REPORT OF GEOTECHNICAL INVESTIGATION
PROPOSED INDUSTRIAL BUILDINGS
HARDT STREET & BRIER STREET
SAN BERNARDINO, CALIFORNIA

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1.0 EXECUTIVE SUMMARY

Construction Testing & Engineering, Inc. (CTE) has performed a geotechnical investigation to provide site-specific geotechnical information for the proposed industrial development in San Bernardino, California. The proposed development will consist of five buildings with a total footprint area of approximately 108,000 square feet. The buildings will be concrete tilt-up construction founded on conventional shallow footings with slab-on-grade floors. The development will include pavements, hardscapes, utilities, bioinfiltration basins, and landscaping.

Based on our investigation and review of geologic maps, the site is underlain by younger (Holocene-age) alluvium. Groundwater was not encountered during our investigation. Groundwater is not expected to impact the proposed development, although grading or construction could be adversely affected if performed during or following periods of wet weather.

Based on our investigation and geologic literature review, the site is not located in a State of California Alquist-Priolo Earthquake Fault Zone. Based on the depth to groundwater, the potential for liquefaction of site soils is considered very low.

Based on our investigation, the proposed development at the site is considered feasible from a geotechnical standpoint, provided the recommendations herein are implemented during project design and construction.

2.0 INTRODUCTION AND SCOPE OF SERVICES

2.1 Introduction

CTE has prepared this report for Oak Properties. Presented herein are the results of the subsurface investigation performed as well as recommendations regarding the geotechnical engineering and dynamic loading criteria for the proposed construction.

2.2 Scope of Services

Our scope of services included:

- Review of readily available geologic and geotechnical literature pertinent to the site.
- Explorations to determine subsurface soil, rock and groundwater conditions to the depths influenced by the proposed development.
- Percolation testing for use in onsite storm water BMP design.
- Laboratory testing of representative soil samples to provide data to evaluate the geotechnical design characteristics of the site foundation soils.
- Definition of the general geology and evaluation of potential geologic hazards at the site.
- Preparation of this report detailing the investigation performed and providing conclusions and geotechnical engineering recommendations for design and construction. Included in the report are site geology and hazards, seismic effects and design parameters, earthwork recommendations, foundation design parameters including lateral resistance, retaining wall design parameters, and pavement structure section recommendations.

3.0 SITE AND PROPOSED CONSTRUCTION

The site consists of ten vacant, undeveloped parcels located off Hardt and Brier Streets, west of Tippecanoe Avenue in the city of San Bernardino, California. Four parcels are located north, and two parcels located south of Hardt Street; and four parcels are located north of Brier Street.

Figure 1 shows the location of the site. The site is relatively flat. The ground surface is exposed soil with sparse vegetation. The site has recently been disced. A drainage channel, traversing east-west, borders the site to the north, and a water district easement borders the site to the west. Developed parcels also border the site.

The proposed development will consist of five buildings with a total footprint area of approximately 108,000 square feet. The buildings will be concrete tilt-up construction founded on conventional shallow footings with slab-on-grade floors. The development will include pavements, hardscapes, utilities, bioinfiltration basins, and landscaping.

4.0 FIELD AND LABORATORY INVESTIGATION

4.1 Field Investigation

Our field investigation was performed on April 29-30 and May 3-6, 2021, and included 14 exploratory borings (identified as B-1 through B-14), six cone penetration test (CPT) soundings (identified as CPT-1 thru CPT-6), and 14 percolation test borings (identified as P-1A thru P-5C). The explorations were conducted at the proposed building, pavement, and BMP locations. The exploration and test locations are shown on Figure 2.

The exploratory borings were excavated to investigate and obtain samples of the subsurface soils. The borings were excavated using a truck-mounted, eight-inch diameter, hollow-stem auger drill rig to a maximum explored depth of approximately 51½ feet below ground surface (bgs). CPT soundings were advanced using a Vertek integrated electronic cone system, and

advanced by a 30-ton truck to the maximum explored depth of 50 feet. At location CPT-3, shear wave measurements were obtained at approximately 5-foot intervals.

Soils encountered within the explorations were classified in the field in accordance with the Unified Soil Classification System. The field descriptions were later modified (as appropriate) based on the results of our laboratory testing program. In general, soil samples were obtained at 5-foot intervals with standard split spoon (SPT and California Modified) samplers. Specifics of the soils encountered can be found on the Exploration Logs, which are presented in Appendix A.

4.2 Laboratory Tests

Laboratory tests were conducted on representative soil samples to evaluate their physical properties and engineering characteristics. Specific laboratory tests included: direct shear, consolidation/swell, maximum dry density and optimum moisture content, in-place moisture and dry density, "R" value, Atterberg limits, expansion index, gradation, and chemical analyses. These tests were conducted to determine the engineering properties and corrosivity of the on-site soils. Test method descriptions and laboratory results are presented in Appendix B and on the Exploration Logs.

5.0 GEOLOGY

5.1 General Physiographic Setting

The subject site is situated within the Transverse Ranges Geomorphic Province, which is a complex series of mountain ranges and valleys distinguished by a dominant east-west trend. This

geomorphic province is approximately 10 to 50 miles wide (north-south) and 300 miles long (east-west). The east-west structure of the province is the result of major crustal rotation.

5.2 Site Geologic Conditions

Based on our investigation and review of geologic mapping (Morton, 1978), the site is underlain by younger alluvium. Below is a brief description of the materials encountered during the investigation. More detailed descriptions are provided in the Exploration Logs in Appendix A.

5.2.1 Quaternary Younger Alluvium (Qya)

Younger (Holocene-age) alluvium was encountered in the explorations from the surface to the maximum explored depth of 51½ feet bgs. The deposits consisted of interbedded layers of loose to dense silty sand, clayey sand and poorly-graded sand, and medium stiff to very stiff clay, silty clay, and silt. The deposits were in damp to very moist condition.

5.3 Groundwater Conditions

Groundwater was not encountered in the explorations. Review of online water data library (DWR) shows historical high groundwater in the vicinity of the site to be greater than 50 feet bgs. Groundwater levels will likely fluctuate during periods of high precipitation. Groundwater is not expected to impact the proposed development, although grading or construction could be adversely affected if performed during or following periods of wet weather.

5.4 Geologic Hazards

From our investigation, it appears that geologic hazards at the site are limited primarily to those caused by strong shaking from earthquake-generated ground motions. Presented herein are the geologic hazards that are considered for potential impacts to site development.

5.4.1 Surface Fault Rupture

In accordance with the Alquist-Priolo Earthquake Fault Zoning Act, (ACT), the State of California established Earthquake Fault Zones around known active faults. The purpose of the ACT is to regulate the development of structures intended for human occupancy near active fault traces in order to mitigate hazards associated with surface fault rupture. According to the California Geological Survey (Special Publication 42, Revised 2018), a fault that has had surface displacement within the last 11,700 years is defined as a Holocene-active fault and is either already zoned or pending zonation in accordance with the ACT. There are several other definitions of fault activity that are used to regulate dams, power plants, and other critical facilities, and some agencies designate faults that are documented as older than Holocene (last 11,700 years) and younger than late Quaternary (1.6 million years) as potentially active faults that are subject to local jurisdictional regulations. The site is not located in or adjacent to an Alquist-Priolo Earthquake Fault Zone.

Based on our site reconnaissance and review of the referenced literature, no known active fault traces underlie the site. Based on our investigation, the potential for surface rupture from displacement or fault movement beneath the improvements is considered low.

5.4.2 Local and Regional Faulting

The United States Geological Survey (USGS), with support of State Geological Surveys, and reviewed published work by various researchers, have developed a Quaternary Fault and Fold Database of faults and associated folds that are believed to be sources of earthquakes with magnitudes greater than 6.0 that have occurred during the Quaternary (the past 1.6 million years). The faults and folds within the database have been categorized into four Classes (Class A-D) based on the level of evidence confirming that a Quaternary fault is of tectonic origin and whether the structure is exposed for mapping or inferred from fault related deformational features. Class A faults have been mapped and categorized based on age of documented activity ranging from Historical faults (activity within last 150 years), Latest Quaternary faults (activity within last 15,000 years), Late Quaternary (activity within last 130,000 years), to Middle to late Quaternary (activity within last 1.6 million years). The Class A faults are considered to have the highest potential to generate earthquakes and/or surface rupture, and the earthquake and surface rupture potential generally increases from oldest to youngest. The evidence for Quaternary deformation and/or tectonic activity progressively decreases for Class B and Class C faults. When geologic evidence indicates that a fault is not of tectonic origin it is considered to be a Class D structure. Such evidence includes joints, fractures, landslides, or erosional and fluvial scarps that resemble fault features, but demonstrate a non-tectonic origin.

The nearest Class A fault to the site is San Jacinto fault zone, which is approximately 1.4 miles from the site. A regional fault activity map is presented on Figure 3.

5.4.3 Liquefaction and Seismic Settlement Evaluation

Liquefaction occurs when saturated fine sands, silts or low plasticity clays lose their physical strength during earthquake-induced shaking and behave as a liquid. This is due to loss of point-to-point grain contact and transfer of normal stress to the pore water. Liquefaction potential varies with groundwater level, soil type, material gradation, relative density, and the intensity and duration of ground shaking.

Based on the depth to groundwater, the potential for liquefaction of site soils is considered very low.

Seismic settlement (dynamic densification) occurs when loose to medium dense granular soils densify during seismic events. The program LiquefyPro was used for a quantitative liquefaction/seismic settlement analysis. The soil profiles from explorations CPT-3 and CPT-6 were used for the analysis. An earthquake magnitude of 7.5, determined using USGS Unified Hazard Tool (USGS, online), and an assumed high groundwater depth of 50 feet bgs were used in the analysis. The analysis estimates total settlement at the site due to post-earthquake settlement of granular soils to be 2.94 inches. Differential dynamic settlement is estimated to be 1 inch or less over a horizontal distance of 40 feet or more. These settlements should be anticipated in the event of a major magnitude earthquake in the immediate vicinity of the site and should be incorporated into the

design of the project, as necessary. Results of the seismic settlement analyses are presented in Appendix C.

5.4.4 Tsunami and Seiche Evaluation

Due to site elevation and distance from the Pacific Ocean, the site is not considered to be subject to damage from tsunamis. Based on the absence of large bodies of water in the area, seiche (oscillatory waves in standing bodies of water) damage is also not expected.

5.4.5 Landsliding

No features typically associated with landsliding were noted during the site investigation. In the reference review, no evidence of landsliding was found to have occurred within the area of the site. Therefore, the potential for landsliding to affect the site is considered very low.

5.4.6 Compressible and Expansive Soils

Based on our investigation and laboratory testing, the upper 10-feet of site soil is expected to be compressible relative to the post-construction overburden; mitigation of the compressible soils are recommended through removal and recompaction as recommended in Section 6.2 below. Based on the results of expansion index testing, site soils are anticipated to have low expansion potential.

5.4.7 Flood Zones

Based on Federal Emergency Management Agency flood zone map (FEMA, 2016), the site is located in Zone X, which is identified as an “area determined to be outside the 0.2% chance flood plain.” The northern portion of the site is adjacent to an earthen

drainage channel, which is located in Zone A, identified as an "area with no base flood elevations determined."

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 General

Based on our investigation, the proposed construction on the site is feasible from a geotechnical standpoint, provided the recommendations in this report are incorporated into design and construction of the project. Preliminary recommendations for the design and construction of the proposed development are included in the subsequent sections of this report. Additional recommendations could be required based on the actual conditions encountered during earthwork and/or improvement construction.

6.2 Site Preparation

6.2.1 General

Prior to grading, the site should be cleared of existing vegetation, debris, and other deleterious materials. In areas to receive structures or distress-sensitive improvements, surficial eroded, desiccated, burrowed, or otherwise loose or disturbed soils should be removed to the depth of competent material as recommended below in Section 6.2.2. Organic and other deleterious materials not suitable for use as structural backfill should be disposed of offsite at a legal disposal site.

6.2.2 Remedial Grading and Excavations

Due to soft/loose and compressible soils encountered in the upper 10-feet of the site soil profile, and in order to provide uniform structural support, remedial grading will be

required. The building pads should be excavated to a depth of 10-feet below existing grade or five feet below footing bottoms, whichever is greater. The excavations should extend laterally 10-feet beyond foundation footprint limits. The soils exposed at the base of the excavations should be observed by a geotechnical representative of this office to determine their suitability prior to fill placement. Deeper removals (to depth of competent material) may be needed, based on field conditions exposed during excavations. Over-excavation for new pavement areas may be limited to 2-feet below existing or finish grade, whichever is greater.

Temporary, unsurcharged excavations up to three feet deep may be cut vertically. Deeper excavations should be sloped back or shored. Temporary sloped excavations should be cut at a slope of 1:1 (horizontal:vertical) or flatter. Vehicles and storage loads should not be placed within 10 feet of the top of the excavation. Berms are recommended along the tops of slopes to divert runoff water from entering the excavation and eroding the slope faces. Excavations should be stabilized within 30 days of initial excavation. Final slopes should be no steeper than 2:1 (horizontal:vertical). Safety provisions of Cal OSHA and other related statutory agencies should be followed, especially as related to support of adjacent structures.

6.2.3 Preparation of Areas to Receive Fill

Exposed excavation bottoms and subgrade surfaces to receive fill should be scarified to a minimum depth of 8 inches, brought to within +/- 2 percent of optimum moisture content

and compacted to at least 90 percent of the maximum dry density as determined by ASTM D 1557.

6.2.4 Fill Placement and Compaction

Structural fill and backfill should be compacted to at least 90 percent of the maximum dry density (as determined by ASTM D 1557) at moisture content within +/- 2 percent of optimum. The top 12-inches of pavement subgrade should be compacted to at least 95 percent. Compaction equipment should be appropriate for the materials being compacted. The optimum lift thickness for fill soils will be dependent on the type of compaction equipment being utilized. Fill should be placed in uniform horizontal lifts not exceeding 8 inches in loose thickness. Placement and compaction of fill should be performed in general conformance with geotechnical recommendations and local ordinances.

Soils generated from on-site excavations are anticipated to be suitable for use as structural fill, provided they are free from debris and deleterious material, and are dried to moisture content near optimum. Rocks or other soil fragments greater than four inches in size should not be used in the fills. Proposed import material should be evaluated by the project geotechnical engineer prior to being placed at the site. Import materials should consist of non-corrosive, granular material with an expansion index less than 20.

6.2.5 Utility Trenches

Utility trenches should be excavated in accordance with the recommendations presented in Section 6.2.2. Backfill should be placed in loose lifts no greater than eight inches and mechanically compacted to a relative compaction of at least 90 percent of the maximum dry density (per ASTM D 1557) at moisture content within +/- 2 percent of optimum.

6.2.6 Earthwork Shrinkage Factor

Estimates of shrinkage are based on comparison of the soil material in its existing condition, as encountered in the explorations, to its compacted state. Based on the in situ densities in the borings from the top 10 feet of site soil, and our experience with similar soils, shrinkage is estimated to be up to 10 percent for soil compacted to at least 90 percent of the maximum dry density. This estimate is provided for preliminary quantity estimates only. Variations in actual shrinkage/bulking factors should be expected.

6.3 Foundations and Slab Recommendations

6.3.1 General

Foundations and slabs for the proposed structures should be designed in accordance with structural considerations and the following minimum preliminary geotechnical recommendations. Foundations are expected to be supported in properly compacted fill. These recommendations assume that the foundation soils will have low potential for expansion, as anticipated.

6.3.2 Shallow Foundations

It is our opinion that the use of isolated and continuous footings will be geotechnically suitable for this project. We recommend that continuous footings be constructed a minimum of 18 inches wide and be founded at least 24 inches below the lowest adjacent rough grade elevation. Dimensions for isolated footings should be a minimum of 24 inches square and founded at least 24 inches below top of slab elevation.

Foundation dimensions should be based on an allowable bearing pressure of 1,500 pounds per square foot (psf) for minimum footing dimensions of one foot in width and one foot in depth. The values may be increased by 20 percent for each additional 12-inches of width or depth to a maximum value of 3,000 psf. The allowable bearing value may be increased by one-third for short-duration loading which includes the effects of wind or seismic forces.

Footing reinforcement within continuous footings should consist of a minimum of four number 4 bars, two located at the top of the footing and two located at the bottom. This minimum reinforcement is due to geotechnical conditions and is not to be used in lieu of that needed for structural considerations. Reinforcement for isolated footings should be determined by the structural engineer.

Resistance to lateral loading may be provided by friction acting at the base of foundations and by passive earth pressure within the natural soils or compacted fill. An allowable coefficient of friction of 0.30 may be used with the dead load forces.

For spread footings in compacted or natural soils the allowable passive earth pressure may be computed as an equivalent fluid having a density of 150 pounds per cubic foot with a maximum earth pressure of 1,500 pounds per square foot. When combining the passive and friction values for calculating the lateral resistance, the passive component shall be reduced by one third.

6.3.3 Settlement of Foundations

We have analyzed settlement potential during construction and for long-term performance. Construction settlement is expected to occur as loads are applied and structures are brought to their operational weight. Long-term settlement is expected to occur over time as a result of compression of wetted or partially saturated soil.

It is anticipated that shallow foundations designed and constructed as recommended will experience total settlement of less than 1 inch and differential static settlement of less than 1/2 inch over a distance of 30 feet or more.

6.3.4 Concrete Slabs-On-Grade

Concrete slabs-on-grade should be designed for the anticipated loading. Lightly-loaded concrete slabs should measure a minimum of 5 inches thick and be reinforced with a minimum of number 3 reinforcing bars placed on 18-inch centers, each way at mid-slab height. Floor slabs should be underlain by 4 inches of coarse clean sand or crushed stone. An uncorrected modulus of subgrade reaction of 100 pci may be used for elastic design. Concrete slabs subjected to heavier loads may require thicker slab sections and/or

increased reinforcement as per the project structural engineer. The correct placement of the reinforcement in the slab is vital for satisfactory performance under normal conditions.

In areas to receive moisture-sensitive floor coverings or used to store moisture-sensitive materials, a polyethylene or visqueen moisture vapor retarder (15-mil or thicker) should be placed beneath the slab. A two-inch layer of coarse clean sand or crushed stone should underlie the moisture vapor retarder.

It is recommended that a water-cement ratio of 0.5 or less be used for concrete, and that the slab be moist-cured for at least five days in accordance with methods recommended by the American Concrete Institute. On-site quality control should be used to confirm the design conditions.

6.3.5 Pipe Bedding and Thrust Blocks

We recommend that pipes be supported on a minimum of 6 inches of sand, gravel, or crushed rock. The pipe bedding material should be placed around the pipe, without voids, and to an elevation of at least 12 inches above the top of the pipe. The pipe bedding material should be compacted in accordance with the recommendations in the earthwork section of this report.

Thrust forces may be resisted by thrust blocks and the adjacent soil. Thrust blocks may be designed using a passive resistance in engineered fill equal to the pressure developed by a fluid with a density of 250 pounds per cubic foot (pcf). A friction value of 0.25 may be used between the pipe and adjacent soil.

6.4 Seismic Design Criteria

The seismic ground motion values listed in Table 1 below were derived in accordance with the ASCE 7-16 Standard that is incorporated into the California Building Code, 2019 (effective January 1, 2020). This was accomplished by establishing the Site Class based on the soil properties at the site, and then calculating the site coefficients and parameters using the United States Geological Survey Seismic Design Maps application for the 2019 CBC values. These values are intended for the design of structures to resist the effects of earthquake ground motions. The site coordinates used in the application were 34.07218°N and 117.26344°W. Site Class D was used for the analysis.

TABLE 1
SEISMIC GROUND MOTION VALUES

PARAMETER	VALUE
Site Class	D
Mapped Spectral Response Acceleration Parameter, S_S	2.265g
Mapped Spectral Response Acceleration Parameter, S_1	0.905g
Seismic Coefficient, F_a	1.000
Seismic Coefficient, F_v	Null (refer to ACSE 7-16 Section11.4.8)
MCE Spectral Response Acceleration Parameter, S_{MS}	2.265g
MCE Spectral Response Acceleration Parameter, S_{M1}	Null (refer to ACSE 7-16 Section11.4.8)
Design Spectral Response Acceleration Parameter, S_{DS}	1.510g
Design Spectral Response Acceleration Parameter, S_{D1}	Null (refer to ACSE 7-16 Section11.4.8)
Mapped MCE Geometric Peak Ground Acceleration, PGA_m	1.05g
Seismic Design Category	Null (refer to ACSE 7-16 Section11.4.8)

A site-specific ground motion analysis was not in the current scope of services. Should an analysis be needed, this office may provide upon request.

6.5 Vehicular Pavements

Pavement sections were evaluated using a design 'R' value of 10, correlating to a modulus of subgrade reaction of approximately 100 pci for site subgrade soil. The laboratory determined 'R' values for site soil were 14 and 18. The pavement section recommendations are based on the assumption that the subgrade soil (the top 12-inches minimum) will be compacted to a minimum of 95 percent of the maximum dry density (per ASTM D 1557).

If concrete pavement is used, it should have a minimum modulus of rupture (flexural strength) of 600 psi. We estimate that a 4,500 psi 28-day compressive strength concrete would generally provide the minimum required flexural strength; however, other mix designs could also meet the requirements. As such, we recommend that the contractor submit the proposed mix design with necessary documentation to offer a proper level of confidence in the proposed concrete materials. Recommended concrete pavement sections are presented below in Table 2.

TABLE 2

PORTLAND CEMENT CONCRETE (PCC) PAVEMENT SECTION

Traffic Area	Assumed Traffic Index	Design Modulus of Subgrade Reaction (pci)	PCC Thickness (inches)
Auto Parking Areas	5.0	100	7.0
Truck Drive Lanes	6.0	100	8.0

An unreinforced pavement with the minimum thickness indicated above should generally be constructed with maximum joint spacing of 24 times the pavement thickness, in both directions, and in nearly square patterns. As an alternative, the concrete pavement could be constructed with typical minimal reinforcement consisting of #4 bars at 18 inches, on-center, both ways, at or above mid-slab height and with proper concrete cover.

Recommended asphalt concrete pavement sections are presented below in Table 3.

TABLE 3

ASPHALT CONCRETE (AC) PAVEMENT SECTIONS

Traffic Area	Assumed Traffic Index	Design 'R' Value	AC Thickness (inches)	Aggregate Base Thickness* (inches)
Auto Parking Areas	5.0	10	3.0	9.0
Truck Drive Lanes	6.0	10	3.5	11.5

* Minimum R Value of 78.

In addition, it is recommended that pavement areas conform to the following criteria:

- Placement and construction of the recommended pavement section should be performed in accordance with the Standard Specifications for Public Works Construction (Greenbook, latest edition).
- Aggregate base should conform to the specification for Caltrans Class 2 Aggregate Base (Caltrans, 2015) or Greenbook Crushed Aggregate Base.
- Pavement sections are prepared assuming that periodic maintenance will be done, including sealing of cracks and other measures.

6.6 Retaining Walls

For the design of walls where the surface of the backfill is level, it may be assumed that the on-site soils will exert an active lateral pressure equal to that developed by a fluid with a density of 45 pounds per cubic foot (pcf). The active pressure should be used for walls free to yield at the top at least 0.2 percent of the wall height. For walls restrained at the top so that such movement is not permitted, a pressure corresponding to an equivalent fluid density of 65 pcf should be used, based on at-rest soil conditions. These pressures should be increased by 20 pcf for walls retaining soils inclined at 2:1 (horizontal:vertical).

Retaining walls over six feet high should be designed for earthquake forces. Lateral pressures on cantilever retaining walls (yielding walls) due to earthquake motions may be calculated based on work by Seed and Whitman (1970). The total lateral thrust against a properly drained and backfilled cantilever retaining wall above the groundwater level can be expressed as:

$$P_{AE} = P_A + \Delta P_{AE}$$

For non-yielding (or "restrained') walls, the total lateral thrust may be similarly calculated based on work by Wood (1973):

$$P_{KE} = P_K + \Delta P_{KE}$$

Where:

P_A = Static Active Thrust

P_K = Static Restrained Wall Thrust

ΔP_{AE} = Dynamic Active Thrust Increment = $(3/8)\ k_h\ \gamma H^2$

ΔP_{KE} = Dynamic Restrained Thrust Increment = $k_h\ \gamma H^2$

k_h = 2/3 Peak Ground Acceleration =2/3 (PGA_M) = 0.70g

H = Total Height of the Wall

γ = Total Unit Weight of Soil $\approx$ 135 pounds per cubic foot

The increment of dynamic thrust in both cases should be distributed as an inverted triangle, with a resultant located at 0.6H above the bottom of the wall. Recommendations for waterproofing the walls to reduce moisture infiltration should be provided by the project architect or structural engineer.

We recommend that walls be backfilled with soil having an expansion index of 20 or less with less than 30 percent passing the #200 sieve. The backfill area should include the zone defined by a 1:1 sloping plane, extended back from the base of the wall footing. Wall backfill should be compacted to at least 90 percent relative compaction, based on ASTM D 1557. Backfill should not be placed until walls have achieved adequate structural strength. Heavy compaction equipment, which could cause distress to walls, should not be used. The recommended lateral earth pressures presented herein assume that drainage will be provided behind the walls to prevent the accumulation of hydrostatic pressures. A backdrain system (similar to that shown on Figure 4) should be provided to reduce the potential for the accumulation of hydrostatic pressures.

6.7 Corrosive Soils

Sulfate-containing solutions or soil can have a deleterious effect on the in-service performance of concrete. In order to evaluate the foundation environment, a representative sample of site soil was laboratory tested for pH, resistivity, soluble sulfate and chloride. The results of the tests are

summarized in Table 4.

TABLE 4
SUMMARY OF CHEMICAL ANALYSES

Sample Location	pH	Resistivity (ohm-cm)	Sulfate (mg/kg)	Chloride (mg/kg)
B-4 @ 1-4 ft.	9.1	640	504	62
B-11 @ 1-3 ft.	8.6	20,400	5.7	4.9
B-12 @ 5-9 ft.	8.6	1,160	358	53

Based on ACI 318-14 Building Code and Commentary, the onsite soil tested is a sulfate exposure class of S0, which is considered low and injurious sulfate attack is not a concern. We recommend concrete containing Type II cement be used. A three-inch concrete cover over reinforcing steel is recommended for concrete in contact with the soil.

Based on the results of the resistivity tests, site soil appears to be *severely corrosive to corrosive* to ferrous metals. We recommend plastic pipes be used. CTE does not practice in the field of corrosion engineering. Therefore, a corrosion engineer could be consulted to determine the appropriate protection for metallic improvements in contact with site soils.

6.8 Exterior Flatwork

Exterior concrete flatwork should have a minimum thickness of four inches (unless otherwise specified by the project architect) and be underlain by four inches of compacted aggregate base. To reduce the potential for distress to exterior flatwork caused by minor settlement of foundation soils, we recommend that such flatwork be installed with crack-control joints at appropriate

spacing as recommended by the structural engineer. Flatwork, such as sidewalks, and architectural features, should be installed with crack control joints. The upper six inches of subgrade should be prepared in accordance with the earthwork recommendations provided herein. Positive drainage should be established and maintained adjacent to flatwork as per the recommendations of the project civil engineer of record.

6.9 Drainage

Positive drainage at a slope of 2 percent or more should be established for a minimum distance of five feet away from structures and improvements, and as recommended by the project civil engineer of record. To facilitate this, the proper use of construction elements such as roof drains, downspouts, earthen and/or concrete swales, sloped external slabs-on-grade, and subdrains may be employed. The project civil engineer should thoroughly evaluate the on-site drainage and make provisions as necessary to keep surface water from entering structural areas.

Slabs and planted areas immediately adjacent to the appurtenant structures should slope away from the structures to mitigate pooling of water and should drain to a safe point of collection. Planter boxes adjacent to buildings should have concrete bottoms and drainage away from the buildings. Joints in slabs and swales should be maintained sealed with an appropriate joint compound. Drainage devices shall be provided as specified by the Building Code and grading ordinances.

6.10 Percolation Test Results

Percolation tests were conducted for use in on-site storm water low impact development BMP design, using bore-hole methods. Tests were conducted in proposed infiltration areas at locations and depths indicated by the civil designer. Testing was conducted in accordance with local BMP guidelines (CDM Smith, 2013). Stabilized percolation rates were converted to infiltration rates using the Porchet method. Percolation test results are presented in Table 5.

TABLE 5
PERCOLATION TEST RESULTS

Test No.	Depth of Test (feet bgs)	Soil Description	Tested Infiltration Rate (in/hr)
P-1A	5	Silty Clay	0.10
P-1B	5	Clay	0.03
P-1C	5	Silty Clay	0.09
P-2A	5	Clay	0.04
P-2B	5	Clay	0.03
P-3A	5	Fine Silty Sand	2.6
P-3B	5	Fine Silty Sand to Sandy Silt	2.1
P-3C	5	Sandy Silt	1.4
P-4A	5	Sand with Silt	3.9
P-4B	5	Fine Silty Sand	2.5
P-4C	5	Sand with Silt	3.1
P-5A	5	Silty Clay	0.07
P-5B	5	Clay	0.02
P-5C	5	Clay	0.03

Infiltration rates can be affected by such factors as build-up of silt, debris, degree of soil saturation, and compaction of soil from grading. Accordingly, an appropriate factor of safety should be applied to the slowest tested rate from each BMP area to accommodate such factors as subsurface inconsistencies, potential compaction from grading, and potential silting of the soils. In accordance with the referenced BMP guidelines, a minimum factor of safety of 2 shall be applied to the tested infiltration rates to produce a design infiltration rate.

Due to the variation in infiltration rates across the site, additional testing may be necessary if proposed BMP locations change from the locations tested.

6.11 Plan Review

CTE should be authorized to review project grading and foundation plans and the project specifications before the start of earthwork to identify potential conflicts with the recommendations contained in this report.

6.12 On-Site Construction Reviews

On-site construction reviews of grading, drainage and foundation work should be performed by a field representative of this office to ascertain compliance with the recommendations of this report. Final grading and/or construction should be observed and a written observation form or report issued by this office stating that the work meets the recommendations of this report. As a minimum, on-site construction reviews are to be performed at the following stages of work:

1. Observation of exposed temporary cut slope surface before excavation is more than five feet deep, and again after final excavation before workman enter or placement of any steel.

2. As called for in Section 6.2 and Appendix D herein, for on-site construction reviews and testing of grading work and of compacted earth backfilling behind retaining walls.

3. Observation of footing excavations prior to placement of form boards or reinforcing steel.

4. During proof rolling of subgrade before placement of base material or reinforcing steel, and again following the placement of base material prior to placing reinforcing steel.

5. Observation following installation of sub-drain perforated pipes before covering with gravel or filter material, and again after placing the filter material over perforated pipes before covering with backfill.

6. Following installation of drainage structures and completion of all work.

This office should be given a minimum 48 hours prior notice for any required on-site observations.

7.0 LIMITATIONS

The recommendations provided in this report are based on the anticipated construction and the subsurface conditions found in our explorations. The interpolated subsurface conditions should be checked in the field during construction to document that conditions are as anticipated.

Recommendations provided in this report are based on the understanding and assumption that CTE will provide the observation and testing services for the project. Earthwork should be observed and tested to document that grading activity has been performed according to the recommendations contained within this report. The project geotechnical engineer should evaluate footing excavations prior to placement of reinforcing steel.

The field evaluation, laboratory testing and geotechnical analysis presented in this report have been conducted according to current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No other warranty, expressed or implied, is made regarding the conclusions, recommendations and opinions expressed in this report. Variations may exist and conditions not observed or described in this report may be encountered during construction.

This report is applicable to the site for a period of three years after the issue date provided the project remains as described herein. Modifications to the standard of practice and regulatory requirements may necessitate an update to this report prior to the three years from issue.

Our conclusions and recommendations are based on an analysis of the observed conditions. If conditions different from those described in this report are encountered, our office should be notified and additional recommendations, if required, will be provided upon request. CTE should review project specifications for earthwork, foundation, and shoring-related activities prior to the solicitation of construction bids.

We appreciate this opportunity to be of service on this project. If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully submitted,
CONSTRUCTION TESTING & ENGINEERING, INC.

Dharmesh Amin, MS, PE, GE
Principal Engineer

Vincent J. Patula, CEG
Senior Engineering Geologist

Robert L. Ellerbusch
Project Geologist

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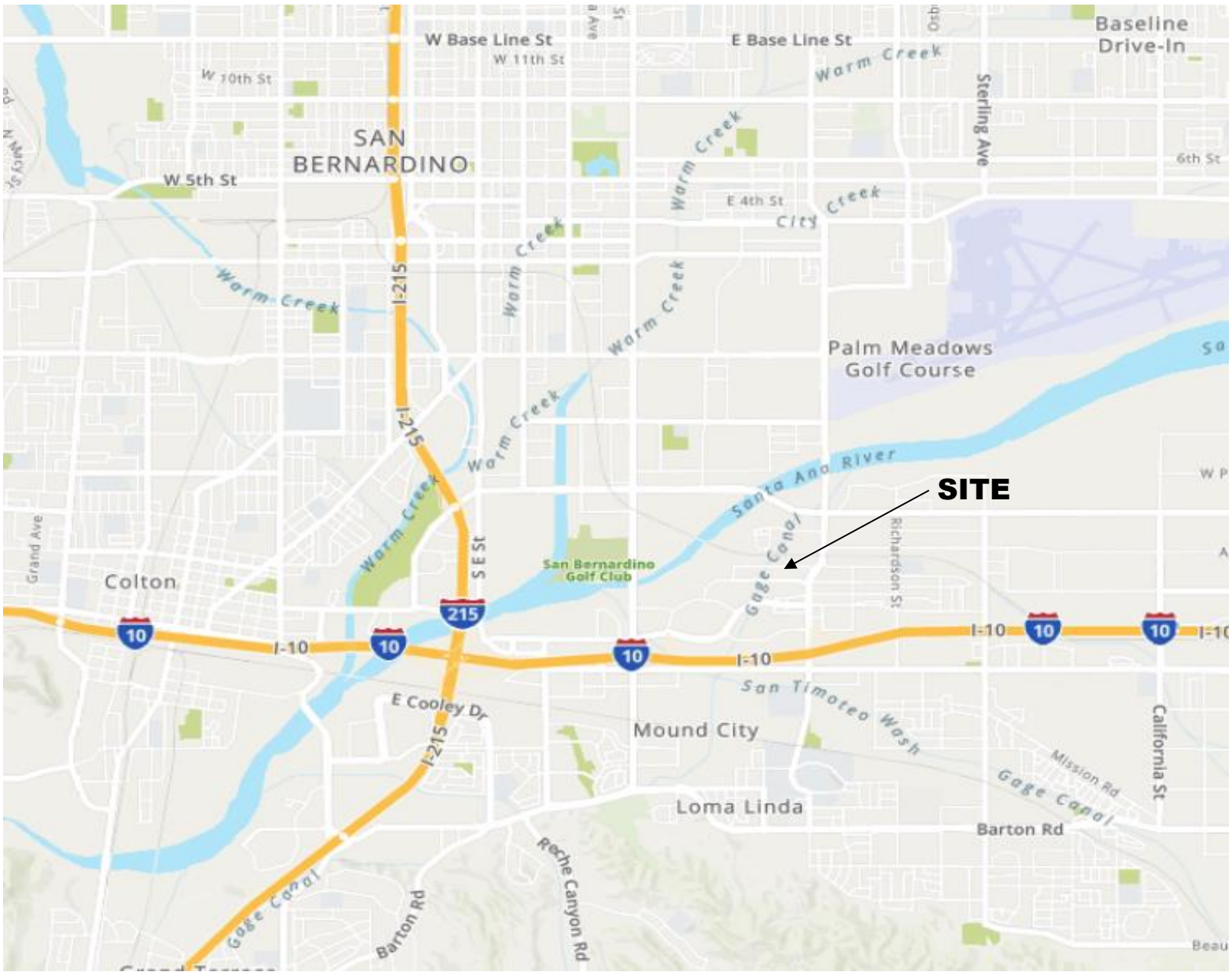

NO SCALE

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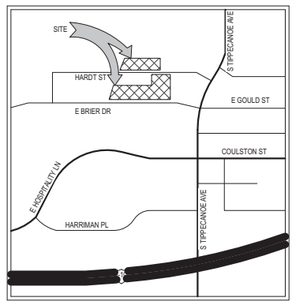
SITE LOCATION MAP

INDUSTRIAL BUILDINGS - HARDT & BRIER STREETS

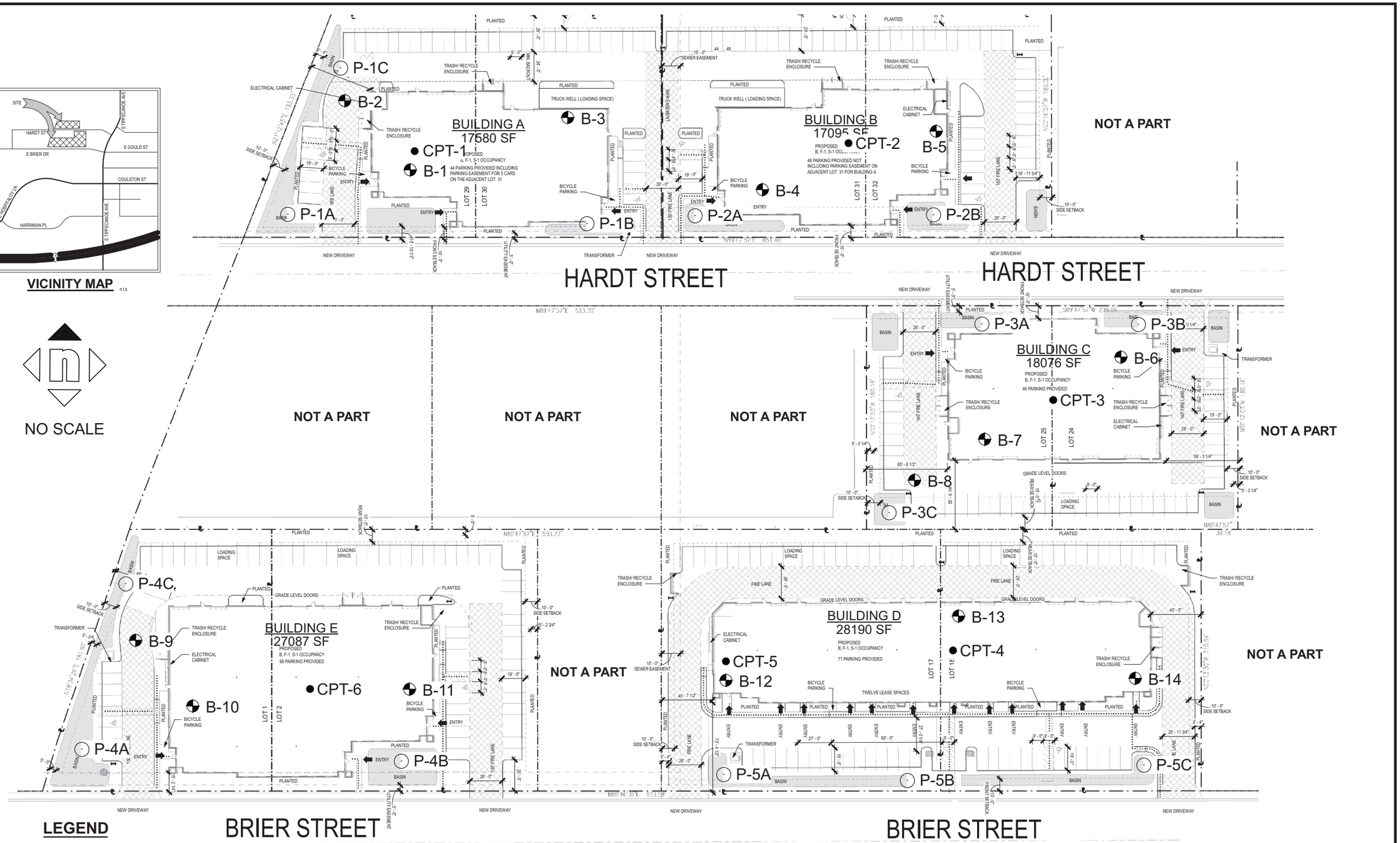
SAN BERNARDINO, CALIFORNIA

Job No.	Date	Figure
40-3959G	JUNE 2021	1



VICINITY MAP n.t.s.

NO SCALE



LEGEND

B-1	APPROXIMATE BORING LOCATION
CPT-1	APPROXIMATE CPT LOCATION
P-1A	APPROXIMATE PERCOLATION TEST LOCATION

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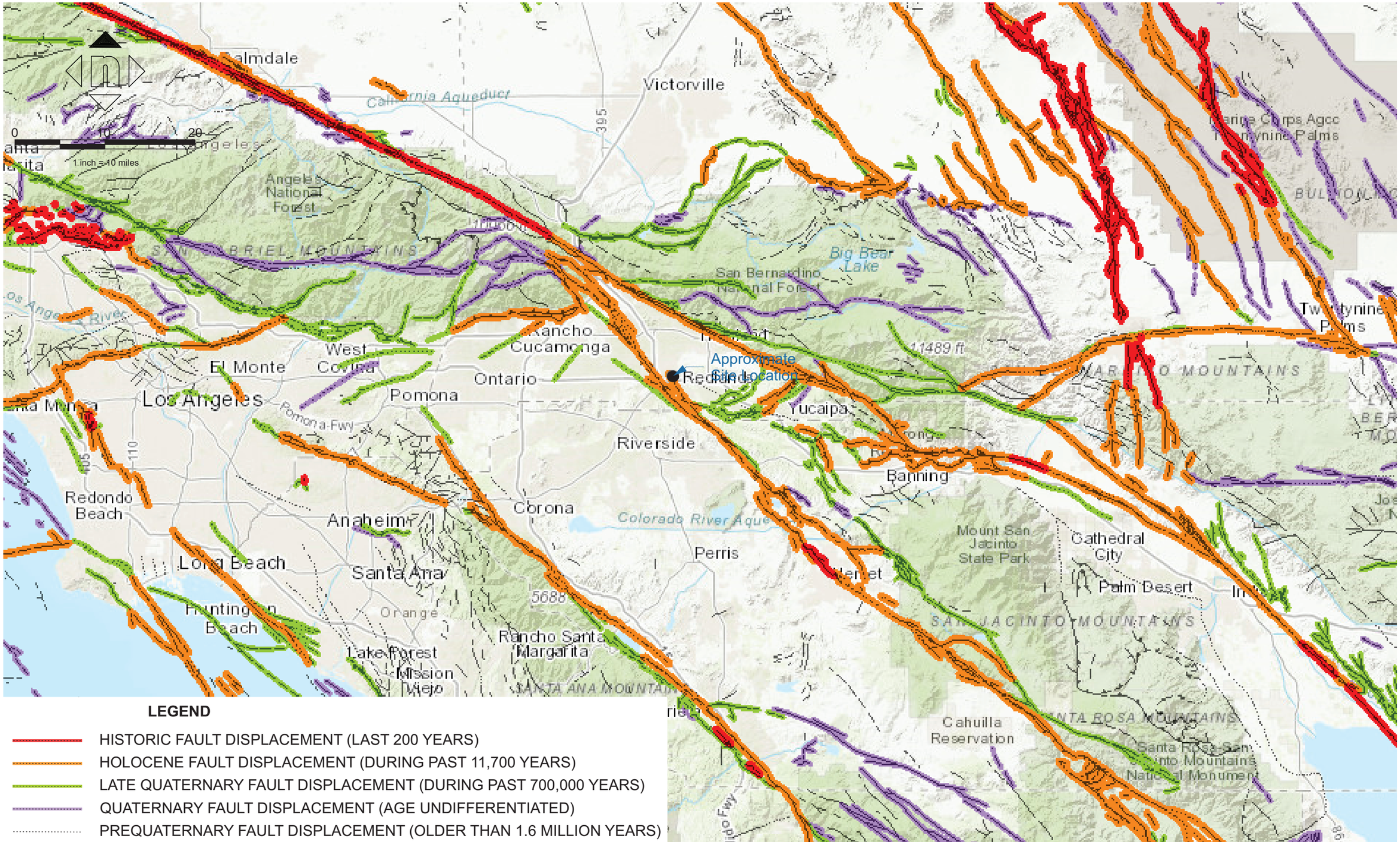
EXPLORATION AND TEST LOCATION MAP

Industrial Buildings
Hardt & Brier Streets
San Bernardino, California

CTE JOB NO:	40-3959G
DATE:	Jun 2021
FIGURE:	2



NOTES: CALIFORNIA GEOLOGICAL SURVEY, ONLINE FAULT ACTIVITY MAP, https://maps.conservation.ca.gov/cgs/fam/.

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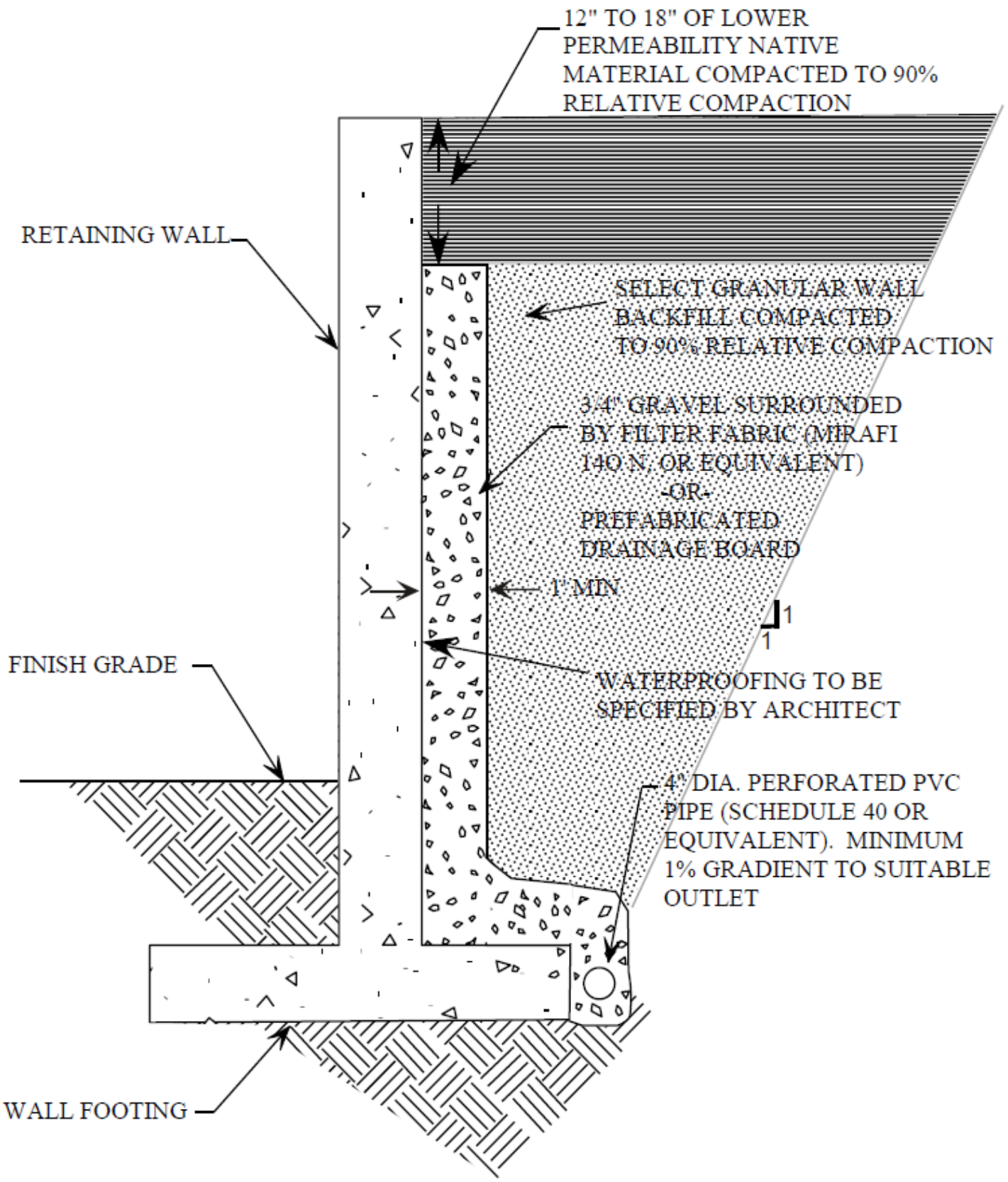
REGIONAL FAULT ACTIVITY MAP
PROPOSED INDUSTRIAL BUILDINGS
HARDT STREET & BRIER STREET
SAN BERNARDINO, CALIFORNIA

CTE JOB NO:	40-3959G
SCALE:	1 inch = 10 miles
DATE: Jun 2021	FIGURE: 3



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RETAINING WALL DRAIN DETAIL

INDUSTRIAL BUILDINGS - HARDT & BRIER STREETS

SAN BERNARDINO, CALIFORNIA

Job No.	Date	Figure
40-3959G	June 2021	4

APPENDIX A

FIELD EXPLORATION METHODS AND EXPLORATION LOGS

APPENDIX A

FIELD EXPLORATION METHODS AND EXPLORATION LOGS

Soil Boring Methods

Relatively "Undisturbed" Soil Samples

Relatively "undisturbed" soil samples were collected using a modified California-drive sampler (2.4-inch inside diameter, 3-inch outside diameter) lined with sample rings. Drive sampling was conducted in general accordance with ASTM D-3550. The steel sampler was driven into the bottom of the borehole with successive drops of a 140-pound weight falling 30-inches. Blow counts (N) required for sampler penetration are shown on the boring logs in the column "Blows/Foot." The soil was retained in brass rings (2.4 inches in diameter, 1.0 inch in height) and sealed in waterproof plastic containers for shipment to the CTE, South, Inc. geotechnical laboratory.

Disturbed Soil Sampling

Bulk soil samples were collected for laboratory analysis using two methods. Standard Penetration Tests (SPT) were performed according to ASTM D-1586 at selected depths in the borings using a standard (1.4-inches inside diameter, 2-inches outside diameter) split-barrel sampler. The steel sampler was driven into the bottom of the borehole with successive drops of a 140-pound weight falling 30-inches. Blow counts (N) required for sampler penetration are shown on the boring logs in the column "Blows/Foot." Samples collected in this manner were placed in sealed plastic bags. Bulk soil samples of the drill cuttings were also collected in large plastic bags. The disturbed soil samples were returned to the CTE, South, Inc. geotechnical laboratory for analysis.

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DEFINITION OF TERMS

PRIMARY DIVISIONS			SYMBOLS	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	**GRAVELS** MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS < 5% FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS OR GRAVEL SAND MIXTURES, LITTLE OF NO FINES
		GRAVELS WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS < 5% FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	**SILTS AND CLAYS** LIQUID LIMIT IS LESS THAN 50		ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SLIGHTLY PLASTIC CLAYEY SILTS
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, SILTS OR LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTY CLAYS
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

GRAIN SIZES

BOULDERS	COBBLES	GRAVEL		SAND			SILTS AND CLAYS
		COARSE	FINE	COARSE	MEDIUM	FINE	

12" 3" 3/4" 4 10 40 200

CLEAR SQUARE SIEVE OPENING U.S. STANDARD SIEVE SIZE

ADDITIONAL TESTS

(OTHER THAN TEST PIT AND BORING LOG COLUMN HEADINGS)

MAX- Maximum Dry Density
GS- Grain Size Distribution
SE- Sand Equivalent
EI- Expansion Index
CHM- Sulfate and Chloride Content , pH, Resistivity
COR - Corrosivity
SD- Sample Disturbed

PM- Permeability
SG- Specific Gravity
HA- Hydrometer Analysis
AL- Atterberg Limits
RV- R-Value
CN- Consolidation
CP- Collapse Potential
HC- Hydrocollapse
REM- Remolded

PP- Pocket Penetrometer
WA- Wash Analysis
DS- Direct Shear
UC- Unconfined Compression
MD- Moisture/Density
M- Moisture
SC- Swell Compression
OI- Organic Impurities

FIGURE: BL1

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PROJECT:	DRILLER:	SHEET: of
CTE JOB NO:	DRILL METHOD:	DRILLING DATE:
LOGGED BY:	SAMPLE METHOD:	ELEVATION:

BORING LEGEND

Depth (Feet)	Bulk Sample	Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0									
								Block or Chunk Sample	
								Bulk Sample	
5									
								Standard Penetration Test	
10									
								Modified Split-Barrel Drive Sampler (Cal Sampler)	
15									
								Groundwater Table	
								Soil Type or Classification Change	
20								? — ? — ? — ? — ? — ? — ? —	
								Formation Change [(Approximate boundaries queried (?)]	
						"SM"		Quotes are placed around classifications where the soils exist in situ as bedrock	
25									

FIGURE: BL2

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 2
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	4/30/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-1

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						ML		**Quaternary Younger Alluvium (Qya)**	
								Sandy SILT, moist, dark brown.	
5		☑	4 8 10	112.7	13.4			Sandy SILT, stiff, moist, dark brown.	MD
10		☐	4 5 7		18.6			Sandy SILT, stiff, very moist, dark olive brown.	M
15		☑	7 13 18	108.8	18.5	CL-ML		Sandy Silty CLAY, very stiff, very moist, brown.	DS, MD
20		☐	2 2 4		31.6			Silty CLAY with Sand, medium stiff, very moist, dark olive brown.	M
25									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	2 of 2
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	4/30/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-1 Cont'd.

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
25			2 3 5		33.2	CL-ML		Silty CLAY with Sand, medium stiff, very moist, dark olive brown.	M
								Total Depth 26.5 feet bgs. Groundwater not encountered.	
30									
35									
40									
45									
50									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	4/30/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-2

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						ML		**Quaternary Younger Alluvium (Qya)**	
								Sandy SILT, moist, dark brown.	RV
5			4						
			4					Samdy SILT, stiff, moist, dark brown.	WA (60% fines)
			5		10.1				M
								Total Depth 6.5 feet bgs. Groundwater not encountered.	
10									
15									
20									
25									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	4/30/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-3

Depth (Feet)	Sample Type (Bulk / Driven)	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0					CL		**Quaternary Younger Alluvium (Qya)**	
							Sandy Lean CLAY, moist, dark olive brown.	MAX, EI AL (LL=28, PI=9) GS (64% fines)
5		1 2 3		14.4			Sandy Lean CLAY, medium stiff, moist dark olive brown.	M
10		3 11 15	108.8	9.3	SC-SM		Silty Clayey SAND, medium dense, moist, gray brown.	MD
15		2 5 6		18.8	ML		Sandy SILT, very moist, dark olive brown.	WA (50% fines) M
20		4 6 10	96.7	26.9	CL		Lean CLAY with Sand, stiff, very moist, dark grayish brown.	MD
							Total Depth 21.5 feet bgs. Groundwater not encountered.	
25								

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	4/30/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-4

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						CL		**Quaternary Younger Alluvium (Qya)**	
								Sandy Lean CLAY, moist, dark brown.	CHM
5			8 11 11	121.2	12.1	SC-SM		Silty Clayey SAND, fine, medium dense, moist, dark brown.	MD
10			4 4 6		26.5	ML		SILT with Sand, stiff, very moist, olive.	M
15			10 8 10	98.1	11.9	CL		Lean CLAY, very moist, gray	
						SM		Silty SAND, medium dense, moist, grayish brown.	MD
20			4 6 11		14.1	SP-SM		grades to Poorly-graded SAND with Silt, medium dense, moist, gray.	M
								Total Depth 21.5 feet bgs. Groundwater not encountered.	
25									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 2
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	4/30/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-5

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						CL-ML		**Quaternary Younger Alluvium (Qya)**	
								Sandy Silty CLAY, moist, dark brown.	GS (69% fines) AL (LL=25, PI=6)
5			4 7 9		10.9			Sandy Silty CLAY, stiff, moist, olive brown, slightly porous.	M
10			3 3 4		11.7			Sandy Silty CLAY, medium stiff, moist, olive brown.	WA (51% fines) M
15			3 4 8		23.8	CL		Sandy Lean CLAY, stiff, very moist, gray, lens of fine sand.	WA (63% fines) M
20			3 3 4		32.0			Sandy Lean CLAY, medium stiff, very moist, gray.	AL (LL=47, PI=17) M
25									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	2 of 2
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	4/30/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-5 Cont'd.

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
25			3 3 9		16.7	CL SC		Sandy Lean CLAY Clayey SAND, medium dense, moist, dark grayish brown.	M
						CL			
30			8 8 8		30.3			Lean CLAY with Sand, stiff, very moist, gray, lenses of silt.	WA (79% fines) M
35			4 4 8		30.7			Lean CLAY with Sand, stiff, very moist, gray, lenses of fine sand.	M
40			6 6 10		28.1			Lean CLAY with Sand, stiff, very moist, dark gray.	M
								Total Depth 41.5 feet bgs. Groundwater not encountered.	
45									
50									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	4/30/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-6

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						CL-ML		**Quaternary Younger Alluvium (Qya)**	
								Sandy Silty CLAY, moist, dark brown	GS (62% fines) EI
5			4 10 16	99.3	15.6	ML		Sandy SILT, very stiff, moist, dark olive brown.	MD
10			3 3 6		30.4	CL		Lean CLAY with Sand, stiff, very moist, dark olive brown.	M
15			4 19 38	112.3	3.8	SP-SM		Poorly-graded SAND with Silt, very dense, damp, gray.	MD
20			6 10 13		1.9			Poorly-graded SAND, medium dense, damp, gray.	M
								Total Depth 21.5 feet bgs. Groundwater not encountered.	
25									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	4/30/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-7

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						SM		**Quaternary Younger Alluvium (Qya)** Silty SAND, fine, moist, dark brown.	
5		■	3 6 7		11.4			Silty SAND, fine, medium dense, moist, dark olive brown.	M
10		■	5 8 10	86.2	21.6	ML		Sandy SILT, stiff, very moist, olive brown, clay lenses.	DS, MD
15		■	8 10 12		2.7	SP-SM		Poorly-graded SAND with Silt, medium dense, damp, grayish brown.	M
20		■	19 38 50	111.8	4.1			Poorly-graded SAND with Silt, very dense, damp, gray.	MD
								Total Depth 21.5 feet bgs. Groundwater not encountered.	
25									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	4/30/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-8

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						SM		**Quaternary Younger Alluvium (Qya)** Silty SAND, fine, moist, dark brown.	
						ML			
5			4 5 7		17.4			Sandy SILT, stiff, moist, dark brown.	WA (69% fines) M
								Total Depth 6.5 feet bgs. Groundwater not encountered.	
10									
15									
20									
25									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-9

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						SM		**Quaternary Younger Alluvium (Qya)** Silty SAND, damp, brown, scattered gravel and cobbles.	
5		▯	10 6 5			SP-SM		Poorly-graded SAND with Silt, medium dense, damp, brown.	
								Total Depth 6.5 feet bgs. Groundwater not encountered.	
10									
15									
20									
25									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-10

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						SM		**Quaternary Younger Alluvium (Qya)** Silty SAND, damp, brown, scattered gravel and cobbles.	
						SP-SM		Poorly-graded SAND with Silt, damp, brown.	
5			4 5 5	92.9	28.2	CL		Lean CLAY with Sand, medium stiff, very moist, dark grayish brown.	MD
10			3 4 4		19.0			Sandy CLAY, medium stiff, very moist, dark olive-brown.	WA (52% fines) M
15			5 11 17	108.9	14.7	SC		Clayey SAND, medium dense, moist, olive brown.	MD
20			5 4 7		13.1			Clayey SAND, medium dense, moist, olive brown.	M
25						CL-ML			

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	2 of 2
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-10 Cont'd.

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
25		✓	7 12 13	106.7	17.1	CL-ML		Silty CLAY with Sand, stiff, moist, grayish brown.	MD
								Total Depth 26.5 feet bgs. Groundwater not encountered.	
30									
35									
40									
45									
50									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 3
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-11

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0	X					SM		**Quaternary Younger Alluvium (Qya)** Silty SAND, damp, brown, scattered gravel.	CHM
						SP-SM		Sand with Silt, damp, olive brown.	
5			2 3 4		17.4	CL		Sandy Lean CLAY, medium stiff, moist, dark olive brown.	WA (65% fines) M
						SC			
10			7 16 20	119.4	11.4			Clayey SAND, fine, dense, moist, dark olive brown.	MD
15			3 4 7		13.0	CL		Sandy Silty CLAY, stiff, moist, grayish brown.	WA (50% fines) M
20			8 17 15			SC-SM		Silty Clayey SAND, medium dense, moist, olive brown.	
25						CL			

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	2 of 3
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-11 Cont'd.

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
25			3 4 6		29.6	CL		Lean CLAY with Sand, stiff, very moist, grayish brown.	WA (80% fines) M
30			7 19 14			SC		grades to Clayey SAND, medium dense, moist, dark olive brown.	
35			9 12 15		15.4	SP-SC		Poorly-graded SAND with Clay, medium dense, moist, olive brown.	WA (12% fines) M
40			4 7 16		22.0	ML		Sandy SILT, stiff, very moist, dark gray. (sand in sampler tip)	M
						SP		Poorly-graded SAND, damp, gray.	
45			4 6 12		25.4	CL		Lean CLAY with Sand, very stiff, very moist, gray, interbedded 3" layer of sand.	M
50						SC			

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	3 of 3
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-11 Cont'd.

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
50			15			SC-SM		Silty Clayey SAND, medium dense, very moist, grayish brown.	
			12			SP		SAND, moist, light gray	
			13		22.7	SC-SM		Silty Clayey SAND, medium dense, very moist, grayish brown.	M
								Total Depth 51.5 feet bgs. Groundwater not encountered.	
55									
60									
65									
70									
75									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-12

Depth (Feet)	Sample Bulk	Sample Driven	Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0							SM		**Quaternary Younger Alluvium (Qya)** Silty SAND, moist, olive brown	
							SC			
5				11 17 21	100.0	15.5			Clayey SAND, dense, moist, dark olive brown.	CHM MD
10				4 4 5		30.5	ML		SILT with Sand, stiff, very moist, olive brown.	WA (77% fines) M
15				11 15 20	112.6	14.9	SC-SM		Silty Clayey SAND, dense, moist, olive brown.	MD
20				3 6 11		6.3	SP-SM		Poorly-graded SAND with Silt, medium dense, moist, grayish brown.	M
25							CL			

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	2 of 2
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-12 Cont'd.

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
25			5 7 8		25.9	CL		Sandy Lean CLAY, stiff, very moist, grayish brown.	M
								Total Depth 26.5 feet bgs. Groundwater not encountered.	
30									
35									
40									
45									
50									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-13

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						SM		**Quaternary Younger Alluvium (Qya)** Silty SAND, damp, dark brown, trace gravel and cobbles.	
						CL-ML			
5			4 7 8		17.3			Silty CLAY with Sand, stiff, very moist, olive brown.	WA (75% fines) M
10			6 16 18	115.5	5.4	SM		Silty SAND, dense, moist, dark brown.	MD
15			4 5 7		32.6	CL-ML		Silty CLAY with Sand, stiff, very moist, dark olive brown.	M
20			6 12 21	106.8	19.8	CL		Lean CLAY, stiff, very moist, gray.	
						SC		Clayey SAND, fine, dense, very moist.	MD
25						CL			

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	2 of 2
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-13 Cont'd.

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
25			2 4 8		24.3	CL		Lean CLAY with Sand, stiff, very moist, grayish brown.	M
								Total Depth 26.5 feet bgs. Groundwater not encountered.	
30									
35									
40									
45									
50									

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PROJECT:	Industrial Buildings - Hardt & Brier Streets	DRILLER:	2R Drilling CME 75	SHEET:	1 of 1
CTE JOB NO:	40-3959G	DRILL METHOD:	8" Hollow Stem Auger	DRILLING DATE:	5/3/2021
LOGGED BY:	RE	SAMPLE METHOD:	140 lb/30" Autohammer	ELEVATION:	~

BORING: B-14

Depth (Feet)	Bulk Sample	Driven Type	Blows/6-inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						CL		**Quaternary Younger Alluvium (Qya)**	
								Lean CLAY with Sand, moist, dark olive brown.	RV GS (70% fines) AL (LL=27, PI=8)
5			9 14 15	107.2	11.1	SC-SM		Silty Clayey SAND, medium dense, moist, dark brown.	MD
10			2 3 6		16.4	CL-ML		Sandy Silty CLAY, stiff, moist, dark grayish brown.	M
15			9 23 24	113.7	14.4	SC		Clayey SAND, fine, dense, moist, dary grayish brown.	MD
20			4 7 8		5.6	ML SM		SILT with Sand Silty SAND, medium dense, moist, dark grayish brown.	M
								Total Depth 21.5 feet bgs. Groundwater not encountered.	
25									

SUMMARY

OF

CONE PENETRATION TEST DATA

Project:

Industrial Building at Hardt & Brier
San Bernardino, CA
April 29, 2021

Prepared for:

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CTE (Construction Testing & Eng.)
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Prepared by:

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- CPT Classification/Soil Behavior Chart
- Summary of Shear Wave Velocities
- Pore Pressure Dissipation Graphs
- CPT Data Files (sent via email)

SUMMARY
OF
CONE PENETRATION TEST DATA

1. INTRODUCTION

This report presents the results of a Cone Penetration Test (CPT) program carried out for the Industrial Buildings at Hardt & Brier project located in San Bernardino, California. The work was performed by Kehoe Testing & Engineering (KTE) on April 29, 2021. The scope of work was performed as directed by CTE (Construction Testing & Eng.) personnel.

2. SUMMARY OF FIELD WORK

The fieldwork consisted of performing CPT soundings at six locations to determine the soil lithology. A summary is provided in **TABLE 2.1**.

LOCATION	DEPTH OF CPT (ft)	COMMENTS/NOTES:
CPT-1	50	
CPT-2	50	
CPT-3	50	
CPT-4	50	
CPT-5	50	
CPT-6	50	

TABLE 2.1 - Summary of CPT Soundings

3. FIELD EQUIPMENT & PROCEDURES

The CPT soundings were carried out by **KTE** using an integrated electronic cone system manufactured by Vertek. The CPT soundings were performed in accordance with ASTM standards (D5778). The cone penetrometers were pushed using a 30-ton CPT rig. The cone used during the program was a 15 cm^2 cone and recorded the following parameters at approximately 2.5 cm depth intervals:

- Cone Resistance (qc)
- Sleeve Friction (fs)
- Dynamic Pore Pressure (u)
- Inclination
- Penetration Speed
- Pore Pressure Dissipation (at selected depths)

At location CPT-3, shear wave measurements were obtained at approximately 5-foot intervals. The shear wave is generated using an air-actuated hammer, which is located inside the front jack of the CPT rig. The cone has a triaxial geophone, which recorded the shear wave signal generated by the air hammer.

The above parameters were recorded and viewed in real time using a laptop computer. Data is stored at the KTE office for up to 2 years for future analysis and reference. A complete set of baseline readings was taken prior to each sounding to determine temperature shifts and any zero load offsets. Monitoring base line readings ensures that the cone electronics are operating properly.

4. CONE PENETRATION TEST DATA & INTERPRETATION

The Cone Penetration Test data is presented in graphical form in the attached Appendix. These plots were generated using the CPeT-IT program. Penetration depths are referenced to ground surface. The soil behavior type on the CPT plots is derived from the attached CPT SBT plot (Robertson, "Interpretation of Cone Penetration Test…", 2009) and presents major soil lithologic changes. The stratigraphic interpretation is based on relationships between cone resistance (qc), sleeve friction (fs), and penetration pore pressure (u). The friction ratio (Rf), which is sleeve friction divided by cone resistance, is a calculated parameter that is used along with cone resistance to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone resistance and generate excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little (or negative) excess pore water pressures.

The CPT data files have also been provided. These files can be imported in CPeT-IT (software by GeoLogismiki) and other programs to calculate various geotechnical parameters.

It should be noted that it is not always possible to clearly identify a soil type based on qc, fs and u. In these situations, experience, judgement and an assessment of the pore pressure data should be used to infer the soil behavior type.

If you have any questions regarding this information, please do not hesitate to call our office at (714) 901-7270.

Sincerely,

KEHOE TESTING & ENGINEERING

Steven P. Kehoe
President

05/03/21-hh-2855

APPENDIX

Kehoe Testing and Engineering
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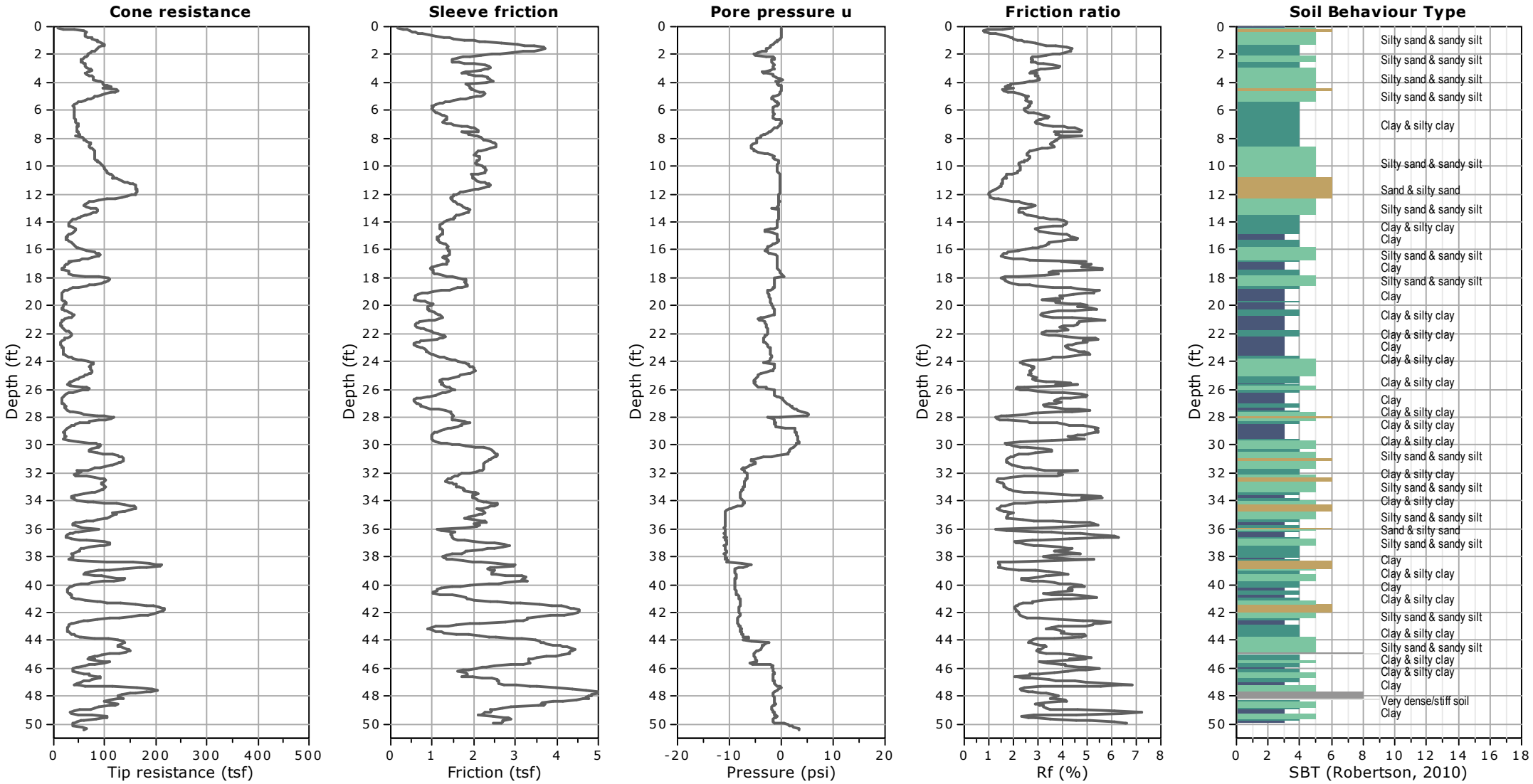
steve@kehoetesting.com
www.kehoetesting.com

Project: **CTE / Industrial Buildings at Hardt & Brier**
Location: **San Bernadino, CA**

CPT-1
Total depth: 50.37 ft, Date: 4/29/2021



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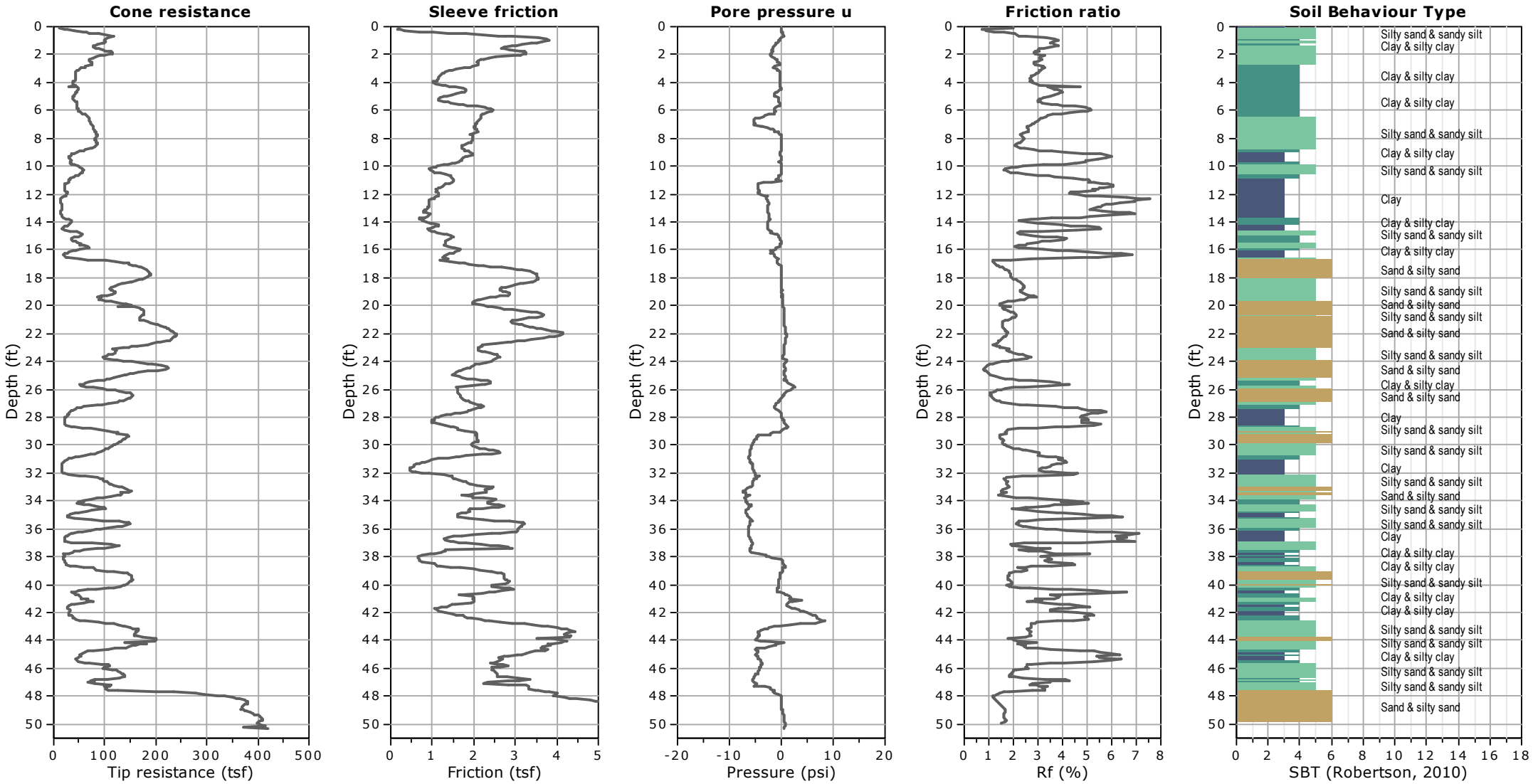
Project: **CTE / Industrial Buildings at Hardt & Brier**
Location: **San Bernadino, CA**

CPT-2
Total depth: 50.30 ft, Date: 4/29/2021



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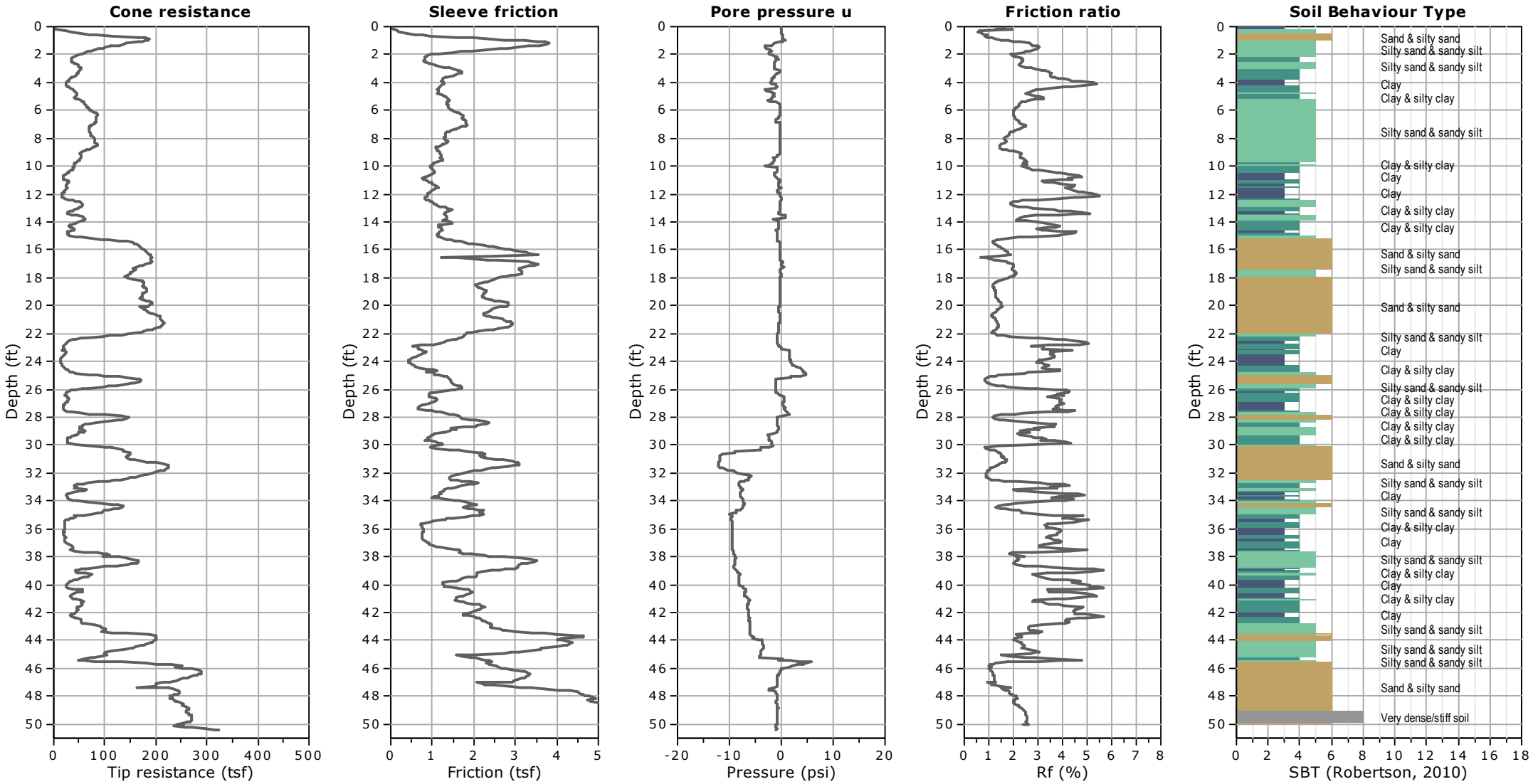
Project: **CTE / Industrial Buildings at Hardt & Brier**
Location: **San Bernadino, CA**

CPT-3
Total depth: 50.44 ft, Date: 4/29/2021



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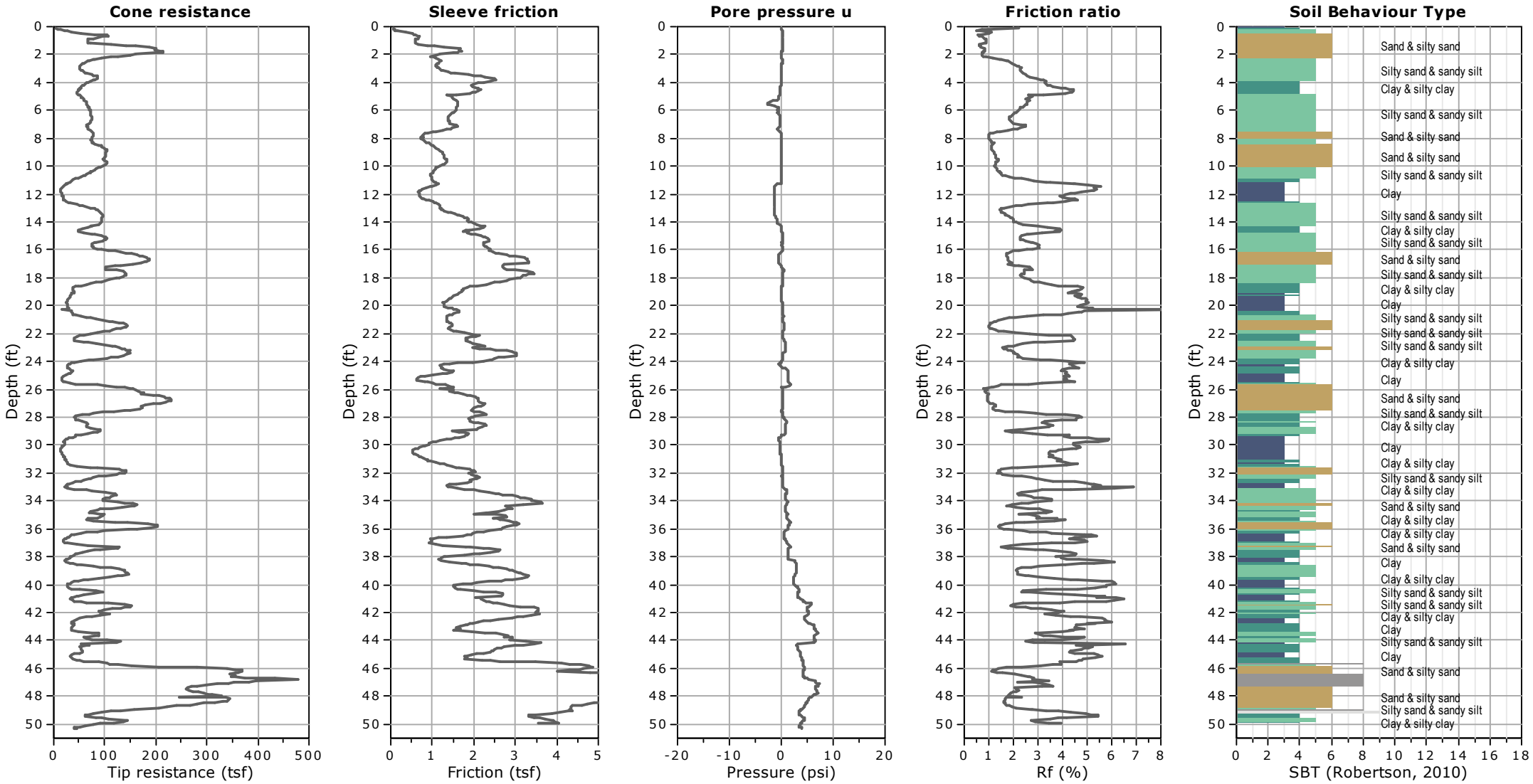
Project: **CTE / Industrial Buildings at Hardt & Brier**
Location: **San Bernadino, CA**

CPT-4
Total depth: 50.33 ft, Date: 4/29/2021



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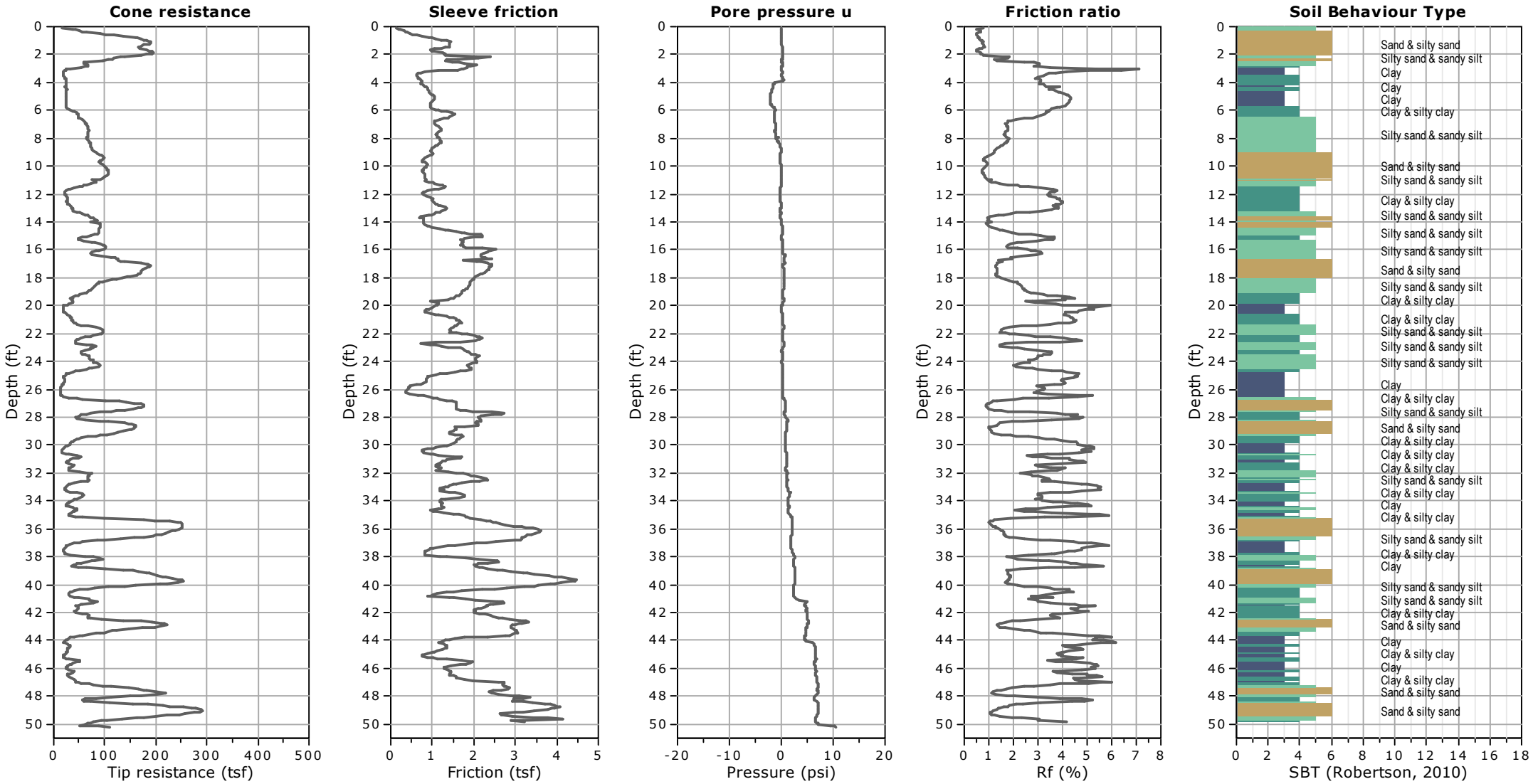
Project: **CTE / Industrial Buildings at Hardt & Brier**
Location: **San Bernadino, CA**

CPT-5
Total depth: 50.22 ft, Date: 4/29/2021



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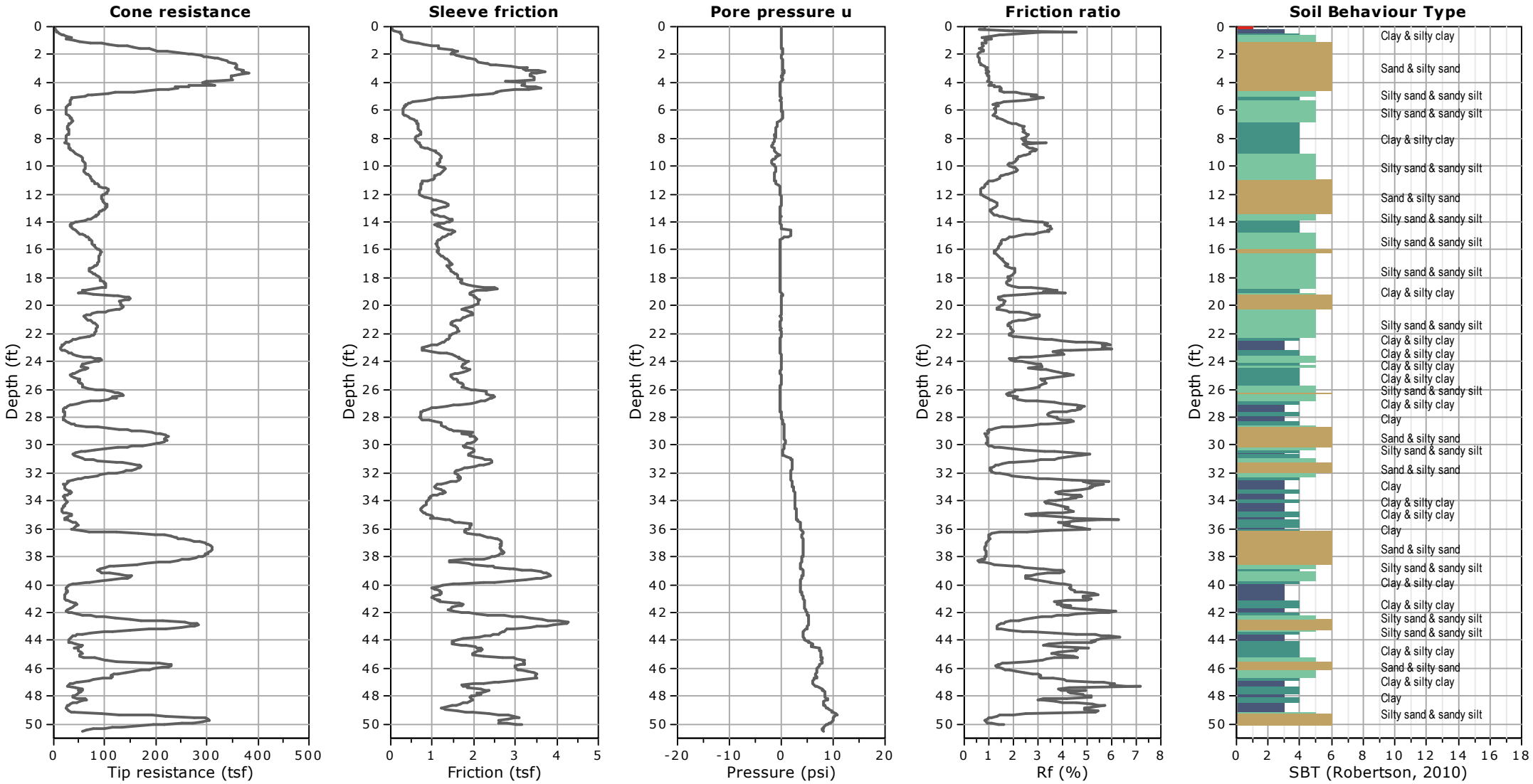
Project: **CTE / Industrial Buildings at Hardt & Brier**
Location: **San Bernadino, CA**

CPT-6
Total depth: 50.48 ft, Date: 4/29/2021



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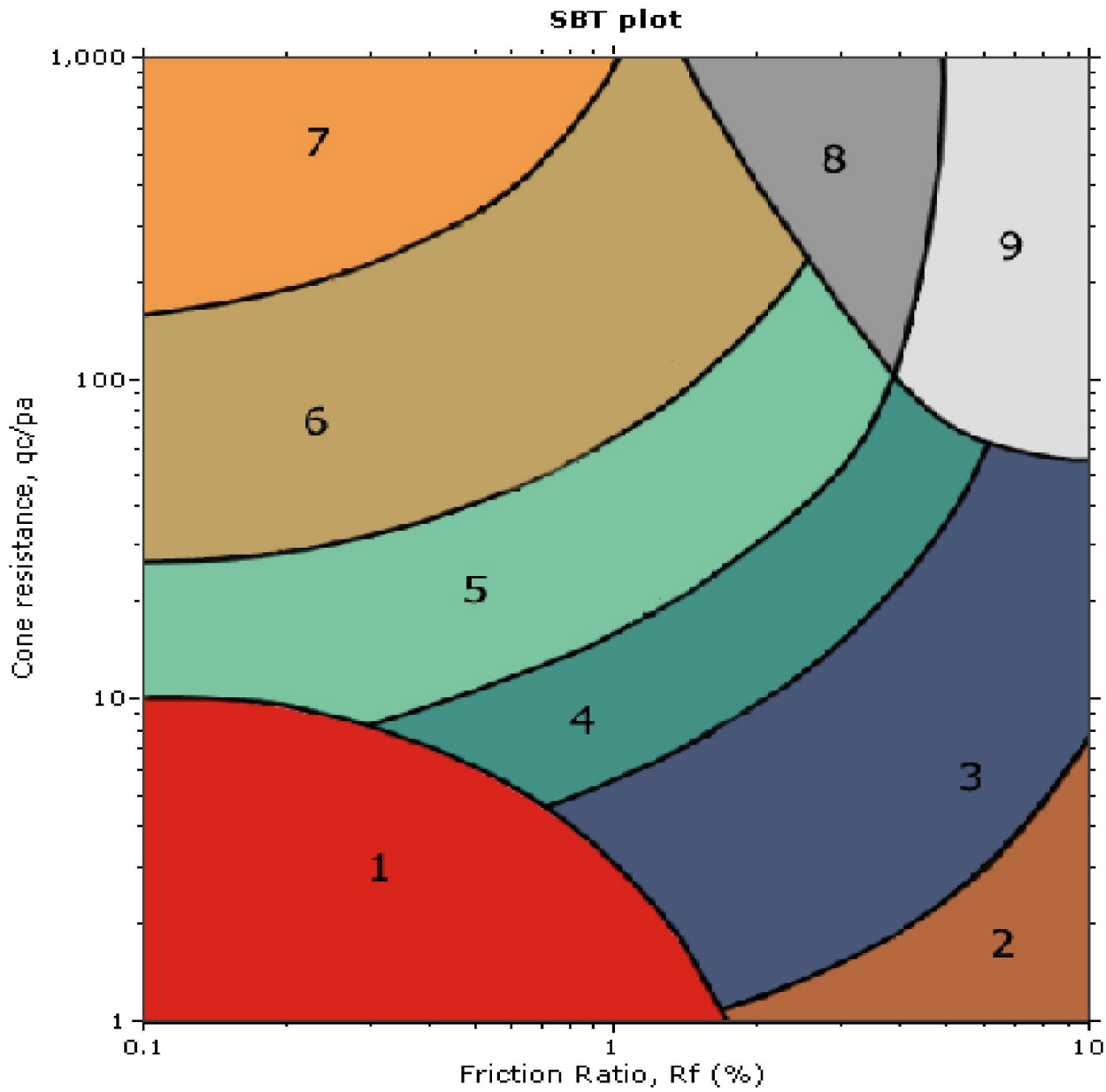


SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained

CTE
Industrial Buildings at Hardt & Brier
San Bernadino, CA

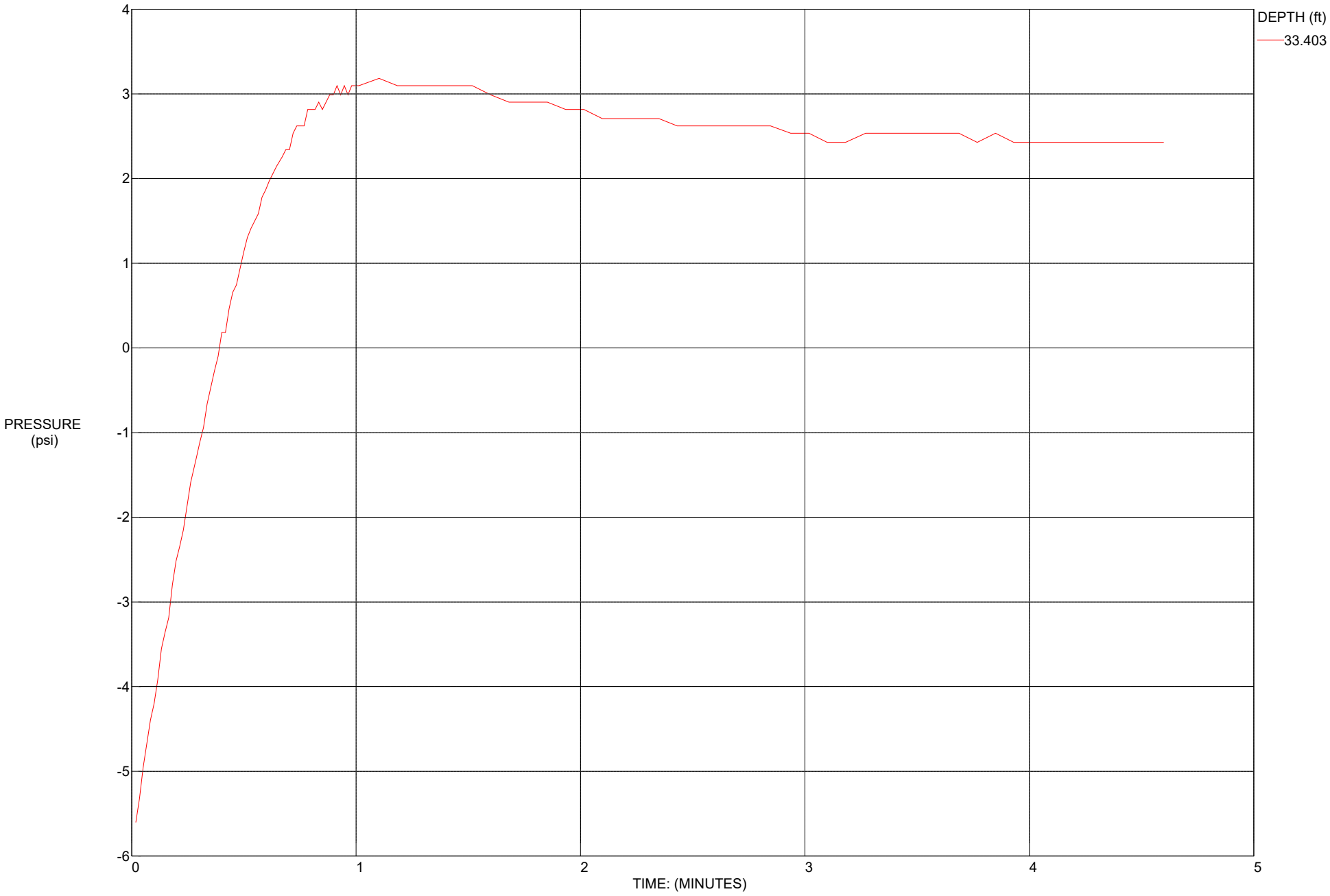
CPT Shear Wave Measurements

Location	Tip Depth (ft)	Geophone Depth (ft)	Travel Distance (ft)	S-Wave Arrival (msec)	S-Wave Velocity from Surface (ft/sec)	Interval S-Wave Velocity (ft/sec)
CPT-3	5.05	4.05	4.52	6.72	672	
	10.07	9.07	9.29	12.72	730	795
	15.06	14.06	14.20	19.04	746	777
	20.08	19.08	19.18	25.06	766	828
	25.00	24.00	24.08	30.82	781	850
	30.35	29.35	29.42	39.16	751	640
	35.01	34.01	34.07	45.16	754	775
	40.12	39.12	39.17	51.80	756	768
	45.21	44.21	44.26	57.92	764	831
	50.43	49.43	49.47	62.20	795	1219

Shear Wave Source Offset - 2 ft

S-Wave Velocity from Surface = Travel Distance/S-Wave Arrival
Interval S-Wave Velocity = (Travel Dist2-Travel Dist1)/(Time2-Time1)

TEST ID: CPT-2


DEPTH (ft)
33.403
PRESSURE
(psi)
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0
1
2
3
4
5
TIME: (MINUTES)

APPENDIX B

LABORATORY METHODS AND RESULTS

APPENDIX B
LABORATORY METHODS AND RESULTS

Laboratory tests were performed on selected soil samples to evaluate their engineering properties. Tests were performed following test methods of the American Society for Testing and Materials (ASTM), or other accepted standards. The following presents a brief description of the various test methods used. Laboratory results are presented in the following section of this Appendix.

Atterberg Limits
The liquid limit and plasticity index were determined on selected soil samples in accordance with ASTM D4318.

Chemical Analysis
Soil materials were collected and tested for Sulfate and Chloride content, pH, and Resistivity in accordance with Caltrans test methods.

Classification
Soils were classified visually according to the Unified Soil Classification System. Visual classifications were supplemented by laboratory testing of selected samples according to ASTM D 2487.

Consolidation/Swell
To assess their compressibility and volume change behavior when loaded and wetted, relatively undisturbed samples of representative samples were subject to consolidation/swell tests in accordance with ASTM D 2435.

Direct Shear
Direct shear tests were performed on relatively undisturbed samples. Direct shear testing was performed in accordance with ASTM D 3080. The samples were inundated during shearing to represent adverse field conditions.

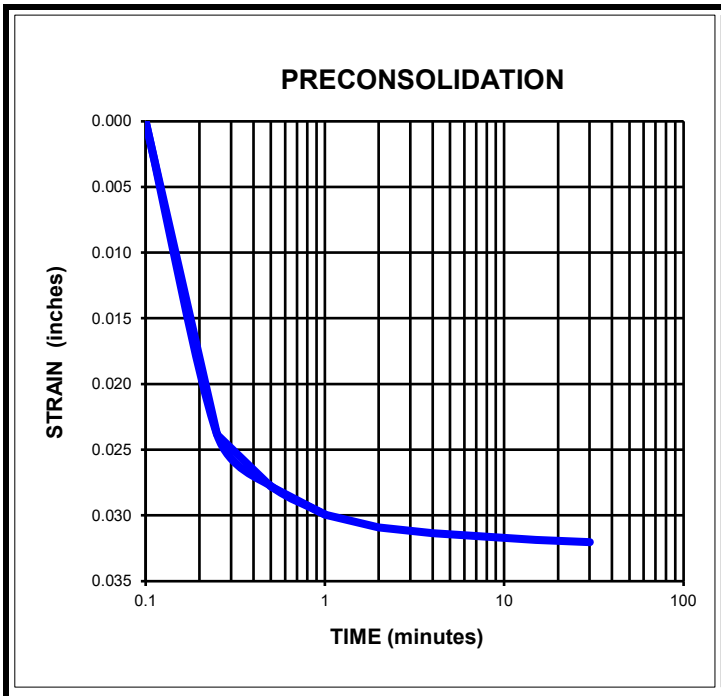
Expansion Index
Expansion Index testing was performed on selected samples of the on-site soil according to ASTM D 4829.

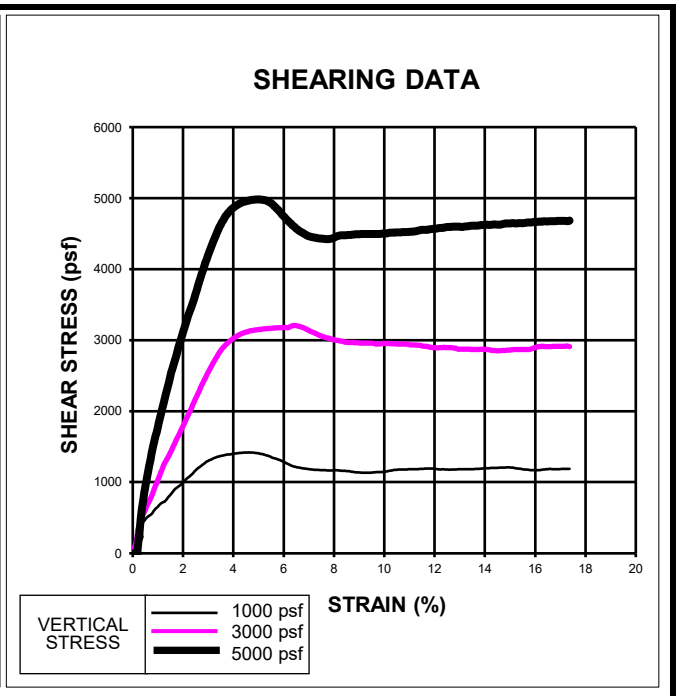
In-Place Moisture/Density
The in-place moisture content and dry unit weight of selected relatively undisturbed samples in accordance with ASTM D 2216 and D 2937, respectively.

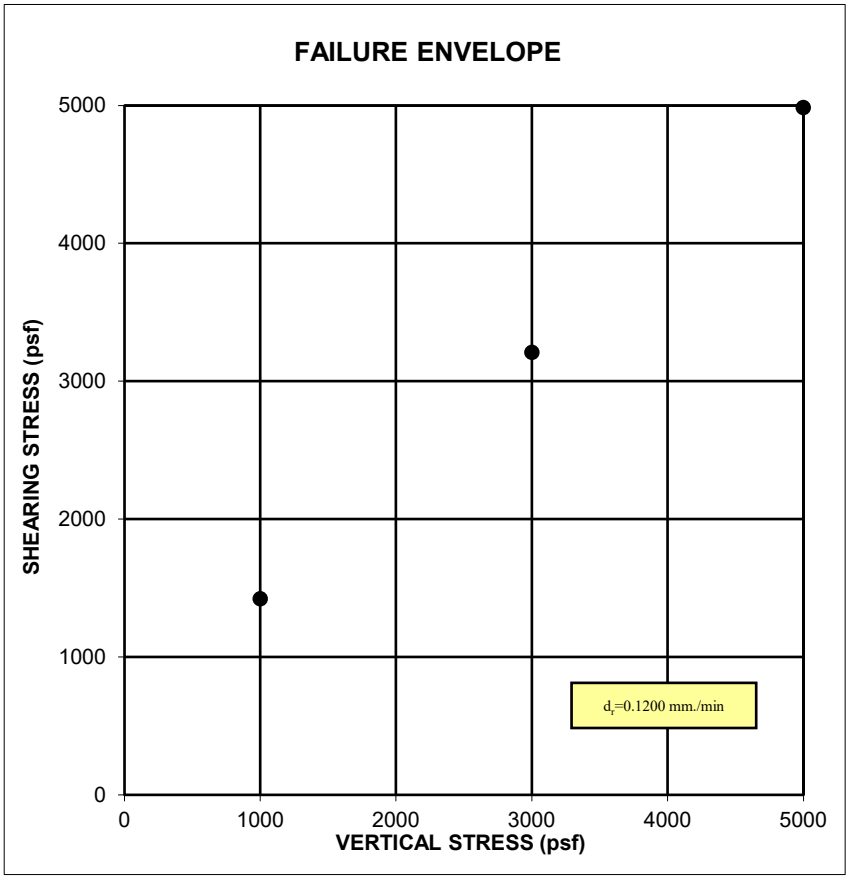
Moisture-Density Relations (Modified Proctor)
Laboratory maximum dry density and optimum moisture content were evaluated according to ASTM D 1557.

Resistance "R" Value
The resistance "R"-value was measured by the CTM 301. The graphically determined "R" value at an exudation pressure of 300 pounds per square inch is the value used for pavement section calculation.

Sieve Analysis (Gradation)
Sieve analyses and 200 washes were performed on selected representative samples according to ASTM C 136 and D 1140 to determine grain-size distribution.







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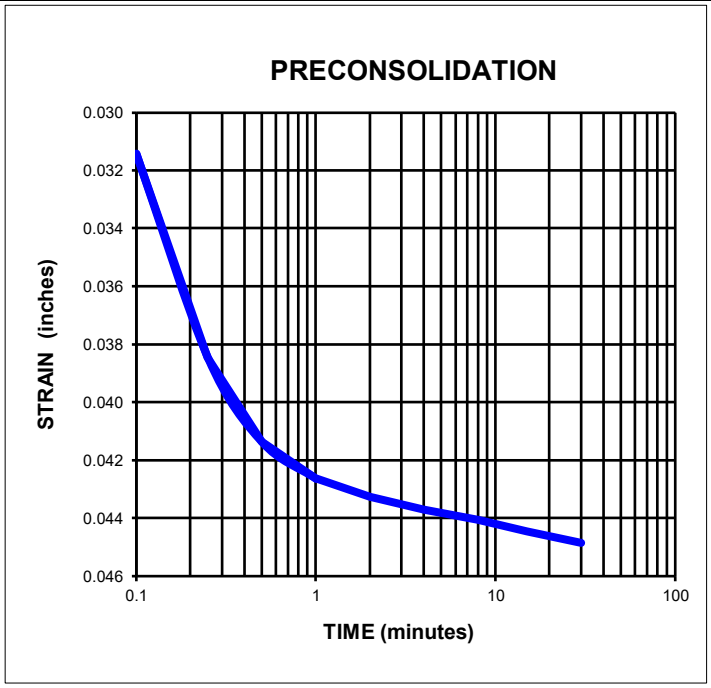
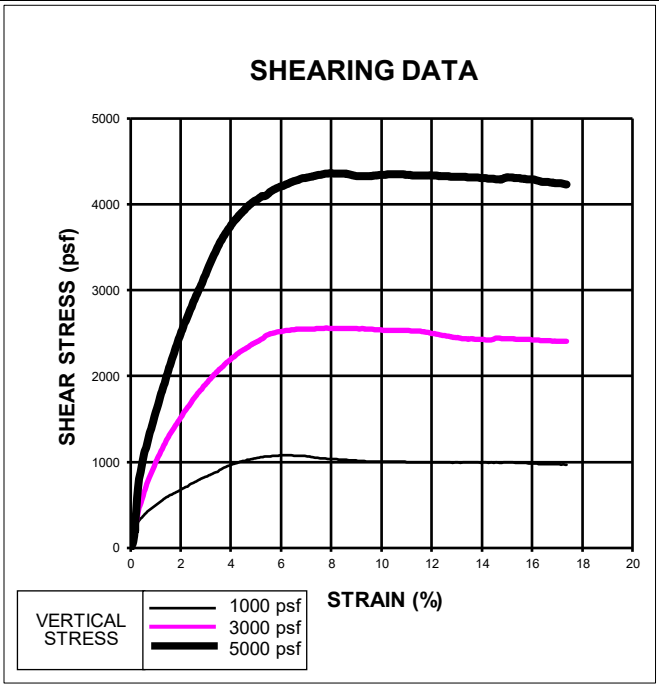
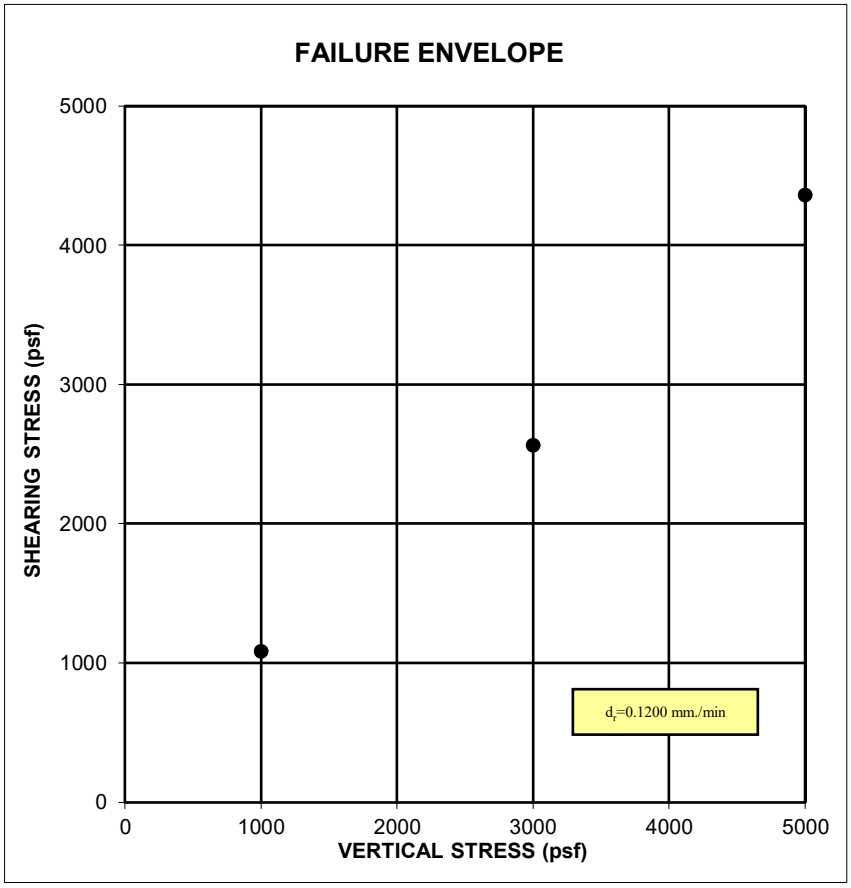
SHEAR STRENGTH TEST - ASTM D3080

Job Name:	Industial Buildings - Hardt & Brier			Initial Dry Density (pcf):	108.8
Project Number:	40-3959G	Sample Date:	5/3/2021	Initial Moisture (%):	18.5
Lab Number:	32166	Test Date:	5/24/2021	Final Moisture (%):	20.2
Sample Location:	B-1 @ 15'	Tested by:	JH	Cohesion:	530 psf
Sample Description:	Grayish Brown CL-ML			Angle Of Friction:	41.7



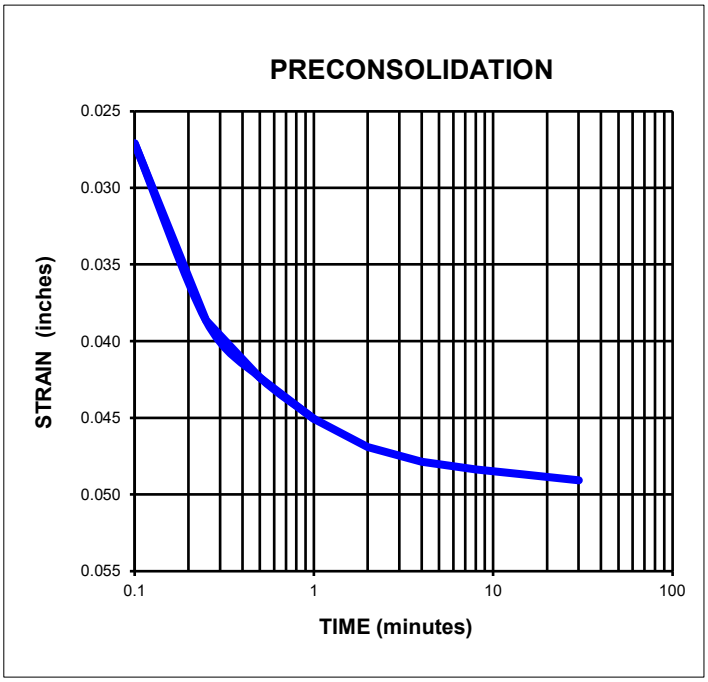


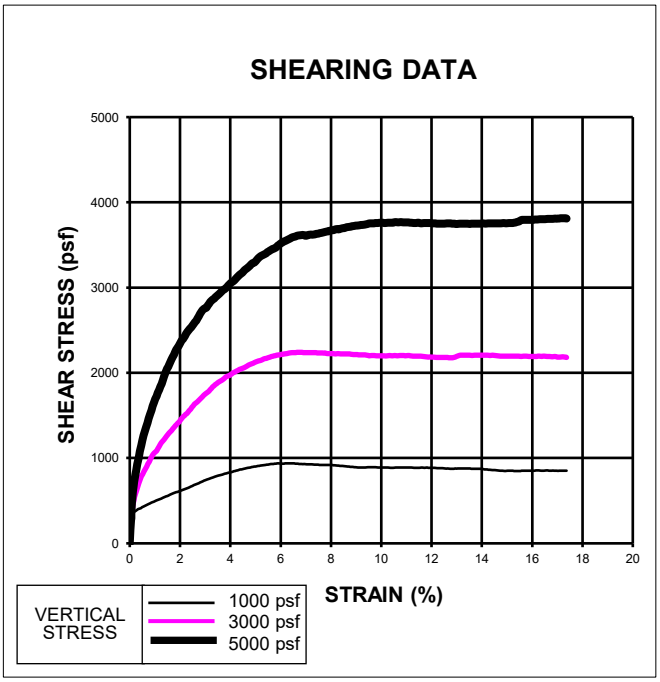


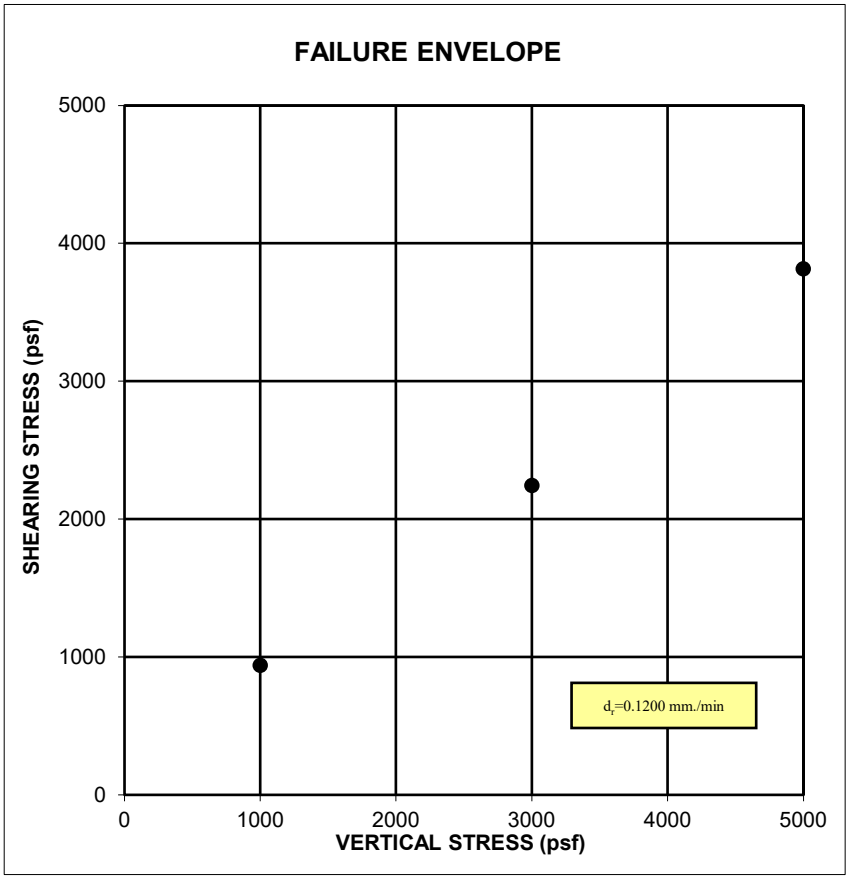
A Universal Engineering Sciences Company

SHEAR STRENGTH TEST - ASTM D3080

Job Name:	Industrial Buildings - Hardt & Brier			Initial Dry Density (pcf):	99.3
Project Number:	40-3959G	Sample Date:	5/3/2021	Initial Moisture (%):	15.6
Lab Number:	32166	Test Date:	5/25/2021	Final Moisture (%):	26.6
Sample Location:	B-6 @ 5'	Tested by:	JH	Cohesion:	200 psf
Sample Description:	Gray ML			Angle Of Friction:	39.4



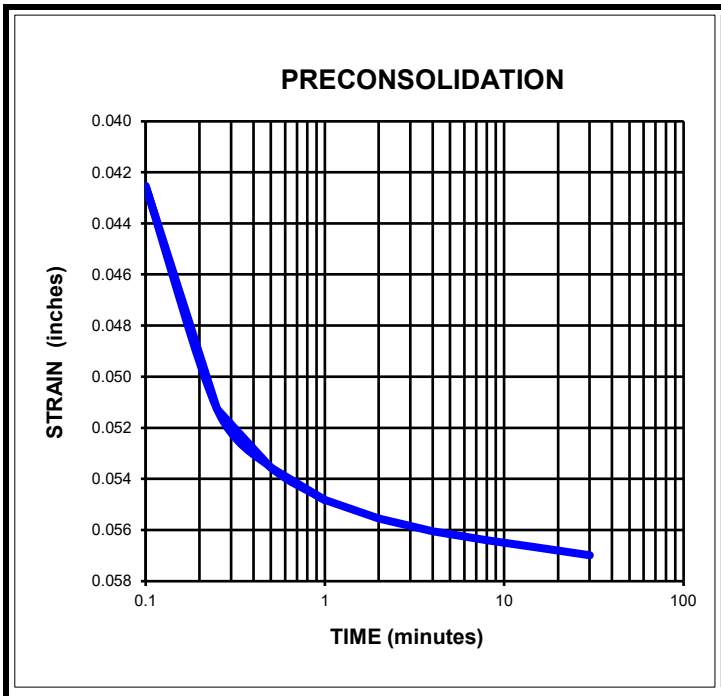


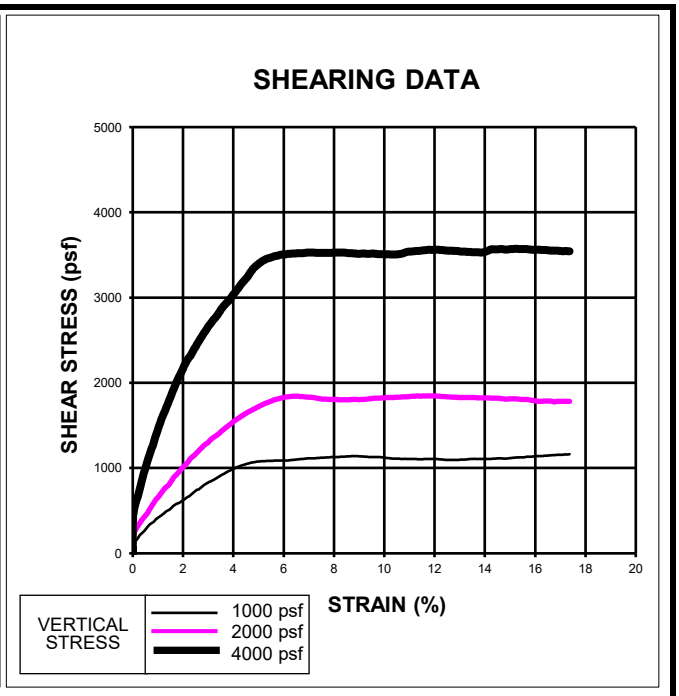


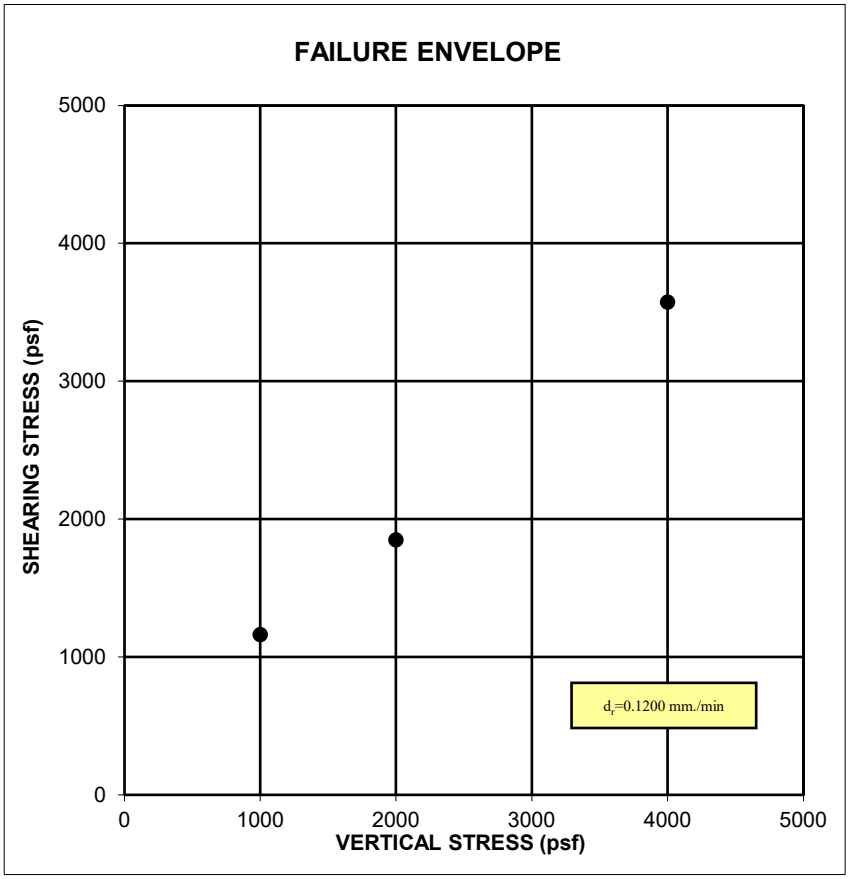
A Universal Engineering Sciences Company

SHEAR STRENGTH TEST - ASTM D3080

Job Name:	Industrial Buildings - Hardt & Brier			Initial Dry Density (pcf):	86.2
Project Number:	40-3959G	Sample Date:	5/3/2021	Initial Moisture (%):	21.6
Lab Number:	32166	Test Date:	5/26/2021	Final Moisture (%):	39.8
Sample Location:	B-7 @ 10'	Tested by:	JH	Cohesion:	170 psf
Sample Description:	Light Gray (ML)			Angle Of Friction:	35.7



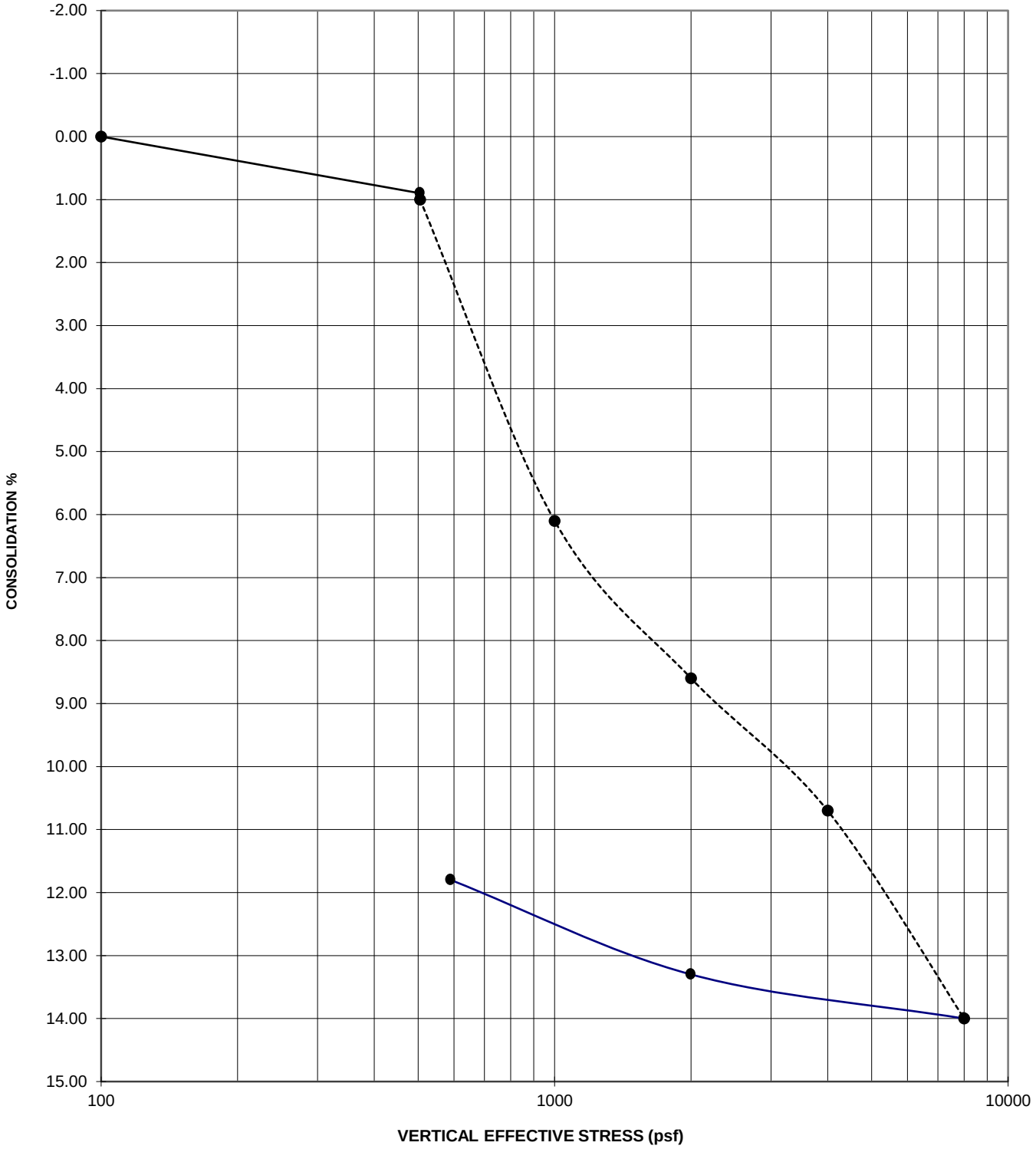




A Universal Engineering Sciences Company

SHEAR STRENGTH TEST - ASTM D3080

Job Name:	Industrial Buildings - Hardt & Brier			Initial Dry Density (pcf):	107.2
Project Number:	40-3959G	Sample Date:	5/3/2021	Initial Moisture (%):	11.1
Lab Number:	32166	Test Date:	5/27/2021	Final Moisture (%):	19.7
Sample Location:	B-14 @ 5'	Tested by:	JH	Cohesion:	290 psf
Sample Description:	Brownish Gray (SC)			Angle Of Friction:	39.1

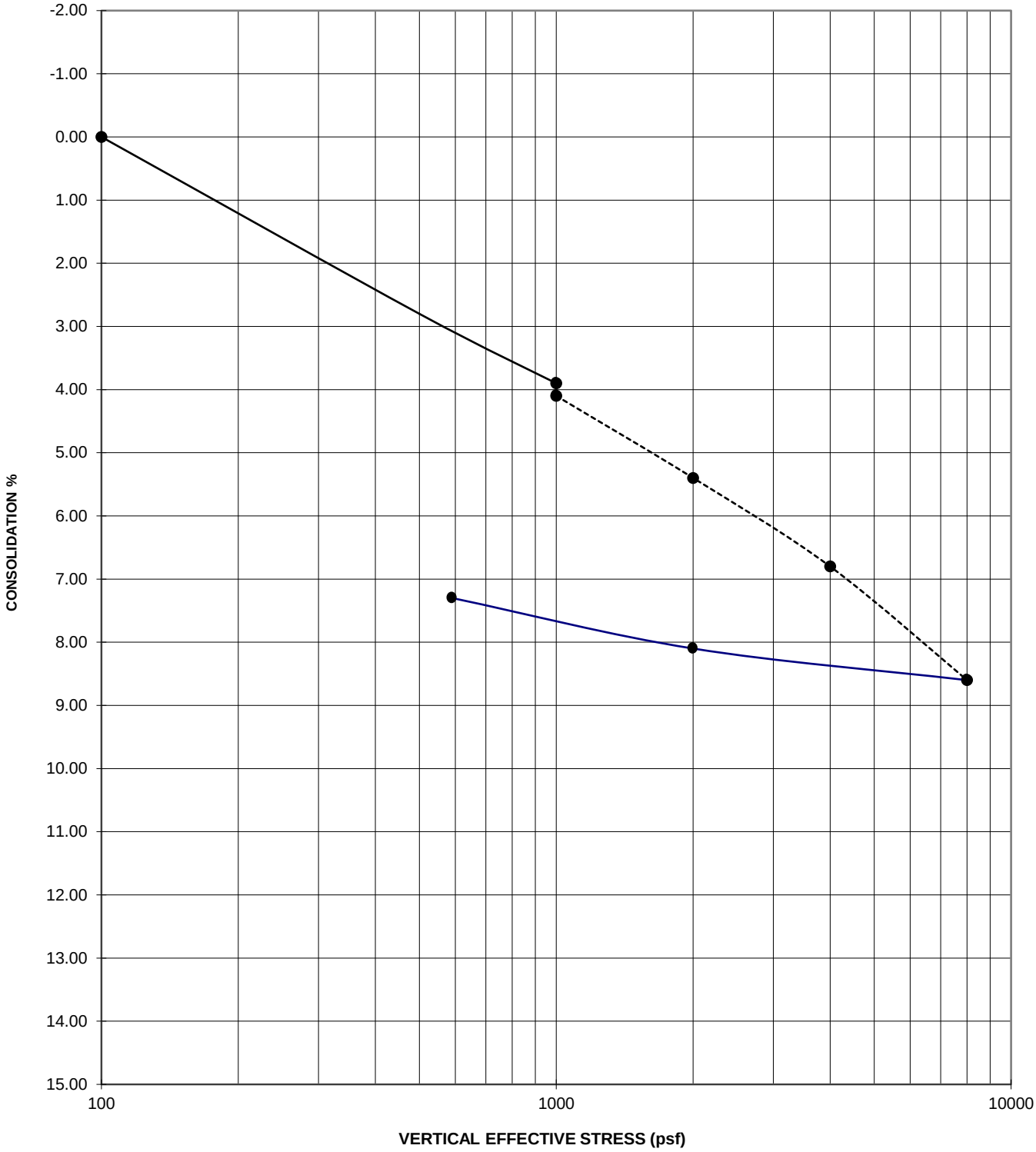


SWELL/CONSOLIDATION TEST			
Sample Designation	Depth (ft)	Symbol	Legend
B-10	5	●	FIELD MOISTURE
Initial Dry Density, pcf	Initial Moisture Content, %	Sample saturated	SAMPLE SATURATED
92.9	28.2	at 500 psf	REBOUND

CTE SOUTH Construction Testing & Engineering, South, Inc.
Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

CTE JOB NO: 40-3959

Industrial Bldgs - Hardt & Brier



SWELL/CONSOLIDATION TEST			
Sample Designation	Depth (ft)	Symbol	Legend
B-11	10	●	FIELD MOISTURE
Initial Dry Density, pcf 119.4	Initial Moisture Content, % 11.4	Sample saturated at 1000 psf	SAMPLE SATURATED REBOUND

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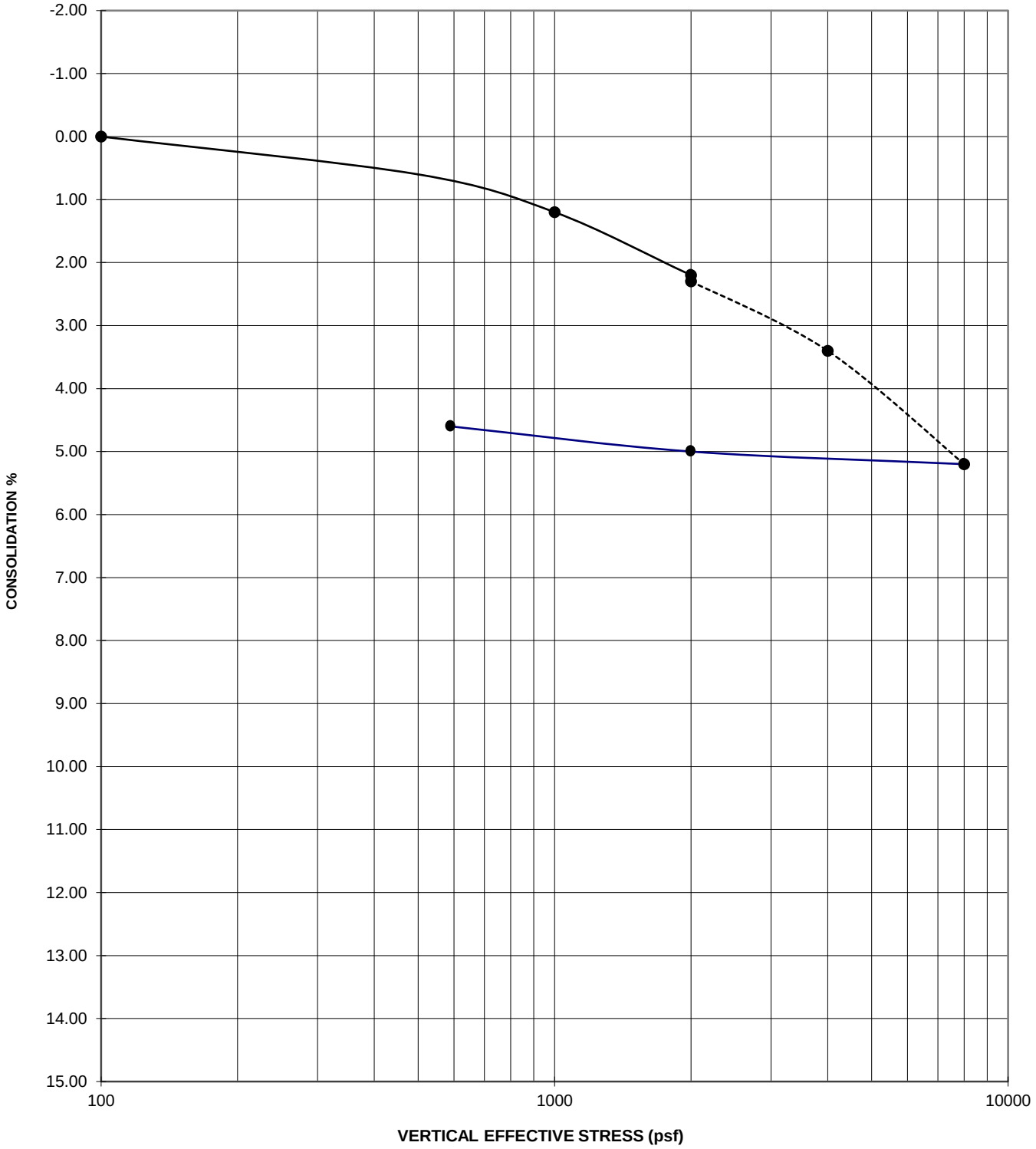
Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

CTE JOB NO: 40-3959

Industrial Bldgs - Hardt & Brier



SWELL/CONSOLIDATION TEST			
Sample Designation	Depth (ft)	Symbol	Legend
B-13	20	●	FIELD MOISTURE
Initial Dry Density, pcf 106.8	Initial Moisture Content, % 19.8	Sample saturated at 2000 psf	SAMPLE SATURATED REBOUND

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CTE JOB NO: 40-3959

Industrial Bldgs - Hardt & Brier

Construction Testing & Engineering, Inc.

Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

REPORT OF RESISTANCE 'R' VALUE-EXPANSION PRESSURE

Project Name: Industrial Buildings Hardt- Brier
Project No.: 40-3959G
Sample Location: B-2 @ 1-5'
Soil Description: Moderate Brown ML
Test Procedure: Cal 301

Lab No.: 32166
Sampled By: R.E. **Date:** 4/30-5/3/21
Submitted By: R.E. **Date:** 4/30-5/3/21
Tested By: Larry Sachs **Date:** 5/13/2021
Reviewed By: Erik Campbell **Date:** 5/14/2021

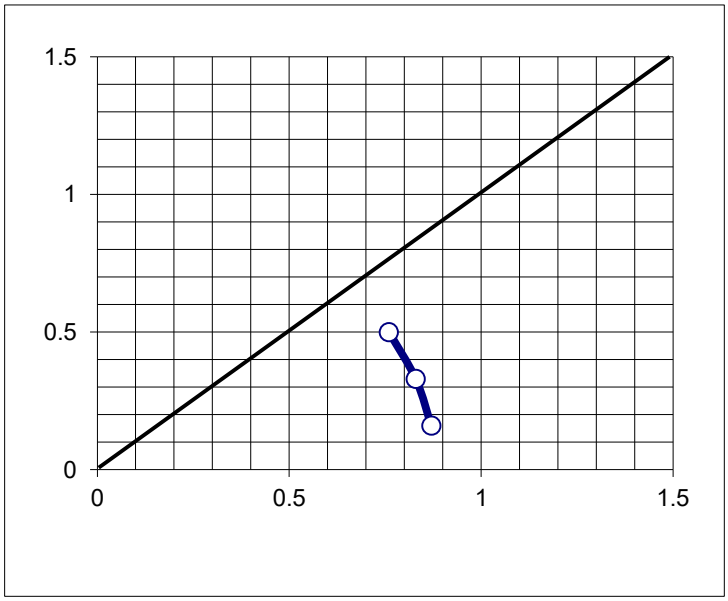
Specimen/ Mold No.	1	2	3	
Compactor Air Pressure, ft.lbs.	120	180	250	
Initial Moisture, %	4.5	4.5	4.5	
Wet Weight / Tare (g)	1901.2	1901.2	1901.2	
Dry Weight / Tare (g)	1850.0	1850.0	1850.0	
Tare (g)	701.4	701.4	701.4	
Water Added, ml	140	130	120	
Moisture at Compaction, %	16.6	15.8	14.9	
Wt. Of Briquette and Mold, g	3217	3181	3213	
Wt. Of Mold, g	2109	2095	2094	
Wt. Of Briquitte,g	1108	1086	1119	
Height of Briquette, in	2.54	2.52	2.57	
Dry Density, pcf	113.4	112.8	114.9	
Stabilometer PH @ 1000 lbs	59	55	51	
Stabilometer PH @ 2000 lbs	131	125	115	
Displacement	5.20	4.40	3.89	
R' Value	9	13	20	
Corrected 'R' Value	9	13	20	
Exudation Pressure, lbs	2700	3500	4900	
Exudation Pressure, psi	216	280	392	
Stabilometer Thickness - ft	0.87	0.83	0.76	
Expansion Pressure	0.0005	0.0010	0.0015	
Expansion Press, Thick-ft	0.16	0.33	0.50	

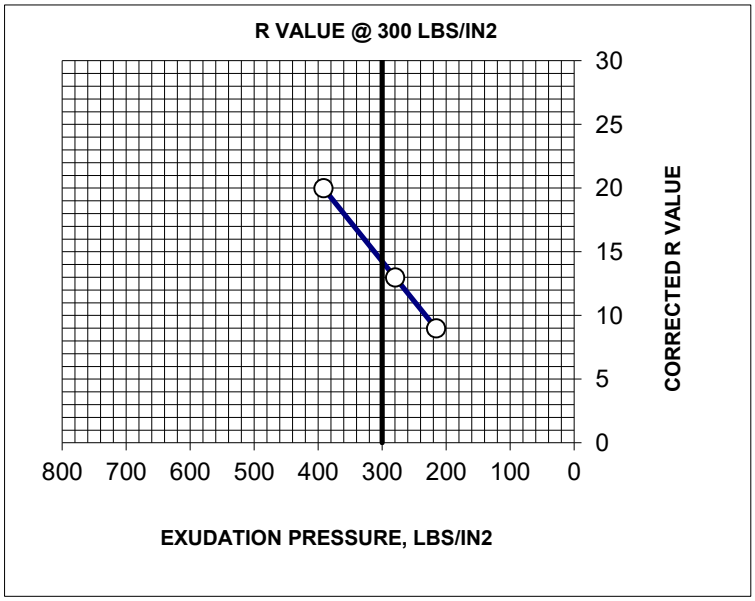
Exudation 14

Expansion 18

R-value **14**

TI	4.5
Expansion	18





Cover Thickness by Expansion Pressure-Feet

Expansion From Graph:	0.79

Erik Campbell
Laboratory Manager

Construction Testing & Engineering, Inc.

Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

REPORT OF RESISTANCE 'R' VALUE-EXPANSION PRESSURE

Project Name: Industrial Buildings Hardt- Brier
Project No.: 40-3959G
Sample Location: B-14 @ 1-5'
Soil Description: Moderate Brown CL
Test Procedure: Cal 301

Lab No.: 32166
Sampled By: R.E. **Date:** 4/30/5/3/21
Submitted By: R.E. **Date:** 4/30-5/3/21
Tested By: Larry Sachs **Date:** 5/13/2021
Reviewed By: Erik Campbell **Date:** 5/14/2021

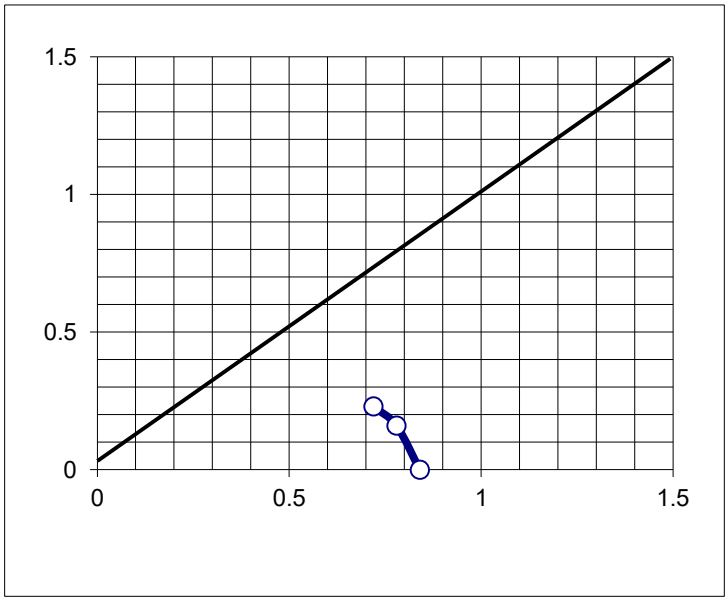
Specimen/ Mold No.	7	8	9	
Compactor Air Pressure, ft.lbs.	100	200	350	
Initial Moisture, %	3.3	3.3	3.3	
Wet Weight / Tare (g)	1891.2	1891.2	1891.2	
Dry Weight / Tare (g)	1852.9	1852.9	1852.9	
Tare (g)	691.8	691.8	691.8	
Water Added, ml	150	130	115	
Moisture at Compaction, %	16.2	14.5	13.2	
Wt. Of Briquette and Mold, g	3131	3139	3195	
Wt. Of Mold, g	2064	2064	2065	
Wt. Of Briquitte,g	1067	1075	1130	
Height of Briquette, in	2.42	2.49	2.55	
Dry Density, pcf	115.0	114.3	118.7	
Stabilometer PH @ 1000 lbs	56	48	41	
Stabilometer PH @ 2000 lbs	128	113	110	
Displacement	4.55	4.50	3.50	
R' Value	12	18	24	
Corrected 'R' Value	12	18	24	
Exudation Pressure, lbs	2000	3800	5900	
Exudation Pressure, psi	160	304	472	
Stabilometer Thickness - ft	0.84	0.78	0.72	
Expansion Pressure	0.0000	0.0005	0.0007	
Expansion Press, Thick-ft	0.00	0.16	0.23	

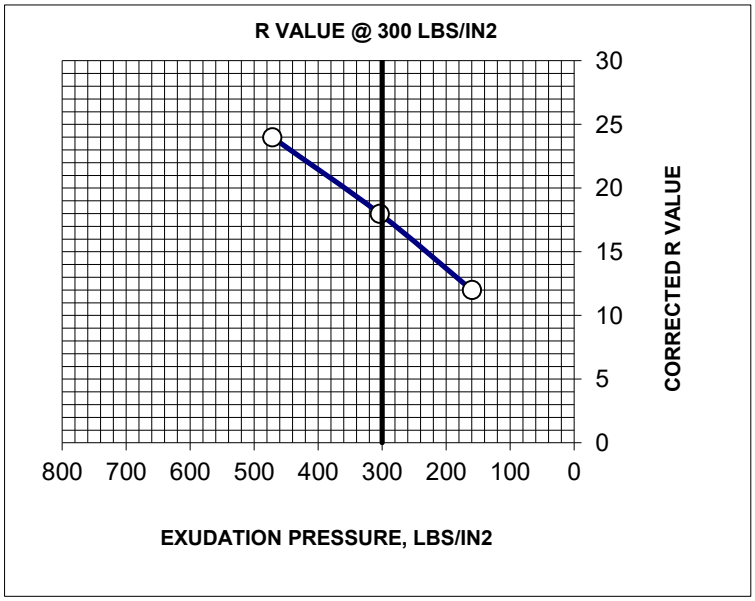
Exudation 18

Expansion 28

R-value **18**

TI	4.5
Expansion	28





Cover Thickness by Expansion Pressure-Feet

Expansion From Graph:	0.69

Erik Campbell
Laboratory Manager

LABORATORY COMPACTION OF SOIL (MODIFIED PROCTOR)

ASTM D 1557

Project Name:	Industrial Bldgs-Hardt and Brier	**Sampled By:**	RE	**Date:**	
CTE Project No.:	40-3959	**Tested By:**	SP	**Date:**	6-2-21
Lab No.:	9428	**Reviewed By:**	RE	**Date:**	6-2-21
Sample ID:	B-3 @ 1-5 feet				
Sample Description:	Dark Brown Sandy Lean Clay				

TEST NO.	1	2	3	4	
Wt. Comp. Soil + Mold (lbs)	13.570	13.688	13.600	13.311	
Wt. of Mold (lbs)	9.108	9.108	9.108	9.108	
Net Wt. of Soil (lbs)	4.462	4.580	4.492	4.203	
Wet Wt. of Soil + Cont. (g)	1336.0	1322.0	1325.3	1388.5	
Dry Wt. of Soil + Cont. (g)	1279.5	1260.3	1258.8	1347.8	
Wt. of Container (g)	499.4	655.5	742.4	497.3	
Moisture Content (%)	7.2	10.2	12.9	4.8	
Wet Density (pcf)	134.8	138.4	135.7	127.0	
Dry Density (pcf)	125.7	125.6	120.2	121.2	

Preparation Method:	**Dry**	
	Moist	X
Mechanical Rammer		
Manual Rammer		X
Hammer Weight:		10.0 lb.
Drop:		18 in.
Mold Volume (ft.^{3}):		0.03310

METHOD USED

X **Method A**

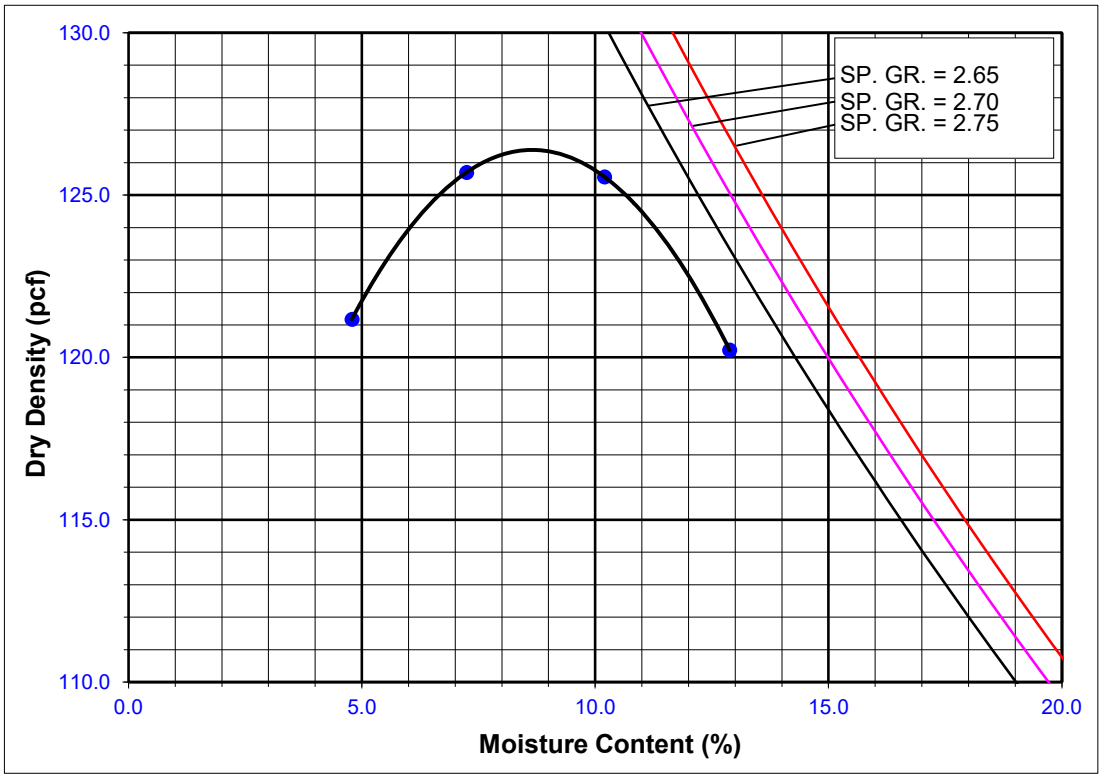
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if No.4 retained =/< 25%

Method B

Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if 3/8" retained =/< 25%

Method C

Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
May be used if 3/4" retained =/< 30%



OVERSIZE FRACTION

Total Sample Weight (g): 7203.9

Weight Retained (g)		Percent Retained
	Plus 3/4"	0.0
	Plus 3/8"	0.0
65.5	Plus #4	0.9

Maximum Dry Density (pcf)	**126.4**
Optimum Moisture Content (%)	**8.7**

Rock Correction Applied per ASTM D 4718

Maximum Dry Density (pcf)	**NA**
Optimum Moisture Content (%)	**NA**

LABORATORY COMPACTION OF SOIL (MODIFIED PROCTOR)

ASTM D 1557

Project Name:	Industrial Bldgs-Hardt and Brier	**Sampled By:**	RE	**Date:**	
CTE Project No.:	40-3959	**Tested By:**	SP	**Date:**	6-2-21
Lab No.:	9428	**Reviewed By:**	RE	**Date:**	6-2-21
Sample ID:	B-6 @ 1-5 feet				
Sample Description:	Dark Brown Sandy Silty Clay				

TEST NO.	1	2	3	4	
Wt. Comp. Soil + Mold (lbs)	13.407	13.627	13.601	13.480	
Wt. of Mold (lbs)	9.108	9.108	9.108	9.108	
Net Wt. of Soil (lbs)	4.299	4.519	4.493	4.372	
Wet Wt. of Soil + Cont. (g)	1334.8	1312.5	1313.7	1352.7	
Dry Wt. of Soil + Cont. (g)	1277.2	1235.3	1217.0	1258.5	
Wt. of Container (g)	497.2	498.6	496.3	650.3	
Moisture Content (%)	7.4	10.5	13.4	15.5	
Wet Density (pcf)	129.9	136.5	135.7	132.1	
Dry Density (pcf)	120.9	123.6	119.7	114.4	

Preparation Method:	**Dry**	
	Moist	X
Mechanical Rammer		
Manual Rammer		X
Hammer Weight:		10.0 lb.
Drop:		18 in.
Mold Volume (ft.^{3}):		0.03310

METHOD USED

X **Method A**

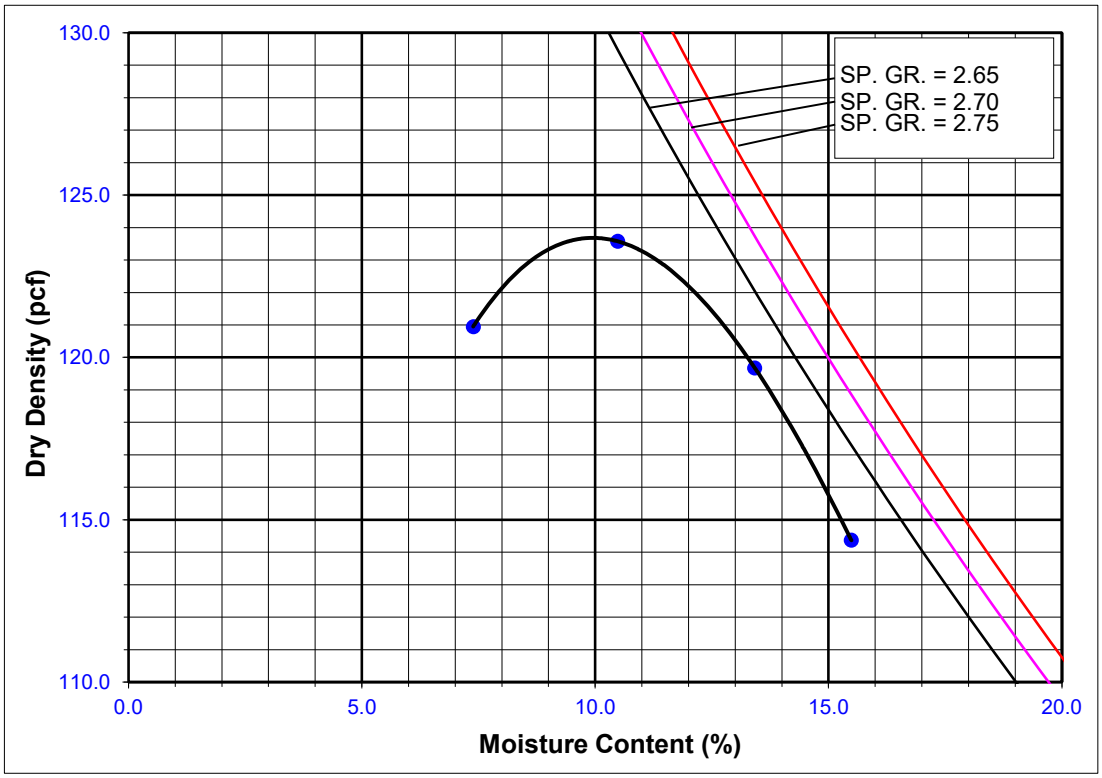
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if No.4 retained =/< 25%

Method B

Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if 3/8" retained =/< 25%

Method C

Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
May be used if 3/4" retained =/< 30%



OVERSIZE FRACTION

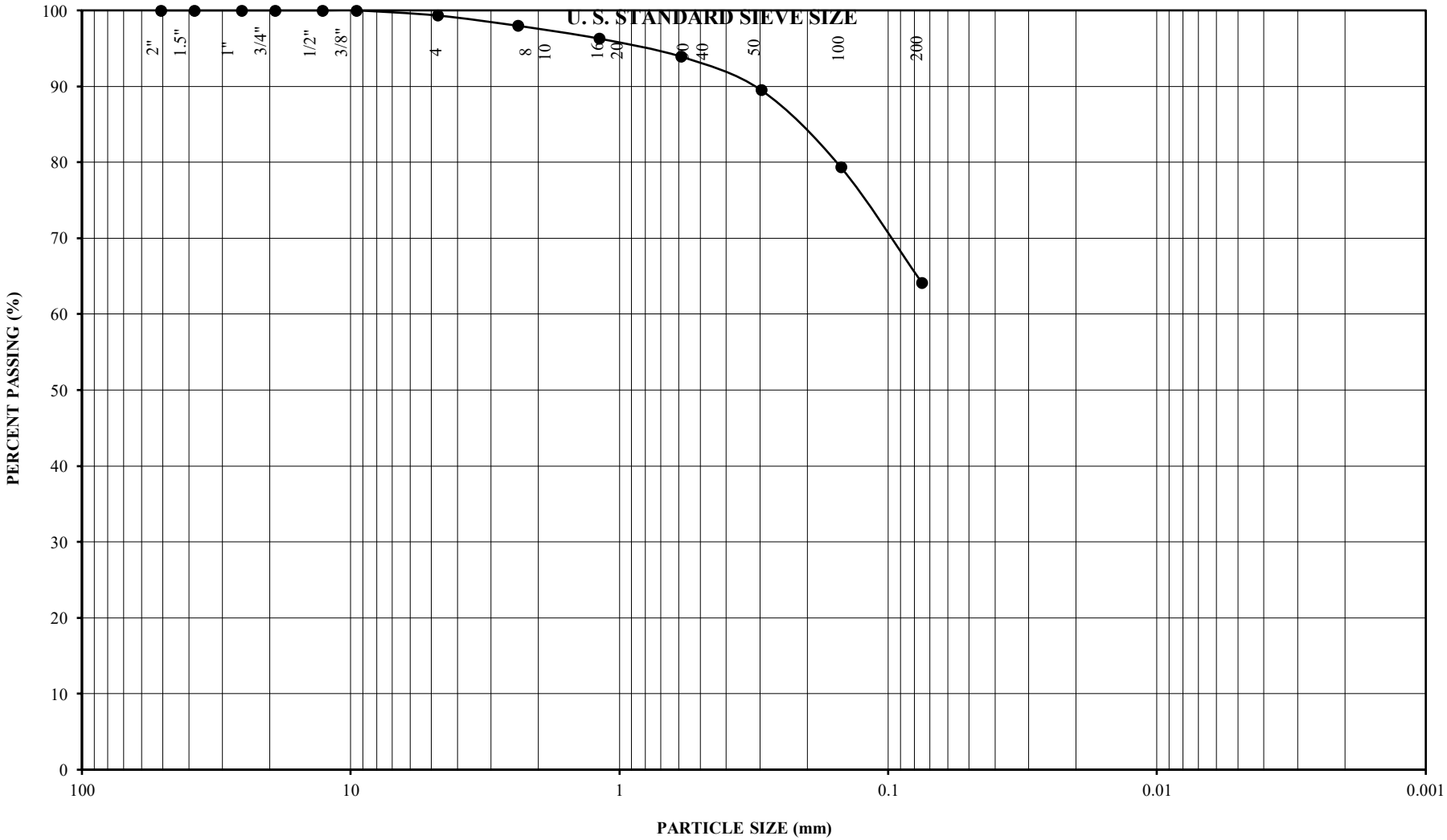
Total Sample Weight (g): 13915.4

Weight Retained (g)		Percent Retained
	Plus 3/4"	0.0
	Plus 3/8"	0.0
649	Plus #4	4.7

Maximum Dry Density (pcf)	**123.7**
Optimum Moisture Content (%)	**10.0**

Rock Correction Applied per ASTM D 4718

Maximum Dry Density (pcf)	**N/A**
Optimum Moisture Content (%)	**N/A**



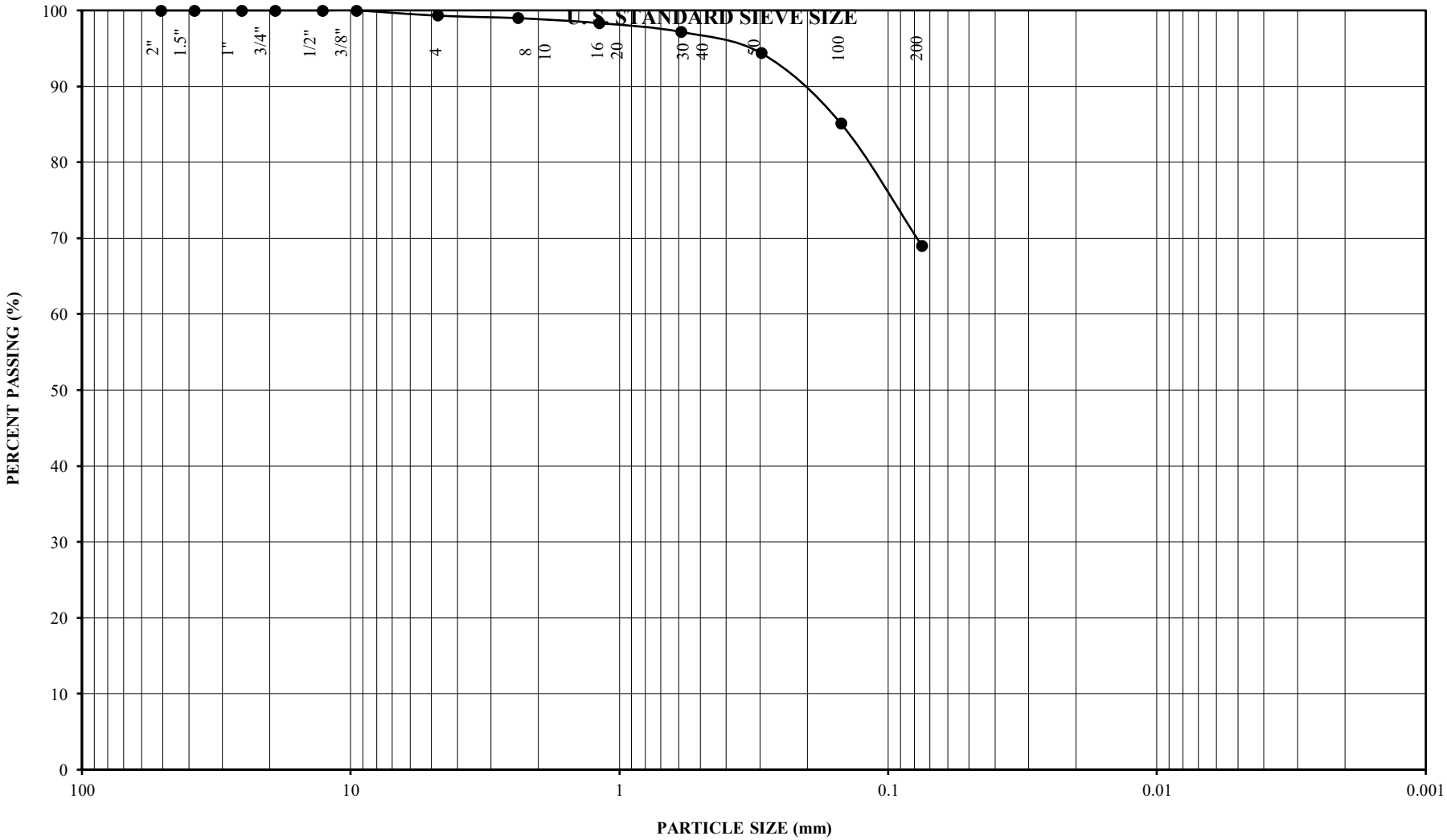
PARTICLE SIZE ANALYSIS

CTE SOUTH Construction Testing & Engineering, South, Inc.
Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
B-3	1-5	●	28	9	CL
		■			

CTE JOB NUMBER: 40-3959G

Hardt & Brier Indust Bldgs



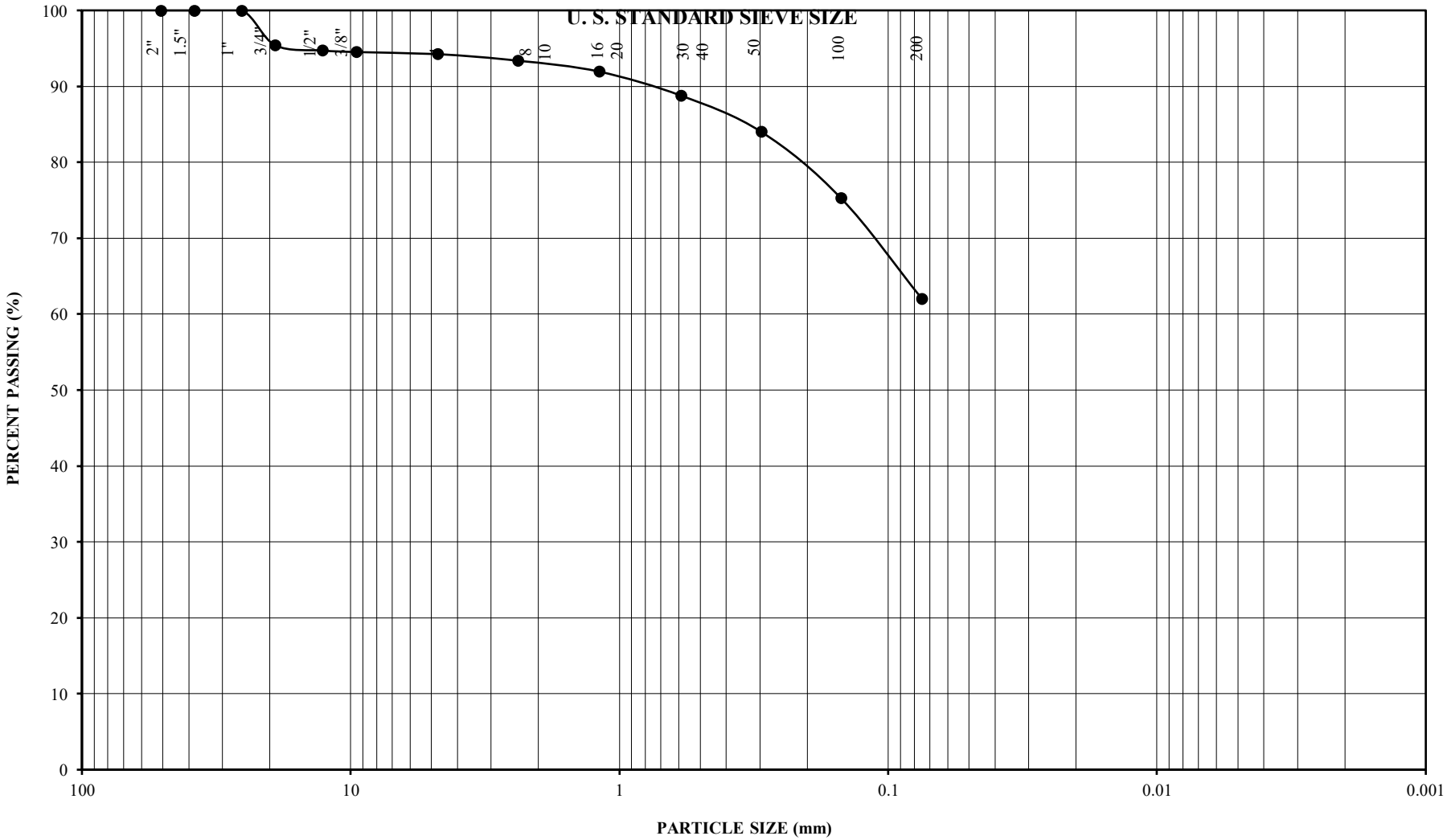
PARTICLE SIZE ANALYSIS

CTE SOUTH Construction Testing & Engineering, South, Inc.
Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
B-5	1-5	●	25	6	CL-ML
		■			

CTE JOB NUMBER: 40-3959G

Hardt & Brier Indust Bldgs



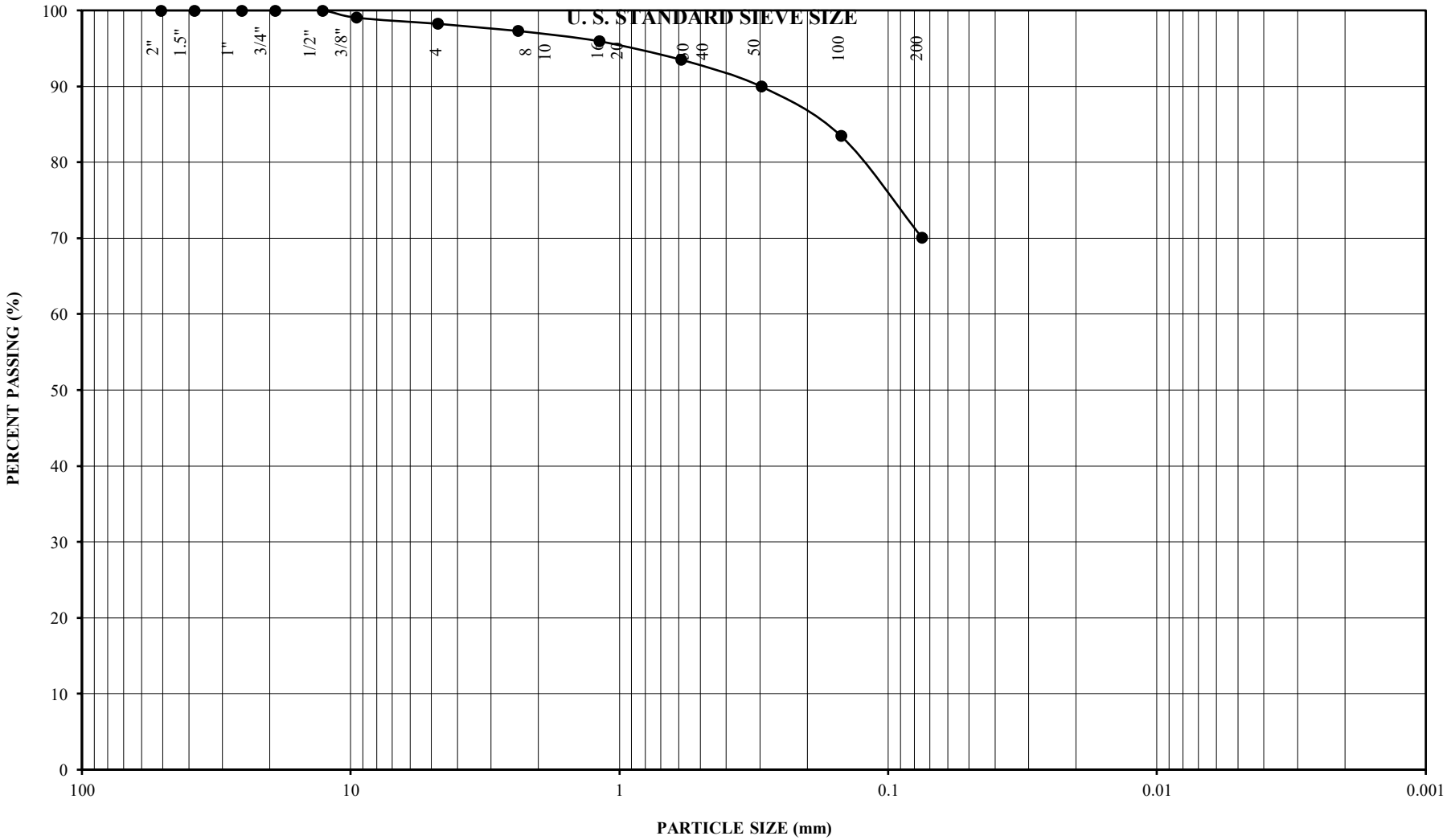
PARTICLE SIZE ANALYSIS

CTE SOUTH Construction Testing & Engineering, South, Inc.
Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
B-6	1-5	●			CL-ML
		■			

CTE JOB NUMBER: 40-3959G

Hardt & Brier Indust Bldgs



PARTICLE SIZE ANALYSIS

CTE SOUTH Construction Testing & Engineering, South, Inc.
Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
B-14	1-5	●	27	8	CL
		■			

CTE JOB NUMBER: 40-3959G

Hardt & Brier Indust Bldgs

EXPANSION INDEX TEST

ASTM D 4829

CTE Project Number: **40-3959G**

Project Name: **Industrial Buildings – Hardt & Brier**

Sample ID: B-3 @ 1-5 ft.
Sample Description: Sandy Lean CLAY
Lab No: 9428

Test Start Date:	Time:	Initial Reading:
6-2-2021	2:30 pm	0.0015

Test Finish Date:	Time:	Final Reading:
6-3-2021	2:30 pm	0.0283

Specimen Moisture Content, %: 8.5
Specimen Dry Density, pcf: 113.6
Specimen Saturation, %: 51.1

Expansion (inches): 0.0268

Expansion Index: **27**

Expansion Potential: Low

EXPANSION INDEX TEST

ASTM D 4829

CTE Project Number: **40-3959G**

Project Name: **Industrial Buildings – Hardt & Brier**

Sample ID: B-6 @ 1-5 ft.
Sample Description: Sandy Silty CLAY
Lab No: 9428

Test Start Date:	Time:	Initial Reading:
6-7-2021	3:00 pm	0.0055

Test Finish Date:	Time:	Final Reading:
6-8-2021	3:00 pm	0.0437

Specimen Moisture Content, %: 9.5
Specimen Dry Density, pcf: 109.7
Specimen Saturation, %: 51.2

Expansion (inches): 0.0382

Expansion Index: **38**

Expansion Potential: Low

TRANSMITTAL LETTER

DATE: May 14, 2021

ATTENTION: **Robert Ellerbusch**

TO: CTE South, Inc.
14538 Meridian Pkwy, Suite A
Riverside, CA 92518

SUBJECT: Laboratory Test Data
Industrial Buildings
Your #40-3959G, HDR Lab #21-0405LAB

COMMENTS: Enclosed are the results for the subject project.

James T. Keegan, MD
Corrosion and Lab Services Section Manager

431 West Baseline Road · Claremont, CA 91711
Phone: 909.962.5485 · Fax: 909.626.3316

Table 1 - Laboratory Tests on Soil Samples

CTE South, Inc.
Industrial Buildings
Your #40-3959G, HDR Lab #21-0405LAB
14-May-21

Sample ID			B-4 @ 1-4'	B-11 @ 1-3'	B-12 @ 5-9'
Resistivity		**Units**			
as-received		ohm-cm	2,320	148,000	5,200
minimum		ohm-cm	640	20,400	1,160
pH			9.1	8.6	8.6
Electrical Conductivity		mS/cm	0.80	0.06	0.37
Chemical Analyses					
Cations					
calcium	Ca^{2+}	mg/kg	137	33	46
magnesium	Mg^{2+}	mg/kg	37	1.5	1.5
sodium	Na^{1+}	mg/kg	1,050	25	395
potassium	K^{1+}	mg/kg	40	2.8	5.6
ammonium	NH_4^{1+}	mg/kg	ND	ND	ND
Anions					
carbonate	CO_3^{2-}	mg/kg	308	87	101
bicarbonate	HCO_3^{1-}	mg/kg	671	ND	159
fluoride	F^{1-}	mg/kg	52	2.4	25
chloride	Cl^{1-}	mg/kg	62	4.9	53
sulfate	SO_4^{2-}	mg/kg	504	5.7	358
nitrate	NO_3^{1-}	mg/kg	221	2.9	42
phosphate	PO_4^{3-}	mg/kg	ND	ND	ND
Other Tests					
sulfide	S^{2-}	qual	na	na	na
Redox		mV	na	na	na

Minimum resistivity and pH per CTM 643, Chloride per CTM 422, Sulfate per CTM 417

Electrical conductivity in millisiemens/cm and chemical analyses were made on a 1:5 soil-to-water extract.

mg/kg = milligrams per kilogram (parts per million) of dry soil.

Redox = oxidation-reduction potential in millivolts

ND = not detected

na = not analyzed

431 West Baseline Road · Claremont, CA 91711
Phone: 909.962.5485 · Fax: 909.626.3316

APPENDIX C

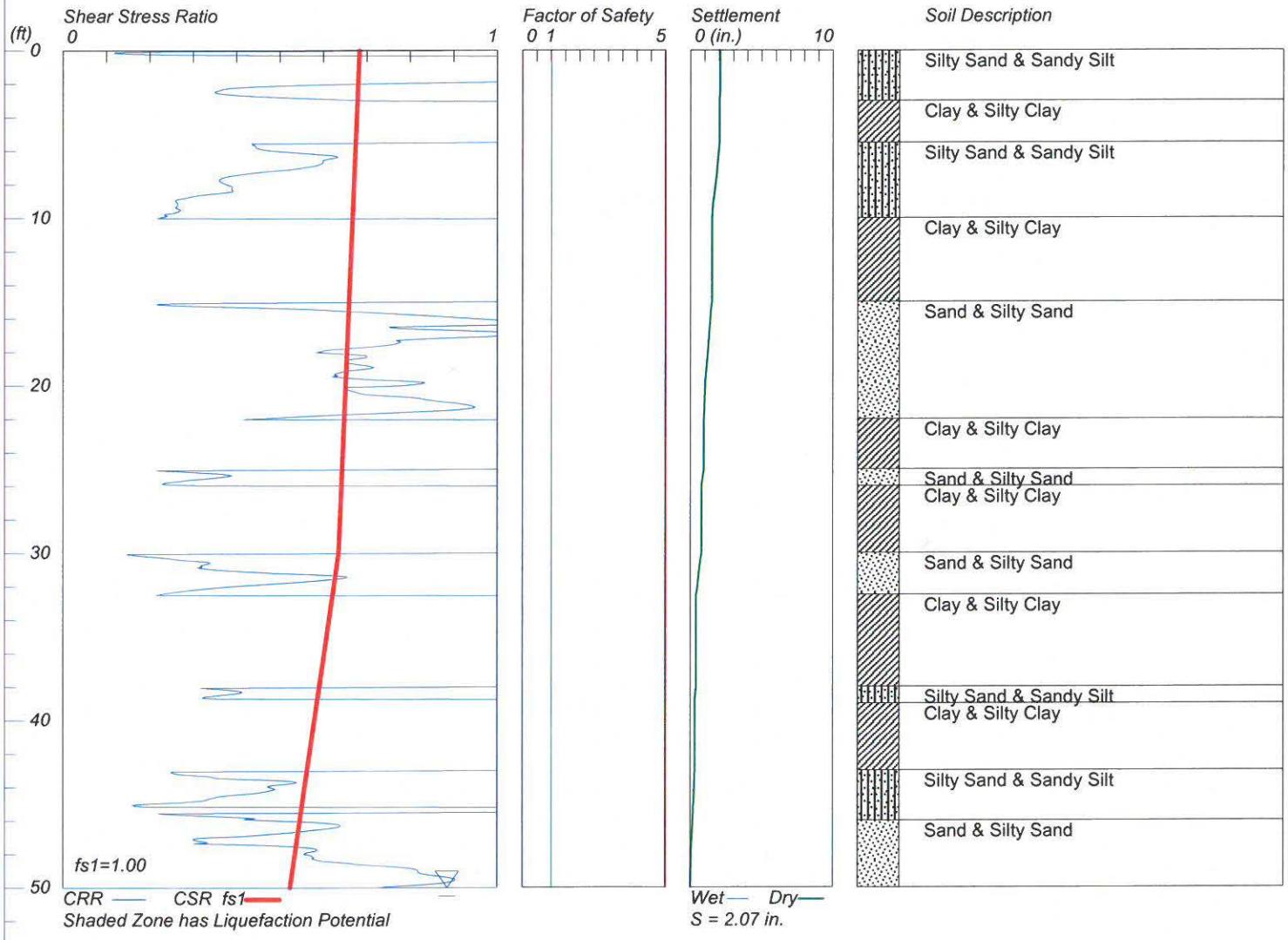
SEISMIC SETTLEMENT ANALYSES

LIQUEFACTION ANALYSIS

Industrial Bldgs - Hardt & Brier Streets

Hole No.=CPT-3 Water Depth=50 ft

Magnitude=7.5
Acceleration=1.05g



LiquefyPro CivilTech Software USA www.civiltech.com

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LIQUEFACTION ANALYSIS CALCULATION SHEET

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Licensed to , 6/17/2021 10:29:55 AM

Input File Name: R:\Projects\40-3959G Geo. Inv. Multi-Building Development\seismic settlement analyses\CPT-3.liq
Title: Industrial Bldgs - Hardt & Brier Streets
Subtitle: 40-3959G

Surface Elev.=
Hole No.=CPT-3
Depth of Hole= 50.0 ft
Water Table during Earthquake= 50.0 ft
Water Table during In-Situ Testing= 50.0 ft
Max. Acceleration= 1.05 g
Earthquake Magnitude= 7.5

Input Data:
Surface Elev.=
Hole No.=CPT-3
Depth of Hole=50.0 ft
Water Table during Earthquake= 50.0 ft
Water Table during In-Situ Testing= 50.0 ft
Max. Acceleration=1.05 g
Earthquake Magnitude=7.5

1. CPT Calulation Method: Modified Robertson*
2. Settlement Analysis Method: Ishihara / Yoshimine*
3. Fines Correction for Liquefaction: Idriss/Seed (SPT only)
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	qc tsf	fs tsf	gamma pcf	Fines %	D50 mm
0.0	-0.1	0.0	120.0	50.0	0.1
0.1	2.0	0.0	120.0	50.0	0.1
0.2	4.0	0.1	120.0	50.0	0.1
0.2	5.5	0.1	120.0	50.0	0.1
0.3	24.8	0.1	120.0	50.0	0.1
0.4	33.7	0.2	120.0	50.0	0.1
0.4	35.8	0.2	120.0	50.0	0.1
0.5	52.2	0.4	120.0	50.0	0.1
0.6	70.4	0.6	120.0	50.0	0.1
0.6	82.1	0.8	120.0	50.0	0.1
0.7	115.5	1.0	120.0	50.0	0.1
0.8	166.0	1.6	120.0	50.0	0.1
0.8	178.6	2.0	120.0	50.0	0.1
0.9	186.5	2.4	120.0	50.0	0.1
0.9	184.8	2.7	120.0	50.0	0.1
1.0	179.7	3.2	120.0	50.0	0.1
1.1	174.7	3.5	120.0	50.0	0.1
1.1	164.5	3.7	120.0	50.0	0.1
1.2	142.9	3.8	120.0	50.0	0.1
1.3	136.6	3.7	120.0	50.0	0.1
1.3	129.4	3.6	120.0	50.0	0.1
1.4	111.2	3.3	120.0	50.0	0.1
1.5	100.5	3.1	120.0	50.0	0.1
1.5	96.3	2.8	120.0	50.0	0.1
1.6	87.7	2.6	120.0	50.0	0.1
1.7	80.4	2.3	120.0	50.0	0.1
1.7	72.6	1.9	120.0	50.0	0.1
1.8	66.4	1.7	120.0	50.0	0.1
1.8	61.2	1.5	120.0	50.0	0.1
1.9	55.7	1.1	120.0	50.0	0.1
2.0	53.2	1.0	120.0	50.0	0.1
2.1	45.9	0.9	120.0	50.0	0.1
2.1	41.4	0.9	120.0	50.0	0.1
2.2	39.5	0.8	120.0	50.0	0.1
2.2	35.0	0.8	120.0	50.0	0.1
2.3	33.7	0.8	120.0	50.0	0.1
2.4	35.1	0.8	120.0	50.0	0.1
2.5	33.9	0.8	120.0	50.0	0.1
2.5	35.1	0.8	120.0	50.0	0.1
2.6	36.2	0.8	120.0	50.0	0.1
2.7	40.3	0.9	120.0	50.0	0.1
2.7	41.7	0.9	120.0	50.0	0.1
2.8	46.8	1.1	120.0	50.0	0.1
2.8	49.0	1.1	120.0	50.0	0.1
2.9	51.4	1.3	120.0	50.0	0.1
3.0	52.7	1.4	120.0	50.0	0.1
3.0	52.7	1.5	115.0	NoLiq	0.0

3.1	51.3	1.6	115.0	NoLiq	0.0
3.2	50.4	1.6	115.0	NoLiq	0.0
3.2	49.1	1.7	115.0	NoLiq	0.0
3.3	48.6	1.7	115.0	NoLiq	0.0
3.4	46.7	1.7	115.0	NoLiq	0.0
3.4	44.7	1.6	115.0	NoLiq	0.0
3.5	43.1	1.5	115.0	NoLiq	0.0
3.6	37.7	1.3	115.0	NoLiq	0.0
3.6	35.8	1.3	115.0	NoLiq	0.0
3.7	32.6	1.3	115.0	NoLiq	0.0
3.7	30.8	1.2	115.0	NoLiq	0.0
3.8	28.7	1.2	115.0	NoLiq	0.0
3.9	28.1	1.2	115.0	NoLiq	0.0
3.9	26.4	1.2	115.0	NoLiq	0.0
4.0	24.0	1.3	115.0	NoLiq	0.0
4.1	23.6	1.3	115.0	NoLiq	0.0
4.1	23.3	1.3	115.0	NoLiq	0.0
4.2	25.0	1.2	115.0	NoLiq	0.0
4.3	27.3	1.2	115.0	NoLiq	0.0
4.3	28.8	1.2	115.0	NoLiq	0.0
4.4	32.7	1.2	115.0	NoLiq	0.0
4.5	36.8	1.1	115.0	NoLiq	0.0
4.5	38.3	1.1	115.0	NoLiq	0.0
4.6	41.2	1.1	115.0	NoLiq	0.0
4.7	42.7	1.1	115.0	NoLiq	0.0
4.8	44.1	1.1	115.0	NoLiq	0.0
4.8	44.7	1.1	115.0	NoLiq	0.0
4.9	45.2	1.2	115.0	NoLiq	0.0
5.0	44.0	1.3	115.0	NoLiq	0.0
5.0	43.0	1.3	115.0	NoLiq	0.0
5.1	41.4	1.3	115.0	NoLiq	0.0
5.1	42.6	1.4	115.0	NoLiq	0.0
5.2	48.6	1.4	115.0	NoLiq	0.0
5.3	53.5	1.4	115.0	NoLiq	0.0
5.3	55.7	1.4	115.0	NoLiq	0.0
5.4	58.9	1.4	115.0	NoLiq	0.0
5.5	60.0	1.4	115.0	NoLiq	0.0
5.5	61.8	1.4	120.0	50.0	0.1
5.6	62.3	1.4	120.0	50.0	0.1
5.7	63.5	1.4	120.0	50.0	0.1
5.8	64.9	1.4	120.0	50.0	0.1
5.8	65.7	1.4	120.0	50.0	0.1
5.9	68.4	1.4	120.0	50.0	0.1
5.9	69.5	1.4	120.0	50.0	0.1
6.0	73.3	1.5	120.0	50.0	0.1
6.1	75.4	1.5	120.0	50.0	0.1
6.1	79.6	1.6	120.0	50.0	0.1
6.2	81.7	1.6	120.0	50.0	0.1
6.3	85.4	1.7	120.0	50.0	0.1
6.4	86.0	1.7	120.0	50.0	0.1

6.4	85.5	1.7	120.0	50.0	0.1
6.5	84.2	1.7	120.0	50.0	0.1
6.5	83.7	1.7	120.0	50.0	0.1
6.6	83.3	1.8	120.0	50.0	0.1
6.6	83.1	1.8	120.0	50.0	0.1
6.7	82.1	1.8	120.0	50.0	0.1
6.8	81.8	1.8	120.0	50.0	0.1
6.9	81.4	1.8	120.0	50.0	0.1
6.9	80.4	1.8	120.0	50.0	0.1
7.0	74.8	1.8	120.0	50.0	0.1
7.1	73.1	1.8	120.0	50.0	0.1
7.1	71.8	1.8	120.0	50.0	0.1
7.2	69.3	1.7	120.0	50.0	0.1
7.3	69.3	1.6	120.0	50.0	0.1
7.3	69.3	1.6	120.0	50.0	0.1
7.4	69.3	1.5	120.0	50.0	0.1
7.5	69.4	1.4	120.0	50.0	0.1
7.5	70.1	1.4	120.0	50.0	0.1
7.6	70.4	1.3	120.0	50.0	0.1
7.7	71.2	1.3	120.0	50.0	0.1
7.7	71.4	1.3	120.0	50.0	0.1
7.8	73.0	1.3	120.0	50.0	0.1
7.8	74.0	1.3	120.0	50.0	0.1
7.9	76.8	1.3	120.0	50.0	0.1
8.0	78.2	1.3	120.0	50.0	0.1
8.0	79.5	1.3	120.0	50.0	0.1
8.1	80.8	1.3	120.0	50.0	0.1
8.2	79.6	1.4	120.0	50.0	0.1
8.2	79.2	1.4	120.0	50.0	0.1
8.3	81.3	1.4	120.0	50.0	0.1
8.4	85.6	1.3	120.0	50.0	0.1
8.4	85.4	1.3	120.0	50.0	0.1
8.5	84.5	1.2	120.0	50.0	0.1
8.6	80.5	1.1	120.0	50.0	0.1
8.6	76.9	1.1	120.0	50.0	0.1
8.7	74.9	1.1	120.0	50.0	0.1
8.8	70.3	1.1	120.0	50.0	0.1
8.9	64.5	1.1	120.0	50.0	0.1
8.9	61.2	1.1	120.0	50.0	0.1
8.9	58.1	1.1	120.0	50.0	0.1
9.0	53.5	1.2	120.0	50.0	0.1
9.1	52.0	1.2	120.0	50.0	0.1
9.2	52.5	1.2	120.0	50.0	0.1
9.2	52.4	1.2	120.0	50.0	0.1
9.3	52.6	1.2	120.0	50.0	0.1
9.4	52.8	1.2	120.0	50.0	0.1
9.4	52.5	1.2	120.0	50.0	0.1
9.5	51.6	1.2	120.0	50.0	0.1
9.6	50.3	1.2	120.0	50.0	0.1
9.6	48.8	1.2	120.0	50.0	0.1

9.7	44.7	1.1	120.0	50.0	0.1
9.8	43.0	1.0	120.0	50.0	0.1
9.8	40.9	1.0	120.0	50.0	0.1
9.9	39.3	1.0	120.0	50.0	0.1
10.0	39.8	1.0	120.0	50.0	0.1
10.0	40.5	0.9	115.0	NoLiq	0.0
10.1	37.5	1.0	115.0	NoLiq	0.0
10.1	39.0	1.0	115.0	NoLiq	0.0
10.2	37.8	1.0	115.0	NoLiq	0.0
10.3	36.4	1.0	115.0	NoLiq	0.0
10.3	33.5	1.0	115.0	NoLiq	0.0
10.4	30.4	1.0	115.0	NoLiq	0.0
10.5	28.2	1.1	115.0	NoLiq	0.0
10.5	27.4	1.1	115.0	NoLiq	0.0
10.6	23.4	1.0	115.0	NoLiq	0.0
10.7	19.9	0.9	115.0	NoLiq	0.0
10.7	18.2	0.9	115.0	NoLiq	0.0
10.8	18.0	0.8	115.0	NoLiq	0.0
10.9	18.0	0.8	115.0	NoLiq	0.0
10.9	17.9	0.8	115.0	NoLiq	0.0
11.0	21.0	0.8	115.0	NoLiq	0.0
11.1	28.4	0.9	115.0	NoLiq	0.0
11.1	28.6	0.9	115.0	NoLiq	0.0
11.2	27.1	1.0	115.0	NoLiq	0.0
11.3	25.7	1.0	115.0	NoLiq	0.0
11.3	24.3	1.0	115.0	NoLiq	0.0
11.4	23.7	1.1	115.0	NoLiq	0.0
11.4	24.9	1.1	115.0	NoLiq	0.0
11.5	27.1	1.1	115.0	NoLiq	0.0
11.6	26.8	1.1	115.0	NoLiq	0.0
11.6	24.1	1.0	115.0	NoLiq	0.0
11.7	22.4	1.0	115.0	NoLiq	0.0
11.8	20.6	1.0	115.0	NoLiq	0.0
11.8	19.4	0.9	115.0	NoLiq	0.0
11.9	18.0	0.9	115.0	NoLiq	0.0
12.0	17.1	0.9	115.0	NoLiq	0.0
12.1	16.4	0.9	115.0	NoLiq	0.0
12.1	15.9	0.9	115.0	NoLiq	0.0
12.2	17.4	0.8	115.0	NoLiq	0.0
12.3	18.3	0.8	115.0	NoLiq	0.0
12.3	21.8	0.8	115.0	NoLiq	0.0
12.4	29.1	0.9	115.0	NoLiq	0.0
12.5	38.5	0.9	115.0	NoLiq	0.0
12.5	43.3	1.0	115.0	NoLiq	0.0
12.6	49.5	1.0	115.0	NoLiq	0.0
12.6	53.7	1.0	115.0	NoLiq	0.0
12.7	56.1	1.0	115.0	NoLiq	0.0
12.8	56.5	1.1	115.0	NoLiq	0.0
12.8	56.0	1.1	115.0	NoLiq	0.0
12.9	53.9	1.2	115.0	NoLiq	0.0

13.0	50.9	1.3	115.0	NoLiq	0.0
13.0	48.9	1.4	115.0	NoLiq	0.0
13.1	40.4	1.5	115.0	NoLiq	0.0
13.2	37.2	1.4	115.0	NoLiq	0.0
13.2	32.0	1.4	115.0	NoLiq	0.0
13.3	28.0	1.3	115.0	NoLiq	0.0
13.4	25.5	1.3	115.0	NoLiq	0.0
13.4	28.4	1.3	115.0	NoLiq	0.0
13.5	33.7	1.3	115.0	NoLiq	0.0
13.5	46.0	1.3	115.0	NoLiq	0.0
13.6	55.4	1.3	115.0	NoLiq	0.0
13.7	59.5	1.4	115.0	NoLiq	0.0
13.8	62.5	1.3	115.0	NoLiq	0.0
13.8	61.6	1.3	115.0	NoLiq	0.0
13.9	58.9	1.3	115.0	NoLiq	0.0
13.9	54.9	1.4	115.0	NoLiq	0.0
14.0	48.0	1.4	115.0	NoLiq	0.0
14.1	44.1	1.5	115.0	NoLiq	0.0
14.2	34.3	1.2	115.0	NoLiq	0.0
14.2	32.5	1.2	115.0	NoLiq	0.0
14.3	29.4	1.1	115.0	NoLiq	0.0
14.3	31.3	1.2	115.0	NoLiq	0.0
14.4	35.6	1.2	115.0	NoLiq	0.0
14.5	41.3	1.2	115.0	NoLiq	0.0
14.6	39.1	1.2	115.0	NoLiq	0.0
14.6	36.3	1.2	115.0	NoLiq	0.0
14.7	30.4	1.2	115.0	NoLiq	0.0
14.7	26.1	1.2	115.0	NoLiq	0.0
14.8	25.9	1.2	115.0	NoLiq	0.0
14.9	27.7	1.1	115.0	NoLiq	0.0
14.9	28.1	1.1	115.0	NoLiq	0.0
15.0	29.4	1.1	115.0	20.0	0.3
15.1	42.6	1.2	115.0	20.0	0.3
15.1	53.5	1.2	115.0	20.0	0.3
15.2	94.6	1.3	115.0	20.0	0.3
15.3	107.5	1.4	115.0	20.0	0.3
15.3	128.7	1.5	115.0	20.0	0.3
15.4	143.5	1.7	115.0	20.0	0.3
15.5	153.8	1.8	115.0	20.0	0.3
15.5	157.2	1.9	115.0	20.0	0.3
15.6	161.7	2.0	115.0	20.0	0.3
15.7	164.5	2.2	115.0	20.0	0.3
15.7	167.5	2.4	115.0	20.0	0.3
15.8	169.3	2.5	115.0	20.0	0.3
15.8	172.3	2.6	115.0	20.0	0.3
15.9	174.8	2.8	115.0	20.0	0.3
16.0	176.8	2.9	115.0	20.0	0.3
16.0	177.9	3.0	115.0	20.0	0.3
16.1	180.9	3.2	115.0	20.0	0.3
16.2	182.3	3.3	115.0	20.0	0.3

16.2	185.4	3.3	115.0	20.0	0.3
16.3	187.8	3.5	115.0	20.0	0.3
16.4	189.1	3.6	115.0	20.0	0.3
16.4	189.5	2.6	115.0	20.0	0.3
16.5	190.0	1.2	115.0	20.0	0.3
16.6	191.3	1.6	115.0	20.0	0.3
16.6	191.0	2.0	115.0	20.0	0.3
16.7	190.7	2.3	115.0	20.0	0.3
16.7	189.9	2.6	115.0	20.0	0.3
16.9	191.9	3.3	115.0	20.0	0.3
16.9	189.6	3.4	115.0	20.0	0.3
16.9	187.1	3.4	115.0	20.0	0.3
17.0	178.2	3.6	115.0	20.0	0.3
17.1	174.7	3.5	115.0	20.0	0.3
17.2	168.0	3.3	115.0	20.0	0.3
17.2	162.1	3.2	115.0	20.0	0.3
17.3	156.3	3.1	115.0	20.0	0.3
17.4	159.4	3.1	115.0	20.0	0.3
17.4	159.3	3.1	115.0	20.0	0.3
17.5	155.5	3.2	115.0	20.0	0.3
17.6	153.6	3.2	115.0	20.0	0.3
17.6	151.0	3.2	115.0	20.0	0.3
17.7	148.7	3.1	115.0	20.0	0.3
17.8	145.5	3.0	115.0	20.0	0.3
17.8	143.6	2.9	115.0	20.0	0.3
17.9	140.2	2.8	115.0	20.0	0.3
17.9	144.1	2.7	115.0	20.0	0.3
18.0	144.4	2.6	115.0	20.0	0.3
18.1	155.5	2.5	115.0	20.0	0.3
18.2	169.9	2.4	115.0	20.0	0.3
18.2	172.5	2.4	115.0	20.0	0.3
18.3	174.3	2.3	115.0	20.0	0.3
18.3	176.5	2.3	115.0	20.0	0.3
18.4	176.5	2.1	115.0	20.0	0.3
18.5	175.8	2.1	115.0	20.0	0.3
18.5	176.5	2.0	115.0	20.0	0.3
18.6	175.1	2.1	115.0	20.0	0.3
18.7	176.5	2.1	115.0	20.0	0.3
18.7	179.0	2.1	115.0	20.0	0.3
18.8	181.4	2.2	115.0	20.0	0.3
18.9	182.6	2.3	115.0	20.0	0.3
18.9	182.6	2.3	115.0	20.0	0.3
19.0	180.6	2.3	115.0	20.0	0.3
19.1	176.7	2.3	115.0	20.0	0.3
19.1	175.0	2.2	115.0	20.0	0.3
19.2	173.6	2.2	115.0	20.0	0.3
19.3	173.2	2.2	115.0	20.0	0.3
19.3	172.0	2.2	115.0	20.0	0.3
19.4	173.5	2.2	115.0	20.0	0.3
19.4	169.6	2.3	115.0	20.0	0.3

19.6	173.8	2.4	115.0	20.0	0.3
19.6	176.7	2.4	115.0	20.0	0.3
19.7	180.6	2.5	115.0	20.0	0.3
19.7	186.6	2.6	115.0	20.0	0.3
19.8	191.8	2.8	115.0	20.0	0.3
19.9	192.0	2.8	115.0	20.0	0.3
19.9	190.1	2.8	115.0	20.0	0.3
20.0	186.5	2.8	115.0	20.0	0.3
20.0	184.6	2.8	115.0	20.0	0.3
20.1	168.2	2.6	115.0	20.0	0.3
20.2	174.5	2.5	115.0	20.0	0.3
20.3	177.2	2.4	115.0	20.0	0.3
20.3	178.1	2.4	115.0	20.0	0.3
20.4	181.0	2.4	115.0	20.0	0.3
20.4	184.6	2.3	115.0	20.0	0.3
20.5	189.6	2.2	115.0	20.0	0.3
20.6	193.1	2.2	115.0	20.0	0.3
20.6	200.9	2.2	115.0	20.0	0.3
20.7	206.6	2.3	115.0	20.0	0.3
20.8	208.3	2.4	115.0	20.0	0.3
20.8	207.6	2.5	115.0	20.0	0.3
20.9	208.5	2.5	115.0	20.0	0.3
21.0	208.6	2.7	115.0	20.0	0.3
21.0	211.8	2.7	115.0	20.0	0.3
21.1	213.2	2.8	115.0	20.0	0.3
21.2	213.7	2.9	115.0	20.0	0.3
21.2	214.1	2.9	115.0	20.0	0.3
21.3	215.6	2.9	115.0	20.0	0.3
21.4	214.7	2.9	115.0	20.0	0.3
21.4	212.2	2.9	115.0	20.0	0.3
21.5	207.5	2.8	115.0	20.0	0.3
21.5	204.8	2.8	115.0	20.0	0.3
21.6	197.1	2.6	115.0	20.0	0.3
21.7	192.4	2.5	115.0	20.0	0.3
21.7	183.7	2.3	115.0	20.0	0.3
21.8	177.1	2.1	115.0	20.0	0.3
21.9	170.4	1.9	115.0	20.0	0.3
21.9	165.3	1.9	115.0	20.0	0.3
22.0	143.1	1.8	115.0	NoLiq	0.0
22.1	132.4	1.8	115.0	NoLiq	0.0
22.2	108.6	1.8	115.0	NoLiq	0.0
22.2	95.6	1.8	115.0	NoLiq	0.0
22.3	62.6	1.7	115.0	NoLiq	0.0
22.3	53.8	1.6	115.0	NoLiq	0.0
22.4	41.7	1.6	115.0	NoLiq	0.0
22.5	37.1	1.5	115.0	NoLiq	0.0
22.6	30.3	1.3	115.0	NoLiq	0.0
22.6	26.0	1.3	115.0	NoLiq	0.0
22.7	23.2	1.2	115.0	NoLiq	0.0
22.8	21.9	1.0	115.0	NoLiq	0.0

22.8	21.6	0.7	115.0	NoLiq	0.0
22.9	20.0	0.5	115.0	NoLiq	0.0
22.9	20.0	0.6	115.0	NoLiq	0.0
23.0	19.9	0.6	115.0	NoLiq	0.0
23.1	20.0	0.6	115.0	NoLiq	0.0
23.1	22.0	0.7	115.0	NoLiq	0.0
23.2	17.4	0.8	115.0	NoLiq	0.0
23.3	23.4	0.8	115.0	NoLiq	0.0
23.3	23.5	0.9	115.0	NoLiq	0.0
23.4	22.9	0.8	115.0	NoLiq	0.0
23.4	22.8	0.8	115.0	NoLiq	0.0
23.5	20.6	0.7	115.0	NoLiq	0.0
23.6	17.8	0.7	115.0	NoLiq	0.0
23.7	15.9	0.6	115.0	NoLiq	0.0
23.7	14.9	0.5	115.0	NoLiq	0.0
23.8	14.0	0.5	115.0	NoLiq	0.0
23.9	14.0	0.4	115.0	NoLiq	0.0
23.9	14.0	0.4	115.0	NoLiq	0.0
24.0	14.0	0.4	115.0	NoLiq	0.0
24.0	14.2	0.4	115.0	NoLiq	0.0
24.1	14.5	0.5	115.0	NoLiq	0.0
24.2	15.2	0.5	115.0	NoLiq	0.0
24.3	15.9	0.6	115.0	NoLiq	0.0
24.3	16.5	0.6	115.0	NoLiq	0.0
24.4	18.5	0.6	115.0	NoLiq	0.0
24.4	22.0	0.7	115.0	NoLiq	0.0
24.5	24.8	0.9	115.0	NoLiq	0.0
24.6	26.4	1.0	115.0	NoLiq	0.0
24.6	29.1	1.1	115.0	NoLiq	0.0
24.7	32.3	0.9	115.0	NoLiq	0.0
24.8	38.5	1.0	115.0	NoLiq	0.0
24.8	43.2	1.1	115.0	NoLiq	0.0
24.9	70.3	1.1	115.0	NoLiq	0.0
25.0	85.3	1.2	115.0	NoLiq	0.0
25.0	99.1	1.3	115.0	20.0	0.3
25.1	129.0	1.3	115.0	20.0	0.3
25.1	142.1	1.4	115.0	20.0	0.3
25.3	164.2	1.4	115.0	20.0	0.3
25.3	168.8	1.4	115.0	20.0	0.3
25.4	171.5	1.4	115.0	20.0	0.3
25.4	167.2	1.5	115.0	20.0	0.3
25.5	157.9	1.5	115.0	20.0	0.3
25.5	151.5	1.5	115.0	20.0	0.3
25.6	137.8	1.5	115.0	20.0	0.3
25.7	122.9	1.6	115.0	20.0	0.3
25.8	105.7	1.7	115.0	20.0	0.3
25.8	95.4	1.7	115.0	20.0	0.3
25.9	66.0	1.7	115.0	20.0	0.3
26.0	56.3	1.7	115.0	20.0	0.3
26.0	41.5	1.6	115.0	NoLiq	0.0

26.1	35.9	1.5	115.0	NoLiq	0.0
26.1	28.9	1.2	115.0	NoLiq	0.0
26.2	24.7	1.0	115.0	NoLiq	0.0
26.3	23.1	1.0	115.0	NoLiq	0.0
26.4	24.6	0.9	115.0	NoLiq	0.0
26.4	22.6	0.9	115.0	NoLiq	0.0
26.5	24.5	0.9	115.0	NoLiq	0.0
26.5	27.1	0.9	115.0	NoLiq	0.0
26.6	28.0	1.1	115.0	NoLiq	0.0
26.7	28.1	1.1	115.0	NoLiq	0.0
26.7	28.5	1.1	115.0	NoLiq	0.0
26.8	28.0	1.1	115.0	NoLiq	0.0
26.9	26.2	1.0	115.0	NoLiq	0.0
26.9	25.1	1.0	115.0	NoLiq	0.0
27.0	22.6	0.9	115.0	NoLiq	0.0
27.1	20.4	0.8	115.0	NoLiq	0.0
27.1	19.4	0.7	115.0	NoLiq	0.0
27.2	18.3	0.7	115.0	NoLiq	0.0
27.3	17.5	0.7	115.0	NoLiq	0.0
27.3	17.6	0.7	115.0	NoLiq	0.0
27.4	18.0	0.6	115.0	NoLiq	0.0
27.5	20.5	0.8	115.0	NoLiq	0.0
27.5	21.8	1.0	115.0	NoLiq	0.0
27.6	25.9	1.1	115.0	NoLiq	0.0
27.7	35.0	1.2	115.0	NoLiq	0.0
27.7	55.2	1.3	115.0	NoLiq	0.0
27.8	68.5	1.4	115.0	NoLiq	0.0
27.8	102.4	1.5	115.0	NoLiq	0.0
27.9	133.5	1.6	115.0	NoLiq	0.0
28.0	145.5	1.7	115.0	NoLiq	0.0
28.0	146.5	1.7	115.0	NoLiq	0.0
28.1	142.7	1.7	115.0	NoLiq	0.0
28.2	133.2	1.9	115.0	NoLiq	0.0
28.2	125.1	2.0	115.0	NoLiq	0.0
28.3	105.0	2.3	115.0	NoLiq	0.0
28.4	83.3	2.4	115.0	NoLiq	0.0
28.5	66.3	2.3	115.0	NoLiq	0.0
28.5	60.5	2.2	115.0	NoLiq	0.0
28.6	56.8	2.1	115.0	NoLiq	0.0
28.6	55.0	2.0	115.0	NoLiq	0.0
28.7	51.6	1.8	115.0	NoLiq	0.0
28.8	50.7	1.4	115.0	NoLiq	0.0
28.8	51.1	1.6	115.0	NoLiq	0.0
28.9	56.5	1.5	115.0	NoLiq	0.0
29.0	61.2	1.4	115.0	NoLiq	0.0
29.1	57.8	1.3	115.0	NoLiq	0.0
29.1	48.2	1.3	115.0	NoLiq	0.0
29.2	49.4	1.1	115.0	NoLiq	0.0
29.2	45.3	1.0	115.0	NoLiq	0.0
29.3	42.8	1.0	115.0	NoLiq	0.0

29.4	35.2	1.0	115.0	NoLiq	0.0
29.4	32.4	0.9	115.0	NoLiq	0.0
29.5	28.0	0.9	115.0	NoLiq	0.0
29.5	26.5	0.9	115.0	NoLiq	0.0
29.6	26.5	0.8	115.0	NoLiq	0.0
29.7	26.5	1.0	115.0	NoLiq	0.0
29.8	26.4	1.1	115.0	NoLiq	0.0
29.8	27.0	1.2	115.0	NoLiq	0.0
29.9	29.4	1.2	115.0	NoLiq	0.0
30.0	44.0	1.3	115.0	NoLiq	0.0
30.0	72.9	1.0	115.0	20.0	0.3
30.1	101.1	1.0	115.0	20.0	0.3
30.1	111.5	0.9	115.0	20.0	0.3
30.2	126.0	1.1	115.0	20.0	0.3
30.3	135.1	1.4	115.0	20.0	0.3
30.4	135.1	1.6	115.0	20.0	0.3
30.4	135.1	1.8	115.0	20.0	0.3
30.5	150.6	2.1	115.0	20.0	0.3
30.5	150.8	2.2	115.0	20.0	0.3
30.6	150.4	2.3	115.0	20.0	0.3
30.7	146.3	2.2	115.0	20.0	0.3
30.7	144.3	2.2	115.0	20.0	0.3
30.8	141.9	2.3	115.0	20.0	0.3
30.9	141.8	2.2	115.0	20.0	0.3
30.9	143.4	2.3	115.0	20.0	0.3
31.0	148.8	2.5	115.0	20.0	0.3
31.1	158.4	2.7	115.0	20.0	0.3
31.2	172.4	2.9	115.0	20.0	0.3
31.2	181.2	3.0	115.0	20.0	0.3
31.3	199.3	3.0	115.0	20.0	0.3
31.3	214.3	3.1	115.0	20.0	0.3
31.4	222.0	3.1	115.0	20.0	0.3
31.5	223.6	3.0	115.0	20.0	0.3
31.5	225.1	2.8	115.0	20.0	0.3
31.6	225.0	2.5	115.0	20.0	0.3
31.7	223.7	2.4	115.0	20.0	0.3
31.7	219.0	2.3	115.0	20.0	0.3
31.8	215.9	2.2	115.0	20.0	0.3
31.8	208.8	2.0	115.0	20.0	0.3
31.9	200.7	1.9	115.0	20.0	0.3
32.0	191.7	1.7	115.0	20.0	0.3
32.1	182.6	1.6	115.0	20.0	0.3
32.1	178.4	1.6	115.0	20.0	0.3
32.2	169.3	1.5	115.0	20.0	0.3
32.3	160.0	1.4	115.0	20.0	0.3
32.3	150.2	1.4	115.0	20.0	0.3
32.4	144.4	1.4	115.0	20.0	0.3
32.5	131.9	1.4	115.0	20.0	0.3
32.5	117.0	1.6	115.0	NoLiq	0.0
32.6	107.5	1.7	115.0	NoLiq	0.0

32.6	87.8	1.9	115.0	NoLiq	0.0
32.7	67.8	2.1	115.0	NoLiq	0.0
32.8	59.2	2.0	115.0	NoLiq	0.0
32.8	46.7	1.9	115.0	NoLiq	0.0
32.9	39.8	1.7	115.0	NoLiq	0.0
33.0	46.4	1.6	115.0	NoLiq	0.0
33.0	39.0	1.5	115.0	NoLiq	0.0
33.1	46.1	1.4	115.0	NoLiq	0.0
33.2	65.0	1.3	115.0	NoLiq	0.0
33.2	59.8	1.3	115.0	NoLiq	0.0
33.3	51.9	1.3	115.0	NoLiq	0.0
33.4	36.8	1.2	115.0	NoLiq	0.0
33.5	29.5	1.2	115.0	NoLiq	0.0
33.5	25.8	1.2	115.0	NoLiq	0.0
33.5	23.9	1.2	115.0	NoLiq	0.0
33.7	26.5	1.2	115.0	NoLiq	0.0
33.7	27.3	1.1	115.0	NoLiq	0.0
33.8	27.5	1.0	115.0	NoLiq	0.0
33.8	26.8	1.1	115.0	NoLiq	0.0
33.9	29.5	1.3	115.0	NoLiq	0.0
34.0	37.7	1.5	115.0	NoLiq	0.0
34.0	44.3	1.6	115.0	NoLiq	0.0
34.1	64.2	1.8	115.0	NoLiq	0.0
34.2	89.9	1.9	115.0	NoLiq	0.0
34.3	115.3	2.1	115.0	NoLiq	0.0
34.3	126.4	2.1	115.0	NoLiq	0.0
34.4	135.9	1.9	115.0	NoLiq	0.0
34.4	133.7	1.7	115.0	NoLiq	0.0
34.5	124.5	1.9	115.0	NoLiq	0.0
34.6	117.9	2.0	115.0	NoLiq	0.0
34.6	106.6	2.1	115.0	NoLiq	0.0
34.7	100.0	2.2	115.0	NoLiq	0.0
34.7	95.4	2.2	115.0	NoLiq	0.0
34.8	94.2	2.2	115.0	NoLiq	0.0
34.9	88.9	2.1	115.0	NoLiq	0.0
34.9	74.8	2.2	115.0	NoLiq	0.0
35.0	59.3	2.1	115.0	NoLiq	0.0
35.1	41.4	2.0	115.0	NoLiq	0.0
35.1	43.3	1.8	115.0	NoLiq	0.0
35.2	37.9	1.5	115.0	NoLiq	0.0
35.3	31.8	1.4	115.0	NoLiq	0.0
35.3	28.9	1.3	115.0	NoLiq	0.0
35.4	24.6	1.2	115.0	NoLiq	0.0
35.5	21.4	1.0	115.0	NoLiq	0.0
35.5	20.8	0.9	115.0	NoLiq	0.0
35.6	20.6	0.8	115.0	NoLiq	0.0
35.7	21.0	0.7	115.0	NoLiq	0.0
35.7	22.1	0.7	115.0	NoLiq	0.0
35.8	22.3	0.7	115.0	NoLiq	0.0
35.9	22.6	0.7	115.0	NoLiq	0.0

35.9	22.0	0.8	115.0	NoLiq	0.0
36.0	20.9	0.8	115.0	NoLiq	0.0
36.1	20.5	0.8	115.0	NoLiq	0.0
36.1	20.0	0.8	115.0	NoLiq	0.0
36.2	20.4	0.8	115.0	NoLiq	0.0
36.2	20.0	0.8	115.0	NoLiq	0.0
36.3	20.0	0.8	115.0	NoLiq	0.0
36.4	20.0	0.8	115.0	NoLiq	0.0
36.4	20.0	0.8	115.0	NoLiq	0.0
36.5	22.1	0.8	115.0	NoLiq	0.0
36.6	22.9	0.8	115.0	NoLiq	0.0
36.6	22.5	0.8	115.0	NoLiq	0.0
36.7	21.6	0.8	115.0	NoLiq	0.0
36.8	21.5	0.8	115.0	NoLiq	0.0
36.8	20.9	0.8	115.0	NoLiq	0.0
36.9	21.3	0.8	115.0	NoLiq	0.0
37.0	23.3	0.9	115.0	NoLiq	0.0
37.0	24.8	0.9	115.0	NoLiq	0.0
37.1	28.3	0.9	115.0	NoLiq	0.0
37.2	33.8	1.0	115.0	NoLiq	0.0
37.3	36.7	1.1	115.0	NoLiq	0.0
37.3	37.1	1.2	115.0	NoLiq	0.0
37.4	36.4	1.4	115.0	NoLiq	0.0
37.5	33.1	1.6	115.0	NoLiq	0.0
37.5	32.7	1.6	115.0	NoLiq	0.0
37.6	39.2	1.7	115.0	NoLiq	0.0
37.7	58.7	1.7	115.0	NoLiq	0.0
37.7	85.1	1.7	115.0	NoLiq	0.0
37.8	95.2	1.7	115.0	NoLiq	0.0
37.8	103.8	1.9	115.0	NoLiq	0.0
37.9	109.2	2.2	115.0	NoLiq	0.0
37.9	96.6	2.4	115.0	NoLiq	0.0
38.0	129.2	2.7	120.0	50.0	0.1
38.1	142.6	3.1	120.0	50.0	0.1
38.2	152.8	3.4	120.0	50.0	0.1
38.2	162.5	3.5	120.0	50.0	0.1
38.3	165.6	3.5	120.0	50.0	0.1
38.3	166.8	3.5	120.0	50.0	0.1
38.4	162.1	3.3	120.0	50.0	0.1
38.5	152.7	3.2	120.0	50.0	0.1
38.5	144.7	3.1	120.0	50.0	0.1
38.6	124.1	3.1	120.0	50.0	0.1
38.7	98.7	3.1	120.0	50.0	0.1
38.7	85.6	3.1	120.0	50.0	0.1
38.8	65.3	3.0	120.0	50.0	0.1
38.9	52.3	2.8	120.0	50.0	0.1
38.9	47.4	2.6	120.0	50.0	0.1
39.0	42.7	2.4	115.0	NoLiq	0.0
39.1	42.7	2.2	115.0	NoLiq	0.0
39.1	46.4	2.1	115.0	NoLiq	0.0

39.2	60.9	2.1	115.0	NoLiq	0.0
39.3	75.2	2.1	115.0	NoLiq	0.0
39.4	70.6	2.1	115.0	NoLiq	0.0
39.4	66.2	2.0	115.0	NoLiq	0.0
39.5	59.0	1.8	115.0	NoLiq	0.0
39.5	50.8	1.7	115.0	NoLiq	0.0
39.6	46.7	1.7	115.0	NoLiq	0.0
39.7	40.1	1.7	115.0	NoLiq	0.0
39.8	33.5	1.6	115.0	NoLiq	0.0
39.8	31.3	1.4	115.0	NoLiq	0.0
39.9	28.4	1.2	115.0	NoLiq	0.0
39.9	26.4	1.2	115.0	NoLiq	0.0
40.0	25.2	1.3	115.0	NoLiq	0.0
40.1	25.2	1.3	115.0	NoLiq	0.0
40.1	25.2	1.3	115.0	NoLiq	0.0
40.2	24.8	1.3	115.0	NoLiq	0.0
40.3	27.6	1.6	115.0	NoLiq	0.0
40.3	37.8	1.8	115.0	NoLiq	0.0
40.4	56.0	1.9	115.0	NoLiq	0.0
40.5	57.0	2.0	115.0	NoLiq	0.0
40.5	51.1	2.0	115.0	NoLiq	0.0
40.6	45.9	2.0	115.0	NoLiq	0.0
40.6	38.9	1.9	115.0	NoLiq	0.0
40.7	34.6	1.8	115.0	NoLiq	0.0
40.8	32.2	1.7	115.0	NoLiq	0.0
40.8	32.4	1.7	115.0	NoLiq	0.0
40.9	33.5	1.6	115.0	NoLiq	0.0
41.0	38.3	1.6	115.0	NoLiq	0.0
41.0	43.5	1.6	115.0	NoLiq	0.0
41.1	54.8	1.6	115.0	NoLiq	0.0
41.2	59.4	1.7	115.0	NoLiq	0.0
41.2	54.6	1.7	115.0	NoLiq	0.0
41.3	54.7	1.8	115.0	NoLiq	0.0
41.4	57.2	2.0	115.0	NoLiq	0.0
41.4	55.4	2.1	115.0	NoLiq	0.0
41.5	54.0	2.2	115.0	NoLiq	0.0
41.6	47.9	2.3	115.0	NoLiq	0.0
41.6	46.0	2.2	115.0	NoLiq	0.0
41.7	45.7	2.2	115.0	NoLiq	0.0
41.8	47.2	2.1	115.0	NoLiq	0.0
41.8	46.4	2.1	115.0	NoLiq	0.0
41.9	45.3	2.0	115.0	NoLiq	0.0
42.0	43.2	1.9	115.0	NoLiq	0.0
42.0	38.9	1.7	115.0	NoLiq	0.0
42.1	35.0	1.7	115.0	NoLiq	0.0
42.2	33.3	1.8	115.0	NoLiq	0.0
42.2	35.2	1.9	115.0	NoLiq	0.0
42.3	35.4	2.0	115.0	NoLiq	0.0
42.4	42.1	2.1	115.0	NoLiq	0.0
42.4	46.4	2.1	115.0	NoLiq	0.0

42.5	52.2	2.2	115.0	NoLiq	0.0
42.6	54.3	2.2	115.0	NoLiq	0.0
42.6	53.3	2.2	115.0	NoLiq	0.0
42.7	53.6	2.3	115.0	NoLiq	0.0
42.8	57.3	2.4	115.0	NoLiq	0.0
42.8	61.5	2.4	115.0	NoLiq	0.0
42.9	79.0	2.4	115.0	NoLiq	0.0
43.0	90.3	2.4	115.0	NoLiq	0.0
43.0	90.1	2.4	120.0	50.0	0.1
43.1	93.1	2.4	120.0	50.0	0.1
43.2	100.9	2.6	120.0	50.0	0.1
43.2	100.8	2.7	120.0	50.0	0.1
43.3	98.2	2.8	120.0	50.0	0.1
43.3	94.3	3.0	120.0	50.0	0.1
43.4	114.8	3.4	120.0	50.0	0.1
43.5	140.7	3.7	120.0	50.0	0.1
43.5	188.4	4.0	120.0	50.0	0.1
43.6	201.8	4.5	120.0	50.0	0.1
43.7	197.4	4.6	120.0	50.0	0.1
43.7	201.1	4.6	120.0	50.0	0.1
43.8	199.3	4.5	120.0	50.0	0.1
43.9	200.3	4.1	120.0	50.0	0.1
43.9	200.0	4.0	120.0	50.0	0.1
44.0	198.2	4.1	120.0	50.0	0.1
44.0	194.7	4.2	120.0	50.0	0.1
44.1	193.3	4.4	120.0	50.0	0.1
44.2	188.8	4.4	120.0	50.0	0.1
44.3	182.8	4.3	120.0	50.0	0.1
44.3	175.9	4.3	120.0	50.0	0.1
44.4	170.4	4.2	120.0	50.0	0.1
44.4	161.3	4.0	120.0	50.0	0.1
44.5	155.6	3.7	120.0	50.0	0.1
44.6	152.2	3.6	120.0	50.0	0.1
44.6	138.3	3.6	120.0	50.0	0.1
44.7	115.9	3.4	120.0	50.0	0.1
44.8	102.4	3.1	120.0	50.0	0.1
44.8	100.8	2.9	120.0	50.0	0.1
44.9	100.1	2.7	120.0	50.0	0.1
45.0	104.6	2.0	120.0	50.0	0.1
45.0	105.3	1.6	120.0	50.0	0.1
45.1	92.8	1.7	120.0	50.0	0.1
45.2	77.9	1.9	120.0	50.0	0.1
45.2	71.2	2.1	120.0	50.0	0.1
45.3	58.0	2.1	120.0	50.0	0.1
45.4	47.6	2.3	120.0	50.0	0.1
45.5	59.9	2.4	120.0	50.0	0.1
45.5	79.2	2.4	120.0	50.0	0.1
45.6	133.2	2.4	120.0	50.0	0.1
45.7	180.8	2.3	120.0	50.0	0.1
45.7	200.9	2.4	120.0	50.0	0.1

45.8	229.6	2.4	120.0	50.0	0.1
45.8	250.4	2.5	120.0	50.0	0.1
45.9	237.5	2.6	120.0	50.0	0.1
46.0	252.0	2.7	120.0	50.0	0.1
46.0	270.5	2.7	115.0	20.0	0.3
46.1	282.6	2.9	115.0	20.0	0.3
46.2	288.2	3.2	115.0	20.0	0.3
46.2	289.6	3.2	115.0	20.0	0.3
46.3	290.0	3.3	115.0	20.0	0.3
46.4	287.8	3.4	115.0	20.0	0.3
46.4	283.4	3.3	115.0	20.0	0.3
46.5	280.5	3.3	115.0	20.0	0.3
46.5	274.5	3.3	115.0	20.0	0.3
46.6	267.3	3.3	115.0	20.0	0.3
46.7	263.0	3.2	115.0	20.0	0.3
46.7	254.9	3.2	115.0	20.0	0.3
46.8	246.1	3.1	115.0	20.0	0.3
46.9	240.0	3.0	115.0	20.0	0.3
46.9	227.2	2.9	115.0	20.0	0.3
47.0	213.1	2.1	115.0	20.0	0.3
47.1	200.7	2.2	115.0	20.0	0.3
47.1	201.1	2.3	115.0	20.0	0.3
47.2	201.1	2.5	115.0	20.0	0.3
47.3	201.6	2.9	115.0	20.0	0.3
47.4	164.4	3.1	115.0	20.0	0.3
47.4	223.3	3.4	115.0	20.0	0.3
47.5	236.4	3.7	115.0	20.0	0.3
47.5	240.1	4.0	115.0	20.0	0.3
47.6	244.6	4.3	115.0	20.0	0.3
47.7	246.1	4.5	115.0	20.0	0.3
47.7	245.3	4.5	115.0	20.0	0.3
47.8	242.1	4.6	115.0	20.0	0.3
47.9	235.4	4.6	115.0	20.0	0.3
47.9	231.6	4.7	115.0	20.0	0.3
48.0	226.6	4.8	115.0	20.0	0.3
48.1	231.5	4.9	115.0	20.0	0.3
48.1	228.0	4.9	115.0	20.0	0.3
48.2	231.5	4.9	115.0	20.0	0.3
48.3	235.4	4.7	115.0	20.0	0.3
48.3	237.7	4.9	115.0	20.0	0.3
48.4	240.1	4.8	115.0	20.0	0.3
48.5	249.4	5.0	115.0	20.0	0.3
48.5	253.2	5.2	115.0	20.0	0.3
48.6	250.3	5.4	115.0	20.0	0.3
48.6	251.2	5.6	115.0	20.0	0.3
48.7	259.6	5.8	115.0	20.0	0.3
48.8	262.9	6.1	115.0	20.0	0.3
48.9	264.1	6.2	115.0	20.0	0.3
48.9	263.7	6.3	115.0	20.0	0.3
49.0	262.8	6.4	115.0	20.0	0.3

49.1	260.4	6.4	115.0	20.0	0.3
49.1	259.5	6.5	115.0	20.0	0.3
49.2	260.3	6.5	115.0	20.0	0.3
49.3	264.0	6.6	115.0	20.0	0.3
49.3	266.0	6.7	115.0	20.0	0.3
49.4	269.2	6.8	115.0	20.0	0.3
49.5	270.8	6.9	115.0	20.0	0.3
49.5	270.8	6.9	115.0	20.0	0.3
49.6	270.3	6.9	115.0	20.0	0.3
49.6	269.9	6.9	115.0	20.0	0.3
49.7	269.1	6.8	115.0	20.0	0.3
49.8	267.5	6.7	115.0	20.0	0.3
49.8	261.3	6.6	115.0	20.0	0.3
49.9	254.9	6.5	115.0	20.0	0.3
50.0	241.2	6.2	115.0	20.0	0.3

Output Results:

Settlement of saturated sands=0.00 in.
Settlement of dry sands=2.07 in.
Total settlement of saturated and dry sands=2.07 in.
Differential Settlement=1.034 to 1.365 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.68	5.00	0.00	2.07	2.07
0.05	0.26	0.68	5.00	0.00	2.07	2.07
0.10	0.12	0.68	5.00	0.00	2.07	2.07
0.15	0.12	0.68	5.00	0.00	2.07	2.07
0.20	0.17	0.68	5.00	0.00	2.07	2.07
0.25	0.28	0.68	5.00	0.00	2.07	2.07
0.30	0.58	0.68	5.00	0.00	2.07	2.07
0.35	1.17	0.68	5.00	0.00	2.07	2.07
0.40	1.21	0.68	5.00	0.00	2.07	2.07
0.45	1.76	0.68	5.00	0.00	2.07	2.07
0.50	2.08	0.68	5.00	0.00	2.07	2.07
0.55	2.08	0.68	5.00	0.00	2.07	2.07
0.60	2.08	0.68	5.00	0.00	2.07	2.07
0.65	2.08	0.68	5.00	0.00	2.07	2.07
0.70	2.08	0.68	5.00	0.00	2.07	2.07
0.75	2.08	0.68	5.00	0.00	2.07	2.07
0.80	2.08	0.68	5.00	0.00	2.07	2.07
0.85	2.08	0.68	5.00	0.00	2.07	2.07
0.90	2.08	0.68	5.00	0.00	2.07	2.07
0.95	2.08	0.68	5.00	0.00	2.07	2.07
1.00	2.08	0.68	5.00	0.00	2.07	2.07
1.05	2.08	0.68	5.00	0.00	2.07	2.07
1.10	2.08	0.68	5.00	0.00	2.07	2.07
1.15	2.08	0.68	5.00	0.00	2.07	2.07

1.20	2.08	0.68	5.00	0.00	2.07	2.07
1.25	2.08	0.68	5.00	0.00	2.07	2.07
1.30	2.08	0.68	5.00	0.00	2.07	2.07
1.35	2.08	0.68	5.00	0.00	2.07	2.07
1.40	2.08	0.68	5.00	0.00	2.07	2.07
1.45	2.08	0.68	5.00	0.00	2.07	2.07
1.50	2.08	0.68	5.00	0.00	2.07	2.07
1.55	2.08	0.68	5.00	0.00	2.07	2.07
1.60	2.08	0.68	5.00	0.00	2.07	2.07
1.65	2.08	0.68	5.00	0.00	2.07	2.07
1.70	2.08	0.68	5.00	0.00	2.07	2.07
1.75	1.94	0.68	5.00	0.00	2.07	2.07
1.80	1.54	0.68	5.00	0.00	2.07	2.07
1.85	1.25	0.68	5.00	0.00	2.07	2.07
1.90	1.01	0.68	5.00	0.00	2.07	2.07
1.95	0.81	0.68	5.00	0.00	2.06	2.06
2.00	0.68	0.68	5.00	0.00	2.06	2.06
2.05	0.58	0.68	5.00	0.00	2.06	2.06
2.10	0.50	0.68	5.00	0.00	2.06	2.06
2.15	0.45	0.68	5.00	0.00	2.06	2.06
2.20	0.41	0.68	5.00	0.00	2.06	2.06
2.25	0.38	0.68	5.00	0.00	2.06	2.06
2.30	0.37	0.68	5.00	0.00	2.06	2.06
2.35	0.37	0.68	5.00	0.00	2.06	2.06
2.40	0.36	0.68	5.00	0.00	2.06	2.06
2.45	0.35	0.68	5.00	0.00	2.06	2.06
2.50	0.35	0.68	5.00	0.00	2.05	2.05
2.55	0.36	0.68	5.00	0.00	2.05	2.05
2.60	0.37	0.68	5.00	0.00	2.05	2.05
2.65	0.40	0.68	5.00	0.00	2.04	2.04
2.70	0.43	0.68	5.00	0.00	2.04	2.04
2.75	0.47	0.68	5.00	0.00	2.03	2.03
2.80	0.51	0.68	5.00	0.00	2.03	2.03
2.85	0.56	0.68	5.00	0.00	2.03	2.03
2.90	0.61	0.68	5.00	0.00	2.02	2.02
2.95	0.65	0.68	5.00	0.00	2.02	2.02
3.00	0.70	0.68	5.00	0.00	2.02	2.02
3.05	2.00	0.68	5.00	0.00	2.02	2.02
3.10	2.00	0.68	5.00	0.00	2.02	2.02
3.15	2.00	0.68	5.00	0.00	2.02	2.02
3.20	2.00	0.68	5.00	0.00	2.02	2.02
3.25	2.00	0.68	5.00	0.00	2.02	2.02
3.30	2.00	0.68	5.00	0.00	2.02	2.02
3.35	2.00	0.68	5.00	0.00	2.02	2.02
3.40	2.00	0.68	5.00	0.00	2.02	2.02
3.45	2.00	0.68	5.00	0.00	2.02	2.02
3.50	2.00	0.68	5.00	0.00	2.02	2.02
3.55	2.00	0.68	5.00	0.00	2.02	2.02
3.60	2.00	0.68	5.00	0.00	2.02	2.02
3.65	2.00	0.68	5.00	0.00	2.02	2.02

3.70	2.00	0.68	5.00	0.00	2.02	2.02
3.75	2.00	0.68	5.00	0.00	2.02	2.02
3.80	2.00	0.68	5.00	0.00	2.02	2.02
3.85	2.00	0.68	5.00	0.00	2.02	2.02
3.90	2.00	0.68	5.00	0.00	2.02	2.02
3.95	2.00	0.68	5.00	0.00	2.02	2.02
4.00	2.00	0.68	5.00	0.00	2.02	2.02
4.05	2.00	0.68	5.00	0.00	2.02	2.02
4.10	2.00	0.68	5.00	0.00	2.02	2.02
4.15	2.00	0.68	5.00	0.00	2.02	2.02
4.20	2.00	0.68	5.00	0.00	2.02	2.02
4.25	2.00	0.68	5.00	0.00	2.02	2.02
4.30	2.00	0.68	5.00	0.00	2.02	2.02
4.35	2.00	0.68	5.00	0.00	2.02	2.02
4.40	2.00	0.68	5.00	0.00	2.02	2.02
4.45	2.00	0.68	5.00	0.00	2.02	2.02
4.50	2.00	0.68	5.00	0.00	2.02	2.02
4.55	2.00	0.68	5.00	0.00	2.02	2.02
4.60	2.00	0.68	5.00	0.00	2.02	2.02
4.65	2.00	0.68	5.00	0.00	2.02	2.02
4.70	2.00	0.68	5.00	0.00	2.02	2.02
4.75	2.00	0.67	5.00	0.00	2.02	2.02
4.80	2.00	0.67	5.00	0.00	2.02	2.02
4.85	2.00	0.67	5.00	0.00	2.02	2.02
4.90	2.00	0.67	5.00	0.00	2.02	2.02
4.95	2.00	0.67	5.00	0.00	2.02	2.02
5.00	2.00	0.67	5.00	0.00	2.02	2.02
5.05	2.00	0.67	5.00	0.00	2.02	2.02
5.10	2.00	0.67	5.00	0.00	2.02	2.02
5.15	2.00	0.67	5.00	0.00	2.02	2.02
5.20	2.00	0.67	5.00	0.00	2.02	2.02
5.25	2.00	0.67	5.00	0.00	2.02	2.02
5.30	2.00	0.67	5.00	0.00	2.02	2.02
5.35	2.00	0.67	5.00	0.00	2.02	2.02
5.40	2.00	0.67	5.00	0.00	2.02	2.02
5.45	2.00	0.67	5.00	0.00	2.02	2.02
5.50	2.00	0.67	5.00	0.00	2.02	2.02
5.55	0.44	0.67	5.00	0.00	2.02	2.02
5.60	0.44	0.67	5.00	0.00	2.01	2.01
5.65	0.44	0.67	5.00	0.00	2.00	2.00
5.70	0.44	0.67	5.00	0.00	2.00	2.00
5.75	0.45	0.67	5.00	0.00	1.99	1.99
5.80	0.45	0.67	5.00	0.00	1.99	1.99
5.85	0.45	0.67	5.00	0.00	1.98	1.98
5.90	0.46	0.67	5.00	0.00	1.97	1.97
5.95	0.47	0.67	5.00	0.00	1.97	1.97
6.00	0.50	0.67	5.00	0.00	1.96	1.96
6.05	0.52	0.67	5.00	0.00	1.96	1.96
6.10	0.54	0.67	5.00	0.00	1.95	1.95
6.15	0.57	0.67	5.00	0.00	1.95	1.95

6.20	0.59	0.67	5.00	0.00	1.94	1.94
6.25	0.62	0.67	5.00	0.00	1.94	1.94
6.30	0.63	0.67	5.00	0.00	1.93	1.93
6.35	0.63	0.67	5.00	0.00	1.93	1.93
6.40	0.63	0.67	5.00	0.00	1.92	1.92
6.45	0.62	0.67	5.00	0.00	1.92	1.92
6.50	0.61	0.67	5.00	0.00	1.91	1.91
6.55	0.60	0.67	5.00	0.00	1.91	1.91
6.60	0.60	0.67	5.00	0.00	1.91	1.91
6.65	0.60	0.67	5.00	0.00	1.90	1.90
6.70	0.60	0.67	5.00	0.00	1.90	1.90
6.75	0.60	0.67	5.00	0.00	1.89	1.89
6.80	0.59	0.67	5.00	0.00	1.89	1.89
6.85	0.59	0.67	5.00	0.00	1.88	1.88
6.90	0.58	0.67	5.00	0.00	1.88	1.88
6.95	0.56	0.67	5.00	0.00	1.87	1.87
7.00	0.55	0.67	5.00	0.00	1.87	1.87
7.05	0.54	0.67	5.00	0.00	1.86	1.86
7.10	0.52	0.67	5.00	0.00	1.86	1.86
7.15	0.50	0.67	5.00	0.00	1.85	1.85
7.20	0.47	0.67	5.00	0.00	1.85	1.85
7.25	0.45	0.67	5.00	0.00	1.84	1.84
7.30	0.44	0.67	5.00	0.00	1.84	1.84
7.35	0.42	0.67	5.00	0.00	1.83	1.83
7.40	0.41	0.67	5.00	0.00	1.83	1.83
7.45	0.39	0.67	5.00	0.00	1.82	1.82
7.50	0.38	0.67	5.00	0.00	1.81	1.81
7.55	0.37	0.67	5.00	0.00	1.81	1.81
7.60	0.37	0.67	5.00	0.00	1.80	1.80
7.65	0.36	0.67	5.00	0.00	1.79	1.79
7.70	0.36	0.67	5.00	0.00	1.79	1.79
7.75	0.36	0.67	5.00	0.00	1.78	1.78
7.80	0.36	0.67	5.00	0.00	1.77	1.77
7.85	0.37	0.67	5.00	0.00	1.77	1.77
7.90	0.37	0.67	5.00	0.00	1.76	1.76
7.95	0.38	0.67	5.00	0.00	1.75	1.75
8.00	0.38	0.67	5.00	0.00	1.75	1.75
8.05	0.38	0.67	5.00	0.00	1.74	1.74
8.10	0.39	0.67	5.00	0.00	1.73	1.73
8.15	0.39	0.67	5.00	0.00	1.73	1.73
8.20	0.39	0.67	5.00	0.00	1.72	1.72
8.25	0.39	0.67	5.00	0.00	1.71	1.71
8.30	0.39	0.67	5.00	0.00	1.71	1.71
8.35	0.39	0.67	5.00	0.00	1.70	1.70
8.40	0.39	0.67	5.00	0.00	1.69	1.69
8.45	0.38	0.67	5.00	0.00	1.68	1.68
8.50	0.36	0.67	5.00	0.00	1.68	1.68
8.55	0.34	0.67	5.00	0.00	1.67	1.67
8.60	0.32	0.67	5.00	0.00	1.66	1.66
8.65	0.31	0.67	5.00	0.00	1.66	1.66

8.70	0.30	0.67	5.00	0.00	1.65	1.65
8.75	0.29	0.67	5.00	0.00	1.64	1.64
8.80	0.28	0.67	5.00	0.00	1.63	1.63
8.85	0.27	0.67	5.00	0.00	1.62	1.62
8.90	0.26	0.67	5.00	0.00	1.61	1.61
8.95	0.26	0.67	5.00	0.00	1.61	1.61
9.00	0.26	0.67	5.00	0.00	1.60	1.60
9.05	0.26	0.67	5.00	0.00	1.59	1.59
9.10	0.26	0.67	5.00	0.00	1.58	1.58
9.15	0.26	0.67	5.00	0.00	1.58	1.58
9.20	0.26	0.67	5.00	0.00	1.58	1.58
9.25	0.26	0.67	5.00	0.00	1.57	1.57
9.30	0.26	0.67	5.00	0.00	1.57	1.57
9.35	0.26	0.67	5.00	0.00	1.56	1.56
9.40	0.26	0.67	5.00	0.00	1.56	1.56
9.45	0.27	0.67	5.00	0.00	1.56	1.56
9.50	0.27	0.67	5.00	0.00	1.55	1.55
9.55	0.27	0.67	5.00	0.00	1.55	1.55
9.60	0.27	0.67	5.00	0.00	1.54	1.54
9.65	0.26	0.67	5.00	0.00	1.54	1.54
9.70	0.26	0.67	5.00	0.00	1.54	1.54
9.75	0.23	0.67	5.00	0.00	1.53	1.53
9.80	0.23	0.67	5.00	0.00	1.53	1.53
9.85	0.24	0.67	5.00	0.00	1.52	1.52
9.90	0.24	0.67	5.00	0.00	1.52	1.52
9.95	0.23	0.67	5.00	0.00	1.51	1.51
10.00	0.22	0.67	5.00	0.00	1.51	1.51
10.05	2.00	0.67	5.00	0.00	1.50	1.50
10.10	2.00	0.67	5.00	0.00	1.50	1.50
10.15	2.00	0.67	5.00	0.00	1.50	1.50
10.20	2.00	0.67	5.00	0.00	1.50	1.50
10.25	2.00	0.67	5.00	0.00	1.50	1.50
10.30	2.00	0.67	5.00	0.00	1.50	1.50
10.35	2.00	0.67	5.00	0.00	1.50	1.50
10.40	2.00	0.67	5.00	0.00	1.50	1.50
10.45	2.00	0.67	5.00	0.00	1.50	1.50
10.50	2.00	0.67	5.00	0.00	1.50	1.50
10.55	2.00	0.67	5.00	0.00	1.50	1.50
10.60	2.00	0.67	5.00	0.00	1.50	1.50
10.65	2.00	0.67	5.00	0.00	1.50	1.50
10.70	2.00	0.67	5.00	0.00	1.50	1.50
10.75	2.00	0.67	5.00	0.00	1.50	1.50
10.80	2.00	0.67	5.00	0.00	1.50	1.50
10.85	2.00	0.67	5.00	0.00	1.50	1.50
10.90	2.00	0.67	5.00	0.00	1.50	1.50
10.95	2.00	0.67	5.00	0.00	1.50	1.50
11.00	2.00	0.66	5.00	0.00	1.50	1.50
11.05	2.00	0.66	5.00	0.00	1.50	1.50
11.10	2.00	0.66	5.00	0.00	1.50	1.50
11.15	2.00	0.66	5.00	0.00	1.50	1.50

11.20	2.00	0.66	5.00	0.00	1.50	1.50
11.25	2.00	0.66	5.00	0.00	1.50	1.50
11.30	2.00	0.66	5.00	0.00	1.50	1.50
11.35	2.00	0.66	5.00	0.00	1.50	1.50
11.40	2.00	0.66	5.00	0.00	1.50	1.50
11.45	2.00	0.66	5.00	0.00	1.50	1.50
11.50	2.00	0.66	5.00	0.00	1.50	1.50
11.55	2.00	0.66	5.00	0.00	1.50	1.50
11.60	2.00	0.66	5.00	0.00	1.50	1.50
11.65	2.00	0.66	5.00	0.00	1.50	1.50
11.70	2.00	0.66	5.00	0.00	1.50	1.50
11.75	2.00	0.66	5.00	0.00	1.50	1.50
11.80	2.00	0.66	5.00	0.00	1.50	1.50
11.85	2.00	0.66	5.00	0.00	1.50	1.50
11.90	2.00	0.66	5.00	0.00	1.50	1.50
11.95	2.00	0.66	5.00	0.00	1.50	1.50
12.00	2.00	0.66	5.00	0.00	1.50	1.50
12.05	2.00	0.66	5.00	0.00	1.50	1.50
12.10	2.00	0.66	5.00	0.00	1.50	1.50
12.15	2.00	0.66	5.00	0.00	1.50	1.50
12.20	2.00	0.66	5.00	0.00	1.50	1.50
12.25	2.00	0.66	5.00	0.00	1.50	1.50
12.30	2.00	0.66	5.00	0.00	1.50	1.50
12.35	2.00	0.66	5.00	0.00	1.50	1.50
12.40	2.00	0.66	5.00	0.00	1.50	1.50
12.45	2.00	0.66	5.00	0.00	1.50	1.50
12.50	2.00	0.66	5.00	0.00	1.50	1.50
12.55	2.00	0.66	5.00	0.00	1.50	1.50
12.60	2.00	0.66	5.00	0.00	1.50	1.50
12.65	2.00	0.66	5.00	0.00	1.50	1.50
12.70	2.00	0.66	5.00	0.00	1.50	1.50
12.75	2.00	0.66	5.00	0.00	1.50	1.50
12.80	2.00	0.66	5.00	0.00	1.50	1.50
12.85	2.00	0.66	5.00	0.00	1.50	1.50
12.90	2.00	0.66	5.00	0.00	1.50	1.50
12.95	2.00	0.66	5.00	0.00	1.50	1.50
13.00	2.00	0.66	5.00	0.00	1.50	1.50
13.05	2.00	0.66	5.00	0.00	1.50	1.50
13.10	2.00	0.66	5.00	0.00	1.50	1.50
13.15	2.00	0.66	5.00	0.00	1.50	1.50
13.20	2.00	0.66	5.00	0.00	1.50	1.50
13.25	2.00	0.66	5.00	0.00	1.50	1.50
13.30	2.00	0.66	5.00	0.00	1.50	1.50
13.35	2.00	0.66	5.00	0.00	1.50	1.50
13.40	2.00	0.66	5.00	0.00	1.50	1.50
13.45	2.00	0.66	5.00	0.00	1.50	1.50
13.50	2.00	0.66	5.00	0.00	1.50	1.50
13.55	2.00	0.66	5.00	0.00	1.50	1.50
13.60	2.00	0.66	5.00	0.00	1.50	1.50
13.65	2.00	0.66	5.00	0.00	1.50	1.50

13.70	2.00	0.66	5.00	0.00	1.50	1.50
13.75	2.00	0.66	5.00	0.00	1.50	1.50
13.80	2.00	0.66	5.00	0.00	1.50	1.50
13.85	2.00	0.66	5.00	0.00	1.50	1.50
13.90	2.00	0.66	5.00	0.00	1.50	1.50
13.95	2.00	0.66	5.00	0.00	1.50	1.50
14.00	2.00	0.66	5.00	0.00	1.50	1.50
14.05	2.00	0.66	5.00	0.00	1.50	1.50
14.10	2.00	0.66	5.00	0.00	1.50	1.50
14.15	2.00	0.66	5.00	0.00	1.50	1.50
14.20	2.00	0.66	5.00	0.00	1.50	1.50
14.25	2.00	0.66	5.00	0.00	1.50	1.50
14.30	2.00	0.66	5.00	0.00	1.50	1.50
14.35	2.00	0.66	5.00	0.00	1.50	1.50
14.40	2.00	0.66	5.00	0.00	1.50	1.50
14.45	2.00	0.66	5.00	0.00	1.50	1.50
14.50	2.00	0.66	5.00	0.00	1.50	1.50
14.55	2.00	0.66	5.00	0.00	1.50	1.50
14.60	2.00	0.66	5.00	0.00	1.50	1.50
14.65	2.00	0.66	5.00	0.00	1.50	1.50
14.70	2.00	0.66	5.00	0.00	1.50	1.50
14.75	2.00	0.66	5.00	0.00	1.50	1.50
14.80	2.00	0.66	5.00	0.00	1.50	1.50
14.85	2.00	0.66	5.00	0.00	1.50	1.50
14.90	2.00	0.66	5.00	0.00	1.50	1.50
14.95	2.00	0.66	5.00	0.00	1.50	1.50
15.00	2.00	0.66	5.00	0.00	1.50	1.50
15.05	0.44	0.66	5.00	0.00	1.50	1.50
15.10	0.22	0.66	5.00	0.00	1.50	1.50
15.15	0.21	0.66	5.00	0.00	1.49	1.49
15.20	0.25	0.66	5.00	0.00	1.48	1.48
15.25	0.30	0.66	5.00	0.00	1.47	1.47
15.30	0.38	0.66	5.00	0.00	1.47	1.47
15.35	0.46	0.66	5.00	0.00	1.46	1.46
15.40	0.53	0.66	5.00	0.00	1.45	1.45
15.45	0.57	0.66	5.00	0.00	1.44	1.44
15.50	0.61	0.66	5.00	0.00	1.44	1.44
15.55	0.64	0.66	5.00	0.00	1.43	1.43
15.60	0.68	0.66	5.00	0.00	1.43	1.43
15.65	0.72	0.66	5.00	0.00	1.42	1.42
15.70	0.75	0.66	5.00	0.00	1.42	1.42
15.75	0.79	0.66	5.00	0.00	1.41	1.41
15.80	0.82	0.66	5.00	0.00	1.41	1.41
15.85	0.86	0.66	5.00	0.00	1.40	1.40
15.90	0.88	0.66	5.00	0.00	1.40	1.40
15.95	0.91	0.66	5.00	0.00	1.40	1.40
16.00	0.94	0.66	5.00	0.00	1.39	1.39
16.05	0.97	0.66	5.00	0.00	1.39	1.39
16.10	1.00	0.66	5.00	0.00	1.38	1.38
16.15	1.04	0.66	5.00	0.00	1.38	1.38

16.20	1.07	0.66	5.00	0.00	1.38	1.38
16.25	1.10	0.66	5.00	0.00	1.37	1.37
16.30	1.12	0.66	5.00	0.00	1.37	1.37
16.35	1.14	0.66	5.00	0.00	1.36	1.36
16.40	1.12	0.66	5.00	0.00	1.36	1.36
16.45	0.89	0.66	5.00	0.00	1.36	1.36
16.50	0.75	0.66	5.00	0.00	1.35	1.35
16.55	0.76	0.66	5.00	0.00	1.35	1.35
16.60	0.78	0.66	5.00	0.00	1.34	1.34
16.65	0.84	0.66	5.00	0.00	1.34	1.34
16.70	0.89	0.66	5.00	0.00	1.33	1.33
16.75	0.93	0.66	5.00	0.00	1.33	1.33
16.80	1.01	0.66	5.00	0.00	1.32	1.32
16.85	1.09	0.66	5.00	0.00	1.32	1.32
16.90	1.09	0.66	5.00	0.00	1.32	1.32
16.95	1.08	0.66	5.00	0.00	1.31	1.31
17.00	1.05	0.66	5.00	0.00	1.31	1.31
17.05	1.03	0.66	5.00	0.00	1.30	1.30
17.10	0.97	0.66	5.00	0.00	1.30	1.30
17.15	0.90	0.66	5.00	0.00	1.30	1.30
17.20	0.84	0.66	5.00	0.00	1.29	1.29
17.25	0.80	0.66	5.00	0.00	1.29	1.29
17.30	0.77	0.65	5.00	0.00	1.28	1.28
17.35	0.77	0.65	5.00	0.00	1.28	1.28
17.40	0.78	0.65	5.00	0.00	1.28	1.28
17.45	0.77	0.65	5.00	0.00	1.27	1.27
17.50	0.77	0.65	5.00	0.00	1.27	1.27
17.55	0.76	0.65	5.00	0.00	1.26	1.26
17.60	0.74	0.65	5.00	0.00	1.26	1.26
17.65	0.73	0.65	5.00	0.00	1.26	1.26
17.70	0.70	0.65	5.00	0.00	1.25	1.25
17.75	0.68	0.65	5.00	0.00	1.25	1.25
17.80	0.65	0.65	5.00	0.00	1.24	1.24
17.85	0.62	0.65	5.00	0.00	1.24	1.24
17.90	0.60	0.65	5.00	0.00	1.23	1.23
17.95	0.60	0.65	5.00	0.00	1.23	1.23
18.00	0.59	0.65	5.00	0.00	1.22	1.22
18.05	0.60	0.65	5.00	0.00	1.22	1.22
18.10	0.64	0.65	5.00	0.00	1.21	1.21
18.15	0.67	0.65	5.00	0.00	1.21	1.21
18.20	0.69	0.65	5.00	0.00	1.20	1.20
18.25	0.70	0.65	5.00	0.00	1.20	1.20
18.30	0.70	0.65	5.00	0.00	1.19	1.19
18.35	0.69	0.65	5.00	0.00	1.19	1.19
18.40	0.67	0.65	5.00	0.00	1.18	1.18
18.45	0.66	0.65	5.00	0.00	1.18	1.18
18.50	0.65	0.65	5.00	0.00	1.17	1.17
18.55	0.65	0.65	5.00	0.00	1.17	1.17
18.60	0.65	0.65	5.00	0.00	1.16	1.16
18.65	0.66	0.65	5.00	0.00	1.16	1.16

18.70	0.67	0.65	5.00	0.00	1.15	1.15
18.75	0.68	0.65	5.00	0.00	1.15	1.15
18.80	0.70	0.65	5.00	0.00	1.14	1.14
18.85	0.71	0.65	5.00	0.00	1.14	1.14
18.90	0.72	0.65	5.00	0.00	1.13	1.13
18.95	0.71	0.65	5.00	0.00	1.13	1.13
19.00	0.70	0.65	5.00	0.00	1.12	1.12
19.05	0.68	0.65	5.00	0.00	1.12	1.12
19.10	0.67	0.65	5.00	0.00	1.11	1.11
19.15	0.65	0.65	5.00	0.00	1.11	1.11
19.20	0.64	0.65	5.00	0.00	1.10	1.10
19.25	0.63	0.65	5.00	0.00	1.09	1.09
19.30	0.63	0.65	5.00	0.00	1.09	1.09
19.35	0.63	0.65	5.00	0.00	1.08	1.08
19.40	0.64	0.65	5.00	0.00	1.08	1.08
19.45	0.62	0.65	5.00	0.00	1.07	1.07
19.50	0.64	0.65	5.00	0.00	1.07	1.07
19.55	0.66	0.65	5.00	0.00	1.06	1.06
19.60	0.69	0.65	5.00	0.00	1.06	1.06
19.65	0.71	0.65	5.00	0.00	1.05	1.05
19.70	0.77	0.65	5.00	0.00	1.05	1.05
19.75	0.80	0.65	5.00	0.00	1.04	1.04
19.80	0.83	0.65	5.00	0.00	1.04	1.04
19.85	0.83	0.65	5.00	0.00	1.04	1.04
19.90	0.82	0.65	5.00	0.00	1.04	1.04
19.95	0.81	0.65	5.00	0.00	1.04	1.04
20.00	0.79	0.65	5.00	0.00	1.04	1.04
20.05	0.74	0.65	5.00	0.00	1.03	1.03
20.10	0.65	0.65	5.00	0.00	1.03	1.03
20.15	0.65	0.65	5.00	0.00	1.03	1.03
20.20	0.66	0.65	5.00	0.00	1.03	1.03
20.25	0.66	0.65	5.00	0.00	1.03	1.03
20.30	0.66	0.65	5.00	0.00	1.02	1.02
20.35	0.67	0.65	5.00	0.00	1.02	1.02
20.40	0.68	0.65	5.00	0.00	1.02	1.02
20.45	0.68	0.65	5.00	0.00	1.02	1.02
20.50	0.69	0.65	5.00	0.00	1.01	1.01
20.55	0.70	0.65	5.00	0.00	1.01	1.01
20.60	0.73	0.65	5.00	0.00	1.01	1.01
20.65	0.77	0.65	5.00	0.00	1.01	1.01
20.70	0.80	0.65	5.00	0.00	1.01	1.01
20.75	0.82	0.65	5.00	0.00	1.00	1.00
20.80	0.83	0.65	5.00	0.00	1.00	1.00
20.85	0.84	0.65	5.00	0.00	1.00	1.00
20.90	0.85	0.65	5.00	0.00	1.00	1.00
20.95	0.86	0.65	5.00	0.00	1.00	1.00
21.00	0.88	0.65	5.00	0.00	0.99	0.99
21.05	0.90	0.65	5.00	0.00	0.99	0.99
21.10	0.92	0.65	5.00	0.00	0.99	0.99
21.15	0.93	0.65	5.00	0.00	0.99	0.99

21.20	0.94	0.65	5.00	0.00	0.99	0.99
21.25	0.95	0.65	5.00	0.00	0.99	0.99
21.30	0.95	0.65	5.00	0.00	0.98	0.98
21.35	0.94	0.65	5.00	0.00	0.98	0.98
21.40	0.93	0.65	5.00	0.00	0.98	0.98
21.45	0.91	0.65	5.00	0.00	0.98	0.98
21.50	0.88	0.65	5.00	0.00	0.98	0.98
21.55	0.83	0.65	5.00	0.00	0.98	0.98
21.60	0.79	0.65	5.00	0.00	0.97	0.97
21.65	0.74	0.65	5.00	0.00	0.97	0.97
21.70	0.69	0.65	5.00	0.00	0.97	0.97
21.75	0.63	0.65	5.00	0.00	0.97	0.97
21.80	0.58	0.65	5.00	0.00	0.96	0.96
21.85	0.54	0.65	5.00	0.00	0.96	0.96
21.90	0.51	0.65	5.00	0.00	0.96	0.96
21.95	0.47	0.65	5.00	0.00	0.95	0.95
22.00	0.42	0.65	5.00	0.00	0.95	0.95
22.05	2.00	0.65	5.00	0.00	0.94	0.94
22.10	2.00	0.65	5.00	0.00	0.94	0.94
22.15	2.00	0.65	5.00	0.00	0.94	0.94
22.20	2.00	0.65	5.00	0.00	0.94	0.94
22.25	2.00	0.65	5.00	0.00	0.94	0.94
22.30	2.00	0.65	5.00	0.00	0.94	0.94
22.35	2.00	0.65	5.00	0.00	0.94	0.94
22.40	2.00	0.65	5.00	0.00	0.94	0.94
22.45	2.00	0.65	5.00	0.00	0.94	0.94
22.50	2.00	0.65	5.00	0.00	0.94	0.94
22.55	2.00	0.65	5.00	0.00	0.94	0.94
22.60	2.00	0.65	5.00	0.00	0.94	0.94
22.65	2.00	0.65	5.00	0.00	0.94	0.94
22.70	2.00	0.65	5.00	0.00	0.94	0.94
22.75	2.00	0.65	5.00	0.00	0.94	0.94
22.80	2.00	0.65	5.00	0.00	0.94	0.94
22.85	2.00	0.65	5.00	0.00	0.94	0.94
22.90	2.00	0.65	5.00	0.00	0.94	0.94
22.95	2.00	0.65	5.00	0.00	0.94	0.94
23.00	2.00	0.65	5.00	0.00	0.94	0.94
23.05	2.00	0.65	5.00	0.00	0.94	0.94
23.10	2.00	0.65	5.00	0.00	0.94	0.94
23.15	2.00	0.65	5.00	0.00	0.94	0.94
23.20	2.00	0.65	5.00	0.00	0.94	0.94
23.25	2.00	0.65	5.00	0.00	0.94	0.94
23.30	2.00	0.65	5.00	0.00	0.94	0.94
23.35	2.00	0.65	5.00	0.00	0.94	0.94
23.40	2.00	0.65	5.00	0.00	0.94	0.94
23.45	2.00	0.65	5.00	0.00	0.94	0.94
23.50	2.00	0.65	5.00	0.00	0.94	0.94
23.55	2.00	0.65	5.00	0.00	0.94	0.94
23.60	2.00	0.64	5.00	0.00	0.94	0.94
23.65	2.00	0.64	5.00	0.00	0.94	0.94

23.70	2.00	0.64	5.00	0.00	0.94	0.94
23.75	2.00	0.64	5.00	0.00	0.94	0.94
23.80	2.00	0.64	5.00	0.00	0.94	0.94
23.85	2.00	0.64	5.00	0.00	0.94	0.94
23.90	2.00	0.64	5.00	0.00	0.94	0.94
23.95	2.00	0.64	5.00	0.00	0.94	0.94
24.00	2.00	0.64	5.00	0.00	0.94	0.94
24.05	2.00	0.64	5.00	0.00	0.94	0.94
24.10	2.00	0.64	5.00	0.00	0.94	0.94
24.15	2.00	0.64	5.00	0.00	0.94	0.94
24.20	2.00	0.64	5.00	0.00	0.94	0.94
24.25	2.00	0.64	5.00	0.00	0.94	0.94
24.30	2.00	0.64	5.00	0.00	0.94	0.94
24.35	2.00	0.64	5.00	0.00	0.94	0.94
24.40	2.00	0.64	5.00	0.00	0.94	0.94
24.45	2.00	0.64	5.00	0.00	0.94	0.94
24.50	2.00	0.64	5.00	0.00	0.94	0.94
24.55	2.00	0.64	5.00	0.00	0.94	0.94
24.60	2.00	0.64	5.00	0.00	0.94	0.94
24.65	2.00	0.64	5.00	0.00	0.94	0.94
24.70	2.00	0.64	5.00	0.00	0.94	0.94
24.75	2.00	0.64	5.00	0.00	0.94	0.94
24.80	2.00	0.64	5.00	0.00	0.94	0.94
24.85	2.00	0.64	5.00	0.00	0.94	0.94
24.90	2.00	0.64	5.00	0.00	0.94	0.94
24.95	2.00	0.64	5.00	0.00	0.94	0.94
25.00	2.00	0.64	5.00	0.00	0.94	0.94
25.05	0.21	0.64	5.00	0.00	0.94	0.94
25.10	0.26	0.64	5.00	0.00	0.93	0.93
25.15	0.30	0.64	5.00	0.00	0.93	0.93
25.20	0.33	0.64	5.00	0.00	0.92	0.92
25.25	0.36	0.64	5.00	0.00	0.91	0.91
25.30	0.38	0.64	5.00	0.00	0.90	0.90
25.35	0.39	0.64	5.00	0.00	0.89	0.89
25.40	0.38	0.64	5.00	0.00	0.88	0.88
25.45	0.37	0.64	5.00	0.00	0.88	0.88
25.50	0.35	0.64	5.00	0.00	0.87	0.87
25.55	0.33	0.64	5.00	0.00	0.86	0.86
25.60	0.30	0.64	5.00	0.00	0.85	0.85
25.65	0.28	0.64	5.00	0.00	0.84	0.84
25.70	0.27	0.64	5.00	0.00	0.83	0.83
25.75	0.25	0.64	5.00	0.00	0.83	0.83
25.80	0.24	0.64	5.00	0.00	0.82	0.82
25.85	0.23	0.64	5.00	0.00	0.81	0.81
25.90	0.24	0.64	5.00	0.00	0.80	0.80
25.95	0.30	0.64	5.00	0.00	0.79	0.79
26.00	2.00	0.64	5.00	0.00	0.79	0.79
26.05	2.00	0.64	5.00	0.00	0.79	0.79
26.10	2.00	0.64	5.00	0.00	0.79	0.79
26.15	2.00	0.64	5.00	0.00	0.79	0.79

26.20	2.00	0.64	5.00	0.00	0.79	0.79
26.25	2.00	0.64	5.00	0.00	0.79	0.79
26.30	2.00	0.64	5.00	0.00	0.79	0.79
26.35	2.00	0.64	5.00	0.00	0.79	0.79
26.40	2.00	0.64	5.00	0.00	0.79	0.79
26.45	2.00	0.64	5.00	0.00	0.79	0.79
26.50	2.00	0.64	5.00	0.00	0.79	0.79
26.55	2.00	0.64	5.00	0.00	0.79	0.79
26.60	2.00	0.64	5.00	0.00	0.79	0.79
26.65	2.00	0.64	5.00	0.00	0.79	0.79
26.70	2.00	0.64	5.00	0.00	0.79	0.79
26.75	2.00	0.64	5.00	0.00	0.79	0.79
26.80	2.00	0.64	5.00	0.00	0.79	0.79
26.85	2.00	0.64	5.00	0.00	0.79	0.79
26.90	2.00	0.64	5.00	0.00	0.79	0.79
26.95	2.00	0.64	5.00	0.00	0.79	0.79
27.00	2.00	0.64	5.00	0.00	0.79	0.79
27.05	2.00	0.64	5.00	0.00	0.79	0.79
27.10	2.00	0.64	5.00	0.00	0.79	0.79
27.15	2.00	0.64	5.00	0.00	0.79	0.79
27.20	2.00	0.64	5.00	0.00	0.79	0.79
27.25	2.00	0.64	5.00	0.00	0.79	0.79
27.30	2.00	0.64	5.00	0.00	0.79	0.79
27.35	2.00	0.64	5.00	0.00	0.79	0.79
27.40	2.00	0.64	5.00	0.00	0.79	0.79
27.45	2.00	0.64	5.00	0.00	0.79	0.79
27.50	2.00	0.64	5.00	0.00	0.79	0.79
27.55	2.00	0.64	5.00	0.00	0.79	0.79
27.60	2.00	0.64	5.00	0.00	0.79	0.79
27.65	2.00	0.64	5.00	0.00	0.79	0.79
27.70	2.00	0.64	5.00	0.00	0.79	0.79
27.75	2.00	0.64	5.00	0.00	0.79	0.79
27.80	2.00	0.64	5.00	0.00	0.79	0.79
27.85	2.00	0.64	5.00	0.00	0.79	0.79
27.90	2.00	0.64	5.00	0.00	0.79	0.79
27.95	2.00	0.64	5.00	0.00	0.79	0.79
28.00	2.00	0.64	5.00	0.00	0.79	0.79
28.05	2.00	0.64	5.00	0.00	0.79	0.79
28.10	2.00	0.64	5.00	0.00	0.79	0.79
28.15	2.00	0.64	5.00	0.00	0.79	0.79
28.20	2.00	0.64	5.00	0.00	0.79	0.79
28.25	2.00	0.64	5.00	0.00	0.79	0.79
28.30	2.00	0.64	5.00	0.00	0.79	0.79
28.35	2.00	0.64	5.00	0.00	0.79	0.79
28.40	2.00	0.64	5.00	0.00	0.79	0.79
28.45	2.00	0.64	5.00	0.00	0.79	0.79
28.50	2.00	0.64	5.00	0.00	0.79	0.79
28.55	2.00	0.64	5.00	0.00	0.79	0.79
28.60	2.00	0.64	5.00	0.00	0.79	0.79
28.65	2.00	0.64	5.00	0.00	0.79	0.79

28.70	2.00	0.64	5.00	0.00	0.79	0.79
28.75	2.00	0.64	5.00	0.00	0.79	0.79
28.80	2.00	0.64	5.00	0.00	0.79	0.79
28.85	2.00	0.64	5.00	0.00	0.79	0.79
28.90	2.00	0.64	5.00	0.00	0.79	0.79
28.95	2.00	0.64	5.00	0.00	0.79	0.79
29.00	2.00	0.64	5.00	0.00	0.79	0.79
29.05	2.00	0.64	5.00	0.00	0.79	0.79
29.10	2.00	0.64	5.00	0.00	0.79	0.79
29.15	2.00	0.64	5.00	0.00	0.79	0.79
29.20	2.00	0.64	5.00	0.00	0.79	0.79
29.25	2.00	0.64	5.00	0.00	0.79	0.79
29.30	2.00	0.64	5.00	0.00	0.79	0.79
29.35	2.00	0.64	5.00	0.00	0.79	0.79
29.40	2.00	0.64	5.00	0.00	0.79	0.79
29.45	2.00	0.64	5.00	0.00	0.79	0.79
29.50	2.00	0.64	5.00	0.00	0.79	0.79
29.55	2.00	0.64	5.00	0.00	0.79	0.79
29.60	2.00	0.64	5.00	0.00	0.79	0.79
29.65	2.00	0.64	5.00	0.00	0.79	0.79
29.70	2.00	0.64	5.00	0.00	0.79	0.79
29.75	2.00	0.64	5.00	0.00	0.79	0.79
29.80	2.00	0.64	5.00	0.00	0.79	0.79
29.85	2.00	0.63	5.00	0.00	0.79	0.79
29.90	2.00	0.63	5.00	0.00	0.79	0.79
29.95	2.00	0.63	5.00	0.00	0.79	0.79
30.00	2.00	0.63	5.00	0.00	0.79	0.79
30.05	0.14	0.63	5.00	0.00	0.79	0.79
30.10	0.16	0.63	5.00	0.00	0.77	0.77
30.15	0.17	0.63	5.00	0.00	0.76	0.76
30.20	0.20	0.63	5.00	0.00	0.75	0.75
30.25	0.22	0.63	5.00	0.00	0.74	0.74
30.30	0.24	0.63	5.00	0.00	0.73	0.73
30.35	0.26	0.63	5.00	0.00	0.72	0.72
30.40	0.27	0.63	5.00	0.00	0.71	0.71
30.45	0.30	0.63	5.00	0.00	0.70	0.70
30.50	0.32	0.63	5.00	0.00	0.69	0.69
30.55	0.34	0.63	5.00	0.00	0.69	0.69
30.60	0.34	0.63	5.00	0.00	0.68	0.68
30.65	0.33	0.63	5.00	0.00	0.67	0.67
30.70	0.32	0.63	5.00	0.00	0.66	0.66
30.75	0.32	0.63	5.00	0.00	0.66	0.66
30.80	0.32	0.63	5.00	0.00	0.65	0.65
30.85	0.31	0.63	5.00	0.00	0.64	0.64
30.90	0.32	0.63	5.00	0.00	0.63	0.63
30.95	0.34	0.63	5.00	0.00	0.63	0.63
31.00	0.36	0.63	5.00	0.00	0.62	0.62
31.05	0.38	0.63	5.00	0.00	0.61	0.61
31.10	0.42	0.63	5.00	0.00	0.60	0.60
31.15	0.45	0.63	5.00	0.00	0.60	0.60

31.20	0.49	0.63	5.00	0.00	0.59	0.59
31.25	0.54	0.63	5.00	0.00	0.59	0.59
31.30	0.59	0.63	5.00	0.00	0.58	0.58
31.35	0.63	0.63	5.00	0.00	0.58	0.58
31.40	0.65	0.63	5.00	0.00	0.57	0.57
31.45	0.66	0.63	5.00	0.00	0.57	0.57
31.50	0.65	0.63	5.00	0.00	0.56	0.56
31.55	0.63	0.63	5.00	0.00	0.56	0.56
31.60	0.61	0.63	5.00	0.00	0.55	0.55
31.65	0.58	0.63	5.00	0.00	0.54	0.54
31.70	0.56	0.63	5.00	0.00	0.54	0.54
31.75	0.53	0.62	5.00	0.00	0.53	0.53
31.80	0.50	0.62	5.00	0.00	0.53	0.53
31.85	0.47	0.62	5.00	0.00	0.52	0.52
31.90	0.44	0.62	5.00	0.00	0.51	0.51
31.95	0.41	0.62	5.00	0.00	0.51	0.51
32.00	0.38	0.62	5.00	0.00	0.50	0.50
32.05	0.36	0.62	5.00	0.00	0.49	0.49
32.10	0.34	0.62	5.00	0.00	0.48	0.48
32.15	0.32	0.62	5.00	0.00	0.47	0.47
32.20	0.30	0.62	5.00	0.00	0.47	0.47
32.25	0.28	0.62	5.00	0.00	0.46	0.46
32.30	0.27	0.62	5.00	0.00	0.45	0.45
32.35	0.25	0.62	5.00	0.00	0.44	0.44
32.40	0.24	0.62	5.00	0.00	0.43	0.43
32.45	0.23	0.62	5.00	0.00	0.42	0.42
32.50	0.22	0.62	5.00	0.00	0.41	0.41
32.55	2.00	0.62	5.00	0.00	0.40	0.40
32.60	2.00	0.62	5.00	0.00	0.40	0.40
32.65	2.00	0.62	5.00	0.00	0.40	0.40
32.70	2.00	0.62	5.00	0.00	0.40	0.40
32.75	2.00	0.62	5.00	0.00	0.40	0.40
32.80	2.00	0.62	5.00	0.00	0.40	0.40
32.85	2.00	0.62	5.00	0.00	0.40	0.40
32.90	2.00	0.62	5.00	0.00	0.40	0.40
32.95	2.00	0.62	5.00	0.00	0.40	0.40
33.00	2.00	0.62	5.00	0.00	0.40	0.40
33.05	2.00	0.62	5.00	0.00	0.40	0.40
33.10	2.00	0.62	5.00	0.00	0.40	0.40
33.15	2.00	0.62	5.00	0.00	0.40	0.40
33.20	2.00	0.62	5.00	0.00	0.40	0.40
33.25	2.00	0.62	5.00	0.00	0.40	0.40
33.30	2.00	0.62	5.00	0.00	0.40	0.40
33.35	2.00	0.62	5.00	0.00	0.40	0.40
33.40	2.00	0.62	5.00	0.00	0.40	0.40
33.45	2.00	0.62	5.00	0.00	0.40	0.40
33.50	2.00	0.62	5.00	0.00	0.40	0.40
33.55	2.00	0.61	5.00	0.00	0.40	0.40
33.60	2.00	0.61	5.00	0.00	0.40	0.40
33.65	2.00	0.61	5.00	0.00	0.40	0.40

33.70	2.00	0.61	5.00	0.00	0.40	0.40
33.75	2.00	0.61	5.00	0.00	0.40	0.40
33.80	2.00	0.61	5.00	0.00	0.40	0.40
33.85	2.00	0.61	5.00	0.00	0.40	0.40
33.90	2.00	0.61	5.00	0.00	0.40	0.40
33.95	2.00	0.61	5.00	0.00	0.40	0.40
34.00	2.00	0.61	5.00	0.00	0.40	0.40
34.05	2.00	0.61	5.00	0.00	0.40	0.40
34.10	2.00	0.61	5.00	0.00	0.40	0.40
34.15	2.00	0.61	5.00	0.00	0.40	0.40
34.20	2.00	0.61	5.00	0.00	0.40	0.40
34.25	2.00	0.61	5.00	0.00	0.40	0.40
34.30	2.00	0.61	5.00	0.00	0.40	0.40
34.35	2.00	0.61	5.00	0.00	0.40	0.40
34.40	2.00	0.61	5.00	0.00	0.40	0.40
34.45	2.00	0.61	5.00	0.00	0.40	0.40
34.50	2.00	0.61	5.00	0.00	0.40	0.40
34.55	2.00	0.61	5.00	0.00	0.40	0.40
34.60	2.00	0.61	5.00	0.00	0.40	0.40
34.65	2.00	0.61	5.00	0.00	0.40	0.40
34.70	2.00	0.61	5.00	0.00	0.40	0.40
34.75	2.00	0.61	5.00	0.00	0.40	0.40
34.80	2.00	0.61	5.00	0.00	0.40	0.40
34.85	2.00	0.61	5.00	0.00	0.40	0.40
34.90	2.00	0.61	5.00	0.00	0.40	0.40
34.95	2.00	0.61	5.00	0.00	0.40	0.40
35.00	2.00	0.61	5.00	0.00	0.40	0.40
35.05	2.00	0.61	5.00	0.00	0.40	0.40
35.10	2.00	0.61	5.00	0.00	0.40	0.40
35.15	2.00	0.61	5.00	0.00	0.40	0.40
35.20	2.00	0.61	5.00	0.00	0.40	0.40
35.25	2.00	0.61	5.00	0.00	0.40	0.40
35.30	2.00	0.61	5.00	0.00	0.40	0.40
35.35	2.00	0.60	5.00	0.00	0.40	0.40
35.40	2.00	0.60	5.00	0.00	0.40	0.40
35.45	2.00	0.60	5.00	0.00	0.40	0.40
35.50	2.00	0.60	5.00	0.00	0.40	0.40
35.55	2.00	0.60	5.00	0.00	0.40	0.40
35.60	2.00	0.60	5.00	0.00	0.40	0.40
35.65	2.00	0.60	5.00	0.00	0.40	0.40
35.70	2.00	0.60	5.00	0.00	0.40	0.40
35.75	2.00	0.60	5.00	0.00	0.40	0.40
35.80	2.00	0.60	5.00	0.00	0.40	0.40
35.85	2.00	0.60	5.00	0.00	0.40	0.40
35.90	2.00	0.60	5.00	0.00	0.40	0.40
35.95	2.00	0.60	5.00	0.00	0.40	0.40
36.00	2.00	0.60	5.00	0.00	0.40	0.40
36.05	2.00	0.60	5.00	0.00	0.40	0.40
36.10	2.00	0.60	5.00	0.00	0.40	0.40
36.15	2.00	0.60	5.00	0.00	0.40	0.40

36.20	2.00	0.60	5.00	0.00	0.40	0.40
36.25	2.00	0.60	5.00	0.00	0.40	0.40
36.30	2.00	0.60	5.00	0.00	0.40	0.40
36.35	2.00	0.60	5.00	0.00	0.40	0.40
36.40	2.00	0.60	5.00	0.00	0.40	0.40
36.45	2.00	0.60	5.00	0.00	0.40	0.40
36.50	2.00	0.60	5.00	0.00	0.40	0.40
36.55	2.00	0.60	5.00	0.00	0.40	0.40
36.60	2.00	0.60	5.00	0.00	0.40	0.40
36.65	2.00	0.60	5.00	0.00	0.40	0.40
36.70	2.00	0.60	5.00	0.00	0.40	0.40
36.75	2.00	0.60	5.00	0.00	0.40	0.40
36.80	2.00	0.60	5.00	0.00	0.40	0.40
36.85	2.00	0.60	5.00	0.00	0.40	0.40
36.90	2.00	0.60	5.00	0.00	0.40	0.40
36.95	2.00	0.60	5.00	0.00	0.40	0.40
37.00	2.00	0.60	5.00	0.00	0.40	0.40
37.05	2.00	0.60	5.00	0.00	0.40	0.40
37.10	2.00	0.60	5.00	0.00	0.40	0.40
37.15	2.00	0.59	5.00	0.00	0.40	0.40
37.20	2.00	0.59	5.00	0.00	0.40	0.40
37.25	2.00	0.59	5.00	0.00	0.40	0.40
37.30	2.00	0.59	5.00	0.00	0.40	0.40
37.35	2.00	0.59	5.00	0.00	0.40	0.40
37.40	2.00	0.59	5.00	0.00	0.40	0.40
37.45	2.00	0.59	5.00	0.00	0.40	0.40
37.50	2.00	0.59	5.00	0.00	0.40	0.40
37.55	2.00	0.59	5.00	0.00	0.40	0.40
37.60	2.00	0.59	5.00	0.00	0.40	0.40
37.65	2.00	0.59	5.00	0.00	0.40	0.40
37.70	2.00	0.59	5.00	0.00	0.40	0.40
37.75	2.00	0.59	5.00	0.00	0.40	0.40
37.80	2.00	0.59	5.00	0.00	0.40	0.40
37.85	2.00	0.59	5.00	0.00	0.40	0.40
37.90	2.00	0.59	5.00	0.00	0.40	0.40
37.95	2.00	0.59	5.00	0.00	0.40	0.40
38.00	2.00	0.59	5.00	0.00	0.40	0.40
38.05	0.31	0.59	5.00	0.00	0.40	0.40
38.10	0.35	0.59	5.00	0.00	0.39	0.39
38.15	0.37	0.59	5.00	0.00	0.39	0.39
38.20	0.39	0.59	5.00	0.00	0.38	0.38
38.25	0.41	0.59	5.00	0.00	0.37	0.37
38.30	0.42	0.59	5.00	0.00	0.37	0.37
38.35	0.41	0.59	5.00	0.00	0.36	0.36
38.40	0.40	0.59	5.00	0.00	0.36	0.36
38.45	0.38	0.59	5.00	0.00	0.35	0.35
38.50	0.36	0.59	5.00	0.00	0.34	0.34
38.55	0.34	0.59	5.00	0.00	0.34	0.34
38.60	0.33	0.59	5.00	0.00	0.33	0.33
38.65	0.32	0.59	5.00	0.00	0.33	0.33

38.70	0.36	0.59	5.00	0.00	0.32	0.32
38.75	2.00	0.59	5.00	0.00	0.31	0.31
38.80	2.00	0.59	5.00	0.00	0.31	0.31
38.85	2.00	0.59	5.00	0.00	0.31	0.31
38.90	2.00	0.59	5.00	0.00	0.31	0.31
38.95	2.00	0.58	5.00	0.00	0.31	0.31
39.00	2.00	0.58	5.00	0.00	0.31	0.31
39.05	2.00	0.58	5.00	0.00	0.31	0.31
39.10	2.00	0.58	5.00	0.00	0.31	0.31
39.15	2.00	0.58	5.00	0.00	0.31	0.31
39.20	2.00	0.58	5.00	0.00	0.31	0.31
39.25	2.00	0.58	5.00	0.00	0.31	0.31
39.30	2.00	0.58	5.00	0.00	0.31	0.31
39.35	2.00	0.58	5.00	0.00	0.31	0.31
39.40	2.00	0.58	5.00	0.00	0.31	0.31
39.45	2.00	0.58	5.00	0.00	0.31	0.31
39.50	2.00	0.58	5.00	0.00	0.31	0.31
39.55	2.00	0.58	5.00	0.00	0.31	0.31
39.60	2.00	0.58	5.00	0.00	0.31	0.31
39.65	2.00	0.58	5.00	0.00	0.31	0.31
39.70	2.00	0.58	5.00	0.00	0.31	0.31
39.75	2.00	0.58	5.00	0.00	0.31	0.31
39.80	2.00	0.58	5.00	0.00	0.31	0.31
39.85	2.00	0.58	5.00	0.00	0.31	0.31
39.90	2.00	0.58	5.00	0.00	0.31	0.31
39.95	2.00	0.58	5.00	0.00	0.31	0.31
40.00	2.00	0.58	5.00	0.00	0.31	0.31
40.05	2.00	0.58	5.00	0.00	0.31	0.31
40.10	2.00	0.58	5.00	0.00	0.31	0.31
40.15	2.00	0.58	5.00	0.00	0.31	0.31
40.20	2.00	0.58	5.00	0.00	0.31	0.31
40.25	2.00	0.58	5.00	0.00	0.31	0.31
40.30	2.00	0.58	5.00	0.00	0.31	0.31
40.35	2.00	0.58	5.00	0.00	0.31	0.31
40.40	2.00	0.58	5.00	0.00	0.31	0.31
40.45	2.00	0.58	5.00	0.00	0.31	0.31
40.50	2.00	0.58	5.00	0.00	0.31	0.31
40.55	2.00	0.58	5.00	0.00	0.31	0.31
40.60	2.00	0.58	5.00	0.00	0.31	0.31
40.65	2.00	0.58	5.00	0.00	0.31	0.31
40.70	2.00	0.58	5.00	0.00	0.31	0.31
40.75	2.00	0.57	5.00	0.00	0.31	0.31
40.80	2.00	0.57	5.00	0.00	0.31	0.31
40.85	2.00	0.57	5.00	0.00	0.31	0.31
40.90	2.00	0.57	5.00	0.00	0.31	0.31
40.95	2.00	0.57	5.00	0.00	0.31	0.31
41.00	2.00	0.57	5.00	0.00	0.31	0.31
41.05	2.00	0.57	5.00	0.00	0.31	0.31
41.10	2.00	0.57	5.00	0.00	0.31	0.31
41.15	2.00	0.57	5.00	0.00	0.31	0.31

41.20	2.00	0.57	5.00	0.00	0.31	0.31
41.25	2.00	0.57	5.00	0.00	0.31	0.31
41.30	2.00	0.57	5.00	0.00	0.31	0.31
41.35	2.00	0.57	5.00	0.00	0.31	0.31
41.40	2.00	0.57	5.00	0.00	0.31	0.31
41.45	2.00	0.57	5.00	0.00	0.31	0.31
41.50	2.00	0.57	5.00	0.00	0.31	0.31
41.55	2.00	0.57	5.00	0.00	0.31	0.31
41.60	2.00	0.57	5.00	0.00	0.31	0.31
41.65	2.00	0.57	5.00	0.00	0.31	0.31
41.70	2.00	0.57	5.00	0.00	0.31	0.31
41.75	2.00	0.57	5.00	0.00	0.31	0.31
41.80	2.00	0.57	5.00	0.00	0.31	0.31
41.85	2.00	0.57	5.00	0.00	0.31	0.31
41.90	2.00	0.57	5.00	0.00	0.31	0.31
41.95	2.00	0.57	5.00	0.00	0.31	0.31
42.00	2.00	0.57	5.00	0.00	0.31	0.31
42.05	2.00	0.57	5.00	0.00	0.31	0.31
42.10	2.00	0.57	5.00	0.00	0.31	0.31
42.15	2.00	0.57	5.00	0.00	0.31	0.31
42.20	2.00	0.57	5.00	0.00	0.31	0.31
42.25	2.00	0.57	5.00	0.00	0.31	0.31
42.30	2.00	0.57	5.00	0.00	0.31	0.31
42.35	2.00	0.57	5.00	0.00	0.31	0.31
42.40	2.00	0.57	5.00	0.00	0.31	0.31
42.45	2.00	0.57	5.00	0.00	0.31	0.31
42.50	2.00	0.57	5.00	0.00	0.31	0.31
42.55	2.00	0.56	5.00	0.00	0.31	0.31
42.60	2.00	0.56	5.00	0.00	0.31	0.31
42.65	2.00	0.56	5.00	0.00	0.31	0.31
42.70	2.00	0.56	5.00	0.00	0.31	0.31
42.75	2.00	0.56	5.00	0.00	0.31	0.31
42.80	2.00	0.56	5.00	0.00	0.31	0.31
42.85	2.00	0.56	5.00	0.00	0.31	0.31
42.90	2.00	0.56	5.00	0.00	0.31	0.31
42.95	2.00	0.56	5.00	0.00	0.31	0.31
43.00	2.00	0.56	5.00	0.00	0.31	0.31
43.05	0.25	0.56	5.00	0.00	0.31	0.31
43.10	0.25	0.56	5.00	0.00	0.31	0.31
43.15	0.26	0.56	5.00	0.00	0.31	0.31
43.20	0.27	0.56	5.00	0.00	0.30	0.30
43.25	0.28	0.56	5.00	0.00	0.30	0.30
43.30	0.31	0.56	5.00	0.00	0.30	0.30
43.35	0.34	0.56	5.00	0.00	0.30	0.30
43.40	0.35	0.56	5.00	0.00	0.29	0.29
43.45	0.36	0.56	5.00	0.00	0.29	0.29
43.50	0.40	0.56	5.00	0.00	0.29	0.29
43.55	0.47	0.56	5.00	0.00	0.29	0.29
43.60	0.51	0.56	5.00	0.00	0.28	0.28
43.65	0.53	0.56	5.00	0.00	0.28	0.28

43.70	0.54	0.56	5.00	0.00	0.28	0.28
43.75	0.54	0.56	5.00	0.00	0.28	0.28
43.80	0.52	0.56	5.00	0.00	0.28	0.28
43.85	0.49	0.56	5.00	0.00	0.28	0.28
43.90	0.48	0.56	5.00	0.00	0.27	0.27
43.95	0.47	0.56	5.00	0.00	0.27	0.27
44.00	0.48	0.56	5.00	0.00	0.27	0.27
44.05	0.48	0.56	5.00	0.00	0.27	0.27
44.10	0.49	0.56	5.00	0.00	0.27	0.27
44.15	0.49	0.56	5.00	0.00	0.26	0.26
44.20	0.48	0.56	5.00	0.00	0.26	0.26
44.25	0.47	0.56	5.00	0.00	0.26	0.26
44.30	0.46	0.56	5.00	0.00	0.26	0.26
44.35	0.44	0.55	5.00	0.00	0.26	0.26
44.40	0.42	0.55	5.00	0.00	0.25	0.25
44.45	0.40	0.55	5.00	0.00	0.25	0.25
44.50	0.38	0.55	5.00	0.00	0.25	0.25
44.55	0.36	0.55	5.00	0.00	0.25	0.25
44.60	0.35	0.55	5.00	0.00	0.24	0.24
44.65	0.35	0.55	5.00	0.00	0.24	0.24
44.70	0.34	0.55	5.00	0.00	0.24	0.24
44.75	0.33	0.55	5.00	0.00	0.24	0.24
44.80	0.32	0.55	5.00	0.00	0.23	0.23
44.85	0.29	0.55	5.00	0.00	0.23	0.23
44.90	0.28	0.55	5.00	0.00	0.23	0.23
44.95	0.22	0.55	5.00	0.00	0.23	0.23
45.00	0.18	0.55	5.00	0.00	0.22	0.22
45.05	0.16	0.55	5.00	0.00	0.22	0.22
45.10	0.17	0.55	5.00	0.00	0.21	0.21
45.15	0.19	0.55	5.00	0.00	0.20	0.20
45.20	2.00	0.55	5.00	0.00	0.20	0.20
45.25	2.00	0.55	5.00	0.00	0.20	0.20
45.30	2.00	0.55	5.00	0.00	0.20	0.20
45.35	2.00	0.55	5.00	0.00	0.20	0.20
45.40	2.00	0.55	5.00	0.00	0.20	0.20
45.45	2.00	0.55	5.00	0.00	0.20	0.20
45.50	2.00	0.55	5.00	0.00	0.20	0.20
45.55	0.22	0.55	5.00	0.00	0.20	0.20
45.60	0.24	0.55	5.00	0.00	0.19	0.19
45.65	0.27	0.55	5.00	0.00	0.19	0.19
45.70	0.32	0.55	5.00	0.00	0.18	0.18
45.75	0.37	0.55	5.00	0.00	0.18	0.18
45.80	0.41	0.55	5.00	0.00	0.18	0.18
45.85	0.45	0.55	5.00	0.00	0.17	0.17
45.90	0.42	0.55	5.00	0.00	0.17	0.17
45.95	0.45	0.55	5.00	0.00	0.17	0.17
46.00	0.50	0.55	5.00	0.00	0.16	0.16
46.05	0.55	0.55	5.00	0.00	0.16	0.16
46.10	0.59	0.55	5.00	0.00	0.16	0.16
46.15	0.61	0.54	5.00	0.00	0.15	0.15

46.20	0.63	0.54	5.00	0.00	0.15	0.15
46.25	0.64	0.54	5.00	0.00	0.15	0.15
46.30	0.64	0.54	5.00	0.00	0.15	0.15
46.35	0.64	0.54	5.00	0.00	0.15	0.15
46.40	0.63	0.54	5.00	0.00	0.14	0.14
46.45	0.62	0.54	5.00	0.00	0.14	0.14
46.50	0.60	0.54	5.00	0.00	0.14	0.14
46.55	0.58	0.54	5.00	0.00	0.14	0.14
46.60	0.56	0.54	5.00	0.00	0.13	0.13
46.65	0.55	0.54	5.00	0.00	0.13	0.13
46.70	0.53	0.54	5.00	0.00	0.13	0.13
46.75	0.50	0.54	5.00	0.00	0.13	0.13
46.80	0.48	0.54	5.00	0.00	0.13	0.13
46.85	0.45	0.54	5.00	0.00	0.12	0.12
46.90	0.43	0.54	5.00	0.00	0.12	0.12
46.95	0.40	0.54	5.00	0.00	0.12	0.12
47.00	0.33	0.54	5.00	0.00	0.11	0.11
47.05	0.31	0.54	5.00	0.00	0.11	0.11
47.10	0.30	0.54	5.00	0.00	0.10	0.10
47.15	0.30	0.54	5.00	0.00	0.10	0.10
47.20	0.31	0.54	5.00	0.00	0.10	0.10
47.25	0.33	0.54	5.00	0.00	0.09	0.09
47.30	0.34	0.54	5.00	0.00	0.09	0.09
47.35	0.30	0.54	5.00	0.00	0.08	0.08
47.40	0.38	0.54	5.00	0.00	0.08	0.08
47.45	0.46	0.54	5.00	0.00	0.08	0.08
47.50	0.50	0.54	5.00	0.00	0.08	0.08
47.55	0.54	0.54	5.00	0.00	0.07	0.07
47.60	0.57	0.54	5.00	0.00	0.07	0.07
47.65	0.58	0.54	5.00	0.00	0.07	0.07
47.70	0.59	0.54	5.00	0.00	0.07	0.07
47.75	0.59	0.54	5.00	0.00	0.07	0.07
47.80	0.58	0.54	5.00	0.00	0.06	0.06
47.85	0.57	0.54	5.00	0.00	0.06	0.06
47.90	0.56	0.54	5.00	0.00	0.06	0.06
47.95	0.56	0.53	5.00	0.00	0.06	0.06
48.00	0.56	0.53	5.00	0.00	0.06	0.06
48.05	0.57	0.53	5.00	0.00	0.05	0.05
48.10	0.58	0.53	5.00	0.00	0.05	0.05
48.15	0.58	0.53	5.00	0.00	0.05	0.05
48.20	0.58	0.53	5.00	0.00	0.05	0.05
48.25	0.57	0.53	5.00	0.00	0.05	0.05
48.30	0.58	0.53	5.00	0.00	0.05	0.05
48.35	0.59	0.53	5.00	0.00	0.04	0.04
48.40	0.60	0.53	5.00	0.00	0.04	0.04
48.45	0.62	0.53	5.00	0.00	0.04	0.04
48.50	0.64	0.53	5.00	0.00	0.04	0.04
48.55	0.66	0.53	5.00	0.00	0.04	0.04
48.60	0.68	0.53	5.00	0.00	0.04	0.04
48.65	0.70	0.53	5.00	0.00	0.04	0.04

48.70	0.74	0.53	5.00	0.00	0.03	0.03
48.75	0.76	0.53	5.00	0.00	0.03	0.03
48.80	0.79	0.53	5.00	0.00	0.03	0.03
48.85	0.80	0.53	5.00	0.00	0.03	0.03
48.90	0.81	0.53	5.00	0.00	0.03	0.03
48.95	0.82	0.53	5.00	0.00	0.03	0.03
49.00	0.82	0.53	5.00	0.00	0.03	0.03
49.05	0.82	0.53	5.00	0.00	0.02	0.02
49.10	0.82	0.53	5.00	0.00	0.02	0.02
49.15	0.82	0.53	5.00	0.00	0.02	0.02
49.20	0.83	0.53	5.00	0.00	0.02	0.02
49.25	0.84	0.53	5.00	0.00	0.02	0.02
49.30	0.86	0.53	5.00	0.00	0.02	0.02
49.35	0.87	0.53	5.00	0.00	0.02	0.02
49.40	0.89	0.53	5.00	0.00	0.02	0.02
49.45	0.90	0.53	5.00	0.00	0.01	0.01
49.50	0.90	0.53	5.00	0.00	0.01	0.01
49.55	0.90	0.53	5.00	0.00	0.01	0.01
49.60	0.90	0.53	5.00	0.00	0.01	0.01
49.65	0.89	0.53	5.00	0.00	0.01	0.01
49.70	0.88	0.53	5.00	0.00	0.01	0.01
49.75	0.87	0.52	5.00	0.00	0.01	0.01
49.80	0.85	0.52	5.00	0.00	0.01	0.01
49.85	0.82	0.52	5.00	0.00	0.00	0.00
49.90	0.79	0.52	5.00	0.00	0.00	0.00
49.95	0.75	0.52	5.00	0.00	0.00	0.00
50.00	0.73	0.52	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

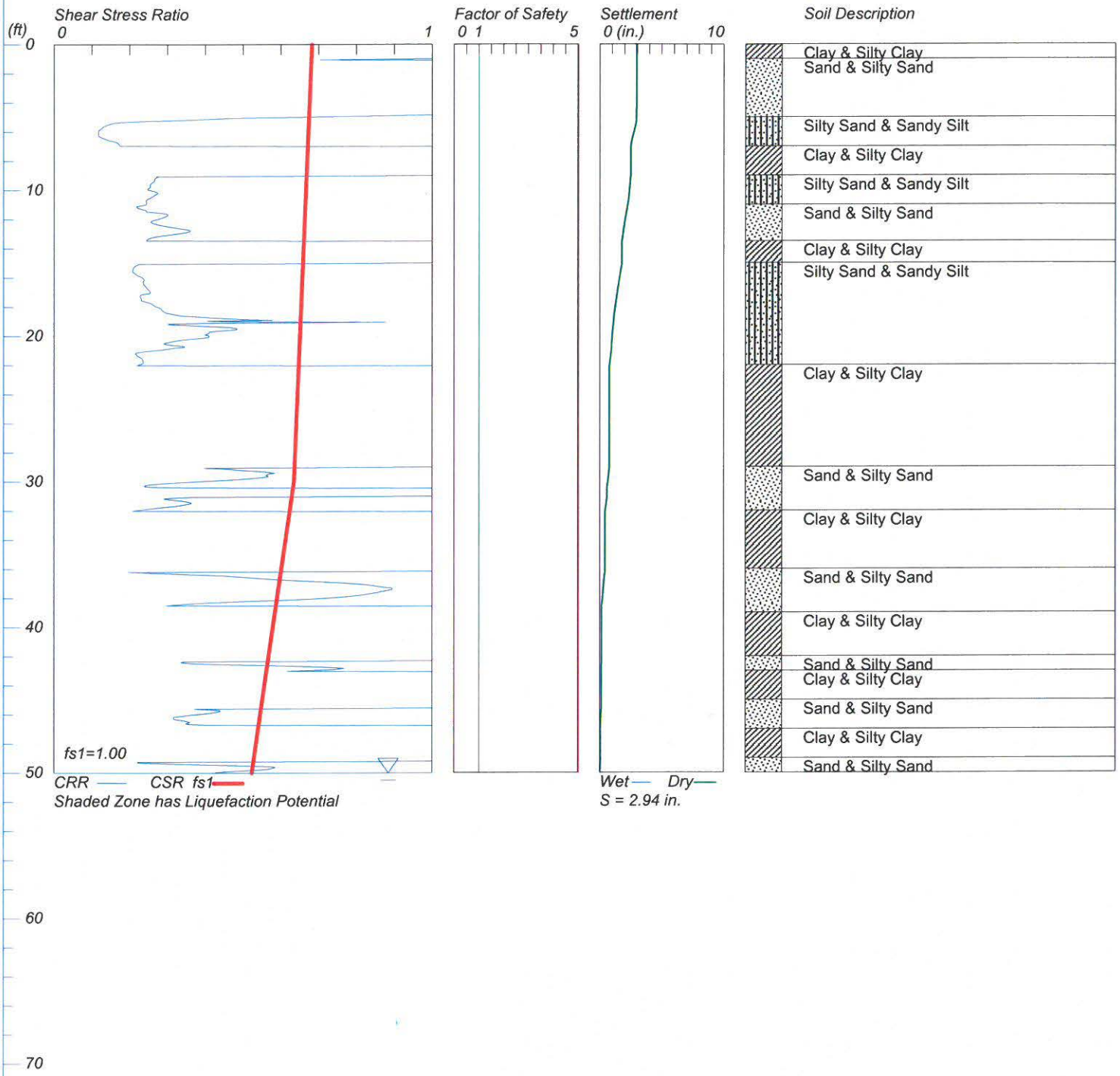
CRRm Cyclic resistance ratio from soils
CSRfs Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
S_sat Settlement from saturated sands
S_dry Settlement from dry sands
S_all Total settlement from saturated and dry sands
NoLiq No-Liquefy Soils

LIQUEFACTION ANALYSIS

Industrial Bldgs - Hardt & Brier Streets

Hole No.=CPT-6 Water Depth=50 ft

Magnitude=7.5
Acceleration=1.05g



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Input File Name: R:\Projects\40-3959G Geo. Inv. Multi-Building Development\seismic settlement analyses\CPT-6.liq
Title: Industrial Bldgs - Hardt & Brier Streets
Subtitle: 40-3959G

Surface Elev.=
Hole No.=CPT-6
Depth of Hole= 50.0 ft
Water Table during Earthquake= 50.0 ft
Water Table during In-Situ Testing= 50.0 ft
Max. Acceleration= 1.05 g
Earthquake Magnitude= 7.5

Input Data:
Surface Elev.=
Hole No.=CPT-6
Depth of Hole=50.0 ft
Water Table during Earthquake= 50.0 ft
Water Table during In-Situ Testing= 50.0 ft
Max. Acceleration=1.05 g
Earthquake Magnitude=7.5

1. CPT Calulation Method: Modified Robertson*
2. Settlement Analysis Method: Ishihara / Yoshimine*
3. Fines Correction for Liquefaction: Idriss/Seed (SPT only)
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	qc tsf	fs tsf	gamma pcf	Fines %	D50 mm
0.0	-0.1	0.0	115.0	NoLiq	0.0
0.1	3.0	0.0	115.0	NoLiq	0.0
0.2	3.0	0.0	115.0	NoLiq	0.0
0.2	3.8	0.0	115.0	NoLiq	0.0
0.3	4.5	0.1	115.0	NoLiq	0.0
0.4	4.2	0.2	115.0	NoLiq	0.0
0.4	7.4	0.2	115.0	NoLiq	0.0
0.5	10.0	0.2	115.0	NoLiq	0.0
0.6	17.0	0.3	115.0	NoLiq	0.0
0.6	18.3	0.3	115.0	NoLiq	0.0
0.7	24.5	0.3	115.0	NoLiq	0.0
0.8	35.4	0.3	115.0	NoLiq	0.0
0.8	33.6	0.3	115.0	NoLiq	0.0
0.9	23.7	0.3	115.0	NoLiq	0.0
0.9	24.3	0.3	115.0	NoLiq	0.0
1.0	41.1	0.3	115.0	20.0	0.3
1.1	49.9	0.4	115.0	20.0	0.3
1.1	72.1	0.6	115.0	20.0	0.3
1.2	93.5	0.7	115.0	20.0	0.3
1.3	107.4	0.8	115.0	20.0	0.3
1.3	126.9	1.0	115.0	20.0	0.3
1.4	145.3	1.2	115.0	20.0	0.3
1.5	156.0	1.2	115.0	20.0	0.3
1.5	168.9	1.1	115.0	20.0	0.3
1.6	187.0	1.2	115.0	20.0	0.3
1.7	194.5	1.5	115.0	20.0	0.3
1.7	202.0	1.6	115.0	20.0	0.3
1.8	221.1	1.6	115.0	20.0	0.3
1.9	242.8	1.5	115.0	20.0	0.3
1.9	264.5	1.4	115.0	20.0	0.3
2.0	271.2	1.5	115.0	20.0	0.3
2.0	288.1	1.6	115.0	20.0	0.3
2.1	293.6	1.7	115.0	20.0	0.3
2.2	299.4	1.7	115.0	20.0	0.3
2.3	315.7	1.8	115.0	20.0	0.3
2.3	321.0	1.9	115.0	20.0	0.3
2.4	329.7	2.0	115.0	20.0	0.3
2.4	338.3	2.1	115.0	20.0	0.3
2.5	341.9	2.1	115.0	20.0	0.3
2.6	353.8	2.3	115.0	20.0	0.3
2.6	355.8	2.3	115.0	20.0	0.3
2.7	358.1	2.4	115.0	20.0	0.3
2.8	357.8	2.5	115.0	20.0	0.3
2.9	358.2	2.9	115.0	20.0	0.3
2.9	355.8	3.1	115.0	20.0	0.3
3.0	357.8	3.3	115.0	20.0	0.3
3.0	357.4	3.2	115.0	20.0	0.3

3.1	371.4	3.3	115.0	20.0	0.3
3.2	368.7	3.6	115.0	20.0	0.3
3.3	368.0	3.7	115.0	20.0	0.3
3.3	383.3	3.5	115.0	20.0	0.3
3.4	382.1	3.4	115.0	20.0	0.3
3.4	363.1	3.4	115.0	20.0	0.3
3.5	349.0	3.4	115.0	20.0	0.3
3.6	348.5	3.4	115.0	20.0	0.3
3.6	348.4	3.5	115.0	20.0	0.3
3.7	348.3	3.5	115.0	20.0	0.3
3.8	348.2	3.5	115.0	20.0	0.3
3.8	350.6	3.5	115.0	20.0	0.3
3.9	308.2	2.9	115.0	20.0	0.3
3.9	298.5	2.8	115.0	20.0	0.3
4.0	292.7	3.2	115.0	20.0	0.3
4.1	301.3	3.2	115.0	20.0	0.3
4.2	316.0	3.2	115.0	20.0	0.3
4.2	265.1	3.2	115.0	20.0	0.3
4.3	265.7	3.3	115.0	20.0	0.3
4.3	238.0	3.5	115.0	20.0	0.3
4.4	242.0	3.6	115.0	20.0	0.3
4.5	224.0	3.3	115.0	20.0	0.3
4.5	206.5	3.0	115.0	20.0	0.3
4.6	182.8	2.7	115.0	20.0	0.3
4.7	157.9	2.5	115.0	20.0	0.3
4.7	121.2	2.6	115.0	20.0	0.3
4.8	107.2	2.5	115.0	20.0	0.3
4.9	73.6	2.1	115.0	20.0	0.3
4.9	67.1	2.0	115.0	20.0	0.3
5.0	62.1	1.7	120.0	50.0	0.1
5.1	38.5	1.2	120.0	50.0	0.1
5.1	35.6	1.1	120.0	50.0	0.1
5.2	34.1	1.0	120.0	50.0	0.1
5.3	32.9	0.8	120.0	50.0	0.1
5.4	32.7	0.5	120.0	50.0	0.1
5.4	30.9	0.5	120.0	50.0	0.1
5.5	32.4	0.4	120.0	50.0	0.1
5.6	32.4	0.4	120.0	50.0	0.1
5.6	30.3	0.4	120.0	50.0	0.1
5.7	25.8	0.4	120.0	50.0	0.1
5.7	25.5	0.3	120.0	50.0	0.1
5.8	25.3	0.3	120.0	50.0	0.1
5.9	24.6	0.3	120.0	50.0	0.1
5.9	23.8	0.3	120.0	50.0	0.1
6.0	23.3	0.3	120.0	50.0	0.1
6.1	22.8	0.3	120.0	50.0	0.1
6.1	22.8	0.3	120.0	50.0	0.1
6.2	22.7	0.3	120.0	50.0	0.1
6.3	25.0	0.3	120.0	50.0	0.1
6.3	28.6	0.3	120.0	50.0	0.1

6.4	30.4	0.4	120.0	50.0	0.1
6.5	32.0	0.4	120.0	50.0	0.1
6.5	33.2	0.4	120.0	50.0	0.1
6.6	34.0	0.5	120.0	50.0	0.1
6.6	35.7	0.6	120.0	50.0	0.1
6.7	36.8	0.6	120.0	50.0	0.1
6.8	36.8	0.6	120.0	50.0	0.1
6.8	35.8	0.6	120.0	50.0	0.1
6.9	33.0	0.6	120.0	50.0	0.1
7.0	30.5	0.6	115.0	NoLiq	0.0
7.0	29.5	0.7	115.0	NoLiq	0.0
7.1	27.8	0.7	115.0	NoLiq	0.0
7.2	27.4	0.7	115.0	NoLiq	0.0
7.2	27.5	0.7	115.0	NoLiq	0.0
7.3	27.9	0.7	115.0	NoLiq	0.0
7.4	28.2	0.7	115.0	NoLiq	0.0
7.4	28.5	0.7	115.0	NoLiq	0.0
7.5	29.6	0.7	115.0	NoLiq	0.0
7.6	30.0	0.7	115.0	NoLiq	0.0
7.6	29.3	0.7	115.0	NoLiq	0.0
7.7	28.7	0.7	115.0	NoLiq	0.0
7.8	27.0	0.7	115.0	NoLiq	0.0
7.8	25.4	0.6	115.0	NoLiq	0.0
7.9	24.6	0.6	115.0	NoLiq	0.0
8.0	23.3	0.6	115.0	NoLiq	0.0
8.0	24.6	0.6	115.0	NoLiq	0.0
8.1	23.4	0.6	115.0	NoLiq	0.0
8.2	24.5	0.6	115.0	NoLiq	0.0
8.2	25.4	0.6	115.0	NoLiq	0.0
8.3	24.3	0.7	115.0	NoLiq	0.0
8.3	20.1	0.7	115.0	NoLiq	0.0
8.4	28.6	0.7	115.0	NoLiq	0.0
8.5	29.1	0.7	115.0	NoLiq	0.0
8.6	29.1	0.7	115.0	NoLiq	0.0
8.6	28.9	0.7	115.0	NoLiq	0.0
8.7	30.6	0.8	115.0	NoLiq	0.0
8.8	31.9	0.9	115.0	NoLiq	0.0
8.8	32.8	1.0	115.0	NoLiq	0.0
8.9	36.8	1.1	115.0	NoLiq	0.0
9.0	38.5	1.1	115.0	NoLiq	0.0
9.0	41.0	1.1	120.0	50.0	0.1
9.1	43.4	1.1	120.0	50.0	0.1
9.2	47.2	1.2	120.0	50.0	0.1
9.2	48.9	1.2	120.0	50.0	0.1
9.3	52.7	1.2	120.0	50.0	0.1
9.3	54.3	1.2	120.0	50.0	0.1
9.4	55.2	1.2	120.0	50.0	0.1
9.5	55.4	1.2	120.0	50.0	0.1
9.5	55.2	1.2	120.0	50.0	0.1
9.6	55.5	1.2	120.0	50.0	0.1

9.7	57.5	1.2	120.0	50.0	0.1
9.8	60.5	1.2	120.0	50.0	0.1
9.8	62.2	1.1	120.0	50.0	0.1
9.9	62.5	1.1	120.0	50.0	0.1
9.9	62.5	1.1	120.0	50.0	0.1
10.0	62.6	1.2	120.0	50.0	0.1
10.1	62.3	1.2	120.0	50.0	0.1
10.1	62.0	1.3	120.0	50.0	0.1
10.2	61.4	1.3	120.0	50.0	0.1
10.3	59.4	1.3	120.0	50.0	0.1
10.3	58.7	1.3	120.0	50.0	0.1
10.4	59.9	1.3	120.0	50.0	0.1
10.5	62.7	1.2	120.0	50.0	0.1
10.5	65.4	1.2	120.0	50.0	0.1
10.6	66.6	1.1	120.0	50.0	0.1
10.6	69.0	1.1	120.0	50.0	0.1
10.7	70.5	1.1	120.0	50.0	0.1
10.8	71.8	1.0	120.0	50.0	0.1
10.8	72.6	1.0	120.0	50.0	0.1
10.9	74.6	1.0	120.0	50.0	0.1
11.0	75.3	1.0	120.0	50.0	0.1
11.0	76.2	0.9	115.0	20.0	0.3
11.1	77.2	0.8	115.0	20.0	0.3
11.2	79.2	0.8	115.0	20.0	0.3
11.2	80.7	0.8	115.0	20.0	0.3
11.3	84.3	0.7	115.0	20.0	0.3
11.4	88.6	0.7	115.0	20.0	0.3
11.4	88.8	0.7	115.0	20.0	0.3
11.5	95.8	0.7	115.0	20.0	0.3
11.6	102.0	0.7	115.0	20.0	0.3
11.6	105.6	0.7	115.0	20.0	0.3
11.7	106.5	0.7	115.0	20.0	0.3
11.8	106.0	0.7	115.0	20.0	0.3
11.8	105.5	0.7	115.0	20.0	0.3
11.9	103.5	0.7	115.0	20.0	0.3
11.9	102.2	0.7	115.0	20.0	0.3
12.0	99.8	0.7	115.0	20.0	0.3
12.1	97.2	0.7	115.0	20.0	0.3
12.2	94.8	0.8	115.0	20.0	0.3
12.2	94.8	0.8	115.0	20.0	0.3
12.3	94.8	0.8	115.0	20.0	0.3
12.4	94.9	1.0	115.0	20.0	0.3
12.4	96.5	1.0	115.0	20.0	0.3
12.5	97.1	1.1	115.0	20.0	0.3
12.5	97.0	1.2	115.0	20.0	0.3
12.6	98.2	1.3	115.0	20.0	0.3
12.7	101.7	1.4	115.0	20.0	0.3
12.7	104.0	1.4	115.0	20.0	0.3
12.8	104.5	1.4	115.0	20.0	0.3
12.9	103.2	1.3	115.0	20.0	0.3

12.9	102.5	1.3	115.0	20.0	0.3
13.0	100.2	1.2	115.0	20.0	0.3
13.1	99.2	1.1	115.0	20.0	0.3
13.1	96.5	1.0	115.0	20.0	0.3
13.2	94.8	1.0	115.0	20.0	0.3
13.3	91.3	1.0	115.0	20.0	0.3
13.3	88.4	1.0	115.0	20.0	0.3
13.4	87.4	1.0	115.0	20.0	0.3
13.5	85.1	1.1	115.0	NoLiq	0.0
13.5	84.1	1.1	115.0	NoLiq	0.0
13.6	82.3	1.2	115.0	NoLiq	0.0
13.6	80.6	1.3	115.0	NoLiq	0.0
13.8	73.5	1.4	115.0	NoLiq	0.0
13.8	66.1	1.5	115.0	NoLiq	0.0
13.9	61.8	1.5	115.0	NoLiq	0.0
13.9	46.8	1.4	115.0	NoLiq	0.0
14.0	42.7	1.3	115.0	NoLiq	0.0
14.1	37.5	1.3	115.0	NoLiq	0.0
14.1	34.7	1.2	115.0	NoLiq	0.0
14.2	32.2	1.0	115.0	NoLiq	0.0
14.3	34.8	1.2	115.0	NoLiq	0.0
14.3	31.6	1.1	115.0	NoLiq	0.0
14.4	34.9	1.2	115.0	NoLiq	0.0
14.5	36.1	1.3	115.0	NoLiq	0.0
14.6	42.2	1.4	115.0	NoLiq	0.0
14.6	43.5	1.5	115.0	NoLiq	0.0
14.6	44.9	1.5	115.0	NoLiq	0.0
14.7	46.4	1.5	115.0	NoLiq	0.0
14.8	49.1	1.5	115.0	NoLiq	0.0
14.8	51.1	1.4	115.0	NoLiq	0.0
14.9	55.2	1.4	115.0	NoLiq	0.0
15.0	60.2	1.4	120.0	NoLiq	0.1
15.0	64.6	1.3	120.0	50.0	0.1
15.1	67.9	1.3	120.0	50.0	0.1
15.1	68.6	1.2	120.0	50.0	0.1
15.2	70.8	1.2	120.0	50.0	0.1
15.3	73.0	1.1	120.0	50.0	0.1
15.4	74.6	1.1	120.0	50.0	0.1
15.5	74.9	1.1	120.0	50.0	0.1
15.5	74.9	1.1	120.0	50.0	0.1
15.6	75.3	1.1	120.0	50.0	0.1
15.6	76.9	1.1	120.0	50.0	0.1
15.7	79.2	1.1	120.0	50.0	0.1
15.8	80.6	1.1	120.0	50.0	0.1
15.8	81.9	1.1	120.0	50.0	0.1
15.9	86.2	1.2	120.0	50.0	0.1
16.0	88.4	1.2	120.0	50.0	0.1
16.0	89.7	1.1	120.0	50.0	0.1
16.1	92.1	1.1	120.0	50.0	0.1
16.2	92.6	1.1	120.0	50.0	0.1

16.2	91.8	1.1	120.0	50.0	0.1
16.3	91.0	1.2	120.0	50.0	0.1
16.3	89.8	1.2	120.0	50.0	0.1
16.4	88.8	1.2	120.0	50.0	0.1
16.5	88.1	1.2	120.0	50.0	0.1
16.5	88.0	1.3	120.0	50.0	0.1
16.6	87.8	1.3	120.0	50.0	0.1
16.7	87.3	1.3	120.0	50.0	0.1
16.7	86.9	1.4	120.0	50.0	0.1
16.8	86.9	1.4	120.0	50.0	0.1
16.9	86.7	1.4	120.0	50.0	0.1
17.0	86.5	1.4	120.0	50.0	0.1
17.0	85.0	1.5	120.0	50.0	0.1
17.1	83.8	1.4	120.0	50.0	0.1
17.1	80.6	1.3	120.0	50.0	0.1
17.2	76.4	1.4	120.0	50.0	0.1
17.3	71.4	1.4	120.0	50.0	0.1
17.3	68.9	1.4	120.0	50.0	0.1
17.4	68.9	1.4	120.0	50.0	0.1
17.5	68.9	1.4	120.0	50.0	0.1
17.5	69.0	1.4	120.0	50.0	0.1
17.6	74.2	1.5	120.0	50.0	0.1
17.7	76.5	1.5	120.0	50.0	0.1
17.7	79.9	1.6	120.0	50.0	0.1
17.8	82.1	1.6	120.0	50.0	0.1
17.9	87.7	1.6	120.0	50.0	0.1
17.9	89.3	1.6	120.0	50.0	0.1
18.0	91.7	1.6	120.0	50.0	0.1
18.1	92.2	1.7	120.0	50.0	0.1
18.1	91.6	1.7	120.0	50.0	0.1
18.2	92.1	1.7	120.0	50.0	0.1
18.3	94.8	1.7	120.0	50.0	0.1
18.3	97.8	1.7	120.0	50.0	0.1
18.4	100.1	1.7	120.0	50.0	0.1
18.4	101.9	1.8	120.0	50.0	0.1
18.5	102.2	1.8	120.0	50.0	0.1
18.6	102.3	2.0	120.0	50.0	0.1
18.6	101.7	2.2	120.0	50.0	0.1
18.7	92.7	2.5	120.0	50.0	0.1
18.8	77.3	2.6	120.0	50.0	0.1
18.9	62.4	2.3	120.0	50.0	0.1
18.9	55.6	2.1	120.0	50.0	0.1
19.0	61.7	2.0	120.0	50.0	0.1
19.1	46.8	1.9	120.0	50.0	0.1
19.1	61.0	1.9	120.0	50.0	0.1
19.2	77.4	1.9	120.0	50.0	0.1
19.3	118.2	2.0	120.0	50.0	0.1
19.3	125.9	2.0	120.0	50.0	0.1
19.4	140.3	2.0	120.0	50.0	0.1
19.4	147.7	2.0	120.0	50.0	0.1

19.5	149.1	2.1	120.0	50.0	0.1
19.6	147.3	2.1	120.0	50.0	0.1
19.6	138.9	2.1	120.0	50.0	0.1
19.7	129.3	2.1	120.0	50.0	0.1
19.8	129.9	2.1	120.0	50.0	0.1
19.8	129.9	2.1	120.0	50.0	0.1
19.9	130.5	2.0	120.0	50.0	0.1
19.9	134.7	2.0	120.0	50.0	0.1
20.0	137.5	2.0	120.0	50.0	0.1
20.1	136.1	2.0	120.0	50.0	0.1
20.2	133.3	1.8	120.0	50.0	0.1
20.2	127.5	1.7	120.0	50.0	0.1
20.3	123.2	1.7	120.0	50.0	0.1
20.4	107.8	1.8	120.0	50.0	0.1
20.4	102.1	1.9	120.0	50.0	0.1
20.5	84.8	1.9	120.0	50.0	0.1
20.6	75.4	2.0	120.0	50.0	0.1
20.6	72.1	2.0	120.0	50.0	0.1
20.7	63.5	1.9	120.0	50.0	0.1
20.8	60.1	1.9	120.0	50.0	0.1
20.8	61.3	1.8	120.0	50.0	0.1
20.9	61.1	1.7	120.0	50.0	0.1
21.0	64.7	1.7	120.0	50.0	0.1
21.0	68.0	1.7	120.0	50.0	0.1
21.1	71.8	1.6	120.0	50.0	0.1
21.1	74.9	1.5	120.0	50.0	0.1
21.2	77.8	1.5	120.0	50.0	0.1
21.3	81.1	1.5	120.0	50.0	0.1
21.3	82.6	1.5	120.0	50.0	0.1
21.4	85.1	1.5	120.0	50.0	0.1
21.5	85.4	1.6	120.0	50.0	0.1
21.5	85.0	1.6	120.0	50.0	0.1
21.6	84.2	1.6	120.0	50.0	0.1
21.7	83.2	1.6	120.0	50.0	0.1
21.7	82.9	1.6	120.0	50.0	0.1
21.8	82.3	1.6	120.0	50.0	0.1
21.9	81.8	1.6	120.0	50.0	0.1
21.9	80.9	1.6	120.0	50.0	0.1
22.0	80.3	1.5	115.0	NoLiq	0.0
22.1	78.1	1.5	115.0	NoLiq	0.0
22.1	75.9	1.4	115.0	NoLiq	0.0
22.2	70.4	1.4	115.0	NoLiq	0.0
22.2	66.5	1.4	115.0	NoLiq	0.0
22.3	52.0	1.4	115.0	NoLiq	0.0
22.4	42.4	1.4	115.0	NoLiq	0.0
22.4	38.5	1.4	115.0	NoLiq	0.0
22.5	33.7	1.3	115.0	NoLiq	0.0
22.6	28.5	1.3	115.0	NoLiq	0.0
22.6	24.3	1.3	115.0	NoLiq	0.0
22.7	20.2	1.2	115.0	NoLiq	0.0

22.8	18.5	1.1	115.0	NoLiq	0.0
22.9	17.3	1.0	115.0	NoLiq	0.0
22.9	15.3	0.9	115.0	NoLiq	0.0
23.0	13.6	0.8	115.0	NoLiq	0.0
23.0	12.8	0.8	115.0	NoLiq	0.0
23.1	13.1	0.8	115.0	NoLiq	0.0
23.2	17.1	0.7	115.0	NoLiq	0.0
23.2	20.7	0.8	115.0	NoLiq	0.0
23.3	27.2	1.0	115.0	NoLiq	0.0
23.4	29.3	1.2	115.0	NoLiq	0.0
23.4	34.6	1.4	115.0	NoLiq	0.0
23.5	36.5	1.5	115.0	NoLiq	0.0
23.6	46.3	1.5	115.0	NoLiq	0.0
23.6	59.3	1.6	115.0	NoLiq	0.0
23.7	72.7	1.6	115.0	NoLiq	0.0
23.8	79.0	1.6	115.0	NoLiq	0.0
23.8	90.3	1.7	115.0	NoLiq	0.0
23.9	93.1	1.8	115.0	NoLiq	0.0
24.0	88.2	1.8	115.0	NoLiq	0.0
24.0	79.8	1.9	115.0	NoLiq	0.0
24.1	68.8	1.8	115.0	NoLiq	0.0
24.2	59.4	1.8	115.0	NoLiq	0.0
24.2	56.0	1.8	115.0	NoLiq	0.0
24.3	54.2	1.7	115.0	NoLiq	0.0
24.4	56.7	1.7	115.0	NoLiq	0.0
24.4	67.0	1.7	115.0	NoLiq	0.0
24.5	68.1	1.8	115.0	NoLiq	0.0
24.6	60.7	1.9	115.0	NoLiq	0.0
24.6	57.6	1.9	115.0	NoLiq	0.0
24.7	51.5	1.8	115.0	NoLiq	0.0
24.7	45.1	1.7	115.0	NoLiq	0.0
24.8	39.4	1.6	115.0	NoLiq	0.0
24.9	37.1	1.6	115.0	NoLiq	0.0
25.0	32.4	1.4	115.0	NoLiq	0.0
25.0	32.5	1.4	115.0	NoLiq	0.0
25.1	36.0	1.5	115.0	NoLiq	0.0
25.1	40.8	1.5	115.0	NoLiq	0.0
25.2	47.0	1.5	115.0	NoLiq	0.0
25.3	50.5	1.6	115.0	NoLiq	0.0
25.3	50.3	1.6	115.0	NoLiq	0.0
25.4	48.5	1.6	115.0	NoLiq	0.0
25.5	48.8	1.6	115.0	NoLiq	0.0
25.5	51.1	1.7	115.0	NoLiq	0.0
25.6	52.2	1.7	115.0	NoLiq	0.0
25.7	55.0	1.8	115.0	NoLiq	0.0
25.7	56.6	1.7	115.0	NoLiq	0.0
25.8	56.5	1.7	115.0	NoLiq	0.0
25.9	58.1	1.8	115.0	NoLiq	0.0
25.9	67.0	1.8	115.0	NoLiq	0.0
26.0	82.5	1.9	115.0	NoLiq	0.0

26.1	99.6	2.0	115.0	NoLiq	0.0
26.1	112.2	2.3	115.0	NoLiq	0.0
26.2	121.1	2.3	115.0	NoLiq	0.0
26.3	125.6	2.3	115.0	NoLiq	0.0
26.4	134.8	2.3	115.0	NoLiq	0.0
26.4	136.1	2.4	115.0	NoLiq	0.0
26.5	135.8	2.5	115.0	NoLiq	0.0
26.5	113.9	2.5	115.0	NoLiq	0.0
26.6	121.9	2.4	115.0	NoLiq	0.0
26.7	112.7	2.4	115.0	NoLiq	0.0
26.7	106.5	2.3	115.0	NoLiq	0.0
26.8	90.9	2.3	115.0	NoLiq	0.0
26.9	73.3	2.2	115.0	NoLiq	0.0
26.9	56.7	2.1	115.0	NoLiq	0.0
27.0	49.1	1.9	115.0	NoLiq	0.0
27.1	35.9	1.6	115.0	NoLiq	0.0
27.1	32.9	1.5	115.0	NoLiq	0.0
27.2	27.8	1.4	115.0	NoLiq	0.0
27.3	23.6	1.1	115.0	NoLiq	0.0
27.3	20.9	1.0	115.0	NoLiq	0.0
27.4	19.6	0.9	115.0	NoLiq	0.0
27.5	18.0	0.8	115.0	NoLiq	0.0
27.5	17.9	0.8	115.0	NoLiq	0.0
27.6	17.9	0.7	115.0	NoLiq	0.0
27.6	20.2	0.7	115.0	NoLiq	0.0
27.7	21.2	0.7	115.0	NoLiq	0.0
27.8	21.4	0.7	115.0	NoLiq	0.0
27.8	21.3	0.7	115.0	NoLiq	0.0
27.9	20.5	0.7	115.0	NoLiq	0.0
28.0	19.3	0.7	115.0	NoLiq	0.0
28.0	18.9	0.7	115.0	NoLiq	0.0
28.1	19.0	0.7	115.0	NoLiq	0.0
28.1	19.6	0.8	115.0	NoLiq	0.0
28.2	21.5	0.9	115.0	NoLiq	0.0
28.3	24.0	1.1	115.0	NoLiq	0.0
28.4	28.8	1.2	115.0	NoLiq	0.0
28.4	35.6	1.2	115.0	NoLiq	0.0
28.5	39.1	1.2	115.0	NoLiq	0.0
28.5	43.7	1.2	115.0	NoLiq	0.0
28.6	64.7	1.3	115.0	NoLiq	0.0
28.7	86.1	1.3	115.0	NoLiq	0.0
28.8	108.0	1.4	115.0	NoLiq	0.0
28.8	127.6	1.4	115.0	NoLiq	0.0
28.9	144.2	1.5	115.0	NoLiq	0.0
28.9	152.7	1.5	115.0	NoLiq	0.0
29.0	170.6	1.6	115.0	20.0	0.3
29.1	192.9	2.0	115.0	20.0	0.3
29.1	199.5	1.9	115.0	20.0	0.3
29.2	209.4	1.7	115.0	20.0	0.3
29.3	218.1	1.9	115.0	20.0	0.3

29.3	220.9	1.9	115.0	20.0	0.3
29.4	224.1	2.0	115.0	20.0	0.3
29.5	219.4	2.0	115.0	20.0	0.3
29.6	217.8	2.1	115.0	20.0	0.3
29.6	220.7	2.0	115.0	20.0	0.3
29.7	220.1	2.0	115.0	20.0	0.3
29.7	216.4	2.0	115.0	20.0	0.3
29.8	207.1	1.9	115.0	20.0	0.3
29.9	202.7	1.9	115.0	20.0	0.3
29.9	189.9	1.8	115.0	20.0	0.3
30.0	173.2	1.8	115.0	20.0	0.3
30.1	153.6	1.7	115.0	20.0	0.3
30.1	143.4	1.8	115.0	20.0	0.3
30.2	124.9	1.8	115.0	20.0	0.3
30.3	101.9	2.0	115.0	20.0	0.3
30.3	80.9	2.0	115.0	20.0	0.3
30.4	62.0	2.0	115.0	20.0	0.3
30.4	54.2	2.0	115.0	20.0	0.3
30.5	44.0	1.9	115.0	20.0	0.3
30.6	36.9	1.9	115.0	20.0	0.3
30.6	36.7	1.9	115.0	20.0	0.3
30.7	39.5	1.9	115.0	20.0	0.3
30.8	41.0	1.9	115.0	20.0	0.3
30.8	47.2	2.0	115.0	20.0	0.3
31.0	57.3	2.2	115.0	20.0	0.3
31.0	62.3	2.3	115.0	20.0	0.3
31.1	76.5	2.4	115.0	20.0	0.3
31.1	86.0	2.4	115.0	20.0	0.3
31.2	122.7	2.4	115.0	20.0	0.3
31.2	133.2	2.4	115.0	20.0	0.3
31.3	150.1	2.4	115.0	20.0	0.3
31.4	162.1	2.2	115.0	20.0	0.3
31.5	168.4	2.1	115.0	20.0	0.3
31.5	170.4	2.1	115.0	20.0	0.3
31.6	169.0	1.9	115.0	20.0	0.3
31.7	166.2	1.8	115.0	20.0	0.3
31.7	160.3	1.7	115.0	20.0	0.3
31.8	151.3	1.6	115.0	20.0	0.3
31.9	141.5	1.6	115.0	20.0	0.3
31.9	135.3	1.5	115.0	20.0	0.3
32.0	121.6	1.5	115.0	20.0	0.3
32.0	108.0	1.6	115.0	NoLiq	0.0
32.1	92.0	1.6	115.0	NoLiq	0.0
32.2	84.6	1.7	115.0	NoLiq	0.0
32.3	66.5	1.7	115.0	NoLiq	0.0
32.3	62.7	1.6	115.0	NoLiq	0.0
32.4	54.2	1.6	115.0	NoLiq	0.0
32.4	49.5	1.7	115.0	NoLiq	0.0
32.5	37.5	1.6	115.0	NoLiq	0.0
32.6	26.8	1.6	115.0	NoLiq	0.0

32.6	30.0	1.5	115.0	NoLiq	0.0
32.7	26.3	1.3	115.0	NoLiq	0.0
32.8	22.9	1.2	115.0	NoLiq	0.0
32.8	20.0	1.1	115.0	NoLiq	0.0
32.9	20.1	1.1	115.0	NoLiq	0.0
33.0	20.3	1.0	115.0	NoLiq	0.0
33.0	20.3	1.1	115.0	NoLiq	0.0
33.1	21.3	1.1	115.0	NoLiq	0.0
33.2	25.1	1.2	115.0	NoLiq	0.0
33.2	29.7	1.3	115.0	NoLiq	0.0
33.3	32.0	1.3	115.0	NoLiq	0.0
33.3	35.0	1.3	115.0	NoLiq	0.0
33.4	32.4	1.2	115.0	NoLiq	0.0
33.5	30.7	1.2	115.0	NoLiq	0.0
33.5	25.5	1.1	115.0	NoLiq	0.0
33.6	21.6	1.0	115.0	NoLiq	0.0
33.7	20.0	1.0	115.0	NoLiq	0.0
33.7	21.7	0.9	115.0	NoLiq	0.0
33.8	20.2	0.9	115.0	NoLiq	0.0
33.9	21.8	0.9	115.0	NoLiq	0.0
33.9	23.9	0.9	115.0	NoLiq	0.0
34.0	25.3	0.9	115.0	NoLiq	0.0
34.1	25.5	0.8	115.0	NoLiq	0.0
34.1	25.4	0.8	115.0	NoLiq	0.0
34.2	24.4	0.8	115.0	NoLiq	0.0
34.3	22.5	0.8	115.0	NoLiq	0.0
34.3	20.1	0.8	115.0	NoLiq	0.0
34.4	19.5	0.8	115.0	NoLiq	0.0
34.5	17.7	0.7	115.0	NoLiq	0.0
34.5	17.2	0.7	115.0	NoLiq	0.0
34.6	16.9	0.7	115.0	NoLiq	0.0
34.7	16.5	0.7	115.0	NoLiq	0.0
34.7	16.8	0.8	115.0	NoLiq	0.0
34.8	19.9	0.8	115.0	NoLiq	0.0
34.8	24.1	0.8	115.0	NoLiq	0.0
34.9	34.4	0.9	115.0	NoLiq	0.0
35.0	35.5	1.0	115.0	NoLiq	0.0
35.0	31.7	1.0	115.0	NoLiq	0.0
35.1	25.5	1.0	115.0	NoLiq	0.0
35.2	21.7	1.0	115.0	NoLiq	0.0
35.3	25.5	1.1	115.0	NoLiq	0.0
35.3	20.9	1.3	115.0	NoLiq	0.0
35.4	25.5	1.4	115.0	NoLiq	0.0
35.5	33.2	1.5	115.0	NoLiq	0.0
35.5	37.6	1.6	115.0	NoLiq	0.0
35.6	43.0	1.7	115.0	NoLiq	0.0
35.7	45.0	1.9	115.0	NoLiq	0.0
35.7	46.3	1.9	115.0	NoLiq	0.0
35.8	47.0	1.9	115.0	NoLiq	0.0
35.8	43.5	1.9	115.0	NoLiq	0.0

35.9	40.1	1.9	115.0	NoLiq	0.0
36.0	36.8	1.9	115.0	NoLiq	0.3
36.0	35.7	1.8	115.0	20.0	0.3
36.1	52.7	1.8	115.0	20.0	0.3
36.2	70.5	1.8	115.0	20.0	0.3
36.2	121.7	1.8	115.0	20.0	0.3
36.3	166.1	1.9	115.0	20.0	0.3
36.4	198.5	2.1	115.0	20.0	0.3
36.4	216.0	2.1	115.0	20.0	0.3
36.5	229.5	2.2	115.0	20.0	0.3
36.6	237.0	2.3	115.0	20.0	0.3
36.6	239.4	2.4	115.0	20.0	0.3
36.7	244.5	2.5	115.0	20.0	0.3
36.7	253.4	2.6	115.0	20.0	0.3
36.8	267.8	2.6	115.0	20.0	0.3
36.9	274.6	2.7	115.0	20.0	0.3
36.9	285.3	2.7	115.0	20.0	0.3
37.0	296.3	2.7	115.0	20.0	0.3
37.1	299.1	2.7	115.0	20.0	0.3
37.1	303.0	2.6	115.0	20.0	0.3
37.2	306.9	2.6	115.0	20.0	0.3
37.3	310.2	2.6	115.0	20.0	0.3
37.3	310.7	2.6	115.0	20.0	0.3
37.4	310.7	2.6	115.0	20.0	0.3
37.5	308.8	2.7	115.0	20.0	0.3
37.5	307.5	2.7	115.0	20.0	0.3
37.6	306.3	2.7	115.0	20.0	0.3
37.7	302.0	2.7	115.0	20.0	0.3
37.8	300.8	2.7	115.0	20.0	0.3
37.8	297.9	2.6	115.0	20.0	0.3
37.9	296.4	2.6	115.0	20.0	0.3
38.0	291.0	2.5	115.0	20.0	0.3
38.0	283.8	2.4	115.0	20.0	0.3
38.1	279.2	2.4	115.0	20.0	0.3
38.1	265.1	2.2	115.0	20.0	0.3
38.2	251.9	1.8	115.0	20.0	0.3
38.3	244.5	1.4	115.0	20.0	0.3
38.3	228.3	1.4	115.0	20.0	0.3
38.4	206.8	1.6	115.0	20.0	0.3
38.5	178.5	1.9	115.0	NoLiq	0.0
38.5	164.3	2.0	115.0	NoLiq	0.0
38.6	118.5	2.3	115.0	NoLiq	0.0
38.7	110.2	2.5	115.0	NoLiq	0.0
38.7	102.2	2.5	115.0	NoLiq	0.0
38.8	91.7	2.8	115.0	NoLiq	0.0
38.8	91.4	3.0	115.0	NoLiq	0.0
38.9	86.4	3.2	115.0	NoLiq	0.0
39.0	84.8	3.4	115.0	NoLiq	0.0
39.1	89.6	3.6	115.0	NoLiq	0.0
39.1	94.9	3.7	115.0	NoLiq	0.0

39.2	109.8	3.7	115.0	NoLiq	0.0
39.2	127.8	3.8	115.0	NoLiq	0.0
39.3	141.4	3.8	115.0	NoLiq	0.0
39.4	152.2	3.8	115.0	NoLiq	0.0
39.5	149.9	3.8	115.0	NoLiq	0.0
39.5	143.5	3.6	115.0	NoLiq	0.0
39.6	134.7	3.5	115.0	NoLiq	0.0
39.6	112.7	3.2	115.0	NoLiq	0.0
39.7	89.4	2.9	115.0	NoLiq	0.0
39.8	70.3	2.5	115.0	NoLiq	0.0
39.8	63.0	2.2	115.0	NoLiq	0.0
39.9	42.1	1.6	115.0	NoLiq	0.0
40.0	36.8	1.5	115.0	NoLiq	0.0
40.0	28.9	1.3	115.0	NoLiq	0.0
40.1	26.3	1.1	115.0	NoLiq	0.0
40.2	23.2	1.0	115.0	NoLiq	0.0
40.3	23.6	1.0	115.0	NoLiq	0.0
40.3	24.2	1.0	115.0	NoLiq	0.0
40.3	25.3	1.1	115.0	NoLiq	0.0
40.4	26.1	1.2	115.0	NoLiq	0.0
40.5	26.4	1.2	115.0	NoLiq	0.0
40.5	25.4	1.2	115.0	NoLiq	0.0
40.6	23.4	1.2	115.0	NoLiq	0.0
40.7	21.8	1.2	115.0	NoLiq	0.0
40.8	21.0	1.1	115.0	NoLiq	0.0
40.9	20.9	1.0	115.0	NoLiq	0.0
40.9	20.8	1.0	115.0	NoLiq	0.0
41.0	20.6	1.0	115.0	NoLiq	0.0
41.0	20.6	1.1	115.0	NoLiq	0.0
41.1	23.6	1.2	115.0	NoLiq	0.0
41.2	26.3	1.1	115.0	NoLiq	0.0
41.2	32.5	1.2	115.0	NoLiq	0.0
41.3	39.0	1.5	115.0	NoLiq	0.0
41.3	42.2	1.6	115.0	NoLiq	0.0
41.4	45.9	1.7	115.0	NoLiq	0.0
41.5	39.5	1.7	115.0	NoLiq	0.0
41.5	41.2	1.6	115.0	NoLiq	0.0
41.6	37.0	1.5	115.0	NoLiq	0.0
41.7	32.0	1.4	115.0	NoLiq	0.0
41.8	27.4	1.4	115.0	NoLiq	0.0
41.8	25.5	1.4	115.0	NoLiq	0.0
41.9	24.2	1.5	115.0	NoLiq	0.0
42.0	29.1	1.7	115.0	NoLiq	0.0
42.0	33.8	1.9	115.0	20.0	0.3
42.1	45.4	2.1	115.0	20.0	0.3
42.2	55.7	2.3	115.0	20.0	0.3
42.2	71.9	2.7	115.0	20.0	0.3
42.3	82.5	2.9	115.0	20.0	0.3
42.3	100.0	3.1	115.0	20.0	0.3
42.4	120.2	3.3	115.0	20.0	0.3

42.5	149.7	3.7	115.0	20.0	0.3
42.5	171.2	3.8	115.0	20.0	0.3
42.6	214.6	4.1	115.0	20.0	0.3
42.7	257.9	4.3	115.0	20.0	0.3
42.7	267.0	4.3	115.0	20.0	0.3
42.8	281.0	4.2	115.0	20.0	0.3
42.9	283.0	3.9	115.0	20.0	0.3
42.9	274.8	3.7	115.0	20.0	0.3
43.0	266.5	3.5	115.0	20.0	0.3
43.0	247.3	3.3	115.0	NoLiq	0.0
43.1	218.3	2.9	115.0	NoLiq	0.0
43.2	187.9	2.8	115.0	NoLiq	0.0
43.3	148.8	2.8	115.0	NoLiq	0.0
43.3	114.0	2.7	115.0	NoLiq	0.0
43.4	98.9	2.7	115.0	NoLiq	0.0
43.5	72.3	2.6	115.0	NoLiq	0.0
43.5	56.4	2.6	115.0	NoLiq	0.0
43.6	45.9	2.5	115.0	NoLiq	0.0
43.6	42.9	2.4	115.0	NoLiq	0.0
43.7	38.5	2.3	115.0	NoLiq	0.0
43.8	34.0	2.2	115.0	NoLiq	0.0
43.8	31.0	1.8	115.0	NoLiq	0.0
43.9	30.0	1.6	115.0	NoLiq	0.0
44.0	28.7	1.5	115.0	NoLiq	0.0
44.1	28.4	1.5	115.0	NoLiq	0.0
44.1	29.4	1.5	115.0	NoLiq	0.0
44.2	35.1	1.5	115.0	NoLiq	0.0
44.2	43.0	1.5	115.0	NoLiq	0.0
44.3	53.0	1.7	115.0	NoLiq	0.0
44.4	55.0	1.8	115.0	NoLiq	0.0
44.5	53.1	2.0	115.0	NoLiq	0.0
44.5	41.1	2.1	115.0	NoLiq	0.0
44.6	47.7	2.2	115.0	NoLiq	0.0
44.6	47.7	2.2	115.0	NoLiq	0.0
44.7	47.7	2.2	115.0	NoLiq	0.0
44.8	47.7	2.1	115.0	NoLiq	0.0
44.8	53.0	2.0	115.0	NoLiq	0.0
44.9	55.8	2.0	115.0	NoLiq	0.0
45.0	53.2	2.0	115.0	NoLiq	0.0
45.0	51.3	2.0	115.0	NoLiq	0.0
45.1	50.5	2.2	115.0	NoLiq	0.0
45.2	58.2	2.7	115.0	NoLiq	0.0
45.2	80.2	3.0	115.0	NoLiq	0.0
45.3	91.1	3.0	115.0	NoLiq	0.0
45.4	101.6	3.2	115.0	NoLiq	0.0
45.4	104.0	3.2	115.0	NoLiq	0.0
45.5	123.2	3.2	115.0	NoLiq	0.0
45.6	188.9	3.2	115.0	20.0	0.3
45.6	205.2	3.2	115.0	20.0	0.3
45.7	224.6	3.2	115.0	20.0	0.3

45.7	229.7	3.1	115.0	20.0	0.3
45.8	229.8	3.0	115.0	20.0	0.3
45.9	225.7	3.0	115.0	20.0	0.3
45.9	215.0	3.0	115.0	20.0	0.3
46.0	194.7	3.0	115.0	20.0	0.3
46.1	187.1	3.1	115.0	20.0	0.3
46.2	170.4	3.1	115.0	20.0	0.3
46.2	156.5	3.3	115.0	20.0	0.3
46.3	141.7	3.4	115.0	20.0	0.3
46.3	126.8	3.5	115.0	20.0	0.3
46.4	118.5	3.5	115.0	20.0	0.3
46.5	111.8	3.5	115.0	20.0	0.3
46.5	112.6	3.5	115.0	20.0	0.3
46.6	114.9	3.5	115.0	20.0	0.3
46.7	113.0	3.5	115.0	20.0	0.3
46.7	96.6	3.5	115.0	20.0	0.3
46.8	78.1	3.2	115.0	20.0	0.3
46.9	70.1	2.9	115.0	20.0	0.3
47.0	49.3	2.6	115.0	20.0	0.3
47.0	44.1	2.5	115.0	NoLiq	0.0
47.1	37.2	2.2	115.0	NoLiq	0.0
47.1	32.9	2.0	115.0	NoLiq	0.0
47.2	28.5	1.7	115.0	NoLiq	0.0
47.3	26.7	1.8	115.0	NoLiq	0.0
47.3	26.2	1.9	115.0	NoLiq	0.0
47.4	43.1	1.9	115.0	NoLiq	0.0
47.5	56.2	2.2	115.0	NoLiq	0.0
47.5	57.2	2.3	115.0	NoLiq	0.0
47.6	47.8	2.4	115.0	NoLiq	0.0
47.7	53.8	2.3	115.0	NoLiq	0.0
47.7	49.2	2.1	115.0	NoLiq	0.0
47.8	47.5	2.1	115.0	NoLiq	0.0
47.8	44.3	2.2	115.0	NoLiq	0.0
47.9	41.2	2.0	115.0	NoLiq	0.0
48.0	37.2	1.9	115.0	NoLiq	0.0
48.0	37.1	1.9	115.0	NoLiq	0.0
48.1	45.8	1.9	115.0	NoLiq	0.0
48.2	60.7	2.0	115.0	NoLiq	0.0
48.2	65.4	2.0	115.0	NoLiq	0.0
48.3	61.5	2.0	115.0	NoLiq	0.0
48.4	50.6	1.9	115.0	NoLiq	0.0
48.4	45.8	1.8	115.0	NoLiq	0.0
48.5	38.2	1.7	115.0	NoLiq	0.0
48.6	32.0	1.7	115.0	NoLiq	0.0
48.6	28.6	1.6	115.0	NoLiq	0.0
48.7	25.8	1.5	115.0	NoLiq	0.0
48.8	24.5	1.2	115.0	NoLiq	0.0
48.8	24.5	1.2	115.0	NoLiq	0.0
48.9	24.5	1.2	115.0	NoLiq	0.0
49.0	26.8	1.3	115.0	NoLiq	0.0

49.0	29.7	1.6	115.0	20.0	0.3
49.1	33.7	1.8	115.0	20.0	0.3
49.2	38.9	2.0	115.0	20.0	0.3
49.3	94.9	2.4	115.0	20.0	0.3
49.3	127.7	2.6	115.0	20.0	0.3
49.4	192.4	2.8	115.0	20.0	0.3
49.4	218.1	3.0	115.0	20.0	0.3
49.5	274.2	3.1	115.0	20.0	0.3
49.6	296.8	3.0	115.0	20.0	0.3
49.6	302.7	2.8	115.0	20.0	0.3
49.7	305.1	2.6	115.0	20.0	0.3
49.8	301.4	2.6	115.0	20.0	0.3
49.8	291.1	2.6	115.0	20.0	0.3
49.9	273.9	2.6	115.0	20.0	0.3
50.0	251.3	2.8	115.0	20.0	0.3

Output Results:

Settlement of saturated sands=0.00 in.
Settlement of dry sands=2.94 in.
Total settlement of saturated and dry sands=2.94 in.
Differential Settlement=1.471 to 1.942 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.68	5.00	0.00	2.94	2.94
0.05	2.00	0.68	5.00	0.00	2.94	2.94
0.10	2.00	0.68	5.00	0.00	2.94	2.94
0.15	2.00	0.68	5.00	0.00	2.94	2.94
0.20	2.00	0.68	5.00	0.00	2.94	2.94
0.25	2.00	0.68	5.00	0.00	2.94	2.94
0.30	2.00	0.68	5.00	0.00	2.94	2.94
0.35	2.00	0.68	5.00	0.00	2.94	2.94
0.40	2.00	0.68	5.00	0.00	2.94	2.94
0.45	2.00	0.68	5.00	0.00	2.94	2.94
0.50	2.00	0.68	5.00	0.00	2.94	2.94
0.55	2.00	0.68	5.00	0.00	2.94	2.94
0.60	2.00	0.68	5.00	0.00	2.94	2.94
0.65	2.00	0.68	5.00	0.00	2.94	2.94
0.70	2.00	0.68	5.00	0.00	2.94	2.94
0.75	2.00	0.68	5.00	0.00	2.94	2.94
0.80	2.00	0.68	5.00	0.00	2.94	2.94
0.85	2.00	0.68	5.00	0.00	2.94	2.94
0.90	2.00	0.68	5.00	0.00	2.94	2.94
0.95	2.00	0.68	5.00	0.00	2.94	2.94
1.00	2.00	0.68	5.00	0.00	2.94	2.94
1.05	0.70	0.68	5.00	0.00	2.94	2.94
1.10	1.39	0.68	5.00	0.00	2.94	2.94
1.15	2.08	0.68	5.00	0.00	2.94	2.94

1.20	2.08	0.68	5.00	0.00	2.94	2.94
1.25	2.08	0.68	5.00	0.00	2.94	2.94
1.30	2.08	0.68	5.00	0.00	2.94	2.94
1.35	2.08	0.68	5.00	0.00	2.94	2.94
1.40	2.08	0.68	5.00	0.00	2.94	2.94
1.45	2.08	0.68	5.00	0.00	2.94	2.94
1.50	2.08	0.68	5.00	0.00	2.94	2.94
1.55	2.08	0.68	5.00	0.00	2.94	2.94
1.60	2.08	0.68	5.00	0.00	2.94	2.94
1.65	2.08	0.68	5.00	0.00	2.94	2.94
1.70	2.08	0.68	5.00	0.00	2.94	2.94
1.75	2.08	0.68	5.00	0.00	2.94	2.94
1.80	2.08	0.68	5.00	0.00	2.94	2.94
1.85	2.08	0.68	5.00	0.00	2.94	2.94
1.90	2.08	0.68	5.00	0.00	2.94	2.94
1.95	2.08	0.68	5.00	0.00	2.94	2.94
2.00	2.08	0.68	5.00	0.00	2.94	2.94
2.05	2.08	0.68	5.00	0.00	2.94	2.94
2.10	2.08	0.68	5.00	0.00	2.94	2.94
2.15	2.08	0.68	5.00	0.00	2.94	2.94
2.20	2.08	0.68	5.00	0.00	2.94	2.94
2.25	2.08	0.68	5.00	0.00	2.94	2.94
2.30	2.08	0.68	5.00	0.00	2.94	2.94
2.35	2.08	0.68	5.00	0.00	2.94	2.94
2.40	2.08	0.68	5.00	0.00	2.94	2.94
2.45	2.08	0.68	5.00	0.00	2.94	2.94
2.50	2.08	0.68	5.00	0.00	2.94	2.94
2.55	2.08	0.68	5.00	0.00	2.94	2.94
2.60	2.08	0.68	5.00	0.00	2.94	2.94
2.65	2.08	0.68	5.00	0.00	2.94	2.94
2.70	2.08	0.68	5.00	0.00	2.94	2.94
2.75	2.08	0.68	5.00	0.00	2.94	2.94
2.80	2.08	0.68	5.00	0.00	2.94	2.94
2.85	2.08	0.68	5.00	0.00	2.94	2.94
2.90	2.08	0.68	5.00	0.00	2.94	2.94
2.95	2.08	0.68	5.00	0.00	2.94	2.94
3.00	2.08	0.68	5.00	0.00	2.94	2.94
3.05	2.08	0.68	5.00	0.00	2.94	2.94
3.10	2.08	0.68	5.00	0.00	2.94	2.94
3.15	2.08	0.68	5.00	0.00	2.94	2.94
3.20	2.08	0.68	5.00	0.00	2.94	2.94
3.25	2.08	0.68	5.00	0.00	2.94	2.94
3.30	2.08	0.68	5.00	0.00	2.94	2.94
3.35	2.08	0.68	5.00	0.00	2.94	2.94
3.40	2.08	0.68	5.00	0.00	2.94	2.94
3.45	2.08	0.68	5.00	0.00	2.94	2.94
3.50	2.08	0.68	5.00	0.00	2.94	2.94
3.55	2.08	0.68	5.00	0.00	2.94	2.94
3.60	2.08	0.68	5.00	0.00	2.94	2.94
3.65	2.08	0.68	5.00	0.00	2.94	2.94

3.70	2.08	0.68	5.00	0.00	2.94	2.94
3.75	2.08	0.68	5.00	0.00	2.93	2.93
3.80	2.08	0.68	5.00	0.00	2.93	2.93
3.85	2.08	0.68	5.00	0.00	2.93	2.93
3.90	2.08	0.68	5.00	0.00	2.93	2.93
3.95	2.08	0.68	5.00	0.00	2.93	2.93
4.00	2.08	0.68	5.00	0.00	2.93	2.93
4.05	2.08	0.68	5.00	0.00	2.93	2.93
4.10	2.08	0.68	5.00	0.00	2.93	2.93
4.15	2.08	0.68	5.00	0.00	2.93	2.93
4.20	2.08	0.68	5.00	0.00	2.93	2.93
4.25	2.08	0.68	5.00	0.00	2.93	2.93
4.30	2.08	0.68	5.00	0.00	2.93	2.93
4.35	2.08	0.68	5.00	0.00	2.93	2.93
4.40	2.08	0.68	5.00	0.00	2.93	2.93
4.45	2.08	0.68	5.00	0.00	2.93	2.93
4.50	2.08	0.68	5.00	0.00	2.93	2.93
4.55	2.08	0.68	5.00	0.00	2.93	2.93
4.60	2.08	0.68	5.00	0.00	2.93	2.93
4.65	2.08	0.68	5.00	0.00	2.93	2.93
4.70	2.08	0.68	5.00	0.00	2.93	2.93
4.75	1.88	0.67	5.00	0.00	2.93	2.93
4.80	1.55	0.67	5.00	0.00	2.93	2.93
4.85	1.15	0.67	5.00	0.00	2.93	2.93
4.90	0.86	0.67	5.00	0.00	2.93	2.93
4.95	0.71	0.67	5.00	0.00	2.93	2.93
5.00	0.60	0.67	5.00	0.00	2.93	2.93
5.05	0.48	0.67	5.00	0.00	2.93	2.93
5.10	0.42	0.67	5.00	0.00	2.92	2.92
5.15	0.38	0.67	5.00	0.00	2.92	2.92
5.20	0.32	0.67	5.00	0.00	2.92	2.92
5.25	0.25	0.67	5.00	0.00	2.91	2.91
5.30	0.20	0.67	5.00	0.00	2.91	2.91
5.35	0.17	0.67	5.00	0.00	2.90	2.90
5.40	0.16	0.67	5.00	0.00	2.89	2.89
5.45	0.15	0.67	5.00	0.00	2.88	2.88
5.50	0.14	0.67	5.00	0.00	2.86	2.86
5.55	0.14	0.67	5.00	0.00	2.85	2.85
5.60	0.13	0.67	5.00	0.00	2.84	2.84
5.65	0.13	0.67	5.00	0.00	2.82	2.82
5.70	0.13	0.67	5.00	0.00	2.81	2.81
5.75	0.12	0.67	5.00	0.00	2.80	2.80
5.80	0.12	0.67	5.00	0.00	2.78	2.78
5.85	0.12	0.67	5.00	0.00	2.77	2.77
5.90	0.12	0.67	5.00	0.00	2.75	2.75
5.95	0.12	0.67	5.00	0.00	2.74	2.74
6.00	0.12	0.67	5.00	0.00	2.72	2.72
6.05	0.12	0.67	5.00	0.00	2.71	2.71
6.10	0.12	0.67	5.00	0.00	2.69	2.69
6.15	0.12	0.67	5.00	0.00	2.68	2.68

6.20	0.12	0.67	5.00	0.00	2.66	2.66
6.25	0.12	0.67	5.00	0.00	2.65	2.65
6.30	0.12	0.67	5.00	0.00	2.63	2.63
6.35	0.12	0.67	5.00	0.00	2.62	2.62
6.40	0.13	0.67	5.00	0.00	2.60	2.60
6.45	0.13	0.67	5.00	0.00	2.59	2.59
6.50	0.14	0.67	5.00	0.00	2.57	2.57
6.55	0.14	0.67	5.00	0.00	2.56	2.56
6.60	0.15	0.67	5.00	0.00	2.55	2.55
6.65	0.16	0.67	5.00	0.00	2.54	2.54
6.70	0.17	0.67	5.00	0.00	2.53	2.53
6.75	0.17	0.67	5.00	0.00	2.51	2.51
6.80	0.17	0.67	5.00	0.00	2.50	2.50
6.85	0.17	0.67	5.00	0.00	2.49	2.49
6.90	0.17	0.67	5.00	0.00	2.48	2.48
6.95	0.18	0.67	5.00	0.00	2.47	2.47
7.00	2.00	0.67	5.00	0.00	2.46	2.46
7.05	2.00	0.67	5.00	0.00	2.46	2.46
7.10	2.00	0.67	5.00	0.00	2.46	2.46
7.15	2.00	0.67	5.00	0.00	2.46	2.46
7.20	2.00	0.67	5.00	0.00	2.46	2.46
7.25	2.00	0.67	5.00	0.00	2.46	2.46
7.30	2.00	0.67	5.00	0.00	2.46	2.46
7.35	2.00	0.67	5.00	0.00	2.46	2.46
7.40	2.00	0.67	5.00	0.00	2.46	2.46
7.45	2.00	0.67	5.00	0.00	2.46	2.46
7.50	2.00	0.67	5.00	0.00	2.46	2.46
7.55	2.00	0.67	5.00	0.00	2.46	2.46
7.60	2.00	0.67	5.00	0.00	2.46	2.46
7.65	2.00	0.67	5.00	0.00	2.46	2.46
7.70	2.00	0.67	5.00	0.00	2.46	2.46
7.75	2.00	0.67	5.00	0.00	2.46	2.46
7.80	2.00	0.67	5.00	0.00	2.46	2.46
7.85	2.00	0.67	5.00	0.00	2.46	2.46
7.90	2.00	0.67	5.00	0.00	2.46	2.46
7.95	2.00	0.67	5.00	0.00	2.46	2.46
8.00	2.00	0.67	5.00	0.00	2.46	2.46
8.05	2.00	0.67	5.00	0.00	2.46	2.46
8.10	2.00	0.67	5.00	0.00	2.46	2.46
8.15	2.00	0.67	5.00	0.00	2.46	2.46
8.20	2.00	0.67	5.00	0.00	2.46	2.46
8.25	2.00	0.67	5.00	0.00	2.46	2.46
8.30	2.00	0.67	5.00	0.00	2.46	2.46
8.35	2.00	0.67	5.00	0.00	2.46	2.46
8.40	2.00	0.67	5.00	0.00	2.46	2.46
8.45	2.00	0.67	5.00	0.00	2.46	2.46
8.50	2.00	0.67	5.00	0.00	2.46	2.46
8.55	2.00	0.67	5.00	0.00	2.46	2.46
8.60	2.00	0.67	5.00	0.00	2.46	2.46
8.65	2.00	0.67	5.00	0.00	2.46	2.46

8.70	2.00	0.67	5.00	0.00	2.46	2.46
8.75	2.00	0.67	5.00	0.00	2.46	2.46
8.80	2.00	0.67	5.00	0.00	2.46	2.46
8.85	2.00	0.67	5.00	0.00	2.46	2.46
8.90	2.00	0.67	5.00	0.00	2.46	2.46
8.95	2.00	0.67	5.00	0.00	2.46	2.46
9.00	2.00	0.67	5.00	0.00	2.46	2.46
9.05	0.27	0.67	5.00	0.00	2.46	2.46
9.10	0.27	0.67	5.00	0.00	2.46	2.46
9.15	0.27	0.67	5.00	0.00	2.45	2.45
9.20	0.27	0.67	5.00	0.00	2.44	2.44
9.25	0.27	0.67	5.00	0.00	2.43	2.43
9.30	0.27	0.67	5.00	0.00	2.43	2.43
9.35	0.27	0.67	5.00	0.00	2.42	2.42
9.40	0.26	0.67	5.00	0.00	2.42	2.42
9.45	0.26	0.67	5.00	0.00	2.42	2.42
9.50	0.26	0.67	5.00	0.00	2.41	2.41
9.55	0.26	0.67	5.00	0.00	2.41	2.41
9.60	0.25	0.67	5.00	0.00	2.40	2.40
9.65	0.25	0.67	5.00	0.00	2.40	2.40
9.70	0.25	0.67	5.00	0.00	2.39	2.39
9.75	0.26	0.67	5.00	0.00	2.39	2.39
9.80	0.25	0.67	5.00	0.00	2.38	2.38
9.85	0.25	0.67	5.00	0.00	2.38	2.38
9.90	0.25	0.67	5.00	0.00	2.37	2.37
9.95	0.25	0.67	5.00	0.00	2.37	2.37
10.00	0.26	0.67	5.00	0.00	2.36	2.36
10.05	0.26	0.67	5.00	0.00	2.36	2.36
10.10	0.27	0.67	5.00	0.00	2.35	2.35
10.15	0.27	0.67	5.00	0.00	2.35	2.35
10.20	0.27	0.67	5.00	0.00	2.34	2.34
10.25	0.27	0.67	5.00	0.00	2.34	2.34
10.30	0.27	0.67	5.00	0.00	2.33	2.33
10.35	0.26	0.67	5.00	0.00	2.33	2.33
10.40	0.26	0.67	5.00	0.00	2.32	2.32
10.45	0.26	0.67	5.00	0.00	2.31	2.31
10.50	0.26	0.67	5.00	0.00	2.31	2.31
10.55	0.25	0.67	5.00	0.00	2.30	2.30
10.60	0.25	0.67	5.00	0.00	2.29	2.29
10.65	0.25	0.67	5.00	0.00	2.29	2.29
10.70	0.24	0.67	5.00	0.00	2.28	2.28
10.75	0.24	0.67	5.00	0.00	2.27	2.27
10.80	0.24	0.67	5.00	0.00	2.26	2.26
10.85	0.24	0.67	5.00	0.00	2.25	2.25
10.90	0.24	0.67	5.00	0.00	2.24	2.24
10.95	0.24	0.67	5.00	0.00	2.23	2.23
11.00	0.24	0.66	5.00	0.00	2.23	2.23
11.05	0.23	0.66	5.00	0.00	2.22	2.22
11.10	0.22	0.66	5.00	0.00	2.21	2.21
11.15	0.22	0.66	5.00	0.00	2.20	2.20

11.20	0.22	0.66	5.00	0.00	2.19	2.19
11.25	0.23	0.66	5.00	0.00	2.17	2.17
11.30	0.23	0.66	5.00	0.00	2.16	2.16
11.35	0.24	0.66	5.00	0.00	2.15	2.15
11.40	0.24	0.66	5.00	0.00	2.14	2.14
11.45	0.24	0.66	5.00	0.00	2.13	2.13
11.50	0.26	0.66	5.00	0.00	2.12	2.12
11.55	0.28	0.66	5.00	0.00	2.11	2.11
11.60	0.30	0.66	5.00	0.00	2.10	2.10
11.65	0.30	0.66	5.00	0.00	2.10	2.10
11.70	0.30	0.66	5.00	0.00	2.09	2.09
11.75	0.30	0.66	5.00	0.00	2.08	2.08
11.80	0.29	0.66	5.00	0.00	2.07	2.07
11.85	0.29	0.66	5.00	0.00	2.06	2.06
11.90	0.28	0.66	5.00	0.00	2.05	2.05
11.95	0.28	0.66	5.00	0.00	2.04	2.04
12.00	0.27	0.66	5.00	0.00	2.03	2.03
12.05	0.26	0.66	5.00	0.00	2.02	2.02
12.10	0.26	0.66	5.00	0.00	2.01	2.01
12.15	0.26	0.66	5.00	0.00	2.00	2.00
12.20	0.26	0.66	5.00	0.00	1.99	1.99
12.25	0.26	0.66	5.00	0.00	1.98	1.98
12.30	0.27	0.66	5.00	0.00	1.97	1.97
12.35	0.28	0.66	5.00	0.00	1.96	1.96
12.40	0.29	0.66	5.00	0.00	1.95	1.95
12.45	0.30	0.66	5.00	0.00	1.94	1.94
12.50	0.31	0.66	5.00	0.00	1.93	1.93
12.55	0.32	0.66	5.00	0.00	1.93	1.93
12.60	0.33	0.66	5.00	0.00	1.92	1.92
12.65	0.34	0.66	5.00	0.00	1.91	1.91
12.70	0.36	0.66	5.00	0.00	1.90	1.90
12.75	0.36	0.66	5.00	0.00	1.90	1.90
12.80	0.36	0.66	5.00	0.00	1.89	1.89
12.85	0.36	0.66	5.00	0.00	1.88	1.88
12.90	0.35	0.66	5.00	0.00	1.87	1.87
12.95	0.33	0.66	5.00	0.00	1.87	1.87
13.00	0.32	0.66	5.00	0.00	1.86	1.86
13.05	0.30	0.66	5.00	0.00	1.85	1.85
13.10	0.29	0.66	5.00	0.00	1.84	1.84
13.15	0.27	0.66	5.00	0.00	1.83	1.83
13.20	0.26	0.66	5.00	0.00	1.82	1.82
13.25	0.26	0.66	5.00	0.00	1.81	1.81
13.30	0.25	0.66	5.00	0.00	1.80	1.80
13.35	0.25	0.66	5.00	0.00	1.80	1.80
13.40	0.24	0.66	5.00	0.00	1.79	1.79
13.45	0.24	0.66	5.00	0.00	1.78	1.78
13.50	2.00	0.66	5.00	0.00	1.77	1.77
13.55	2.00	0.66	5.00	0.00	1.77	1.77
13.60	2.00	0.66	5.00	0.00	1.77	1.77
13.65	2.00	0.66	5.00	0.00	1.77	1.77

13.70	2.00	0.66	5.00	0.00	1.77	1.77
13.75	2.00	0.66	5.00	0.00	1.77	1.77
13.80	2.00	0.66	5.00	0.00	1.77	1.77
13.85	2.00	0.66	5.00	0.00	1.77	1.77
13.90	2.00	0.66	5.00	0.00	1.77	1.77
13.95	2.00	0.66	5.00	0.00	1.77	1.77
14.00	2.00	0.66	5.00	0.00	1.77	1.77
14.05	2.00	0.66	5.00	0.00	1.77	1.77
14.10	2.00	0.66	5.00	0.00	1.77	1.77
14.15	2.00	0.66	5.00	0.00	1.77	1.77
14.20	2.00	0.66	5.00	0.00	1.77	1.77
14.25	2.00	0.66	5.00	0.00	1.77	1.77
14.30	2.00	0.66	5.00	0.00	1.77	1.77
14.35	2.00	0.66	5.00	0.00	1.77	1.77
14.40	2.00	0.66	5.00	0.00	1.77	1.77
14.45	2.00	0.66	5.00	0.00	1.77	1.77
14.50	2.00	0.66	5.00	0.00	1.77	1.77
14.55	2.00	0.66	5.00	0.00	1.77	1.77
14.60	2.00	0.66	5.00	0.00	1.77	1.77
14.65	2.00	0.66	5.00	0.00	1.77	1.77
14.70	2.00	0.66	5.00	0.00	1.77	1.77
14.75	2.00	0.66	5.00	0.00	1.77	1.77
14.80	2.00	0.66	5.00	0.00	1.77	1.77
14.85	2.00	0.66	5.00	0.00	1.77	1.77
14.90	2.00	0.66	5.00	0.00	1.77	1.77
14.95	2.00	0.66	5.00	0.00	1.77	1.77
15.00	2.00	0.66	5.00	0.00	1.77	1.77
15.05	0.22	0.66	5.00	0.00	1.77	1.77
15.10	0.22	0.66	5.00	0.00	1.76	1.76
15.15	0.22	0.66	5.00	0.00	1.75	1.75
15.20	0.21	0.66	5.00	0.00	1.74	1.74
15.25	0.21	0.66	5.00	0.00	1.73	1.73
15.30	0.21	0.66	5.00	0.00	1.72	1.72
15.35	0.21	0.66	5.00	0.00	1.71	1.71
15.40	0.21	0.66	5.00	0.00	1.70	1.70
15.45	0.21	0.66	5.00	0.00	1.69	1.69
15.50	0.21	0.66	5.00	0.00	1.68	1.68
15.55	0.21	0.66	5.00	0.00	1.67	1.67
15.60	0.21	0.66	5.00	0.00	1.66	1.66
15.65	0.21	0.66	5.00	0.00	1.65	1.65
15.70	0.22	0.66	5.00	0.00	1.64	1.64
15.75	0.22	0.66	5.00	0.00	1.63	1.63
15.80	0.22	0.66	5.00	0.00	1.62	1.62
15.85	0.22	0.66	5.00	0.00	1.61	1.61
15.90	0.23	0.66	5.00	0.00	1.61	1.61
15.95	0.23	0.66	5.00	0.00	1.60	1.60
16.00	0.24	0.66	5.00	0.00	1.59	1.59
16.05	0.24	0.66	5.00	0.00	1.58	1.58
16.10	0.24	0.66	5.00	0.00	1.57	1.57
16.15	0.24	0.66	5.00	0.00	1.56	1.56

16.20	0.24	0.66	5.00	0.00	1.55	1.55
16.25	0.24	0.66	5.00	0.00	1.54	1.54
16.30	0.24	0.66	5.00	0.00	1.53	1.53
16.35	0.24	0.66	5.00	0.00	1.52	1.52
16.40	0.24	0.66	5.00	0.00	1.51	1.51
16.45	0.24	0.66	5.00	0.00	1.50	1.50
16.50	0.24	0.66	5.00	0.00	1.49	1.49
16.55	0.24	0.66	5.00	0.00	1.48	1.48
16.60	0.24	0.66	5.00	0.00	1.47	1.47
16.65	0.24	0.66	5.00	0.00	1.47	1.47
16.70	0.25	0.66	5.00	0.00	1.46	1.46
16.75	0.25	0.66	5.00	0.00	1.45	1.45
16.80	0.25	0.66	5.00	0.00	1.44	1.44
16.85	0.25	0.66	5.00	0.00	1.43	1.43
16.90	0.25	0.66	5.00	0.00	1.42	1.42
16.95	0.25	0.66	5.00	0.00	1.41	1.41
17.00	0.26	0.66	5.00	0.00	1.40	1.40
17.05	0.25	0.66	5.00	0.00	1.40	1.40
17.10	0.24	0.66	5.00	0.00	1.39	1.39
17.15	0.23	0.66	5.00	0.00	1.38	1.38
17.20	0.23	0.66	5.00	0.00	1.37	1.37
17.25	0.23	0.66	5.00	0.00	1.36	1.36
17.30	0.23	0.65	5.00	0.00	1.35	1.35
17.35	0.23	0.65	5.00	0.00	1.34	1.34
17.40	0.23	0.65	5.00	0.00	1.34	1.34
17.45	0.23	0.65	5.00	0.00	1.33	1.33
17.50	0.23	0.65	5.00	0.00	1.32	1.32
17.55	0.23	0.65	5.00	0.00	1.31	1.31
17.60	0.24	0.65	5.00	0.00	1.30	1.30
17.65	0.24	0.65	5.00	0.00	1.29	1.29
17.70	0.25	0.65	5.00	0.00	1.29	1.29
17.75	0.26	0.65	5.00	0.00	1.28	1.28
17.80	0.26	0.65	5.00	0.00	1.27	1.27
17.85	0.26	0.65	5.00	0.00	1.26	1.26
17.90	0.27	0.65	5.00	0.00	1.25	1.25
17.95	0.27	0.65	5.00	0.00	1.25	1.25
18.00	0.27	0.65	5.00	0.00	1.24	1.24
18.05	0.28	0.65	5.00	0.00	1.23	1.23
18.10	0.28	0.65	5.00	0.00	1.22	1.22
18.15	0.28	0.65	5.00	0.00	1.21	1.21
18.20	0.29	0.65	5.00	0.00	1.21	1.21
18.25	0.29	0.65	5.00	0.00	1.20	1.20
18.30	0.29	0.65	5.00	0.00	1.19	1.19
18.35	0.29	0.65	5.00	0.00	1.18	1.18
18.40	0.30	0.65	5.00	0.00	1.17	1.17
18.45	0.31	0.65	5.00	0.00	1.17	1.17
18.50	0.32	0.65	5.00	0.00	1.16	1.16
18.55	0.33	0.65	5.00	0.00	1.15	1.15
18.60	0.34	0.65	5.00	0.00	1.14	1.14
18.65	0.37	0.65	5.00	0.00	1.14	1.14

18.70	0.40	0.65	5.00	0.00	1.13	1.13
18.75	0.43	0.65	5.00	0.00	1.13	1.13
18.80	0.47	0.65	5.00	0.00	1.12	1.12
18.85	0.51	0.65	5.00	0.00	1.12	1.12
18.90	0.58	0.65	5.00	0.00	1.11	1.11
18.95	0.41	0.65	5.00	0.00	1.11	1.11
19.00	0.48	0.65	5.00	0.00	1.10	1.10
19.05	0.88	0.65	5.00	0.00	1.10	1.10
19.10	0.40	0.65	5.00	0.00	1.10	1.10
19.15	0.30	0.65	5.00	0.00	1.09	1.09
19.20	0.31	0.65	5.00	0.00	1.08	1.08
19.25	0.36	0.65	5.00	0.00	1.08	1.08
19.30	0.39	0.65	5.00	0.00	1.07	1.07
19.35	0.43	0.65	5.00	0.00	1.06	1.06
19.40	0.47	0.65	5.00	0.00	1.06	1.06
19.45	0.48	0.65	5.00	0.00	1.05	1.05
19.50	0.49	0.65	5.00	0.00	1.04	1.04
19.55	0.48	0.65	5.00	0.00	1.04	1.04
19.60	0.46	0.65	5.00	0.00	1.03	1.03
19.65	0.43	0.65	5.00	0.00	1.03	1.03
19.70	0.41	0.65	5.00	0.00	1.02	1.02
19.75	0.41	0.65	5.00	0.00	1.02	1.02
19.80	0.41	0.65	5.00	0.00	1.01	1.01
19.85	0.41	0.65	5.00	0.00	1.01	1.01
19.90	0.40	0.65	5.00	0.00	1.01	1.01
19.95	0.41	0.65	5.00	0.00	1.00	1.00
20.00	0.41	0.65	5.00	0.00	1.00	1.00
20.05	0.41	0.65	5.00	0.00	0.99	0.99
20.10	0.40	0.65	5.00	0.00	0.99	0.99
20.15	0.38	0.65	5.00	0.00	0.99	0.99
20.20	0.36	0.65	5.00	0.00	0.98	0.98
20.25	0.34	0.65	5.00	0.00	0.98	0.98
20.30	0.33	0.65	5.00	0.00	0.97	0.97
20.35	0.31	0.65	5.00	0.00	0.97	0.97
20.40	0.31	0.65	5.00	0.00	0.96	0.96
20.45	0.29	0.65	5.00	0.00	0.96	0.96
20.50	0.29	0.65	5.00	0.00	0.95	0.95
20.55	0.30	0.65	5.00	0.00	0.95	0.95
20.60	0.31	0.65	5.00	0.00	0.95	0.95
20.65	0.33	0.65	5.00	0.00	0.94	0.94
20.70	0.35	0.65	5.00	0.00	0.94	0.94
20.75	0.35	0.65	5.00	0.00	0.94	0.94
20.80	0.32	0.65	5.00	0.00	0.93	0.93
20.85	0.31	0.65	5.00	0.00	0.93	0.93
20.90	0.29	0.65	5.00	0.00	0.93	0.93
20.95	0.28	0.65	5.00	0.00	0.93	0.93
21.00	0.26	0.65	5.00	0.00	0.92	0.92
21.05	0.24	0.65	5.00	0.00	0.92	0.92
21.10	0.22	0.65	5.00	0.00	0.91	0.91
21.15	0.22	0.65	5.00	0.00	0.90	0.90

21.20	0.21	0.65	5.00	0.00	0.90	0.90
21.25	0.22	0.65	5.00	0.00	0.89	0.89
21.30	0.22	0.65	5.00	0.00	0.88	0.88
21.35	0.22	0.65	5.00	0.00	0.87	0.87
21.40	0.23	0.65	5.00	0.00	0.86	0.86
21.45	0.23	0.65	5.00	0.00	0.86	0.86
21.50	0.23	0.65	5.00	0.00	0.85	0.85
21.55	0.23	0.65	5.00	0.00	0.84	0.84
21.60	0.23	0.65	5.00	0.00	0.83	0.83
21.65	0.23	0.65	5.00	0.00	0.83	0.83
21.70	0.24	0.65	5.00	0.00	0.82	0.82
21.75	0.24	0.65	5.00	0.00	0.81	0.81
21.80	0.24	0.65	5.00	0.00	0.80	0.80
21.85	0.24	0.65	5.00	0.00	0.80	0.80
21.90	0.23	0.65	5.00	0.00	0.79	0.79
21.95	0.22	0.65	5.00	0.00	0.78	0.78
22.00	0.22	0.65	5.00	0.00	0.77	0.77
22.05	2.00	0.65	5.00	0.00	0.77	0.77
22.10	2.00	0.65	5.00	0.00	0.77	0.77
22.15	2.00	0.65	5.00	0.00	0.77	0.77
22.20	2.00	0.65	5.00	0.00	0.77	0.77
22.25	2.00	0.65	5.00	0.00	0.77	0.77
22.30	2.00	0.65	5.00	0.00	0.77	0.77
22.35	2.00	0.65	5.00	0.00	0.77	0.77
22.40	2.00	0.65	5.00	0.00	0.77	0.77
22.45	2.00	0.65	5.00	0.00	0.77	0.77
22.50	2.00	0.65	5.00	0.00	0.77	0.77
22.55	2.00	0.65	5.00	0.00	0.77	0.77
22.60	2.00	0.65	5.00	0.00	0.77	0.77
22.65	2.00	0.65	5.00	0.00	0.77	0.77
22.70	2.00	0.65	5.00	0.00	0.77	0.77
22.75	2.00	0.65	5.00	0.00	0.77	0.77
22.80	2.00	0.65	5.00	0.00	0.77	0.77
22.85	2.00	0.65	5.00	0.00	0.77	0.77
22.90	2.00	0.65	5.00	0.00	0.77	0.77
22.95	2.00	0.65	5.00	0.00	0.77	0.77
23.00	2.00	0.65	5.00	0.00	0.77	0.77
23.05	2.00	0.65	5.00	0.00	0.77	0.77
23.10	2.00	0.65	5.00	0.00	0.77	0.77
23.15	2.00	0.65	5.00	0.00	0.77	0.77
23.20	2.00	0.65	5.00	0.00	0.77	0.77
23.25	2.00	0.65	5.00	0.00	0.77	0.77
23.30	2.00	0.65	5.00	0.00	0.77	0.77
23.35	2.00	0.65	5.00	0.00	0.77	0.77
23.40	2.00	0.65	5.00	0.00	0.77	0.77
23.45	2.00	0.65	5.00	0.00	0.77	0.77
23.50	2.00	0.65	5.00	0.00	0.77	0.77
23.55	2.00	0.65	5.00	0.00	0.77	0.77
23.60	2.00	0.64	5.00	0.00	0.77	0.77
23.65	2.00	0.64	5.00	0.00	0.77	0.77

23.70	2.00	0.64	5.00	0.00	0.77	0.77
23.75	2.00	0.64	5.00	0.00	0.77	0.77
23.80	2.00	0.64	5.00	0.00	0.77	0.77
23.85	2.00	0.64	5.00	0.00	0.77	0.77
23.90	2.00	0.64	5.00	0.00	0.77	0.77
23.95	2.00	0.64	5.00	0.00	0.77	0.77
24.00	2.00	0.64	5.00	0.00	0.77	0.77
24.05	2.00	0.64	5.00	0.00	0.77	0.77
24.10	2.00	0.64	5.00	0.00	0.77	0.77
24.15	2.00	0.64	5.00	0.00	0.77	0.77
24.20	2.00	0.64	5.00	0.00	0.77	0.77
24.25	2.00	0.64	5.00	0.00	0.77	0.77
24.30	2.00	0.64	5.00	0.00	0.77	0.77
24.35	2.00	0.64	5.00	0.00	0.77	0.77
24.40	2.00	0.64	5.00	0.00	0.77	0.77
24.45	2.00	0.64	5.00	0.00	0.77	0.77
24.50	2.00	0.64	5.00	0.00	0.77	0.77
24.55	2.00	0.64	5.00	0.00	0.77	0.77
24.60	2.00	0.64	5.00	0.00	0.77	0.77
24.65	2.00	0.64	5.00	0.00	0.77	0.77
24.70	2.00	0.64	5.00	0.00	0.77	0.77
24.75	2.00	0.64	5.00	0.00	0.77	0.77
24.80	2.00	0.64	5.00	0.00	0.77	0.77
24.85	2.00	0.64	5.00	0.00	0.77	0.77
24.90	2.00	0.64	5.00	0.00	0.77	0.77
24.95	2.00	0.64	5.00	0.00	0.77	0.77
25.00	2.00	0.64	5.00	0.00	0.77	0.77
25.05	2.00	0.64	5.00	0.00	0.77	0.77
25.10	2.00	0.64	5.00	0.00	0.77	0.77
25.15	2.00	0.64	5.00	0.00	0.77	0.77
25.20	2.00	0.64	5.00	0.00	0.77	0.77
25.25	2.00	0.64	5.00	0.00	0.77	0.77
25.30	2.00	0.64	5.00	0.00	0.77	0.77
25.35	2.00	0.64	5.00	0.00	0.77	0.77
25.40	2.00	0.64	5.00	0.00	0.77	0.77
25.45	2.00	0.64	5.00	0.00	0.77	0.77
25.50	2.00	0.64	5.00	0.00	0.77	0.77
25.55	2.00	0.64	5.00	0.00	0.77	0.77
25.60	2.00	0.64	5.00	0.00	0.77	0.77
25.65	2.00	0.64	5.00	0.00	0.77	0.77
25.70	2.00	0.64	5.00	0.00	0.77	0.77
25.75	2.00	0.64	5.00	0.00	0.77	0.77
25.80	2.00	0.64	5.00	0.00	0.77	0.77
25.85	2.00	0.64	5.00	0.00	0.77	0.77
25.90	2.00	0.64	5.00	0.00	0.77	0.77
25.95	2.00	0.64	5.00	0.00	0.77	0.77
26.00	2.00	0.64	5.00	0.00	0.77	0.77
26.05	2.00	0.64	5.00	0.00	0.77	0.77
26.10	2.00	0.64	5.00	0.00	0.77	0.77
26.15	2.00	0.64	5.00	0.00	0.77	0.77

26.20	2.00	0.64	5.00	0.00	0.77	0.77
26.25	2.00	0.64	5.00	0.00	0.77	0.77
26.30	2.00	0.64	5.00	0.00	0.77	0.77
26.35	2.00	0.64	5.00	0.00	0.77	0.77
26.40	2.00	0.64	5.00	0.00	0.77	0.77
26.45	2.00	0.64	5.00	0.00	0.77	0.77
26.50	2.00	0.64	5.00	0.00	0.77	0.77
26.55	2.00	0.64	5.00	0.00	0.77	0.77
26.60	2.00	0.64	5.00	0.00	0.77	0.77
26.65	2.00	0.64	5.00	0.00	0.77	0.77
26.70	2.00	0.64	5.00	0.00	0.77	0.77
26.75	2.00	0.64	5.00	0.00	0.77	0.77
26.80	2.00	0.64	5.00	0.00	0.77	0.77
26.85	2.00	0.64	5.00	0.00	0.77	0.77
26.90	2.00	0.64	5.00	0.00	0.77	0.77
26.95	2.00	0.64	5.00	0.00	0.77	0.77
27.00	2.00	0.64	5.00	0.00	0.77	0.77
27.05	2.00	0.64	5.00	0.00	0.77	0.77
27.10	2.00	0.64	5.00	0.00	0.77	0.77
27.15	2.00	0.64	5.00	0.00	0.77	0.77
27.20	2.00	0.64	5.00	0.00	0.77	0.77
27.25	2.00	0.64	5.00	0.00	0.77	0.77
27.30	2.00	0.64	5.00	0.00	0.77	0.77
27.35	2.00	0.64	5.00	0.00	0.77	0.77
27.40	2.00	0.64	5.00	0.00	0.77	0.77
27.45	2.00	0.64	5.00	0.00	0.77	0.77
27.50	2.00	0.64	5.00	0.00	0.77	0.77
27.55	2.00	0.64	5.00	0.00	0.77	0.77
27.60	2.00	0.64	5.00	0.00	0.77	0.77
27.65	2.00	0.64	5.00	0.00	0.77	0.77
27.70	2.00	0.64	5.00	0.00	0.77	0.77
27.75	2.00	0.64	5.00	0.00	0.77	0.77
27.80	2.00	0.64	5.00	0.00	0.77	0.77
27.85	2.00	0.64	5.00	0.00	0.77	0.77
27.90	2.00	0.64	5.00	0.00	0.77	0.77
27.95	2.00	0.64	5.00	0.00	0.77	0.77
28.00	2.00	0.64	5.00	0.00	0.77	0.77
28.05	2.00	0.64	5.00	0.00	0.77	0.77
28.10	2.00	0.64	5.00	0.00	0.77	0.77
28.15	2.00	0.64	5.00	0.00	0.77	0.77
28.20	2.00	0.64	5.00	0.00	0.77	0.77
28.25	2.00	0.64	5.00	0.00	0.77	0.77
28.30	2.00	0.64	5.00	0.00	0.77	0.77
28.35	2.00	0.64	5.00	0.00	0.77	0.77
28.40	2.00	0.64	5.00	0.00	0.77	0.77
28.45	2.00	0.64	5.00	0.00	0.77	0.77
28.50	2.00	0.64	5.00	0.00	0.77	0.77
28.55	2.00	0.64	5.00	0.00	0.77	0.77
28.60	2.00	0.64	5.00	0.00	0.77	0.77
28.65	2.00	0.64	5.00	0.00	0.77	0.77

28.70	2.00	0.64	5.00	0.00	0.77	0.77
28.75	2.00	0.64	5.00	0.00	0.77	0.77
28.80	2.00	0.64	5.00	0.00	0.77	0.77
28.85	2.00	0.64	5.00	0.00	0.77	0.77
28.90	2.00	0.64	5.00	0.00	0.77	0.77
28.95	2.00	0.64	5.00	0.00	0.77	0.77
29.00	2.00	0.64	5.00	0.00	0.77	0.77
29.05	0.40	0.64	5.00	0.00	0.77	0.77
29.10	0.45	0.64	5.00	0.00	0.76	0.76
29.15	0.47	0.64	5.00	0.00	0.75	0.75
29.20	0.49	0.64	5.00	0.00	0.75	0.75
29.25	0.52	0.64	5.00	0.00	0.74	0.74
29.30	0.56	0.64	5.00	0.00	0.73	0.73
29.35	0.57	0.64	5.00	0.00	0.73	0.73
29.40	0.59	0.64	5.00	0.00	0.72	0.72
29.45	0.57	0.64	5.00	0.00	0.71	0.71
29.50	0.57	0.64	5.00	0.00	0.71	0.71
29.55	0.56	0.64	5.00	0.00	0.70	0.70
29.60	0.57	0.64	5.00	0.00	0.69	0.69
29.65	0.57	0.64	5.00	0.00	0.69	0.69
29.70	0.55	0.64	5.00	0.00	0.68	0.68
29.75	0.53	0.64	5.00	0.00	0.68	0.68
29.80	0.51	0.64	5.00	0.00	0.67	0.67
29.85	0.48	0.63	5.00	0.00	0.66	0.66
29.90	0.44	0.63	5.00	0.00	0.66	0.66
29.95	0.40	0.63	5.00	0.00	0.65	0.65
30.00	0.37	0.63	5.00	0.00	0.64	0.64
30.05	0.33	0.63	5.00	0.00	0.63	0.63
30.10	0.30	0.63	5.00	0.00	0.62	0.62
30.15	0.27	0.63	5.00	0.00	0.62	0.62
30.20	0.25	0.63	5.00	0.00	0.61	0.61
30.25	0.24	0.63	5.00	0.00	0.60	0.60
30.30	0.24	0.63	5.00	0.00	0.59	0.59
30.35	0.26	0.63	5.00	0.00	0.58	0.58
30.40	0.35	0.63	5.00	0.00	0.58	0.58
30.45	2.00	0.63	5.00	0.00	0.57	0.57
30.50	2.00	0.63	5.00	0.00	0.57	0.57
30.55	2.00	0.63	5.00	0.00	0.57	0.57
30.60	2.00	0.63	5.00	0.00	0.57	0.57
30.65	2.00	0.63	5.00	0.00	0.57	0.57
30.70	2.00	0.63	5.00	0.00	0.57	0.57
30.75	2.00	0.63	5.00	0.00	0.57	0.57
30.80	2.00	0.63	5.00	0.00	0.57	0.57
30.85	2.00	0.63	5.00	0.00	0.57	0.57
30.90	2.00	0.63	5.00	0.00	0.57	0.57
30.95	2.00	0.63	5.00	0.00	0.57	0.57
31.00	2.00	0.63	5.00	0.00	0.57	0.57
31.05	0.37	0.63	5.00	0.00	0.57	0.57
31.10	0.32	0.63	5.00	0.00	0.57	0.57
31.15	0.29	0.63	5.00	0.00	0.56	0.56

31.20	0.30	0.63	5.00	0.00	0.55	0.55
31.25	0.32	0.63	5.00	0.00	0.55	0.55
31.30	0.34	0.63	5.00	0.00	0.54	0.54
31.35	0.35	0.63	5.00	0.00	0.53	0.53
31.40	0.36	0.63	5.00	0.00	0.52	0.52
31.45	0.36	0.63	5.00	0.00	0.52	0.52
31.50	0.36	0.63	5.00	0.00	0.51	0.51
31.55	0.35	0.63	5.00	0.00	0.50	0.50
31.60	0.34	0.63	5.00	0.00	0.49	0.49
31.65	0.33	0.63	5.00	0.00	0.49	0.49
31.70	0.31	0.63	5.00	0.00	0.48	0.48
31.75	0.29	0.62	5.00	0.00	0.47	0.47
31.80	0.27	0.62	5.00	0.00	0.46	0.46
31.85	0.25	0.62	5.00	0.00	0.45	0.45
31.90	0.24	0.62	5.00	0.00	0.44	0.44
31.95	0.22	0.62	5.00	0.00	0.43	0.43
32.00	0.21	0.62	5.00	0.00	0.42	0.42
32.05	2.00	0.62	5.00	0.00	0.41	0.41
32.10	2.00	0.62	5.00	0.00	0.41	0.41
32.15	2.00	0.62	5.00	0.00	0.41	0.41
32.20	2.00	0.62	5.00	0.00	0.41	0.41
32.25	2.00	0.62	5.00	0.00	0.41	0.41
32.30	2.00	0.62	5.00	0.00	0.41	0.41
32.35	2.00	0.62	5.00	0.00	0.41	0.41
32.40	2.00	0.62	5.00	0.00	0.41	0.41
32.45	2.00	0.62	5.00	0.00	0.41	0.41
32.50	2.00	0.62	5.00	0.00	0.41	0.41
32.55	2.00	0.62	5.00	0.00	0.41	0.41
32.60	2.00	0.62	5.00	0.00	0.41	0.41
32.65	2.00	0.62	5.00	0.00	0.41	0.41
32.70	2.00	0.62	5.00	0.00	0.41	0.41
32.75	2.00	0.62	5.00	0.00	0.41	0.41
32.80	2.00	0.62	5.00	0.00	0.41	0.41
32.85	2.00	0.62	5.00	0.00	0.41	0.41
32.90	2.00	0.62	5.00	0.00	0.41	0.41
32.95	2.00	0.62	5.00	0.00	0.41	0.41
33.00	2.00	0.62	5.00	0.00	0.41	0.41
33.05	2.00	0.62	5.00	0.00	0.41	0.41
33.10	2.00	0.62	5.00	0.00	0.41	0.41
33.15	2.00	0.62	5.00	0.00	0.41	0.41
33.20	2.00	0.62	5.00	0.00	0.41	0.41
33.25	2.00	0.62	5.00	0.00	0.41	0.41
33.30	2.00	0.62	5.00	0.00	0.41	0.41
33.35	2.00	0.62	5.00	0.00	0.41	0.41
33.40	2.00	0.62	5.00	0.00	0.41	0.41
33.45	2.00	0.62	5.00	0.00	0.41	0.41
33.50	2.00	0.62	5.00	0.00	0.41	0.41
33.55	2.00	0.61	5.00	0.00	0.41	0.41
33.60	2.00	0.61	5.00	0.00	0.41	0.41
33.65	2.00	0.61	5.00	0.00	0.41	0.41

33.70	2.00	0.61	5.00	0.00	0.41	0.41
33.75	2.00	0.61	5.00	0.00	0.41	0.41
33.80	2.00	0.61	5.00	0.00	0.41	0.41
33.85	2.00	0.61	5.00	0.00	0.41	0.41
33.90	2.00	0.61	5.00	0.00	0.41	0.41
33.95	2.00	0.61	5.00	0.00	0.41	0.41
34.00	2.00	0.61	5.00	0.00	0.41	0.41
34.05	2.00	0.61	5.00	0.00	0.41	0.41
34.10	2.00	0.61	5.00	0.00	0.41	0.41
34.15	2.00	0.61	5.00	0.00	0.41	0.41
34.20	2.00	0.61	5.00	0.00	0.41	0.41
34.25	2.00	0.61	5.00	0.00	0.41	0.41
34.30	2.00	0.61	5.00	0.00	0.41	0.41
34.35	2.00	0.61	5.00	0.00	0.41	0.41
34.40	2.00	0.61	5.00	0.00	0.41	0.41
34.45	2.00	0.61	5.00	0.00	0.41	0.41
34.50	2.00	0.61	5.00	0.00	0.41	0.41
34.55	2.00	0.61	5.00	0.00	0.41	0.41
34.60	2.00	0.61	5.00	0.00	0.41	0.41
34.65	2.00	0.61	5.00	0.00	0.41	0.41
34.70	2.00	0.61	5.00	0.00	0.41	0.41
34.75	2.00	0.61	5.00	0.00	0.41	0.41
34.80	2.00	0.61	5.00	0.00	0.41	0.41
34.85	2.00	0.61	5.00	0.00	0.41	0.41
34.90	2.00	0.61	5.00	0.00	0.41	0.41
34.95	2.00	0.61	5.00	0.00	0.41	0.41
35.00	2.00	0.61	5.00	0.00	0.41	0.41
35.05	2.00	0.61	5.00	0.00	0.41	0.41
35.10	2.00	0.61	5.00	0.00	0.41	0.41
35.15	2.00	0.61	5.00	0.00	0.41	0.41
35.20	2.00	0.61	5.00	0.00	0.41	0.41
35.25	2.00	0.61	5.00	0.00	0.41	0.41
35.30	2.00	0.61	5.00	0.00	0.41	0.41
35.35	2.00	0.60	5.00	0.00	0.41	0.41
35.40	2.00	0.60	5.00	0.00	0.41	0.41
35.45	2.00	0.60	5.00	0.00	0.41	0.41
35.50	2.00	0.60	5.00	0.00	0.41	0.41
35.55	2.00	0.60	5.00	0.00	0.41	0.41
35.60	2.00	0.60	5.00	0.00	0.41	0.41
35.65	2.00	0.60	5.00	0.00	0.41	0.41
35.70	2.00	0.60	5.00	0.00	0.41	0.41
35.75	2.00	0.60	5.00	0.00	0.41	0.41
35.80	2.00	0.60	5.00	0.00	0.41	0.41
35.85	2.00	0.60	5.00	0.00	0.41	0.41
35.90	2.00	0.60	5.00	0.00	0.41	0.41
35.95	2.00	0.60	5.00	0.00	0.41	0.41
36.00	2.00	0.60	5.00	0.00	0.41	0.41
36.05	2.00	0.60	5.00	0.00	0.41	0.41
36.10	2.00	0.60	5.00	0.00	0.41	0.41
36.15	2.00	0.60	5.00	0.00	0.41	0.41

36.20	0.20	0.60	5.00	0.00	0.41	0.41
36.25	0.24	0.60	5.00	0.00	0.40	0.40
36.30	0.30	0.60	5.00	0.00	0.39	0.39
36.35	0.35	0.60	5.00	0.00	0.39	0.39
36.40	0.40	0.60	5.00	0.00	0.38	0.38
36.45	0.45	0.60	5.00	0.00	0.37	0.37
36.50	0.47	0.60	5.00	0.00	0.36	0.36
36.55	0.50	0.60	5.00	0.00	0.36	0.36
36.60	0.53	0.60	5.00	0.00	0.35	0.35
36.65	0.55	0.60	5.00	0.00	0.35	0.35
36.70	0.58	0.60	5.00	0.00	0.34	0.34
36.75	0.62	0.60	5.00	0.00	0.33	0.33
36.80	0.66	0.60	5.00	0.00	0.33	0.33
36.85	0.70	0.60	5.00	0.00	0.32	0.32
36.90	0.73	0.60	5.00	0.00	0.32	0.32
36.95	0.77	0.60	5.00	0.00	0.31	0.31
37.00	0.79	0.60	5.00	0.00	0.31	0.31
37.05	0.82	0.60	5.00	0.00	0.30	0.30
37.10	0.84	0.60	5.00	0.00	0.30	0.30
37.15	0.85	0.59	5.00	0.00	0.29	0.29
37.20	0.86	0.59	5.00	0.00	0.29	0.29
37.25	0.87	0.59	5.00	0.00	0.28	0.28
37.30	0.89	0.59	5.00	0.00	0.28	0.28
37.35	0.90	0.59	5.00	0.00	0.27	0.27
37.40	0.89	0.59	5.00	0.00	0.27	0.27
37.45	0.89	0.59	5.00	0.00	0.27	0.27
37.50	0.88	0.59	5.00	0.00	0.26	0.26
37.55	0.86	0.59	5.00	0.00	0.26	0.26
37.60	0.86	0.59	5.00	0.00	0.25	0.25
37.65	0.85	0.59	5.00	0.00	0.25	0.25
37.70	0.83	0.59	5.00	0.00	0.24	0.24
37.75	0.82	0.59	5.00	0.00	0.24	0.24
37.80	0.81	0.59	5.00	0.00	0.23	0.23
37.85	0.79	0.59	5.00	0.00	0.23	0.23
37.90	0.77	0.59	5.00	0.00	0.22	0.22
37.95	0.75	0.59	5.00	0.00	0.22	0.22
38.00	0.71	0.59	5.00	0.00	0.21	0.21
38.05	0.68	0.59	5.00	0.00	0.21	0.21
38.10	0.63	0.59	5.00	0.00	0.20	0.20
38.15	0.58	0.59	5.00	0.00	0.20	0.20
38.20	0.51	0.59	5.00	0.00	0.19	0.19
38.25	0.47	0.59	5.00	0.00	0.18	0.18
38.30	0.42	0.59	5.00	0.00	0.18	0.18
38.35	0.38	0.59	5.00	0.00	0.17	0.17
38.40	0.35	0.59	5.00	0.00	0.16	0.16
38.45	0.32	0.59	5.00	0.00	0.15	0.15
38.50	0.30	0.59	5.00	0.00	0.14	0.14
38.55	2.00	0.59	5.00	0.00	0.14	0.14
38.60	2.00	0.59	5.00	0.00	0.14	0.14
38.65	2.00	0.59	5.00	0.00	0.14	0.14

38.70	2.00	0.59	5.00	0.00	0.14	0.14
38.75	2.00	0.59	5.00	0.00	0.14	0.14
38.80	2.00	0.59	5.00	0.00	0.14	0.14
38.85	2.00	0.59	5.00	0.00	0.14	0.14
38.90	2.00	0.59	5.00	0.00	0.14	0.14
38.95	2.00	0.58	5.00	0.00	0.14	0.14
39.00	2.00	0.58	5.00	0.00	0.14	0.14
39.05	2.00	0.58	5.00	0.00	0.14	0.14
39.10	2.00	0.58	5.00	0.00	0.14	0.14
39.15	2.00	0.58	5.00	0.00	0.14	0.14
39.20	2.00	0.58	5.00	0.00	0.14	0.14
39.25	2.00	0.58	5.00	0.00	0.14	0.14
39.30	2.00	0.58	5.00	0.00	0.14	0.14
39.35	2.00	0.58	5.00	0.00	0.14	0.14
39.40	2.00	0.58	5.00	0.00	0.14	0.14
39.45	2.00	0.58	5.00	0.00	0.14	0.14
39.50	2.00	0.58	5.00	0.00	0.14	0.14
39.55	2.00	0.58	5.00	0.00	0.14	0.14
39.60	2.00	0.58	5.00	0.00	0.14	0.14
39.65	2.00	0.58	5.00	0.00	0.14	0.14
39.70	2.00	0.58	5.00	0.00	0.14	0.14
39.75	2.00	0.58	5.00	0.00	0.14	0.14
39.80	2.00	0.58	5.00	0.00	0.14	0.14
39.85	2.00	0.58	5.00	0.00	0.14	0.14
39.90	2.00	0.58	5.00	0.00	0.14	0.14
39.95	2.00	0.58	5.00	0.00	0.14	0.14
40.00	2.00	0.58	5.00	0.00	0.14	0.14
40.05	2.00	0.58	5.00	0.00	0.14	0.14
40.10	2.00	0.58	5.00	0.00	0.14	0.14
40.15	2.00	0.58	5.00	0.00	0.14	0.14
40.20	2.00	0.58	5.00	0.00	0.14	0.14
40.25	2.00	0.58	5.00	0.00	0.14	0.14
40.30	2.00	0.58	5.00	0.00	0.14	0.14
40.35	2.00	0.58	5.00	0.00	0.14	0.14
40.40	2.00	0.58	5.00	0.00	0.14	0.14
40.45	2.00	0.58	5.00	0.00	0.14	0.14
40.50	2.00	0.58	5.00	0.00	0.14	0.14
40.55	2.00	0.58	5.00	0.00	0.14	0.14
40.60	2.00	0.58	5.00	0.00	0.14	0.14
40.65	2.00	0.58	5.00	0.00	0.14	0.14
40.70	2.00	0.58	5.00	0.00	0.14	0.14
40.75	2.00	0.57	5.00	0.00	0.14	0.14
40.80	2.00	0.57	5.00	0.00	0.14	0.14
40.85	2.00	0.57	5.00	0.00	0.14	0.14
40.90	2.00	0.57	5.00	0.00	0.14	0.14
40.95	2.00	0.57	5.00	0.00	0.14	0.14
41.00	2.00	0.57	5.00	0.00	0.14	0.14
41.05	2.00	0.57	5.00	0.00	0.14	0.14
41.10	2.00	0.57	5.00	0.00	0.14	0.14
41.15	2.00	0.57	5.00	0.00	0.14	0.14

41.20	2.00	0.57	5.00	0.00	0.14	0.14
41.25	2.00	0.57	5.00	0.00	0.14	0.14
41.30	2.00	0.57	5.00	0.00	0.14	0.14
41.35	2.00	0.57	5.00	0.00	0.14	0.14
41.40	2.00	0.57	5.00	0.00	0.14	0.14
41.45	2.00	0.57	5.00	0.00	0.14	0.14
41.50	2.00	0.57	5.00	0.00	0.14	0.14
41.55	2.00	0.57	5.00	0.00	0.14	0.14
41.60	2.00	0.57	5.00	0.00	0.14	0.14
41.65	2.00	0.57	5.00	0.00	0.14	0.14
41.70	2.00	0.57	5.00	0.00	0.14	0.14
41.75	2.00	0.57	5.00	0.00	0.14	0.14
41.80	2.00	0.57	5.00	0.00	0.14	0.14
41.85	2.00	0.57	5.00	0.00	0.14	0.14
41.90	2.00	0.57	5.00	0.00	0.14	0.14
41.95	2.00	0.57	5.00	0.00	0.14	0.14
42.00	2.00	0.57	5.00	0.00	0.14	0.14
42.05	2.00	0.57	5.00	0.00	0.14	0.14
42.10	2.00	0.57	5.00	0.00	0.14	0.14
42.15	2.00	0.57	5.00	0.00	0.14	0.14
42.20	2.00	0.57	5.00	0.00	0.14	0.14
42.25	2.00	0.57	5.00	0.00	0.14	0.14
42.30	2.00	0.57	5.00	0.00	0.14	0.14
42.35	0.34	0.57	5.00	0.00	0.14	0.14
42.40	0.34	0.57	5.00	0.00	0.13	0.13
42.45	0.35	0.57	5.00	0.00	0.13	0.13
42.50	0.38	0.57	5.00	0.00	0.13	0.13
42.55	0.45	0.56	5.00	0.00	0.13	0.13
42.60	0.55	0.56	5.00	0.00	0.12	0.12
42.65	0.62	0.56	5.00	0.00	0.12	0.12
42.70	0.69	0.56	5.00	0.00	0.12	0.12
42.75	0.73	0.56	5.00	0.00	0.12	0.12
42.80	0.77	0.56	5.00	0.00	0.12	0.12
42.85	0.76	0.56	5.00	0.00	0.12	0.12
42.90	0.74	0.56	5.00	0.00	0.11	0.11
42.95	0.68	0.56	5.00	0.00	0.11	0.11
43.00	0.62	0.56	5.00	0.00	0.11	0.11
43.05	2.00	0.56	5.00	0.00	0.11	0.11
43.10	2.00	0.56	5.00	0.00	0.11	0.11
43.15	2.00	0.56	5.00	0.00	0.11	0.11
43.20	2.00	0.56	5.00	0.00	0.11	0.11
43.25	2.00	0.56	5.00	0.00	0.11	0.11
43.30	2.00	0.56	5.00	0.00	0.11	0.11
43.35	2.00	0.56	5.00	0.00	0.11	0.11
43.40	2.00	0.56	5.00	0.00	0.11	0.11
43.45	2.00	0.56	5.00	0.00	0.11	0.11
43.50	2.00	0.56	5.00	0.00	0.11	0.11
43.55	2.00	0.56	5.00	0.00	0.11	0.11
43.60	2.00	0.56	5.00	0.00	0.11	0.11
43.65	2.00	0.56	5.00	0.00	0.11	0.11

43.70	2.00	0.56	5.00	0.00	0.11	0.11
43.75	2.00	0.56	5.00	0.00	0.11	0.11
43.80	2.00	0.56	5.00	0.00	0.11	0.11
43.85	2.00	0.56	5.00	0.00	0.11	0.11
43.90	2.00	0.56	5.00	0.00	0.11	0.11
43.95	2.00	0.56	5.00	0.00	0.11	0.11
44.00	2.00	0.56	5.00	0.00	0.11	0.11
44.05	2.00	0.56	5.00	0.00	0.11	0.11
44.10	2.00	0.56	5.00	0.00	0.11	0.11
44.15	2.00	0.56	5.00	0.00	0.11	0.11
44.20	2.00	0.56	5.00	0.00	0.11	0.11
44.25	2.00	0.56	5.00	0.00	0.11	0.11
44.30	2.00	0.56	5.00	0.00	0.11	0.11
44.35	2.00	0.55	5.00	0.00	0.11	0.11
44.40	2.00	0.55	5.00	0.00	0.11	0.11
44.45	2.00	0.55	5.00	0.00	0.11	0.11
44.50	2.00	0.55	5.00	0.00	0.11	0.11
44.55	2.00	0.55	5.00	0.00	0.11	0.11
44.60	2.00	0.55	5.00	0.00	0.11	0.11
44.65	2.00	0.55	5.00	0.00	0.11	0.11
44.70	2.00	0.55	5.00	0.00	0.11	0.11
44.75	2.00	0.55	5.00	0.00	0.11	0.11
44.80	2.00	0.55	5.00	0.00	0.11	0.11
44.85	2.00	0.55	5.00	0.00	0.11	0.11
44.90	2.00	0.55	5.00	0.00	0.11	0.11
44.95	2.00	0.55	5.00	0.00	0.11	0.11
45.00	2.00	0.55	5.00	0.00	0.11	0.11
45.05	2.00	0.55	5.00	0.00	0.11	0.11
45.10	2.00	0.55	5.00	0.00	0.11	0.11
45.15	2.00	0.55	5.00	0.00	0.11	0.11
45.20	2.00	0.55	5.00	0.00	0.11	0.11
45.25	2.00	0.55	5.00	0.00	0.11	0.11
45.30	2.00	0.55	5.00	0.00	0.11	0.11
45.35	2.00	0.55	5.00	0.00	0.11	0.11
45.40	2.00	0.55	5.00	0.00	0.11	0.11
45.45	2.00	0.55	5.00	0.00	0.11	0.11
45.50	2.00	0.55	5.00	0.00	0.11	0.11
45.55	2.00	0.55	5.00	0.00	0.11	0.11
45.60	0.37	0.55	5.00	0.00	0.11	0.11
45.65	0.41	0.55	5.00	0.00	0.11	0.11
45.70	0.44	0.55	5.00	0.00	0.10	0.10
45.75	0.44	0.55	5.00	0.00	0.10	0.10
45.80	0.43	0.55	5.00	0.00	0.10	0.10
45.85	0.42	0.55	5.00	0.00	0.09	0.09
45.90	0.41	0.55	5.00	0.00	0.09	0.09
45.95	0.39	0.55	5.00	0.00	0.09	0.09
46.00	0.37	0.55	5.00	0.00	0.08	0.08
46.05	0.35	0.55	5.00	0.00	0.08	0.08
46.10	0.34	0.55	5.00	0.00	0.08	0.08
46.15	0.32	0.54	5.00	0.00	0.07	0.07

46.20	0.32	0.54	5.00	0.00	0.07	0.07
46.25	0.32	0.54	5.00	0.00	0.07	0.07
46.30	0.32	0.54	5.00	0.00	0.07	0.07
46.35	0.33	0.54	5.00	0.00	0.06	0.06
46.40	0.34	0.54	5.00	0.00	0.06	0.06
46.45	0.35	0.54	5.00	0.00	0.06	0.06
46.50	0.36	0.54	5.00	0.00	0.06	0.06
46.55	0.36	0.54	5.00	0.00	0.05	0.05
46.60	0.35	0.54	5.00	0.00	0.05	0.05
46.65	0.36	0.54	5.00	0.00	0.05	0.05
46.70	0.41	0.54	5.00	0.00	0.05	0.05
46.75	2.00	0.54	5.00	0.00	0.05	0.05
46.80	2.00	0.54	5.00	0.00	0.05	0.05
46.85	2.00	0.54	5.00	0.00	0.05	0.05
46.90	2.00	0.54	5.00	0.00	0.05	0.05
46.95	2.00	0.54	5.00	0.00	0.05	0.05
47.00	2.00	0.54	5.00	0.00	0.05	0.05
47.05	2.00	0.54	5.00	0.00	0.05	0.05
47.10	2.00	0.54	5.00	0.00	0.05	0.05
47.15	2.00	0.54	5.00	0.00	0.05	0.05
47.20	2.00	0.54	5.00	0.00	0.05	0.05
47.25	2.00	0.54	5.00	0.00	0.05	0.05
47.30	2.00	0.54	5.00	0.00	0.05	0.05
47.35	2.00	0.54	5.00	0.00	0.05	0.05
47.40	2.00	0.54	5.00	0.00	0.05	0.05
47.45	2.00	0.54	5.00	0.00	0.05	0.05
47.50	2.00	0.54	5.00	0.00	0.05	0.05
47.55	2.00	0.54	5.00	0.00	0.05	0.05
47.60	2.00	0.54	5.00	0.00	0.05	0.05
47.65	2.00	0.54	5.00	0.00	0.05	0.05
47.70	2.00	0.54	5.00	0.00	0.05	0.05
47.75	2.00	0.54	5.00	0.00	0.05	0.05
47.80	2.00	0.54	5.00	0.00	0.05	0.05
47.85	2.00	0.54	5.00	0.00	0.05	0.05
47.90	2.00	0.54	5.00	0.00	0.05	0.05
47.95	2.00	0.53	5.00	0.00	0.05	0.05
48.00	2.00	0.53	5.00	0.00	0.05	0.05
48.05	2.00	0.53	5.00	0.00	0.05	0.05
48.10	2.00	0.53	5.00	0.00	0.05	0.05
48.15	2.00	0.53	5.00	0.00	0.05	0.05
48.20	2.00	0.53	5.00	0.00	0.05	0.05
48.25	2.00	0.53	5.00	0.00	0.05	0.05
48.30	2.00	0.53	5.00	0.00	0.05	0.05
48.35	2.00	0.53	5.00	0.00	0.05	0.05
48.40	2.00	0.53	5.00	0.00	0.05	0.05
48.45	2.00	0.53	5.00	0.00	0.05	0.05
48.50	2.00	0.53	5.00	0.00	0.05	0.05
48.55	2.00	0.53	5.00	0.00	0.05	0.05
48.60	2.00	0.53	5.00	0.00	0.05	0.05
48.65	2.00	0.53	5.00	0.00	0.05	0.05

48.70	2.00	0.53	5.00	0.00	0.05	0.05
48.75	2.00	0.53	5.00	0.00	0.05	0.05
48.80	2.00	0.53	5.00	0.00	0.05	0.05
48.85	2.00	0.53	5.00	0.00	0.05	0.05
48.90	2.00	0.53	5.00	0.00	0.05	0.05
48.95	2.00	0.53	5.00	0.00	0.05	0.05
49.00	2.00	0.53	5.00	0.00	0.05	0.05
49.05	2.00	0.53	5.00	0.00	0.05	0.05
49.10	2.00	0.53	5.00	0.00	0.05	0.05
49.15	2.00	0.53	5.00	0.00	0.05	0.05
49.20	2.00	0.53	5.00	0.00	0.05	0.05
49.25	0.22	0.53	5.00	0.00	0.05	0.05
49.30	0.22	0.53	5.00	0.00	0.04	0.04
49.35	0.29	0.53	5.00	0.00	0.04	0.04
49.40	0.35	0.53	5.00	0.00	0.03	0.03
49.45	0.42	0.53	5.00	0.00	0.03	0.03
49.50	0.50	0.53	5.00	0.00	0.03	0.03
49.55	0.57	0.53	5.00	0.00	0.02	0.02
49.60	0.59	0.53	5.00	0.00	0.02	0.02
49.65	0.58	0.53	5.00	0.00	0.02	0.02
49.70	0.58	0.53	5.00	0.00	0.02	0.02
49.75	0.56	0.52	5.00	0.00	0.01	0.01
49.80	0.54	0.52	5.00	0.00	0.01	0.01
49.85	0.50	0.52	5.00	0.00	0.01	0.01
49.90	0.46	0.52	5.00	0.00	0.01	0.01
49.95	0.43	0.52	5.00	0.00	0.00	0.00
50.00	0.43	0.52	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

CRRm Cyclic resistance ratio from soils
CSRfs Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
S_sat Settlement from saturated sands
S_dry Settlement from dry sands
S_all Total settlement from saturated and dry sands
NoLiq No-Liquefy Soils

APPENDIX D

STANDARD SPECIFICATIONS FOR GRADING AND TRENCH BACKFILL

RECOMMENDED EARTHWORK SPECIFICATIONS

The following specifications are recommended to provide a basis for quality control during the placement of compacted fill or backfill as applicable.

1. Areas that are to receive compacted fill shall be observed by Soil/Geotechnical Engineer (GE) or his/her representative prior to the placement of fill.

2. All drainage devices shall be properly installed and observed by GE and/or owner's representative(s) prior to placement of backfill.

3. Fill soils shall consist of imported soils or on-site soils free of organics, cobbles, and deleterious material provided each material is approved by GE. GE shall evaluate and/or test the import material for its conformance with the report recommendations prior to its delivery to the site. The contractor shall notify GE 72 hours prior to importing material to the site

4. Fill shall be placed in controlled layers (lifts), the thickness of which is compatible with the type of compaction equipment used. The fill materials shall be brought to optimum moisture content or above, thoroughly mixed during spreading to obtain a near uniform moisture condition and uniform blend of materials, and then placed in layers with a thickness (loose) not exceeding 8 inches. Each layer shall be compacted to a minimum compaction of 90% relative to the maximum dry density determined per the latest ASTM D1557 test. Density testing shall be performed by GE to verify relative compaction. The contractor shall provide proper access and level areas for testing.

5. Rocks or rock fragments less than eight (8) inches in the largest dimension may be utilized in the fill, provided they are not placed in concentrated pockets, except rocks larger than four (4) inches shall not be placed within three (3) feet of finish grade.

6. Rocks greater than eight (8) inches in largest dimension shall be taken offsite, or placed in accordance with the recommendation of the Soils Engineer in areas designated as suitable for rock disposal.

7. Where space limitations do not allow for conventional fill compaction operations, special backfill materials and procedures may be required. Pea gravel or other select fill can be used in areas of limited space. A sand and Portland cement slurry (2 sacks per cubic-yard mix) shall be used in limited space areas for shallow backfill near final pad grade, and pea gravel shall be placed in deeper backfill near drainage systems.

8. GE shall observe the placement of fill and conduct in-place field density tests on the compacted fill to check for adequate moisture content and the required relative compaction. Where less than specified relative compaction is indicated, additional compacting effort shall be applied and the soil moisture conditioned as necessary until adequate relative compaction is attained.

9. The Contractor shall comply with the minimum relative compaction out to the finish slope face of fill slopes, buttresses, and stabilization fills as set forth in the specifications for compacted fill. This may be achieved by either overbuilding the slope and cutting back as necessary, or by direct compaction of the slope face with suitable equipment, or by any other procedure that produces the required result.

10. Any abandoned underground structures such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines or others not discovered prior to grading are to be removed or treated to the satisfaction of the Soils Engineer and/or the controlling agency for the project.

11. The Contractor shall have suitable and sufficient equipment during a particular operation to handle the volume of fill being placed. When necessary, fill placement equipment shall be shut down temporarily in order to permit proper compaction of fills, correction of deficient areas, or to facilitate required field-testing.

12. The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications.

13. Final reports shall be submitted after completion of earthwork and after the Soils Engineer and Engineering Geologist have finished their observations of the work. No additional excavation or filling shall be performed without prior notification to the Soils Engineer and/or Engineering Geologist.

14. Whenever the words “supervision”, “inspection” or “control” are used, they shall mean <u>observation</u> of the work and/or testing of the compacted fill by GE to assess whether substantial compliance with plans, specifications and design concepts has been achieved, and does not include direction of the actual work of the contractor or the contractor’s workmen.

RECOMMENDED SPECIFICATIONS
FOR PLACEMENT OF TRENCH BACKFILL

1. Trench excavations to receive backfill shall be free of trash, debris or other unsatisfactory materials prior to backfill placement, and shall be observed by project soil/geotechnical engineer (GE) representative.

2. Except as stipulated herein, soils obtained from the excavation may be used as backfill if they are essentially free of organics and deleterious materials.

3. Rocks generated from the trench excavation not exceeding three (3) inches in largest dimension may be used as backfill material. However, such material may not be placed within 12 inches of the top of the pipeline. No more than 30 percent of the backfill volume shall contain particles larger than 1-½ inches in diameter, and rocks shall be well mixed with finer soil.

4. Soils (other than aggregates) with a Sand Equivalent (SE) greater than or equal to 30, as determined by ASTM D 2419 Standard Test Method or at the discretion of the engineer or representative in the field, may be used for bedding and shading material in the pipe zone areas. These soils are considered satisfactory for compaction by jetting procedures.

5. No jetting will be permitted in utility trenches within the top 2 feet of the subgrade of concrete slabs-on-grade.

6. Trench backfill other than bedding and shading shall be compacted by mechanical methods as tamping sheepsfoot, vibrating or pneumatic rollers or other mechanical tampers to achieve the density specified herein. The backfill materials shall be brought to optimum moisture content or above, thoroughly mixed during spreading to obtain a near uniform moisture condition and uniform blend of materials, and then placed in horizontal layers with a thickness (loose) not exceeding 8 inches. Trench backfills shall be compacted to a minimum compaction of 90 percent relative to the maximum dry density determined per the latest ASTM D1557 test.

7. The contractor shall select the equipment and process to be used to achieve the specified density without damage to the pipeline, the adjacent ground, existing improvements or completed work.

8. Observations and field tests shall be carried on during construction by GE to confirm that the required degree of compaction has been obtained. Where compaction is less than that specified, additional compaction effort shall be made with adjustment of the moisture content as necessary until the specified compaction is obtained. Field density tests may be omitted at the discretion of the engineer or his representative in the field.

9. Whenever, in the opinion of GE or the Owner's Representative(s), an unstable condition is being created, either by cutting or filling, the work shall not proceed until an investigation has been made and the excavation plan revised, if deemed necessary.

10. Fill material shall not be placed, spread, or rolled during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until field tests by GE indicate the moisture content and density of the fill are as specified.

11. Whenever the words "supervision", "inspection", or "control" are used, they shall mean <u>observation</u> of the work and/or testing of the compacted fill by GE to assess whether substantial compliance with plans, specifications and design concepts has been achieved.