GEOTECHNICAL ENGINEERING REPORT

FUTURE WRC SITE, PHASE II
BETWEEN I-10 & SANTA CRUZ RIVER
BETWEEN EL CAMINO DEL CERRO & SWEETWATER
TUCSON, ARIZONA

TERRACON PROJECT NO. 63085095
JUNE 10, 2009

Prepared for:

PIMA COUNTY PROCUREMENT DEPARTMENT
DESIGN AND CONSTRUCTION SERVICES
130 WEST CONGRESS STREET, 3RD FLOOR
TUCSON, ARIZONA 85701

ATTN: Ken Shelor

Registered Professional Engineer (Civil)
CERTIFICATE NO. 31130
OLEG B. LYSYJ
DATE SIGNED 6-10-09
ARIZONA, U.S.A.
Expires 03/31/2012

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June 10, 2009

Pima County Procurement Department
Design and Construction Services
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Attn: Ken Shelor

RE: Geotechnical Engineering Report
Future WRC Site, Phase II
Between I-10 and Santa Cruz River
Between El Camino Del Cerro and Sweetwater Drive
Tucson, Arizona
Terracon Project No. 63085095

Terracon has completed geotechnical engineering exploration for the proposed Future Water Relcamation Campus (WRC) that will replace the existing Roger Road Wastewater Treatment Plant (WWTP) to be located between Interstate 10 and Santa Cruz River and Between El Camino Del Cerro and Sweetwater Drive in Tucson, Arizona. This study was performed in general accordance with our proposal number D6308109, Revision No. 2 dated June 3, 2008. The results of our engineering study are attached.

Based on the geotechnical engineering analyses, subsurface exploration and laboratory test results, we recommend the proposed building structures be supported on a spread footing foundation system. Development of the site may be affected by the presence of collapsible soils, expansive soil, and existing fill. More detailed design and construction recommendations, based upon geotechnical conditions, are presented in the report.

We appreciate being of service to you in the geotechnical engineering phase of this project. If you have any questions concerning this report or any of our testing, inspection, design and consulting services, please do not hesitate to contact us.

Sincerely,
Terracon

Jennifer N. Hall, E.I.T.
Staff Engineer

Oleg B. Lysyj, P.E.
Principal

Copies to: Addressee (3)

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Future WRC Site, Phase II
Terracon Project No. 63085095

Terracon

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BETWEEN EL CAMINO DEL CERRO & SWEETWATER DRIVE
TUCSON, ARIZONA

TERRACON PROJECT NO. 63085095

INTRODUCTION

This report contains the results of our geotechnical engineering exploration for the proposed Future Water Relcamation Campus (WRC) that will replace the existing Roger Road Waste Water Treatment Plant (WWTP) to be located between Interstate 10 and Santa Cruz River and Between El Camino Del Cerro and Sweetwater Drive in Tucson, Arizona.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- groundwater conditions
- foundation design and construction
- lateral earth pressures
- floor slab design and construction
- pavement design and construction
- earthwork
- drainage

The recommendations contained in this report are based upon the results of field and laboratory testing, engineering analyses, and experience with similar soil conditions, structures and our understanding of the proposed project.

PROJECT DESCRIPTION

We understand the proposed project consists of the development of a new Water Reclamation Campus to replace the existing Roger Road WWTP. The second phase of the project is a detail scope of geotechnical investigation in selected location within the area of the facilities. The selected locations were provided to us by Pima County. The purpose of these services will be to provide foundation design criteria and earthwork recommendations for the structures in the facility. Structures are anticipated to include head works, clarifiers, filters, sludge digesters and effluent treatment structures. We expect there will also be office

and maintenance buildings. The exact layout of these structures, their respective sizes and base level elevations has not been finalized at this time. We have been informed that the grades on-site may be raised up to 4 feet above existing elevation.

SITE EXPLORATION PROCEDURES

The scope of the services performed for this project included site reconnaissance by a geotechnical engineer, a subsurface exploration program, laboratory testing, and engineering analyses.

Field Exploration: A total of 31 test borings were drilled on December 5 to December 19, 2008 in addition to the original 17 borings drilled for Phase One of the project. The borings were drilled to approximate depths of 40-½ to 60-½ feet at the locations shown on the Site Plan, Figure 1. All borings were drilled in the locations provided to us by Pima County. Borings were advanced with a truck-mounted drilling rig, utilizing 7-½ inch diameter hollow-stem auger.

The first 17 explorations were located in the field by measurements from property lines and existing site features. Ground surface elevations at each exploration location were obtained by Engineering Surveying Photogrammetry, LLC with a LEICA 1200 System. The GPS coordinates were provided to us for the 31 additional boring included in second phase of the project before boring exploration by Pima County. The boring locations were then found using a Garmin eTrex Lagend HCx hand held GPS. The accuracy of exploration locations and elevations should only be assumed to the level implied by the methods used to determine each.

Continuous lithologic logs of each boring were recorded by the geotechnical engineer during the exploration operations. At selected intervals, samples of the subsurface materials were taken by driving split-spoon or ring-barrel samplers. Bulk samples of subsurface materials were obtained from borings.

Penetration resistance measurements were obtained by driving the split-spoon and ring-barrel into the subsurface materials with a 140-pound hammer falling 30 inches. The penetration resistance value is a useful index in estimating the consistency, relative density or hardness of the materials encountered.

Groundwater conditions were evaluated in each boring at the time of site exploration.

Laboratory Testing: Samples retrieved during the field exploration were taken to the laboratory for observation by the project geotechnical engineer and were classified in

accordance with the Unified Soil Classification System described in Appendix C. At that time, the field descriptions were confirmed or modified as necessary and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials. Boring logs were prepared and are presented in Appendix A.

Laboratory tests were conducted on selected soil samples and are presented in Appendix B and on the Logs of Borings. The test results were used for the geotechnical engineering analyses, and the development of foundation and earthwork recommendations.

Selected soil samples were tested for the following engineering properties:

Laboratory Tests	Standard Reference Numbers
• Consolidation	• D2435-04
• Swell	• D2435-03
• Atterberg Limits	• D4318-00
• pH	• SW9045D
• Sulfate Content	• E300
• Gradation/Percent Fines	• D422-63(1998)/D1140
• Moisture Content	• D2216-00
• Dry Density	• D2216-00
• Direct Shear	• D3080
• Resistivity	• AZ236A
• Chloride Content	• E300
• Organic Content	• D2974-00

The ASTM laboratory test method D1140 used to determine the percent fines of a soil sample was not specifically performed due ASTM laboratory test method D422-63(1998) used to determine the gradation of a soil sample, which includes the test for percent fines.

The ASTM test procedures conducted for the consolidation (D2435-04) and the swell (D2435-03) are the typical local standard of practice. They are believed to be the most accurate test procedures for the type of soils encountered in our region.

The laboratory test method used to determine the swell potential of a soil is similar to the consolidation laboratory test method. A soil sample is compacted into a consolidometer ring to minus 3% of the optimum water content and to 95% of Standard Proctor density (ASTM D698). The consolidometer ring is of known volume and height. The consolidometer ring allows axial movement and prevents movement in the lateral direction. The sample is then place between two porous stones within the same apparatus used in the consolidation test.

A load of 100 psi is applied to the sample. The sample is then saturated and remains saturated for 24 hours or longer until a stabilized reading is obtained. The vertical displacement is recorded and the percent swell is the difference in height before and after the test procedures.

We believe that the three direct shear tests we performed were representative of the major soil types encountered at this site. We expect those test results to adequately represent the direct shear properties of the soils.

SITE CONDITIONS

The site consists of a fenced off area that is undeveloped and has been previously used as leach beds by Roger Road WWTP. The Roger Road WWTP is located south of the existing property. The Santa Cruz River bounds the western side of the property. Cleared undeveloped land bounds the eastern side of the property. The land to the east contains a few trees and is overgrown with weeds. A large retention/detention basin bounds the northern side of the property. There are several piles of trash in the retention/detention basin to the north. Two concrete culverts run from the northeast corner to the existing retention/detention basin to the north. There is a paved road along the eastern boundary. There is an exposed pipe line with several breakages in it, running along the western side of the existing paved road. The southern third of the property is fenced off, and is being used as a nursery. There are several mesquite trees on the southern third side of the site. There are a couple of metal white boxes and vertical pipes on the western side next to the Santa Cruz River that look like monitoring wells. Overhead utilities run along the northern side of the property. There are several berms separating the old leach beds. During the exploration dried compost material was being piled on portions of the site.

SUBSURFACE SOIL CONDITIONS

Soil Conditions: As presented on the Logs of Boring, surface soils to depths of 4 to 15 feet consists of sandy lean clay with varying amounts of gravel, sandy silt with varying amounts of gravel or sandy silt lean clay with varying amounts of gravel. A few locations consisted of clayey or silty sand with varying amounts of gravel or clayey silty sand with varying amounts of gravel. Silty sand with varying amounts of gravel and cobbles, sand with silt and varying amount of gravel and cobbles or sand with trace amounts of silt and varying amounts of gravel and cobbbles were encountered from depths of 5 to 37 feet. A few boring locations consisted of clayey sand with varying amounts of gravel and cobbles or clayey silty sand with varying amounts of gravel and cobbles. The materials from 17 to 29 feet and extending to the maximum depth of exploration consists of sandy gravel with cobbles and trace amounts of silt, sand with clay and varying amounts of gravel and cobbles, clayey sand with varying

amounts of gravel and cobbles or sandy lean clay with varying amounts of gravel and cobbles. A generalized summary of the stratigraphy is shown on the table below.

Description	Approximate Depth to Bottom of Stratum (ft)	Material Encountered	Consistency/Density
Stratum 1	0 to 15	Sandy lean clay or sandy silt	Stiff to hard
Stratum 2	5 to 37	Silty sand or sand with silt or trace amount of silt	Very Loose to Very Dense
Stratum 3	17 to 61	Sandy gravel or clayey sand or sand with clay	Very Dense

Field and Laboratory Test Results: Field penetration test results indicate that the clay soils vary from stiff to hard in consistency. The sand soils vary from very loose to very dense in relative density.

Laboratory test results indicate that the subsoils at shallow depth exhibit low to moderate compression at in-situ moisture contents. Of the 48 explorations performed at the site 26 samples indicated the presence of hydro-compative soils. The explorations that show a significant tendency for hydro-compaction are dispersed across the site and are located within the top 15 feet. The consistency in the penetration values (blows/ft) and in the USCS classifications of the soil, indicates that the soils with significant tendencies for hydro-compaction are located within the top 15 feet, across the entire site. Field penetration tests indicate that the soils below 15 feet in depth have a low potential for hydrocompaction when elevated in moisture content. Hydrocompactive soils are typically loose but stable with somewhat cemented however water soluble bonding material. Under the condition of load + wetting the soil structure collapses resulting in potentially large settlements. The following table gives the boring, collapse and depth of the consolidation laboratory test results.

Boring	Collapse (%)	Depth (ft)
A-4	5.1	2.5
C-1	12.9	2.5
I-5	7.5	2.5
K-3	11.5	2.5
L-2	5.8	2.5
B-03	9.1	2.5

I-3	7.2	2.5
B-4	3.8	5.0
C-5	13.0	5.0
E-3	6.0	5.0
E-5	6.0	5.0
F-4	4.4	5.0
G-1	5.2	5.0
P-4	7.1	5.0
B-0	5.6	7.5
G-3	7.5	7.5
J-6	6.2	7.5
M-3	12.0	7.5
F-4	5.0	10.0
O-3	4.7	10.0
P-4	6.5	12.5
L-4	15.8	12.5
I-5	5.2	12.5
E-3	3.5	12.5
M-5	3.7	15.0
N-4	7.2	15.0
H-4	5.0	15.0

When water is added to samples, obtained north of grid line “J”, of laboratory compacted near-surface soils, the materials exhibit low expansion potential under light loading conditions such as those imposed by floor slabs. The location of grid line “J” is shown on the site plan, Figure 1.

When water is added to soil samples, obtained south of grid line “J”, of laboratory compacted near-surface soils, the materials exhibit moderate to high expansion potential under light loading conditions such as those imposed by floor slabs. The location of grid line “J” is shown on the site plan, Figure 1. The following table gives the borings where expansive soils were encountered.

Boring	Expansion (%)	USCS Classification	Depth (ft)	Location on Site
A-4*	--	CL	0-2.5	Located south of Gird Line J
B-01	6.2	CL	0-5	Not within Site Area

B-05	2.7	CL-ML	0-5	Not within Site Area
B-08*	--	CL		Not within Site Area
B-09	1.5	CL	0-5	Located on Grid Line J
B-14	--	CL	0-5	Located south of Gird Line J
B-15	3.7	CL	0-5	Located south of Gird Line J
B-4	3.3	CL	0-2.5	Located south of Gird Line J
B-O	4.5	ML	0-2.5	Located south of Gird Line J
C-1*	--	CL	0-2.5	Located south of Gird Line J
C-3	3.3	CL-ML	0-2.5	Located south of Gird Line J
C-5	2.3	CL-ML	0-2.5	Located south of Gird Line J
D-2*	--	CL	0-2.5	Located south of Gird Line J
E-5*	--	CL	0-6	Located south of Gird Line J
F-4	3.6	SC-SM	0-6	Located south of Gird Line J
F-6	5.0	CL	0-2.5	Located south of Gird Line J
G-3	2.7	SM	0-2.5	Located south of Gird Line J
G-5	3.7	CL	0-2.5	Located south of Gird Line J
G-7*	--	CL	0-2.5	Located south of Gird Line J
H-4*	--	CL-ML	0-2.5	Located south of Gird Line J
I-5	2.2	ML	0-2.5	Located south of Gird Line J
J-4	2.0	ML	0-2.5	Located on Grid Line J
J-6*	--	CL-ML	0-2.5	Located on Grid Line J
K-3*	--	CL	0-2.5	Located north of Grid Line J
L-2	1.6	CL	0-2.5	Located north of Gird Line J

*Expansive tests were not performed on near surface samples from these borings, however they have similar fines content and plasticity of samples taken from adjacent borings that did show expansive potential

Groundwater Conditions: Groundwater was not observed in most of the exploration at the time of field exploration. Groundwater was encountered in boring locations A-4, B-0, B-2, B-4, B-04, B-6, B-13, B-14, B-16, C-1, C-3, D-2 and F-4 at depths of 22 to 37 feet. These observations represent groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations. Groundwater conditions can change with varying seasonal and weather conditions, and other factors.

According to the “Tucson Basin & Avra Valley, Pima County, Arizona.1998 Depth to Water Map” the groundwater elevation is 150 feet below the ground surface. With duration no more than a half a day the groundwater elevation will not vary significantly for a 100 year flood due to the depth to groundwater. The groundwater elevation during normal conditions should be

similar to the elevation encountered in the Logs of Boring which showed a perched water table at a depth of 21 to 35 feet below ground surface elevation.

ENGINEERING RECOMMENDATIONS

Geotechnical Considerations: Based on the geotechnical engineering analyses, subsurface exploration and laboratory test results, we recommend that the proposed building structures be supported on a spread footing foundation system.

Due to the potential for hydro-compaction in the near surface soils, spread footings bearing on engineered fill are recommended for support of the proposed foundations.

On-site soils north of grid line “J”, should be suitable for use as engineered fill beneath the foundation systems and floor slabs.

Due to the moderate to high expansive potential of the on-site soils south of grid line “J” with in the top 5 feet, the on-site soils are not recommended for use as subgrade or engineered fill directly below conventional un-reinforced floor slabs, unless a structural slab is designed to resist the potential soil heave.

Expansive soils are present on this site. This report provides recommendations to help mitigate the effects of soil shrinkage and expansion. However, even if these procedures are followed, some movement and at least minor cracking in the structure should be anticipated. The severity of cracking and other cosmetic damage such as uneven floor slabs will probably increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and cosmetic distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. We would be pleased to discuss other construction alternatives with you upon request.

Design and construction recommendations for foundation systems and other earth connected phases of the project are outlined below.

Foundation Systems: Spread footing foundations are recommended for the support of the proposed building on the site. Foundations bearing at a depth of 15 feet or deeper than 15 feet below existing grades may bear on undisturbed native soils. Due to the potential for hydro-compaction in the near surface soils, spread footings bearing above 15 feet should bear on engineered fill. Engineered fill which will support footings should be placed and constructed as recommended in the Earthwork section of this report.

The footings may be designed for the following maximum bearing pressures based on embedment depth below lowest adjacent grade.

Embedment Depth (ft)	Allowable Bearing Pressure (psf)
1.5	2,000
2.0	2,500
2.5	3,000
3.0	3,500
5.0	5,500
7.5	8,000
10	10,500
12.5	13,000
15	15,500
20	20,500

The design bearing pressure applies to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions. Recommended minimum widths of column and wall footings are 24 inches and 16 inches, respectively.

Exterior footings should be placed a minimum of 18 inches below finished grade to provide confinement for the bearing soils. Interior footings should bear a minimum of 12 inches below finished grade. Finished grade is the lowest adjacent grade for perimeter footings and floor level for interior footings.

Total settlement resulting from the assumed structural loads is estimated to be on the order of 1/2-inch. Differential settlement should be on the order of ½ to ¾ of the estimated total settlement. Additional foundation movements could occur if water from any source infiltrates the foundation soils; therefore, proper drainage should be provided in the final design and during construction. The estimated settlements are for foundations bearing on engineered fill or 15 feet below existing grades.

Thickened slab sections can be used to support interior load-bearing partitions provided that:

- slabs are supported on engineered fill,
- loads do not exceed 900 plf,
- thickened sections have a minimum width of 12 inches, and
- thickness and reinforcement are consistent with structural requirements.

Footings, foundations, and masonry walls should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. The use of joints at openings or other discontinuities in masonry walls is recommended.

Foundation excavations should be observed by the geotechnical engineer. If the soil conditions encountered differ significantly from those presented in this report, supplemental recommendations will be required.

Reinforced Mat (Raft) Foundations: As an alternative, reinforced mat foundations could be used for foundation support of the structures. Reinforced mat foundations bearing at a depth of 15 feet or below existing grade may bear on undisturbed native soils or engineered fill if required to raise grades. Reinforced mat foundations bearing above 15 feet should bear on engineered fill as recommended in the Earthwork section of this report. A modulus of subgrade reaction, k, of 100 pci could be used for design and evaluation of soil-structure interaction of a reinforced mat foundation bearing on native soils as prepared as outlined in this report. It is common to reduce the k-value to account for dimensional effects of large loaded areas. A commonly used correction is:

$$k_c=k((b+1)/2b)^2$$

Where k_c is the corrected or design modulus value and b is the mat width or tributary loaded area. However, in no case should the contact pressure of the mat exceed 1,500 psf. Perimeters of the mats should bear a minimum of 8 inches below adjacent grades. Subgrades supporting reinforced mats should be prepared as recommended in this report.

Foundation Settlement: We have been informed that approximately 4 feet of engineered fill might be placed across the sight for grading purposes. The placement of engineered fill on existing soils will reduce the potential for settlement; however significant settlement could occur if water were to infiltrate the existing soils below the fill. There is approximately 15 feet of existing collapsible soils across the site. A total of 5 to 6 inches of settlement could occur if all 15 feet were to become wet. An anticipated settlement of 1/3 of an inch is expected to occur for every foot that becomes wet. However, on-site settlement will be dependent on the subgrade preparation of the existing on-site soils. If subgrade soils are prepared as outlined in the Earthwork Section of the report short term and long term settlement will be limited to less than ½ inch.

Drilled Shaft Foundation Systems: Drilled shafts can be used as an alternative foundation system. Drilled shaft foundations systems should be evaluated using the allowable end bearing pressures and skin friction values tabulated below. Also included in the tabulation

are estimated passive pressures and COM624 or Lpile parameters for lateral load analysis of drilled shafts. Straight sided shafts are recommended for construction in the predominantly granular soils. The design parameters are as follows, assuming a minimum embedment of 15 feet below existing grades:

Depth Below Existing Grade (ft.)	Internal Angle of Friction (degrees)	Total Unit Weight (pcf)	Allowable End Bearing Pressure (psf)	Allowable Skin Friction (psf)*	Ultimate Passive Pressure (pcf)**	p-y Modulus (pci)***
0 – 3	--	--	--	--	--	--
3 – 7.5	32	108	--	--	1050	55
7.5 – 10	33	113	--	--	1140	80
10 – 15	34	115	--	--	1230	90
15 – 20	36	121	17,800	430	1410	120
20 - 25	38	125	31,600	600	1575	170
25 – 30	38	125	40,000	800	1575	225
30 - 35	38	125	46,900	730	1575	210

*Compression or Tension

**Equivalent Fluid Pressure

***This is the k coefficient used in the equation E_s=kx where x is the depth below the surface

The passive pressures are ultimate values; therefore, appropriate factors of safety or shaft deflection limits should be applied in the shaft design. The above parameters assume the groundwater level is below the maximum depth of the drilled shaft.

In designing to resist uplift forces, the effective weight of the shaft and structure (divided by an appropriate factor of safety) and the allowable skin friction values provided above should be used.

Drilled shafts should be designed with a minimum shaft diameter of 24 inches. If downhole inspection or manual clean out is required, a minimum shaft diameter of 30 inches is recommended.

It should be noted that the loaded capacities provided herein are based on the stresses induced in the supporting soils. The structural capacity of the shafts should be checked to assure that they can safely accommodate the combined stresses induced by axial and lateral forces. Furthermore, the response of the drilled shaft foundations to lateral loads is

dependent upon the soil/structure interaction as well as the shaft's actual diameter, length, stiffness and "fixity" (fixed or freehead condition)

Based on criteria outlined in AASHTO (2002), drilled shafts may be considered to act individually under lateral loading where the center-to-center shaft spacing is greater than 2.5 diameters in the direction normal to loading, and where the center-to-center shaft spacing is greater than 8 diameters in the direction parallel to loading. For shaft layouts not conforming to these criteria, the effect of shaft interaction should be considered in the design.

The effect of group action for center-to-center spacing less than 8 diameters in the direction of loading may be considered using the following criteria indicated by the ADOT Geotechnical Design Group in their memorandum of January 13, 1998:

Ratio of Resistance of Shaft in Group to Single Shaft Resistance		
Boundary Condition	**Center to Center Shaft Spacing**	
	3 Diameters	**8 Diameters**
Pier Cap/Footing in intimate contact with soil*	0.8	1.0
Pier Cap/Footing not in intimate contact with soil	0.6	1.0

Notes:
1. Applies to parallel loading only.
2. Efficiency factors are to be applied to all shafts in a group regardless of pile arrangement.
3. Efficiency factors shall be linearly interpolated between diameters of 3D and 8D.
4. Other portions of AASHTO Section 4.6.5.6 are applicable.

*Design grade is above bottom of pier cap.

Temporary casing will likely be required to prevent caving in the granular soils. Temporary casing should also be used whenever shafts are installed adjacent to any exiting structures or improvements, to reduce potential ground loss and movement, due to drilled shaft excavation. Water, if encountered, should be removed from each shaft hole prior to concrete placement. Casing should be installed for the full shaft depth if downhole inspection and clean out is required. Shaft concrete should be placed immediately after completion of drilling and cleaning. If shaft concrete cannot be placed in dry conditions, a tremie should be used for concrete placement. Due to potential sloughing and raveling, foundation concrete quantities may exceed calculated geometric volumes.

Temporary casing used for shaft construction should be withdrawn in a slow continuous manner maintaining a sufficient head of concrete inside the casing to counteract earth and any hydrostatic pressures outside the casing. An insufficient head of concrete inside the case can cause “necking” of the shaft, resulting in a reduced shaft capacity. Shaft concrete should have a relatively high fluidity when places in cased holes or through a tremie. Shaft concrete with slump in the range of 6 to 8 inches is recommended.

The contractor should check for gas and/or oxygen deficiency prior to any workers entering the excavation for observation and manual cleanup. All necessary monitoring and safety precautions as required by OSHA, Sate or local codes should be strictly enforced.

We recommend that all drilled shaft installations be observed on a full-time basis by an experienced geotechnical engineer in order to evaluate that the soils encountered are consistent with the recommended design parameters.

Settlement of drilled shafts designed and constructed in accordance with the recommendations in this report should be less than 1-inch.

Driven Pile Foundation Systems: Driven piles can be considered as a foundation alternative for the proposed structure. Piles used for foundation support transmit structural loads to a stratum of higher bearing capacity and should experience relatively small amounts of movement.

The design capacity of a single-driven pile is a function of several factors including:

- the size and type of the pile; and,
- the engineering properties of the subsurface soils.

The most effective means of verifying pile capacities for either tension or axial loads is through pile load tests. Alternatively, dynamic driving formulas can be used to assess pile capacity on actual test or projection piles. Preliminary foundation design can be based upon calculated capacities utilizing soil strength criteria determined from the field and laboratory testing conducted during exploration.

Driven steel H-piles supported on the gravel layer encountered approximately 30 feet below existing site grades (elevation 2210) an HP12 pile would have an axial capacity of 90 kips, an HP14 would have an allowable axial capacity of 120 kips. In order to perform a lateral analysis of the driven piles we will need additional information including the allowable deflection at the pile head, as well as the anticipated lateral loading of the pile.

Driven steel pipe-piles may be used at the site, an 18”-diamter pile, driven to the gravel layer would have an allowable axial capacity of 145 kips, a 24”-diameter pile would have an axial capacity of 260 kips. As stated in the comment above additional information will be required for a lateral load analysis.

Estimated pile tip depth to develop the allowable pile capacity at each location 30 feet. Individual pile settlement should be on the order of 1/2-inch when design according to the criteria presented in this report.

Axial and uplift pile capacities may be increased by one-third when considering wind and/or earthquake loading.

Please reference horizontal subgrade reactions given in the table on Page 11 for the Drilled Shaft Foundation Systems section.

Lateral resistance to horizontal forces can be provided by battered piles. The vertical and horizontal components of the load will depend on the batter inclinations. Batters should not exceed 1:4 (horizontal:vertical).

Groups of piles required to support concentrated loads will require appropriate reductions of the axial, uplift and lateral capacities based on the effective envelope of the pile group. This reduction can be avoided by spacing piles at a minimum distance of at least six diameters center to center. Piles spaced less than six diameters center to center should be evaluated on an individual basis to determine appropriate reductions in axial, uplift and lateral capacities.

The contractor should select a driving hammer and cushion combination which is capable of installing the selected piling without overstressing the pile material. The contractor should submit the pile driving plan and the pile hammer-cushion combination to the engineer for evaluation of the driving stresses in advance of pile installation.

The pile driving system should be analyzed using the wave equation to evaluate the potential for overstressing the pile materials during driving. Dynamic analysis may also be used to evaluate the driving resistance required to obtain the predicted design load.

Some ground heave may be experienced as a result of pile driving at each site. Therefore, it is recommended that the top elevations of the initial piles driven be surveyed. If any heave is noted after the driving of subsequent piles, the piles should be redriven to their original top elevation. This problem can be particularly acute in pile groups.

The pile hammer should be operated at the manufacturer's recommended stroke when measuring penetration resistance. All piles should be provided with driving shoes to protect the pile tip from damage when penetrating the dense granular soils. A representative of the geotechnical engineer should observe pile driving operations on a full-time basis. Each pile should be observed and checked for buckling, crimping and alignment in addition to recording penetration resistance, depth of embedment, and general pile driving operations.

Lateral Earth Pressures: For soils above any free water surface, recommended equivalent fluid pressures for unrestrained foundation elements when using on-site soils as structural fill, drainage fill, engineered fill and backfill are:

- Active ..... 30 psf/ft
- Passive ..... 340 psf/ft
- Coefficient of base friction 0.45*

  *The coefficient of base friction should be reduced to 0.30 when used in conjunction with passive pressure.

Where the design includes restrained elements, the following equivalent fluid pressures are recommended:

- At rest ..... 50 psf/ft

The following values in pounds per cubic foot, may be used for submerged lateral earth conditions:

- Active ..... 75 psf/ft
- Passive ..... 170 psf/ft
- At rest ..... 80 psf/ft

Fill against foundation and retaining walls should be compacted to densities specified in Earthwork. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors. Overcompaction may cause excessive lateral earth pressures which could result in wall movement.

Retaining Wall Drainage: To reduce hydrostatic loading on retaining walls, a subsurface drain system should be placed behind the wall. The drain system should consist of free-draining granular soils containing less than five percent fines (by weight) passing a No. 200 sieve placed adjacent to the wall. The free-draining granular material should be graded to

prevent the intrusion of fines or encapsulated in a suitable filter fabric. A drainage system consisting of either weep holes or perforated drain lines (placed near the base of the wall) should be used to intercept and discharge water which would tend to saturate the backfill. Where used, drain lines should be embedded in a uniformly graded filter material and provided with adequate clean-outs for periodic maintenance. An impervious soil should be used in the upper layer of backfill to reduce the potential for water infiltration. As an alternative, a prefabricated drainage structure, such as geocomposite, may be used as a substitute for the granular backfill adjacent to the wall.

Seismic Considerations: Based upon the nature of the subsurface materials, a Site Class D should be used for the design of structures for the proposed project (***2006 International Building Code***, Table 1613.5.2).

Floor Slab Design and Construction: The on-site soils north of grid line "J" exhibit low or negligible expansive potential under light loading conditions such as those imposed by floor slabs. Construction of floor slabs directly on undisturbed soils or compacted fills composed of on-site soils are considered acceptable for floor slabs located north of grid line "J" on the project. The on-site soils south of Grid line "J" within the top 5 feet exhibits moderate to high expansive potential and are not suitable for use as subgrade or engineered fill directly below conventional unreinforced floor slabs. These on site soils if directly below conventional unreinforced floor slabs should be removed to a minimum depth of 12 inches below finished subgrade elevation and replaced with engineered fill meeting the imported fill specifications in this report. Due to the possible placement of 4 feet of engineered fill, the removal and replacement of the top 12 inches may not be needed. Some differential movement of a slab-on-grade floor system is possible should the subgrade soils become elevated in moisture content even in the placement of 4 feet of engineered fill. To reduce potential slab movements, the subgrade soils should be prepared as outlined in the Earthwork section of this report.

Additional floor slab design and construction recommendations are as follows:

- Positive separations and/or isolation joints should be provided between slabs and all foundations, columns or utility lines to allow independent movement.

- Control joints should be provided in slabs to control the location and extent of cracking.

- Interior trench backfill placed beneath slabs should be compacted in accordance with recommendations outlined below.

- For the anticipated design loading, a minimum 4-inch layer of clean-graded gravel, sand or aggregate base course should be placed beneath interior slabs. For heavy loading, vehicular traffic or concentrated loads on floor slabs, reevaluation of slab and/or base course thickness may be required.

- Other design and construction considerations, as outlined in the ACI Design Manual, Section 302.1R are recommended.

Pavements (commercial): Design of pavements for the project have been based on the procedures outlined in the 1993 Guideline for Design of Pavement Structures by the American Association of State Highway and Transportation Officials (AASHTO), as modified by the Arizona Department of Transportation (ADOT). Assumed traffic criteria used for pavement thickness design includes single 18-kip equivalent axle loads (EAL's) of 14,600 for planned parking areas, and 73,000 EAL's for main traffic corridors and driveways. Actual design traffic loading should be verified. Reevaluation of the recommended pavement sections may be necessary if the actual traffic varies from the assumed criteria outlined above.

Recommended alternatives for flexible and rigid pavements, summarized for each traffic area, are as follows:

Traffic Area	Alternative	Recommended Pavement Section Thickness (inches)			
		Asphalt Concrete Surface	Aggregate Base Course	Portland Cement Concrete	Total
Automobile Parking Areas	A	2.5	4.0	---	6.5
Main Traffic Corridors and Delivery Lanes	A	3.0	4.0	---	7.0
	B	--	--	5.0	5.0

Re-evaluation of the recommended pavement sections may be necessary if the actual traffic varies from the assumed criteria outlined above.

Each alternative should be investigated with respect to current material availability and economic conditions. Rigid concrete pavement, a minimum of 6 inches in thickness, is recommended at the location of dumpsters where trash trucks will park and load or any other areas of anticipated heavy vehicle loads.

Materials and construction of pavements for the project should be in accordance with the requirements and specifications of the Pima County/City of Tucson[1].

Preventative maintenance should be planned and provided for through an on-going pavement management program in order to enhance future pavement performance. Preventative maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment.

Preventative maintenance consists of both localized maintenance (e.g. crack sealing and patching) and global maintenance (e.g. surface sealing). Preventative maintenance is usually the first priority when implementing a planned pavement maintenance program and provides the highest return on investment for pavements.

Earthwork:

- **General Considerations:** The following presents recommendations for site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for design and construction of earth supported elements including foundations, slabs and pavements are contingent upon following the recommendations outlined in this section.

  Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

- **Site Preparation:** Strip and remove existing vegetation, debris, compost and other deleterious materials from proposed building and pavement areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

  Stripped materials consisting of vegetation and organic materials should be wasted from the site, or used to revegetate landscaped areas or exposed slopes after completion of grading operations. If it is necessary to dispose of organic materials on-site, they should be placed in non-structural areas, and in fill sections not exceeding 5 feet in height.

[1] Pima County/City of Tucson, 2003, ***Standard Specifications for Public Improvements,*** Arizona.

The site should be initially graded to create a relatively level surface to receive fill, and to provide for a relatively uniform thickness of fill beneath proposed building structures.

Although evidence of underground facilities such as septic tanks, cesspools, basements, and utilities was not observed during the site reconnaissance, such features could be encountered during construction. If unexpected underground facilities are encountered, such features should be removed and the excavation thoroughly cleaned prior to backfill placement and/or construction.Existing fills and compost material should be removed from the site.

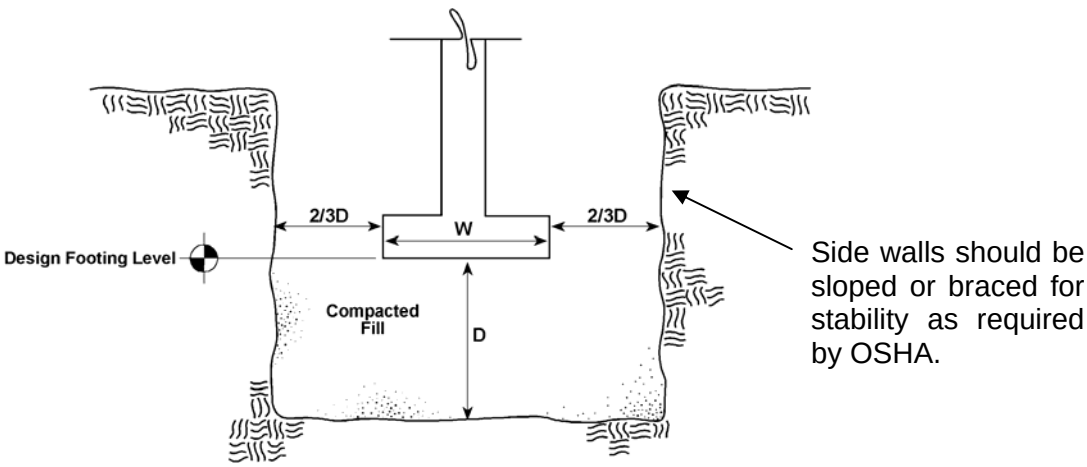
It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable. However, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying. Overexcavation of wet zones and replacement with granular materials may be necessary. Use of lime, fly ash, kiln dust, cement or geotextiles could also be considered as a stabilization technique. Laboratory evaluation is recommended to determine the effect of chemical stabilization on subgrade soils prior to construction. Lightweight excavation equipment may be required to reduce subgrade pumping.

The individual contractor(s) is responsible for designing and constructing stable, temporary excavations as required to maintain stability of both the excavation sides and bottom. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards.

- **Subgrade Preparation:** Foundations bearing at a depth of 15 feet or below existing grades may bear on undisturbed native soils and/or engineered fill, if required to raise grades. Due to the potential for hydro-compaction in the near surface soils, spread footings bearing above 15 feet should bear on engineered fill. Engineered fill should extend below proposed conventional spread footings a depth equal to the width of wall footings, and a depth equal to one-half the width of column footings; however, a minimum of two feet of engineered fill is recommended below, and adjacent to the edges of all footings. The engineered fill should extend laterally an additional distance of 8 inches for each additional foot of excavation beyond the 24-inch

minimum depth. If engineered fill is placed beneath the entire building, it should extend horizontally a minimum distance of 5 feet beyond the outside edge of perimeter footings. The overexcavation and backfill procedure is described in the adjacent figure. The possible placement of 4 feet of engineered fill across the site should meet the requirements of required engineered fill beneath shallow foundations. The engineered fill should meet the requirements given in the Fill Materials and Placement section of the report. If the existing soils in the top 15 feet are to remain in place without excavation and recompaction additional settlement could occur if the soils were to become elevated in moisture content.



Areas of loose soils may be encountered at foundation bearing depth after excavation is completed for footings. When such conditions exist beneath planned footing areas, the subgrade soils should be compacted prior to placement of the foundation system. In addition, large cobbles or boulder sized materials may be encountered beneath footing areas. Such conditions could create point loads on the bottom of footings, increasing the potential for differential foundation movement. If such conditions are encountered in the footing excavations, the cobbles and/or boulders should be removed and be replaced with engineered fill, conditioned to near optimum moisture content and compacted.

- Foundation systems and raft foundation systems should be supported on engineered fill if located within the top 15 feet. The engineered fill should extend to a minimum depth of 2 feet below finished subgrade elevation and five feet beyond the foundation perimeters. The possible placement of 4 feet of engineered fill across the site should meet the requirements of required fill beneath shallow foundations. If the existing soils in the top 15 feet are to remain in place without excavation and recompaction

additional settlement could occur if the soils were to become elevated in moisture content.

Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of ten inches, conditioned to near optimum moisture content, and compacted.

Conventional unreinforced floor slabs located south of grid line "J" should be supported on a minimum of 12 inches of imported engineered fill meeting the specifications in this report.

Subgrade soils beneath conventional interior and exterior slabs, and beneath pavements should be scarified, moisture conditioned and compacted to a minimum depth of ten inches. The moisture content and compaction of subgrade soils should be maintained until slab or pavement construction.

- **Fill Materials and Placement:** Clean non-expansive on-site soils with particle sizes less than 6 inches, or approved imported materials may be used as fill material for the following:

  - general site grading
  - foundation areas
  - interior floor slab areas
  - exterior slab areas
  - pavement areas
  - foundation backfill

  On-site soils south of grid line "J" are not recommended for use as compacted fill beneath interior or exterior floor slabs without chemical treatment to reduce or eliminate expansive potential.

  Material collected from the following borings appear to be suitable for use as engineered fill:

  - B-02
  - B-06
  - B-07
  - B-11
  - B-13
  - B-17
  - G-1
  - H-2
  - K-4
  - K-5
  - L-4
  - M-3
  - M-5
  - N-4
  - O-3
  - O-5

- I-3
- P-4

Imported soils (if required) should conform to the following:

Gradation	**Percent Finer By Weight (ASTM C136)**
6"	100
3"	70-100
No. 4 Sieve	50-100
No. 200 Sieve	50 (max)

- Liquid Limit ..... 40 (max)
- Plasticity Index ..... 20 (max)
- Maximum expansive potential (%)* 1.5

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at about 3 percent below optimum water content. The sample is confined under a 100 psf surcharge and submerged.

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed ten inches loose thickness. Recommended compaction criteria for engineered fill materials are as follows:

Material	**Minimum Percent (ASTM D698)**
Scarified subgrade soils	95
On-site and imported fill soils:	
Beneath foundations	95
Beneath slabs	95
Beneath pavements	95
Aggregate base (beneath slabs)	95
Aggregate base (beneath pavements)	100

Miscellaneous backfill (non-structural areas).....90

On-site soils should be compacted within a moisture content range of 3 percent below, to 3 percent above optimum. Imported soils should be compacted within a moisture range of 3 percent below to 3 percent above optimum.

A ground compaction factor of 0.1 to 0.15 feet is estimated for existing subgrade soils. A shrinkage factor of 10% to 15% is estimated for on-site soils compacted to 95% of the material's Standard Proctor dry density. This figure does not include any material lost in transit or oversized material or material unsuitable for use, or compaction greater than 95%.

- **Slopes:** For permanent slopes in compacted fill and cut native areas, recommended maximum configurations and erosion control measures are provided in the following table:

Slope (horizontal:vertical)	Recommended Surface Treatment
5:1 to less steep than 2:1	Re-vegetate
2:1 to less steep 1.5:1	Rip-rap over filter fabric
1.5:1 to 1:1	Grouted rip-rap or 6-inch thick grout over filter fabric, with integrated tow-down at base of slope having a minimum depth of 1/5 the total slope height
Steeper than 1:1	Stability analysis required, or structural retaining wall

We expect slopes with this configuration to be resistant to erosion and stable against circular failure. The face of all slopes should be compacted to the minimum specification for fill embankments. Alternately, fill slopes can be over-built and trimmed to compacted material. If any slope in cut or fill will exceed 25 feet in height, the grading design should include mid-height benches to intercept surface drainage and divert flow from the face of the embankment.

- **Excavation and Trench Construction:** The individual contractor(s) should be made responsible for designing and constructing stable, temporary excavations that include maintaining the stability of both the excavation sides and bottom. All excavations should be sloped or shored in the interest of safety following local and federal regulations, including current OSHA excavation and trench safety standards.

The soils to be penetrated by the proposed excavations may vary significantly across the site. The preliminary soil classifications are based solely on the materials

encountered in widely spaced exploratory test borings. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions are encountered at the time of construction, the actual conditions should be evaluated to determine any excavation modifications necessary to maintain safe conditions.

As a safety measure, it is recommended that all vehicles and soil piles be kept to a minimum lateral distance from the crest of the slope equal to no less than the slope height. The exposed slope face should be protected against the elements.

Additional Design and Construction Considerations:

- **Exterior Slab Design and Construction:** Exterior slabs-on-grade, exterior architectural features, and utilities founded on, or in backfill may experience some movement due to the volume change of the backfill. To reduce the potential for damage caused by movement, we recommend:

  - minimizing moisture increases in the backfill
  - controlling moisture-density during placement of backfill
  - using designs which allow vertical movement between the exterior features and adjoining structural elements
  - placing effective control joints on relatively close centers

- **Underground Utility Systems:** Underground piping within or near the proposed structure should be designed with flexible couplings, so minor deviations in alignment do not result in breakage or distress. Utility knockouts in foundation walls should be oversized to accommodate differential movements.

- **Surface Drainage:** Positive drainage should be provided during construction and maintained throughout the life of the proposed project. Infiltration of water into utility or foundation excavations must be prevented during construction. Planters and other surface features which could retain water in areas adjacent to the building or pavements should be sealed or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration. We recommend a minimum horizontal setback

distance of 10 feet from the perimeter of any building and the high-water elevation of the nearest storm-water retention basin.

Downspouts, roof drains or scuppers should discharge into splash blocks or extensions when the ground surface beneath such features is not protected by exterior slabs or paving. Sprinkler systems should not be installed within 5 feet of foundation walls. Landscaped irrigation adjacent to the foundation system should be minimized or eliminated.

GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide testing and observation during excavation, grading, foundation and construction phases of the project.

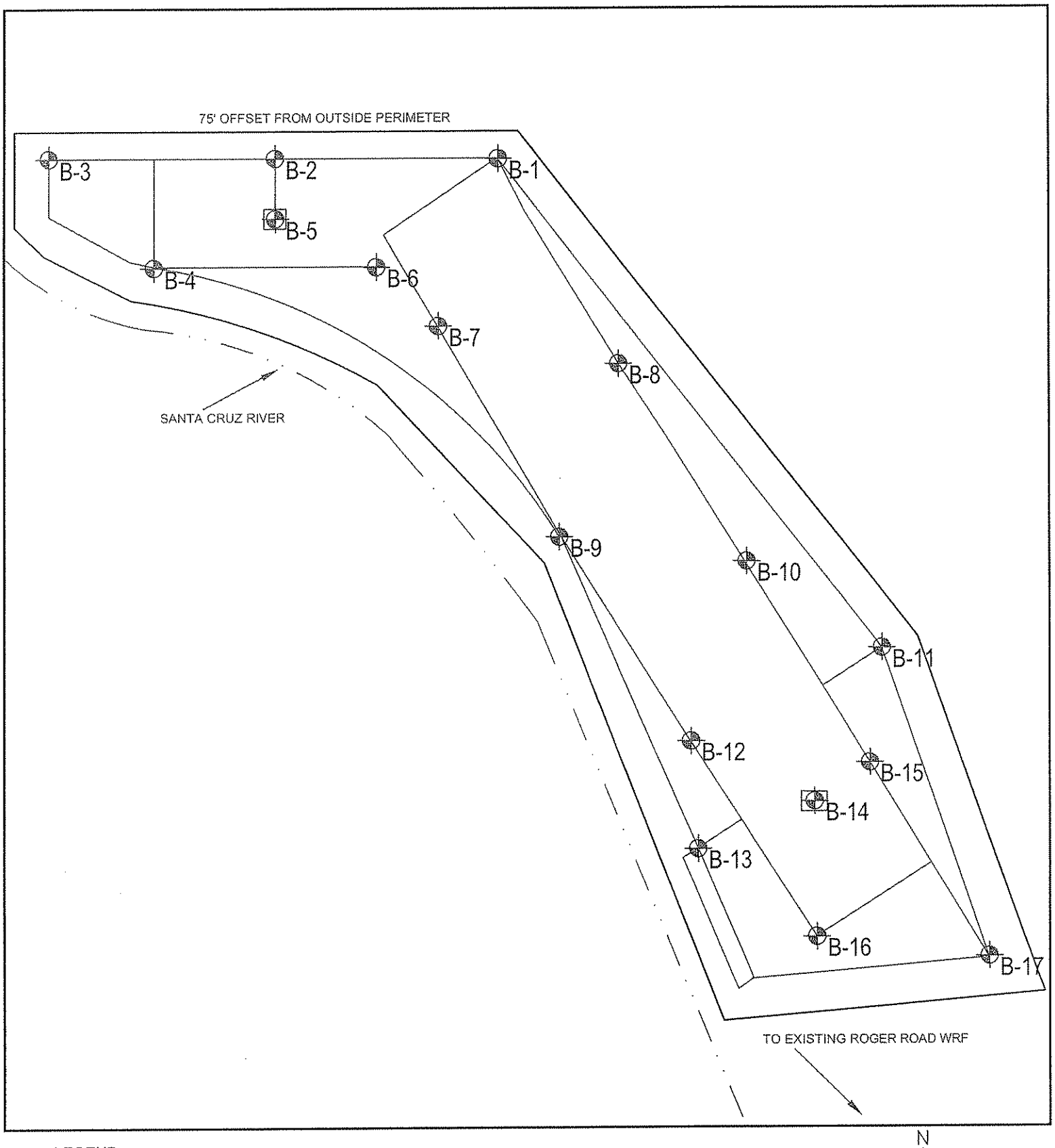
The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations which may occur between borings or across the site. The nature and extent of such variations may not become evident until construction. If variations appear, it will be necessary to reevaluate the recommendations of this report.

The scope of services for this project does not include either specifically or by implication any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. In the event that changes in the nature, design, or location of the project as outlined in this report, are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes, and either verifies or modifies the conclusions of this report in writing.

Project Mngr: OBL	Project No. 63085095	Terracon Consulting Engineers and Scientists	SITE PLAN
Drawn By: LEL	Scale: NA	355 SOUTH EUCLID, SUITE 107 TUCSON, ARIZONA 85719	FUTURE WRC SITE PHASE II
Checked By: OBL	File No. 63085095.DWG	PH. (520) 770-1789 FAX. (520) 792-2539	BETWEEN 1-10 AND SANTA CRUZ RIVER
Approved By: OBL	Date: 02/06/2009		PIMA COUNTY PROCUREMENT DEPARTMENT
			TUCSON ARIZONA

FIG. No. 1

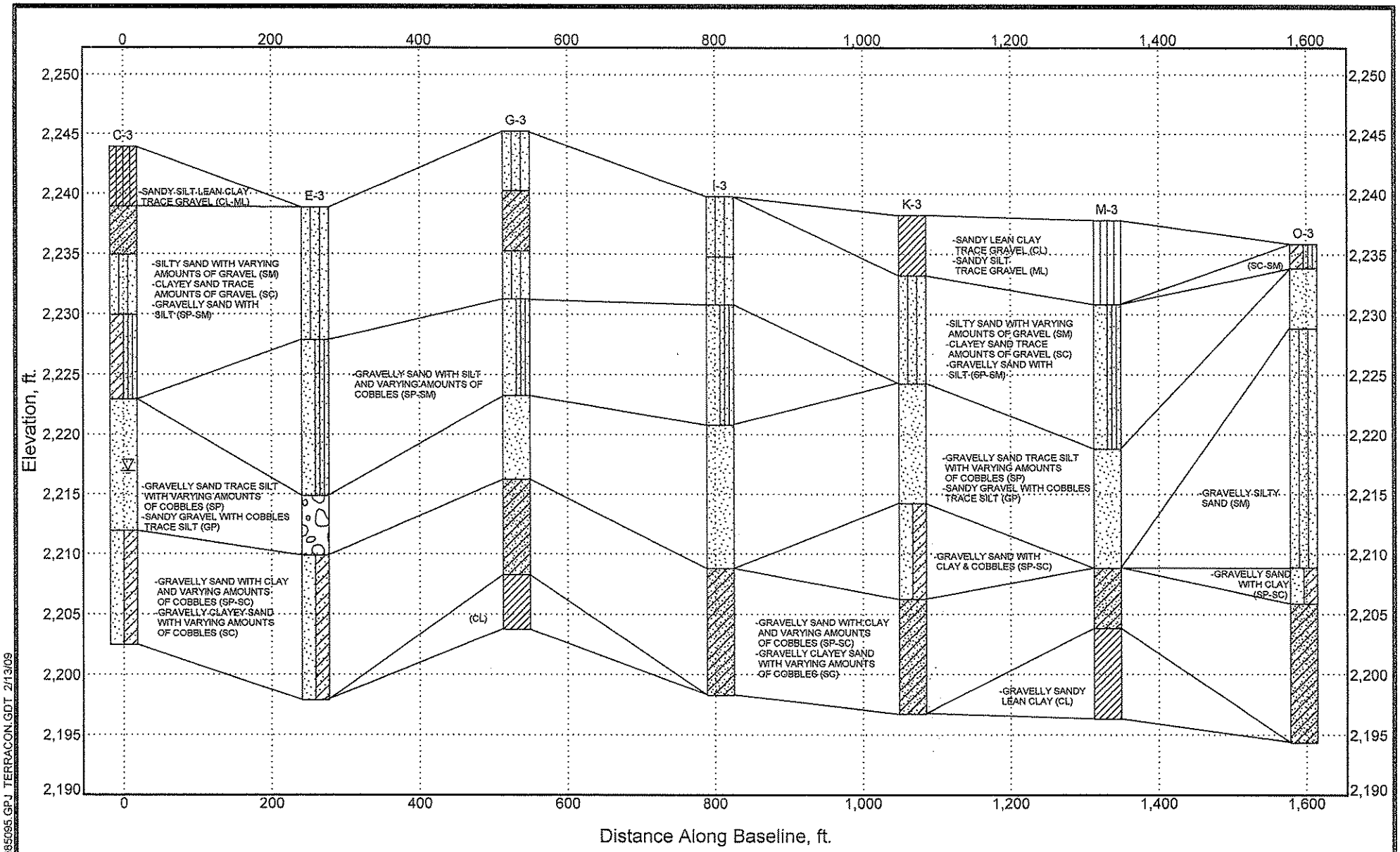


LEGEND

APPROXIMATE BORING LOCATION

N

Project Mngr: OBL	Project No. 63085095	Terracon Consulting Engineers and Scientists	SITE PLAN	FIG. No.
Drawn By: HPS	Scale: NONE		FUTURE WRC SITE, PHASE I	2
Checked By: OBL	File No. 63085095	355 SOUTH EUCLID, SUITE 107 TUCSON, ARIZONA 85719	BETWEEN I-10 & SANTA CRUZ RIVER	
Approved By: OBL	Date: 09-2008	PH. (520) 770-1789 FAX. (520) 792-2539	PIMA COUNTY PROCUREMENT DEPARTMENT	
			TUCSON ARIZONA	

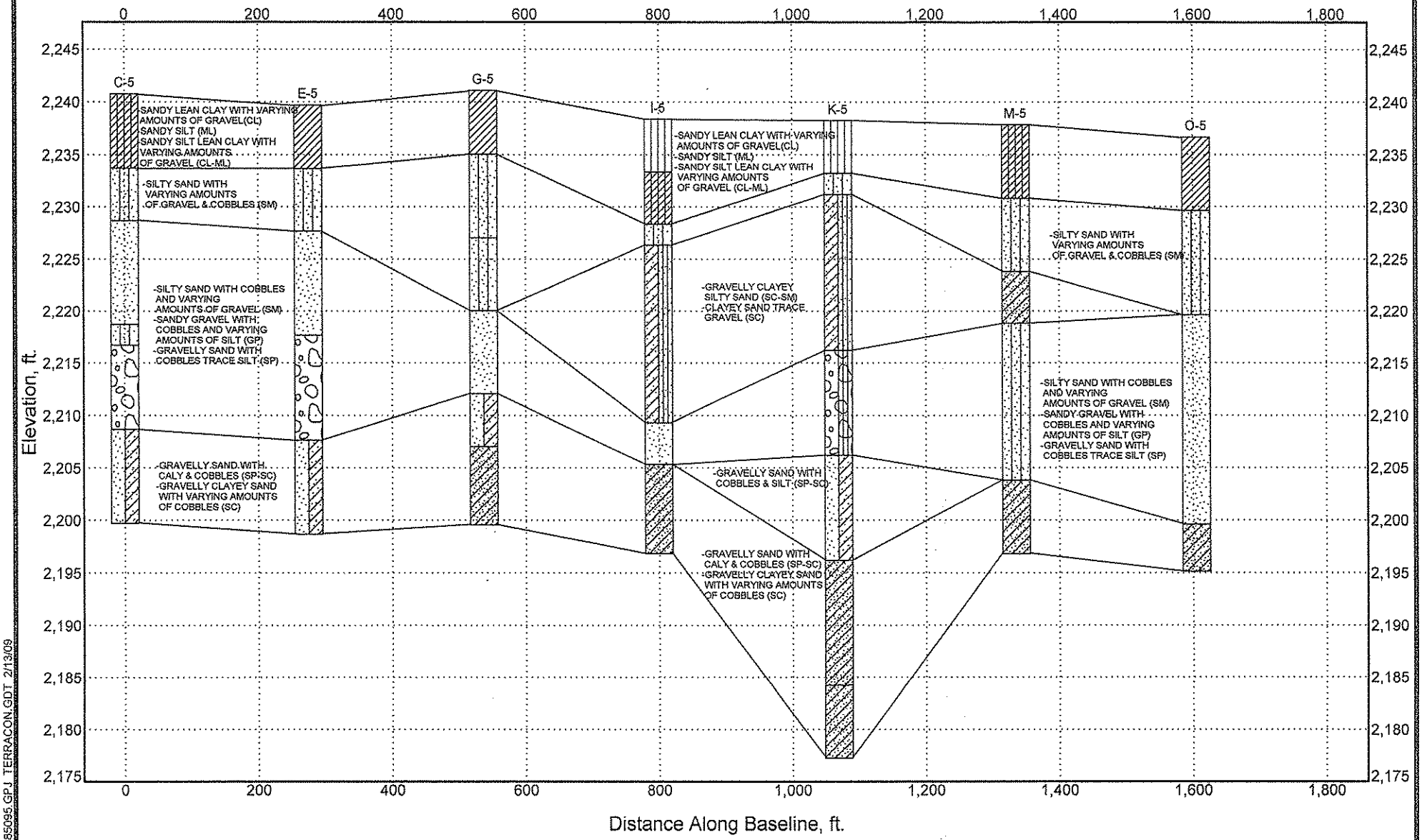


Terracon

SUBSURFACE DIAGRAM

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-13-09

TC LITHOLOGY ELEV 63085095.GPJ TERRACON.GDT 2/13/09

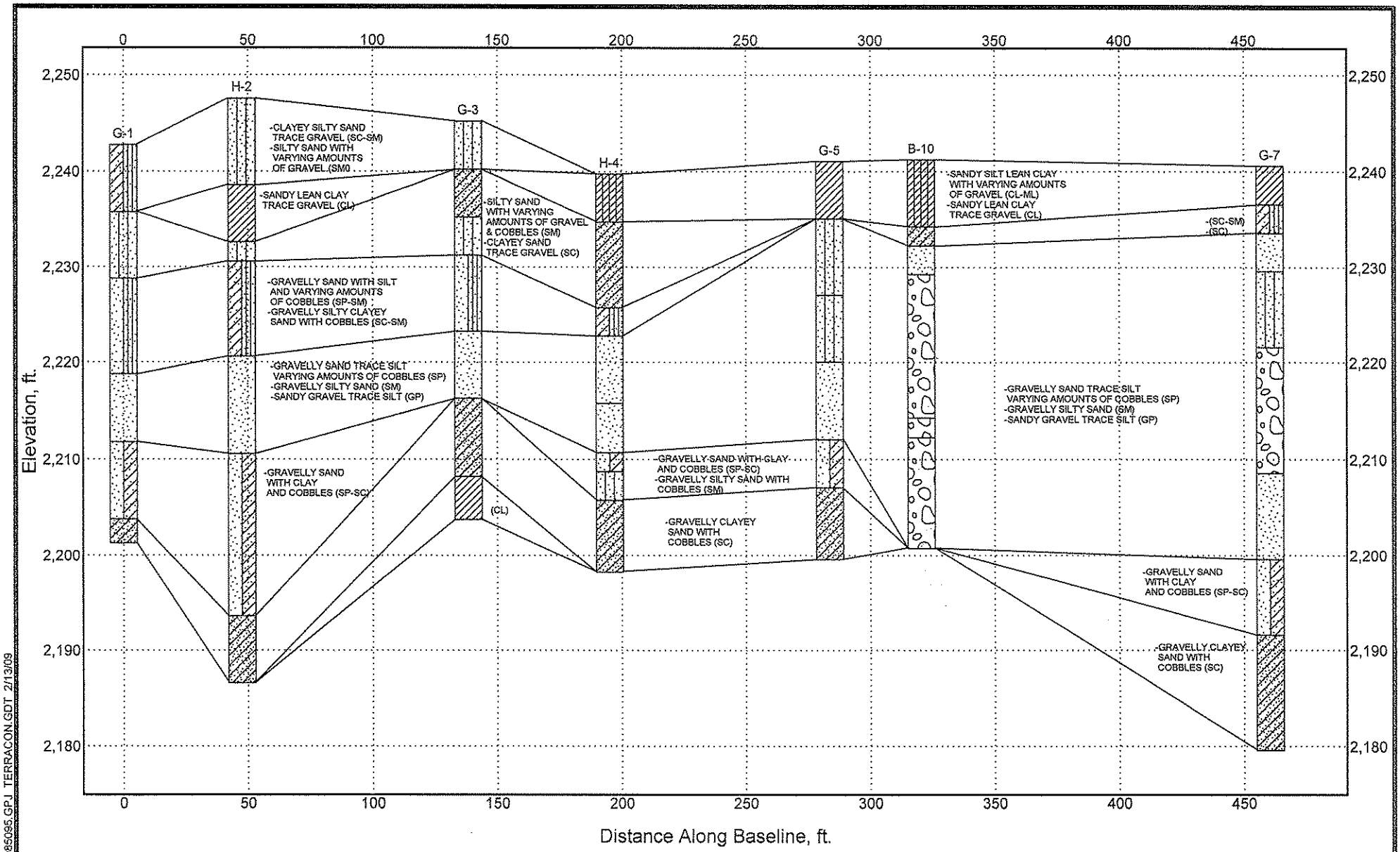


Terracon

SUBSURFACE DIAGRAM

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-13-09

TC LITHOLOGY ELEV 63085095.GPJ TERRACON.GDT 2/13/09

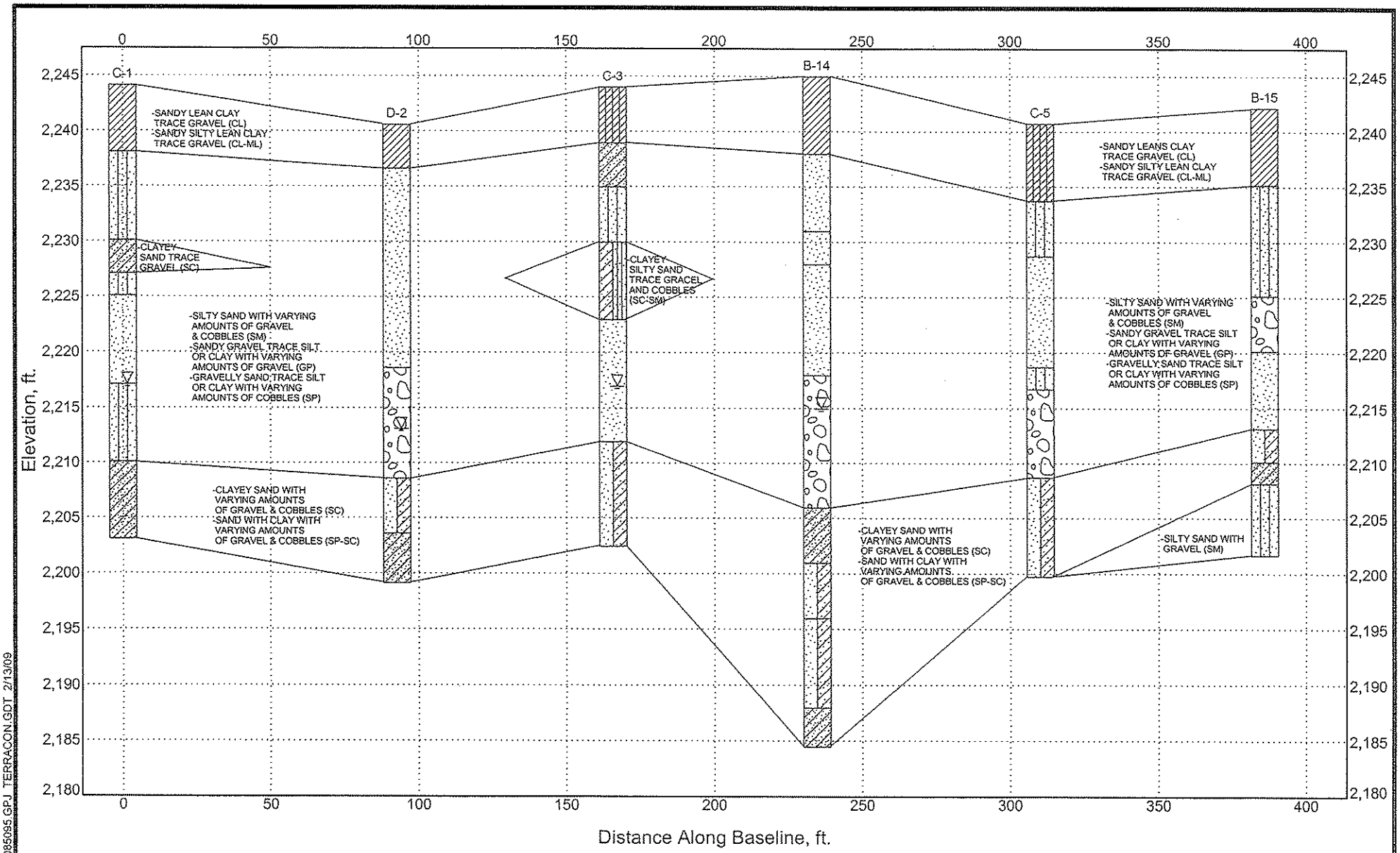


Terracon

SUBSURFACE DIAGRAM

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-13-09

TC LITHOLOGY ELEV 63085095.GPJ TERRACON.GDT 2/13/09

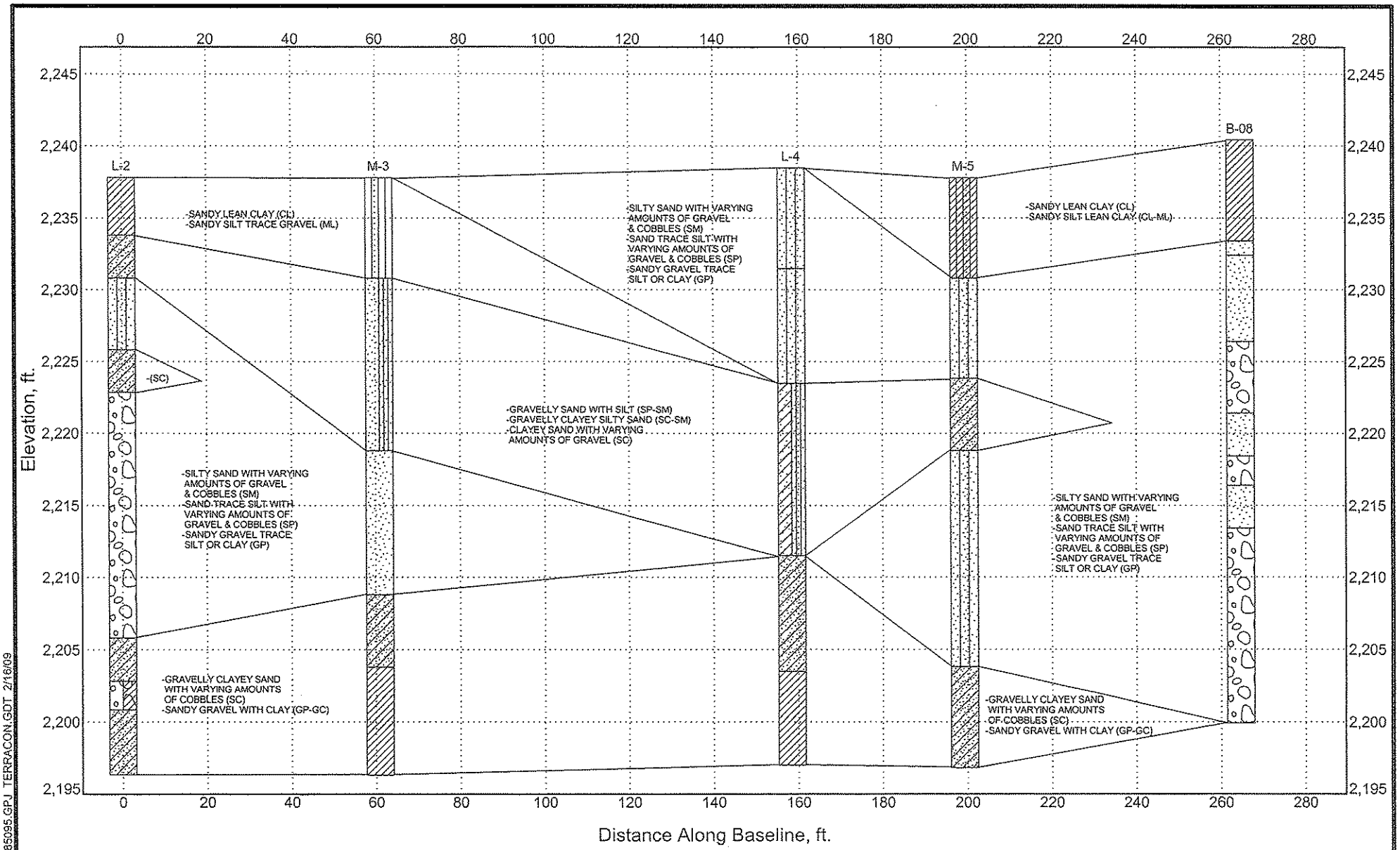


Terracon

SUBSURFACE DIAGRAM

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-13-09

TC LITHOLOGY ELEV 63085095.GPJ TERRACON.GDT 2/13/09



Terracon

SUBSURFACE DIAGRAM

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-16-09

TC LITHOLOGY ELEV 63085095.GPJ TERRACON.GDT 2/16/09

LOG OF BORING NO. A-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 06.84203" N 111° 01' 50.04843" W

Approx. Surface Elev.: 2245.84 ft

DEPTH, ft.	DESCRIPTION	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY LEAN CLAY TRACE GRAVEL; brown, stiff to very stiff, medium plasticity fines, no cementation	CL	1	BS					31	12	70
		CL	2	RS	12	9	24	100			
5		CL	3	RS	12	10					
		CL	4	RS	12	9					
9	2237										
	CLAYEY SAND WITH GRAVEL; light brown, loose to medium dense, medium plasticity fines, no cementation										
10		SC	5	RS	12	17			26	10	32
		SC	6	RS	12	16					
15		SC	7	RS	12	19					
		SC	8	RS	0	11			18	NP	24
19	2227										
	SILTY SAND WITH COBBLES AND GRAVEL; light brown, loose to medium dense, non-plastic fines, no cementation										
20		SM	9	RS	12	16					
		SM	10	RS	12	30					
25		SM	11	RS	12	44					
28	2218 ▼										
	GRAVELLY SAND WITH COBBLES AND CLAY; light brown, medium to very dense, low plasticity fines, no to weak cementation	SP-SC	12	RS	7	30					
30		SP-SC	13	RS	7	50/4"					
		SP-SC	14	SS	7	62					
35											

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 28	▼ 28
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-10-08		
BORING COMPLETED	12-10-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. A-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY SAND WITH COBBLES AND CLAY; light brown, medium to very dense, low plasticity fines, no to weak cementation		SP-SC	15	SS	6	25					
			SP-SC	16	SS	7	52					
		40	SP-SC	17	SS	6	50					
	41.5 2204.5 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	∇ 28	▼ 28
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-10-08		
BORING COMPLETED	12-10-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-01

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 24.93814" N 111° 01' 50.66559" W

Approx. Surface Elev.: 2247.02 ft

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	SANDY LEAN CLAY; dark brown, very stiff, medium plasticity fines, no cementation			CL	1	BS					45	25	79
				CL	2	RS	12	18	11	85			
			5	CL	3	RS	12	16	10	89			
	8	2239											
	SAND TRACE CLAY; brown, loose to medium dense, non-plastic fines, no cementation			SP	4	RS	12	16					
			10	SP	5	RS	12	18	4	92			
				SP	6	RS	0	23					
	16	2231	15	SP	7	RS	12	22	5				
	GRAVELLY SAND TRACE SILT; brown, medium dense, non-plastic fines, no cementation			SP	8	RS	0	23					
	21	2226	20	SP	9	RS	12	27					18
	CLAYEY SAND WITH GRAVEL; brown, medium dense, low plasticity fines, no cementation			SC	10	RS	0	22					
			25	SC	11	RS	0	21					
	28	2219											
	GRAVEL WITH CLAY AND SILT TRACE SAND; brown, medium to very dense, low plasticity fines, no to weak cementation			GC-GM	12	RS	12	54					
			30	GC-GM	13	RS	0	80/12"			24	8	12
				GC-GM	14	SS	0	50/6"					
			35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽	▼
WL	▼	▼
WL		

Terracon

BORING STARTED	7-24-08		
BORING COMPLETED	7-24-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-01

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVEL WITH CLAY AND SILT TRACE SAND; brown, medium to very dense, low plasticity fines, no to weak cementation		GC-GM	15	SS	12	75/12"					
			GC-GM	16	SS	9	87/9"					
	40 2207	40										
	40.5 2206.5 **GRAVEL TRACE SAND AND CLAY**, brown, very dense, low plasticity fines, weak cementation		GP	17	SS	2	50/4"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽	▼
WL	▼	▼
WL		

Terracon

BORING STARTED	7-24-08		
BORING COMPLETED	7-24-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-02

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 25.37301" N 111° 01' 56.93691" W

Approx. Surface Elev.: 2241.97 ft

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CLAYEY SAND WITH GRAVEL; brown, medium to very dense, low plasticity fines, no cementation trace gravel 2.5' to 5'			SC	1	BS							
				SC	2	RS	12	81/11"					
			5	SC	3	RS	12	48					
		7 / 2235											
	CLAYEY SILTY SAND; brown, medium dense, low plasticity fines, no cementation			SC-SM	4	RS	12	19	5	87			
			10	SC-SM	5	RS	12	20					
		12 / 2230											
	SILTY SAND; brown, loose, non-plastic fines, no cementation			SM	6	RS	12	18	1	97			
			15	SM	7	RS	12	33					
		17 / 2225											
	GRAVELLY SILTY SAND; brown, medium dense, non-plastic fines, no cementation	19 / 2223		SM	8	RS	12	44					
	GRAVELLY SAND TRACE SILT; brown, loose to medium dense, non-plastic fines, no cementation	21 / 2221	20	SP	9	RS	12	13	1	101	24	7	19
	CLAYEY SAND WITH GRAVEL; brown, medium dense, medium plasticity fines, no cementation			SC	10	RS	0	27					
			25	SC	11	RS	0	49					
		27 / 2215											
	GRAVELLY SAND TRACE SILT; brown, dense to very dense, non-plastic fines, weak to moderate cementation			SP	12	SS	12	48					
			30	SP	13	SS	2	50/6"					
				SP	14	SS	6	90/10"					
			35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 22	▼ 22
WL	▽	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-24-08		
BORING COMPLETED	7-24-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-02

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	37 / 2205		SP	15	SS	12	50/6"			30	12	8
	GRAVEL WITH SAND AND SILT, brown, very dense, non-plastic fines, no cementation		GP	16	SS	12	74					
	40.5 / 2201.5	40	GP	17	SS	2	50/2"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	∇ 22	▼ 22
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-24-08		
BORING COMPLETED	7-24-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-03

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 25.41419" N 111° 02' 03.29445" W

Approx. Surface Elev.: 2243.23 ft

DESCRIPTION	Elev.	Depth, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
FILL: SILTY SAND WITH GRAVEL, brown, loose to very dense, non-plastic fines, no cementation			SM	1	BS					NP	NP	26
			SM	2	RS	12	50/3"					
		5	SM	3	RS	12	19					
			SM	4	RS	12	7	13	97			
		10	SM	5	RS	12	18					
			SP	6	RS	12	16					
		15	SC-SM	7	RS	12	16					
			SP	8	RS	12	0					
		20	SP	9	RS	0	29					
			SP	10	RS	12	38					
		25	SC	11	RS	12	44			NP	NP	12
			SP	12	SS	1	33					
		30	SP	13	SS	4	18					
								2	105			
			SC	14	RS	12	22					
		35										

9 — 2234

SILTY SAND, brown, loose, non-plastic fines, no cementation

12 — 2231

GRAVELLY SAND TRACE SILT, brown, loose, non-plastic fines, weak cementation

14 — 2229

SILTY CLAYEY SAND, brown, loose, low plasticity fines, weak cementation

17 — 2226

GRAVELLY SAND TRACE SILT, brown, medium dense, non-plastic fines, weak cementation

25 — 2218

CLAYEY SAND WITH GRAVEL, brown, medium dense, medium plasticity fines, weak cementation

27 — 2216

GRAVELLY SAND TRACE SILT, brown, medium dense to dense, non-plastic fines, weak cementation

32 — 2211

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-24-08		
BORING COMPLETED	7-24-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-03

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY CLAYEY SAND WITH COBBLES; brown, medium to very dense, low plasticity fines, no to weak cementation		SC	15	SS	6	44					
			SC	16	SS	16	57					
		40	SC	17	SS	18	82/12"					
	41.5 2201.5 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-24-08		
BORING COMPLETED	7-24-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-04

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 23.11814" N 111° 01' 59.86538" W

Approx. Surface Elev.: 2243.82 ft

DESCRIPTION	Depth	Elev.
FILL: CLAYEY SAND, brown, loose, medium plasticity fines, no cementation	4	2240
SANDY LEAN CLAY, brown, stiff to very stiff, medium plasticity fines, no cementation	9	2235
SILTY SAND, brown, loose, non-plastic fines, no cementation	12	2232
SANDY LEAN CLAY, brown, medium dense, medium plasticity fines, no cementation	14	2230
SANDY LEAN CLAY WITH GRAVEL, brown, loose, medium plasticity fines, no cementation	17	2227
SANDY GRAVEL TRACE SILT, brown, medium dense, non-plastic fines, no cementation	22	2222
GRAVELLY SAND WITH CLAY, brown, medium dense, low plasticity fines, no cementation	25	2219
GRAVELLY SAND TRACE SILT, brown, medium dense, non-plastic fines, no cementation	27	2217
SANDY GRAVEL TRACE SILT, brown, medium to very dense, non-plastic fines, no cementation		

Continued Next Page

DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CL	1	BS							
	SC	2	RS	12	15	7	100			
5	CL	3	RS	12	16					
	CL	4	RS	12	7					
10	SM	5	RS	12	16					
	CL	6	RS	12	25					
15	CL	7	RS	12	9	6	107	33	12	53
	GP	8	RS	12	29					
20	GP	9	RS	12	50					
	SP-SC	10	RS	12	56					
25	SP	11	RS	12	29	1	104			
	GP	12	RS	12	55					
30	GP	13	RS	12	76/11"					
	GP	14	RS	12	55					
35										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 35	▼ 35
WL	▽	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-28-08		
BORING COMPLETED	7-28-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-04

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	SANDY GRAVEL TRACE SILT, brown, medium to very dense, non-plastic fines, no cementation		GP	15	RS	12	75					
			GP	16	RS	0	50/5"					
		40	GP	17	RS	5	50/5"					
	41 2203											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 35	▼ 35
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-28-08		
BORING COMPLETED	7-28-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-05

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 24.28718" N 111° 01' 56.91167" W

Approx. Surface Elev.: 2237.77 ft

DESCRIPTION	Depth	Elev.
FILL: SANDY SILTY LEAN CLAY TRACE GRAVEL; brown, stiff to very stiff, low plasticity fines, no cementation	7	2231
GRAVELLY SAND TRACE SILT; brown, medium dense, non-plastic fines, no cementation	14	2224
SANDY GRAVEL TRACE SILT; brown, loose to medium dense, non-plastic fines, no cementation	19	2219
GRAVELLY SAND TRACE SILT; brown, medium dense, non-plastic fines, no cementation	22	2216
GRAVELLY SAND WITH CLAY; brown, medium to very dense, low plasticity fines, no cementation	29	2209
SANDY GRAVEL TRACE CLAY; brown, very dense, low plasticity fines, no cementation		

Continued Next Page

DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CL-ML	1	BS					24	6	65
	CL-ML	2	RS	12	7	4	96			
5	CL-ML	3	RS	12	16					
	SP	4	RS	12	27					
10	SP	5	RS	12	25	2				
	SP	6	RS	0	58					
15	GP	7	RS	12	15					
	GP	8	RS	10	37					
20	SP	9	RS	12	47					
	SP-SC	10	RS	12	21					
25	SP-SC	11	RS	8	45					
	SP-SC	12	RS	6	50/6"					
30	GP	13	RS	4	50/4"					
	GP	14	RS	5	50/5"					
35										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	8-1-08		
BORING COMPLETED	8-1-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

BOREHOLE 2000 63085095.GPJ TERR2000.GDT 2/18/09

LOG OF BORING NO. B-05

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY GRAVEL TRACE CLAY, brown, very dense, low plasticity fines, no cementation			GP	15	RS	4	50/4"					
				GP	16	RS	6	50/6"					
39	**GRAVELLY CLAYEY SAND**, brown, very dense, low plasticity fines, no cementation	2199	40	SC	17	RS	3	50/3"					
42	**CLAYEY GRAVEL WITH SAND**, brown, very dense, low plasticity fines, no cementation	2196		GC	18	RS	6	50/6"					
			45	GC	19	RS	4	50/4"			26	11	12
47	**CLAYEY GRAVELLY SAND**, brown, very dense, low plasticity fines, no cementation	2191		SC	20	RS	10	61/10"					
			50	SC	21	RS	6	50/5"					
				SC	22	RS	8	75					
	with gravel		55	SC	23	RS	6	50/6"					
57	**SANDY GRAVEL WITH CLAY**, brown, very dense, low plasticity fines, no cementation	2181		GP	24	RS	12	80/11"					
60.5	trace clay	2177.5	60	GP	25	RS	4	50/4"					
	Bottom of Boring												

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	8-1-08		
BORING COMPLETED	8-1-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-06

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 22.40204" N 111° 01' 54.66476" W

Approx. Surface Elev.: 2242.25 ft

DESCRIPTION	Elev.	DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY LEAN CLAY, brown, very stiff, low to medium plasticity fines, no cementation			CL	1	BS							
			CL	2	RS	12	19					
		5	CL	3	RS	12	10	10	88			
7	2235.5											
CLAYEY SAND TRACE GRAVEL, brown, loose, low plasticity fines, no cementation			SC	4	RS	12	10					
		10	SC	5	RS	12	13	8	97			
12	2230.5											
SAND TRACE GRAVEL AND SILT, brown, medium dense, non-plastic fines, no cementation			SP	6	RS	12	25					
14	2228.5											
SANDY GRAVEL TRACE SILT, brown, loose to very dense, non-plastic fines, no cementation		15	GP	7	RS	12	38					
			GP	8	RS	12	17	7	106			
		20	GP	9	RS	10	66/12"					
			GP	10	RS	12	46					
		25	GP	11	RS	0	52					
			GP	12	RS	10	47					
		30	GP	13	RS	12	76/11"					
32	2210.5											
GRAVEL TRACE CLAY AND SAND, brown, very dense, low plasticity fines, no cementation			GP	14	RS	8	66/7"					
34	2208.5											
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	∇ 32	▼ 32
WL	∇	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-31-08		
BORING COMPLETED	7-31-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-06

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CLAYEY GRAVEL WITH SAND brown, dense to very dense, low plasticity fines, no cementation		GC	15	RS	6	50/6"					
			GC	16	RS	9	80/9"					
	41 2201.5	40	GC	17	RS	12	75					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 32	▼ 32
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-31-08		
BORING COMPLETED	7-31-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-07

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 21.15295" N 111° 01' 52.59783" W

Approx. Surface Elev.: 2237.86 ft

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SILTY SAND WITH GRAVEL, brown, medium dense, non-plastic fines, no cementation		SM	1	BS					19	3	36
			SM	2	RS	12	39	2	112			
		5	SM	3	RS	12	30					
			SM	4	RS	0	27					
		10	SP-SM	5	RS	12	15	3	101			
			SP-SM	6	RS	12	16					
		15	SP-SM	7	RS	0	16			NP	NP	9
			GC	8	RS	12	33					
		20	SP	9	RS	12	65/12"					
			SP	10	RS	12	65					
		25	SP	11	RS	8	80					
			SP	12	RS	12	85					
		30	GP	13	RS	6	50/6"					
			GP	14	RS	9	90/9"					
		35										

9 — 2229

GRAVELLY SAND WITH SILT, brown, loose, non-plastic fines, no cementation

17 — 2221

CLAYEY GRAVEL WITH SAND, brown, medium dense, low plasticity fines, no cementation

20 — 2218

GRAVELLY SAND TRACE SILT, brown, dense to very dense, non-plastic fines, no cementation

29 — 2209

SANDY GRAVEL TRACE CLAY, brown, very dense, low plasticity fines, no cementation

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-28-08		
BORING COMPLETED	7-28-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-07

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY GRAVEL TRACE CLAY, brown, very dense, low plasticity fines, no cementation		GP	15	RS	12	90/11"					
			GP	16	RS	12	95/11"					
		40	GP	17	RS	12	93/11"					
	41 2197											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-28-08		
BORING COMPLETED	7-28-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-08

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 19.65897" N 111° 01' 48.51187" W

Approx. Surface Elev.: 2240.42 ft

DESCRIPTION	Depth	Elev.
SANDY LEAN CLAY, brown, very stiff to hard, low plasticity fines, no cementation	7	2233.5
GRAVELLY SAND TRACE SILT, brown, medium dense, non-plastic fines, no cementation	8	2232.5
SAND TRACE SILT AND GRAVEL, brown, loose, non-plastic fines, no cementation	14	2226.5
SANDY GRAVEL TRACE CLAY, brown, medium dense, low plasticity fines, no cementation	19	2221.5
SAND TRACE SILT AND GRAVEL, brown, loose, non-plastic fines, no cementation	22	2218.5
SANDY GRAVEL TRACE CLAY, brown, medium dense, low plasticity fines, no cementation	24	2216.5
GRAVELY SAND TRACE SILT, brown, medium dense, non-plastic fines, no cementation	27	2213.5
SANDY GRAVEL TRACE CLAY, brown, dense to very dense, low plasticity fines, no cementation		

Continued Next Page

DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CL	1	BS					25	7	59
	CL	2	RS	12	24					
5	CL	3	RS	12	17					
	SP	4	RS	12	27					
10	SP	5	RS	12	15					
	SP	6	RS	12	13					
15	GP	7	RS	12	44					
	GP	8	RS	12	23					
20	SP	9	RS	12	15	5	99			
	GP	10	RS	12	26					
25	SP	11	RS	12	54					
	GP	12	RS	12	65					
30	GP	13	RS	8	80					
	GP	14	RS	6	50/6"					
35										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-28-08		
BORING COMPLETED	7-28-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-08

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	SANDY GRAVEL TRACE CLAY, brown, dense to very dense, low plasticity fines, no cementation		GP	15	RS	6	50/6"					
			GP	16	RS	9	90/9"					
	40.5 2200	40		17	RS	6	50/6"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-28-08		
BORING COMPLETED	7-28-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-09

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 17.05514" N 111° 01' 50.87108" W

Approx. Surface Elev.: 2240.11 ft

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY LEAN CLAY TRACE GRAVEL; brown, very stiff, low plasticity fines, no cementation			CL	1	BS					24	8	66
				CL	2	RS	12	14	6	107			
5		2235	5										
	SILTY SAND; brown, loose to medium dense, non-plastic fines, no cementation			SM	3	RS	12	30					
				SM	4	RS	0	16					
10		2230	10										
	GRAVELLY SAND TRACE SILT; brown, medium dense, non-plastic fines, no cementation			SP	5	RS	12	21	2				
13		2227											
	GRAVELLY SAND WITH SILT; brown, medium to very dense, non-plastic fines, no cementation			SP-SM	6	RS	12	29					
			15	SP-SM	7	RS	12	37					
				SP-SM	8	RS	12	27			22	3	12
			20	SP-SM	9	RS	12	43					
				SP-SM	10	RS	12	75/12"					
			25	SP-SM	11	RS	6	50/5"					
				SP-SM	12	RS	8	86/10"					
30		2210	30										
31	**SANDY GRAVEL TRACE CLAY**; brown, very dense, non-plastic fines, no cementation	2209		GP	13	RS	6	50/6"					
33	**SAND WITH GRAVEL TRACE SILT**; brown, very dense, non-plastic fines, no cementation	2207		SP	14	RS	6	50/6"					
34		2206											
			35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-29-08		
BORING COMPLETED	7-29-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-09

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY SAND TRACE SILT, brown, very dense, non-plastic fines, no cementation		SP	15	RS	12	85/11"					
	GRAVELLY SAND TRACE CLAY, brown, very dense, low plasticity fines, no cementation		SP	16	RS	6	50/4"					
	40.5 2199.5	40		17	RS	6	50/6"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-29-08		
BORING COMPLETED	7-29-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-10

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 16.26743" N 111° 01' 45.10850" W

Approx. Surface Elev.: 2241.26 ft

DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY SILTY LEAN CLAY, brown, stiff, low plasticity fines, no cementation			CL-ML	1	BS							
			CL-ML	2	RS	12	7	15	106			
		5	CL-ML	3	RS	12	7					
	7 / 2234.5											
CLAYEY SAND WITH SILT, brown, loose, low plasticity fines, no cementation	9 / 2232.5		SC	4	RS	12	13					
SAND WITH GRAVEL TRACE SILT, brown, medium dense, non-plastic fines, no cementation	12 / 2229.5	10	SP	5	RS	12	26					
SANDY GRAVEL TRACE SILT, brown, medium to very dense, non-plastic fines, no cementation			GP	6	RS	12	51					
		15	GP	7	RS	0	50/6"					
			GP	8	RS	12	78					
		20	GP	9	RS	12	42					
			GP	10	RS	12	78					
		25	GP	11	RS	8	50/4"					
	27 / 2214.5											
GRAVEL, brown, medium dense, non-plastic fines, no cementation	29 / 2212.5		GP	12	RS	4	56					
SANDY GRAVELWITH CLAY, brown, dense to very dense, low plasticity fines, no cementation		30	GP	13	RS	8	70					
			GP	14	RS	12	50/6"					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-29-08		
BORING COMPLETED	7-29-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-10

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	SANDY GRAVELWITH CLAY, brown, dense to very dense, low plasticity fines, no cementation		GP	15	RS	12	95/11"					
			GP	16	RS	12	80/11"					
	40.5 2201	40		17	RS	12	50/6"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-29-08		
BORING COMPLETED	7-29-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-11

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 14.06249" N 111° 01' 41.05826" W

Approx. Surface Elev.: 2246.17 ft

DESCRIPTION	Elev.	DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
GRAVELLY SAND TRACE SILT, brown, medium to very dense, non-plastic fines, no cementation		5										
		10	SP	1	RS	10	85/10"					
			SP	2	RS	12	27					
		15	SP	3	RS	12	19					
			SP	4	RS	12	33					
20	2226	20	SP-SC	5	RS	12	45					
GRAVELLY SAND WITH CLAY, brown, medium dense, low plasticity fines, no cementation												
23	2223		SP	6	RS	12	42					
SAND WITH GRAVEL TRACE SILT, brown, medium dense, non-plastic fines, no cementation		25	GP	7	RS	12	80/12"					
25	2221											
SANDY GRAVEL TRACE SILT, brown, dense to very dense, non-plastic fines, no cementation			GP	8	RS	12	65					
		30	GP	9	RS	8	82/9"					
			GP	10	RS	6	50/5"					
35	2211	35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-31-08		
BORING COMPLETED	7-31-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-11

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY GRAVEL WITH CLAY, brown, very dense, low plasticity fines, no cementation		GP-GC	11	RS	10	80/10"					
			GP-GC	12	RS	6	50/6"					
	40.5 2205.5	40		13	RS	6	50/5"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-31-08		
BORING COMPLETED	7-31-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-12

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 12.00656" N 111° 01' 45.54800" W

Approx. Surface Elev.: 2244.99 ft

DESCRIPTION	Depth	Elev.
FILL: SANDY LEAN CLAY TRACE GRAVEL; brown, very stiff, low plasticity fines, no cementation	5	2240
SILTY SAND WITH GRAVEL; brown, medium dense, non-plastic fines, no cementation	7.5	2237.5
SANDY GRAVEL TRACE SILT; brown, medium dense, non-plastic fines, no cementation	10	2235
SAND TRACE SILT AND GRAVEL; brown, medium dense, non-plastic fines, no cementation	16	2229
GRAVELLY SAND TRACE SILT; brown, medium dense, non-plastic fines, no cementation	20	2225
SANDY GRAVEL TRACE SILT; brown, dense, non-plastic fines, no cementation	25	2220
SANDY GRAVEL TRACE CLAY; brown, medium to very dense, low plasticity fines, no cementation	29	2216
CLAYEY SAND WITH GRAVEL; brown, very dense, low plasticity fines, no cementation	34	2211

Continued Next Page

DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CL	1	BS							
	CL	2	RS	12	19	5	95			
5	SM	3	RS	12	53					
	GP	4	RS	12	41					
10	SP	5	RS	8	25					
	SP	6	RS	12	24					
15	SP	7	RS	12	23	2	98			
	SP	8	RS	0	45					
20	GP	9	RS	12	59					
	GP	10	RS	12	77					
25	GP	11	RS	12	30					
	GP	12	RS	6	50/6"					
30	SC	13	RS	6	50/4"					
	SC	14	RS	6	50/3"					
35										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-30-08		
BORING COMPLETED	7-30-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-12

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY GRAVEL TRACE CLAY, brown, dense to very dense, low plasticity fines, no cementation		GP	15	RS	8	71					
			GP	16	RS	12	80/12"					
		40	GP	17	RS	12	85/12"					
	41 2204											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-30-08		
BORING COMPLETED	7-30-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-13

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 08.79800" N 111° 01' 45.43362" W

Approx. Surface Elev.: 2245.44 ft

DESCRIPTION	Depth	Elev.
SILTY SAND TRACE GRAVEL, brown, loose to medium dense, non-plastic fines, no cementation	13	2232.5
SANDY GRAVEL TRACE SILT, brown, medium dense, non-plastic fines, no cementation	17	2228.5
GRAVELLY SAND TRACE SILT, brown, dense, non-plastic fines, no cementation	20	2225.5
SANDY GRAVEL TRACE SILT, brown, dense to very dense, non-plastic fines, no cementation	29	2216.5
SANDY GRAVEL TRACE CLAY, brown, very dense, low plasticity fines, no cementation	32	2213.5
SAND WITH GRAVEL TRACE CLAY, brown, very dense, low plasticity fines, no cementation	34	2211.5

Continued Next Page

DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SM	1	BS					NP	NP	34
	SM	2	RS	12	34					
5	SM	3	RS	12	12	9	82			
	SM	4	RS	12	17					
10	SM	5	RS	0	20					
	GP	6	RS	0	7					
15	GP	7	RS	8	40					
	SP	8	RS	12	64					
20	GP	9	RS	5	75/7"					
	GP	10	RS	8	65					
25	GP	11	RS	5	50/6"					
	GP	12	RS	0	50/3"					
30	GP	13	RS	9	91/9"					
	SP	14	RS	4	50/4"					
35										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 30	▼ 30
WL	▽	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-31-08		
BORING COMPLETED	7-31-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-13

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY SAND TRACE CLAY, brown, very dense, low plasticity fines, no cementation			SP	15	RS	4	50/4"					
				SP	16	RS	6	50/5"					
39	**SANDY GRAVEL TRACE CLAY**, brown, dense, low plasticity fines, no cementation	2206.5	40										
41		2204.5		GP	17	RS	12	72					
	Bottom of Boring												

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 30	▼ 30
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-31-08		
BORING COMPLETED	7-31-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-14

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 10.38512" N 111° 01' 42.72465" W

Approx. Surface Elev.: 2244.96 ft

DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY LEAN CLAY TRACE GRAVEL, brown, very stiff, medium plasticity fines, no cementation			CL	1	BS					37	18	57
			CL	2	RS	12	12	17	83			
		5	CL	3	RS	12	16					
7	2238											
SAND WITH GRAVEL TRACE SILT, brown, loose to medium dense, non-plastic fines, no cementation			SP	4	RS	12	16	2	102			
		10	SP	5	RS	12	29					
14	2231		SP	6	RS	0	80/10"					
GRAVELLY SAND TRACE SILT, brown, very dense, non-plastic fines, no cementation		15	SP	7	RS	8	44					
17	2228											
GRAVELLY SAND TRACE CLAY, brown, medium to very dense, low plasticity fines, no cementation			SP	8	RS	8	55					
		20	SP	9	RS	12	75/12"					
			SP	10	RS	0	78/9"					
		25	SP	11	RS	0	51					
27	2218											
SANDY GRAVEL TRACE CLAY, brown, medium to very dense, low plasticity fines, no cementation			GP	12	RS	10	52					
		30	GP	13	RS	12	43					
			GP	14	RS	9	92/9"					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 30	▼ 30
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	8-1-08		
BORING COMPLETED	8-1-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-14

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY GRAVEL TRACE CLAY, brown, medium to very dense, low plasticity fines, no cementation	39 / 2206		GP	15	RS	0	50/3"					
				GP	16	RS	6	88/10"					
	CLAYEY SAND TRACE GRAVEL, brown, very dense, low plasticity fines, no cementation	44 / 2201	40	SC	17	RS	6	50/6"					
				SC	18	RS	6	50/4"					
	SAND WITH CLAY TRACE GRAVEL, brown, very dense, low plasticity fines, no cementation	49 / 2196	45	SP-SC	19	RS	6	50/5"					
				SP-SC	20	RS	6	50/6"					
	GRAVELLY SAND WITH CLAY, brown, very dense, low plasticity fines, no cementation	57 / 2188	50	SP-SC	21	RS	6	50/6"					
				SP-SC	22	RS	12	85/12"					
			55	SP-SC	23	RS	12	80/11"					
	CLAYEY SAND TRACE GRAVEL, brown, very dense, low plasticity fines, no cementation	60.5 / 2184.5		SC	24	RS	6	50/6"					
	Bottom of Boring		60		25	RS	6	50/6"					

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 30	▼ 30
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	8-1-08		
BORING COMPLETED	8-1-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-15

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 11.18270" N 111° 01' 41.23511" W

Approx. Surface Elev.: 2242.15 ft

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY LEAN CLAY TRACE GRAVEL; brown, very stiff to hard, medium plasticity fines, no cementation			CL	1	BS					31	14	74
				CL	2	RS	12	16	7	79			
			5	CL	3	RS	6	41					
	7	2235											
	SILTY SAND TRACE GRAVEL; brown, loose to medium dense, non-plastic fines, no cementation			SM	4	RS	8	8	1				
			10	SM	5	RS	12	15			NP	NP	12
				SM	6	RS	0	17					
			15	SM	7	RS	0	34					
	17	2225											
	SANDY GRAVEL TRACE SILT; brown, very dense, non-plastic fines, no cementation			GP	8	RS	6	50/6"					
			20	GP	9	RS	6	50/6"					
	22	2220											
	GRAVELLY SAND TRACE SILT; brown, medium to very dense, non-plastic fines, no cementation			SP	10	RS	12	48					
			25	SP	11	RS	12	31					
				SP	12	RS	6	50/6"					
	29	2213											
	GRAVELLY SAND WITH CLAY; brown, very dense, low plasticity fines, no cementation		30	SP-SC	13	RS	6	50/5"					
	32	2210											
	CLAYEY SAND WITH GRAVEL; brown, dense, low plasticity fines, no cementation			SC	14	RS	12	50					
	34	2208											
			35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-30-08		
BORING COMPLETED	7-30-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-15

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SILTY SAND WITH GRAVEL; brown, very dense, non-plastic fines, no cementation		SM	15	RS	0	50/3"					
			SM	16	RS	12	94/10"					
	40.5 2201.5	40		17	RS	6	50/6"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-30-08		
BORING COMPLETED	7-30-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-16

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 07.53339" N 111° 01' 42.91755" W

Approx. Surface Elev.: 2245.83 ft

DESCRIPTION	Elev.	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY LEAN CLAY, brown, stiff to very stiff, low to medium plasticity fines, no cementation			CL	1	BS							
			CL	2	RS	12	6	11	108			
		5	CL	3	RS	12	9					
7	2239											
GRAVELLY SAND WITH SILT, brown, loose to medium dense, non-plastic fines, no cementation			SP-SM	4	RS	12	21					
		10	SP-SM	5	RS	12	15	1	108			
14	2232		SP-SM	6	RS	12	20					
GRAVELLY SAND TRACE SILT, brown, medium dense, non-plastic fines, no cementation		15	SP	7	RS	12	41					
17	2229											
GRAVELLY SAND TRACE CLAY, brown, medium dense, low plasticity fines, no cementation			SP	8	RS	12	27					
20	2226	20										
GRAVEL WITH SAND SILT AND CLAY, brown, dense, low plasticity fines, no cementation			GP-GC	9	RS	0	63			22	4	6
22	2224											
GRAVELLY SAND WITH SILT, brown, very dense, non-plastic fines, no cementation			SP-SM	10	RS	0	50/1"					
25	2221	25										
GRAVELLY SAND TRACE CLAY, brown, very dense, low plasticity fines, no cementation			SP-SC	11	RS	12	67/12"					
			SP-SC	12	SS	18	64					
30	2216	30										
SANDY GRAVEL TRACE CLAY, brown, very dense, low plasticity fines, no cementation			GP-GC	13	RS	6	50/3"					
			GP-GC	14	SS	3	50/3"					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	∇ 37	▼ 37
WL	∇	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-30-08		
BORING COMPLETED	7-30-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

BOREHOLE 2000 63085095.GPJ TERR2000.GDT 2/18/09

LOG OF BORING NO. B-16

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	SANDY GRAVEL TRACE CLAY, brown, very dense, low plasticity fines, no cementation			GP-GC	15	SS	14	65					
				GP-GC	16	SS	14	81					
		40 / 2206	40										
	GRAVELLY CLAYEY SAND, brown, very dense, low plasticity fines, no cementation	41.5 / 2204.5		SC	17	SS	18	59					
	Bottom of Boring												

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 37	▼ 37
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-30-08		
BORING COMPLETED	7-30-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-17

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 07.07778" N 111° 01' 38.11341" W

Approx. Surface Elev.: 2246.95 ft

DESCRIPTION	Depth	Elev.
CLAYEY SANDY GRAVEL, brown, loose to very dense, low plasticity fines	7	2240
SAND TRACE GRAVEL AND SILT, brown, loose, non-plastic fines	9	2238
GRAVELLY SAND TRACE SILT, brown, medium dense, non-plastic fines	12	2235
SANDY GRAVEL TRACE SILT, brown, medium dense, non-plastic fines	14	2233
SANDY GRAVEL WITH SILT, brown, loose to medium dense, non-plastic fines	20	2227
GRAVELLY SAND WITH SILT, brown, medium dense, non-plastic fines	24	2223
GRAVELLY SAND WITH CLAY, brown, dense, low plasticity fines	27	2220
GRAVELLY SAND TRACE SILT, brown, very dense, non-plastic fines, no cementation	34	2213

Continued Next Page

DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GC	1	BS					27	8	23
	GC	2	RS	12	69/12"					
5	GC	3	RS	12	14	1	111			
	SP	4	RS	12	18					
10	SP	5	RS	12	32					
	GP	6	RS	12	28					
15	GP	7	RS	0	12			NP	NP	8
	GP	8	RS	12	21	2	105			
20	SP-SM	9	RS	0	34			NP	NP	11
	SP-SM	10	RS	0	22					
25	SP-SC	11	SS	8	39					
	SP	12	RS	12	96/12"					
30	SP	13	RS	0	88/10"					
	SP	14	SS	8	81/8"					
35										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-29-08		
BORING COMPLETED	7-29-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-17

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY SAND TRACE CLAY, brown, very dense, low plasticity fines, no cementation		SP	15	SS	16	50					
	37 / 2210											
	GRAVELLY SAND WITH CLAY, brown, dense to very dense, low plasticity fines, no cementation		SP-SC	16	SS	16	49					
		40										
	41.5 / 2205.5		SP-SC	17	SS	0	52					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	7-29-08		
BORING COMPLETED	7-29-08		
RIG	CME 75	FOREMAN	RP
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 07.86256" N 111° 01' 40.88681" W

Approx. Surface Elev.: 2241.50 ft

DEPTH, ft.	DESCRIPTION	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY LEAN CLAY WITH GRAVEL; medium stiff, low plasticity fines, no cementation	CL	1	BS					28	9	63
		CL	2	RS	12	4					
5	**SILTY CLAYEY SAND TRACE GRAVEL**; light brown, loose, low plasticity fines, no cementation	SC-SM	3	RS	12	14	19	99			
		SC-SM	4	RS	12	14					
10	**SILTY SAND TRACE GRAVEL**; light brown, medium dense, non-plastic fines, no cementation	SM	5	RS	12	20					
	SILTY SAND TRACE GRAVEL; brown, medium dense, non-plastic fines, no cementation	SM	6	RS	12	51			NP	NP	20
15	**CLAYEY SILTY SAND WITH GRAVEL**; light brown, loose to medium dense, low plasticity fines, no cementation	SC-SM	7	RS	12	45					
		SC-SM	8	RS	12	18			21	5	30
20		SC-SM	9	RS	12	18	2	109			
	GRAVELLY SAND TRACE SILT WITH COBBLES; light brown, medium dense, non-plastic fines, no cementation	SP	10	RS	12	53					
25		SP	11	RS	12	28					
		SP	12	RS	0	50/2"					
30	**GRAVELLY SAND WITH CLAY AND COBBLES**; brown, dense, low plasticity fines, no cementation	SP-SC	13	SS	4	46					
		SP-SC	14	SS	7	40					
35											

5 — 2236.5
9 — 2232.5
12 — 2229.5
14 — 2227.5
22 — 2219.5
30 — 2211.5

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	∇ 28	▼ 28
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-10-08		
BORING COMPLETED	12-10-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	37 — 2204.5		SP-SC	15	SS	6	37					
	GRAVELLY CLAYEY SAND WITH COBBLES; brown, medium to very dense, low plasticity fines, no to weak cementation		SC	16	SS	7	15					
		40	SC	17	SS	4	50/6"					
			SC	18	SS	4	80					
		45	SC	19	SS	3	88/11"					
	49 — 2192.5		SC	20	SS	0	50/6"					
	GRAVELLY COBBLEY LEAN CLAY brown, hard, medium plasticity fines, weak cementation	50	CL	21	SS	5	50/2"					
			CL	22	SS	0	50/1"					
		55	CL	23	SS	4	94/11"					
			CL	24	SS	3	65					
	61 — 2180.5	60	CL	25	SS	4	50/6"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 28	▼ 28
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-10-08		
BORING COMPLETED	12-10-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-O

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 06.53220" N 111° 01' 43.86553" W

Approx. Surface Elev.: 2243.96 ft

DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY SILT TRACE GRAVEL; very stiff, non-plastic fines, no cementation			ML	1	BS					NP	NP	50
			ML	2	RS	12	21	11	107			
		5	SC	3	RS	6	4					
			SC	4	RS	12	9	5	103			
		10	SM	5	RS	12	15					
			SM	6	RS	12	15	3	105			
		15	SM	7	RS	12	25					
			GP	8	RS	12	40					
		20	GP	9	RS	0	50/6"					
			GP	10	RS	0	35					
		25	GP	11	RS	0	50/2"					
			GP	12	RS	0	50/1"					
		30	GP	13	RS	0	50/3"					
			GP	14	SS	3	50/6"					
		35										

5 — 2239

CLAYEY SAND TRACE GRAVEL; very loose to loose, low plasticity fines, no cementation

10 — 2234

SILTY SAND WITH GRAVEL; loose to medium dense, non-plastic fines, no cementation

17 — 2227

SANDY GRAVEL WITH COBBLES TRACE SILT; medium to very dense, non-plastic fines, no cementation

34 — 2210

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 27	▼ 27
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-17-08		
BORING COMPLETED	12-17-08		
RIG	Diedrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. B-O

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, weak cementation		SP-SC	15	SS	2	50/6"					
			SP-SC	16	SS	3	50/6"					
	41 2203	40	SP-SC	17	SS	3	50/2"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	∇ 27	▼ 27
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-17-08		
BORING COMPLETED	12-17-08		
RIG	Diedrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. C-1

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 07.79603" N 111° 01' 44.04926" W

Approx. Surface Elev.: 2244.10 ft

DESCRIPTION	Depth	Elev.
SANDY LEAN CLAY TRACE GRAVEL; brown to light brown, stiff to hard, low plasticity fines, no cementation	6	2238
SILTY SAND TRACE GRAVEL; light brown, loose to medium dense, non-plastic fines, no cementation	14	2230
CLAYEY SAND TRACE GRAVEL; brown, medium dense, low plasticity fines, no cementation	17	2227
GRAVELLY SILTY SAND TRACE COBBLES; light brown, loose, non-plastic fines, no cementation	19	2225
GRAVELLY SAND WITH COBBLES TRACE SILT; light brown, medium dense, non-plastic fines, no cementation	27	2217
GRAVELLY SAND WITH COBBLES AND SILT; light brown, medium to very dense, non-plastic fines, no cementation	34	2210

Continued Next Page

DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CL	1	BS					26	8	64
	CL	2	RS	12	12	7	95			
5	CL	3	RS	0	50/3"					
	SM	4	RS	12	16					
10	SM	5	RS	0	50/6"					
	SM	6	RS	0	32					
15	SC	7	RS	12	29					
	SM	8	RS	12	14	31	89	20	3	13
20	SP	9	RS	12	39					
	SP	10	RS	0	50/6"					
25	SP	11	RS	12	27					
	SM	12	RS	6	50/6"					
30	SM	13	RS	4	50/6"					
	SM	14	SS	0	50/1"					
35										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 27	▼ 27
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-19-08		
BORING COMPLETED	12-19-08		
RIG	Diedrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. C-1

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, very dense, low plasticity fines, no to weak cementation		SC	15	SS	3	50/6"					
			SC	16	SS	0	73					
		40	SC	17	SS	0	50/6"					
	41 2203 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	∇ 27	▼ 27
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-19-08		
BORING COMPLETED	12-19-08		
RIG	Diedrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. C-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 08.62169" N 111° 01' 42.37943" W

Approx. Surface Elev.: 2243.95 ft

GRAPHIC LOG	DESCRIPTION	Elev.	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY SILT LEAN CLAY TRACE GRAVEL; brown, very stiff, low plasticity fines, no cementation			CL-ML	1	BS					25	6	50
				CL-ML	2	RS	12	26	2	105			
		5 / 2239	5										
	CLAYEY SAND TRACE GRAVEL; light brown, medium dense to dense, low plasticity fines, no cementation			SC	3	RS	12	67					
				SC	4	RS	12	41					
		9 / 2235											
	SILTY SAND WITH GRAVEL; light brown, medium dense, non-plastic fines, no cementation		10	SM	5	RS	12	32					
				SM	6	RS	0	49					
		14 / 2230											
	CLAYEY SILTY SAND TRACE GRAVEL AND COBBLES; light brown, medium dense to dense, low plasticity fines, no cementation		15	SC-SM	7	RS	0	85/11"			21	5	23
				SC-SM	8	RS	0	50/6"					
		21 / 2223	20	SC-SM	9	RS	0	50/6"					
	GRAVELLY SAND WITH COBBLES TRACE SILT; light brown, medium dense to dense, non-plastic fines, no cementation			SP	10	RS	0	50/3"					
			25	SP	11	RS	0	50/2"					
				SP	12	SS	0	11					
		32 / 2212	30	SP	13	SS	4	38					
	GRAVELLY SAND WITH COBBLES AND CLAY; light brown, dense to very dense, low plasticity fines, no cementation			SP-SC	14	SS	6	41					
			35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 27	▼ 27
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-17-08		
BORING COMPLETED	12-17-08		
RIG	Diedrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. C-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY SAND WITH COBBLES AND CLAY; light brown, dense to very dense, low plasticity fines, no cementation		SP-SC	15	SS	0	50/2"					
			SP-SC	16	SS	7	47					
		40	SP-SC	17	SS	5	35					
	41.5 2202.5 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 27	▼ 27
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-17-08		
BORING COMPLETED	12-17-08		
RIG	Diedrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. C-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 09.38189" N 111° 01' 40.95439" W

Approx. Surface Elev.: 2240.72 ft

DESCRIPTION	Depth	Elev.
SANDY SILT LEAN CLAY TRACE GRAVEL; light brown, very stiff, low plasticity fines, no cementation	7	2233.5
SILTY SAND TRACE GRAVEL & COBBLES; light brown, medium dense, non-plastic fines, no cementation	12	2228.5
GRAVELLY SAND TRACE SILT AND COBBLES; light brown, medium dense to dense, non-plastic fines, no cementation		
with cobbles	22	2218.5
SILTY SAND WITH GRAVEL AND COBBLES; light brown, medium dense, non-plastic fines, no cementation	24	2216.5
SANDY GRAVEL WITH COBBLES TRACE SILT; light brown, very dense, non-plastic fines, no cementation	32	2208.5
GRAVELLY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, no to weak cementation		

Continued Next Page

DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CL-ML	1	BS					26	6	64
	CL-ML	2	RS	12	23	8	85			
5	CL-ML	3	RS	12	20	8	87			
	SM	4	RS	12	30					
10	SM	5	RS	0	34			NP	NP	14
	SP	6	RS	12	36					
15	SP	7	RS	12	58					
	SP	8	RS	0	50/3"					
20	SP	9	RS	0	90/11"					
	SM	10	SS	0	25					
25	GP	11	SS	4	50/3"					
	GP	12	SS	0	50/6"					
30	GP	13	SS	2	50/3"					
	SP-SC	14	SS	3	58					
35										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-16-08		
BORING COMPLETED	12-16-08		
RIG	Diedrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. C-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, no to weak cementation		SP-SC	15	SS	0	50/6"					
			SP-SC	16	SS	0	50/6"					
		40	SP-SC	17	SS	0	50/4"					
	41 2199.5 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-16-08		
BORING COMPLETED	12-16-08		
RIG	Diedrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. D-2

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 09.33649" N 111° 01' 43.90533" W

Approx. Surface Elev.: 2240.59 ft

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY LEAN CLAY TRACE GRAVEL; brown, hard, low plasticity fines, no cementation		CL	1	BS					26	8	55
			CL	2	RS	12	78					
	GRAVELLY SAND TRACE SILT; brown, medium dense to dense, non-plastic fines, no cementation	5	SP	3	RS	12	22					
			SP	4	RS	12	29					
		10	SP	5	RS	12	34					
			SP	6	RS	12	29					
		15	SP	7	RS	12	67					
			SP	8	RS	12	42					
		20	SP	9	RS	12	39					
	SANDY GRAVEL TRACE SILT; brown, very dense, non-plastic fines, no cementation		GP	10	SS	0	60					
		25	GP	11	SS	4	50/6"					
			GP	12	SS	3	50/6"					
		30	GP	13	SS	2	50/5"					
	GRAVELLY SAND TRACE CLAY; brown, very dense, low plasticity fines, no cementation		SP-SC	14	SS	2	50/3"					
		35										

4 — 2236.5

22 — 2218.5

32 — 2208.5

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 27.5	▼ 27.5
WL	▽	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-15-08		
BORING COMPLETED	12-15-08		
RIG	Diedrich D-50	FOREMAN	JNH
Approved	OBL	JOB #	63085095

BOREHOLE 2000 63085095.GPJ TERR2000.GDT 2/18/09

LOG OF BORING NO. D-2

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	37 2203.5		SP-SC	15	SS	2	50/6"					
	CLAYEY SAND WITH GRAVEL; brown, dense to very dense, low plasticity fines, no cementation		SC	16	SS	12	65					
		40										
	41.5 2199		SC	17	SS	0	44					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	∇ 27.5	▼ 27.5
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-15-08		
BORING COMPLETED	12-15-08		
RIG	Diedrich D-50	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. E-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 10.73600" N 111° 01' 44.08431" W

Approx. Surface Elev.: 2238.87 ft

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SILTY SAND WITH GRAVEL; light brown, loose to medium dense, non to low plasticity fines, no cementation		SM	1	BS					21	3	40
			SM	2	RS	12	27	3	92			
		5	SM	3	RS	12	17	4	94			
			SM	4	RS	9	25					
		10	SM	5	RS	0	50/6"					
	GRAVELLY SAND WITH SILT AND COBBLES; light brown, loose to medium dense, non-plastic fines, no cementation		SP-SM	6	RS	12	15	2	103			
		15	SP-SM	7	RS	4	50/4"					
			SP-SM	8	RS	6	50/6"					
		20	SP-SM	9	RS	12	49					
			SP-SM	10	RS	0	50/1"					
	SANDY GRAVEL WITH COBBLES TRACE SILT; light brown, medium to very dense, non-plastic fines, no cementation	25	GP	11	RS	0	50/4"					
			GP	12	SS	0	50/1"					
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, medium to very dense, low plasticity fines, no to weak cementation	30	SP-SC	13	SS	6	28					
			SP-SC	14	SS	4	50/6"					
		35										

11 — 2228
24 — 2215
29 — 2210

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-16-08		
BORING COMPLETED	12-16-08		
RIG	Dietrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. E-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, medium to very dense, low plasticity fines, no to weak cementation		SP-SC	15	SS	0	50/1"					
			SP-SC	16	SS	0	50/5"					
		40	SP-SC	17	SS	4	50/6"					
	41 2198 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-16-08		
BORING COMPLETED	12-16-08		
RIG	Dietrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. E-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 11.63441" N 111° 01' 42.74715" W

Approx. Surface Elev.: 2239.69 ft

DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY LEAN CLAY TRACE GRAVEL; light brown, very stiff to hard, medium plasticity fines, no cementation		CL	1	BS					39	20	86
		CL	2	RS	12	22					
	5	CL	3	RS	12	17	8	106			
6 — 2233.5											
SILTY SAND WITH GRAVEL TRACE COBBLES; light brown, medium dense, non-plastic fines, no cementation		SM	4	RS	12	30					
	10	SM	5	RS	0	32					
12 — 2227.5											
SAND WITH GRAVEL TRACE SILT AND COBBLES; light brown, medium dense to dense, non-plastic fines, no cementation		SP	6	RS	0	50/5"					
with cobbles	15	SP	7	RS	12	41					
		SP	8	RS	6	50/3"					
	20	SP	9	RS	0	81					
22 — 2217.5											
SANDY GRAVEL WITH COBBLES TRACE SILT; light brown, medium to very dense, non-plastic fines, no cementation		GP	10	RS	0	50/2"					
	25	GP	11	SS	3	50/3"					
		GP	12	SS	4	25					
	30	GP	13	SS	0	50/3"					
32 — 2207.5											
GRAVELLY SAND WITH COBBLES AND CLAY; light brown, very dense, low plasticity fines, no cementation		SP-SC	14	SS	0	60					
	35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽	▼
WL	▼	▼
WL		

Terracon

BORING STARTED	12-16-08		
BORING COMPLETED	12-16-08		
RIG	Dietrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. E-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY SAND WITH COBBLES AND CLAY; light brown, very dense, low plasticity fines, no cementation		SP-SC	15	SS	0	50/6"					
			SP-SC	16	SS	4	57					
	41 2198.5	40	SP-SC	17	SS	0	50/6"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽	▼
WL	▼	▼
WL		

Terracon

BORING STARTED	12-16-08		
BORING COMPLETED	12-16-08		
RIG	Dietrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. F-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 12.36183" N 111° 01' 44.17118" W

Approx. Surface Elev.: 2238.52 ft

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CLAYEY SILTY SAND TRACE GRAVEL; brown to light brown, medium dense, low plasticity fines, no cementation	5 / 2233.5		SC-SM	1	BS					21	6	39
				SC-SM	2	RS	12	21					
	SILTY SAND TRACE GRAVEL; light brown, loose to medium dense, non-plastic fines, no cementation	9 / 2229.5	5	SM	3	RS	12	17	4	105			
				SM	4	RS	12	21					
	GRAVELLY SAND TRACE SILT AND COBBLES; light brown, medium dense, non-plastic fines, no cementation	17 / 2221.5	10	SP	5	RS	12	21	3	112			
				SP	6	RS	0	32			NP	NP	10
			15	SP	7	RS	12	43					
	SANDY GRAVEL WITH COBBLES TRACE SILT; light brown, medium to very dense, non-plastic fines, no cementation	27 / 2211.5 ▼		GP	8	RS	0	50/2"					
			20	GP	9	RS	0	50/1"					
				GP	10	SS	0	50/6"					
			25	GP	11	SS	0	27					
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, no cementation	34 / 2204.5		SP-SC	12	SS	4	50/6"					
			30	SP-SC	13	SS	4	50/4"					
				SP-SC	14	SS	0	49					
			35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽ 27	▼ 27
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-19-08		
BORING COMPLETED	12-19-08		
RIG	Dietrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. F-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, very dense, low plasticity fines, no to weak cementation		SC	15	SS	2	50/6"					
			SC	16	SS	0	50/1"					
	41 2197.5	40	SC	17	SS	0	50/3"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	∇ 27	▼ 27
WL	▼	▼
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-19-08		
BORING COMPLETED	12-19-08		
RIG	Dietrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. F-6

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 13.31339" N 111° 01' 42.30842" W

Approx. Surface Elev.: 2239.34 ft

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY LEAN CLAY TRACE GRAVEL; light brown, stiff, medium plasticity fines, no cementation	5 / 2234.5		CL	1	BS					40	18	76
				CL	2	RS	12	18					
	SILTY SAND TRACE GRAVEL; light brown, medium dense, non-plastic fines, no cementation	9 / 2230.5	5	SM	3	RS	12	19					
				SM	4	RS	12	25					
	GRAVELLY SILTY SAND; light brown, dense to loose, non-plastic fines, no cementation	19 / 2220.5	10	SM	5	RS	12	12					
				SM	6	RS	12	22					
			15	SM	7	RS	1	69/8"					
				SM	8	RS	12	19	2	104	NP	NP	12
	GRAVELLY SAND WITH COBBLES TRACE SILT; light brown, medium to very dense, non-plastic fines, no cementation	29 / 2210.5	20	SP	9	RS	12	39					
				SP	10	RS	0	50/6"					
			25	SP	11	RS	0	50/2"					
				SP	12	SS	0	50/4"					
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, no to weak cementation		30	SP-SC	13	SS	2	50/6"					
				SP-SC	14	SS	1	50/4"					
			35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽	▼
WL	▼	▼
WL		

Terracon

BORING STARTED	12-19-08		
BORING COMPLETED	12-19-08		
RIG	Dietrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. F-6

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, no to weak cementation		SP-SC	15	SS	2	50/6"					
			SP-SC	16	SS	3	77					
	41 2198.5	40	SP-SC	17	SS	3	50/6"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	▽	▼
WL	▼	▼
WL		

Terracon

BORING STARTED	12-19-08		
BORING COMPLETED	12-19-08		
RIG	Dietrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. G-1

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 12.37621" N 111° 01' 47.27503" W

Approx. Surface Elev.: 2242.79 ft

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CLAYEY SILTY SAND TRACE GRAVEL; light brown, loose to medium dense, low plasticity fines, no cementation		SC-SM	1	BS					24	4	42
			SC-SM	2	RS	12	44					
		5	SC-SM	3	RS	12	16	6	91			
7	2236											
	GRAVELLY SILTY SAND; light brown, loose to medium dense, non-plastic fines, no cementation		SM	4	RS	8	23			NP	NP	18
		10	SM	5	RS	12	9	2	96			
			SM	6	RS	12	21					
14	2229											
	GRAVELLY SAND WITH SILT TRACE COBBLES; light brown, loose to medium dense, non-plastic fines, no cementation	15	SP-SM	7	RS	12	25					
			SP-SM	8	RS	0	50/4"					
		20	SP-SM	9	RS	12	16					
			SP-SM	10	RS	12	11	3	105			
24	2219											
	GRAVELLY SAND WITH COBBLES TRACE SILT; light brown, medium dense to dense, non-plastic fines, no cementation	25	SP	11	RS	12	42					
			SP	12	RS	10	81/10"					
31	2212	30	SP	13	RS	0	50/3"					
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, no to weak cementation		SP-SC	14	SS	4	50/3"					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-15-08		
BORING COMPLETED	12-15-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. G-1

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, no to weak cementation			SP-SC	15	SS	6	58					
				SP-SC	16	SS	0	50/3"					
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, very dense, medium plasticity fines, weak cementation		40	SC	17	SS	5	73					
	Bottom of Boring	39 / 41.5 / 2204 / 2201.5											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-15-08		
BORING COMPLETED	12-15-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. G-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 12.98441" N 111° 01' 45.82644" W

Approx. Surface Elev.: 2245.24 ft

DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
POSSIBLE FILL: SILTY SAND TRACE GRAVEL; light brown, medium dense, low plasticity fines, no cementation	5 / 2240		SM	1	BS					21	3	41
			SM	2	RS	12	43					
CLAYEY SAND TRACE GRAVEL; light brown, loose to medium dense, medium plasticity fines, no cementation	10 / 2235	5	SC	3	RS	12	21					
			SC	4	RS	12	11	11	93			
SILTY SAND WITH GRAVEL; light brown, loose to medium dense, non-plastic fines, no cementation	14 / 2231	10	SM	5	RS	12	11					
			SM	6	RS	12	24			NP	NP	23
GRAVELLY SAND WITH SILT AND COBBLES; light brown, medium dense to dense, non-plastic fines, no cementation	22 / 2223	15	SP-SM	7	RS	12	26					
			SP-SM	8	RS	12	21	5	103			
		20	SP-SM	9	RS	0	73					
GRAVELLY SAND WITH COBBLES TRACE SILT; light brown, medium to very dense, non-plastic fines, no cementation	29 / 2216		SP	10	RS	12	34					
		25	SP	11	RS	0	50/4"					
			SP	12	SS	3	50/4"					
GRAVELLY CLAYEY SAND WITH COBBLES; light brown, dense to very dense, low plasticity fines, no to weak cementation		30	SC	13	SS	6	47					
			SC	14	SS	6	70					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-15-08		
BORING COMPLETED	12-15-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. G-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	37 2208		SC	15	SS	4	95/10"					
	GRAVELLY SANDY LEAN CLAY WITH COBBLES; light brown, hard, medium plasticity fines, weak cementation		CL	16	SS	5	52					
		40	CL	17	SS	6	34					
	41.5 2203.5											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-15-08		
BORING COMPLETED	12-15-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. G-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 13.81745" N 111° 01' 44.39895" W

Approx. Surface Elev.: 2241.07 ft

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY LEAN CLAY TRACE GRAVEL; brown, hard, medium plasticity fines, no cementation		CL	1	BS					27	10	57
			CL	2	RS	12	34	8	109			
		5	CL	3	RS	12	31					
	6 — 2235											
	SILTY SAND TRACE GRAVEL; light brown, loose to medium dense, non-plastic fines, no cementation		SM	4	RS	12	16					
	with gravel	10	SM	5	RS	12	33					
			SM	6	RS	12	32					
	14 — 2227											
	GRAVELLY SILTY SAND; light brown, medium dense, non-plastic fines, no cementation	15	SM	7	RS	12	36			NP	NP	19
			SM	8	RS	12	27					
	21 — 2220	20	SM	9	RS	12	43					
	GRAVELLY SAND TRACE SILT WITH COBBLES; light brown, dense, non-plastic fines, no cementation		SP	10	RS	12	73					
		25	SP	11	RS	0	64/9"					
	29 — 2212		SP	12	RS	0	66					
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, medium dense to dense, low plasticity fines, no cementation	30	SP-SC	13	RS	9	78/10"					
	34 — 2207		SP-SC	14	RS	0	50/2"					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-15-08		
BORING COMPLETED	12-15-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. G-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, very dense, low plasticity fines, no to weak cementation		SC	15	SS	7	86					
			SC	16	SS	6	50/4"					
		40	SC	17	SS	7	67					
	41.5 2199.5 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-15-08		
BORING COMPLETED	12-15-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. G-7

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 14.67714" N 111° 01' 42.58640" W

Approx. Surface Elev.: 2240.58 ft

DESCRIPTION	Depth	Elev.
SANDY LEAN CLAY TRACE GRAVEL; dark brown, low plasticity fines, no cementation	4	2236.5
CLAYEY SILTY SAND, brown, low plasticity fines, no cementation	7	2233.5
SAND WITH GRAVEL TRACE SILT, brown, non-plastic fines, no cementation	11	2229.5
GRAVELLY SILTY SAND, brown, non-plastic fines, no cementation	19	2221.5
SANDY GRAVEL TRACE SILT, brown, non-plastic fines, no cementation	32	2208.5
GRAVELLY SAND WITH COBBLES TRACE SILT; brown, non-plastic fines, no cementation		

Continued Next Page

DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	CL	1	BS					24	9	49
	CL	2	RS	12	35					
5	SC-SM	3	RS	12	14					
	SP	4	RS	12	14					
10	SP	5	RS	12	17					
	SM	6	RS	0	30			NP	NP	13
15	SM	7	RS	12	46					
	SM	8	RS	12	18	3	96			
20	GP	9	RS	0	50/6"					
	GP	10	SS	0	50/1"					
25	GP	11	SS	1	50/6"					
	GP	12	SS	1	50/1"					
30	GP	13	SS	4	50/6"					
	SP	14	SS	0	50/1"					
35										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-15-08		
BORING COMPLETED	12-15-08		
RIG	Dietrich D-50	FOREMAN	JNH
Approved	OBL	JOB #	63085095

BOREHOLE 2000 63085095.GPJ TERR2000.GDT 2/18/09

LOG OF BORING NO. G-7

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY SAND WITH COBBLES TRACE SILT; brown, non-plastic fines, no cementation			SP	15	SS	0	50/5"					
				SP	16	SS	0	50/6"					
			40	SP-SC	17	SS	6	50/5"					
				SP-SC	18	SS	4	68					
			45	SP-SC	19	SS	5	50/6"					
				SP-SC	20	SS	0	47					
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, low plasticity fines, no cementation	41 2199.5	50	SC	21	SS	3	50/6"					
				SC	22	SS	0	50/1"					
			55	SC	23	SS	4	50/3"					
				SC	24	SS	4	59					
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, low plasticity fines, no cementation	49 2191.5	60	SC	25	SS	6	50/6"					
	Bottom of Boring	61 2179.5											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-15-08		
BORING COMPLETED	12-15-08		
RIG	Dietrich D-50	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. H-2

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 13.87825" N 111° 01' 47.39709" W

Approx. Surface Elev.: 2247.61 ft

DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SILTY SAND WITH GRAVEL; light brown, medium dense, low plasticity fines, no cementation		SM	1	BS					NP	NP	18
		SM	2	RS	12	26					
	5	SM	3	RS	12	24					
		SM	4	RS	12	31					
9 — 2238.5											
SANDY LEAN CLAY TRACE GRAVEL; brown, hard to stiff, medium plasticity fines, no cementation	10	CL	5	RS	12	58					
		CL	6	RS	12	14					
15 — 2232.5											
SILTY SAND WITH GRAVEL TRACE COBBLES; light brown, loose to medium dense, non-plastic fines, no cementation	15	SM	7	RS	12	23					
17 — 2230.5											
GRAVELLY SILTY CLAYEY SAND WITH COBBLES; light brown, medium dense, low plasticity fines, no cementation with cobbles		SC-SM	8	RS	12	18			19	4	17
	20	SC-SM	9	RS	12	23	2	109			
		SC-SM	10	RS	0	50/6"					
	25	SC-SM	11	RS	0	32					
27 — 2220.5											
GRAVELLY SAND WITH COBBLES TRACE SILT; light brown, medium to very dense, non-plastic fines, no cementation		SP	12	RS	10	71					
	30	SP	13	RS	0	50/2"					
		SP	14	SS	0	50/5"					
	35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-16-08		
BORING COMPLETED	12-16-08		
RIG	Dietrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. H-2

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	37 — 2210.5		SP	15	SS	4	53					
	GRAVELLY CLAYEY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, no cementation		SP-SC	16	SS	3	50/4"					
		40	SP-SC	17	SS	6	50/4"					
			SP-SC	18	SS	0	50/4"					
		45	SP-SC	19	SS	5	73					
			SP-SC	20	SS	0	50/1"					
		50	SP-SC	21	SS	4	50/6"					
	54 — 2193.5		SP-SC	22	SS	3	50/5"					
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown to brown, very dense, low plasticity fines, weak cementation	55	SC	23	SS	6	50/6"					
			SC	24	SS	5	50/5"					
	61 — 2186.5	60	SC	25	SS	6	50/3"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-16-08		
BORING COMPLETED	12-16-08		
RIG	Dietrich D-50	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. H-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 14.55498" N 111° 01' 45.86585" W

Approx. Surface Elev.: 2239.74 ft

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY SILTY LEAN CLAY TRACE GRAVEL; light brown, very stiff, medium plasticity fines, no cementation			CL-ML	1	BS					27	7	63
				CL-ML	2	RS	12	16					
5		2234.5	5										
	CLAYEY SAND TRACE GRAVEL; light brown, loose to dense, medium plasticity fines, no cementation			SC	3	RS	12	19					
				SC	4	RS	12	11	2	99	26	10	26
			10	SC	5	RS	0	50/4"					
14		2225.5		SC	6	RS	0	23					
	SILTY CLAYEY SAND WITH GRAVEL; light brown, medium dense, low plasticity fines, no cementation		15	SC-SM	7	RS	7	21	7	105			
17		2222.5											
	GRAVELLY SAND TRACE SILT; light brown, medium dense to dense, low plasticity fines, no cementation			SP	8	RS	12	67					
			20	SP	9	RS	7	65			20	3	5
				SP	10	RS	0	50/3"					
24		2215.5											
	GRAVELLY SAND TRACE SILT AND COBBLES; light brown, medium dense to dense, non-plastic fines, no cementation		25	SP	11	RS	8	74/8"					
				SP	12	RS	0	50/3"					
29		2210.5											
31	**GRAVELLY SAND WITH CLAY AND COBBLES**; light brown, very dense, low plasticity fines, no cementation	2208.5	30	SM	13	SS	6	80/11"					
34	**GRAVELLY SILTY SAND WITH COBBLES**; light brown, very dense, non-plastic fines, no cementation	2205.5		SM	14	SS	4	50/4"					
			35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-12-08		
BORING COMPLETED	12-12-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. H-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, very dense, low plasticity fines, weak cementation		SC	15	SS	0	50/3"					
			SC	16	SS	0	50/6"					
		40	SC	17	SS	7	70					
	41.5 2198											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-12-08		
BORING COMPLETED	12-12-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. I-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 15.30123" N 111° 01' 47.53790" W

Approx. Surface Elev.: 2239.77 ft

DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SILTY SAND; brown, loose, non-plastic fines, no cementation			SM	1	BS					NP	NP	31
			SM	2	RS	12	11	16	103			
5	2235	5										
SILTY SAND TRACE GRAVEL; brown to light brown, loose to medium dense, non-plastic fines, no cementation			SM	3	RS	12	8					
			SM	4	RS	12	21					
9	2231	10										
GRAVELLY SAND WITH SILT; light brown, loose to medium dense, non-plastic fines, no cementation			SP-SM	5	RS	12	12					
			SP-SM	6	RS	12	16	7	104			
		15	SP-SM	7	RS	12	14			NP	NP	11
			SP-SM	8	RS	12	25					
19	2221	20										
GRAVELLY SAND TRACE SILT AND COBBLES; light brown, medium dense to dense, non-plastic fines, no cementation			SP	9	RS	12	22	4	104			
			SP	10	RS	0	28					
		25	SP	11	RS	12	30					
			SP	12	RS	8	71/10"					
31	2209	30	SP	13	RS	0	50/3"					
GRAVELLY CLAYEY SAND WITH COBBLES; light brown, dense to very dense, low plasticity fines, no to weak cementation			SC	14	SS	7	63					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-12-08		
BORING COMPLETED	12-12-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. I-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, dense to very dense, low plasticity fines, no to weak cementation		SC	15	SS	0	50/5"					
			SC	16	SS	7	37					
		40	SC	17	SS	7	79/11"					
	41.5 2198.5 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-12-08		
BORING COMPLETED	12-12-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. I-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 16.03085" N 111° 01' 46.00385" W

Approx. Surface Elev.: 2238.35 ft

DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY SILT; light brown, stiff, non-plastic fines, no cementation			ML	1	BS					20	2	58
			ML	2	RS	12	15	6	100			
	5 / 2233.5	5										
SANDY SILT LEAN CLAY; light brown, stiff to hard, low plasticity fines, no cementation			CL-ML	3	RS	12	14					
			CL-ML	4	RS	12	47			22	5	67
	10 / 2228.5	10										
SILTY SAND TRACE GRAVEL; light brown, medium dense, non-plastic fines, no cementation	12 / 2226.5		SM	5	RS	12	25					
GRAVELLY CLAYEY SILTY SAND; light brown, dense to very dense, low plasticity fines, no cementation			SC-SM	6	RS	12	20	2	106			
		15	SC-SM	7	RS	12	26					
with cobbles			SC-SM	8	RS	0	74/10"			20	5	13
		20	SC-SM	9	RS	12	49					
			SC-SM	10	RS	0	21					
		25	SC-SM	11	RS	0	50/2"					
	29 / 2209.5		SC-SM	12	SS	0	50/3"					
GRAVELLY SAND WITH COBBLES TRACE SILT; light brown, very dense, non-plastic fines, no cementation		30	SP	13	SS	3	50/5"					
	33 / 2205.5		SC	14	SS	0	50/1"					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-12-08		
BORING COMPLETED	12-12-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. I-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, very dense, low plasticity fines, no to weak cementation		SC	15	SS	1	55/5"					
			SC	16	SS	7	80					
		40	SC	17	SS	7	88					
	41.5 2197											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-12-08		
BORING COMPLETED	12-12-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. J-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 16.66185" N 111° 01' 47.50881" W

Approx. Surface Elev.: 2238.15 ft

DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY SILT TRACE GRAVEL; light brown, very stiff, non-plastic fines, no cementation			ML	1	BS					23	1	57
			ML	2	RS	12	18	14	102			
5	2233	5										
SILTY SAND TRACE GRAVEL; light brown, loose, non-plastic fines, no cementation			SM	3	RS	12	15					
7	2231											
SILTY SAND WITH GRAVEL; light brown, medium dense to dense, non-plastic fines, no cementation			SM	4	RS	12	71					
		10	SM	5	RS	12	38					
			SM	6	RS	12	25			NP	NP	13
14	2224											
GRAVELLY SAND WITH SILT TRACE COBBLES; light brown, loose to medium dense, non-plastic fines, no cementation		15	SP-SM	7	RS	12	20	2				
			SP-SM	8	RS	12	42					
		20	SP-SM	9	RS	12	16					
			SP-SM	10	RS	12	35			NP	NP	7
		25	SP-SM	11	RS	6	50/6"					
			SP-SM	12	RS	0	50/2"					
29	2209											
GRAVELLY CLAYEY SAND WITH COBBLES; brown, very dense, medium plasticity fines, no to weak cementation		30	SC	13	SS	6	50/4"					
			SC	14	SS	5	96/10"					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-11-08		
BORING COMPLETED	12-11-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. J-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	37 2201		SC	15	SS	7	68					
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, dense to very dense, low plasticity fines, no cementation		SP-SC	16	SS	7	47					
		40	SP-SC	17	SS	6	58					
	41.5 2196.5											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-11-08		
BORING COMPLETED	12-11-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. J-6

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 17.67985" N 111° 01' 45.96293" W

Approx. Surface Elev.: 2238.30 ft

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY SILT LEAN CLAY TRACE GRAVEL; brown, stiff, low plasticity fines, no cementation		CL-ML	1	BS					22	4	52
			CL-ML	2	RS	12	20					
		5	CL-ML	3	RS	12	17					
	7 / 2231.5											
	GRAVELLY SILTY SAND; light brown, loose to dense, non-plastic fines, no cementation		SM	4	RS	12	10	3	97			
		10	SM	5	RS	12	66			22	2	19
	14 / 2224.5		SM	6	RS	0	53					
	GRAVELLY SAND WITH COBBLES & SILT; light brown, loose to dense, non-plastic fines, no cementation	15	SP-SM	7	RS	12	18					
			SP-SM	8	RS	12	32			NP	NP	11
		20	SP-SM	9	RS	12	60					
			SP-SM	10	RS	0	50/5"					
		25	SP-SM	11	RS	0	61					
	27 / 2211.5											
	GRAVELLY SAND WITH COBBLES AND CLAY; light brown, dense to very dense, non to low plasticity fines, no cementation		SP-SC	12	RS	9	50/3"					
		30	SP-SC	13	RS	0	50/2"					
	34 / 2204.5		SP-SC	14	SS	0	50/2"					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-11-08		
BORING COMPLETED	12-11-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. J-6

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY CLAYEY SAND WITH CLAY; light brown, very dense, low plasticity fines, no cementation		SC	15	SS	0	50/6"					
			SC	16	SS	0	50/1"					
	41 2197.5	40	SC	17	SS	0	50/4"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-11-08		
BORING COMPLETED	12-11-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. K-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 17.38897" N 111° 01' 49.31120" W

Approx. Surface Elev.: 2238.23 ft

DESCRIPTION	Elev.	DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY LEAN CLAY TRACE GRAVEL; light brown, stiff, low plasticity fines, no cementation			CL	1	BS					24	8	57
			CL	2	RS	12	13	13	76			
5	2233	5										
GRAVELLY SILTY SAND; light brown, medium dense, non-plastic fines, no cementation			SM	3	RS	12	33					
			SM	4	RS	12	23					
		10	SM	5	RS	12	39					
14	2224		SM	6	RS	12	22			NP	NP	12
GRAVELLY SAND TRACE SILT; light brown, loose to medium dense, non-plastic fines, no cementation		15	SP	7	RS	12	37					
			SP	8	RS	12	39					
		20	SP	9	RS	12	16					
24	2214		SP	10	RS	0	39			NP	NP	6
GRAVELLY SAND WITH CLAY AND COBBLES; light brown, medium dense to dense, low plasticity fines, no cementation		25	SP-SC	11	RS	10	60/11"					
			SP-SC	12	RS	10	67					
		30	SP-SC	13	RS	12	42					
32	2206											
			SC	14	RS	12	74					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-9-08		
BORING COMPLETED	12-9-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. K-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, dense to very dense, low plasticity fines, no to weak cementation		SC	15	RS	12	89/9"					
			SC	16	SS	7	62					
		40	SC	17	SS	7	48					
	41.5 2196.5 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-9-08		
BORING COMPLETED	12-9-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. K-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 18.30970" N 111° 01' 47.64147" W

Approx. Surface Elev.: 2238.23 ft

DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY SILT; light brown, very stiff, low plasticity fines, no cementation		ML	1	BS					22	3	65
		ML	2	RS	12	15					
5 — 2233	5										
SILTY SAND TRACE GRAVEL; light brown, loose, non-plastic fines, no cementation		SM	3	RS	12	18					
7 — 2231											
GRAVELLY SANDY SILT CLAY; light brown, loose to medium dense, low plasticity fines, no cementation		SC-SM	4	RS	12	33					
	10	SC-SM	5	RS	12	27					
		SC-SM	6	RS	12	26			22	4	13
trace cobbles	15	SC-SM	7	RS	12	16					
		SC-SM	8	RS	12	41					
	20	SC-SM	9	RS	12	52					
22 — 2216											
SANDY GRAVEL WITH COBBLES AND SILT; light brown, medium dense to dense, non-plastic fines, no cementation		GP-GM	10	RS	12	20			NP	NP	8
	25	GP-GM	11	RS	0	90					
		GP-GM	12	RS	12	79					
	30	GP-GM	13	RS	0	50/2"					
32 — 2206											
GRAVELLY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, no cementation		SP-SC	14	SS	0	50/4"					
	35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-10-08		
BORING COMPLETED	12-10-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. K-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY SAND WITH CLAY AND COBBLES; light brown, very dense, low plasticity fines, no cementation		SP-SC	15	SS	7	89					
			SP-SC	16	SS	7	59					
		40	SP-SC	17	SS	0	50/5"					
	42 2196											
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, very dense, low plasticity fines, no to weak cementation		SC	18	SS	6	89					
		45	SC	19	SS	6	81					
			SC	20	SS	7	74					
		50	SC	21	SS	7	85					
	54 2184		SC	22	SS	7	65					
	COBBLEY GRAVELLY CLAYEY SAND, light brown, very dense, non-plastic fines, weak cementation	55	SC	23	SS	7	44					
			SC	24	SS	6	82					
	61 2177	60		25	SS	4	50/6"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-10-08		
BORING COMPLETED	12-10-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. L-2

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 17.98314" N 111° 01' 51.01858" W

Approx. Surface Elev.: 2237.84 ft

GRAPHIC LOG	DESCRIPTION		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY LEAN CLAY; light brown, hard, medium plasticity fines, no cementation	4 / 2234		CL	1	BS					31	12	59
				CL	2	RS	12	21	10	79			
	CLAYEY SAND WITH GRAVEL; brown, medium dense, low plasticity fines, no cementation	7 / 2231	5	SC	3	RS	12	24					
	SILTY SAND WITH GRAVEL; brown, medium dense, low plasticity fines, no cementation	12 / 2226		SM	4	RS	12	32					
			10	SM	5	RS	12	32			NP	NP	31
	GRAVELLY CLAYEY SAND; brown, loose, non-plastic fines, weak cementation	15 / 2223		SC	6	RS	12	14					
	SANDY GRAVEL TRACE SILT; brown, medium to very dense, non-plastic fines, no to weak cementation		15	GP	7	RS	12	34					
				GP	8	RS	12	34					
			20	GP	9	RS	12	76/12"					
				GP	10	SS	12	73					
			25	GP	11	SS	10	50/7"			NP	NP	6
				GP	12	SS	12	70					
			30	GP	13	SS	0	50					
		32 / 2206											
	GRAVELLY CLAYEY SAND; brown, very dense, low plasticity fines, weak cementation	35 / 2203		SC	14	SS	5	50/5"					
			35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-8-08		
BORING COMPLETED	12-8-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. L-2

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
37	**SANDY GRAVEL WITH CLAY**, brown, very dense, low plasticity fines, weak cementation 2201		GP-GC	15	SS	2	50/2"					
	GRAVELLY CLAYEY SAND, brown, very dense, low plasticity fines, weak cementation		SC	16	SS	18	52					
		40	SC	17	SS	18	52					
41.5	2196.5											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-8-08		
BORING COMPLETED	12-8-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. L-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 18.89405" N 111° 01' 49.47011" W

Approx. Surface Elev.: 2238.49 ft

DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SILTY SAND TRACE GRAVEL; brown, loose to very loose, low plasticity fines, no cementation		SM	1	BS					25	3	28
		SM	2	RS	0	4					
	5	SM	3	RS	12	10					
7 — 2231.5											
GRAVELLY SILTY SAND; brown, loose to very loose, non-plastic fines, no cementation		SM	4	RS	12	6			23	3	19
	10	SM	5	RS	12	15					
		SM	6	RS	12	6	4	86			
15 — 2223.5											
GRAVELLY CLAYEY SILTY SAND; light brown, loose to medium dense, low plasticity fines, no cementation	15	SC-SM	7	RS	12	17					
		SC-SM	8	RS	12	15			26	6	17
	20	SC-SM	9	RS	12	13					
		SC-SM	10	RS	12	13					
	25	SC-SM	11	RS	0	34					
27 — 2211.5											
GRAVELLY CLAYEY SAND TRACE COBBLES; light brown, medium dense to dense, low plasticity fines, no cementation		SC	12	RS	0	43					
	30	SC	13	RS	6	70/8"					
		SC	14	RS	12	81					
35 — 2203.5	35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-9-08		
BORING COMPLETED	12-9-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. L-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY SANDY LEAN CLAY TRACE COBBLES; light brown, hard, medium plasticity fines, no to weak cementation		CL	15	SS	0	50/3"					
			CL	16	SS	7	50					
		40	CL	17	SS	6	73					
	41.5 2197											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-9-08		
BORING COMPLETED	12-9-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. M-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 19.54483" N 111° 01' 51.03700" W

Approx. Surface Elev.: 2237.81 ft

DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY SILT TRACE GRAVEL; light brown, hard, low plasticity fines, no cementation		ML	1	BS					21	3	51
		ML	2	RS	0	47					
	5	ML	3	RS	12	45					
7 / 2231											
GRAVELLY SAND WITH SILT; light brown, loose to medium dense, non-plastic fines, no cementation		SP-SM	4	RS	12	17	5	95			
	10	SP-SM	5	RS	12	40					
		SP-SM	6	RS	12	23					
trace cobbles	15	SP-SM	7	RS	12	24			NP	NP	10
19 / 2219		SP-SM	8	RS	12	25					
GRAVELLY SAND TRACE SILT AND COBBLES; light brown, medium to very dense, non-plastic fines, no cementation	20	SP	9	RS	12	23					
		SP	10	RS	0	50/4"					
	25	SP	11	RS	0	50/3"					
29 / 2209		SP	12	SS	3	74/10"					
GRAVELLY CLAYEY SAND TRACE COBBLES; light brown, very dense, low plasticity fines, no cementation	30	SC	13	SS	4	96/10"					
34 / 2204		SC	14	SS	5	50/4"					
	35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-9-08		
BORING COMPLETED	12-9-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. M-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY SANDY LEAN CLAY TRACE COBBLES; light brown, hard, medium plasticity fines, no cementation		CL	15	SS	6	80					
			CL	16	SS	5	70					
		40	CL	17	SS	5	68/11"					
	41.5 2196.5											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-9-08		
BORING COMPLETED	12-9-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. M-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 20.31973" N 111° 01' 49.67528" W

Approx. Surface Elev.: 2237.82 ft

DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
SANDY SILT LEAN CLAY; light brown, stiff to very hard, low plasticity fines, no cementation		CL-ML	1	BS					25	5	50
		CL-ML	2	RS	12	21					
	5	CL-ML	3	RS	0	11					
7 / 2231											
GRAVELLY SILTY SAND TRACE COBBLES; light brown, loose to medium dense, non-plastic fines, no cementation		SM	4	RS	12	17					
	10	SM	5	RS	0	16					
14 / 2224		SM	6	RS	12	37					
CLAYEY SAND TRACE GRAVEL; light brown, loose to medium dense, low plasticity fines, no cementation	15	SC	7	RS	12	9	3	103			
19 / 2219		SC	8	RS	12	27					
GRAVELLY SILTY SAND WITH COBBLES; light brown, medium dense to dense, non-plastic fines, no cementation	20	SM	9	RS	12	40					
		SM	10	RS	0	63					
	25	SM	11	RS	12	39					
		SM	12	RS	12	48					
	30	SM	13	RS	6	50/6"					
34 / 2204		SM	14	RS	6	50/6"					
	35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-5-08		
BORING COMPLETED	12-5-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. M-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	GRAVELLY CLAYEY SAND WITH COBBLES; light brown, medium dense to dense, low plasticity fines, no cementation		SC	15	RS	12	90					
			SC	16	RS	6	50/6"					
	41 2197	40	SC	17	RS	0	79/9"					
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-5-08		
BORING COMPLETED	12-5-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. N-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 20.97497" N 111° 01' 51.34078" W

Approx. Surface Elev.: 2236.05 ft

DESCRIPTION	Depth	Elev.
SILTY SAND WITH GRAVEL; brown, non-plastic fines, no cementation	4	2232
SANDY LEAN CLAY TRACE GRAVEL; brown, low to medium plasticity fines, no cementation	7	2229
SAND WITH GRAVEL TRACE SILT; brown, non-plastic fines, no cementation	10	2226
GRAVELLY SAND WITH SILT; brown, non-plastic fines, no cementation	12	2224
SAND WITH GRAVEL TRACE SILT; brown, non-plastic fines, no cementation	15	2221
SANDY GRAVEL WITH SILT; brown, non-plastic fines, no cementation	32	2204
GRAVELLY CLAYEY SAND; brown, low to medium plasticity fines, no to weak cementation		

Continued Next Page

DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SM	1	BS					NP	NP	25
	SM	2	RS	12	27					
5	CL	3	RS	12	10					
	SP	4	RS	12	11					
10	SM	5	RS	12	17					
	SP	6	RS	12	16					
15	GP	7	RS	12	20	10	104			
	GP	8	RS	12	30					
20	GP	9	RS	12	25					
	GP	10	RS	12	61					
25	GP	11	RS	0	50/3"					
	GP	12	SS	0	50/5"					
30	GP	13	SS	18	13			NP	NP	7
	SC	14	RS	12	75/12					
35										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-8-08		
BORING COMPLETED	12-8-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. N-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY CLAYEY SAND, brown, low to medium plasticity fines, no to weak cementation		SC	15	SS	18	38					
			SC	16	SS	18	65					
		40	SC	17	SS	18	54					
	41.5 2194.5 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-8-08		
BORING COMPLETED	12-8-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. O-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 21.62376" N 111° 01' 52.93720" W

Approx. Surface Elev.: 2235.84 ft

DEPTH, ft.	DESCRIPTION	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
2	**CLAYEY SILTY SAND WITH GRAVEL**, brown, low plasticity fines, no cementation (2234)	SP	1	BS					27	6	34
	SAND WITH GRAVEL TRACE SILT, brown, non-plastic fines, no cementation	SP	2	RS	12	17	4	108			
5		SP	3	RS	12	15					
7	(2229)										
	GRAVELLY SILTY SAND, brown, non-plastic fines, no to weak cementation	SM	4	RS	12	44					
10		SM	5	RS	12	21	3	107			
	trace gravel	SM	6	RS	12	25					
15	trace gravel	SM	7	RS	12	25					
	trace gravel	SM	8	RS	0	34					
20		SM	9	RS	12	57			NP	NP	13
		SM	10	RS	12	75/12"					
25		SM	11	SS	12	51					
27	(2209)										
	GRAVELLY SAND WITH CLAY, brown, low plasticity fines, weak cementation	SP-SC	12	SS	14	56					
30	(2206)										
30	**GRAVELLY CLAYEY SAND**, brown, low plasticity fines, weak cementation	SC	13	SS	18	80/10"					
		SC	14	SS	18	71					
35											

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-8-08		
BORING COMPLETED	12-8-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

BOREHOLE 2000 63085095.GPJ TERR2000.GDT 2/18/09

LOG OF BORING NO. O-3

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	GRAVELLY CLAYEY SAND, brown, low plasticity fines, weak cementation		SC	15	SS	18	61					
			SC	16	SS	18	68					
		40	SC	17	SS	18	54					
	41.5 2194.5 Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-8-08		
BORING COMPLETED	12-8-08		
RIG	CME 75	FOREMAN	JNH
Approved	OBL	JOB #	63085095

LOG OF BORING NO. O-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 22.51045" N 111° 01' 51.47443" W

Approx. Surface Elev.: 2236.64 ft

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY LEAN CLAY; light brown, stiff to very stiff, low plasticity fines, no cementation		CL	1	BS					30	9	74
			CL	2	RS	12	15					
		5	CL	3	RS	0	23					
	7 2229.5											
	GRAVELLY SILTY SAND TRACE COBBLES; light brown, loose to very dense, non-plastic fines, no cementation		SM	4	RS	12	9					
		10	SM	5	RS	12	19					
			SM	6	RS	12	21					
		15	SM	7	RS	12	63					
	17 2219.5											
	GRAVELLY SAND WITH COBBLES TRACE SILT; light brown, loose to very dense, non-plastic fines, no cementation		SP	8	RS	12	26					
		20	SP	9	RS	0	13					
			SP	10	RS	12	69					
		25	SP	11	RS	12	40					
			SP	12	RS	12	50					
		30	SP	13	RS	0	50/6"					
			SP	14	RS	0	50/3"					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-5-08		
BORING COMPLETED	12-5-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. O-5

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	37 2199.5		SP	15	SS	0	50/4"					
	GRAVELLY COBBLEY CLAYEY SAND, light brown, dense, low plasticity fines, no cementation		SC	16	SS	3	39					
		40	SC	17	SS	4	40					
	41.5 2195											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-5-08		
BORING COMPLETED	12-5-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. P-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

Boring Location: 32° 17' 23.15620" N 111° 01' 53.33476" W

Approx. Surface Elev.: 2240.69 ft

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY (in)	BLOWS/FT.	TESTS WATER CONTENT, %	DRY DENSITY pcf	Liquid Limit	PLASTICITY INDEX	-200
	SANDY SILT LEAN CLAY; light brown, stiff to very stiff, low plasticity fines, no cementation		CL-ML	1	BS					23	7	53
			CL-ML	2	RS	12	25					
		5	CL-ML	3	RS	12	17	7	87			
			CL-ML	4	RS	12	52					
	9 / 2231.5											
	GRAVELLY SILTY SAND TRACE COBBLES; light brown, loose to medium dense, non-plastic fines, no cementation	10	SM	5	RS	12	36					
			SM	6	RS	12	13	3	108			
		15	SM	7	RS	12	11					
			SM	8	RS	12	30					
		20	SM	9	RS	12	28					
	24 / 2216.5		SM	10	RS	6	50/6"					
	GRAVELLY COBBLEY SAND WITH SILT; light brown, medium dense to dense, non-plastic fines, no cementation	25	SP-SM	11	RS	10	70/11"					
			SP-SM	12	RS	7	81					
		30	SP-SM	13	RS	0	90/7"					
	34 / 2206.5		SP-SM	14	RS	0	50/3"					
		35										

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-5-08		
BORING COMPLETED	12-5-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095

LOG OF BORING NO. P-4

CLIENT
Pima County Regional Water Reclamation

SITE
Tucson, Arizona

PROJECT
Future WRC Site

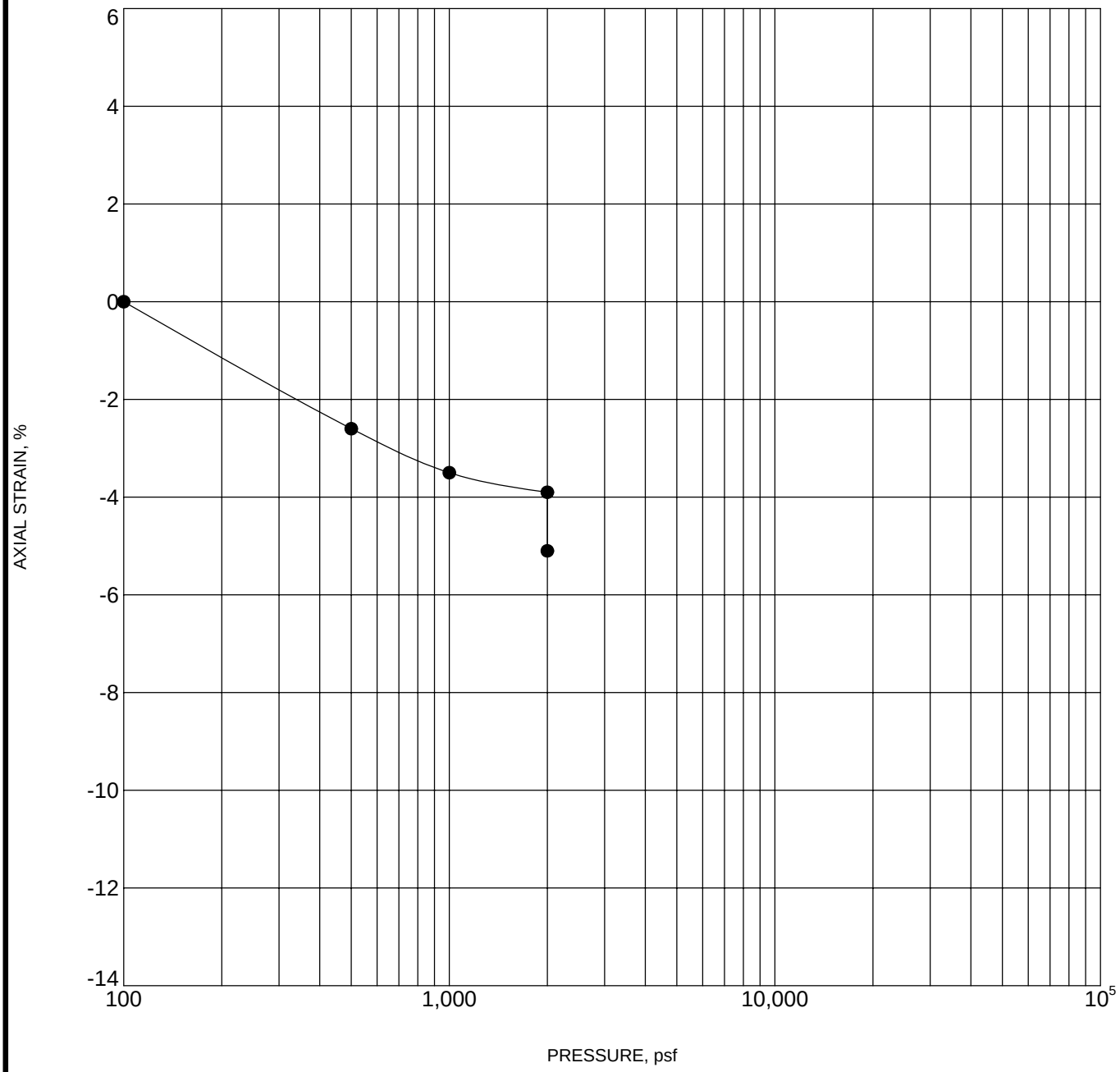
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (in)	SAMPLES BLOWS/FT.	TESTS WATER CONTENT, %	TESTS DRY DENSITY pcf	TESTS Liquid Limit	TESTS PLASTICITY INDEX	TESTS -200
	SILTY CLAYEY SAND TRACE COBBLES WITH GRAVEL; light brown, very dense, low plasticity fines, no cementation		SC-SM	15	SS	5	62/11"					
			SC-SM	16	SS	0	50/5"					
		40	SC-SM	17	SS	6	61					
	41.5 2199											
	Bottom of Boring											

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	None WD	None AB
WL		
WL	Backfilled Upon Completion	

Terracon

BORING STARTED	12-5-08		
BORING COMPLETED	12-5-08		
RIG	CME 75	FOREMAN	JWC
Approved	OBL	JOB #	63085095



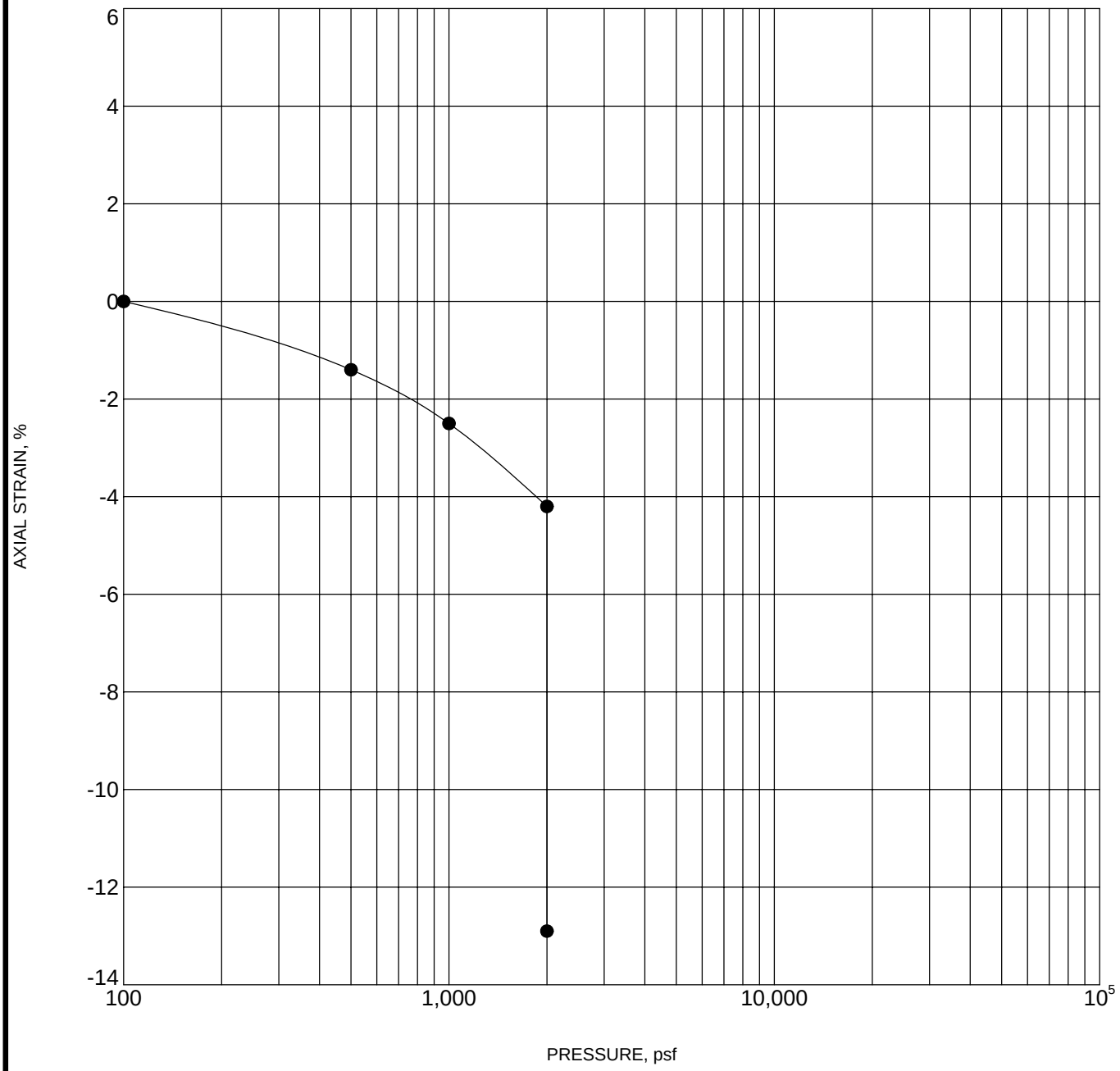
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**A-4**	**2.5ft - 3.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**100**	**24**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



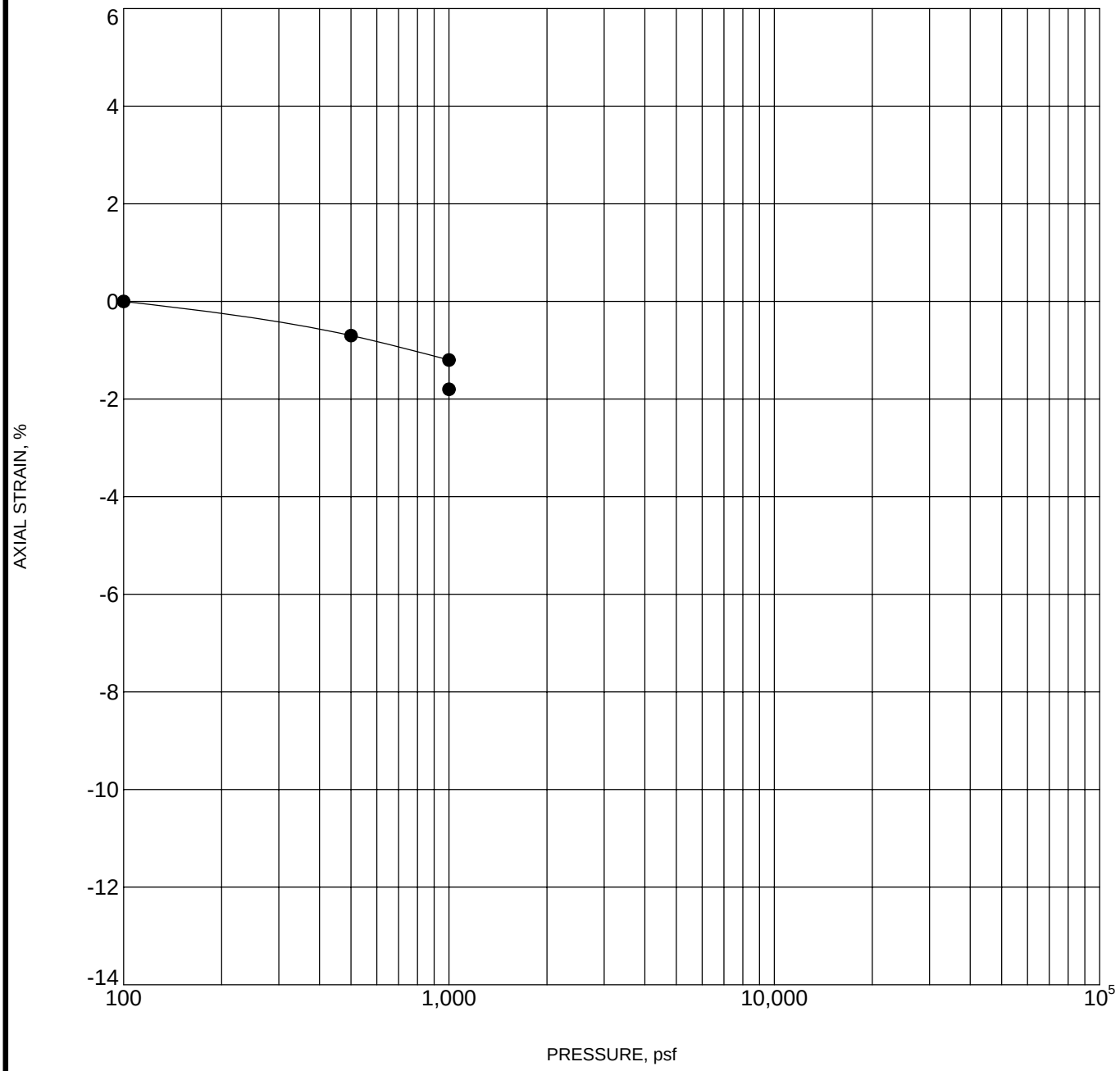
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-01**	**5.0ft - 6.0ft**	**SANDY LEAN CLAY (CL)**	**89**	**10**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



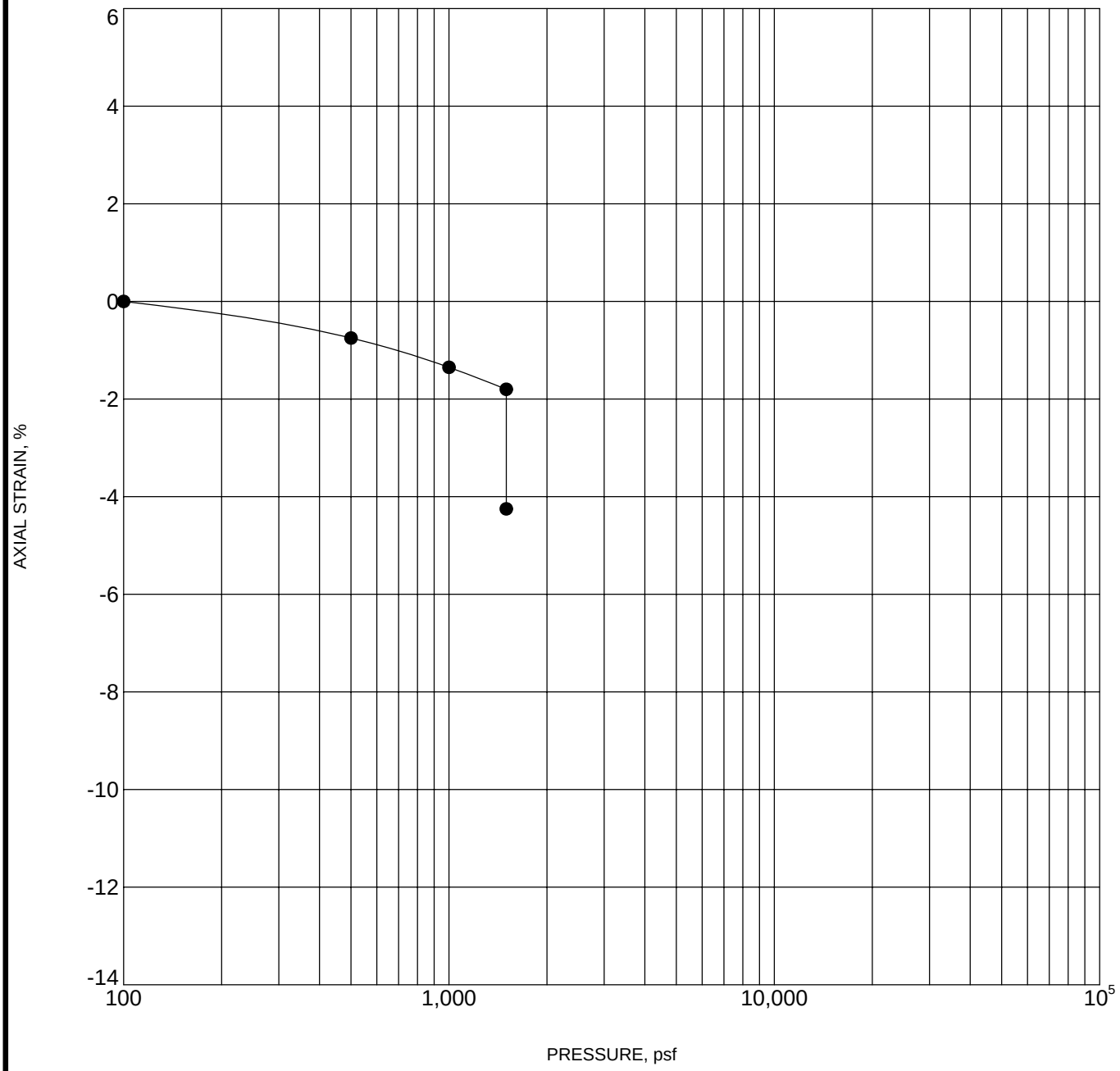
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-01**	**10.0ft - 11.0ft**	**SAND TRACE CLAY (SP)**	**92**	**4**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



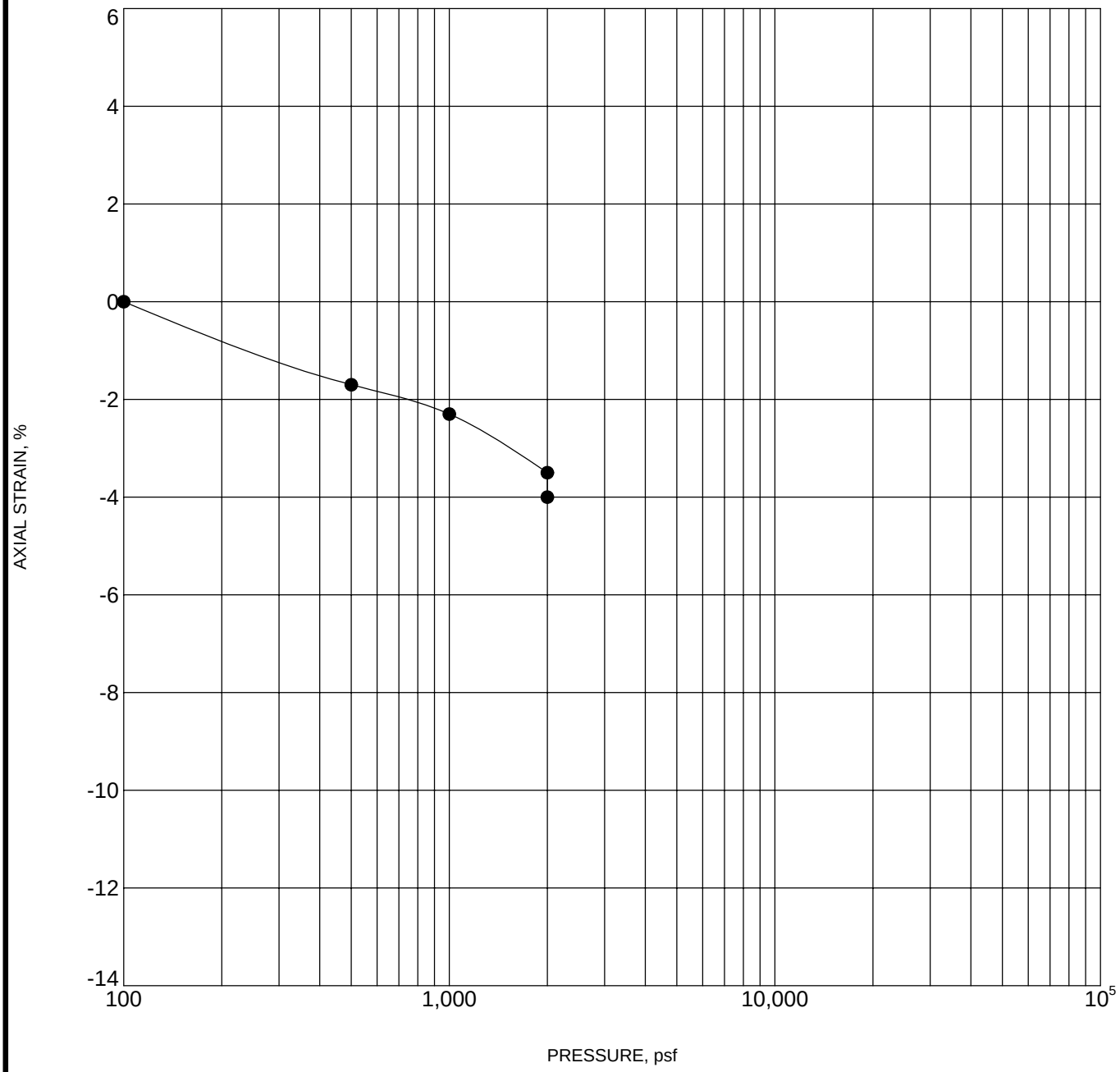
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-02**	**12.5ft - 13.5ft**	**SILTY SAND (SM)**	**97**	**1**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-02**	**20.0ft - 21.0ft**	**GRAVELLY SAND TRACE SILT (SP)**	**101**	**1**

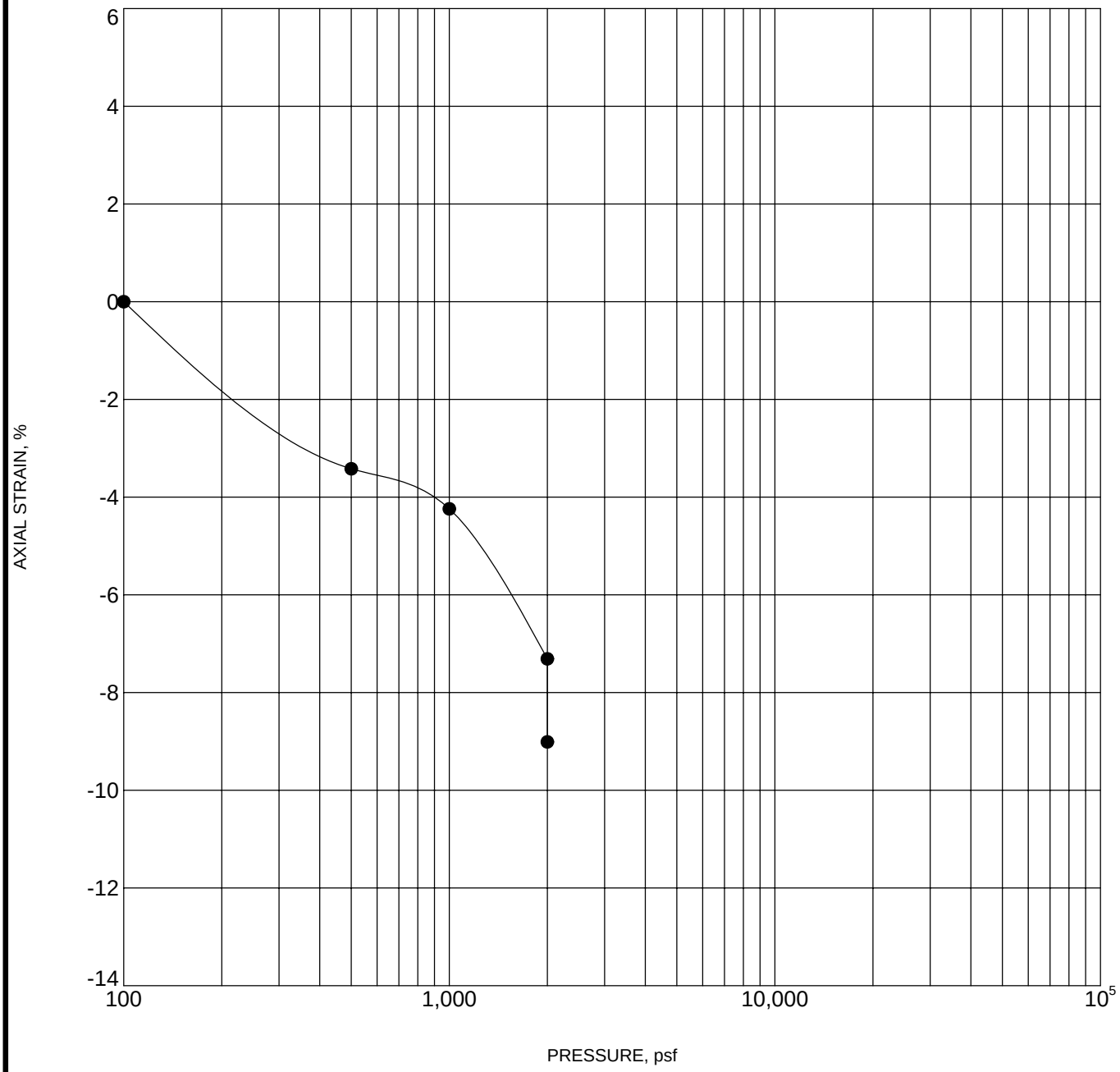
Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC CONSOL STRAIN 63085095.GPJ TERRACON.GDT 2/18/09



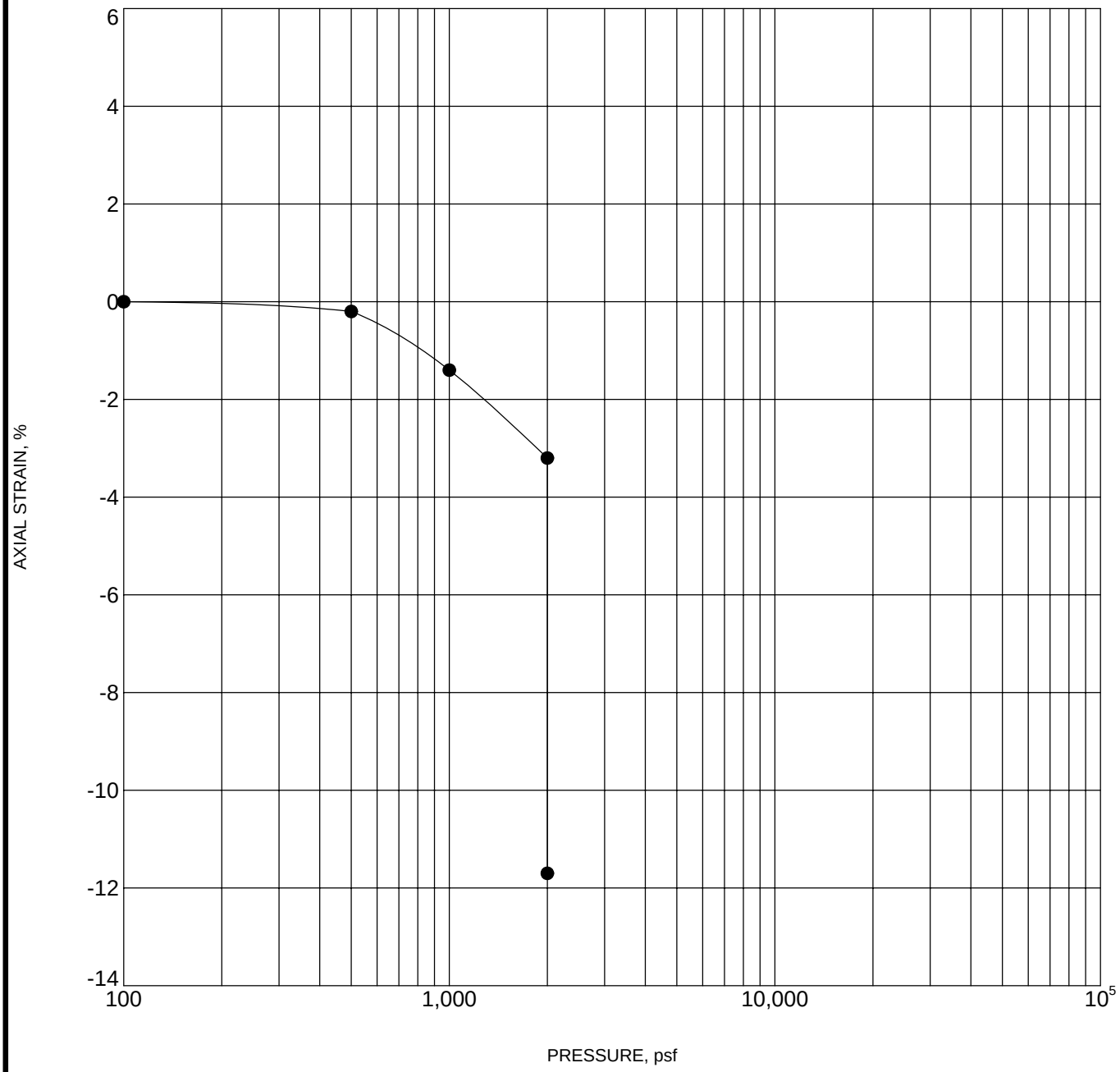
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-03**	**7.5ft - 8.5ft**	**FILL: SILTY SAND WITH GRAVEL (SM)**	**97**	**13**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



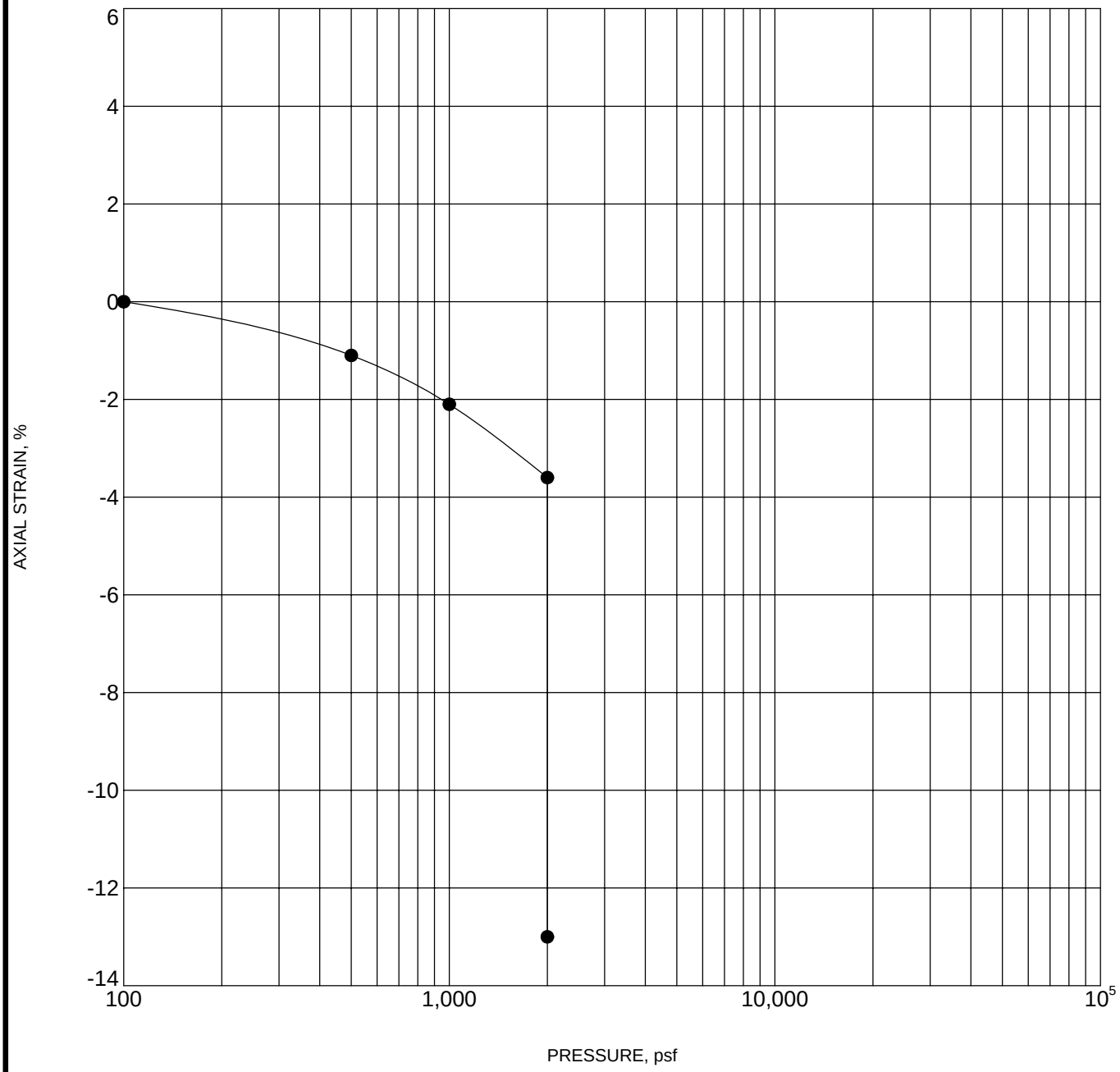
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-04**	**2.5ft - 3.5ft**	**FILL: CLAYEY SAND (SC)**	**100**	**7**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



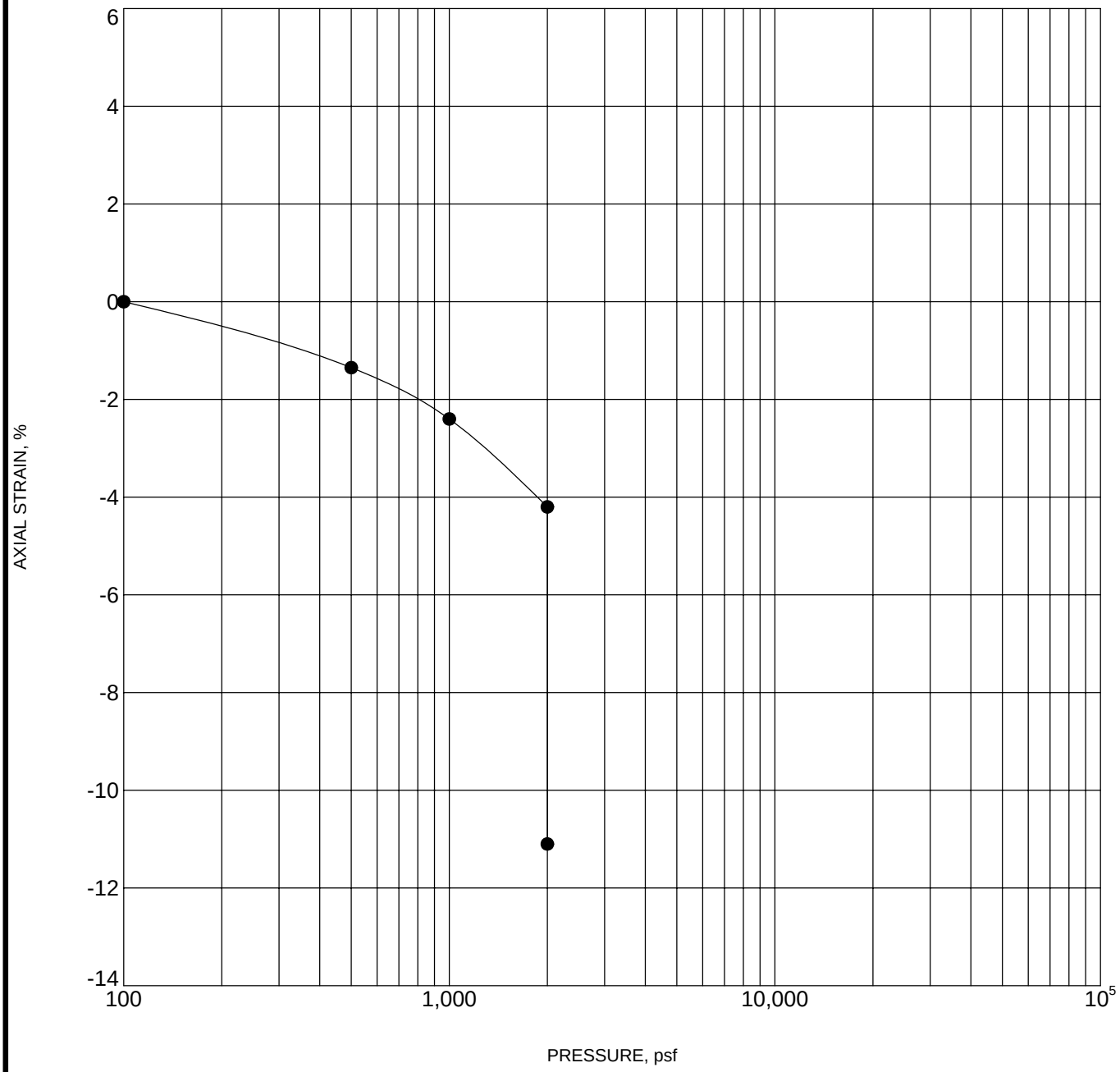
Specimen Identification		Classification	γ_d, pcf	WC,%
●	**B-04 15.0ft - 16.0ft**	**SANDY LEAN CLAY WITH GRAVEL (CL)**	**107**	**6**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



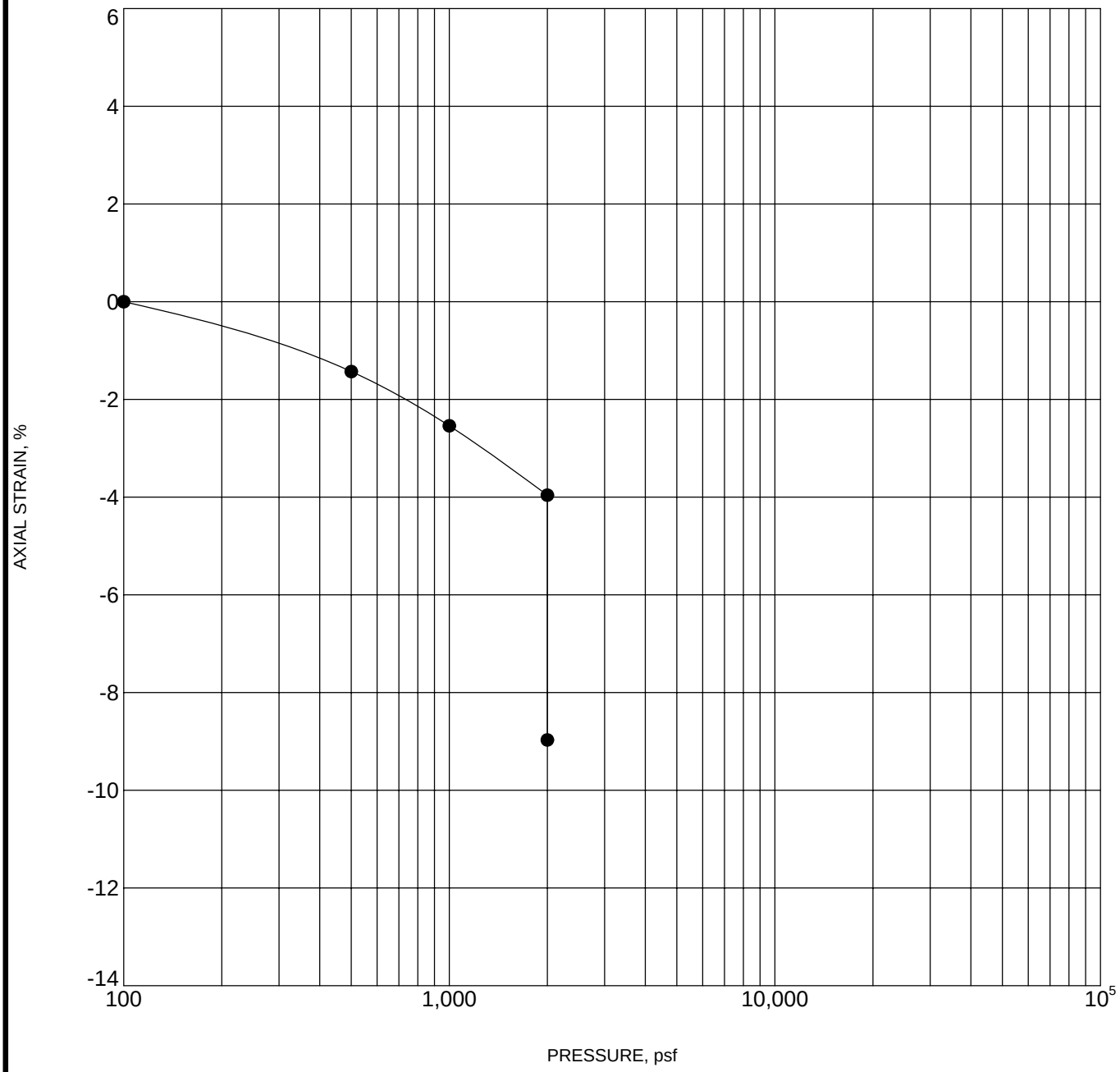
Specimen Identification			Classification	γ_d, pcf	WC,%
●	B-05	2.5ft - 3.5ft	SANDY SILTY LEAN CLAY TRACE GRAVEL (CL-ML)	96	4

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



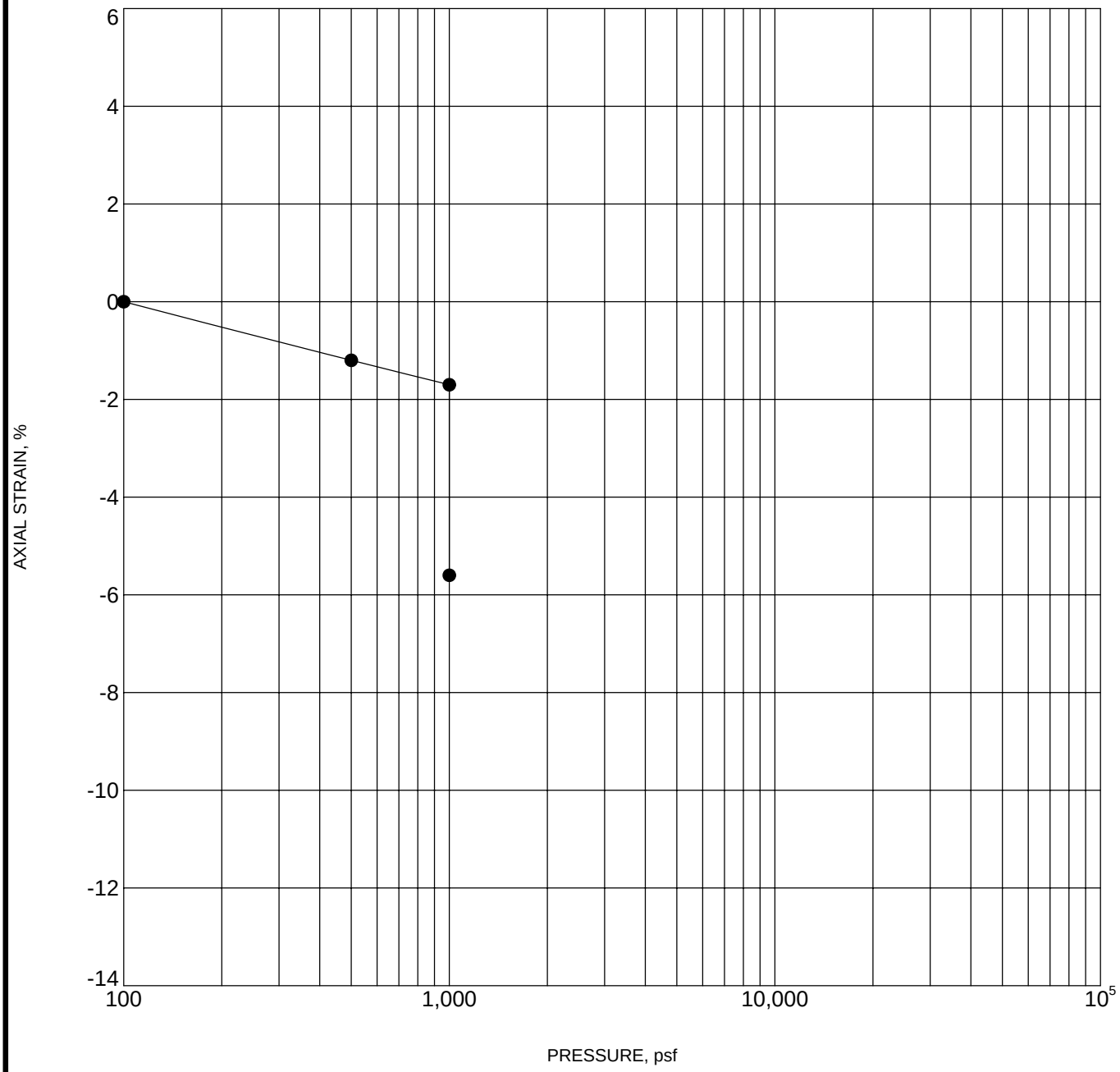
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-06**	**5.0ft - 6.0ft**	**SANDY LEAN CLAY (CL)**	**88**	**10**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



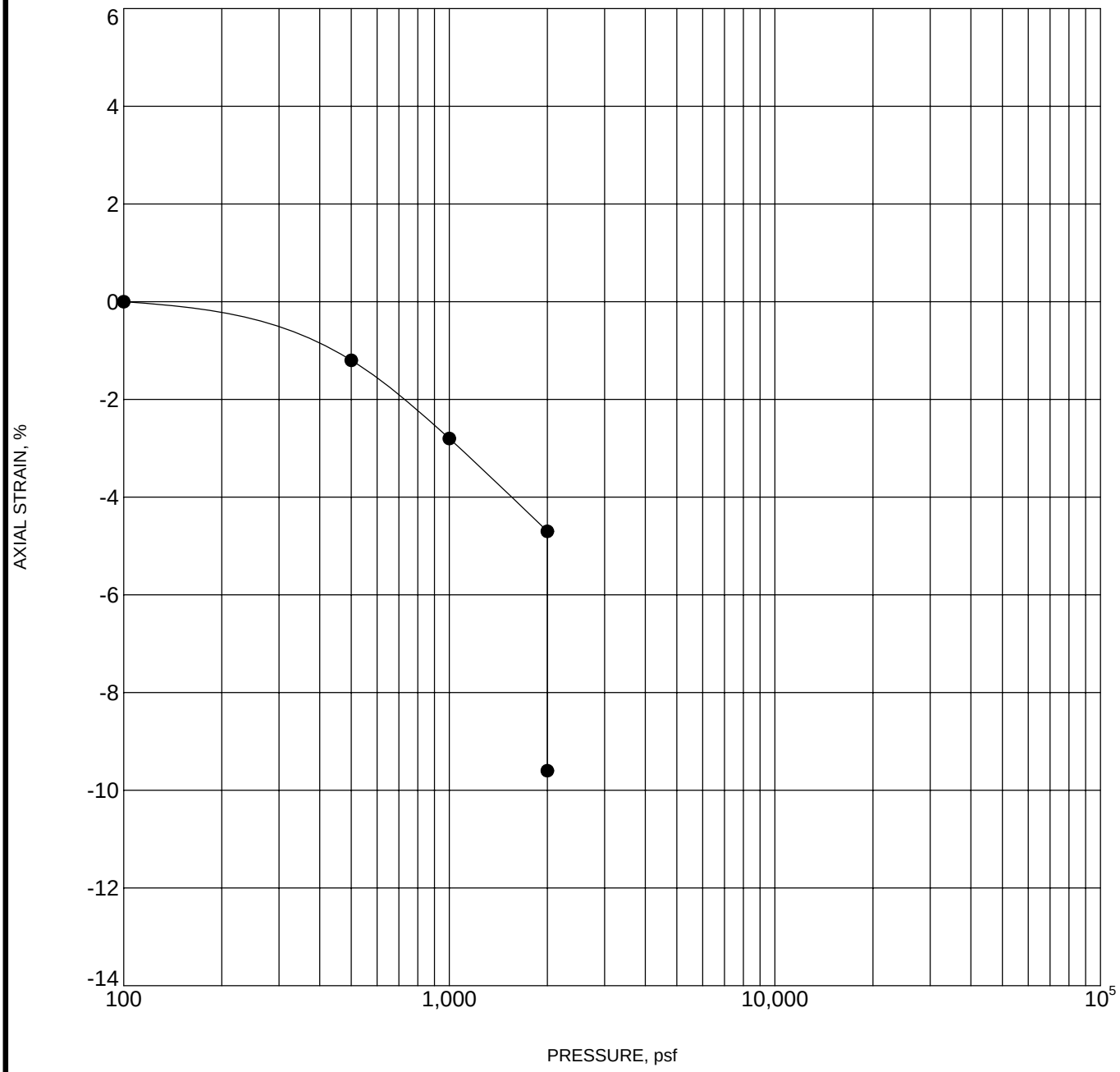
Specimen Identification		Classification	γ_d, pcf	WC,%
●	**B-06 10.0ft - 11.0ft**	**CLAYEY SAND TRACE GRAVEL (SC)**	**97**	**8**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-06**	**17.5ft - 18.5ft**	**SANDY GRAVEL TRACE SILT (GP)**	**106**	**7**

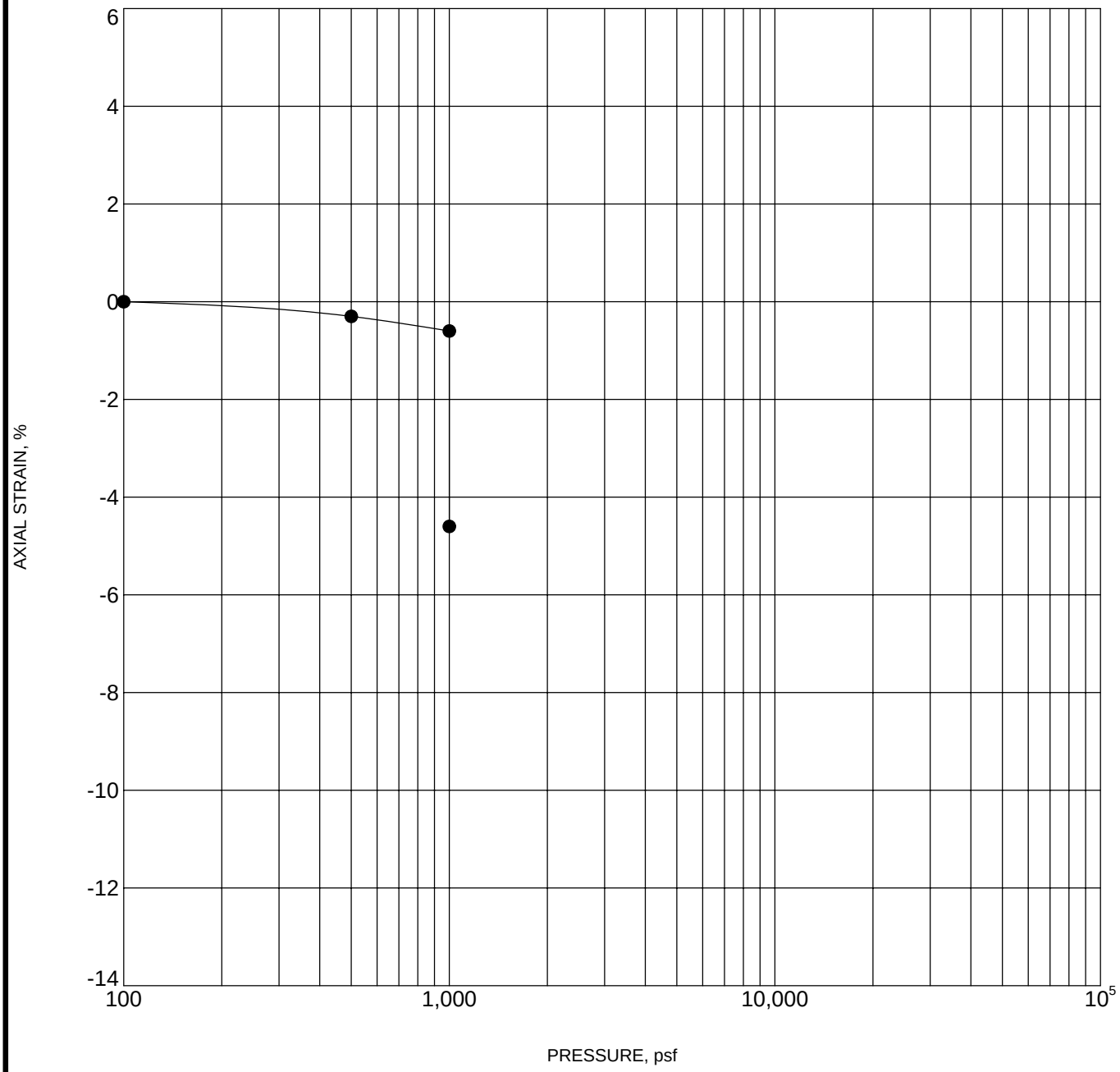
Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC CONSOL STRAIN 63085095.GPJ TERRACON.GDT 2/18/09



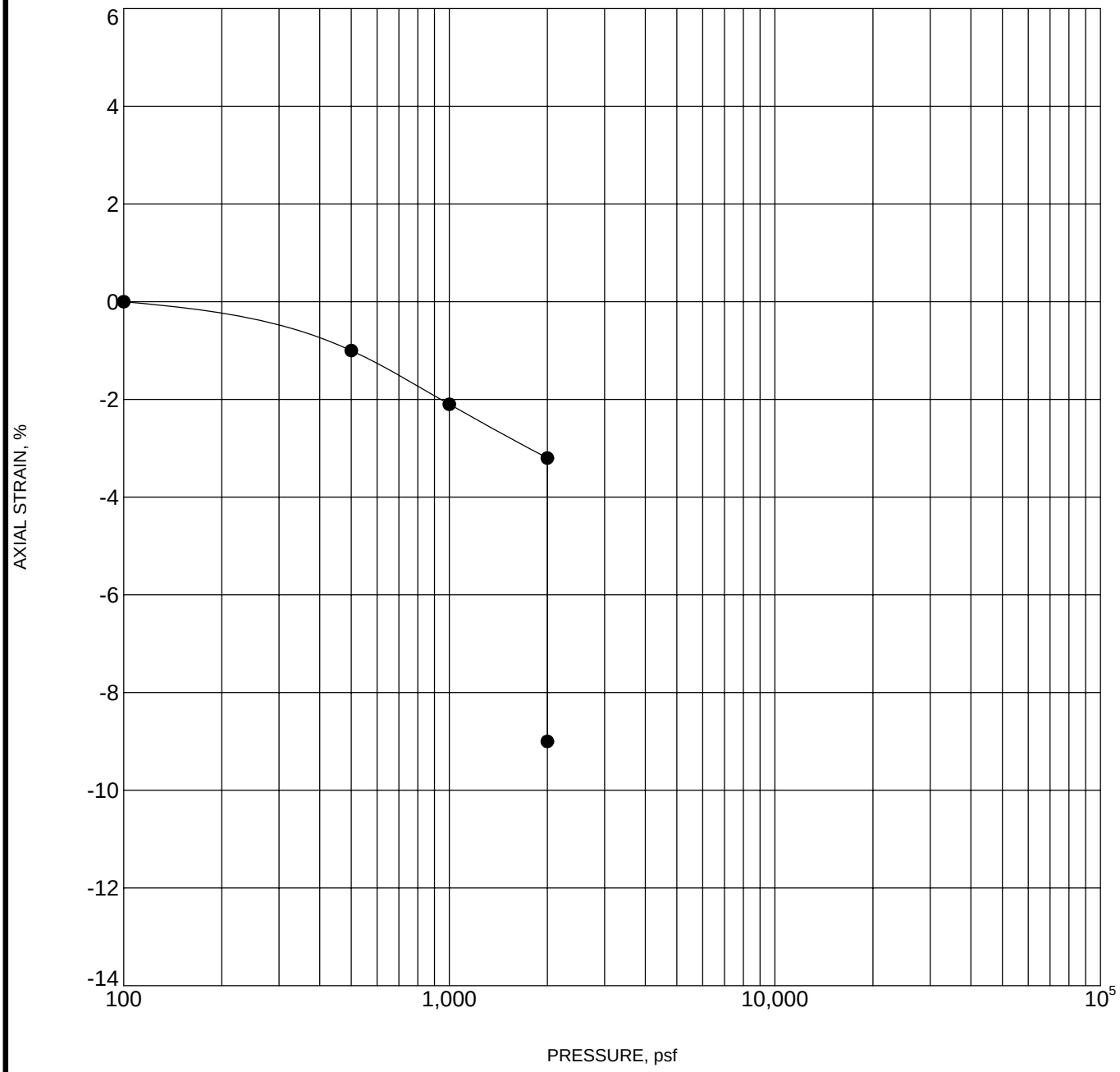
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-07**	**10.0ft - 11.0ft**	**GRAVELLY SAND WITH SILT (SP-SM)**	**101**	**3**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



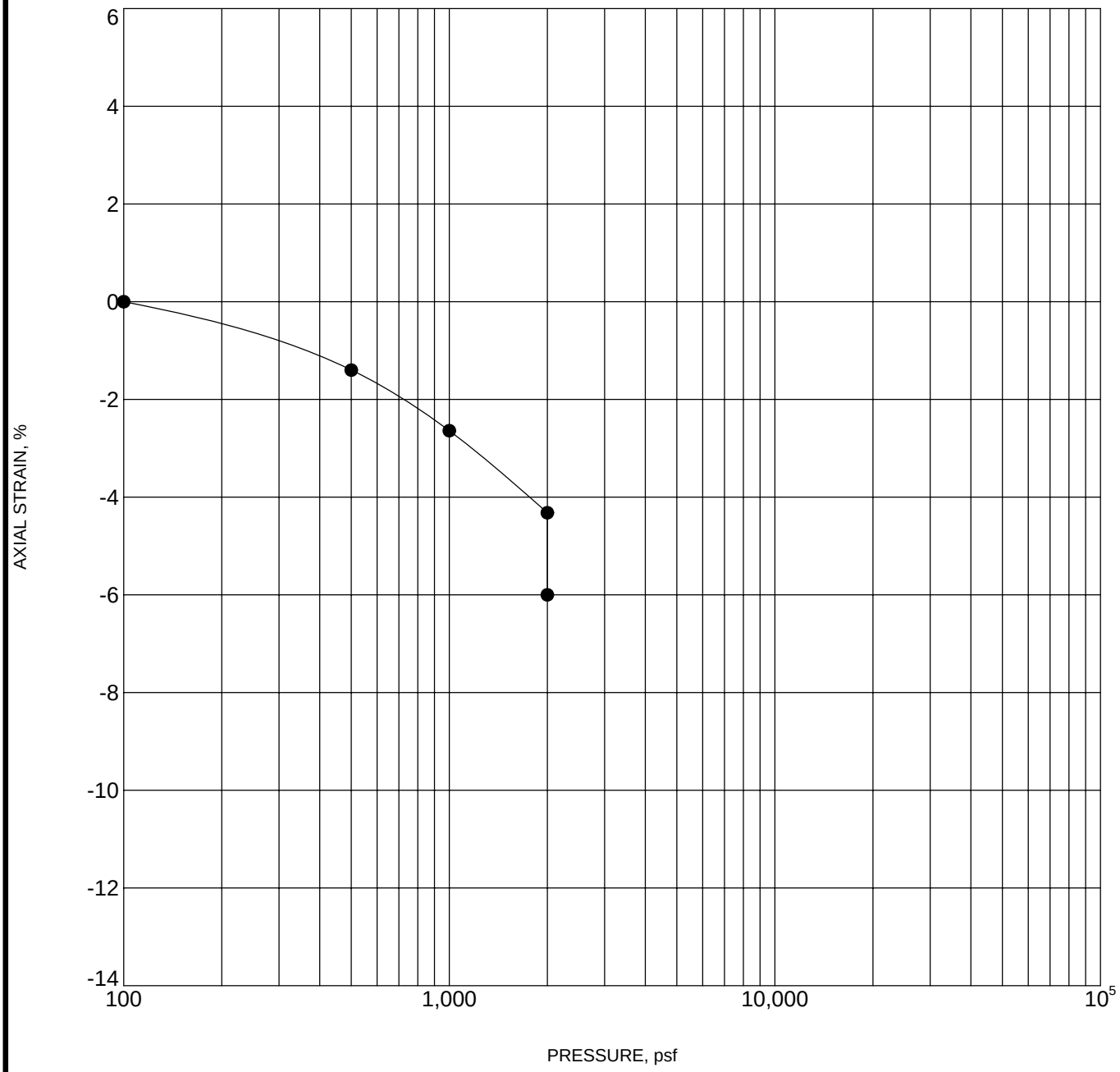
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-09**	**2.5ft - 3.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**107**	**6**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



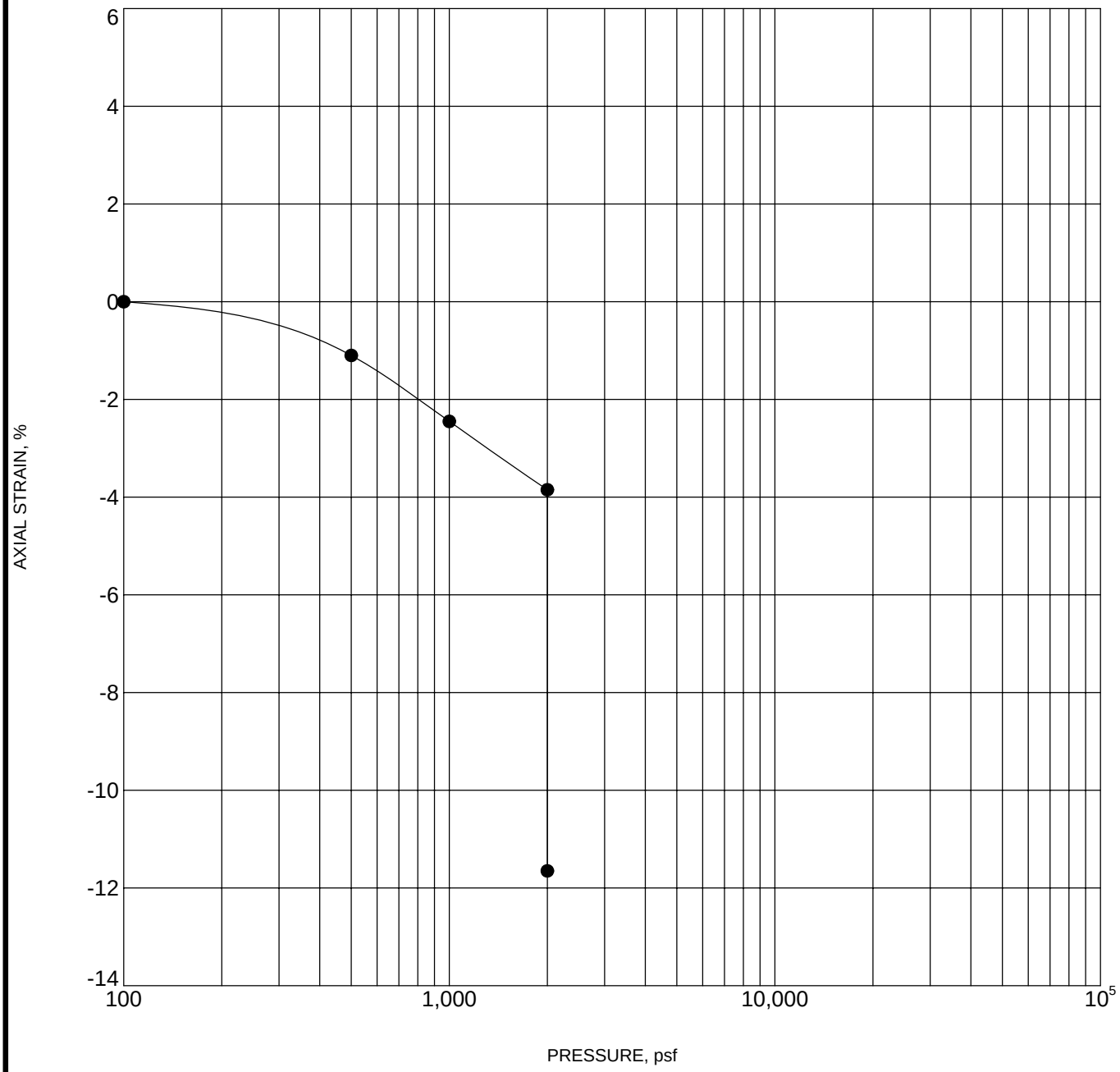
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-10**	**2.5ft - 3.5ft**	**SANDY SILTY LEAN CLAY (CL-ML)**	**106**	**15**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



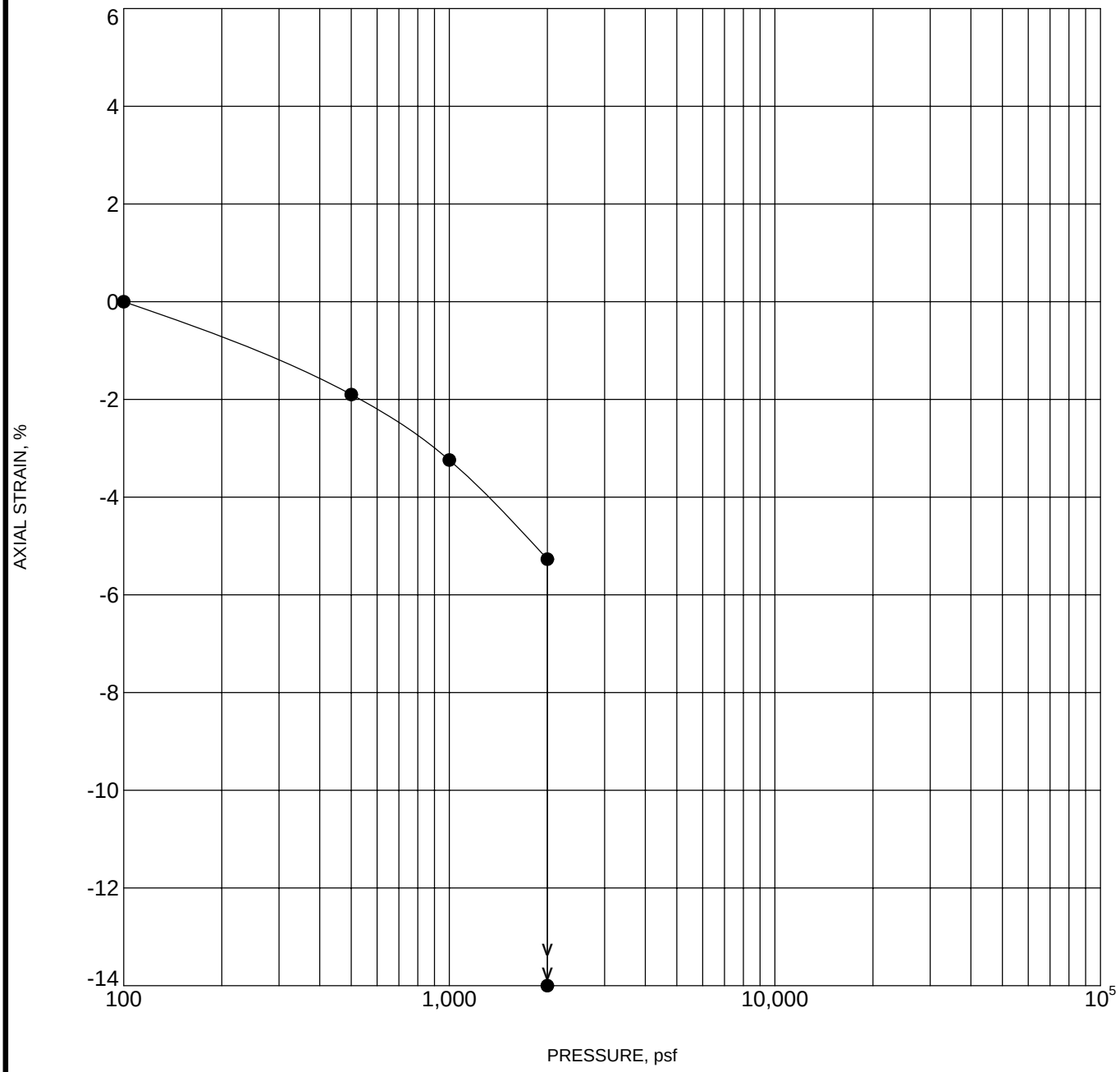
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-12**	**2.5ft - 3.5ft**		**95**	**5**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



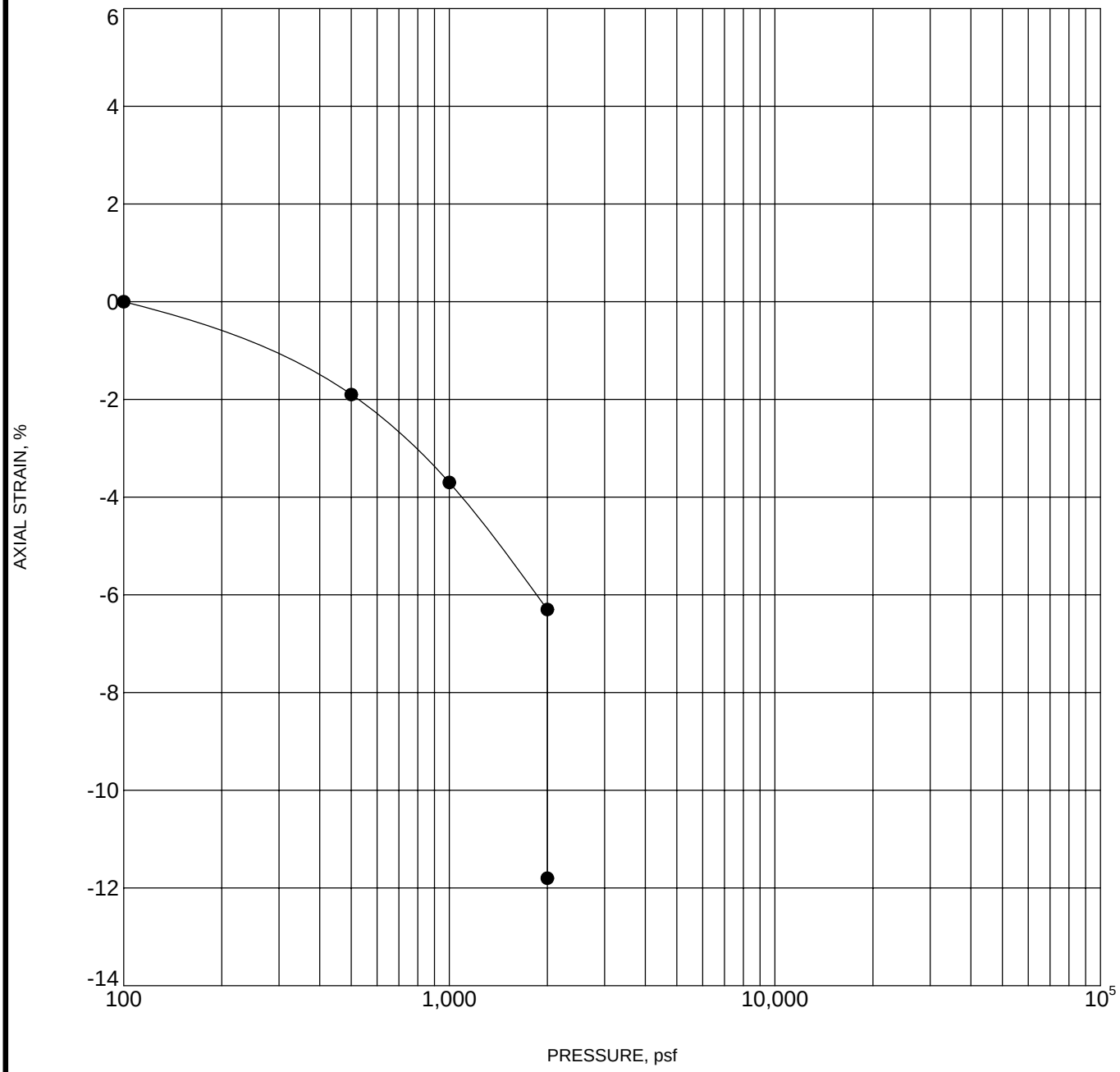
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-13**	**5.0ft - 6.0ft**	**SILTY SAND TRACE GRAVEL (SM)**	**82**	**9**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



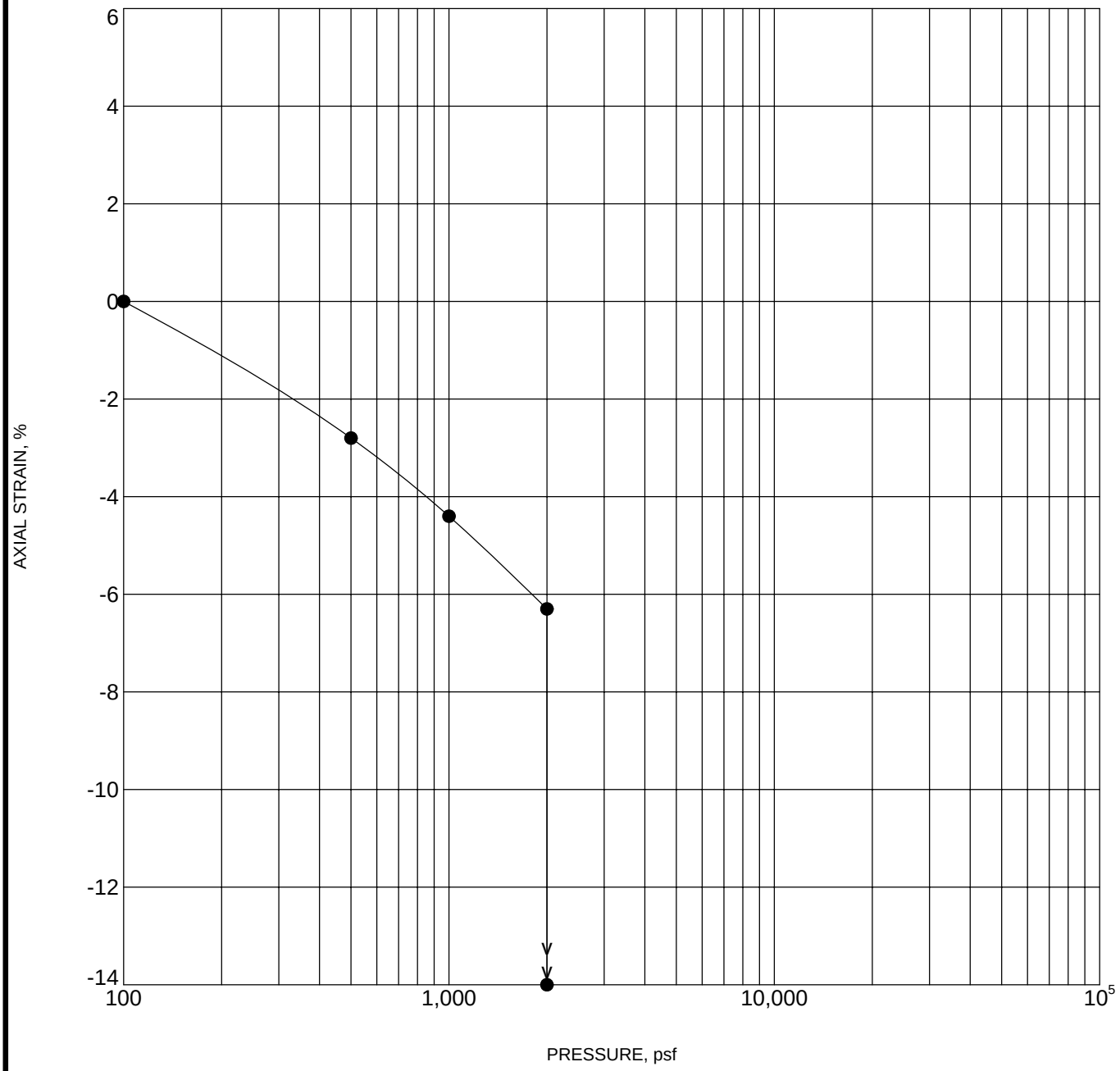
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-14**	**2.5ft - 3.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**83**	**17**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



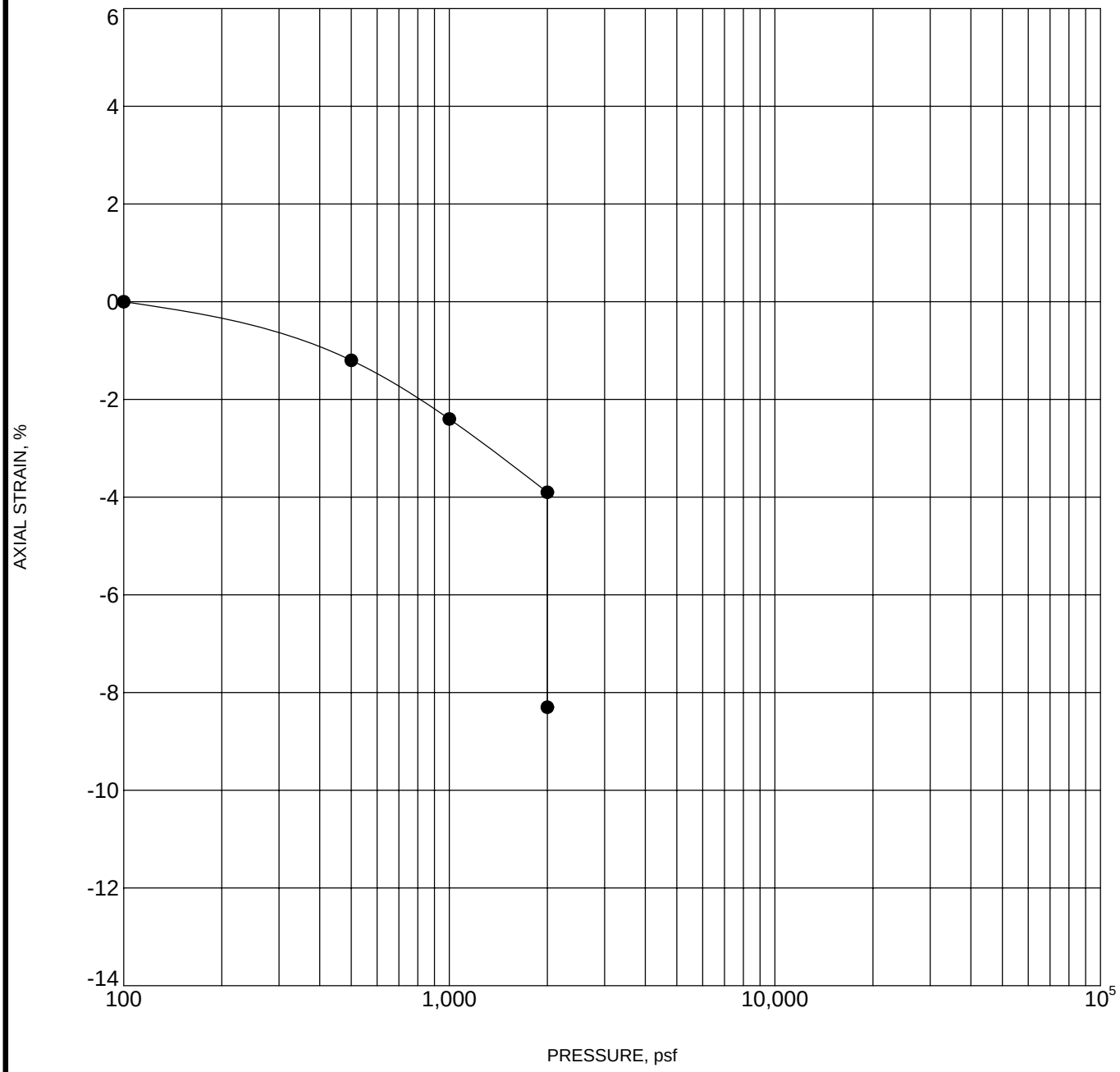
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-15**	**2.5ft - 3.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**79**	**7**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



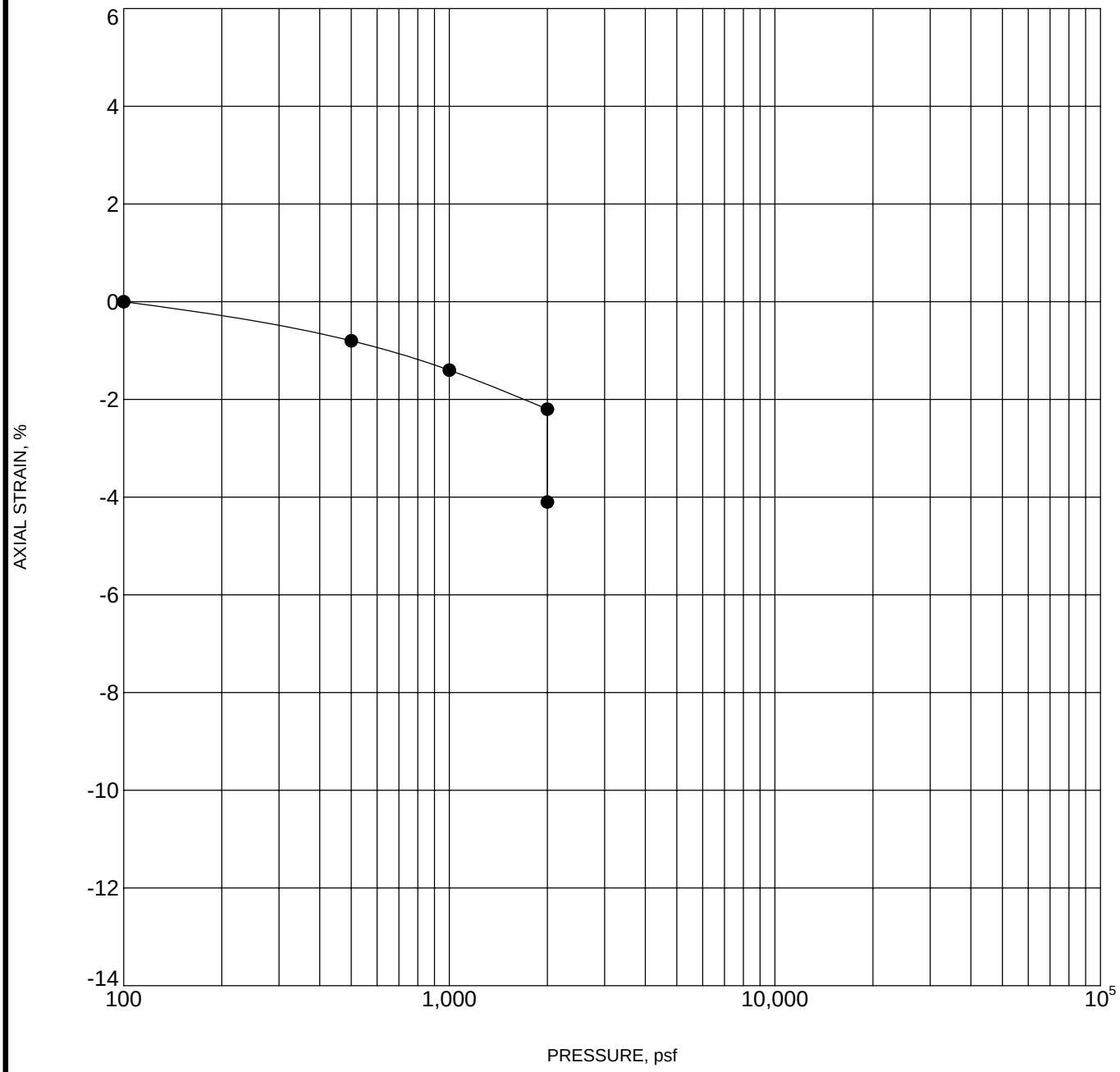
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-16**	**2.5ft - 3.5ft**	**SANDY LEAN CLAY (CL)**	**108**	**11**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



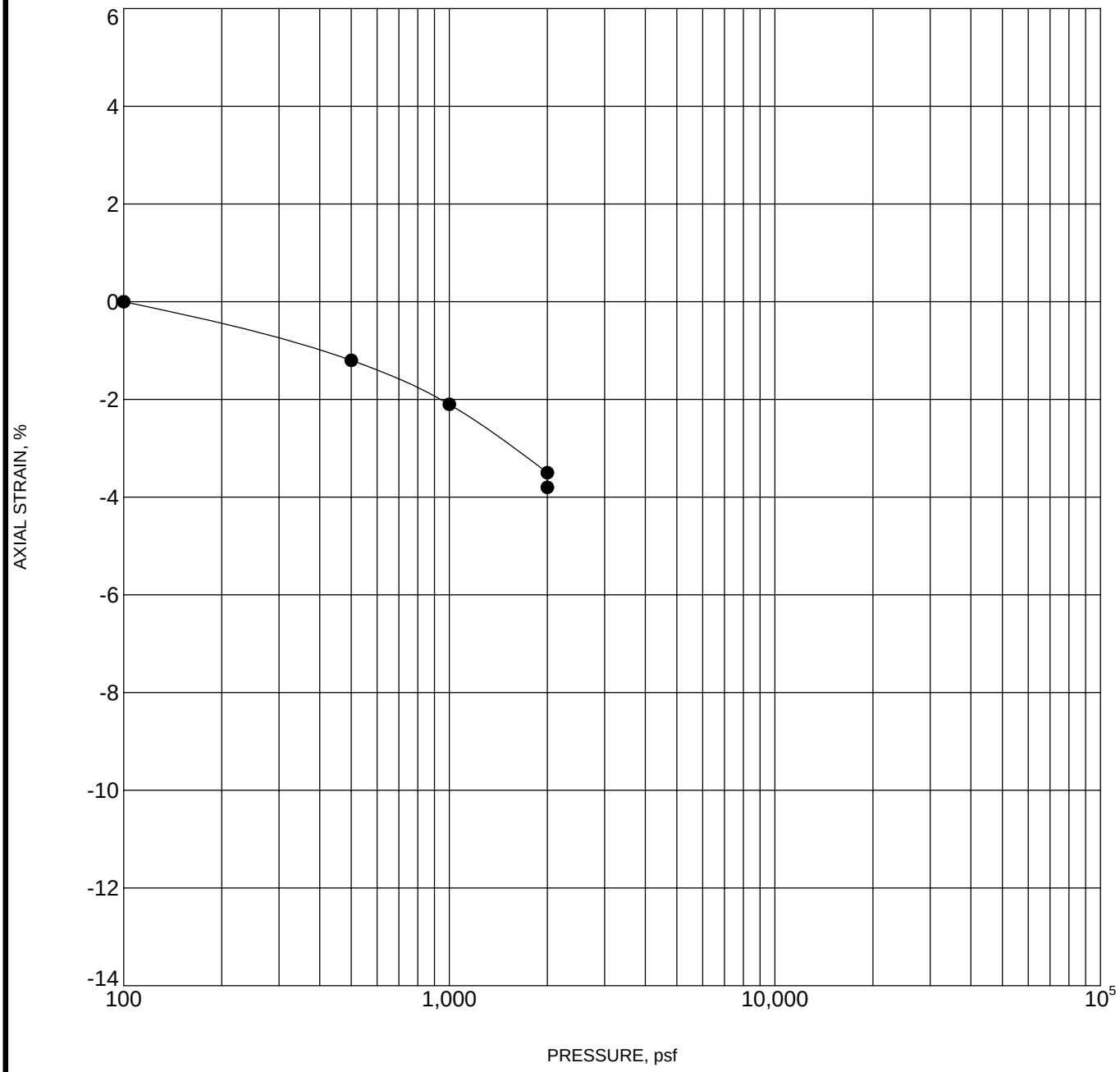
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-17**	**5.0ft - 6.0ft**	**CLAYEY SANDY GRAVEL (GC)**	**111**	**1**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



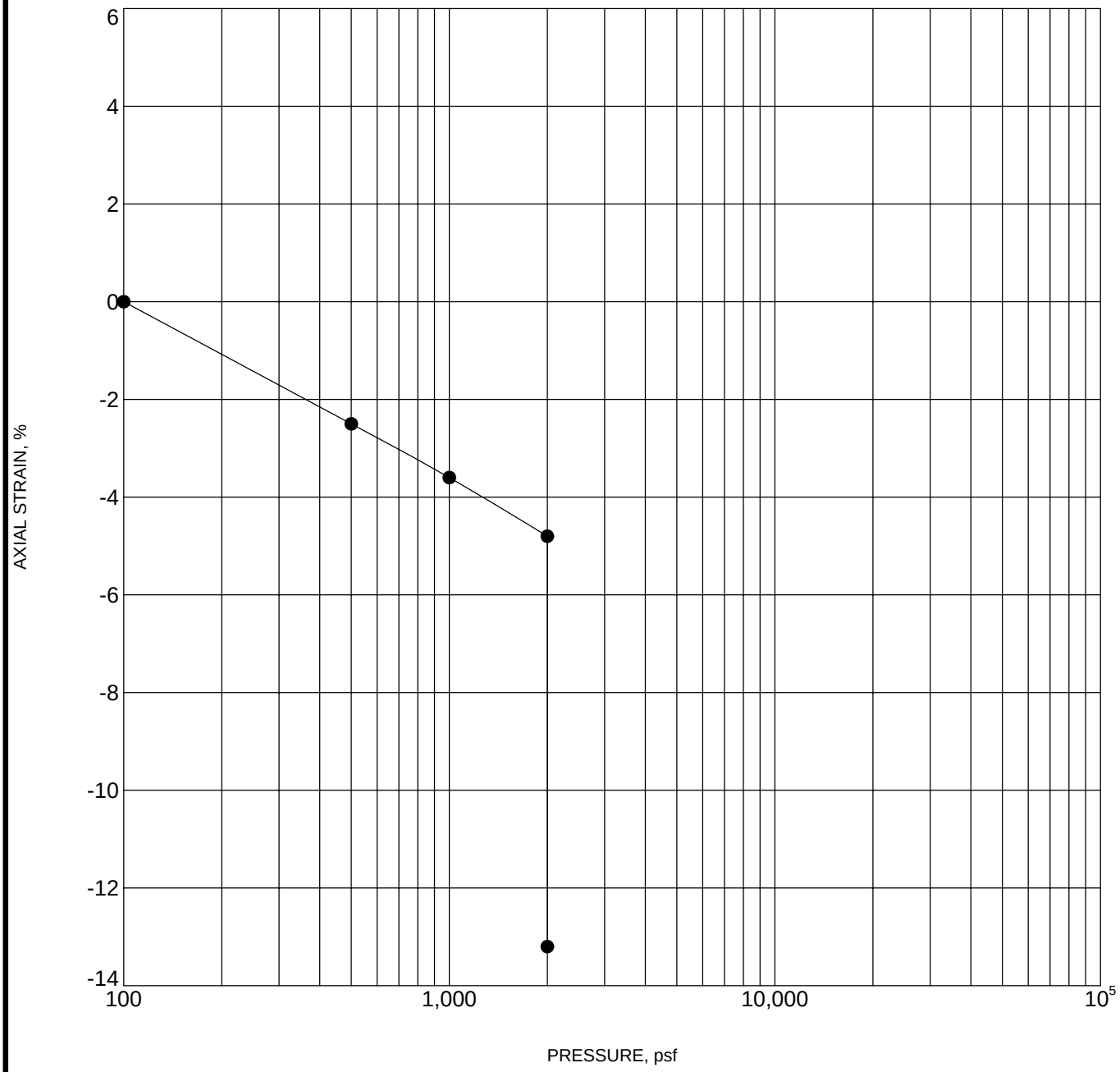
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-4**	**5.0ft - 6.0ft**	**SANDY LEAN CLAY WITH GRAVEL (CL)**	**99**	**19**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



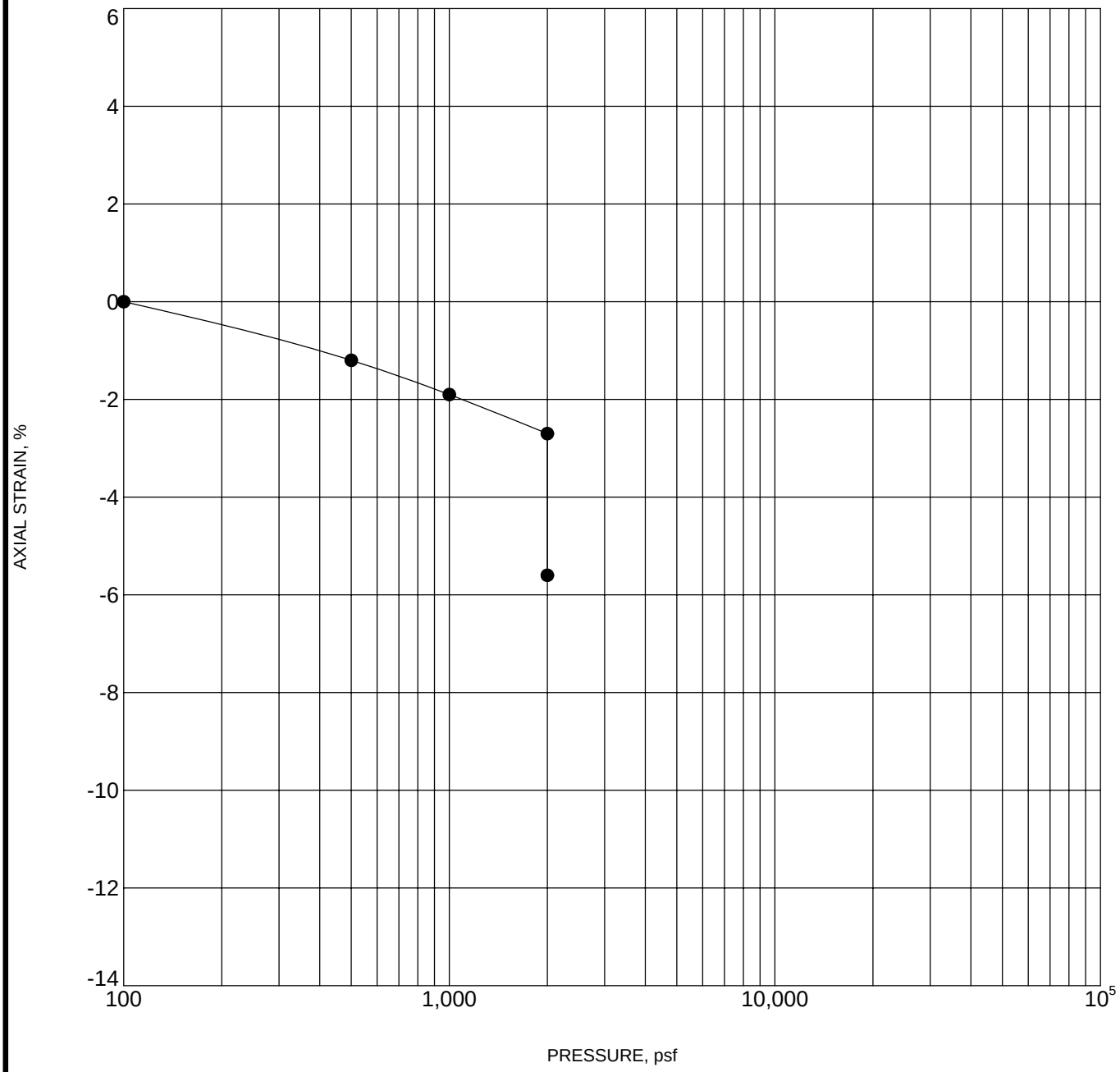
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-4**	**20.0ft - 21.0ft**	**CLAYEY SILTY SAND WITH GRAVEL (SC-SM)**	**109**	**2**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



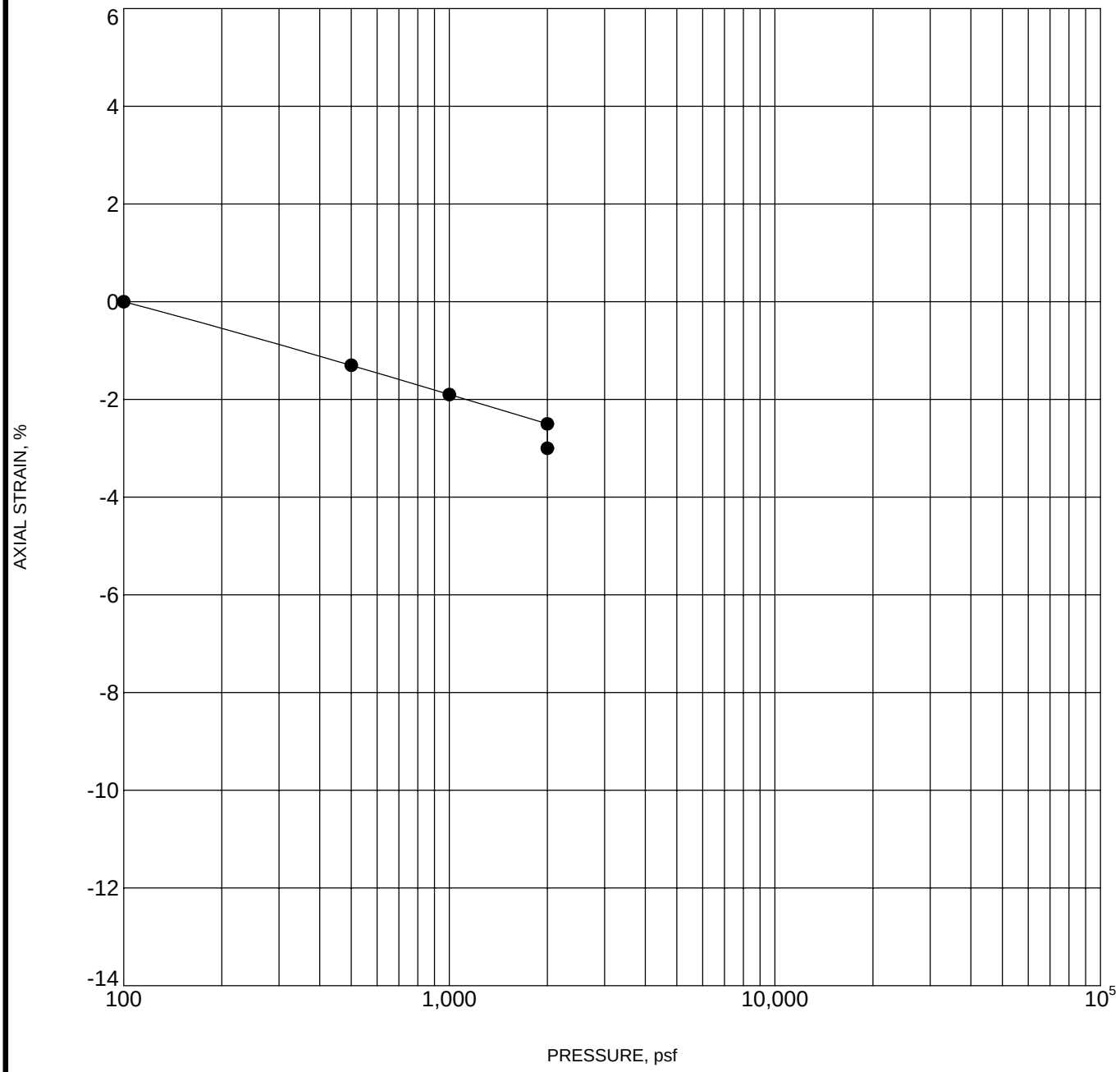
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-O**	**7.5ft - 8.5ft**	**CLAYEY SAND TRACE GRAVEL (SC)**	**103**	**5**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



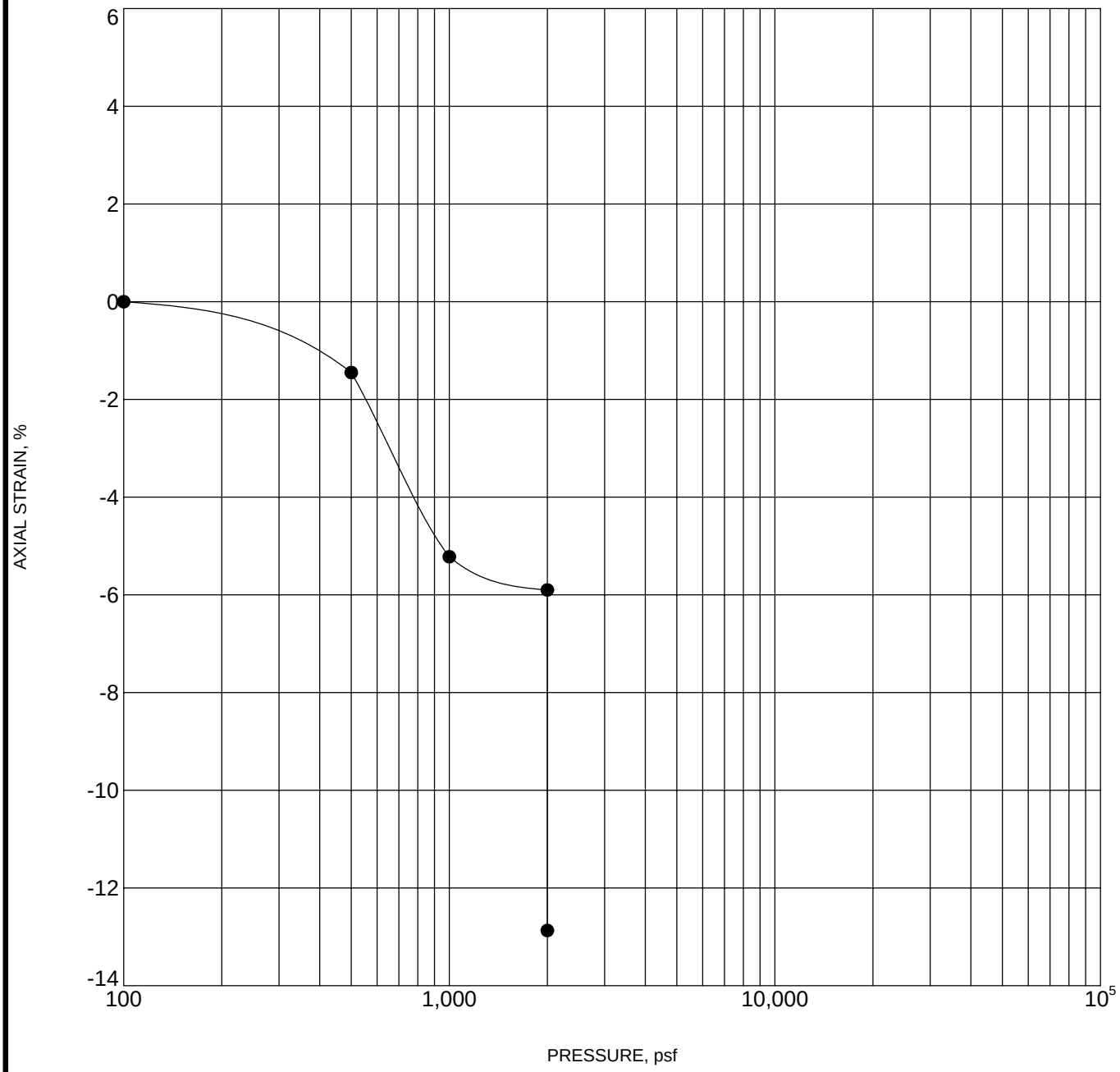
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**B-O**	**12.5ft - 13.5ft**	**SILTY SAND WITH GRAVEL (SM)**	**105**	**3**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



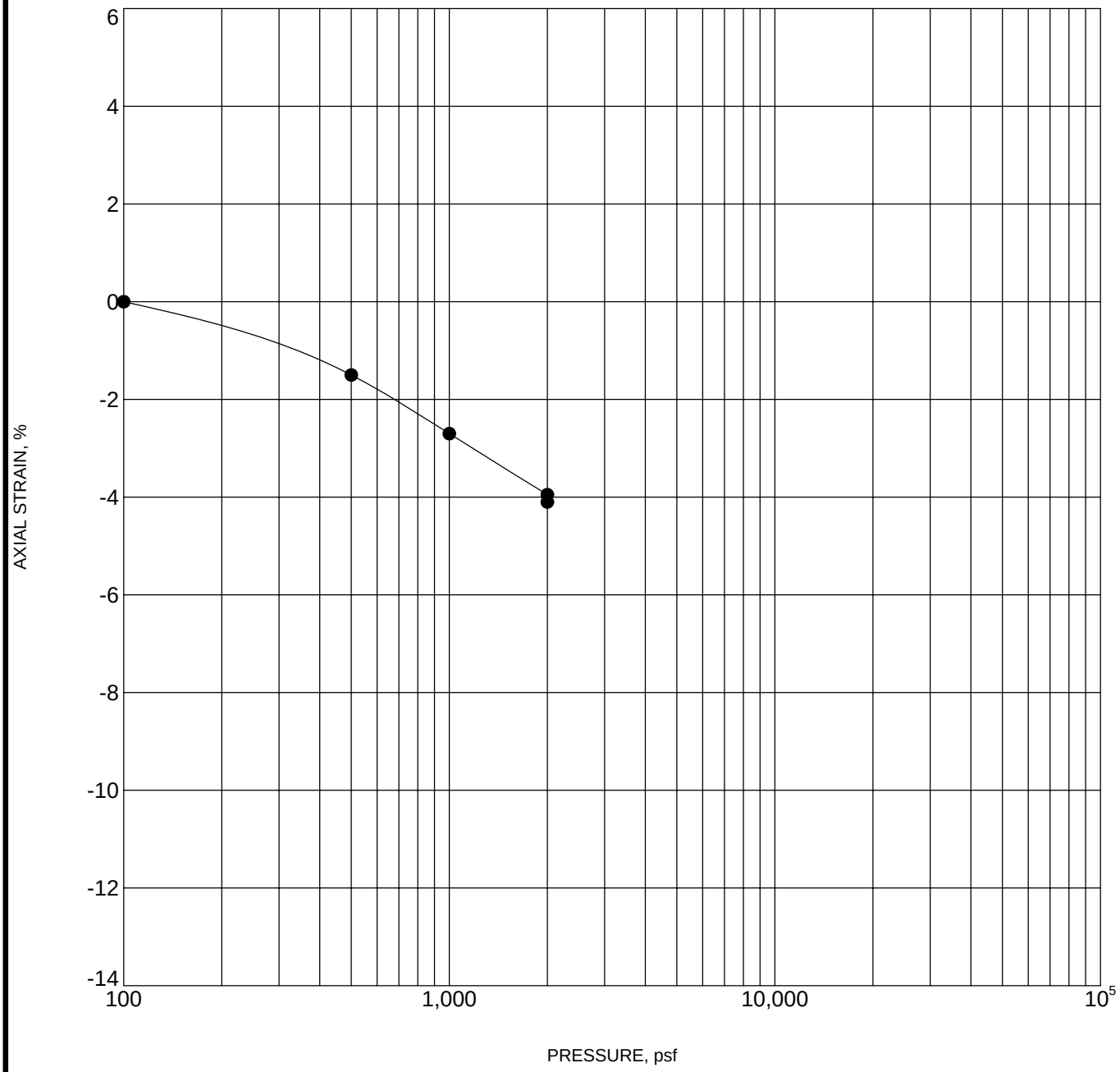
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**C-1**	**2.5ft - 3.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**95**	**7**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



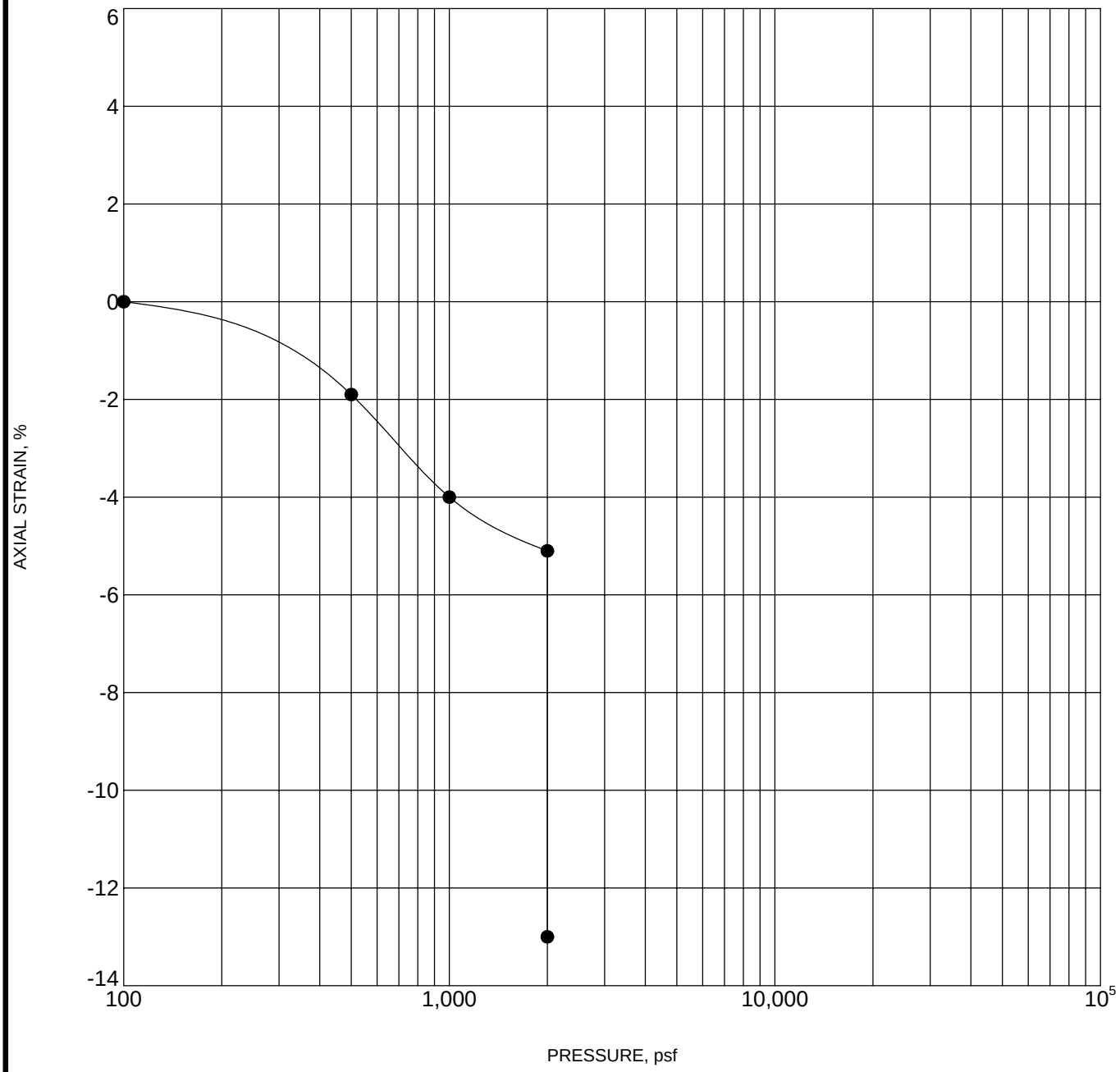
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**C-1**	**17.5ft - 18.5ft**		**89**	**31**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



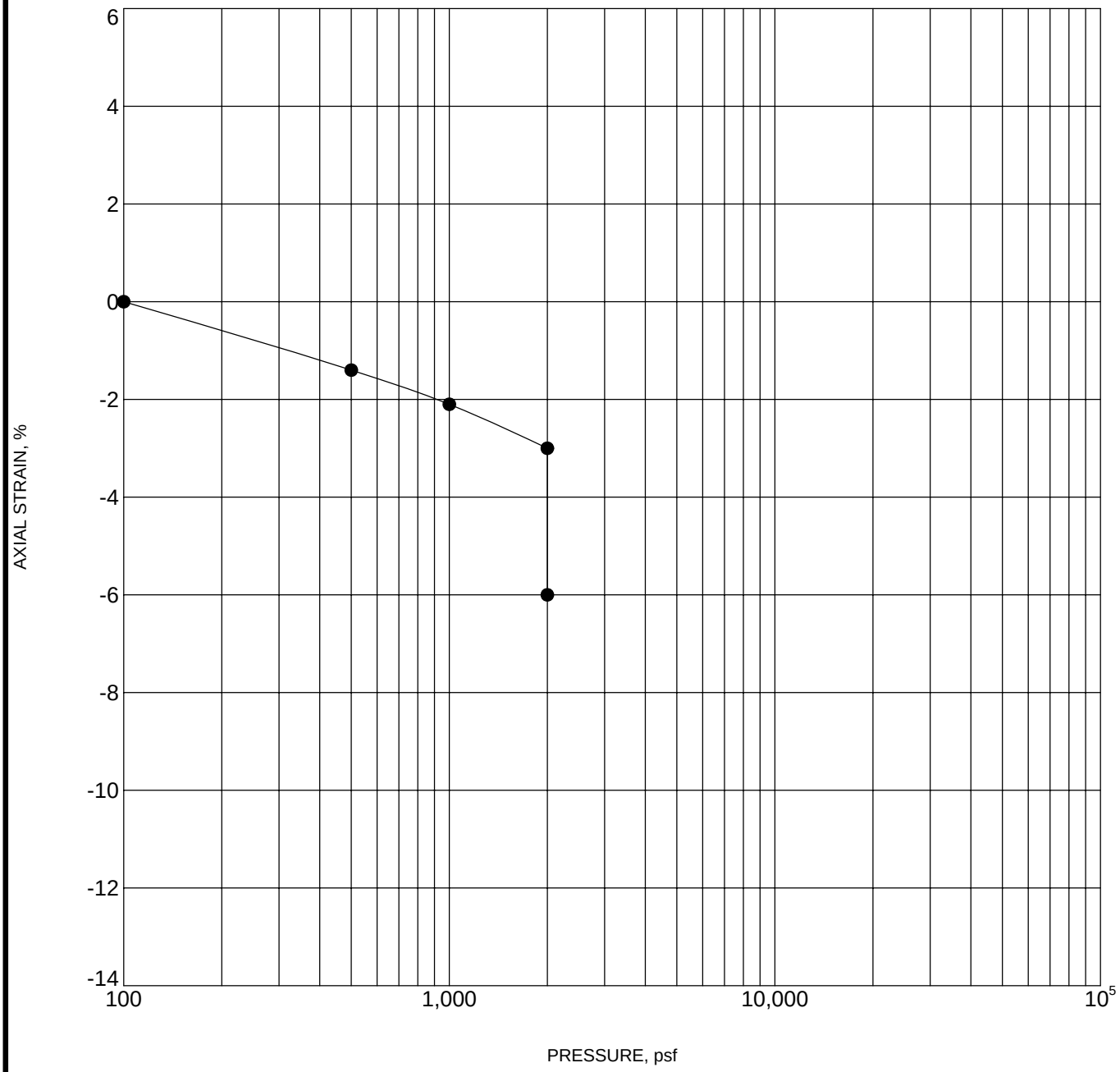
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**C-5**	**5.0ft - 6.0ft**		**87**	**8**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



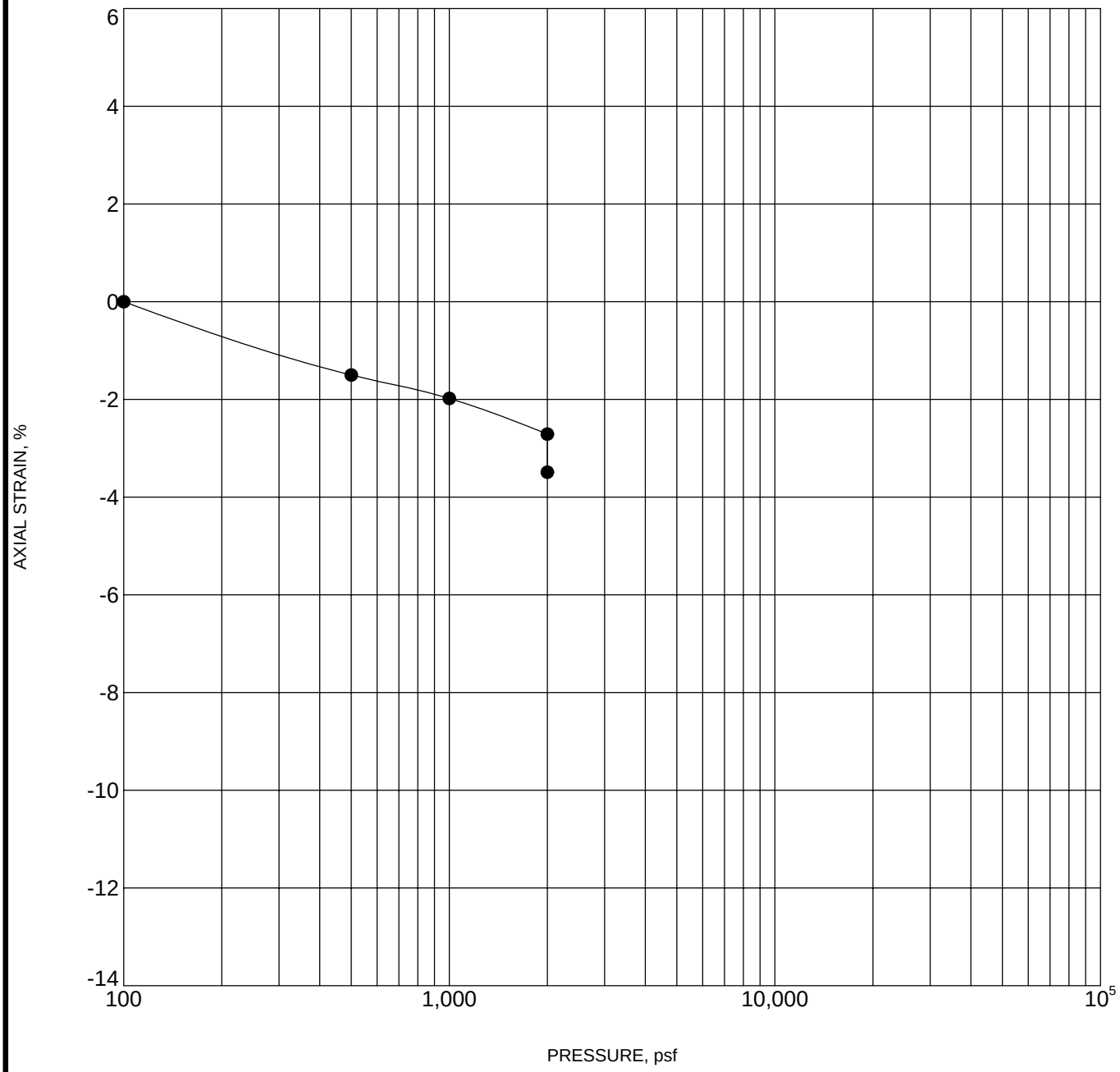
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**E-3**	**5.0ft - 6.0ft**	**SILTY SAND WITH GRAVEL (SM)**	**94**	**4**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



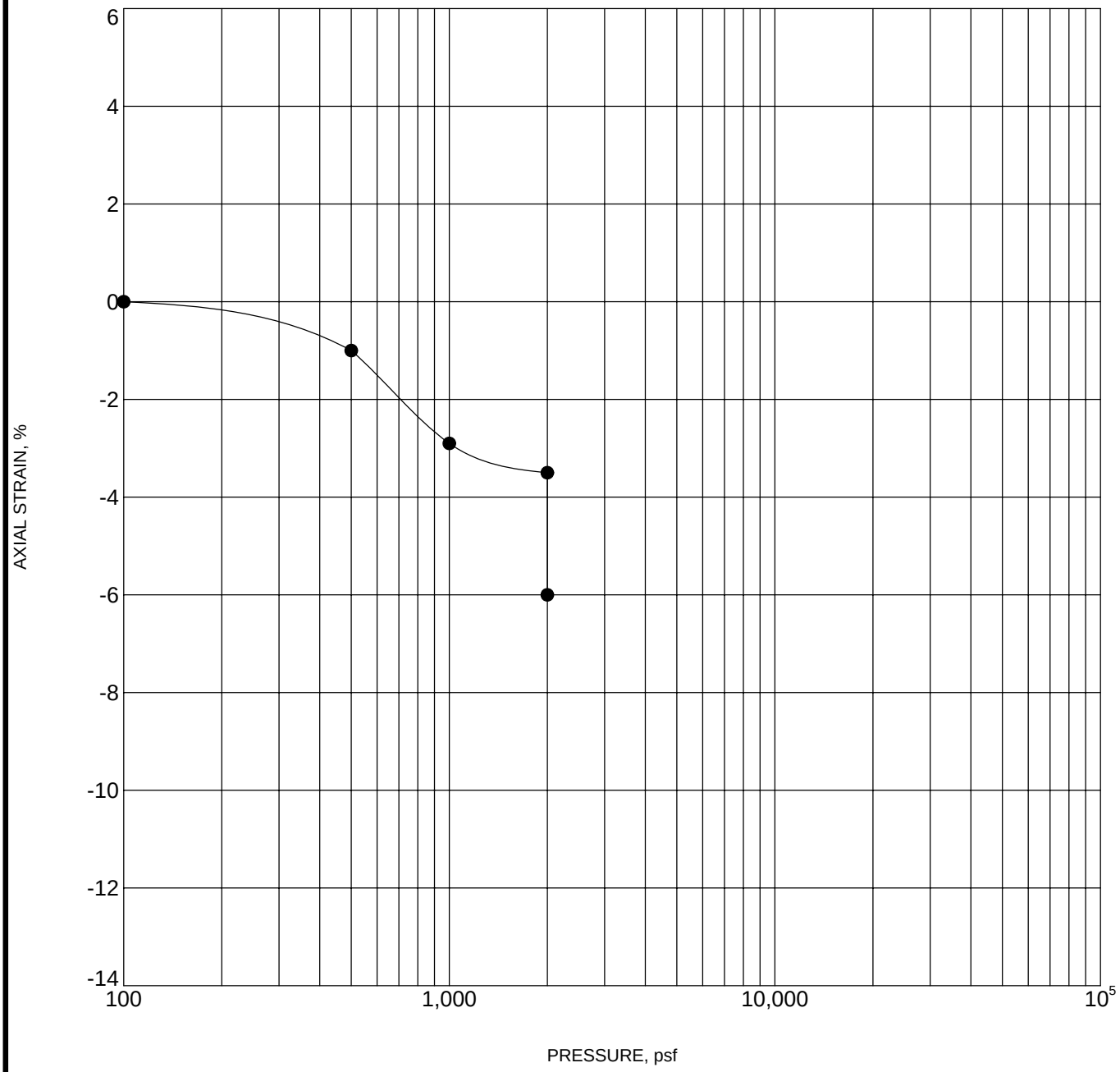
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**E-3**	**12.5ft - 13.5ft**		**103**	**2**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



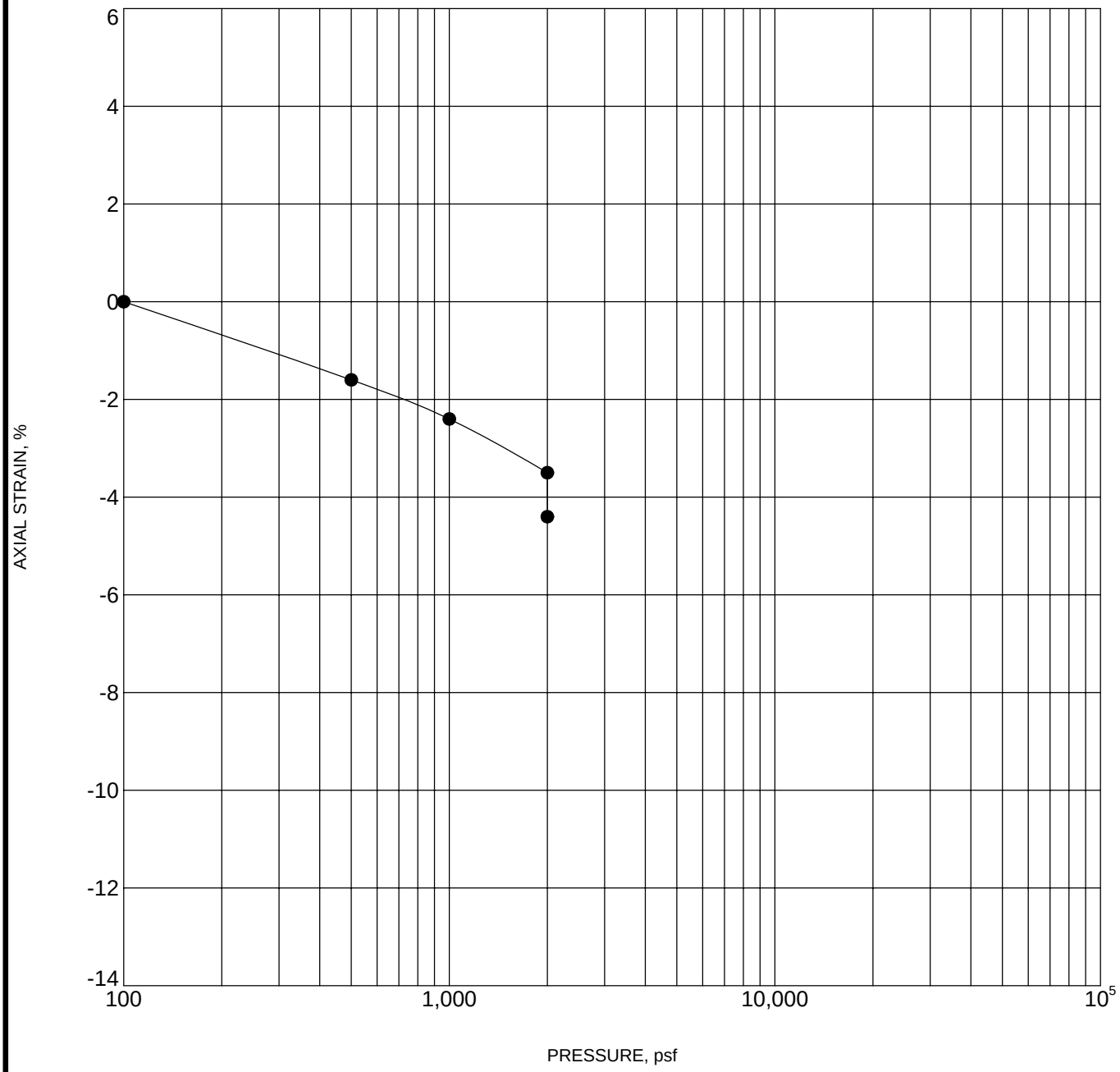
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**E-5**	**5.0ft - 6.0ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**106**	**8**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



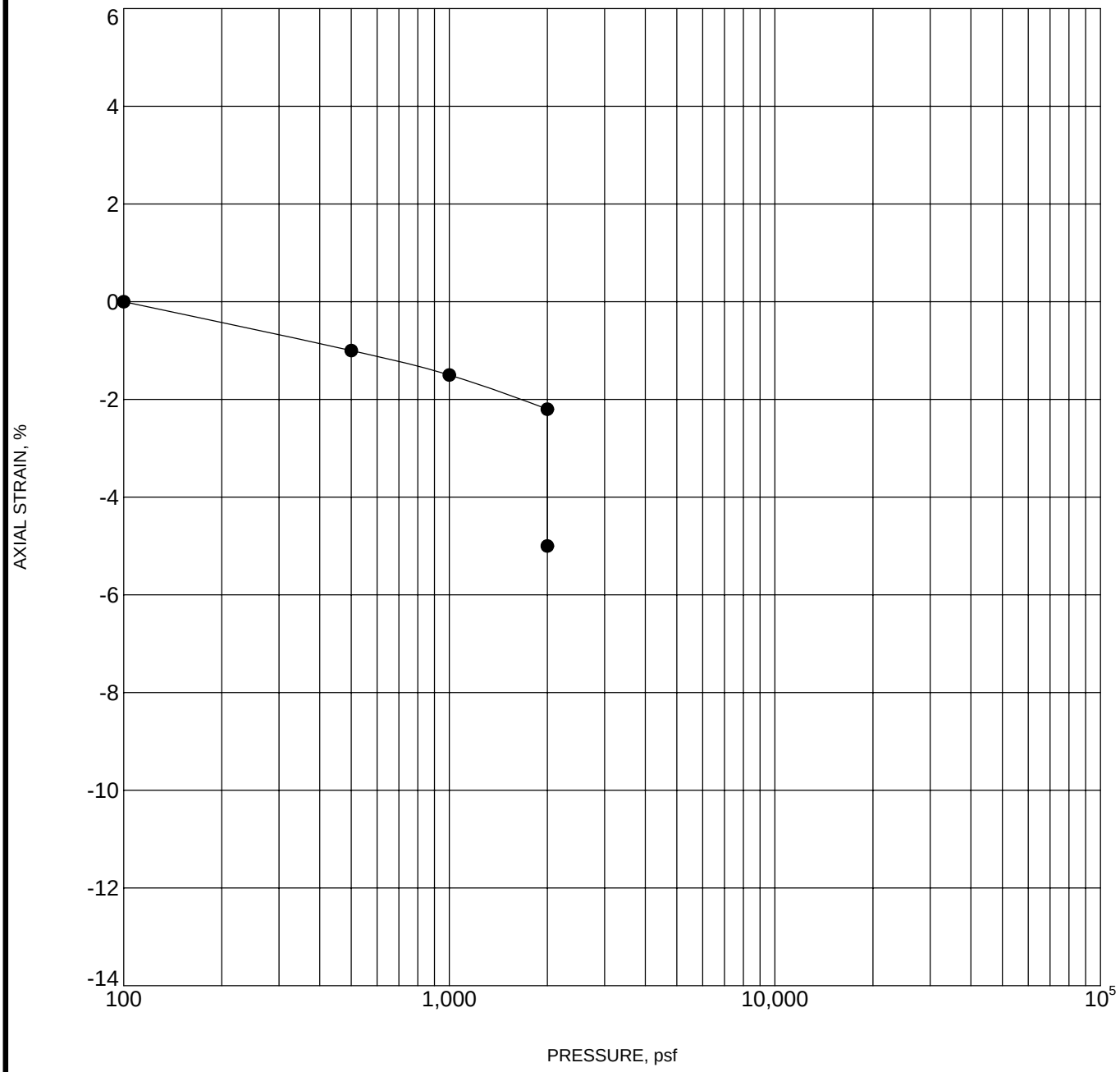
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**F-4**	**5.0ft - 6.0ft**		**105**	**4**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



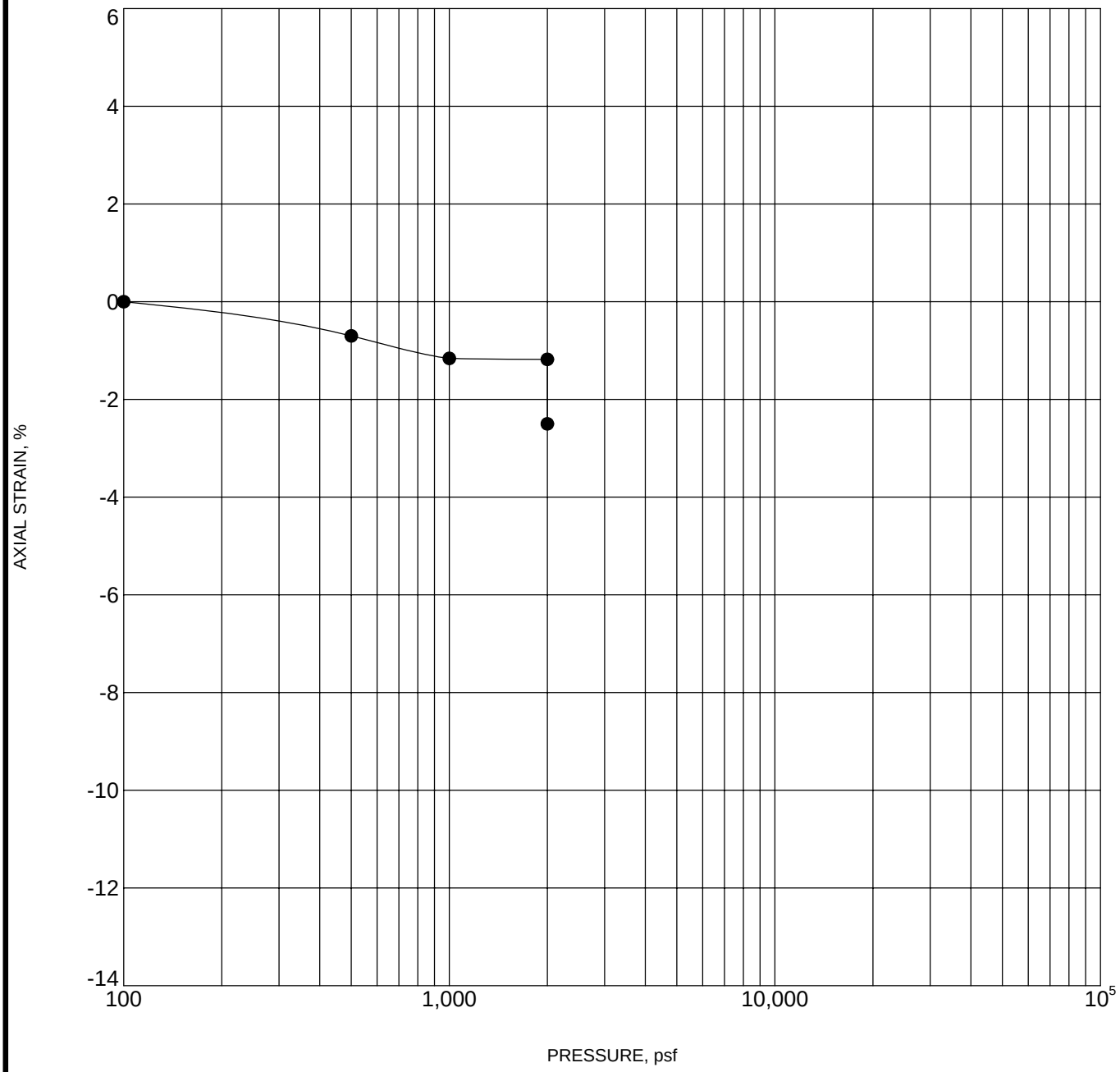
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**F-4**	**10.0ft - 11.0ft**		**112**	**3**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



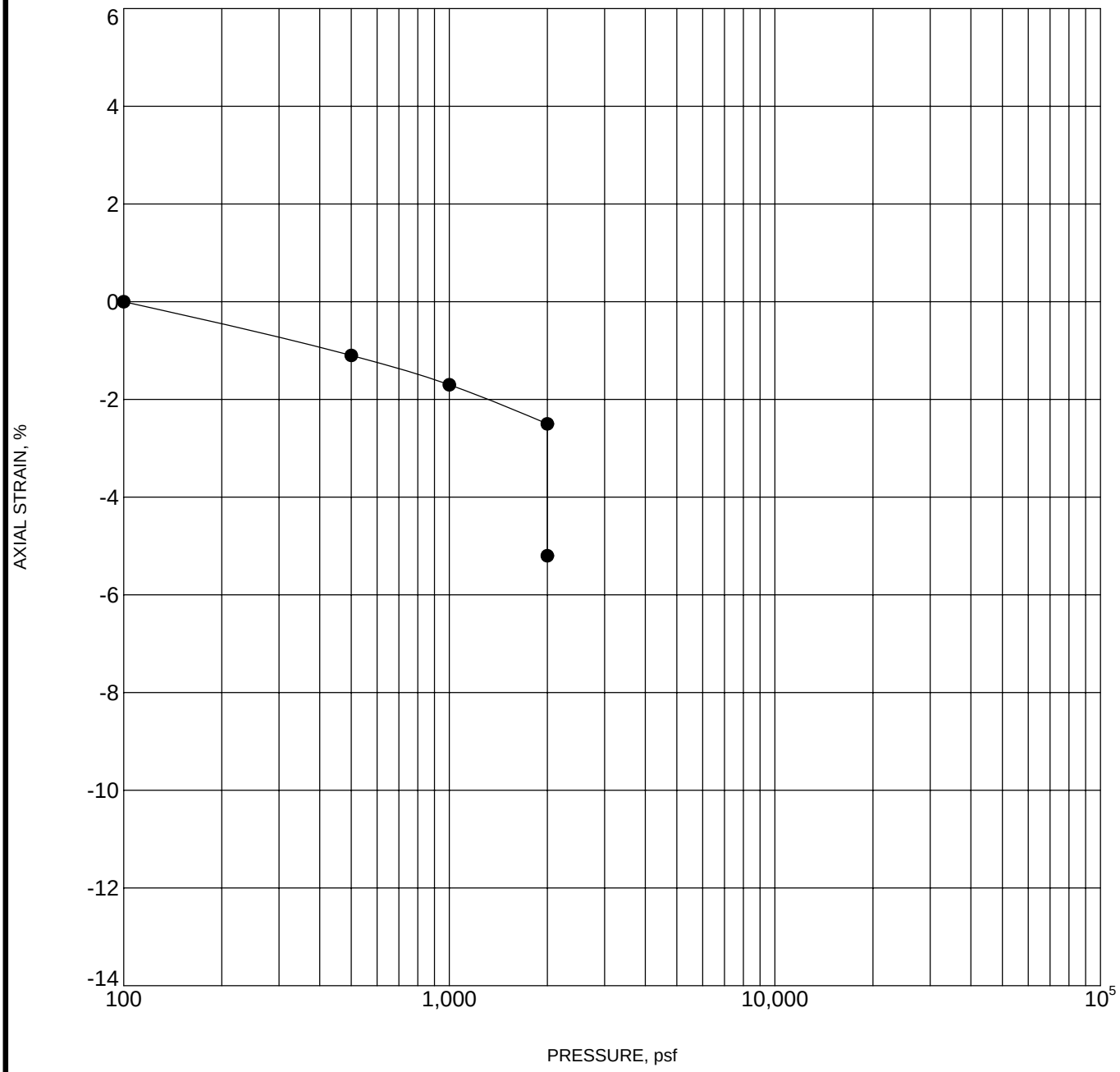
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**F-6**	**17.5ft - 18.5ft**	**GRAVELLY SILTY SAND (SM)**	**104**	**2**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



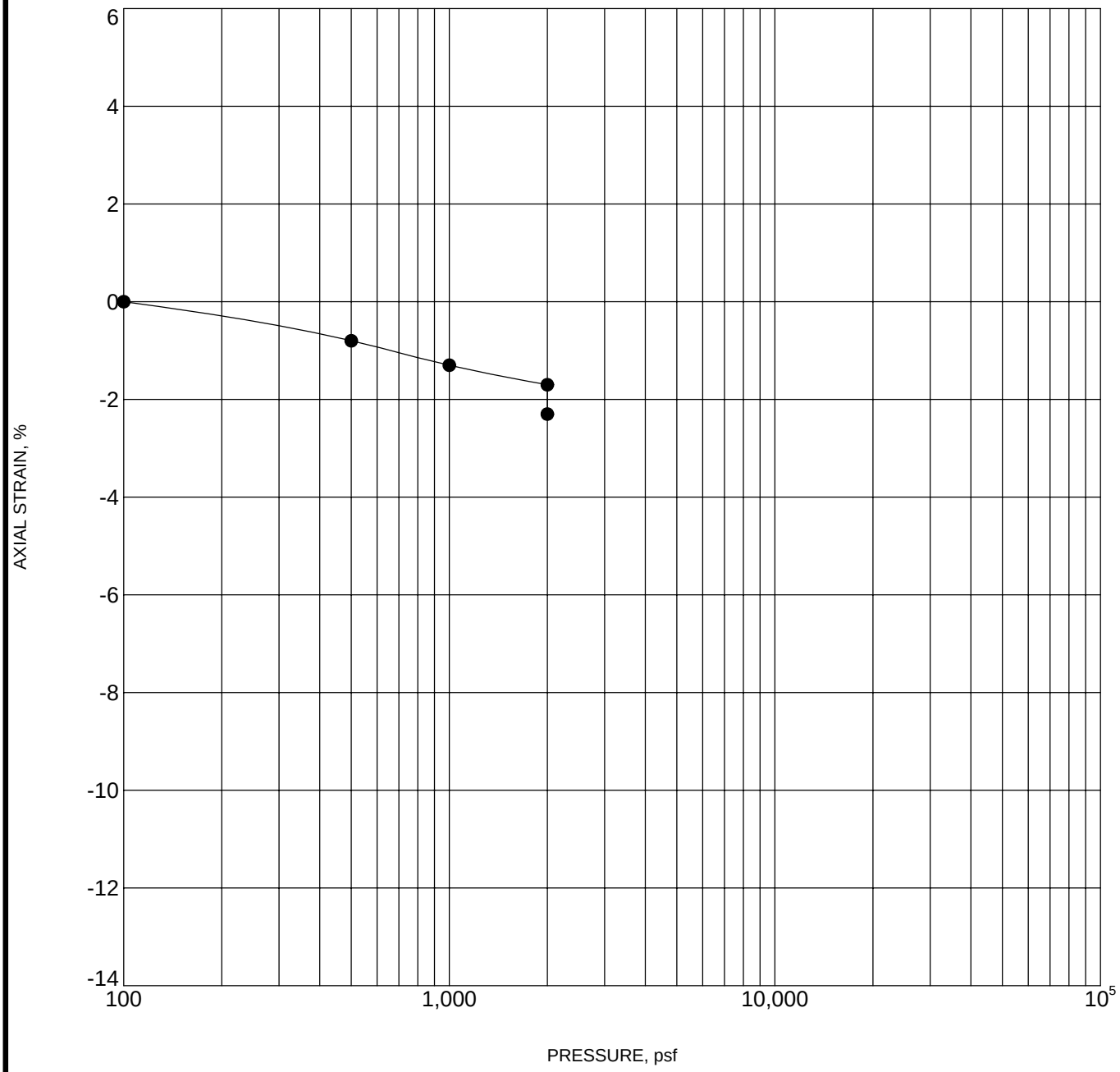
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**G-1**	**5.0ft - 6.0ft**		**91**	**6**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



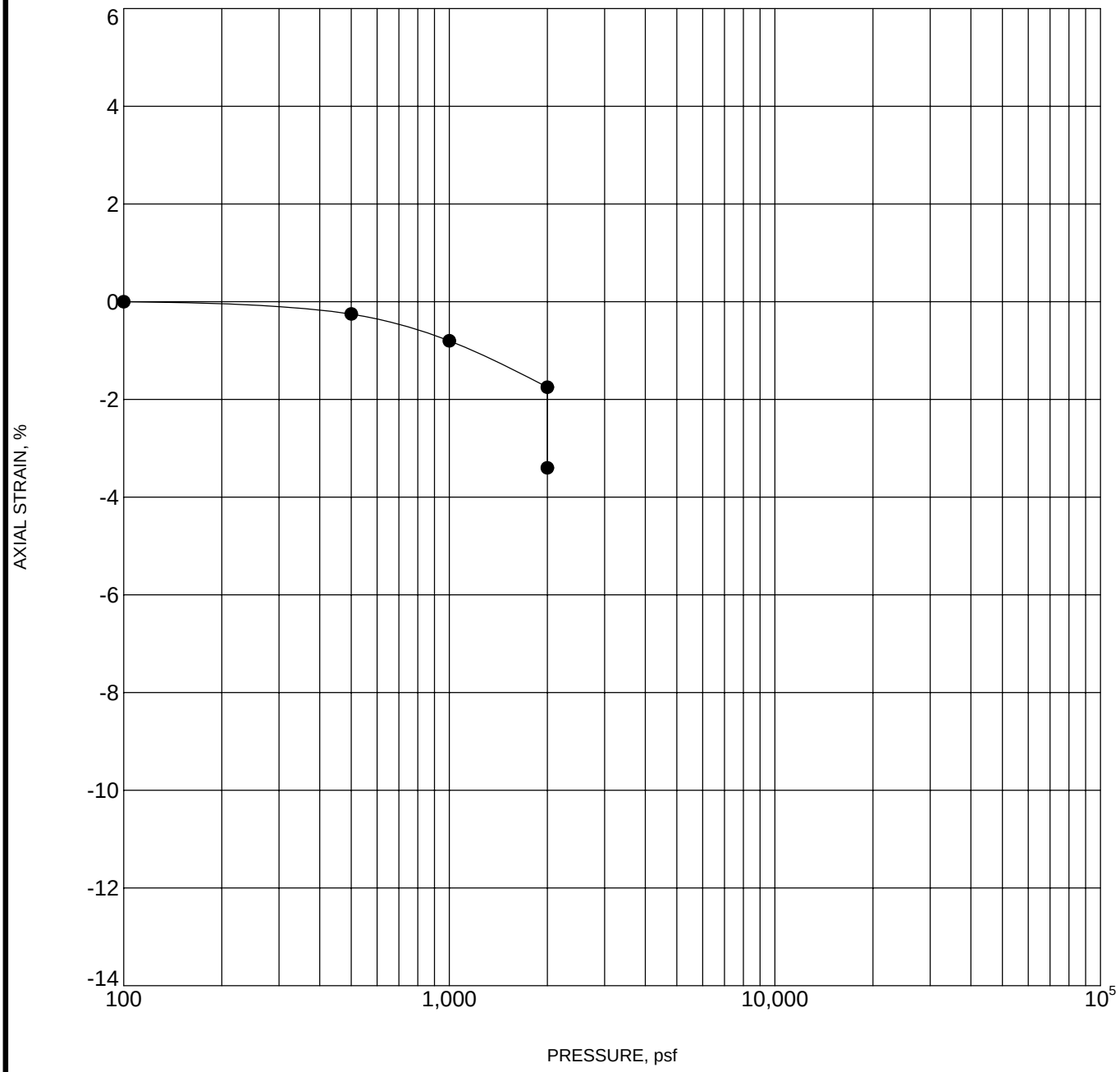
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**G-1**	**10.0ft - 11.0ft**	**GRAVELLY SILTY SAND (SM)**	**96**	**2**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



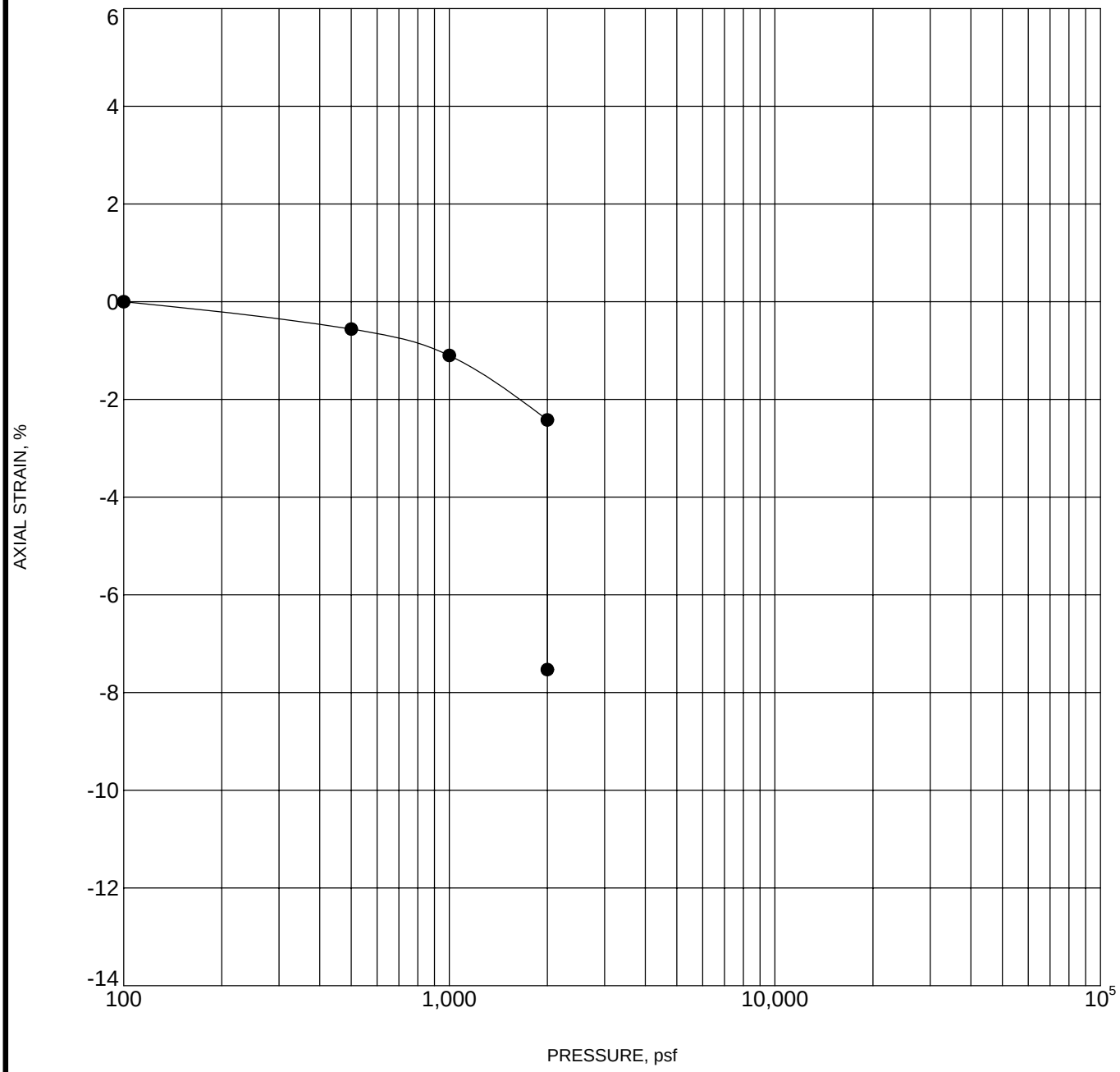
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**G-1**	**22.5ft - 23.5ft**		**105**	**3**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



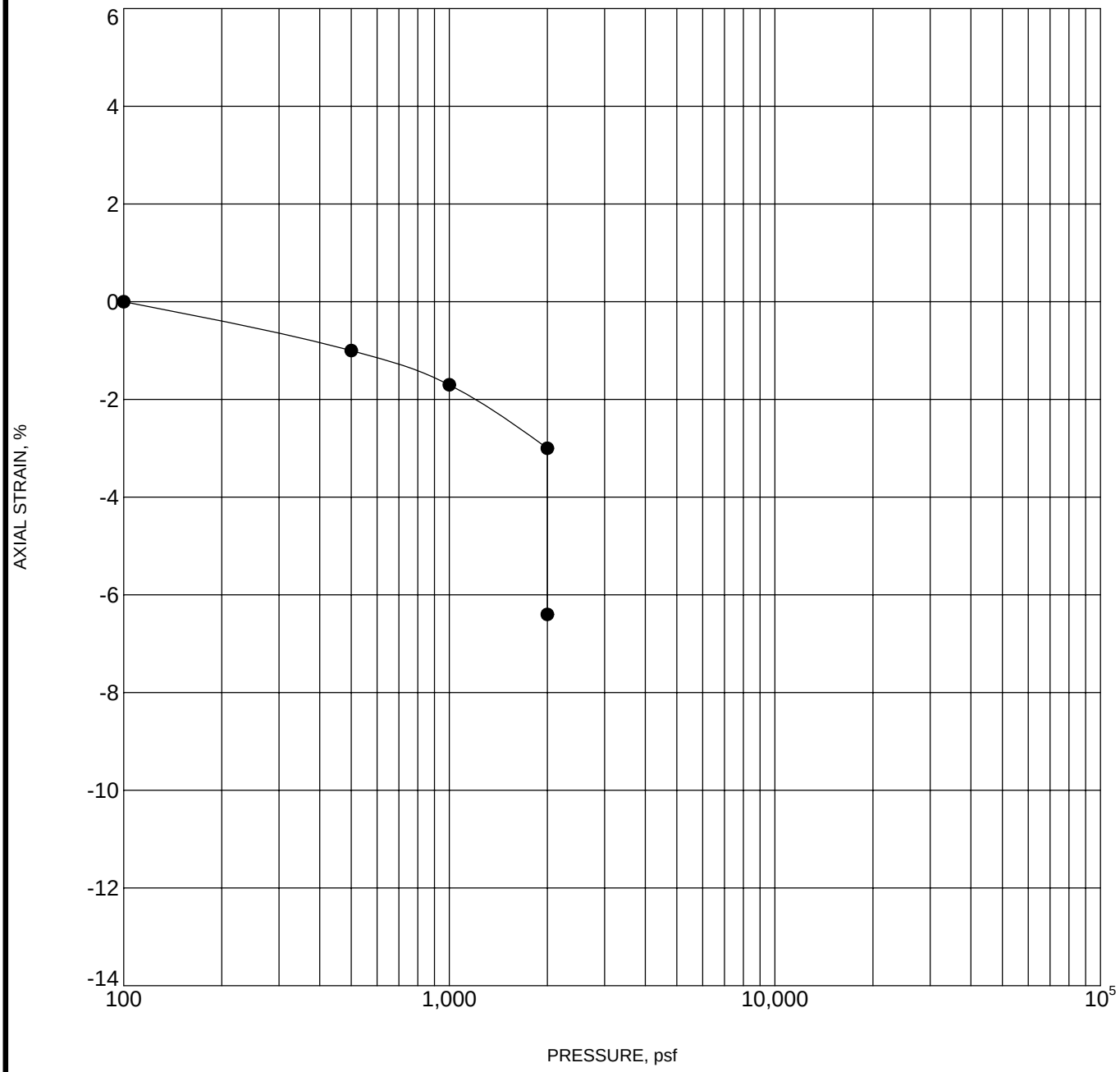
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**G-3**	**7.5ft - 8.5ft**	**CLAYEY SAND TRACE GRAVEL (SC)**	**93**	**11**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



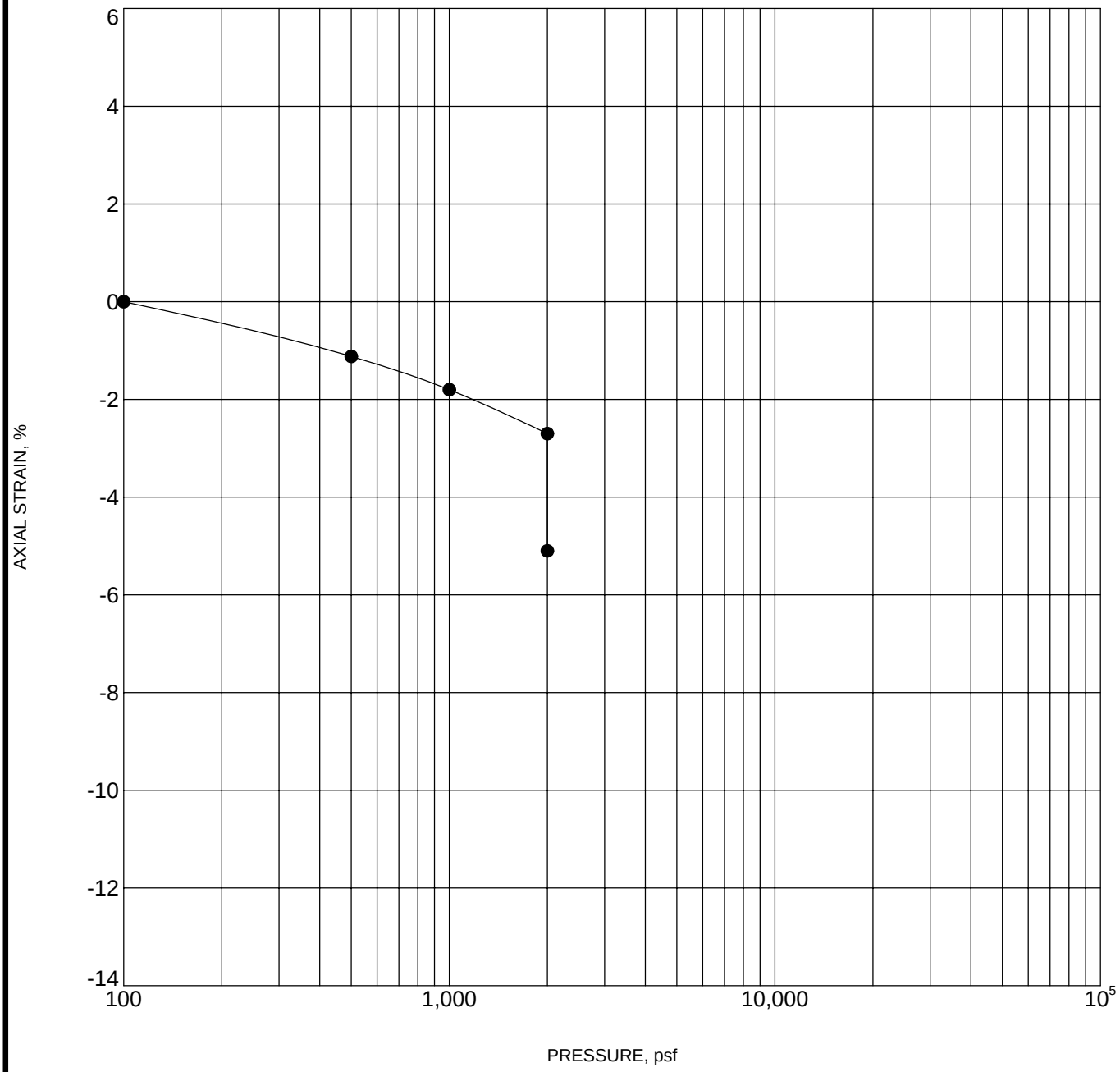
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**G-3**	**17.5ft - 18.5ft**		**103**	**5**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



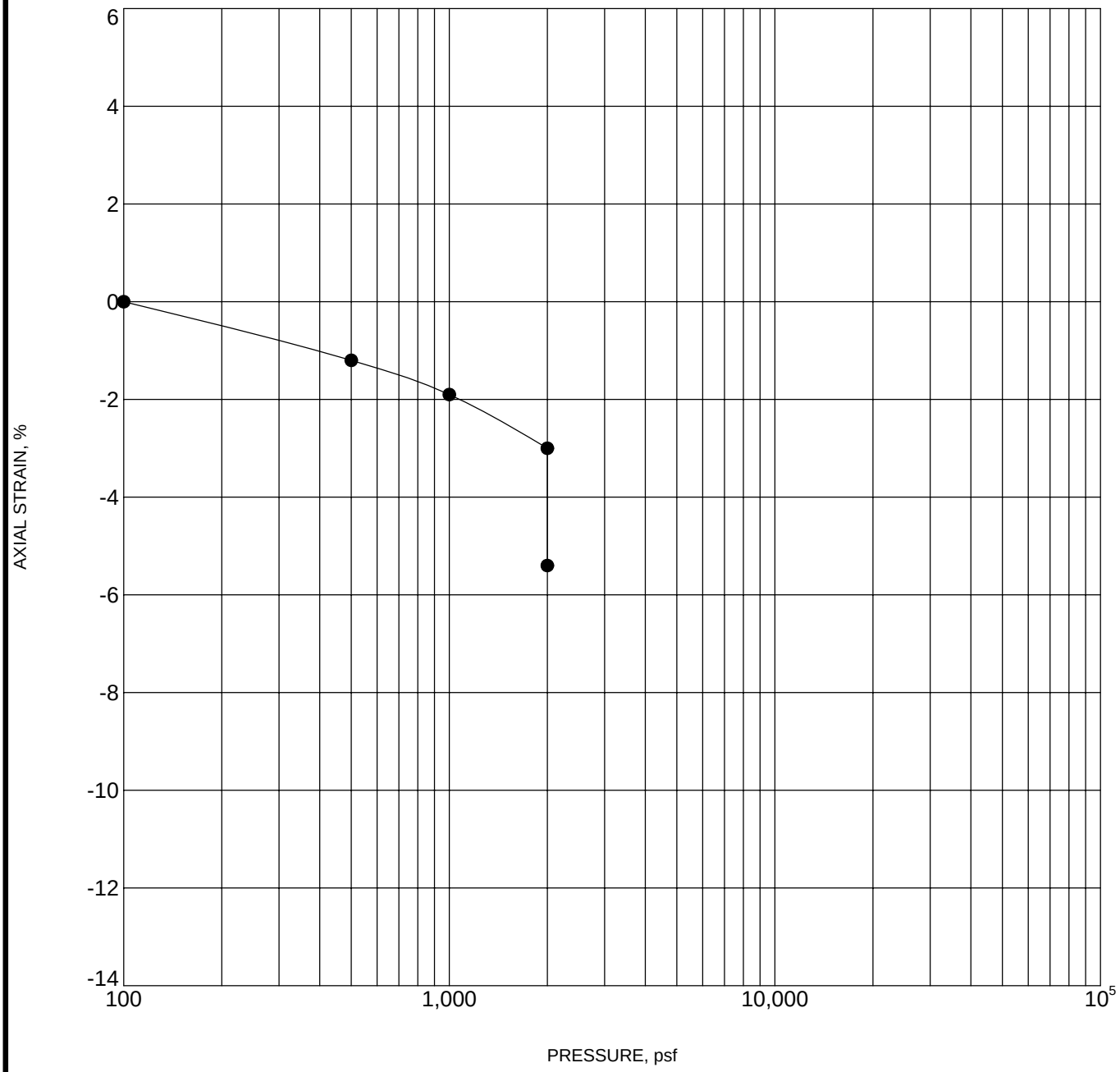
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**G-7**	**17.5ft - 18.5ft**	**GRAVELLY SILTY SAND (SM)**	**96**	**3**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



Specimen Identification			Classification	γ_d, pcf	WC,%
●	H-2	20.0ft - 21.0ft	GRAVELLY SILTY CLAYEY SAND WITH COBBLES (SC-SM)	109	2

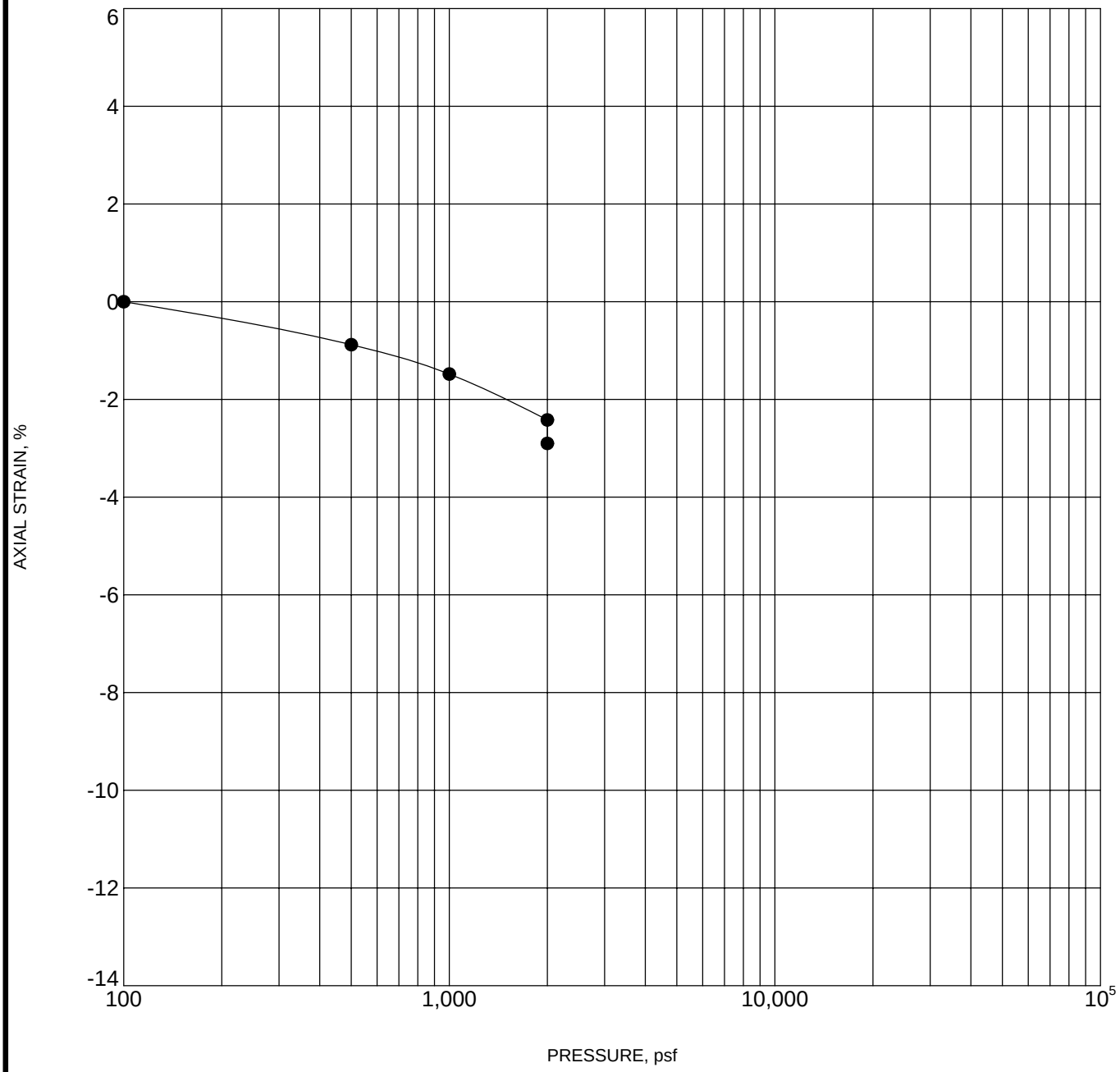
Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC CONSOL STRAIN 63085095.GPJ TERRACON.GDT 2/18/09



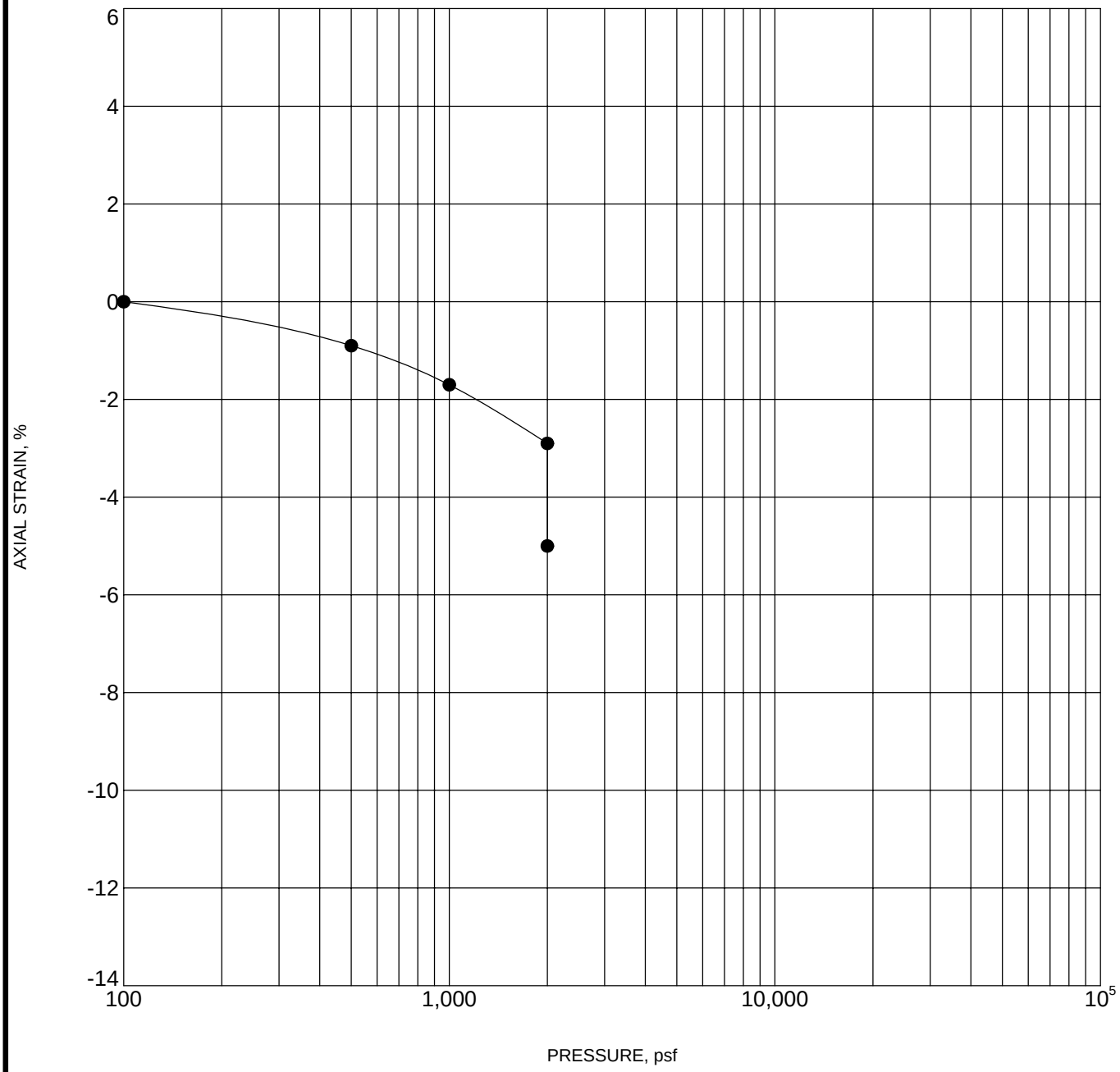
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**H-4**	**7.5ft - 8.5ft**	**CLAYEY SAND TRACE GRAVEL (SC)**	**99**	**2**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



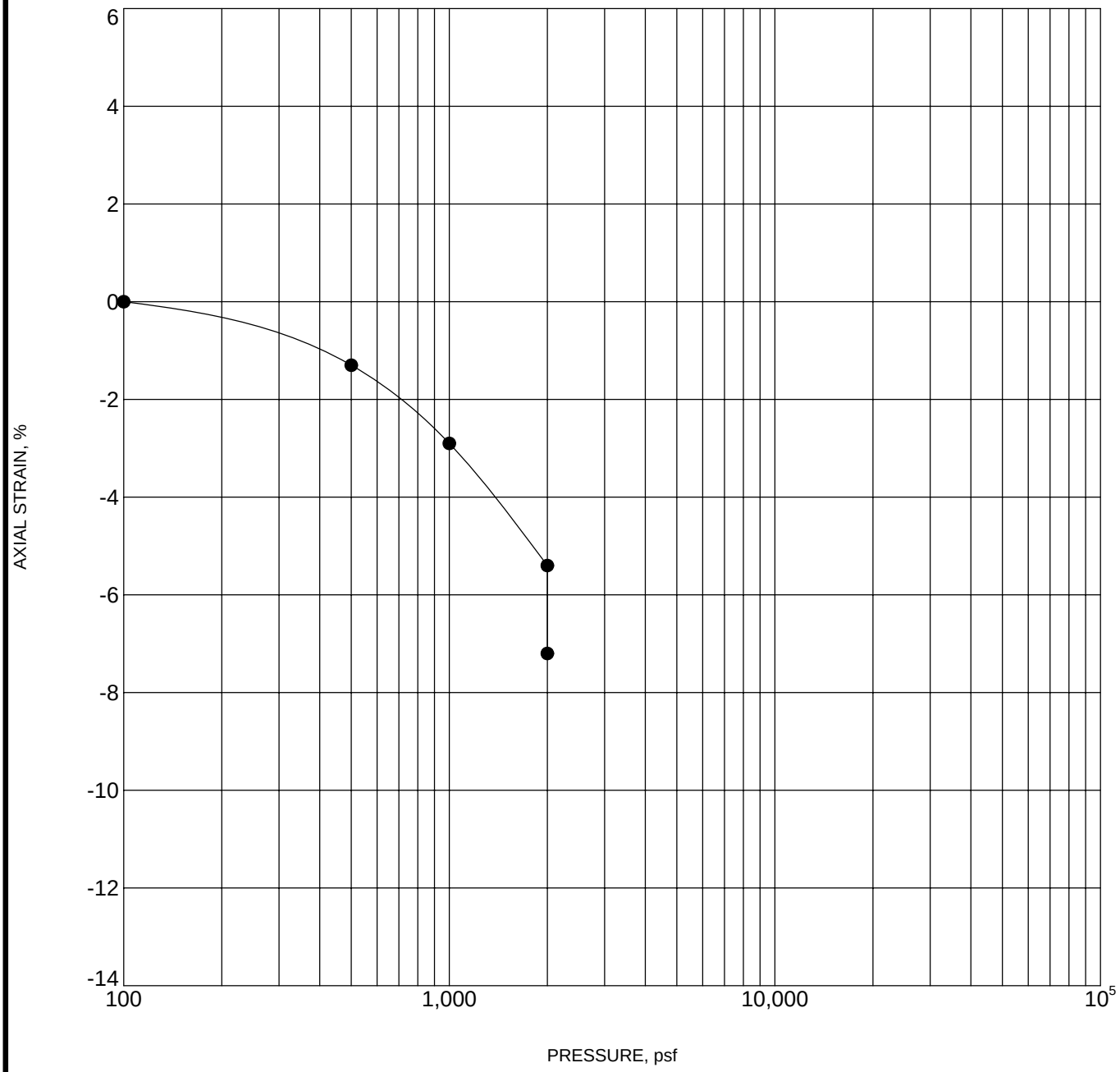
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**H-4**	**15.0ft - 16.0ft**	**SILTY CLAYEY SAND WITH GRAVEL (SC-SM)**	**105**	**7**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



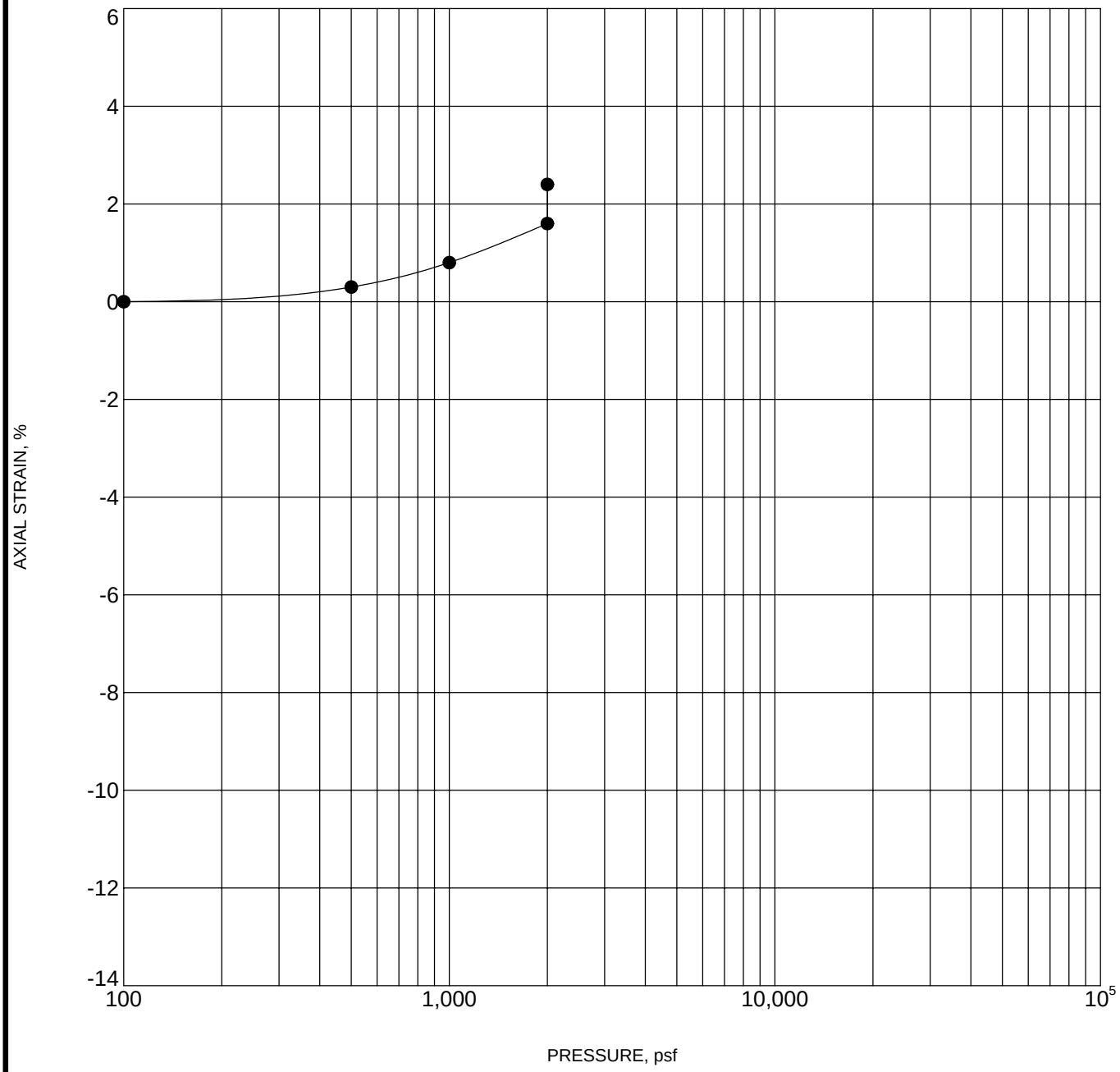
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**I-3**	**2.5ft - 3.5ft**	**SILTY SAND (SM)**	**103**	**16**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



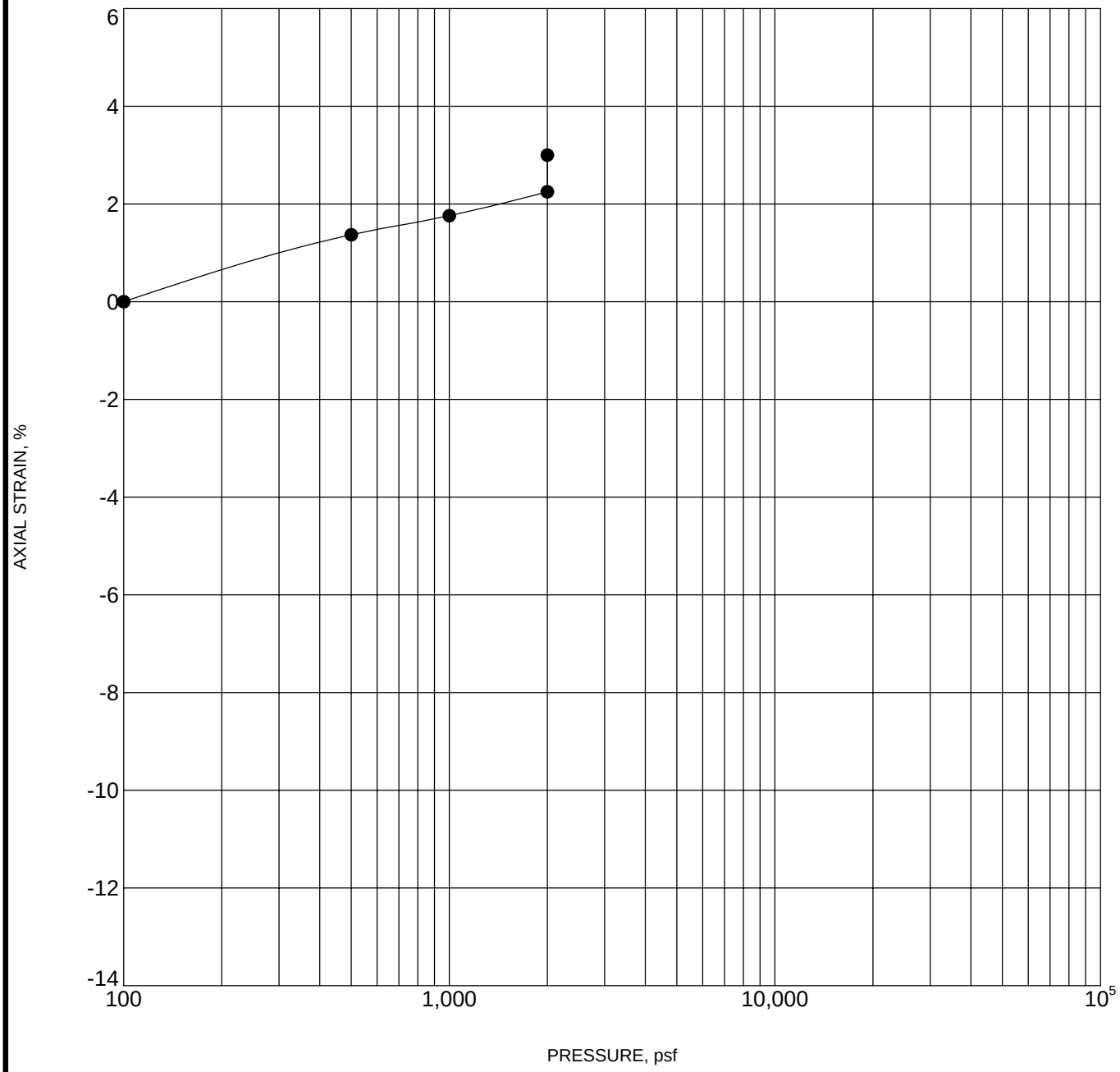
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**I-3**	**12.5ft - 13.5ft**	**GRAVELLY SAND WITH SILT (SP-SM)**	**104**	**7**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



Specimen Identification			Classification	γ_d, pcf	WC,%
●	**I-3**	**20.0ft - 21.0ft**		**104**	**4**

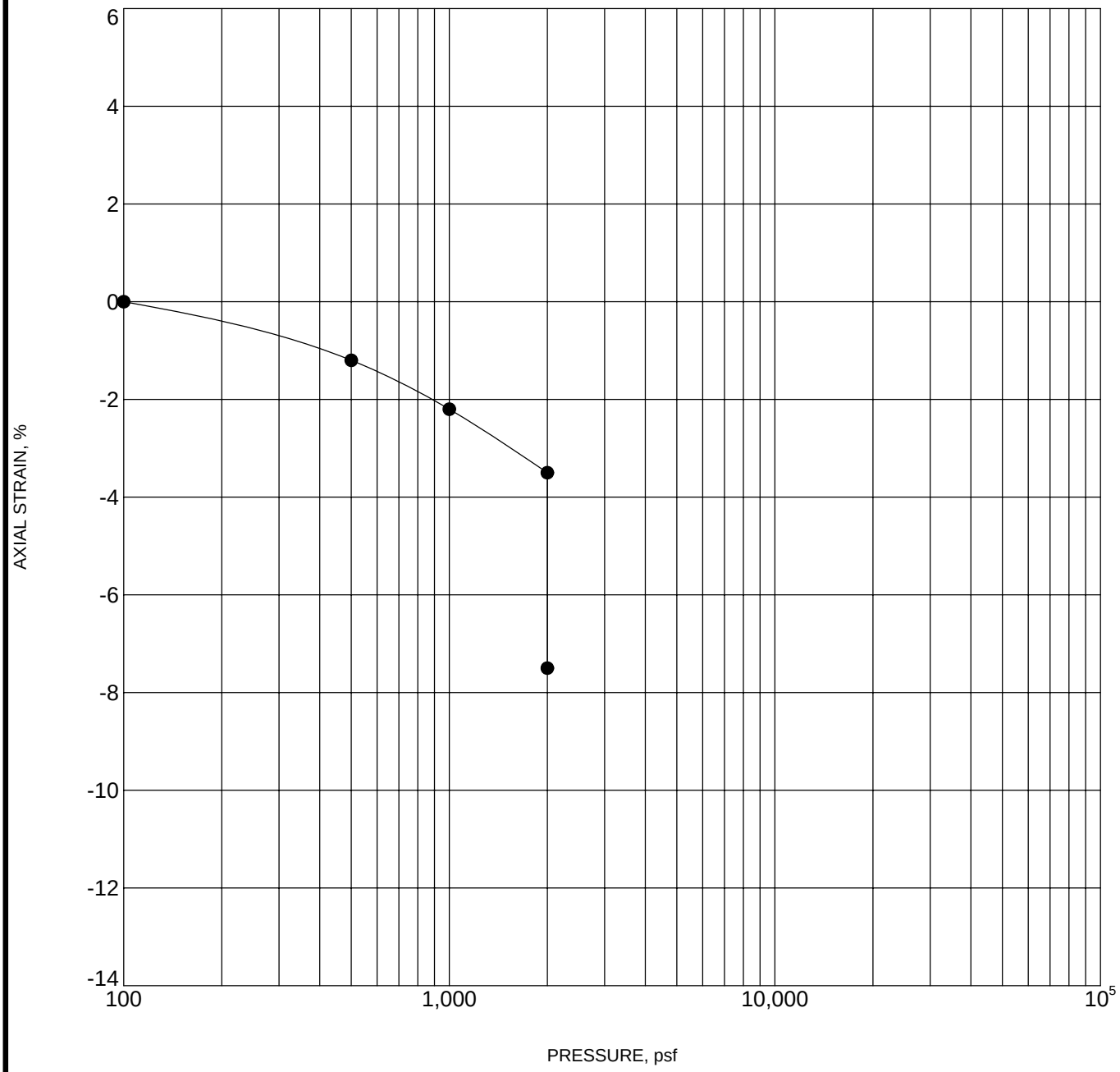
Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC CONSOL STRAIN 63085095.GPJ TERRACON.GDT 2/18/09



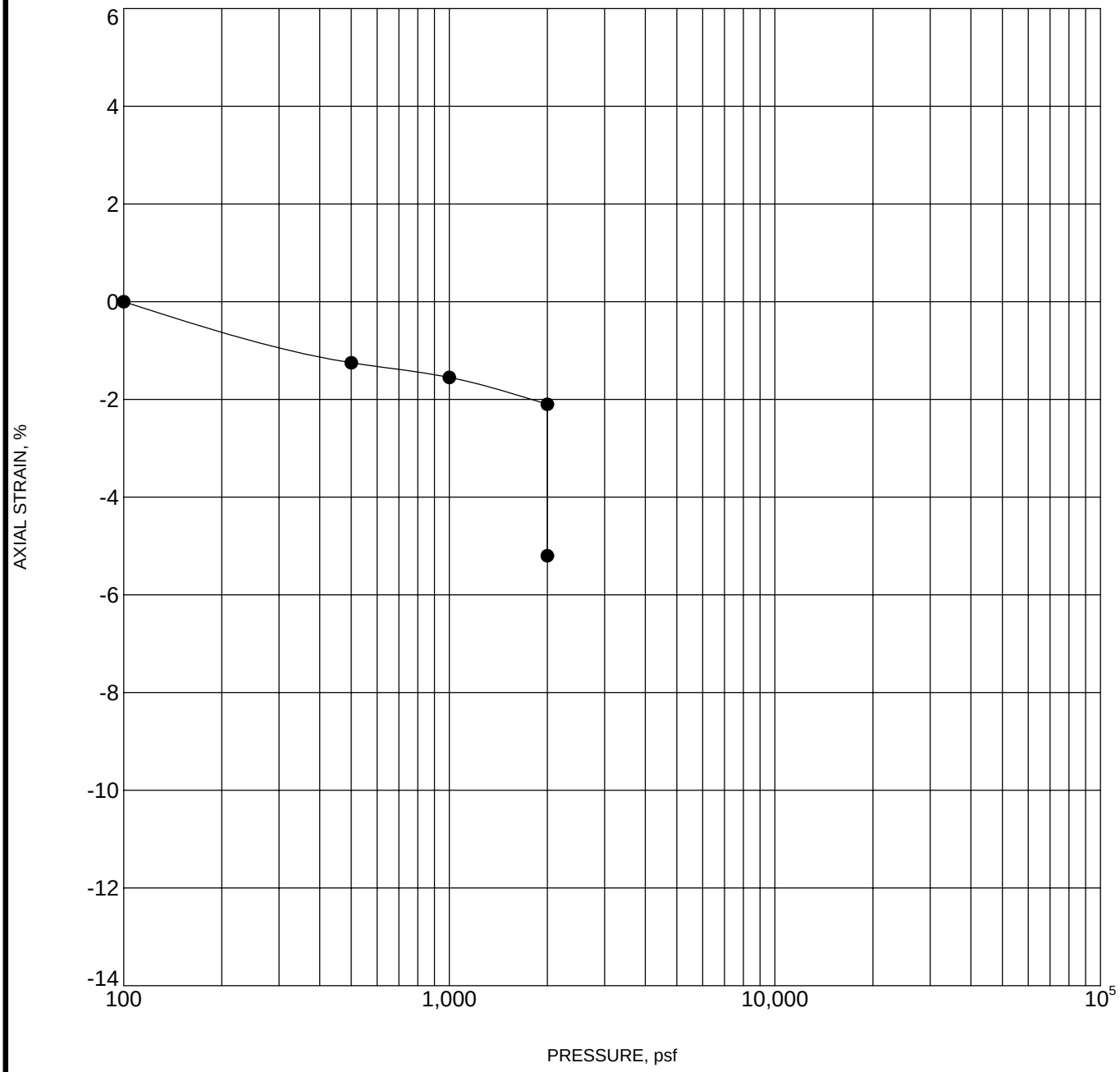
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**I-5**	**2.5ft - 3.5ft**	**SANDY SILT (ML)**	**100**	**6**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



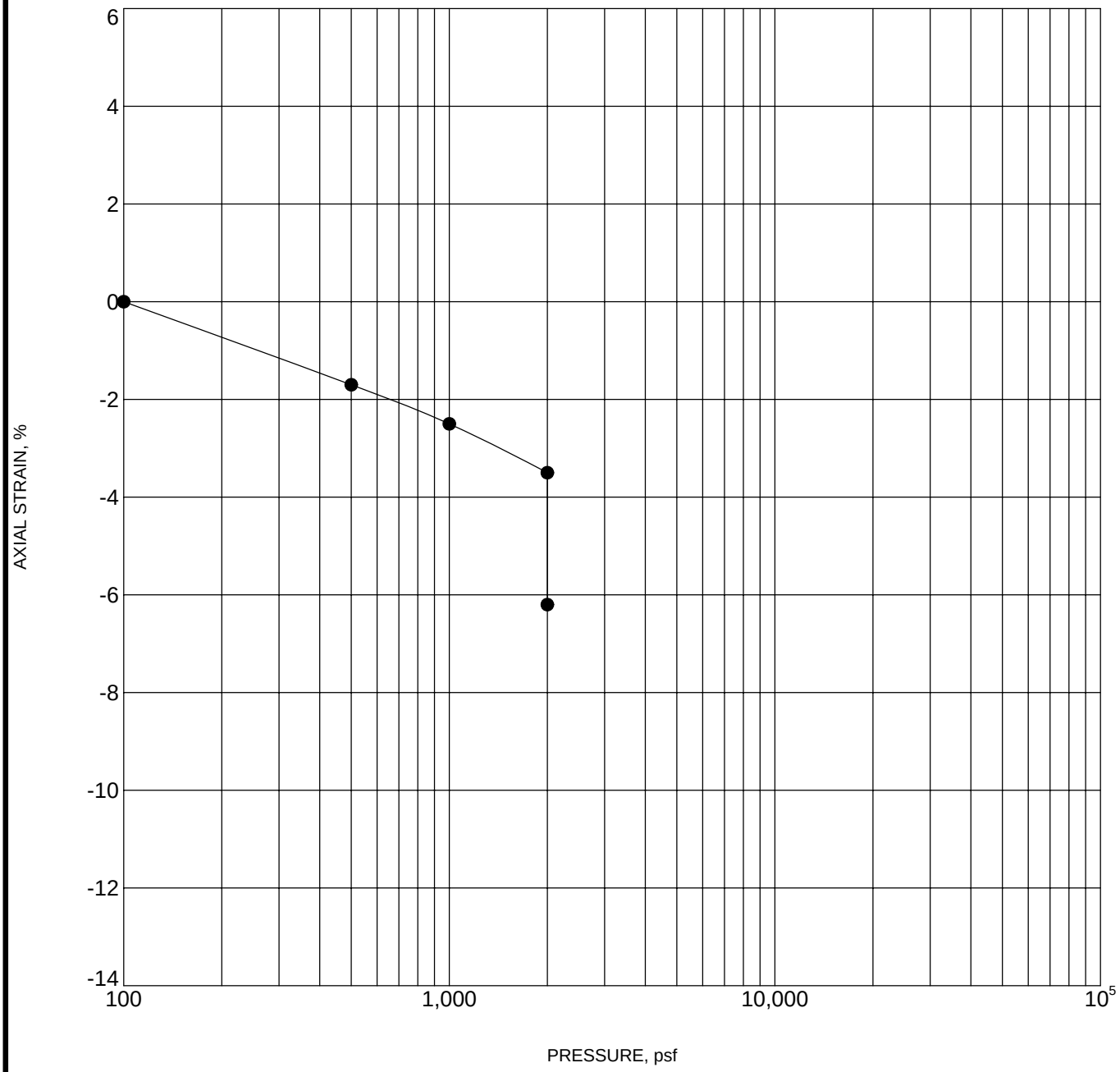
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**I-5**	**12.5ft - 13.5ft**	**GRAVELLY CLAYEY SILTY SAND (SC-SM)**	**106**	**2**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



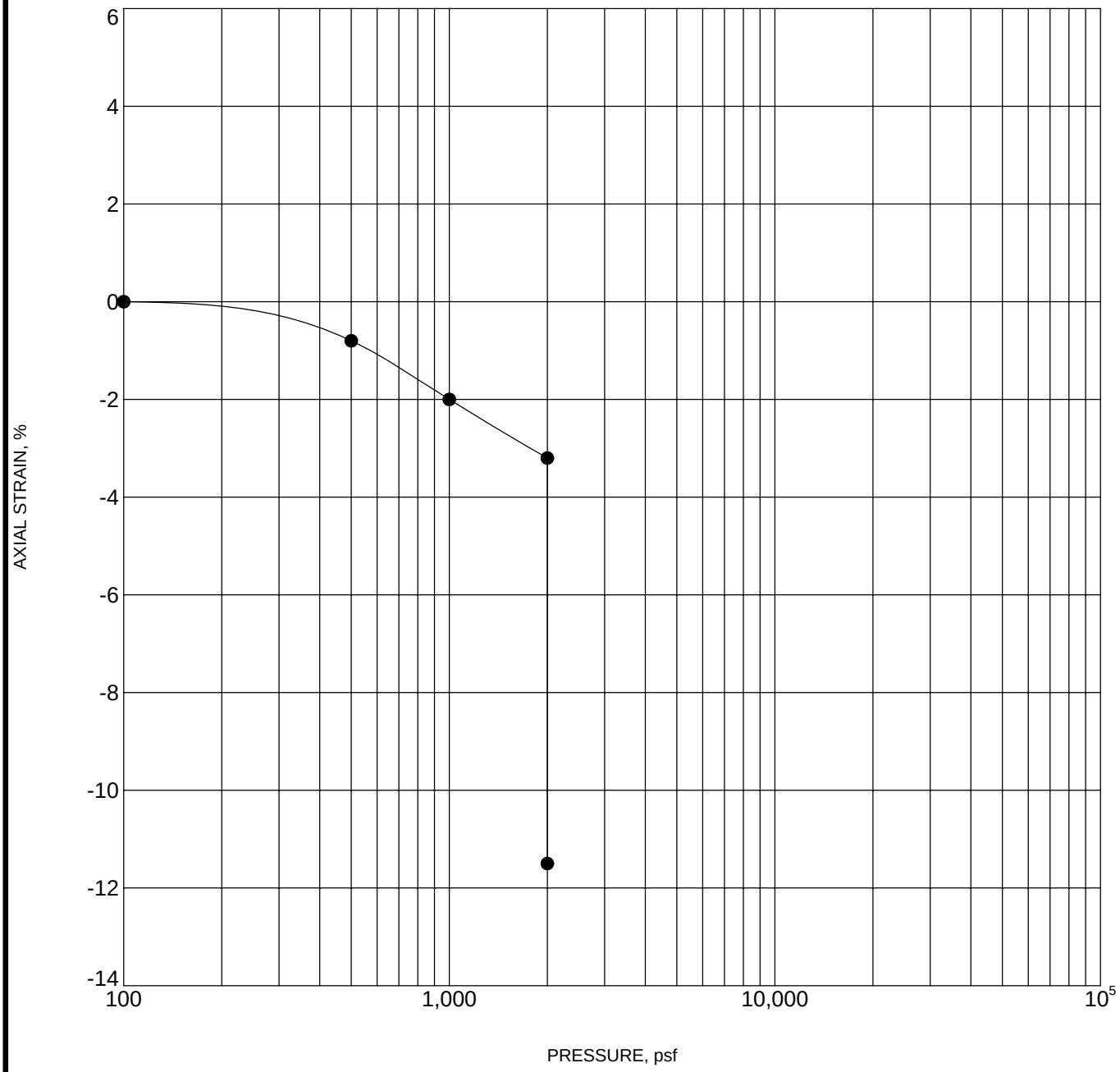
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**J-6**	**7.5ft - 8.5ft**	**GRAVELLY SILTY SAND (SM)**	**97**	**3**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



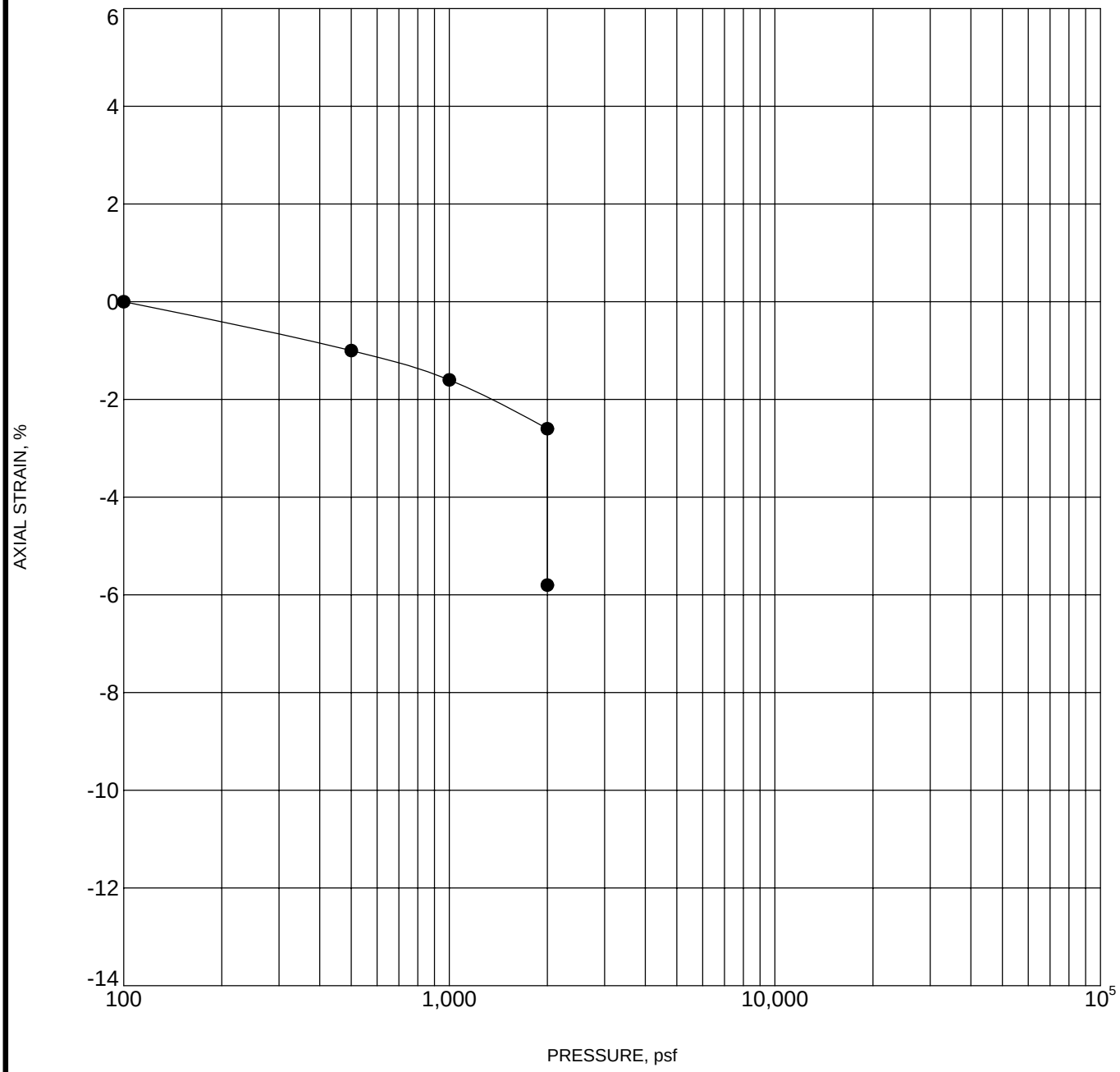
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**K-3**	**2.5ft - 3.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**76**	**13**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



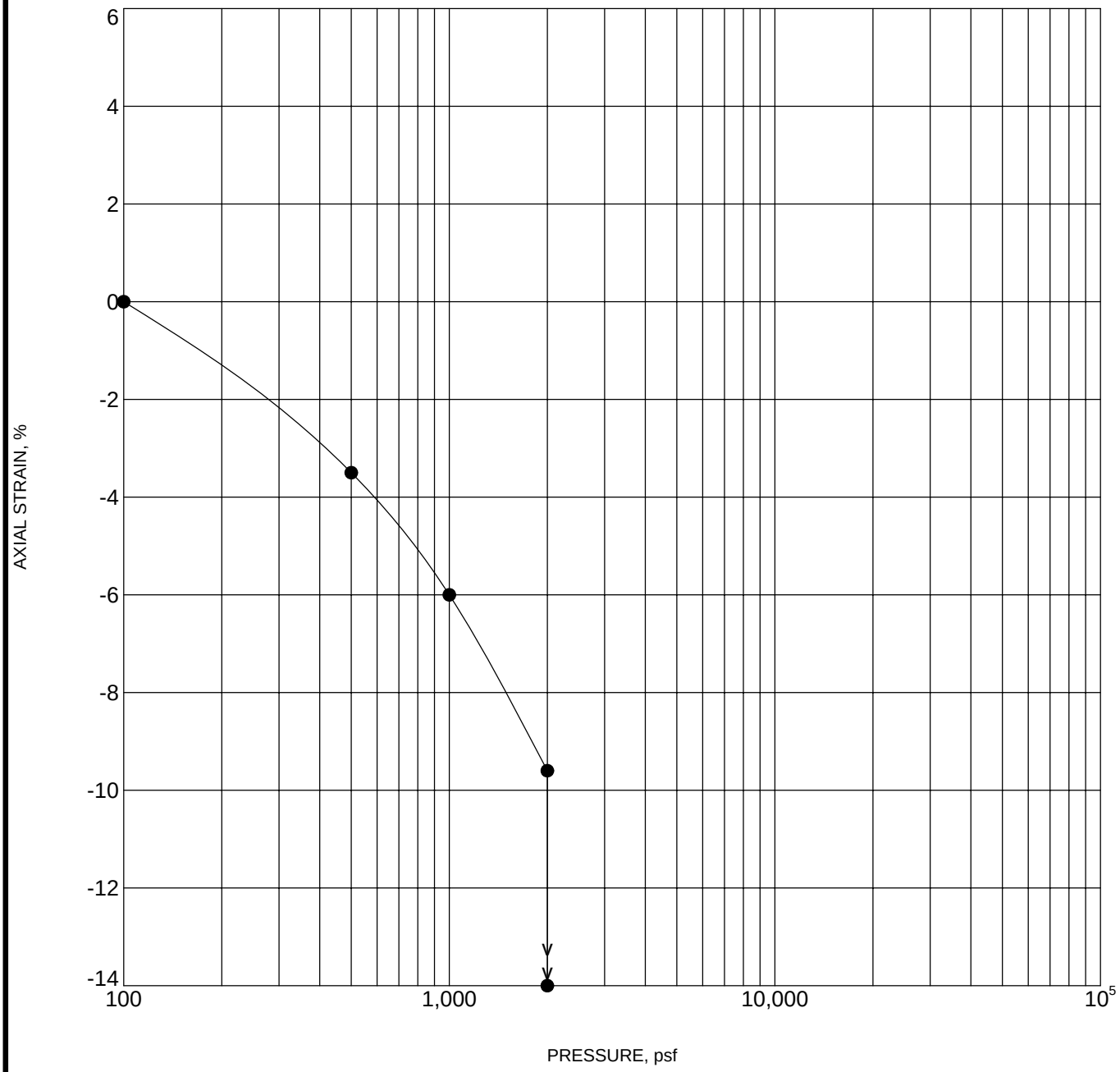
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**L-2**	**2.5ft - 3.5ft**	**SANDY LEAN CLAY (CL)**	**79**	**10**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



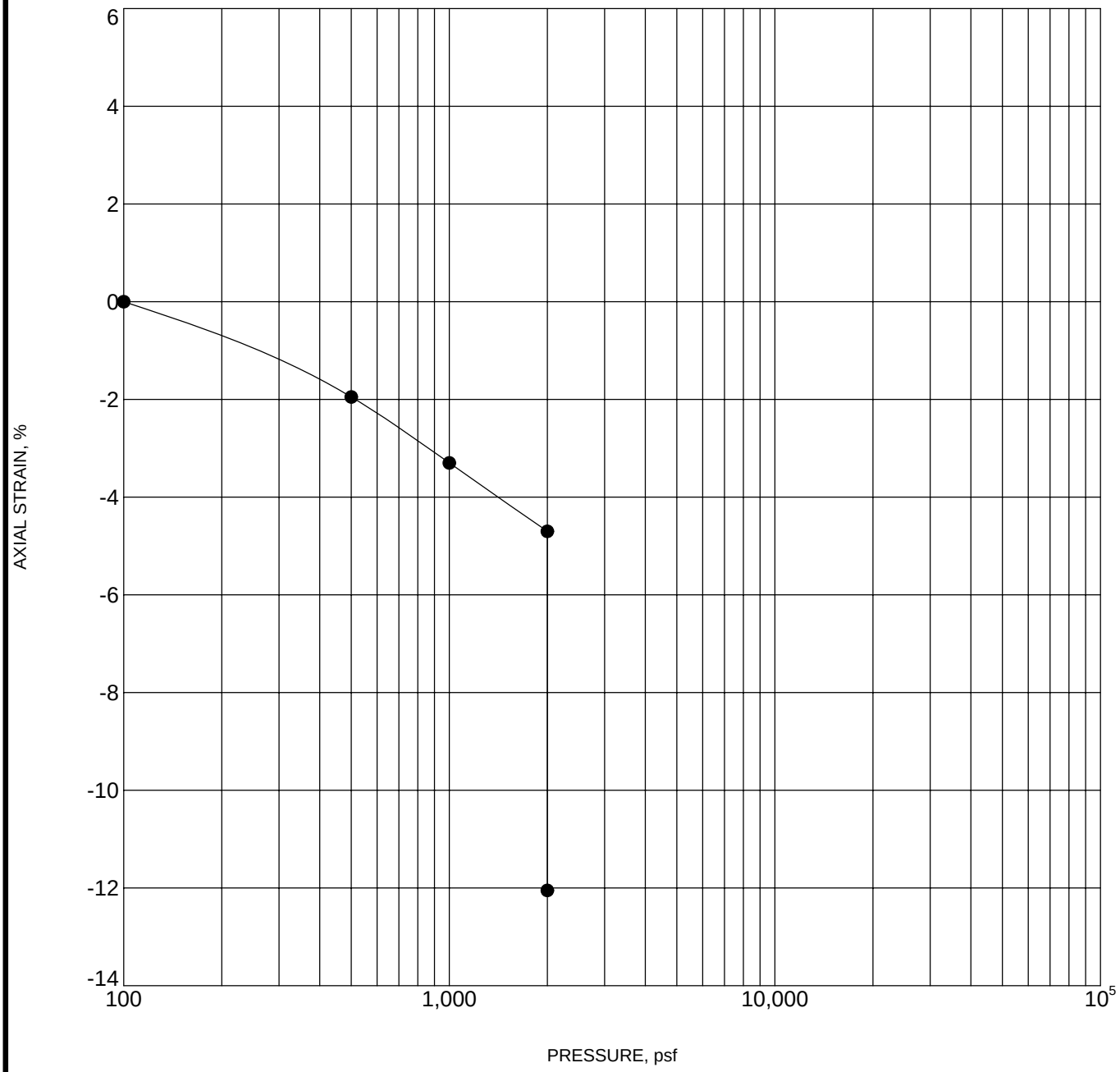
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**L-4**	**12.5ft - 13.5ft**	**GRAVELLY SILTY SAND (SM)**	**86**	**4**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



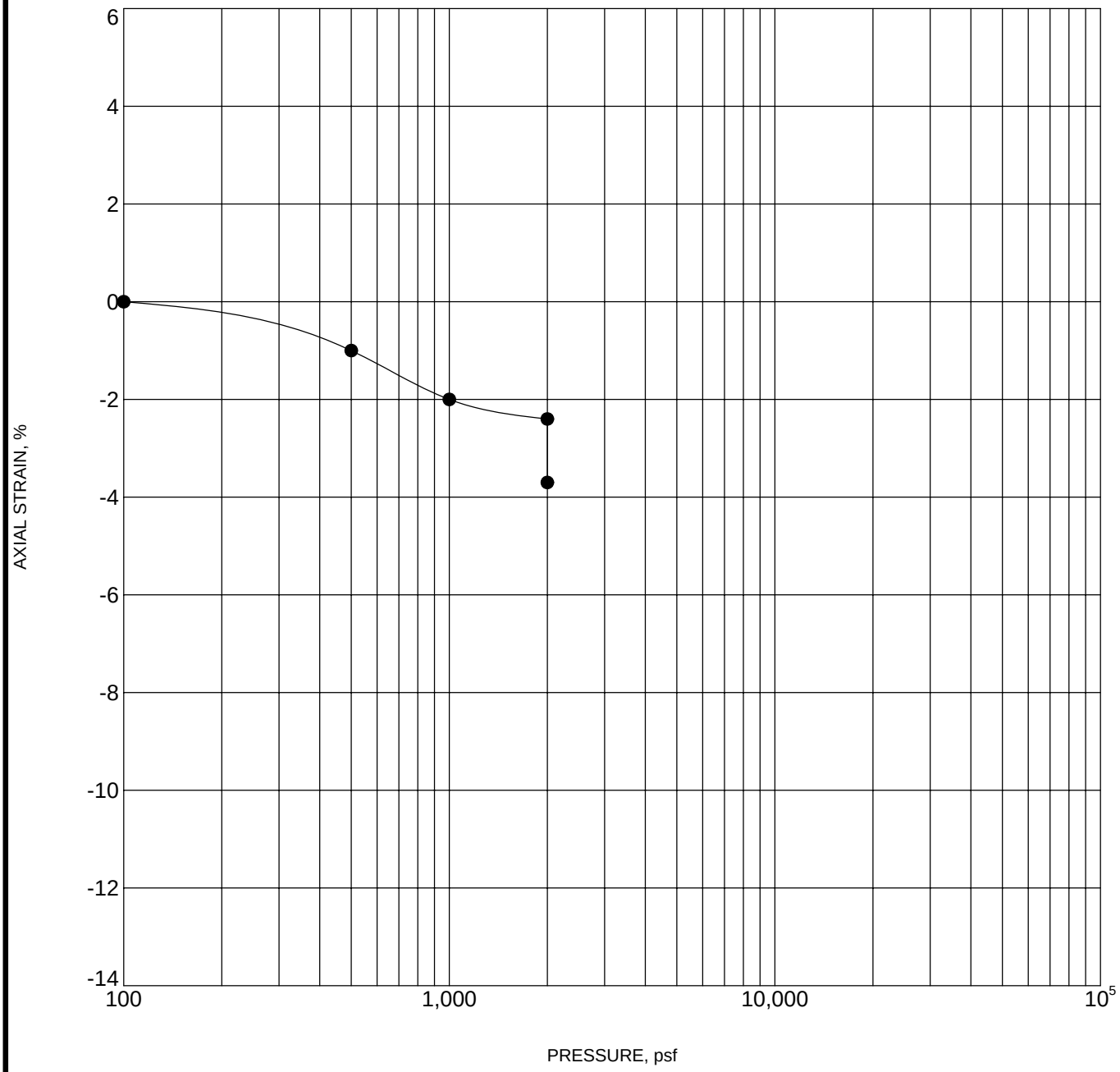
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**M-3**	**7.5ft - 8.5ft**	**GRAVELLY SAND WITH SILT (SP-SM)**	**95**	**5**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



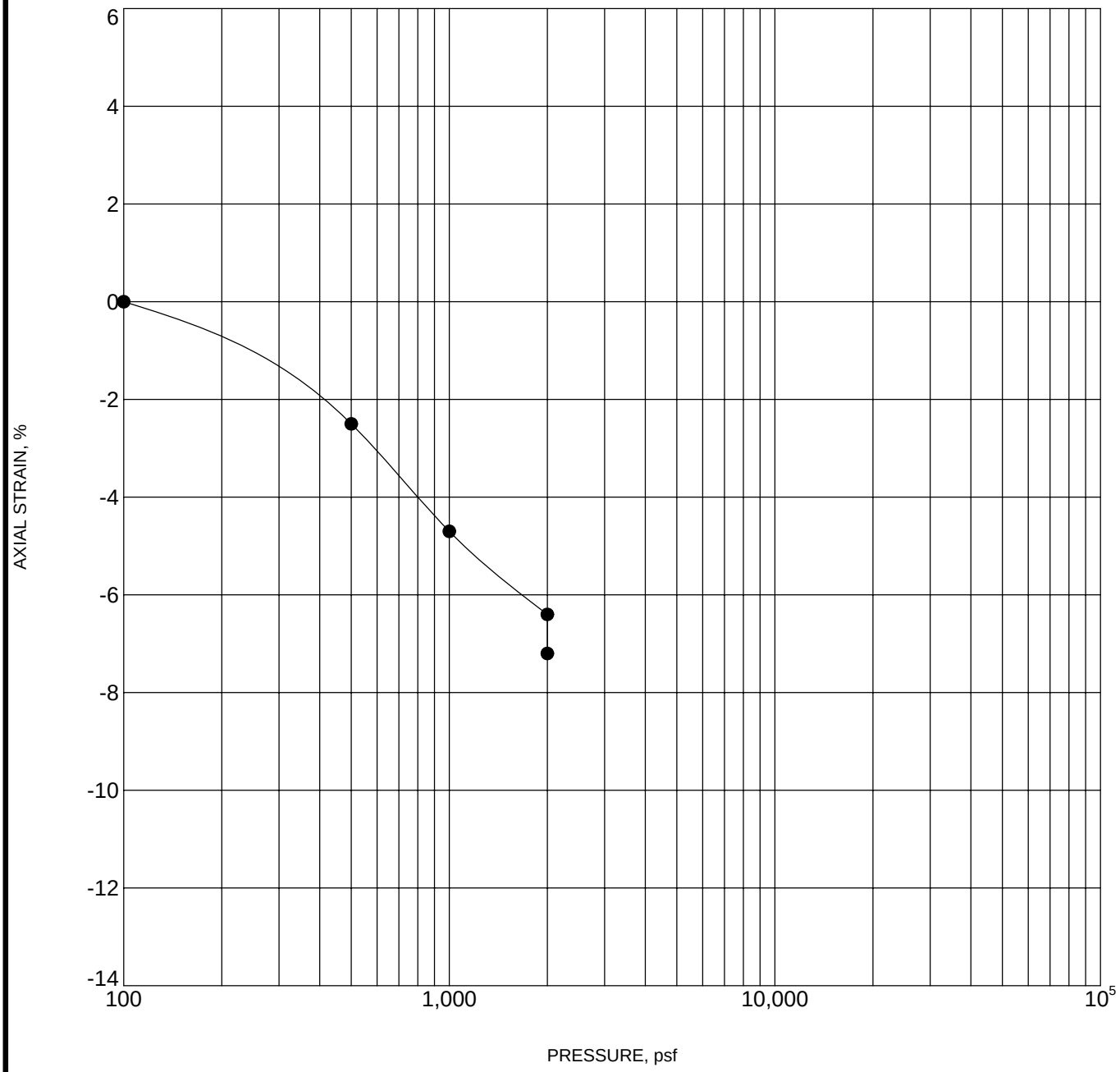
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**M-5**	**15.0ft - 16.0ft**	**CLAYEY SAND TRACE GRAVEL (SC)**	**103**	**3**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



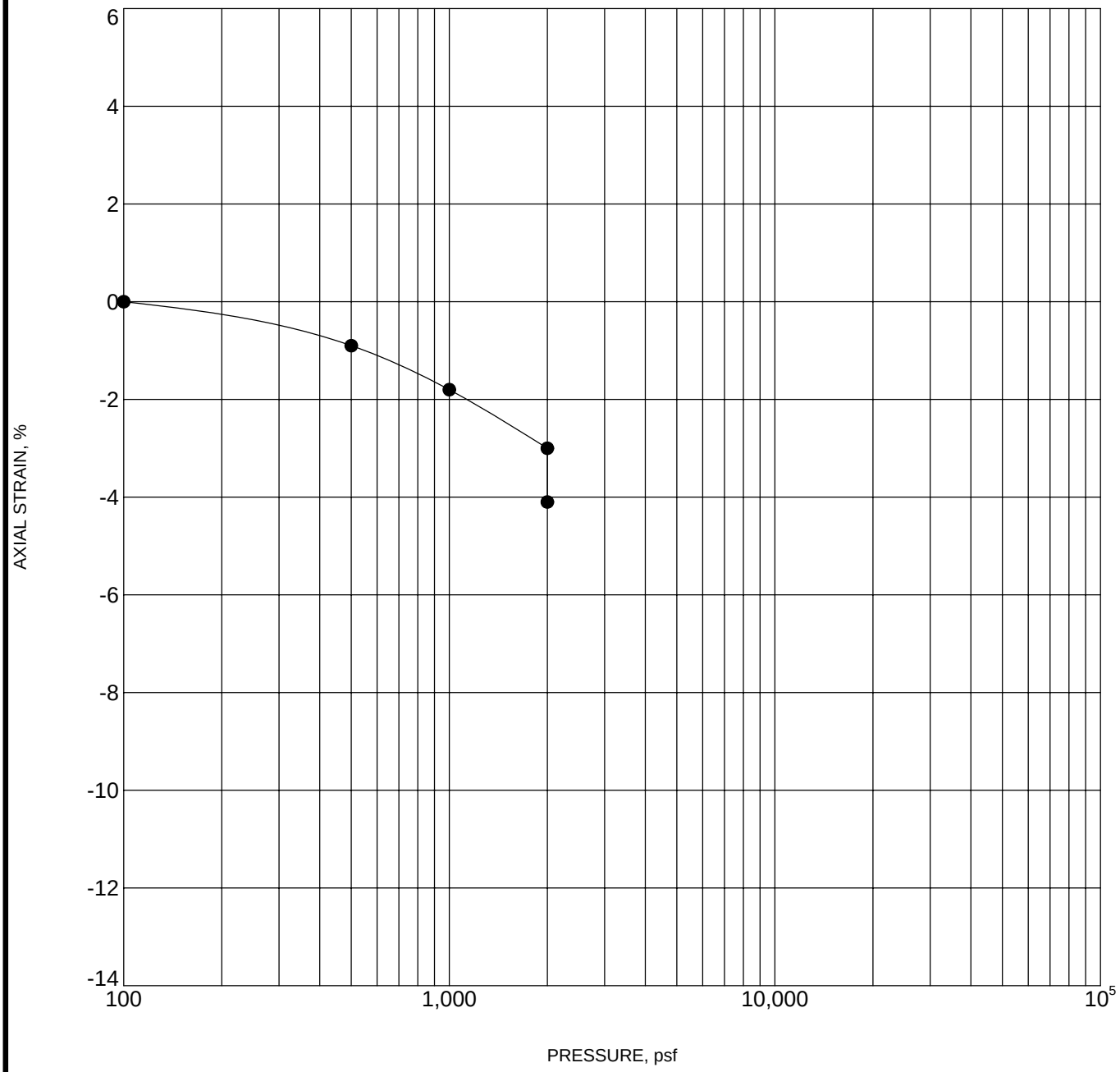
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**N-4**	**15.0ft - 16.0ft**	**SAND WITH GRAVEL TRACE SILT (SP)**	**104**	**10**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



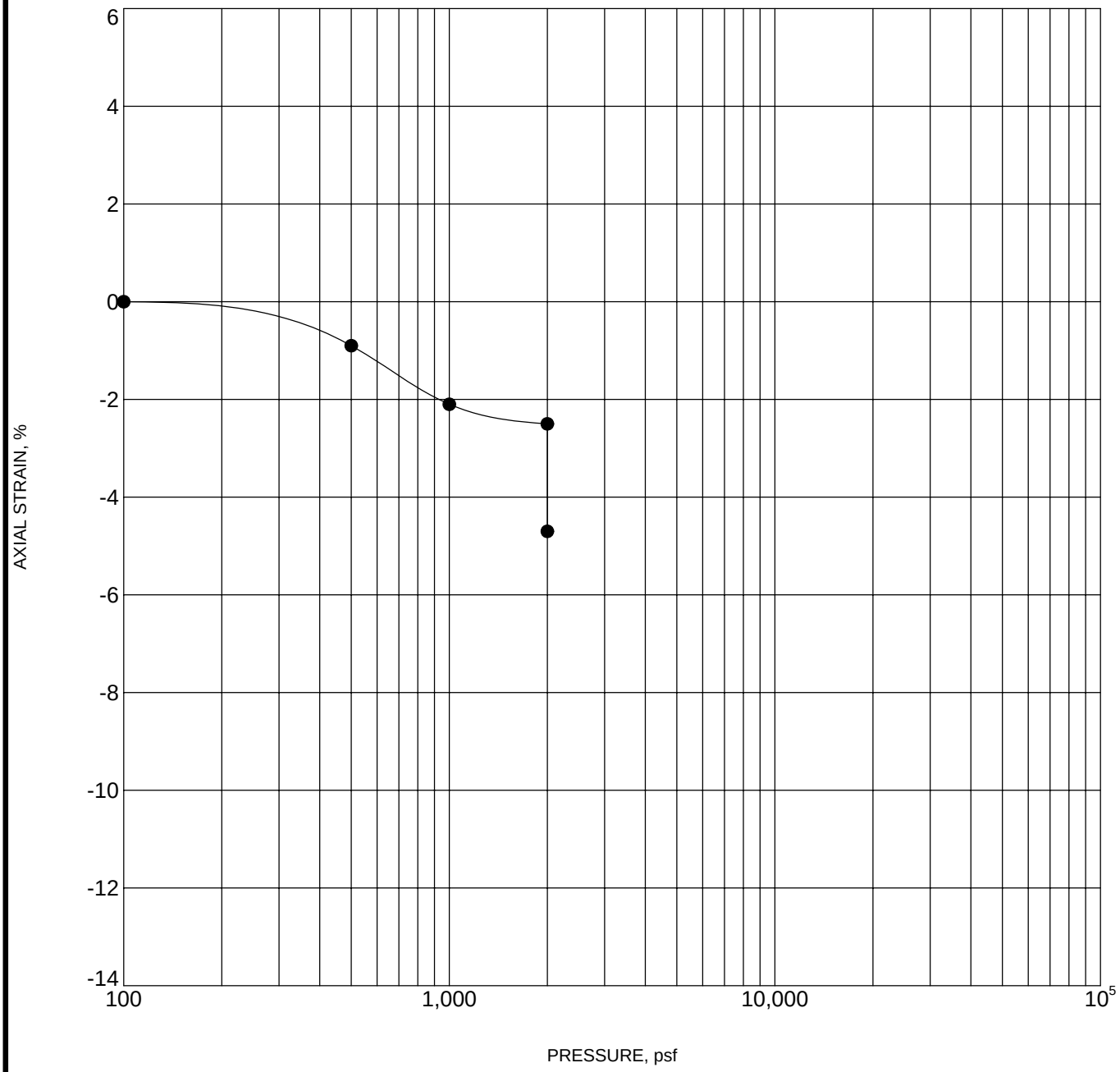
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**O-3**	**2.5ft - 3.5ft**	**SAND WITH GRAVEL TRACE SILT (SP)**	**108**	**4**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



Specimen Identification			Classification	γ_d, pcf	WC,%
●	**O-3**	**10.0ft - 11.0ft**	**GRAVELLY SILTY SAND (SM)**	**107**	**3**

Notes:

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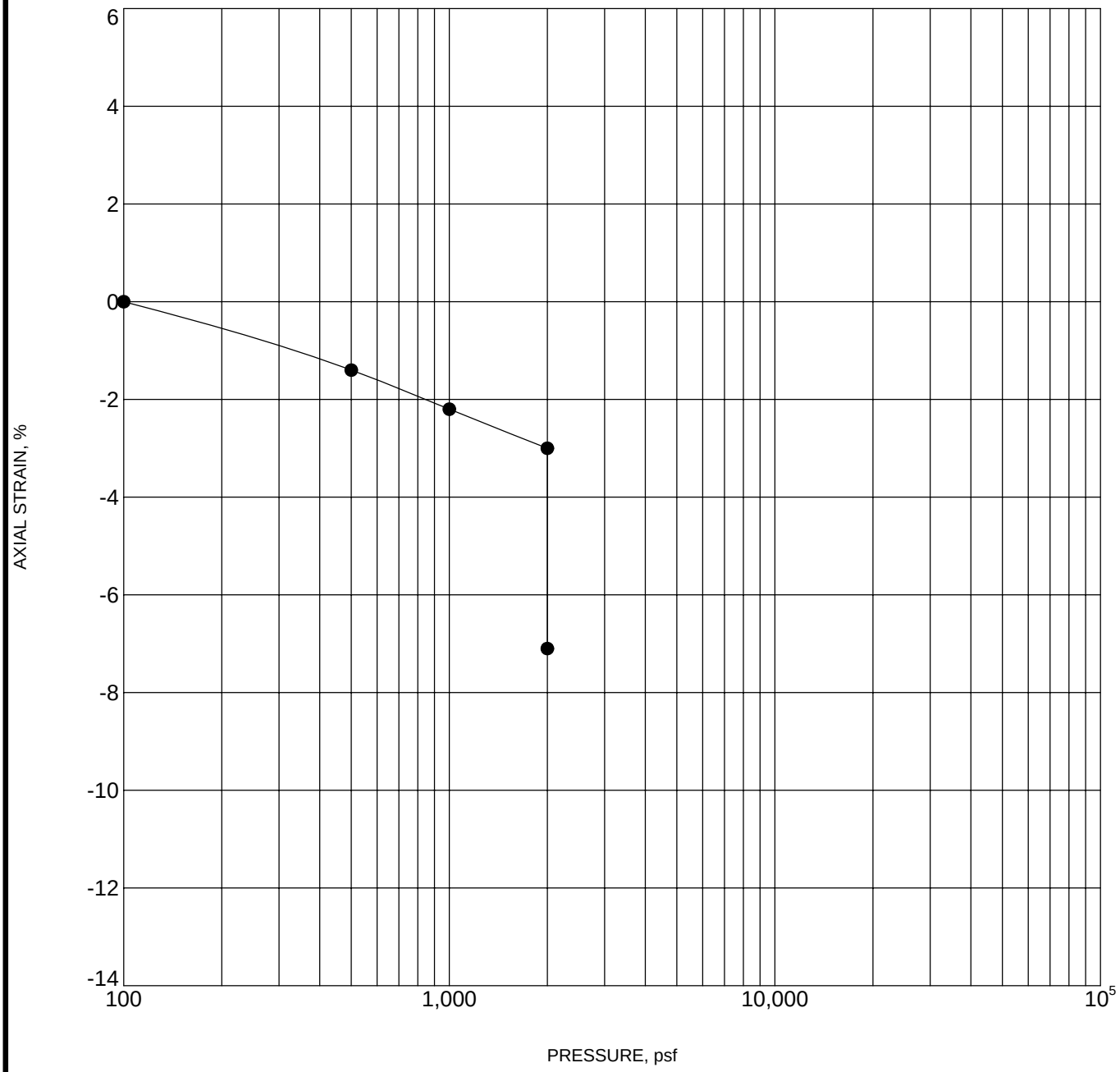
CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



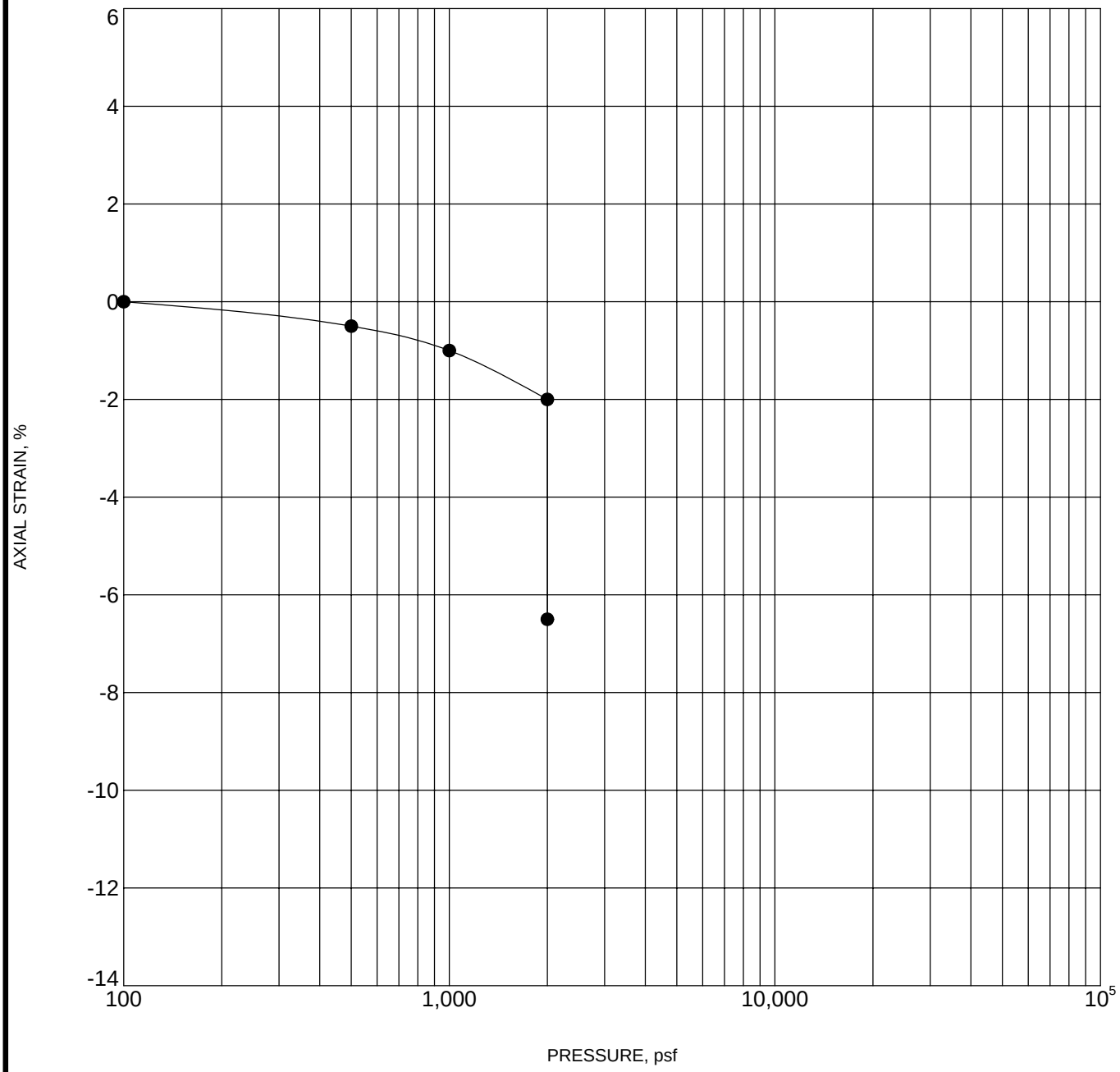
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**P-4**	**5.0ft - 6.0ft**	**SANDY SILT LEAN CLAY (CL-ML)**	**87**	**7**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



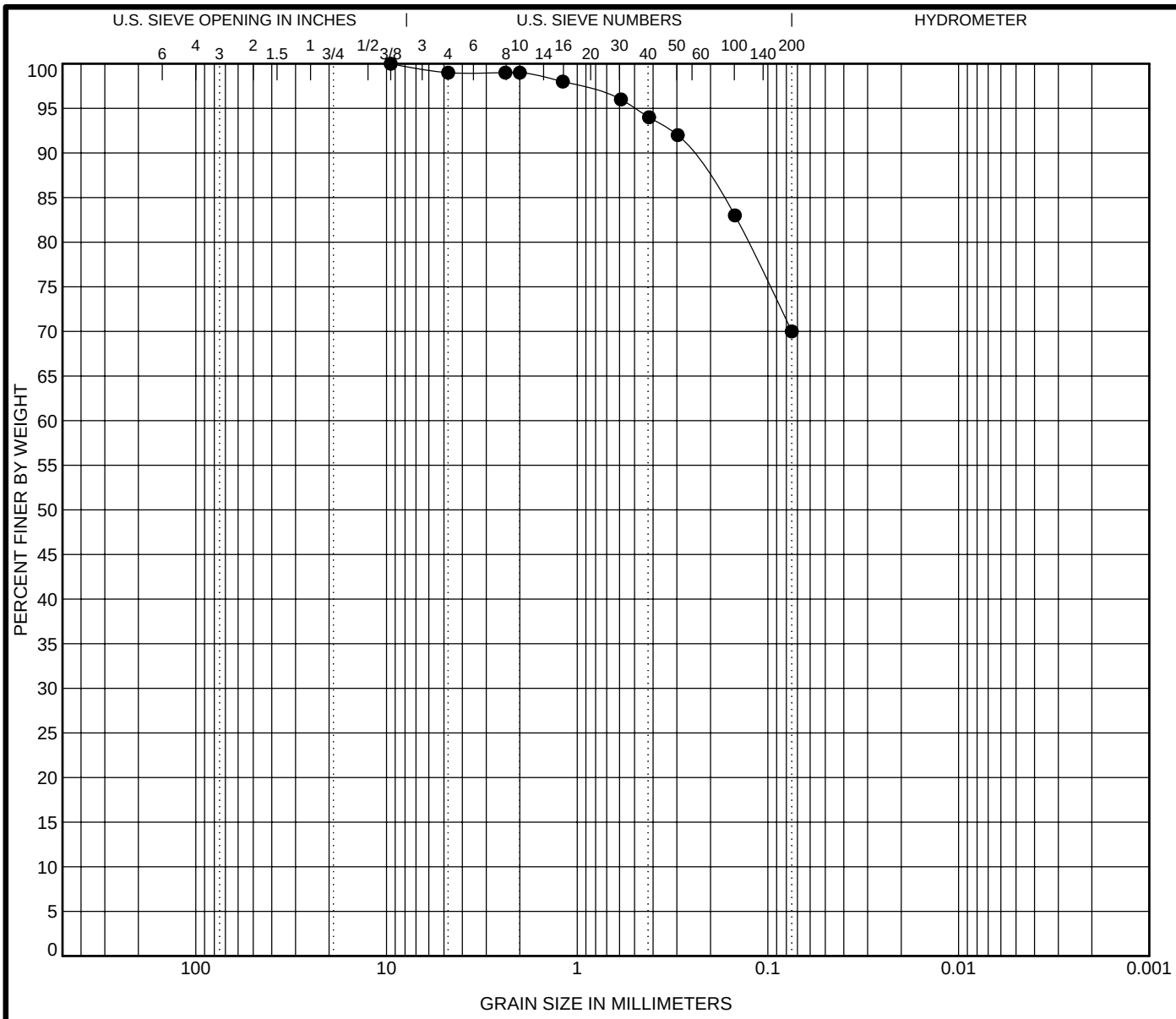
Specimen Identification			Classification	γ_d, pcf	WC,%
●	**P-4**	**12.5ft - 13.5ft**		**108**	**3**

Notes:

Terracon

CONSOLIDATION TEST

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**A-4**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**31**	**19**	**12**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**A-4**	**0.0ft - 2.5ft**	**9.5**				**1.0**	**29.0**	**70.0**	
⊠										
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★										
⊙										

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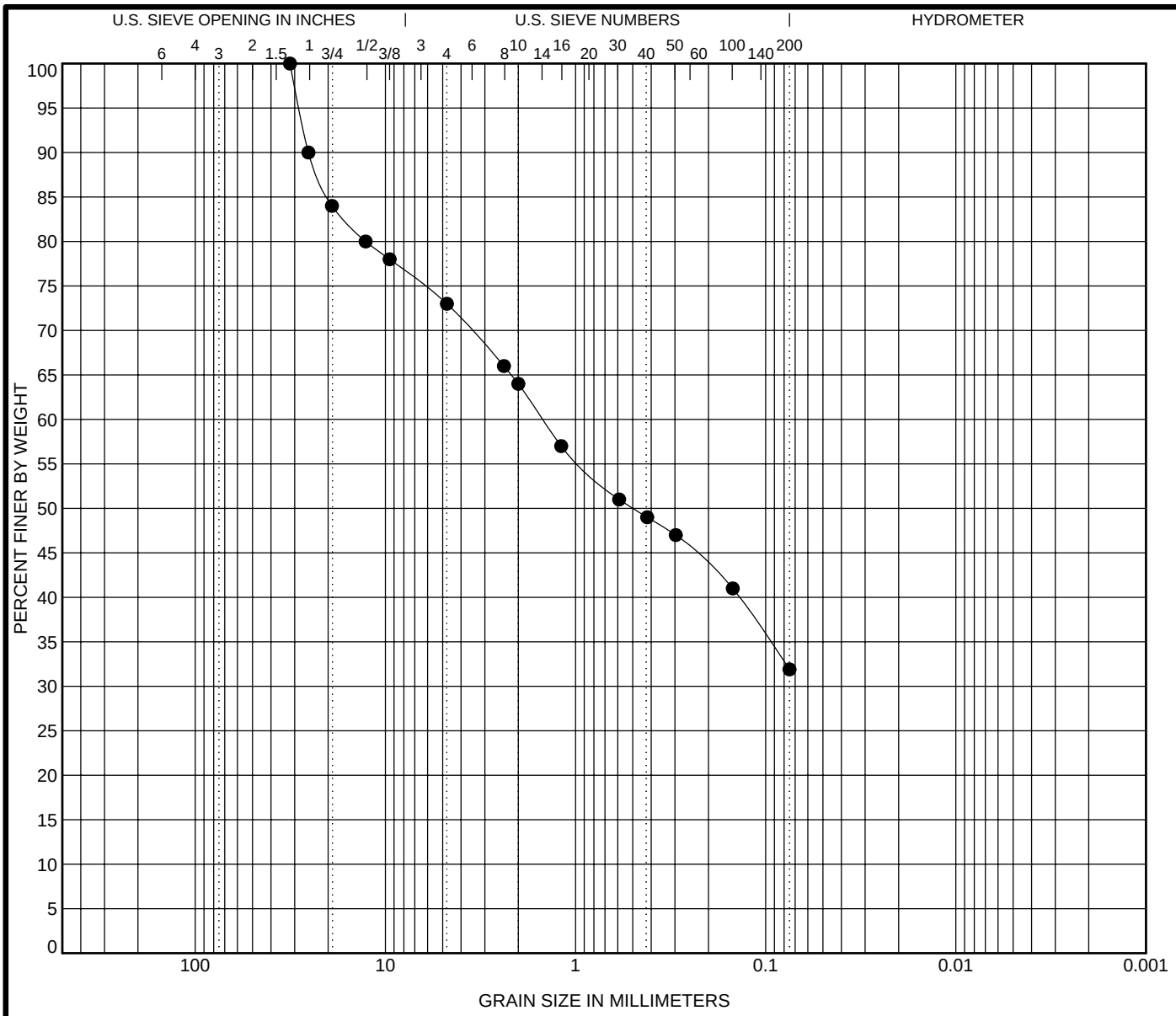
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**A-4**	**10.0ft - 11.0ft**	**CLAYEY SAND WITH GRAVEL (SC)**	**26**	**16**	**10**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**A-4**	**10.0ft - 11.0ft**	**31.75**	**1.487**			**27.0**	**41.1**	**31.9**	
⊠										
▲										
★										
⊙										

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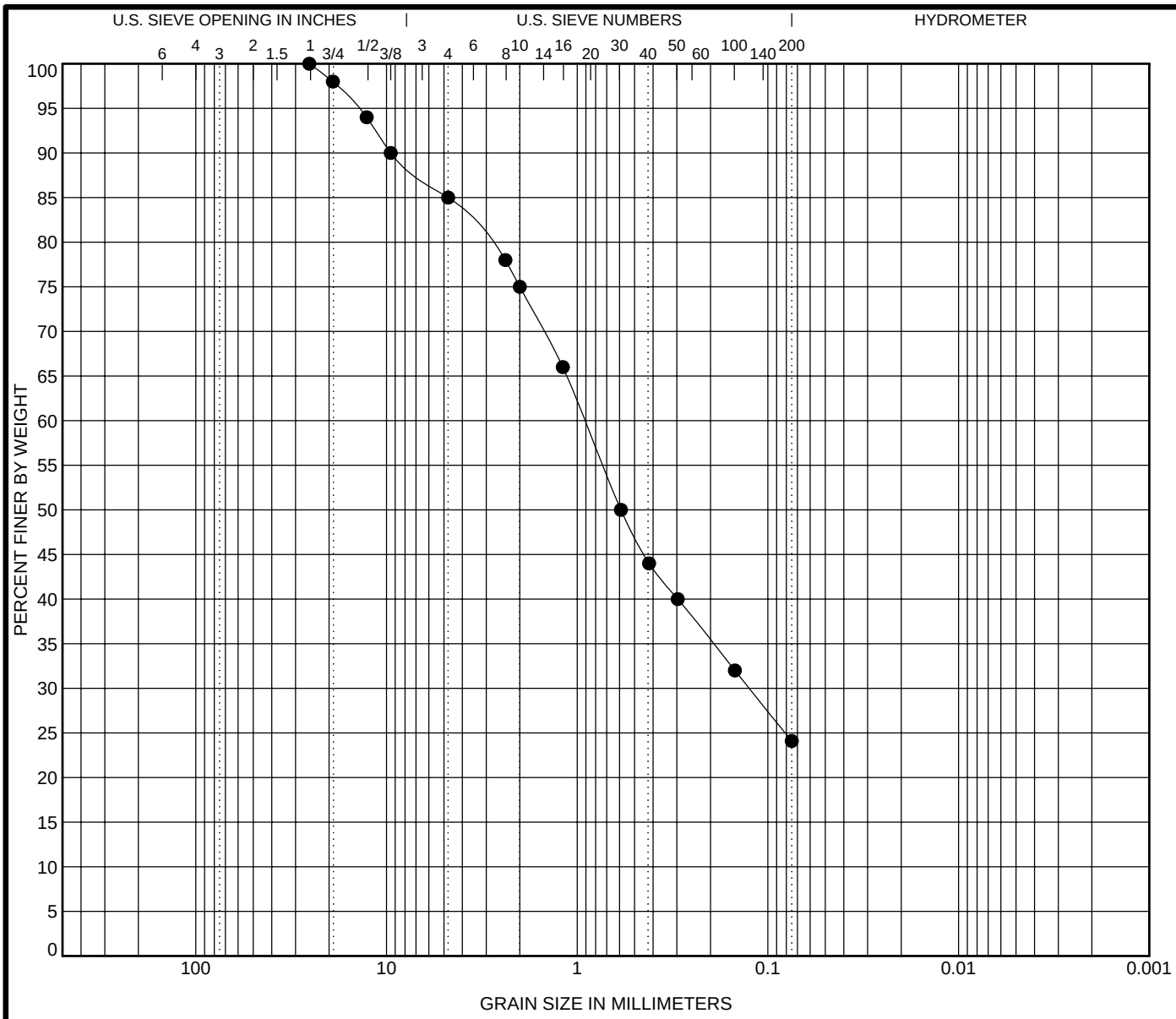
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**A-4**	**17.5ft - 18.5ft**	**CLAYEY SAND WITH GRAVEL (SC)**	**18**	**18**	**NP**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**A-4**	**17.5ft - 18.5ft**	**25.4**	**0.915**	**0.125**		**15.0**	**60.9**	**24.1**	
⊠										
▲										
★										
⊙										

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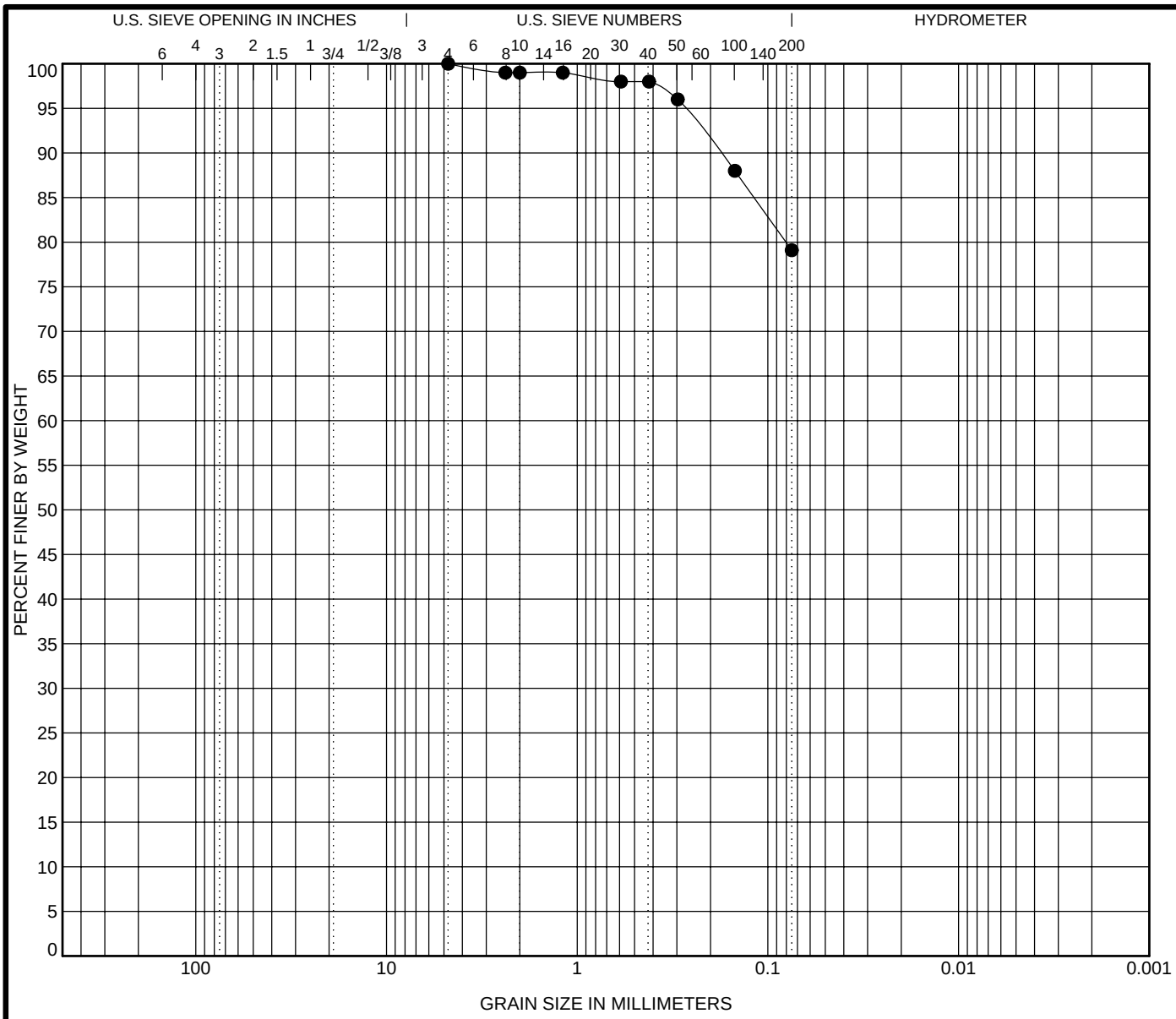
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-01**	**0.0ft - 5.0ft**	**SANDY LEAN CLAY (CL)**	**45**	**20**	**25**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-01**	**0.0ft - 5.0ft**	**4.75**				**0.0**	**20.9**	**79.1**	
⊠										
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★										
⊙										

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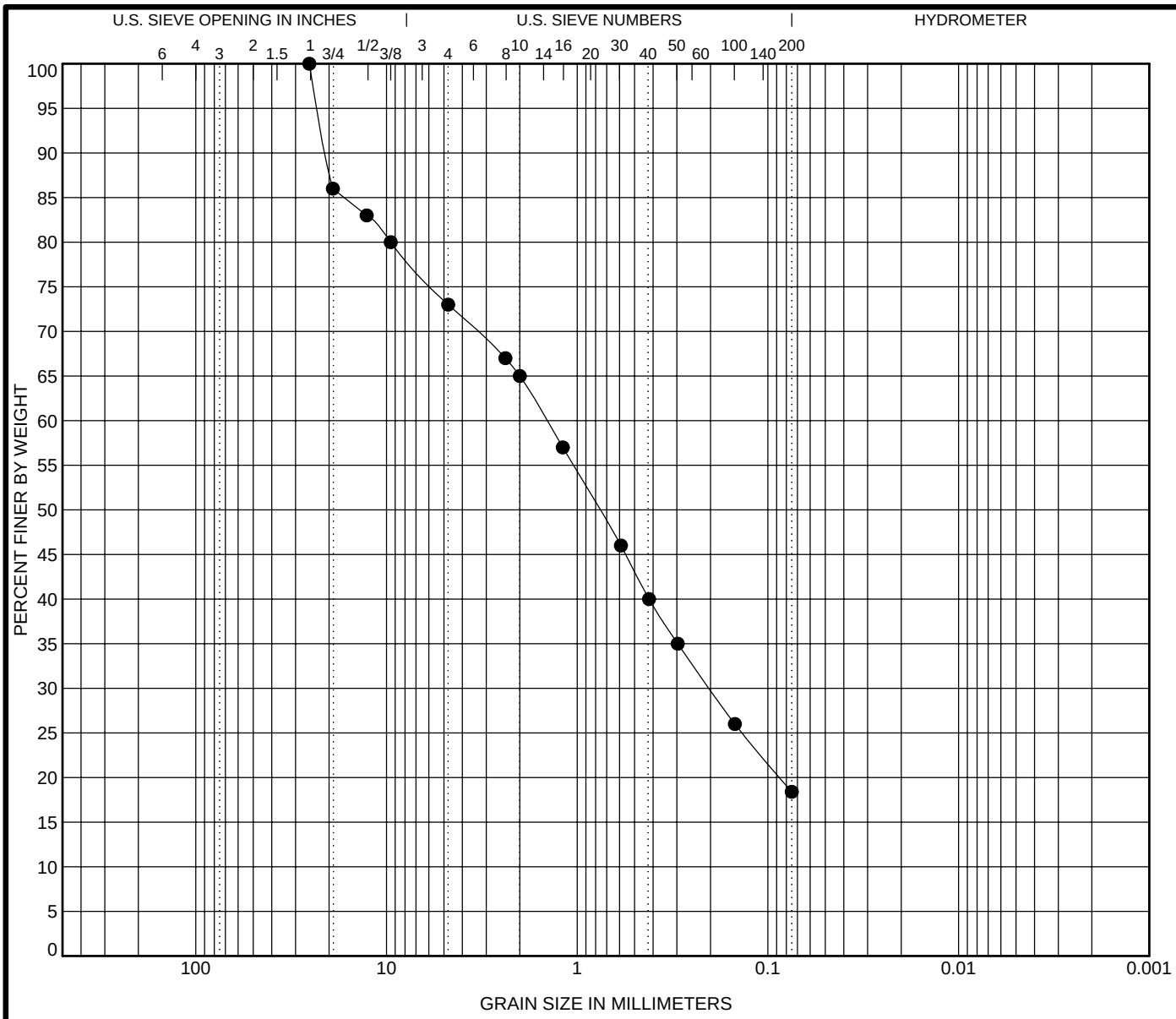
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-01 20.0ft - 21.0ft**	**GRAVELLY SAND TRACE SILT (SP)**					
⊠							
▲							
★							
⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-01 20.0ft - 21.0ft**	**25.4**	**1.446**	**0.202**		**27.0**	**54.6**	**18.4**	
⊠									
▲									
★									
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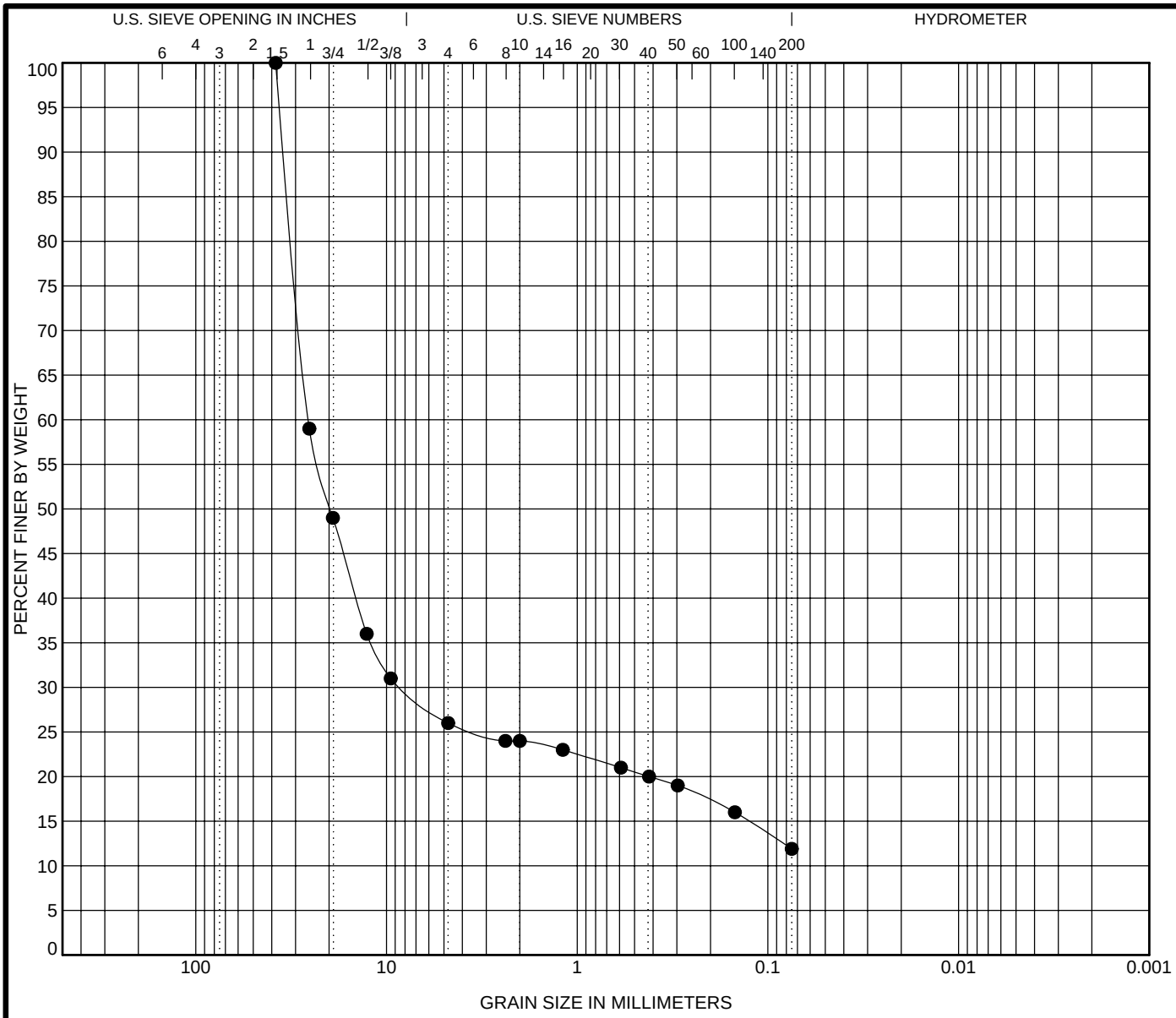
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-01 30.0ft - 31.0ft**	**GRAVEL WITH CLAY AND SILT TRACE SAND (GC-GM)**	**24**	**16**	**8**	**48.87**	**470.14**
⊠							
▲							
★							
⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-01 30.0ft - 31.0ft**	**38.1**	**25.652**	**8.27**		**74.0**	**14.1**	**11.9**	
⊠									
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★									
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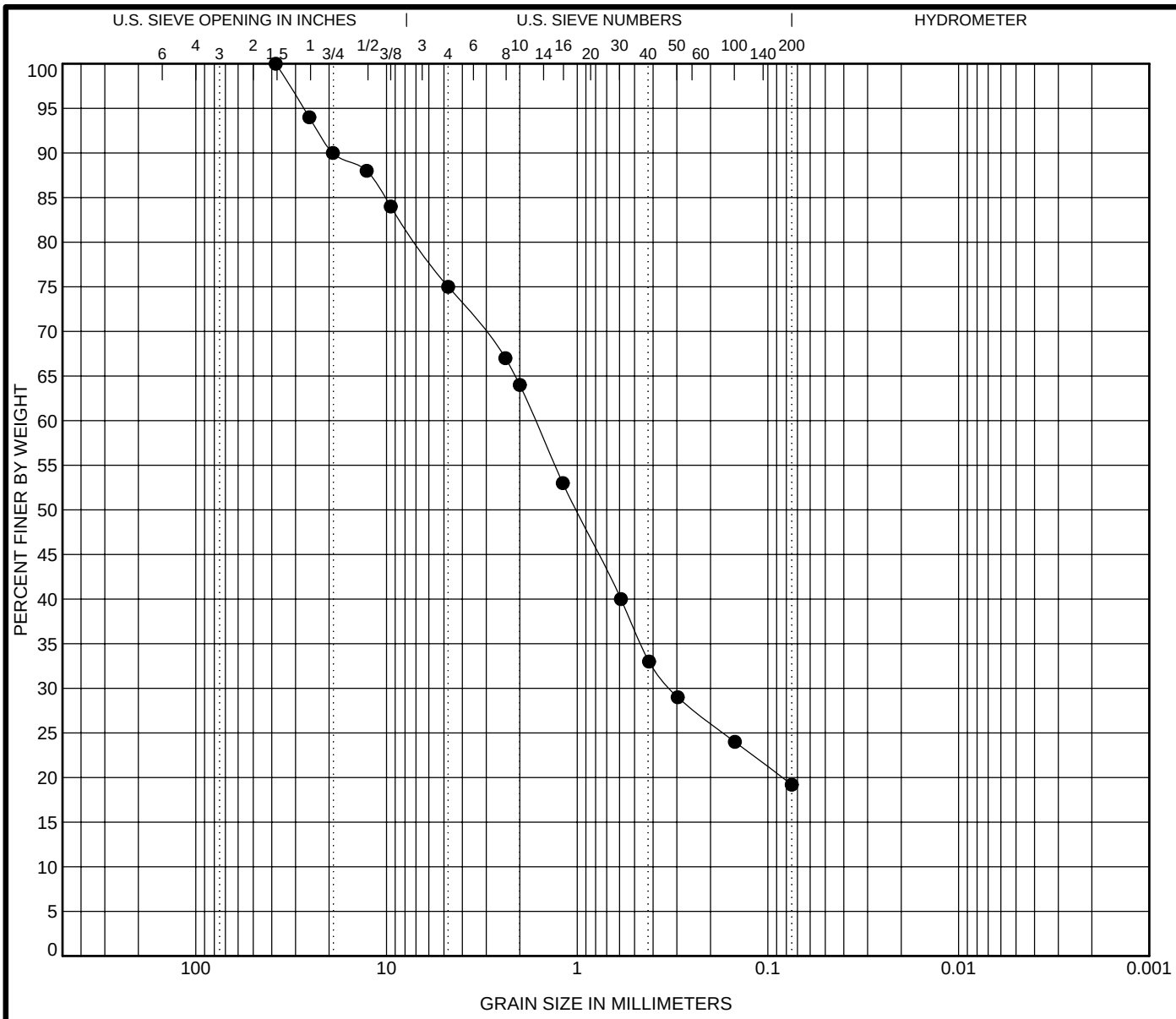
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-02 20.0ft - 21.0ft**	**GRAVELLY SAND TRACE SILT (SP)**	**24**	**17**	**7**		
⊠							
▲							
★							
⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-02 20.0ft - 21.0ft**	**38.1**	**1.656**	**0.324**		**25.0**	**55.8**	**19.2**	
⊠									
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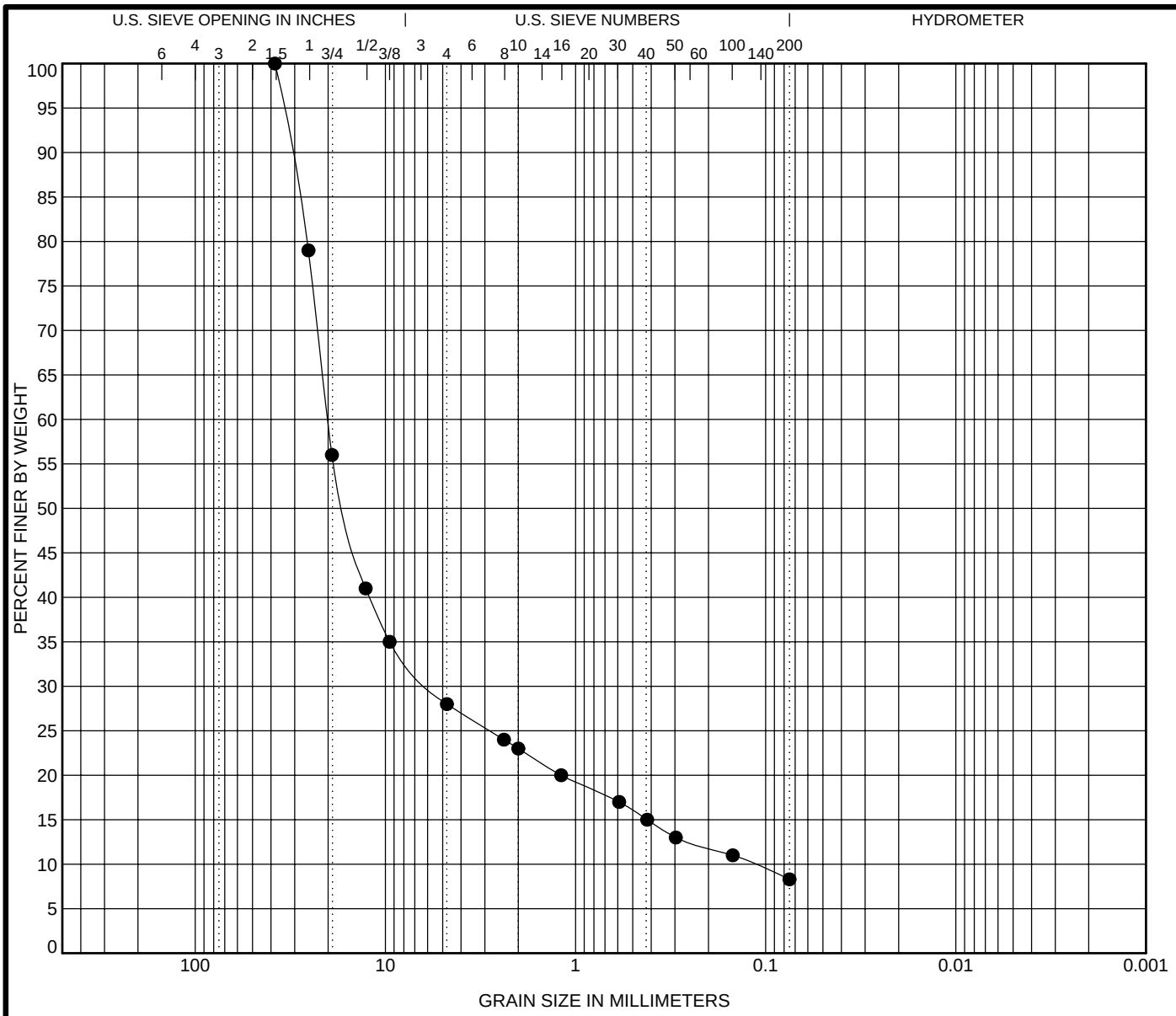
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-02 35.0ft - 36.5ft**	**GRAVELLY SAND TRACE SILT (SP)**	**30**	**18**	**12**	**14.46**	**173.70**
⊠							
▲							
★							
⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-02 35.0ft - 36.5ft**	**38.1**	**20.071**	**5.79**	**0.116**	**72.0**	**19.7**	**8.3**	
⊠									
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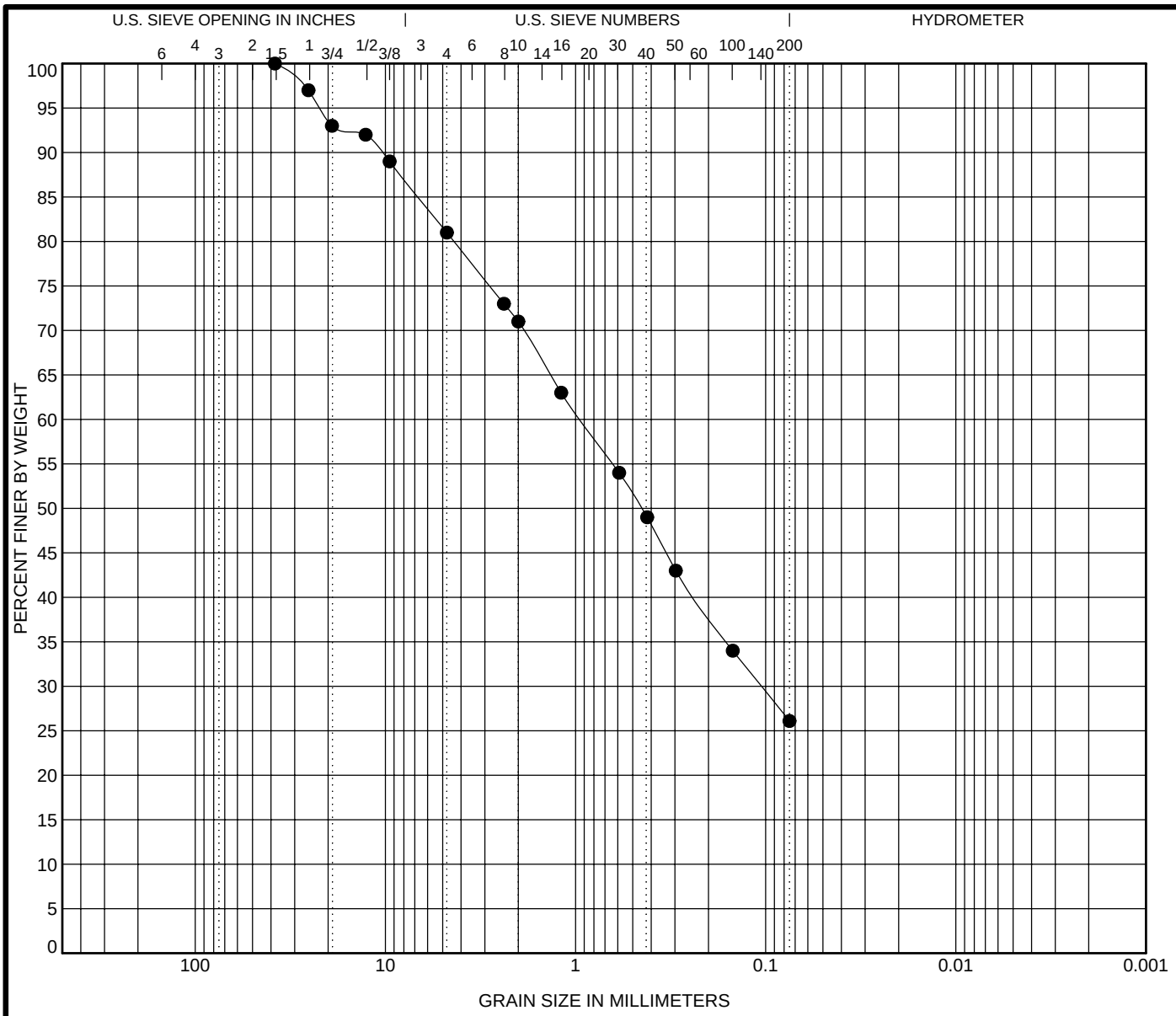
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-03**	**0.0ft - 5.0ft**	**FILL: SILTY SAND WITH GRAVEL (SM)**	**NP**	**NP**	**NP**		
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-03**	**0.0ft - 5.0ft**	**38.1**	**0.942**	**0.105**		**19.0**	**54.9**	**26.1**	
⊠										
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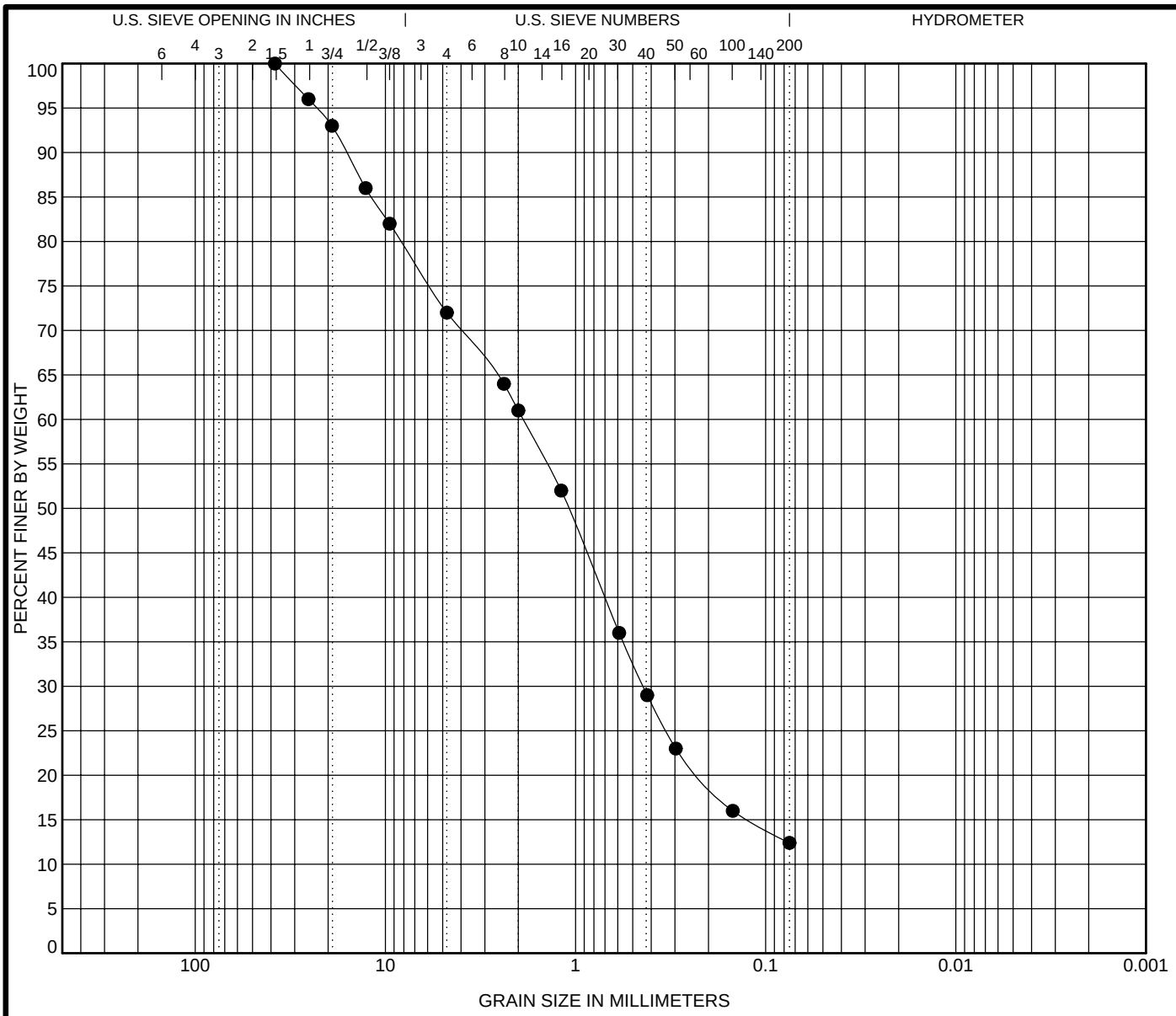
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-03 25.0ft - 26.0ft**	**GRAVELLY SAND TRACE SILT (SP)**	**NP**	**NP**	**NP**	**2.17**	**39.78**
⊠							
▲							
★							
⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-03 25.0ft - 26.0ft**	**38.1**	**1.888**	**0.441**		**28.0**	**59.6**	**12.4**	
⊠									
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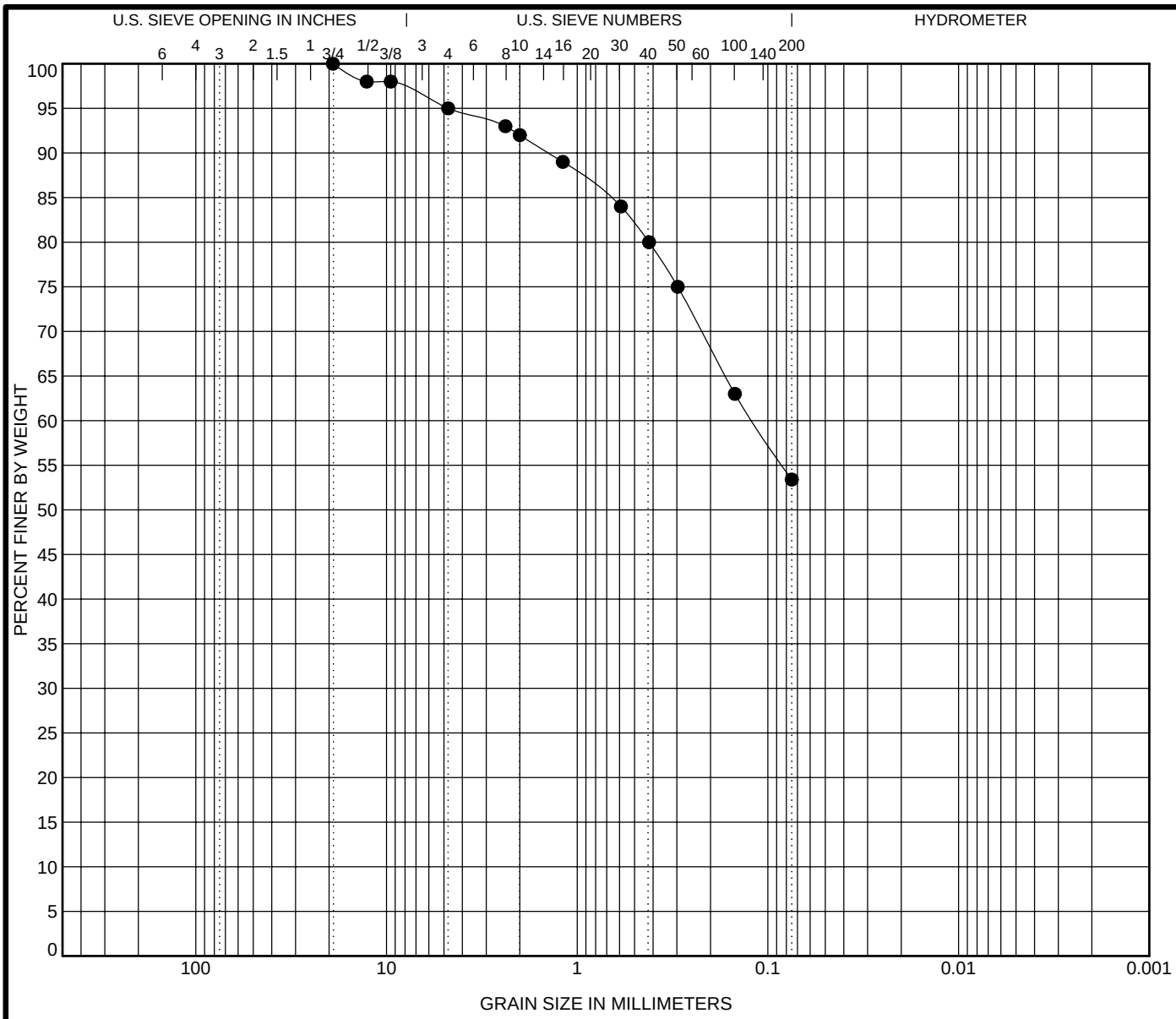
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-04 15.0ft - 16.0ft**	**SANDY LEAN CLAY WITH GRAVEL (CL)**	**33**	**21**	**12**		
⊠							
▲							
★							
⊙							

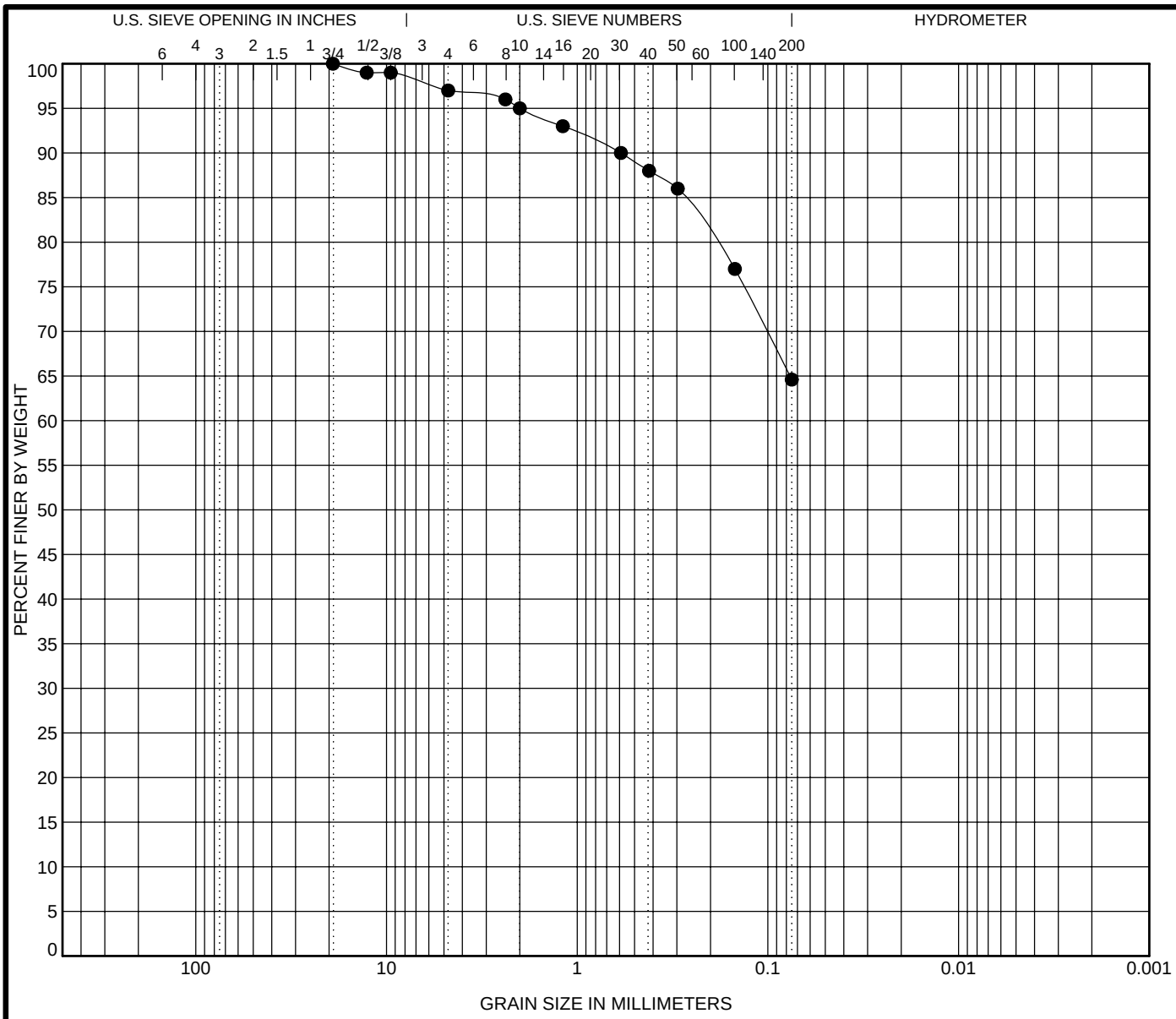
	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-04 15.0ft - 16.0ft**	**19.1**	**0.12**			**5.0**	**41.6**	**53.4**	
⊠									
▲									
★									
⊙									

Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-05**	**0.0ft - 5.0ft**	**FILL: SANDY SILTY LEAN CLAY TRACE GRAVEL (CL-ML)**	**24**	**18**	**6**		
⊠								
▲								
★								
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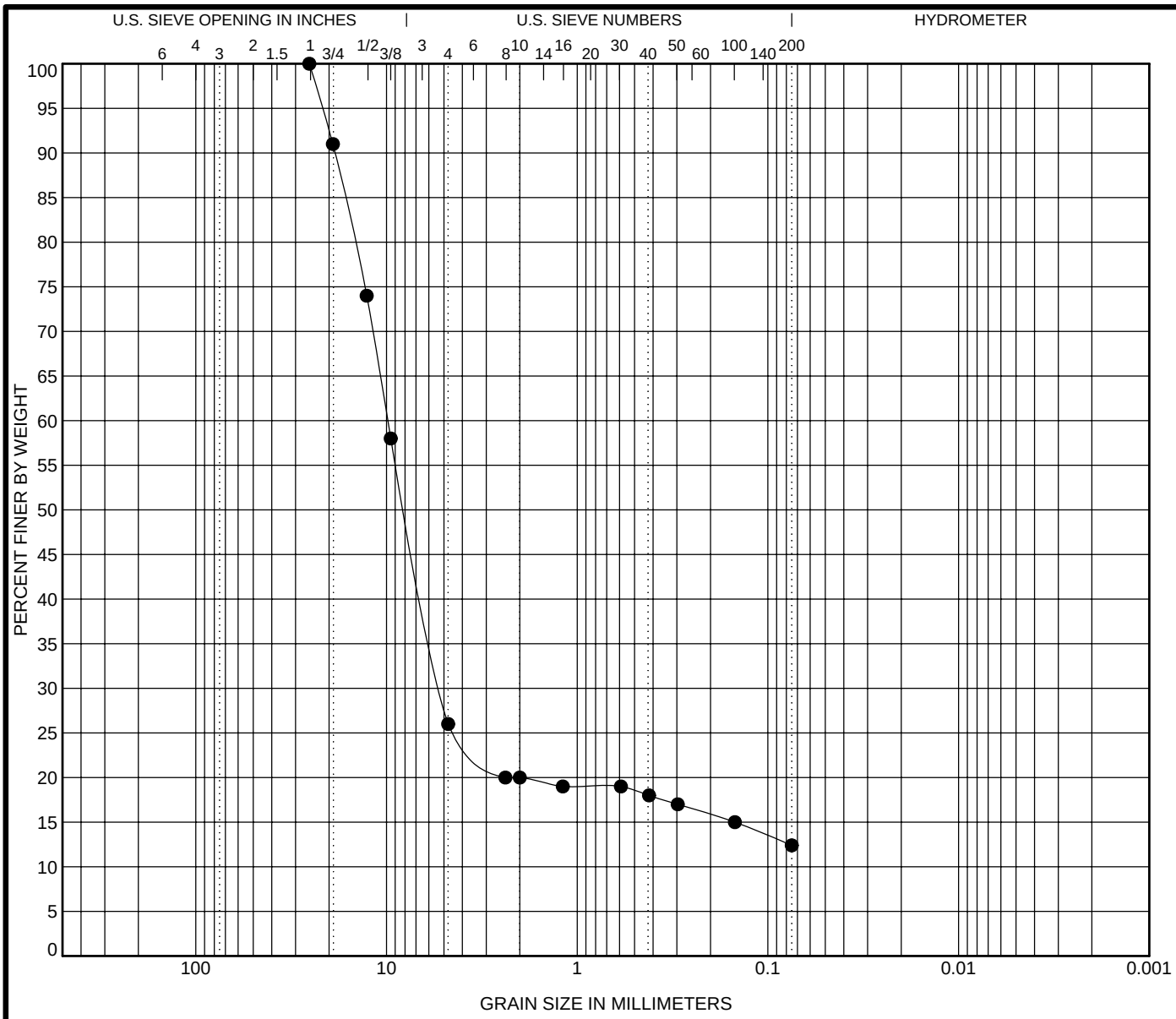
	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-05**	**0.0ft - 5.0ft**	**19.1**				**3.0**	**32.4**	**64.6**	
⊠										
▲										
★										
⊙										

Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-05 45.0ft - 46.0ft**	**CLAYEY GRAVEL WITH SAND (GC)**	**26**	**15**	**11**	**68.44**	**247.52**
⊠							
▲							
★							
⊙							

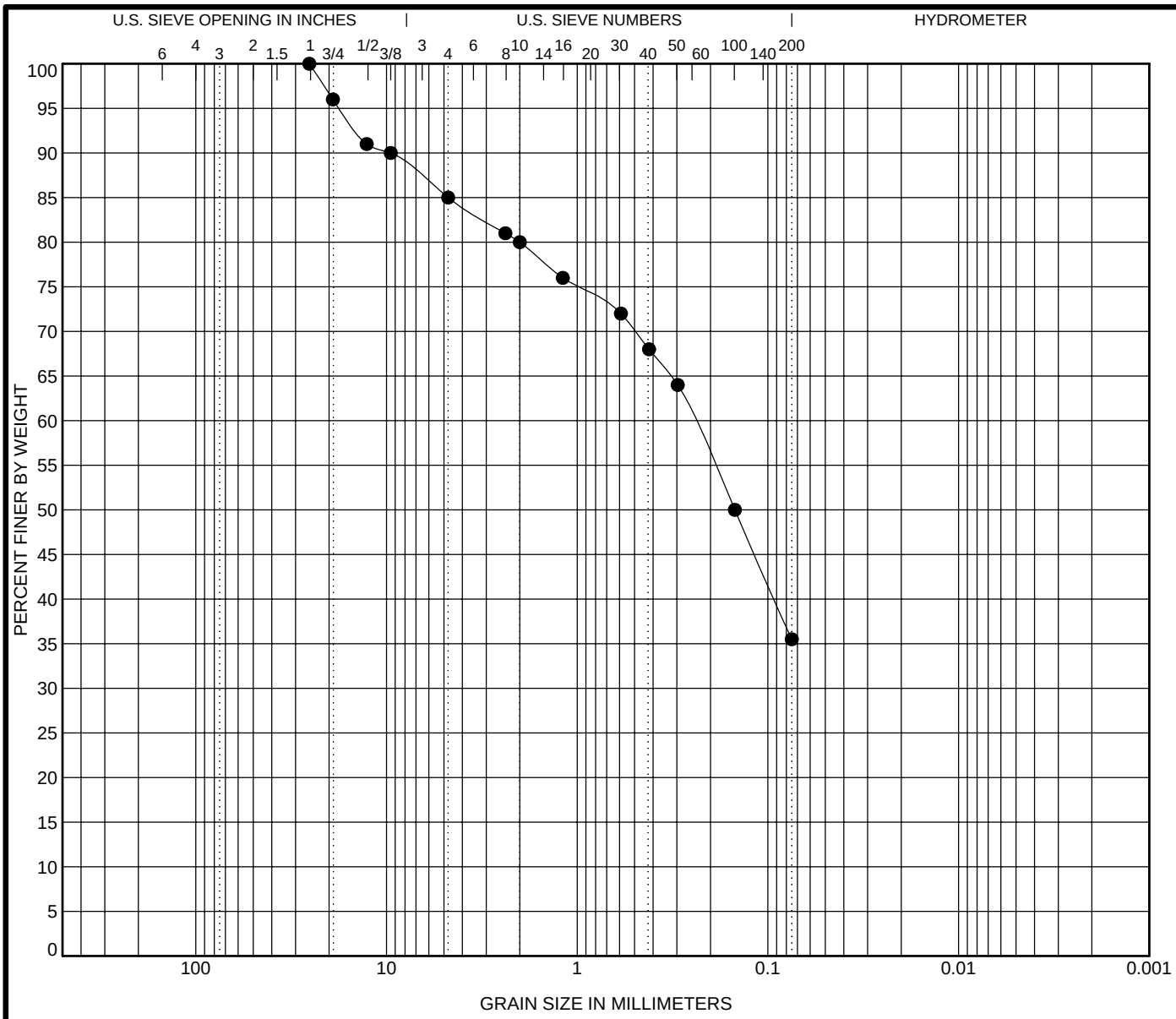
	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-05 45.0ft - 46.0ft**	**25.4**	**9.851**	**5.18**		**74.0**	**13.6**	**12.4**	
⊠									
▲									
★									
⊙									

Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-07**	**0.0ft - 5.0ft**	**SILTY SAND WITH GRAVEL (SM)**	**19**	**16**	**3**		
⊠								
▲								
★								
⊙								

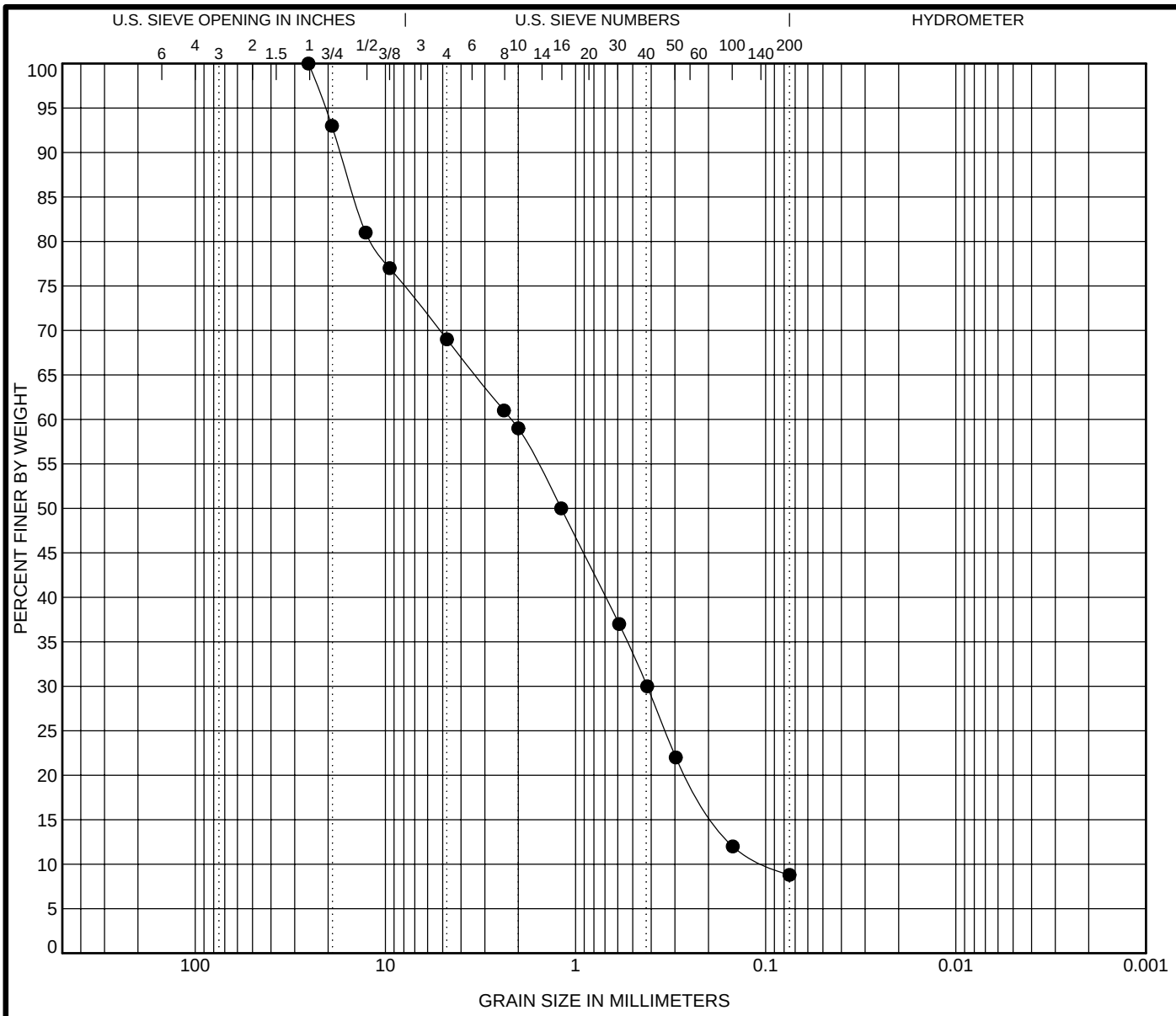
	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-07**	**0.0ft - 5.0ft**	**25.4**	**0.244**			**15.0**	**49.5**	**35.5**	
⊠										
▲										
★										
⊙										

Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-07 15.0ft - 16.0ft**	**GRAVELLY SAND WITH SILT (SP-SM)**	**NP**	**NP**	**NP**	**0.83**	**22.49**
⊠							
▲							
★							
⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-07 15.0ft - 16.0ft**	**25.4**	**2.182**	**0.42**	**0.097**	**31.0**	**60.2**	**8.8**	
⊠									
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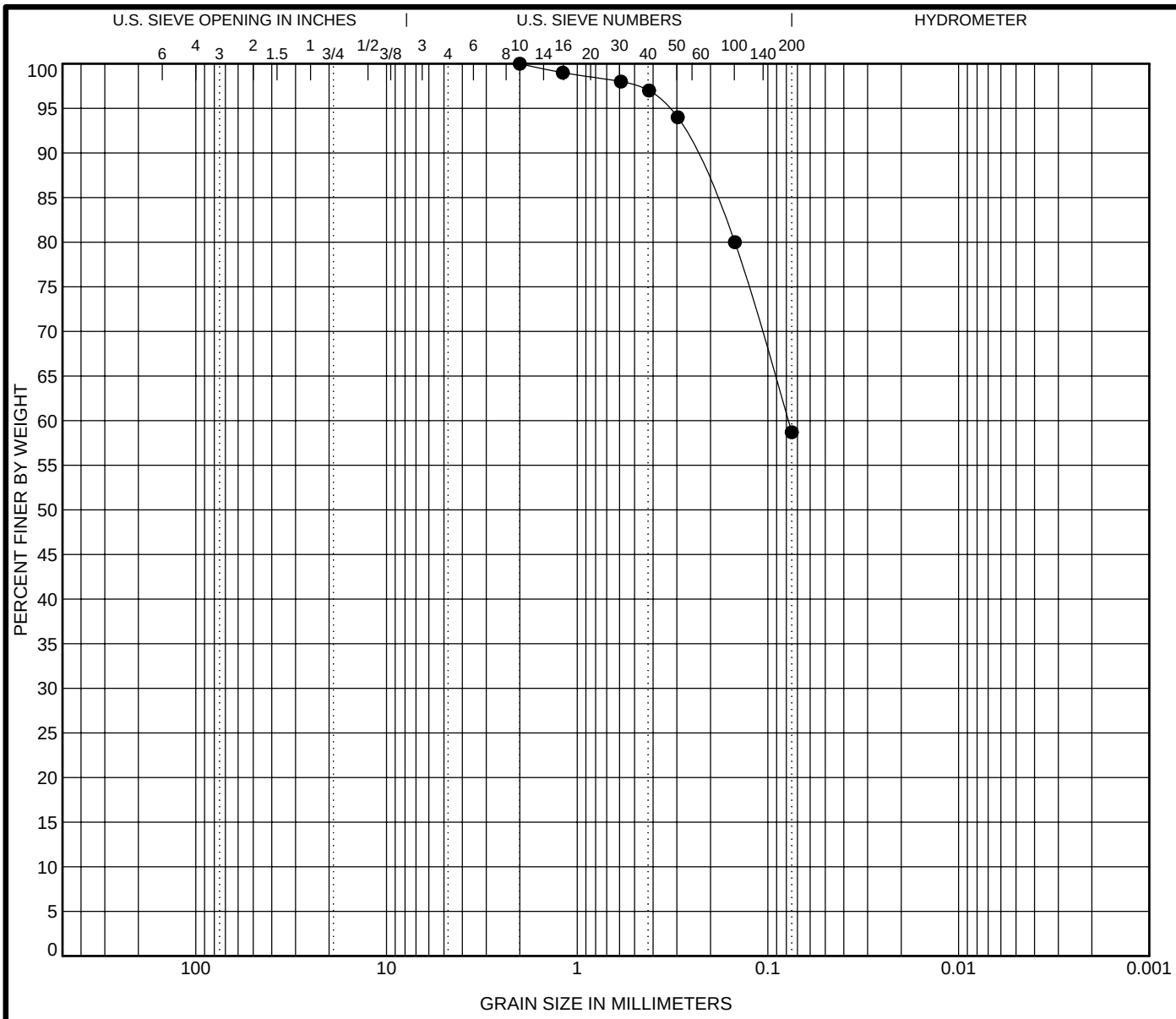
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-08**	**0.0ft - 5.0ft**	**SANDY LEAN CLAY (CL)**	**25**	**18**	**7**		
⊠								
▲								
★								
⊙								

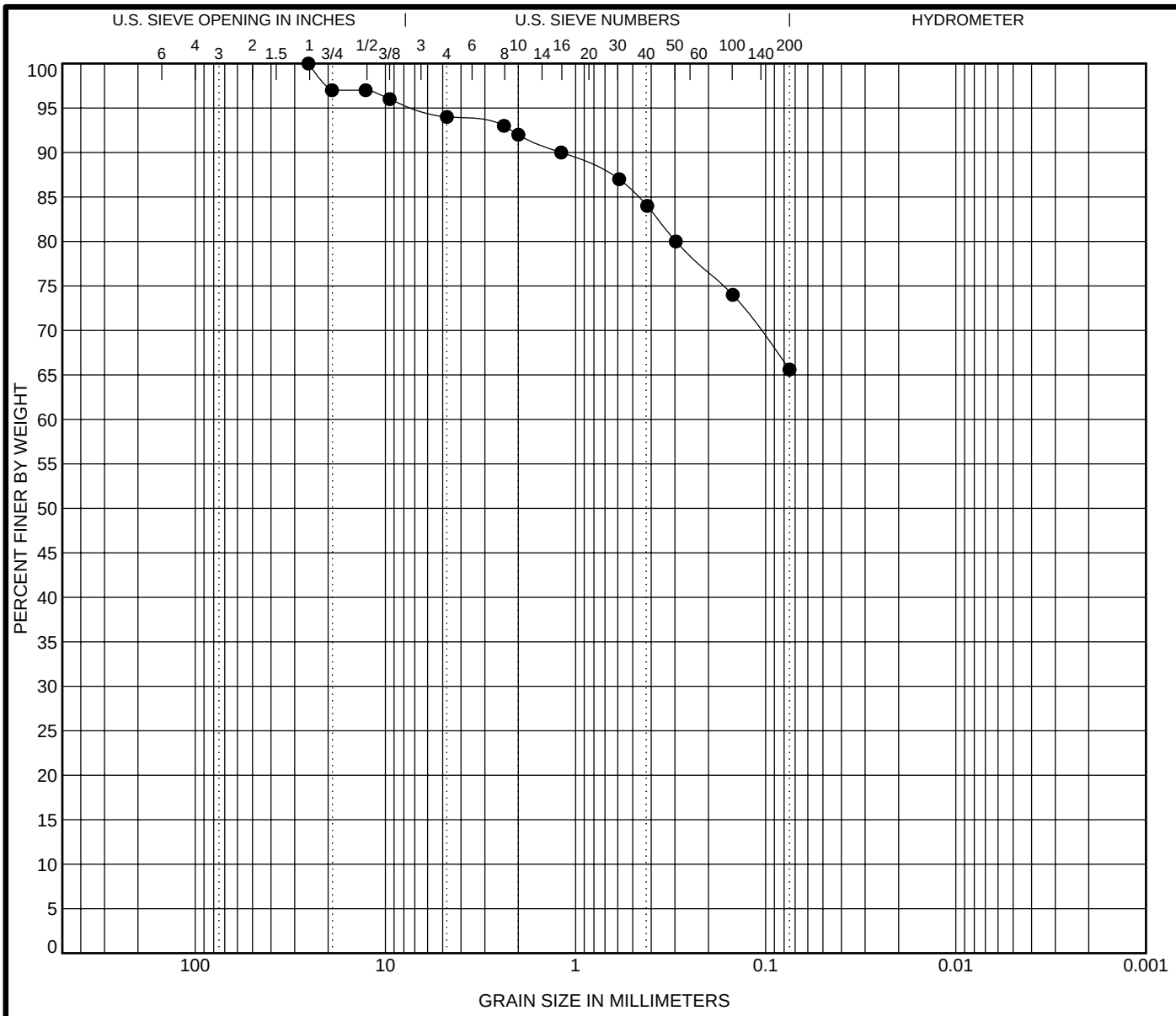
	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-08**	**0.0ft - 5.0ft**	**2**	**0.078**			**0.0**	**41.3**	**58.7**	
⊠										
▲										
★										
⊙										

Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-09**	**0.0ft - 5.0ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**24**	**16**	**8**		
⊠								
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⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-09**	**0.0ft - 5.0ft**	**25.4**				**6.0**	**28.4**	**65.6**	
⊠										
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★										
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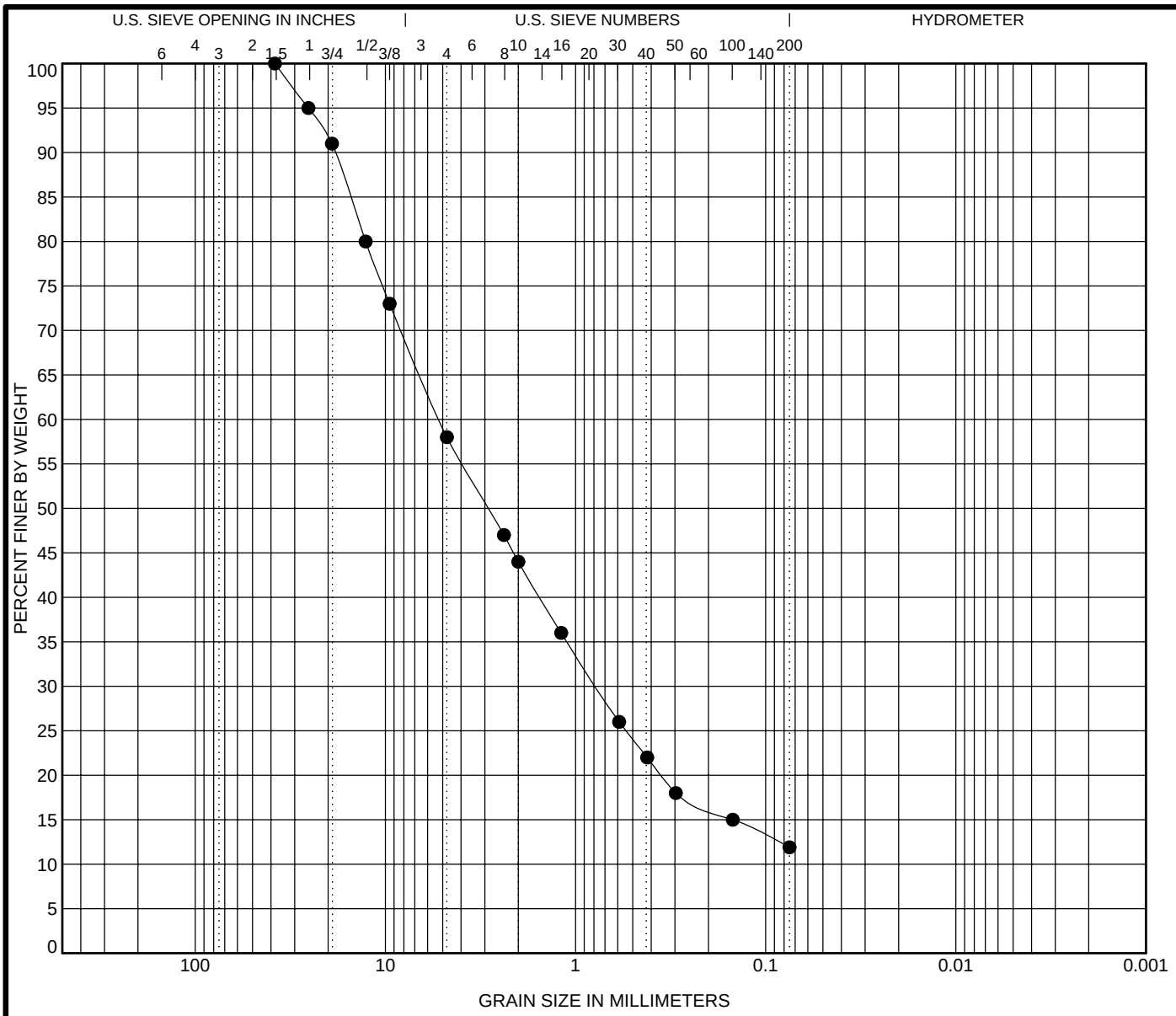
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-09 17.5ft - 18.5ft**	**GRAVELLY SAND WITH SILT (SP-SM)**	**22**	**19**	**3**	**2.38**	**105.80**
⊠							
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	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-09 17.5ft - 18.5ft**	**38.1**	**5.21**	**0.781**		**42.0**	**46.1**	**11.9**	
⊠									
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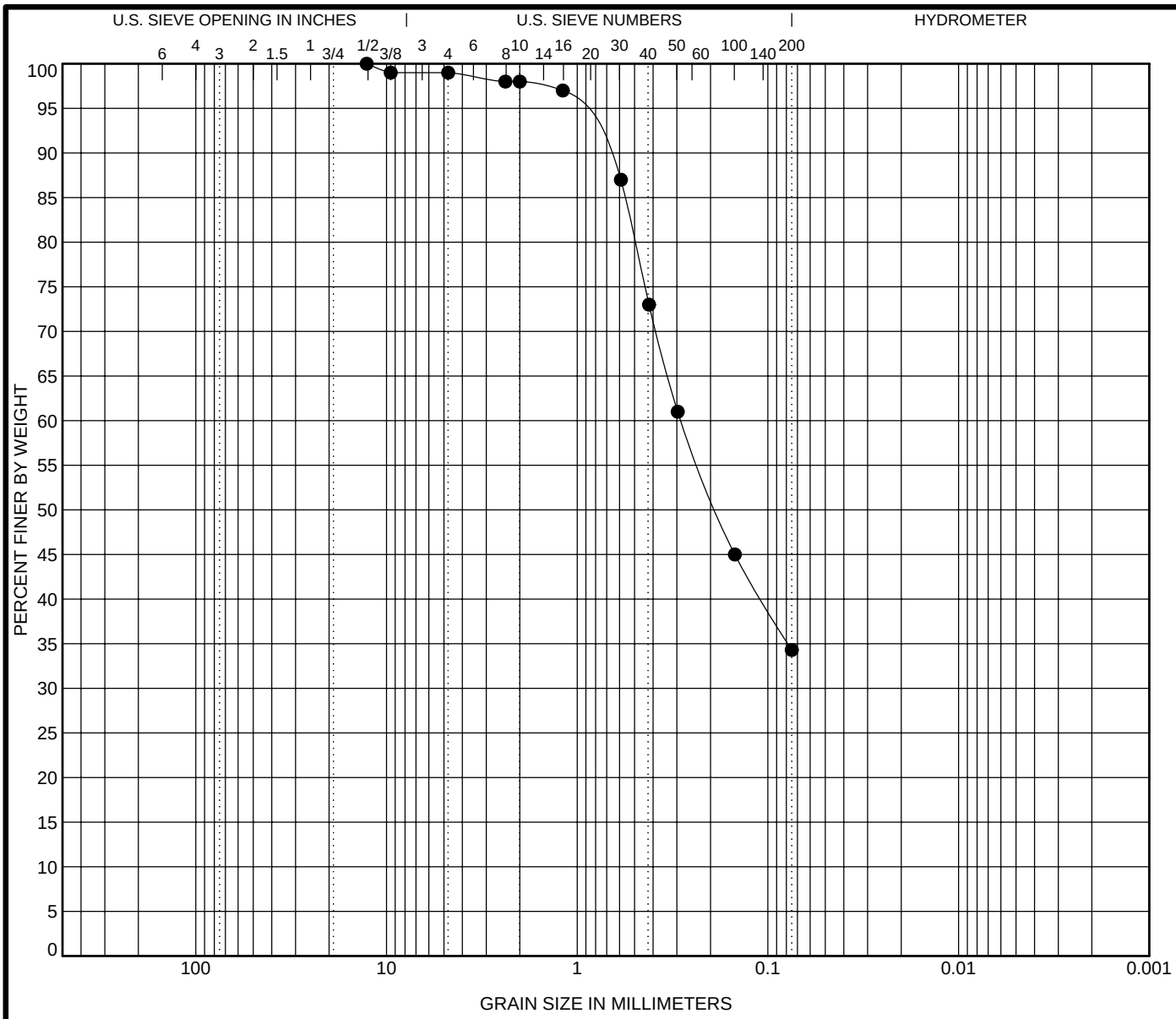
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-13**	**0.0ft - 5.0ft**	**SILTY SAND TRACE GRAVEL (SM)**	**NP**	**NP**	**NP**		
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-13**	**0.0ft - 5.0ft**	**12.7**	**0.284**			**1.0**	**64.7**	**34.3**	
⊠										
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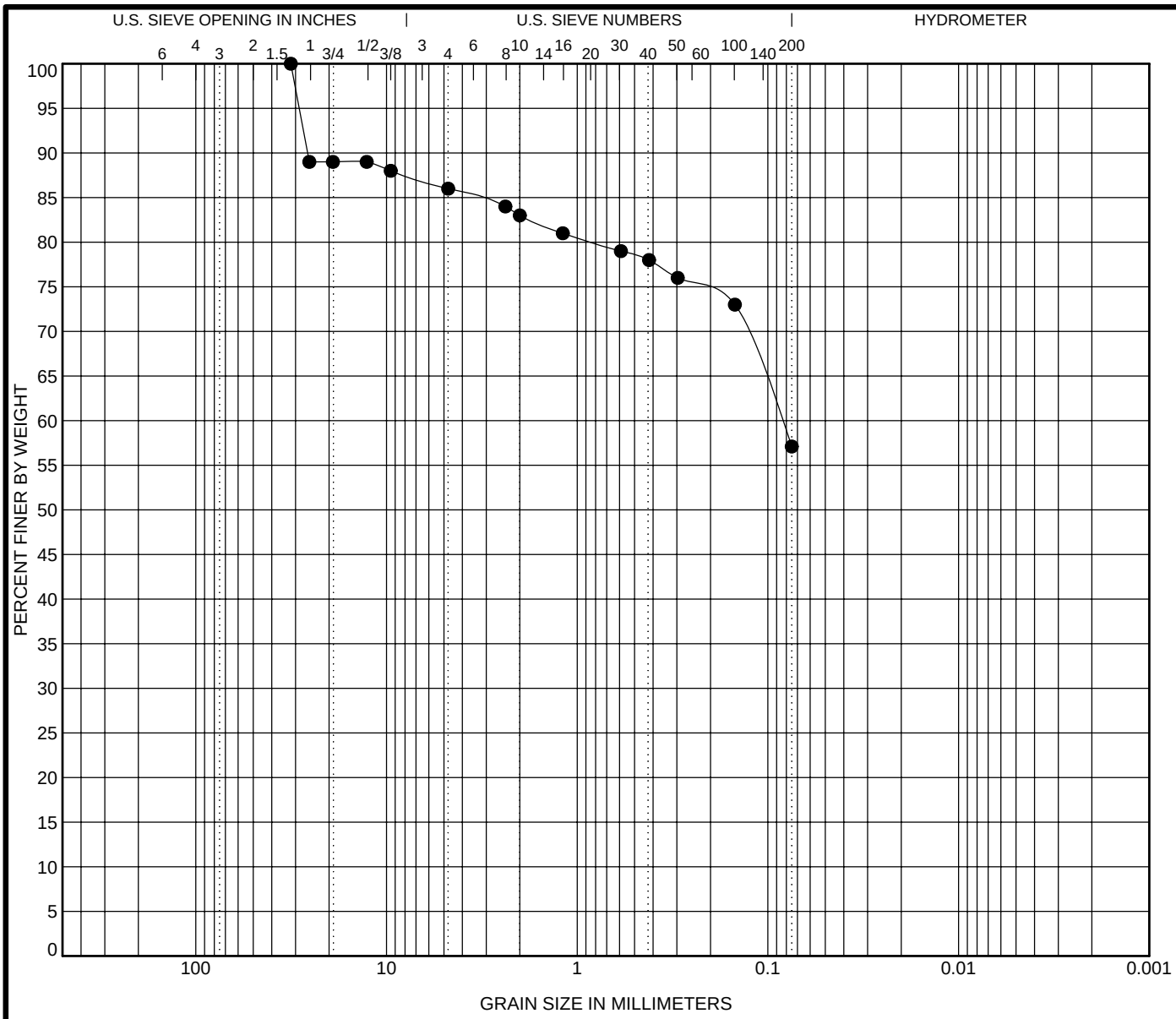
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-14**	**0.0ft - 5.0ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**37**	**19**	**18**		
⊠								
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★								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-14**	**0.0ft - 5.0ft**	**31.75**	**0.085**			**14.0**	**28.9**	**57.1**	
⊠										
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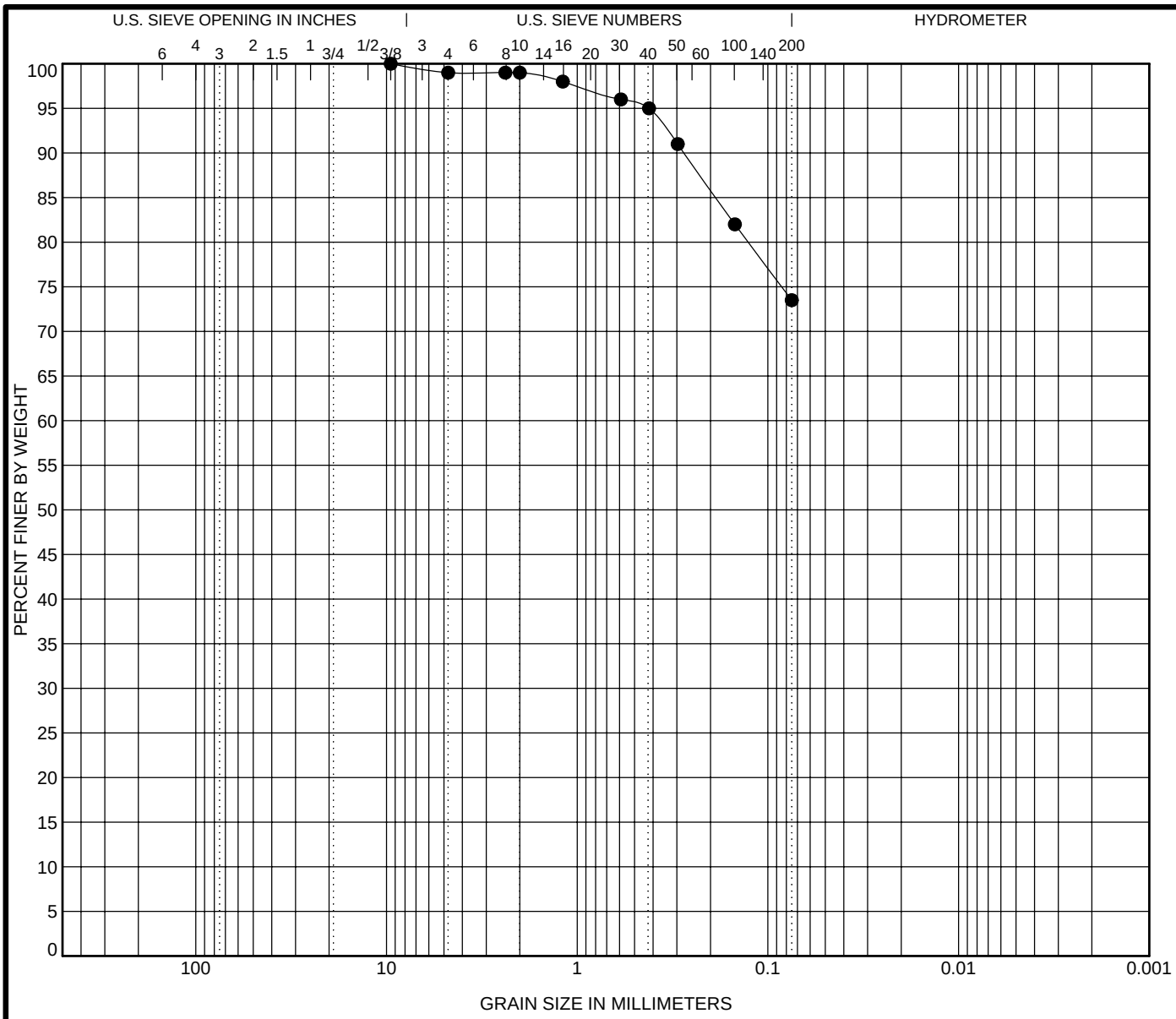
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-15**	**0.0ft - 5.0ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**31**	**17**	**14**		
⊠								
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★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-15**	**0.0ft - 5.0ft**	**9.5**				**1.0**	**25.5**	**73.5**	
⊠										
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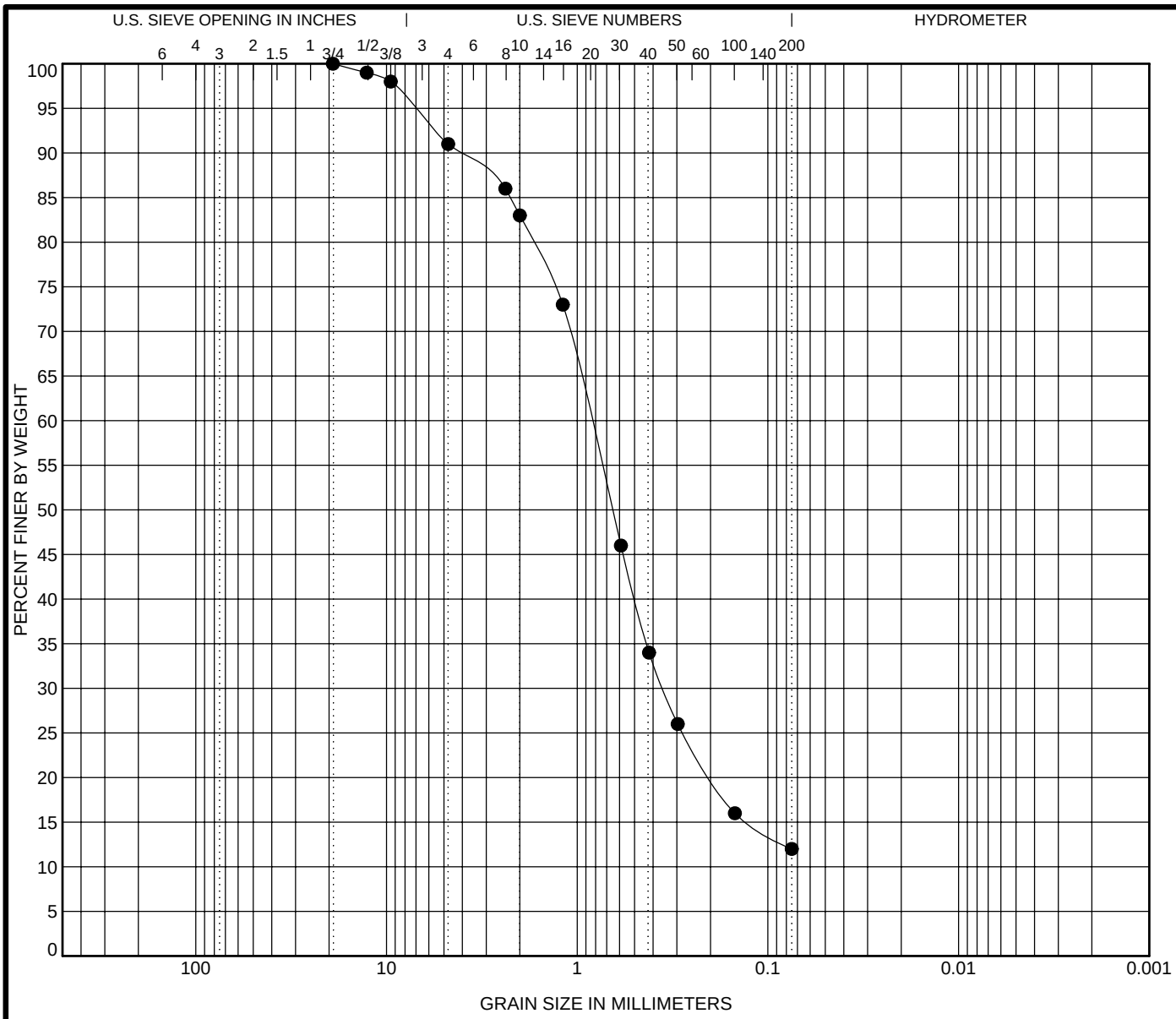
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-15 10.0ft - 11.0ft**	**SILTY SAND TRACE GRAVEL (SM)**	**NP**	**NP**	**NP**	**2.76**	**15.95**
⊠							
▲							
★							
⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-15 10.0ft - 11.0ft**	**19.1**	**0.849**	**0.353**		**9.0**	**79.0**	**12.0**	
⊠									
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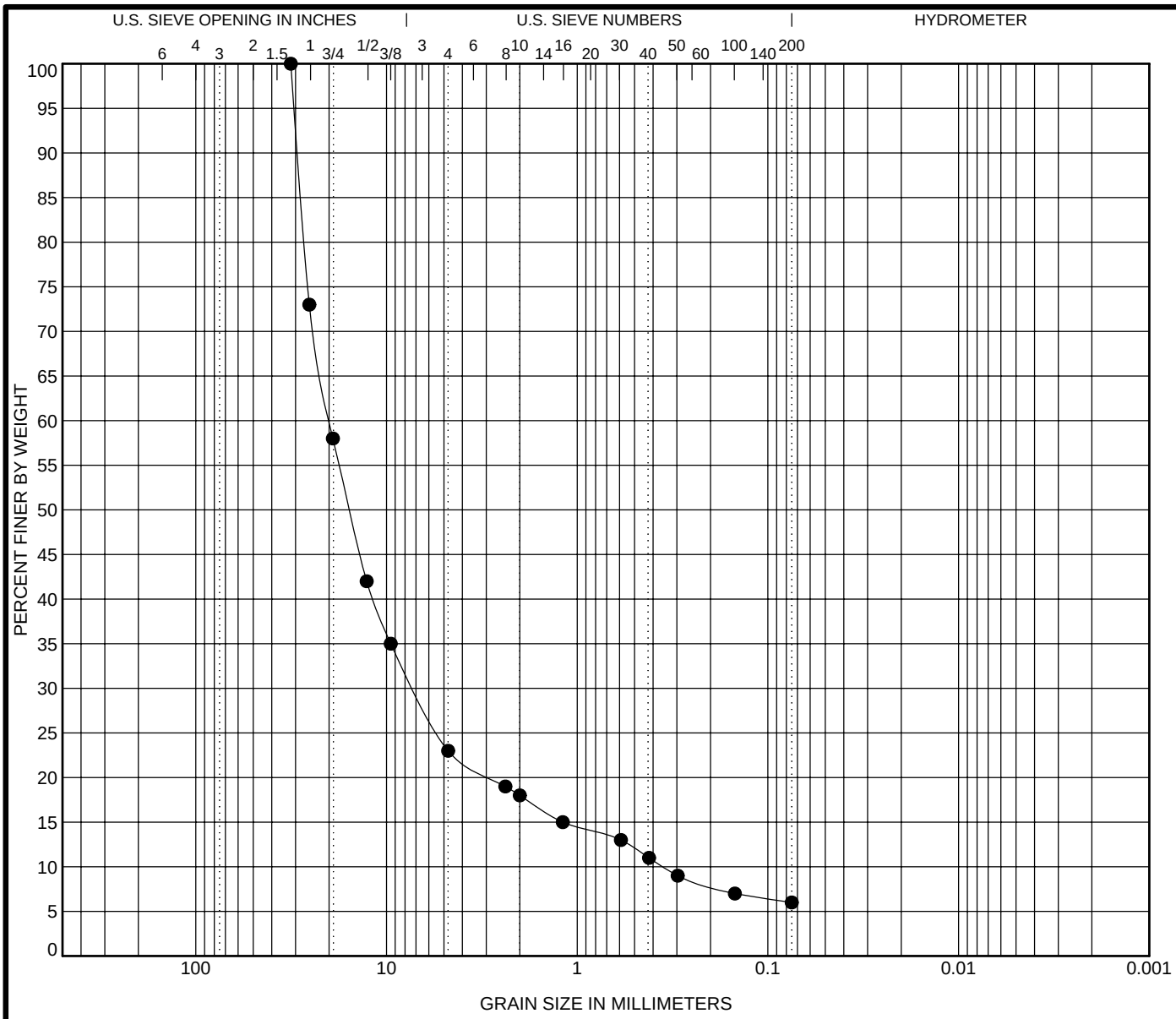
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-16 20.0ft - 21.0ft**	**GRAVELLY SAND TRACE CLAY (SP)**	**22**	**18**	**4**	**7.23**	**56.17**
⊠							
▲							
★							
⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-16 20.0ft - 21.0ft**	**31.75**	**19.84**	**7.117**	**0.353**	**77.0**	**17.0**	**6.0**	
⊠									
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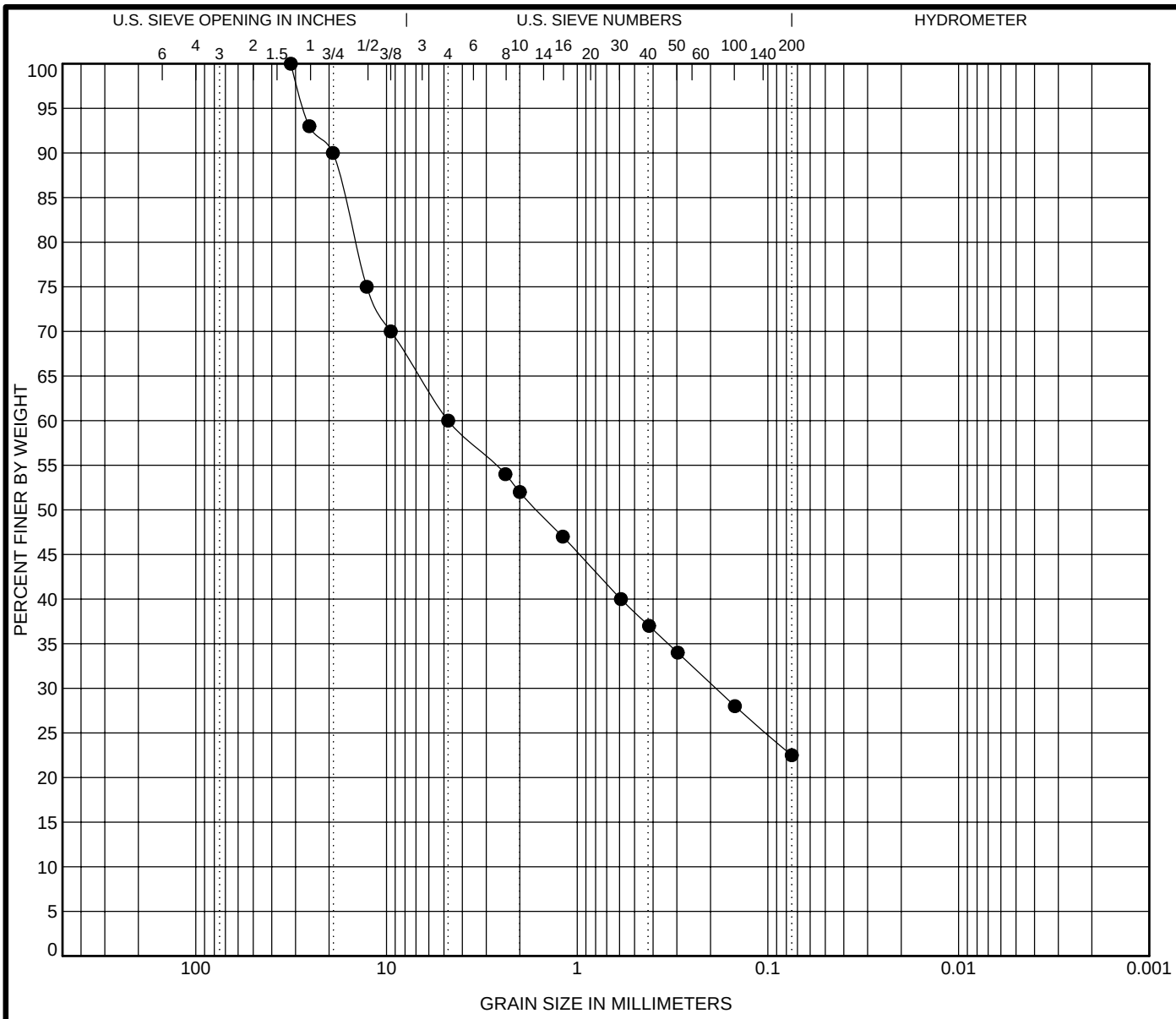
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-17**	**0.0ft - 5.0ft**	**CLAYEY SANDY GRAVEL (GC)**	**27**	**19**	**8**		
⊠								
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★								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-17**	**0.0ft - 5.0ft**	**31.75**	**4.75**	**0.188**		**40.0**	**37.5**	**22.5**	
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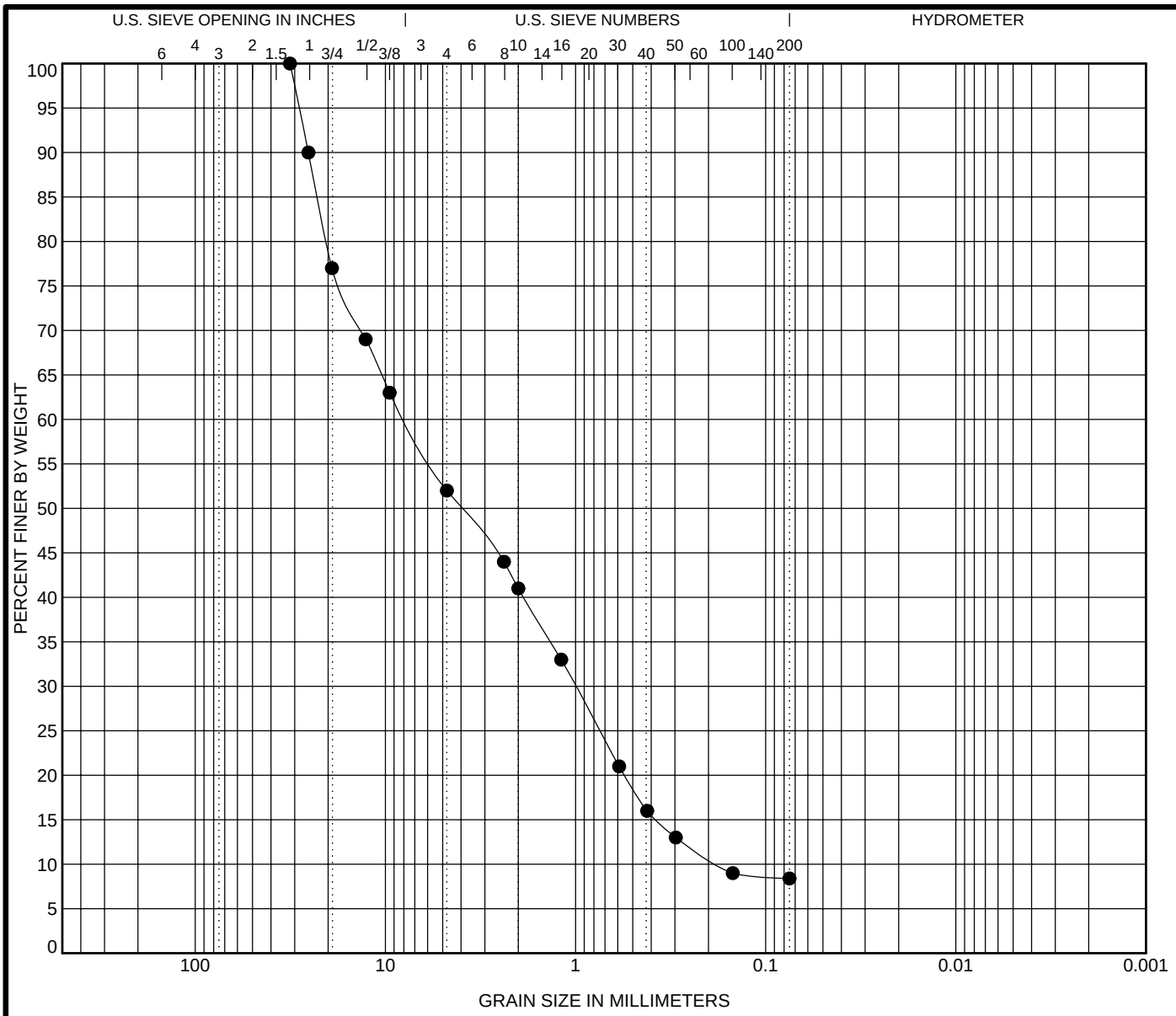
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-17 15.0ft - 16.0ft**	**SANDY GRAVEL WITH SILT (GP)**	**NP**	**NP**	**NP**	**0.72**	**44.42**
⊠							
▲							
★							
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	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-17 15.0ft - 16.0ft**	**31.75**	**7.864**	**0.999**	**0.177**	**48.0**	**43.6**	**8.4**	
⊠									
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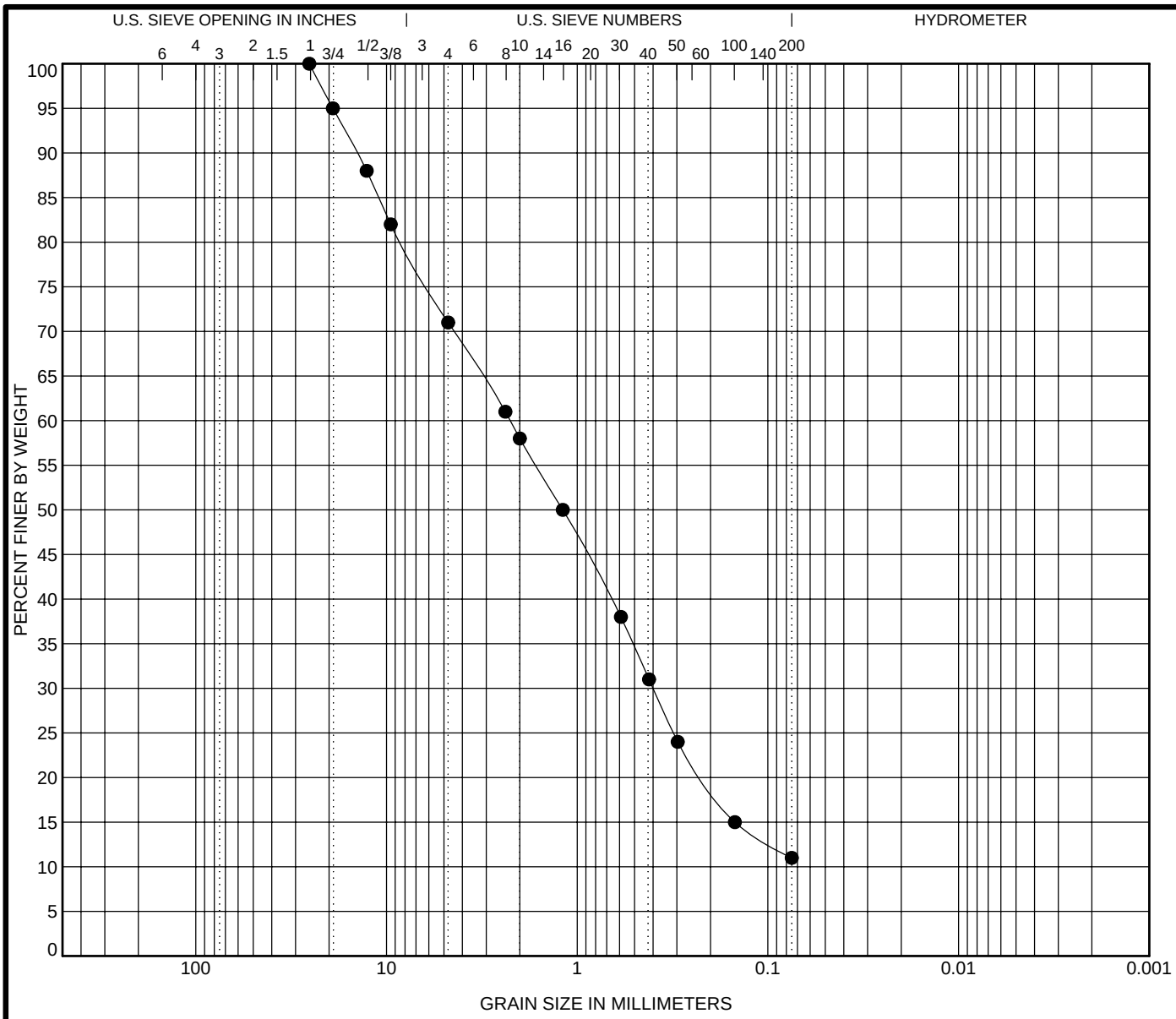
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**B-17 20.0ft - 21.0ft**	**SANDY GRAVEL WITH SILT (GP)**	**NP**	**NP**	**NP**	**1.13**	**35.55**
⊠							
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⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-17 20.0ft - 21.0ft**	**25.4**	**2.246**	**0.4**		**29.0**	**60.0**	**11.0**	
⊠									
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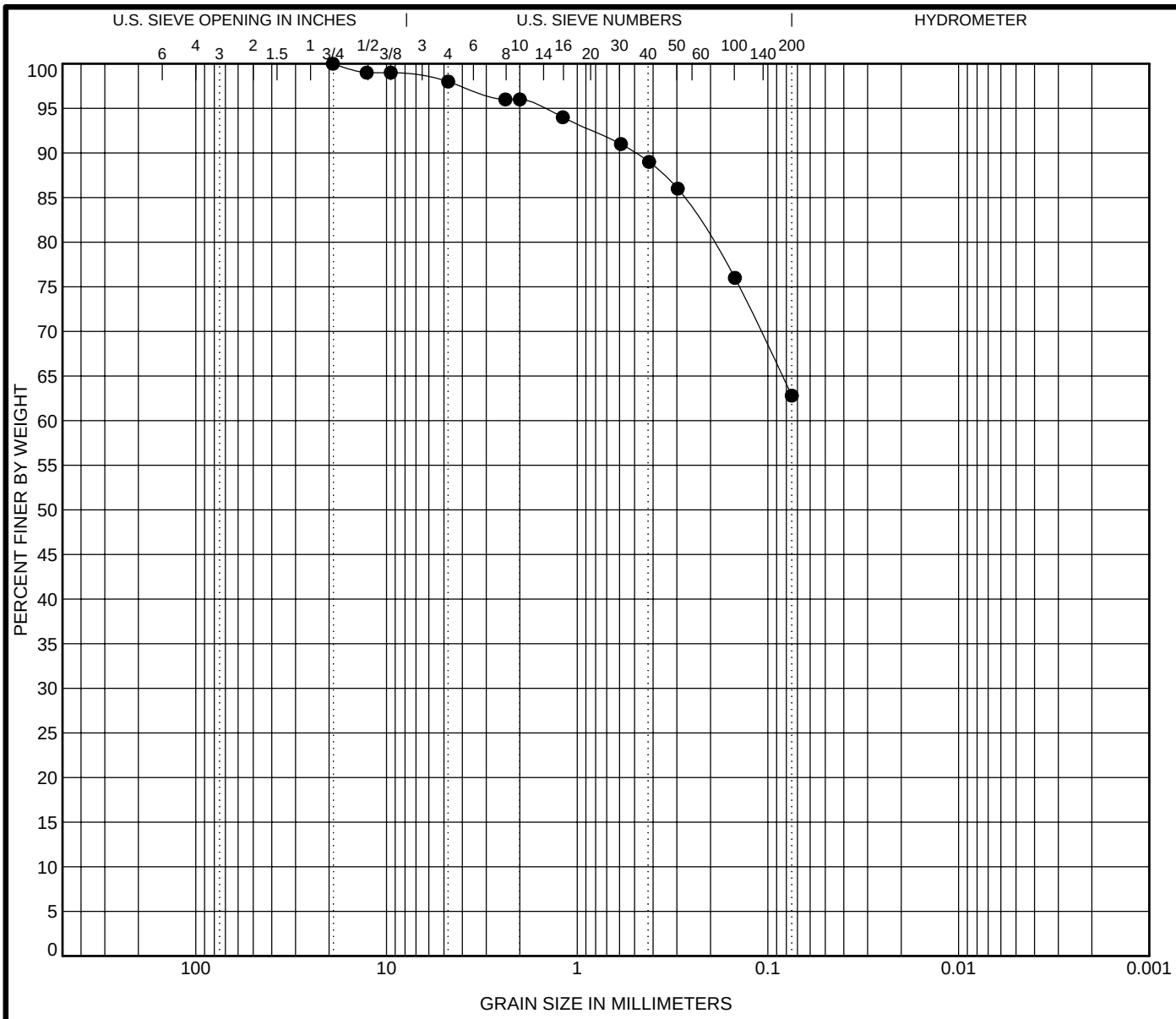
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-4**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY WITH GRAVEL (CL)**	**28**	**19**	**9**		
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-4**	**0.0ft - 2.5ft**	**19.1**				**2.0**	**35.2**	**62.8**	
⊠										
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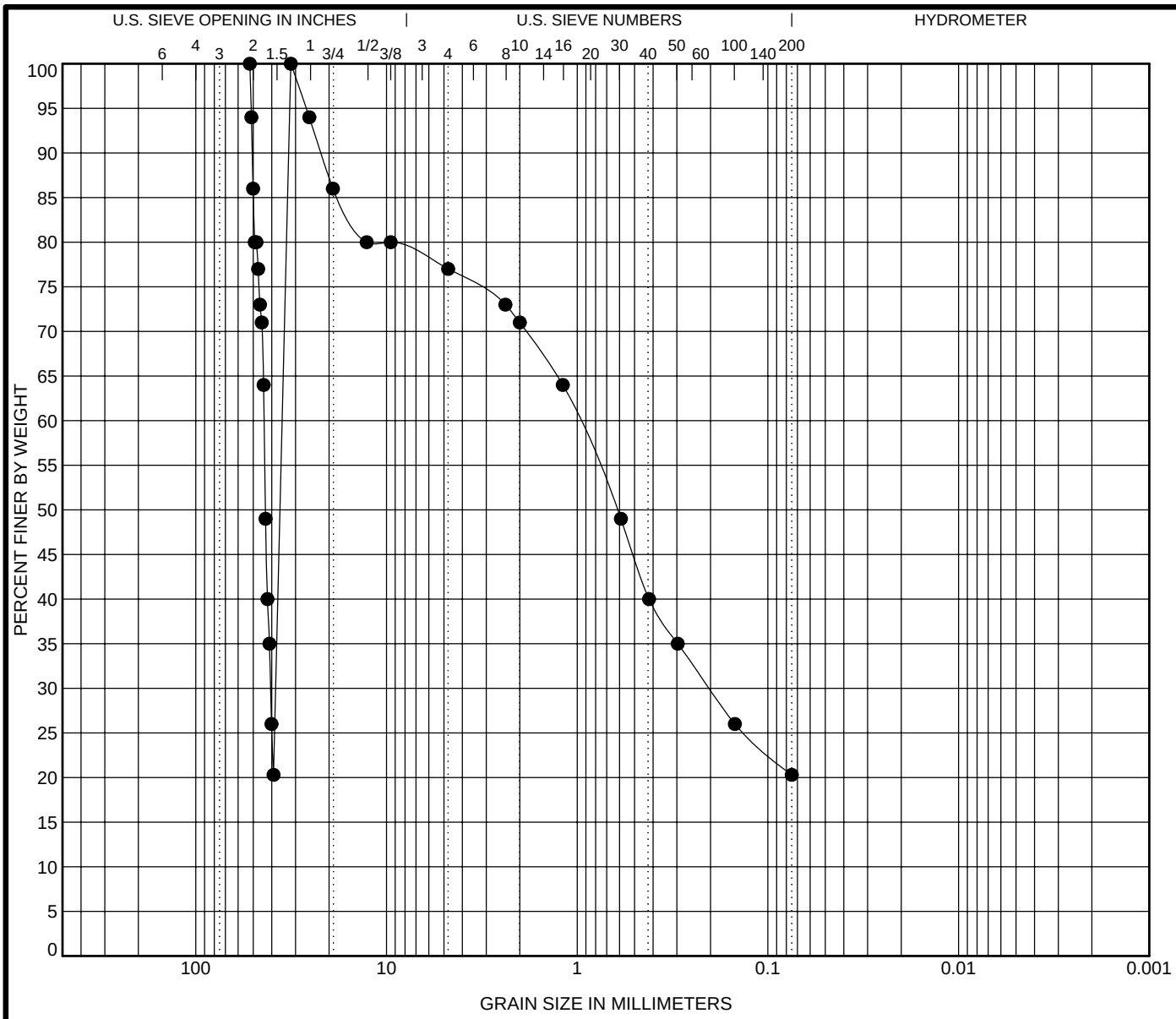
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-4**	**12.5ft - 13.5ft**	**SILTY SAND TRACE GRAVEL (SM)**	**NP**	**NP**	**NP**		
⊠								
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⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-4**	**12.5ft - 13.5ft**	**52.1**	**3.099**	**4.532**		**23.0**	**56.7**	**20.3**	
⊠										
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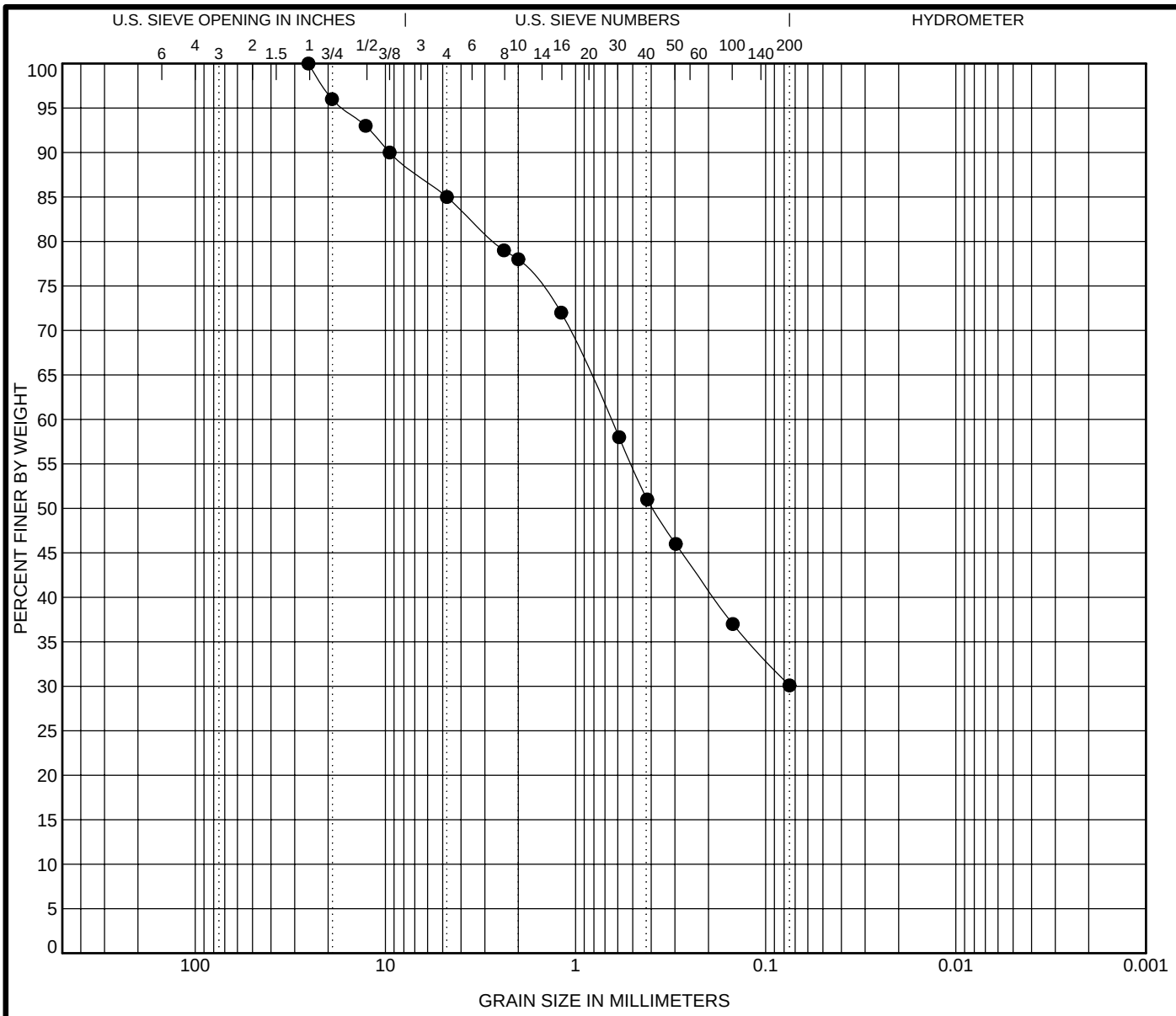
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-4**	**17.5ft - 18.5ft**	**CLAYEY SILTY SAND WITH GRAVEL (SC-SM)**	**21**	**16**	**5**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-4**	**17.5ft - 18.5ft**	**25.4**	**0.652**			**15.0**	**54.9**	**30.1**	
⊠										
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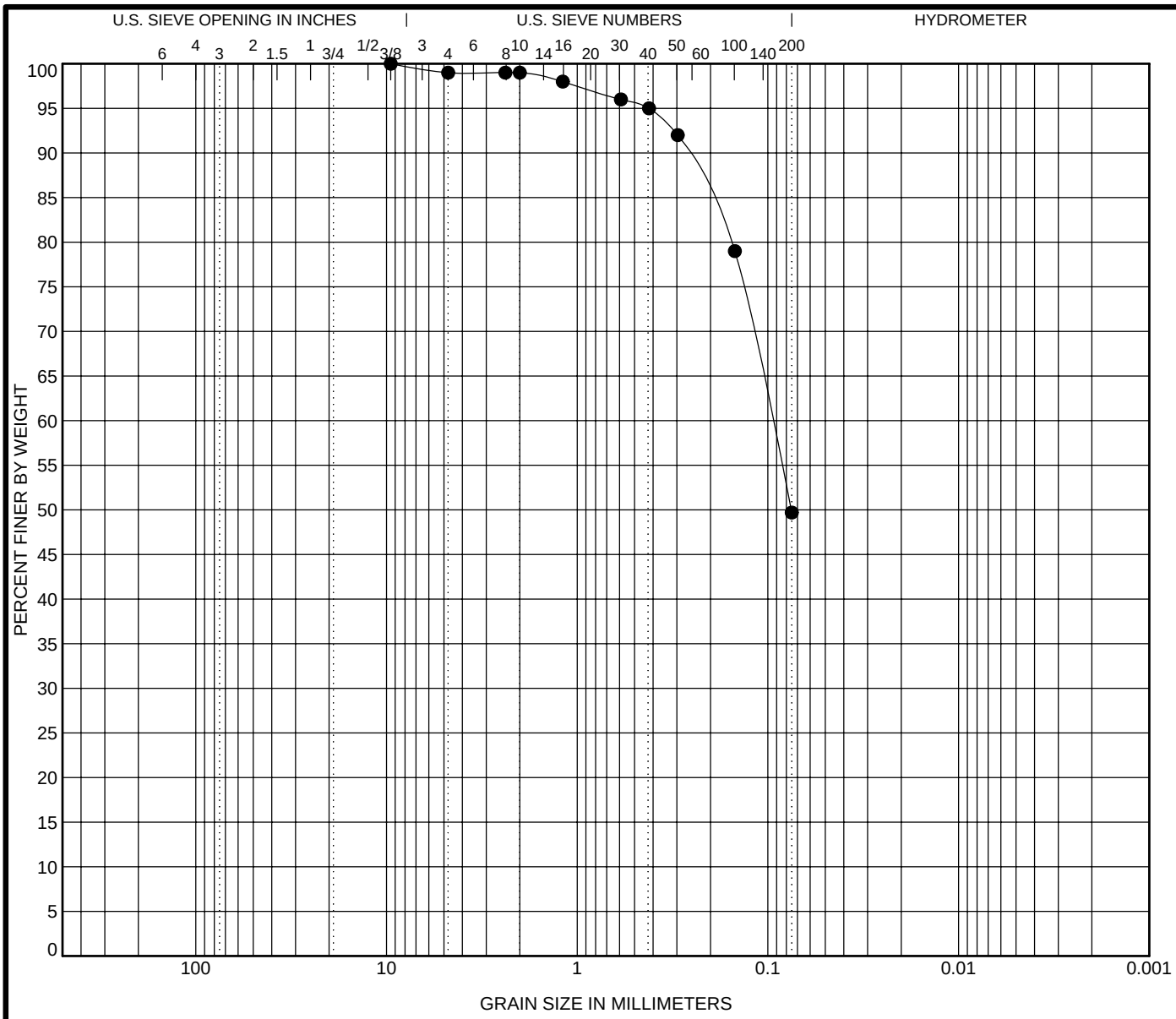
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**B-O**	**0.0ft - 2.5ft**	**SANDY SILT TRACE GRAVEL (ML)**	**NP**	**NP**	**NP**		
⊠								
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★								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-O**	**0.0ft - 2.5ft**	**9.5**	**0.095**			**1.0**	**49.3**	**49.7**	
⊠										
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★										
⊙										

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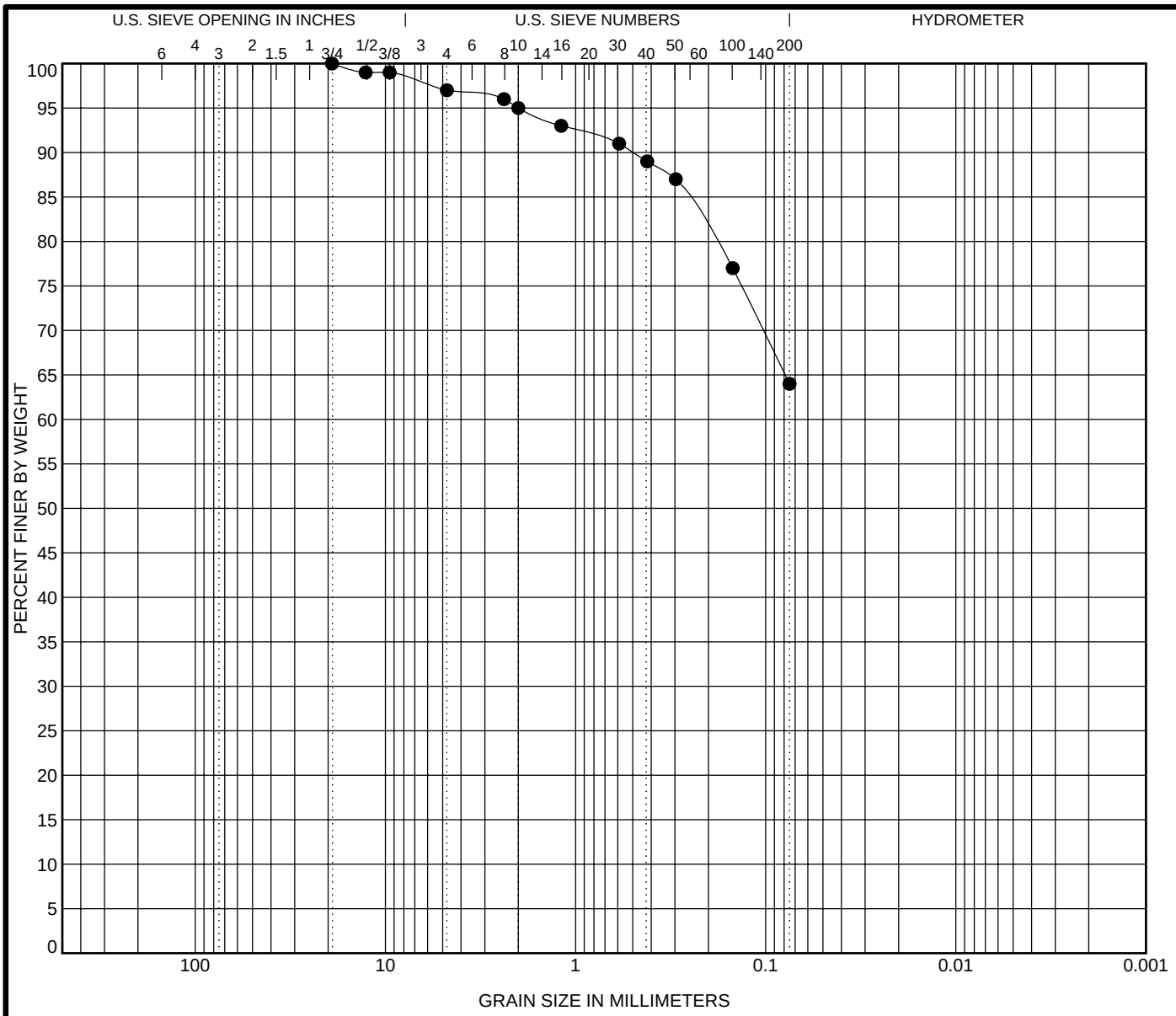
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**C-1**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**26**	**18**	**8**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-1**	**0.0ft - 2.5ft**	**19.1**				**3.0**	**33.0**	**64.0**	
⊠										
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★										
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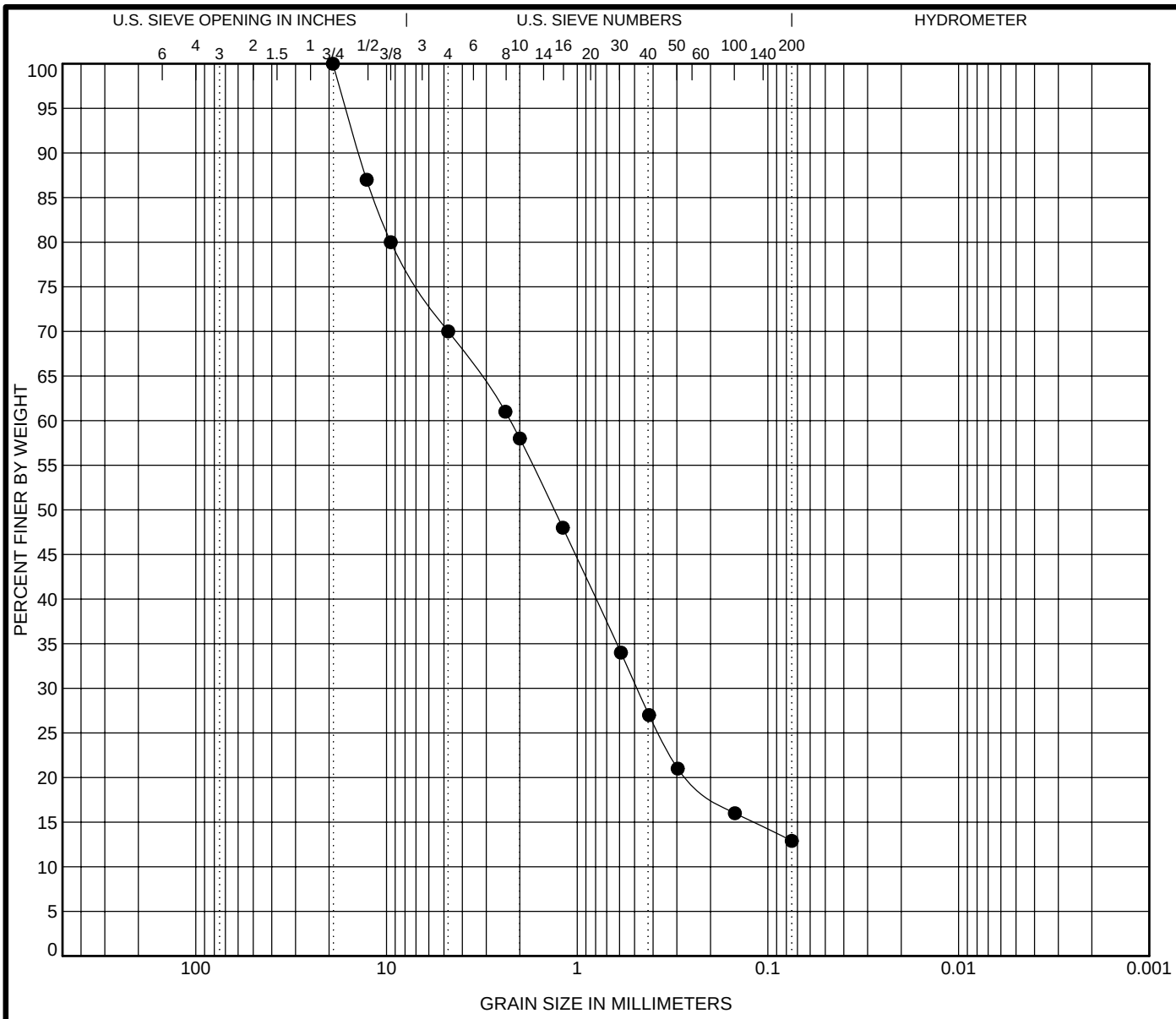
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**C-1**	**17.5ft - 18.5ft**	**GRAVELLY SILTY SAND TRACE COBBLES (SM)**	**20**	**17**	**3**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-1**	**17.5ft - 18.5ft**	**19.1**	**2.246**	**0.486**		**30.0**	**57.1**	**12.9**	
⊠										
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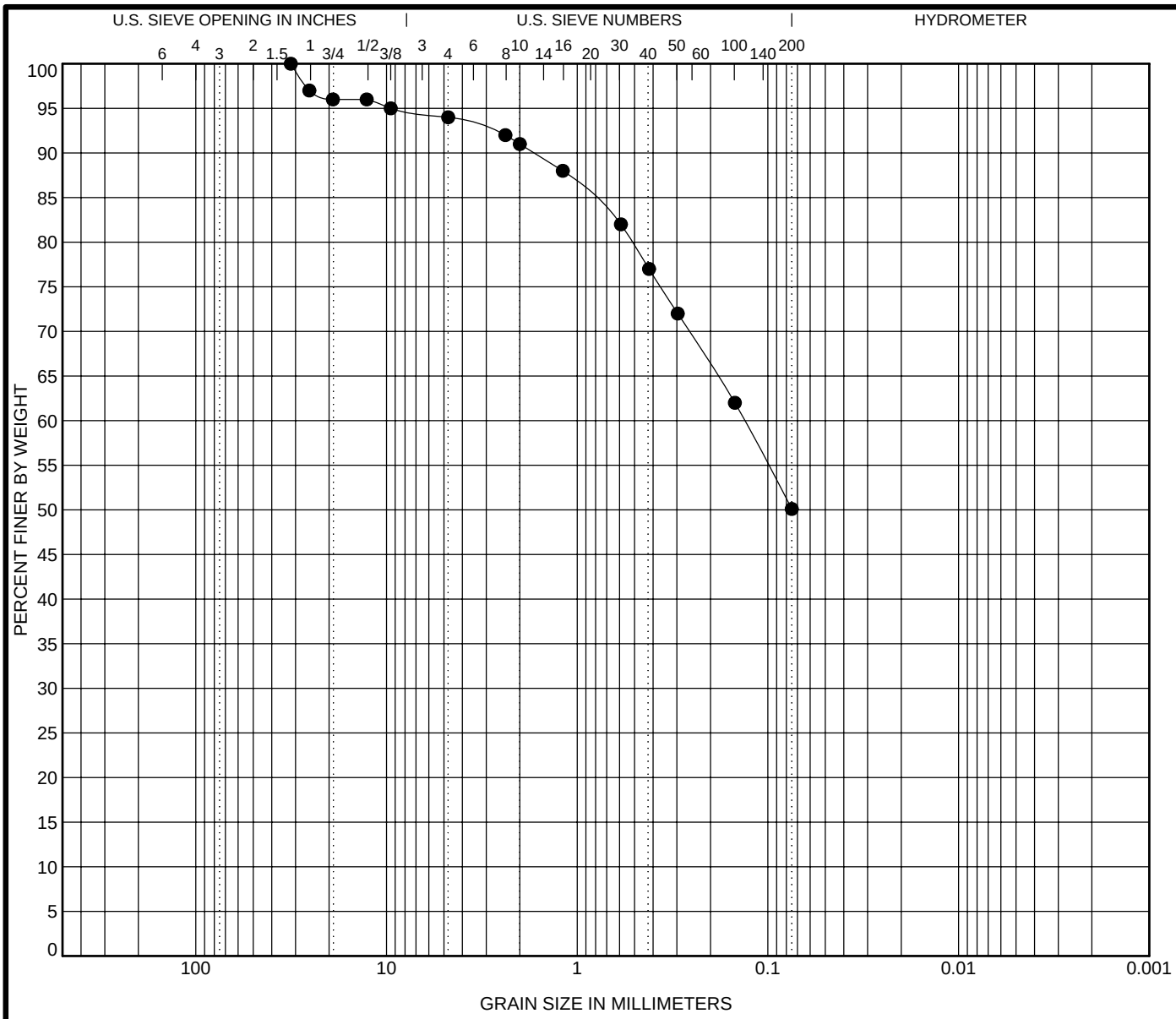
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**C-3**	**0.0ft - 2.5ft**	**SANDY SILT LEAN CLAY TRACE GRAVEL (CL-ML)**	**25**	**19**	**6**		
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-3**	**0.0ft - 2.5ft**	**31.75**	**0.133**			**6.0**	**43.9**	**50.1**	
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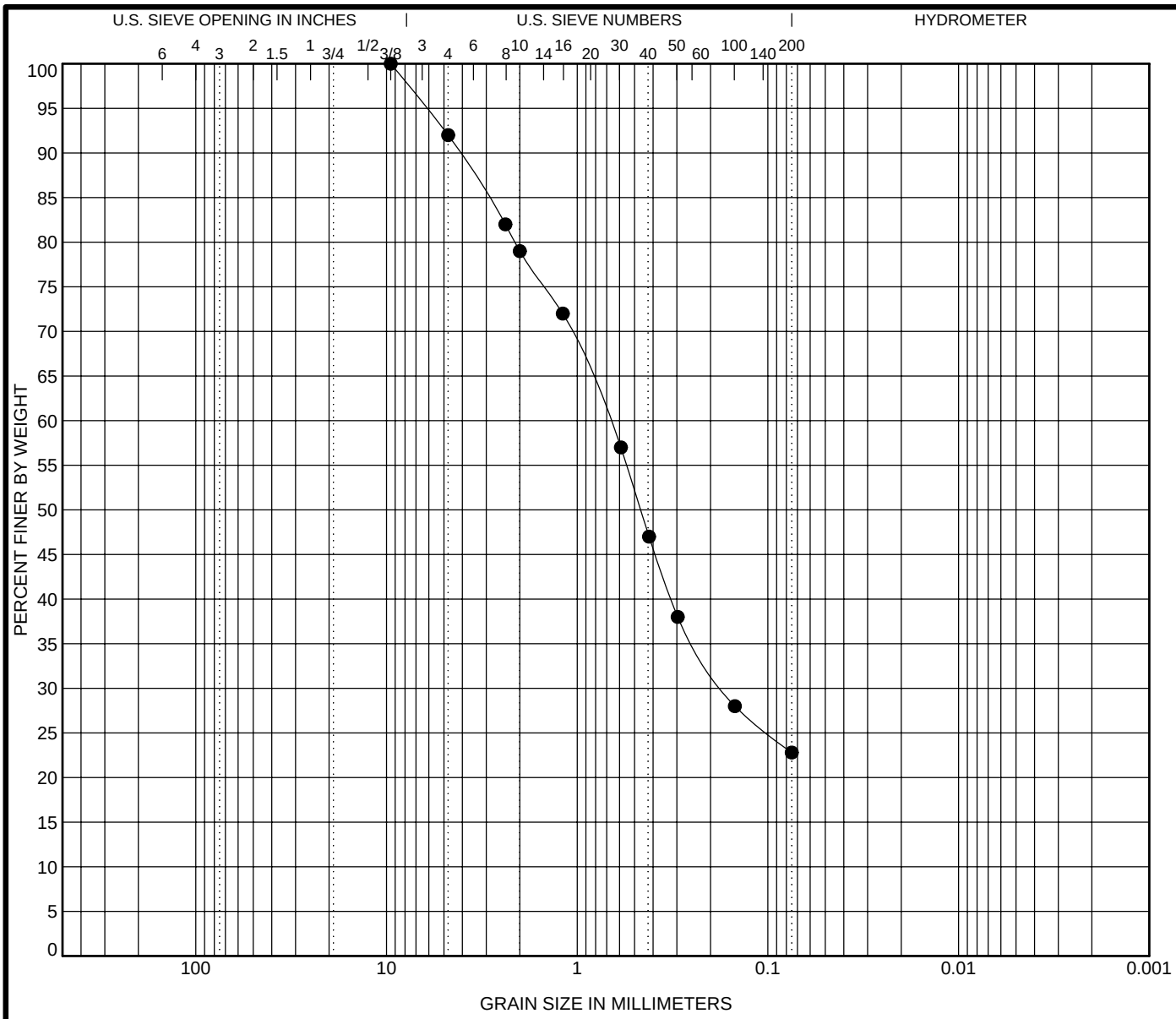
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**C-3 15.0ft - 16.0ft**	**CLAYEY SILTY SAND TRACE GRAVEL AND COBBLES (SC-SM)**	**21**	**16**	**5**		
⊠							
▲							
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	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-3 15.0ft - 16.0ft**	**9.5**	**0.679**	**0.171**		**8.0**	**69.2**	**22.8**	
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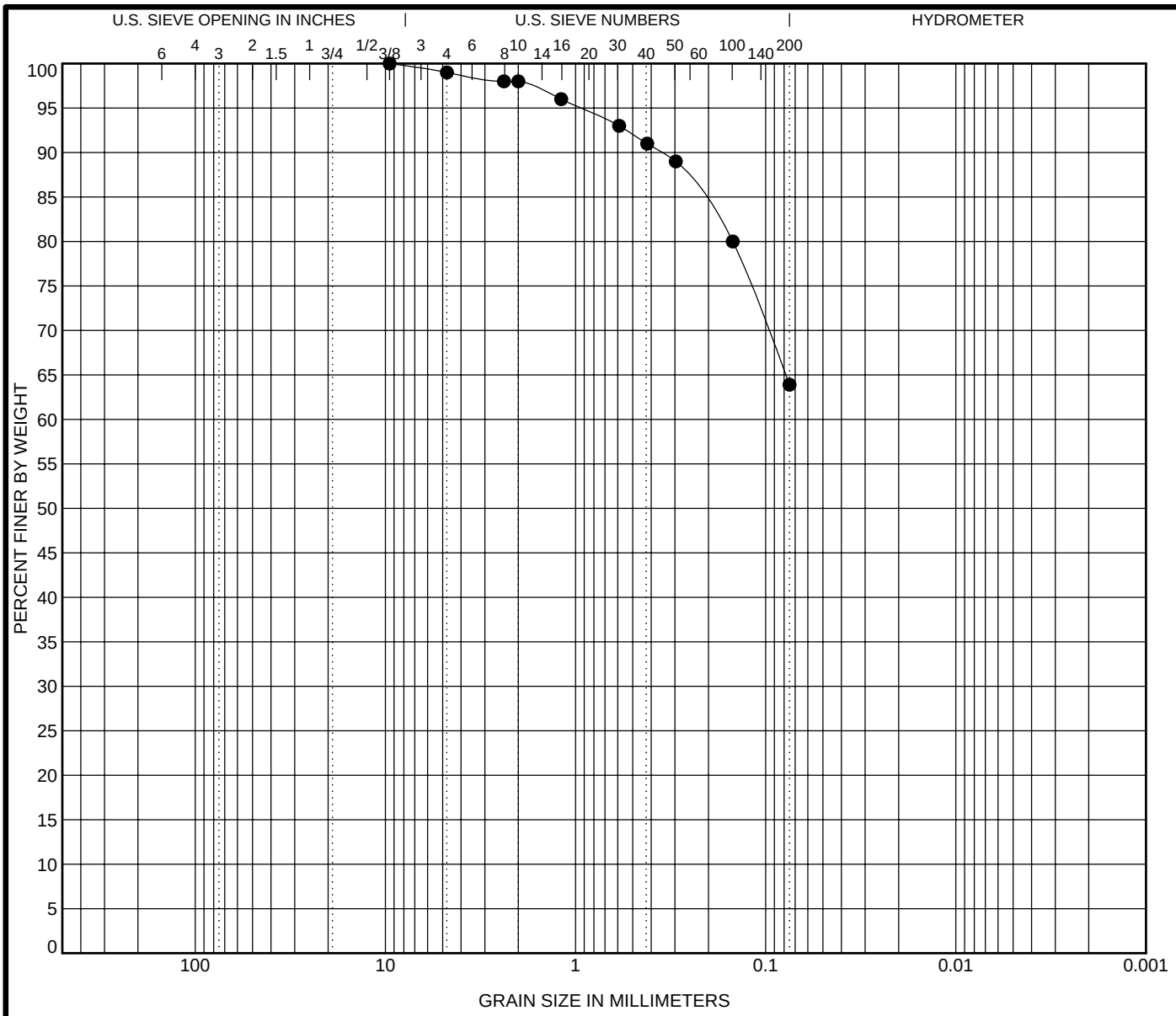
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**C-5**	**0.0ft - 2.5ft**	**SANDY SILT LEAN CLAY TRACE GRAVEL (CL-ML)**	**26**	**20**	**6**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-5**	**0.0ft - 2.5ft**	**9.5**				**1.0**	**35.1**	**63.9**	
⊠										
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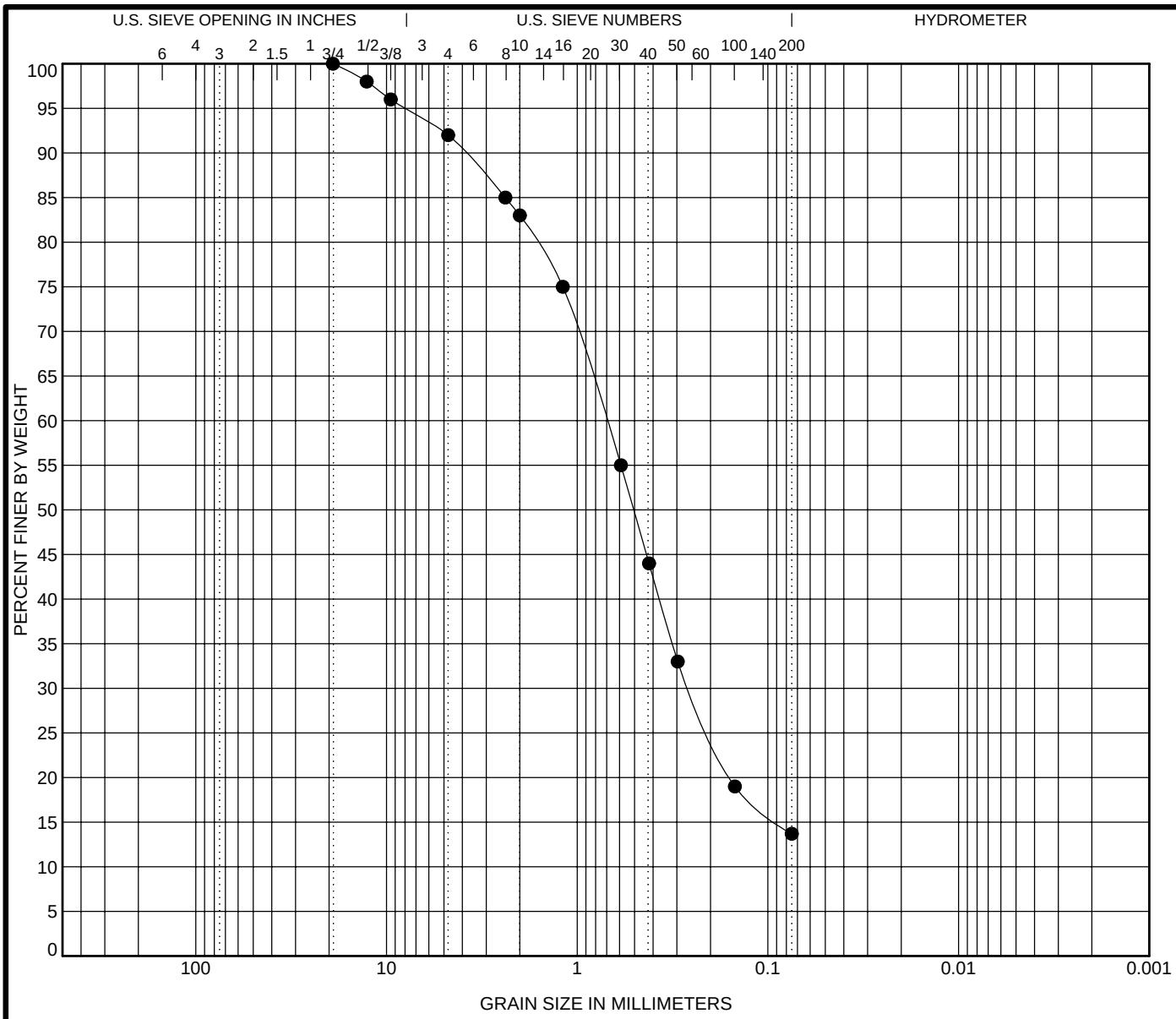
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**C-5 10.0ft - 11.0ft**	**SILTY SAND TRACE GRAVEL & COBBLES (SM)**	**NP**	**NP**	**NP**		
⊠							
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	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-5 10.0ft - 11.0ft**	**19.1**	**0.703**	**0.256**		**8.0**	**78.3**	**13.7**	
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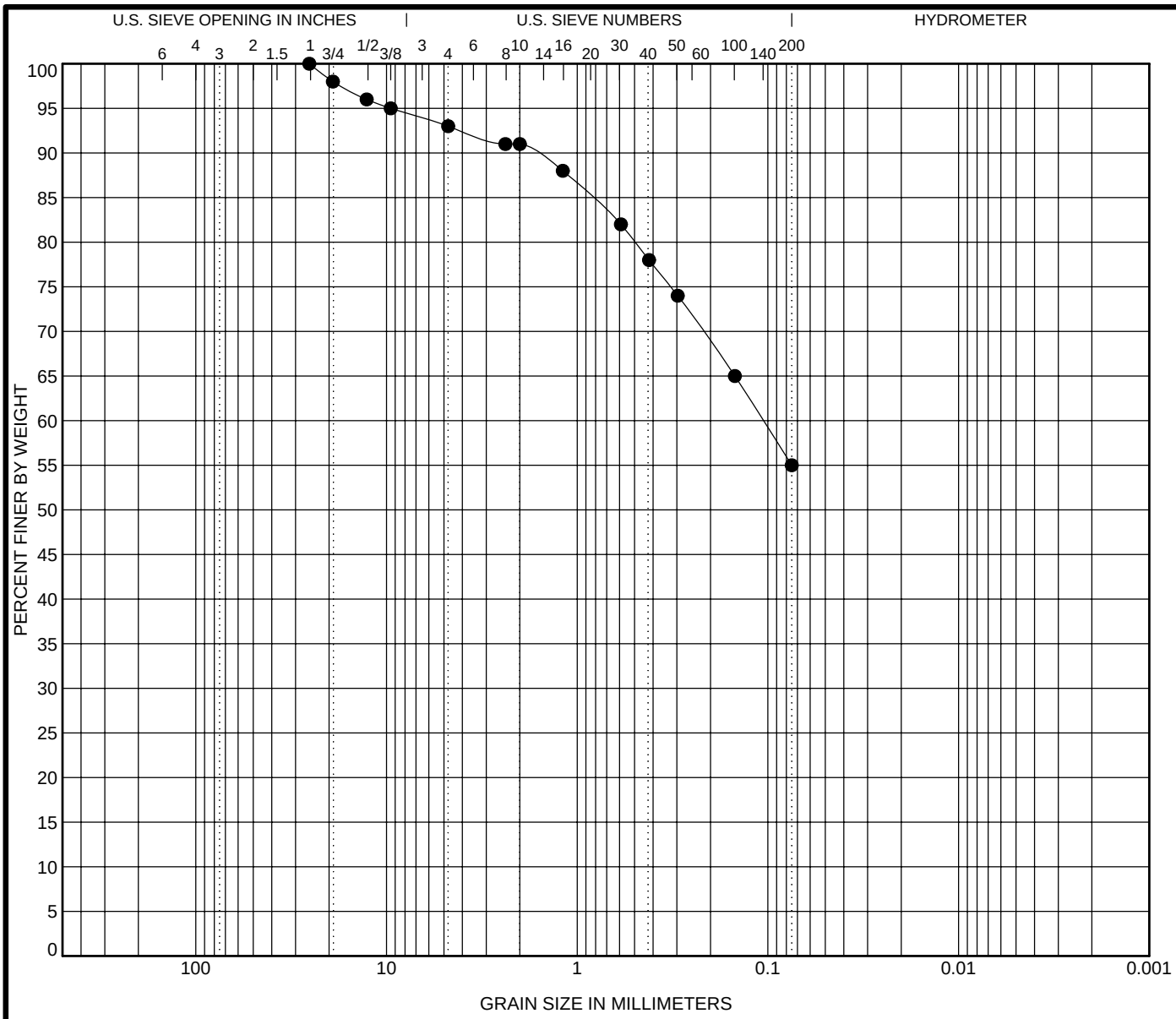
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**D-2**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**26**	**18**	**8**		
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**D-2**	**0.0ft - 2.5ft**	**25.4**	**0.106**			**7.0**	**38.0**	**55.0**	
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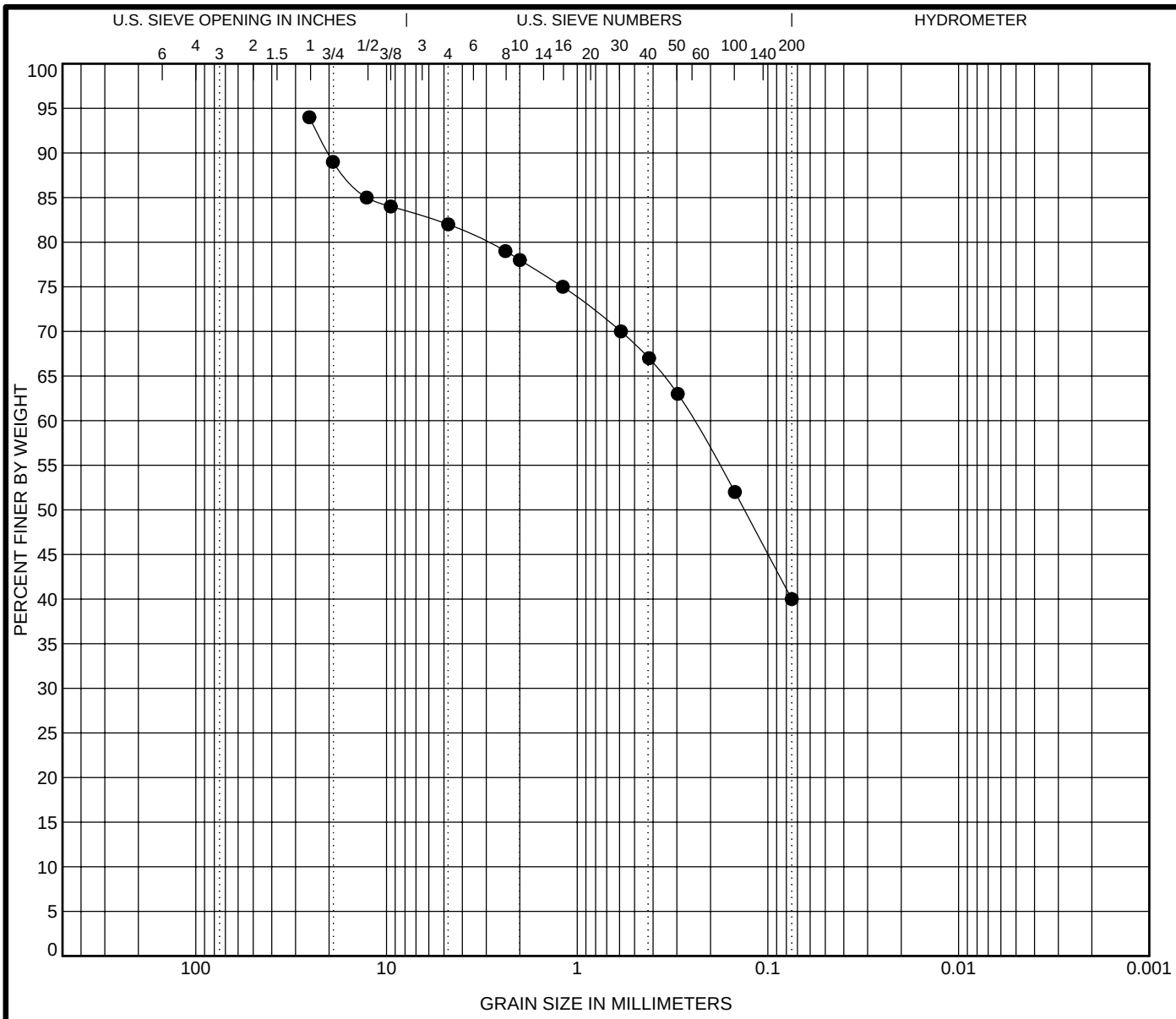
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**E-3**	**0.0ft - 2.5ft**	**SILTY SAND WITH GRAVEL (SM)**	**21**	**18**	**3**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**E-3**	**0.0ft - 2.5ft**	**25.4**	**0.246**			**12.0**	**42.0**	**40.0**	
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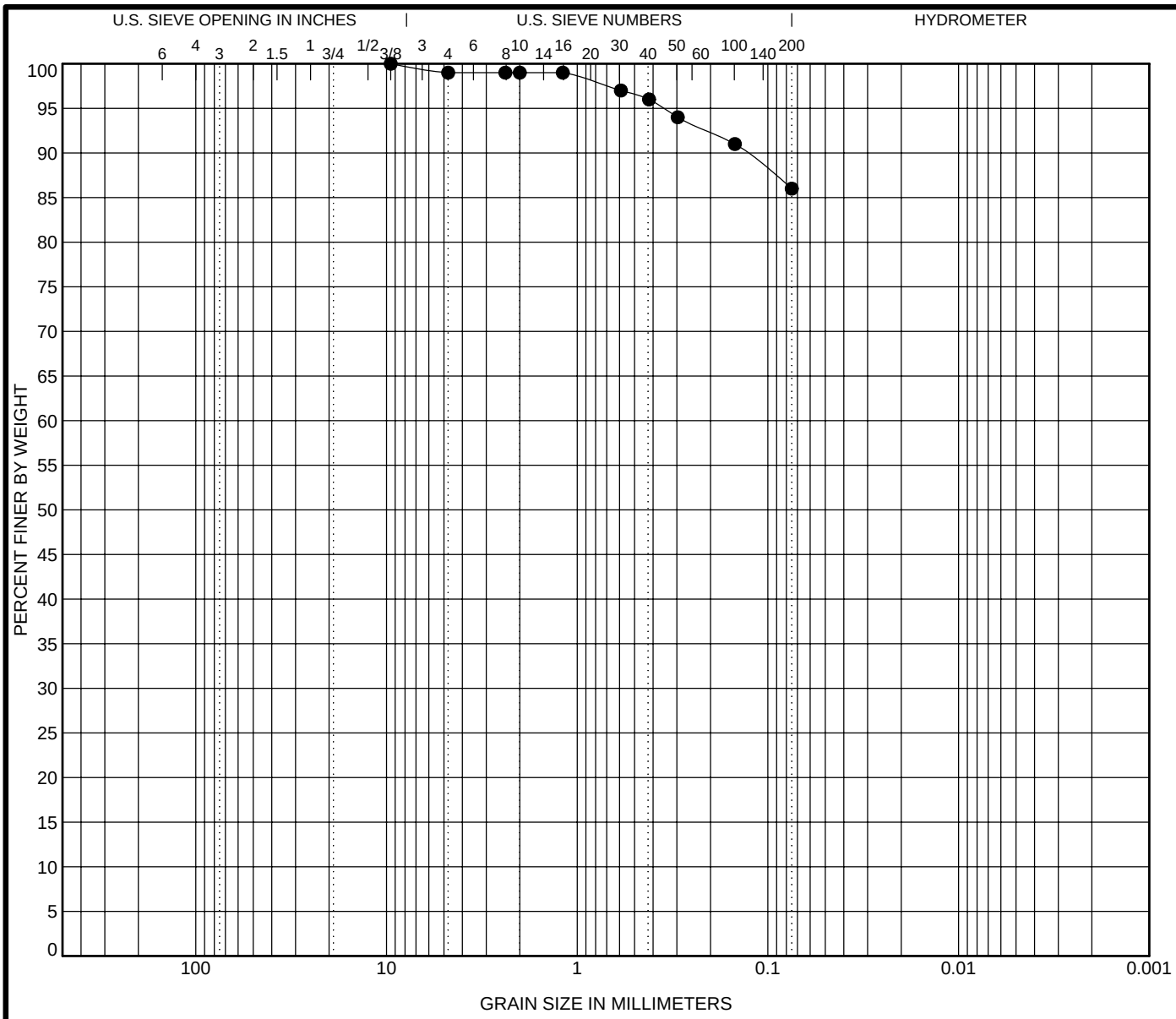
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**E-5**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**39**	**19**	**20**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**E-5**	**0.0ft - 2.5ft**	**9.5**				**1.0**	**13.0**	**86.0**	
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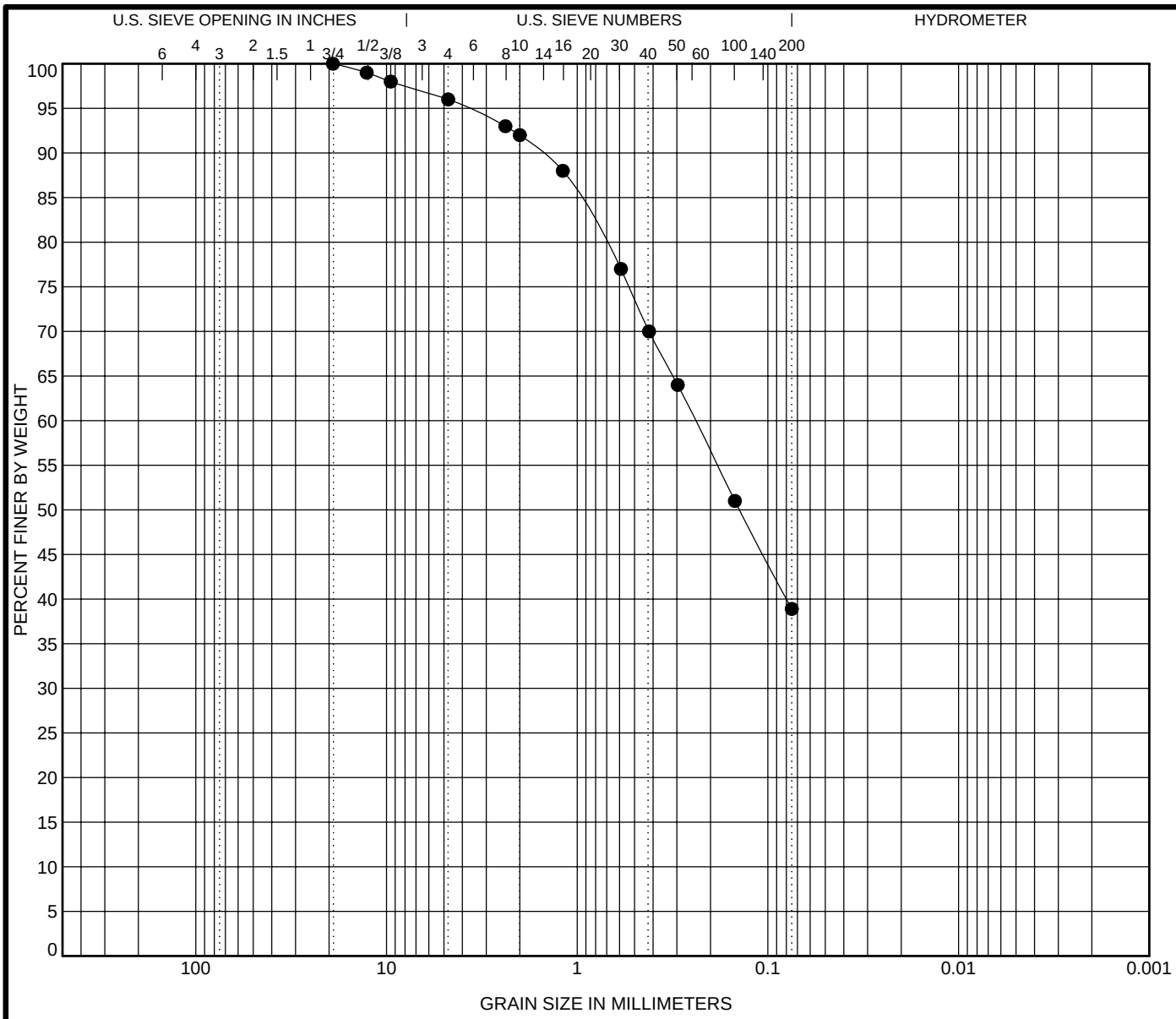
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**F-4**	**0.0ft - 2.5ft**	**CLAYEY SILTY SAND TRACE GRAVEL (SC-SM)**	**21**	**15**	**6**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**F-4**	**0.0ft - 2.5ft**	**19.1**	**0.24**			**4.0**	**57.1**	**38.9**	
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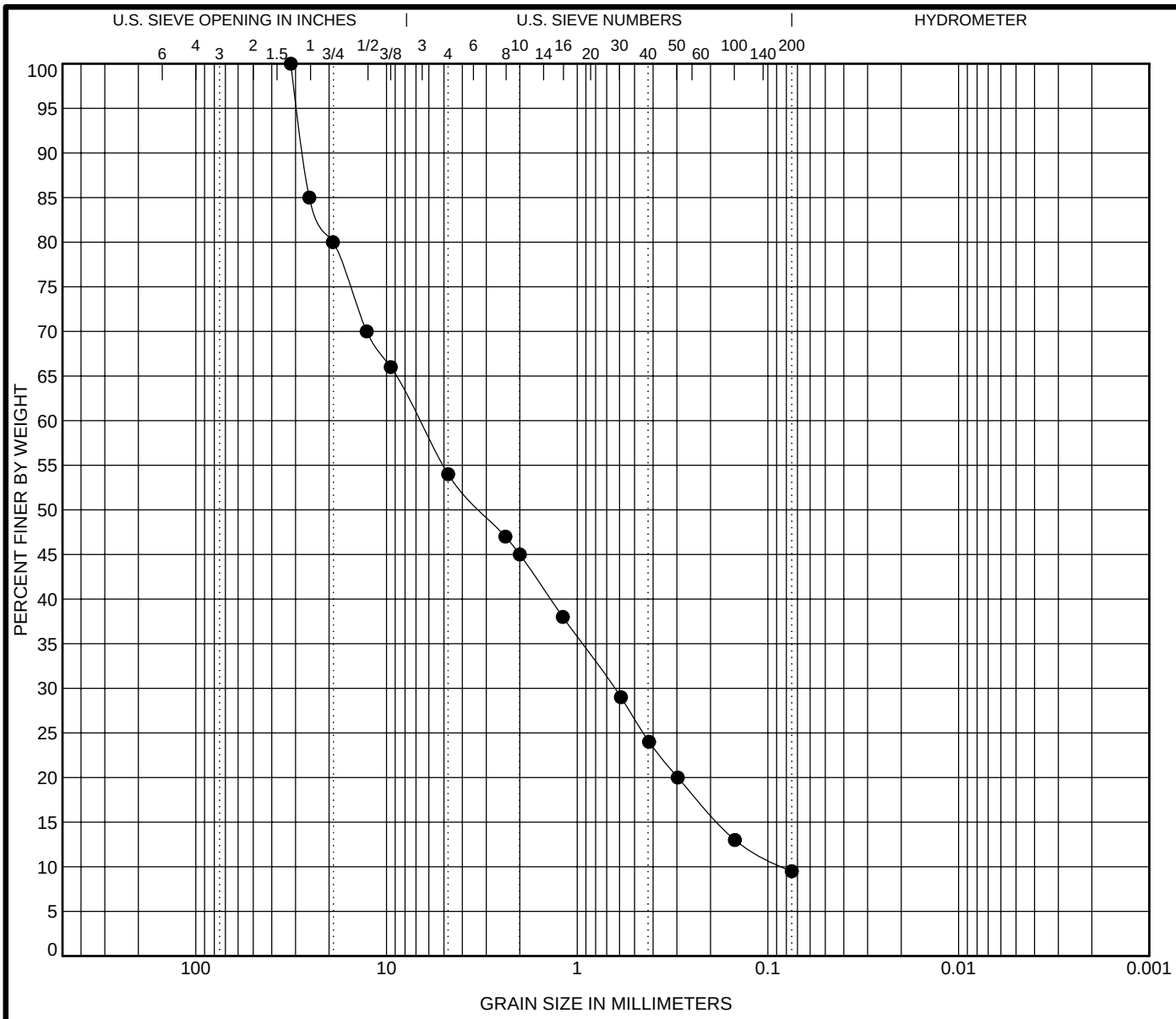
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**F-4**	**12.5ft - 13.5ft**	**GRAVELLY SAND TRACE SILT AND COBBLES (SP)**	**NP**	**NP**	**NP**	**0.73**	**81.20**
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**F-4**	**12.5ft - 13.5ft**	**31.75**	**6.718**	**0.638**	**0.083**	**46.0**	**44.5**	**9.5**	
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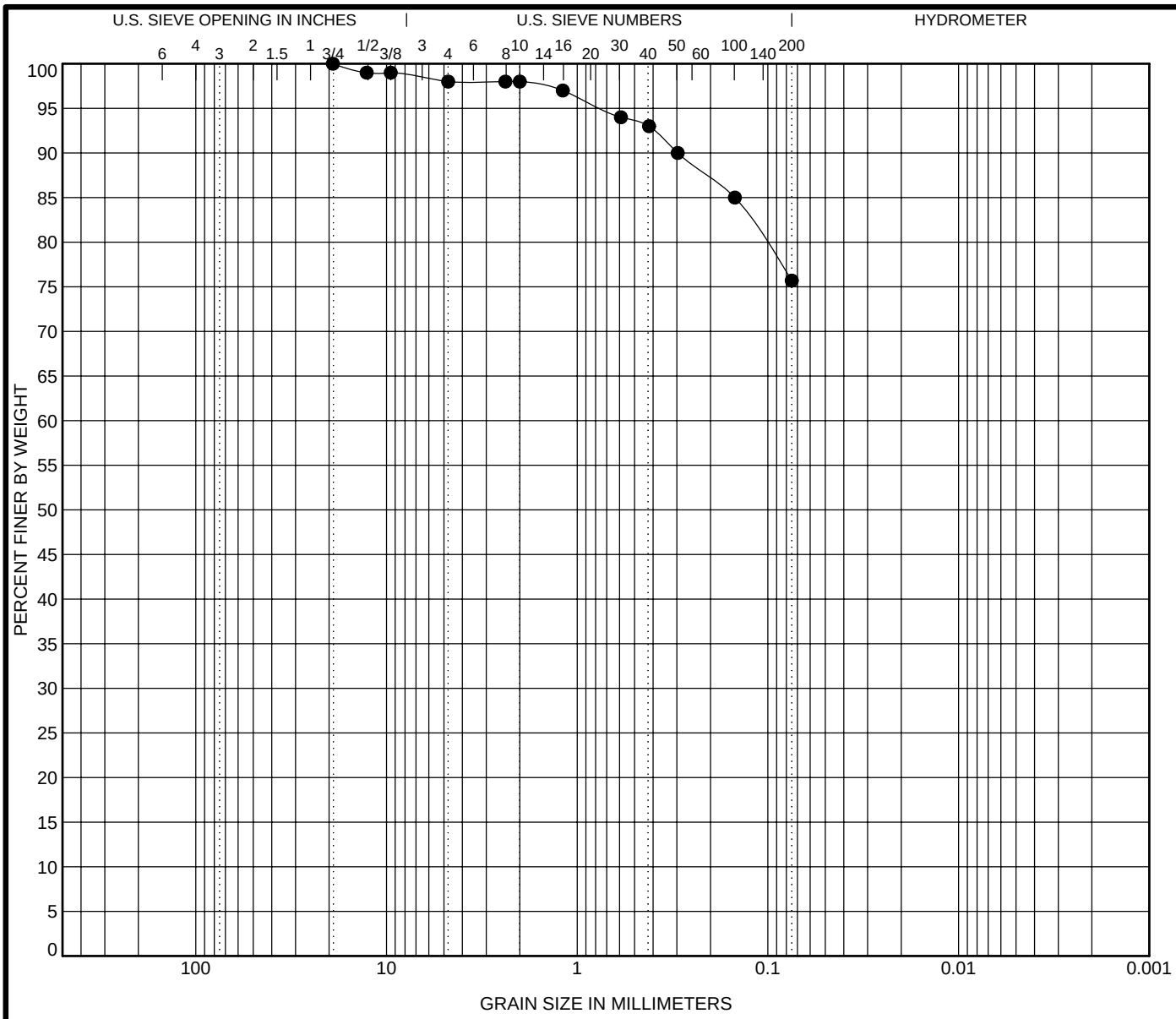
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**F-6**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**40**	**22**	**18**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**F-6**	**0.0ft - 2.5ft**	**19.1**				**2.0**	**22.3**	**75.7**	
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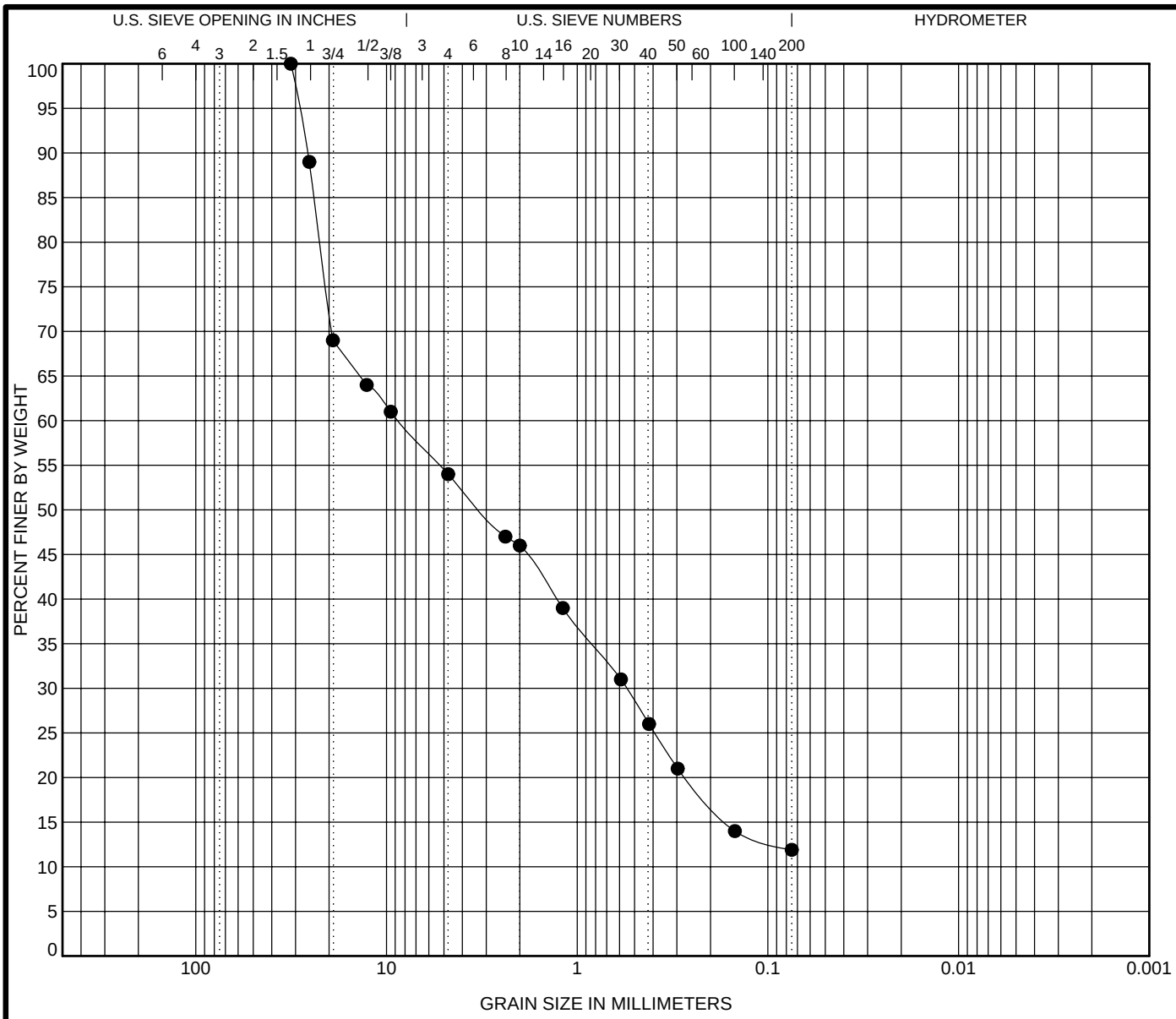
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**F-6**	**17.5ft - 18.5ft**	**GRAVELLY SILTY SAND (SM)**	**NP**	**NP**	**NP**	**0.88**	**213.50**
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**F-6**	**17.5ft - 18.5ft**	**31.75**	**8.604**	**0.551**		**46.0**	**42.1**	**11.9**	
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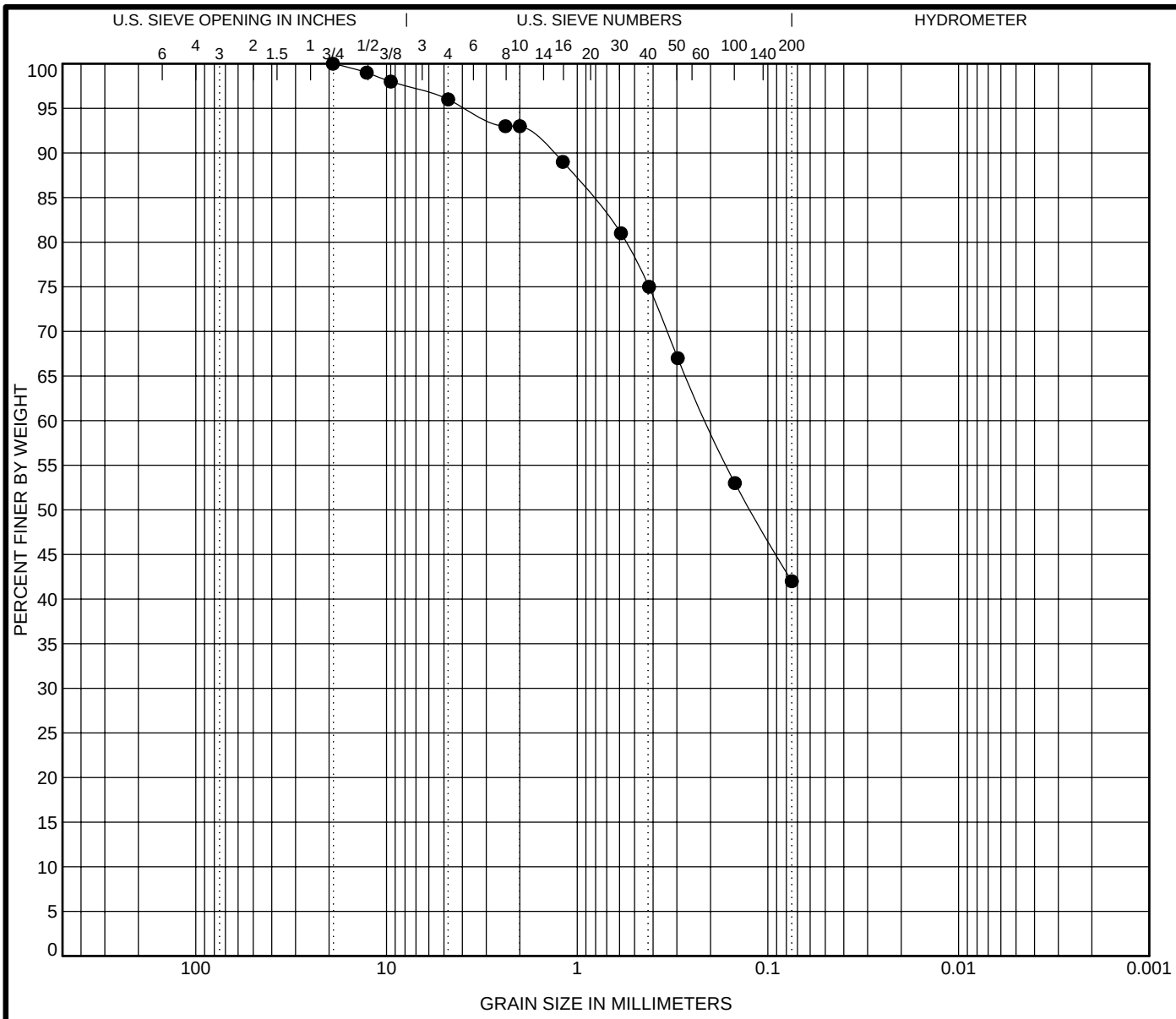
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**G-1**	**0.0ft - 2.5ft**	**CLAYEY SILTY SAND TRACE GRAVEL (SC-SM)**	**24**	**20**	**4**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**G-1**	**0.0ft - 2.5ft**	**19.1**	**0.21**			**4.0**	**54.0**	**42.0**	
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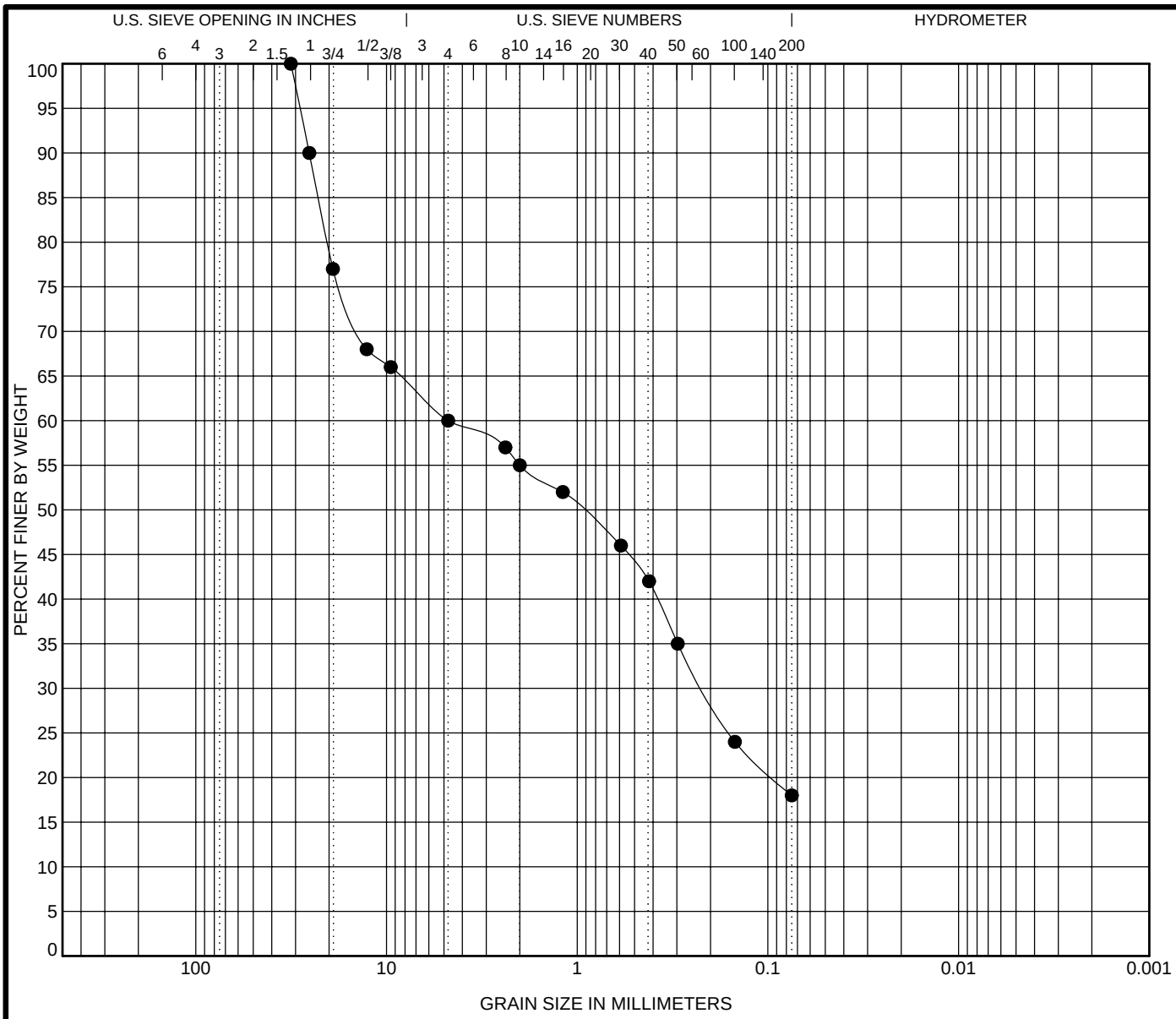
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**G-1**	**7.5ft - 8.5ft**	**GRAVELLY SILTY SAND (SM)**	**NP**	**NP**	**NP**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**G-1**	**7.5ft - 8.5ft**	**31.75**	**4.75**	**0.217**		**40.0**	**42.0**	**18.0**	
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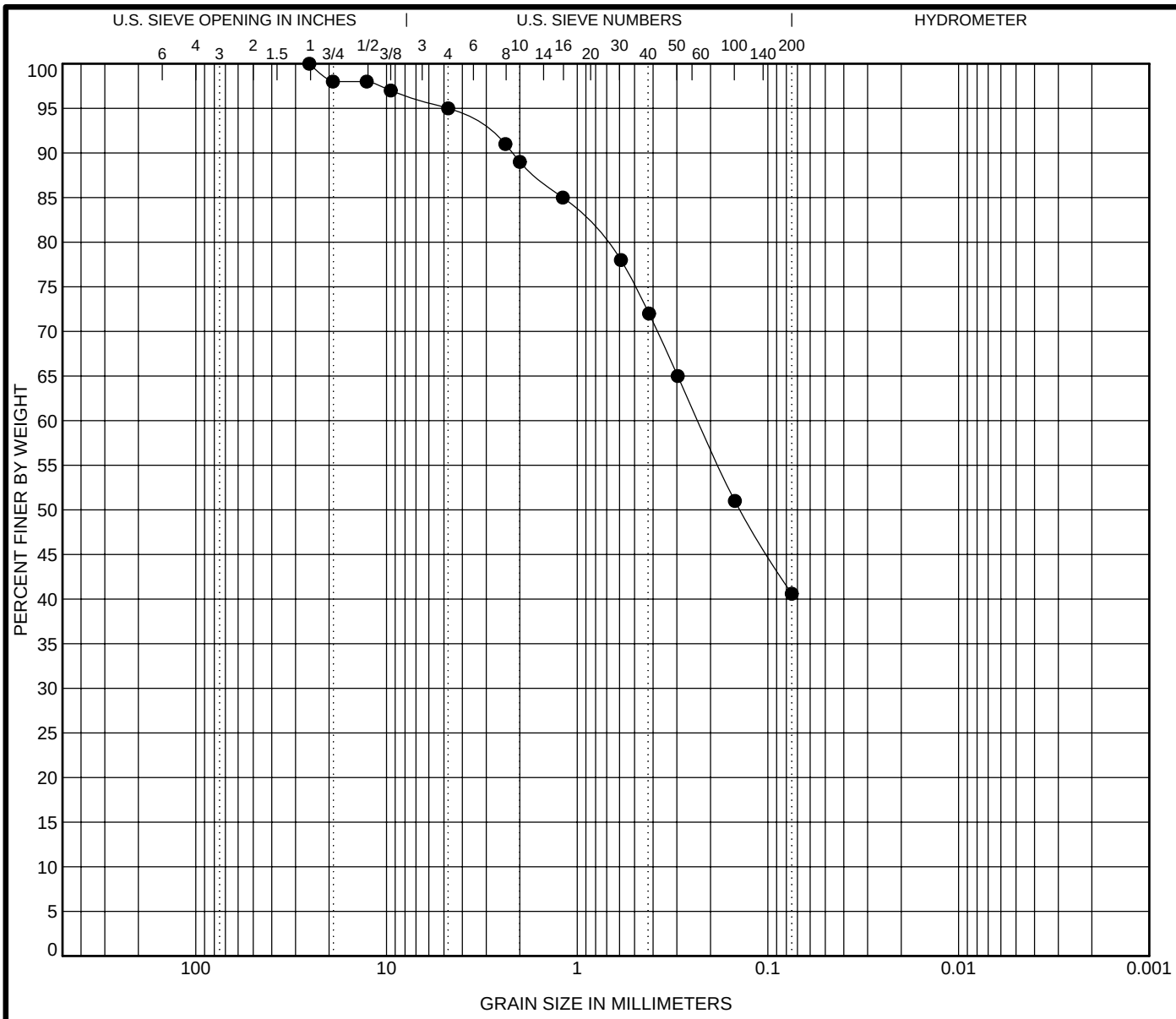
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**G-3**	**0.0ft - 2.5ft**	**POSSIBLE FILL: SILTY SAND TRACE GRAVEL (SM)**	**21**	**18**	**3**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**G-3**	**0.0ft - 2.5ft**	**25.4**	**0.232**			**5.0**	**54.4**	**40.6**	
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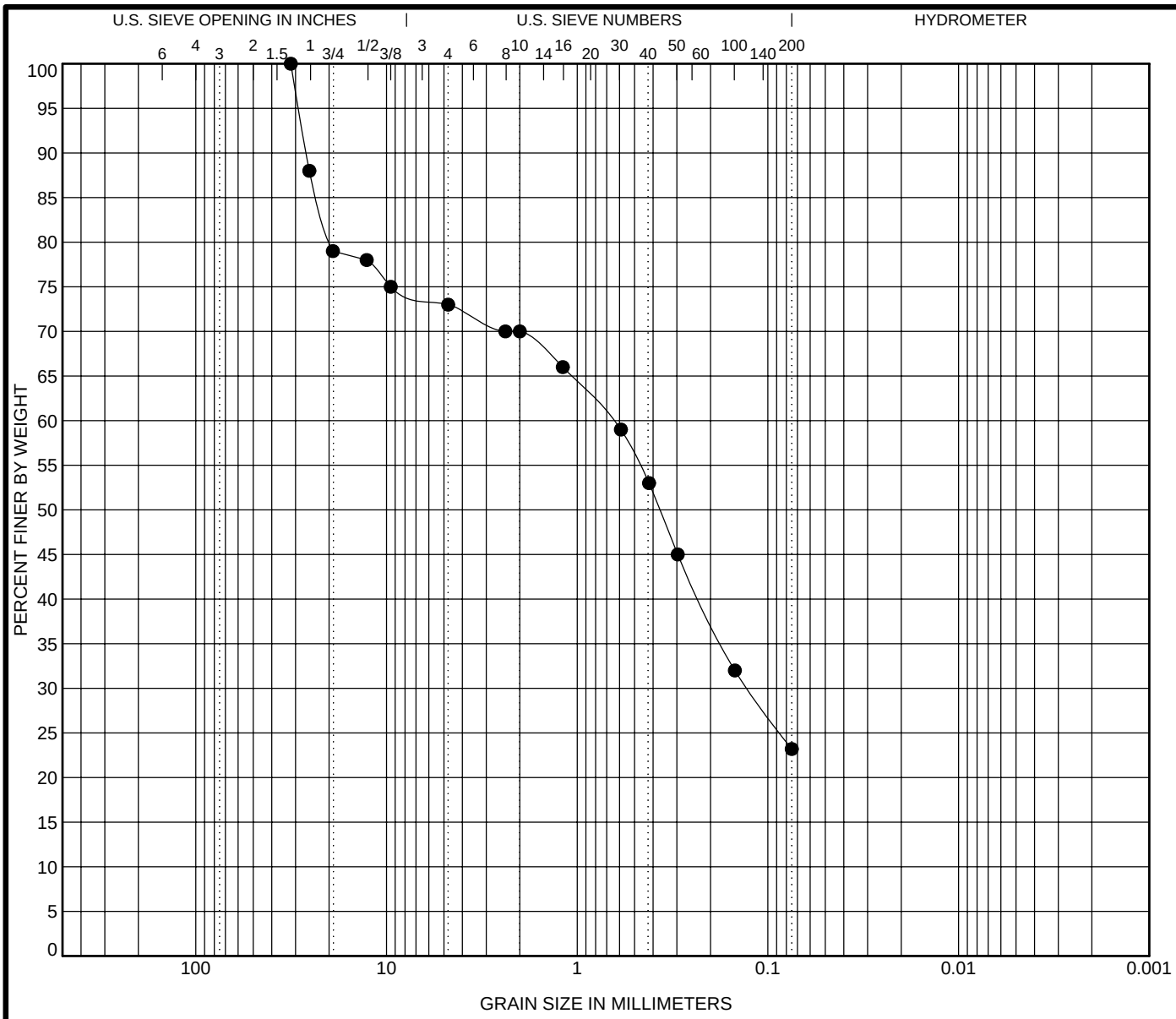
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	G-3	12.5ft - 13.5ft	SILTY SAND WITH GRAVEL (SM)	NP	NP	NP		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	G-3	12.5ft - 13.5ft	31.75	0.652	0.127		27.0	49.8	23.2	
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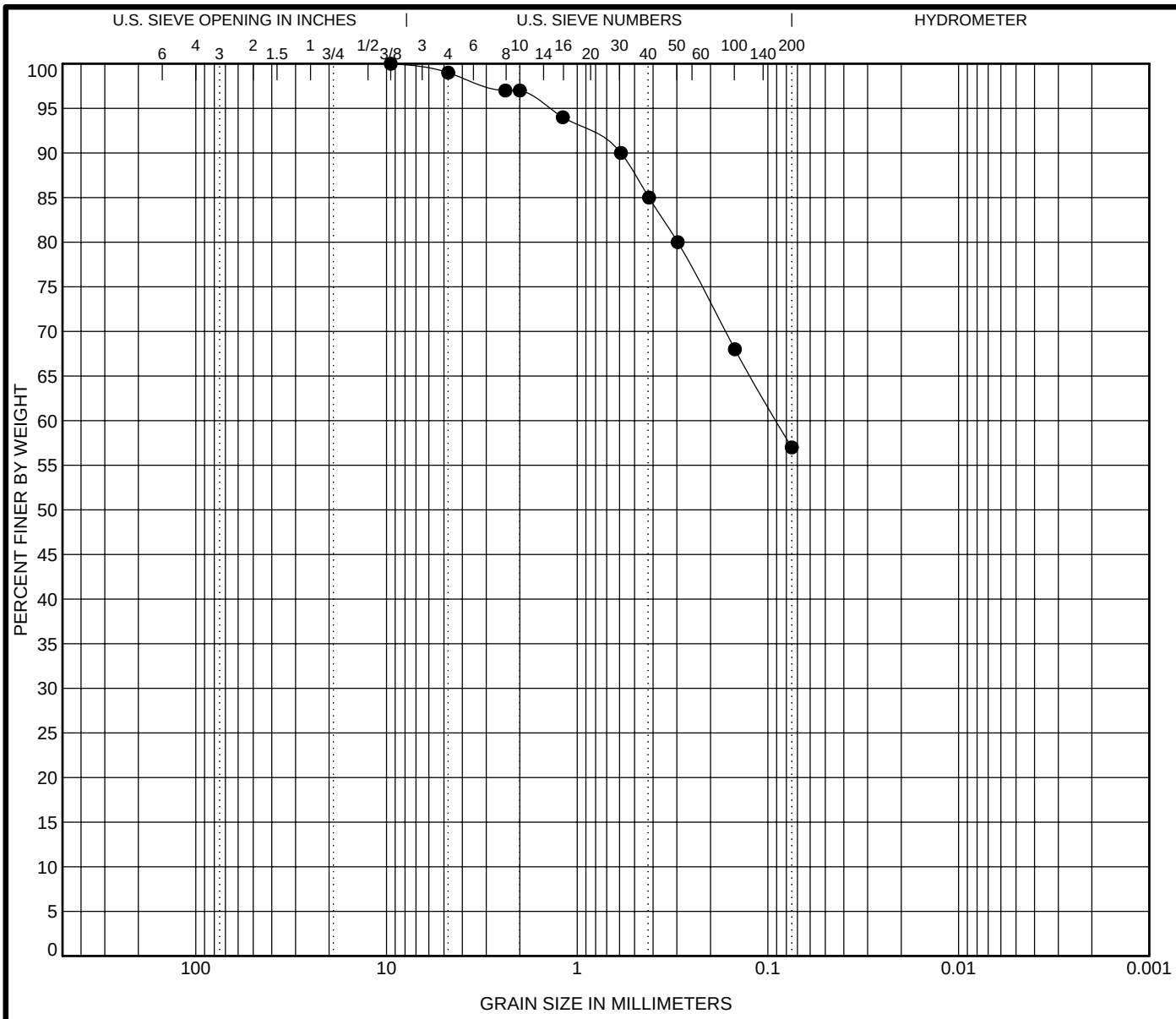
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**G-5**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**27**	**17**	**10**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**G-5**	**0.0ft - 2.5ft**	**9.5**	**0.09**			**1.0**	**42.0**	**57.0**	
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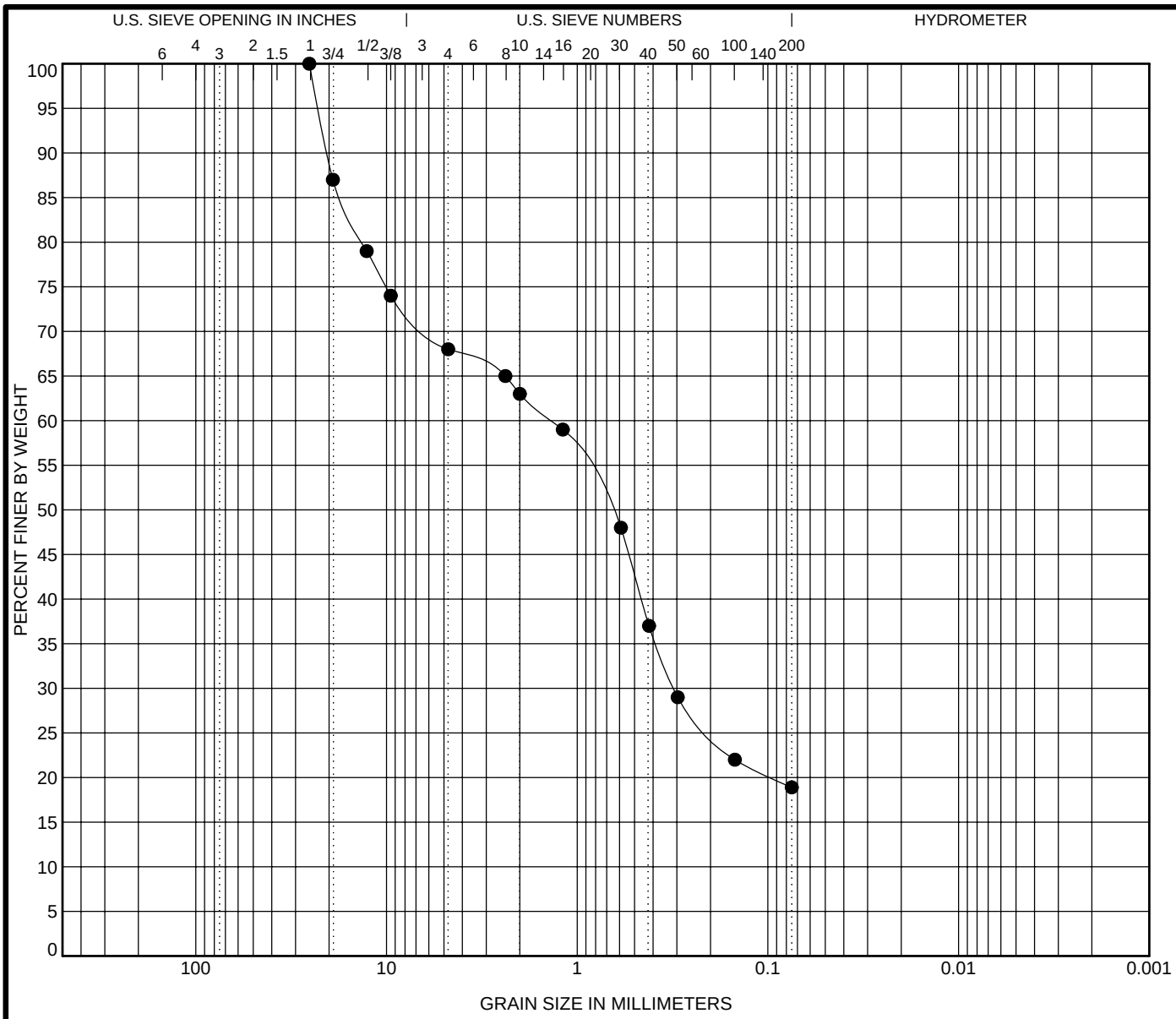
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**G-5 15.0ft - 16.0ft**	**GRAVELLY SILTY SAND (SM)**	**NP**	**NP**	**NP**		
⊠							
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	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**G-5 15.0ft - 16.0ft**	**25.4**	**1.355**	**0.31**		**32.0**	**49.1**	**18.9**	
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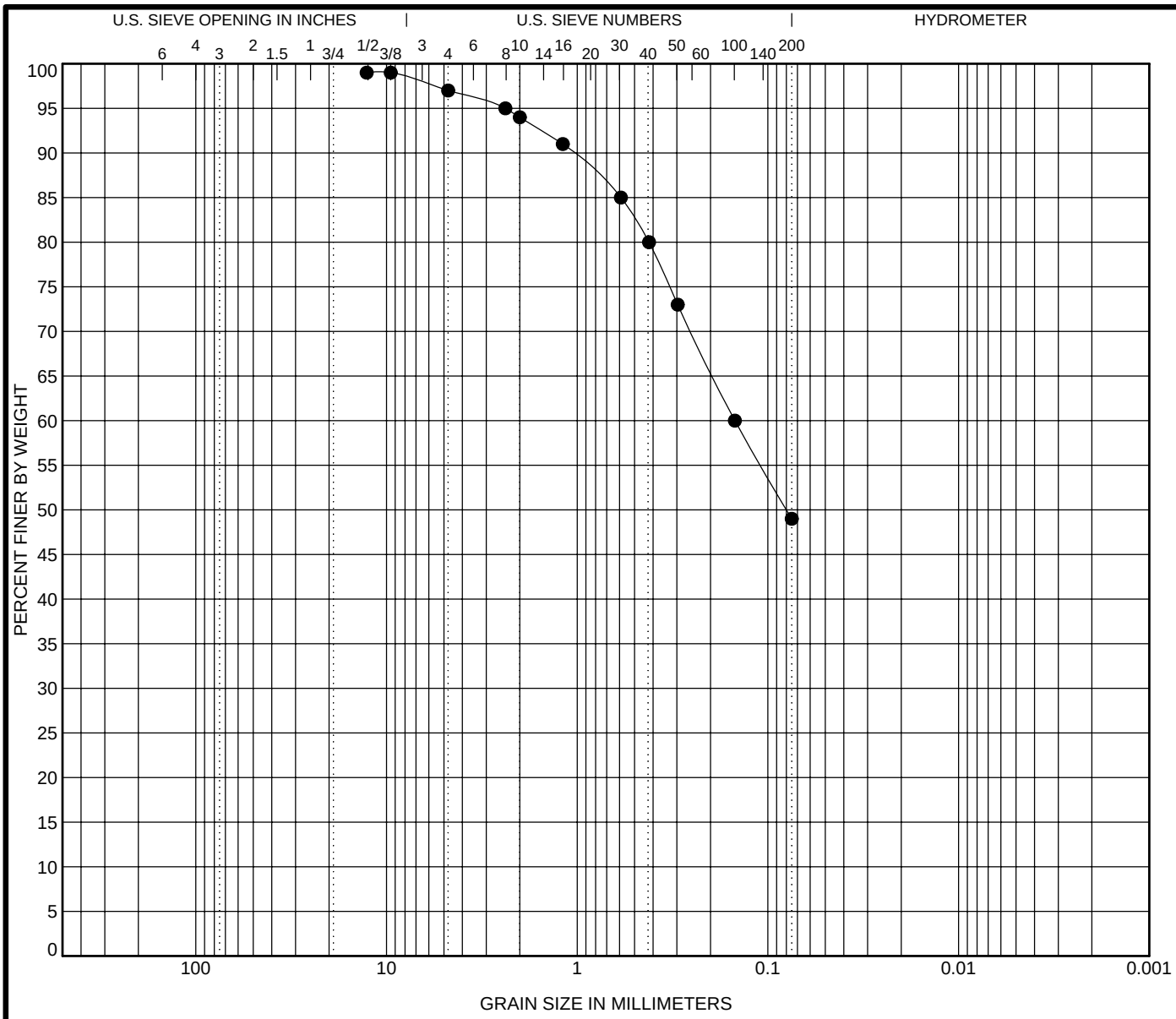
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**G-7**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**24**	**15**	**9**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**G-7**	**0.0ft - 2.5ft**	**12.7**	**0.149**			**2.0**	**48.0**	**49.0**	
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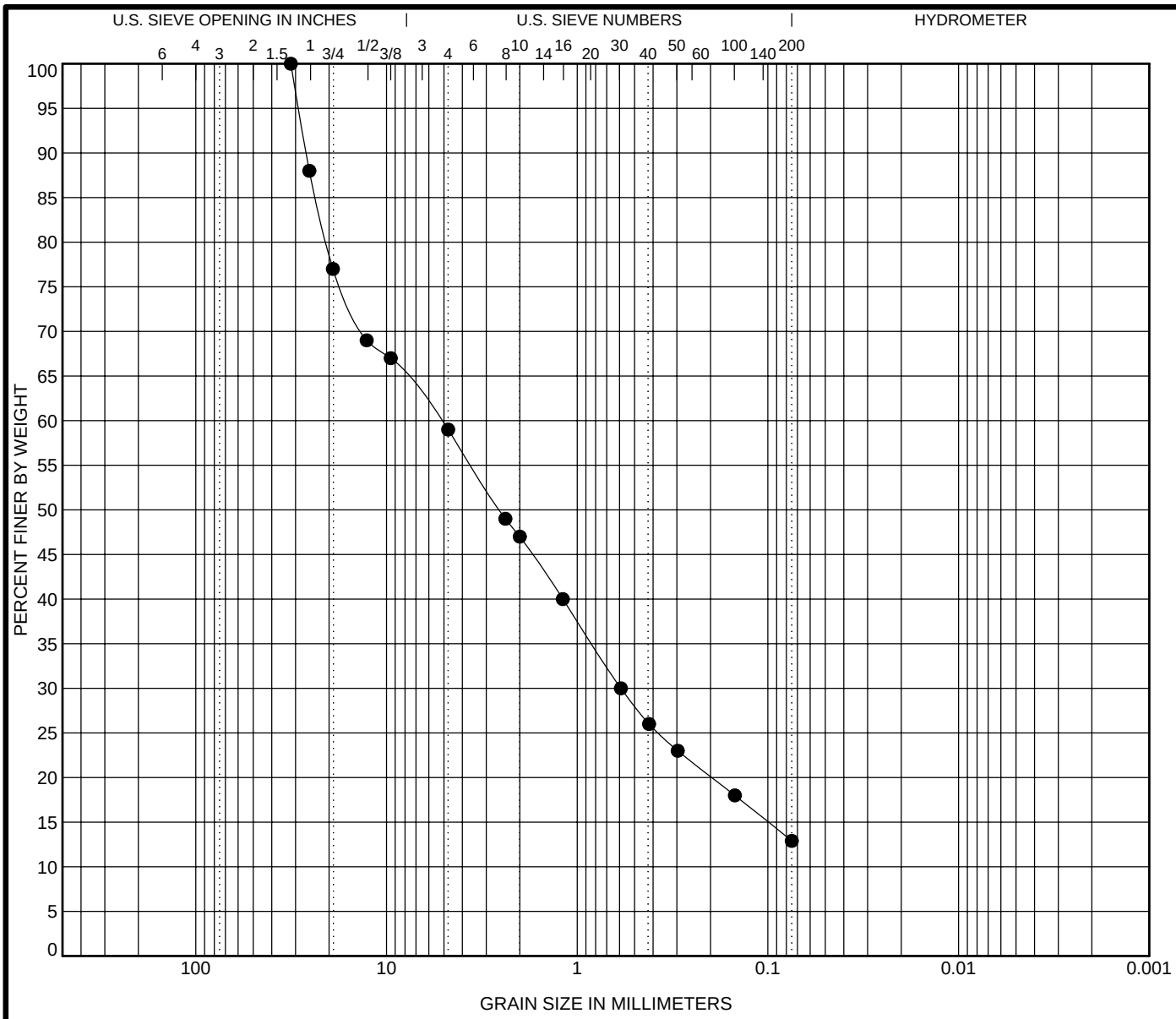
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**G-7**	**12.5ft - 13.5ft**	**GRAVELLY SILTY SAND (SM)**	**NP**	**NP**	**NP**		
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**G-7**	**12.5ft - 13.5ft**	**31.75**	**5.18**	**0.59**		**41.0**	**46.1**	**12.9**	
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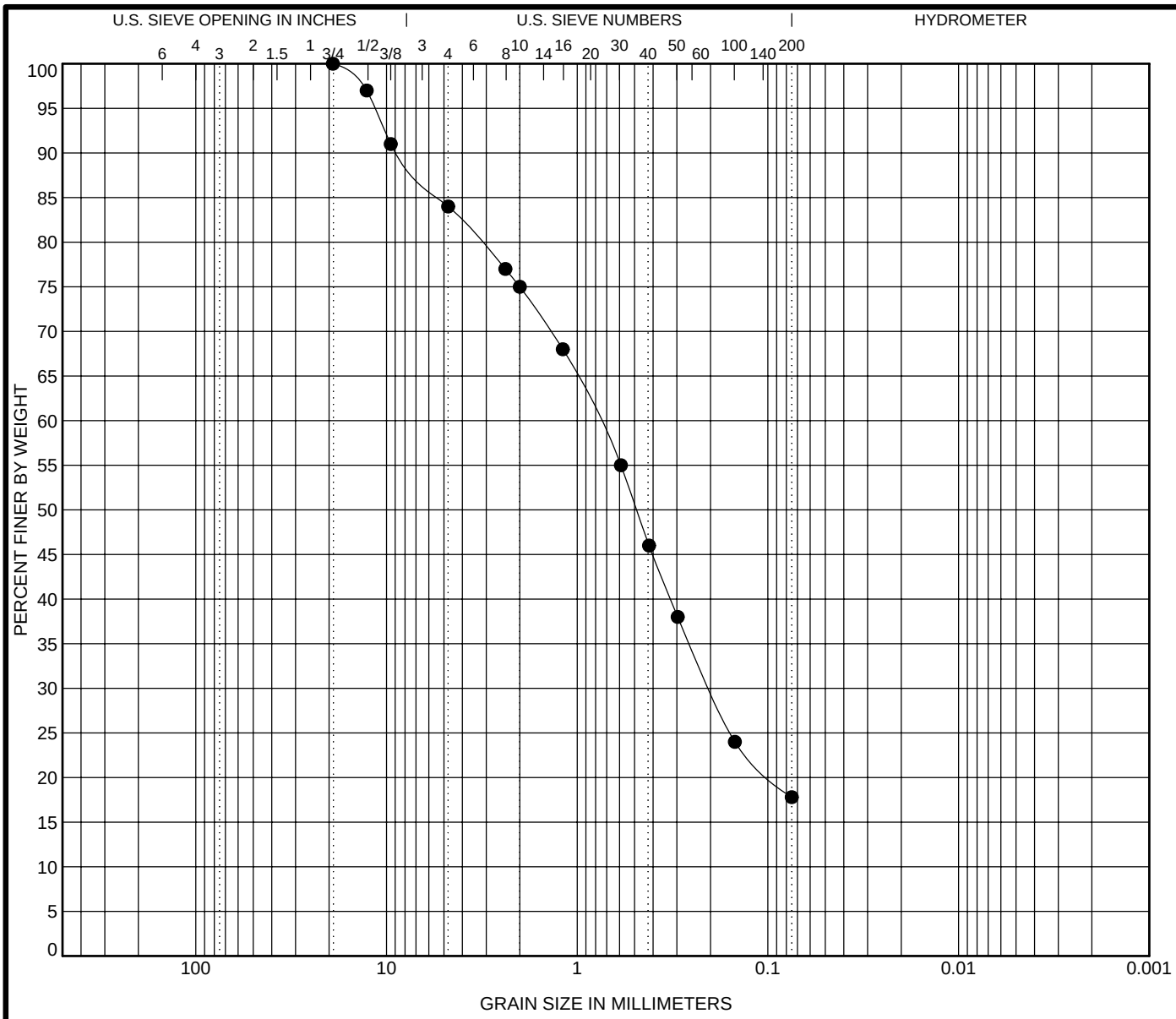
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**H-2**	**0.0ft - 2.5ft**	**SILTY SAND WITH GRAVEL (SM)**	**NP**	**NP**	**NP**		
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**H-2**	**0.0ft - 2.5ft**	**19.1**	**0.773**	**0.2**		**16.0**	**66.2**	**17.8**	
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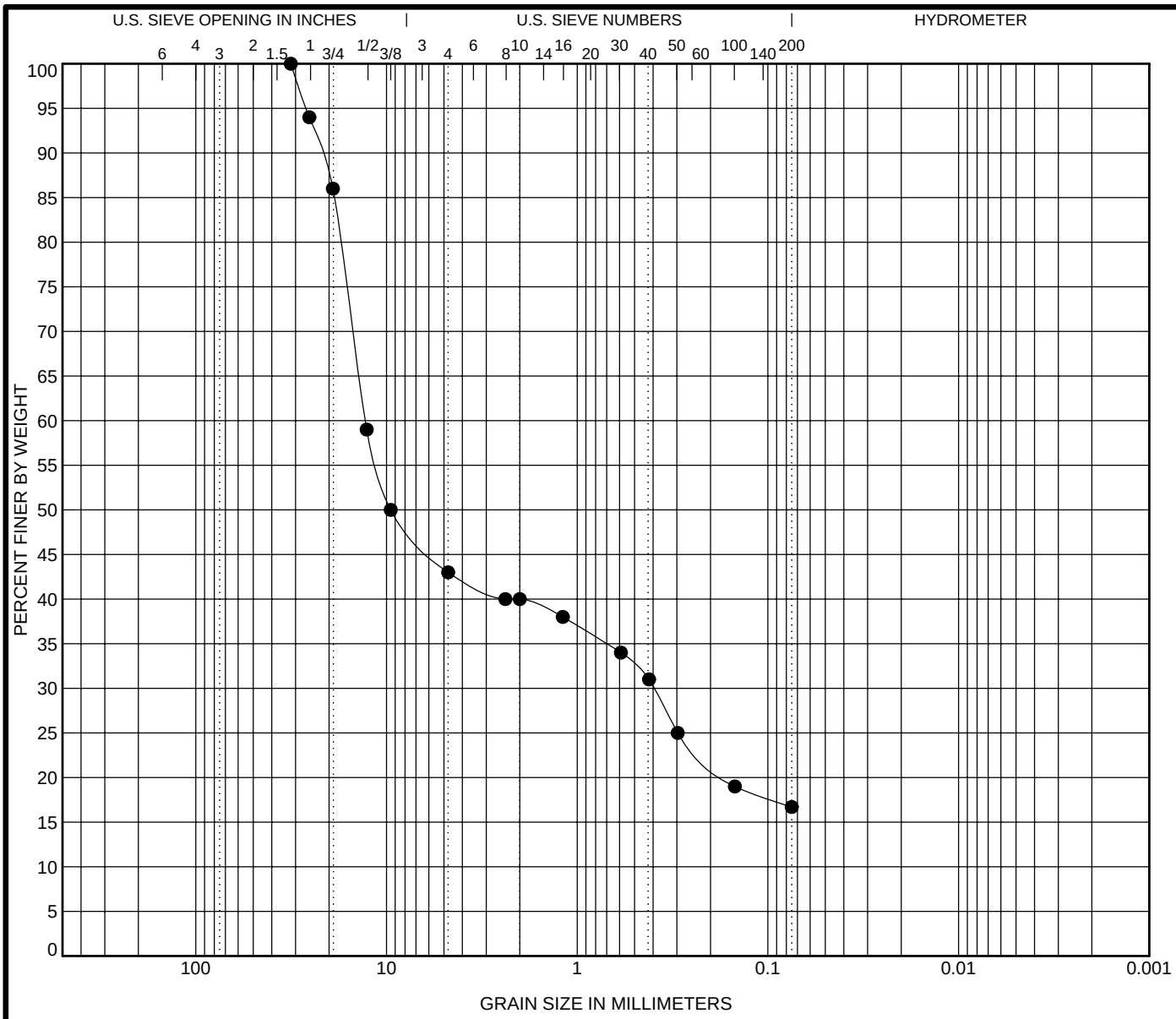
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**H-2**	**17.5ft - 18.5ft**	**GRAVELLY SILTY CLAYEY SAND WITH COBBLES (SC-SM)**	**19**	**15**	**4**		
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**H-2**	**17.5ft - 18.5ft**	**31.75**	**12.893**	**0.396**		**57.0**	**26.3**	**16.7**	
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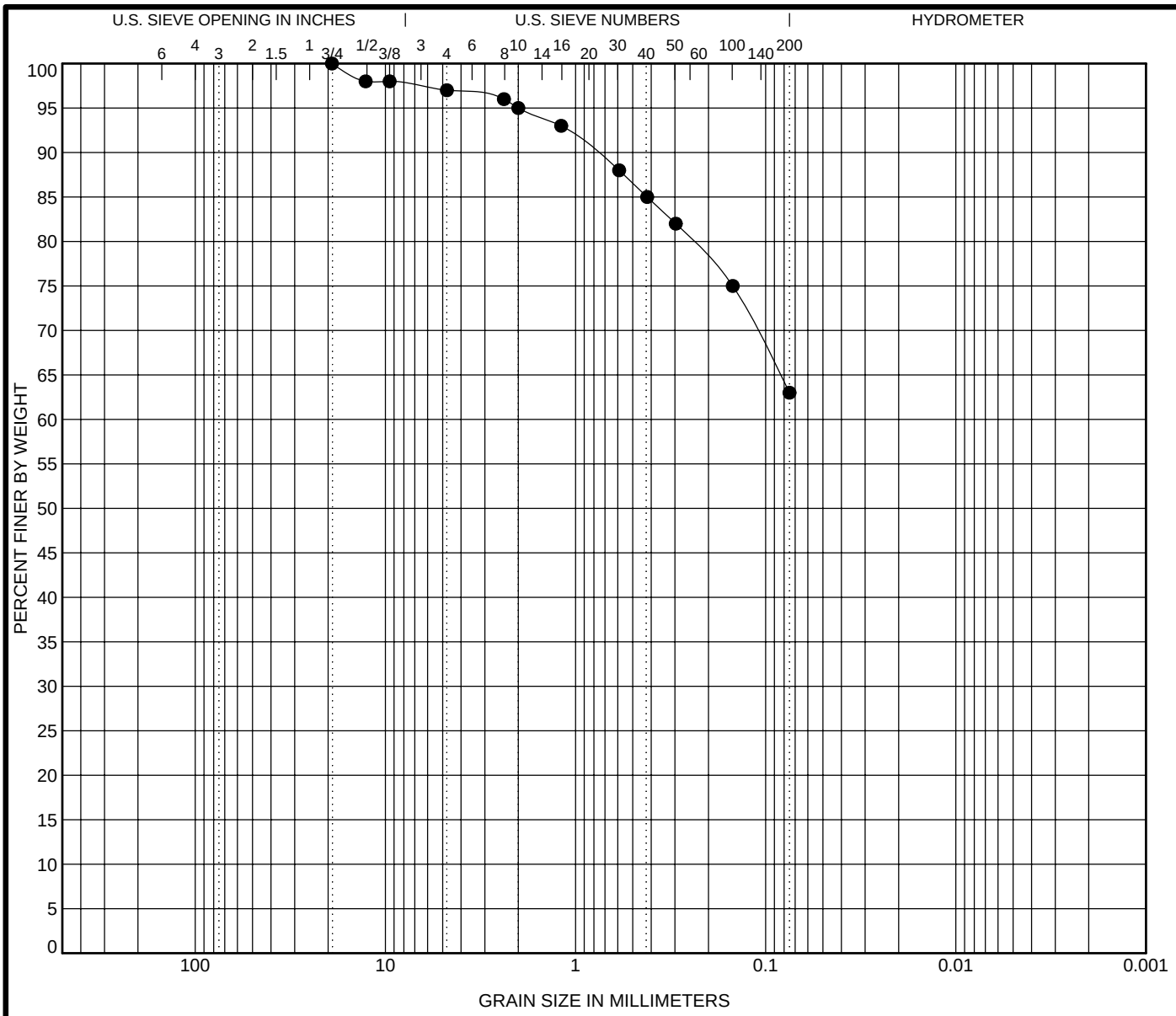
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**H-4**	**0.0ft - 2.5ft**	**SANDY SILTY LEAN CLAY TRACE GRAVEL (CL-ML)**	**27**	**20**	**7**		
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**H-4**	**0.0ft - 2.5ft**	**19.1**				**3.0**	**34.0**	**63.0**	
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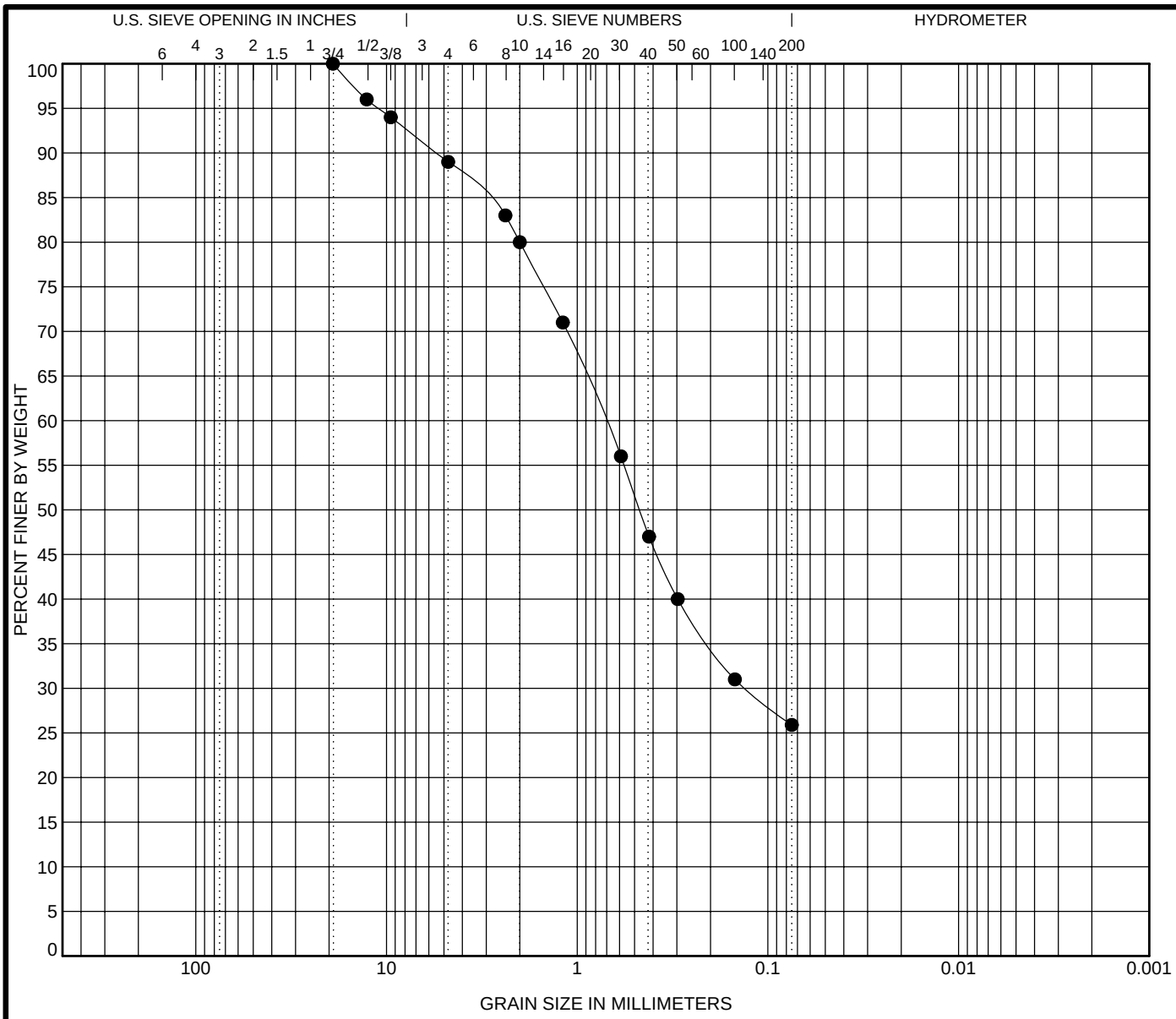
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**H-4**	**7.5ft - 8.5ft**	**CLAYEY SAND TRACE GRAVEL (SC)**	**26**	**16**	**10**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**H-4**	**7.5ft - 8.5ft**	**19.1**	**0.711**	**0.13**		**11.0**	**63.1**	**25.9**	
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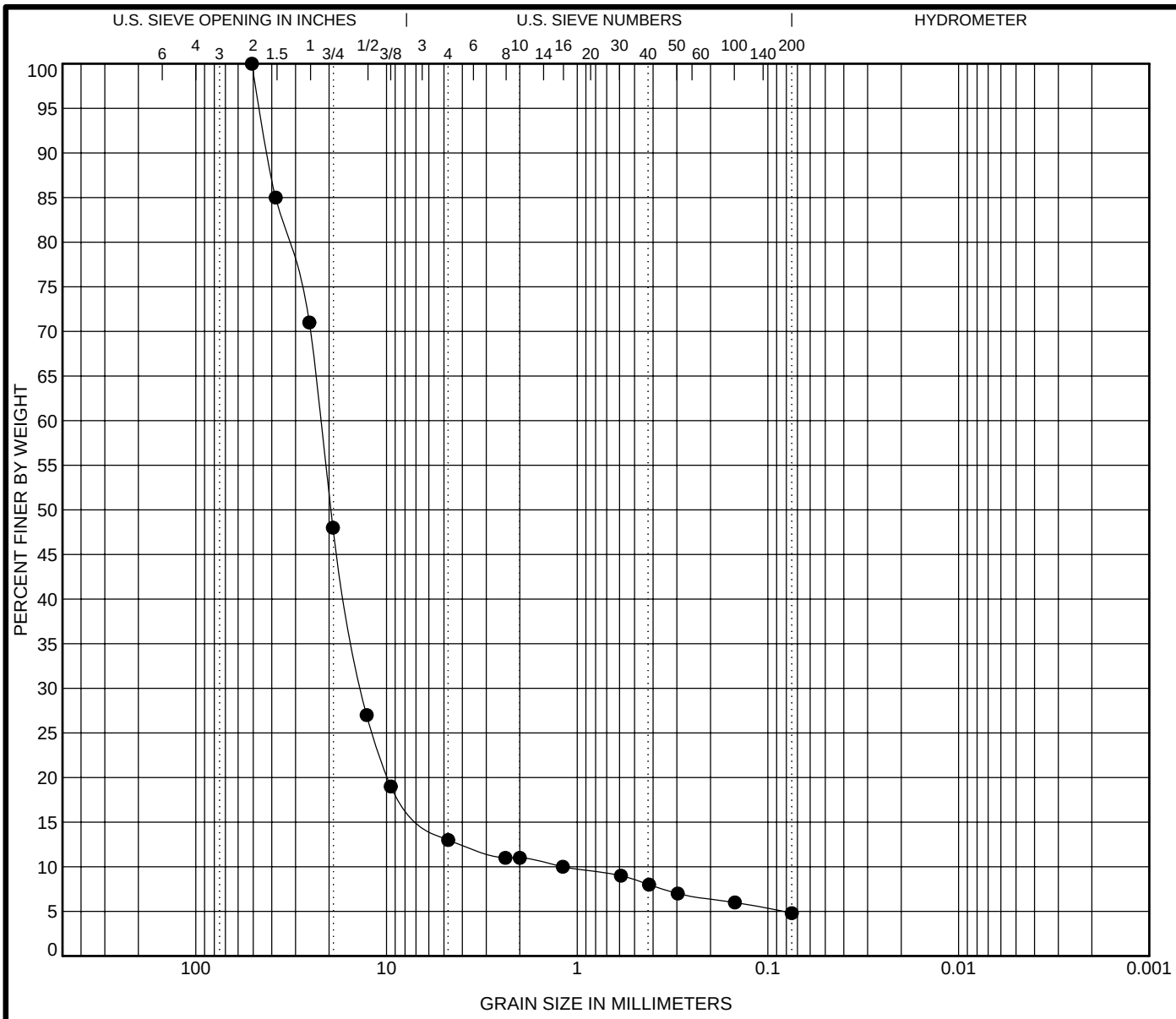
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**H-4**	**20.0ft - 21.0ft**	**GRAVELLY SAND TRACE SILT (SP)**	**20**	**17**	**3**	**6.87**	**18.62**
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**H-4**	**20.0ft - 21.0ft**	**50.8**	**22.163**	**13.462**	**1.19**	**87.0**	**8.2**	**4.8**	
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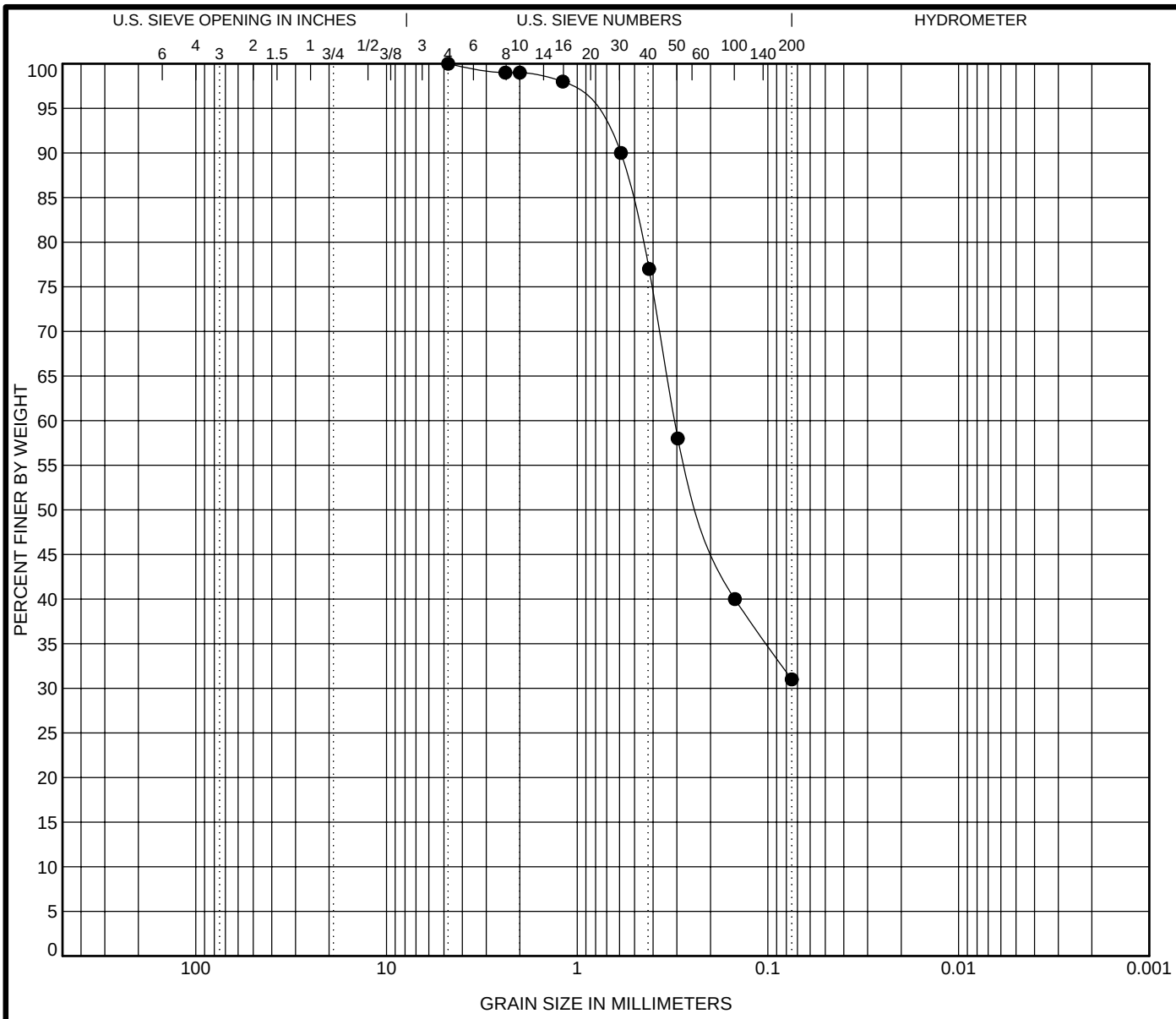
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**I-3**	**0.0ft - 2.5ft**	**SILTY SAND (SM)**	**NP**	**NP**	**NP**		
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**I-3**	**0.0ft - 2.5ft**	**4.75**	**0.308**			**0.0**	**69.0**	**31.0**	
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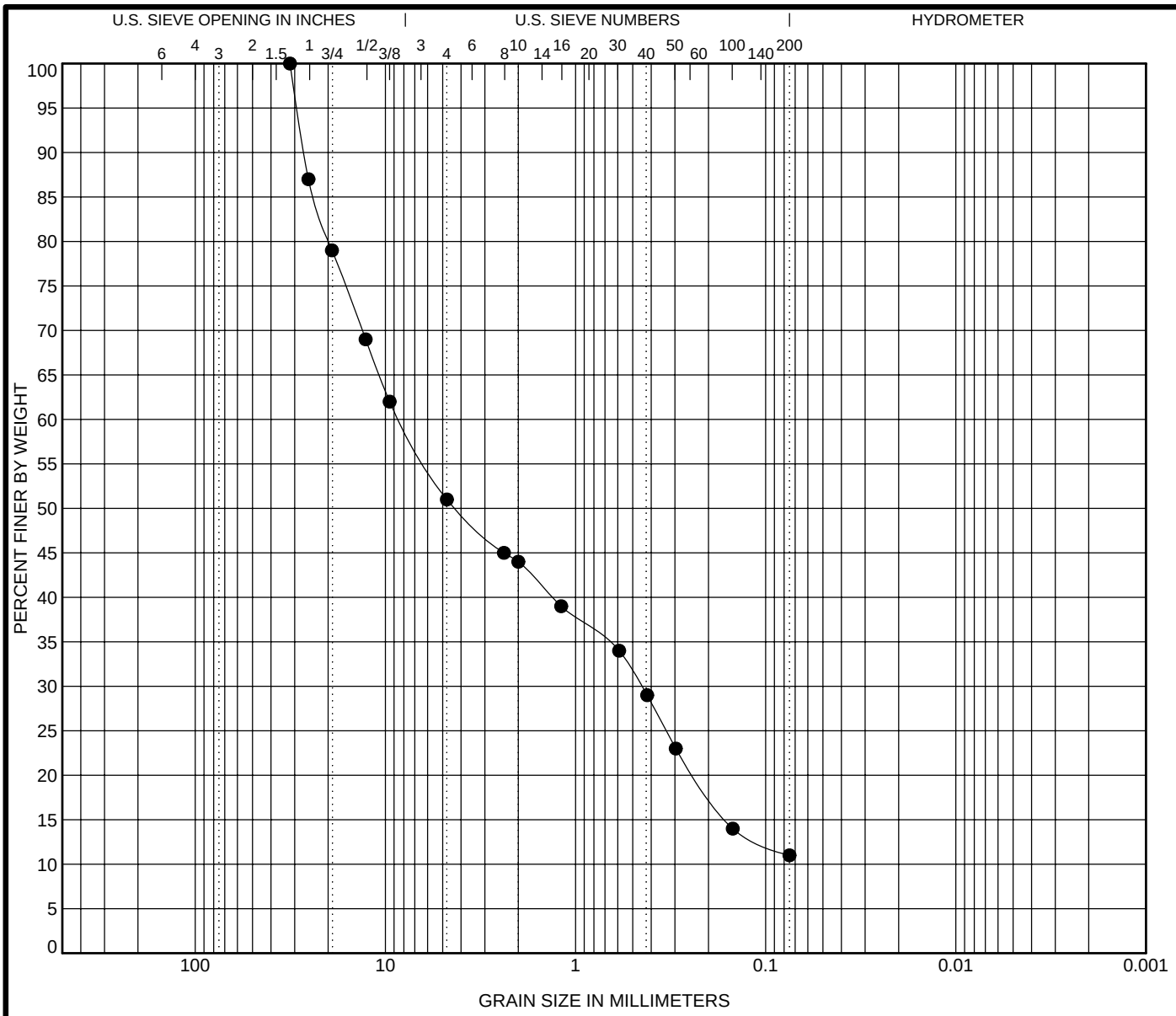
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**I-3**	**15.0ft - 16.0ft**	**GRAVELLY SAND WITH SILT (SP-SM)**	**NP**	**NP**	**NP**	**0.40**	**140.38**
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**I-3**	**15.0ft - 16.0ft**	**31.75**	**8.375**	**0.45**		**49.0**	**40.0**	**11.0**	
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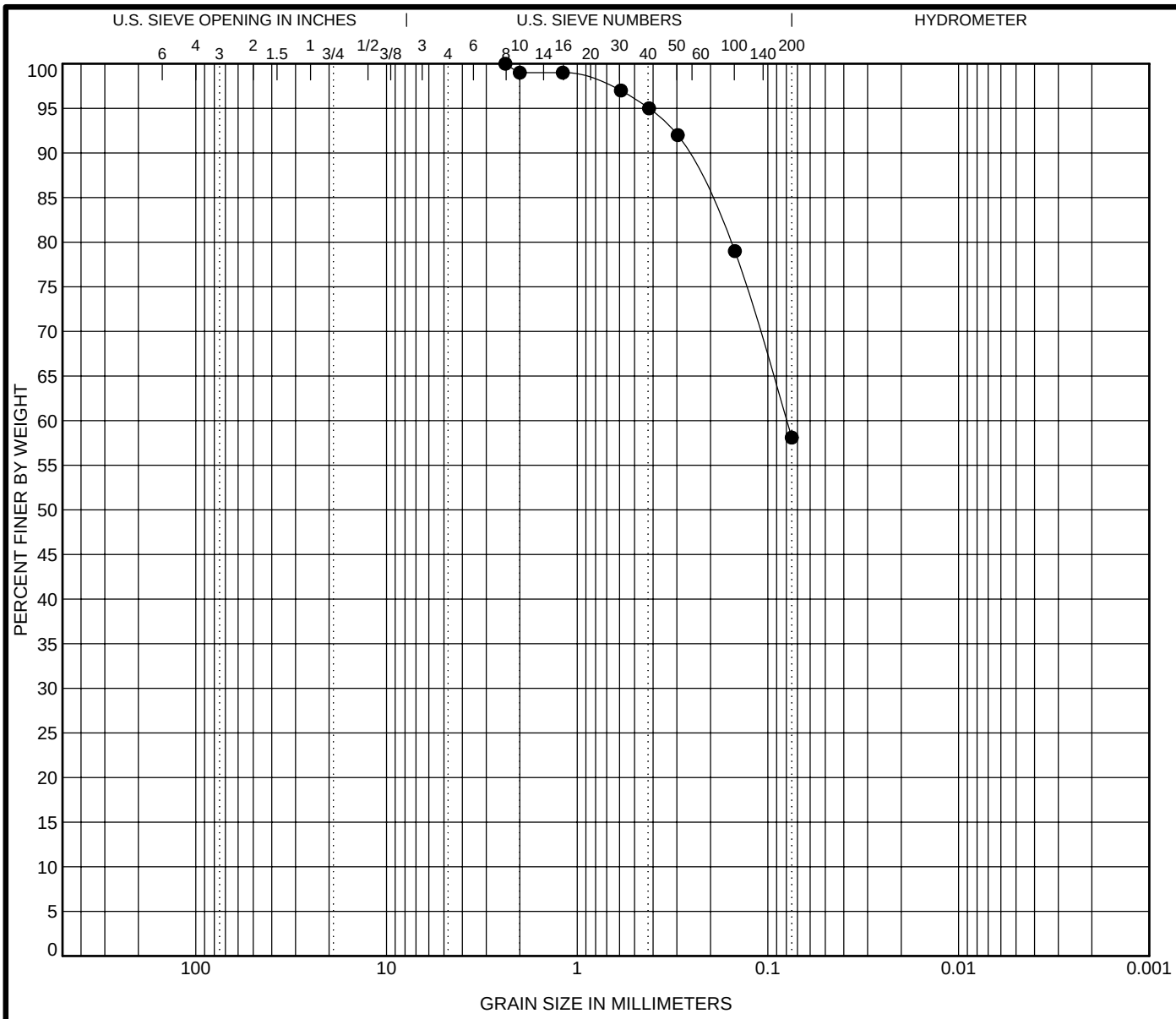
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**I-5**	**0.0ft - 2.5ft**	**SANDY SILT (ML)**	**20**	**18**	**2**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**I-5**	**0.0ft - 2.5ft**	**2.38**	**0.08**			**0.0**	**41.9**	**58.1**	
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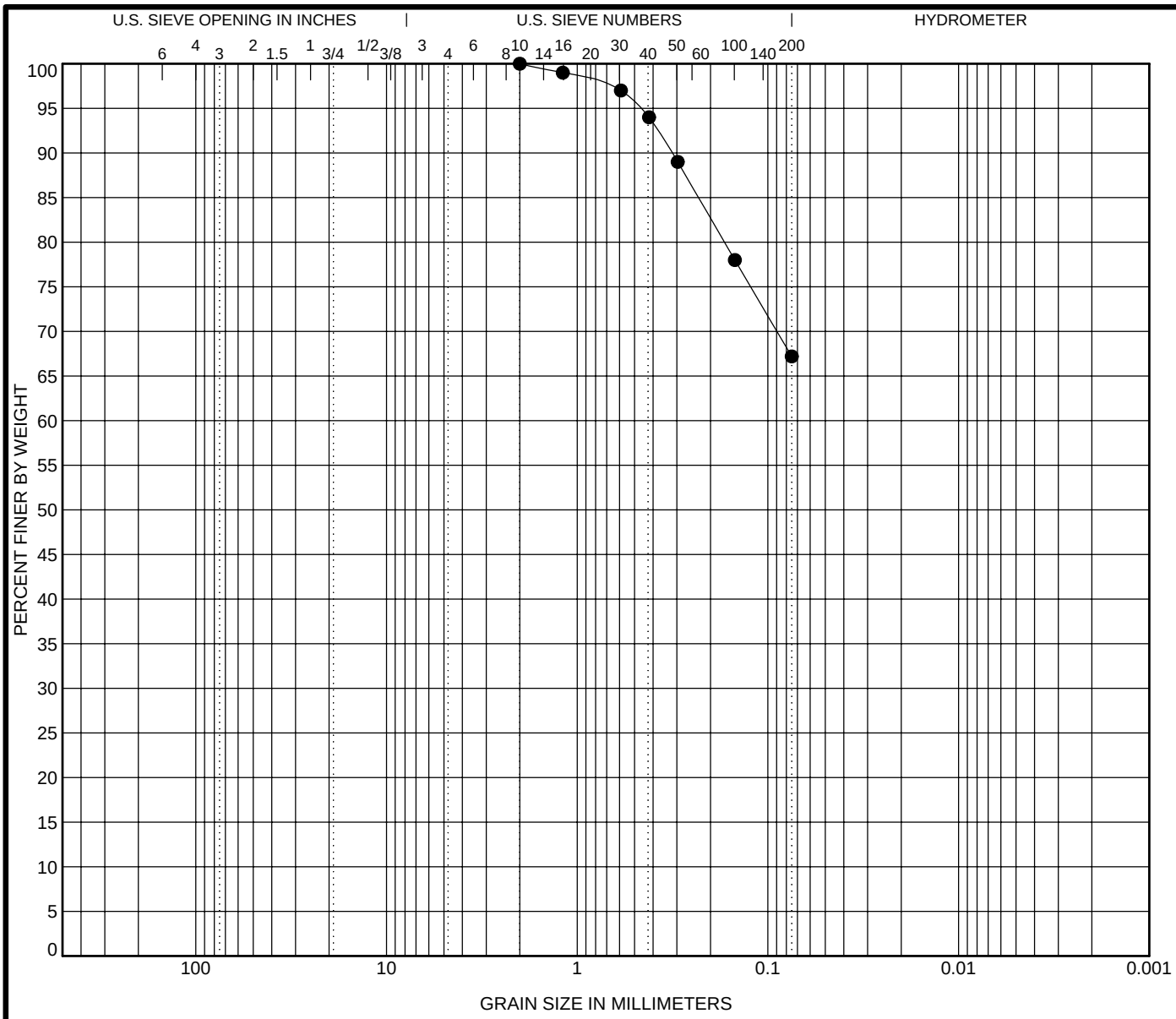
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**I-5**	**7.5ft - 8.5ft**	**SANDY SILT LEAN CLAY (CL-ML)**	**22**	**17**	**5**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**I-5**	**7.5ft - 8.5ft**	**2**				**0.0**	**32.8**	**67.2**	
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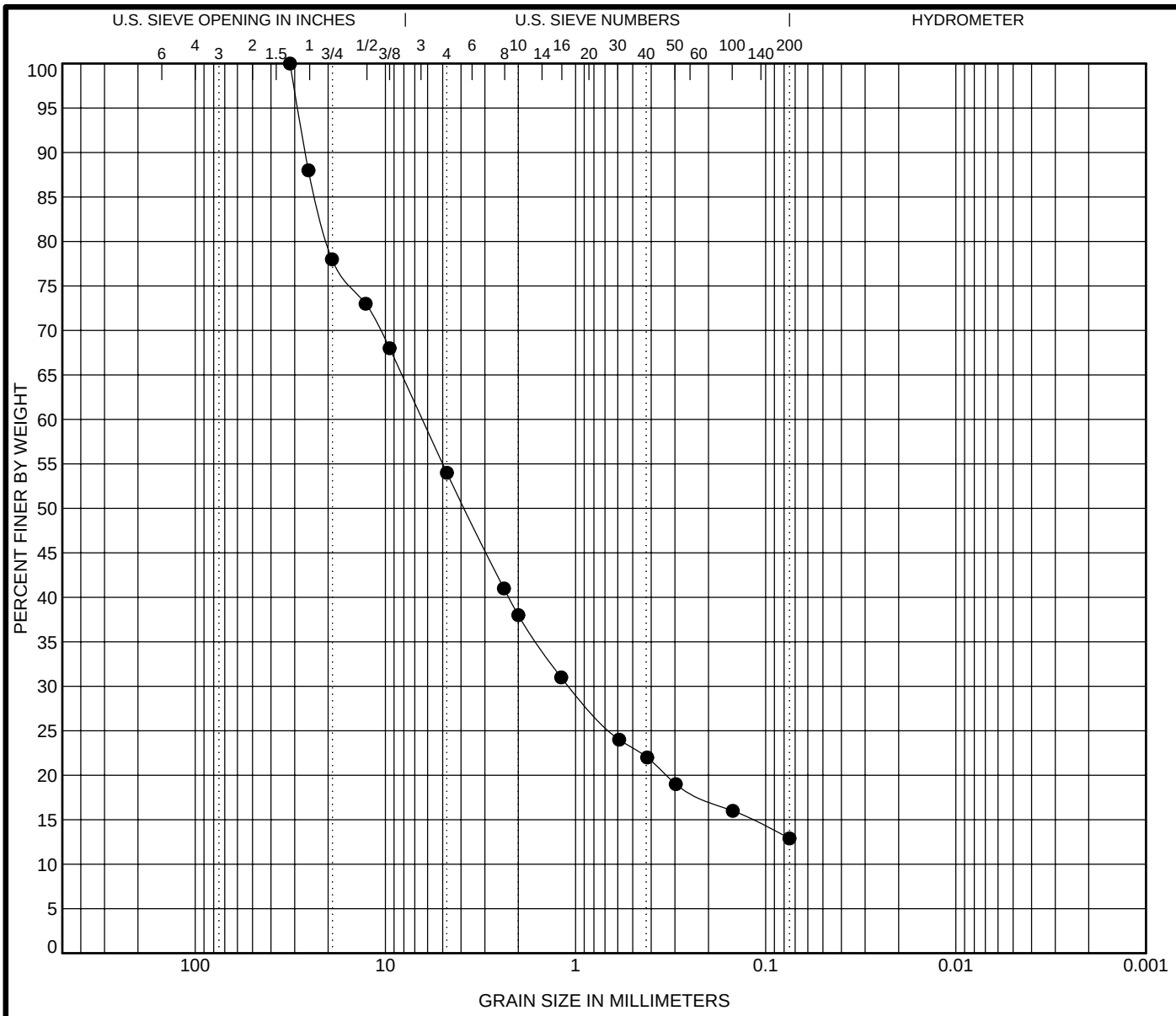
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**I-5**	**17.5ft - 18.5ft**	**GRAVELLY CLAYEY SILTY SAND (SC-SM)**	**20**	**15**	**5**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**I-5**	**17.5ft - 18.5ft**	**31.75**	**6.393**	**1.077**		**46.0**	**41.1**	**12.9**	
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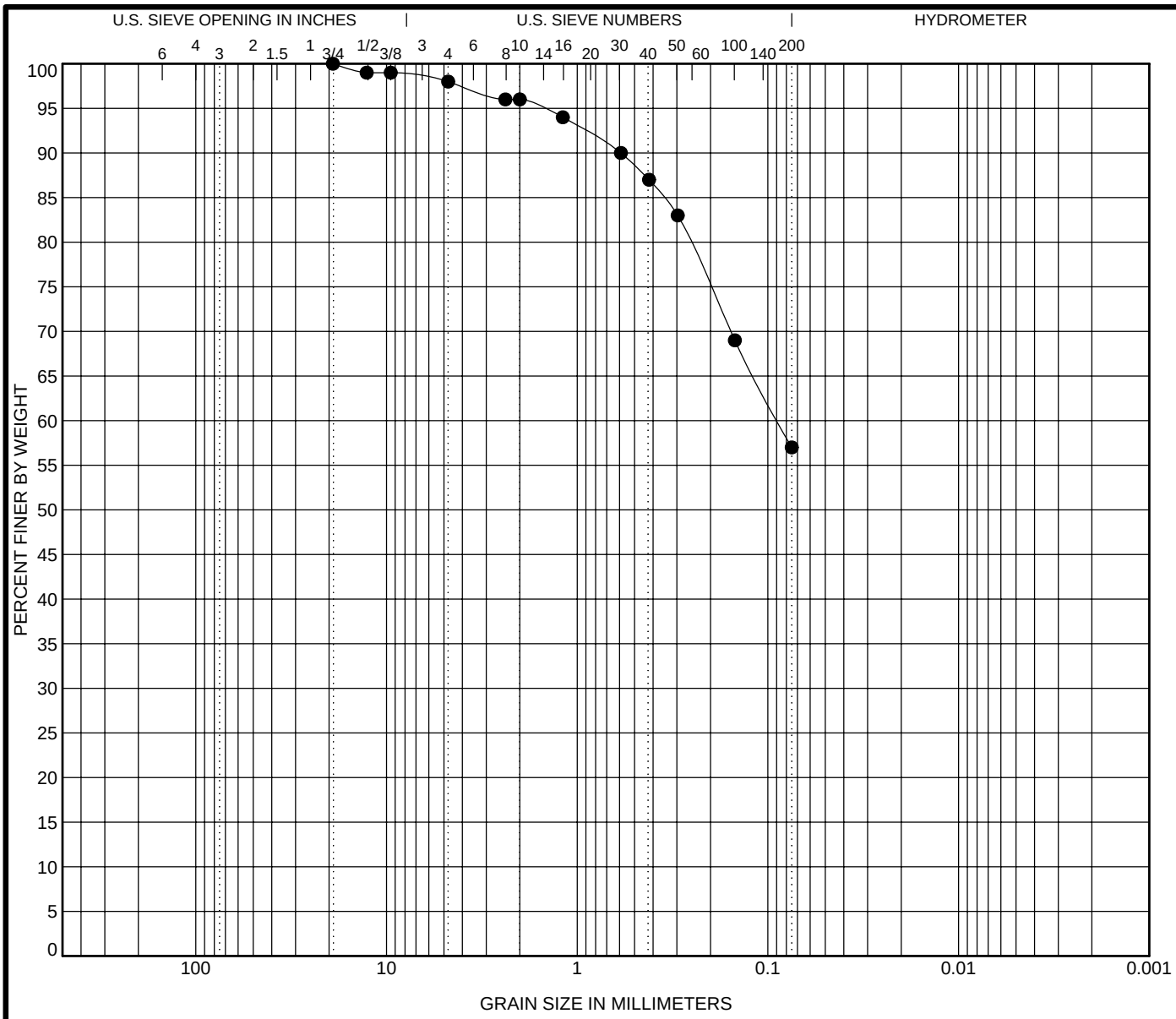
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**J-4**	**0.0ft - 2.5ft**	**SANDY SILT TRACE GRAVEL (ML)**	**23**	**22**	**1**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**J-4**	**0.0ft - 2.5ft**	**19.1**	**0.089**			**2.0**	**41.0**	**57.0**	
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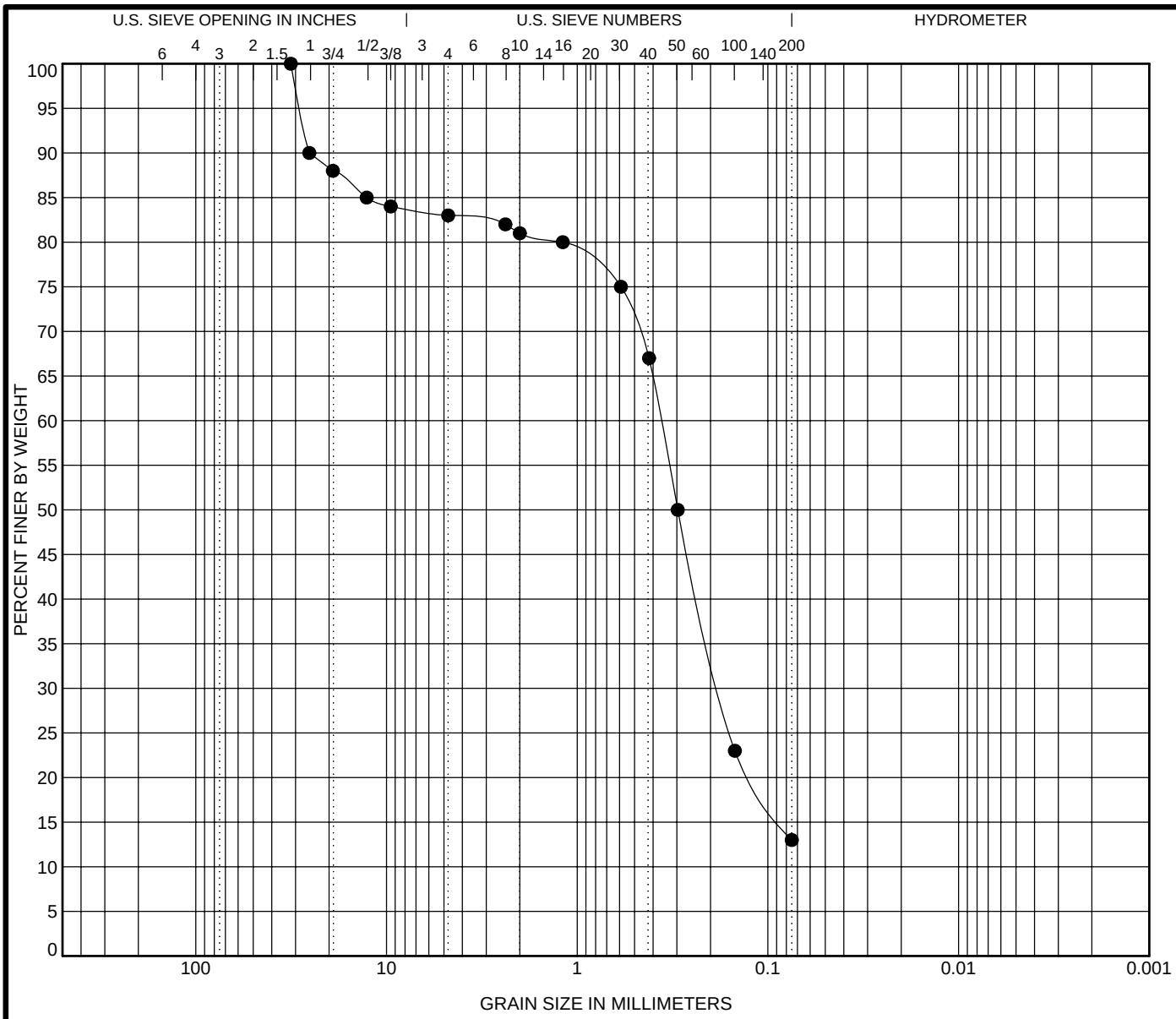
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**J-4**	**12.5ft - 13.5ft**	**SILTY SAND WITH GRAVEL (SM)**	**NP**	**NP**	**NP**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**J-4**	**12.5ft - 13.5ft**	**31.75**	**0.364**	**0.178**		**17.0**	**70.0**	**13.0**	
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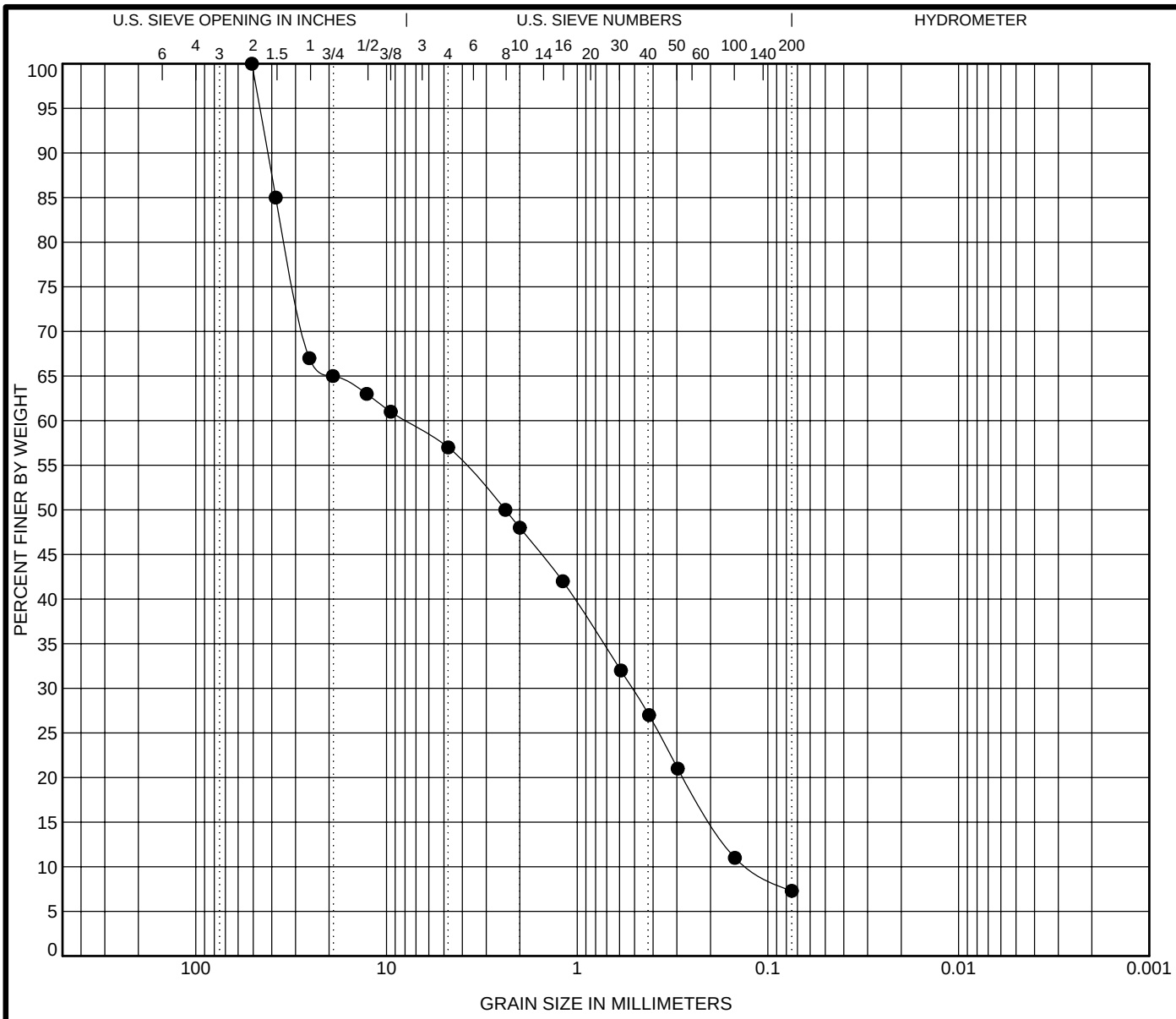
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**J-4**	**22.5ft - 23.5ft**	**GRAVELLY SAND WITH SILT TRACE COBBLES (SP-SM)**	**NP**	**NP**	**NP**	**0.27**	**64.54**
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**J-4**	**22.5ft - 23.5ft**	**50.8**	**7.989**	**0.515**	**0.124**	**43.0**	**49.7**	**7.3**	
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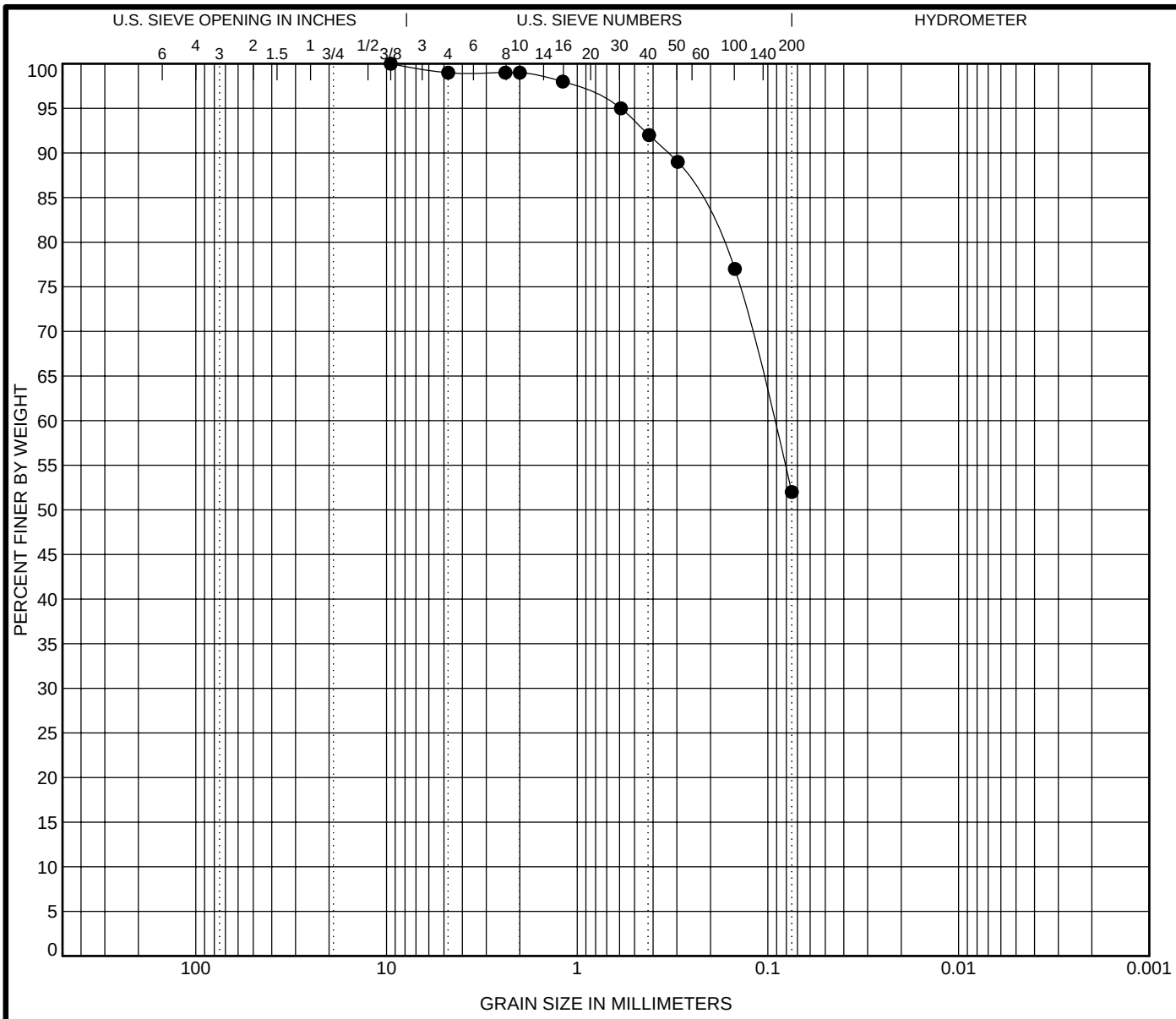
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**J-6**	**0.0ft - 2.5ft**	**SANDY SILT LEAN CLAY TRACE GRAVEL (CL-ML)**	**22**	**18**	**4**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**J-6**	**0.0ft - 2.5ft**	**9.5**	**0.093**			**1.0**	**47.0**	**52.0**	
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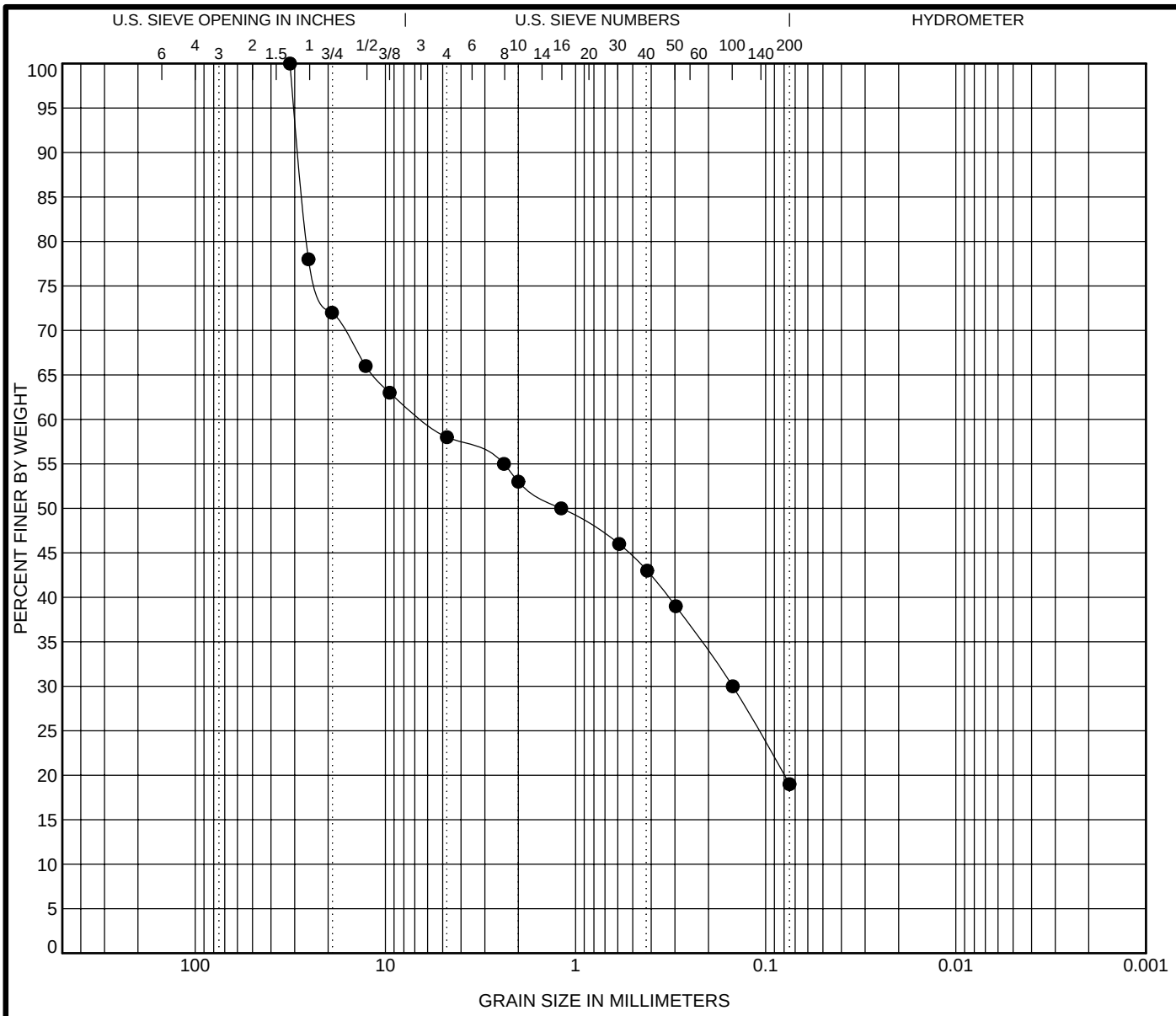
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**J-6**	**10.0ft - 11.0ft**	**GRAVELLY SILTY SAND (SM)**	**22**	**20**	**2**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**J-6**	**10.0ft - 11.0ft**	**31.75**	**6.268**	**0.149**		**42.0**	**39.0**	**19.0**	
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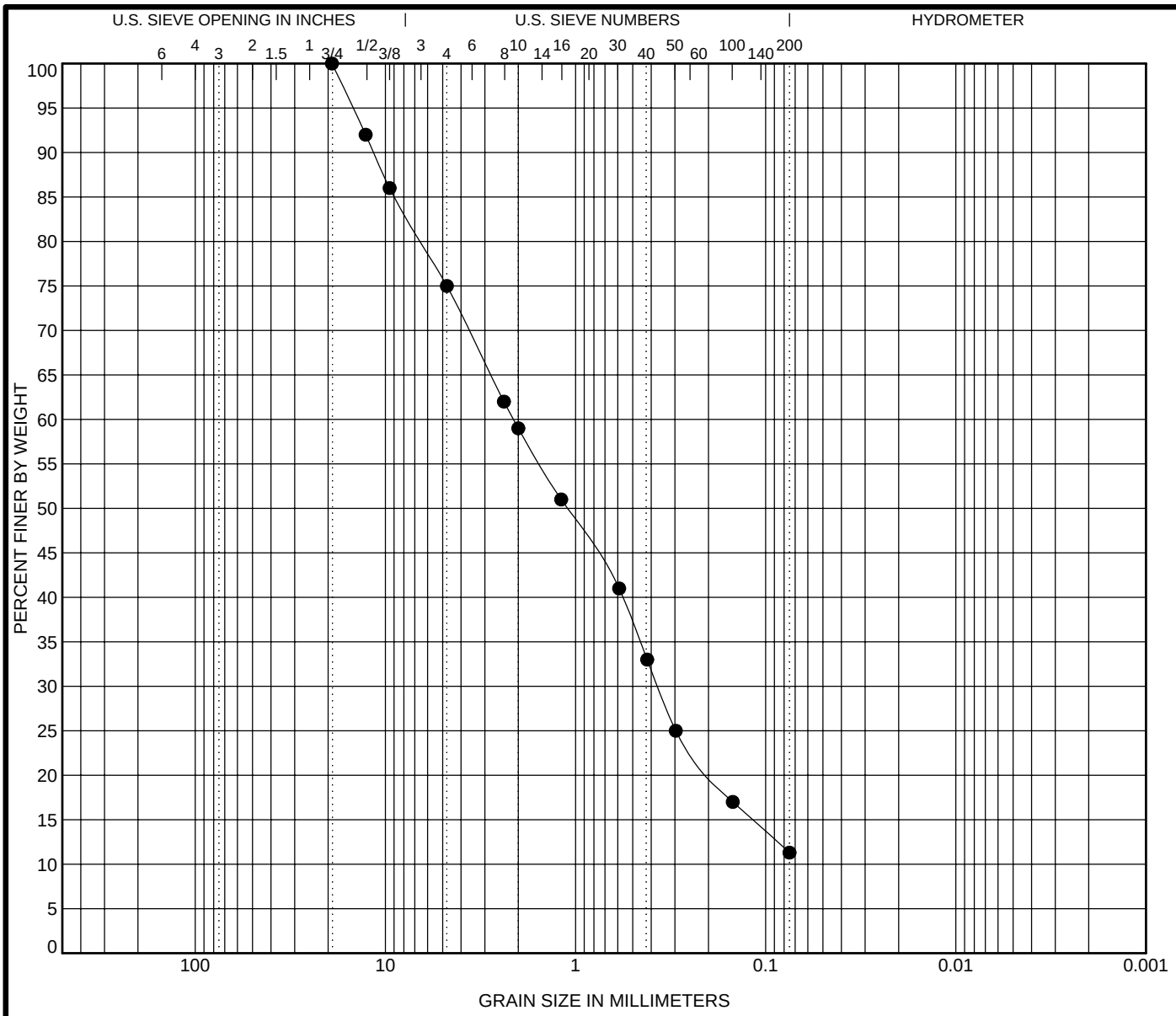
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**J-6**	**17.5ft - 18.5ft**	**GRAVELLY SAND WITH COBBLES & SILT (SP-SM)**	**NP**	**NP**	**NP**	**1.00**	**33.05**
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**J-6**	**17.5ft - 18.5ft**	**19.1**	**2.119**	**0.369**		**25.0**	**63.7**	**11.3**	
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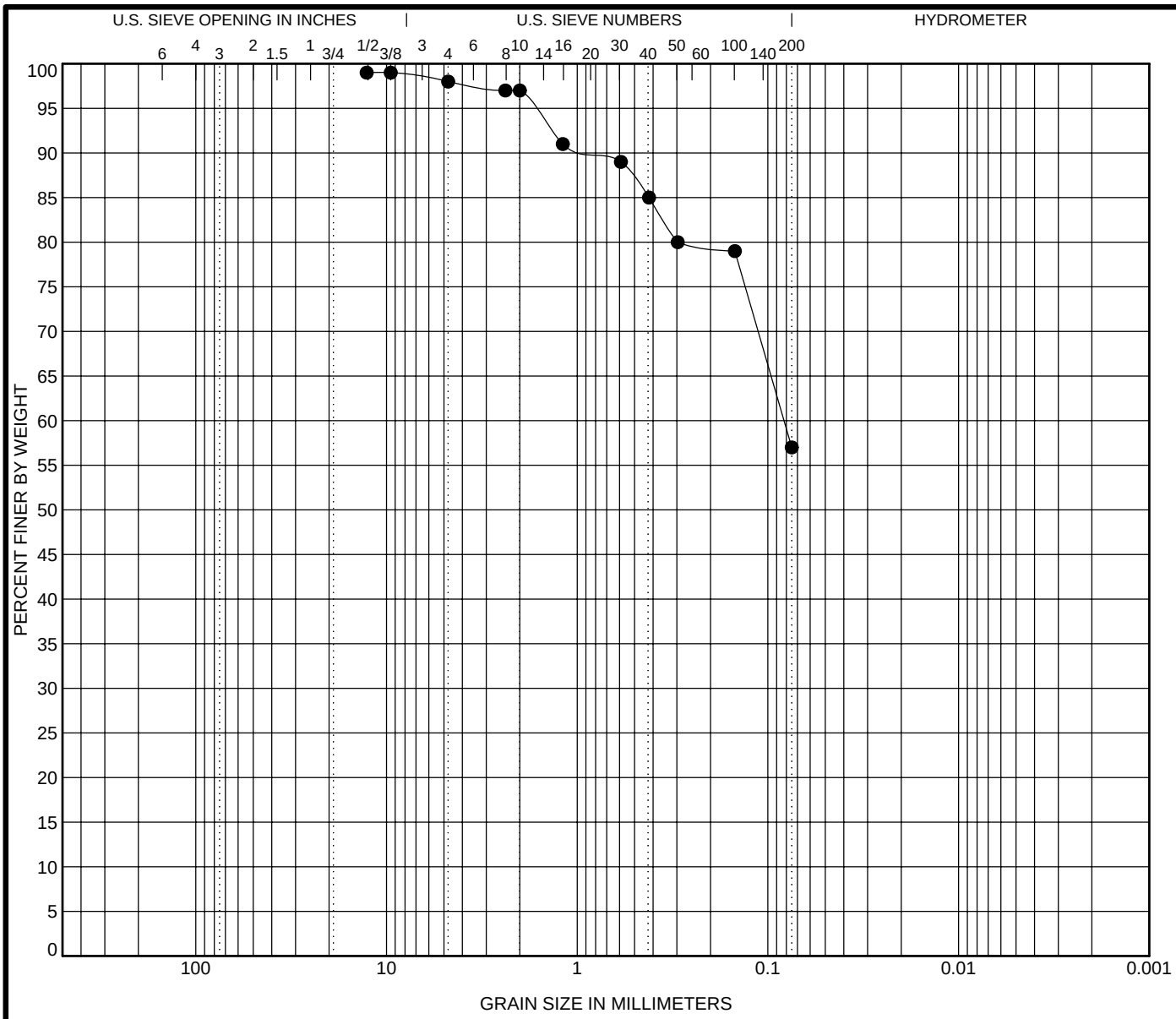
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**K-3**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY TRACE GRAVEL (CL)**	**24**	**16**	**8**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**K-3**	**0.0ft - 2.5ft**	**12.7**	**0.082**			**1.0**	**41.0**	**57.0**	
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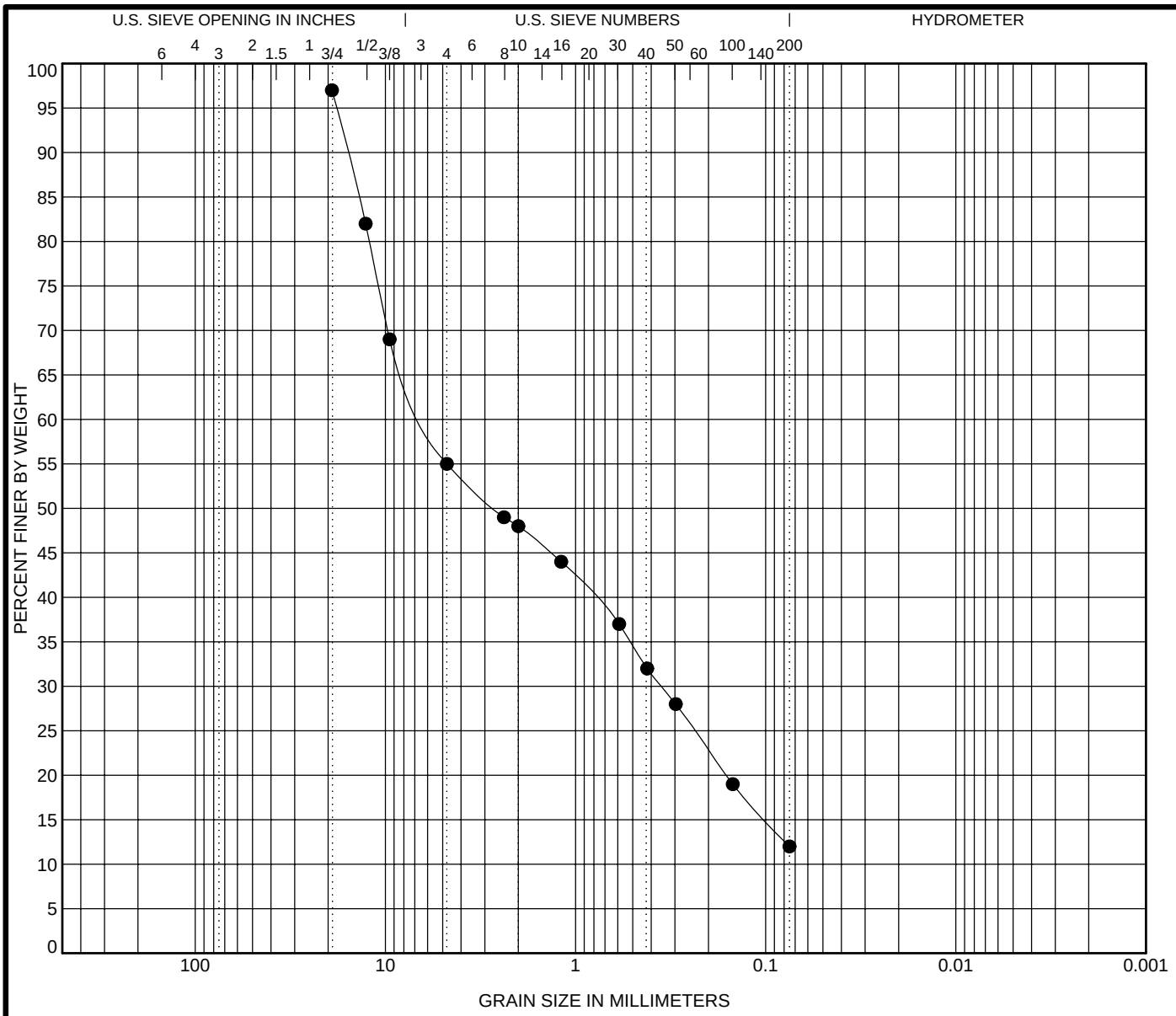
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**K-3 12.5ft - 13.5ft**	**GRAVELLY SILTY SAND (SM)**	**NP**	**NP**	**NP**	**0.33**	**98.70**
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	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**K-3 12.5ft - 13.5ft**	**19.1**	**6.084**	**0.353**		**42.0**	**43.0**	**12.0**	
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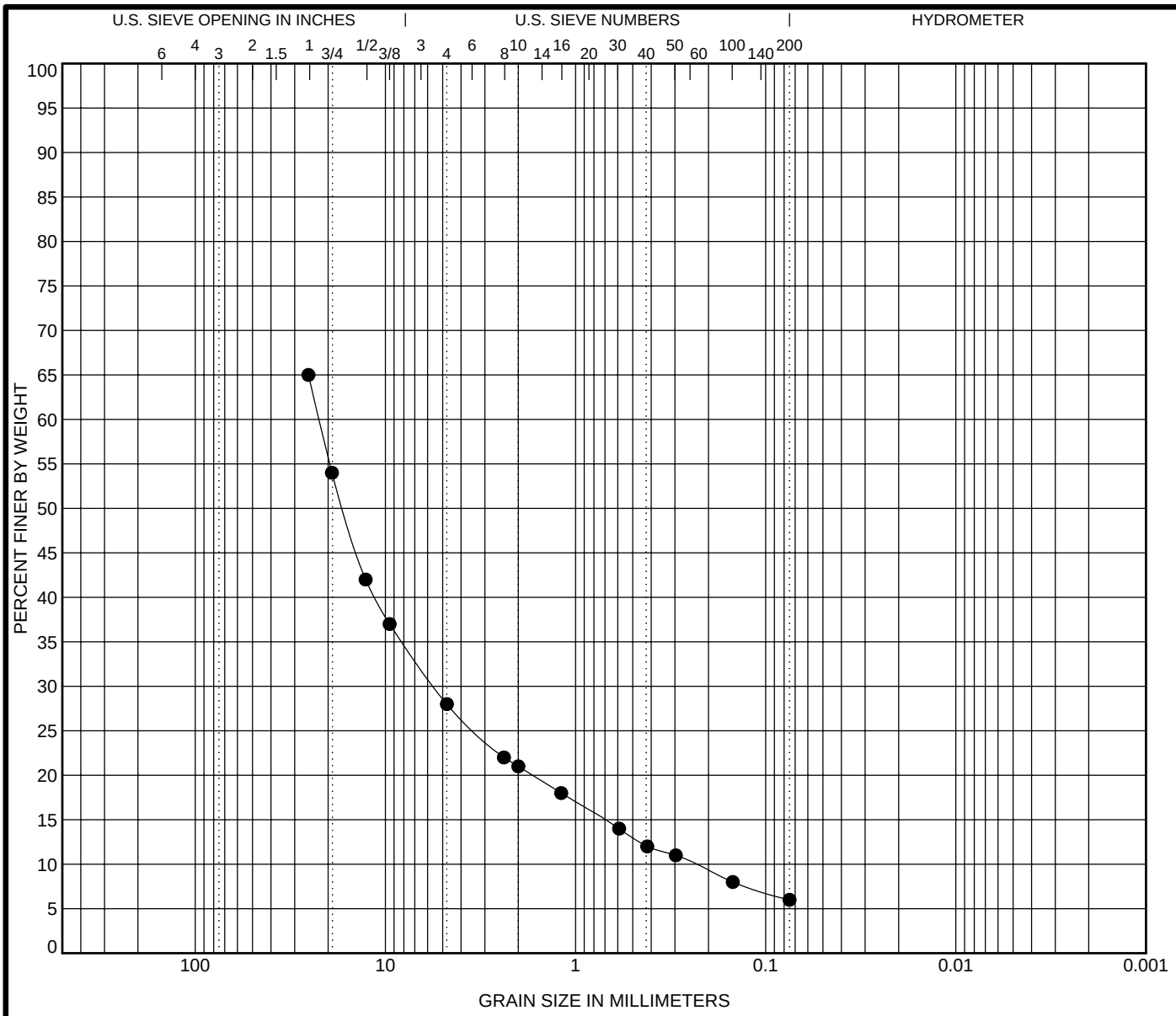
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**K-3**	**22.5ft - 23.5ft**	**GRAVELLY SAND TRACE SILT (SP)**	**NP**	**NP**	**NP**	**5.83**	**94.55**
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**K-3**	**22.5ft - 23.5ft**	**25.4**	**22.313**	**5.541**	**0.236**	**37.0**	**22.0**	**6.0**	
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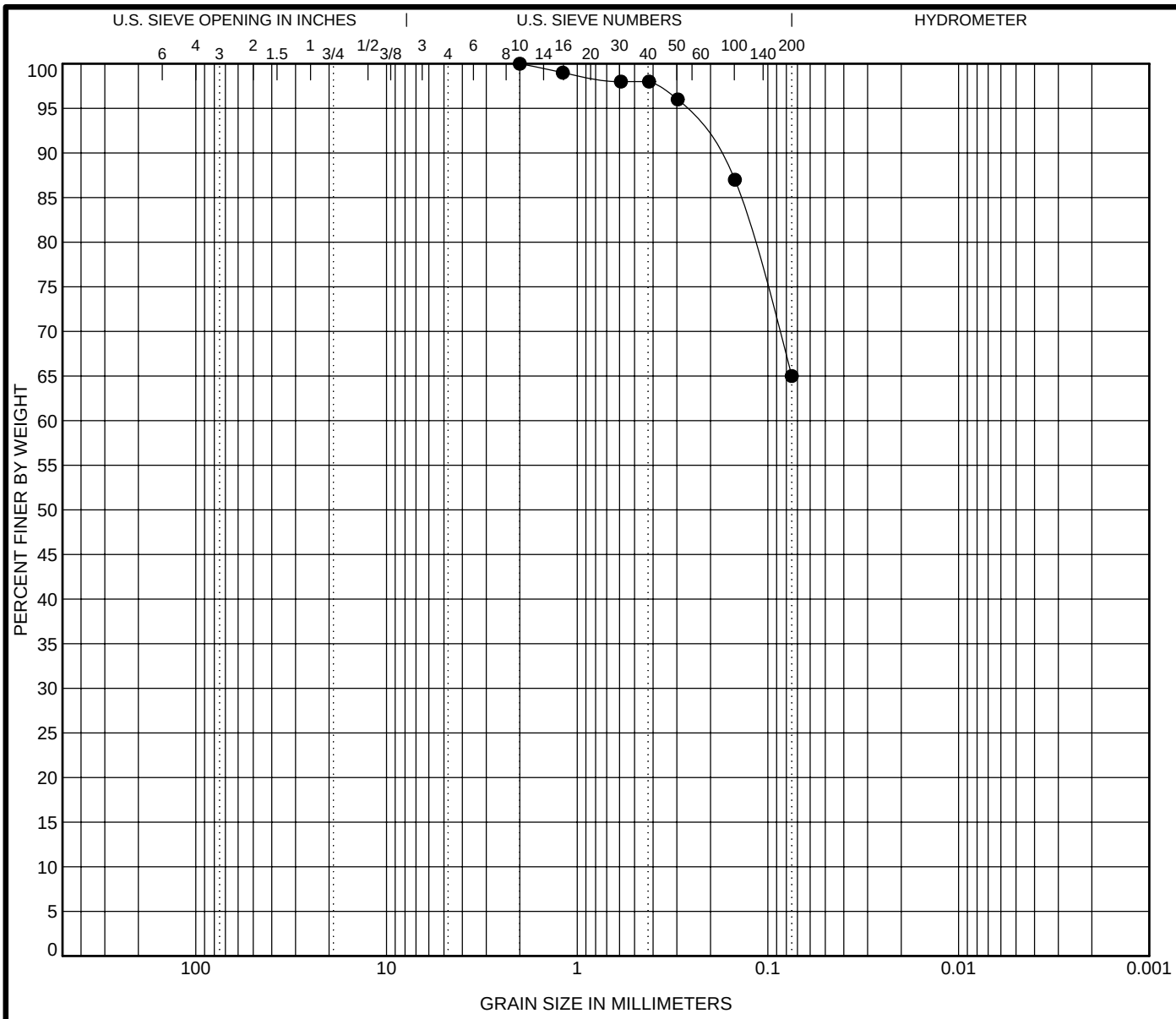
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**K-5**	**0.0ft - 2.5ft**	**SANDY SILT (ML)**	**22**	**19**	**3**		
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**K-5**	**0.0ft - 2.5ft**	**2**				**0.0**	**35.0**	**65.0**	
⊠										
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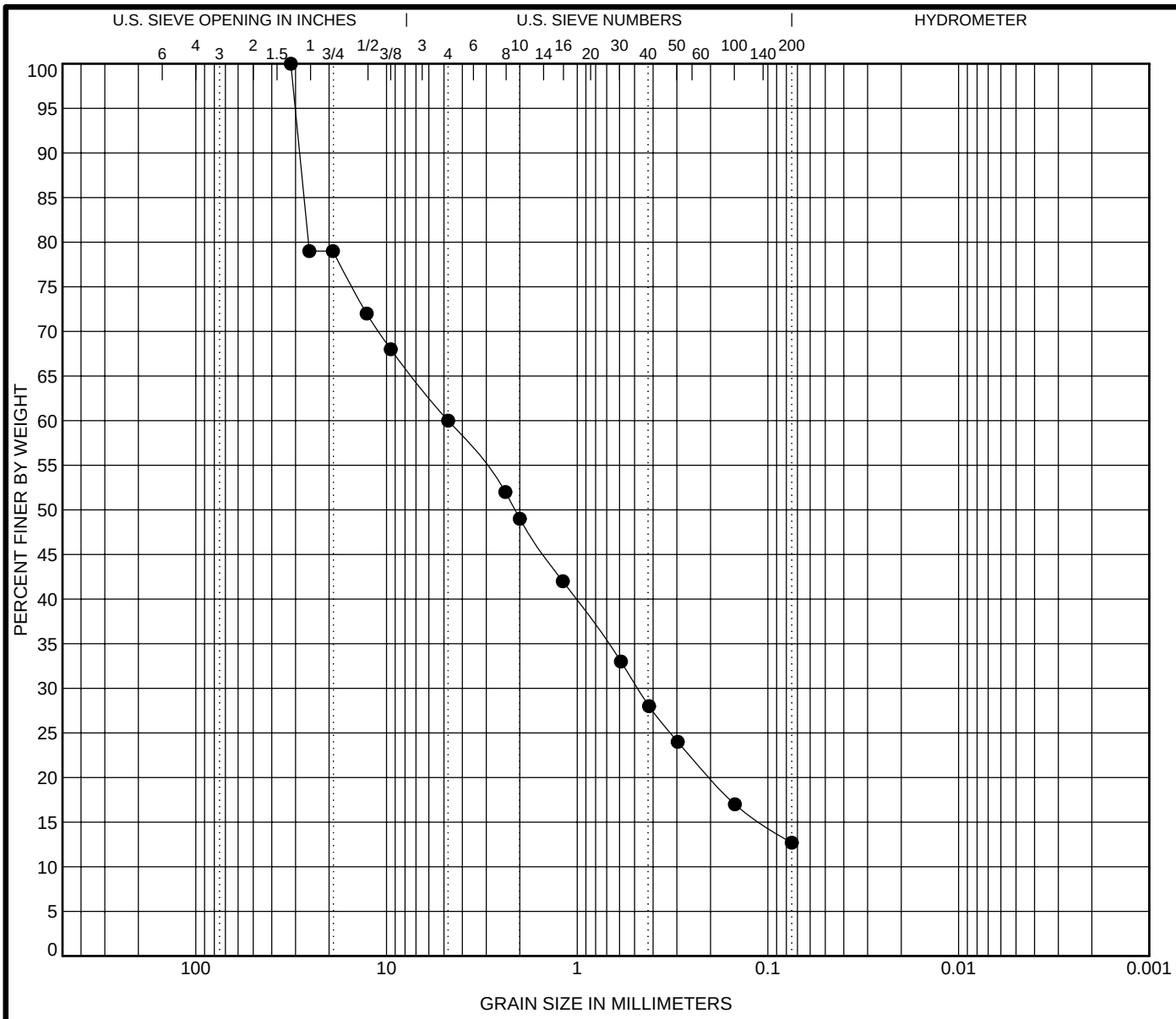
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**K-5**	**12.5ft - 13.5ft**	**GRAVELLY SANDY SILT CLAY (SC-SM)**	**22**	**18**	**4**		
⊠								
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★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**K-5**	**12.5ft - 13.5ft**	**31.75**	**4.75**	**0.481**		**40.0**	**47.3**	**12.7**	
⊠										
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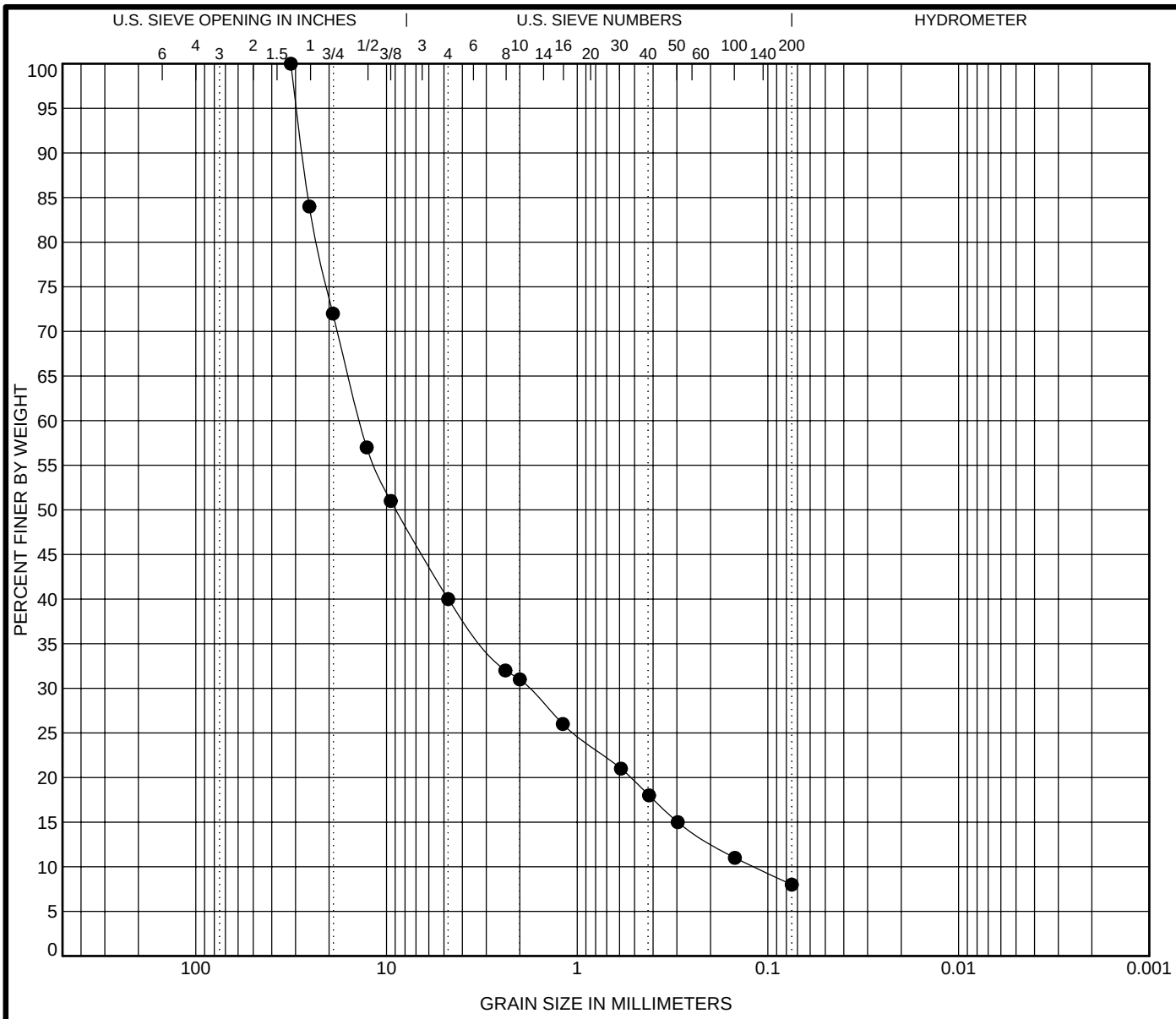
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**K-5**	**22.5ft - 23.5ft**	**SANDY GRAVEL WITH COBBLES AND SILT (GP-GM)**	**NP**	**NP**	**NP**	**1.99**	**116.26**
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**K-5**	**22.5ft - 23.5ft**	**31.75**	**13.78**	**1.803**	**0.119**	**60.0**	**32.0**	**8.0**	
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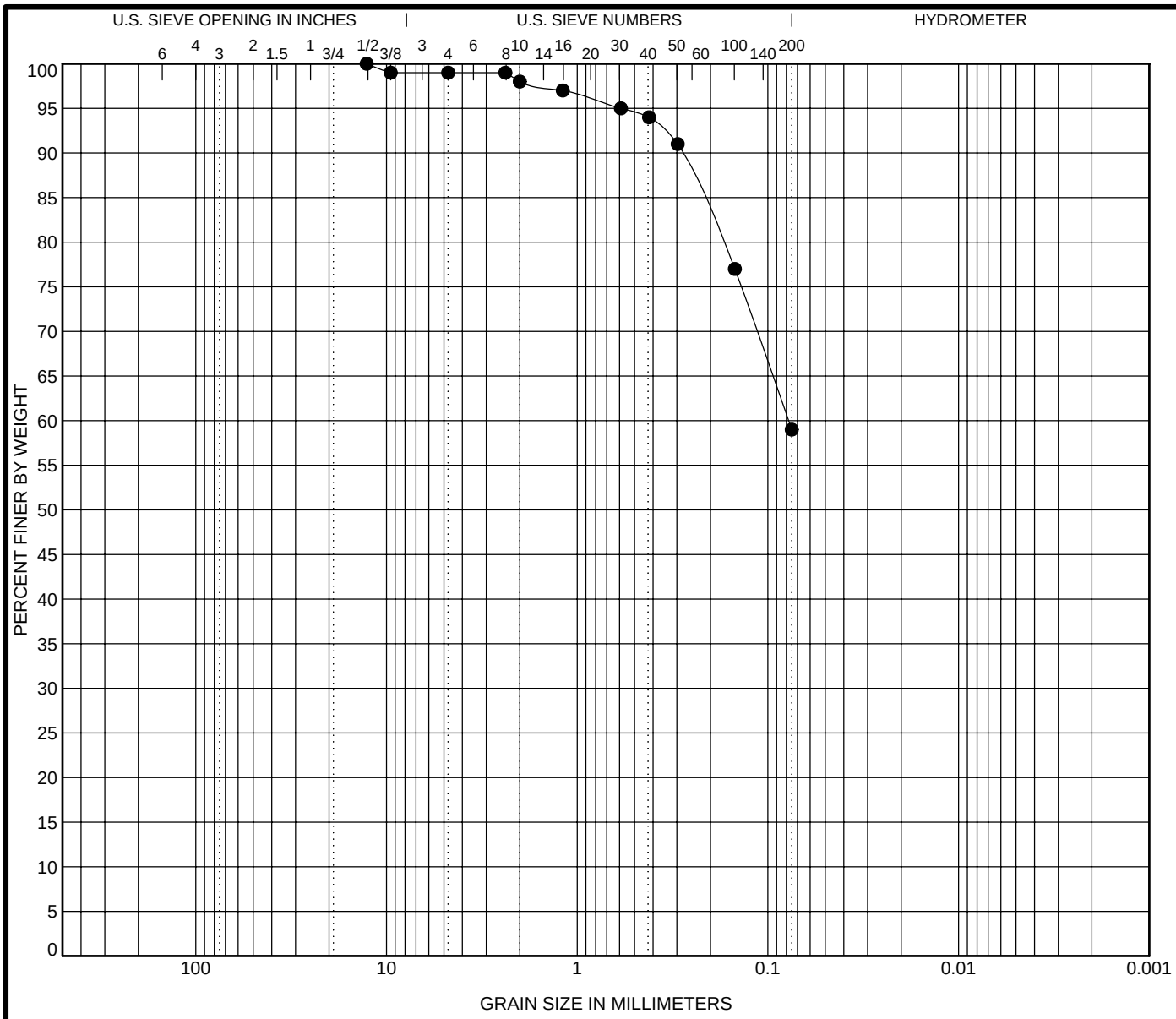
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**L-2**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY (CL)**	**31**	**19**	**12**		
⊠								
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★								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**L-2**	**0.0ft - 2.5ft**	**12.7**	**0.078**			**1.0**	**40.0**	**59.0**	
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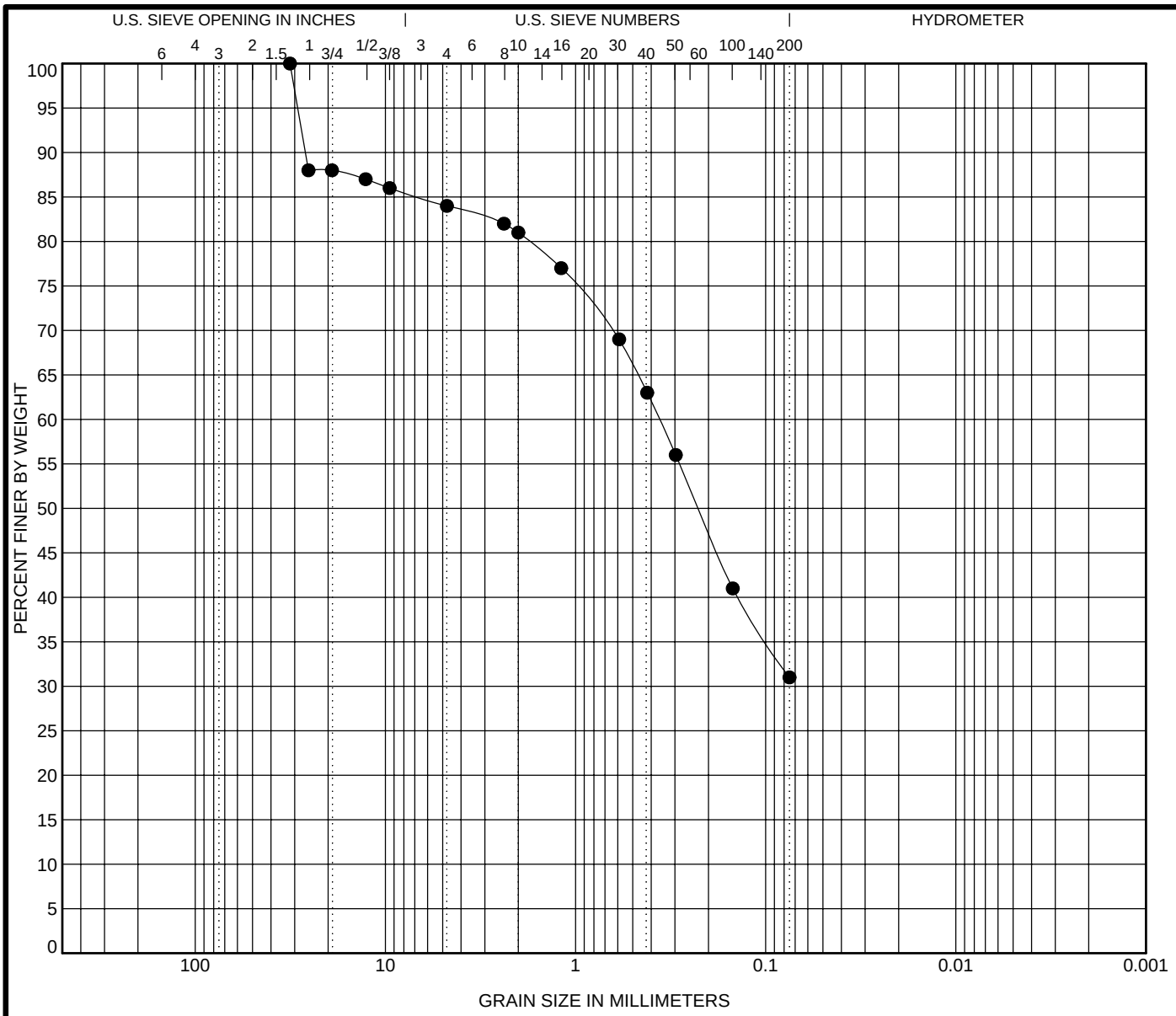
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**L-2 10.0ft - 11.0ft**	**SILTY SAND WITH GRAVEL (SM)**	**NP**	**NP**	**NP**		
⊠							
▲							
★							
⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**L-2 10.0ft - 11.0ft**	**31.75**	**0.362**			**16.0**	**53.0**	**31.0**	
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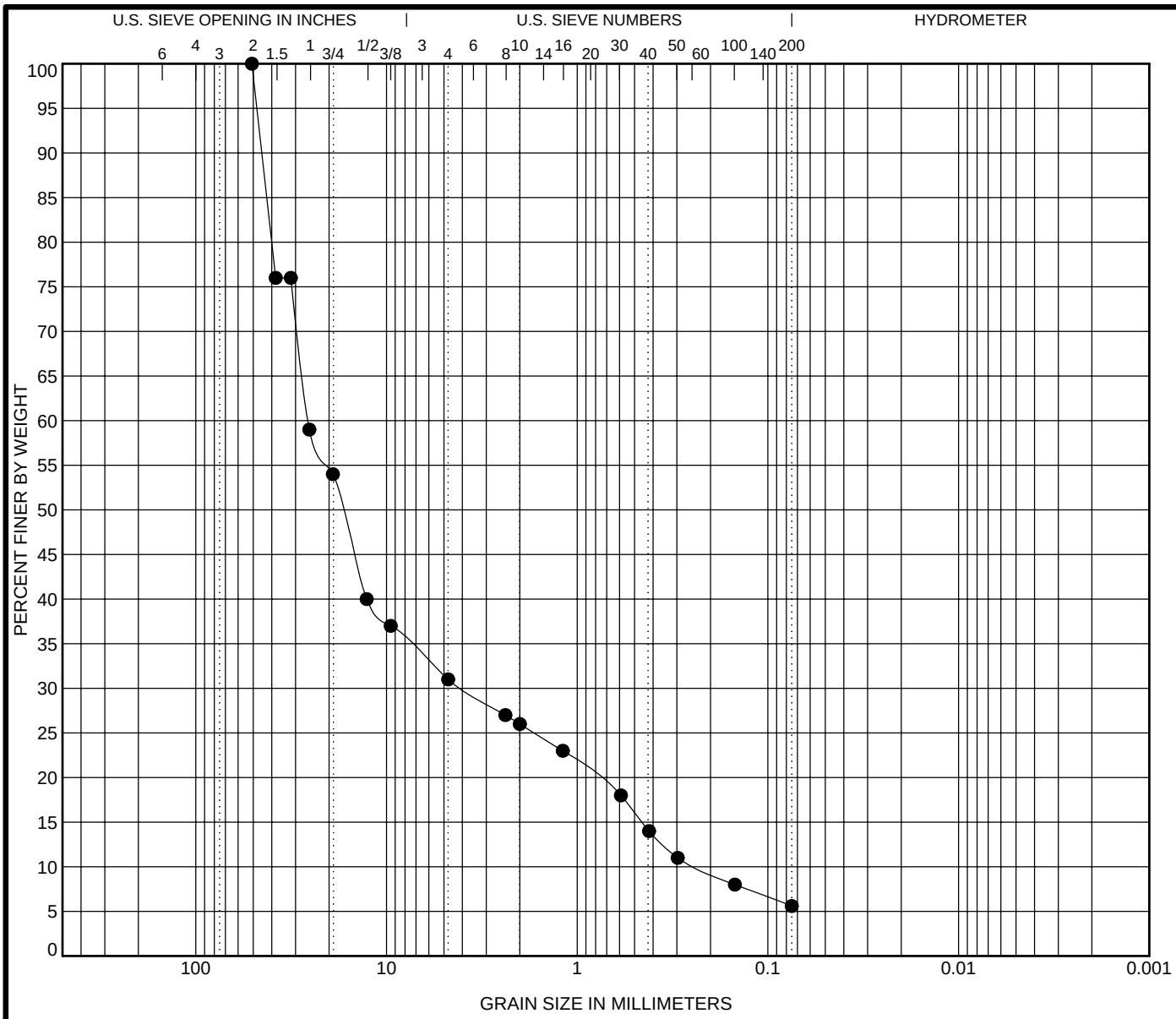
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**L-2**	**25.0ft - 26.5ft**	**SANDY GRAVEL TRACE SILT (GP)**	**NP**	**NP**	**NP**	**2.63**	**109.05**
⊠								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**L-2**	**25.0ft - 26.5ft**	**50.8**	**25.736**	**3.996**	**0.236**	**69.0**	**25.4**	**5.6**	
⊠										
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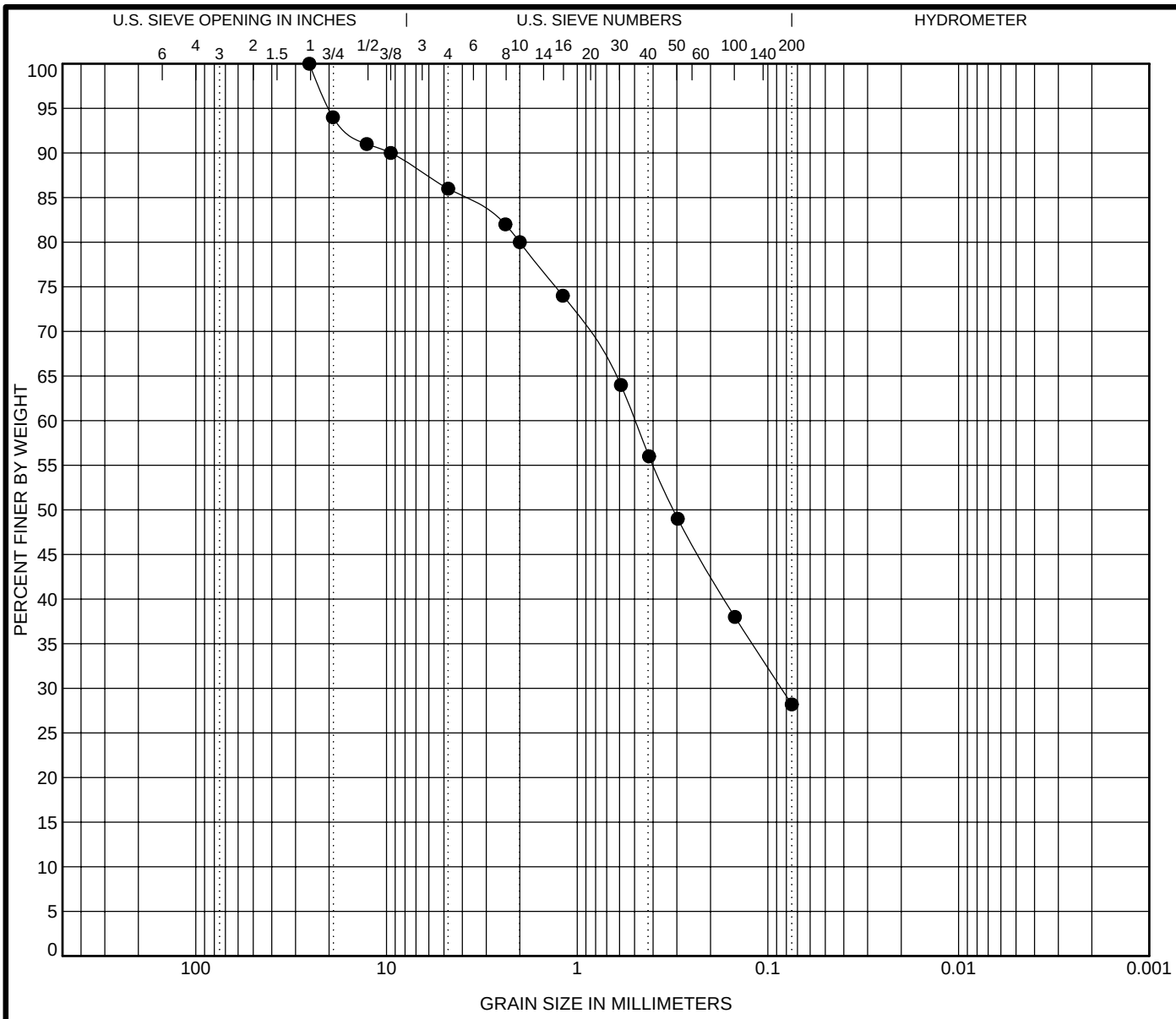
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**L-4**	**0.0ft - 2.5ft**	**SILTY SAND TRACE GRAVEL (SM)**	**25**	**22**	**3**		
⊠								
▲								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**L-4**	**0.0ft - 2.5ft**	**25.4**	**0.498**	**0.085**		**14.0**	**57.8**	**28.2**	
⊠										
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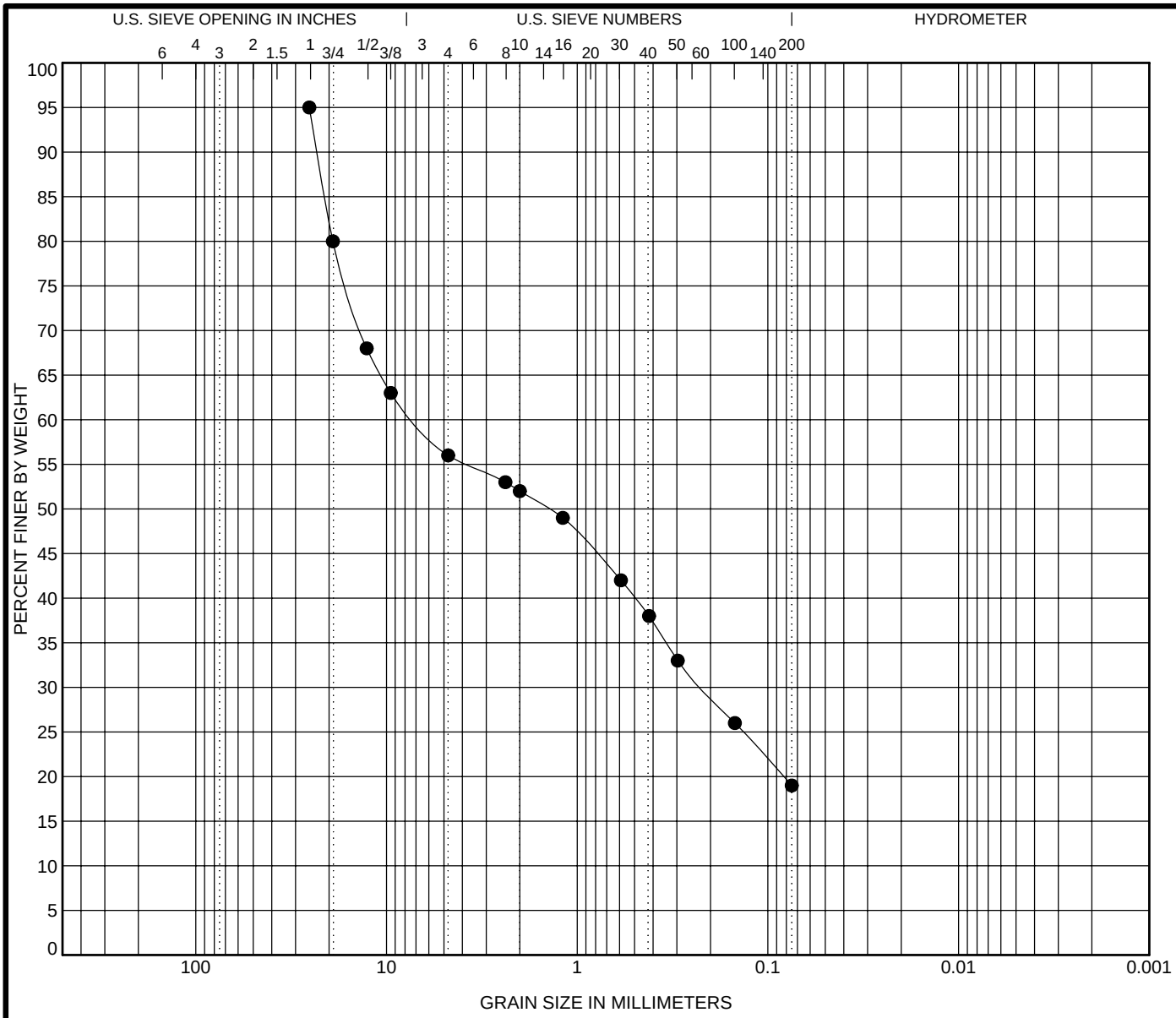
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**L-4**	**7.5ft - 8.5ft**	**GRAVELLY SILTY SAND (SM)**	**23**	**20**	**3**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**L-4**	**7.5ft - 8.5ft**	**25.4**	**7.058**	**0.221**		**39.0**	**37.0**	**19.0**	
⊠										
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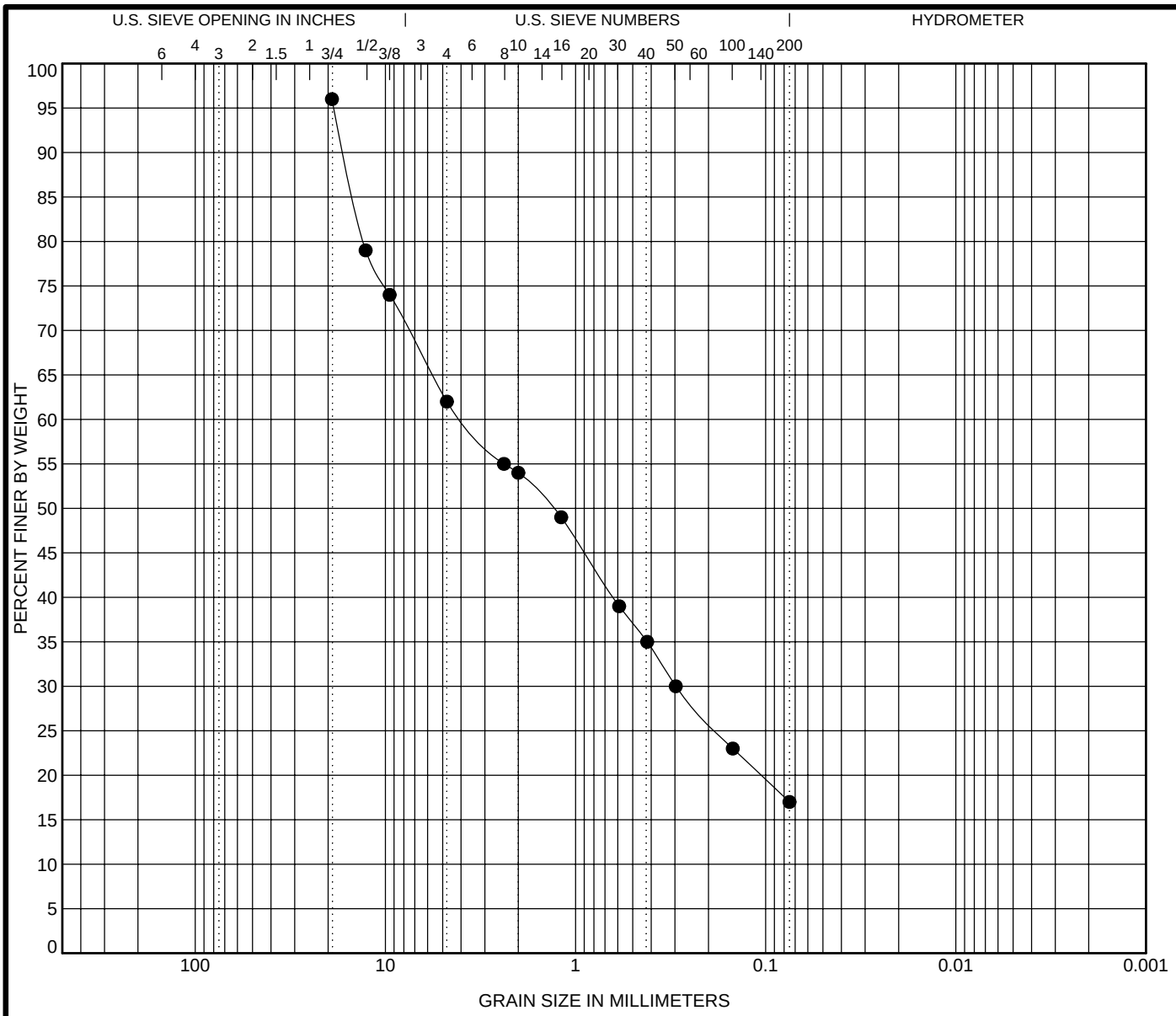
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**L-4**	**17.5ft - 18.5ft**	**GRAVELLY CLAYEY SILTY SAND (SC-SM)**	**26**	**20**	**6**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**L-4**	**17.5ft - 18.5ft**	**19.1**	**3.899**	**0.297**		**34.0**	**45.0**	**17.0**	
⊠										
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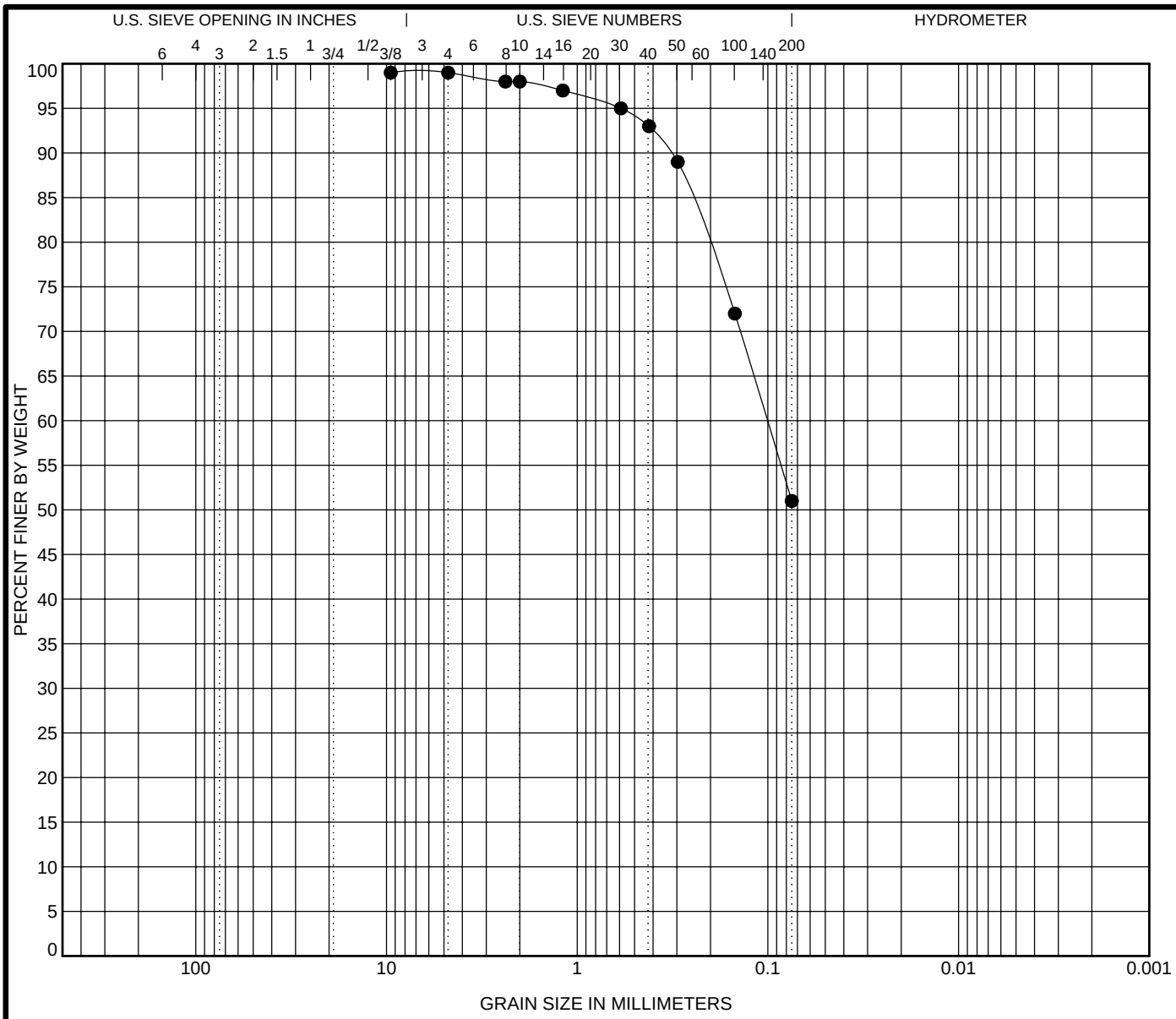
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**M-3**	**0.0ft - 2.5ft**	**SANDY SILT TRACE GRAVEL (ML)**	**21**	**18**	**3**		
⊠								
▲								
★								
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	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**M-3**	**0.0ft - 2.5ft**	**9.5**	**0.101**			**0.0**	**48.0**	**51.0**	
⊠										
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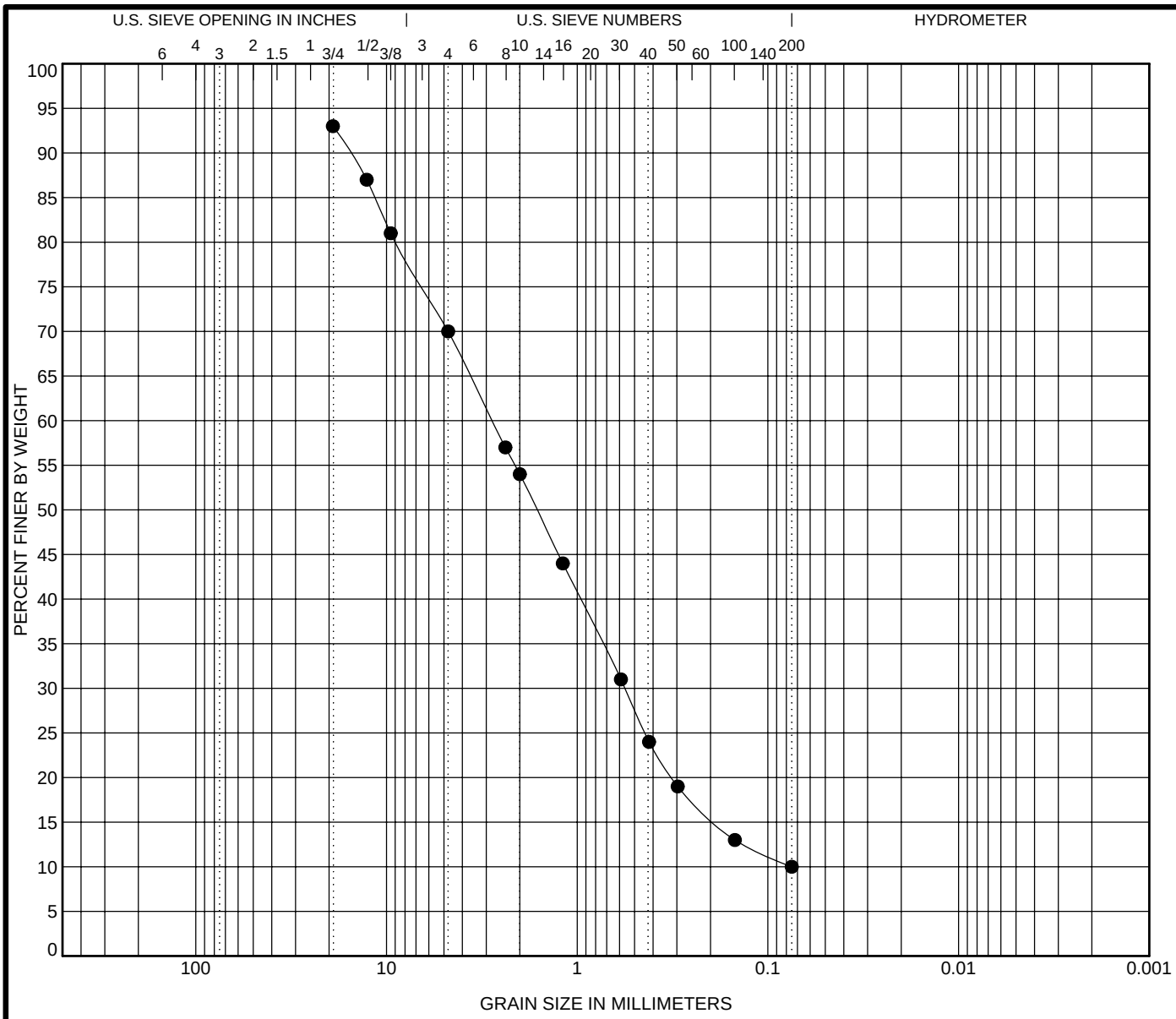
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**M-3 15.0ft - 16.0ft**	**GRAVELLY SAND WITH SILT (SP-SM)**	**NP**	**NP**	**NP**	**1.51**	**37.22**
⊠							
▲							
★							
⊙							

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**M-3 15.0ft - 16.0ft**	**19.1**	**2.791**	**0.562**	**0.075**	**23.0**	**60.0**	**10.0**	
⊠									
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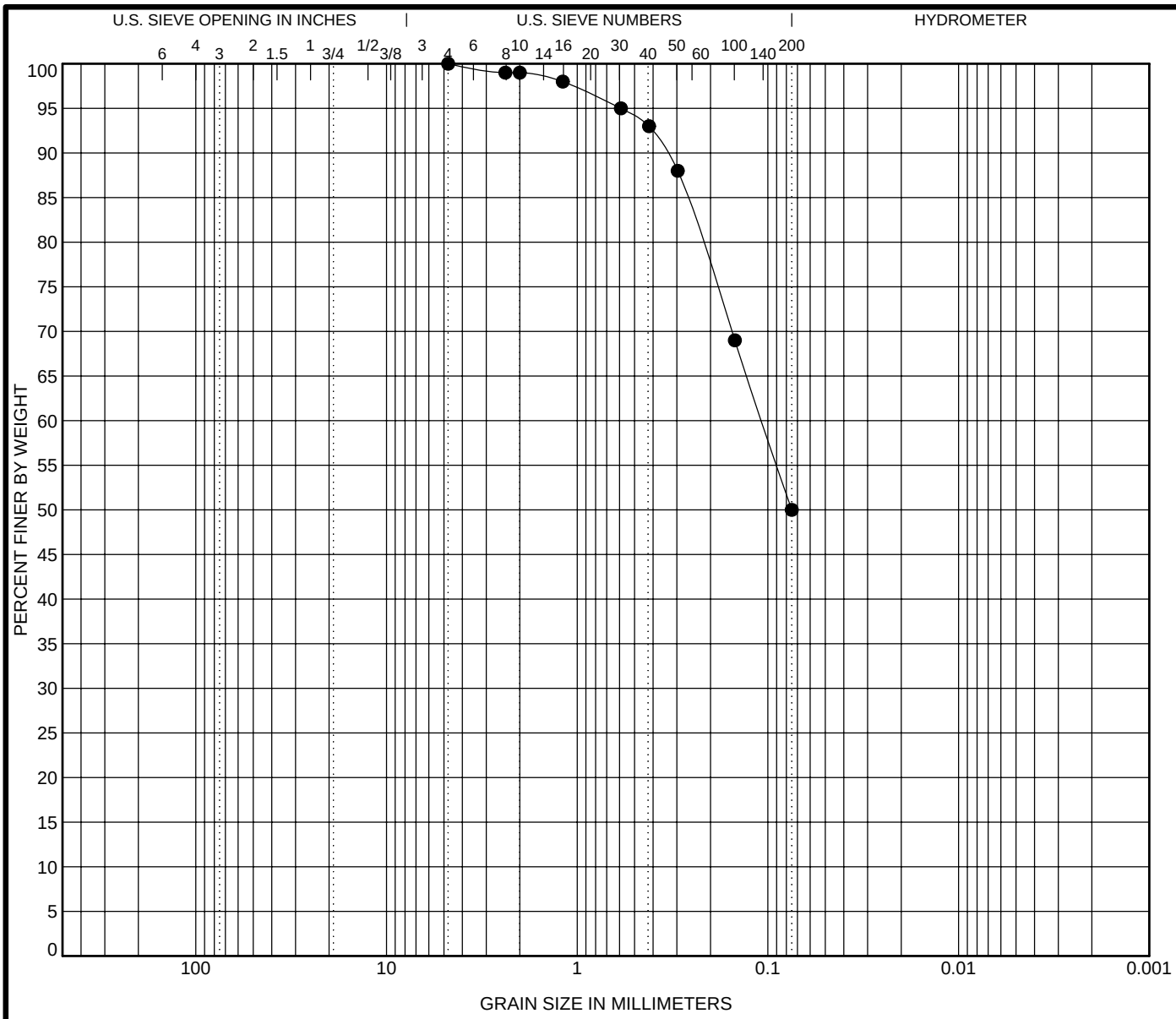
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**M-5**	**0.0ft - 2.5ft**	**SANDY SILT LEAN CLAY (CL-ML)**	**25**	**20**	**5**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**M-5**	**0.0ft - 2.5ft**	**4.75**	**0.108**			**0.0**	**50.0**	**50.0**	
⊠										
▲										
★										
⊙										

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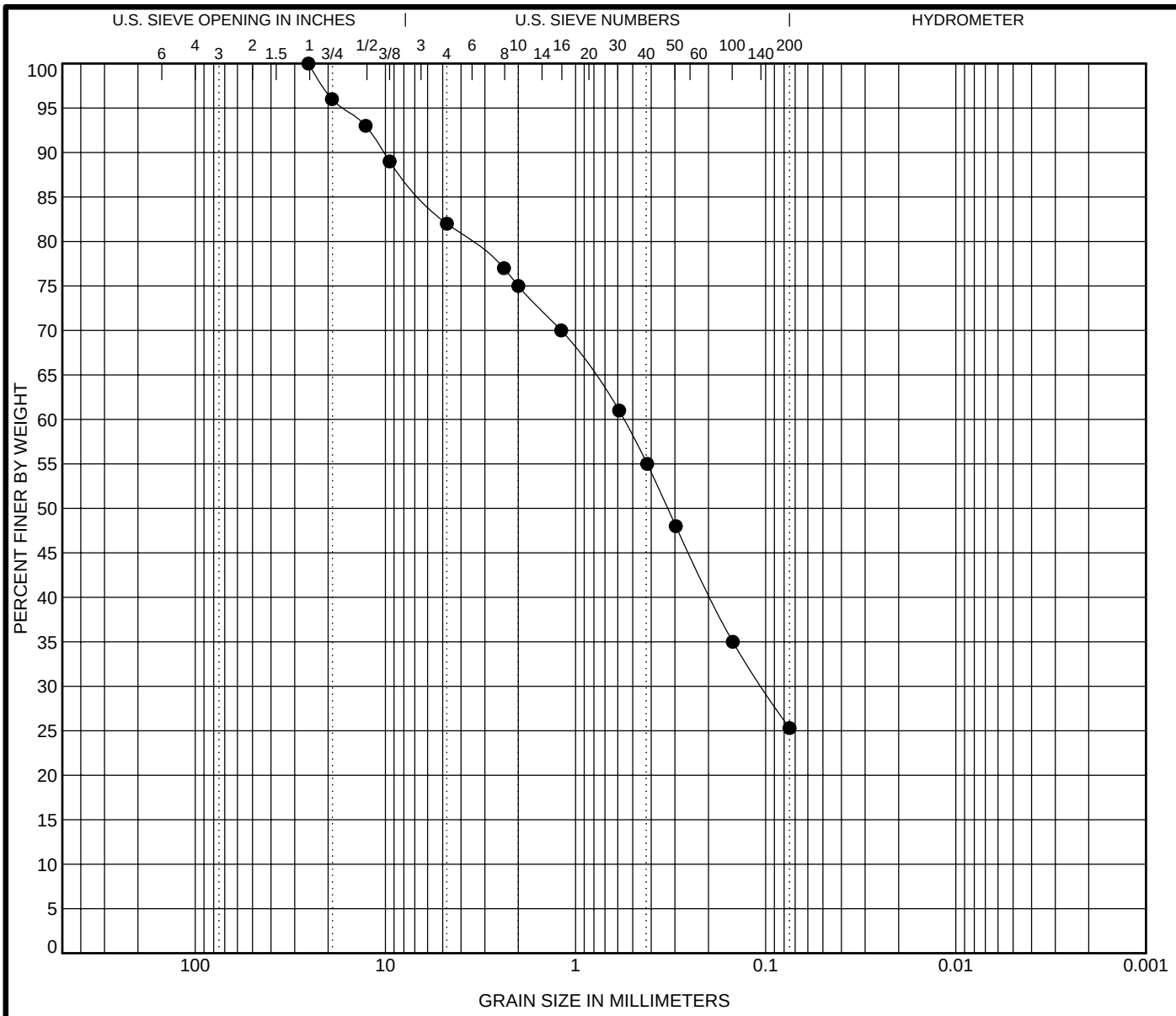
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**N-4**	**0.0ft - 2.5ft**	**SILTY SAND WITH GRAVEL (SM)**	**NP**	**NP**	**NP**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**N-4**	**0.0ft - 2.5ft**	**25.4**	**0.558**	**0.105**		**18.0**	**56.7**	**25.3**	
⊠										
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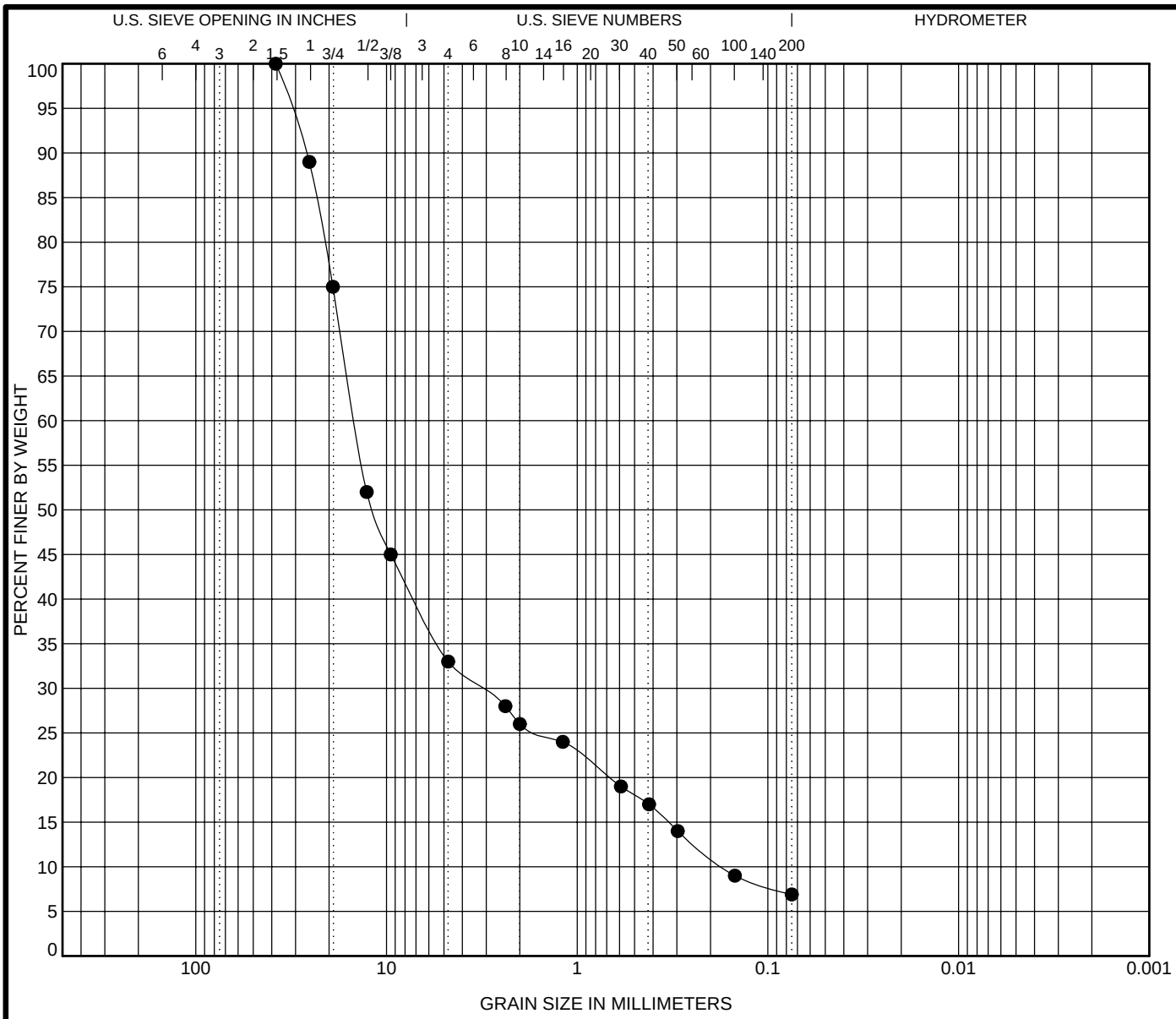
★										
⊙										

Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**N-4**	**30.0ft - 31.5ft**	**SANDY GRAVEL WITH SILT (GP)**	**NP**	**NP**	**NP**	**3.93**	**85.58**
⊠								
▲								
★								
⊙								

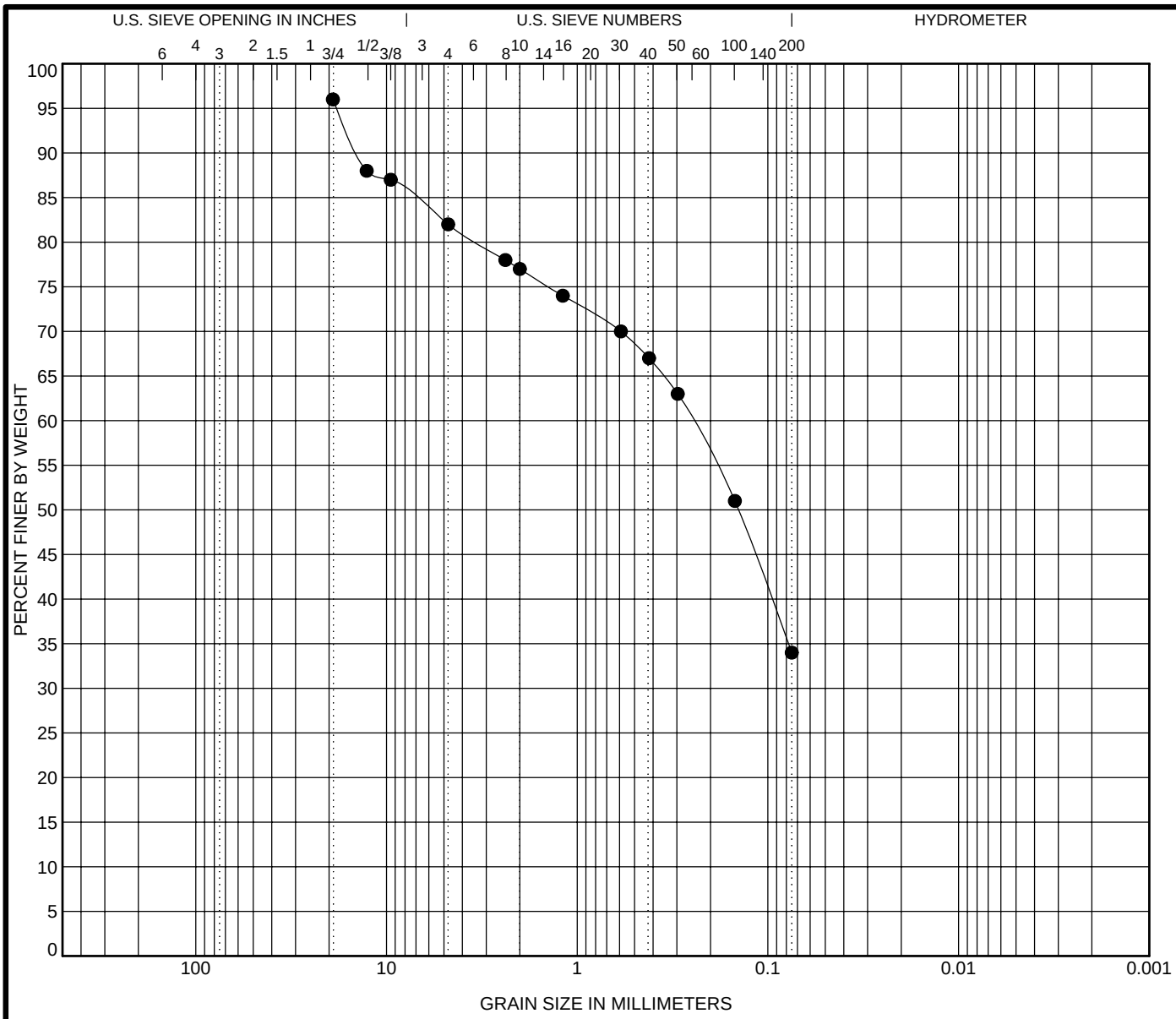
	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**N-4**	**30.0ft - 31.5ft**	**38.1**	**14.637**	**3.138**	**0.171**	**67.0**	**26.1**	**6.9**	
⊠										
▲										
★										
⊙										

Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**O-3**	**0.0ft - 2.5ft**	**CLAYEY SILTY SAND WITH GRAVEL (SC-SM)**	**27**	**21**	**6**		
⊠								
▲								
★								
⊙								

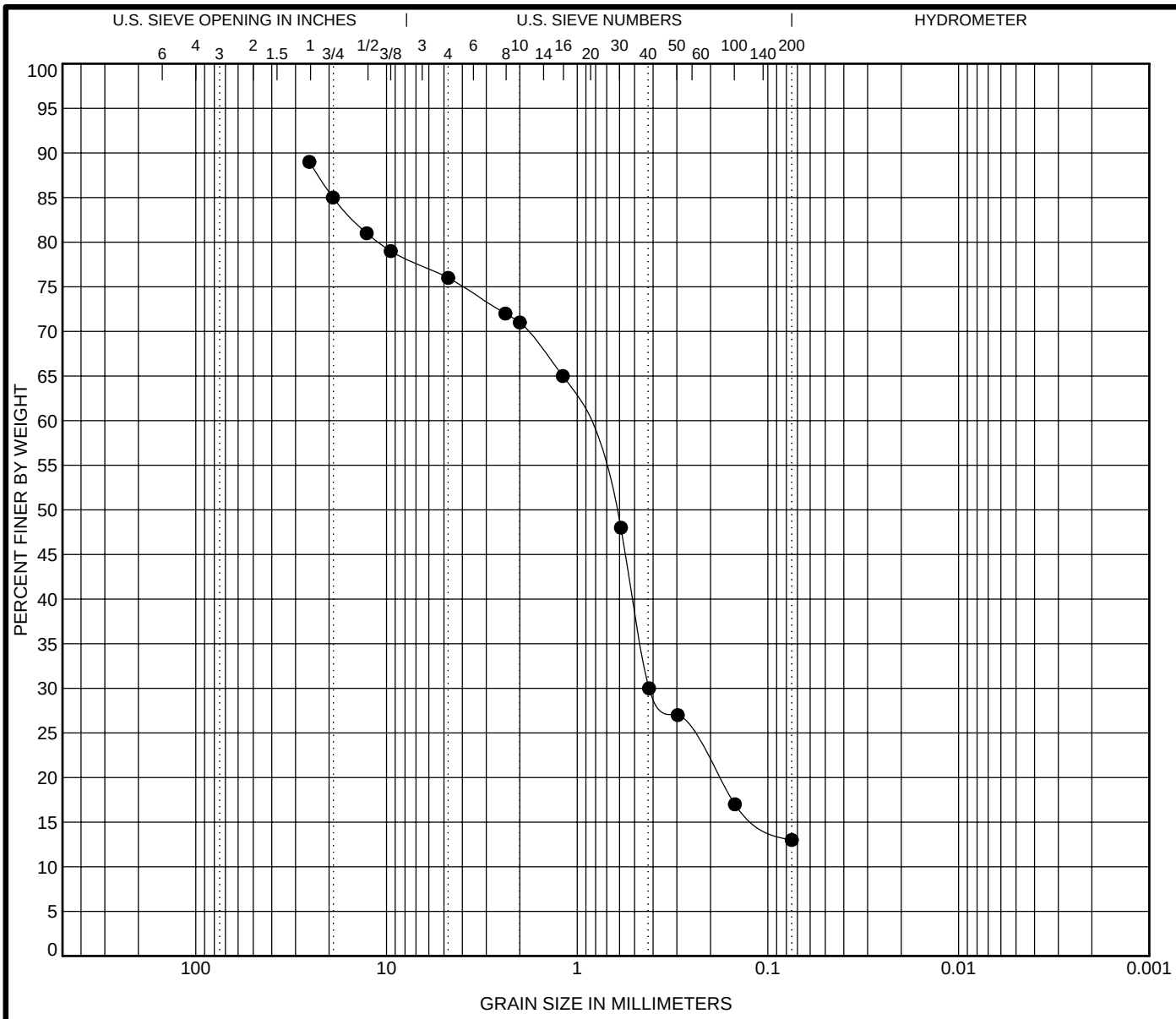
	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**O-3**	**0.0ft - 2.5ft**	**19.1**	**0.25**			**14.0**	**48.0**	**34.0**	
⊠										
▲										
★										
⊙										

Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**O-3**	**20.0ft - 21.0ft**	**GRAVELLY SILTY SAND (SM)**	**NP**	**NP**	**NP**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**O-3**	**20.0ft - 21.0ft**	**25.4**	**0.968**	**0.42**		**13.0**	**63.0**	**13.0**	
⊠										
▲										
★										
⊙										

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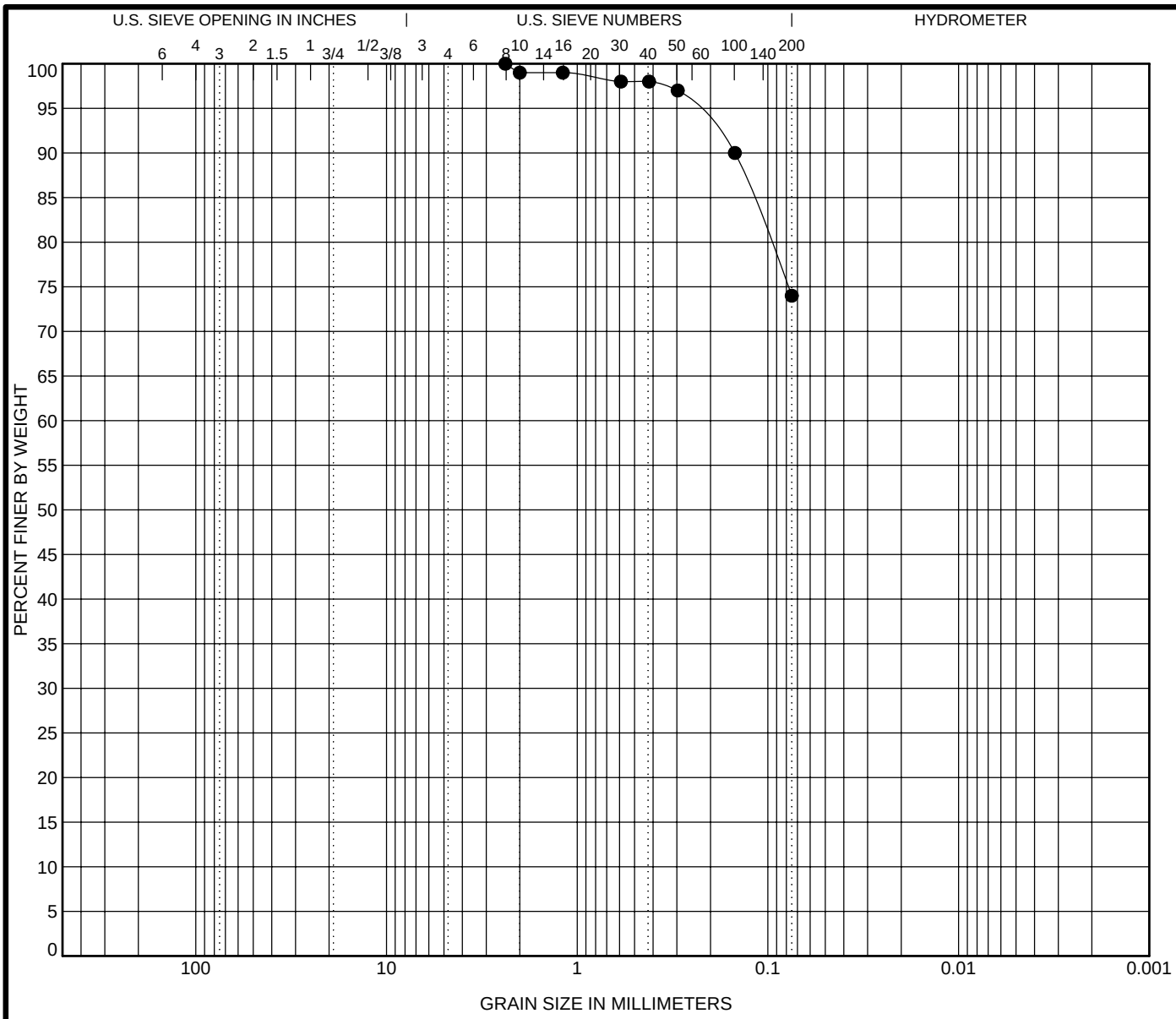
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**O-5**	**0.0ft - 2.5ft**	**SANDY LEAN CLAY (CL)**	**30**	**21**	**9**		
☒								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**O-5**	**0.0ft - 2.5ft**	**2.38**				**0.0**	**26.0**	**74.0**	
☒										
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★										
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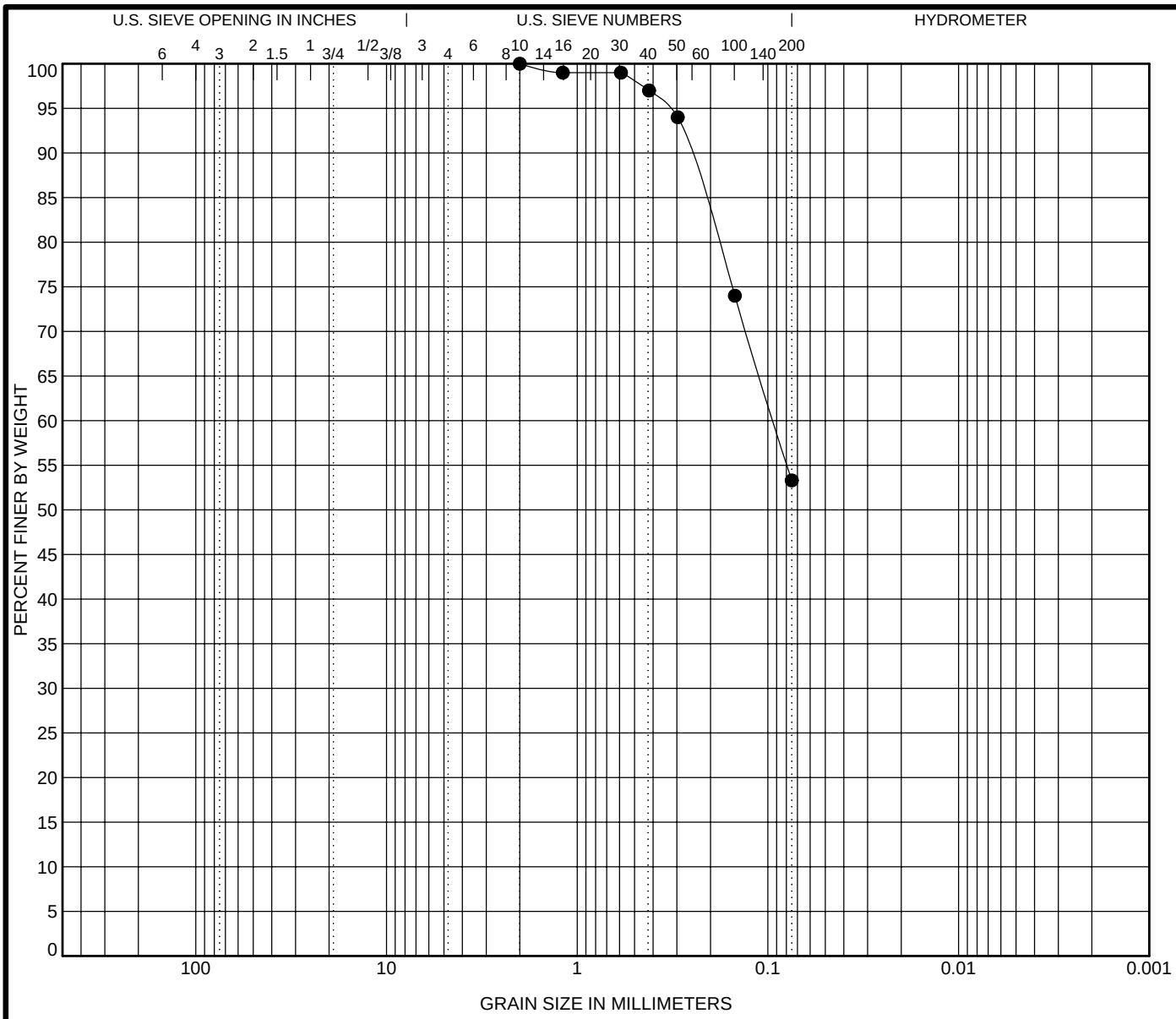
GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

TC GRAIN SIZE 63085095.GPJ TERRACON.GDT 2/18/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	**P-4**	**0.0ft - 2.5ft**	**SANDY SILT LEAN CLAY (CL-ML)**	**23**	**16**	**7**		
⊠								
▲								
★								
⊙								

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**P-4**	**0.0ft - 2.5ft**	**2**	**0.094**			**0.0**	**46.7**	**53.3**	
⊠										
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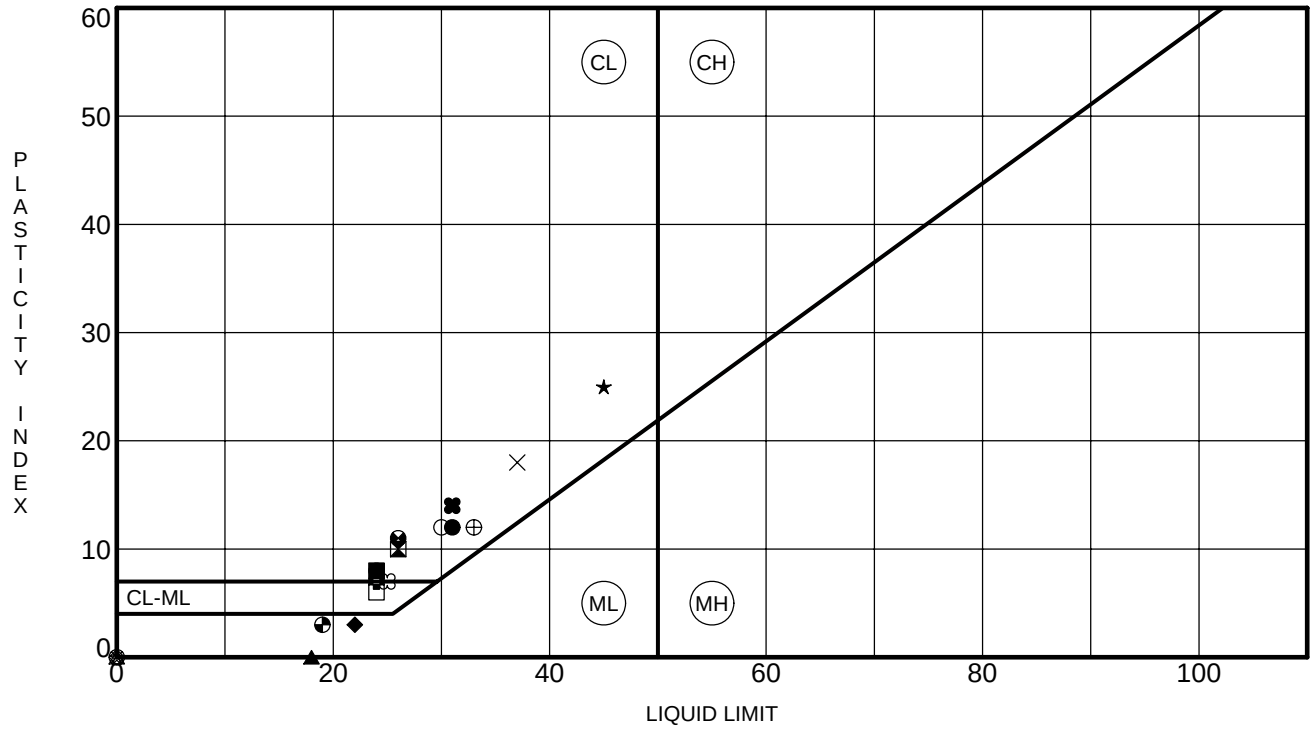
Terracon

GRAIN SIZE DISTRIBUTION

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



	Specimen Identification		LL	PL	PI	%Fines	Classification
●	A-4	0.0ft - 2.5ft	31	19	12	70	SANDY LEAN CLAY TRACE GRAVEL (CL)
⊠	A-4	10.0ft - 11.0ft	26	16	10	32	CLAYEY SAND WITH GRAVEL (SC)
▲	A-4	17.5ft - 18.5ft	18	18	NP	24	CLAYEY SAND WITH GRAVEL (SC)
★	B-01	0.0ft - 5.0ft	45	20	25	79	SANDY LEAN CLAY (CL)
⊙	B-01	30.0ft - 31.0ft	24	16	8	12	GRAVEL WITH CLAY AND SILT TRACE SAND (GC-GM)
✿	B-02	20.0ft - 21.0ft	24	17	7	19	GRAVELLY SAND TRACE SILT (SP)
○	B-02	35.0ft - 36.5ft	30	18	12	8	GRAVELLY SAND TRACE SILT (SP)
△	B-03	0.0ft - 5.0ft	NP	NP	NP	26	FILL: SILTY SAND WITH GRAVEL (SM)
⊗	B-03	25.0ft - 26.0ft	NP	NP	NP	12	GRAVELLY SAND TRACE SILT (SP)
⊕	B-04	15.0ft - 16.0ft	33	21	12	53	SANDY LEAN CLAY WITH GRAVEL (CL)
□	B-05	0.0ft - 5.0ft	24	18	6	65	FILL: SANDY SILTY LEAN CLAY TRACE GRAVEL (CL-ML)
⊗	B-05	45.0ft - 46.0ft	26	15	11	12	CLAYEY GRAVEL WITH SAND (GC)
◕	B-07	0.0ft - 5.0ft	19	16	3	36	SILTY SAND WITH GRAVEL (SM)
☆	B-07	15.0ft - 16.0ft	NP	NP	NP	9	GRAVELLY SAND WITH SILT (SP-SM)
⊗	B-08	0.0ft - 5.0ft	25	18	7	59	SANDY LEAN CLAY (CL)
■	B-09	0.0ft - 5.0ft	24	16	8	66	SANDY LEAN CLAY TRACE GRAVEL (CL)
◆	B-09	17.5ft - 18.5ft	22	19	3	12	GRAVELLY SAND WITH SILT (SP-SM)
◇	B-13	0.0ft - 5.0ft	NP	NP	NP	34	SILTY SAND TRACE GRAVEL (SM)
×	B-14	0.0ft - 5.0ft	37	19	18	57	SANDY LEAN CLAY TRACE GRAVEL (CL)
✖	B-15	0.0ft - 5.0ft	31	17	14	74	SANDY LEAN CLAY TRACE GRAVEL (CL)

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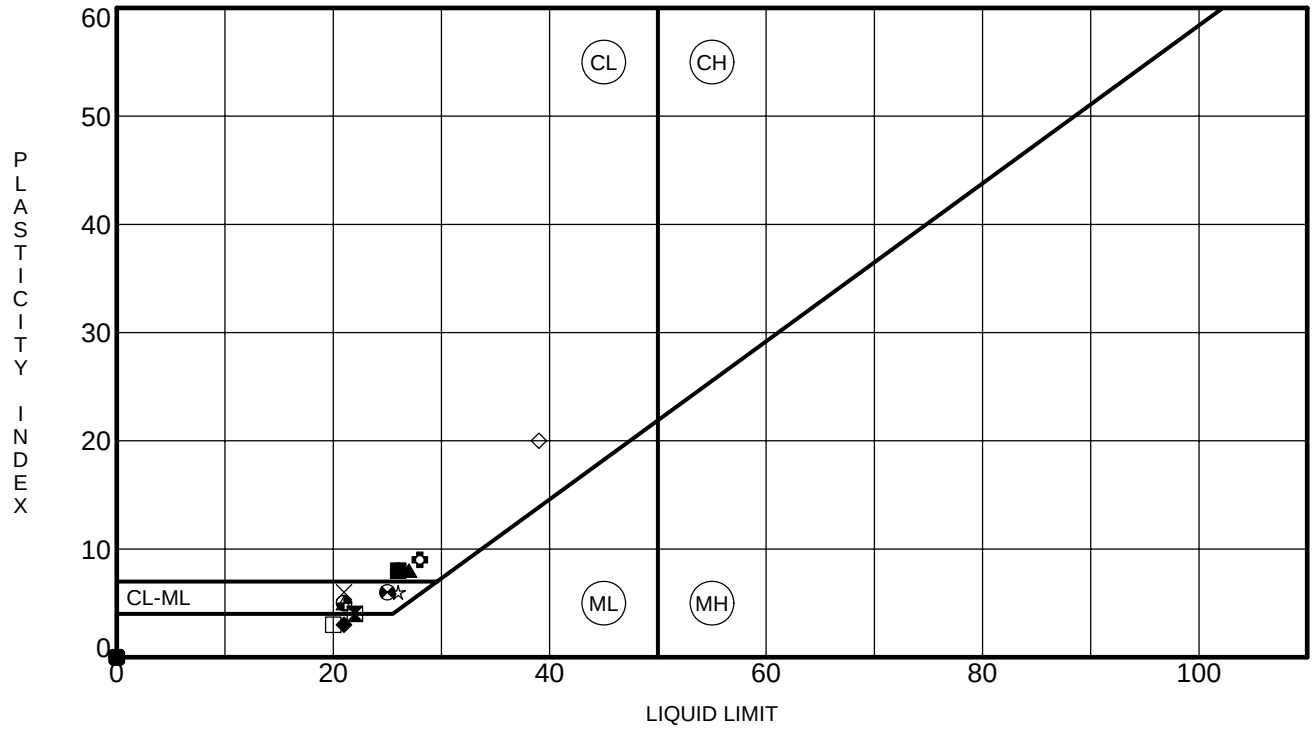
ATTERBERG LIMITS RESULTS

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



	Specimen Identification		LL	PL	PI	%Fines	Classification
●	B-15	10.0ft - 11.0ft	NP	NP	NP	12	SILTY SAND TRACE GRAVEL (SM)
⊠	B-16	20.0ft - 21.0ft	22	18	4	6	GRAVELLY SAND TRACE CLAY (SP)
▲	B-17	0.0ft - 5.0ft	27	19	8	23	CLAYEY SANDY GRAVEL (GC)
★	B-17	15.0ft - 16.0ft	NP	NP	NP	8	SANDY GRAVEL WITH SILT (GP)
⊙	B-17	20.0ft - 21.0ft	NP	NP	NP	11	SANDY GRAVEL WITH SILT (GP)
✿	B-4	0.0ft - 2.5ft	28	19	9	63	SANDY LEAN CLAY WITH GRAVEL (CL)
○	B-4	12.5ft - 13.5ft	NP	NP	NP	20	SILTY SAND TRACE GRAVEL (SM)
△	B-4	17.5ft - 18.5ft	21	16	5	30	CLAYEY SILTY SAND WITH GRAVEL (SC-SM)
⊗	B-O	0.0ft - 2.5ft	NP	NP	NP	50	SANDY SILT TRACE GRAVEL (ML)
⊕	C-1	0.0ft - 2.5ft	26	18	8	64	SANDY LEAN CLAY TRACE GRAVEL (CL)
□	C-1	17.5ft - 18.5ft	20	17	3	13	GRAVELLY SILTY SAND TRACE COBBLES (SM)
⊗	C-3	0.0ft - 2.5ft	25	19	6	50	SANDY SILT LEAN CLAY TRACE GRAVEL (CL-ML)
◕	C-3	15.0ft - 16.0ft	21	16	5	23	CLAYEY SILTY SAND TRACE GRAVEL AND COBBLES (SC-SM)
☆	C-5	0.0ft - 2.5ft	26	20	6	64	SANDY SILT LEAN CLAY TRACE GRAVEL (CL-ML)
⊠	C-5	10.0ft - 11.0ft	NP	NP	NP	14	SILTY SAND TRACE GRAVEL & COBBLES (SM)
■	D-2	0.0ft - 2.5ft	26	18	8	55	SANDY LEAN CLAY TRACE GRAVEL (CL)
◆	E-3	0.0ft - 2.5ft	21	18	3	40	SILTY SAND WITH GRAVEL (SM)
◇	E-5	0.0ft - 2.5ft	39	19	20	86	SANDY LEAN CLAY TRACE GRAVEL (CL)
╳	F-4	0.0ft - 2.5ft	21	15	6	39	CLAYEY SILTY SAND TRACE GRAVEL (SC-SM)
✖	F-4	12.5ft - 13.5ft	NP	NP	NP	10	GRAVELLY SAND TRACE SILT AND COBBLES (SP)

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ATTERBERG LIMITS RESULTS

Project: Future WRC Site
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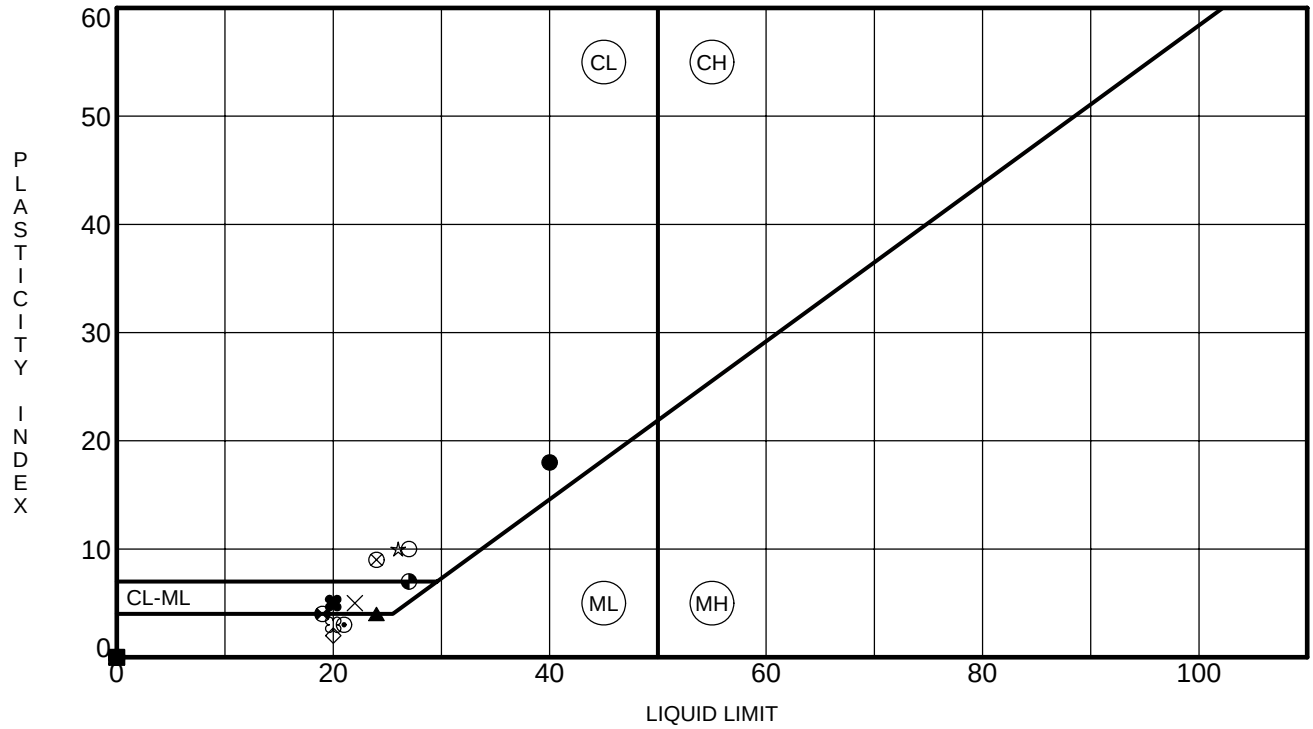

	Specimen Identification		LL	PL	PI	%Fines	Classification
●	F-6	0.0ft - 2.5ft	40	22	18	76	SANDY LEAN CLAY TRACE GRAVEL (CL)
⊠	F-6	17.5ft - 18.5ft	NP	NP	NP	12	GRAVELLY SILTY SAND (SM)
▲	G-1	0.0ft - 2.5ft	24	20	4	42	CLAYEY SILTY SAND TRACE GRAVEL (SC-SM)
★	G-1	7.5ft - 8.5ft	NP	NP	NP	18	GRAVELLY SILTY SAND (SM)
⊙	G-3	0.0ft - 2.5ft	21	18	3	41	POSSIBLE FILL: SILTY SAND TRACE GRAVEL (SM)
✿	G-3	12.5ft - 13.5ft	NP	NP	NP	23	SILTY SAND WITH GRAVEL (SM)
○	G-5	0.0ft - 2.5ft	27	17	10	57	SANDY LEAN CLAY TRACE GRAVEL (CL)
△	G-5	15.0ft - 16.0ft	NP	NP	NP	19	GRAVELLY SILTY SAND (SM)
⊗	G-7	0.0ft - 2.5ft	24	15	9	49	SANDY LEAN CLAY TRACE GRAVEL (CL)
⊕	G-7	12.5ft - 13.5ft	NP	NP	NP	13	GRAVELLY SILTY SAND (SM)
□	H-2	0.0ft - 2.5ft	NP	NP	NP	18	SILTY SAND WITH GRAVEL (SM)
⊗	H-2	17.5ft - 18.5ft	19	15	4	17	GRAVELLY SILTY CLAYEY SAND WITH COBBLES (SC-SM)
◕	H-4	0.0ft - 2.5ft	27	20	7	63	SANDY SILTY LEAN CLAY TRACE GRAVEL (CL-ML)
☆	H-4	7.5ft - 8.5ft	26	16	10	26	CLAYEY SAND TRACE GRAVEL (SC)
⊗	H-4	20.0ft - 21.0ft	20	17	3	5	GRAVELLY SAND TRACE SILT (SP)
■	I-3	0.0ft - 2.5ft	NP	NP	NP	31	SILTY SAND (SM)
◆	I-3	15.0ft - 16.0ft	NP	NP	NP	11	GRAVELLY SAND WITH SILT (SP-SM)
◇	I-5	0.0ft - 2.5ft	20	18	2	58	SANDY SILT (ML)
╳	I-5	7.5ft - 8.5ft	22	17	5	67	SANDY SILT LEAN CLAY (CL-ML)
✖	I-5	17.5ft - 18.5ft	20	15	5	13	GRAVELLY CLAYEY SILTY SAND (SC-SM)

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ATTERBERG LIMITS RESULTS

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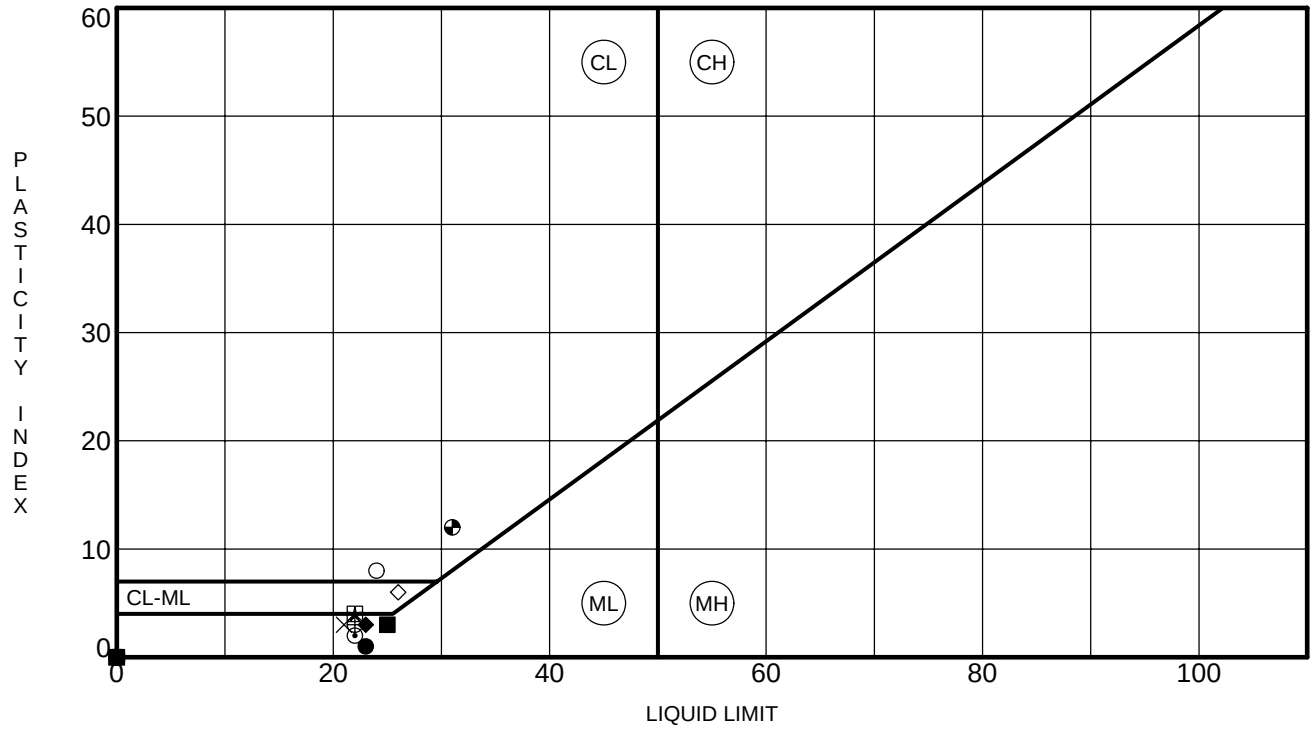

	Specimen Identification		LL	PL	PI	%Fines	Classification
●	J-4	0.0ft - 2.5ft	23	22	1	57	SANDY SILT TRACE GRAVEL (ML)
⊠	J-4	12.5ft - 13.5ft	NP	NP	NP	13	SILTY SAND WITH GRAVEL (SM)
▲	J-4	22.5ft - 23.5ft	NP	NP	NP	7	GRAVELLY SAND WITH SILT TRACE COBBLES (SP-SM)
★	J-6	0.0ft - 2.5ft	22	18	4	52	SANDY SILT LEAN CLAY TRACE GRAVEL (CL-ML)
⊙	J-6	10.0ft - 11.0ft	22	20	2	19	GRAVELLY SILTY SAND (SM)
✿	J-6	17.5ft - 18.5ft	NP	NP	NP	11	GRAVELLY SAND WITH COBBLES & SILT (SP-SM)
○	K-3	0.0ft - 2.5ft	24	16	8	57	SANDY LEAN CLAY TRACE GRAVEL (CL)
△	K-3	12.5ft - 13.5ft	NP	NP	NP	12	GRAVELLY SILTY SAND (SM)
⊗	K-3	22.5ft - 23.5ft	NP	NP	NP	6	GRAVELLY SAND TRACE SILT (SP)
⊕	K-5	0.0ft - 2.5ft	22	19	3	65	SANDY SILT (ML)
□	K-5	12.5ft - 13.5ft	22	18	4	13	GRAVELLY SANDY SILT CLAY (SC-SM)
⊗	K-5	22.5ft - 23.5ft	NP	NP	NP	8	SANDY GRAVEL WITH COBBLES AND SILT (GP-GM)
◕	L-2	0.0ft - 2.5ft	31	19	12	59	SANDY LEAN CLAY (CL)
☆	L-2	10.0ft - 11.0ft	NP	NP	NP	31	SILTY SAND WITH GRAVEL (SM)
⊠	L-2	25.0ft - 26.5ft	NP	NP	NP	6	SANDY GRAVEL TRACE SILT (GP)
■	L-4	0.0ft - 2.5ft	25	22	3	28	SILTY SAND TRACE GRAVEL (SM)
◆	L-4	7.5ft - 8.5ft	23	20	3	19	GRAVELLY SILTY SAND (SM)
◇	L-4	17.5ft - 18.5ft	26	20	6	17	GRAVELLY CLAYEY SILTY SAND (SC-SM)
╳	M-3	0.0ft - 2.5ft	21	18	3	51	SANDY SILT TRACE GRAVEL (ML)
✖	M-3	15.0ft - 16.0ft	NP	NP	NP	10	GRAVELLY SAND WITH SILT (SP-SM)

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ATTERBERG LIMITS RESULTS

Project: Future WRC Site
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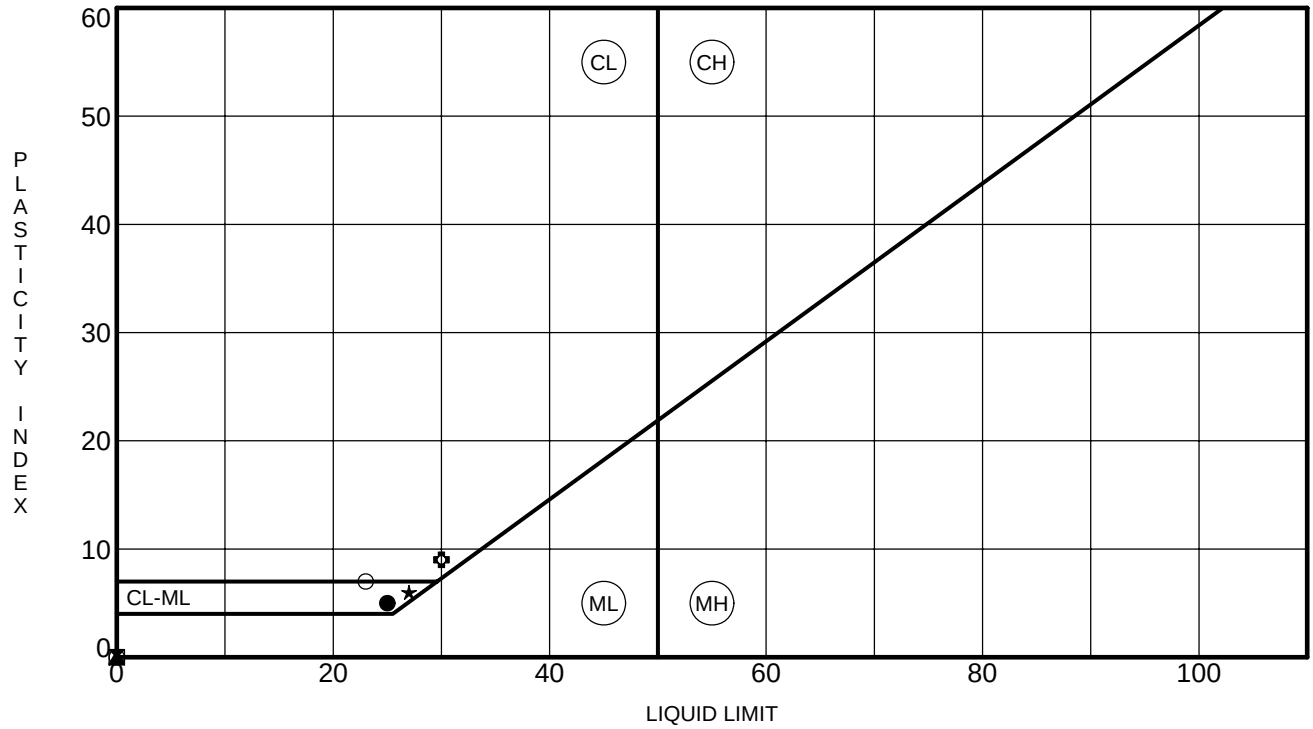
Job #: 63085095
Date: 2-18-09



	Specimen Identification		LL	PL	PI	%Fines	Classification
●	**M-5**	**0.0ft - 2.5ft**	**25**	**20**	**5**	**50**	**SANDY SILT LEAN CLAY (CL-ML)**
⊠	**N-4**	**0.0ft - 2.5ft**	**NP**	**NP**	**NP**	**25**	**SILTY SAND WITH GRAVEL (SM)**
▲	**N-4**	**30.0ft - 31.5ft**	**NP**	**NP**	**NP**	**7**	**SANDY GRAVEL WITH SILT (GP)**
★	**O-3**	**0.0ft - 2.5ft**	**27**	**21**	**6**	**34**	**CLAYEY SILTY SAND WITH GRAVEL (SC-SM)**
⊙	**O-3**	**20.0ft - 21.0ft**	**NP**	**NP**	**NP**	**13**	**GRAVELLY SILTY SAND (SM)**
✿	**O-5**	**0.0ft - 2.5ft**	**30**	**21**	**9**	**74**	**SANDY LEAN CLAY (CL)**
○	**P-4**	**0.0ft - 2.5ft**	**23**	**16**	**7**	**53**	**SANDY SILT LEAN CLAY (CL-ML)**

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ATTERBERG LIMITS RESULTS

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

Borehole No.	Depth (ft.)	USCS Soil Class.	In-Situ Properties		Classification				Remolded Expansion				Corrosivity				Remarks
			Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterberg Limits			Dry Density (pcf)	Water Content (%)	Surcharge (psf)	Expansion (%)	pH	Resistivity (ohm-cm)	Chlorides (ppm)	Sulfates (ppm)	
						LL	PL	PI									
A-4	0.0 - 2.5	CL			70	31	19	12					8.2		28	450	
A-4	2.5 - 3.5	CL	100	24													1, 2
A-4	10.0 - 11.0	SC			32	26	16	10									
A-4	17.5 - 18.5	SC			24	18	18	NP									
B-01	0.0 - 5.0	CL			79	45	20	25	98.4	16	144	6.2					3, 4
B-01	2.5 - 3.5	CL	85	11													1, 2
B-01	5.0 - 6.0	CL	89	10													1, 2
B-01	10.0 - 11.0	SP	92	4													1, 2
B-01	15.0 - 16.0	SP		5													2
B-01	20.0 - 21.0	SP			18												
B-01	30.0 - 31.0	GC-GM			12	24	16	8									
B-02	7.5 - 8.5	SC-SM	87	5													1, 2
B-02	12.5 - 13.5	SM	97	1													1, 2
B-02	20.0 - 21.0	SP	101	1	19	24	17	7									1
B-02	35.0 - 36.5	SP			8	30	18	12									
B-03	0.0 - 5.0	SM			26	NP	NP	NP									
B-03	7.5 - 8.5	SM	97	13													1, 2
B-03	25.0 - 26.0	SP			12	NP	NP	NP									
B-03	31.5 -		105	2													1, 2
B-04	2.5 - 3.5	SC	100	7													1, 2
B-04	15.0 - 16.0	CL	107	6	53	33	21	12									1
B-04	25.0 - 26.0	SP-SC	104	1													1, 2
B-05	0.0 - 5.0	CL-ML			65	24	18	6	110.2	10.1	144	2.72					3, 4
B-05	2.5 - 3.5	CL-ML	96	4													1, 2
B-05	10.0 - 11.0	SP		2													2

REMARKS

1. Dry density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Compacted density (approximately 95% of ASTM D698 maximum density at moisture content slightly below optimum).
5. Corrosivity Results reported as 0 indicate the sample was at a Non-Detectible level.

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SUMMARY OF LABORATORY RESULTS

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

Borehole No.	Depth (ft.)	USCS Soil Class.	In-Situ Properties		Classification				Remolded Expansion				Corrosivity				Remarks
			Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterberg Limits			Dry Density (pcf)	Water Content (%)	Surcharge (psf)	Expansion (%)	pH	Resistivity (ohm-cm)	Chlorides (ppm)	Sulfates (ppm)	
						LL	PL	PI									
B-05	45.0 - 46.0	GC			12	26	15	11									
B-06	5.0 - 6.0	CL	88	10													1, 2
B-06	10.0 - 11.0	SC	97	8													1, 2
B-06	17.5 - 18.5	GP	106	7													1, 2
B-07	0.0 - 5.0	SM			36	19	16	3	115.1	7.5	144	1.2					3, 4
B-07	2.5 - 3.5	SM	112	2													1, 2
B-07	10.0 - 11.0	SP-SM	101	3													1, 2
B-07	15.0 - 16.0	SP-SM			9	NP	NP	NP									
B-08	0.0 - 5.0	CL			59	25	18	7									
B-08	20.0 - 21.0	SP	99	5													1, 2
B-09	0.0 - 5.0	CL			66	24	16	8	109	10.7	144	1.5					3, 4
B-09	2.5 - 3.5	CL	107	6													1, 2
B-09	10.0 - 11.0	SM		2													2
B-09	17.5 - 18.5	SP-SM			12	22	19	3									
B-10	2.5 - 3.5	CL-ML	106	15													1, 2
B-12	2.5 - 3.5	CL	95	5													1, 2
B-12	15.0 - 16.0	SP	98	2													1, 2
B-13	0.0 - 5.0	SM			34	NP	NP	NP	113.6	8.1	144	0.92					3, 4
B-13	5.0 - 6.0	SM	82	9													1, 2
B-14	0.0 - 5.0	CL			57	37	19	18									
B-14	2.5 - 3.5	CL	83	17													1, 2
B-14	7.5 - 8.5	SP	102	2													1, 2
B-15	0.0 - 5.0	CL			74	31	17	14	107.7	11.2	144	3.7					3, 4
B-15	2.5 - 3.5	CL	79	7													1, 2
B-15	7.5 - 8.5	SM		1													2

REMARKS

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SUMMARY OF LABORATORY RESULTS

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

Borehole No.	Depth (ft.)	USCS Soil Class.	In-Situ Properties		Classification				Remolded Expansion				Corrosivity				Remarks
			Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterberg Limits			Dry Density (pcf)	Water Content (%)	Surcharge (psf)	Expansion (%)	pH	Resistivity (ohm-cm)	Chlorides (ppm)	Sulfates (ppm)	
						LL	PL	PI									
B-15	10.0 - 11.0	SM			12	NP	NP	NP									
B-16	2.5 - 3.5	CL	108	11													1, 2
B-16	10.0 - 11.0	SP-SM	108	1													1, 2
B-16	20.0 - 21.0	SP			6	22	18	4									
B-17	0.0 - 5.0	GC			23	27	19	8	113.6	8.2	144	0.25					3, 4
B-17	5.0 - 6.0	GC	111	1													1, 2
B-17	15.0 - 16.0	GP			8	NP	NP	NP									
B-17	17.5 - 18.5	GP	105	2													1, 2
B-17	20.0 - 21.0	GP			11	NP	NP	NP									
B-4	0.0 - 2.5	CL			63	28	19	9	107.2	11.3	100	3.3					3, 4
B-4	5.0 - 6.0	CL	99	19													1, 2
B-4	12.5 - 13.5	SM			20	NP	NP	NP									
B-4	17.5 - 18.5	SC-SM			30	21	16	5									
B-4	20.0 - 21.0	SC-SM	109	2													1, 2
B-O	0.0 - 2.5	ML			50	NP	NP	NP	110.5	9	100	4.5					3, 4
B-O	2.5 - 3.5	ML	107	11													1, 2
B-O	7.5 - 8.5	SC	103	5													1, 2
B-O	12.5 - 13.5	SM	105	3													1, 2
C-1	0.0 - 2.5	CL			64	26	18	8					8.5	220	250	960	
C-1	2.5 - 3.5	CL	95	7													1, 2
C-1	17.5 - 18.5	SM	89	31	13	20	17	3									1
C-3	0.0 - 2.5	CL-ML			50	25	19	6	110.8	9.3	100	3.3					3, 4
C-3	2.5 - 3.5	CL-ML	105	2													1, 2
C-3	15.0 - 16.0	SC-SM			23	21	16	5									
C-5	0.0 - 2.5	CL-ML			64	26	20	6	102.5	13	100	2.3					3, 4

REMARKS

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SUMMARY OF LABORATORY RESULTS

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

Borehole No.	Depth (ft.)	USCS Soil Class.	In-Situ Properties		Classification				Remolded Expansion				Corrosivity				Remarks
			Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterberg Limits			Dry Density (pcf)	Water Content (%)	Surcharge (psf)	Expansion (%)	pH	Resistivity (ohm-cm)	Chlorides (ppm)	Sulfates (ppm)	
						LL	PL	PI									
C-5	2.5 - 3.5	CL-ML	85	8													1, 2
C-5	5.0 - 6.0	CL-ML	87	8													1, 2
C-5	10.0 - 11.0	SM			14	NP	NP	NP									
D-2	0.0 - 2.5	CL			55	26	18	8					7.9	330	59	210	
E-3	0.0 - 2.5	SM			40	21	18	3	107.1	13	100	0.2	8.3	1200	34	100	3, 4
E-3	2.5 - 3.5	SM	92	3													1, 2
E-3	5.0 - 6.0	SM	94	4													1, 2
E-3	12.5 - 13.5	SP-SM	103	2													1, 2
E-5	0.0 - 2.5	CL			86	39	19	20					8.6	890	0	0	
E-5	5.0 - 6.0	CL	106	8													1, 2
F-4	0.0 - 2.5	SC-SM			39	21	15	6	97.3	15.5	100	3.64					3, 4
F-4	5.0 - 6.0	SC-SM	105	4													1, 2
F-4	10.0 - 11.0	SP	112	3													1, 2
F-4	12.5 - 13.5	SP			10	NP	NP	NP									
F-6	0.0 - 2.5	CL			76	40	22	18	99.5	14.6	100	5					3, 4
F-6	17.5 - 18.5	SM	104	2	12	NP	NP	NP									1
G-1	0.0 - 2.5	SC-SM			42	24	20	4					8.4	640	13	100	
G-1	5.0 - 6.0	SC-SM	91	6													1, 2
G-1	7.5 - 8.5	SM			18	NP	NP	NP									
G-1	10.0 - 11.0	SM	96	2													1, 2
G-1	22.5 - 23.5	SP-SM	105	3													1, 2
G-3	0.0 - 2.5	SM			41	21	18	3	115.1	7.9	100	2.7					3, 4
G-3	7.5 - 8.5	SC	93	11													1, 2
G-3	12.5 - 13.5	SM			23	NP	NP	NP									
G-3	17.5 - 18.5	SP-SM	103	5													1, 2

REMARKS

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5. Corrosivity Results reported as 0 indicate the sample was at a Non-Detectible level.

Terracon

SUMMARY OF LABORATORY RESULTS

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

Borehole No.	Depth (ft.)	USCS Soil Class.	In-Situ Properties		Classification				Remolded Expansion				Corrosivity				Remarks
			Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterberg Limits			Dry Density (pcf)	Water Content (%)	Surcharge (psf)	Expansion (%)	pH	Resistivity (ohm-cm)	Chlorides (ppm)	Sulfates (ppm)	
						LL	PL	PI									
G-5	0.0 - 2.5	CL			57	27	17	10	104.6	12.3	100	3.7					3, 4
G-5	2.5 - 3.5	CL	109	8													1, 2
G-5	15.0 - 16.0	SM			19	NP	NP	NP									
G-7	0.0 - 2.5	CL			49	24	15	9					7.9	230	52	500	
G-7	12.5 - 13.5	SM			13	NP	NP	NP									
G-7	17.5 - 18.5	SM	96	3													1, 2
H-2	0.0 - 2.5	SM			18	NP	NP	NP	117.6	6.2	100	0.1					3, 4
H-2	17.5 - 18.5	SC-SM			17	19	15	4									
H-2	20.0 - 21.0	SC-SM	109	2													1, 2
H-4	0.0 - 2.5	CL-ML			63	27	20	7					7.6	220	43	530	
H-4	7.5 - 8.5	SC	99	2	26	26	16	10									1
H-4	15.0 - 16.0	SC-SM	105	7													1, 2
H-4	20.0 - 21.0	SP			5	20	17	3									
I-3	0.0 - 2.5	SM			31	NP	NP	NP	109.4	11.4	100	0.1	8.1	3000	0	0	3, 4
I-3	2.5 - 3.5	SM	103	16													1, 2
I-3	12.5 - 13.5	SP-SM	104	7													1, 2
I-3	15.0 - 16.0	SP-SM			11	NP	NP	NP									
I-3	20.0 - 21.0	SP	104	4													1, 2
I-5	0.0 - 2.5	ML			58	20	18	2	111.2	9.6	100	2.2					3, 4
I-5	2.5 - 3.5	ML	100	6													1, 2
I-5	7.5 - 8.5	CL-ML			67	22	17	5									
I-5	12.5 - 13.5	SC-SM	106	2													1, 2
I-5	17.5 - 18.5	SC-SM			13	20	15	5									
J-4	0.0 - 2.5	ML			57	23	22	1	102.7	13.5	100	2					3, 4
J-4	2.5 - 3.5	ML	102	14													1, 2

REMARKS

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Terracon

SUMMARY OF LABORATORY RESULTS

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

Borehole No.	Depth (ft.)	USCS Soil Class.	In-Situ Properties		Classification				Remolded Expansion				Corrosivity				Remarks
			Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterberg Limits			Dry Density (pcf)	Water Content (%)	Surcharge (psf)	Expansion (%)	pH	Resistivity (ohm-cm)	Chlorides (ppm)	Sulfates (ppm)	
						LL	PL	PI									
J-4	12.5 - 13.5	SM			13	NP	NP	NP									
J-4	15.0 - 16.0	SP-SM		2													
J-4	22.5 - 23.5	SP-SM			7	NP	NP	NP									
J-6	0.0 - 2.5	CL-ML			52	22	18	4					7.9	290	21	400	
J-6	7.5 - 8.5	SM	97	3													1, 2
J-6	10.0 - 11.0	SM			19	22	20	2									
J-6	17.5 - 18.5	SP-SM			11	NP	NP	NP									
K-3	0.0 - 2.5	CL			57	24	16	8									
K-3	2.5 - 3.5	CL	76	13													1, 2
K-3	12.5 - 13.5	SM			12	NP	NP	NP									
K-3	22.5 - 23.5	SP			6	NP	NP	NP									
K-5	0.0 - 2.5	ML			65	22	19	3					7.4	200	22	360	
K-5	12.5 - 13.5	SC-SM			13	22	18	4									
K-5	22.5 - 23.5	GP-GM			8	NP	NP	NP									
L-2	0.0 - 2.5	CL			59	31	19	12	106.2	12.2	100	1.6	7.6	520	12	180	3, 4
L-2	2.5 - 3.5	CL	79	10													1, 2
L-2	10.0 - 11.0	SM			31	NP	NP	NP									
L-2	25.0 - 26.5	GP			6	NP	NP	NP									
L-4	0.0 - 2.5	SM			28	25	22	3	105.1	12.5	100	0.3					3, 4
L-4	7.5 - 8.5	SM			19	23	20	3									
L-4	12.5 - 13.5	SM	86	4													1, 2
L-4	17.5 - 18.5	SC-SM			17	26	20	6									
M-3	0.0 - 2.5	ML			51	21	18	3									
M-3	7.5 - 8.5	SP-SM	95	5													1, 2
M-3	15.0 - 16.0	SP-SM			10	NP	NP	NP									

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Terracon

SUMMARY OF LABORATORY RESULTS

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

Borehole No.	Depth (ft.)	USCS Soil Class.	In-Situ Properties		Classification				Remolded Expansion				Corrosivity				Remarks
			Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterberg Limits			Dry Density (pcf)	Water Content (%)	Surcharge (psf)	Expansion (%)	pH	Resistivity (ohm-cm)	Chlorides (ppm)	Sulfates (ppm)	
						LL	PL	PI									
M-5	0.0 - 2.5	CL-ML			50	25	20	5									
M-5	15.0 - 16.0	SC	103	3													1, 2
N-4	0.0 - 2.5	SM			25	NP	NP	NP	111.2	9.4	100	0.1	7.3	560	10	640	3, 4
N-4	15.0 - 16.0	SP	104	10													1, 2
N-4	30.0 - 31.5	GP			7	NP	NP	NP									
O-3	0.0 - 2.5	SC-SM			34	27	21	6					7.3	300	33	660	
O-3	2.5 - 3.5	SP	108	4													1, 2
O-3	10.0 - 11.0	SM	107	3													1, 2
O-3	20.0 - 21.0	SM			13	NP	NP	NP									
O-5	0.0 - 2.5	CL			74	30	21	9									
P-4	0.0 - 2.5	CL-ML			53	23	16	7	107.7	10.8	100	0.4	7.5	130	110	320	3, 4
P-4	5.0 - 6.0	CL-ML	87	7													1, 2
P-4	12.5 - 13.5	SM	108	3													1, 2

REMARKS

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Terracon

SUMMARY OF LABORATORY RESULTS

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09

Borehole No.	Depth (ft.)	USCS Soil Class.	In-Situ Properties		Classification				Moisture-Density Relationship			Asphalt Core Data			R-Value	Remarks
			Dry Density (pcf)	Water Content (%)	Passing #200 Sieve (%)	Atterberg Limits			Max Dry Density (pcf)	Optimum Water Content (%)	Method	Thickness (in)	Specific Gravity	Density (pcf)		
						LL	PL	PI								
B-4	0.0 - 2.5	CL			63	28	19	9	112.8	14.3	698A					3
B-O	0.0 - 2.5	SM			50	NP	NP	NP	12.0	116.3	698C					3
C-3	0.0 - 2.5	CL-ML			50	25	19	6	116.6	12.3	698A					3
C-5	0.0 - 2.5	CL-ML			64	26	20	6	107.9	16.0	D698A					3
E-3	0.0 - 2.5	SM			40	21	18	3	112.7	16.0	698A					3
F-4	0.0 - 2.5	SC-SM			39	21	15	6	102.4	18.5	698A					3
F-6	0.0 - 2.5	CL			76	40	22	18	104.7	17.6	698A					3
G-5	0.0 - 2.5	CL			57	27	17	10	15.3	110.1	698A					3
I-3	0.0 - 2.5	SM			31	NP	NP	NP	115.2	14.4	698A					3
J-4	0.0 - 2.5	ML			57	23	22	1	108.1	16.5	698A					3

REMARKS

1. Dry Density determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.

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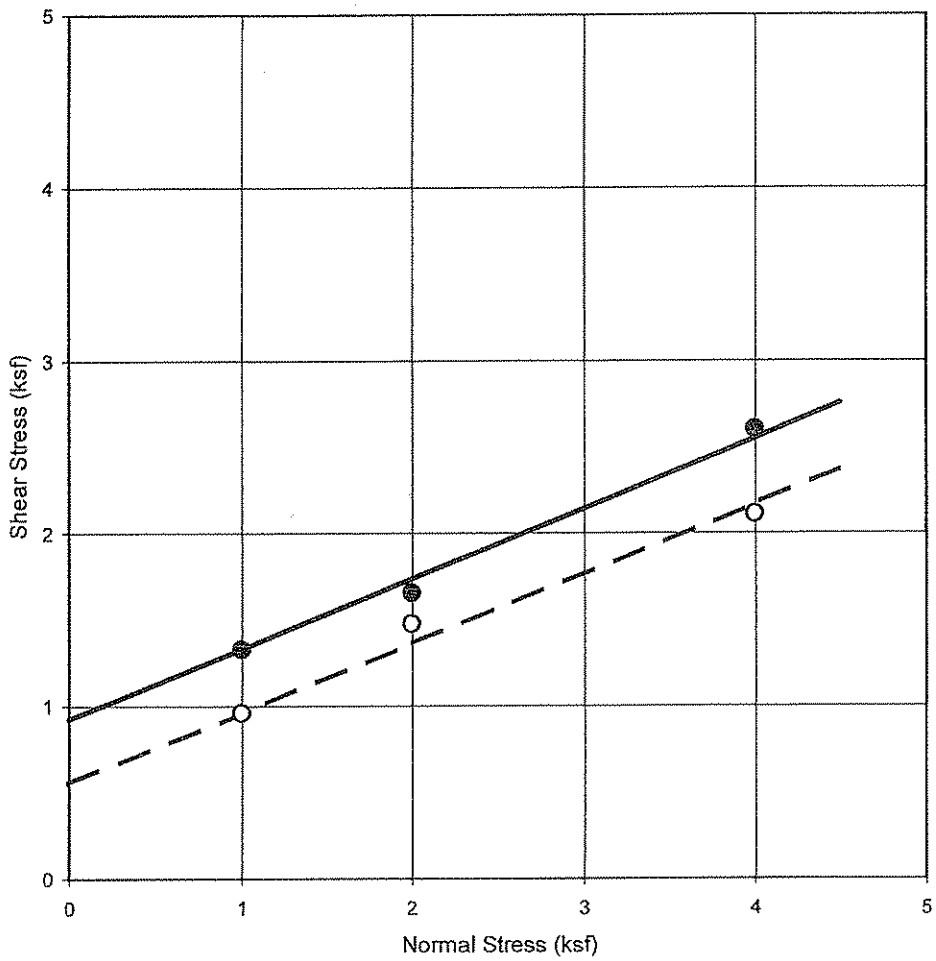
SUMMARY OF LABORATORY RESULTS

Project: Future WRC Site
Site: Tucson, Arizona
Job #: 63085095
Date: 2-18-09



Project Name:	:	New WRC Site
Project No.	:	63085095
Boring No.	:	B-4
Sample No.	:	NA
Depth (ft)	:	0 to 5
Soil Type	:	Sandy Silt
Test Condition	:	Remolded to 100% RC at opt. MC
Initial Dry Density	:	112.6 pcf
Moisture Content (before)	:	13.9 %
Moisture Content (after)	:	18.8 %

INTERPRETED STRENGTH DATA

	Peak	Ultimate
COHESION (PSF) :	950	550
FRICTION ANGLE :	22 °	22 °

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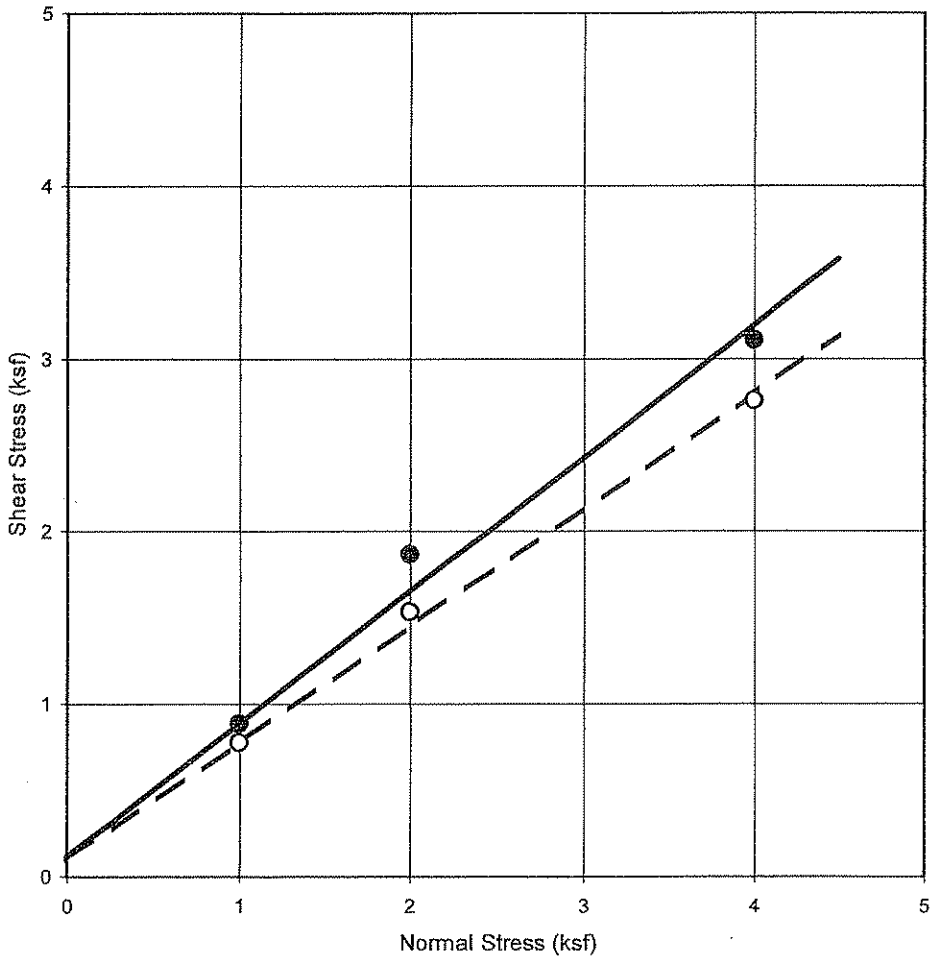
Consulting Engineers & Scientists

Direct Shear Test Result
ASTM D 3080
Jan-2009

Geotechnical Department



Project Name:	:	New WRC Site
Project No.	:	63085095
Boring No.	:	F-6
Sample No.	:	NA
Depth (ft)	:	0 to 5
Soil Type	:	Sandy Silt
Test Condition	:	Remolded to 100% RC at opt. MC
Initial Dry Density	:	111.8 pcf
Moisture Content (before)	:	17.3 %
Moisture Content (after)	:	20.1 %

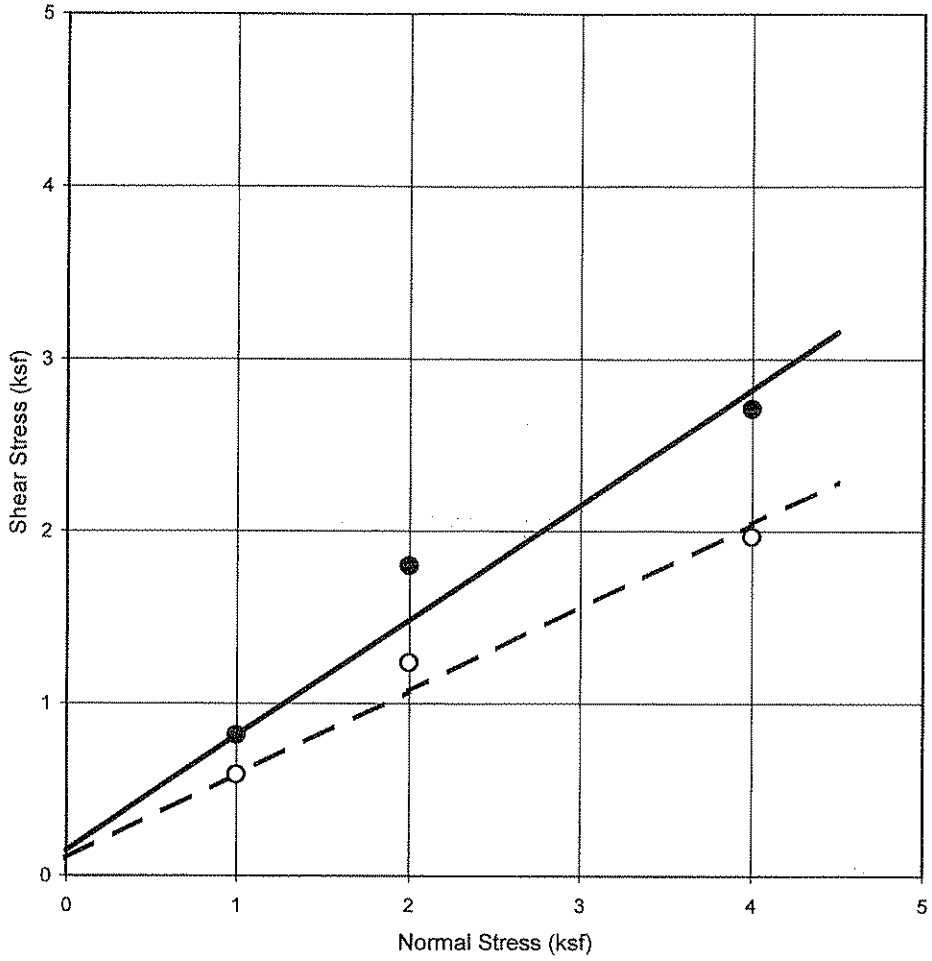
INTERPRETED STRENGTH DATA

	Peak	Ultimate
COHESION (PSF) :	100	100
FRICTION ANGLE :	38 °	34 °

Terracon
Consulting Engineers & Scientists

Direct Shear Test Result
ASTM D 3080
Jan-2009

Geotechnical Department



Project Name:	:	New WRC Site
Project No.	:	63085095
Boring No.	:	I-3
Sample No.	:	NA
Depth (ft)	:	0 to 5
Soil Type	:	Silty Sand
Test Condition	:	Remolded to 100% RC at opt. MC
Initial Dry Density	:	115.2 pcf
Moisture Content (before)	:	14.4 %
Moisture Content (after)	:	16.8 %

INTERPRETED STRENGTH DATA

	Peak	Ultimate
COHESION (PSF) :	150	100
FRICTION ANGLE :	34 °	26 °

Terracon
Consulting Engineers & Scientists

Direct Shear Test Result
ASTM D 3080
Jan-2009

Geotechnical Department

TERRACON - ROGER ROAD TREATMENT PLANT - BORE HOLE LOCATIONS
ENGINEERING SURVEYING PHOTOGRAMMETRY, LLC PROJECT NUMBER 2008-018
ENGINEERING SURVEYING PHOTOGRAMMETRY, LLC PROJECT NUMBER
LATITUDE-LONGITUDE-ELLIPSOID HEIGHTS ESTABLISHED BY GPS (STATIC & RTK PROCEDURES) BASE STATION LOCATION BY OPUS SOLUTION
ORTHOMETRIC HEIGHTS FROM GEOID 03 CALCULATIONS
GPS COLLECTION COMPLETED WITH LEICA 1200 SYSTEM. POST-PROCESSING THROUGH LEICA "GEO-OFFICE COMBINED" SOFTWARE
STATE PLANE COORDINATES ARE ARIZONA CENTRAL ZONE - INTERNATIONAL FEET

POINT	LATITUDE	LONGITUDE	ELLIPSOID HEIGHT NAVD88	ORTHOMETRIC HEIGHT NAVD88	STATE PLANE NORTH	STATE PLANE EAST	WWTP DATUM	ADJSUTED ELEVATIONS (NAVD88 ORTHO -3.118)	BENCH LEVEL CHECKS	"LOCAL" NORTH	"LOCAL" EAST
BASE	32° 17' 24.33203" N	111° 01' 50.04843" W	2154.1230	2250.14	470396.050	973814.133		2247.02		70451.006	73887.422
A4	*32° 17' 06.84203" N*	*111° 01' 40.20593" W*	*2152.9498*	*2248.96*	*468635.575*	*974673.655*		*2245.84*		68685.499	74795.573
B0	*32° 17' 06.53220" N*	*111° 01' 43.86553" W*	*2151.0594*	*2247.08*	*468601.663*	*974359.760*		*2243.96*		68656.001	74481.375
B1	32° 17' 24.93814" N	111° 01' 50.66559" W	2153.2214	2250.14	470456.863	973760.651		2247.02		70511.830	73831.845
B2	32° 17' 25.37301" N	111° 01' 56.93691" W	2149.0574	2245.09	470496.366	973221.963		2241.97		70551.340	73272.062
B3	32° 17' 25.41419" N	111° 02' 03.29445" W	2150.3073	2246.35	470496.033	972676.203		2243.23		70551.007	72704.930
B4	32° 17' 23.11814" N	111° 01' 59.86538" W	2150.9078	2246.94	470266.427	972972.463		2243.82		70321.360	73012.792
B5	32° 17' 24.28718" N	111° 01' 56.91167" W	2144.8631	2240.89	470386.655	973225.034		2237.77		70441.609	73275.254
B6	32° 17' 22.40204" N	111° 01' 54.66476" W	2149.3436	2245.37	470197.741	973419.479		2242.25		70252.662	73477.313
B7	32° 17' 21.15295" N	111° 01' 52.59783" W	2144.9540	2240.98	470072.978	973597.946		2237.86		70127.876	73662.769
B8	32° 17' 19.65897" N	111° 01' 48.51187" W	2147.5169	2243.53	469924.900	973949.934		2240.42		69979.772	74028.541
B9	32° 17' 17.05514" N	111° 01' 50.87108" W	2147.2050	2243.23	469660.094	973749.592		2240.11		69714.918	73820.353
B10	32° 17' 16.26743" N	111° 01' 45.10850" W	2148.3642	2244.38	469584.581	974244.918		2241.26	2241.259	69639.392	74335.076
B11	32° 17' 14.06249" N	111° 01' 41.05826" W	2153.2823	2249.29	469364.638	974594.443		2246.17	2246.164	69419.410	74698.289
B12**	32° 17' 12.00656" N	111° 01' 45.54800" W	2151.3886	2247.41	469153.683	974210.753		2244.29		69208.417	74299.573
B13	32° 17' 08.79800" N	111° 01' 45.43362" W	2152.5366	2248.56	468829.521	974223.254		2245.44		68884.197	74312.564
B14	32° 17' 10.38512" N	111° 01' 42.72465" W	2152.0640	2248.08	468991.833	974454.473		2244.96		69046.538	74552.838
B15	32° 17' 11.18270" N	111° 01' 41.23511" W	2149.2538	2245.27	469073.492	974581.672		2242.15		69128.212	74685.018
B16	32° 17' 07.53339" N	111° 01' 42.91755" W	2152.9298	2248.95	468703.512	974440.300		2245.83		68758.166	74538.109
B17	32° 17' 07.07778" N	111° 01' 38.11341" W	2154.0574	2250.07	468660.888	974853.088		2246.95	2246.993	68715.534	74967.062
NEW B4	*32° 17' 07.86256" N*	*111° 01' 40.88681" W*	*2152.6050*	*2244.62*	*468738.221*	*974614.351*		*2241.50*		*68792.693*	*74735.954*
C1	*32° 17' 07.79603" N*	*111° 01' 44.04926" W*	*2151.1979*	*2247.22*	*468729.249*	*974342.930*		*2244.10*		*68783.603*	*74464.487*
C3	*32° 17' 08.62169" N*	*111° 01' 42.37943" W*	*2151.0547*	*2247.07*	*468813.874*	*974485.584*		*2243.95*		*68868.305*	*74607.130*
C5	*32° 17' 09.38189" N*	*111° 01' 40.95439" W*	*2147.8262*	*2243.84*	*468891.710*	*974607.278*		*2240.72*		*68946.207*	*74728.813*
D2	*32° 17' 09.33649" N*	*111° 01' 43.90533" W*	*2147.6886*	*2243.71*	*468885.024*	*974353.997*		*2240.59*		*68939.411*	*74475.489*
E3	*32° 17' 10.73600" N*	*111° 01' 44.08431" W*	*2145.9760*	*2241.99*	*469026.326*	*974337.463*		*2238.87*		*69080.732*	*74458.891*
E5	*32° 17' 11.63441" N*	*111° 01' 42.74715" W*	*2146.7920*	*2242.81*	*469118.065*	*974451.497*		*2239.69*		*69172.537*	*74572.906*
F4	*32° 17' 12.36183" N*	*111° 01' 44.17118" W*	*2145.6232*	*2241.64*	*469190.563*	*974328.646*		*2238.52*		*69244.995*	*74450.001*
F6	*32° 17' 13.31339" N*	*111° 01' 42.30842" W*	*2146.4492*	*2242.46*	*469288.048*	*974487.753*		*2239.34*		*69342.567*	*74609.096*
G1	*32° 17' 12.37621" N*	*111° 01' 47.27503" W*	*2149.8907*	*2245.91*	*469189.812*	*974062.191*		*2242.79*		*69244.129*	*74183.498*
G3	*32° 17' 12.98441" N*	*111° 01' 45.82644" W*	*2152.3415*	*2248.36*	*469252.303*	*974186.033*		*2245.24*		*69306.685*	*74307.336*
G5	*32° 17' 13.81745" N*	*111° 01' 44.39895" W*	*2148.1798*	*2244.19*	*469337.500*	*974307.876*		*2241.07*		*69391.950*	*74429.164*
G7	*32° 17' 14.67714" N*	*111° 01' 42.58640" W*	*2147.6871*	*2243.70*	*469425.665*	*974462.750*		*2240.58*		*69480.198*	*74584.029*
H2	*32° 17' 13.87825" N*	*111° 01' 47.39709" W*	*2154.7114*	*2250.73*	*469341.516*	*974050.458*		*2247.61*		*69395.856*	*74171.697*
H4	*32° 17' 14.55498" N*	*111° 01' 45.86585" W*	*2146.8397*	*2242.86*	*469410.990*	*974181.337*		*2239.74*		*69465.399*	*74302.571*
I3	*32° 17' 15.30123" N*	*111° 01' 47.53790" W*	*2146.8692*	*2242.89*	*469485.216*	*974037.182*		*2239.77*		*69539.577*	*74158.357*
I5	*32° 17' 16.03085" N*	*111° 01' 46.00385" W*	*2145.4585*	*2241.47*	*469560.037*	*974168.257*		*2238.35*		*69614.468*	*74289.424*
J4	*32° 17' 16.66185" N*	*111° 01' 47.50881" W*	*2145.2534*	*2241.27*	*469622.735*	*974038.542*		*2238.15*		*69677.122*	*74159.658*
J6	*32° 17' 17.67985" N*	*111° 01' 45.96293" W*	*2145.4091*	*2241.42*	*469726.707*	*974170.391*		*2238.30*		*69781.169*	*74291.487*
K3	*32° 17' 17.38897" N*	*111° 01' 49.31120" W*	*2145.3263*	*2241.35*	*469694.936*	*973883.215*		*2238.23*		*69749.269*	*74004.272*
K5	*32° 17' 18.30970" N*	*111° 01' 47.64147" W*	*2145.3284*	*2241.35*	*469789.166*	*974025.777*		*2238.23*		*69843.578*	*74146.819*
L2	*32° 17' 17.98314" N*	*111° 01' 51.01858" W*	*2144.9372*	*2240.96*	*469753.769*	*973736.155*		*2237.84*		*69808.049*	*73857.159*
L4	*32° 17' 18.89405" N*	*111° 01' 49.47011" W*	*2145.5869*	*2241.61*	*469846.920*	*973868.317*		*2238.49*		*69901.274*	*73989.305*
M3	*32° 17' 19.54483" N*	*111° 01' 51.03700" W*	*2144.9121*	*2240.93*	*469911.574*	*973733.271*		*2237.81*		*69965.882*	*73854.207*
M5	*32° 17' 20.31973" N*	*111° 01' 49.67528" W*	*2144.9245*	*2240.94*	*469990.848*	*973849.515*		*2237.82*		*70045.221*	*73970.438*
N4	*32° 17' 20.97497" N*	*111° 01' 51.34078" W*	*2143.1536*	*2239.17*	*470055.883*	*973706.000*		*2236.05*		*70110.206*	*73826.869*
O3	*32° 17' 21.62376" N*	*111° 01' 52.93720" W*	*2142.9359*	*2238.96*	*470120.315*	*973568.422*		*2235.84*		*70174.590*	*73689.238*

O5	***32° 17' 22.51045" N***	***111° 01' 51.47443" W***	***2143.7350***	***2239.76***	***470210.957***	***973693.246***		***2236.64***		***70265.303***	***73814.046***
P4	***32° 17' 23.15620" N***	***111° 01' 53.33476" W***	***2147.7880***	***2243.81***	***470274.896***	***973533.017***		***2240.69***		***70329.184***	***73653.760***
BM304	32° 16' 52.28214" N	111° 01' 35.76280" W	2160.7296	2256.75	467167.377	975067.280	**2253.63**	2253.63	2253.63	67221.756	75189.642
BM312	32° 16' 55.43893" N	111° 01' 35.77302" W	2161.0022	2257.02	467486.381	975063.756	**2253.90**	2253.90	2253.901	67540.817	75185.980

****NOTE: Location for "B12" is on FLAT GROUND 1.00 feet WEST of lath (lath is in depression.)**

*****NOTE; Points in red text were measured on December 30, 2008***

GENERAL NOTES

DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon - 1-3/8" I.D., 2" O.D., unless otherwise noted	HS:	Hollow Stem Auger
ST:	Thin-Walled Tube - 2" O.D., unless otherwise noted	PA:	Power Auger
RS:	Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted	HA:	Hand Auger
DB:	Diamond Bit Coring - 4", N, B	RB:	Rock Bit
BS:	Bulk Sample or Auger Sample	WB:	Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value". For 3" O.D. ring samplers (RS) the penetration value is reported as the number of blows required to advance the sampler 12 inches using a 140-pound hammer falling 30 inches, reported as "blows per foot," and is not considered equivalent to the "Standard Penetration"or "N-value".

WATER LEVEL MEASUREMENT SYMBOLS:

WL:	Water Level	WS:	While Sampling
WCI:	Wet Cave in	WD:	While Drilling
DCI:	Dry Cave in	BCR:	Before Casing Removal
AB:	After Boring	ACR:	After Casing Removal

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION: Soil classification is based on the Unified Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

CONSISTENCY OF FINE-GRAINED SOILS

Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-value (SS) Blows/Ft.	Consistency
< 500	<2	Very Soft
500 – 1,000	2-3	Soft
1,001 – 2,000	4-6	Medium Stiff
2,001 – 4,000	7-12	Stiff
4,001 – 8,000	13-26	Very Stiff
8,000+	26+	Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Standard Penetration or N-value (SS) Blows/Ft.	Ring Sampler (RS) Blows/Ft.	Relative Density
0 – 3	0-6	Very Loose
4 – 9	7-18	Loose
10 – 29	19-58	Medium Dense
30 – 49	59-98	Dense
50+	99+	Very Dense

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 – 29
Modifier	> 30

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 – 12
Modifiers	> 12

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75 mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1-10
Medium	11-30
High	30+

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UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]					Soil Classification	
					Group Symbol	Group Name[B]
Coarse Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines[C]	Cu ≥ 4 and 1 ≤ Cc ≤ 3[E]		GW	Well-graded gravel[F]
			Cu < 4 and/or 1 > Cc > 3[E]		GP	Poorly graded gravel[F]
		Gravels with Fines More than 12% fines[C]	Fines classify as ML or MH		GM	Silty gravel[F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel[F,G,H]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines[D]	Cu ≥ 6 and 1 ≤ Cc ≤ 3[E]		SW	Well-graded sand[I]
			Cu < 6 and/or 1 > Cc > 3[E]		SP	Poorly graded sand[I]
		Sands with Fines More than 12% fines[D]	Fines classify as ML or MH		SM	Silty sand[G,H,I]
			Fines Classify as CL or CH		SC	Clayey sand[G,H,I]
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid limit less than 50	inorganic	PI > 7 and plots on or above "A" line[J]		CL	Lean clay[K,L,M]
			PI < 4 or plots below "A" line[J]		ML	Silt[K,L,M]
		organic	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OL	Organic clay[K,L,M,N] / Organic silt[K,L,M,O]
	Silts and Clays Liquid limit 50 or more	inorganic	PI plots on or above "A" line		CH	Fat clay[K,L,M]
			PI lots below "A" line		MH	Elastic Silt[K,L,M]
		organic	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OH	Organic clay[K,L,M,P] / Organic silt[K,L,M,Q]
Highly organic soils	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

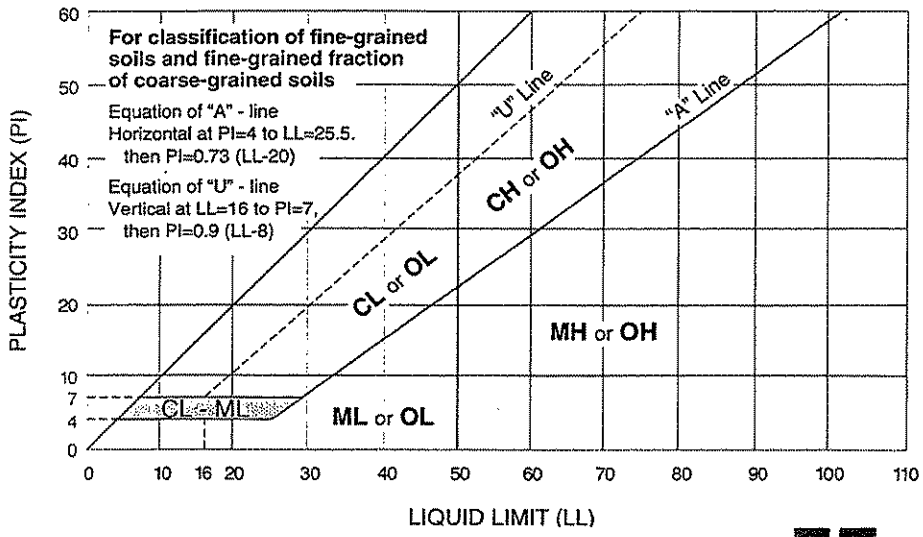
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



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