 Blows per Layer</i>
Mass of Soil with Mold 1966.4	Mass of Soil with Mold 1948.1
subtract Mass of Mold 638.2	subtract Mass of Mold 638.0
Mass of Specimen 1328.2 grams	Mass of Specimen 1310.1 grams

Mold Identification (enter A,B,C or D) >>	C
	Inside Diameter 7.312 cms

Before Test	Before Test
Height > 14.112 / 14.112 / 14.112	Height > 14.225 / 14.243 / 14.239
Avg Height of Extruded Specimen 14.112 cms	Avg Height of Extruded Specimen 14.236 cms
Molded Wet Density 139.9 pcf, 0.3%	Molded Wet Density 136.8 pcf, 2.5%
Molded Dry Density 127.3 pcf	Molded Dry Density 120.9 pcf

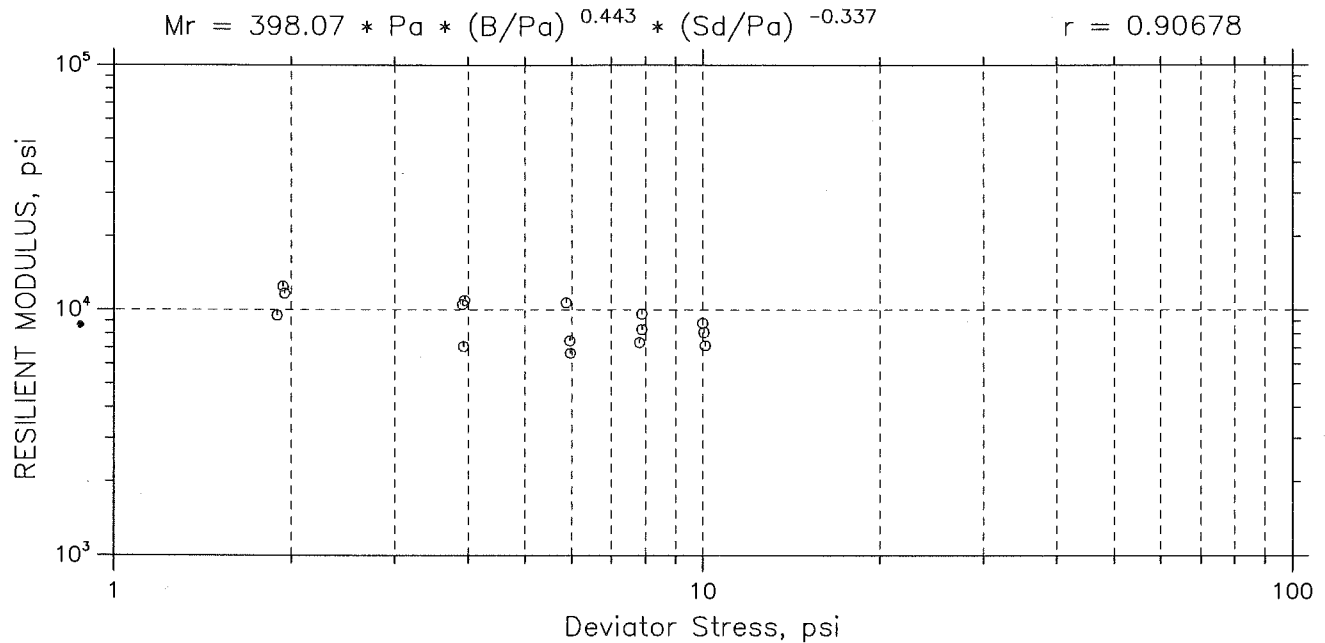
After Test	After Test
Mass of Specimen 1323.3 grams	Mass of Specimen 1302.4 grams
Final Moisture on 1/4 Specimen	Final Moisture on 1/4 Specimen
Wet Weight with Tare 659.1	Wet Weight with Tare 579.0
Dry Weight with Tare 618.3	Dry Weight with Tare 537.6
Tare Weight 211.5	Tare Weight 211.5
Percent Moisture 10.0%	Percent Moisture 12.7%

tested by: mgd 4/22/14

tested by: mgd date: 4/29/14

RESILIENT MODULUS TEST DATA

SUMMARY REPORT

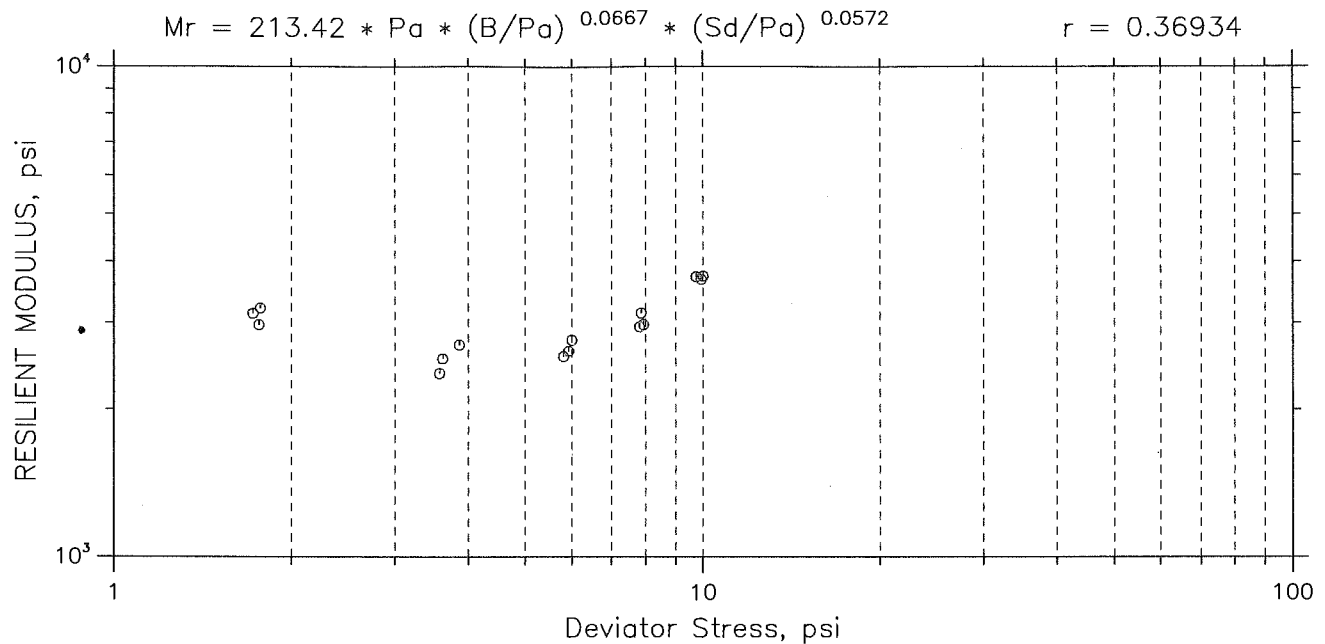


Confining Stress S3 (psi)	Nom. Max. Deviator Stress (psi)	Mean Deviator Stress (psi)	Std. Dev. Deviator Stress (psi)	Mean Bulk Stress (psi)	Mean Resilient Strain (%)	Std. Dev. Resilient Strain (%)	Mean Resilient Modulus (psi)	Std. Dev. Resilient Modulus (psi)
6.047	2	1.949	0.0063	20.09	0.02	0.00	11661	292.96
6.036	4	3.919	0.0239	22.03	0.04	0.00	10526	496.58
6.026	6	5.875	0.0319	23.95	0.05	0.00	10704	66.823
6.014	8	7.889	0.0075	25.93	0.07	0.00	9622.2	97.916
6.005	10	9.998	0.0130	28.01	0.10	0.00	8817.1	45.14
4.017	2	1.937	0.0065	13.99	0.02	0.00	12472	325.33
4.013	4	3.948	0.0073	15.99	0.03	0.00	10924	74.364
4.011	6	5.955	0.0081	17.99	0.07	0.00	7479.2	19.805
4.006	8	7.891	0.0082	19.91	0.09	0.00	8313.2	51.857
4	10	10.05	0.0416	22.05	0.11	0.00	8099	63.517
2.046	2	1.892	0.0055	8.031	0.02	0.00	9496.8	137.69
2.052	4	3.933	0.0079	10.09	0.05	0.00	7094.3	121.19
2.121	6	5.969	0.0236	12.33	0.08	0.00	6652.9	33.929
2.117	8	7.819	0.0073	14.17	0.10	0.00	7359.5	43.575
2.055	10	10.1	0.0619	16.27	0.13	0.00	7149.8	32.553

Project: I-65	Location: Tippecanoe Co. ✓	Project No.: Des 1383340 ✓
Boring No.: RB-014 ✓	Tested By: MGD	Checked By: bd ✓
Sample No.: 14-RM026~1	Test Date: 04/22/2014	Depth: 1.0' ✓
Test No.: # 1 ✓	Sample Type: Remolded	Elevation:
Description: Sandy Loam A-6 (2) .....Maximum Dry Density 126.2 pcf, and 11.0% Optimum Moisture ✓		
Remarks: Tested 1% below Optimum Moisture (Permanent Strain= 0.264% after Cond. Sequence, 0.596% at completion) ✓		
File: V:\~AAA Soil Testing\A RESILIENT Mod\2014 RESILIENT MODULUS\14-RM025 to 028 ATC\14-RM026\14-RM026~1.dat		


RESILIENT MODULUS TEST DATA

SUMMARY REPORT



Confining Stress S3 (psi)	Nom. Max. Deviator Stress (psi)	Mean Deviator Stress (psi)	Std. Dev. Deviator Stress (psi)	Mean Bulk Stress (psi)	Mean Resilient Strain (%)	Std. Dev. Resilient Strain (%)	Mean Resilient Modulus (psi)	Std. Dev. Resilient Modulus (psi)
6.047	2	1.72	0.0068	19.86	0.05	0.00	3130.5	44.134
6.004	4	3.867	0.0163	21.88	0.13	0.00	2707.1	9.2058
6.034	6	5.813	0.0042	23.92	0.21	0.00	2560.5	25.993
5.998	8	7.818	0.0212	25.81	0.24	0.00	2944.4	18.198
6.038	10	9.743	0.0073	27.86	0.24	0.00	3721.1	37.188
3.983	2	1.76	0.0020	13.71	0.05	0.00	2970.9	32.676
4.055	4	3.623	0.0048	15.79	0.13	0.00	2534.1	6.8769
4.023	6	6.002	0.0168	18.07	0.20	0.00	2767.1	15.244
3.998	8	7.865	0.0027	19.86	0.23	0.00	3140.7	2.7655
4.043	10	10.01	0.0032	22.14	0.24	0.00	3734.4	24.506
2.053	2	1.771	0.0026	7.931	0.05	0.00	3211.1	40.174
2.045	4	3.578	0.0298	9.713	0.14	0.00	2366.2	8.4273
2.106	6	5.93	0.0220	12.25	0.21	0.00	2627.1	14.367
2.092	8	7.939	0.0031	14.22	0.24	0.00	2976.7	21.448
2.08	10	9.935	0.0042	16.17	0.25	0.00	3676.3	17.674

Project: I-65	Location: Tippecanoe Co.	Project No.: Des 1383340
Boring No.: RB-014	Tested By: MGD	Checked By: bd
Sample No.: 14-RM026~2C	Test Date: 04/29/2014	Depth: 1.0'
Test No.: # 2C	Sample Type: Remolded	Elevation:
Description: Sandy Loam A-6 (2) .....Maximum Dry Density 126.2 pcf, and 11.0% Optimum Moisture		
Remarks: Tested at 2% Above Opt. Moist. Content (Permanent Strain= 2.63% after Cond. Sequence, 8.69% at completion)		
File: V:\~AAA Soil Testing\A RESILIENT Mod\2014 RESILIENT MODULUS\14-RM025 to 028 ATC\14-RM026\14-RM026~2C.dat		

- 8.3.3. *Conditioning*—Begin the test by applying a minimum of 500 repetitions of a load equivalent to a maximum axial stress of 27.6 kPa and corresponding cyclic stress of 24.8 kPa using a haversine-shaped load pulse with durations as described in Section 6.2. If the sample is still decreasing in height at the end of the conditioning period, stress cycling shall be continued up to 1000 repetitions prior to testing as outlined in sequence No. 0, Table 1.
- Note 4**—The laboratory/technician shall conduct appropriate QA/QC comparative checks of the individual deformation output from the two vertical transducers during the conditioning phase of each resilient modulus test in order to recognize specimen misplacement and misalignment. During the preconditioning phase, the two vertical deformation curves shall be viewed to ensure that acceptable vertical deformation ratios are being measured. The vertical deformation ratio R_v is defined as $R_v = Y_{\max}/Y_{\min}$, where Y_{\max} equals the larger of the two vertical deformations and Y_{\min} equals the smaller of the two vertical deformations. Every effort shall be made to achieve R_v values of 1.10 or less. Acceptable R_v values are 1.30 or less. If unacceptable vertical deformation ratios are obtained (i.e., R_v is greater than 1.30), then the test shall be discontinued and specimen placement/alignment difficulties alleviated. Once acceptable vertical deformation values are obtained, then the test shall be continued to completion. It is emphasized that the specimen alignment is critical for proper resilient modulus results. This note also applies to Section 9.3.3.
- 8.3.3.1. The above stress sequence constitutes sample conditioning; that is, the elimination of the effects of the interval between compaction and loading and the elimination of initial loading versus reloading. This conditioning also aids in minimizing the effects of initially imperfect contact between the sample cap and the test specimen.
- 8.3.3.2. If the total vertical permanent strain reaches 5 percent during conditioning, the conditioning process shall be terminated. For recompacted samples, a review shall be conducted of the compaction process to identify any reason(s) why the sample did not attain adequate compaction. If this review does not provide an explanation, the material shall be refabricated and tested a second time. If the sample again reaches 5 percent total vertical permanent strain during preconditioning, then the test shall be terminated and a notation added to the report form.
- 8.3.4. *Testing Specimen*—The testing is performed following the loading sequence shown in Table 1. Begin by decreasing the maximum axial stress to 13.8 kPa (Sequence No. 1, Table 1) and set the confining pressure to 41.4 kPa.
- 8.3.5. Apply 100 repetitions of the corresponding cyclic axial stress using a haversine-shaped load pulse with durations as described in Section 6.2. Record the average recovered deformations for each LVDT separately for the past five cycles on the Report Form C4.1 (Table C3.1).
- 8.3.6. Increase the maximum axial stress to 27.6 kPa (Sequence No. 2) and repeat Step 8.3.5 at this new stress level.
- 8.3.7.  Continue the test for the remaining load sequences in Table 1 (3 to 15), recording the vertical recovered deformation. If at any time the permanent strain of the sample exceeds 5 percent, stop the test and report the result on the appropriate worksheet.
- 8.3.8. After completion of the resilient modulus test procedure, check the total vertical permanent strain the specimen was subjected to during the resilient modulus portion of the test procedure. If the total vertical permanent strain did not exceed 5 percent, and if strength information is desired, continue with the quick shear test procedure (Section 8.3.9). If the total vertical permanent strain exceeds 5 percent, the test is completed. No additional testing is to be conducted on the specimen, other than in Section 8.3.11.

Resilient Modulus AASHTO T307 for ATC

Lab No.	14-RM026	Des. No.	1383340	Sample Type I or II	II		
Proj. Name (Rd.)	I-65	Location (Co.)	Tippecanoe	Boring	RB-014	Depth	1.0'
Textural Class.	Sandy Loam			AASHTO Class.	A-6 (2)		
Specific Gravity	Estimate	Liquid Limit	23.9	Plastic Limit	12.4		

Compaction AASHTO T-99 Method A

Maximum Wet Density	140.4	pcf
Maximum Dry Density	126.2	pcf
• Optimum Moisture	11.0%	
Optimum Moisture +2	13.0%	

Hygroscopic Moisture

Wet Weight with Tare	240.7
Dry Weight with Tare	237.9
Tare Weight	60.1
Percent Moisture	1.6%

Grams of Air Dry Soil 1500

Evaporation expected 0.30%

Mixing @ 2.0% above Optimum Moisture

Soil Required	1524	grams
Water Required	176	grams

Molding Moisture Before Test

Wet Weight with Tare	189.8	197.7	
Dry Weight with Tare	175.7	182.8	
Tare Weight	62.5	59.2	Average
Percent Moisture	12.5%	12.1%	12.3%

5 Layers @ 266.0 grams of soil per layer

Approx 9/10 Blows per Layer

Mass of Soil with Mold	1963.7	
subtract Mass of Mold	638.2	
Mass of Specimen	1325.5	grams

C

Inside Diameter 7.312 cms

Before Test Height> 14.296 14.302 14.308

Avg Height of Extruded Specimen 14.302 cms

Molded Wet Density 137.8 pcf, 1.9%

Molded Dry Density 122.7 pcf

After Test

Mass of Specimen 1321.0 grams

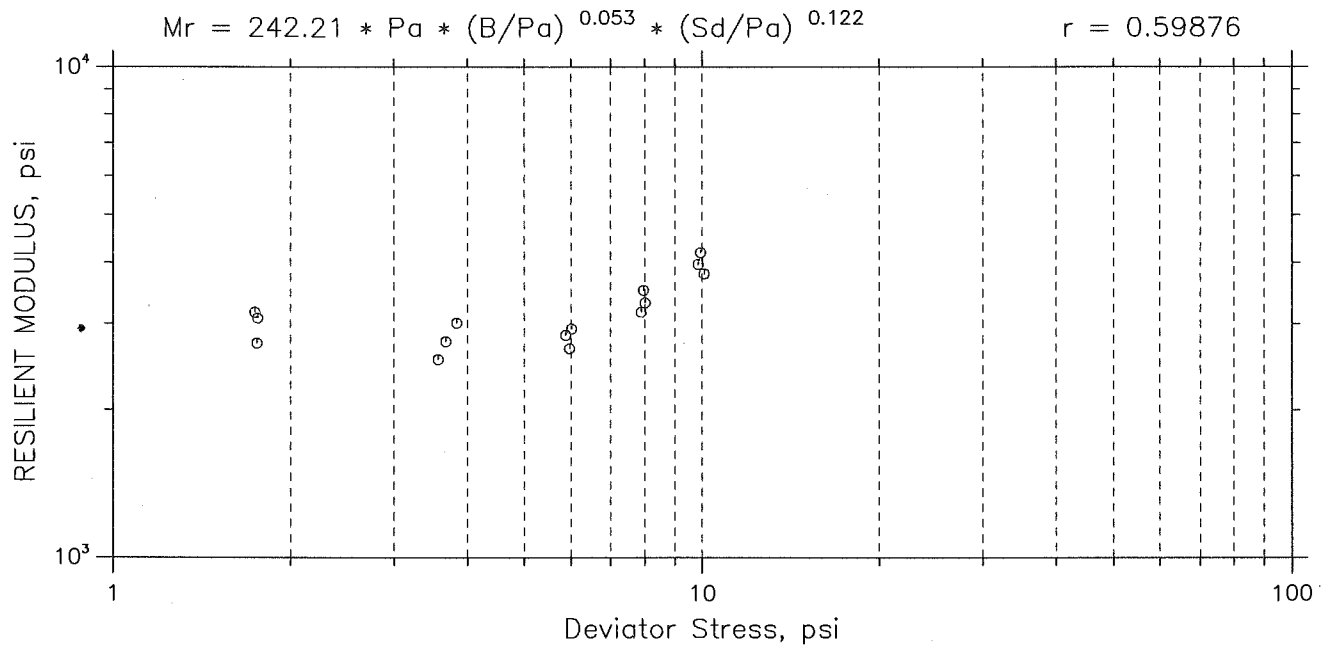
Final Moisture on 1/4 Specimen

Wet Weight with Tare	600.1
Dry Weight with Tare	558.6
Tare Weight	206.8
Percent Moisture	11.8%

tested by: mgd date: 4/23/14

RESILIENT MODULUS TEST DATA

SUMMARY REPORT

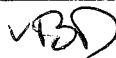


Confining Stress S3 (psi)	Nom. Max. Deviator Stress (psi)	Mean Deviator Stress (psi)	Std. Dev. Deviator Stress (psi)	Mean Bulk Stress (psi)	Mean Resilient Strain (%)	Std. Dev. Resilient Strain (%)	Mean Resilient Modulus (psi)	Std. Dev. Resilient Modulus (psi)
6.069	2	1.752	0.0029	19.96	0.06	0.00	2741.9	11.928
6.011	4	3.841	0.0249	21.87	0.12	0.00	3009.8	16.427
6.031	6	5.882	0.0045	23.97	0.19	0.00	2845.9	12.283
6.054	8	7.894	0.0413	26.06	0.23	0.00	3170.4	29.759
6.002	10	9.858	0.0036	27.87	0.23	0.00	3966.1	23.125
4	2	1.758	0.0018	13.76	0.05	0.00	3080.1	53.703
4.051	4	3.68	0.0026	15.83	0.12	0.00	2762.9	36.355
4.02	6	6.019	0.0041	18.08	0.19	0.00	2928.7	11.316
4.08	8	7.966	0.0363	20.21	0.21	0.00	3509.3	18.213
4.053	10	9.948	0.0043	22.11	0.22	0.00	4189	6.8748
2.041	2	1.74	0.0026	7.864	0.05	0.00	3166.6	53.427
2.111	4	3.575	0.0026	9.907	0.13	0.00	2535.6	13.45
2.094	6	5.97	0.0042	12.25	0.20	0.00	2670.4	20.525
2.079	8	8.017	0.0598	14.26	0.22	0.00	3311.6	31.705
2.065	10	10.08	0.0014	16.28	0.24	0.00	3791.8	14.351

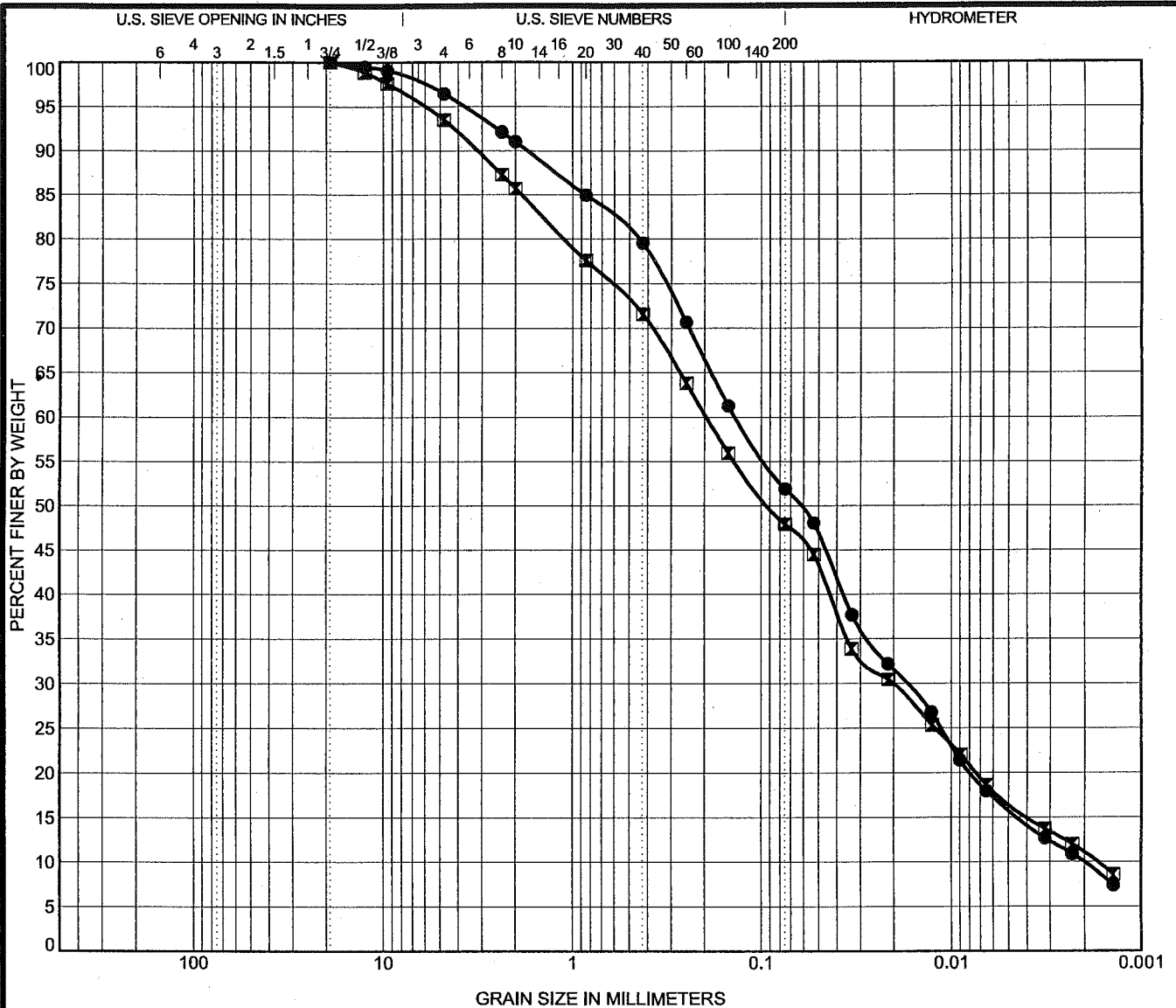
Project: I-65	Location: Tippecanoe Co.	Project No.: Des 1383340
Boring No.: RB-014	Tested By: MGD	Checked By: bd
Sample No.: 14-RM026~2B	Test Date: 04/22/2014	Depth: 1.0'
Test No.: # 2B	Sample Type: Remolded	Elevation: <i>see attached</i>
Description: Sandy Loam A-6 (2) .....Maximum Dry Density 126.2 pcf, and 11.0% Optimum Moisture <i>spec 33.7</i>		
Remarks: Tested 1-2% Above Opt. Moist. Content (Permanent Strain= 1.95% after Cond. Sequence, <u>5.29%</u> at completion)		
File: V:\~AAA Soil Testing\A RESILIENT Mod\2014 RESILIENT MODULUS\14-RM025 to 028 ATC\14-RM026\14-RM026~2B.dat		

4/17/2014

ABD



Max Wet Density 140.4 lbs / ft³
Max Dry Density 126.2 lbs / ft³
Optimum Moisture 11.0 % ✓



Resilient Modulus AASHTO T307 for ATC

Lab No.	14-RM025	Des. No.	1383340	Sample Type I or II	II
Proj. Name (Rd.)	I-65	Location (Co.)	Tippecanoe	Boring	RB-006
				Depth	1.0'
Textural Class.	LOAM			AASHTO Class.	A-4 (1)
Specific Gravity	Estimate	Liquid Limit	20.5	Plastic Limit	11.0

Compaction AASHTO T-99 Method A

Maximum Wet Density	141.3	pcf
Maximum Dry Density	129.7	pcf
Optimum Moisture	9.0%	
Optimum Moisture +2	11.0%	

Hygroscopic Moisture

Wet Weight with Tare	249.0	
Dry Weight with Tare	247.7	
Tare Weight	64.2	
Percent Moisture	0.7%	

Grams of Air Dry Soil **1500**

Evaporation expected **0.30%**

Mixing @ Optimum Moisture

Soil Required	1511	grams
Water Required	129	grams

Molding Moisture Before Test

Wet Weight with Tare	181.0	200.1	
Dry Weight with Tare	171.3	190.1	
Tare Weight	58.6	76.4	Average
Percent Moisture	8.6%	8.8%	8.7%

5 Layers @ **267.7** grams of soil per layer

Approx 9/10 Blows per Layer

Mass of Soil with Mold	1972.4	
subtract Mass of Mold	638.2	
Mass of Specimen	1334.2	grams

Mixing @ 2.0% above Optimum Moisture

Soil Required	1511	grams
Water Required	159	grams

Molding Moisture Before Test

Wet Weight with Tare	198.1	194.6	
Dry Weight with Tare	184.5	182.7	
Tare Weight	60.7	74.6	Average
Percent Moisture	11.0%	11.0%	11.0%

5 Layers @ **267.7** grams of soil per layer

Approx 9/10 Blows per Layer

Mass of Soil with Mold	1969.7	
subtract Mass of Mold	638.2	
Mass of Specimen	1331.5	grams

Mold Identification (enter A,B,C or D) >>

C

Inside Diameter **7.312** cms

Before Test Height> **14.159** **14.143** **14.134**

Avg Height of Extruded Specimen **14.145** cms

Molded Wet Density **140.2** pcf, 0.8%

Molded Dry Density **129.0** pcf

Before Test Height> **14.056** **14.036** **14.019**

Avg Height of Extruded Specimen **14.037** cms

Molded Wet Density **141.0** pcf, 0.2%

Molded Dry Density **127.1** pcf

After Test

Mass of Specimen **1331.1** grams

Final Moisture on 1/4 Specimen

Wet Weight with Tare	537.3	
Dry Weight with Tare	510.3	
Tare Weight	210.9	
Percent Moisture	9.0%	

After Test

Mass of Specimen **1324.8** grams

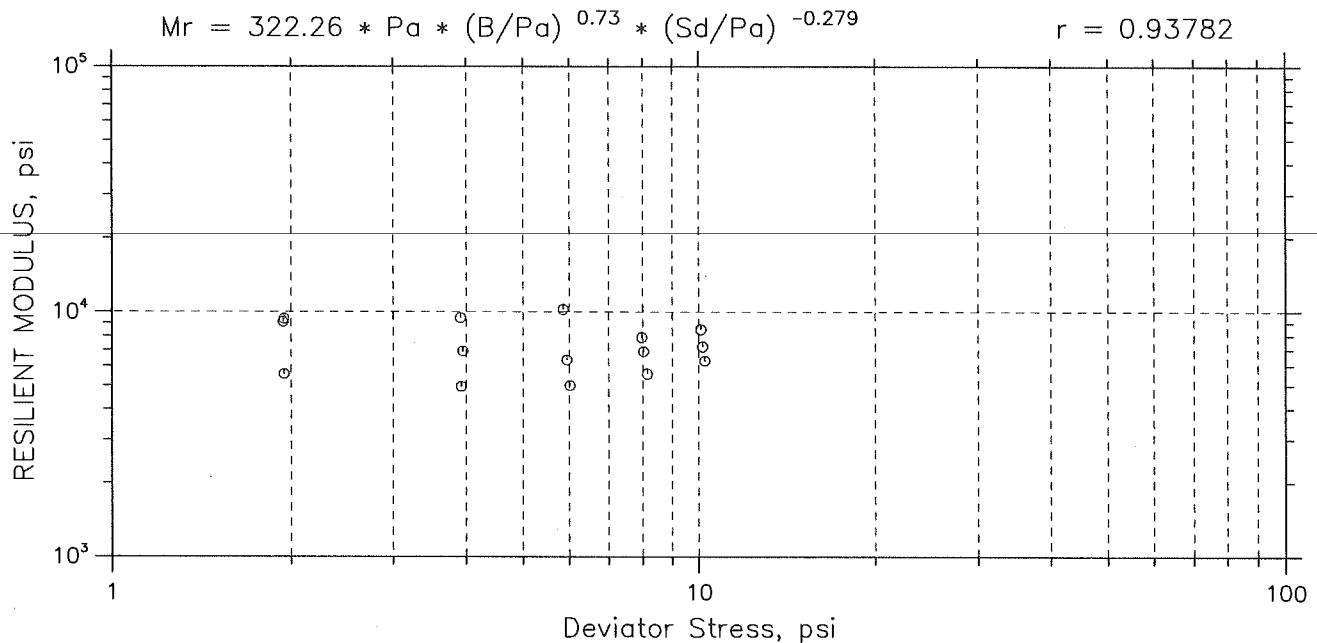
Final Moisture on 1/4 Specimen

Wet Weight with Tare	674.5	
Dry Weight with Tare	631.0	
Tare Weight	211.1	
Percent Moisture	10.4%	

tested by: mgd date: 4/22/14

RESILIENT MODULUS TEST DATA

SUMMARY REPORT

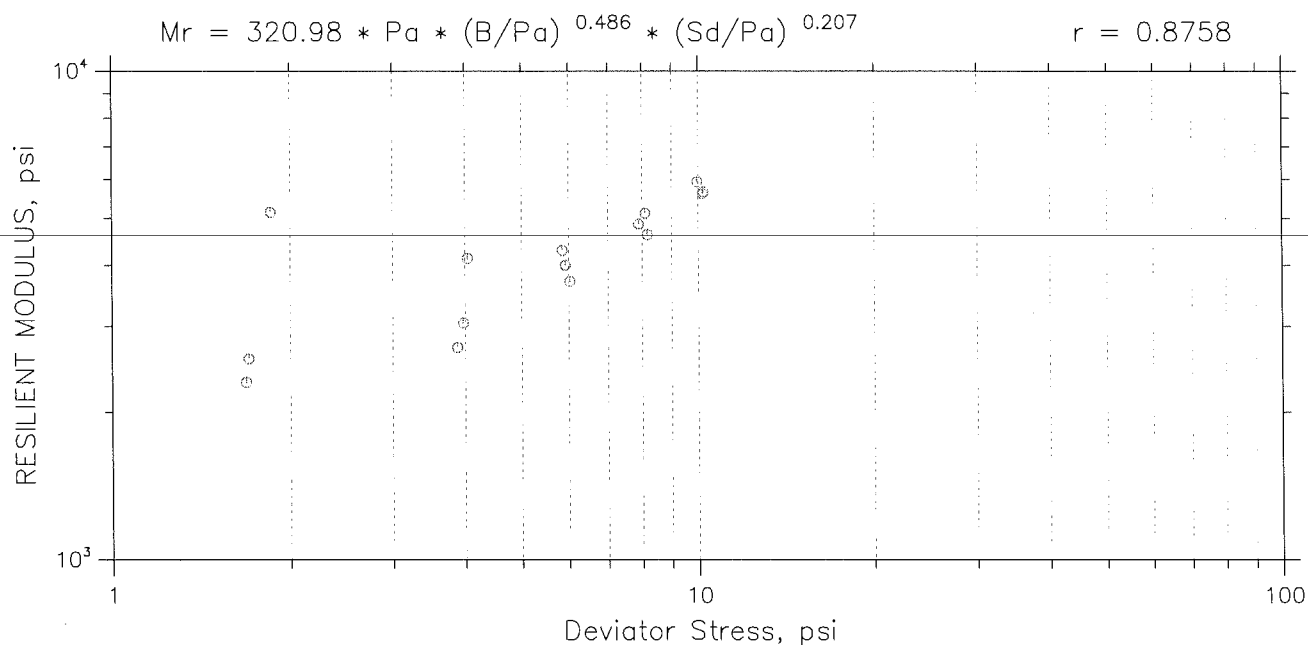


Confining Stress S3 (psi)	Nom. Max. Deviator Stress (psi)	Mean Deviator Stress (psi)	Std. Dev. Deviator Stress (psi)	Mean Bulk Stress (psi)	Mean Resilient Strain (%)	Std. Dev. Resilient Strain (%)	Mean Resilient Modulus (psi)	Std. Dev. Resilient Modulus (psi)
6.041	2	1.946	0.0045	20.07	0.02	0.00	9384.4	477.53
6.025	4	3.916	0.0097	21.99	0.04	0.00	9462.3	258.64
6.007	6	5.863	0.0028	23.88	0.05	0.00	10241	121.93
5.989	8	7.978	0.0042	25.95	0.09	0.00	7881.9	47.248
6.032	10	10.09	0.0060	28.19	0.11	0.00	8482.2	19.03
3.993	2	1.939	0.0066	13.92	0.02	0.00	9112.4	719.65
4.048	4	3.951	0.0036	16.09	0.05	0.00	6922.4	58.71
4.054	6	5.947	0.0027	18.11	0.09	0.00	6357.5	70.668
4.043	8	8.038	0.0383	20.17	0.11	0.00	6894.4	33.268
4.036	10	10.16	0.0047	22.27	0.13	0.00	7230.2	43.834
2.038	2	1.946	0.0022	8.058	0.03	0.00	5579.3	36.512
2.103	4	3.928	0.0072	10.24	0.07	0.00	4960.8	76.637
2.099	6	6.022	0.0288	12.32	0.11	0.00	5000.7	33.423
2.094	8	8.154	0.0070	14.44	0.13	0.00	5583.6	18.101
2.089	10	10.25	0.0034	16.52	0.15	0.00	6302.4	9.4088

Project: I-65	Location: Tippecanoe Co.	Project No.: Des 1383340
Boring No.: RB-006	Tested By: MGD	Checked By: bd
Sample No.: 14-RM025~1	Test Date: 04/22/2014	Depth: 1.0'
Test No.: # 1	Sample Type: Remolded	Elevation:
Description: Loam A-4 (1) .....Maximum Dry Density 129.7 pcf and 9.0% Optimum Moisture		
Remarks: Tested at Optimum Moisture Content (Permanent Strain= 0.540% after Cond. Sequence, 1.19% at completion)		
File: V:\~AAA Soil Testing\A RESILIENT Modulus\2014 RESILIENT MODULUS\14-RM025 to 028 ATC\14-RM025\14-RM025~1.dat		

RESILIENT MODULUS TEST DATA

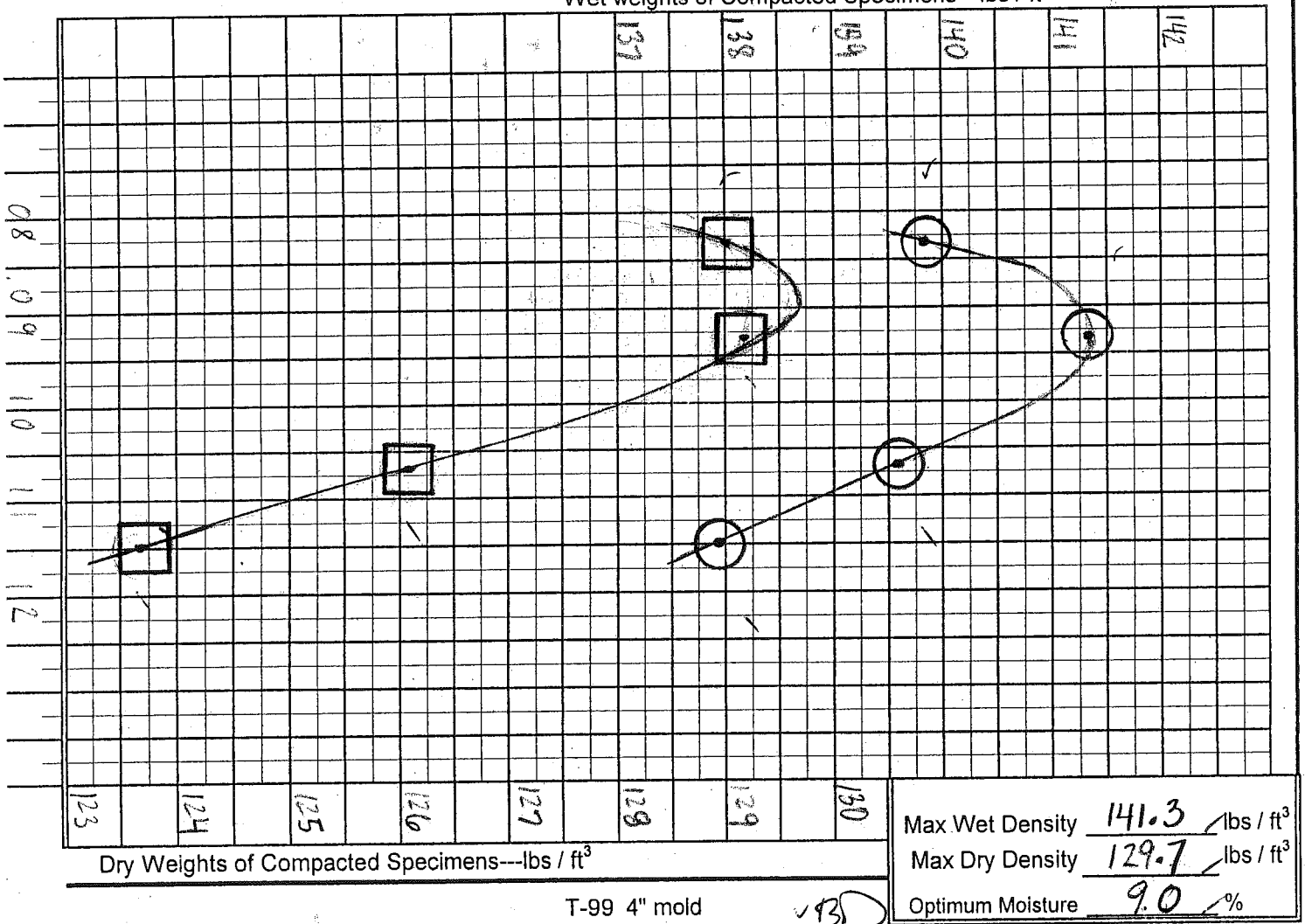
SUMMARY REPORT



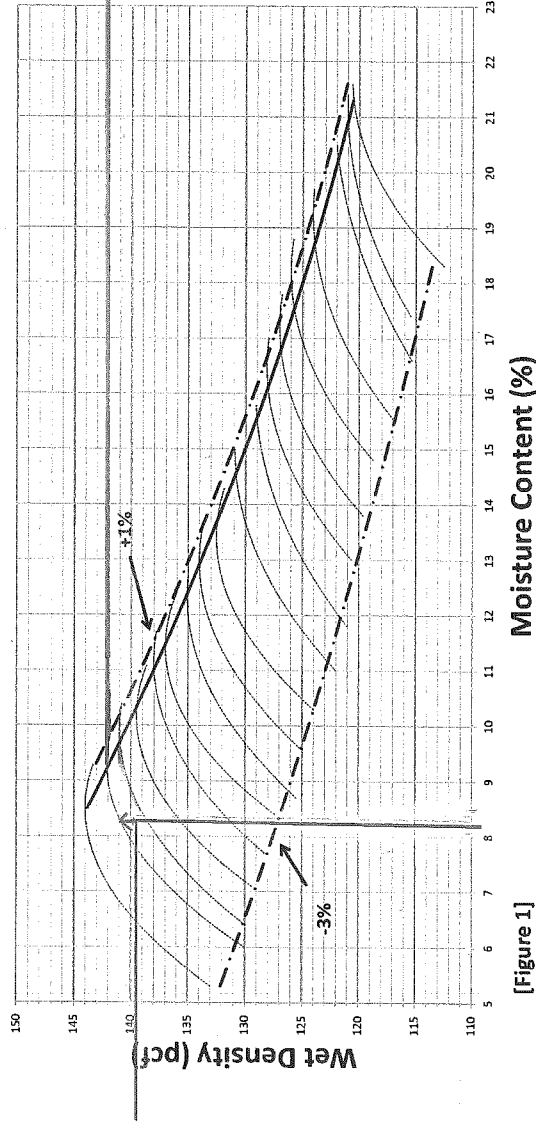
Confining Stress S3 (psi)	Nom. Max. Deviator Stress (psi)	Mean Deviator Stress (psi)	Std. Dev. Deviator Stress (psi)	Mean Bulk Stress (psi)	Mean Resilient Strain (%)	Std. Dev. Resilient Strain (%)	Mean Resilient Modulus (psi)	Std. Dev. Resilient Modulus (psi)
6.007	2	1.852	0.0035	19.87	0.03	0.00	5139.8	306.24
6.001	4	4.04	0.0166	22.04	0.09	0.00	4136.9	33.017
5.994	6	5.853	0.0856	23.84	0.12	0.00	4296.5	53.455
6.006	8	7.903	0.0061	25.92	0.15	0.00	4863.4	83.839
6.039	10	9.966	0.0076	28.08	0.15	0.00	5930.5	79.428
4.053	2	1.696	0.0203	13.86	0.06	0.00	2575.4	76.71
4.053	4	3.969	0.0083	16.13	0.12	0.00	3051.6	6.5121
3.975	6	5.925	0.0731	17.85	0.13	0.00	4007	50.631
4.011	8	8.106	0.0022	20.14	0.14	0.00	5114.3	37.198
4.048	10	10.21	0.0521	22.35	0.16	0.00	5663.4	59.13
2.116	2	1.679	0.0036	8.028	0.07	0.00	2304.1	47.554
2.112	4	3.877	0.0036	10.21	0.13	0.00	2716.5	8.3611
2.113	6	6.029	0.0212	12.37	0.15	0.00	3709.9	29.117
2.114	8	8.181	0.0035	14.52	0.16	0.00	4626	18.397
2.113	10	10.19	0.0062	16.53	0.17	0.00	5612.1	34.337

Project: I-65	Location: Tippecanoe Co.	Project No.: Des 1383340
Boring No.: RB-006	Tested By: MGD	Checked By: BO
Sample No.: 14-RM025~2	Test Date: 04/22/2014	Depth: 1.0'
Test No.: # 2	Sample Type: Remolded	Elevation:
Description: Loam A-4 (1) .....Maximum Dry Density 129.7pcf and 9.0% Optimum Moisture		
Remarks: Tested at 2% Above Optimum Moist. Content (Permanent Strain=1.484% after Cond. Seq., 4.966% at completion)		
File: C:\Users\INDOT\Documents\Geocomp\RM\2014 RM\14-RM025~2.dat		

Prepared by MOB 4/17/2014

[illegible]

Maximum Wet Density vs Moisture Content



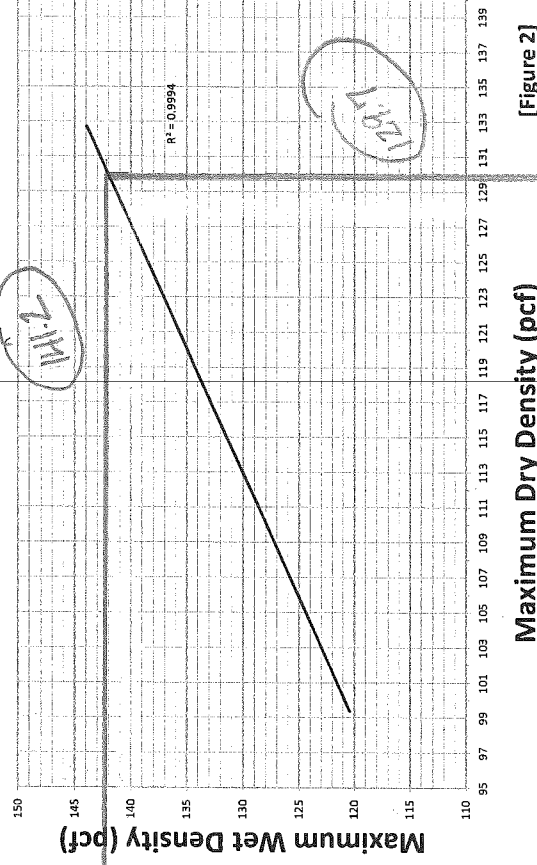
[Figure 1]

- Charts to be used for Clay, Silty, or Sandy soils only.

- Moisture is required to be between -3% and +1% for a valid Maximum Wet Density.

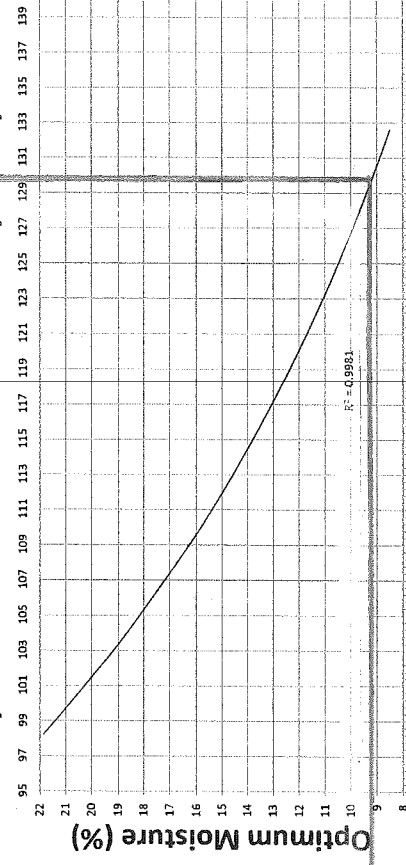
- These charts are an alternative to the Family of Curves and may be used in accordance with AASHTO T 272.

Maximum Wet Density vs Maximum Dry Density



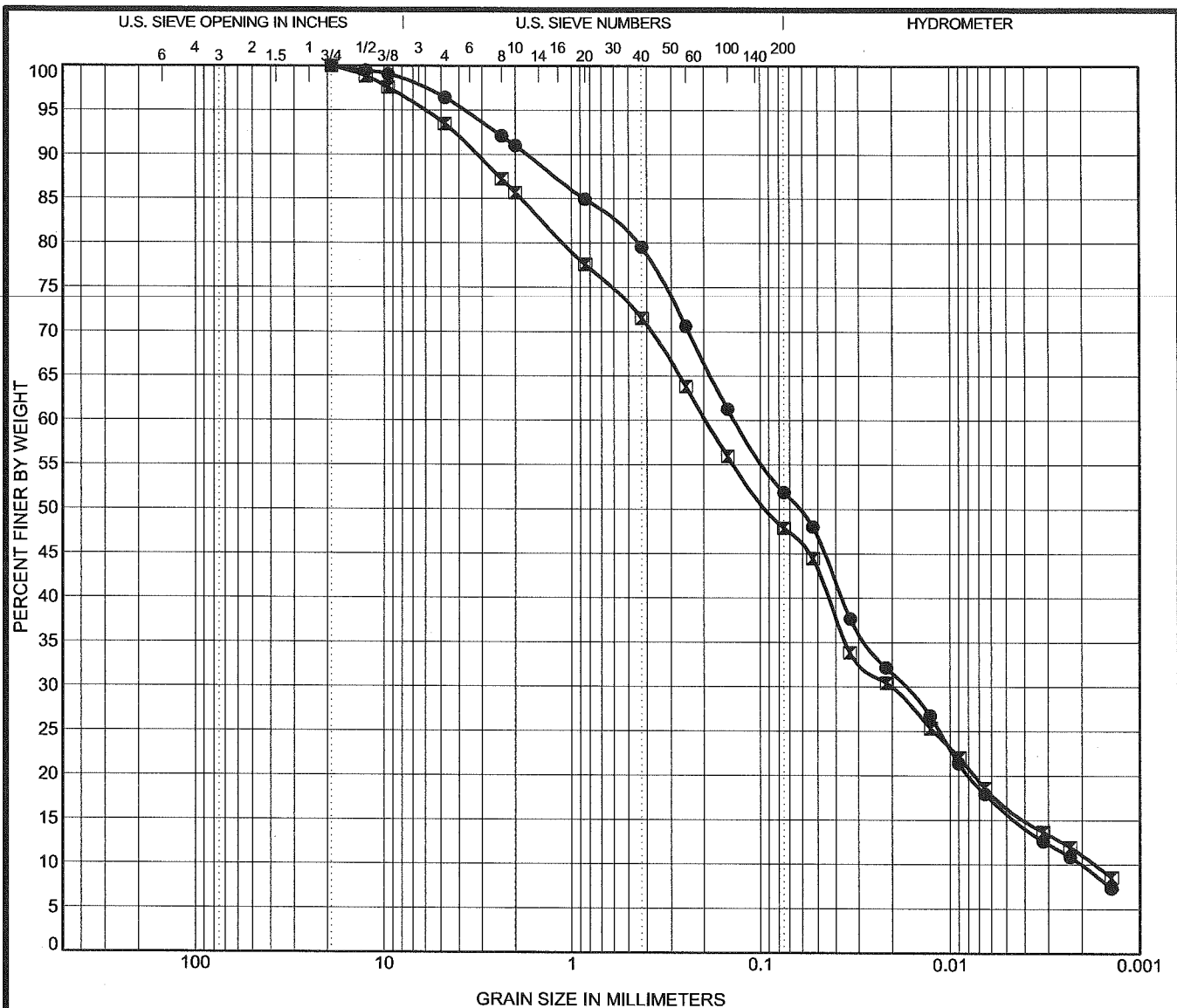
[Figure 2]

Opt. Moisture Content vs Maximum Dry Density



[Figure 3]

0.2



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

Specimen Identification	Lab #	Textural Classification					LL	PL	PI	Cc	Cu
● RB-006 14-RM025 1.0		A-4 (1) LOAM					20.5	11.0	9.5	1.09	67.12
✕ RB-014 RM026 1.0		A-6 (2) SANDY LOAM					23.9	12.4	11.5	1.24	112.88
Specimen Identification	D60	D30	D10	LOI	Ca/Mg	%Gravel	%Sand	%Silt	%Clay	%Colloid	
● RB-006 RM025 1.0	0.137	0.017	0.002			9.0	39.1	42.0	9.9		
✕ RB-014 " 26 1.0	0.195	0.02	0.002			14.3	37.8	36.9	11.0		



ATC
 7988 Centerpoint Drive, Suite 100
 Indianapolis, IN 46256
 Telephone: (317)849-4990
 Fax: (317)849-4278

GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: Structure #:
 Project #: 86.55608.0058
 County: Tippecanoe County
 Location: SR 26 to SR 25

Summary of In-Situ Density Tests
Interstate 65 - SR 26 to SR 25
INDOT Des. No. 1383340
Tippecanoe County, Indiana

Boring No.	Location	Sample No.	Depth (feet)	Soil Type	Standard Penetration (N)	Natural Moisture (%)	Dry Density (pcf)	Max. Dry Density (pcf)	Optimum Moisture (%)	In-situ Percent Compaction (%)	Percent Moisture Difference (%)
S5-RB-001	Median	SS-1	1.0 - 2.5	Sandy Loam (A-4)	14	13.7	118.9	126.2	11	94.2	2.7
S5-RB-015	Median	SS-2	3.5 - 5.0	Sandy Loam (A-4)	18	8.8	134.7	129.7	9	103.9	-0.2
S5-RB-043	Median	SS-1	1.0 - 2.5	Loam (A-4)	11	11.0	132.9	129.7	9	102.5	2.0
S5-RBS-102	Shoulder	SS-2	2.1 - 3.1	Sandy Loam (A-4)	15	10.3	135.1	129.7	9	104.2	1.3
S5-RBS-104	Shoulder	SS-2	2.1 - 3.7	Sandy Loam (A-4)	23	7.7	131.1	129.7	9	101.1	-1.3

Summary of Pavement Section Thickness
Interstate 65 - Section 5 - SR 26 to SR 25
INDOT 1383340
Tippecanoe County, Indiana

Travel Lanes

Boring No.	Asphalt Thickness in.	Concrete Thickness in.	Asphalt & Concrete in.	Granular Subbase* in.	Total Pavement** in.
S5-RB-001	7.25	9.5	16.75	5	21.75
S5-RB-003	6.25	9.25	15.5	5	20.5
S5-RB-005	6	9.25	15.25	5	20.25
S5-RB-007	5.5	9.25	14.75	5	19.75
S5-RB-009	5	9.25	14.25	5	19.25
S5-RB-011	5.25	9	14.25	5	19.25
S5-RB-013	5	9.25	14.25	5	19.25
S5-RB-015	4	9	13	5	18
S5-RB-017	5	9	14	5	19
S5-RB-019	6	10.5	16.5	5	21.5
S5-RB-021	7.25	9	16.25	5	21.25
S5-RB-023	7	9.75	16.75	5	21.75
S5-RB-025	5.25	9	14.25	5	19.25
S5-RB-027	6	9.5	15.5	5	20.5
S5-RB-029	4.5	8.75	13.25	5	18.25
S5-RB-031	5.75	9	14.75	5	19.75
S5-RB-033	4	8.5	12.5	5	17.5
S5-RB-035	6.25	9.25	15.5	5	20.5
S5-RB-037	2.75	9.75	12.5	5	17.5
S5-RB-039	4	9	13	5	18
S5-RB-041	7.25	9	16.25	5	21.25
S5-RB-043	7	9.25	16.25	5	21.25
S5-RB-045	3.25	9.25	12.5	5	17.5
S5-RB-047	4	8	12	5	17
S5-RB-049	5	9	14	5	19
S5-RB-051		14	14	5	19
S5-RB-053	5.25	9.25	14.5	5	19.5
S5-RB-055	6	9.25	15.25	5	20.25
S5-RB-057		14.25	14.25	5	19.25

Shoulder

Boring No.	Asphalt Thickness in.	Concrete Thickness in.	Granular Base in.	Total Pavement in.
S5-RBS-101	9.5		6	15.5
S5-RBS-102	7.25		4.25	11.5
S5-RBS-103	9.5		6	15.5
S5-RBS-103A	13		6	19
S5-RBS-104	9		4	13
S5-RBS-105	7.75		4	11.75
S5-RBS-105A	12		7	19
S5-RBS-106	7.75		5	12.75
S5-RBS-107	10		5	15
S5-RBS-108	8		5	13
S5-RBS-109	11		4	15
S5-RBS-110	7.25		4.5	11.75
S5-RBS-111	10		5	15
S5-RBS-112	6.75		4.25	11
S5-RBS-113	7.25		4.25	11.5
S5-RBS-114	7.25		4	11.25
S5-RBS-115		14		14
S5-RBS-116		14	6	20
S5-RBS-117	7.5		4.25	11.75
S5-RBS-118	6.5		4.25	10.75
Average	8.7	14	4.9	13.6
Minimum	6.5	14	4	10.75
Maximum	13	14	7	19
Std. Dev.	1.8	0	0.9	2.5

* - Estimated, not directly measured

** - Based on estimated granular subbase value

Summary of Pavement Section Thickness
Interstate 65 - Section 5 - SR 26 to SR 25
INDOT 1383340
Tippecanoe County, Indiana

Boring No.	Asphalt Thickness in.	Concrete Thickness in.	Asphalt & Concrete in.	Granular Subbase* in.	Total Pavement** in.
S5-RB-059	5	9	14	5	19
S5-RB-061		13.75	13.75	5	18.75
S5-RB-063		15	15	5	20
S5-RB-065	6.25	9.75	16	5	21
S5-RB-067	5.75	9	14.75	5	19.75
S5-RB-069		13.75	13.75	5	18.75
S5-RB-071	5.75	9.25	15	5	20
Average	5.44	9.88	14.56	5	19.6
Minimum	2.75	8	12		17
Maximum	7.25	15	16.75		21.75
Std. Dev.	1.1	1.8	1.3		1.3

Summary of Topsoil Thickness
Interstate 65 - Section 5 - SR 26 to SR 25
INDOT 1383340
Tippecanoe County, Indiana

Boring No.	Topsoil Thickness in.
S5-RB-002	7
S5-RB-004	6.5
S5-RB-006	5
S5-RB-008	None
S5-RB-010	7
S5-RB-012	5.5
S5-RB-014	6
S5-RB-016	5
S5-RB-018	6
S5-RB-020	5.5
S5-RB-022	6
S5-RB-024	5
S5-RB-026	3
S5-RB-028	2
S5-RB-030	4
S5-RB-032	3
S5-RB-034	5
S5-RB-036	4

Boring No.	Topsoil Thickness in.
S5-RB-038	5.25
S5-RB-040	4
S5-RB-042	5
S5-RB-044	4
S5-RB-046	5.5
S5-RB-048	3.5
S5-RB-050	5.5
S5-RB-052	3
S5-RB-054	5.5
S5-RB-056	3.5
S5-RB-058	None
S5-RB-060	3
S5-RB-062	4
S5-RB-064	3
S5-RB-066	3
S5-RB-068	3
S5-RB-070	3
S5-RB-072	3.5

Average	4.5 in.
Minimum	2 in.
Maximum	7 in.
Std. Dev.	1.4 in.

APPENDIX D

DRIVEN OUTPUT

DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(1~1\DRIVEN~1\65SR25.DVN
Project Name: I65-ATL SR 25 Project Date: 08/04/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

SR 25

PILE INFORMATION

Pile Type: Pipe Pile - Closed End
Top of Pile: 0.00 ft
Diameter of Pile: 14.00 in

END BENTS + INT PIER

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	10.00 ft
	- Driving/Restrike	10.00 ft
	- Ultimate:	10.00 ft
Ultimate Considerations:	- Local Scour:	0.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesionless	20.00 ft	0.00%	120.00 pcf	30.0/30.0	Nordlund
2	Cohesionless	10.00 ft	0.00%	125.00 pcf	34.0/34.0	Nordlund
3	Cohesive	20.00 ft	0.00%	130.00 pcf	6000.00 psf	User Def.
4	Cohesionless	40.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.60 psf	19.99	N/A	0.00 Kips
9.01 ft	Cohesionless	540.60 psf	19.99	N/A	6.08 Kips
9.99 ft	Cohesionless	599.40 psf	19.99	N/A	7.48 Kips
10.01 ft	Cohesionless	1200.29 psf	19.99	N/A	7.51 Kips
19.01 ft	Cohesionless	1459.49 psf	19.99	N/A	23.91 Kips
19.99 ft	Cohesionless	1487.71 psf	19.99	N/A	26.05 Kips
20.01 ft	Cohesionless	1776.31 psf	22.66	N/A	26.11 Kips
29.01 ft	Cohesionless	2058.01 psf	22.66	N/A	61.40 Kips
29.99 ft	Cohesionless	2088.69 psf	22.66	N/A	65.83 Kips
30.01 ft	Cohesive	N/A	N/A	3300.00 psf	65.99 Kips
39.01 ft	Cohesive	N/A	N/A	3300.00 psf	174.85 Kips
48.01 ft	Cohesive	N/A	N/A	3300.00 psf	283.71 Kips
49.99 ft	Cohesive	N/A	N/A	3300.00 psf	307.65 Kips
50.01 ft	Cohesionless	3754.36 psf	23.33	N/A	307.85 Kips
59.01 ft	Cohesionless	4081.06 psf	23.33	N/A	384.16 Kips
68.01 ft	Cohesionless	4407.76 psf	23.33	N/A	472.69 Kips
77.01 ft	Cohesionless	4734.46 psf	23.33	N/A	573.43 Kips
86.01 ft	Cohesionless	5061.16 psf	23.33	N/A	686.38 Kips
89.99 ft	Cohesionless	5205.64 psf	23.33	N/A	740.23 Kips

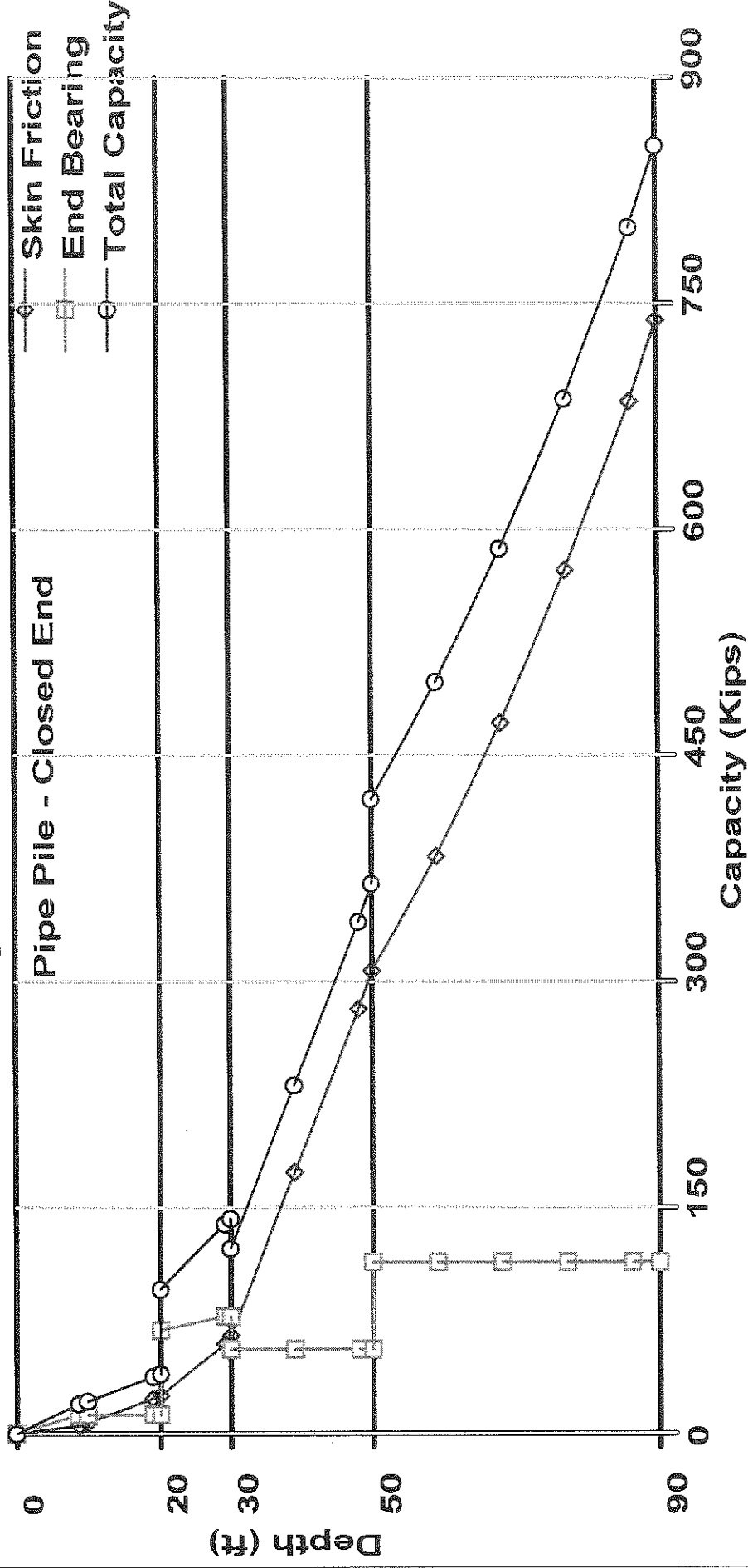
ULTIMATE - END BEARING

Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	1.20 psf	30.00	14.24 Kips	0.02 Kips
9.01 ft	Cohesionless	1081.20 psf	30.00	14.24 Kips	14.24 Kips
9.99 ft	Cohesionless	1198.80 psf	30.00	14.24 Kips	14.24 Kips
10.01 ft	Cohesionless	1200.58 psf	30.00	14.24 Kips	14.24 Kips
19.01 ft	Cohesionless	1718.98 psf	30.00	14.24 Kips	14.24 Kips
19.99 ft	Cohesionless	1775.42 psf	30.00	14.24 Kips	14.24 Kips
20.01 ft	Cohesionless	1776.63 psf	55.60	78.59 Kips	69.99 Kips
29.01 ft	Cohesionless	2340.03 psf	55.60	78.59 Kips	78.59 Kips
29.99 ft	Cohesionless	2401.37 psf	55.60	78.59 Kips	78.59 Kips
30.01 ft	Cohesive	N/A	N/A	N/A	57.73 Kips
39.01 ft	Cohesive	N/A	N/A	N/A	57.73 Kips
48.01 ft	Cohesive	N/A	N/A	N/A	57.73 Kips
49.99 ft	Cohesive	N/A	N/A	N/A	57.73 Kips
50.01 ft	Cohesionless	3754.73 psf	64.00	115.03 Kips	115.03 Kips
59.01 ft	Cohesionless	4408.13 psf	64.00	115.03 Kips	115.03 Kips
68.01 ft	Cohesionless	5061.53 psf	64.00	115.03 Kips	115.03 Kips
77.01 ft	Cohesionless	5714.93 psf	64.00	115.03 Kips	115.03 Kips
86.01 ft	Cohesionless	6368.33 psf	64.00	115.03 Kips	115.03 Kips
89.99 ft	Cohesionless	6657.27 psf	64.00	115.03 Kips	115.03 Kips

ULTIMATE - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.02 Kips	0.02 Kips
9.01 ft	6.08 Kips	14.24 Kips	20.32 Kips
9.99 ft	7.48 Kips	14.24 Kips	21.72 Kips
10.01 ft	7.51 Kips	14.24 Kips	21.75 Kips
19.01 ft	23.91 Kips	14.24 Kips	38.15 Kips
19.99 ft	26.05 Kips	14.24 Kips	40.29 Kips
20.01 ft	26.11 Kips	69.99 Kips	96.10 Kips
29.01 ft	61.40 Kips	78.59 Kips	139.99 Kips
29.99 ft	65.83 Kips	78.59 Kips	144.42 Kips
30.01 ft	65.99 Kips	57.73 Kips	123.72 Kips
39.01 ft	174.85 Kips	57.73 Kips	232.58 Kips
48.01 ft	283.71 Kips	57.73 Kips	341.43 Kips
49.99 ft	307.65 Kips	57.73 Kips	365.38 Kips
50.01 ft	307.85 Kips	115.03 Kips	422.88 Kips
59.01 ft	384.16 Kips	115.03 Kips	499.19 Kips
68.01 ft	472.69 Kips	115.03 Kips	587.71 Kips
77.01 ft	573.43 Kips	115.03 Kips	688.45 Kips
86.01 ft	686.38 Kips	115.03 Kips	801.41 Kips
89.99 ft	740.23 Kips	115.03 Kips	855.26 Kips

Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(I~1\DRIVEN~1\I65SR25.DVN
Project Name: I65-ATL SR 25 Project Date: 08/04/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

SR 25

PILE INFORMATION

Pile Type: H Pile - HP12X53
Top of Pile: 0.00 ft
Perimeter Analysis: Box
Tip Analysis: Pile Area

END BENTS AND
INT PIER

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	10.00 ft
	- Driving/Restrike	10.00 ft
	- Ultimate:	10.00 ft
Ultimate Considerations:	- Local Scour:	0.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesionless	20.00 ft	0.00%	120.00 pcf	30.0/30.0	Nordlund
2	Cohesionless	10.00 ft	0.00%	125.00 pcf	34.0/34.0	Nordlund
3	Cohesive	20.00 ft	0.00%	130.00 pcf	6000.00 psf	User Def.
4	Cohesionless	40.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.60 psf	22.59	N/A	0.00 Kips
9.01 ft	Cohesionless	540.60 psf	22.59	N/A	5.82 Kips
9.99 ft	Cohesionless	599.40 psf	22.59	N/A	7.16 Kips
10.01 ft	Cohesionless	1200.29 psf	22.59	N/A	7.19 Kips
19.01 ft	Cohesionless	1459.49 psf	22.59	N/A	22.90 Kips
19.99 ft	Cohesionless	1487.71 psf	22.59	N/A	24.95 Kips
20.01 ft	Cohesionless	1776.31 psf	25.61	N/A	25.00 Kips
29.01 ft	Cohesionless	2058.01 psf	25.61	N/A	56.14 Kips
29.99 ft	Cohesionless	2088.69 psf	25.61	N/A	60.05 Kips
30.01 ft	Cohesive	N/A	N/A	3300.00 psf	60.22 Kips
39.01 ft	Cohesive	N/A	N/A	3300.00 psf	178.16 Kips
48.01 ft	Cohesive	N/A	N/A	3300.00 psf	296.09 Kips
49.99 ft	Cohesive	N/A	N/A	3300.00 psf	322.03 Kips
50.01 ft	Cohesionless	3754.36 psf	26.36	N/A	322.23 Kips
59.01 ft	Cohesionless	4081.06 psf	26.36	N/A	388.72 Kips
68.01 ft	Cohesionless	4407.76 psf	26.36	N/A	465.85 Kips
77.01 ft	Cohesionless	4734.46 psf	26.36	N/A	553.62 Kips
86.01 ft	Cohesionless	5061.16 psf	26.36	N/A	652.04 Kips
89.99 ft	Cohesionless	5205.64 psf	26.36	N/A	698.95 Kips

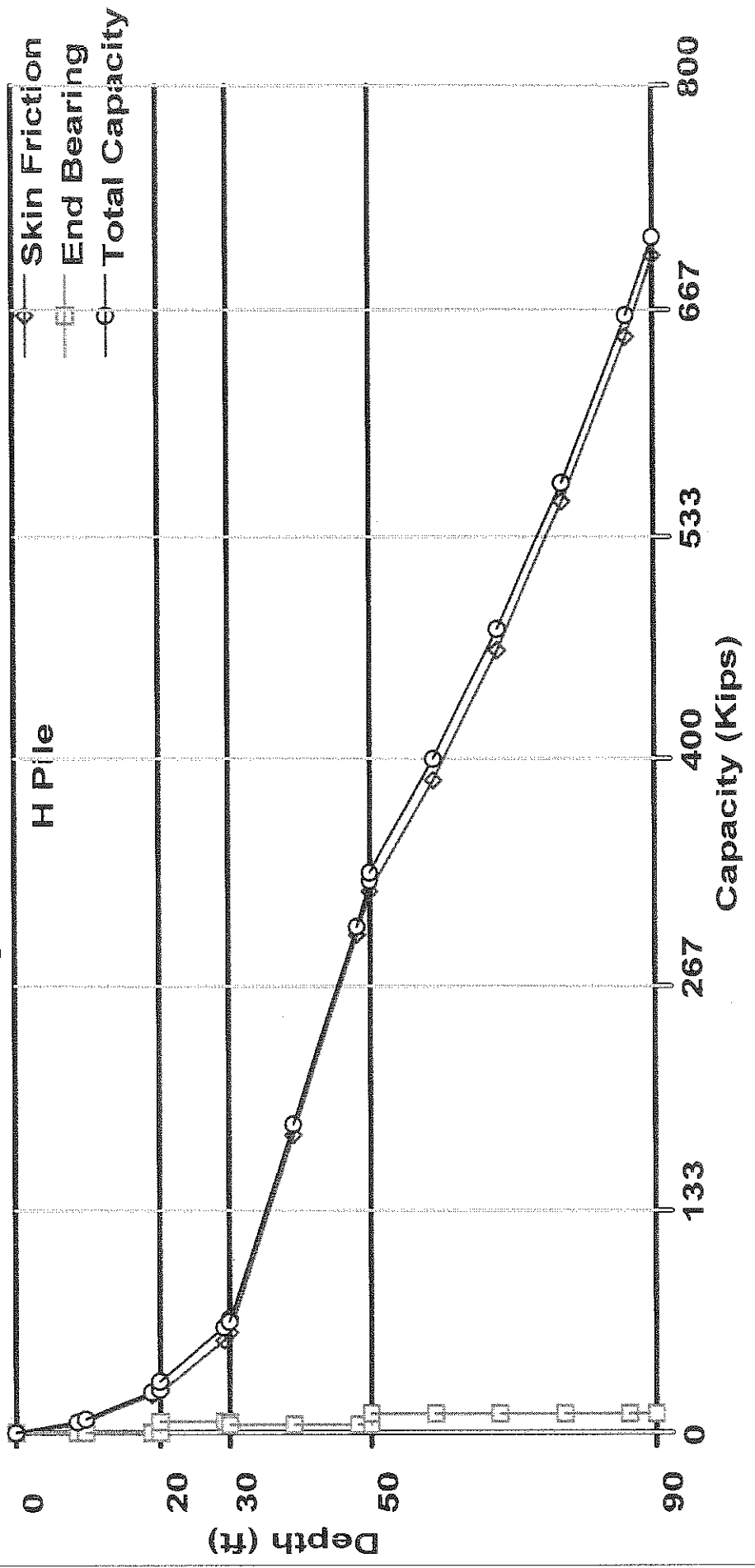
ULTIMATE - END BEARING

Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	1.20 psf	30.00	1.43 Kips	0.00 Kips
9.01 ft	Cohesionless	1081.20 psf	30.00	1.43 Kips	1.43 Kips
9.99 ft	Cohesionless	1198.80 psf	30.00	1.43 Kips	1.43 Kips
10.01 ft	Cohesionless	1200.58 psf	30.00	1.43 Kips	1.43 Kips
19.01 ft	Cohesionless	1718.98 psf	30.00	1.43 Kips	1.43 Kips
19.99 ft	Cohesionless	1775.42 psf	30.00	1.43 Kips	1.43 Kips
20.01 ft	Cohesionless	1776.63 psf	55.60	7.91 Kips	7.05 Kips
29.01 ft	Cohesionless	2340.03 psf	55.60	7.91 Kips	7.91 Kips
29.99 ft	Cohesionless	2401.37 psf	55.60	7.91 Kips	7.91 Kips
30.01 ft	Cohesive	N/A	N/A	N/A	5.81 Kips
39.01 ft	Cohesive	N/A	N/A	N/A	5.81 Kips
48.01 ft	Cohesive	N/A	N/A	N/A	5.81 Kips
49.99 ft	Cohesive	N/A	N/A	N/A	5.81 Kips
50.01 ft	Cohesionless	3754.73 psf	64.00	11.58 Kips	11.58 Kips
59.01 ft	Cohesionless	4408.13 psf	64.00	11.58 Kips	11.58 Kips
68.01 ft	Cohesionless	5061.53 psf	64.00	11.58 Kips	11.58 Kips
77.01 ft	Cohesionless	5714.93 psf	64.00	11.58 Kips	11.58 Kips
86.01 ft	Cohesionless	6368.33 psf	64.00	11.58 Kips	11.58 Kips
89.99 ft	Cohesionless	6657.27 psf	64.00	11.58 Kips	11.58 Kips

ULTIMATE - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.01 ft	5.82 Kips	1.43 Kips	7.26 Kips
9.99 ft	7.16 Kips	1.43 Kips	8.59 Kips
10.01 ft	7.19 Kips	1.43 Kips	8.62 Kips
19.01 ft	22.90 Kips	1.43 Kips	24.33 Kips
19.99 ft	24.95 Kips	1.43 Kips	26.38 Kips
20.01 ft	25.00 Kips	7.05 Kips	32.04 Kips
29.01 ft	56.14 Kips	7.91 Kips	64.06 Kips
29.99 ft	60.05 Kips	7.91 Kips	67.96 Kips
30.01 ft	60.22 Kips	5.81 Kips	66.03 Kips
39.01 ft	178.16 Kips	5.81 Kips	183.97 Kips
48.01 ft	296.09 Kips	5.81 Kips	301.90 Kips
49.99 ft	322.03 Kips	5.81 Kips	327.85 Kips
50.01 ft	322.23 Kips	11.58 Kips	333.82 Kips
59.01 ft	388.72 Kips	11.58 Kips	400.30 Kips
68.01 ft	465.85 Kips	11.58 Kips	477.43 Kips
77.01 ft	553.62 Kips	11.58 Kips	565.20 Kips
86.01 ft	652.04 Kips	11.58 Kips	663.62 Kips
89.99 ft	698.95 Kips	11.58 Kips	710.53 Kips

Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(1~1\DRIVEN~1\65SR25.DVN
Project Name: I65-ATL SR 25 Project Date: 08/04/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

SR 25

PILE INFORMATION

Pile Type: H Pile - HP12X74
Top of Pile: 0.00 ft
Perimeter Analysis: Box
Tip Analysis: Pile Area

END BENTS AND
INT PIER

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	10.00 ft
	- Driving/Restrike	10.00 ft
	- Ultimate:	10.00 ft
Ultimate Considerations:	- Local Scour:	0.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesionless	20.00 ft	0.00%	120.00 pcf	30.0/30.0	Nordlund
2	Cohesionless	10.00 ft	0.00%	125.00 pcf	34.0/34.0	Nordlund
3	Cohesive	20.00 ft	0.00%	130.00 pcf	6000.00 psf	User Def.
4	Cohesionless	40.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.60 psf	23.64	N/A	0.00 Kips
9.01 ft	Cohesionless	540.60 psf	23.64	N/A	6.68 Kips
9.99 ft	Cohesionless	599.40 psf	23.64	N/A	8.22 Kips
10.01 ft	Cohesionless	1200.29 psf	23.64	N/A	8.25 Kips
19.01 ft	Cohesionless	1459.49 psf	23.64	N/A	26.28 Kips
19.99 ft	Cohesionless	1487.71 psf	23.64	N/A	28.63 Kips
20.01 ft	Cohesionless	1776.31 psf	26.80	N/A	28.69 Kips
29.01 ft	Cohesionless	2058.01 psf	26.80	N/A	65.34 Kips
29.99 ft	Cohesionless	2088.69 psf	26.80	N/A	69.94 Kips
30.01 ft	Cohesive	N/A	N/A	3300.00 psf	70.12 Kips
39.01 ft	Cohesive	N/A	N/A	3300.00 psf	190.63 Kips
48.01 ft	Cohesive	N/A	N/A	3300.00 psf	311.14 Kips
49.99 ft	Cohesive	N/A	N/A	3300.00 psf	337.65 Kips
50.01 ft	Cohesionless	3754.36 psf	27.58	N/A	337.86 Kips
59.01 ft	Cohesionless	4081.06 psf	27.58	N/A	416.49 Kips
68.01 ft	Cohesionless	4407.76 psf	27.58	N/A	507.71 Kips
77.01 ft	Cohesionless	4734.46 psf	27.58	N/A	611.52 Kips
86.01 ft	Cohesionless	5061.16 psf	27.58	N/A	727.91 Kips
89.99 ft	Cohesionless	5205.64 psf	27.58	N/A	783.40 Kips

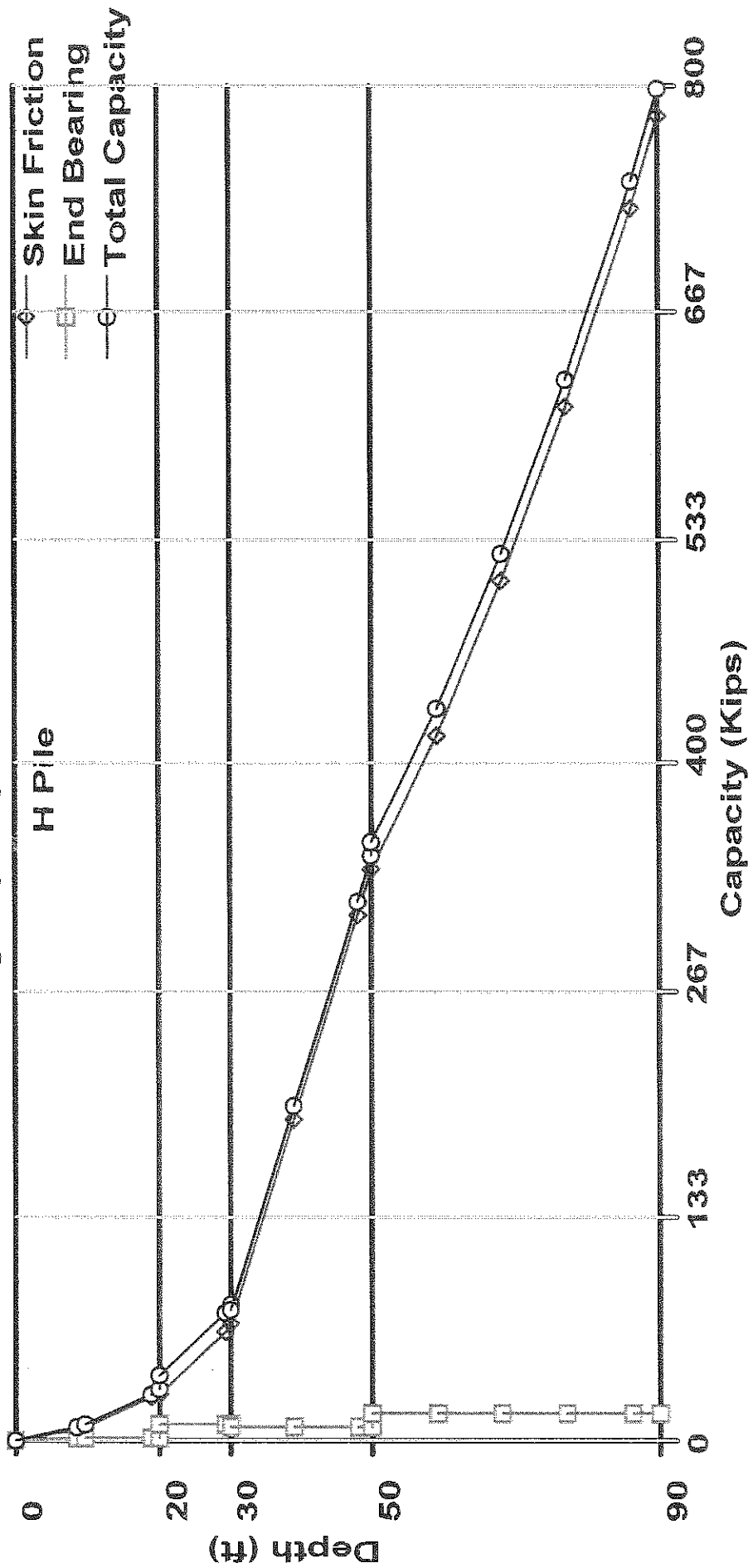
ULTIMATE - END BEARING

Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	1.20 psf	30.00	2.02 Kips	0.00 Kips
9.01 ft	Cohesionless	1081.20 psf	30.00	2.02 Kips	2.02 Kips
9.99 ft	Cohesionless	1198.80 psf	30.00	2.02 Kips	2.02 Kips
10.01 ft	Cohesionless	1200.58 psf	30.00	2.02 Kips	2.02 Kips
19.01 ft	Cohesionless	1718.98 psf	30.00	2.02 Kips	2.02 Kips
19.99 ft	Cohesionless	1775.42 psf	30.00	2.02 Kips	2.02 Kips
20.01 ft	Cohesionless	1776.63 psf	55.60	11.13 Kips	9.91 Kips
29.01 ft	Cohesionless	2340.03 psf	55.60	11.13 Kips	11.13 Kips
29.99 ft	Cohesionless	2401.37 psf	55.60	11.13 Kips	11.13 Kips
30.01 ft	Cohesive	N/A	N/A	N/A	8.17 Kips
39.01 ft	Cohesive	N/A	N/A	N/A	8.17 Kips
48.01 ft	Cohesive	N/A	N/A	N/A	8.17 Kips
49.99 ft	Cohesive	N/A	N/A	N/A	8.17 Kips
50.01 ft	Cohesionless	3754.73 psf	64.00	16.29 Kips	16.29 Kips
59.01 ft	Cohesionless	4408.13 psf	64.00	16.29 Kips	16.29 Kips
68.01 ft	Cohesionless	5061.53 psf	64.00	16.29 Kips	16.29 Kips
77.01 ft	Cohesionless	5714.93 psf	64.00	16.29 Kips	16.29 Kips
86.01 ft	Cohesionless	6368.33 psf	64.00	16.29 Kips	16.29 Kips
89.99 ft	Cohesionless	6657.27 psf	64.00	16.29 Kips	16.29 Kips

ULTIMATE - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.01 ft	6.68 Kips	2.02 Kips	8.70 Kips
9.99 ft	8.22 Kips	2.02 Kips	10.23 Kips
10.01 ft	8.25 Kips	2.02 Kips	10.27 Kips
19.01 ft	26.28 Kips	2.02 Kips	28.30 Kips
19.99 ft	28.63 Kips	2.02 Kips	30.65 Kips
20.01 ft	28.69 Kips	9.91 Kips	38.60 Kips
29.01 ft	65.34 Kips	11.13 Kips	76.47 Kips
29.99 ft	69.94 Kips	11.13 Kips	81.07 Kips
30.01 ft	70.12 Kips	8.17 Kips	78.30 Kips
39.01 ft	190.63 Kips	8.17 Kips	198.80 Kips
48.01 ft	311.14 Kips	8.17 Kips	319.31 Kips
49.99 ft	337.65 Kips	8.17 Kips	345.82 Kips
50.01 ft	337.86 Kips	16.29 Kips	354.15 Kips
59.01 ft	416.49 Kips	16.29 Kips	432.78 Kips
68.01 ft	507.71 Kips	16.29 Kips	524.00 Kips
77.01 ft	611.52 Kips	16.29 Kips	627.81 Kips
86.01 ft	727.91 Kips	16.29 Kips	744.20 Kips
89.99 ft	783.40 Kips	16.29 Kips	799.69 Kips

Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(1~1\DRIVEN~1\WCEB1.DVN
Project Name: I65 Wildcat Cr EB1 Project Date: 08/04/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: Pipe Pile - Closed End
Top of Pile: 0.00 ft
Diameter of Pile: 14.00 in

END BENT 1

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	0.00 ft
	- Driving/Restrike	0.00 ft
	- Ultimate:	0.00 ft
Ultimate Considerations:	- Local Scour:	0.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesionless	10.00 ft	0.00%	120.00 pcf	30.0/30.0	Nordlund
2	Cohesionless	30.00 ft	0.00%	130.00 pcf	34.0/34.0	Nordlund
3	Cohesive	17.00 ft	0.00%	130.00 pcf	3000.00 psf	User Def.
4	Cohesionless	38.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.29 psf	19.99	N/A	0.00 Kips
9.01 ft	Cohesionless	259.49 psf	19.99	N/A	2.92 Kips
9.99 ft	Cohesionless	287.71 psf	19.99	N/A	3.59 Kips
10.01 ft	Cohesionless	576.34 psf	22.66	N/A	3.61 Kips
19.01 ft	Cohesionless	880.54 psf	22.66	N/A	18.71 Kips
28.01 ft	Cohesionless	1184.74 psf	22.66	N/A	44.25 Kips
37.01 ft	Cohesionless	1488.94 psf	22.66	N/A	80.22 Kips
39.99 ft	Cohesionless	1589.66 psf	22.66	N/A	94.43 Kips
40.01 ft	Cohesive	N/A	N/A	1650.00 psf	94.54 Kips
49.01 ft	Cohesive	N/A	N/A	1650.00 psf	148.96 Kips
56.99 ft	Cohesive	N/A	N/A	1650.00 psf	197.22 Kips
57.01 ft	Cohesionless	3753.56 psf	23.33	N/A	197.36 Kips
66.01 ft	Cohesionless	4080.26 psf	23.33	N/A	273.66 Kips
75.01 ft	Cohesionless	4406.96 psf	23.33	N/A	362.16 Kips
84.01 ft	Cohesionless	4733.66 psf	23.33	N/A	462.89 Kips
93.01 ft	Cohesionless	5060.36 psf	23.33	N/A	575.83 Kips
94.99 ft	Cohesionless	5132.24 psf	23.33	N/A	602.32 Kips

ULTIMATE - END BEARING

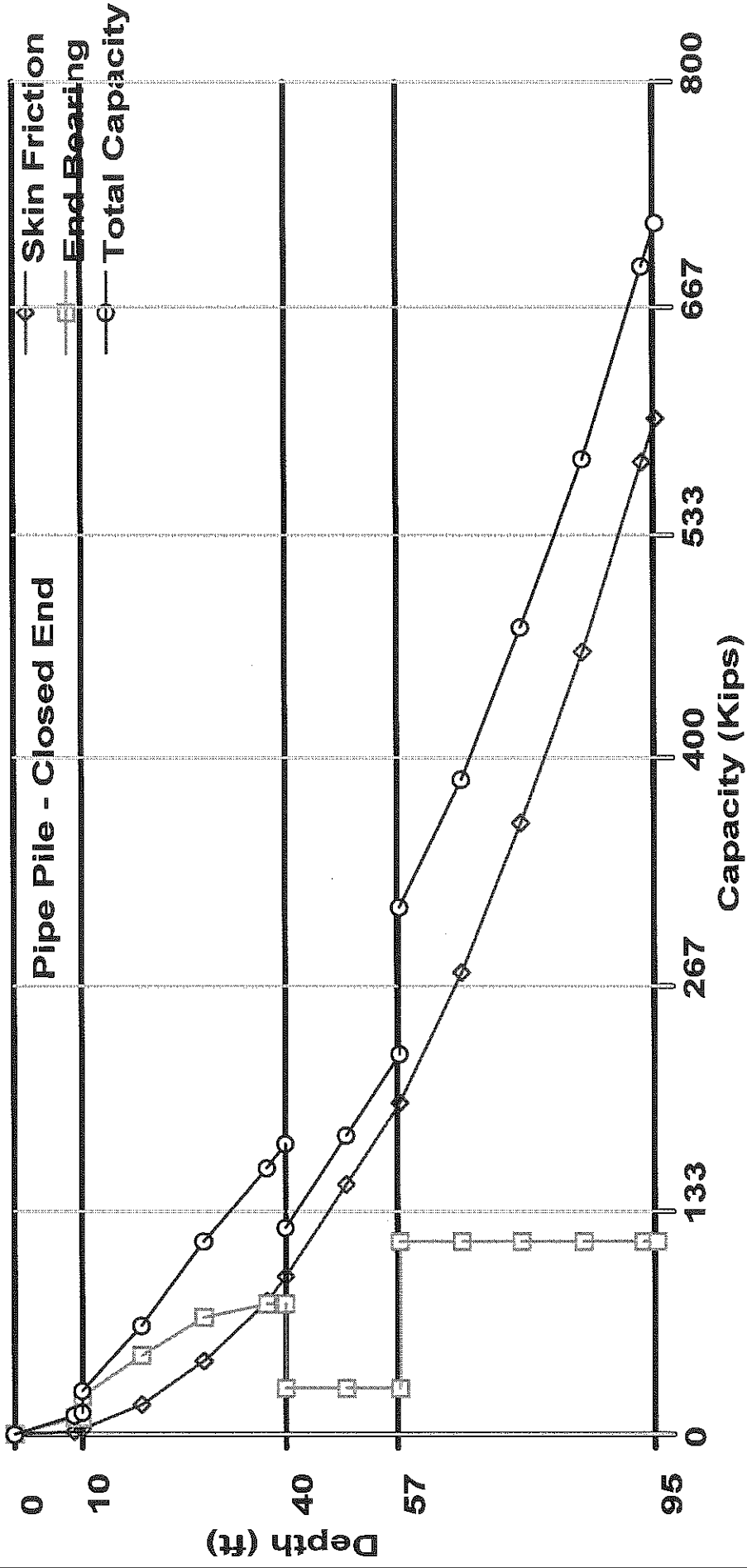
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	0.58 psf	30.00	14.24 Kips	0.01 Kips
9.01 ft	Cohesionless	518.98 psf	30.00	14.24 Kips	9.65 Kips
9.99 ft	Cohesionless	575.42 psf	30.00	14.24 Kips	10.70 Kips
10.01 ft	Cohesionless	576.68 psf	55.60	78.59 Kips	22.72 Kips
19.01 ft	Cohesionless	1185.08 psf	55.60	78.59 Kips	46.69 Kips
28.01 ft	Cohesionless	1793.48 psf	55.60	78.59 Kips	69.85 Kips
37.01 ft	Cohesionless	2401.88 psf	55.60	78.59 Kips	78.59 Kips
39.99 ft	Cohesionless	2603.32 psf	55.60	78.59 Kips	78.59 Kips
40.01 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
49.01 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
56.99 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
57.01 ft	Cohesionless	3753.93 psf	64.00	115.03 Kips	115.03 Kips
66.01 ft	Cohesionless	4407.33 psf	64.00	115.03 Kips	115.03 Kips
75.01 ft	Cohesionless	5060.73 psf	64.00	115.03 Kips	115.03 Kips
84.01 ft	Cohesionless	5714.13 psf	64.00	115.03 Kips	115.03 Kips
93.01 ft	Cohesionless	6367.53 psf	64.00	115.03 Kips	115.03 Kips
94.99 ft	Cohesionless	6511.27 psf	64.00	115.03 Kips	115.03 Kips

ULTIMATE - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.01 Kips	0.01 Kips
9.01 ft	2.92 Kips	9.65 Kips	12.57 Kips
9.99 ft	3.59 Kips	10.70 Kips	14.29 Kips
10.01 ft	3.61 Kips	22.72 Kips	26.33 Kips
19.01 ft	18.71 Kips	46.69 Kips	65.40 Kips
28.01 ft	44.25 Kips	69.85 Kips	114.10 Kips
37.01 ft	80.22 Kips	78.59 Kips	158.81 Kips
39.99 ft	94.43 Kips	78.59 Kips	173.02 Kips
40.01 ft	94.54 Kips	28.86 Kips	123.40 Kips
49.01 ft	148.96 Kips	28.86 Kips	177.83 Kips
56.99 ft	197.22 Kips	28.86 Kips	226.09 Kips
57.01 ft	197.36 Kips	115.03 Kips	312.39 Kips
66.01 ft	273.66 Kips	115.03 Kips	388.68 Kips
75.01 ft	362.16 Kips	115.03 Kips	477.19 Kips
84.01 ft	462.89 Kips	115.03 Kips	577.92 Kips
93.01 ft	575.83 Kips	115.03 Kips	690.86 Kips
94.99 ft	602.32 Kips	115.03 Kips	717.34 Kips

46 FT \Rightarrow 160 kips

Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(I~1\DRIVEN~1\WCINP2.DVN
Project Name: I65 Wildcat Cr Piers 25 Project Date: 08/05/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: Pipe Pile - Closed End
Top of Pile: 0.00 ft
Diameter of Pile: 14.00 in

INT PIER LINE 2 & 5

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	0.00 ft
	- Driving/Restrike	0.00 ft
	- Ultimate:	0.00 ft
Ultimate Considerations:	- Local Scour:	15.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesionless	10.00 ft	0.00%	120.00 pcf	30.0/30.0	Nordlund
2	Cohesive	15.00 ft	0.00%	125.00 pcf	3000.00 psf	User Def.
3	Cohesionless	20.00 ft	0.00%	130.00 pcf	33.0/33.0	Nordlund
4	Cohesionless	45.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

DRIVING - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.29 psf	19.99	N/A	0.00 Kips
9.01 ft	Cohesionless	259.49 psf	19.99	N/A	2.92 Kips
9.99 ft	Cohesionless	287.71 psf	19.99	N/A	3.59 Kips
10.01 ft	Cohesive	N/A	N/A	1650.00 psf	3.66 Kips
19.01 ft	Cohesive	N/A	N/A	1650.00 psf	58.08 Kips
24.99 ft	Cohesive	N/A	N/A	1650.00 psf	94.25 Kips
25.01 ft	Cohesionless	1515.34 psf	21.99	N/A	94.34 Kips
34.01 ft	Cohesionless	1819.54 psf	21.99	N/A	122.77 Kips
43.01 ft	Cohesionless	2123.74 psf	21.99	N/A	160.71 Kips
44.99 ft	Cohesionless	2190.66 psf	21.99	N/A	170.33 Kips
45.01 ft	Cohesionless	2867.36 psf	23.33	N/A	170.44 Kips
54.01 ft	Cohesionless	3194.06 psf	23.33	N/A	230.16 Kips
63.01 ft	Cohesionless	3520.76 psf	23.33	N/A	302.10 Kips
72.01 ft	Cohesionless	3847.46 psf	23.33	N/A	386.26 Kips
81.01 ft	Cohesionless	4174.16 psf	23.33	N/A	482.63 Kips
89.99 ft	Cohesionless	4500.14 psf	23.33	N/A	590.97 Kips

DRIVING - END BEARING

Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	0.58 psf	30.00	14.24 Kips	0.01 Kips
9.01 ft	Cohesionless	518.98 psf	30.00	14.24 Kips	9.65 Kips
9.99 ft	Cohesionless	575.42 psf	30.00	14.24 Kips	10.70 Kips
10.01 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
19.01 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
24.99 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
25.01 ft	Cohesionless	1515.68 psf	47.20	53.45 Kips	49.07 Kips
34.01 ft	Cohesionless	2124.08 psf	47.20	53.45 Kips	53.45 Kips
43.01 ft	Cohesionless	2732.48 psf	47.20	53.45 Kips	53.45 Kips
44.99 ft	Cohesionless	2866.32 psf	47.20	53.45 Kips	53.45 Kips
45.01 ft	Cohesionless	2867.73 psf	64.00	115.03 Kips	115.03 Kips
54.01 ft	Cohesionless	3521.13 psf	64.00	115.03 Kips	115.03 Kips
63.01 ft	Cohesionless	4174.53 psf	64.00	115.03 Kips	115.03 Kips
72.01 ft	Cohesionless	4827.93 psf	64.00	115.03 Kips	115.03 Kips
81.01 ft	Cohesionless	5481.33 psf	64.00	115.03 Kips	115.03 Kips
89.99 ft	Cohesionless	6133.27 psf	64.00	115.03 Kips	115.03 Kips

Scour = 34 kips

DRIVING - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.01 Kips	0.01 Kips
9.01 ft	2.92 Kips	9.65 Kips	12.57 Kips
9.99 ft	3.59 Kips	10.70 Kips	14.29 Kips
10.01 ft	3.66 Kips	28.86 Kips	32.52 Kips
19.01 ft	58.08 Kips	28.86 Kips	86.95 Kips
24.99 ft	94.25 Kips	28.86 Kips	123.11 Kips
25.01 ft	94.34 Kips	49.07 Kips	143.41 Kips
34.01 ft	122.77 Kips	53.45 Kips	176.22 Kips
43.01 ft	160.71 Kips	53.45 Kips	214.16 Kips
44.99 ft	170.33 Kips	53.45 Kips	223.78 Kips
45.01 ft	170.44 Kips	115.03 Kips	285.46 Kips
54.01 ft	230.16 Kips	115.03 Kips	345.19 Kips
63.01 ft	302.10 Kips	115.03 Kips	417.13 Kips
72.01 ft	386.26 Kips	115.03 Kips	501.29 Kips
81.01 ft	482.63 Kips	115.03 Kips	597.66 Kips
89.99 ft	590.97 Kips	115.03 Kips	705.99 Kips

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.00 psf	0.00	N/A	0.00 Kips
9.01 ft	Cohesionless	0.00 psf	0.00	N/A	0.00 Kips
9.99 ft	Cohesionless	0.00 psf	0.00	N/A	0.00 Kips
10.01 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
14.99 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
15.00 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
19.01 ft	Cohesive	N/A	N/A	1650.00 psf	24.25 Kips
24.99 ft	Cohesive	N/A	N/A	1650.00 psf	60.42 Kips
25.01 ft	Cohesionless	1515.34 psf	21.99	N/A	60.50 Kips
34.01 ft	Cohesionless	1819.54 psf	21.99	N/A	88.93 Kips
43.01 ft	Cohesionless	2123.74 psf	21.99	N/A	126.87 Kips
44.99 ft	Cohesionless	2190.66 psf	21.99	N/A	136.50 Kips
45.01 ft	Cohesionless	2867.36 psf	23.33	N/A	136.60 Kips
54.01 ft	Cohesionless	3194.06 psf	23.33	N/A	196.33 Kips
63.01 ft	Cohesionless	3520.76 psf	23.33	N/A	268.27 Kips
72.01 ft	Cohesionless	3847.46 psf	23.33	N/A	352.43 Kips
81.01 ft	Cohesionless	4174.16 psf	23.33	N/A	448.80 Kips
89.99 ft	Cohesionless	4500.14 psf	23.33	N/A	557.13 Kips

ULTIMATE - END BEARING

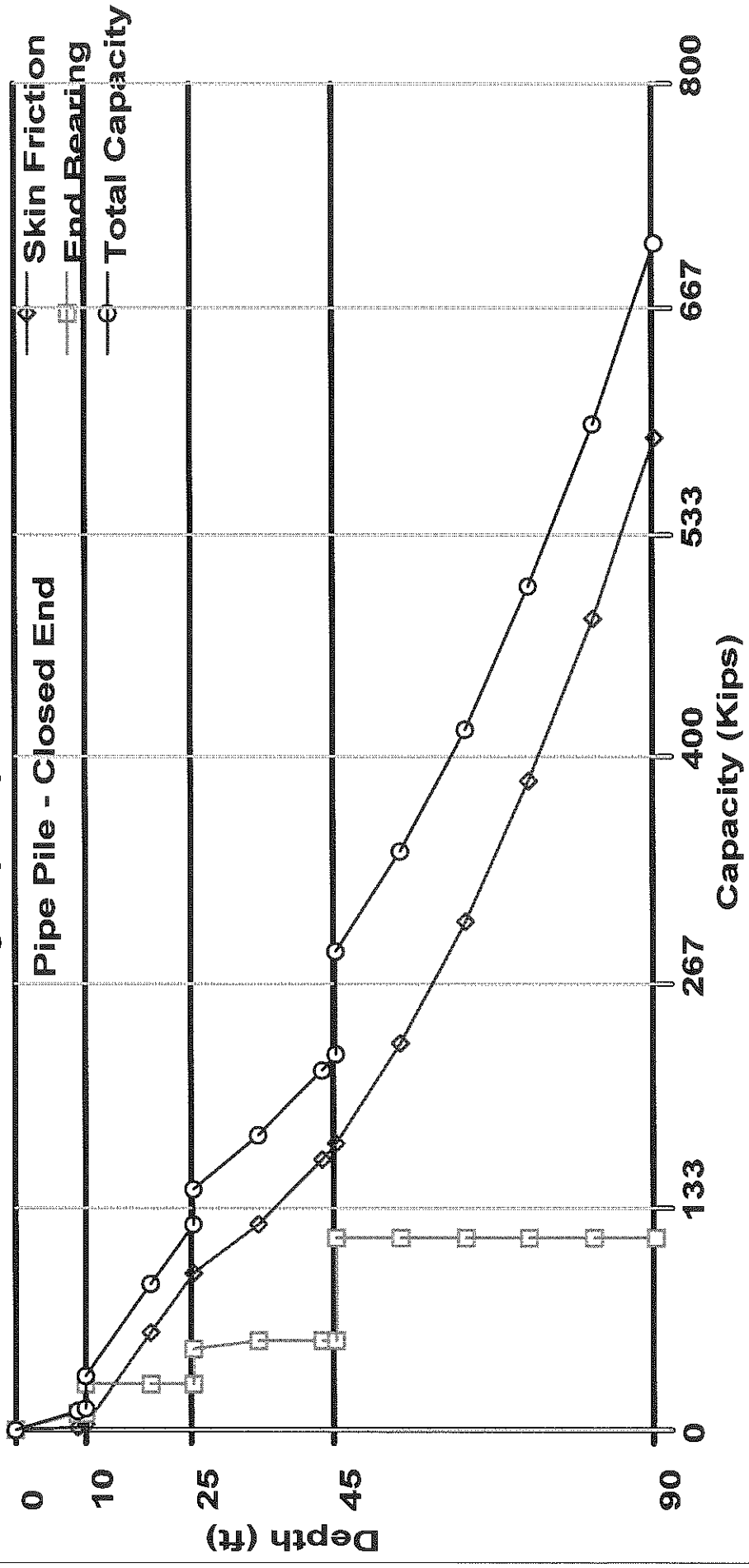
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	0.00 psf	0.00	0.00 Kips	0.00 Kips
9.01 ft	Cohesionless	0.00 psf	0.00	0.00 Kips	0.00 Kips
9.99 ft	Cohesionless	0.00 psf	0.00	0.00 Kips	0.00 Kips
10.01 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
14.99 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
15.00 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
19.01 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
24.99 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
25.01 ft	Cohesionless	1515.68 psf	47.20	53.45 Kips	49.37 Kips
34.01 ft	Cohesionless	2124.08 psf	47.20	53.45 Kips	53.45 Kips
43.01 ft	Cohesionless	2732.48 psf	47.20	53.45 Kips	53.45 Kips
44.99 ft	Cohesionless	2866.32 psf	47.20	53.45 Kips	53.45 Kips
45.01 ft	Cohesionless	2867.73 psf	64.00	115.03 Kips	115.03 Kips
54.01 ft	Cohesionless	3521.13 psf	64.00	115.03 Kips	115.03 Kips
63.01 ft	Cohesionless	4174.53 psf	64.00	115.03 Kips	115.03 Kips
72.01 ft	Cohesionless	4827.93 psf	64.00	115.03 Kips	115.03 Kips
81.01 ft	Cohesionless	5481.33 psf	64.00	115.03 Kips	115.03 Kips
89.99 ft	Cohesionless	6133.27 psf	64.00	115.03 Kips	115.03 Kips

ULTIMATE - SUMMARY OF CAPACITIES

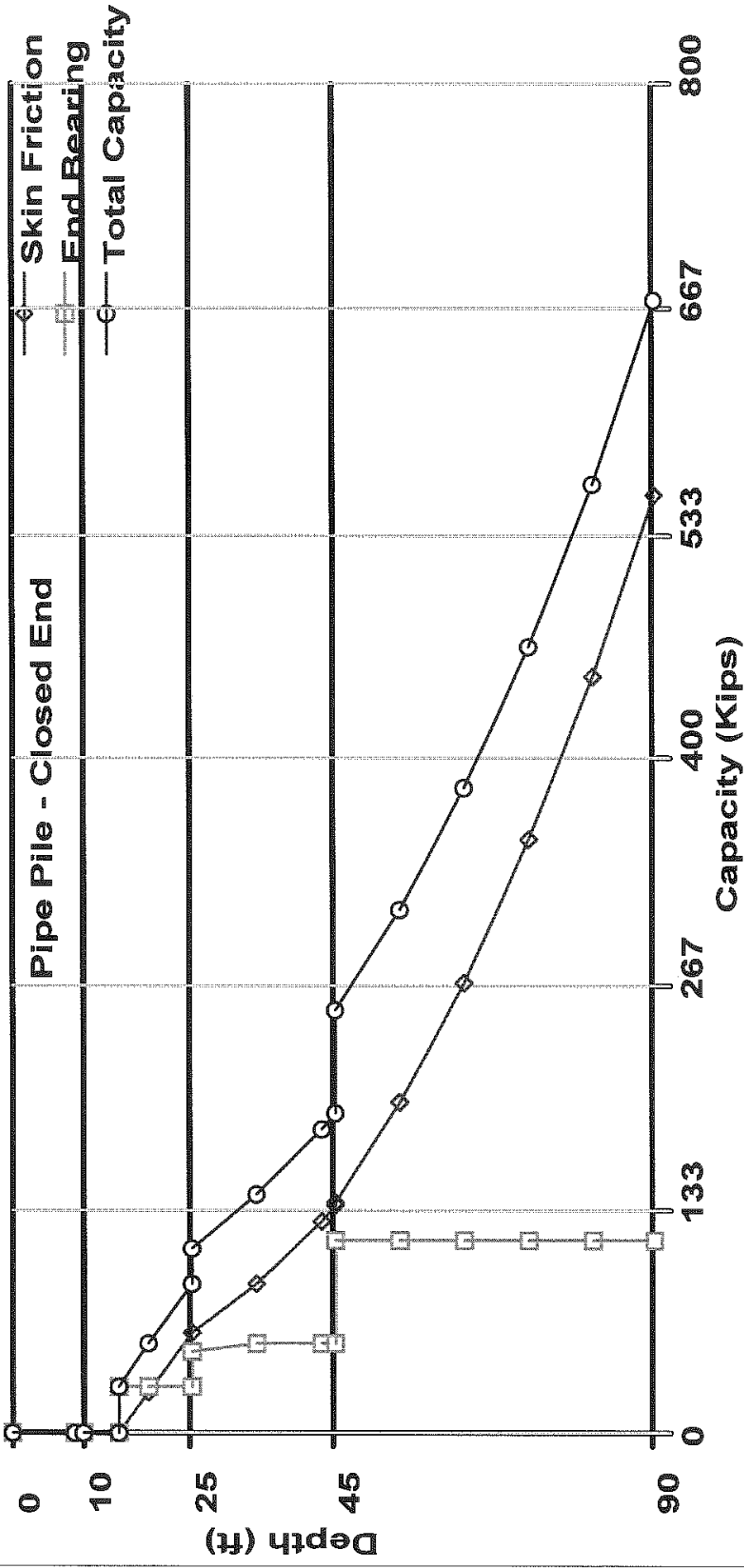
Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.99 ft	0.00 Kips	0.00 Kips	0.00 Kips
10.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
14.99 ft	0.00 Kips	0.00 Kips	0.00 Kips
15.00 ft	0.00 Kips	28.86 Kips	28.86 Kips
19.01 ft	24.25 Kips	28.86 Kips	53.11 Kips
24.99 ft	60.42 Kips	28.86 Kips	89.28 Kips
25.01 ft	60.50 Kips	49.37 Kips	109.88 Kips
34.01 ft	88.93 Kips	53.45 Kips	142.39 Kips
43.01 ft	126.87 Kips	53.45 Kips	180.32 Kips
44.99 ft	136.50 Kips	53.45 Kips	189.95 Kips
45.01 ft	136.60 Kips	115.03 Kips	251.63 Kips
54.01 ft	196.33 Kips	115.03 Kips	311.35 Kips
63.01 ft	268.27 Kips	115.03 Kips	383.30 Kips
72.01 ft	352.43 Kips	115.03 Kips	467.45 Kips
81.01 ft	448.80 Kips	115.03 Kips	563.82 Kips
89.99 ft	557.13 Kips	115.03 Kips	672.16 Kips

45 FT \Rightarrow 194 kips

Bearing Capacity Graph - Driving



Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(1~1\DRIVEN~1\WCINP.DVN
Project Name: I65 Wildcat Cr. Piers 34 Project Date: 08/05/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: Pipe Pile - Closed End
Top of Pile: 0.00 ft
Diameter of Pile: 14.00 in

INT. PIER LINE 3 & 4

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	0.00 ft
	- Driving/Restrike	0.00 ft
	- Ultimate:	0.00 ft
Ultimate Considerations:	- Local Scour:	5.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesive	15.00 ft	0.00%	125.00 pcf	3000.00 psf	User Def.
2	Cohesionless	20.00 ft	0.00%	130.00 pcf	33.0/33.0	Nordlund
3	Cohesionless	45.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

DRIVING - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesive	N/A	N/A	1650.00 psf	0.06 Kips
9.01 ft	Cohesive	N/A	N/A	1650.00 psf	54.49 Kips
14.99 ft	Cohesive	N/A	N/A	1650.00 psf	90.65 Kips
15.01 ft	Cohesionless	939.34 psf	21.99	N/A	90.73 Kips
24.01 ft	Cohesionless	1243.54 psf	21.99	N/A	110.16 Kips
33.01 ft	Cohesionless	1547.74 psf	21.99	N/A	139.10 Kips
34.99 ft	Cohesionless	1614.66 psf	21.99	N/A	146.74 Kips
35.01 ft	Cohesionless	2291.36 psf	23.33	N/A	146.83 Kips
44.01 ft	Cohesionless	2618.06 psf	23.33	N/A	195.79 Kips
53.01 ft	Cohesionless	2944.76 psf	23.33	N/A	256.96 Kips
62.01 ft	Cohesionless	3271.46 psf	23.33	N/A	330.35 Kips
71.01 ft	Cohesionless	3598.16 psf	23.33	N/A	415.95 Kips
79.99 ft	Cohesionless	3924.14 psf	23.33	N/A	513.54 Kips

DRIVING - END BEARING

Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
9.01 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
14.99 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
15.01 ft	Cohesionless	939.68 psf	47.20	53.45 Kips	30.61 Kips
24.01 ft	Cohesionless	1548.08 psf	47.20	53.45 Kips	50.30 Kips
33.01 ft	Cohesionless	2156.48 psf	47.20	53.45 Kips	53.45 Kips
34.99 ft	Cohesionless	2290.32 psf	47.20	53.45 Kips	53.45 Kips
35.01 ft	Cohesionless	2291.73 psf	64.00	115.03 Kips	105.05 Kips
44.01 ft	Cohesionless	2945.13 psf	64.00	115.03 Kips	115.03 Kips
53.01 ft	Cohesionless	3598.53 psf	64.00	115.03 Kips	115.03 Kips
62.01 ft	Cohesionless	4251.93 psf	64.00	115.03 Kips	115.03 Kips
71.01 ft	Cohesionless	4905.33 psf	64.00	115.03 Kips	115.03 Kips
79.99 ft	Cohesionless	5557.27 psf	64.00	115.03 Kips	115.03 Kips

Scour = 30 kips

DRIVING - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.06 Kips	28.86 Kips	28.92 Kips
9.01 ft	54.49 Kips	28.86 Kips	83.35 Kips
14.99 ft	90.65 Kips	28.86 Kips	119.52 Kips
15.01 ft	90.73 Kips	30.61 Kips	121.34 Kips
24.01 ft	110.16 Kips	50.30 Kips	160.47 Kips
33.01 ft	139.10 Kips	53.45 Kips	192.55 Kips
34.99 ft	146.74 Kips	53.45 Kips	200.20 Kips
35.01 ft	146.83 Kips	105.05 Kips	251.88 Kips
44.01 ft	195.79 Kips	115.03 Kips	310.81 Kips
53.01 ft	256.96 Kips	115.03 Kips	371.98 Kips
62.01 ft	330.35 Kips	115.03 Kips	445.37 Kips
71.01 ft	415.95 Kips	115.03 Kips	530.98 Kips
79.99 ft	513.54 Kips	115.03 Kips	628.57 Kips

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
4.99 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
5.00 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
9.01 ft	Cohesive	N/A	N/A	1650.00 psf	24.25 Kips
14.99 ft	Cohesive	N/A	N/A	1650.00 psf	60.42 Kips
15.01 ft	Cohesionless	939.34 psf	21.99	N/A	60.49 Kips
24.01 ft	Cohesionless	1243.54 psf	21.99	N/A	79.93 Kips
33.01 ft	Cohesionless	1547.74 psf	21.99	N/A	108.86 Kips
34.99 ft	Cohesionless	1614.66 psf	21.99	N/A	116.51 Kips
35.01 ft	Cohesionless	2291.36 psf	23.33	N/A	116.59 Kips
44.01 ft	Cohesionless	2618.06 psf	23.33	N/A	165.55 Kips
53.01 ft	Cohesionless	2944.76 psf	23.33	N/A	226.72 Kips
62.01 ft	Cohesionless	3271.46 psf	23.33	N/A	300.11 Kips
71.01 ft	Cohesionless	3598.16 psf	23.33	N/A	385.71 Kips
79.99 ft	Cohesionless	3924.14 psf	23.33	N/A	483.30 Kips

ULTIMATE - END BEARING

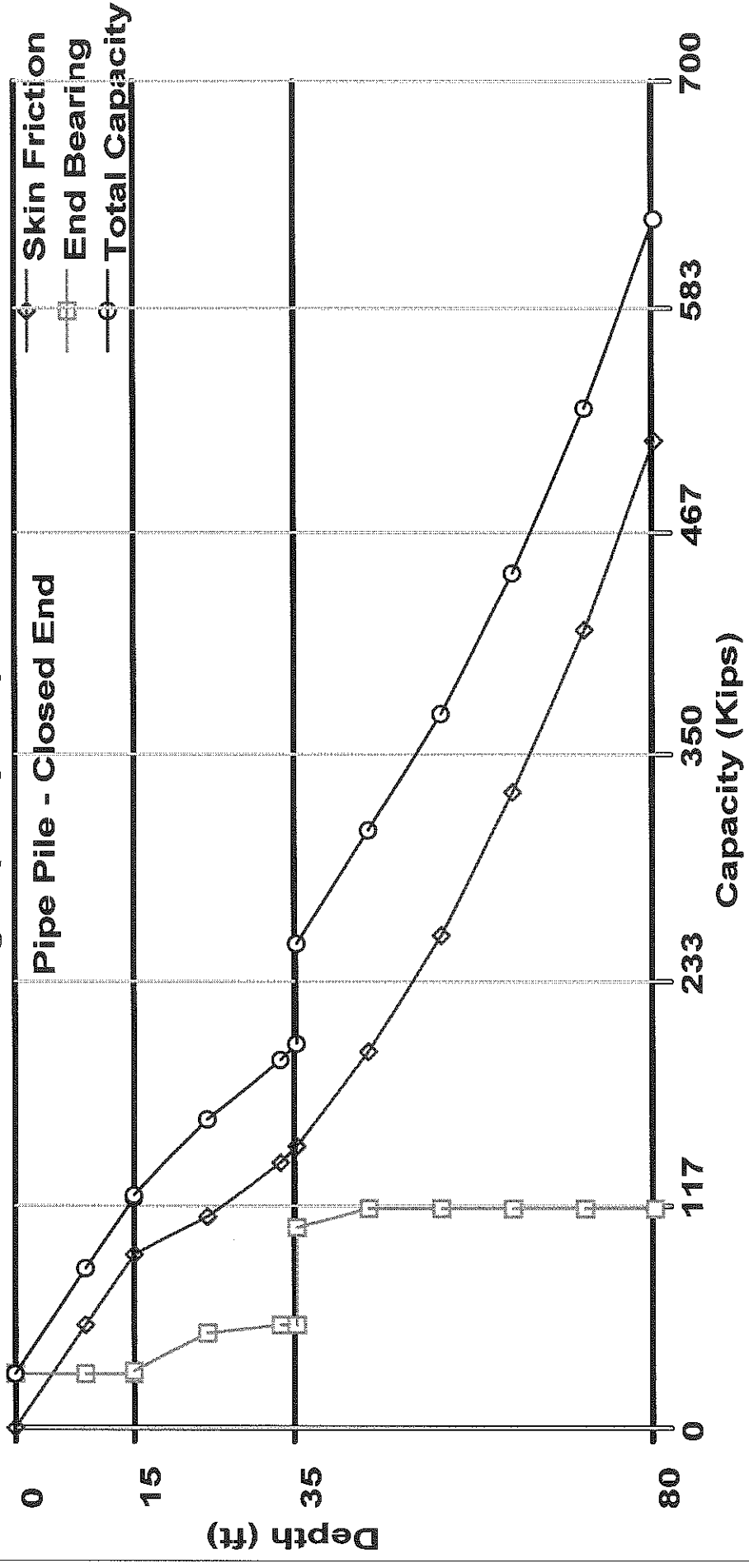
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
4.99 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
5.00 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
9.01 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
14.99 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
15.01 ft	Cohesionless	939.68 psf	47.20	53.45 Kips	30.61 Kips
24.01 ft	Cohesionless	1548.08 psf	47.20	53.45 Kips	50.43 Kips
33.01 ft	Cohesionless	2156.48 psf	47.20	53.45 Kips	53.45 Kips
34.99 ft	Cohesionless	2290.32 psf	47.20	53.45 Kips	53.45 Kips
35.01 ft	Cohesionless	2291.73 psf	64.00	115.03 Kips	105.72 Kips
44.01 ft	Cohesionless	2945.13 psf	64.00	115.03 Kips	115.03 Kips
53.01 ft	Cohesionless	3598.53 psf	64.00	115.03 Kips	115.03 Kips
62.01 ft	Cohesionless	4251.93 psf	64.00	115.03 Kips	115.03 Kips
71.01 ft	Cohesionless	4905.33 psf	64.00	115.03 Kips	115.03 Kips
79.99 ft	Cohesionless	5557.27 psf	64.00	115.03 Kips	115.03 Kips

ULTIMATE - SUMMARY OF CAPACITIES

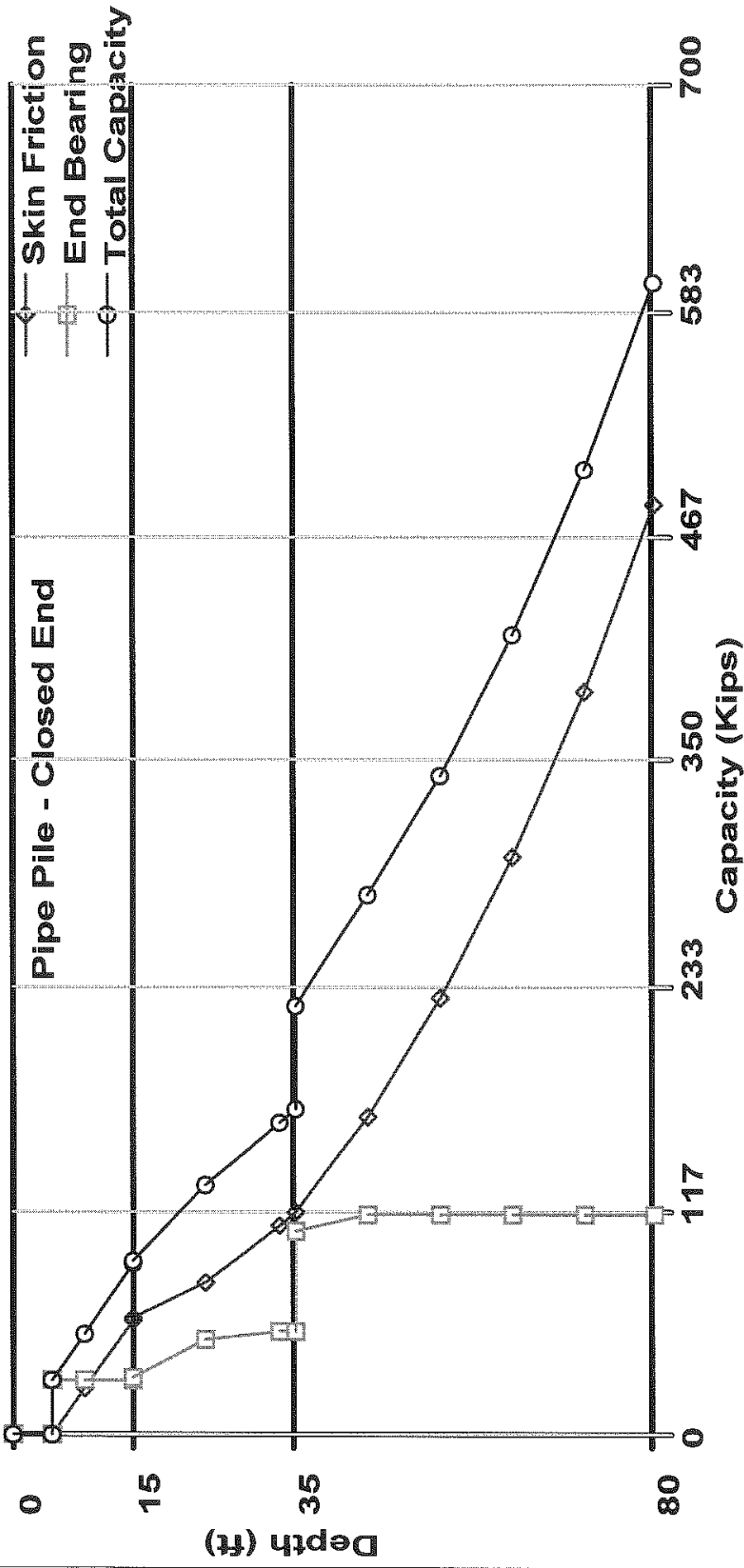
Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
4.99 ft	0.00 Kips	0.00 Kips	0.00 Kips
5.00 ft	0.00 Kips	28.86 Kips	28.86 Kips
9.01 ft	24.25 Kips	28.86 Kips	53.11 Kips
14.99 ft	60.42 Kips	28.86 Kips	89.28 Kips
15.01 ft	60.49 Kips	30.61 Kips	91.10 Kips
24.01 ft	79.93 Kips	50.43 Kips	130.35 Kips
33.01 ft	108.86 Kips	53.45 Kips	162.32 Kips
34.99 ft	116.51 Kips	53.45 Kips	169.96 Kips
35.01 ft	116.59 Kips	105.72 Kips	222.32 Kips
44.01 ft	165.55 Kips	115.03 Kips	280.58 Kips
53.01 ft	226.72 Kips	115.03 Kips	341.75 Kips
62.01 ft	300.11 Kips	115.03 Kips	415.13 Kips
71.01 ft	385.71 Kips	115.03 Kips	500.74 Kips
79.99 ft	483.30 Kips	115.03 Kips	598.33 Kips

35 ft = 190 kips

Bearing Capacity Graph - Driving



Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(1~1\DRIVEN~1\WCEB6.DVN
Project Name: I65 Wildcat Cr EB6 Project Date: 08/04/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: Pipe Pile - Closed End
Top of Pile: 0.00 ft
Diameter of Pile: 14.00 in

END BENT 6

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	10.00 ft
	- Driving/Restrike	10.00 ft
	- Ultimate:	10.00 ft
Ultimate Considerations:	- Local Scour:	0.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesive	5.00 ft	0.00%	120.00 pcf	2000.00 psf	User Def.
2	Cohesionless	8.00 ft	0.00%	125.00 pcf	32.0/32.0	Nordlund
3	Cohesive	7.00 ft	0.00%	125.00 pcf	2000.00 psf	User Def.
4	Cohesionless	15.00 ft	0.00%	130.00 pcf	33.0/33.0	Nordlund
5	Cohesive	10.00 ft	0.00%	130.00 pcf	3000.00 psf	User Def.
6	Cohesionless	50.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesive	N/A	N/A	1100.00 psf	0.04 Kips
4.99 ft	Cohesive	N/A	N/A	1100.00 psf	20.12 Kips
5.01 ft	Cohesionless	600.62 psf	21.33	N/A	20.17 Kips
9.99 ft	Cohesionless	911.88 psf	21.33	N/A	27.30 Kips
10.01 ft	Cohesionless	1225.31 psf	21.33	N/A	27.34 Kips
12.99 ft	Cohesionless	1318.59 psf	21.33	N/A	33.51 Kips
13.01 ft	Cohesive	N/A	N/A	1100.00 psf	33.57 Kips
19.99 ft	Cohesive	N/A	N/A	1100.00 psf	61.71 Kips
20.01 ft	Cohesionless	1851.34 psf	21.99	N/A	61.79 Kips
29.01 ft	Cohesionless	2155.54 psf	21.99	N/A	95.47 Kips
34.99 ft	Cohesionless	2357.66 psf	21.99	N/A	123.11 Kips
35.01 ft	Cohesive	N/A	N/A	1650.00 psf	123.22 Kips
44.01 ft	Cohesive	N/A	N/A	1650.00 psf	177.64 Kips
44.99 ft	Cohesive	N/A	N/A	1650.00 psf	183.57 Kips
45.01 ft	Cohesionless	3541.36 psf	23.33	N/A	183.70 Kips
54.01 ft	Cohesionless	3868.06 psf	23.33	N/A	256.03 Kips
63.01 ft	Cohesionless	4194.76 psf	23.33	N/A	340.57 Kips
72.01 ft	Cohesionless	4521.46 psf	23.33	N/A	437.33 Kips
81.01 ft	Cohesionless	4848.16 psf	23.33	N/A	546.30 Kips
90.01 ft	Cohesionless	5174.86 psf	23.33	N/A	667.49 Kips
94.99 ft	Cohesionless	5355.64 psf	23.33	N/A	739.80 Kips

ULTIMATE - END BEARING

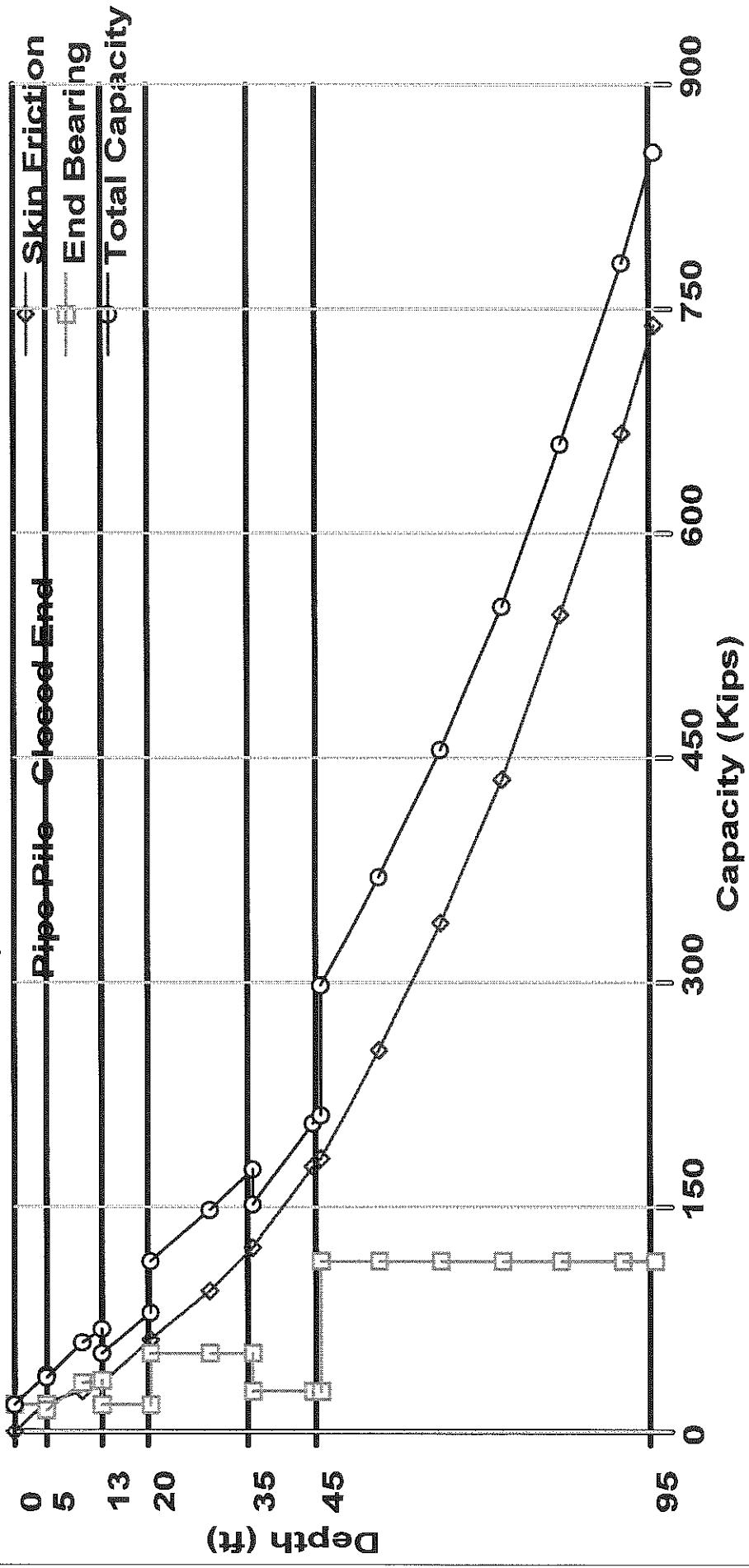
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesive	N/A	N/A	N/A	19.24 Kips
4.99 ft	Cohesive	N/A	N/A	N/A	19.24 Kips
5.01 ft	Cohesionless	601.25 psf	40.40	35.28 Kips	16.24 Kips
9.99 ft	Cohesionless	1223.75 psf	40.40	35.28 Kips	33.06 Kips
10.01 ft	Cohesionless	1225.63 psf	40.40	35.28 Kips	33.11 Kips
12.99 ft	Cohesionless	1412.17 psf	40.40	35.28 Kips	35.28 Kips
13.01 ft	Cohesive	N/A	N/A	N/A	19.24 Kips
19.99 ft	Cohesive	N/A	N/A	N/A	19.24 Kips
20.01 ft	Cohesionless	1851.68 psf	47.20	53.45 Kips	53.45 Kips
29.01 ft	Cohesionless	2460.08 psf	47.20	53.45 Kips	53.45 Kips
34.99 ft	Cohesionless	2864.32 psf	47.20	53.45 Kips	53.45 Kips
35.01 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
44.01 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
44.99 ft	Cohesive	N/A	N/A	N/A	28.86 Kips
45.01 ft	Cohesionless	3541.73 psf	64.00	115.03 Kips	115.03 Kips
54.01 ft	Cohesionless	4195.13 psf	64.00	115.03 Kips	115.03 Kips
63.01 ft	Cohesionless	4848.53 psf	64.00	115.03 Kips	115.03 Kips
72.01 ft	Cohesionless	5501.93 psf	64.00	115.03 Kips	115.03 Kips
81.01 ft	Cohesionless	6155.33 psf	64.00	115.03 Kips	115.03 Kips
90.01 ft	Cohesionless	6808.73 psf	64.00	115.03 Kips	115.03 Kips
94.99 ft	Cohesionless	7170.27 psf	64.00	115.03 Kips	115.03 Kips

ULTIMATE - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.04 Kips	19.24 Kips	19.28 Kips
4.99 ft	20.12 Kips	19.24 Kips	39.36 Kips
5.01 ft	20.17 Kips	16.24 Kips	36.41 Kips
9.99 ft	27.30 Kips	33.06 Kips	60.37 Kips
10.01 ft	27.34 Kips	33.11 Kips	60.45 Kips
12.99 ft	33.51 Kips	35.28 Kips	68.79 Kips
13.01 ft	33.57 Kips	19.24 Kips	52.82 Kips
19.99 ft	61.71 Kips	19.24 Kips	80.96 Kips
20.01 ft	61.79 Kips	53.45 Kips	115.24 Kips
29.01 ft	95.47 Kips	53.45 Kips	148.92 Kips
34.99 ft	123.11 Kips	53.45 Kips	176.56 Kips
35.01 ft	123.22 Kips	28.86 Kips	152.08 Kips
44.01 ft	177.64 Kips	28.86 Kips	206.51 Kips
44.99 ft	183.57 Kips	28.86 Kips	212.43 Kips
45.01 ft	183.70 Kips	115.03 Kips	298.73 Kips
54.01 ft	256.03 Kips	115.03 Kips	371.06 Kips
63.01 ft	340.57 Kips	115.03 Kips	455.60 Kips
72.01 ft	437.33 Kips	115.03 Kips	552.36 Kips
81.01 ft	546.30 Kips	115.03 Kips	661.33 Kips
90.01 ft	667.49 Kips	115.03 Kips	782.52 Kips
94.99 ft	739.80 Kips	115.03 Kips	854.83 Kips

31 ft \Rightarrow 160 kips

Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(1~1\DRIVEN~1\WCEB1.DVN
Project Name: I65 Wildcat Cr EB1 Project Date: 08/04/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: H Pile - HP12X53
Top of Pile: 0.00 ft
Perimeter Analysis: Box
Tip Analysis: Pile Area

END BENT 1

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	0.00 ft
	- Driving/Restrike	0.00 ft
	- Ultimate:	0.00 ft
Ultimate Considerations:	- Local Scour:	0.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesionless	10.00 ft	0.00%	120.00 pcf	30.0/30.0	Nordlund
2	Cohesionless	30.00 ft	0.00%	130.00 pcf	34.0/34.0	Nordlund
3	Cohesive	17.00 ft	0.00%	130.00 pcf	3000.00 psf	User Def.
4	Cohesionless	38.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.29 psf	22.59	N/A	0.00 Kips
9.01 ft	Cohesionless	259.49 psf	22.59	N/A	2.80 Kips
9.99 ft	Cohesionless	287.71 psf	22.59	N/A	3.44 Kips
10.01 ft	Cohesionless	576.34 psf	25.61	N/A	3.45 Kips
19.01 ft	Cohesionless	880.54 psf	25.61	N/A	16.78 Kips
28.01 ft	Cohesionless	1184.74 psf	25.61	N/A	39.32 Kips
37.01 ft	Cohesionless	1488.94 psf	25.61	N/A	71.06 Kips
39.99 ft	Cohesionless	1589.66 psf	25.61	N/A	83.60 Kips
40.01 ft	Cohesive	N/A	N/A	1650.00 psf	83.71 Kips
49.01 ft	Cohesive	N/A	N/A	1650.00 psf	142.68 Kips
56.99 ft	Cohesive	N/A	N/A	1650.00 psf	194.96 Kips
57.01 ft	Cohesionless	3753.56 psf	26.36	N/A	195.09 Kips
66.01 ft	Cohesionless	4080.26 psf	26.36	N/A	261.57 Kips
75.01 ft	Cohesionless	4406.96 psf	26.36	N/A	338.68 Kips
84.01 ft	Cohesionless	4733.66 psf	26.36	N/A	426.44 Kips
93.01 ft	Cohesionless	5060.36 psf	26.36	N/A	524.84 Kips
94.99 ft	Cohesionless	5132.24 psf	26.36	N/A	547.92 Kips

ULTIMATE - END BEARING

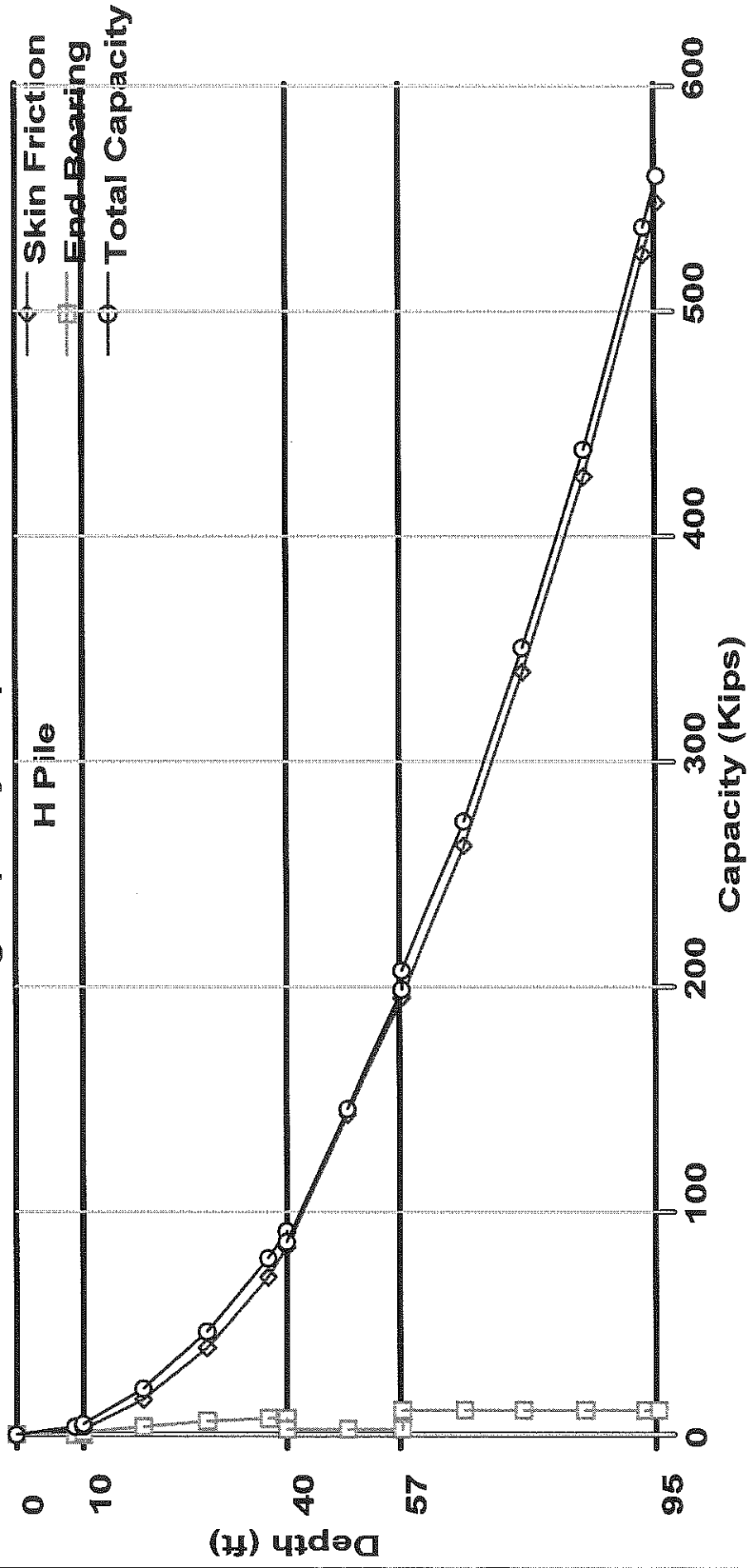
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	0.58 psf	30.00	1.43 Kips	0.00 Kips
9.01 ft	Cohesionless	518.98 psf	30.00	1.43 Kips	0.97 Kips
9.99 ft	Cohesionless	575.42 psf	30.00	1.43 Kips	1.08 Kips
10.01 ft	Cohesionless	576.68 psf	55.60	7.91 Kips	2.29 Kips
19.01 ft	Cohesionless	1185.08 psf	55.60	7.91 Kips	4.70 Kips
28.01 ft	Cohesionless	1793.48 psf	55.60	7.91 Kips	6.95 Kips
37.01 ft	Cohesionless	2401.88 psf	55.60	7.91 Kips	7.91 Kips
39.99 ft	Cohesionless	2603.32 psf	55.60	7.91 Kips	7.91 Kips
40.01 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
49.01 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
56.99 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
57.01 ft	Cohesionless	3753.93 psf	64.00	11.58 Kips	11.58 Kips
66.01 ft	Cohesionless	4407.33 psf	64.00	11.58 Kips	11.58 Kips
75.01 ft	Cohesionless	5060.73 psf	64.00	11.58 Kips	11.58 Kips
84.01 ft	Cohesionless	5714.13 psf	64.00	11.58 Kips	11.58 Kips
93.01 ft	Cohesionless	6367.53 psf	64.00	11.58 Kips	11.58 Kips
94.99 ft	Cohesionless	6511.27 psf	64.00	11.58 Kips	11.58 Kips

ULTIMATE - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.01 ft	2.80 Kips	0.97 Kips	3.77 Kips
9.99 ft	3.44 Kips	1.08 Kips	4.51 Kips
10.01 ft	3.45 Kips	2.29 Kips	5.74 Kips
19.01 ft	16.78 Kips	4.70 Kips	21.48 Kips
28.01 ft	39.32 Kips	6.95 Kips	46.27 Kips
37.01 ft	71.06 Kips	7.91 Kips	78.97 Kips
39.99 ft	83.60 Kips	7.91 Kips	91.51 Kips
40.01 ft	83.71 Kips	2.91 Kips	86.62 Kips
49.01 ft	142.68 Kips	2.91 Kips	145.58 Kips
56.99 ft	194.96 Kips	2.91 Kips	197.87 Kips
57.01 ft	195.09 Kips	11.58 Kips	206.68 Kips
66.01 ft	261.57 Kips	11.58 Kips	273.15 Kips
75.01 ft	338.68 Kips	11.58 Kips	350.26 Kips
84.01 ft	426.44 Kips	11.58 Kips	438.02 Kips
93.01 ft	524.84 Kips	11.58 Kips	536.43 Kips
94.99 ft	547.92 Kips	11.58 Kips	559.50 Kips

57 FT \Rightarrow 200 kips

Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(I~1\DRIVEN~1\WCEB1.DVN
Project Name: I65 Wildcat Cr EB1 Project Date: 08/04/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: H Pile - HP12X74
Top of Pile: 0.00 ft
Perimeter Analysis: Box
Tip Analysis: Pile Area

END BENT 1

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	0.00 ft
	- Driving/Restrike	0.00 ft
	- Ultimate:	0.00 ft
Ultimate Considerations:	- Local Scour:	0.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesionless	10.00 ft	0.00%	120.00 pcf	30.0/30.0	Nordlund
2	Cohesionless	30.00 ft	0.00%	130.00 pcf	34.0/34.0	Nordlund
3	Cohesive	17.00 ft	0.00%	130.00 pcf	3000.00 psf	User Def.
4	Cohesionless	38.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.29 psf	23.64	N/A	0.00 Kips
9.01 ft	Cohesionless	259.49 psf	23.64	N/A	3.21 Kips
9.99 ft	Cohesionless	287.71 psf	23.64	N/A	3.94 Kips
10.01 ft	Cohesionless	576.34 psf	26.80	N/A	3.96 Kips
19.01 ft	Cohesionless	880.54 psf	26.80	N/A	19.65 Kips
28.01 ft	Cohesionless	1184.74 psf	26.80	N/A	46.17 Kips
37.01 ft	Cohesionless	1488.94 psf	26.80	N/A	83.52 Kips
39.99 ft	Cohesionless	1589.66 psf	26.80	N/A	98.28 Kips
40.01 ft	Cohesive	N/A	N/A	1650.00 psf	98.40 Kips
49.01 ft	Cohesive	N/A	N/A	1650.00 psf	158.65 Kips
56.99 ft	Cohesive	N/A	N/A	1650.00 psf	212.08 Kips
57.01 ft	Cohesionless	3753.56 psf	27.58	N/A	212.22 Kips
66.01 ft	Cohesionless	4080.26 psf	27.58	N/A	290.84 Kips
75.01 ft	Cohesionless	4406.96 psf	27.58	N/A	382.04 Kips
84.01 ft	Cohesionless	4733.66 psf	27.58	N/A	485.83 Kips
93.01 ft	Cohesionless	5060.36 psf	27.58	N/A	602.21 Kips
94.99 ft	Cohesionless	5132.24 psf	27.58	N/A	629.51 Kips

ULTIMATE - END BEARING

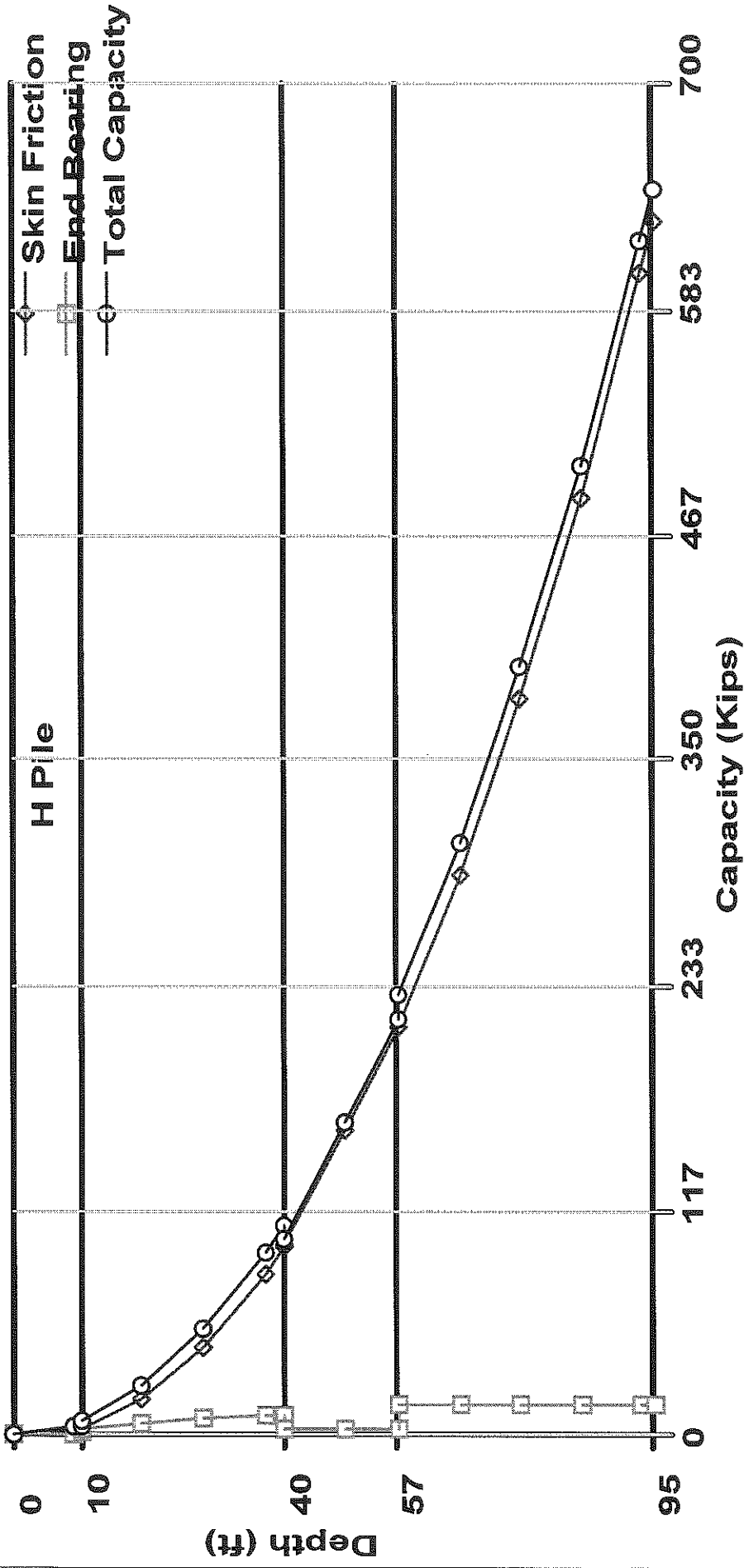
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	0.58 psf	30.00	2.02 Kips	0.00 Kips
9.01 ft	Cohesionless	518.98 psf	30.00	2.02 Kips	1.37 Kips
9.99 ft	Cohesionless	575.42 psf	30.00	2.02 Kips	1.52 Kips
10.01 ft	Cohesionless	576.68 psf	55.60	11.13 Kips	3.22 Kips
19.01 ft	Cohesionless	1185.08 psf	55.60	11.13 Kips	6.61 Kips
28.01 ft	Cohesionless	1793.48 psf	55.60	11.13 Kips	9.79 Kips
37.01 ft	Cohesionless	2401.88 psf	55.60	11.13 Kips	11.13 Kips
39.99 ft	Cohesionless	2603.32 psf	55.60	11.13 Kips	11.13 Kips
40.01 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
49.01 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
56.99 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
57.01 ft	Cohesionless	3753.93 psf	64.00	16.29 Kips	16.29 Kips
66.01 ft	Cohesionless	4407.33 psf	64.00	16.29 Kips	16.29 Kips
75.01 ft	Cohesionless	5060.73 psf	64.00	16.29 Kips	16.29 Kips
84.01 ft	Cohesionless	5714.13 psf	64.00	16.29 Kips	16.29 Kips
93.01 ft	Cohesionless	6367.53 psf	64.00	16.29 Kips	16.29 Kips
94.99 ft	Cohesionless	6511.27 psf	64.00	16.29 Kips	16.29 Kips

ULTIMATE - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.01 ft	3.21 Kips	1.37 Kips	4.58 Kips
9.99 ft	3.94 Kips	1.52 Kips	5.46 Kips
10.01 ft	3.96 Kips	3.22 Kips	7.18 Kips
19.01 ft	19.65 Kips	6.61 Kips	26.26 Kips
28.01 ft	46.17 Kips	9.79 Kips	55.96 Kips
37.01 ft	83.52 Kips	11.13 Kips	94.65 Kips
39.99 ft	98.28 Kips	11.13 Kips	109.41 Kips
40.01 ft	98.40 Kips	4.09 Kips	102.49 Kips
49.01 ft	158.65 Kips	4.09 Kips	162.74 Kips
56.99 ft	212.08 Kips	4.09 Kips	216.16 Kips
57.01 ft	212.22 Kips	16.29 Kips	228.51 Kips
66.01 ft	290.84 Kips	16.29 Kips	307.13 Kips
75.01 ft	382.04 Kips	16.29 Kips	398.33 Kips
84.01 ft	485.83 Kips	16.29 Kips	502.12 Kips
93.01 ft	602.21 Kips	16.29 Kips	618.50 Kips
94.99 ft	629.51 Kips	16.29 Kips	645.80 Kips

76 FT \Rightarrow 400 Kips

Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(I~1\DRIVEN~1\WCINP2.DVN
Project Name: I65 Wildcat Cr Piers 25 Project Date: 08/05/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: H Pile - HP12X53
Top of Pile: 0.00 ft
Perimeter Analysis: Box
Tip Analysis: Pile Area

INT PIER LINES 2 & 5

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	0.00 ft
	- Driving/Restrike	0.00 ft
	- Ultimate:	0.00 ft
Ultimate Considerations:	- Local Scour:	15.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesionless	10.00 ft	0.00%	120.00 pcf	30.0/30.0	Nordlund
2	Cohesive	15.00 ft	0.00%	125.00 pcf	3000.00 psf	User Def.
3	Cohesionless	20.00 ft	0.00%	130.00 pcf	33.0/33.0	Nordlund
4	Cohesionless	45.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

DRIVING - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.29 psf	22.59	N/A	0.00 Kips
9.01 ft	Cohesionless	259.49 psf	22.59	N/A	2.80 Kips
9.99 ft	Cohesionless	287.71 psf	22.59	N/A	3.44 Kips
10.01 ft	Cohesive	N/A	N/A	1650.00 psf	3.51 Kips
19.01 ft	Cohesive	N/A	N/A	1650.00 psf	62.48 Kips
24.99 ft	Cohesive	N/A	N/A	1650.00 psf	101.66 Kips
25.01 ft	Cohesionless	1515.34 psf	24.85	N/A	101.75 Kips
34.01 ft	Cohesionless	1819.54 psf	24.85	N/A	127.22 Kips
43.01 ft	Cohesionless	2123.74 psf	24.85	N/A	161.22 Kips
44.99 ft	Cohesionless	2190.66 psf	24.85	N/A	169.84 Kips
45.01 ft	Cohesionless	2867.36 psf	26.36	N/A	169.93 Kips
54.01 ft	Cohesionless	3194.06 psf	26.36	N/A	221.97 Kips
63.01 ft	Cohesionless	3520.76 psf	26.36	N/A	284.65 Kips
72.01 ft	Cohesionless	3847.46 psf	26.36	N/A	357.97 Kips
81.01 ft	Cohesionless	4174.16 psf	26.36	N/A	441.94 Kips
89.99 ft	Cohesionless	4500.14 psf	26.36	N/A	536.33 Kips

DRIVING - END BEARING

Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	0.58 psf	30.00	1.43 Kips	0.00 Kips
9.01 ft	Cohesionless	518.98 psf	30.00	1.43 Kips	0.97 Kips
9.99 ft	Cohesionless	575.42 psf	30.00	1.43 Kips	1.08 Kips
10.01 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
19.01 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
24.99 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
25.01 ft	Cohesionless	1515.68 psf	47.20	5.38 Kips	4.87 Kips
34.01 ft	Cohesionless	2124.08 psf	47.20	5.38 Kips	5.38 Kips
43.01 ft	Cohesionless	2732.48 psf	47.20	5.38 Kips	5.38 Kips
44.99 ft	Cohesionless	2866.32 psf	47.20	5.38 Kips	5.38 Kips
45.01 ft	Cohesionless	2867.73 psf	64.00	11.58 Kips	11.58 Kips
54.01 ft	Cohesionless	3521.13 psf	64.00	11.58 Kips	11.58 Kips
63.01 ft	Cohesionless	4174.53 psf	64.00	11.58 Kips	11.58 Kips
72.01 ft	Cohesionless	4827.93 psf	64.00	11.58 Kips	11.58 Kips
81.01 ft	Cohesionless	5481.33 psf	64.00	11.58 Kips	11.58 Kips
89.99 ft	Cohesionless	6133.27 psf	64.00	11.58 Kips	11.58 Kips

Scour = 36 kips

DRIVING - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.01 ft	2.80 Kips	0.97 Kips	3.77 Kips
9.99 ft	3.44 Kips	1.08 Kips	4.51 Kips
10.01 ft	3.51 Kips	2.91 Kips	6.42 Kips
19.01 ft	62.48 Kips	2.91 Kips	65.38 Kips
24.99 ft	101.66 Kips	2.91 Kips	104.56 Kips
25.01 ft	101.75 Kips	4.87 Kips	106.61 Kips
34.01 ft	127.22 Kips	5.38 Kips	132.60 Kips
43.01 ft	161.22 Kips	5.38 Kips	166.60 Kips
44.99 ft	169.84 Kips	5.38 Kips	175.22 Kips
45.01 ft	169.93 Kips	11.58 Kips	181.52 Kips
54.01 ft	221.97 Kips	11.58 Kips	233.55 Kips
63.01 ft	284.65 Kips	11.58 Kips	296.23 Kips
72.01 ft	357.97 Kips	11.58 Kips	369.55 Kips
81.01 ft	441.94 Kips	11.58 Kips	453.52 Kips
89.99 ft	536.33 Kips	11.58 Kips	547.91 Kips

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.00 psf	0.00	N/A	0.00 Kips
9.01 ft	Cohesionless	0.00 psf	0.00	N/A	0.00 Kips
9.99 ft	Cohesionless	0.00 psf	0.00	N/A	0.00 Kips
10.01 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
14.99 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
15.00 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
19.01 ft	Cohesive	N/A	N/A	1650.00 psf	26.27 Kips
24.99 ft	Cohesive	N/A	N/A	1650.00 psf	65.45 Kips
25.01 ft	Cohesionless	1515.34 psf	24.85	N/A	65.54 Kips
34.01 ft	Cohesionless	1819.54 psf	24.85	N/A	91.02 Kips
43.01 ft	Cohesionless	2123.74 psf	24.85	N/A	125.01 Kips
44.99 ft	Cohesionless	2190.66 psf	24.85	N/A	133.63 Kips
45.01 ft	Cohesionless	2867.36 psf	26.36	N/A	133.73 Kips
54.01 ft	Cohesionless	3194.06 psf	26.36	N/A	185.77 Kips
63.01 ft	Cohesionless	3520.76 psf	26.36	N/A	248.45 Kips
72.01 ft	Cohesionless	3847.46 psf	26.36	N/A	321.77 Kips
81.01 ft	Cohesionless	4174.16 psf	26.36	N/A	405.74 Kips
89.99 ft	Cohesionless	4500.14 psf	26.36	N/A	500.13 Kips

ULTIMATE - END BEARING

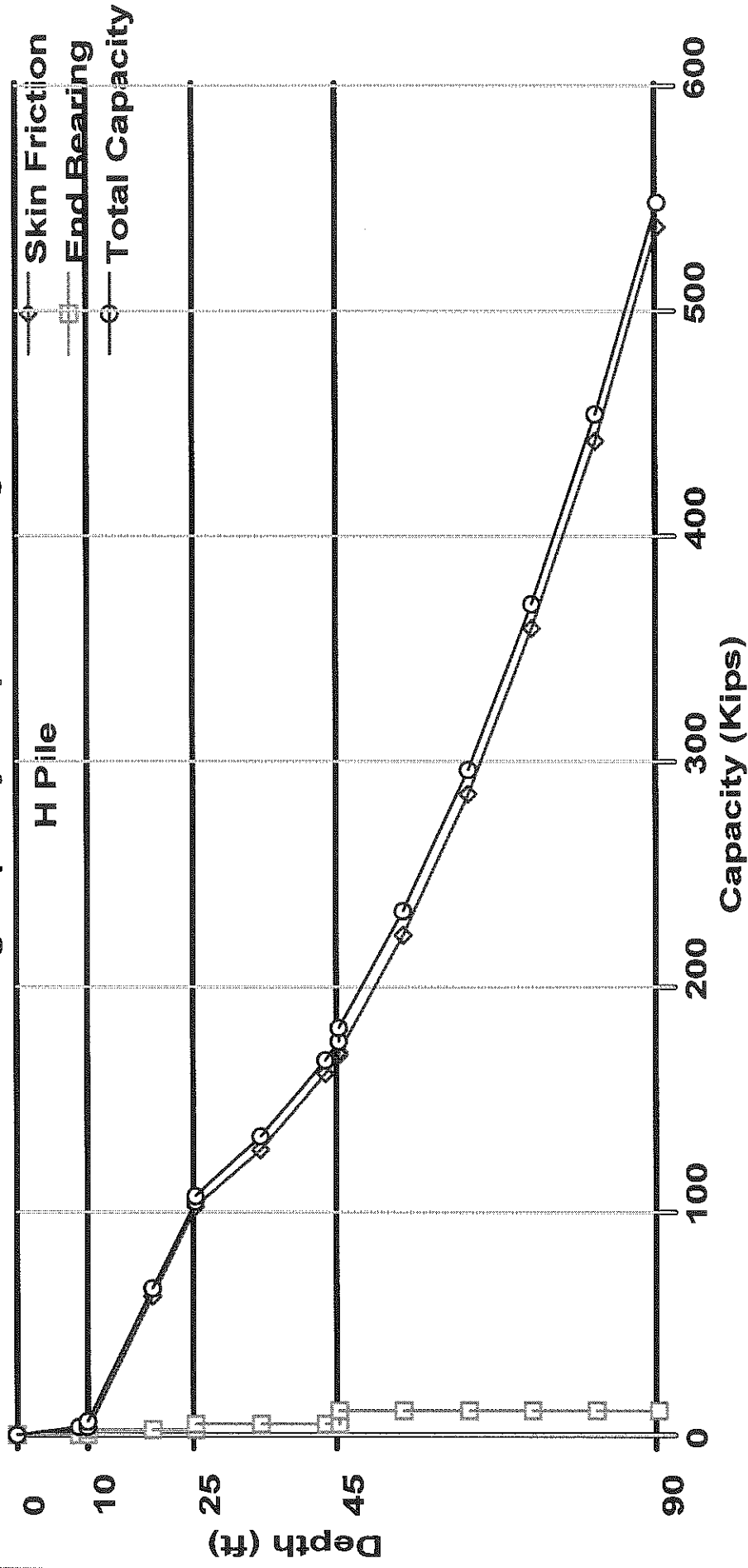
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	0.00 psf	0.00	0.00 Kips	0.00 Kips
9.01 ft	Cohesionless	0.00 psf	0.00	0.00 Kips	0.00 Kips
9.99 ft	Cohesionless	0.00 psf	0.00	0.00 Kips	0.00 Kips
10.01 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
14.99 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
15.00 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
19.01 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
24.99 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
25.01 ft	Cohesionless	1515.68 psf	47.20	5.38 Kips	4.97 Kips
34.01 ft	Cohesionless	2124.08 psf	47.20	5.38 Kips	5.38 Kips
43.01 ft	Cohesionless	2732.48 psf	47.20	5.38 Kips	5.38 Kips
44.99 ft	Cohesionless	2866.32 psf	47.20	5.38 Kips	5.38 Kips
45.01 ft	Cohesionless	2867.73 psf	64.00	11.58 Kips	11.58 Kips
54.01 ft	Cohesionless	3521.13 psf	64.00	11.58 Kips	11.58 Kips
63.01 ft	Cohesionless	4174.53 psf	64.00	11.58 Kips	11.58 Kips
72.01 ft	Cohesionless	4827.93 psf	64.00	11.58 Kips	11.58 Kips
81.01 ft	Cohesionless	5481.33 psf	64.00	11.58 Kips	11.58 Kips
89.99 ft	Cohesionless	6133.27 psf	64.00	11.58 Kips	11.58 Kips

ULTIMATE - SUMMARY OF CAPACITIES

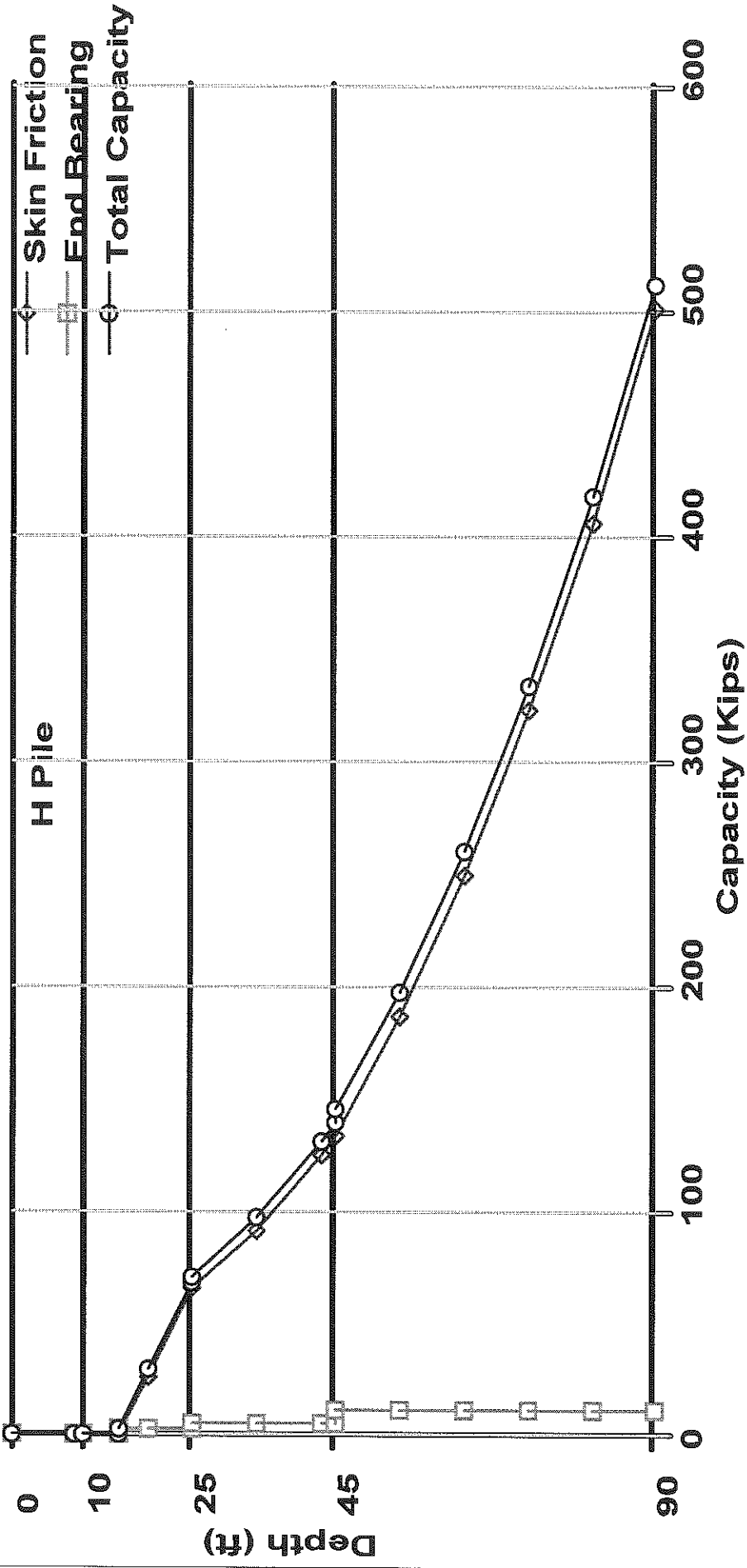
Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.99 ft	0.00 Kips	0.00 Kips	0.00 Kips
10.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
14.99 ft	0.00 Kips	0.00 Kips	0.00 Kips
15.00 ft	0.00 Kips	2.91 Kips	2.91 Kips
19.01 ft	26.27 Kips	2.91 Kips	29.18 Kips
24.99 ft	65.45 Kips	2.91 Kips	68.36 Kips
25.01 ft	65.54 Kips	4.97 Kips	70.51 Kips
34.01 ft	91.02 Kips	5.38 Kips	96.40 Kips
43.01 ft	125.01 Kips	5.38 Kips	130.39 Kips
44.99 ft	133.63 Kips	5.38 Kips	139.02 Kips
45.01 ft	133.73 Kips	11.58 Kips	145.31 Kips
54.01 ft	185.77 Kips	11.58 Kips	197.35 Kips
63.01 ft	248.45 Kips	11.58 Kips	260.03 Kips
72.01 ft	321.77 Kips	11.58 Kips	333.35 Kips
81.01 ft	405.74 Kips	11.58 Kips	417.32 Kips
89.99 ft	500.13 Kips	11.58 Kips	511.71 Kips

51 ft \Rightarrow 236 kips

Bearing Capacity Graph - Driving



Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(I~1\DRIVEN~1\WCINP2.DVN
Project Name: I65 Wildcat Cr Piers 25 Project Date: 08/05/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: H Pile - HP12X74
Top of Pile: 0.00 ft
Perimeter Analysis: Box
Tip Analysis: Pile Area

INT PIER LINES 2 & 5

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	0.00 ft
	- Driving/Restrike	0.00 ft
	- Ultimate:	0.00 ft
Ultimate Considerations:	- Local Scour:	15.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesionless	10.00 ft	0.00%	120.00 pcf	30.0/30.0	Nordlund
2	Cohesive	15.00 ft	0.00%	125.00 pcf	3000.00 psf	User Def.
3	Cohesionless	20.00 ft	0.00%	130.00 pcf	33.0/33.0	Nordlund
4	Cohesionless	45.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

DRIVING - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.29 psf	23.64	N/A	0.00 Kips
9.01 ft	Cohesionless	259.49 psf	23.64	N/A	3.21 Kips
9.99 ft	Cohesionless	287.71 psf	23.64	N/A	3.94 Kips
10.01 ft	Cohesive	N/A	N/A	1650.00 psf	4.02 Kips
19.01 ft	Cohesive	N/A	N/A	1650.00 psf	64.27 Kips
24.99 ft	Cohesive	N/A	N/A	1650.00 psf	104.31 Kips
25.01 ft	Cohesionless	1515.34 psf	26.01	N/A	104.40 Kips
34.01 ft	Cohesionless	1819.54 psf	26.01	N/A	134.22 Kips
43.01 ft	Cohesionless	2123.74 psf	26.01	N/A	174.01 Kips
44.99 ft	Cohesionless	2190.66 psf	26.01	N/A	184.10 Kips
45.01 ft	Cohesionless	2867.36 psf	27.58	N/A	184.21 Kips
54.01 ft	Cohesionless	3194.06 psf	27.58	N/A	245.76 Kips
63.01 ft	Cohesionless	3520.76 psf	27.58	N/A	319.89 Kips
72.01 ft	Cohesionless	3847.46 psf	27.58	N/A	406.60 Kips
81.01 ft	Cohesionless	4174.16 psf	27.58	N/A	505.91 Kips
89.99 ft	Cohesionless	4500.14 psf	27.58	N/A	617.54 Kips

DRIVING - END BEARING

Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	0.58 psf	30.00	2.02 Kips	0.00 Kips
9.01 ft	Cohesionless	518.98 psf	30.00	2.02 Kips	1.37 Kips
9.99 ft	Cohesionless	575.42 psf	30.00	2.02 Kips	1.52 Kips
10.01 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
19.01 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
24.99 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
25.01 ft	Cohesionless	1515.68 psf	47.20	7.57 Kips	6.86 Kips
34.01 ft	Cohesionless	2124.08 psf	47.20	7.57 Kips	7.57 Kips
43.01 ft	Cohesionless	2732.48 psf	47.20	7.57 Kips	7.57 Kips
44.99 ft	Cohesionless	2866.32 psf	47.20	7.57 Kips	7.57 Kips
45.01 ft	Cohesionless	2867.73 psf	64.00	16.29 Kips	16.29 Kips
54.01 ft	Cohesionless	3521.13 psf	64.00	16.29 Kips	16.29 Kips
63.01 ft	Cohesionless	4174.53 psf	64.00	16.29 Kips	16.29 Kips
72.01 ft	Cohesionless	4827.93 psf	64.00	16.29 Kips	16.29 Kips
81.01 ft	Cohesionless	5481.33 psf	64.00	16.29 Kips	16.29 Kips
89.99 ft	Cohesionless	6133.27 psf	64.00	16.29 Kips	16.29 Kips

Score = 37 kips

DRIVING - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.01 ft	3.21 Kips	1.37 Kips	4.58 Kips
9.99 ft	3.94 Kips	1.52 Kips	5.46 Kips
10.01 ft	4.02 Kips	4.09 Kips	8.11 Kips
19.01 ft	64.27 Kips	4.09 Kips	68.36 Kips
24.99 ft	104.31 Kips	4.09 Kips	108.40 Kips
25.01 ft	104.40 Kips	6.86 Kips	111.26 Kips
34.01 ft	134.22 Kips	7.57 Kips	141.79 Kips
43.01 ft	174.01 Kips	7.57 Kips	181.58 Kips
44.99 ft	184.10 Kips	7.57 Kips	191.67 Kips
45.01 ft	184.21 Kips	16.29 Kips	200.50 Kips
54.01 ft	245.76 Kips	16.29 Kips	262.04 Kips
63.01 ft	319.89 Kips	16.29 Kips	336.18 Kips
72.01 ft	406.60 Kips	16.29 Kips	422.89 Kips
81.01 ft	505.91 Kips	16.29 Kips	522.20 Kips
89.99 ft	617.54 Kips	16.29 Kips	633.83 Kips

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesionless	0.00 psf	0.00	N/A	0.00 Kips
9.01 ft	Cohesionless	0.00 psf	0.00	N/A	0.00 Kips
9.99 ft	Cohesionless	0.00 psf	0.00	N/A	0.00 Kips
10.01 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
14.99 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
15.00 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
19.01 ft	Cohesive	N/A	N/A	1650.00 psf	26.85 Kips
24.99 ft	Cohesive	N/A	N/A	1650.00 psf	66.88 Kips
25.01 ft	Cohesionless	1515.34 psf	26.01	N/A	66.98 Kips
34.01 ft	Cohesionless	1819.54 psf	26.01	N/A	96.79 Kips
43.01 ft	Cohesionless	2123.74 psf	26.01	N/A	136.58 Kips
44.99 ft	Cohesionless	2190.66 psf	26.01	N/A	146.67 Kips
45.01 ft	Cohesionless	2867.36 psf	27.58	N/A	146.79 Kips
54.01 ft	Cohesionless	3194.06 psf	27.58	N/A	208.33 Kips
63.01 ft	Cohesionless	3520.76 psf	27.58	N/A	282.46 Kips
72.01 ft	Cohesionless	3847.46 psf	27.58	N/A	369.18 Kips
81.01 ft	Cohesionless	4174.16 psf	27.58	N/A	468.48 Kips
89.99 ft	Cohesionless	4500.14 psf	27.58	N/A	580.12 Kips

ULTIMATE - END BEARING

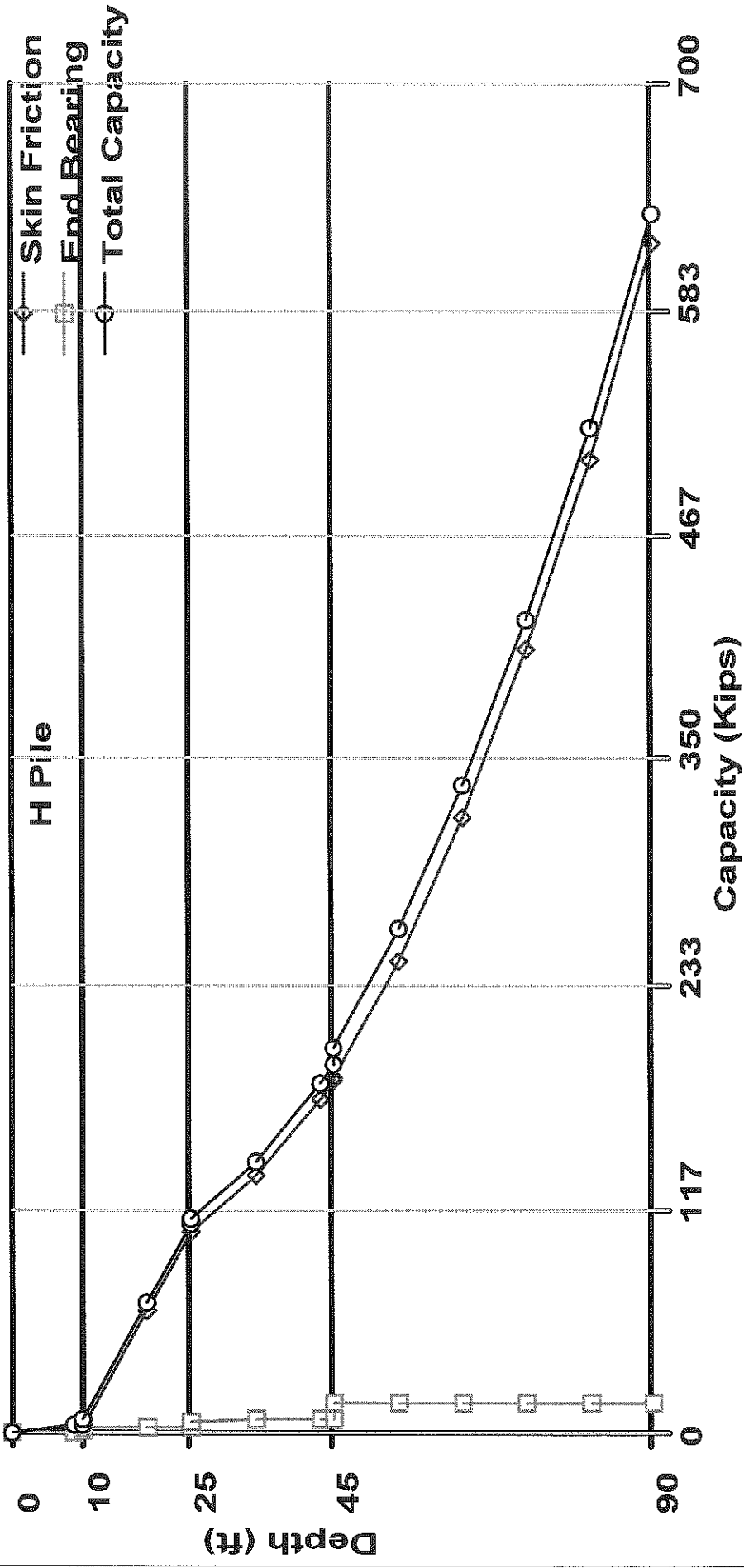
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesionless	0.00 psf	0.00	0.00 Kips	0.00 Kips
9.01 ft	Cohesionless	0.00 psf	0.00	0.00 Kips	0.00 Kips
9.99 ft	Cohesionless	0.00 psf	0.00	0.00 Kips	0.00 Kips
10.01 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
14.99 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
15.00 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
19.01 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
24.99 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
25.01 ft	Cohesionless	1515.68 psf	47.20	7.57 Kips	6.99 Kips
34.01 ft	Cohesionless	2124.08 psf	47.20	7.57 Kips	7.57 Kips
43.01 ft	Cohesionless	2732.48 psf	47.20	7.57 Kips	7.57 Kips
44.99 ft	Cohesionless	2866.32 psf	47.20	7.57 Kips	7.57 Kips
45.01 ft	Cohesionless	2867.73 psf	64.00	16.29 Kips	16.29 Kips
54.01 ft	Cohesionless	3521.13 psf	64.00	16.29 Kips	16.29 Kips
63.01 ft	Cohesionless	4174.53 psf	64.00	16.29 Kips	16.29 Kips
72.01 ft	Cohesionless	4827.93 psf	64.00	16.29 Kips	16.29 Kips
81.01 ft	Cohesionless	5481.33 psf	64.00	16.29 Kips	16.29 Kips
89.99 ft	Cohesionless	6133.27 psf	64.00	16.29 Kips	16.29 Kips

ULTIMATE - SUMMARY OF CAPACITIES

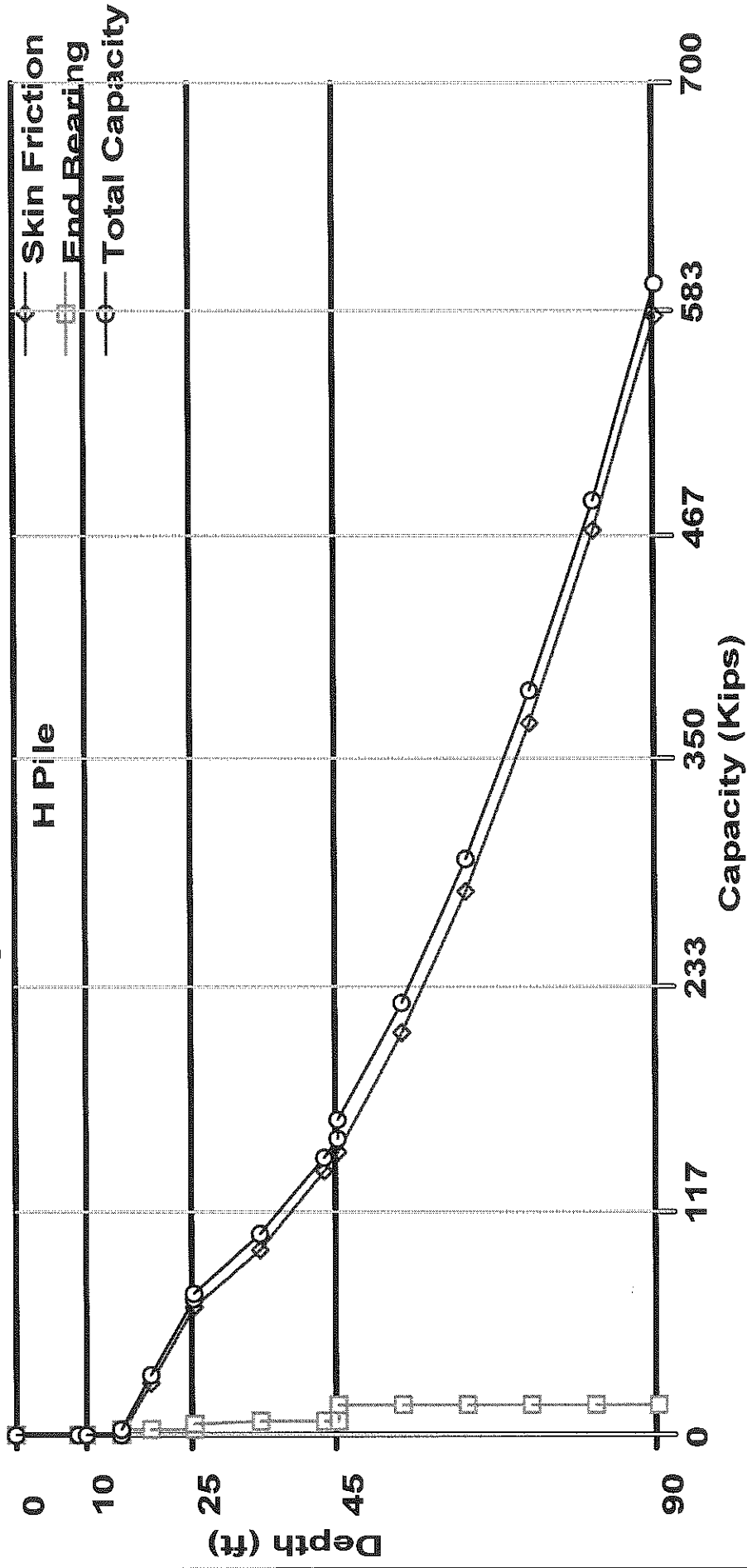
Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
9.99 ft	0.00 Kips	0.00 Kips	0.00 Kips
10.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
14.99 ft	0.00 Kips	0.00 Kips	0.00 Kips
15.00 ft	0.00 Kips	4.09 Kips	4.09 Kips
19.01 ft	26.85 Kips	4.09 Kips	30.93 Kips
24.99 ft	66.88 Kips	4.09 Kips	70.97 Kips
25.01 ft	66.98 Kips	6.99 Kips	73.97 Kips
34.01 ft	96.79 Kips	7.57 Kips	104.36 Kips
43.01 ft	136.58 Kips	7.57 Kips	144.15 Kips
44.99 ft	146.67 Kips	7.57 Kips	154.24 Kips
45.01 ft	146.79 Kips	16.29 Kips	163.08 Kips
54.01 ft	208.33 Kips	16.29 Kips	224.62 Kips
63.01 ft	282.46 Kips	16.29 Kips	298.75 Kips
72.01 ft	369.18 Kips	16.29 Kips	385.47 Kips
81.01 ft	468.48 Kips	16.29 Kips	484.77 Kips
89.99 ft	580.12 Kips	16.29 Kips	596.41 Kips

79 FT \Rightarrow 437 kips

Bearing Capacity Graph - Driving



Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(I~1\DRIVEN~1\WCINP.DVN
Project Name: I65 Wildcat Cr. Piers 34 Project Date: 08/05/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: H Pile - HP12X53
Top of Pile: 0.00 ft
Perimeter Analysis: Box
Tip Analysis: Pile Area

INT PIER LINES 3 & 4

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	0.00 ft
	- Driving/Restrike	0.00 ft
	- Ultimate:	0.00 ft
Ultimate Considerations:	- Local Scour:	5.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesive	15.00 ft	0.00%	125.00 pcf	3000.00 psf	User Def.
2	Cohesionless	20.00 ft	0.00%	130.00 pcf	33.0/33.0	Nordlund
3	Cohesionless	45.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

DRIVING - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesive	N/A	N/A	1650.00 psf	0.07 Kips
9.01 ft	Cohesive	N/A	N/A	1650.00 psf	59.03 Kips
14.99 ft	Cohesive	N/A	N/A	1650.00 psf	98.21 Kips
15.01 ft	Cohesionless	939.34 psf	24.85	N/A	98.29 Kips
24.01 ft	Cohesionless	1243.54 psf	24.85	N/A	115.71 Kips
33.01 ft	Cohesionless	1547.74 psf	24.85	N/A	141.64 Kips
34.99 ft	Cohesionless	1614.66 psf	24.85	N/A	148.48 Kips
35.01 ft	Cohesionless	2291.36 psf	26.36	N/A	148.56 Kips
44.01 ft	Cohesionless	2618.06 psf	26.36	N/A	191.21 Kips
53.01 ft	Cohesionless	2944.76 psf	26.36	N/A	244.51 Kips
62.01 ft	Cohesionless	3271.46 psf	26.36	N/A	308.45 Kips
71.01 ft	Cohesionless	3598.16 psf	26.36	N/A	383.04 Kips
79.99 ft	Cohesionless	3924.14 psf	26.36	N/A	468.06 Kips

DRIVING - END BEARING

Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
9.01 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
14.99 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
15.01 ft	Cohesionless	939.68 psf	47.20	5.38 Kips	3.08 Kips
24.01 ft	Cohesionless	1548.08 psf	47.20	5.38 Kips	4.99 Kips
33.01 ft	Cohesionless	2156.48 psf	47.20	5.38 Kips	5.38 Kips
34.99 ft	Cohesionless	2290.32 psf	47.20	5.38 Kips	5.38 Kips
35.01 ft	Cohesionless	2291.73 psf	64.00	11.58 Kips	10.53 Kips
44.01 ft	Cohesionless	2945.13 psf	64.00	11.58 Kips	11.58 Kips
53.01 ft	Cohesionless	3598.53 psf	64.00	11.58 Kips	11.58 Kips
62.01 ft	Cohesionless	4251.93 psf	64.00	11.58 Kips	11.58 Kips
71.01 ft	Cohesionless	4905.33 psf	64.00	11.58 Kips	11.58 Kips
79.99 ft	Cohesionless	5557.27 psf	64.00	11.58 Kips	11.58 Kips

Scour = 33 kips

DRIVING - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.07 Kips	2.91 Kips	2.97 Kips
9.01 ft	59.03 Kips	2.91 Kips	61.94 Kips
14.99 ft	98.21 Kips	2.91 Kips	101.12 Kips
15.01 ft	98.29 Kips	3.08 Kips	101.37 Kips
24.01 ft	115.71 Kips	4.99 Kips	120.70 Kips
33.01 ft	141.64 Kips	5.38 Kips	147.02 Kips
34.99 ft	148.48 Kips	5.38 Kips	153.87 Kips
35.01 ft	148.56 Kips	10.53 Kips	159.09 Kips
44.01 ft	191.21 Kips	11.58 Kips	202.80 Kips
53.01 ft	244.51 Kips	11.58 Kips	256.09 Kips
62.01 ft	308.45 Kips	11.58 Kips	320.03 Kips
71.01 ft	383.04 Kips	11.58 Kips	394.62 Kips
79.99 ft	468.06 Kips	11.58 Kips	479.64 Kips

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
4.99 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
5.00 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
9.01 ft	Cohesive	N/A	N/A	1650.00 psf	26.27 Kips
14.99 ft	Cohesive	N/A	N/A	1650.00 psf	65.45 Kips
15.01 ft	Cohesionless	939.34 psf	24.85	N/A	65.53 Kips
24.01 ft	Cohesionless	1243.54 psf	24.85	N/A	82.95 Kips
33.01 ft	Cohesionless	1547.74 psf	24.85	N/A	108.88 Kips
34.99 ft	Cohesionless	1614.66 psf	24.85	N/A	115.72 Kips
35.01 ft	Cohesionless	2291.36 psf	26.36	N/A	115.80 Kips
44.01 ft	Cohesionless	2618.06 psf	26.36	N/A	158.45 Kips
53.01 ft	Cohesionless	2944.76 psf	26.36	N/A	211.75 Kips
62.01 ft	Cohesionless	3271.46 psf	26.36	N/A	275.69 Kips
71.01 ft	Cohesionless	3598.16 psf	26.36	N/A	350.28 Kips
79.99 ft	Cohesionless	3924.14 psf	26.36	N/A	435.30 Kips

ULTIMATE - END BEARING

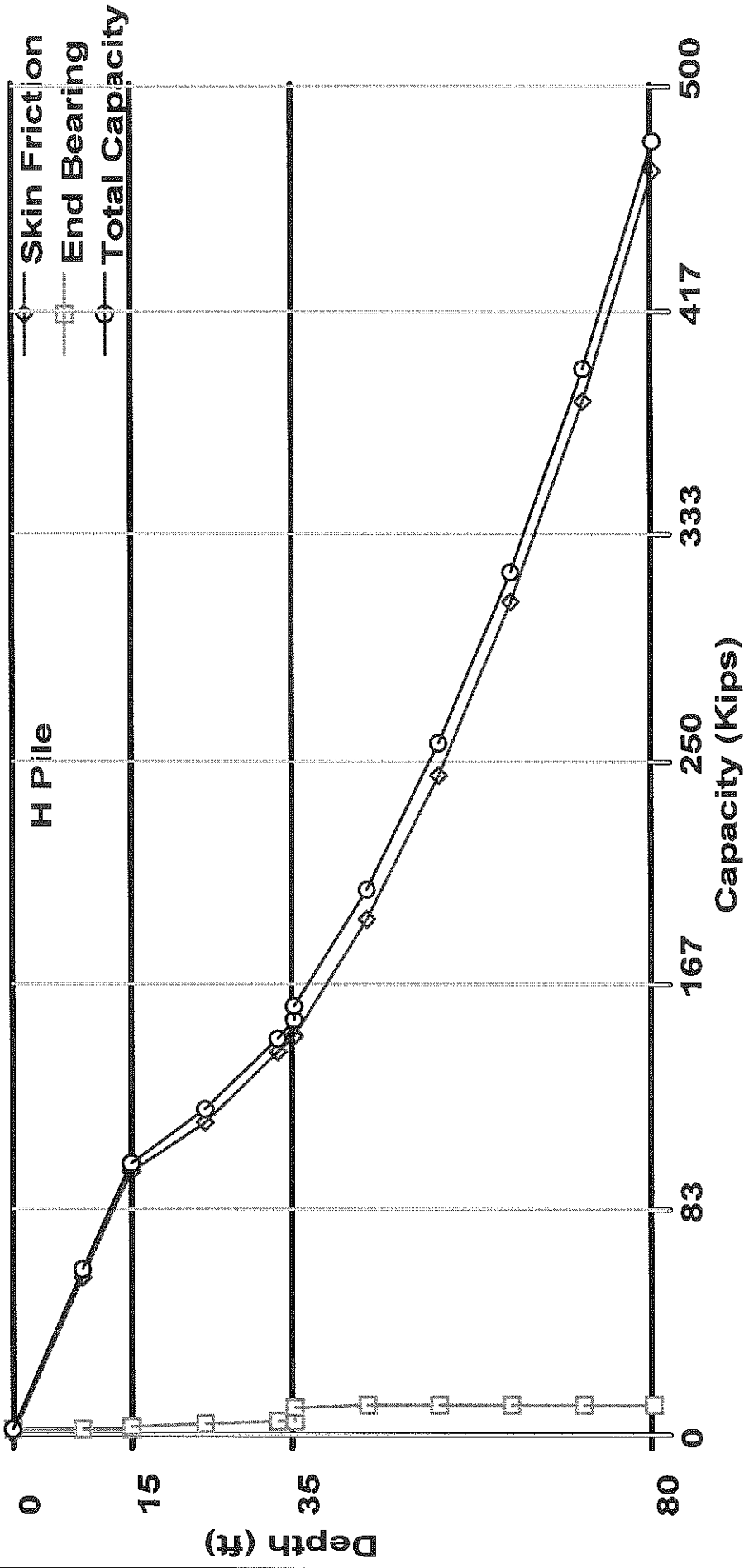
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
4.99 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
5.00 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
9.01 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
14.99 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
15.01 ft	Cohesionless	939.68 psf	47.20	5.38 Kips	3.08 Kips
24.01 ft	Cohesionless	1548.08 psf	47.20	5.38 Kips	5.08 Kips
33.01 ft	Cohesionless	2156.48 psf	47.20	5.38 Kips	5.38 Kips
34.99 ft	Cohesionless	2290.32 psf	47.20	5.38 Kips	5.38 Kips
35.01 ft	Cohesionless	2291.73 psf	64.00	11.58 Kips	10.58 Kips
44.01 ft	Cohesionless	2945.13 psf	64.00	11.58 Kips	11.58 Kips
53.01 ft	Cohesionless	3598.53 psf	64.00	11.58 Kips	11.58 Kips
62.01 ft	Cohesionless	4251.93 psf	64.00	11.58 Kips	11.58 Kips
71.01 ft	Cohesionless	4905.33 psf	64.00	11.58 Kips	11.58 Kips
79.99 ft	Cohesionless	5557.27 psf	64.00	11.58 Kips	11.58 Kips

ULTIMATE - SUMMARY OF CAPACITIES

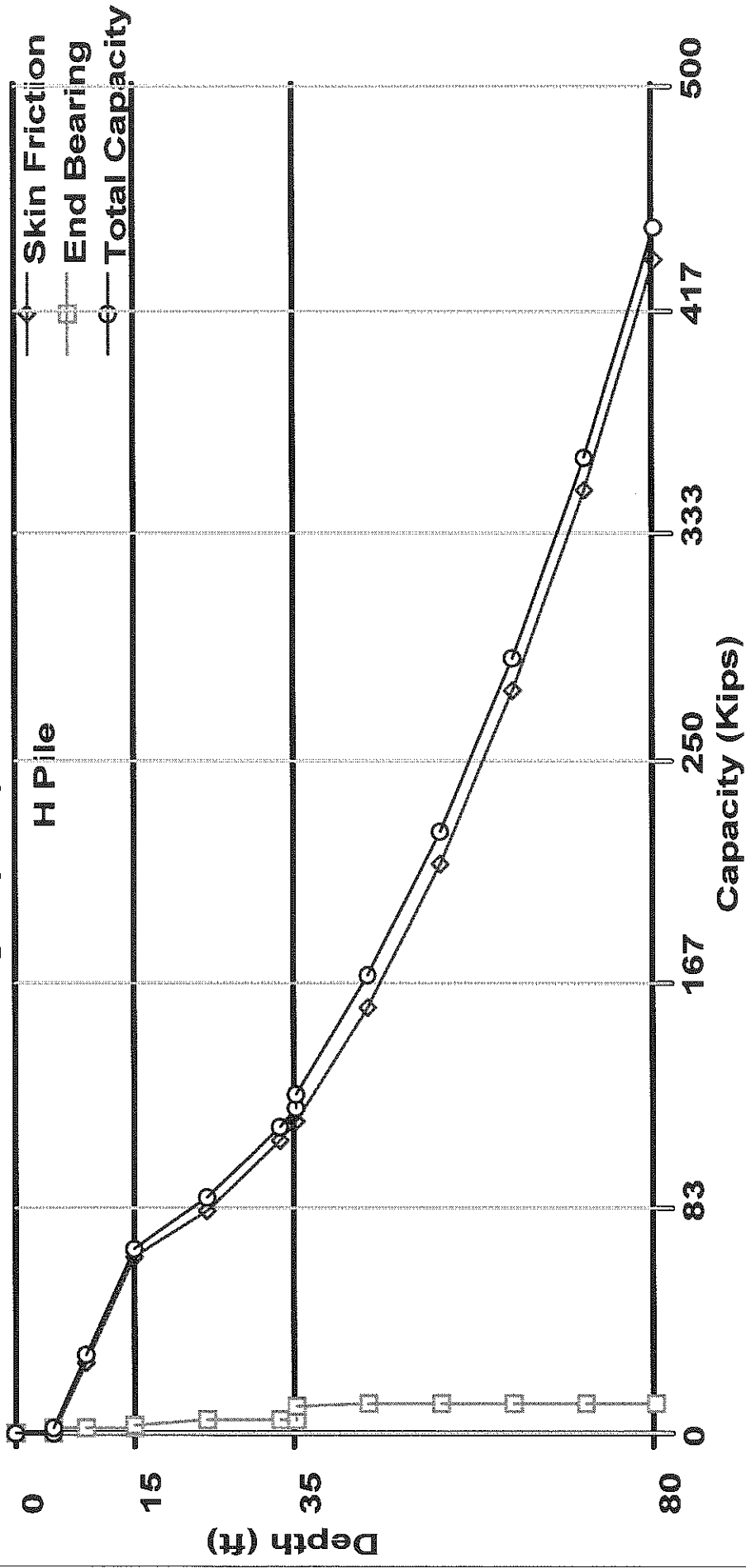
Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
4.99 ft	0.00 Kips	0.00 Kips	0.00 Kips
5.00 ft	0.00 Kips	2.91 Kips	2.91 Kips
9.01 ft	26.27 Kips	2.91 Kips	29.18 Kips
14.99 ft	65.45 Kips	2.91 Kips	68.36 Kips
15.01 ft	65.53 Kips	3.08 Kips	68.62 Kips
24.01 ft	82.95 Kips	5.08 Kips	88.02 Kips
33.01 ft	108.88 Kips	5.38 Kips	114.26 Kips
34.99 ft	115.72 Kips	5.38 Kips	121.11 Kips
35.01 ft	115.80 Kips	10.58 Kips	126.38 Kips
44.01 ft	158.45 Kips	11.58 Kips	170.04 Kips
53.01 ft	211.75 Kips	11.58 Kips	223.33 Kips
62.01 ft	275.69 Kips	11.58 Kips	287.27 Kips
71.01 ft	350.28 Kips	11.58 Kips	361.86 Kips
79.99 ft	435.30 Kips	11.58 Kips	446.89 Kips

55 FT = 233 kips

Bearing Capacity Graph - Driving



Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058\1~1\DRIVEN~1\WCINP.DVN
Project Name: I65 Wildcat Cr. Piers 34 Project Date: 08/05/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: H Pile - HP12X74
Top of Pile: 0.00 ft
Perimeter Analysis: Box
Tip Analysis: Pile Area

INT. PIER LINES 3 & 4

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	0.00 ft
	- Driving/Restrike	0.00 ft
	- Ultimate:	0.00 ft
Ultimate Considerations:	- Local Scour:	5.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesive	15.00 ft	0.00%	125.00 pcf	3000.00 psf	User Def.
2	Cohesionless	20.00 ft	0.00%	130.00 pcf	33.0/33.0	Nordlund
3	Cohesionless	45.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

DRIVING - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesive	N/A	N/A	1650.00 psf	0.07 Kips
9.01 ft	Cohesive	N/A	N/A	1650.00 psf	60.32 Kips
14.99 ft	Cohesive	N/A	N/A	1650.00 psf	100.36 Kips
15.01 ft	Cohesionless	939.34 psf	26.01	N/A	100.44 Kips
24.01 ft	Cohesionless	1243.54 psf	26.01	N/A	120.82 Kips
33.01 ft	Cohesionless	1547.74 psf	26.01	N/A	151.17 Kips
34.99 ft	Cohesionless	1614.66 psf	26.01	N/A	159.19 Kips
35.01 ft	Cohesionless	2291.36 psf	27.58	N/A	159.28 Kips
44.01 ft	Cohesionless	2618.06 psf	27.58	N/A	209.72 Kips
53.01 ft	Cohesionless	2944.76 psf	27.58	N/A	272.75 Kips
62.01 ft	Cohesionless	3271.46 psf	27.58	N/A	348.38 Kips
71.01 ft	Cohesionless	3598.16 psf	27.58	N/A	436.59 Kips
79.99 ft	Cohesionless	3924.14 psf	27.58	N/A	537.15 Kips

DRIVING - END BEARING

Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
9.01 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
14.99 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
15.01 ft	Cohesionless	939.68 psf	47.20	7.57 Kips	4.33 Kips
24.01 ft	Cohesionless	1548.08 psf	47.20	7.57 Kips	7.03 Kips
33.01 ft	Cohesionless	2156.48 psf	47.20	7.57 Kips	7.57 Kips
34.99 ft	Cohesionless	2290.32 psf	47.20	7.57 Kips	7.57 Kips
35.01 ft	Cohesionless	2291.73 psf	64.00	16.29 Kips	14.81 Kips
44.01 ft	Cohesionless	2945.13 psf	64.00	16.29 Kips	16.29 Kips
53.01 ft	Cohesionless	3598.53 psf	64.00	16.29 Kips	16.29 Kips
62.01 ft	Cohesionless	4251.93 psf	64.00	16.29 Kips	16.29 Kips
71.01 ft	Cohesionless	4905.33 psf	64.00	16.29 Kips	16.29 Kips
79.99 ft	Cohesionless	5557.27 psf	64.00	16.29 Kips	16.29 Kips

Score = 33 kips

DRIVING - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.07 Kips	4.09 Kips	4.15 Kips
9.01 ft	60.32 Kips	4.09 Kips	64.41 Kips
14.99 ft	100.36 Kips	4.09 Kips	104.44 Kips
15.01 ft	100.44 Kips	4.33 Kips	104.78 Kips
24.01 ft	120.82 Kips	7.03 Kips	127.85 Kips
33.01 ft	151.17 Kips	7.57 Kips	158.74 Kips
34.99 ft	159.19 Kips	7.57 Kips	166.75 Kips
35.01 ft	159.28 Kips	14.81 Kips	174.09 Kips
44.01 ft	209.72 Kips	16.29 Kips	226.01 Kips
53.01 ft	272.75 Kips	16.29 Kips	289.04 Kips
62.01 ft	348.38 Kips	16.29 Kips	364.67 Kips
71.01 ft	436.59 Kips	16.29 Kips	452.87 Kips
79.99 ft	537.15 Kips	16.29 Kips	553.43 Kips

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
4.99 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
5.00 ft	Cohesive	N/A	N/A	0.00 psf	0.00 Kips
9.01 ft	Cohesive	N/A	N/A	1650.00 psf	26.85 Kips
14.99 ft	Cohesive	N/A	N/A	1650.00 psf	66.88 Kips
15.01 ft	Cohesionless	939.34 psf	26.01	N/A	66.97 Kips
24.01 ft	Cohesionless	1243.54 psf	26.01	N/A	87.35 Kips
33.01 ft	Cohesionless	1547.74 psf	26.01	N/A	117.70 Kips
34.99 ft	Cohesionless	1614.66 psf	26.01	N/A	125.71 Kips
35.01 ft	Cohesionless	2291.36 psf	27.58	N/A	125.80 Kips
44.01 ft	Cohesionless	2618.06 psf	27.58	N/A	176.25 Kips
53.01 ft	Cohesionless	2944.76 psf	27.58	N/A	239.28 Kips
62.01 ft	Cohesionless	3271.46 psf	27.58	N/A	314.90 Kips
71.01 ft	Cohesionless	3598.16 psf	27.58	N/A	403.11 Kips
79.99 ft	Cohesionless	3924.14 psf	27.58	N/A	503.67 Kips

ULTIMATE - END BEARING

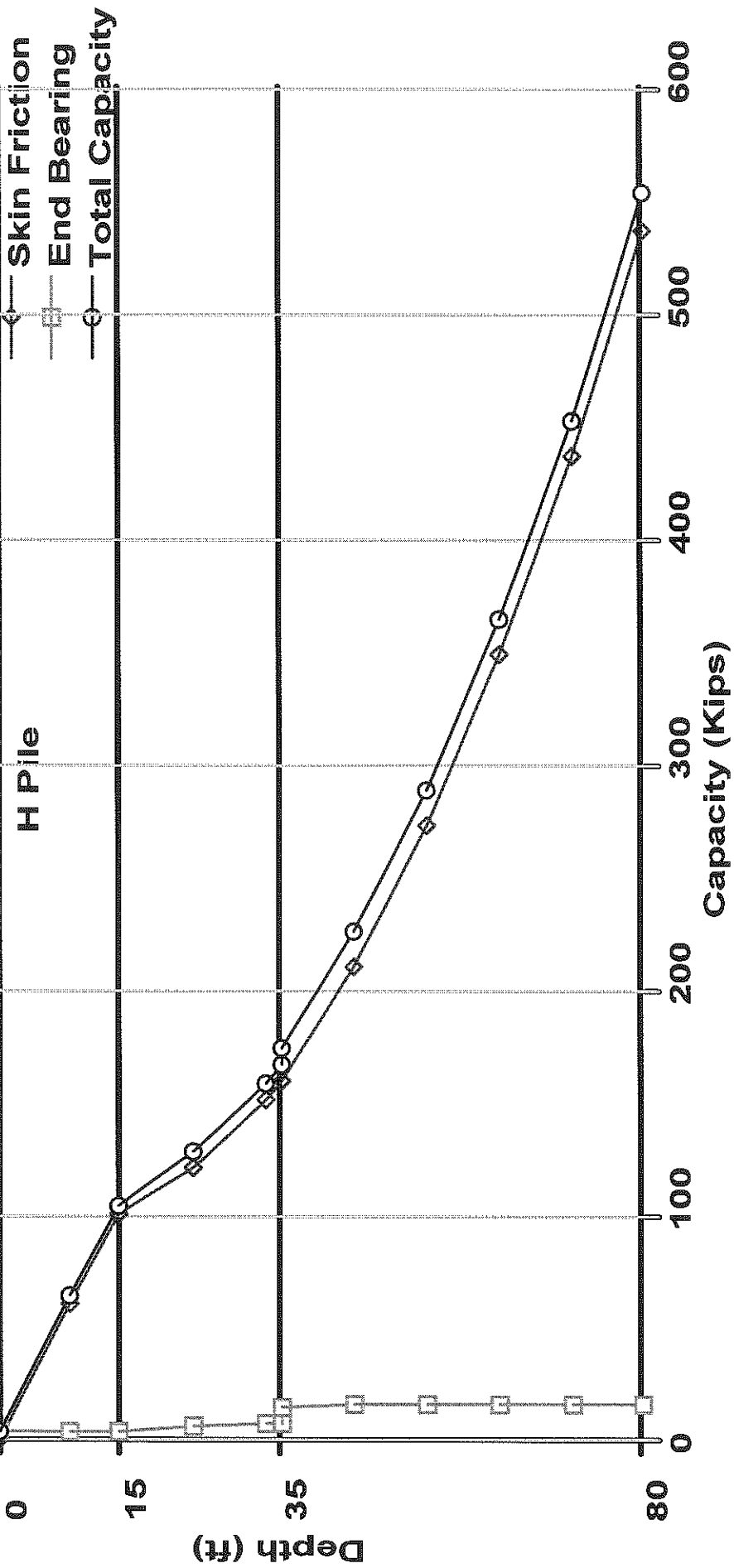
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
4.99 ft	Cohesive	N/A	N/A	N/A	0.00 Kips
5.00 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
9.01 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
14.99 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
15.01 ft	Cohesionless	939.68 psf	47.20	7.57 Kips	4.33 Kips
24.01 ft	Cohesionless	1548.08 psf	47.20	7.57 Kips	7.14 Kips
33.01 ft	Cohesionless	2156.48 psf	47.20	7.57 Kips	7.57 Kips
34.99 ft	Cohesionless	2290.32 psf	47.20	7.57 Kips	7.57 Kips
35.01 ft	Cohesionless	2291.73 psf	64.00	16.29 Kips	14.89 Kips
44.01 ft	Cohesionless	2945.13 psf	64.00	16.29 Kips	16.29 Kips
53.01 ft	Cohesionless	3598.53 psf	64.00	16.29 Kips	16.29 Kips
62.01 ft	Cohesionless	4251.93 psf	64.00	16.29 Kips	16.29 Kips
71.01 ft	Cohesionless	4905.33 psf	64.00	16.29 Kips	16.29 Kips
79.99 ft	Cohesionless	5557.27 psf	64.00	16.29 Kips	16.29 Kips

ULTIMATE - SUMMARY OF CAPACITIES

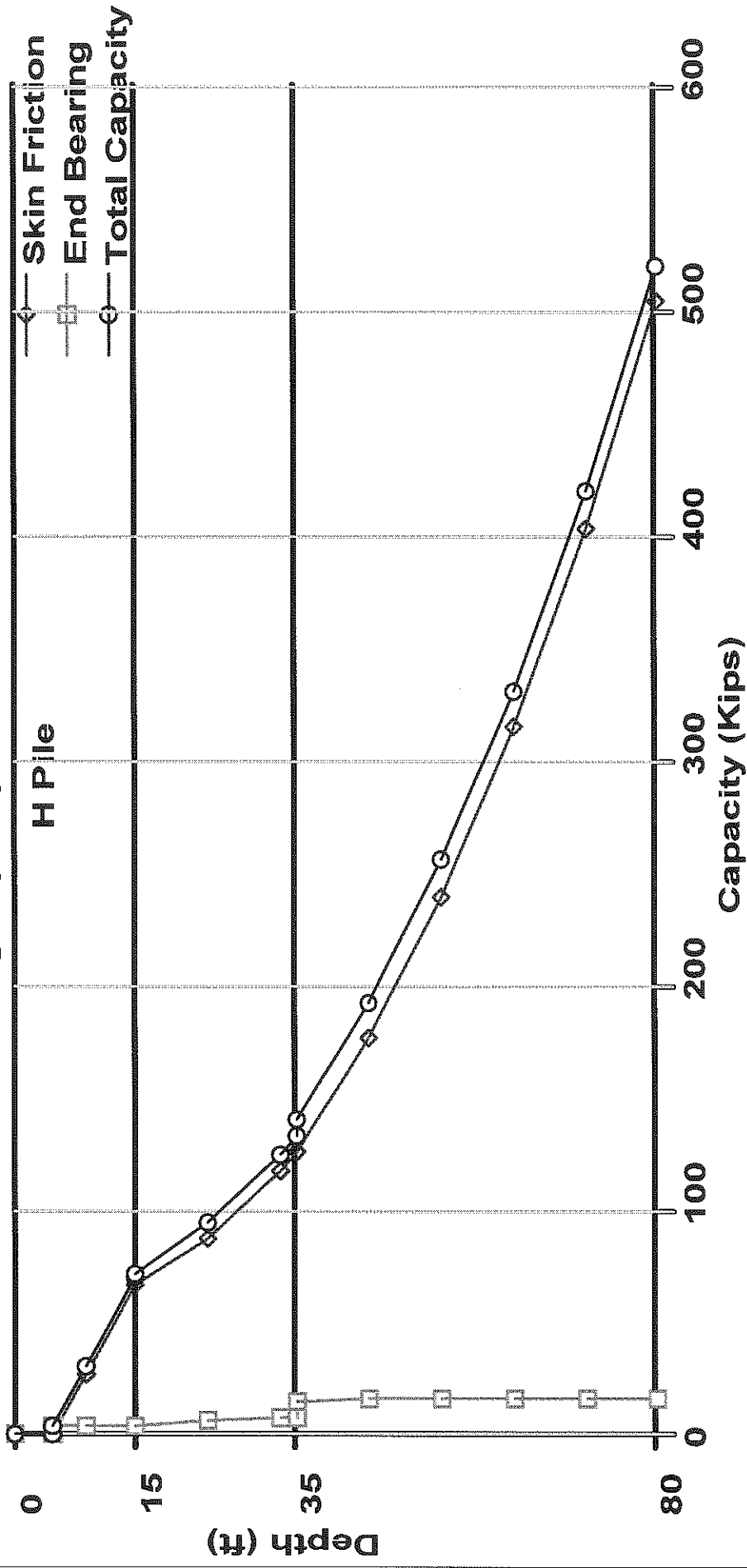
Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.00 Kips	0.00 Kips	0.00 Kips
4.99 ft	0.00 Kips	0.00 Kips	0.00 Kips
5.00 ft	0.00 Kips	4.09 Kips	4.09 Kips
9.01 ft	26.85 Kips	4.09 Kips	30.93 Kips
14.99 ft	66.88 Kips	4.09 Kips	70.97 Kips
15.01 ft	66.97 Kips	4.33 Kips	71.30 Kips
24.01 ft	87.35 Kips	7.14 Kips	94.49 Kips
33.01 ft	117.70 Kips	7.57 Kips	125.27 Kips
34.99 ft	125.71 Kips	7.57 Kips	133.28 Kips
35.01 ft	125.80 Kips	14.89 Kips	140.69 Kips
44.01 ft	176.25 Kips	16.29 Kips	192.54 Kips
53.01 ft	239.28 Kips	16.29 Kips	255.57 Kips
62.01 ft	314.90 Kips	16.29 Kips	331.19 Kips
71.01 ft	403.11 Kips	16.29 Kips	419.40 Kips
79.99 ft	503.67 Kips	16.29 Kips	519.96 Kips

73 Ft = 433 kips

Bearing Capacity Graph - Driving



Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(1~1\DRIVEN~1\WCEB6.DVN
Project Name: I65 Wildcat Cr EB6 Project Date: 08/04/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: H Pile - HP12X53
Top of Pile: 0.00 ft
Perimeter Analysis: Box
Tip Analysis: Pile Area

END BENT 6

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	10.00 ft
	- Driving/Restrike	10.00 ft
	- Ultimate:	10.00 ft
Ultimate Considerations:	- Local Scour:	0.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesive	5.00 ft	0.00%	120.00 pcf	2000.00 psf	User Def.
2	Cohesionless	8.00 ft	0.00%	125.00 pcf	32.0/32.0	Nordlund
3	Cohesive	7.00 ft	0.00%	125.00 pcf	2000.00 psf	User Def.
4	Cohesionless	15.00 ft	0.00%	130.00 pcf	33.0/33.0	Nordlund
5	Cohesive	10.00 ft	0.00%	130.00 pcf	3000.00 psf	User Def.
6	Cohesionless	50.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesive	N/A	N/A	1100.00 psf	0.04 Kips
4.99 ft	Cohesive	N/A	N/A	1100.00 psf	21.80 Kips
5.01 ft	Cohesionless	600.62 psf	24.10	N/A	21.85 Kips
9.99 ft	Cohesionless	911.88 psf	24.10	N/A	28.36 Kips
10.01 ft	Cohesionless	1225.31 psf	24.10	N/A	28.39 Kips
12.99 ft	Cohesionless	1318.59 psf	24.10	N/A	34.02 Kips
13.01 ft	Cohesive	N/A	N/A	1100.00 psf	34.09 Kips
19.99 ft	Cohesive	N/A	N/A	1100.00 psf	64.57 Kips
20.01 ft	Cohesionless	1851.34 psf	24.85	N/A	64.65 Kips
29.01 ft	Cohesionless	2155.54 psf	24.85	N/A	94.83 Kips
34.99 ft	Cohesionless	2357.66 psf	24.85	N/A	119.59 Kips
35.01 ft	Cohesive	N/A	N/A	1650.00 psf	119.70 Kips
44.01 ft	Cohesive	N/A	N/A	1650.00 psf	178.67 Kips
44.99 ft	Cohesive	N/A	N/A	1650.00 psf	185.09 Kips
45.01 ft	Cohesionless	3541.36 psf	26.36	N/A	185.22 Kips
54.01 ft	Cohesionless	3868.06 psf	26.36	N/A	248.23 Kips
63.01 ft	Cohesionless	4194.76 psf	26.36	N/A	321.89 Kips
72.01 ft	Cohesionless	4521.46 psf	26.36	N/A	406.19 Kips
81.01 ft	Cohesionless	4848.16 psf	26.36	N/A	501.14 Kips
90.01 ft	Cohesionless	5174.86 psf	26.36	N/A	606.73 Kips
94.99 ft	Cohesionless	5355.64 psf	26.36	N/A	669.73 Kips

ULTIMATE - END BEARING

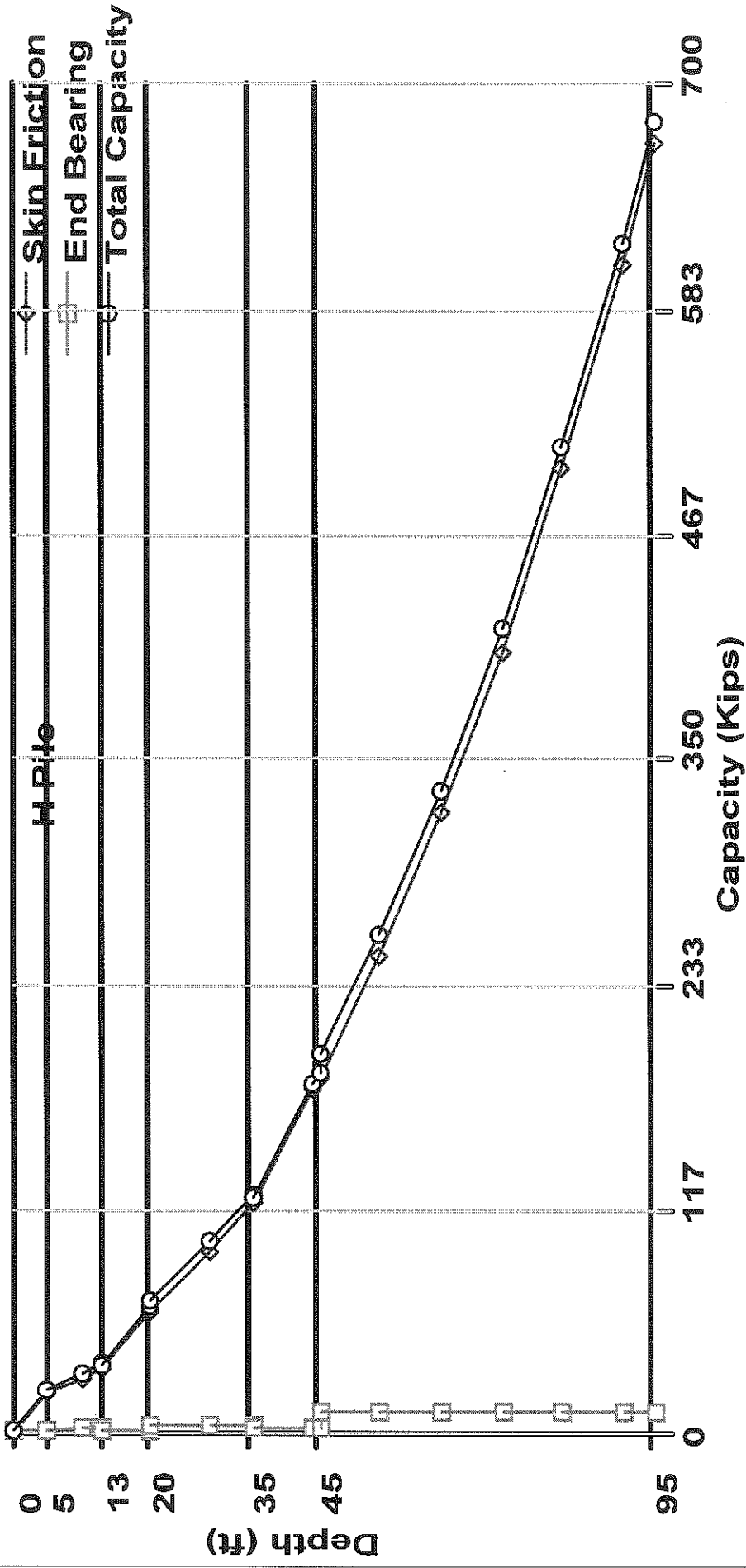
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesive	N/A	N/A	N/A	1.94 Kips
4.99 ft	Cohesive	N/A	N/A	N/A	1.94 Kips
5.01 ft	Cohesionless	601.25 psf	40.40	3.55 Kips	1.64 Kips
9.99 ft	Cohesionless	1223.75 psf	40.40	3.55 Kips	3.33 Kips
10.01 ft	Cohesionless	1225.63 psf	40.40	3.55 Kips	3.33 Kips
12.99 ft	Cohesionless	1412.17 psf	40.40	3.55 Kips	3.55 Kips
13.01 ft	Cohesive	N/A	N/A	N/A	1.94 Kips
19.99 ft	Cohesive	N/A	N/A	N/A	1.94 Kips
20.01 ft	Cohesionless	1851.68 psf	47.20	5.38 Kips	5.38 Kips
29.01 ft	Cohesionless	2460.08 psf	47.20	5.38 Kips	5.38 Kips
34.99 ft	Cohesionless	2864.32 psf	47.20	5.38 Kips	5.38 Kips
35.01 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
44.01 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
44.99 ft	Cohesive	N/A	N/A	N/A	2.91 Kips
45.01 ft	Cohesionless	3541.73 psf	64.00	11.58 Kips	11.58 Kips
54.01 ft	Cohesionless	4195.13 psf	64.00	11.58 Kips	11.58 Kips
63.01 ft	Cohesionless	4848.53 psf	64.00	11.58 Kips	11.58 Kips
72.01 ft	Cohesionless	5501.93 psf	64.00	11.58 Kips	11.58 Kips
81.01 ft	Cohesionless	6155.33 psf	64.00	11.58 Kips	11.58 Kips
90.01 ft	Cohesionless	6808.73 psf	64.00	11.58 Kips	11.58 Kips
94.99 ft	Cohesionless	7170.27 psf	64.00	11.58 Kips	11.58 Kips

ULTIMATE - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.04 Kips	1.94 Kips	1.98 Kips
4.99 ft	21.80 Kips	1.94 Kips	23.73 Kips
5.01 ft	21.85 Kips	1.64 Kips	23.48 Kips
9.99 ft	28.36 Kips	3.33 Kips	31.69 Kips
10.01 ft	28.39 Kips	3.33 Kips	31.73 Kips
12.99 ft	34.02 Kips	3.55 Kips	37.57 Kips
13.01 ft	34.09 Kips	1.94 Kips	36.02 Kips
19.99 ft	64.57 Kips	1.94 Kips	66.51 Kips
20.01 ft	64.65 Kips	5.38 Kips	70.03 Kips
29.01 ft	94.83 Kips	5.38 Kips	100.21 Kips
34.99 ft	119.59 Kips	5.38 Kips	124.97 Kips
35.01 ft	119.70 Kips	2.91 Kips	122.61 Kips
44.01 ft	178.67 Kips	2.91 Kips	181.57 Kips
44.99 ft	185.09 Kips	2.91 Kips	187.99 Kips
45.01 ft	185.22 Kips	11.58 Kips	196.80 Kips
54.01 ft	248.23 Kips	11.58 Kips	259.81 Kips
63.01 ft	321.89 Kips	11.58 Kips	333.47 Kips
72.01 ft	406.19 Kips	11.58 Kips	417.78 Kips
81.01 ft	501.14 Kips	11.58 Kips	512.72 Kips
90.01 ft	606.73 Kips	11.58 Kips	618.31 Kips
94.99 ft	669.73 Kips	11.58 Kips	681.31 Kips

46 FT = 200 KIPS

Bearing Capacity Graph - Ultimate



DRIVEN 1.2
GENERAL PROJECT INFORMATION

Filename: G:\GEOTEC~1\RQAW(5~1\0058(I~1\DRIVEN~1\WCEB6.DVN
Project Name: I65 Wildcat Cr EB6 Project Date: 08/04/2014
Project Client: RQAW
Computed By: Shawn Marcum
Project Manager: Shawn Marcum

WILDCAT CREEK

PILE INFORMATION

Pile Type: H Pile - HP12X74
Top of Pile: 0.00 ft
Perimeter Analysis: Box
Tip Analysis: Pile Area

END BENT 6

ULTIMATE CONSIDERATIONS

Water Table Depth At Time Of:	- Drilling:	10.00 ft
	- Driving/Restrike	10.00 ft
	- Ultimate:	10.00 ft
Ultimate Considerations:	- Local Scour:	0.00 ft
	- Long Term Scour:	0.00 ft
	- Soft Soil:	0.00 ft

ULTIMATE PROFILE

Layer	Type	Thickness	Driving Loss	Unit Weight	Strength	Ultimate Curve
1	Cohesive	5.00 ft	0.00%	120.00 pcf	2000.00 psf	User Def.
2	Cohesionless	8.00 ft	0.00%	125.00 pcf	32.0/32.0	Nordlund
3	Cohesive	7.00 ft	0.00%	125.00 pcf	2000.00 psf	User Def.
4	Cohesionless	15.00 ft	0.00%	130.00 pcf	33.0/33.0	Nordlund
5	Cohesive	10.00 ft	0.00%	130.00 pcf	3000.00 psf	User Def.
6	Cohesionless	50.00 ft	0.00%	135.00 pcf	35.0/35.0	Nordlund

ULTIMATE - SKIN FRICTION

Depth	Soil Type	Effective Stress At Midpoint	Sliding Friction Angle	Adhesion	Skin Friction
0.01 ft	Cohesive	N/A	N/A	1100.00 psf	0.04 Kips
4.99 ft	Cohesive	N/A	N/A	1100.00 psf	22.27 Kips
5.01 ft	Cohesionless	600.62 psf	25.22	N/A	22.33 Kips
9.99 ft	Cohesionless	911.88 psf	25.22	N/A	29.90 Kips
10.01 ft	Cohesionless	1225.31 psf	25.22	N/A	29.94 Kips
12.99 ft	Cohesionless	1318.59 psf	25.22	N/A	36.49 Kips
13.01 ft	Cohesive	N/A	N/A	1100.00 psf	36.56 Kips
19.99 ft	Cohesive	N/A	N/A	1100.00 psf	67.71 Kips
20.01 ft	Cohesionless	1851.34 psf	26.01	N/A	67.79 Kips
29.01 ft	Cohesionless	2155.54 psf	26.01	N/A	103.12 Kips
34.99 ft	Cohesionless	2357.66 psf	26.01	N/A	132.10 Kips
35.01 ft	Cohesive	N/A	N/A	1650.00 psf	132.22 Kips
44.01 ft	Cohesive	N/A	N/A	1650.00 psf	192.47 Kips
44.99 ft	Cohesive	N/A	N/A	1650.00 psf	199.03 Kips
45.01 ft	Cohesionless	3541.36 psf	27.58	N/A	199.18 Kips
54.01 ft	Cohesionless	3868.06 psf	27.58	N/A	273.70 Kips
63.01 ft	Cohesionless	4194.76 psf	27.58	N/A	360.82 Kips
72.01 ft	Cohesionless	4521.46 psf	27.58	N/A	460.52 Kips
81.01 ft	Cohesionless	4848.16 psf	27.58	N/A	572.81 Kips
90.01 ft	Cohesionless	5174.86 psf	27.58	N/A	697.69 Kips
94.99 ft	Cohesionless	5355.64 psf	27.58	N/A	772.20 Kips

ULTIMATE - END BEARING

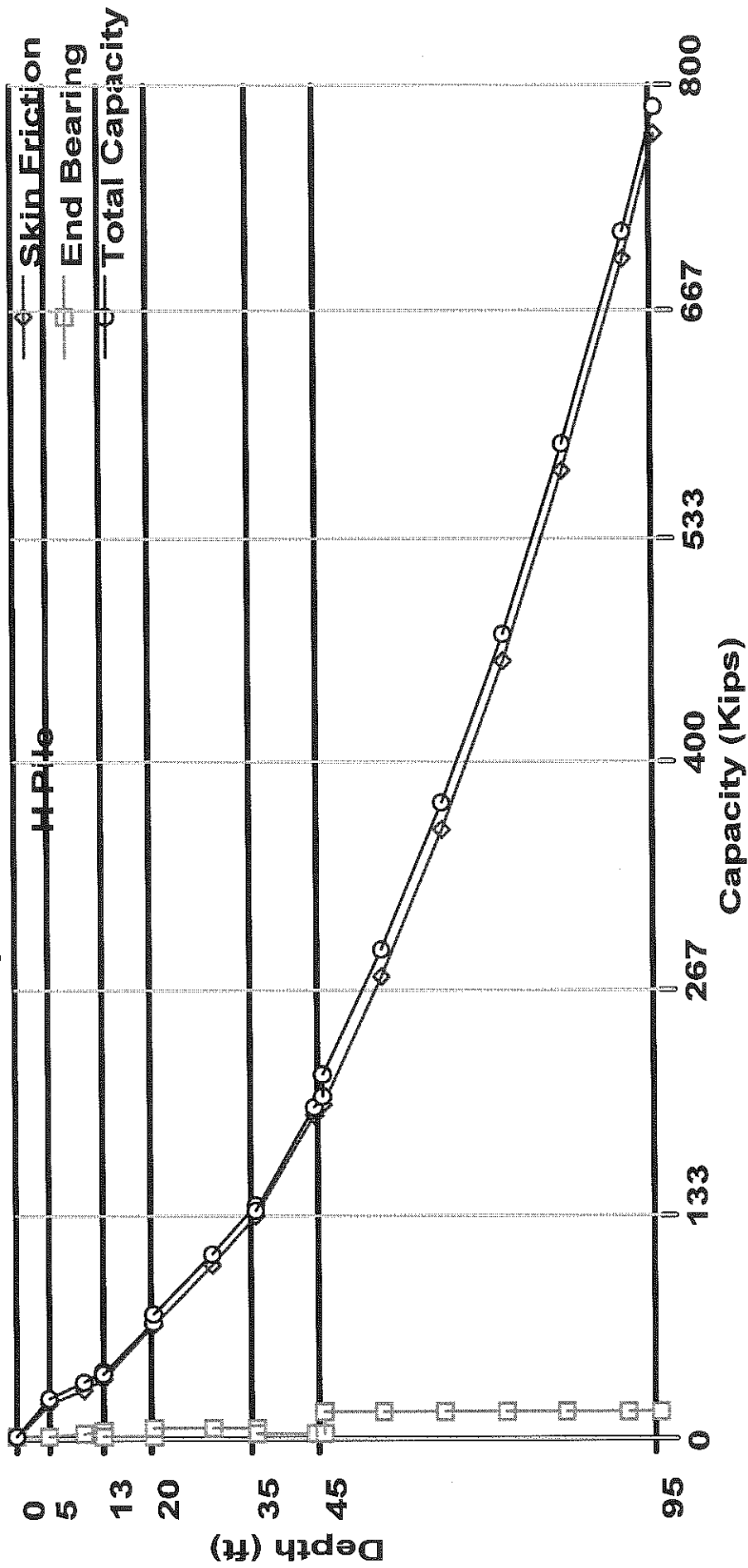
Depth	Soil Type	Effective Stress At Tip	Bearing Cap. Factor	Limiting End Bearing	End Bearing
0.01 ft	Cohesive	N/A	N/A	N/A	2.72 Kips
4.99 ft	Cohesive	N/A	N/A	N/A	2.72 Kips
5.01 ft	Cohesionless	601.25 psf	40.40	5.00 Kips	2.30 Kips
9.99 ft	Cohesionless	1223.75 psf	40.40	5.00 Kips	4.68 Kips
10.01 ft	Cohesionless	1225.63 psf	40.40	5.00 Kips	4.69 Kips
12.99 ft	Cohesionless	1412.17 psf	40.40	5.00 Kips	5.00 Kips
13.01 ft	Cohesive	N/A	N/A	N/A	2.72 Kips
19.99 ft	Cohesive	N/A	N/A	N/A	2.72 Kips
20.01 ft	Cohesionless	1851.68 psf	47.20	7.57 Kips	7.57 Kips
29.01 ft	Cohesionless	2460.08 psf	47.20	7.57 Kips	7.57 Kips
34.99 ft	Cohesionless	2864.32 psf	47.20	7.57 Kips	7.57 Kips
35.01 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
44.01 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
44.99 ft	Cohesive	N/A	N/A	N/A	4.09 Kips
45.01 ft	Cohesionless	3541.73 psf	64.00	16.29 Kips	16.29 Kips
54.01 ft	Cohesionless	4195.13 psf	64.00	16.29 Kips	16.29 Kips
63.01 ft	Cohesionless	4848.53 psf	64.00	16.29 Kips	16.29 Kips
72.01 ft	Cohesionless	5501.93 psf	64.00	16.29 Kips	16.29 Kips
81.01 ft	Cohesionless	6155.33 psf	64.00	16.29 Kips	16.29 Kips
90.01 ft	Cohesionless	6808.73 psf	64.00	16.29 Kips	16.29 Kips
94.99 ft	Cohesionless	7170.27 psf	64.00	16.29 Kips	16.29 Kips

ULTIMATE - SUMMARY OF CAPACITIES

Depth	Skin Friction	End Bearing	Total Capacity
0.01 ft	0.04 Kips	2.72 Kips	2.77 Kips
4.99 ft	22.27 Kips	2.72 Kips	25.00 Kips
5.01 ft	22.33 Kips	2.30 Kips	24.63 Kips
9.99 ft	29.90 Kips	4.68 Kips	34.58 Kips
10.01 ft	29.94 Kips	4.69 Kips	34.63 Kips
12.99 ft	36.49 Kips	5.00 Kips	41.49 Kips
13.01 ft	36.56 Kips	2.72 Kips	39.28 Kips
19.99 ft	67.71 Kips	2.72 Kips	70.44 Kips
20.01 ft	67.79 Kips	7.57 Kips	75.36 Kips
29.01 ft	103.12 Kips	7.57 Kips	110.69 Kips
34.99 ft	132.10 Kips	7.57 Kips	139.67 Kips
35.01 ft	132.22 Kips	4.09 Kips	136.31 Kips
44.01 ft	192.47 Kips	4.09 Kips	196.56 Kips
44.99 ft	199.03 Kips	4.09 Kips	203.12 Kips
45.01 ft	199.18 Kips	16.29 Kips	215.46 Kips
54.01 ft	273.70 Kips	16.29 Kips	289.99 Kips
63.01 ft	360.82 Kips	16.29 Kips	377.11 Kips
72.01 ft	460.52 Kips	16.29 Kips	476.81 Kips
81.01 ft	572.81 Kips	16.29 Kips	589.10 Kips
90.01 ft	697.69 Kips	16.29 Kips	713.98 Kips
94.99 ft	772.20 Kips	16.29 Kips	788.49 Kips

65 ft = 400 kips

Bearing Capacity Graph - Ultimate



APPENDIX E

PAVEMENT CORE PHOTOS



S5-RB-01: 7.25 in. Asphalt, 9.5 in. Concrete



S5-RB-03: 6.25 in. Asphalt, 9.25 in. Concrete



S5-RB-05: 6 in. Asphalt, 9.25 in. Concrete



S5-RB-09: 5 in. Asphalt, 9.25 in. Concrete



S5-RB-11: 5.25 in. Asphalt, 9 in. Concrete



S5-RB-13: 5 in. Asphalt, 9.25 in. Concrete



S5-RB-17: 5 in. Asphalt, 9 in. Concrete



S5-RB-19: 6 in. Asphalt, 10.5 in. Concrete



S5-RB-21: 7.25 in. Asphalt, 9 in. Concrete



S5-RB-23: 7 in. Asphalt, 9.75 in. Concrete



S5-RB-25: 5.25 in. Asphalt, 9 in. Concrete



S5-RB-27: 3 in. Asphalt, 8 in. Concrete, 4 in. Concrete



S5-RB-29: 4.5 in. Asphalt, 8.75 in. Concrete



S5-RB-33: 4 in. Asphalt, 8.5 in. Concrete



S5-RB-35: 6.25 in. Asphalt, 9.25 in. Concrete



S5-RB-37: 2.75 in. Asphalt, 8.75 in. Concrete



S5-RB-41: 7.25 in. Asphalt, 9 in. Concrete



S5-RB-43: 7 in. Asphalt, 9.25 in. Concrete



S5-RB-45: 3.25 in. Asphalt, 9.25 in. Concrete



S5-RB-51: 14 in. Concrete



S5-RB-53: 5.25 in. Asphalt, 9.25 in. Concrete



S5-RB-55: 6 in. Asphalt, 9.25 in. Concrete



S5-RB-57: 14.25 in. Concrete



S5-RB-59: 5 in. Asphalt, 9 in. Concrete



S5-RB-61: 13.75 in. Concrete



S5-RB-63: 15 in. Concrete



S5-RB-65: 6.5 in. Asphalt, 9.75 in. Concrete



S5-RB-67: 5.75 in. Asphalt, 9 in. Concrete



S5-RB-69: 13.75 in. Concrete



S5-RB-71: 5.75 in. Asphalt, 9.25 in. Concrete



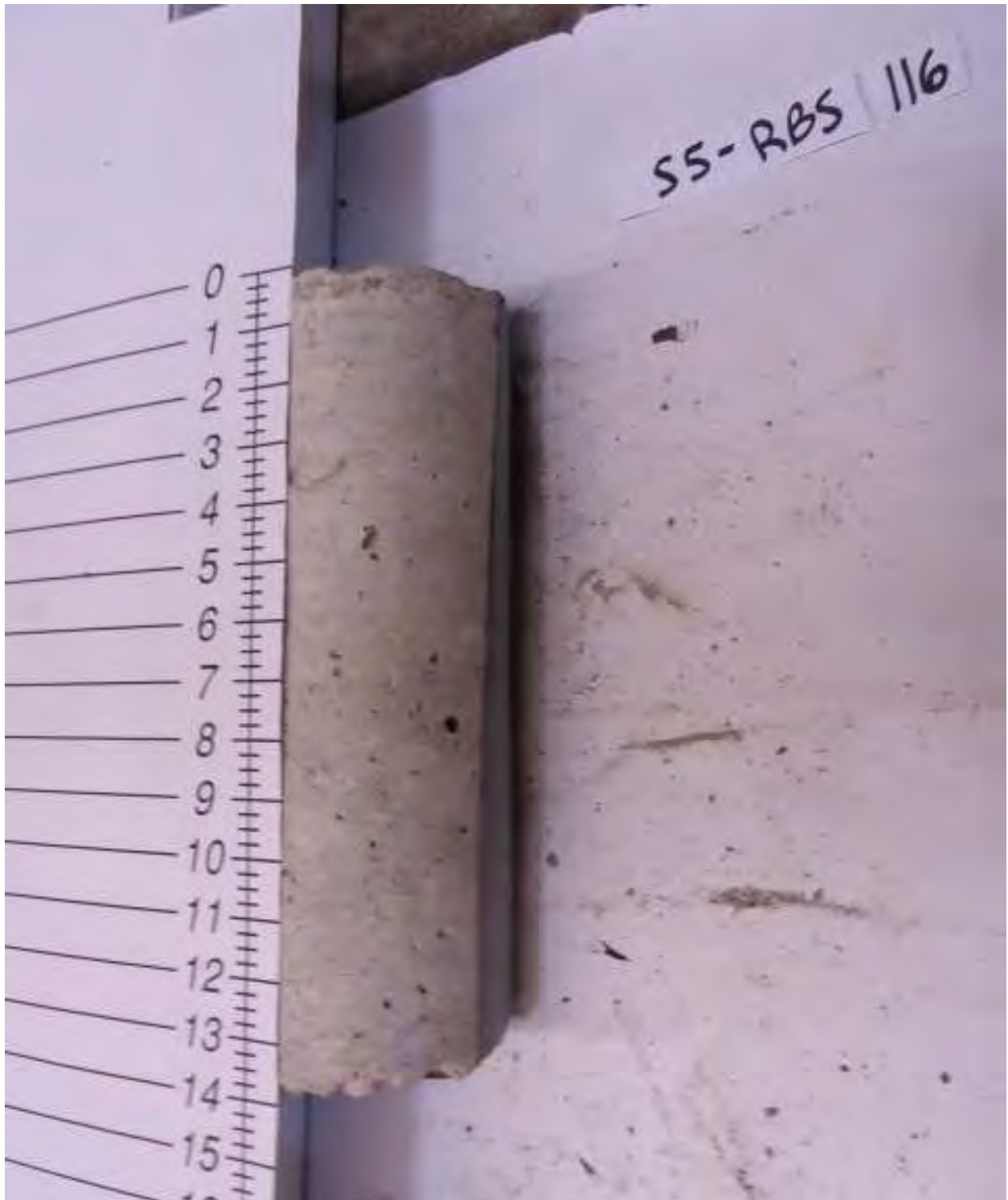
S5-RB5-105: 7.75 in. Asphalt



S5-RB5-108: 8 in. Asphalt



S5-RB5-111: 5.5 in. Asphalt



S5-RB5-116: 14 in. Concrete