May 10, 2022
(Revised March 15, 2023)

Covington Development Group, Inc.
3 Corporate Plaza, Suite 230
Newport Beach, California 92660

Attention: Mr. Michael Di Sano
Sr. Director - Entitlements

Project No.: **22G143-2R**

Subject: **Preliminary Results of Infiltration Testing**
Proposed Warehouse Development: Phase I
SEC E Avenue M and Sierra Highway
Palmdale, California

Reference: Geotechnical Investigation, Proposed Warehouse Development: Phase I, SEC E Avenue M and Sierra Highway, Palmdale, California, Prepared by Southern California Geotechnical, Inc. (SCG) for Covington Development Partners, LLC., SCG Project No. 22G143-1, dated May 5, 2022.

Mr. Di Sano:

In accordance with your request, we have conducted infiltration testing at the subject site. We are pleased to present this report summarizing the results of the infiltration testing and our design recommendations.

## Scope of Services

The scope of services performed for this project was in accordance with our Proposal No. 22P143R2, dated February 23, 2022. The scope of the infiltration testing consisted of site reconnaissance, subsurface exploration, field testing, and engineering analysis to determine the infiltration rates of the onsite soils. The infiltration testing was performed in general accordance with the guidelines published by the County of Los Angeles – Department of Public Works Geotechnical and Materials Engineering Division. These guidelines are dated June 30, 2021 and titled Guidelines for Design, Investigation, and Reporting Low Impact Development Stormwater Infiltration, GS200.1.

## Site Description

The overall subject site is located at the southeast corner of East Avenue M and Sierra Highway in Palmdale, California. The site is bounded to the north by East Avenue M, to the west by Sierra Highway and a railroad easement, and to the south and east by vacant lots. The general location of the site is illustrated on the Site Location Map, enclosed as Plate 1 of this report.

The overall site consists of several rectangular- to irregularly- shaped parcels, which total 433.70± acres in size. The site will be developed over four (4) phases identified as Phase I through Phase IV. Phase I is located in the northeastern area of the overall site and totals

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124.02± acres in size. Phase II is located in the southeastern area of the site and totals 101.93± acres in size. Phase III is located in the western area of the overall site and totals 63.57± acres in size. Phase IV is located in the southern area of the overall site and totals 109.48± acres in size. Based on our visit to the site, the site is vacant and undeveloped. The ground surface cover consists of exposed soil with sparse to moderate native vegetation. Joshua trees are dispersed throughout the site, with a moderate concentration observed in eastern portion of the site. A dirt road, which is the continuation of Challenger Way trending north-south, is present in the eastern portion of the site. Sparse trash debris are littered along this road.

Detailed topographic information was not available at the time of this report. Based on the elevations obtained from Google Earth and visual observations made at the time of the subsurface investigation, the overall site topography slopes downward to the northeast at a gradient less than 1± percent.

**Proposed Development**

A conceptual site plan identified as Scheme 3, prepared by HPA, Inc., has been provided to our office by the client. Based on this site plan, Phase I will consist of the development of a total of six (6) warehouses, identified as Building 1 through Building 6. These buildings will range from 135,895± ft² to 1,004,880± ft² in size. A detention basin is also to be included as part of Phase I. Phase II will consist of three (3) warehouses that will range from 275,230± ft² to 1,631,040± ft² in size. Phase III will consist of one (1) industrial building and two (2) warehouses. The industrial building will be 57,200± ft² in size and the warehouses will be 258,420 and 953,030± ft² in size. The buildings will be constructed with dock-high doors along a portion of at least one building wall. The buildings will be surrounded by asphaltic concrete (AC) pavements in the automobile parking and drive areas, Portland cement concrete (PCC) pavements in the loading dock areas, and concrete flatwork and landscaped planters throughout the site. The proposed development for Phase IV is presently unknown. New public streets will be part of the overall proposed development. The boundaries for Phase I, Phase II and Phase III of the proposed development are indicated on the Boring Location Plan, included as Plate 2 in Appendix A of this report. It should be noted that the design-level investigation is only for Phase I of the overall site.

The proposed development will use on site storm water infiltration. The infiltration systems will consist of the following:

| Phase | Infiltration System Type | Infiltration System | Locations |
|---|---|---|---|
| I | 5 Infiltration Chambers<br>1 Infiltration Basin | "A" through E"<br>"F" | North-Central<br>Northeast |
| II | 3 Infiltration Chambers | "J" through "L" | Southeast |
| III | 3 Infiltration Chambers | "G" through "I" | West |

The bottom of the infiltration chambers will be approximately 10± feet below the existing site grades. The bottom of the detention basin will be approximately 10± feet below existing site grades.

## Concurrent Study

SCG conducted a geotechnical investigation at the subject site, referenced above. As a part of this study, thirty-five (35) borings advanced to depths of 5 to 30± feet below the existing site grades.

Native alluvium was encountered at the ground surface at all of the boring locations, extending to at least the maximum depth explored of 30± feet. Most of the borings encountered loose sands, silty sands and sandy silts, extending to depths of 2½ to 8½± feet. At greater depths and extending to the maximum depth explored of 30± feet, the alluvium generally consists of medium dense to dense, sands, silty sands and sandy silts.

### Groundwater

Free water was not encountered during the drilling of any of the borings. Based on the moisture content of the recovered soil samples and the lack of free water in the borings, the static groundwater table is at a greater depth than 30± feet below existing site grades.

As part of our research, we reviewed available groundwater data in order to determine the historic high groundwater level for the site. The primary references used to determine the historic groundwater depths in this area are the California Geological Survey (CGS) Seismic Hazard Zone Report 094 and Seismic Hazard Zone Report 095, Seismic Hazard Zone Report for the Torrance 7.5-Minute Quadrangle, and Seismic Hazard Zone Report for the Torrance 7.5-Minute Quadrangle, respectively, which indicate that the historic high groundwater level for the site is approximately 370 feet below the ground surface.

Recent water level data was also obtained from the California State Water Resources Control Board, GeoTracker, website, http://geotracker.waterboards.ca.gov/. The nearest monitoring well on record is located 300± feet northeast of the site. Water level readings within this monitoring well indicate a groundwater level of 399± feet below the ground surface in January 2019.

Recent water level data was obtained from the California Department of Water Resources website, https://wdl.water.ca.gov/waterdatalibrary/. Several monitoring wells are located within 1± mile of the site. Water level readings within these monitoring wells indicate a high groundwater level of 121± feet below the ground surface in February 1922.

## Subsurface Exploration

### Scope of Exploration

The subsurface exploration for the infiltration testing consisted of fifteen (15) infiltration test borings advanced to a depth of 10 to 12± feet below the existing site grades. The borings were logged during drilling by a member of our staff and were advanced using a truck-mounted drilling rig, equipped with 8-inch-diameter hollow stem augers. Four of the infiltration tests (Infiltration Test Nos. I-2, I-5, I-14, and I-15) could not be completed at the time of this report due a concurrent biology survey. SCG will return at a later date to complete the infiltration testing and provide an update infiltration report. The approximate locations of the infiltration test borings (identified as I-1 to I-15) are indicated on the Infiltration Test Location Plan, enclosed as Plate 2 of this report.

Upon the completion of the infiltration borings, the bottom of each test boring was covered with 2± inches of clean ¾-inch gravel. A sufficient length of 3-inch-diameter perforated PVC casing was then placed into each test hole so that the PVC casing extended from the bottom of the test hole to the ground surface. Clean ¾-inch gravel was then installed in the annulus surrounding the PVC casing.

Geotechnical Conditions

Native alluvium was encountered at the ground surface at infiltration test locations, extending to the maximum explored depth of 15± feet below existing site grades. The alluvium consists of loose to dense fine to medium sandy silts, silty fine to coarse sands, loose to medium dense fine to coarse sands, and silty fine sands. Variable trace quantities of gravel were encountered within the infiltration borings. The Boring Logs, which illustrate the conditions encountered at each test location are included within this report.

## Infiltration Testing

We understand that the results of the testing will be used to prepare a preliminary design for the storm water infiltration systems that will be used at the subject site. The infiltration testing was performed in general accordance with Guidelines for Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration (GS200.1) published by Los Angeles County Public Works – Geotechnical Engineering and Materials Division, dated June 30, 2021.

Pre-soaking

The infiltration test boring was pre-soaked for at least 1 hour to ensure the sand around the annulus of the perforated pipe was fully saturated. The pre-soaking procedure consisted of filling each test boring with clean potable water to an elevation of at least 12± inches above the bottom of each test boring. In accordance with the Los Angeles County guidelines, since the water in the infiltration test borings did not completely infiltrate within a 30-minute time period after filling each boring, a falling head test was the appropriate test method. Based on the conditions encountered at each of the individual infiltration test borings, measurement intervals were assigned according to the county guidelines and ranged from 11-minutes to 30-minutes at each discreet test location.

Infiltration Testing Procedure

After the completion of the pre-soaking process, SCG performed the infiltration testing. A sufficient amount of water was added to the test borings so that the water level was approximately 12± inches higher than the bottom of the borings and less than or equal to the water level used during the pre-soaking process. Readings were taken at 30-minute intervals at three of the infiltration test locations. The remaining locations had readings taken at intervals ranging from 11-minutes to 27-minutes, which were based on the conditions encountered during the pre-soak process. A stabilized rate of drop, where the highest and lowest readings from three consecutive readings are within 10 percent of each other, was obtained for each of the test borings. These water level readings are presented on the spreadsheets enclosed with this report. The infiltration rates for each of the timed intervals are also tabulated on the spreadsheets.

The infiltration rates for the tests are tabulated in inches per hour. In accordance with the typically accepted practice, it is recommended that the most conservative reading from the latter part of the infiltration tests be used for design. These rates are summarized below:

| Infiltration Test No. | Depth (feet) | Soil Description | Measured Infiltration Rate (inches/hour) |
|---|---|---|---|
| I-1 | 12 | Brown fine to coarse Sand, trace Silt | 5.3 |
| I-2 | 10 | Brown fine to coarse Sand, trace Silt, trace fine Gravel | TBD |
| I-3 | 10 | Brown fine to coarse Sand, trace Silt | 8.4 |
| I-4 | 10 | Brown fine to coarse Sand, trace Silt | 10.0 |
| I-5 | 10 | Brown Silty fine to coarse Sand | TBD |
| I-6 | 10 | Brown Silty fine to medium Sand, trace coarse Sand | 1.7 |
| I-7 | 10 | Brown Silty fine to coarse Sand | 5.4 |
| I-8 | 10 | Brown Gravelly fine to coarse Sand, trace Silt | 7.1 |
| I-9 | 10 | Brown fine to coarse Sand, trace fine Gravel, trace Silt | 6.0 |
| I-10 | 10 | Brown fine to coarse Sand, trace fine Gravel, trace Silt | 8.5 |
| I-11 | 10 | Light Brown Silty fine Sand | 11.7 |
| I-12 | 10 | Brown Silty fine to coarse Sand | 5.7 |
| I-13 | 10 | Brown fine to coarse Sand, trace Silt, trace fine Gravel | 6.1 |
| I-14 | 10 | Brown to Dark Brown Silty fine to medium Sand, trace coarse Sand | TBD |
| I-15 | 10 | Brown fine to medium Sandy Silt | TBD |

## Laboratory Testing

Moisture Content

The moisture contents for the recovered soil samples within the borings were determined in accordance with ASTM D-2216 and are expressed as a percentage of the dry weight. These test results are presented on the Boring Logs.

Grain Size Analysis

The grain size distribution of selected soils collected from the base of each infiltration test boring have been determined using a range of wire mesh screens. These tests were performed in general accordance with ASTM D-422 and/or ASTM D-1140. The weight of the portion of the sample retained on each screen is recorded and the percentage finer or coarser of the total weight is calculated. The results of these tests are presented on Plates C-1 to C-15 of this report.

## Design Recommendations

A total of eleven (11) infiltration tests were performed at the subject site. The measured infiltration rates at the infiltration test locations range from 1.7 to 11.7 inches per hour.

The Guidelines for Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration, GS200.1 prepared by the County of Los Angeles, Department of Public Works, Geotechnical and Materials Division (GMED) on June 30, 2021 dictate that a reduction factor be utilized in the design infiltration rate. The following reduction factors are considered in the design infiltration rate (DIR):

| **Reduction Factors** | |
|---|---|
| Small Diameter Boring | $RF_t = 1$ |
| Site Variability, number of tests, and thoroughness of subsurface investigation | $RF_v = 1$ |
| Long-term siltation plugging and maintenance | $RF_s = 1$ |
| Total Reduction Factor, $RF = RF_t + RF_v + RF_s$ | RF = 3 |
| Design Infiltration Rate (DIR) = Measured Percolation Rate/RF | DIR = See below |

Based on the results of the infiltration testing, the following infiltration rates should be used in the design of the infiltration systems in their respective locations and depths:

| Infiltration System | Infiltration Test No. | Infiltration System Type | Infiltration System Location | Design Infiltration Rate (inches/hour) |
|---|---|---|---|---|
| "A" | I-1 | Below-Grade Chamber | Northern-central | 1.8 |
| "B" | I-2 | Below-Grade Chamber | Northern-central | TBD |
| "C" | I-3 | Below-Grade Chamber | Central | 2.8 |
| "D" | I-4 | Below-Grade Chamber | Central | 3.3 |
| "E" | I-5 | Below-Grade Chamber | Central-east | TBD |
| *"F" | I-6 through I-9 | Detention Basin | Northeast | 1.7 |
| "G" | I-10 | Below-Grade Chamber | Northwest | 2.8 |
| "H" | I-11 | Below-Grade Chamber | Northwest | 3.9 |
| "I" | I-12 | Below-Grade Chamber | Western | 1.9 |
| "J" | I-13 | Below-Grade Chamber | Southern | 2.0 |
| "K" | I-14 | Below-Grade Chamber | Southeast | TBD |
| "L" | I-15 | Below-Grade Chamber | Southeast | TBD |

***It should be noted that an average infiltration rate was utilized for the design infiltration rate at Infiltration System "F".**

As previously stated, infiltration testing was not performed at Infiltration Test Nos. I-2, I-5, I-14, and I-15 due to a concurrent biology survey at the subject site. Therefore, design infiltration rates for Infiltration Systems "B", "E", "K", and "L" are not provided in this report. SCG will return at a later date to complete the infiltration testing at these four (4) locations. Once that information is available, SCG will issue an update infiltration report.

The design of the proposed storm water infiltration system should be performed by the project civil engineer, in accordance with the City of Palmdale and/or County of Los Angeles guidelines. However, it is recommended that the system be constructed so as to facilitate removal of silt and clay, or other deleterious materials from any water that may enter the systems. The presence of such materials would decrease the effective infiltration rates. **It is recommended that the project civil engineer apply an appropriate factor of safety. The infiltration rate recommended above is based on the assumption that only clean water will be introduced to the subsurface profile. Any fines, debris, or organic materials could significantly impact the infiltration rate.** It should be noted that the recommended infiltration rate is based on infiltration testing at eleven (11) discrete locations and the overall infiltration rate of the storm water infiltration system could vary considerably.

## Infiltration Rate Considerations

The infiltration rates presented herein was determined in accordance with the Los Angeles County guidelines and are considered valid only for the time and place of the actual test. Varying subsurface conditions will exist in other areas of the site, which could alter the recommended infiltration rates presented above. The infiltration rates will decline over time between maintenance cycles as silt or clay particles accumulate on the BMP surface. The infiltration rate is highly dependent upon a number of factors, including density, silt and clay content, grainsize distribution throughout the range of particle sizes, and particle shape. Small changes in these factors can cause large changes in the infiltration rates.

Infiltration rates are based on unsaturated flow. As water is introduced into soils by infiltration, the soils become saturated and the wetting front advances from the unsaturated zone to the saturated zone. Once the soils become saturated, infiltration rates become zero, and water can only move through soils by hydraulic conductivity at a rate determined by pressure head and soil permeability. Changes in soil moisture content will affect the infiltration rate. Infiltration rates should be expected to decrease until the soils become saturated. Soil permeability values will then govern groundwater movement. Permeability values may be on the order of 10 to 20 times less than infiltration rates. The system designer should incorporate adequate factors of safety and allow for overflow design into appropriate traditional storm drain systems, which would transport storm water off-site.

## Construction Considerations

The infiltration rates presented in this report are specific to the tested locations and tested depths. Infiltration rates can be significantly reduced if the soils are exposed to excessive disturbance or compaction during construction. Compaction of the soils at the bottom of the infiltration system can significantly reduce the infiltration ability of the chambers. Therefore, the subgrade soils within proposed infiltration system areas should not be over-excavated, undercut or compacted in any significant manner. **It is recommended that a note to this effect be added to the project plans and/or specifications.**

We recommend that a representative from the geotechnical engineer be on-site during the construction of the proposed infiltration systems to identify the soil classification at the base of each system. It should be confirmed that the soils at the base of the proposed infiltration systems correspond with those presented in this report to ensure that the performance of the systems will be consistent with the rates reported herein.

We recommend that scrapers and other rubber-tired heavy equipment not be operated on the chamber bottom, or at levels lower than 2 feet above the bottom of the system, particularly within basins. As such, the bottom 24 inches of the infiltration systems should be excavated with non-rubber-tired equipment, such as excavators.

## Chamber Maintenance

The proposed project includes below-grade chamber systems. Water flowing into these systems will carry some level of sediment. Wind-blown sediments will also contribute to sediment deposition at the bottom of the chamber. This layer has the potential to significantly reduce the infiltration rate of the chamber subgrade soils. Therefore, a formal chamber maintenance program should be established to ensure that these silt and clay deposits are removed from the system on a regular basis.

## Basin Maintenance

The proposed project may include infiltration basins. Water flowing into these basins will carry some level of sediment. Wind-blown sediments and erosion of the basin side walls will also contribute to sediment deposition at the bottom of the basin. This layer has the potential to significantly reduce the infiltration rate of the basin subgrade soils. Therefore, a formal basin maintenance program should be established to ensure that these silt and clay deposits are removed from the basin on a regular basis. Appropriate vegetation on the basin sidewalls and bottom may reduce erosion and sediment deposition.

Basin maintenance should also include measures to prevent animal burrows, and to repair any burrows or damage caused by such. Animal burrows in the basin sidewalls can significantly increase the risk of erosion and piping failures.

## Location of Infiltration Systems

The use of on-site storm water infiltration systems carries a risk of creating adverse geotechnical conditions. Increasing the moisture content of the soil can cause the soil to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. Overlying structures and pavements in the infiltration area could potentially be damaged due to saturation of the subgrade soils. **The proposed infiltration systems for this site should be located at least 25 feet away from any structures, including retaining walls.** Even with this provision of locating the infiltration system at least 25 feet from the building(s), it is possible that infiltrating water into the subsurface soils could have an adverse effect on the proposed or existing structures. It should also be noted that utility trenches which happen to collect storm water can also serve as conduits to transmit storm water toward the structure, depending on the slope of the utility trench. Therefore, consideration should also be given to the proposed locations of underground utilities which may pass near the proposed infiltration system.

The infiltration system designer should also give special consideration to the effect that the proposed infiltration systems may have on nearby subterranean structures, open excavations, or descending slopes. In particular, infiltration systems should not be located near the crest of descending slopes, particularly where the slopes are comprised of granular soils. Such systems will require specialized design and analysis to evaluate the potential for slope instability, piping failures and other phenomena that typically apply to earthen dam design. This type of analysis is beyond the scope of this infiltration test report, but these factors should be considered by the infiltration system designer when locating the infiltration systems.

## General Comments

This report has been prepared as an instrument of service for use by the client in order to aid in the evaluation of this property and to assist the architects and engineers in the design and preparation of the project plans and specifications. This report may be provided to the contractor(s) and other design consultants to disclose information relative to the project. However, this report is not intended to be utilized as a specification in and of itself, without appropriate interpretation by the project architect, structural engineer, and/or civil engineer. The design of the proposed storm water infiltration system is the responsibility of the civil engineer. The role of the geotechnical engineer is limited to determination of infiltration rate only. By using the design infiltration rate contained herein, the civil engineer agrees to indemnify, defend, and hold harmless the geotechnical engineer for all aspects of the design and performance of the proposed storm water infiltration system. The reproduction and distribution of this report must be authorized by the client and Southern California Geotechnical, Inc. Furthermore, any reliance on this report by an unauthorized third party is at such party's sole risk, and we accept no responsibility for damage or loss which may occur.

The analysis of this site was based on a subsurface profile interpolated from limited discrete soil samples. While the materials encountered in the project area are considered to be representative of the total area, some variations should be expected between boring locations and testing depths. If the conditions encountered during construction vary significantly from those detailed herein, we should be contacted immediately to determine if the conditions alter the recommendations contained herein.

This report has been based on assumed or provided characteristics of the proposed development. It is recommended that the owner, client, architect, structural engineer, and civil engineer carefully review these assumptions to ensure that they are consistent with the characteristics of the proposed development. If discrepancies exist, they should be brought to our attention to verify that they do not affect the conclusions and recommendations contained herein. We also recommend that the project plans and specifications be submitted to our office for review to verify that our recommendations have been correctly interpreted. The analysis, conclusions, and recommendations contained within this report have been promulgated in accordance with generally accepted professional geotechnical engineering practice. No other warranty is implied or expressed.

**Closure**

We sincerely appreciate the opportunity to be of service on this project. We look forward to providing additional consulting services during the course of the project. If we may be of further assistance in any manner, please contact our office.

Respectfully Submitted,

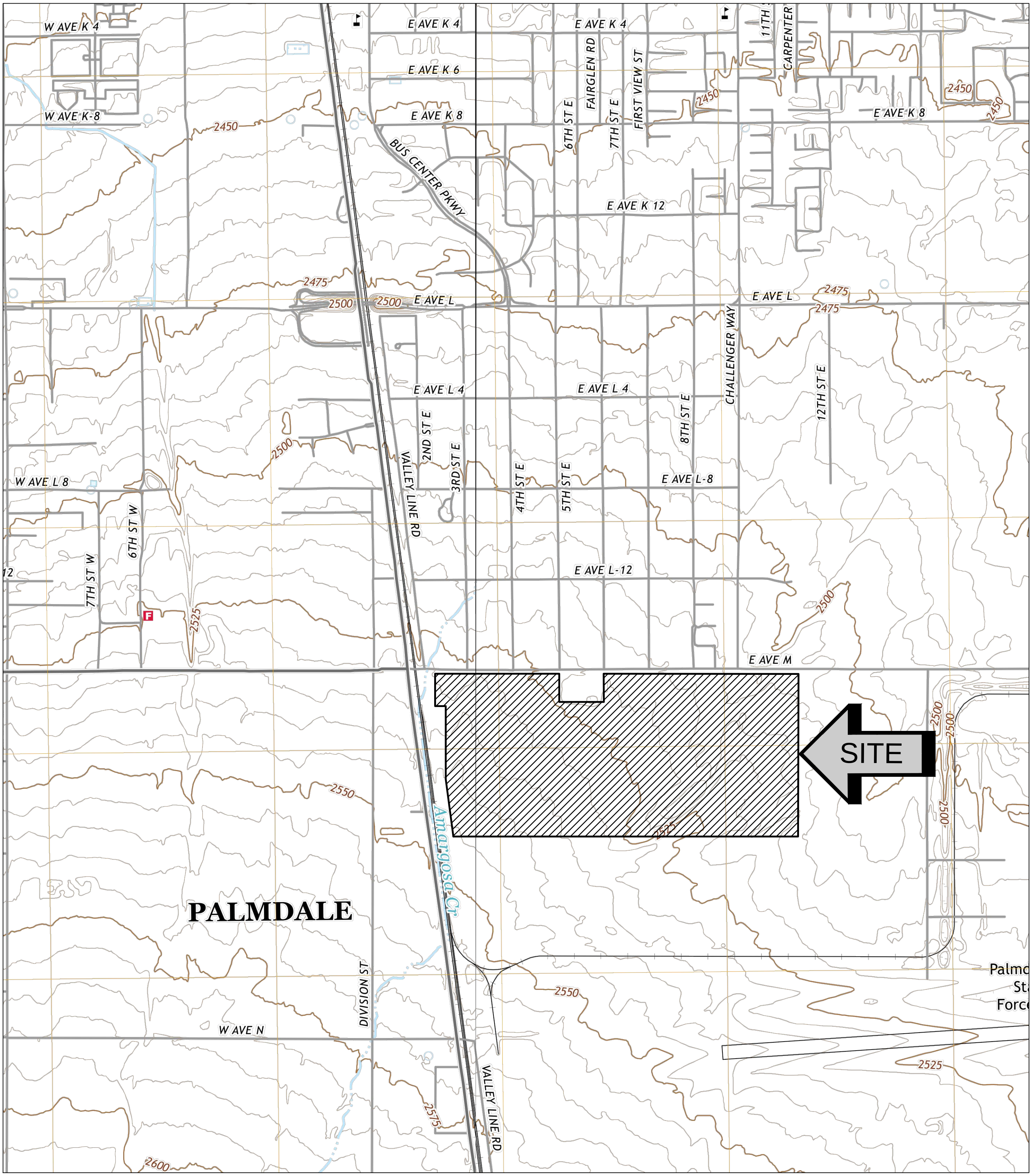
**SOUTHERN CALIFORNIA GEOTECHNICAL, INC.**

Ryan Bremer
Staff Geologist

Robert G. Trazo, GE 2655
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
ROBERT TRAZO
No. 2655
GEOTECHNICAL
STATE OF CALIFORNIA

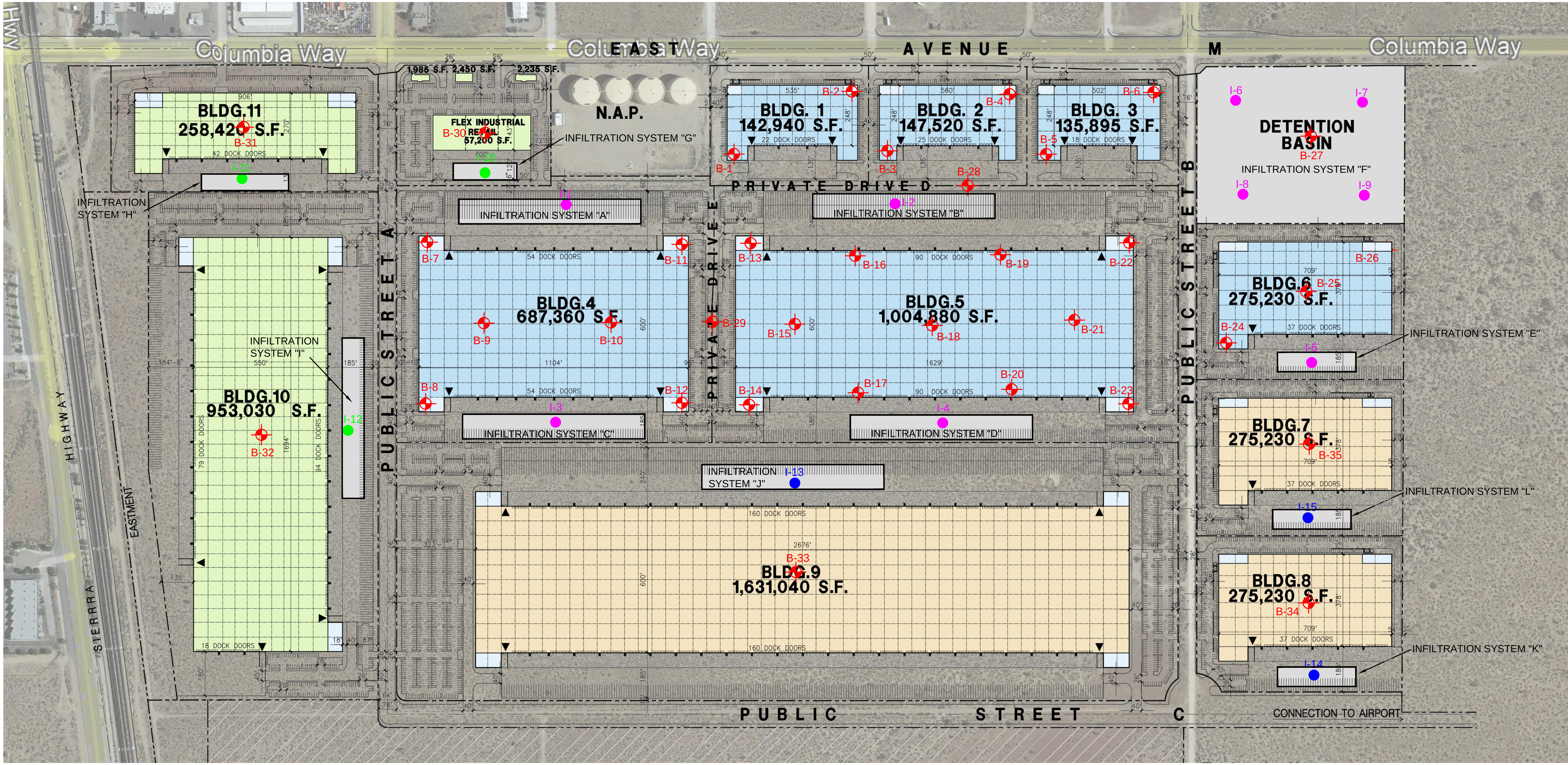
Enclosures: Plate 1 - Site Location Map
Plate 2 - Infiltration Test Location Plan
Boring Log Legend and Logs (17 Pages)
Infiltration Test Results Spreadsheets (13 Pages)
Grain Size Analysis Graphs (15 Pages)




SOURCE: USGS TOPOGRAPHIC MAPS OF THE LANCASTER EAST AND LANCASTER WEST QUADRANGLES, LOS ANGELES COUNTY, CALIFORNIA, 2018.

| SITE LOCATION MAP |
|---|
| PROPOSED WAREHOUSE DEVELOPMENT: PHASE I |
| PALMDALE, CALIFORNIA |

| | |
|---|---|
| SCALE: 1" = 2000' | SOUTHERN CALIFORNIA GEOTECHNICAL |
| DRAWN: JAH<br>CHKD: JLL | |
| SCG PROJECT<br>22G143-2 | |
| **PLATE 1** | |




## GEOTECHNICAL LEGEND

- APPROXIMATE INFILTRATION TEST LOCATION (PHASE I)
- APPROXIMATE INFILTRATION TEST LOCATION (PHASE II)
- APPROXIMATE INFILTRATION TEST LOCATION (PHASE III)
- APPROXIMATE BORING LOCATION (SCG PROJECT NO. 22G143-1)

- PHASE I
- PHASE II
- PHASE III
- PHASE IV

NORTH

SoCalGeo

NOTE: CONCEPTUAL SITE PLAN PREPARED BY HPA ARCHITECTS. AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH.

**INFILTRATION TEST LOCATION PLAN**

PROPOSED WAREHOUSE DEVELOPMENT: PHASE 1

PALMDALE, CALIFORNIA

SCALE: 1" = 400'

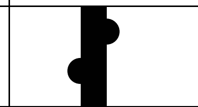
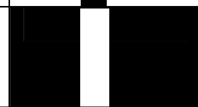
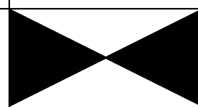
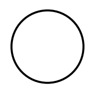
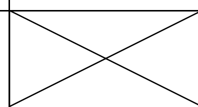
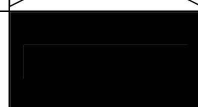
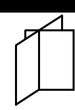
DRAWN: JAH
CHKD: JLL

SCG PROJECT 22G143-2

PLATE 2

SOCALGEO SOUTHERN CALIFORNIA GEOTECHNICAL

# BORING LOG LEGEND

| SAMPLE TYPE | GRAPHICAL SYMBOL | SAMPLE DESCRIPTION |
|---|---|---|
| AUGER |  | SAMPLE COLLECTED FROM AUGER CUTTINGS, NO FIELD MEASUREMENT OF SOIL STRENGTH. (DISTURBED) |
| CORE |  | ROCK CORE SAMPLE: TYPICALLY TAKEN WITH A DIAMOND-TIPPED CORE BARREL. TYPICALLY USED ONLY IN HIGHLY CONSOLIDATED BEDROCK. |
| GRAB |  | SOIL SAMPLE TAKEN WITH NO SPECIALIZED EQUIPMENT, SUCH AS FROM A STOCKPILE OR THE GROUND SURFACE. (DISTURBED) |
| CS |  | CALIFORNIA SAMPLER: 2-1/2 INCH I.D. SPLIT BARREL SAMPLER, LINED WITH 1-INCH HIGH BRASS RINGS. DRIVEN WITH SPT HAMMER. (RELATIVELY UNDISTURBED) |
| NSR |  | NO RECOVERY: THE SAMPLING ATTEMPT DID NOT RESULT IN RECOVERY OF ANY SIGNIFICANT SOIL OR ROCK MATERIAL. |
| SPT |  | STANDARD PENETRATION TEST: SAMPLER IS A 1.4 INCH INSIDE DIAMETER SPLIT BARREL, DRIVEN 18 INCHES WITH THE SPT HAMMER. (DISTURBED) |
| SH |  | SHELBY TUBE: TAKEN WITH A THIN WALL SAMPLE TUBE, PUSHED INTO THE SOIL AND THEN EXTRACTED. (UNDISTURBED) |
| VANE |  | VANE SHEAR TEST: SOIL STRENGTH OBTAINED USING A 4 BLADED SHEAR DEVICE. TYPICALLY USED IN SOFT CLAYS-NO SAMPLE RECOVERED. |

**COLUMN DESCRIPTIONS**

**DEPTH:** Distance in feet below the ground surface.

**SAMPLE**: Sample Type as depicted above.

**BLOW COUNT**: Number of blows required to advance the sampler 12 inches using a 140 lb hammer with a 30-inch drop. 50/3" indicates penetration refusal (>50 blows) at 3 inches. WH indicates that the weight of the hammer was sufficient to push the sampler 6 inches or more.

**POCKET PEN.**: Approximate shear strength of a cohesive soil sample as measured by pocket penetrometer.

**GRAPHIC LOG**: Graphic Soil Symbol as depicted on the following page.

**DRY DENSITY**: Dry density of an undisturbed or relatively undisturbed sample in $lbs/ft^3$.

**MOISTURE CONTENT**: Moisture content of a soil sample, expressed as a percentage of the dry weight.

**LIQUID LIMIT**: The moisture content above which a soil behaves as a liquid.

**PLASTIC LIMIT**: The moisture content above which a soil behaves as a plastic.

**PASSING #200 SIEVE**: The percentage of the sample finer than the #200 standard sieve.

**UNCONFINED SHEAR**: The shear strength of a cohesive soil sample, as measured in the unconfined state.

# SOIL CLASSIFICATION CHART

| MAJOR DIVISIONS | | | SYMBOLS GRAPH | SYMBOLS LETTER | TYPICAL DESCRIPTIONS |
|---|---|---|---|---|---|
| COARSE GRAINED SOILS | GRAVEL AND GRAVELLY SOILS | CLEAN GRAVELS | | GW | WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES |
| | | (LITTLE OR NO FINES) | | GP | POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES |
| | MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE | GRAVELS WITH FINES | | GM | SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES |
| | | (APPRECIABLE AMOUNT OF FINES) | | GC | CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES |
| MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE | SAND AND SANDY SOILS | CLEAN SANDS | | SW | WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES |
| | | (LITTLE OR NO FINES) | | SP | POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES |
| | MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE | SANDS WITH FINES | | SM | SILTY SANDS, SAND - SILT MIXTURES |
| | | (APPRECIABLE AMOUNT OF FINES) | | SC | CLAYEY SANDS, SAND - CLAY MIXTURES |
| FINE GRAINED SOILS | SILTS AND CLAYS | LIQUID LIMIT LESS THAN 50 | | ML | INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY |
| | | | | CL | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS |
| | | | | OL | ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY |
| MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE | SILTS AND CLAYS | LIQUID LIMIT GREATER THAN 50 | | MH | INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS |
| | | | | CH | INORGANIC CLAYS OF HIGH PLASTICITY |
| | | | | OH | ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS |
| HIGHLY ORGANIC SOILS | | | | PT | PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS |

NOTE:  DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. I-1

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California

DRILLING DATE: 3/14/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza

WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | X | 8 | | | ALLUVIUM: Dark Brown fine to medium Sandy Silt, trace coarse Sand, trace fine Gravel, loose-damp | | 3 | | | | | |
| | X | 8 | | | Brown Silty fine to medium Sand, trace coarse Sand, loose-damp | | 3 | | | | | |
| 5 | X | 17 | | | Brown fine to medium Sandy Silt, trace coarse Sand, medium dense-damp | | 4 | | | | | |
| | X | 11 | | | Brown Silty fine to coarse Sand, medium dense-dry | | 2 | | | | | |
| 10 | X | 24 | | | Brown fine to coarse Sand, trace Silt, medium dense-damp | | 3 | | | | | |

Boring Terminated at 12'

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

# BORING NO. I-10

JOB NO.: 22G143-2 | DRILLING DATE: 3/16/22 | WATER DEPTH: Dry
PROJECT: Prop. Warehouse Development: Phase 1 | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Palmdale, California | LOGGED BY: Michelle Esparza | READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | X | 6 | | | ALLUVIUM: Dark Brown fine Sandy Silt, trace medium Sand, loose-damp | | 3 | | | | | |
| 5 | X | 9 | | | Brown fine to medium Sand, trace coarse Sand, trace fine Gravel, trace Silt, loose-dry | | 2 | | | | | |
| | X | 14 | | | Dark Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, trace fine root fibers, medium dense-damp | | 7 | | | | | |
| 10 | X | 14 | | | Brown fine to coarse Sand, trace fine Gravel, trace Silt, medium dense-damp | | 3 | | | | | |

Boring Terminated at 10'

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

**TEST BORING LOG**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. I-11

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California

DRILLING DATE: 3/16/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza

WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

| FIELD RESULTS | | | | | DESCRIPTION | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Brown fine Sandy Silt, trace fine to coarse Gravel, medium dense-dry | | | | | | | |
| | X | 13 | | | | | 2 | | | | | |
| | | | | | Brown Silty fine to coarse Sand, trace fine to coarse Gravel, loose-dry | | | | | | | |
| | X | 7 | | | | | 2 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 8 | | | | | 2 | | | | | |
| | | | | | Light Brown Silty fine Sand, medium dense-damp | | | | | | | |
| | X | 23 | | | | | 4 | | | | | |
| 10 | | | | | Boring Terminated at 10' | | | | | | | |

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. I-12

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California

DRILLING DATE: 3/16/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza

WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

SURFACE ELEVATION: --- MSL

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Brown Silty fine to coarse Sand, medium dense-dry to damp | | | | | | | |
| | X | 10 | | | | | 2 | | | | | |
| | X | 11 | | | | | 1 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 19 | | | | | 2 | | | | | |
| | X | 21 | | | | | 4 | | | | | |
| 10 | | | | | Boring Terminated at 10' | | | | | | | |

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

# TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. I-13

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California
DRILLING DATE: 3/16/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza
WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

SURFACE ELEVATION: --- MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ALLUVIUM: Dark Brown fine Sandy Silt, trace medium to coarse Sand, loose-damp | | | | | | | |
| | X | 9 | | | | | 4 | | | | | |
| | | | | | Brown Silty fine to medium Sand, trace coarse Sand, medium dense-dry | | | | | | | |
| | X | 14 | | | | | 2 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 15 | | | | | 1 | | | | | |
| | | | | | Brown fine to coarse Sand, trace Silt, trace fine Gravel, medium dense-dry | | | | | | | |
| | X | 13 | | | | | 2 | | | | | |
| 10 | | | | | | | | | | | | |

Boring Terminated at 10'

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

## TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. I-14

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California
DRILLING DATE: 3/16/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza
WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

| FIELD RESULTS | | | | | DESCRIPTION | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | X | 4 | | | ALLUVIUM: Dark Brown Silty fine to medium Sand, trace coarse Sand, loose-damp | | 5 | | | | | |
| | X | 15 | | | Dark Brown fine Sandy Silt, trace medium to coarse Sand, medium dense-damp | | 3 | | | | | |
| 5 | X | 20 | | | Brown to Dark Brown Silty fine to medium Sand, trace coarse Sand, medium dense-dry to damp | | 3 | | | | | |
| | X | 15 | | | | | 2 | | | | | |
| 10 | | | | | Boring Terminated at 10' | | | | | | | |

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. I-15

JOB NO.: 22G143-2 DRILLING DATE: 3/17/22 WATER DEPTH: Dry
PROJECT: Prop. Warehouse Development: Phase 1 DRILLING METHOD: Hollow Stem Auger CAVE DEPTH: ---
LOCATION: Palmdale, California LOGGED BY: Michelle Esparza READING TAKEN: At Completion

| FIELD RESULTS | | | | | DESCRIPTION | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | X | 3 | | | ALLUVIUM: Dark Brown fine Sandy Silt, trace medium Sand, very loose-damp | | 5 | | | | | |
| 5 | X | 6 | | | Dark Brown Silty fine to coarse Sand, trace fine Gravel, loose-dry | | 1 | | | | | |
| | X | 13 | | | Dark Brown fine Sandy Silt, trace medium Sand, medium dense-damp | | 3 | | | | | |
| 10 | X | 22 | | | Brown fine to medium Sandy Silt, medium dense-damp | | 4 | | | | | |
| | | | | | Boring Terminated at 10' | | | | | | | |

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. I-2

JOB NO.: 22G143-2 DRILLING DATE: 3/14/22 WATER DEPTH: Dry
PROJECT: Prop. Warehouse Development: Phase 1 DRILLING METHOD: Hollow Stem Auger CAVE DEPTH: ---
LOCATION: Palmdale, California LOGGED BY: Michelle Esparza READING TAKEN: At Completion

| FIELD RESULTS | | | | | DESCRIPTION | LABORATORY RESULTS | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | |
| | X | 11 | | | ALLUVIUM: Dark Brown fine Sandy Silt, trace medium to coarse Sand, medium dense-damp | | 4 | | | | | |
| | X | 10 | | | Brown fine to coarse Sand, trace Silt, trace fine Gravel, medium dense-dry | | 1 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 12 | | | | | 2 | | | | | |
| | X | 20 | | | | | 2 | | | | | |
| 10 | | | | | Boring Terminated at 10' | | | | | | | |

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. I-3

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California
DRILLING DATE: 3/14/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza
WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Brown to Dark Brown fine Sandy Silt, trace medium Sand, trace fine root fibers, trace to little fine Gravel, loose-damp | | | | | | | |
| | X | 5 | | | | | 4 | | | | | |
| | X | 16 | | | | | 3 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 16 | | | | | 3 | | | | | |
| | | | | | Brown fine to coarse Sand, trace Silt, medium dense-dry | | | | | | | |
| | X | 16 | | | | | 1 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 10' | | | | | | | |

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

# BORING NO. I-4

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California
DRILLING DATE: 3/14/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza
WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

SURFACE ELEVATION: --- MSL

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Dark Brown fine Sandy Silt, trace fine root fibers, little medium to coarse Sand, loose-damp | | | | | | | |
| | X | 9 | | | | | 6 | | | | | |
| | X | 14 | | | Brown Silty fine to medium Sand, trace coarse Sand, medium dense-dry | | 1 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 14 | | | Brown fine Sandy Silt, trace medium Sand, medium dense-dry | | 2 | | | | | |
| | X | 16 | | | Brown fine to coarse Sand, trace Silt, medium dense-dry | | 1 | | | | | |
| 10 | | | | | | | | | | | | |

Boring Terminated at 10'

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. I-5

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California
DRILLING DATE: 3/17/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza
WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Dark Brown fine Sandy Silt, trace medium Sand, loose to medium dense-dry to damp | | | | | | | |
| | X | 5 | | | | | 4 | | | | | |
| | X | 13 | | | | | 2 | | | | | |
| 5 | | | | | Brown Silty fine to coarse Sand, medium dense-dry | | | | | | | |
| | X | 12 | | | | | 2 | | | | | |
| | X | 17 | | | | | 2 | | | | | |
| 10 | | | | | Boring Terminated at 10' | | | | | | | |

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

## TEST BORING LOG

# BORING NO. I-6

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 22G143-2 DRILLING DATE: 3/14/22 WATER DEPTH: Dry
PROJECT: Prop. Warehouse Development: Phase 1 DRILLING METHOD: Hollow Stem Auger CAVE DEPTH: ---
LOCATION: Palmdale, California LOGGED BY: Michelle Esparza READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | <u>ALLUVIUM:</u> Dark Brown fine Sandy Silt, trace medium Sand, loose to medium dense-dry to damp | | | | | | | |
| | X | 6 | | | | | 5 | | | | | |
| | X | 12 | | | | | 2 | | | | | |
| 5 | | | | | | | | | | | | |
| | | | | | Brown Silty fine to medium Sand, trace fine root fibers, trace coarse Sand, trace fine Gravel, medium dense-dry | | | | | | | |
| | X | 17 | | | | | 1 | | | | | |
| | | | | | Brown Silty fine to medium Sand, trace coarse Sand, medium dense-dry | | | | | | | |
| | X | 16 | | | | | 2 | | | | | |
| 10 | | | | | | | | | | | | |

Boring Terminated at 10'

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. I-7

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California
DRILLING DATE: 3/17/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza
WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Dark Brown fine Sandy Silt, trace medium Sand, loose to medium dense-dry to damp | | | | | | | |
| | X | 4 | | | | | 6 | | | | | |
| | X | 12 | | | | | 1 | | | | | |
| 5 | | | | | Brown Silty fine to medium Sand, trace fine Gravel, trace coarse Sand, medium dense-dry | | | | | | | |
| | X | 13 | | | | | 2 | | | | | |
| | | | | | Brown Silty fine to coarse Sand, medium dense-dry to damp | | | | | | | |
| | X | 21 | | | | | 3 | | | | | |
| 10 | | | | | Boring Terminated at 10' | | | | | | | |

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

# BORING NO. I-8

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California
DRILLING DATE: 3/17/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza
WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

SURFACE ELEVATION: --- MSL

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Dark Brown fine Sandy Silt, trace medium Sand, loose-dry to damp | | | | | | | |
| | X | 7 | | | | | 5 | | | | | |
| | X | 6 | | | | | 2 | | | | | |
| 5 | | | | | Brown Gravelly fine to coarse Sand, trace Silt, medium dense to dense-dry | | | | | | | |
| | X | 11 | | | | | 1 | | | | | |
| | X | 32 | | | | | 2 | | | | | |
| 10 | | | | | Boring Terminated at 10' | | | | | | | |

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

# BORING NO. I-9

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 22G143-2
PROJECT: Prop. Warehouse Development: Phase 1
LOCATION: Palmdale, California

DRILLING DATE: 3/17/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Michelle Esparza

WATER DEPTH: Dry
CAVE DEPTH: ---
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: --- MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Dark Brown fine Sandy Silt, trace medium Sand, loose to medium dense-dry to damp | | | | | | | |
| | X | 6 | | | | | 5 | | | | | |
| | X | 17 | | | | | 2 | | | | | |
| 5 | | | | | Brown Silty fine to meidum Sand, trace coarse Sand, medium dense-dry | | | | | | | |
| | X | 10 | | | | | 1 | | | | | |
| | | | | | Brown fine to coarse Sand, trace fine Gravel, medium dense-dry | | | | | | | |
| | X | 13 | | | | | 2 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 10' | | | | | | | |

TBL 22G143-2.GPJ SOCALGEO.GDT 5/10/22

TEST BORING LOG

PLATE B-9

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 12.22 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-1 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 8:48 AM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 10:04 AM | Time Interal Between Readings | 25 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 8:48 AM | 14.0 | 7.22 | 5.00 | 2.5 | 16.1 | 3.0 | 5.4 |
| | Final | 9:02 AM | | 12.22 | | | | | |
| 2 | Initial | 9:08 AM | 25.0 | 7.22 | 5.00 | 2.5 | 9.0 | 3.0 | 3.0 |
| | Final | 9:33 AM | | 12.22 | | | | | |
| 3 | Initial | 9:39 AM | 25.0 | 7.22 | 5.00 | 2.5 | 9.0 | 3.0 | 3.0 |
| | Final | 10:04 AM | | 12.22 | | | | | |
| 4 | Initial | 10:04 AM | 25.0 | 7.22 | 4.03 | 3.0 | 6.1 | 3.0 | 2.0 |
| | Final | 10:29 AM | | 11.25 | | | | | |
| 5 | Initial | 10:29 AM | 25.0 | 7.22 | 3.94 | 3.0 | 5.9 | 3.0 | 2.0 |
| | Final | 10:54 AM | | 11.16 | | | | | |
| 6 | Initial | 10:54 AM | 25.0 | 7.22 | 3.83 | 3.1 | 5.7 | 3.0 | 1.9 |
| | Final | 11:19 AM | | 11.05 | | | | | |
| 7 | Initial | 11:19 AM | 25.0 | 7.22 | 3.74 | 3.1 | 5.4 | 3.0 | 1.8 |
| | Final | 11:44 AM | | 10.96 | | | | | |
| 8 | Initial | 11:44 AM | 25.0 | 7.22 | 3.80 | 3.1 | 5.6 | 3.0 | 1.9 |
| | Final | 12:09 PM | | 11.02 | | | | | |
| 9 | Initial | 12:09 PM | 25.0 | 7.22 | 3.73 | 3.1 | 5.4 | 3.0 | 1.8 |
| | Final | 12:34 PM | | 10.95 | | | | | |
| 10 | Initial | 12:34 PM | 25.0 | 7.22 | 3.70 | 3.2 | 5.4 | 3.0 | 1.8 |
| | Final | 12:59 PM | | 10.92 | | | | | |
| 11 | Initial | 12:59 PM | 25.0 | 7.22 | 3.69 | 3.2 | 5.3 | 3.0 | 1.8 |
| | Final | 1:24 PM | | 10.91 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)
Reduction Factor (RF) = $RF_t+RF_v+RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q=\frac{\Delta H(60r)}{\Delta t(r+2H_{avg})}$$

Where: Q = Measured Infiltration Rate (in inches per hour)
ΔH = Change in Height (Water Level) over the time interval
r = Test Hole (Borehole) Radius
Δt = Time Interval
$H_{avg}$ = Average Head Height over the time interval

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.09 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-3 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 2:31 PM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 3:09 PM | Time Interal Between Readings | 17 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 2:31 PM | 12.0 | 6.09 | 4.00 | 2.0 | 18.5 | 3.0 | 6.2 |
| | Final | 2:43 PM | | 10.09 | | | | | |
| 2 | Initial | 2:47 PM | 17.0 | 6.09 | 4.00 | 2.0 | 13.0 | 3.0 | 4.3 |
| | Final | 3:04 PM | | 10.09 | | | | | |
| 3 | Initial | 3:09 PM | 17.0 | 6.09 | 3.82 | 2.1 | 11.9 | 3.0 | 4.0 |
| | Final | 3:26 PM | | 9.91 | | | | | |
| 4 | Initial | 3:26 PM | 17.0 | 6.09 | 3.71 | 2.1 | 11.3 | 3.0 | 3.8 |
| | Final | 3:43 PM | | 9.80 | | | | | |
| 5 | Initial | 3:43 PM | 17.0 | 6.09 | 3.33 | 2.3 | 9.4 | 3.0 | 3.1 |
| | Final | 4:00 PM | | 9.42 | | | | | |
| 6 | Initial | 4:00 PM | 17.0 | 6.09 | 3.26 | 2.4 | 9.1 | 3.0 | 3.0 |
| | Final | 4:17 PM | | 9.35 | | | | | |
| 7 | Initial | 4:17 PM | 17.0 | 6.09 | 3.16 | 2.4 | 8.6 | 3.0 | 2.9 |
| | Final | 4:34 PM | | 9.25 | | | | | |
| 8 | Initial | 4:34 PM | 17.0 | 6.09 | 3.13 | 2.4 | 8.5 | 3.0 | 2.8 |
| | Final | 4:51 PM | | 9.22 | | | | | |
| 9 | Initial | 4:51 PM | 17.0 | 6.09 | 3.12 | 2.4 | 8.4 | 3.0 | 2.8 |
| | Final | 5:08 PM | | 9.21 | | | | | |
| 10 | Initial | 5:08 PM | 17.0 | 6.09 | 3.10 | 2.5 | 8.4 | 3.0 | 2.8 |
| | Final | 5:25 PM | | 9.19 | | | | | |
| 11 | Initial | 5:25 PM | 17.0 | 6.09 | 3.10 | 2.5 | 8.4 | 3.0 | 2.8 |
| | Final | 5:42 PM | | 9.19 | | | | | |
| 11 | Initial | 5:42 PM | 17.0 | 6.09 | 3.11 | 2.4 | 8.4 | 3.0 | 2.8 |
| | Final | 5:59 PM | | 9.20 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t + RF_v + RF_s$

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

Where:
Q = Measured Infiltration Rate (in inches per hour)
r = Test Hole (Borehole) Radius
ΔH = Change in Height (Water Level) over the time interval
$H_{avg}$ = Average Head Height over the time interval
Δt = Time Interval

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.10 | (ft) |

Infiltration Test Hole: I-4

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 9:17 AM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 10:03 AM | Time Interal Between Readings | 19 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 9:17 AM | 16.0 | 6.10 | 4.00 | 2.0 | 13.8 | 3.0 | 4.6 |
| | Final | 9:33 AM | | 10.10 | | | | | |
| 2 | Initial | 9:40 AM | 19.0 | 6.10 | 4.00 | 2.0 | 11.7 | 3.0 | 3.9 |
| | Final | 9:59 AM | | 10.10 | | | | | |
| 3 | Initial | 10:03 AM | 19.0 | 6.10 | 3.87 | 2.1 | 11.0 | 3.0 | 3.7 |
| | Final | 10:22 AM | | 9.97 | | | | | |
| 4 | Initial | 10:33 AM | 19.0 | 6.10 | 3.86 | 2.1 | 10.9 | 3.0 | 3.6 |
| | Final | 10:52 AM | | 9.96 | | | | | |
| 5 | Initial | 11:05 AM | 19.0 | 6.10 | 3.85 | 2.1 | 10.8 | 3.0 | 3.6 |
| | Final | 11:24 AM | | 9.95 | | | | | |
| 6 | Initial | 11:24 AM | 19.0 | 6.10 | 3.86 | 2.1 | 10.9 | 3.0 | 3.6 |
| | Final | 11:43 AM | | 9.96 | | | | | |
| 7 | Initial | 11:43 AM | 19.0 | 6.10 | 3.75 | 2.1 | 10.3 | 3.0 | 3.4 |
| | Final | 12:02 PM | | 9.85 | | | | | |
| 8 | Initial | 12:05 PM | 19.0 | 6.10 | 3.70 | 2.2 | 10.1 | 3.0 | 3.4 |
| | Final | 12:24 PM | | 9.80 | | | | | |
| 9 | Initial | 12:24 PM | 19.0 | 6.10 | 3.70 | 2.2 | 10.1 | 3.0 | 3.4 |
| | Final | 12:43 PM | | 9.80 | | | | | |
| 10 | Initial | 12:45 PM | 19.0 | 6.10 | 3.69 | 2.2 | 10.0 | 3.0 | 3.3 |
| | Final | 1:04 PM | | 9.79 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t + RF_v + RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where:

$Q$ = Measured Infiltration Rate (in inches per hour)

$\Delta H$ = Change in Height (Water Level) over the time interval

$r$ = Test Hole (Borehole) Radius

$\Delta t$ = Time Interval

$H_{avg}$ = Average Head Height over the time interval

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.12 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-6 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 2:09 PM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 5:16 PM | Time Interal Between Readings | 30 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 2:09 PM | 30.0 | 6.12 | 2.56 | 2.7 | 3.5 | 3.0 | 1.2 |
| | Final | 2:39 PM | | 8.68 | | | | | |
| 2 | Initial | 2:44 PM | 30.0 | 6.12 | 2.09 | 3.0 | 2.7 | 3.0 | 0.9 |
| | Final | 3:14 PM | | 8.21 | | | | | |
| 3 | Initial | 5:16 PM | 30.0 | 6.12 | 1.78 | 3.1 | 2.2 | 3.0 | 0.7 |
| | Final | 5:46 PM | | 7.90 | | | | | |
| 4 | Initial | 5:49 PM | 30.0 | 6.12 | 1.58 | 3.2 | 1.9 | 3.0 | 0.6 |
| | Final | 6:19 PM | | 7.70 | | | | | |
| 5 | Initial | 6:21 PM | 30.0 | 6.12 | 1.47 | 3.3 | 1.7 | 3.0 | 0.6 |
| | Final | 6:51 PM | | 7.59 | | | | | |
| 6 | Initial | 6:54 PM | 30.0 | 6.12 | 1.48 | 3.3 | 1.7 | 3.0 | 0.6 |
| | Final | 7:24 PM | | 7.60 | | | | | |
| 7 | Initial | 7:27 PM | 30.0 | 6.12 | 1.48 | 3.3 | 1.7 | 3.0 | 0.6 |
| | Final | 7:57 PM | | 7.60 | | | | | |
| 8 | Initial | 8:00 PM | 30.0 | 6.12 | 1.47 | 3.3 | 1.7 | 3.0 | 0.6 |
| | Final | 8:30 PM | | 7.59 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t + RF_v + RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where:

Q = Measured Infiltration Rate (in inches per hour)

ΔH = Change in Height (Water Level) over the time interval

r = Test Hole (Borehole) Radius

Δt = Time Interval

$H_{avg}$ = Average Head Height over the time interval

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.12 | (ft) |

Infiltration Test Hole: I-7

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 2:09 PM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 5:16 PM | Time Interal Between Readings | 30 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 3:55 PM | 30.0 | 6.12 | 4.00 | 2.0 | 7.4 | 3.0 | 2.5 |
| | Final | 4:25 PM | | 10.12 | | | | | |
| 2 | Initial | 4:25 PM | 30.0 | 6.12 | 3.68 | 2.2 | 6.3 | 3.0 | 2.1 |
| | Final | 4:55 PM | | 9.80 | | | | | |
| 3 | Initial | 5:03 PM | 30.0 | 6.12 | 3.55 | 2.2 | 5.9 | 3.0 | 2.0 |
| | Final | 5:33 PM | | 9.67 | | | | | |
| 4 | Initial | 5:36 PM | 30.0 | 6.12 | 3.48 | 2.3 | 5.7 | 3.0 | 1.9 |
| | Final | 6:06 PM | | 9.60 | | | | | |
| 5 | Initial | 6:10 PM | 30.0 | 6.12 | 3.37 | 2.3 | 5.4 | 3.0 | 1.8 |
| | Final | 6:40 PM | | 9.49 | | | | | |
| 6 | Initial | 6:43 PM | 30.0 | 6.12 | 3.37 | 2.3 | 5.4 | 3.0 | 1.8 |
| | Final | 7:13 PM | | 9.49 | | | | | |
| 7 | Initial | 7:16 PM | 30.0 | 6.12 | 3.38 | 2.3 | 5.5 | 3.0 | 1.8 |
| | Final | 7:46 PM | | 9.50 | | | | | |
| 8 | Initial | 7:49 PM | 30.0 | 6.12 | 3.37 | 2.3 | 5.4 | 3.0 | 1.8 |
| | Final | 8:19 PM | | 9.49 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t + RF_v + RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where:

Q = Measured Infiltration Rate (in inches per hour)

ΔH = Change in Height (Water Level) over the time interval

r = Test Hole (Borehole) Radius

Δt = Time Interval

$H_{avg}$ = Average Head Height over the time interval

**INFILTRATION CALCULATIONS**

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.10 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-8 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 7:55 AM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 9:24 AM | Time Interal Between Readings | 27 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 7:55 AM | 17.0 | 6.10 | 4.00 | 2.0 | 13.0 | 3.0 | 4.3 |
| | Final | 8:12 AM | | 10.10 | | | | | |
| 2 | Initial | 8:52 AM | 27.0 | 6.10 | 4.00 | 2.0 | 8.2 | 3.0 | 2.7 |
| | Final | 9:19 AM | | 10.10 | | | | | |
| 3 | Initial | 9:24 AM | 27.0 | 6.10 | 3.88 | 2.1 | 7.7 | 3.0 | 2.6 |
| | Final | 9:51 AM | | 9.98 | | | | | |
| 4 | Initial | 10:27 AM | 27.0 | 6.10 | 3.81 | 2.1 | 7.5 | 3.0 | 2.5 |
| | Final | 10:54 AM | | 9.91 | | | | | |
| 5 | Initial | 10:58 AM | 27.0 | 6.10 | 3.73 | 2.1 | 7.2 | 3.0 | 2.4 |
| | Final | 11:25 AM | | 9.83 | | | | | |
| 6 | Initial | 11:28 AM | 27.0 | 6.10 | 3.72 | 2.1 | 7.2 | 3.0 | 2.4 |
| | Final | 11:55 AM | | 9.82 | | | | | |
| 7 | Initial | 11:57 AM | 27.0 | 6.10 | 3.74 | 2.1 | 7.2 | 3.0 | 2.4 |
| | Final | 12:24 PM | | 9.84 | | | | | |
| 8 | Initial | 12:27 PM | 27.0 | 6.10 | 3.71 | 2.1 | 7.1 | 3.0 | 2.4 |
| | Final | 12:54 PM | | 9.81 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t+RF_v+RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where:

Q = Measured Infiltration Rate (in inches per hour)

ΔH = Change in Height (Water Level) over the time interval

r = Test Hole (Borehole) Radius

Δt = Time Interval

$H_{avg}$ = Average Head Height over the time interval

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.20 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-9 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 8:18 AM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 9:55 AM | Time Interal Between Readings | 17 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 8:18 AM | 11.0 | 6.20 | 4.00 | 2.0 | 20.1 | 3.0 | 6.7 |
| | Final | 8:29 AM | | 10.20 | | | | | |
| 2 | Initial | 8:31 AM | 17.0 | 6.20 | 4.00 | 2.0 | 13.0 | 3.0 | 4.3 |
| | Final | 8:48 AM | | 10.20 | | | | | |
| 3 | Initial | 9:55 AM | 17.0 | 6.20 | 3.67 | 2.2 | 11.1 | 3.0 | 3.7 |
| | Final | 10:12 AM | | 9.87 | | | | | |
| 4 | Initial | 10:32 AM | 17.0 | 6.20 | 3.39 | 2.3 | 9.7 | 3.0 | 3.2 |
| | Final | 10:49 AM | | 9.59 | | | | | |
| 5 | Initial | 11:03 AM | 17.0 | 6.20 | 3.22 | 2.4 | 8.9 | 3.0 | 3.0 |
| | Final | 11:20 AM | | 9.42 | | | | | |
| 6 | Initial | 11:35 AM | 17.0 | 6.20 | 2.95 | 2.5 | 7.7 | 3.0 | 2.6 |
| | Final | 11:52 AM | | 9.15 | | | | | |
| 7 | Initial | 12:03 PM | 17.0 | 6.20 | 2.60 | 2.7 | 6.4 | 3.0 | 2.1 |
| | Final | 12:20 PM | | 8.80 | | | | | |
| 8 | Initial | 12:35 PM | 17.0 | 6.20 | 2.49 | 2.8 | 6.0 | 3.0 | 2.0 |
| | Final | 12:52 PM | | 8.69 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t+RF_v+RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where:

Q = Measured Infiltration Rate (in inches per hour)

ΔH = Change in Height (Water Level) over the time interval

r = Test Hole (Borehole) Radius

Δt = Time Interval

$H_{avg}$ = Average Head Height over the time interval

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.11 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-10 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 12:44 PM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 1:24 PM | Time Interal Between Readings | 14 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 12:44 PM | 7.0 | 6.11 | 4.00 | 2.0 | 31.6 | 3.0 | 10.5 |
| | Final | 12:51 PM | | 10.11 | | | | | |
| 2 | Initial | 1:00 PM | 14.0 | 6.11 | 4.00 | 2.0 | 15.8 | 3.0 | 5.3 |
| | Final | 1:14 PM | | 10.11 | | | | | |
| 3 | Initial | 1:24 PM | 14.0 | 6.11 | 3.64 | 2.2 | 13.3 | 3.0 | 4.4 |
| | Final | 1:38 PM | | 9.75 | | | | | |
| 4 | Initial | 1:43 PM | 14.0 | 6.11 | 3.19 | 2.4 | 10.6 | 3.0 | 3.5 |
| | Final | 1:57 PM | | 9.30 | | | | | |
| 5 | Initial | 4:15 PM | 14.0 | 6.11 | 2.94 | 2.5 | 9.3 | 3.0 | 3.1 |
| | Final | 4:29 PM | | 9.05 | | | | | |
| 6 | Initial | 4:32 PM | 14.0 | 6.11 | 2.81 | 2.6 | 8.7 | 3.0 | 2.9 |
| | Final | 4:46 PM | | 8.92 | | | | | |
| 7 | Initial | 4:48 PM | 14.0 | 6.11 | 2.80 | 2.6 | 8.7 | 3.0 | 2.9 |
| | Final | 5:02 PM | | 8.91 | | | | | |
| 8 | Initial | 5:06 PM | 14.0 | 6.11 | 2.78 | 2.6 | 8.6 | 3.0 | 2.9 |
| | Final | 5:20 PM | | 8.89 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t+RF_v+RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q=\frac{\Delta H(60r)}{\Delta t(r+2H_{avg})}$$

Where:

Q = Measured Infiltration Rate (in inches per hour)

ΔH = Change in Height (Water Level) over the time interval

r = Test Hole (Borehole) Radius

Δt = Time Interval

$H_{avg}$ = Average Head Height over the time interval

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.11 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-10 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 12:44 PM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 1:24 PM | Time Interal Between Readings | 14 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 9 | Initial | 5:20 PM | 14.0 | 6.11 | 2.78 | 2.6 | 8.6 | 3.0 | 2.9 |
| | Final | 5:34 PM | | 8.89 | | | | | |
| 10 | Initial | 5:34 PM | 14.0 | 6.11 | 2.76 | 2.6 | 8.5 | 3.0 | 2.8 |
| | Final | 5:48 PM | | 8.87 | | | | | |
| 11 | Initial | 5:48 PM | 14.0 | 6.11 | 2.77 | 2.6 | 8.5 | 3.0 | 2.8 |
| | Final | 6:02 PM | | 8.88 | | | | | |
| 12 | Initial | 6:02 PM | 14.0 | 6.11 | 2.76 | 2.6 | 8.5 | 3.0 | 2.8 |
| | Final | 6:16 PM | | 8.87 | | | | | |
| 13 | Initial | 6:16 PM | 14.0 | 6.11 | 2.76 | 2.6 | 8.5 | 3.0 | 2.8 |
| | Final | 6:30 PM | | 8.87 | | | | | |
| 14 | Initial | 6:30 PM | 14.0 | 6.11 | 2.75 | 2.6 | 8.4 | 3.0 | 2.8 |
| | Final | 6:44 PM | | 8.86 | | | | | |
| 15 | Initial | 6:44 PM | 14.0 | 6.11 | 2.76 | 2.6 | 8.5 | 3.0 | 2.8 |
| | Final | 6:58 PM | | 8.87 | | | | | |
| 16 | Initial | 6:58 PM | 14.0 | 6.11 | 2.76 | 2.6 | 8.5 | 3.0 | 2.8 |
| | Final | 7:12 PM | | 8.87 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t+RF_v+RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q = \frac{\Delta H(60r)}{\Delta t(r+2H_{avg})}$$

Where:

Q = Measured Infiltration Rate (in inches per hour)

ΔH = Change in Height (Water Level) over the time interval

r = Test Hole (Borehole) Radius

Δt = Time Interval

$H_{avg}$ = Average Head Height over the time interval

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.05 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-11 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 7:48 AM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 8:16 AM | Time Interal Between Readings | 11 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 7:48 AM | 6.0 | 6.05 | 4.00 | 2.0 | 36.9 | 3.0 | 12.3 |
| | Final | 7:54 AM | | 10.05 | | | | | |
| 2 | Initial | 7:59 AM | 11.0 | 5.05 | 5.00 | 2.5 | 20.5 | 3.0 | 6.8 |
| | Final | 8:10 AM | | 10.05 | | | | | |
| 3 | Initial | 8:16 AM | 11.0 | 5.05 | 4.60 | 2.7 | 17.5 | 3.0 | 5.8 |
| | Final | 8:27 AM | | 9.65 | | | | | |
| 4 | Initial | 8:32 AM | 11.0 | 5.05 | 4.16 | 2.9 | 14.7 | 3.0 | 4.9 |
| | Final | 8:43 AM | | 9.21 | | | | | |
| 5 | Initial | 8:46 AM | 11.0 | 5.05 | 4.06 | 3.0 | 14.1 | 3.0 | 4.7 |
| | Final | 8:57 AM | | 9.11 | | | | | |
| 6 | Initial | 8:59 AM | 11.0 | 5.05 | 3.90 | 3.1 | 13.2 | 3.0 | 4.4 |
| | Final | 9:10 AM | | 8.95 | | | | | |
| 7 | Initial | 9:12 AM | 11.0 | 5.05 | 3.68 | 3.2 | 12.1 | 3.0 | 4.0 |
| | Final | 9:23 AM | | 8.73 | | | | | |
| 8 | Initial | 9:25 AM | 11.0 | 5.05 | 3.66 | 3.2 | 12.0 | 3.0 | 4.0 |
| | Final | 9:36 AM | | 8.71 | | | | | |
| 9 | Initial | 9:36 AM | 11.0 | 5.05 | 3.66 | 3.2 | 12.0 | 3.0 | 4.0 |
| | Final | 9:47 AM | | 8.71 | | | | | |
| 10 | Initial | 9:49 AM | 11.0 | 5.05 | 3.65 | 3.2 | 11.9 | 3.0 | 4.0 |
| | Final | 10:00 AM | | 8.70 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t + RF_v + RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where:

Q = Measured Infiltration Rate (in inches per hour)

ΔH = Change in Height (Water Level) over the time interval

r = Test Hole (Borehole) Radius

Δt = Time Interval

$H_{avg}$ = Average Head Height over the time interval

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.05 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-11 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 7:48 AM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 8:16 AM | Time Interal Between Readings | 11 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 11 | Initial | 10:00 AM | 11.0 | 5.05 | 3.65 | 3.2 | 11.9 | 3.0 | 4.0 |
| | Final | 10:11 AM | | 8.70 | | | | | |
| 12 | Initial | 10:12 AM | 11.0 | 5.05 | 3.64 | 3.2 | 11.9 | 3.0 | 4.0 |
| | Final | 10:23 AM | | 8.69 | | | | | |
| 13 | Initial | 10:25 AM | 11.0 | 5.05 | 3.62 | 3.2 | 11.8 | 3.0 | 3.9 |
| | Final | 10:36 AM | | 8.67 | | | | | |
| 14 | Initial | 10:37 AM | 11.0 | 5.05 | 3.63 | 3.2 | 11.8 | 3.0 | 3.9 |
| | Final | 10:48 AM | | 8.68 | | | | | |
| 15 | Initial | 10:49 AM | 11.0 | 5.05 | 3.62 | 3.2 | 11.8 | 3.0 | 3.9 |
| | Final | 11:00 AM | | 8.67 | | | | | |
| 16 | Initial | 11:00 AM | 11.0 | 5.05 | 3.61 | 3.2 | 11.7 | 3.0 | 3.9 |
| | Final | 11:11 AM | | 8.66 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)
Reduction Factor (RF) = $RF_t$+$RF_v$+$RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where:
- Q = Measured Infiltration Rate (in inches per hour)
- ΔH = Change in Height (Water Level) over the time interval
- r = Test Hole (Borehole) Radius
- Δt = Time Interval
- $H_{avg}$ = Average Head Height over the time interval

**INFILTRATION CALCULATIONS**

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.07 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-12 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 10:07 AM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 10:56 AM | Time Interal Between Readings | 23 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 10:07 AM | 19.0 | 6.07 | 4.00 | 2.0 | 11.7 | 3.0 | 3.9 |
| | Final | 10:26 AM | | 10.07 | | | | | |
| 2 | Initial | 10:29 AM | 23.0 | 6.07 | 4.00 | 2.0 | 9.6 | 3.0 | 3.2 |
| | Final | 10:52 AM | | 10.07 | | | | | |
| 3 | Initial | 10:56 AM | 23.0 | 5.05 | 4.60 | 2.7 | 8.3 | 3.0 | 2.8 |
| | Final | 11:19 AM | | 9.65 | | | | | |
| 4 | Initial | 11:26 AM | 23.0 | 5.05 | 4.16 | 2.9 | 7.0 | 3.0 | 2.3 |
| | Final | 11:49 AM | | 9.21 | | | | | |
| 5 | Initial | 11:52 AM | 23.0 | 5.05 | 4.06 | 3.0 | 6.7 | 3.0 | 2.2 |
| | Final | 12:15 PM | | 9.11 | | | | | |
| 6 | Initial | 12:18 PM | 23.0 | 5.05 | 3.90 | 3.1 | 6.3 | 3.0 | 2.1 |
| | Final | 12:41 PM | | 8.95 | | | | | |
| 7 | Initial | 12:43 PM | 23.0 | 5.05 | 3.68 | 3.2 | 5.7 | 3.0 | 1.9 |
| | Final | 1:06 PM | | 8.73 | | | | | |
| 8 | Initial | 1:10 PM | 23.0 | 5.05 | 3.66 | 3.2 | 5.7 | 3.0 | 1.9 |
| | Final | 1:33 PM | | 8.71 | | | | | |
| 9 | Initial | 1:33 PM | 23.0 | 5.05 | 3.66 | 3.2 | 5.7 | 3.0 | 1.9 |
| | Final | 1:56 PM | | 8.71 | | | | | |
| 10 | Initial | 1:56 PM | 23.0 | 5.05 | 3.65 | 3.2 | 5.7 | 3.0 | 1.9 |
| | Final | 2:19 PM | | 8.70 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t + RF_v + RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where:

Q = Measured Infiltration Rate (in inches per hour)

ΔH = Change in Height (Water Level) over the time interval

r = Test Hole (Borehole) Radius

Δt = Time Interval

$H_{avg}$ = Average Head Height over the time interval

## INFILTRATION CALCULATIONS

| | |
|---|---|
| Project Name | Proposed Warehouse: Phase I |
| Project Location | Palmdale, California |
| Project Number | 22G143-2 |
| Engineer | ME |

| | | |
|---|---|---|
| Test Hole Radius | 4.00 | (in) |
| Test Depth | 10.11 | (ft) |

| | |
|---|---|
| Infiltration Test Hole | I-13 |

| | | | |
|---|---|---|---|
| Start Time for Pre-Soak | 7:45 AM | Water Remaining in Boring (Y/N) | Y |
| Start Time for Standard | 10:13 AM | Time Interal Between Readings | 30 |

| Interval Number | | Time | Time Interval (min) | Water Depth (ft) | Change in Water Level (ft) | Average Head Height (ft) | Measured Infiltration Rate Q (in/hr) | Reduction Factor (RF) | Design Infiltration Rate Q (in/hr) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Initial | 7:45 AM | 25.0 | 7.11 | 3.00 | 1.5 | 8.6 | 3.0 | 2.9 |
| | Final | 8:10 AM | | 10.11 | | | | | |
| 2 | Initial | 8:16 AM | 30.0 | 7.11 | 2.85 | 1.6 | 6.5 | 3.0 | 2.2 |
| | Final | 8:46 AM | | 9.96 | | | | | |
| 3 | Initial | 10:13 AM | 30.0 | 7.11 | 2.81 | 1.6 | 6.4 | 3.0 | 2.1 |
| | Final | 10:43 AM | | 9.92 | | | | | |
| 4 | Initial | 10:45 AM | 30.0 | 7.11 | 2.79 | 1.6 | 6.3 | 3.0 | 2.1 |
| | Final | 11:15 AM | | 9.90 | | | | | |
| 5 | Initial | 11:22 AM | 30.0 | 7.11 | 2.75 | 1.6 | 6.1 | 3.0 | 2.0 |
| | Final | 11:52 AM | | 9.86 | | | | | |
| 6 | Initial | 11:58 AM | 30.0 | 7.11 | 2.80 | 1.6 | 6.3 | 3.0 | 2.1 |
| | Final | 12:28 PM | | 9.91 | | | | | |
| 7 | Initial | 12:31 PM | 30.0 | 7.11 | 2.78 | 1.6 | 6.3 | 3.0 | 2.1 |
| | Final | 1:01 PM | | 9.89 | | | | | |
| 8 | Initial | 1:05 PM | 30.0 | 7.11 | 2.79 | 1.6 | 6.3 | 3.0 | 2.1 |
| | Final | 1:35 PM | | 9.90 | | | | | |
| 9 | Initial | 1:37 PM | 30.0 | 7.11 | 2.77 | 1.6 | 6.2 | 3.0 | 2.1 |
| | Final | 2:07 PM | | 9.88 | | | | | |
| 10 | Initial | 2:10 PM | 30.0 | 7.11 | 2.75 | 1.6 | 6.1 | 3.0 | 2.0 |
| | Final | 2:40 PM | | 9.86 | | | | | |

Design Infiltration Rate = (Measured Infiltration Rate)/(Reduction Factor)

Reduction Factor (RF) = $RF_t + RF_v + RF_s$

| Reduction Factors | |
|---|---|
| Double-ring Infiltrometer | $RF_t$ = 1 to 3 |
| Shallow Test Pit | |
| Small Diameter Boring | |
| Large Diameter Boring | |
| High Fow-rate | $RF_t$ = 3 |
| Grain Size Analysis Method | $RF_t$ = 2 to 3 |
| Site variability, number of tests and thoroughness of subsurface investigation | $RF_v$ = 1 to 3 |
| Long-term siltation, plugging, and maintenance | $RF_s$ = 1 to 3 |

$$Q = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Where:

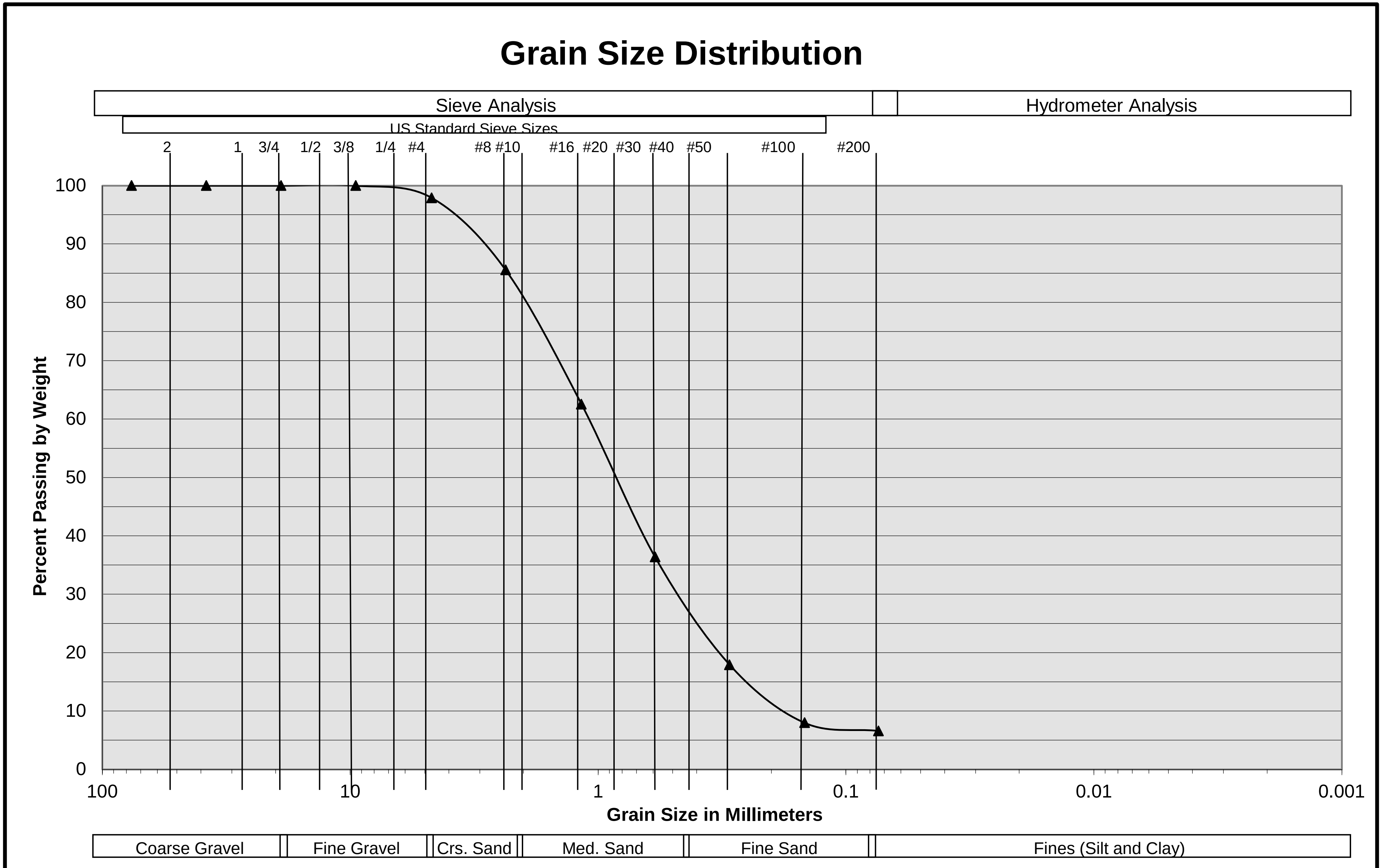
Q = Measured Infiltration Rate (in inches per hour)

ΔH = Change in Height (Water Level) over the time interval

r = Test Hole (Borehole) Radius

Δt = Time Interval

$H_{avg}$ = Average Head Height over the time interval




| | |
|---|---|
| Sample Description | I-1 @ 13½ to 15' |
| Soil Classification | Brown fine to coarse Sand, trace Silt |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 1**

SOUTHERN CALIFORNIA GEOTECHNICAL
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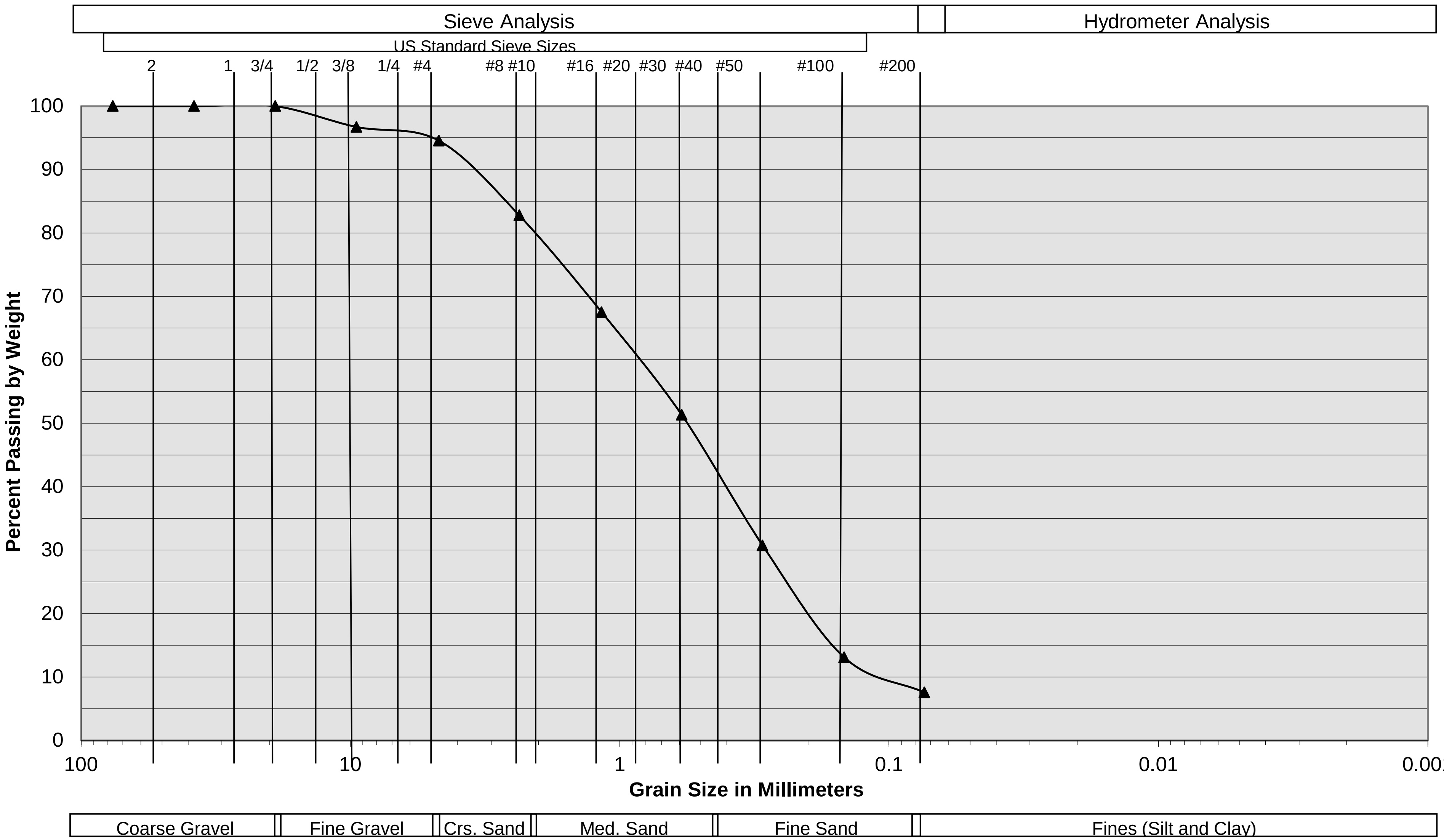
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-2 @ 8½ to 10' |
| Soil Classification | Brown fine to coarse Sand, trace fine Gravel, trace Silt |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 2**

SOUTHERN CALIFORNIA GEOTECHNICAL
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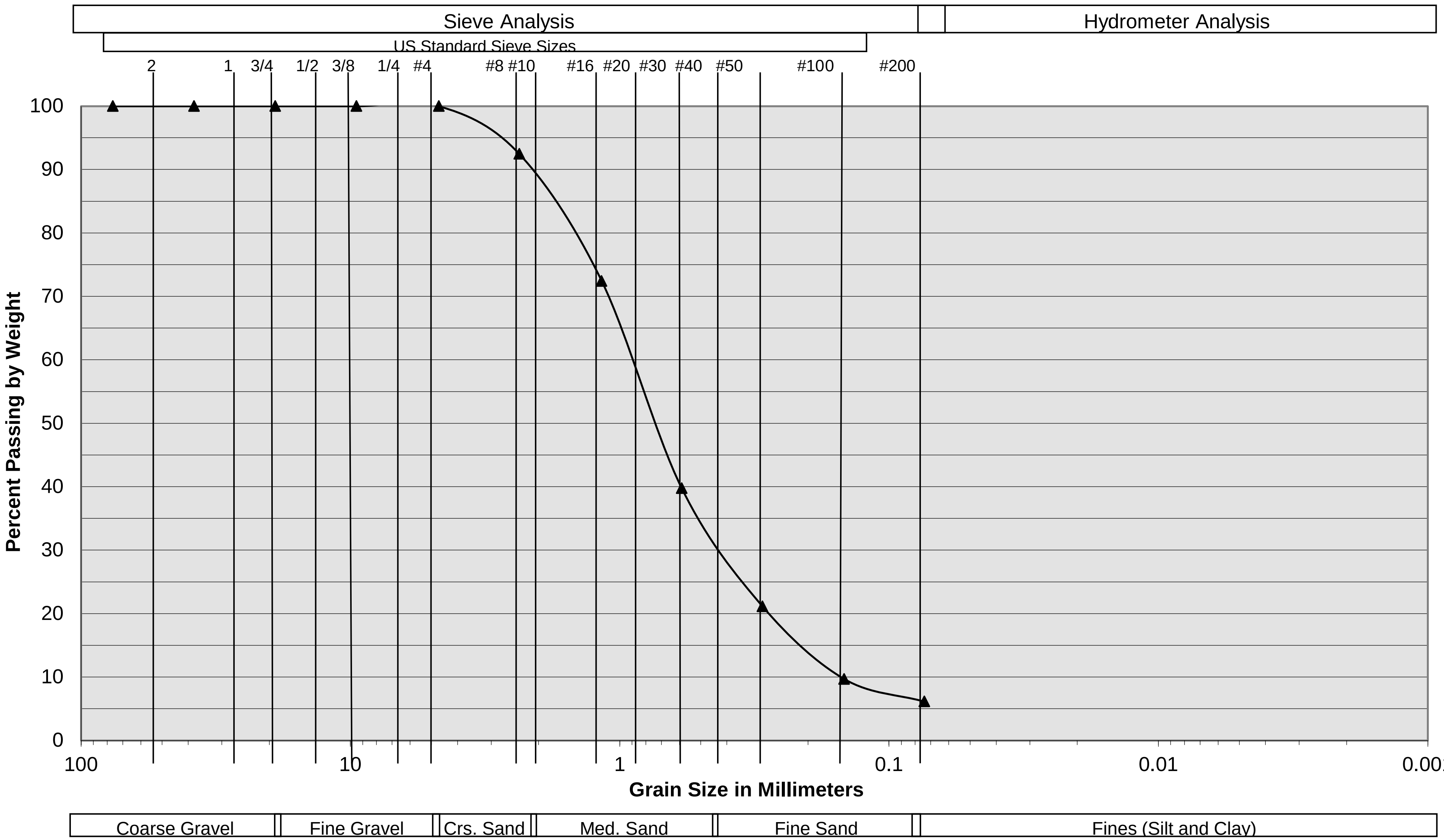
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-3 @ 8½ to 10' |
| Soil Classification | Brown fine to coarse Sand, trace Silt |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 3**

SOUTHERN CALIFORNIA GEOTECHNICAL
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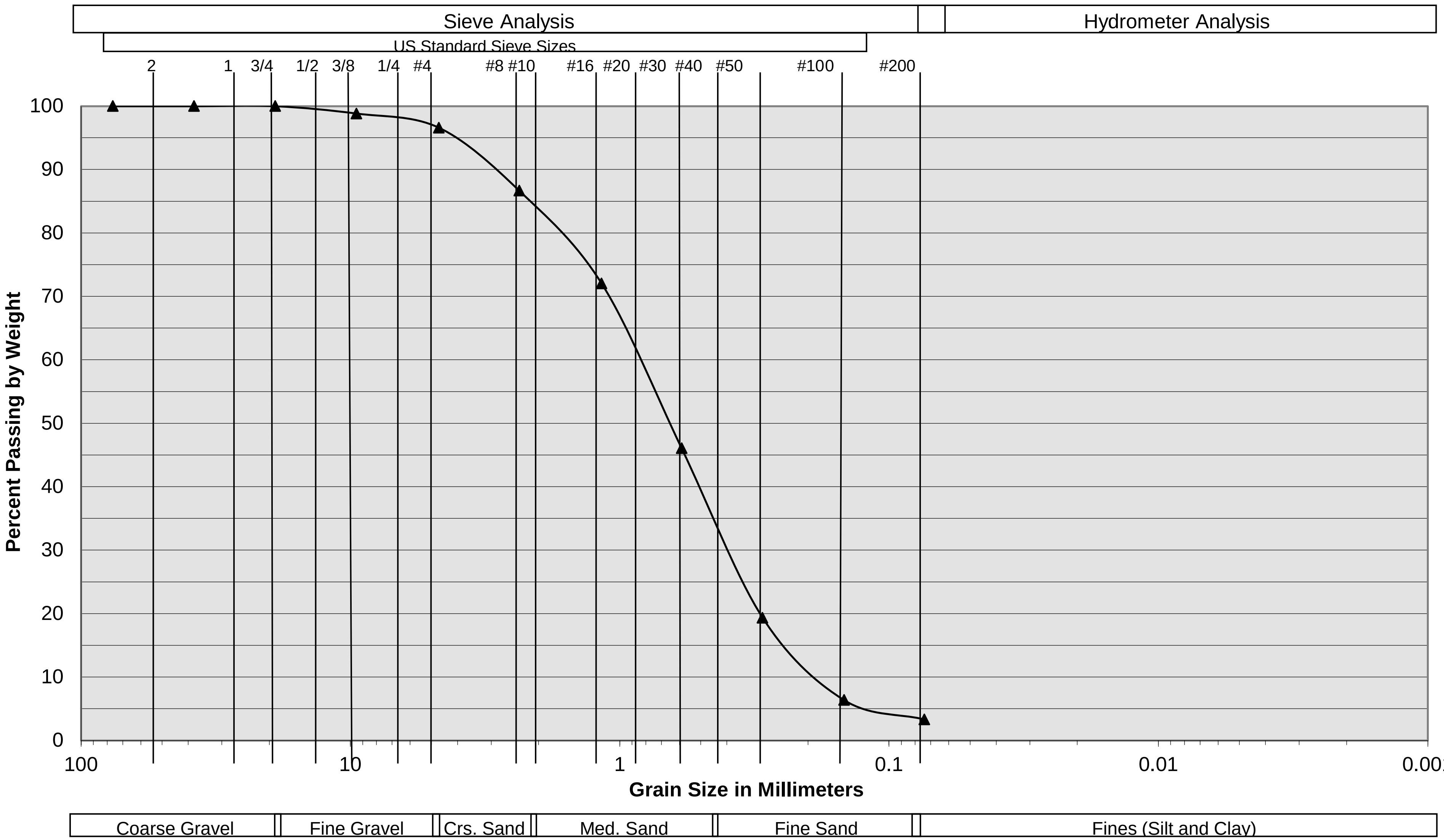
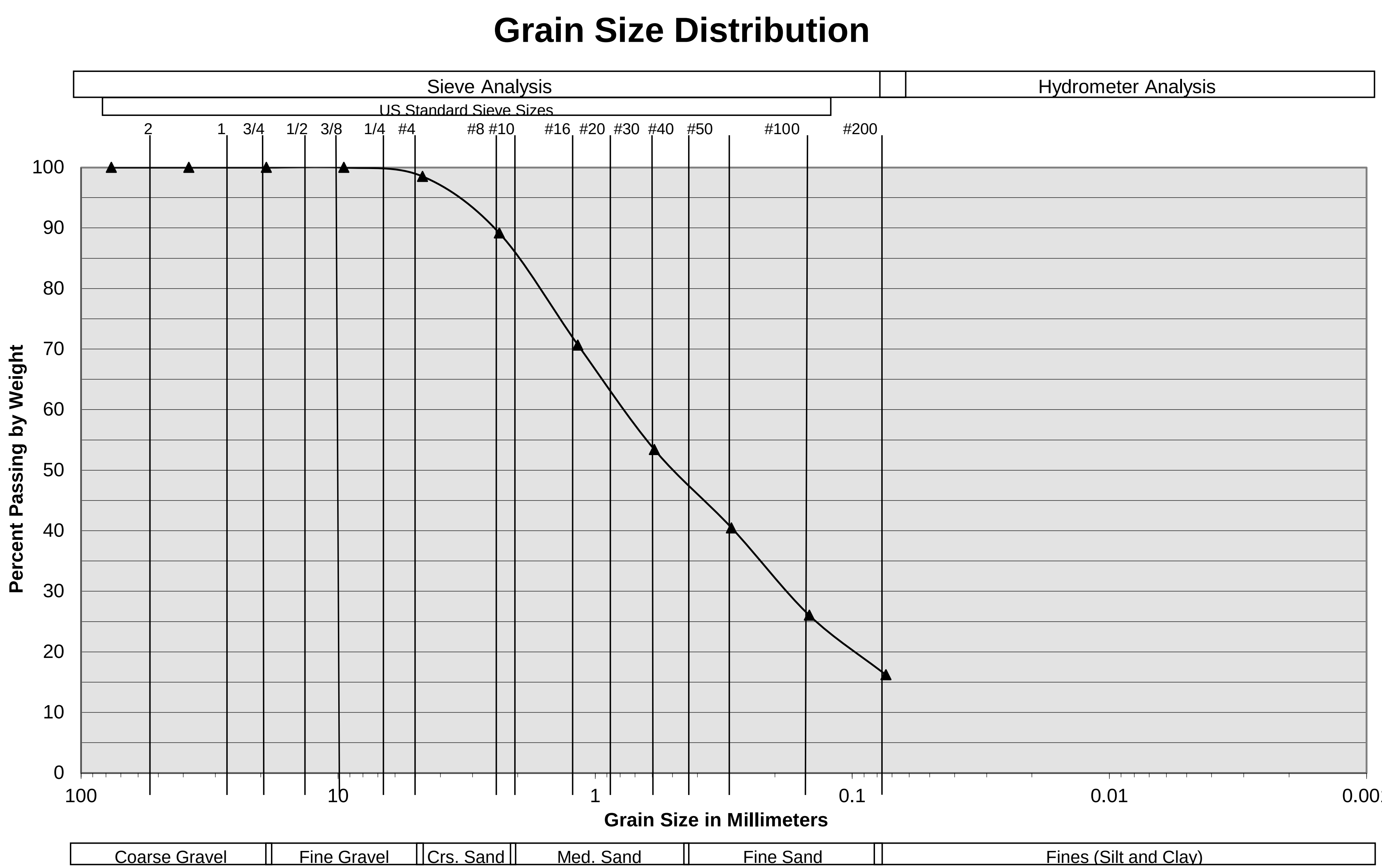
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-4 @ 8½ to 10' |
| Soil Classification | Brown fine to coarse Sand, trace Silt |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 4**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation




| | |
|---|---|
| Sample Description | I-5 @ 8½ to 10' |
| Soil Classification | Brown Silty fine to coarse Sand |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 5**

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
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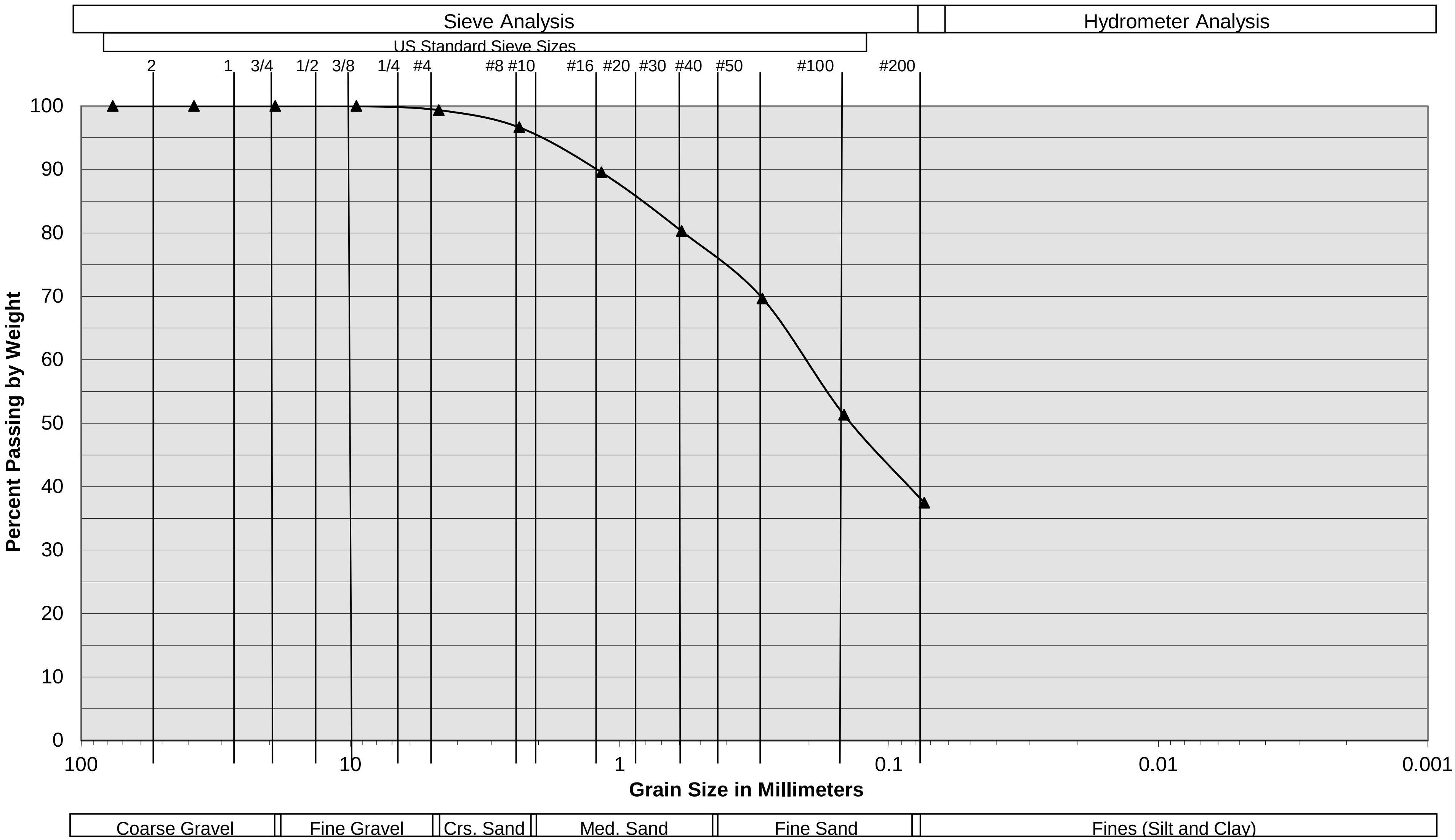
# Grain Size Distribution

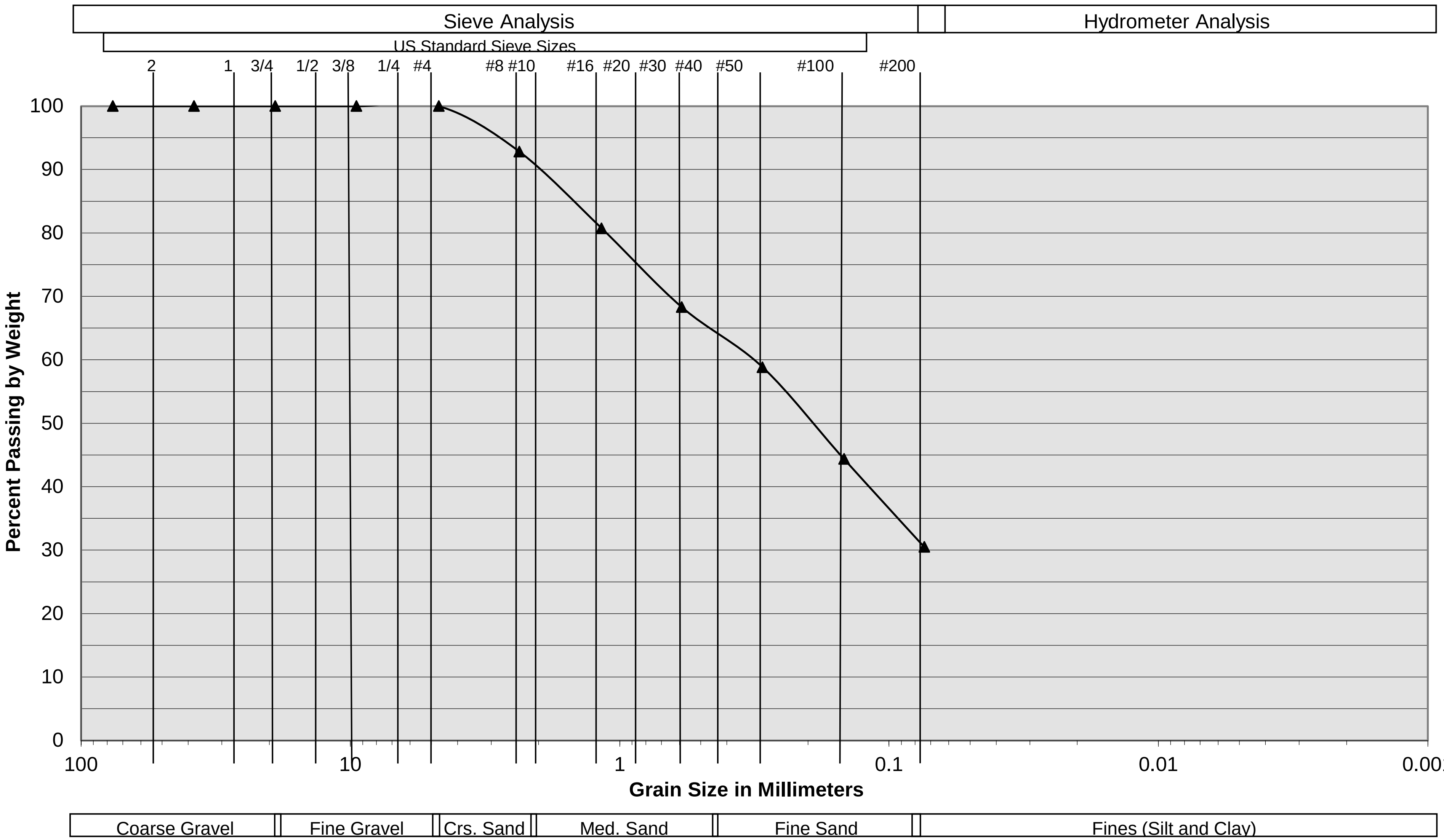



| | |
|---|---|
| Sample Description | I-6 @ 8½ to 10' |
| Soil Classification | Brown Silty fine to medium Sand, trace coarse Sand |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 6**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-7 @ 8½ to 10' |
| Soil Classification | Brown Silty fine to coarse Sand |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 7**

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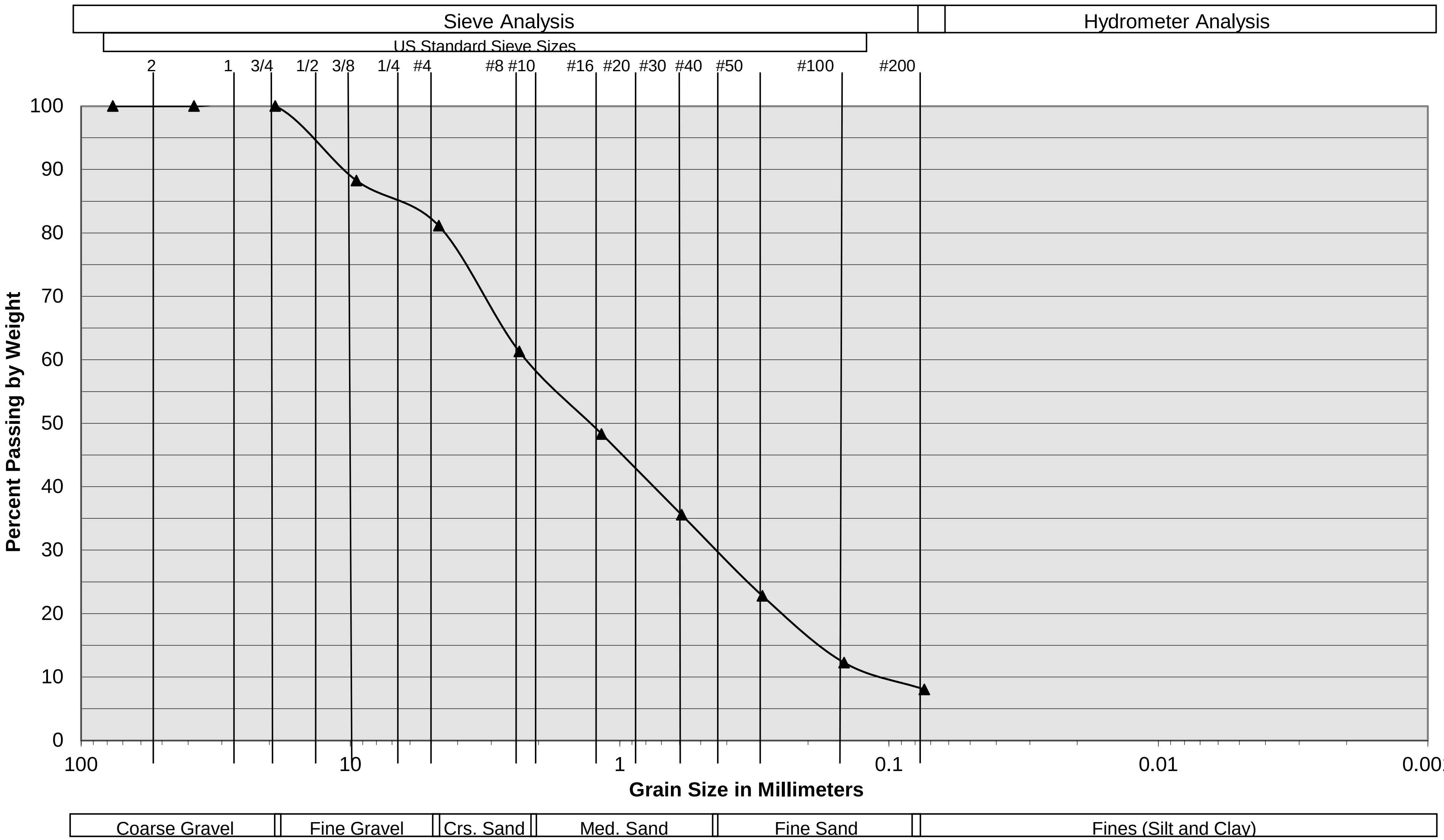
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-8 @ 8½ to 10' |
| Soil Classification | Brown Gravelly fine to coarse Sand, trace Silt |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 8**

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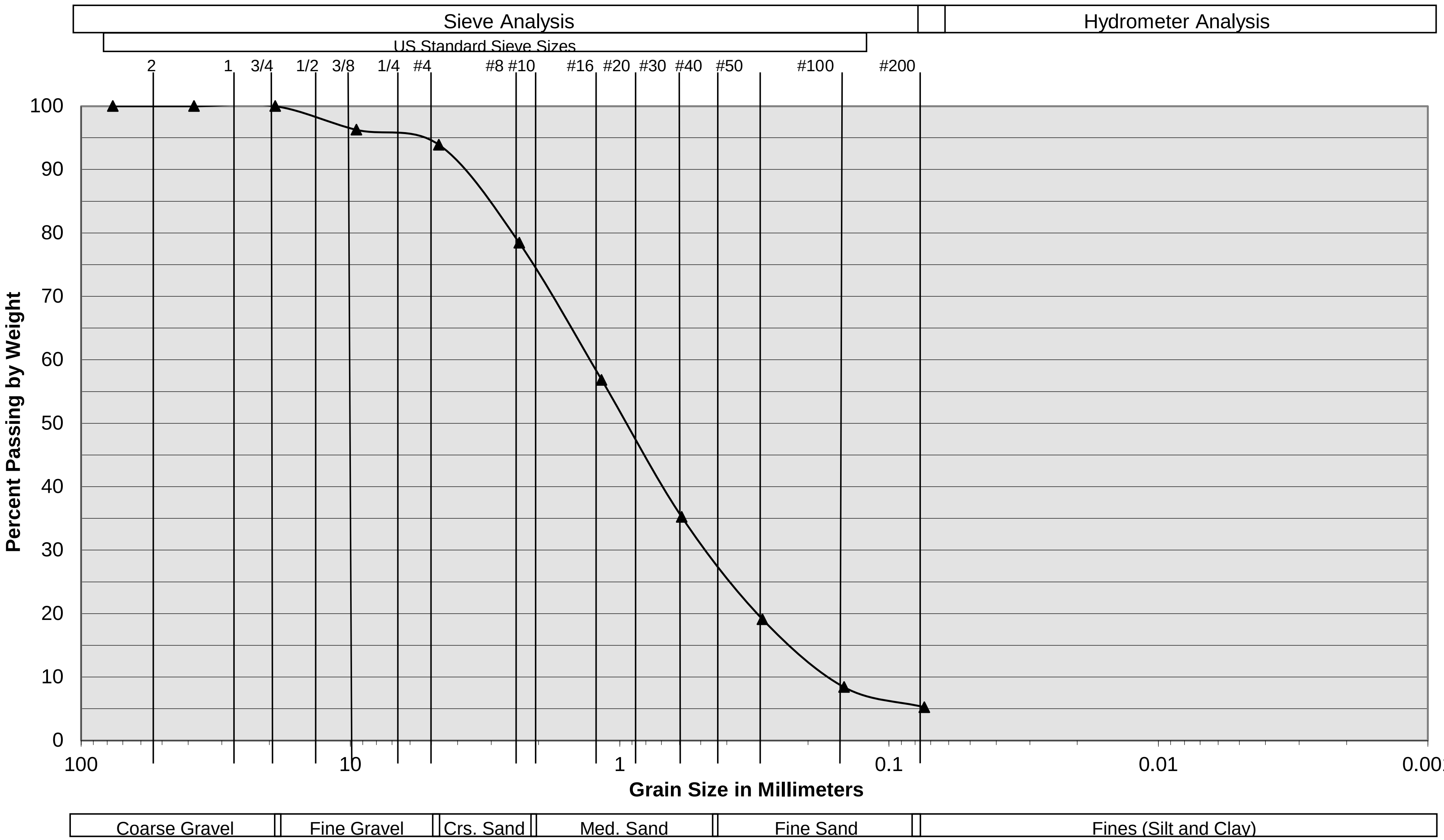
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-9 @ 8½ to 10' |
| Soil Classification | Brown fine to coarse Sand, trace fine Gravel, trace Silt |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 9**

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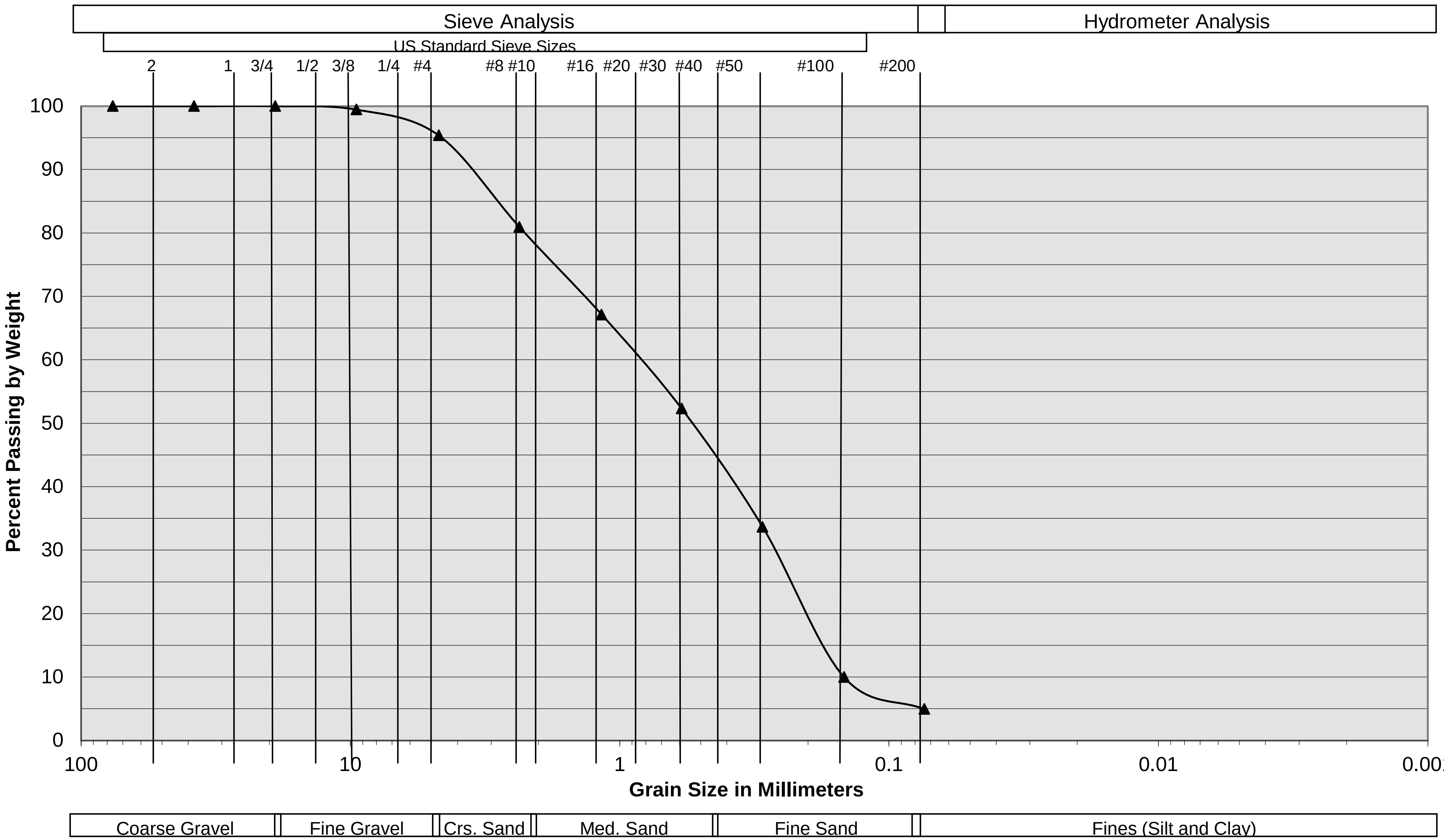
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-10 @ 8½ to 10' |
| Soil Classification | Brown fine to coarse Sand, trace fine Gravel, trace Silt |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 10**

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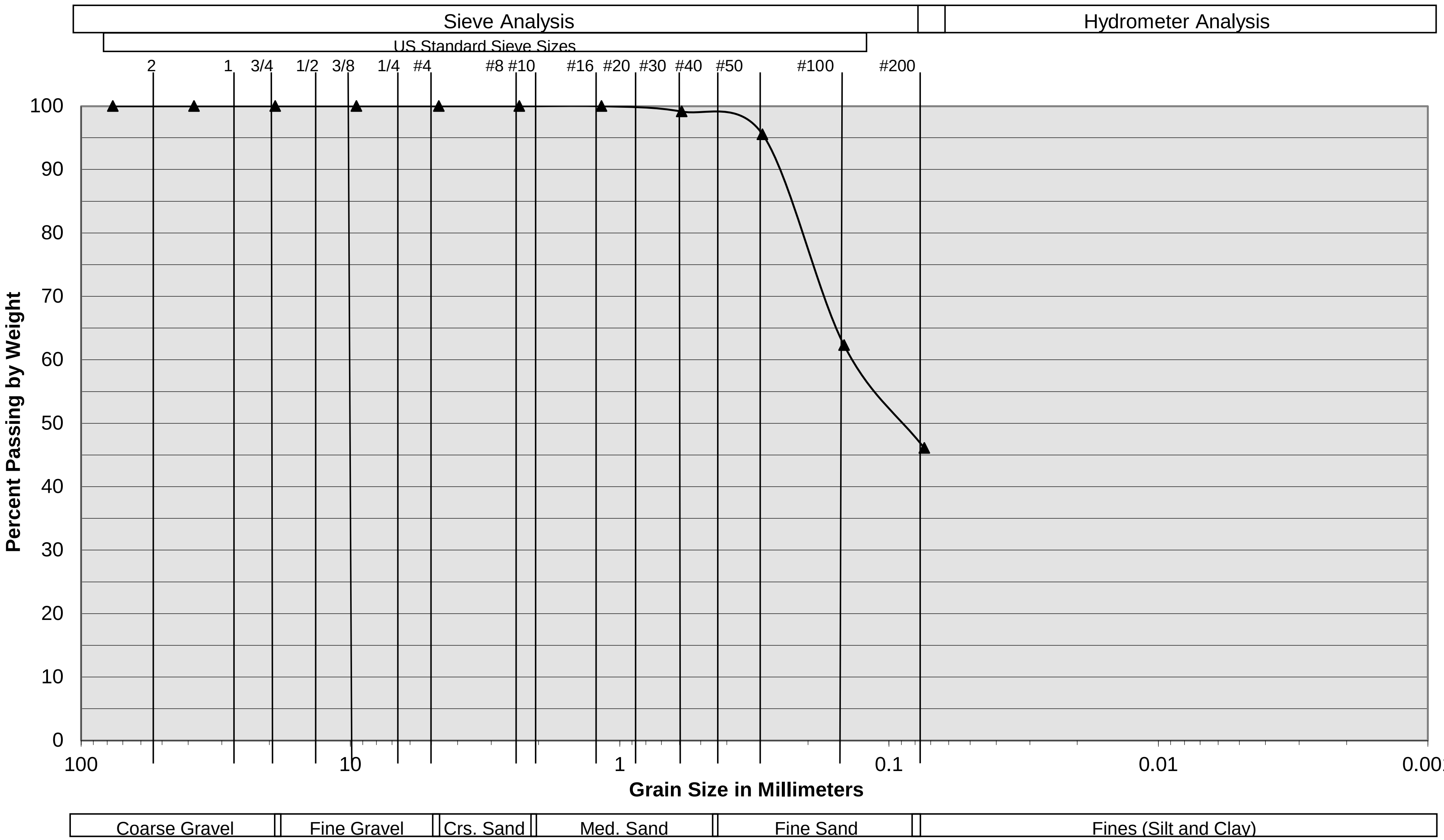
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-11 @ 8½ to 10' |
| Soil Classification | Light Brown Silty fine Sand |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 11**

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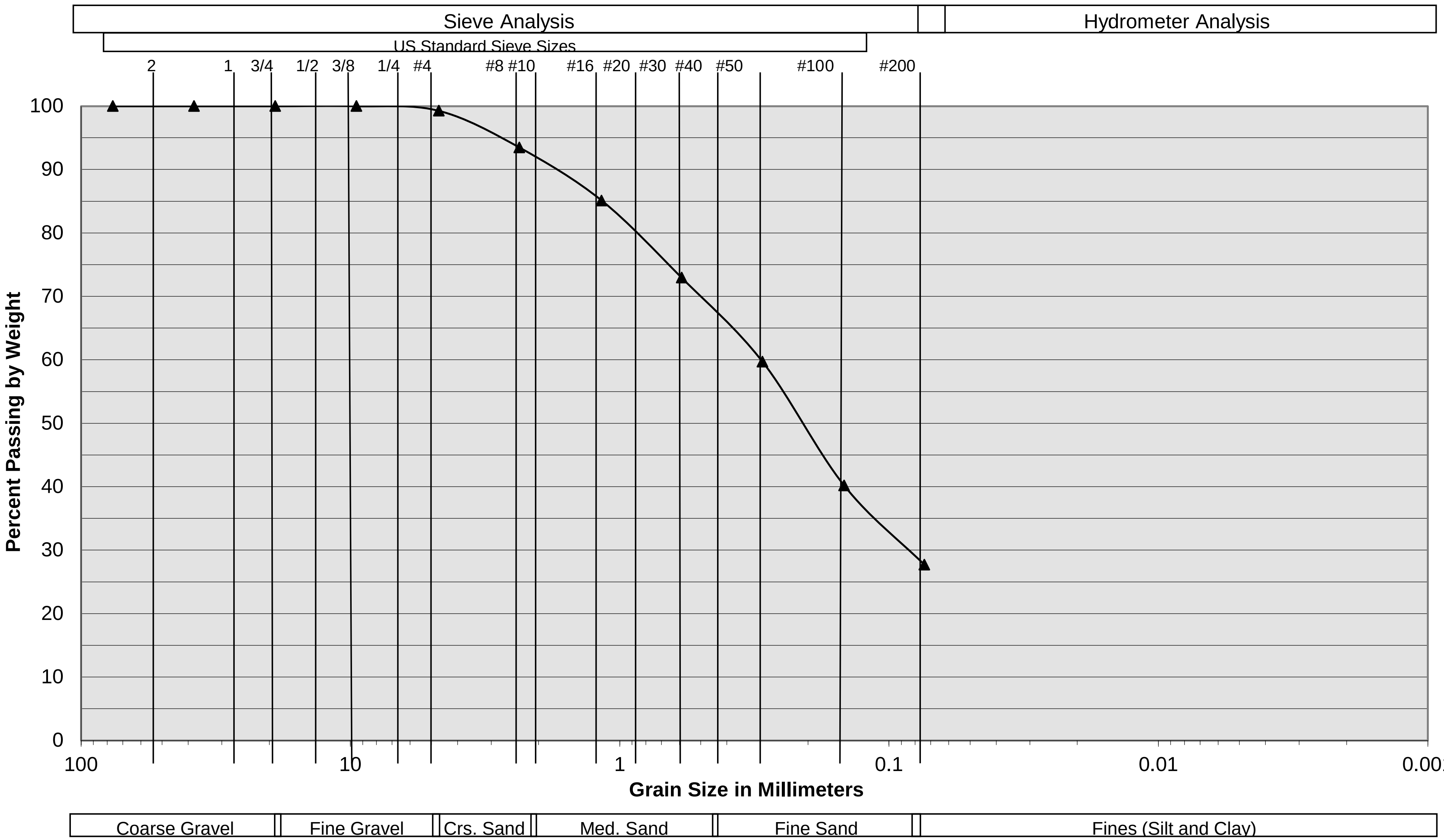
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-12 @ 8½ to 10' |
| Soil Classification | Brown Silty fine to coarse Sand |

Proposed Warehouse: Phase I
Palmdale, California
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**PLATE C- 12**

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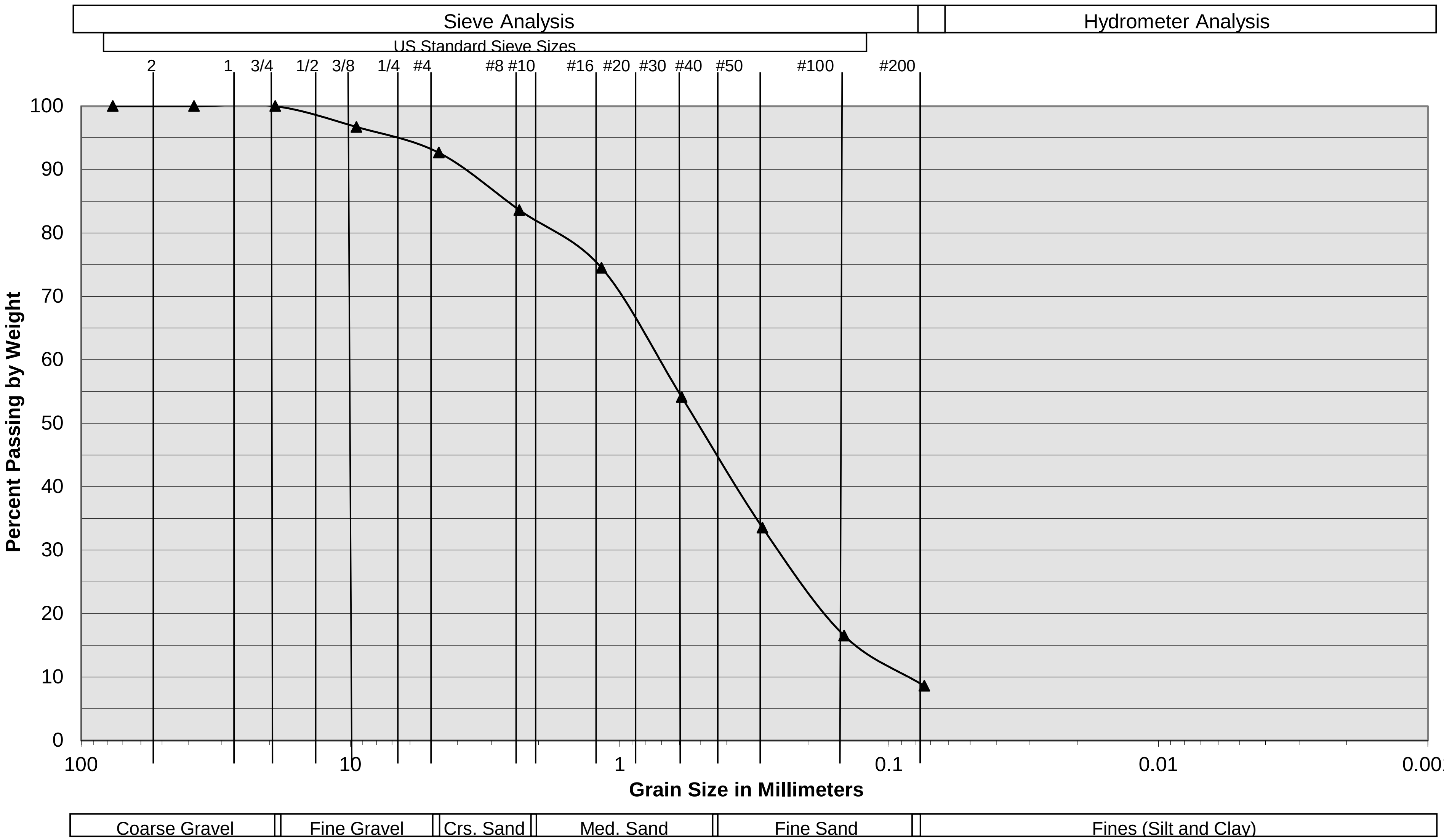
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-13 @ 8½ to 10' |
| Soil Classification | Brown fine to coarse Sand, trace Silt, trace fine Gravel |

Proposed Warehouse: Phase I
Palmdale, California
Project No. 22G143-2
**PLATE C- 13**

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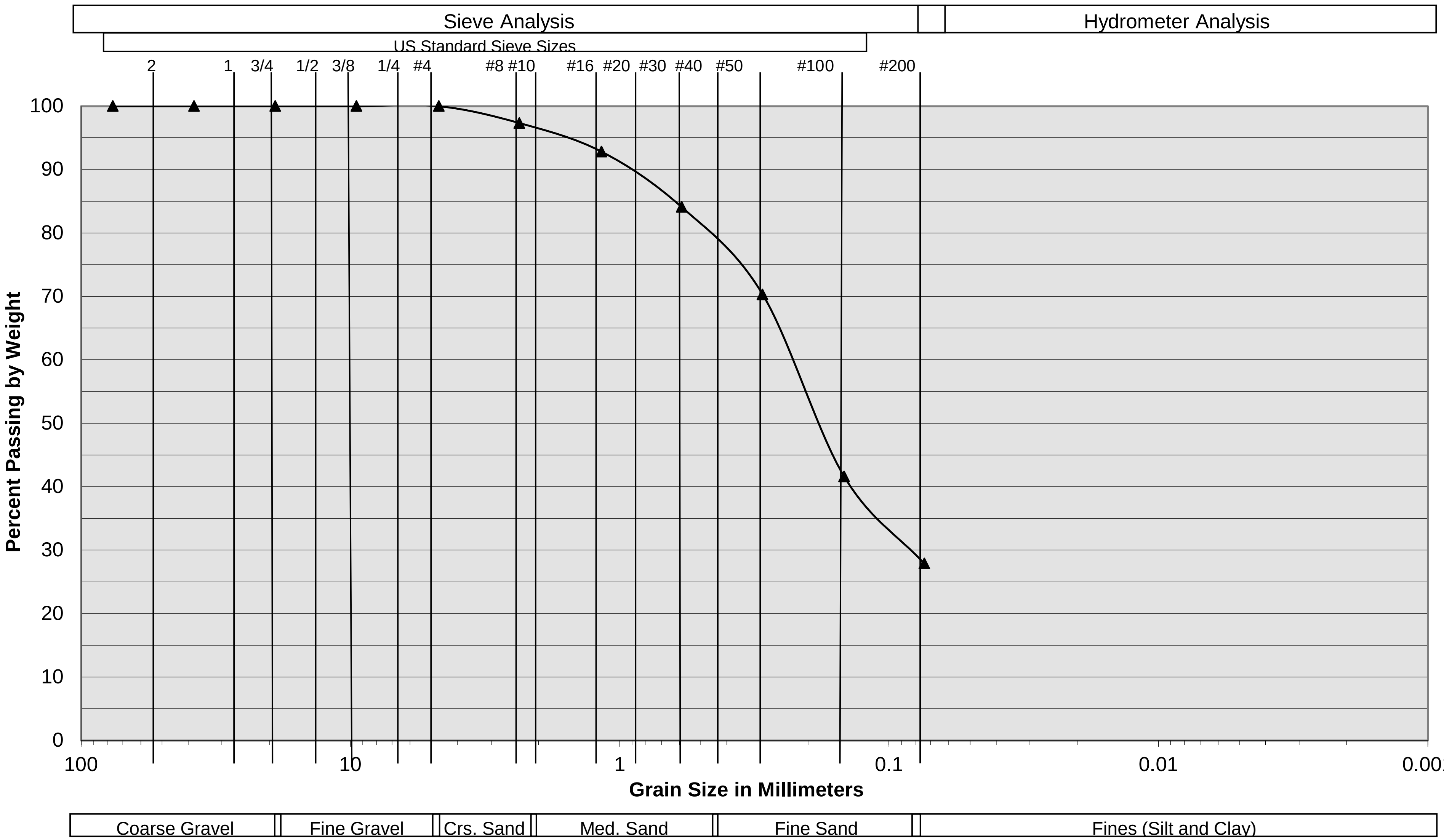
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-14 @ 8½ to 10' |
| Soil Classification | Brown to Dark Brown Silty fine to medium Sand, trace coarse Sand |

Proposed Warehouse: Phase I
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**PLATE C- 14**

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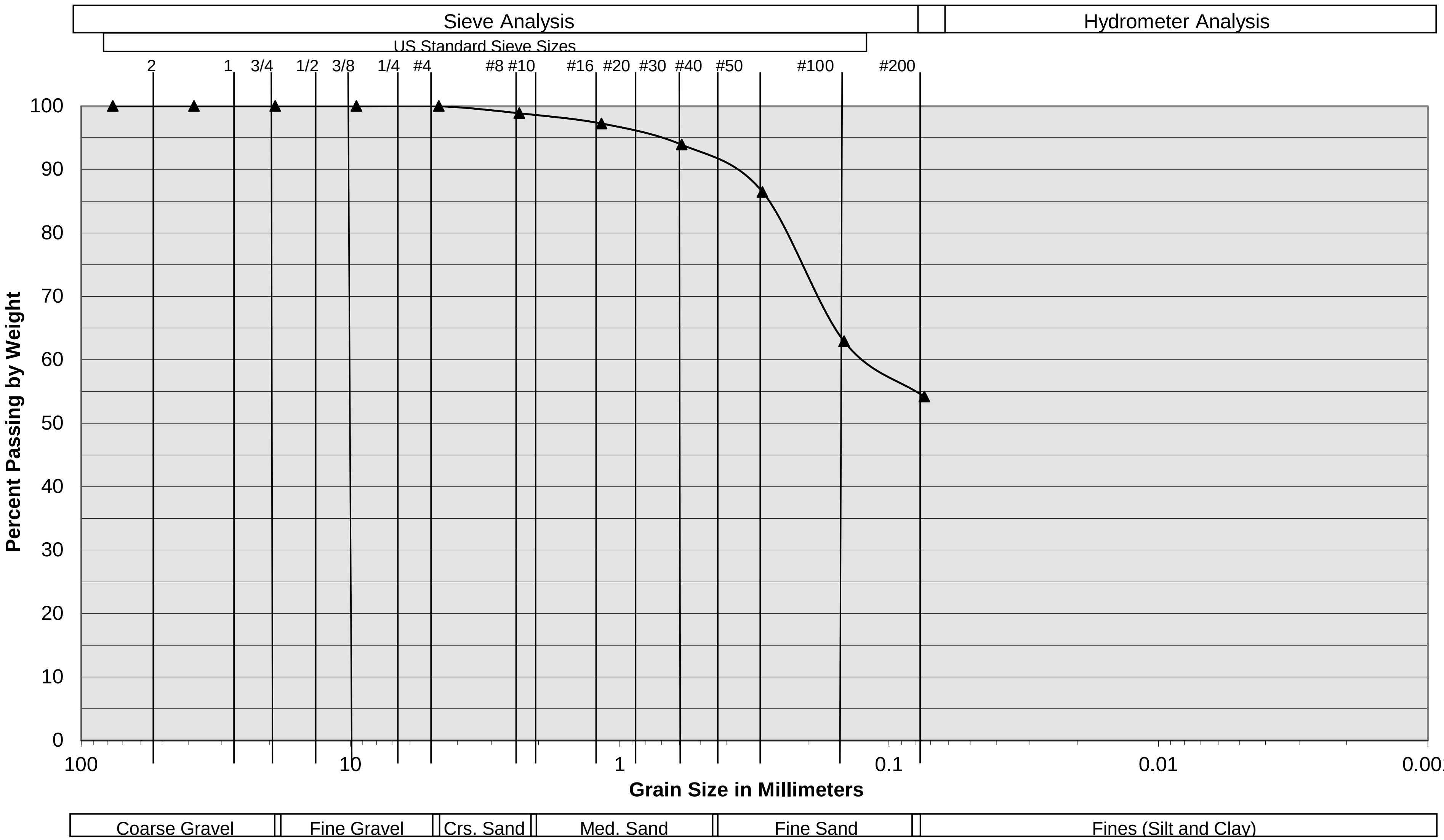
# Grain Size Distribution




| | |
|---|---|
| Sample Description | I-15 @ 8½ to 10' |
| Soil Classification | Brown fine to medium Sandy Silt |

Proposed Warehouse: Phase I
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**PLATE C- 15**

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