Appendix G

Geotechnical Investigation, Proposed Warehouse – Results of Percolation Testing

February 13, 2020

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Hillwood
901 Via Piemonte, Suite 175
Ontario, California 91764

Attention: Mr. Josh Cox
Vice President, Development

Project No.: 20G101-3

Subject: Results of Percolation Testing
Proposed Warehouse
Almond Avenue, South of Arrow Route
Unincorporated San Bernardino County (Fontana Area), California

Gentlemen:

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

Scope of Services

The scope of services performed for this project was in general accordance with our Proposal 19P386, dated October 14, 2019. The scope of services included site reconnaissance, subsurface exploration, field testing, and engineering analysis to determine the percolation rate of the on-site soils. The percolation testing was performed in accordance with the San Bernardino County Department of Environmental Health Services standards, Soil Percolation (PERC) Test Report Standards: Suitability of Lots and Soils for Use of Leachlines or Seepage Pits, published by the San Bernardino County Department of Environmental Health Services, revised September 2019.

Site and Project Description

The subject site is located on the east side of Almond Avenue, 300± feet south of Arrow Route in an unincorporated portion of San Bernardino County near Fontana, California. The site is bounded to the north by a single-family residence and a vacant lot, to the west by Almond Avenue, to the south by a truck/trailer parking lot and temporary construction site, and to the east by commercial/industrial buildings. The general location of the site is illustrated on the Site Location Map, included as Plate 1 of this report.

The site consists of two rectangular-shaped parcels which total 9.49± acres in size. The northern parcel is developed with a single-family residence in the northwestern corner of the lot. The single-family residence is a single-story structure of wood frame and stucco construction. We assume that the residence is supported on conventional shallow foundations and has a concrete slab-on-grade floor. Several large trees are located west of the residence. A berm is present in the southeast portion of the northern parcel, sloping downward to the west at a gradient of 1± percent. The berm has a maximum height of 3½± feet compared to the surrounding topography. Ground surface cover on the berm consists of poorly graded gravel. Ground surface cover

throughout the remainder of the northern parcel consist of exposed soils and sparse to moderate native grass and weed growth. The southern parcel is presently vacant and undeveloped. Several stockpiles of gravel are present in the northeastern portion of the southern parcel. Ground surface throughout the parcel consists of exposed soils, sparse to moderate native grass and weed growth, and limited areas of debris (trash, furniture, and wood pallets) along the southern and eastern property lines. Remnants of a former Portland cement concrete slab or pavement are present in the north-central portion of the southern parcel.

Our review of readily available historical aerial photographs from NETRonline, indicates that the northern parcel of the site was previously utilized for truck/trailer parking. The southern parcel generally appears vacant and undeveloped in the available photographs with the exception of crushing equipment and several stockpiles, which were present beginning sometime between 1994 and 2002. The crushing equipment was removed from the site by the time of an aerial photograph taken in 2007.

Detailed topographic information was not available at the time of this report. Based on visual observations made at the time of the subsurface investigation and from elevation data obtained from Google Earth, the overall site topography generally slopes downward to the southwest at a gradient of 1.5± percent, excluding the berm in the northern parcel.

Proposed Development

SCG was provided a conceptual site plan for the proposed development. Based on the site plan (Scheme 8) prepared by HPA Architecture, the site will be developed with one new warehouse located in the north-central area of the site. The new building will be 186,167± ft² in size and will be constructed with dock-high doors along a portion of the south building wall. The building will be surrounded by asphaltic concrete pavements in the parking and drive lanes, Portland cement concrete pavements in the loading dock area, concrete flatwork and landscape planters throughout.

Based on conversations with the client, the proposed development will utilize on-site disposal for septic waste water. The new septic system will consist of a 5,000-gallon septic tank, which will connect to four (4) 5-foot diameter seepage pits. The seepage pits will be located in the southwest area of the subject site and will be 35± feet below the existing site grades.

Concurrent Studies

Southern California Geotechnical, Inc. (SCG) conducted a geotechnical investigation at the subject site. The results of this investigation were presented in the following report:

> Geotechnical Investigation, Proposed Warehouse, East Side of Almond Avenue, South of Arrow Route, Fontana, California, prepared for Hillwood, by SCG, SCG Project No. 20G101-1, dated February 12, 2020.

The subsurface exploration conducted for this previous study consisted of six (6) borings advanced to depths of 20 to 25± feet below the existing site grades. Additionally, two (2) trenches were excavated to depths of 5 to 12± feet below the existing site grades. Artificial fill soils were encountered at the ground surface at Boring Nos. B-1, B-3 and B-5, and Trench Nos. T-1 and T-

2, extending to depths of 2 to 6½± feet below the existing site grades. At these boring locations, the artificial fill soils generally consist of medium dense to very dense silty fine sands and silty fine to coarse sands with little fine gravel content. The fill soils possess a disturbed appearance and some samples contain artificial debris, such as plastic and asphaltic concrete fragments, resulting in their classification as artificial fill. Native alluvium was encountered beneath the artificial fill soils and at the ground surface of Boring Nos. B-2 and B-4, extending to at least the maximum depth explored of 25± feet below ground surface.

SCG also performed infiltration testing at the subject site. The results of the infiltration testing were presented in the following report:

> Results of Infiltration Testing, Proposed Warehouse, East Side of Almond Avenue, South of Arrow Route, Fontana, California, prepared for Hillwood, by SCG, SCG Project No. 20G101-2, dated February 13, 2020.

The proposed development will use on-site storm water infiltration. The system will consist of below-grade chambers located in the south section of the subject site. The infiltration testing study consisted of four (4) back-hoe excavated trenches, extending to depths of 10 to 12± feet below existing site grades. Fill soils were encountered at the ground surface at all of the trench locations, I-1 through I-4, inclusive, extending to depths of 3 to 4± feet below the existing site grades. At the trench locations, the fill soils generally consist of medium dense to dense silty fine to coarse sands and fine to coarse sands with fine to coarse gravel, cobbles, and occasional trace clay. In general, the fill soils possess a disturbed appearance and some samples contain artificial debris, such as plastics and metals, resulting in their classification as artificial fill. Native alluvium was encountered below the fill soils at all of the infiltration trench locations. The native alluvial soils generally consist of medium dense to dense fine to coarse sands with variable amounts of fine to coarse gravel, cobbles, and silt extending to at least the maximum depth explored of 12± feet below the existing site grades. The infiltration test results indicate that the infiltration rates range from 6.2 to 12.0 inches per hour. SCG recommended an infiltration rate of 6 inches per hour for the infiltration/detention basin. The approximate locations of the seven (7) borings and four (4) infiltration test trenches are indicated on the Percolation Test Location Plan, included as Plate 2 of this report.

Subsurface Exploration

Scope of Exploration

The subsurface exploration conducted for the percolation testing consisted of a total of three (3) borings. Percolation tests were performed within two (2) of these borings, identified as Boring Nos. P-1 and P-2. The two percolation test borings were advanced to depths of 35± feet below the existing site grades. The remaining boring, Boring No. B-7, was advanced to a depth of 76½± feet (at least 40± feet below the bottom of the proposed seepage pits) in the area of the proposed sewage disposal system. These borings were logged during drilling by a member of our staff. All of the borings were advanced using a truck-mounted drilling rig, equipped with 8-inch diameter hollow stem augers. The approximate locations of the percolation test and the exploratory boring are indicated on the Percolation Test Location Plan, enclosed as Plate 2 of this report.

Upon completion of the drilling of the percolation test borings, a sufficient length of 3-inch-diameter perforated PVC casing was then placed into the test holes so that the perforated 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 perforated PVC casing.

Geotechnical Conditions

Native alluvial soils were encountered at the ground surface at all three (3) of the boring locations, extending to at least the maximum depth explored of 76½± feet below the existing site grades. The native alluvial soils extending from the ground surface to a depth of about 43± feet generally consist of medium dense to very dense well-graded sands with some fine to coarse gravel content. At depths of 43 to 71± feet, the alluvium consists of medium dense to very dense well-graded silty sands, and fine to medium sandy silts. At depths greater than 71± feet, the alluvial soils consist of hard/dense fine to medium sandy clays and clayey fine to medium sands. Based on the lack of any water within the borings, and the moisture contents of the recovered soil samples, the static groundwater table was considered to have existed at a depth in excess of 76½± feet at the time of this investigation.

Groundwater was not encountered at any of the borings. Based on the lack of any water within the borings, and the moisture contents of the recovered soil samples, the static groundwater table is considered to have existed at a depth in excess of 76½± feet below existing site grades, at the time of the subsurface investigation.

Laboratory Testing

The soil samples recovered from the subsurface exploration were returned to our laboratory for further testing to determine selected physical and engineering properties of the soils. The tests are briefly discussed below. It should be noted that the test results are specific to the actual samples tested, and variations could be expected at other locations and depths.

Moisture Content

The moisture contents for the recovered soil samples 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 soils from below the proposed inlet of the seepage pits has 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 through C-17 of this report. Limited grain size analyses were also performed on selected samples to determine the percentage passing the No. 200 sieve. These test results are reported on the Boring Logs for Boring Nos. P-1, P-2, and Boring No. B-7.

Percolation Testing

We understand that the results of the testing will be used to prepare a preliminary design for an on-site sewage disposal system. As previously stated, the percolation testing was performed in general accordance with the On-site Waste Water Disposal System, Soil Percolation (Perc) Test Report Standards: Suitability of Lots and Soils for Use of Leach lines or Seepage Pits, published by the San Bernardino County Department of Environmental Health Services. A Percolation Test Notification was submitted in person to the County of San Bernardino, Environmental Health Services division on January 14, 2020. No personnel representing San Bernardino County were present during the percolation testing.

Pre-saturation

The first phase of percolation testing consisted of pre-saturating the percolation test holes. After drilling was completed, a PVC pipe and gravel were installed in each boring, as discussed in a previous section of this report. The borings were pre-saturated by filling the plastic pipe with clean water up to the ground surface. After the water percolated into the surrounding soils, the borings were refilled with clean water. In accordance with San Bernardino County guidelines for gravel packed holes in very sandy soils, since the water level for four (4) consecutive fillings seeped faster than at least half of the initial wetted depth in 30 minutes within all three of the percolation test borings, the percolation testing was conducted the same day following the pre-saturation procedure.

Percolation Testing

SCG subsequently performed the percolation testing. According to the San Bernardino County guidelines, it was determined that the percolation testing should consist of at least six (6) consecutive 10-minute intervals taken for at least one (1) additional hour until three consecutive readings did not vary by more than 10%. From a fixed reference point, the drop in water level was measured over 10-minute periods for at least one hour for both of the percolation test borings (P-1 and P-2). After each time interval was recorded, the test holes were refilled to the ground surface. For the final three (3) readings at each test location, readings were taken at every 10 minutes, refilling to the proposed depth of the inlet, approximately 4 feet below the ground surface. The depths of the percolation test borings were re-measured after each reading to ensure that caving did not occur. The water level readings are presented on the spreadsheets enclosed with this report. The percolation rates for each time interval are also tabulated on the spreadsheets.

Percolation Results

The procedure used to calculate the percolation rates account for the porosity of the gravel which was used to backfill the borings. This material possesses a porosity of approximately 0.4.

Percolation rates are tabulated in gallons per square foot per day. In accordance with San Bernardino County guidelines, it is recommended that the most conservative reading from the latter part of the percolation test be used for design. These rates are summarized below:

Percolation Test Location	Boring Depth (Feet)	Percolation Rate (Q) Gal/ft²/d	San Bernardino County Minimum/Maximum Percolation Rates (Q)
P-1	35	17.0	Minimum = 1.1
P-2	35	16.2	Maximum = 4.0

Historic Groundwater Research

We have researched historic groundwater levels near the subject site. One of the sources which possessed information deemed relevant to the subject site was the State of California Department of Water Resources website. Historic high-water levels from nearby monitoring wells are presented in the table below.

State Well ID	Approximate Distance from Subject Site	Historic High Water Level bgs (feet)	Available Data Range (years)
340935N1174885W001	0.3 miles (SE)	309	1925 to 2017
340940N1174666W001	1.4 miles (SE)	385	1925 to 2017
341217N1175119W001	2.0 miles (NW)	579	2011 to 2019

Based on the well data provided above, our exploratory boring, the relative elevations of the well sites with respect to the subject site, and the depth to the historic high-water level, the ground water at the subject site is estimated to be at a depth of at least 309± feet below the existing ground surface.

Design Considerations

Based on the percolation testing at the subject site, the percolation rates at the test locations range from 16.2 to 17.0 gallons per square foot per day (gal/ft²/d). The San Bernardino County guidelines state that the design flow rate (Q) for seepage pits must be at least 1.1 gal/ft²/d and no greater than 4.0 gal/ft²/d. Therefore, we recommend that the design percolation rate for the seepage pits be 4.0 gal/ft²/d per the San Bernardino County guidelines.

The design of the on-site sewage disposal system should be performed by the project civil engineer. It should be noted that the recommended percolation rate is based on percolation testing at two (2) discrete locations, and the overall percolation rates of the septic system could vary. However, based on the uniformity of the soil at the percolation test boring locations, the percolation rate is not expected to vary significantly. We also recommend that a copy of the DEHS septic system handout "*Taking Care of Your Septic System*" be obtained by the owner/developer and that the recommendations contained in that handout be applied throughout the life of the proposed system.

Abandonment of Percolation Test Borings

We recommend that the percolation test borings be abandoned during construction in the following manner: The upper 5 feet of the boring should be over-drilled to remove the gravel

from the boring and the PVC drain pipe should be removed from the upper 5 feet of the boring. The excavation should then be filled with lean concrete slurry. We further recommend that any local well abandonment standards or procedures be observed.

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 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,

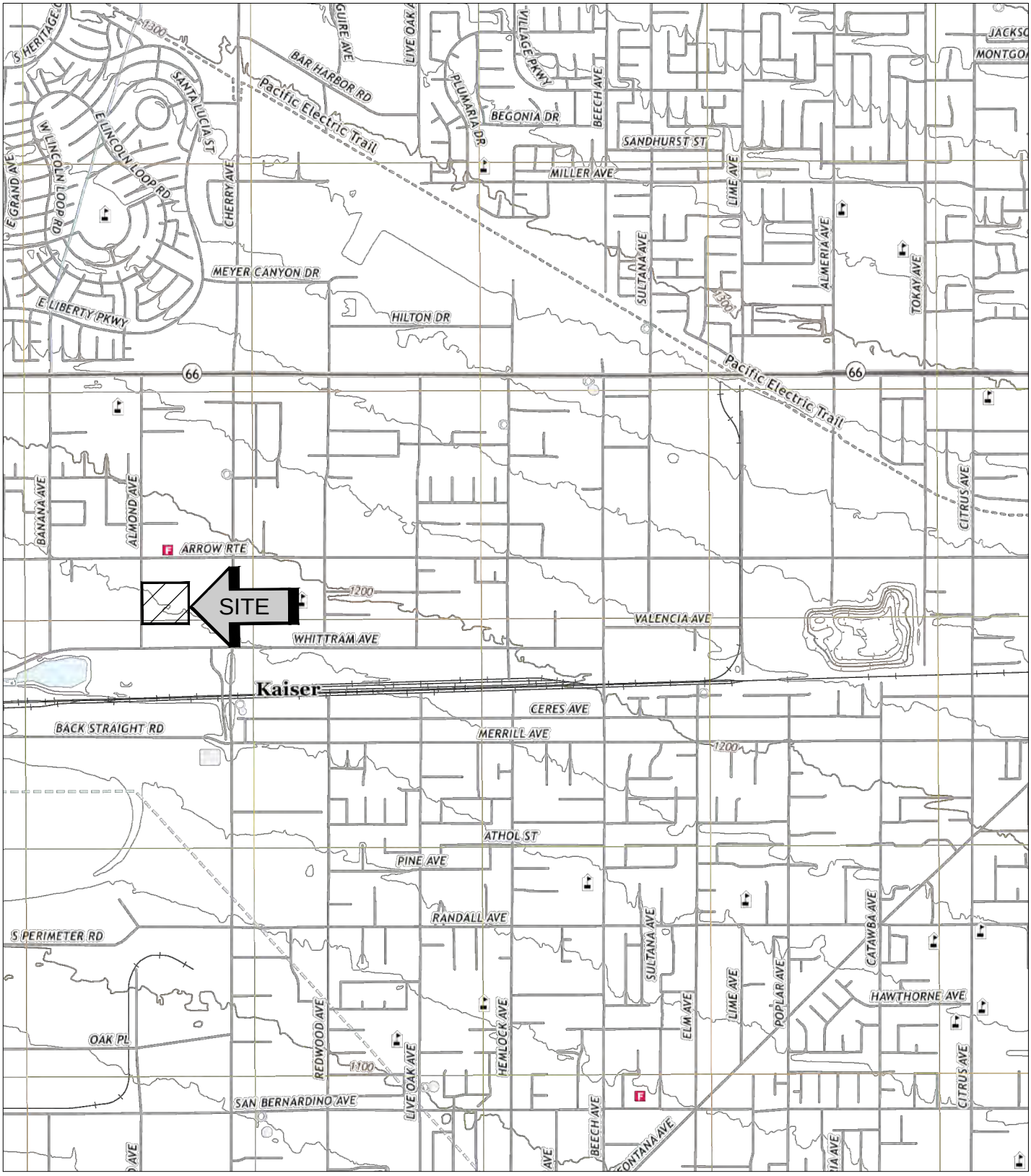
SOUTHERN CALIFORNIA GEOTECHNICAL, INC.

Oscar Sandoval
Staff Engineer

Daniel W. Nielsen, RCE 77915
Senior Engineer

Distribution: (1) Addressee

Enclosures: Plate 1 – Site Location Map
Plate 2 –Percolation Test Location Plan
Boring Log Legend and Boring Logs (9 pages)
Percolation Test Results Spreadsheets (4 pages)
Grain Size Distribution Graphs (17 pages)



SOURCE: USGS TOPOGRAPHIC MAP OF THE FONTANA QUADRANGLE, SAN BERNARDINO COUNTY, CALIFORNIA, 2018.

SITE LOCATION MAP

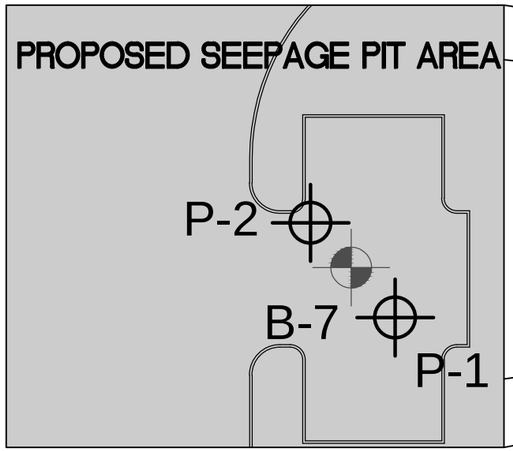
PROPOSED WAREHOUSE

SAN BERNARDINO COUNTY, CALIFORNIA

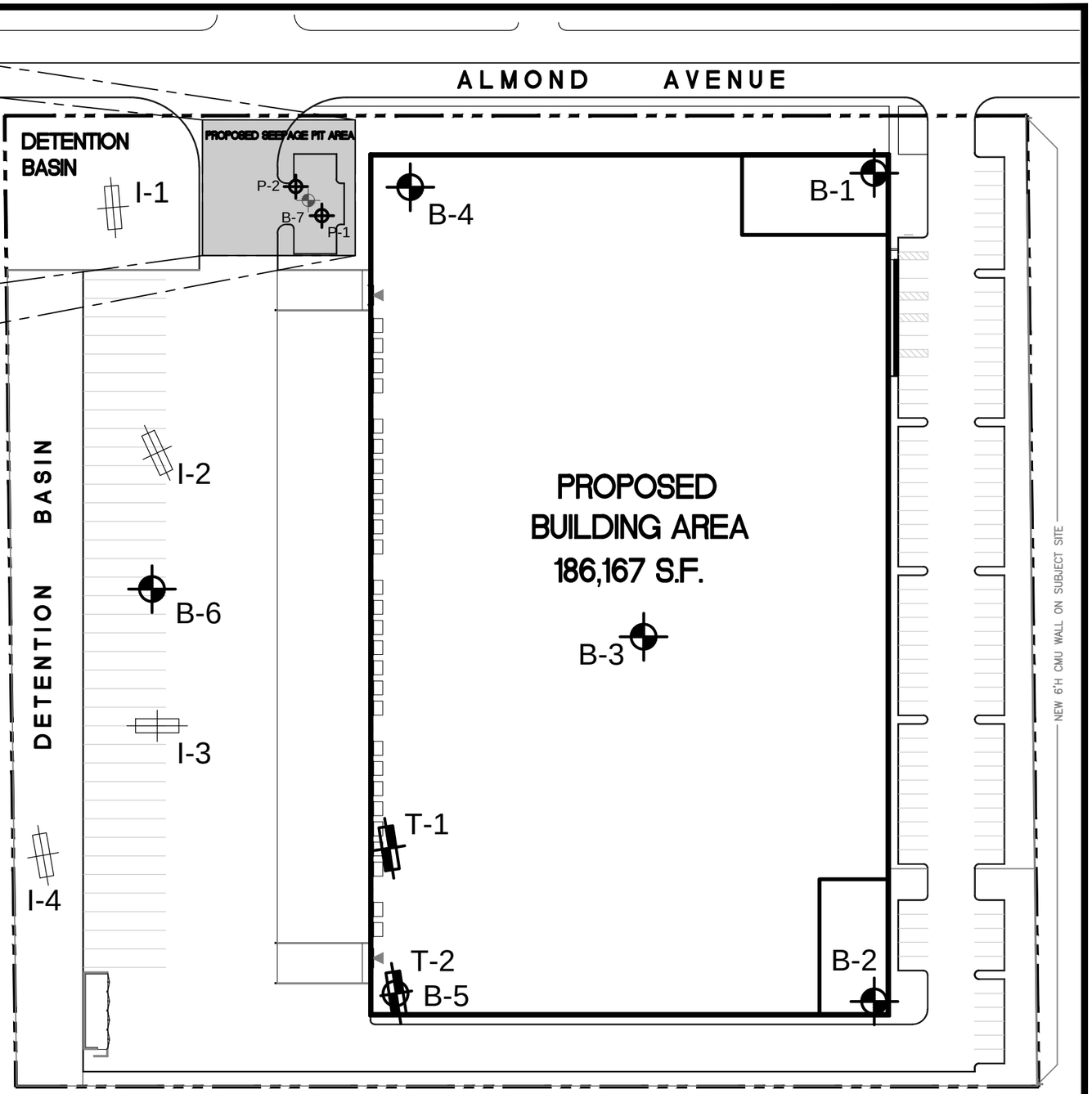
SCALE: 1" = 2000'	
DRAWN: JAH CHKD: DWN	
SCG PROJECT 20G101-3	
PLATE 1	

SoCalGeo

SOUTHERN CALIFORNIA GEOTECHNICAL



SCALE: 1" = 30'



SCALE: 1" = 80'

GEOTECHNICAL LEGEND

- APPROXIMATE PERCOLATION TEST LOCATION
- APPROXIMATE EXPLORATORY BORING LOCATION
- APPROXIMATE INFILTRATION TEST LOCATION FROM CONCURRENT STUDY (SCG PROJECT NO. 20G101-2)
- APPROXIMATE BORING LOCATION FROM CONCURRENT STUDY (SCG PROJECT NO. 20G101-1)
- APPROXIMATE TRENCH LOCATION FROM CONCURRENT STUDY (SCG PROJECT NO. 20G101-1)

NORTH
SoCalGeo

NOTE: CONCEPTUAL SITE PLAN PREPARED BY HPA.

PERCOLATION TEST LOCATION PLAN

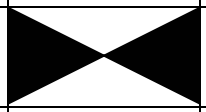
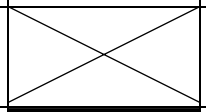
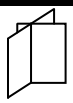
PROPOSED WAREHOUSE

SAN BERNARDINO COUNTY, CALIFORNIA

SCALE AS SHOWN	
DRAWN: OS CHKD: DWN	
SCG PROJECT 20G101-3	
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.

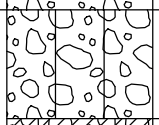
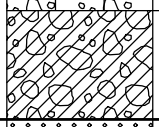
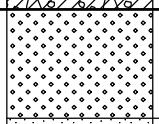
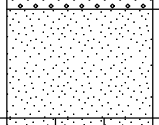
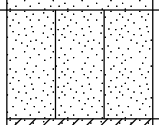
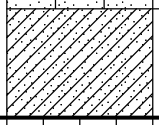
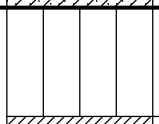
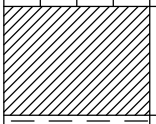
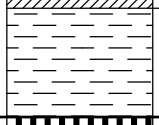
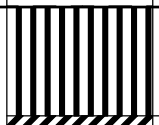
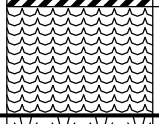
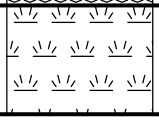
LIQUID LIMIT: The moisture content above which a soil behaves as a liquid.

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		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	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
	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. P-1

JOB NO.: 20G101-3
PROJECT: Proposed Warehouse
LOCATION: San Bernardino County, California

DRILLING DATE: 1/21/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jamie Hayward

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

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
0					ALLUVIUM: Gray Brown fine to coarse Sand, some fine to coarse Gravel, medium dense to very dense-dry to damp							
5		23					3					
10		43					2					
15		43					2					
20		83			@ 18½ to 20 feet, little Silt		2			9		
25		50/5"			Gray Brown Silty fine to coarse Sand, some fine to coarse Gravel, very dense-dry to damp		2			14		
		50/6"					3			14		

TBL 20G101-3.GPJ SOCALGEO.GDT 2/13/20

TEST BORING LOG **PLATE B-1a**

SOUTHERN CALIFORNIA GEOTECHNICAL

BORING NO. P-1

JOB NO.: 20G101-3 | DRILLING DATE: 1/21/20 | WATER DEPTH: Dry
PROJECT: Proposed Warehouse | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: San Bernardino County, California | LOGGED BY: Jamie Hayward | READING TAKEN: ---

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION (Continued)	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					Gray Brown Silty fine to coarse Sand, some fine to coarse Gravel, very dense-dry to damp							
		49					6			14		
35					Boring Terminated at 35'							

TBL 20G101-3.GPJ SOCALGEO.GDT 2/13/20

TEST BORING LOG **PLATE B-1b**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. P-2

JOB NO.: 20G101-3
PROJECT: Proposed Warehouse
LOCATION: San Bernardino County, California

DRILLING DATE: 1/21/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jamie Hayward

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

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
0					ALLUVIUM: Brown fine to coarse Sand, some fine to coarse Gravel, dense to very dense-dry to damp							
5		37					3					
10		50/5"			@ 8½ feet, trace Silt		4					
15		56			@ 13½ feet, little Silt		1			7		
20		50/4"										No Sample Recovered
25		50/5"			@ 23½ feet, little Silt		4			9		
		50/5"			Gray Brown Silty fine to coarse Sand, some fine to coarse Gravel, very dense-damp		4			12		

TBL 20G101-3.GPJ SOCALGEO.GDT 2/13/20

TEST BORING LOG

PLATE B-2a

SOUTHERN CALIFORNIA GEOTECHNICAL

BORING NO. P-2

JOB NO.: 20G101-3 | DRILLING DATE: 1/21/20 | WATER DEPTH: Dry
PROJECT: Proposed Warehouse | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: San Bernardino County, California | LOGGED BY: Jamie Hayward | READING TAKEN: ---

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION (Continued)	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					Gray Brown Silty fine to coarse Sand, some fine to coarse Gravel, very dense-damp							
		50/6"					5			9		
35					Boring Terminated at 35'							

TBL 20G101-3.GPJ SOCALGEO.GDT 2/13/20

TEST BORING LOG **PLATE B-2b**

SOUTHERN CALIFORNIA GEOTECHNICAL

BORING NO. B-7

JOB NO.: 20G101-3
PROJECT: Proposed Warehouse
LOCATION: San Bernardino County, California

DRILLING DATE: 1/29/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					ALLUVIUM: Gray Brown fine to coarse Sand, little fine Gravel, trace coarse Gravel, trace Silt, occasional cobbles, dense to very dense-damp							
5		36					3					
10		60					2					
15		86					2					
20		50/6"					3					
25		50/6"					3					

TBL 20G101-3.GPJ SOCALGEO.GDT 2/13/20

TEST BORING LOG

PLATE B-3a

SOUTHERN CALIFORNIA GEOTECHNICAL

BORING NO. B-7

JOB NO.: 20G101-3 | DRILLING DATE: 1/29/20 | WATER DEPTH: Dry
PROJECT: Proposed Warehouse | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: San Bernardino County, California | LOGGED BY: Ryan Bremer | READING TAKEN: ---

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION (Continued)	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
		50/6"			@ 30 to 43 feet, trace to little Silt		6					
35		50/5"			Gray Brown fine to coarse Sand, little fine Gravel, trace coarse Gravel, trace Silt, dense to very dense-damp		5					
40		94/7"					3			7		
					Brown Silty fine to medium Sand, trace coarse Sand, dense-moist							
45		40					9			31		
50		58			@ 50 feet, trace Clay		13			42		
					Brown fine to medium Sandy Silt, trace coarse Sand, trace fine Gravel, medium dense-moist							
55		23					16			62		
					Brown Silty fine to coarse Sand, little fine Gravel, very dense-damp							

TBL 20G101-3.GPJ SOCALGEO.GDT 2/13/20

TEST BORING LOG **PLATE B-3b**

SOUTHERN CALIFORNIA GEOTECHNICAL

BORING NO. B-7

JOB NO.: 20G101-3
PROJECT: Proposed Warehouse
LOCATION: San Bernardino County, California

DRILLING DATE: 1/29/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION (Continued)	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
		61			Brown Silty fine to coarse Sand, little fine Gravel, very dense-damp		6			24		
65		50/6"					4			14		
70		50/3"					5			11		
					Red Brown fine to medium Sandy Clay, hard-moist		15			62		
					Red Brown Clayey fine to medium Sand, trace coarse Sand, dense-moist							
75		31					15			47		
					Boring Terminated at 76½'							

TBL 20G101-3.GPJ SOCALGEO.GDT 2/13/20

TEST BORING LOG

PLATE B-3c

PERCOLATION CALCULATIONS - PRESATURATION

Project Name	Proposed Warehouse
Project Location	San Bernardino County, CA
Project Number	20G101-3
Engineer	Emmanuel Jiron

Borehole Diameter	8	(in)
Borehole Depth	33.45	(ft)
Perforated Pipe Diameter	3	(in)
Porosity of Gravel Backfill	0.4	

Percolation Boring No. P-1

Interval Number		Time	Time Interval (hrs)	Water Depth (ft)	Change in Water Level (ft)	Did Seepage Exceed 1/2 Wetted Depth?	Overnight Pre-Saturation Required?
1	Initial	8:20 AM	0.5	10.00	12.5	YES	NO
	Final	8:50 AM		22.50			
2	Initial	8:52 AM	0.5	10.00	12.5	YES	NO
	Final	9:22 AM		22.50			
3	Initial	9:25 AM	0.5	10.00	12.5	YES	NO
	Final	9:55 AM		22.50			
4	Initial	9:58 AM	0.5	10.00	12.5	YES	NO
	Final	10:28 AM		22.50			

PERCOLATION CALCULATIONS

Project Name	Proposed Warehouse
Project Location	San Bernardino County, CA
Project Number	20G101-3
Engineer	Emmanuel Jiron

Borehole Diameter	8	(in)
Borehole Depth	33.45	(ft)
Perforated Pipe Diameter	3	(in)
Porosity of Gravel Backfill	0.4	

Percolation Boring No. P-1

Interval Number		Time	Time Interval (hrs)	Water Depth (ft)	Change in Water Level (ft)	Average Length of Water Column (ft)	Percolation Rate Q (gal/ft^2/day)	Percolation Rate Adjusted for Gravel Porosity Q (gal/ft^2/day)
1	Initial	10:45 AM	0.17	10.00	15.47	15.72	35.44	17.17
	Final	10:55 AM		25.47				
2	Initial	10:56 AM	0.17	10.00	15.64	15.63	36.02	17.45
	Final	11:06 AM		25.64				
3	Initial	11:07 AM	0.17	10.00	15.65	15.63	36.06	17.47
	Final	11:17 AM		25.65				
4	Initial	11:18 AM	0.17	10.00	15.24	15.83	34.66	16.79
	Final	11:28 AM		25.24				
5	Initial	11:29 AM	0.17	10.00	15.15	15.88	34.36	16.64
	Final	11:39 AM		25.15				
6	Initial	11:40 AM	0.17	10.00	15.38	15.76	35.13	17.02
	Final	11:50 AM		25.38				

Per County Standards, percolation rate calculated as follows:

$$Q = \frac{\frac{F}{T} D * 9}{L_{AV}}$$

Where: Q = Rate in Gallons per sqaure foot of sidewall per day

F = Drop during time interval in feet

T = Time interval in hours

D = Borehole diameter in feet

L_{AV} = Average depth of water column during the time interval in feet

n = porosity of gravel

d = Pipe diameter in feet

Adjusted percolation rate also accounts for porosity of the gravel backfill.

$$Q_{adj} = \frac{\frac{F}{T} D * 9}{L_{AV}} \frac{(nD^2 + d^2(1-n))}{D^2}$$

PERCOLATION CALCULATIONS - PRESATURATION

Project Name	Proposed Warehouse
Project Location	San Bernardino County, CA
Project Number	20G101-3
Engineer	Emmanuel Jiron

Borehole Diameter	8	(in)
Borehole Depth	35	(ft)
Perforated Pipe Diameter	3	(in)
Porosity of Gravel Backfill	0.4	

Percolation Boring No.	P-2

Interval Number		Time	Time Interval (hrs)	Water Depth (ft)	Change in Water Level (ft)	Did Seepage Exceed 1/2 Wetted Depth?	Overnight Pre-Saturation Required?
1	Initial	8:23 AM	0.5	10.00	12.5	YES	NO
	Final	8:53 AM		22.50			
2	Initial	8:57 AM	0.5	10.00	12.5	YES	NO
	Final	9:27 AM		22.50			
3	Initial	9:29 AM	0.5	10.00	12.5	YES	NO
	Final	9:59 AM		22.50			
4	Initial	10:01 AM	0.5	10.00	12.5	YES	NO
	Final	10:31 AM		22.50			

PERCOLATION CALCULATIONS

Project Name	Proposed Warehouse
Project Location	San Bernardino County, CA
Project Number	20G101-3
Engineer	Emmanuel Jiron

Borehole Diameter	8	(in)
Borehole Depth	35.53	(ft)
Perforated Pipe Diameter	3	(in)
Porosity of Gravel Backfill	0.4	

Percolation Boring No. P-2

Interval Number		Time	Time Interval (hrs)	Water Depth (ft)	Change in Water Level (ft)	Average Length of Water Column (ft)	Percolation Rate Q (gal/ft^2/day)	Percolation Rate Adjusted for Gravel Porosity Q (gal/ft^2/day)
1	Initial	12:02 PM	0.17	10.00	15.78	17.64	32.20	15.60
	Final	12:12 PM		25.78				
2	Initial	12:14 PM	0.17	10.00	15.92	17.57	32.62	15.80
	Final	12:24 PM		25.92				
3	Initial	12:26 PM	0.17	11.00	15.55	16.76	33.41	16.18
	Final	12:36 PM		26.55				
4	Initial	12:38 PM	0.17	11.00	15.48	16.79	33.19	16.08
	Final	12:48 PM		26.48				
5	Initial	12:50 PM	0.17	21.60	7.30	10.28	25.56	12.38
	Final	1:00 PM		28.90				
6	Initial	1:02 PM	0.17	24.20	7.18	7.74	33.40	16.18
	Final	1:12 PM		31.38				

Per County Standards, percolation rate calculated as follows:

$$Q = \frac{\frac{F}{T} D * 9}{L_{AV}}$$

Where: Q = Rate in Gallons per sqaure foot of sidewall per day

F = Drop during time interval in feet

T = Time interval in hours

D = Borehole diameter in feet

L_{AV} = Average depth of water column during the time interval in feet

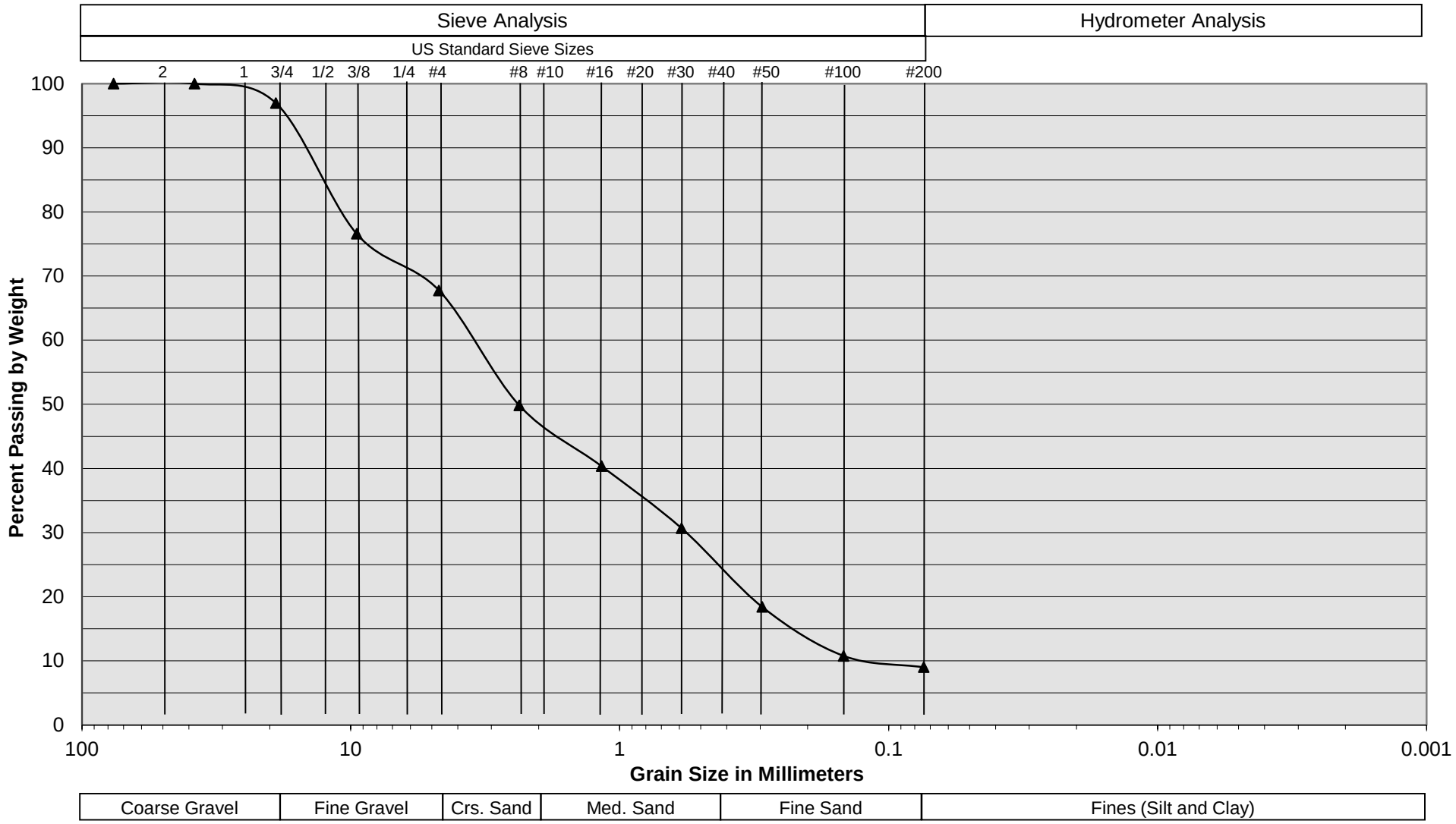
n = porosity of gravel

d = Pipe diameter in feet

Adjusted percolation rate also accounts for porosity of the gravel backfill.

$$Q_{adj} = \frac{\frac{F}{T} D * 9}{L_{AV}} \frac{(nD^2 + d^2(1-n))}{D^2}$$

Grain Size Distribution

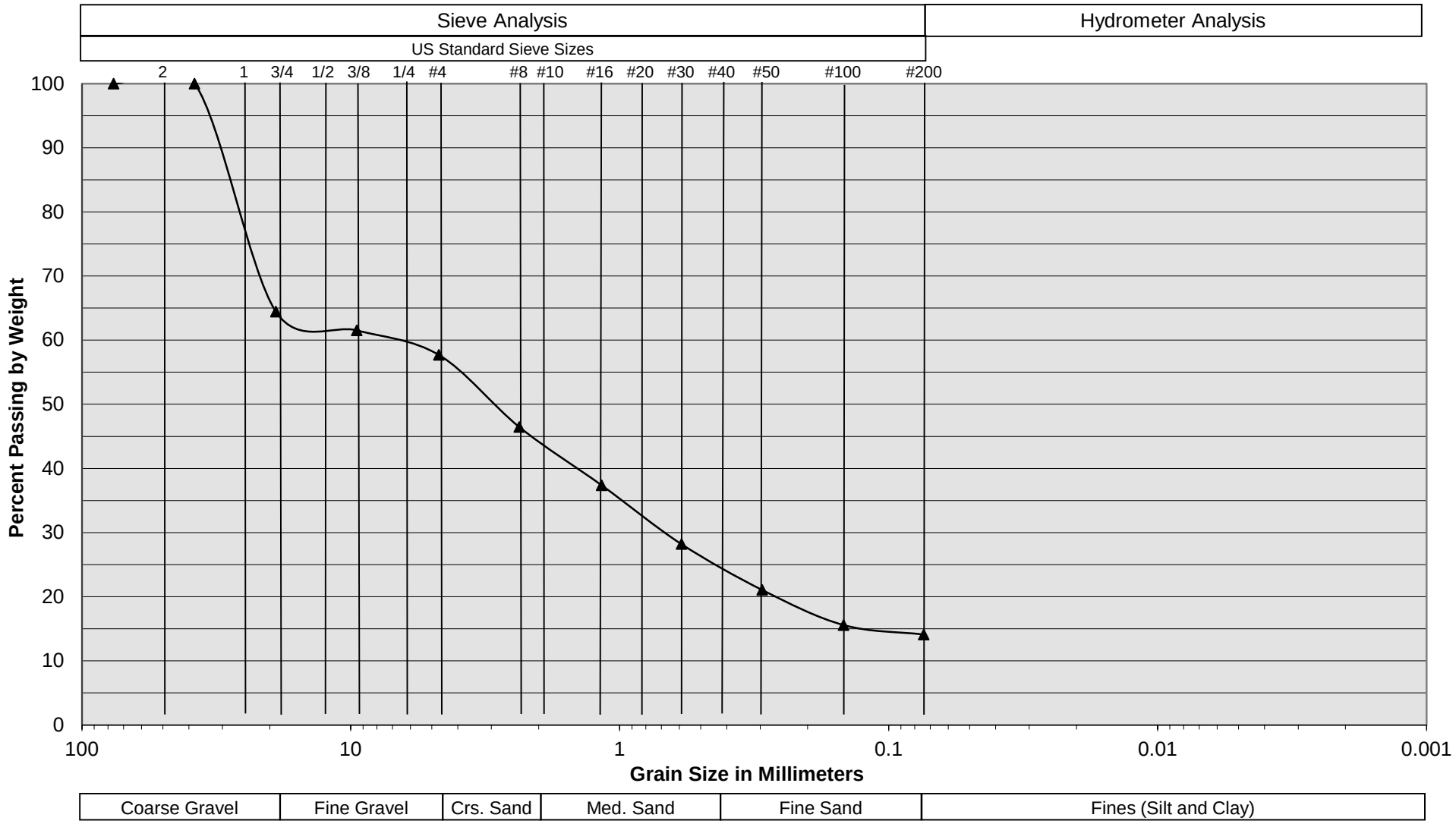


Sample Description	P-1 @ 18½ to 20 feet
Soil Classification	Gray Brown fine to coarse Sand, some fine to coarse Gravel, little Silt

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-1

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

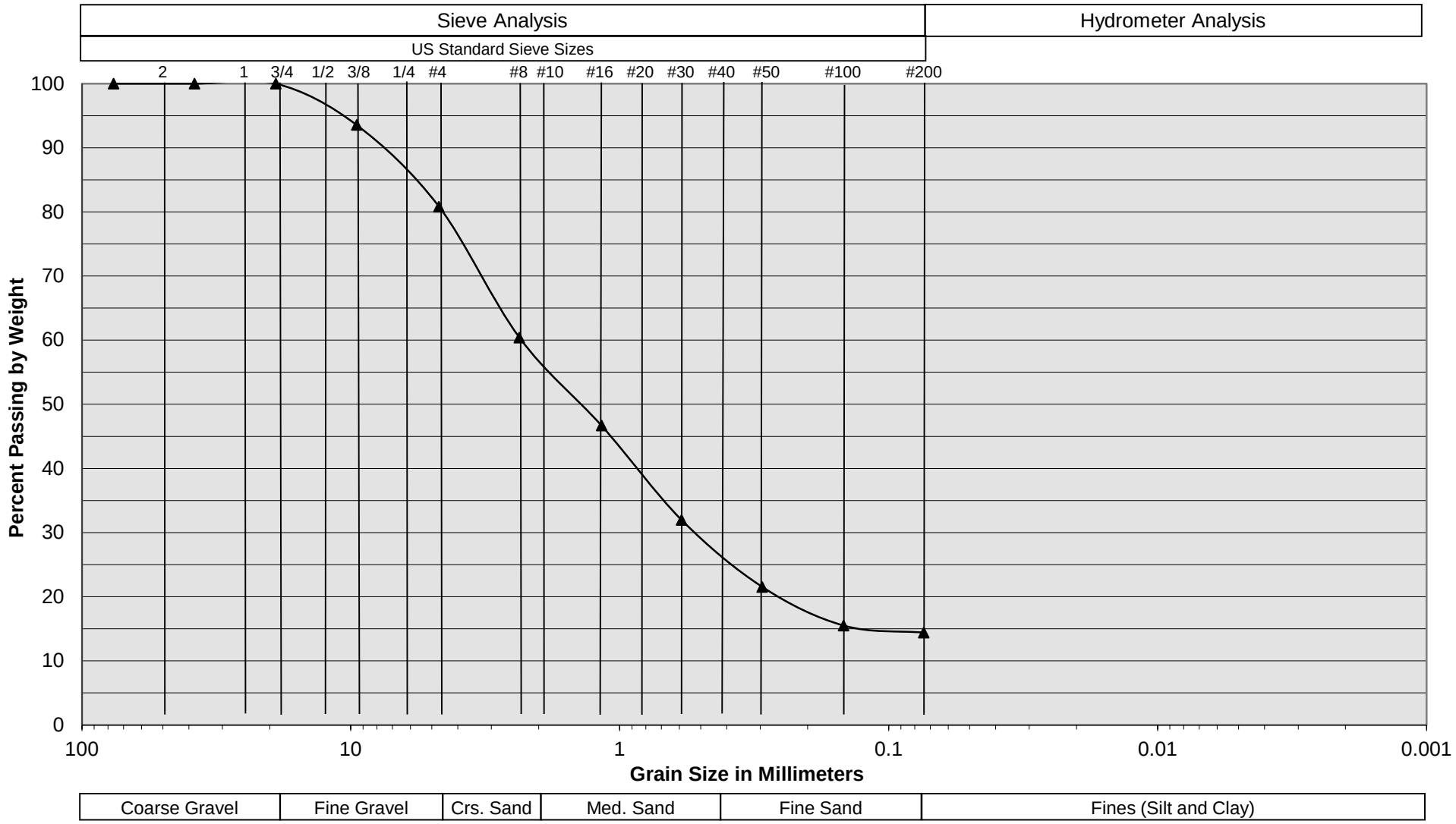


Sample Description	P-1 @ 23½ to 25 feet
Soil Classification	Gray Brown Silty fine to coarse Sand, some fine to coarse Gravel

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-2

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

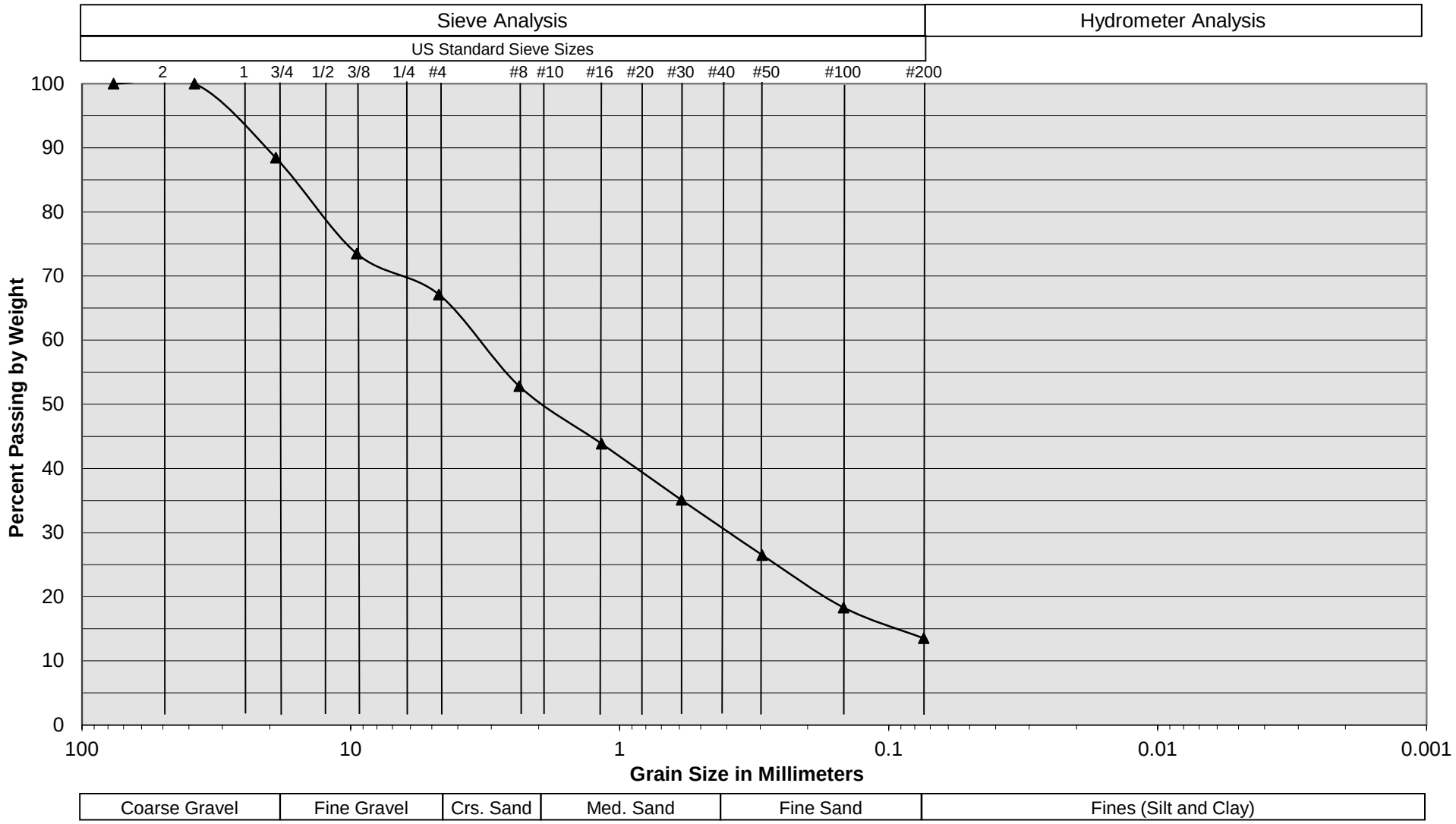


Sample Description	P-1 @ 28½ to 30 feet
Soil Classification	Gray Brown Silty fine to coarse Sand, some fine to coarse Gravel

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-3

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

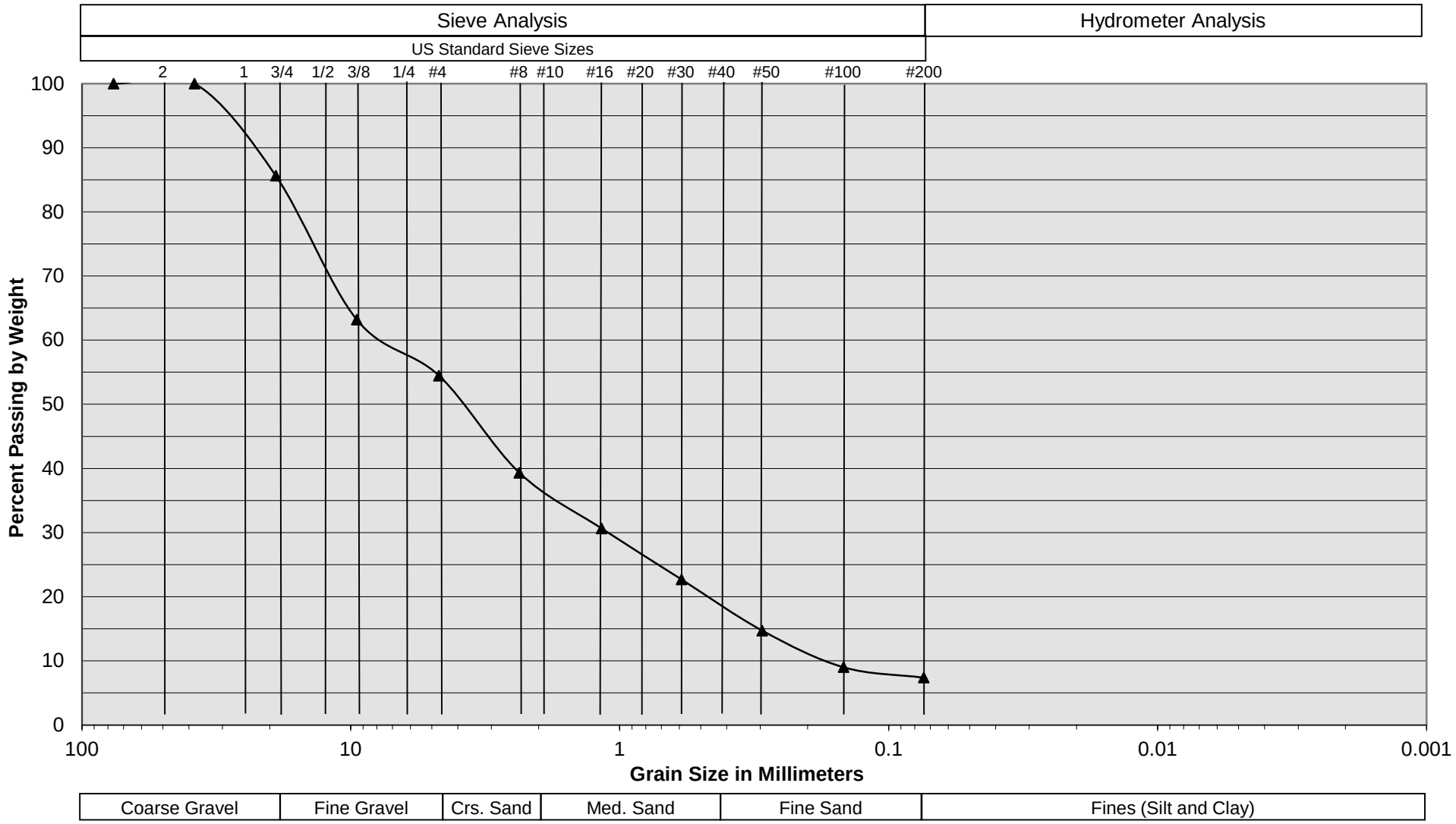


Sample Description	P-1 @ 33½ to 35 feet
Soil Classification	Gray Brown Silty fine to coarse Sand, some fine to coarse Gravel

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-4

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

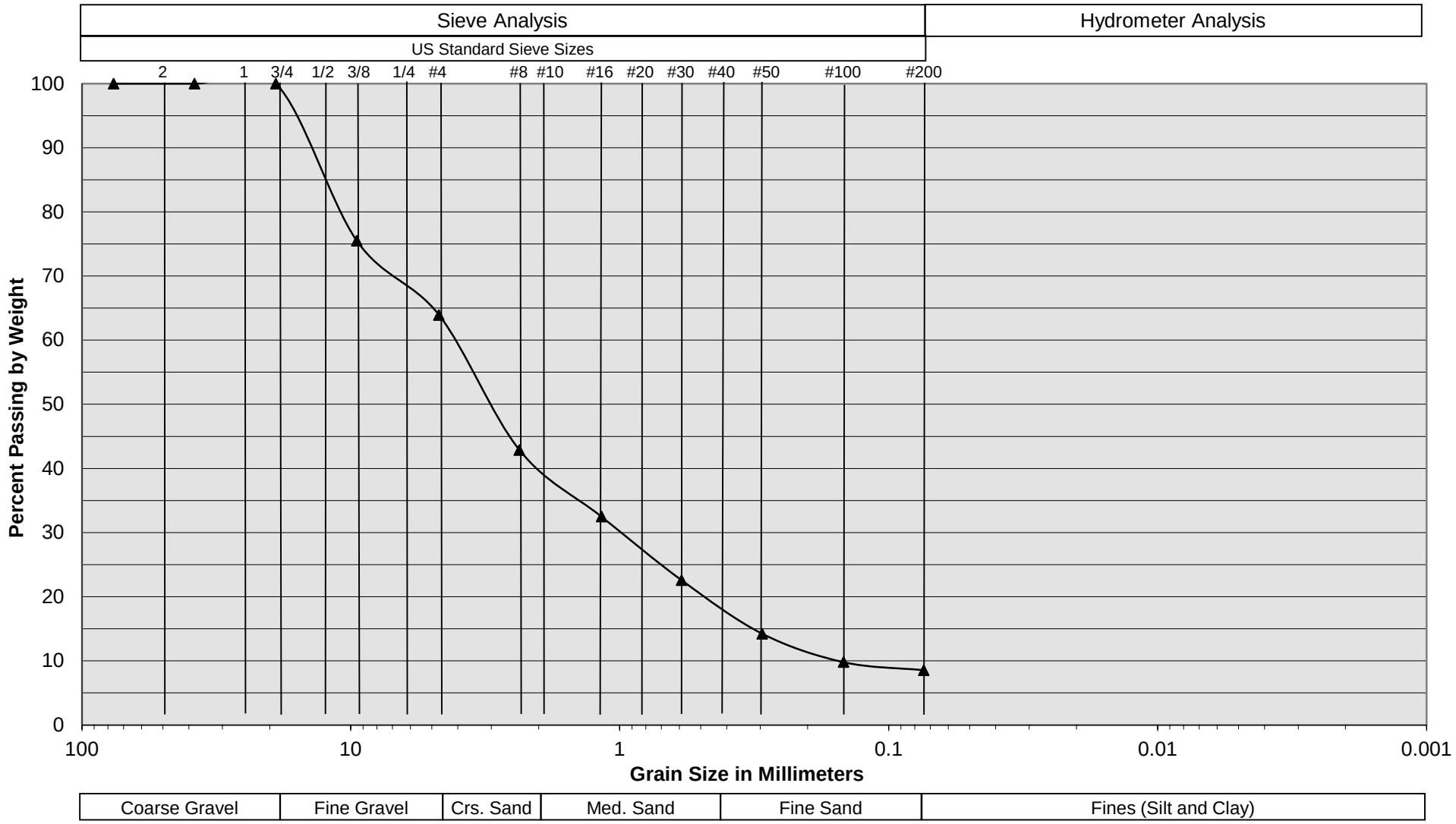


Sample Description	P-2 @ 13½ to 15 feet
Soil Classification	Brown fine to coarse Sand, some fine to coarse Gravel, little Silt

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-5

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

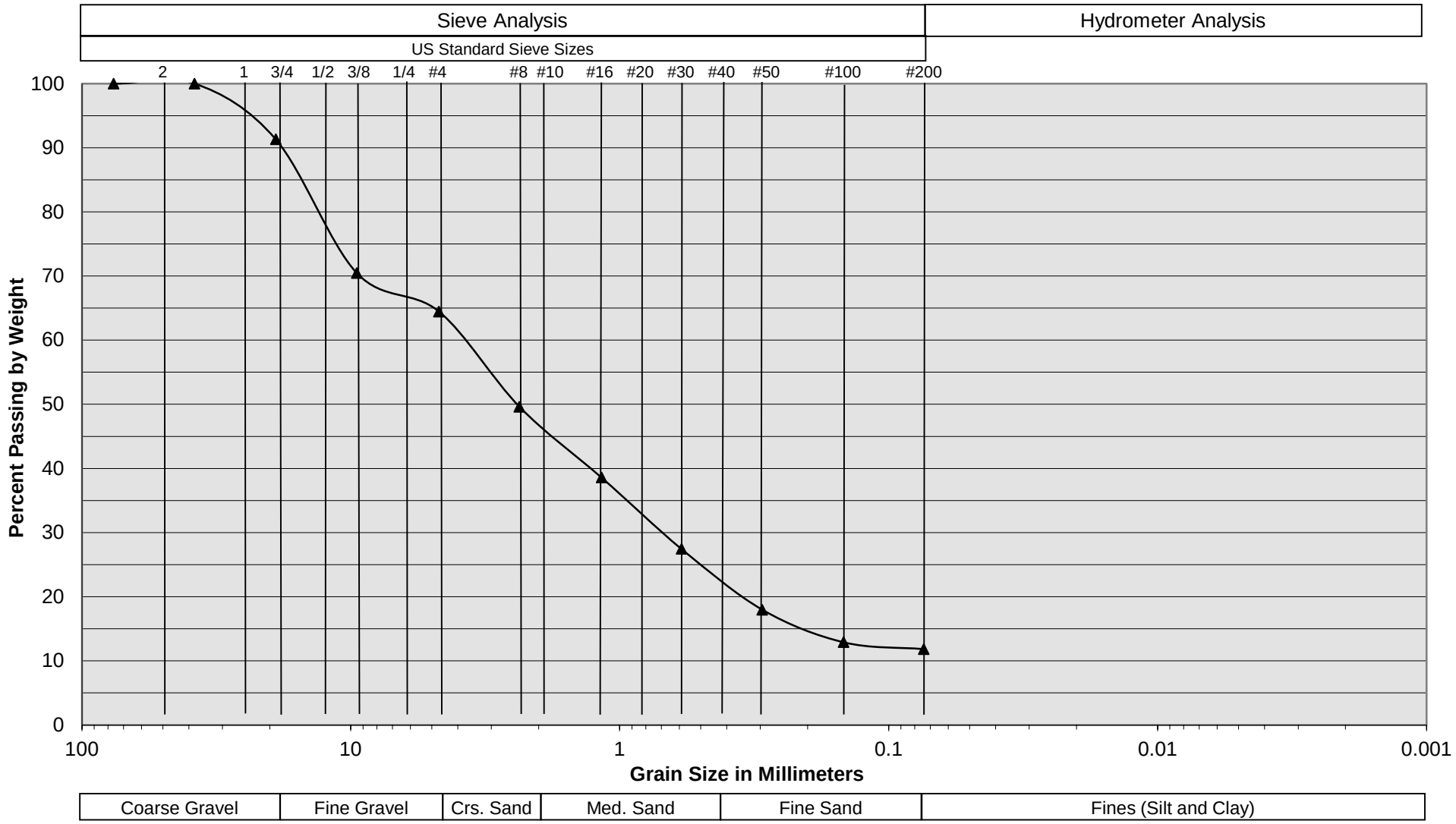


Sample Description	P-2 @ 23½ to 25 feet
Soil Classification	Brown fine to coarse Sand, some fine to coarse Gravel, little Silt

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-6

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

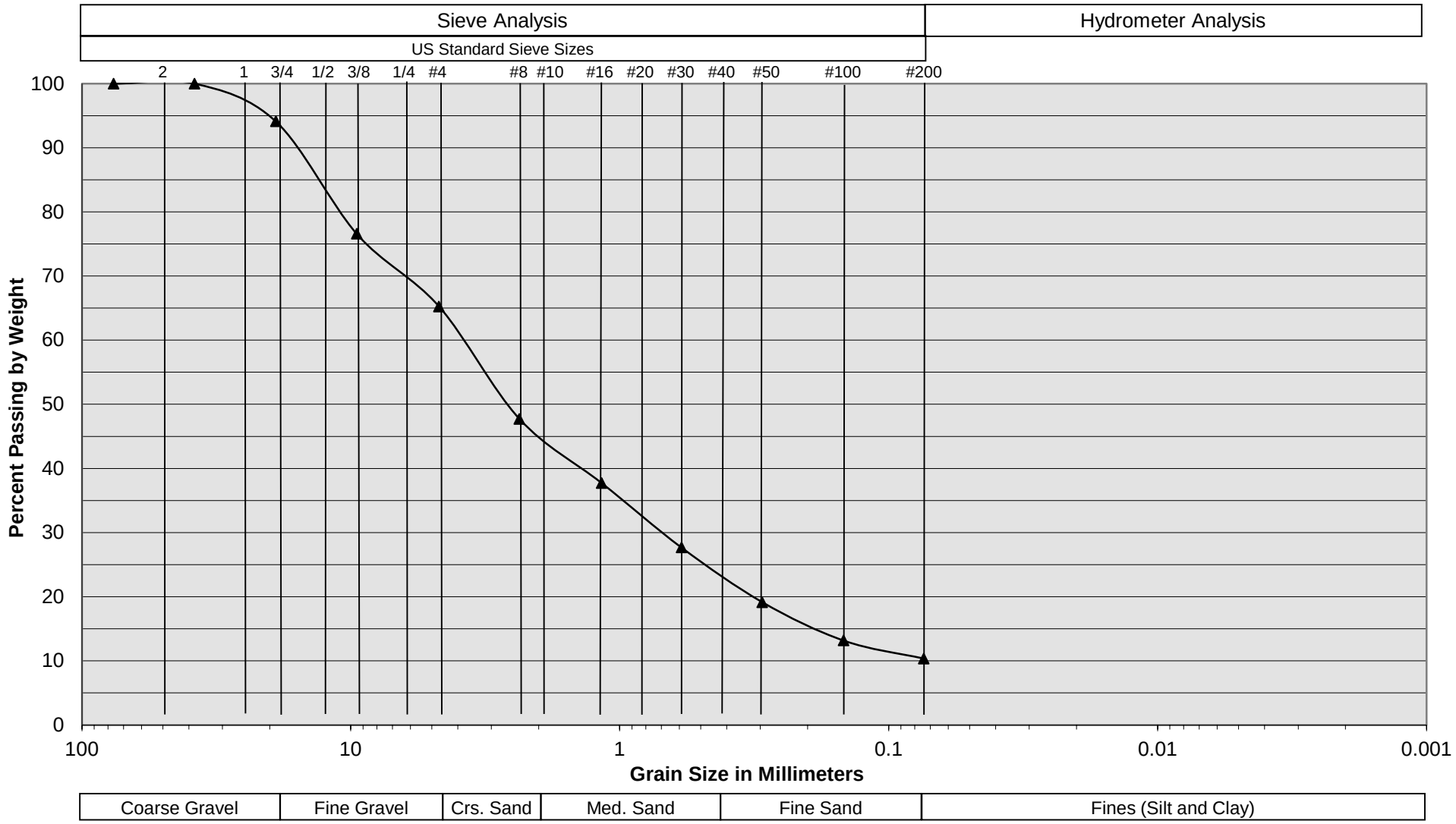


Sample Description	P-2 @ 28½ to 30 feet
Soil Classification	Gray Brown Silty fine to coarse Sand, some fine to coarse Gravel

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-7

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

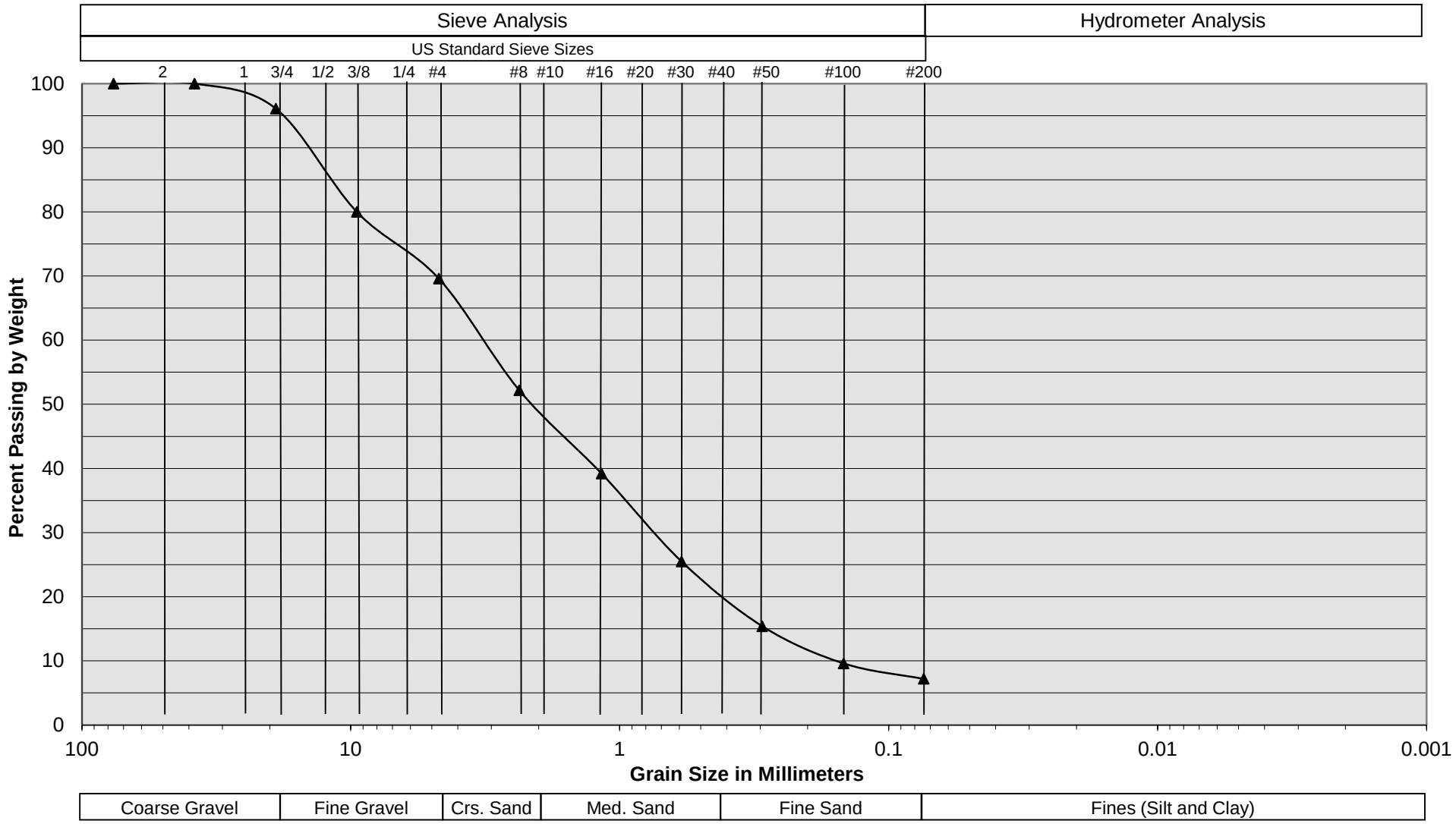


Sample Description	P-2 @ 33½ to 35 feet
Soil Classification	Gray Brown Silty fine to coarse Sand, some fine to coarse Gravel

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-8

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

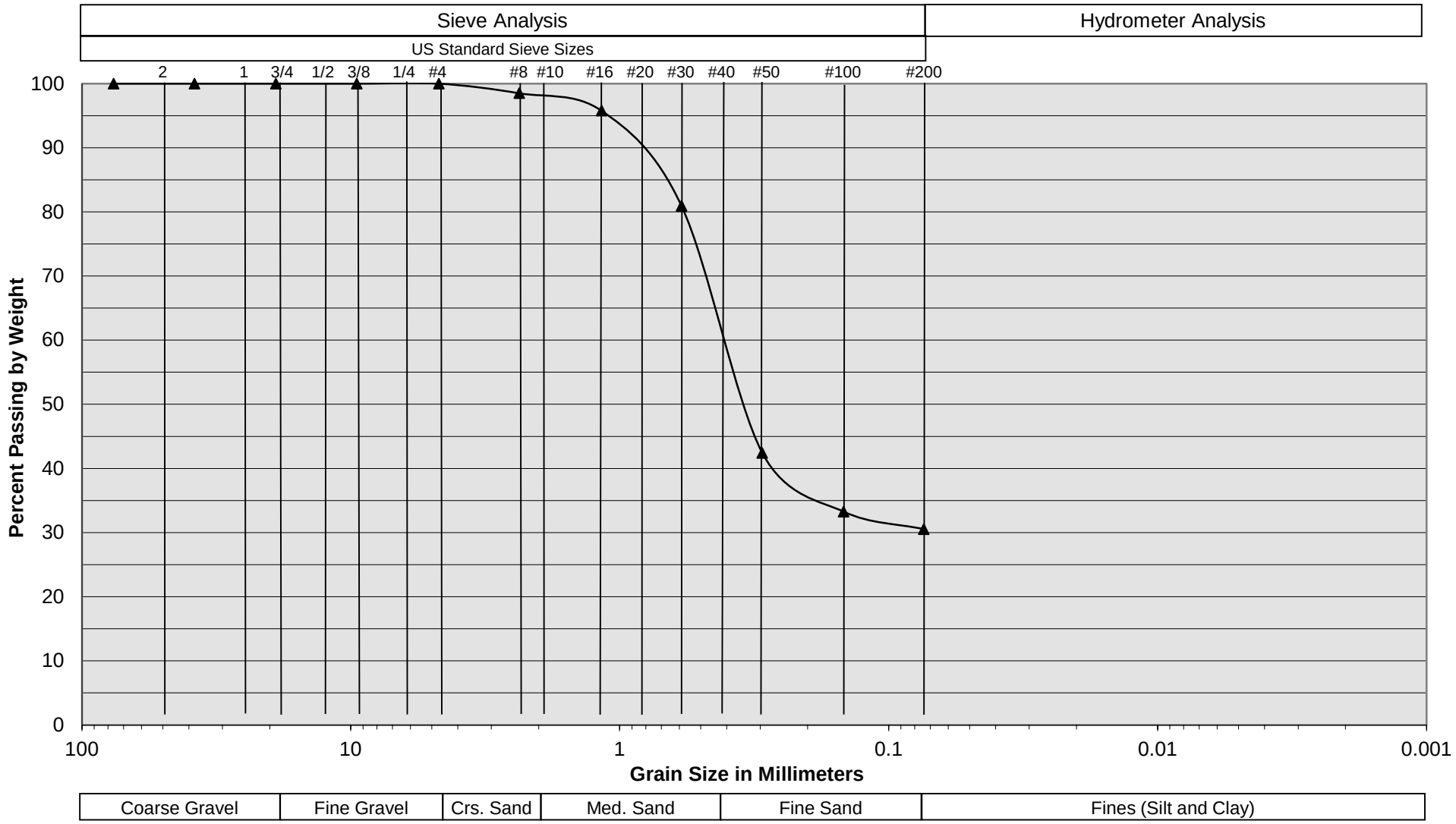


Sample Description	B-7 @ 40 to 41½ feet
Soil Classification	Gray Brown fine to coarse Sand, little fine Gravel, trace coarse Gravel, trace Silt

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-9

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

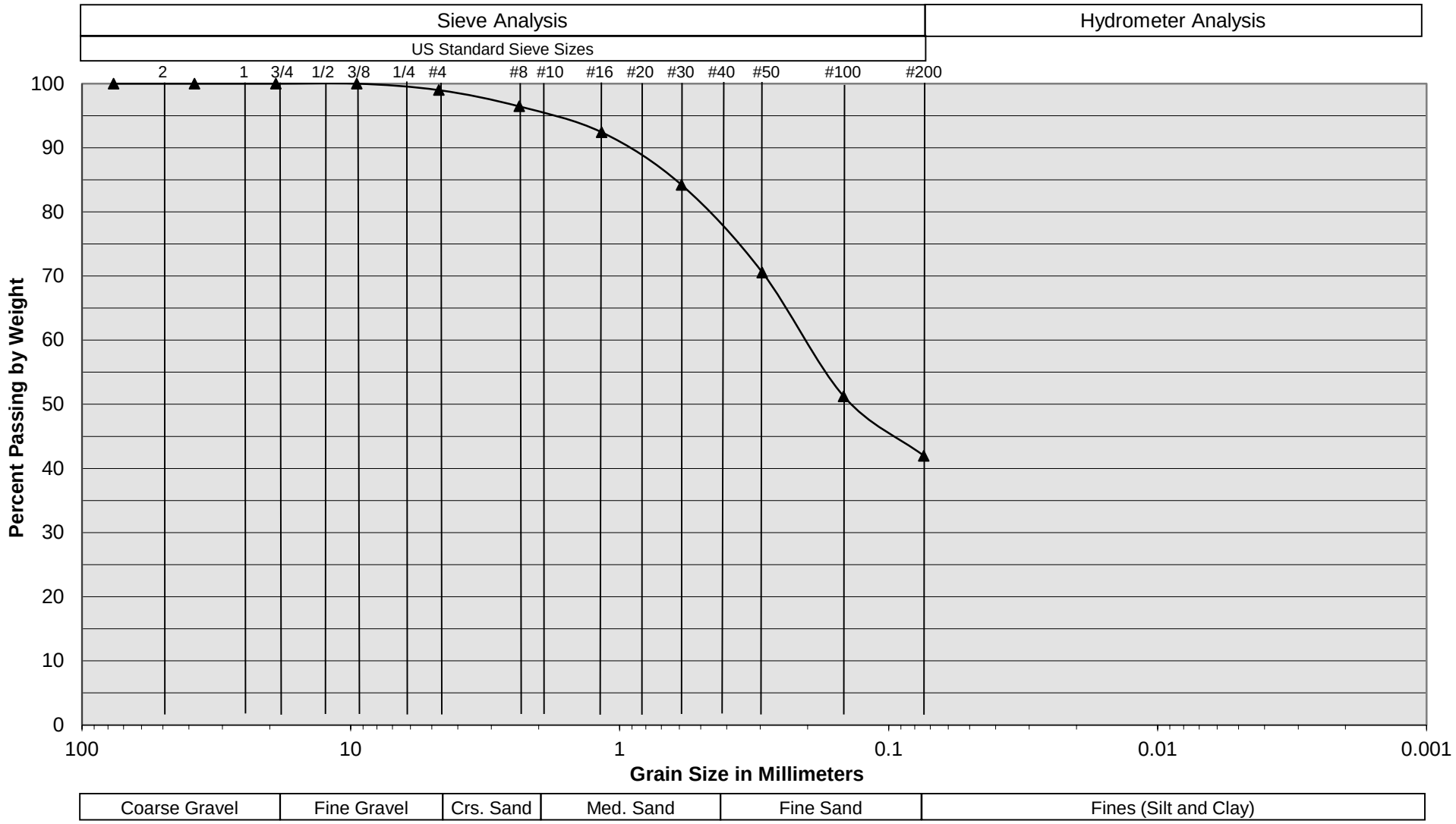


Sample Description	B-7 @ 45 to 46½ feet
Soil Classification	Brown Silty fine to medium Sand, trace coarse Sand

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-10

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

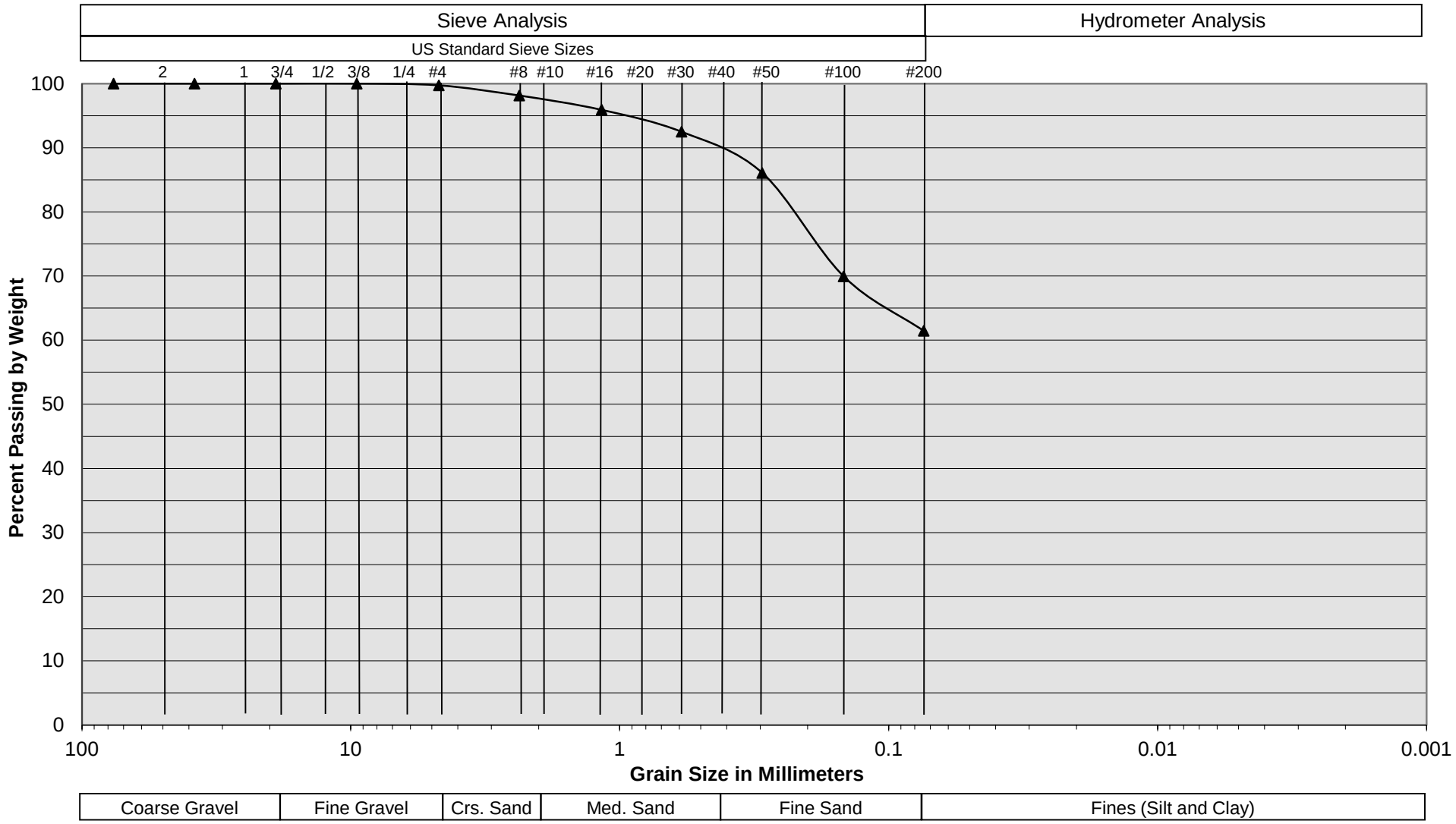


Sample Description	B-7 @ 50 to 51½ feet
Soil Classification	Brown Silty fine to medium Sand, trace coarse Sand

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-11

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

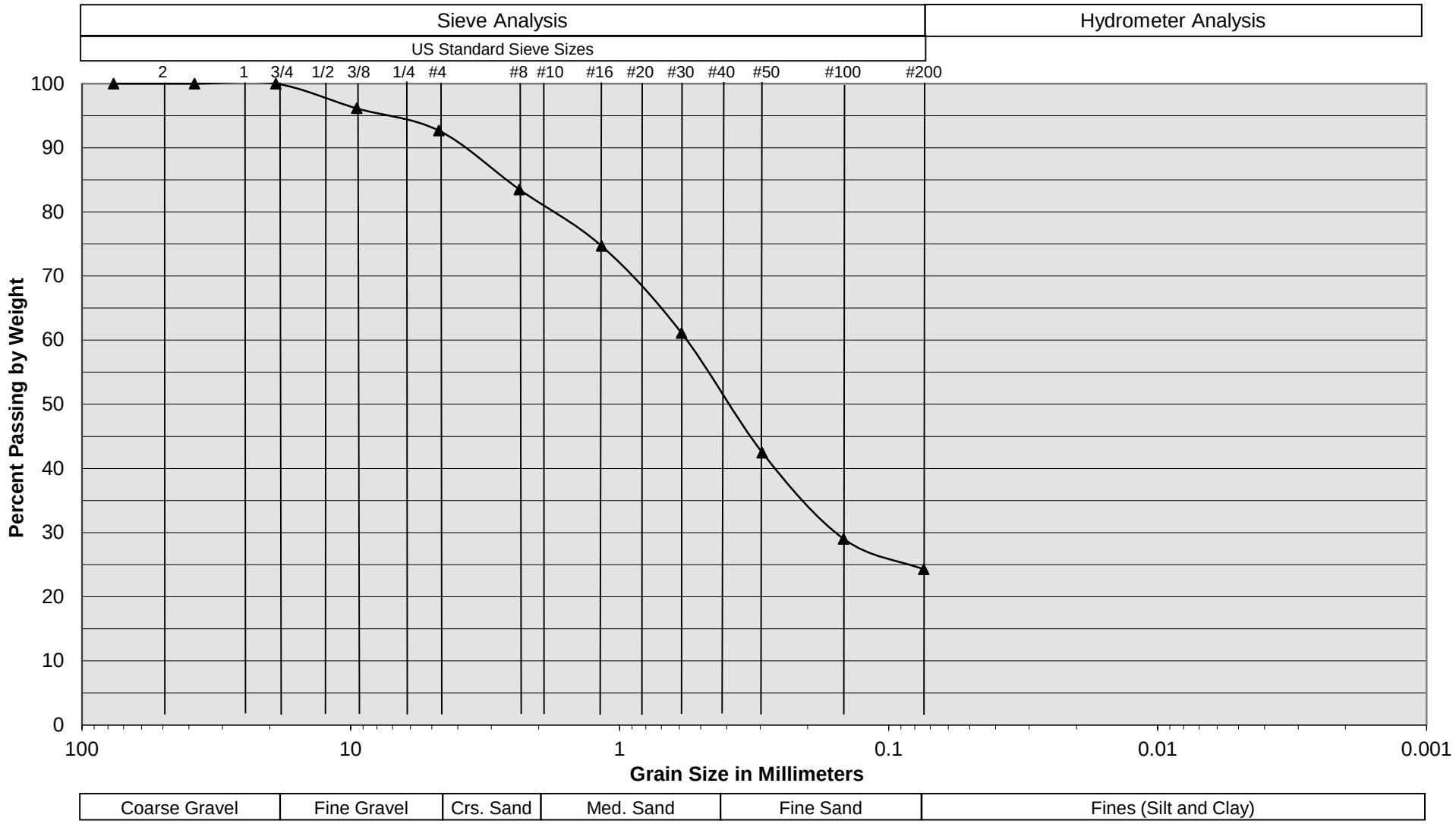


Sample Description	B-7 @ 55 to 56½ feet
Soil Classification	Brown fine to medium Sandy Silt, trace coarse Sand, trace fine Gravel

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-12

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

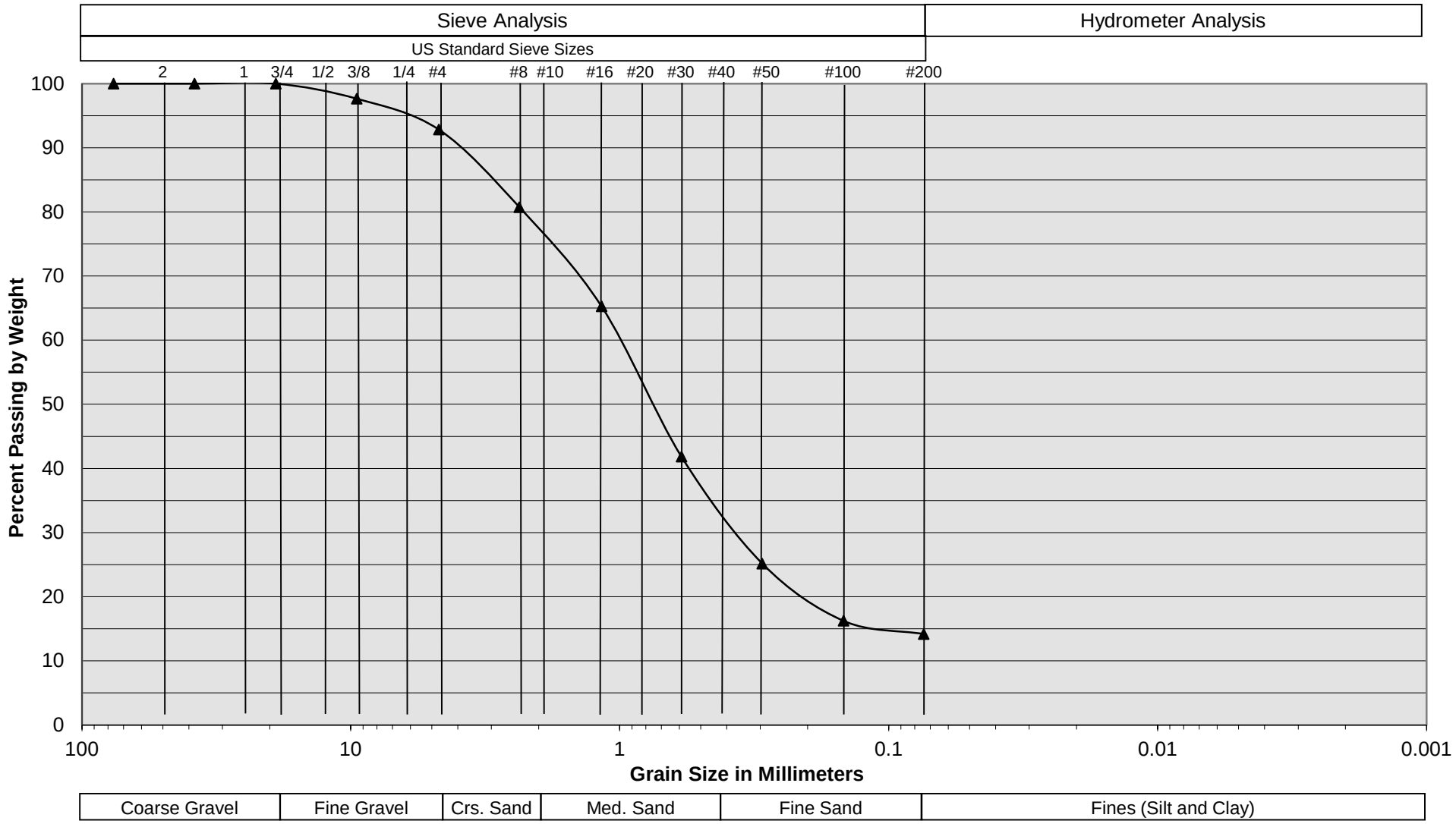


Sample Description	B-7 @ 60 to 61½ feet
Soil Classification	Brown Silty fine to coarse Sand, little fine Gravel

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-13

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

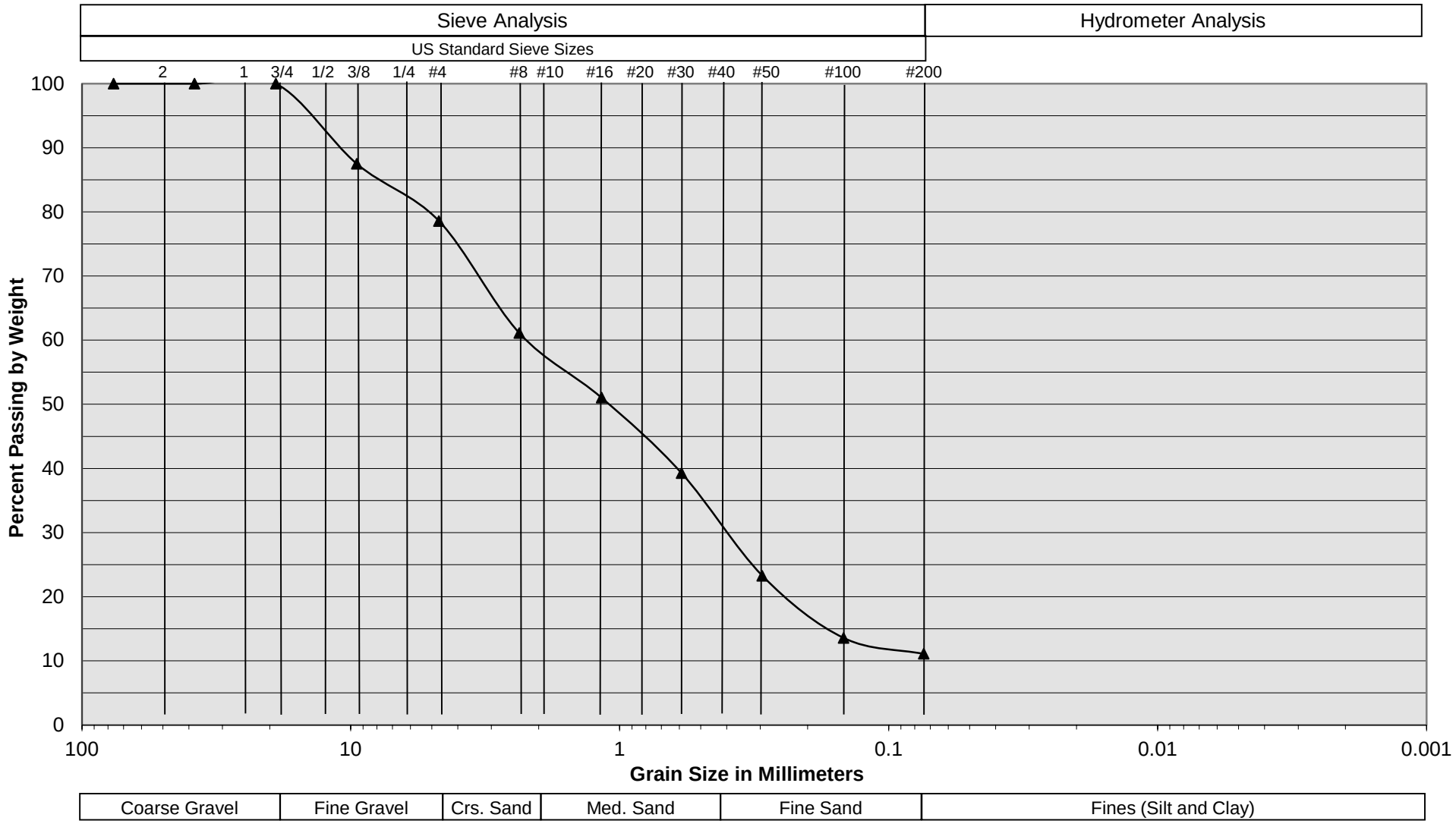


Sample Description	B-7 @ 65 to 66½ feet
Soil Classification	Brown Silty fine to coarse Sand, little fine Gravel

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-14

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

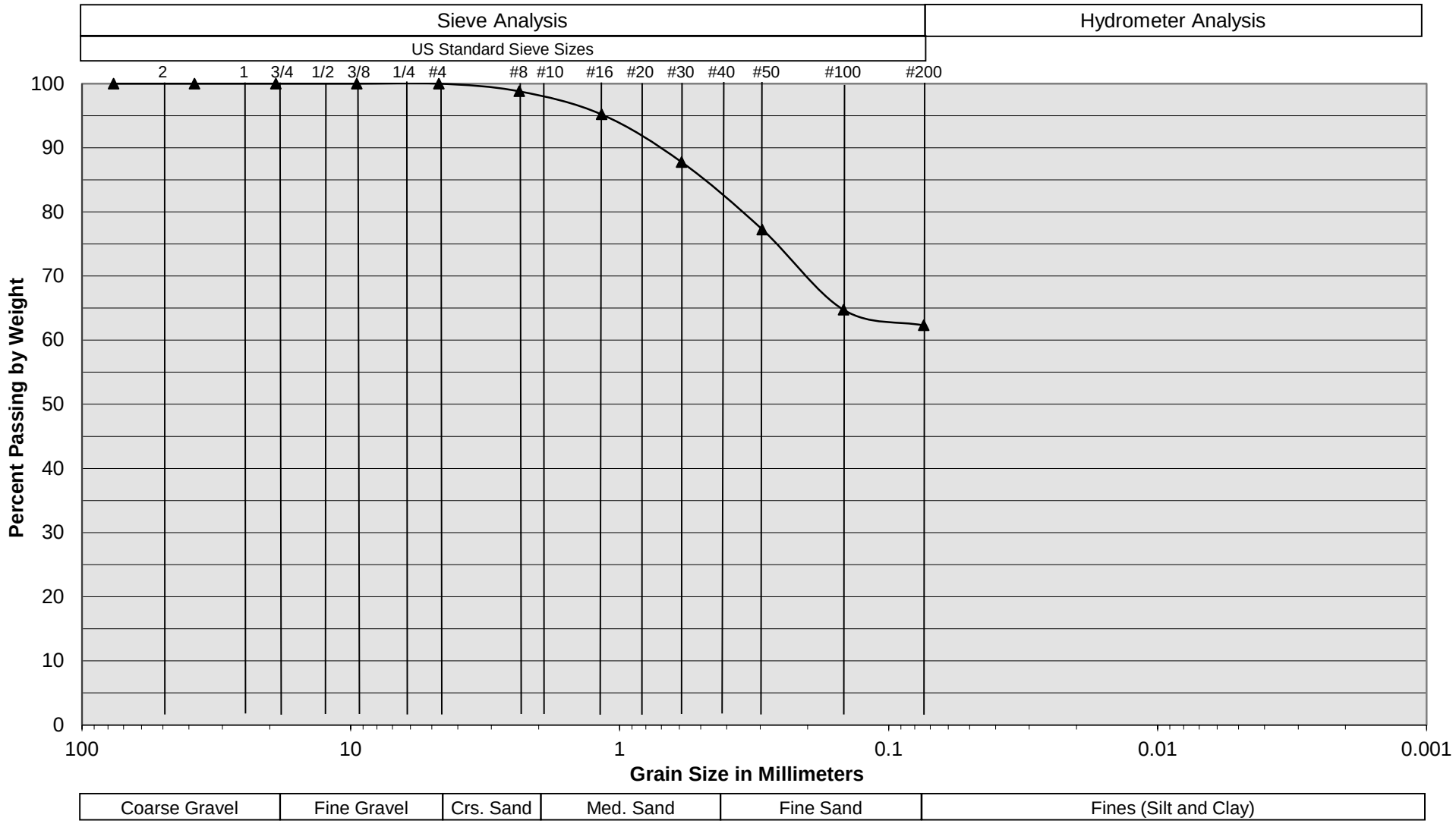


Sample Description	B-7 @ 70 to 71 feet
Soil Classification	Brown Silty fine to coarse Sand, little fine Gravel

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-15

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution

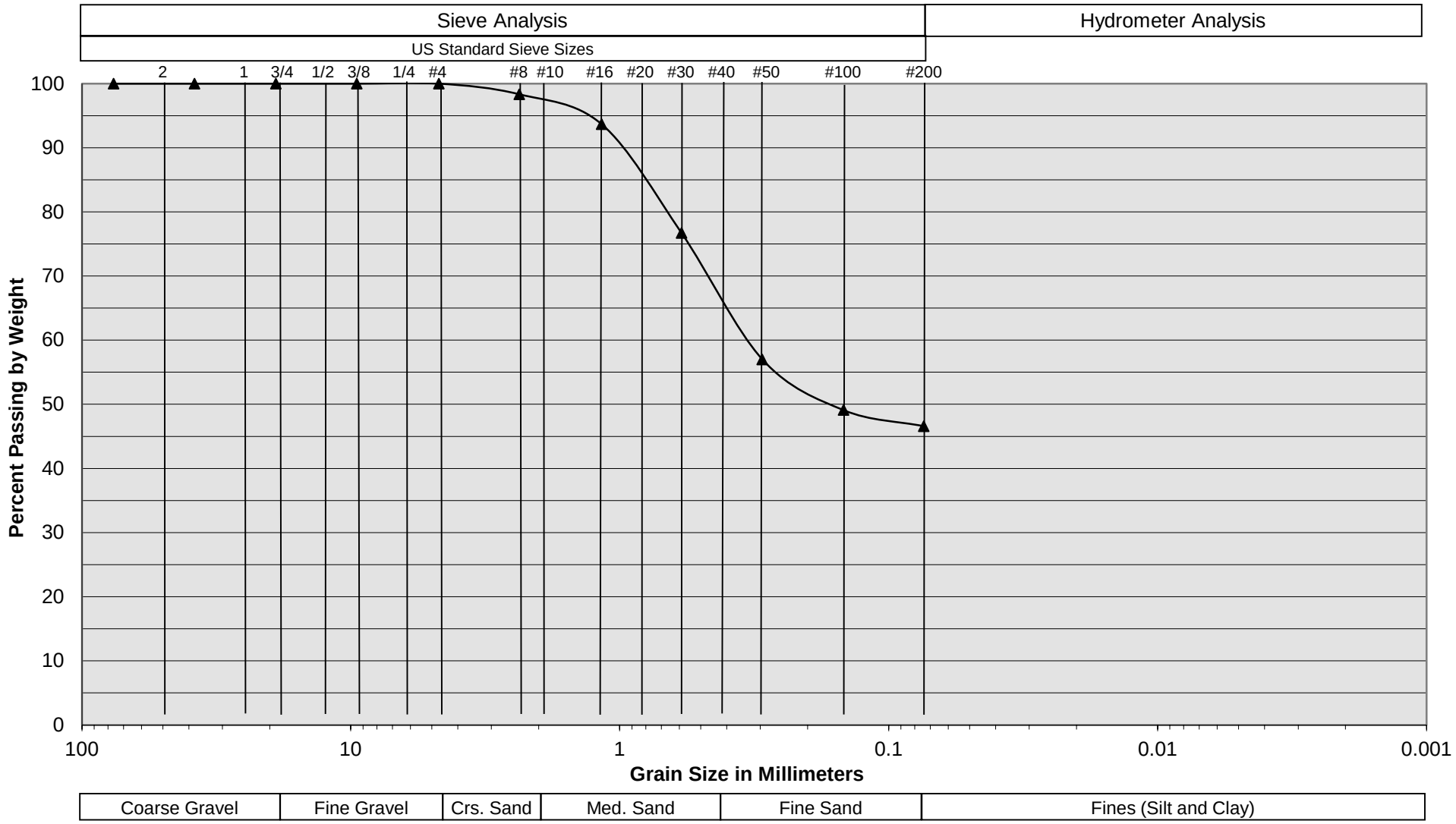


Sample Description	B-7 @ 71 to 71½ feet
Soil Classification	Red Brown fine to medium Sandy Clay

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-16

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



Sample Description	B-7 @ 75 to 76½ feet
Soil Classification	Red Brown Clayey fine to medium Sand, trace coarse Sand

Proposed Warehouse
San Bernardino County, CA
Project No. 20G101-3
PLATE C-17

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation