June 4, 2019

Real Estate Development Associates
4100 MacArthur Boulevard, Suite 120
Newport Beach, California 92660

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Attention: Mr. Chad Manista
Vice President

Project No.: **18G129-3R**

Subject: **Results of Additional Infiltration Testing (Revised)**
Ontario Gateway Center
NEC Euclid Avenue and Merrill Avenue
Ontario, California

References: 1) Geotechnical Feasibility Study, Proposed Commercial/Industrial Development, NEC Euclid Avenue and Merrill Avenue, Ontario, California, prepared by Southern California Geotechnical, Inc. (SCG) for Real Estate Development Associates, SCG Project No. 18G129-1, dated April 11, 2018.

2) Results of Infiltration Testing, Proposed Commercial/Industrial Development, NEC Euclid Avenue and Merrill Avenue, Ontario, California, prepared by SCG for Real Estate Development Associates, SCG Project No. 18G129-2, dated April 25, 2018.

Gentlemen:

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

Scope of Services

The scope of services performed for this project was in general accordance with our Proposal No. 18P181-2, dated June 12, 2018. The scope of services included 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 Technical Guidance Document for Water Quality Management Plans prepared for the County of San Bernardino Areawide Stormwater Program dated June 7, 2013. The San Bernardino County standards defer to guidelines published by Riverside County Department of Environmental Health (RCDEH).

This is a revised report. The original report was issued on August 9, 2018. This revised report includes updates to the Proposed Development and Groundwater sections.

Site and Project Description

The subject site is located at the northeast corner of Euclid Avenue and Merrill Avenue in Ontario, California. The site is bounded to the north by Eucalyptus Avenue, to the west by Euclid Avenue,

to the south by Merrill Avenue, and to the east by an existing dairy farm. The general location of the site is illustrated on the Site Location Map, included as Plate 1 of this report.
The overall site is a rectangular-shaped property consisting of several contiguous parcels, which total 84.1± acres in size. The northeastern portion of the site is presently developed as a dairy farm with cattle pens, multiple canopy structures, farm houses, and structures associated with milking activities. The buildings appear to be single-story structures of wood frame construction and the canopies appear to be of metal frame construction. We expect that these structures are supported on conventional shallow foundations. Ground surface cover generally consists of turf grass, asphaltic concrete, and concrete pavements surrounding the farm houses and the other structures, manure in the cattle pen areas, and exposed soils with sparse native grass and weed growth in the remaining areas.

The northwestern portion and southern half of the site are presently being utilized for agricultural purposes. The ground surface cover throughout these areas consists of row crops and limited areas of exposed soil. Additionally, a detention pond is located in the south-central portion of the overall site and is approximately 3 to 5 feet deep. Due to the existing row crops, the southwestern area of the site was inaccessible to drilling equipment.

Topographic information for the subject site was obtained from a grading plan prepared by Thienes Engineering, Inc. The plan indicates that the site topography generally slopes downward to the south at a gradient of 1 to 2± percent, with some local variations. The existing site grades range from an elevation of 667± feet mean sea level (msl) in the northern area of the site to 631± feet msl in the southern area of the site.

Proposed Development

Based on a site plan prepared by HPA, the subject site will be developed with eight (8) new commercial/industrial buildings. The buildings will be identified as Buildings 1 through Buildings 8. Building 1 will be located in the east-central area of the site and will have a footprint of 570,960± ft² and Building 2 will be located in the southeastern area of the site and will have a footprint of 588,350± ft². These two buildings will be constructed in cross-dock configurations with dock-high doors along the north and south sides of the buildings. Buildings 3 through 6 will be located along the western side of the site and will have footprints that range from 39,140 to 217,800± ft². These buildings will be constructed with dock-high doors along a portion of their eastern walls. Buildings 7 and 8 will be located in the northern area of the site and will have footprints of 85,400 and 96,400± ft², respectively. These buildings will be constructed with dock-high doors along a portion of their south walls. The buildings will be surrounded by asphaltic concrete pavements in the parking and drive areas, Portland cement concrete pavements in the truck court areas with concrete flatwork and landscape planters.

We understand that the proposed development will include on-site infiltration to dispose of storm water. Based on an infiltration test exhibit prepared by Thienes Engineering, Inc., the project civil engineer, the proposed infiltration system will consist of eleven (11) below-grade chamber systems (identified as Infiltration Chambers A through K) located throughout the subject site. The bottoms of the below-grade chambers will extend to depths ranging from 10 to 20± feet below the existing site grades.

Previous Studies

Southern California Geotechnical, Inc. (SCG) previously performed a geotechnical feasibility study at the subject site. As a part of this study, four (4) borings were advanced to depths of 10 to 30± feet below existing site grades. In addition to the four borings, four (4) trenches were excavated at the site to depths of 4 to 12± feet below existing site grades. Manure was present at the ground surface at two of the trenches and one of the boring locations, with thicknesses of 4 to 8± inches. Highly organic topsoil materials were encountered at one of the boring and trench locations. These materials were approximately 1 to 1½ feet in thickness and generally consisted of silty fine sands, which contained manure and/or other fibrous organic material. Artificial fill soils were encountered at the ground surface or below the manure/topsoil at all but one of the boring and trench locations. The fill materials generally extend to depths of 2 to 4½± feet and consisted of loose to medium dense silty fine sands and fine sandy silts, and medium stiff to stiff clayey sands, and sandy clays with occasional silty clays. Additional soils classified as possible fill were encountered at the ground surface at one boring and one trench location, extending to depths of 1½ to 5½± feet. Native alluvial soils were encountered beneath the fill and possible fill soils at all of the boring and trench locations. The near-surface alluvium generally consisted of loose to medium dense silty fine sands to fine sandy silts, fine to medium sands, clayey fine sands, and soft to medium stiff fine sandy clays, silty clays, and clayey silts, extending to at least the maximum depth explored of 30± feet below existing site grades. Free water was not encountered during the drilling of 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 is considered to have existed at a depth in excess of 30± feet at the time of the previous subsurface exploration.

SCG also previously performed infiltration testing at the subject site. The results of the previous infiltration testing were presented in the infiltration report referenced above. One (1) infiltration test was performed at the site as part of the previous infiltration testing. The infiltration testing was conducted for one of the chamber systems located in the northwestern area of the site. One (1) infiltration test boring (identified as Infiltration Test No. I-1) was advanced to a depth of 15± feet below existing site grades. Native alluvial soils were encountered at the ground surface at the infiltration boring location, extending to at least 15± feet below existing site grades. The alluvial soils generally consisted of loose to medium dense fine sandy silts, clayey fine sands, fine sandy clays, and silty fine to medium sands with varying amounts of coarse sand, fine gravel, clay, and silt content. Free water was not encountered during the drilling of the infiltration boring. The results indicated that the infiltration rate at the test location was 7.5 inches per hour. Based on this result, we preliminarily recommended a design infiltration rate of 7.5 inches per hour be used for the design of the proposed below-grade chamber system located in the northwestern area of the site.

The approximate locations of the four (4) borings, four (4) trenches, and one (1) infiltration boring from the previous studies are indicated on the Infiltration Test Location Plan, included as Plate 2 of this report.

Subsurface Exploration

Scope of Exploration

The subsurface exploration conducted for the additional infiltration testing consisted of fifteen (15) infiltration test borings, advanced to depths of 10 to 20± feet below the existing site grades. The borings were advanced using a truck-mounted drilling rig, equipped with 8-inch diameter hollow stem augers. The borings were logged during drilling by a member of our staff. The approximate locations of the infiltration borings (identified as I-2 through I-16) are indicated on the Infiltration Test Location Plan, enclosed as Plate 2 of this report.

Upon completion of the drilling, 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

Infiltration Boring Nos. I-2 through I-5 were drilled within the cattle pen areas, in the northeastern region of the site. Manure, which measured 2 to 4± inches in thickness, was present at the ground surface at these four (4) boring locations. Native alluvial soils were encountered beneath the manure and at the ground surface at all of the remaining boring locations, extending to at least 20± feet below the existing site grades. The alluvial soils generally consist of medium stiff to very stiff clayey silts, silty clays, and fine sandy clays, and loose to medium dense silty fine sands, clayey fine sands, and fine sandy silts. Infiltration Boring No. I-2 encountered a layer of dense silty fine to coarse sands with little fine gravel at depths ranging from 8½ to 13± feet below existing site grades. Infiltration Boring No. I-3 encountered layers of dense to very dense fine to coarse sands with trace to little fine gravel and trace silt at depths ranging from 12 to 20± feet below existing site grades. The Boring Logs, which illustrate the conditions encountered at the boring locations, are included with this report.

Groundwater

Free water was encountered during the drilling of Infiltration Boring No. I-14 at a depth of 19½± feet below the existing site grades. However, prior to infiltration testing on the following day, no free water was identified in this boring. Based on the lack of any water within all of the other borings driller to similar or greater depths for this infiltration study and the referenced feasibility study, the free water encountered during drilling within the boring is considered to be localized perched water.

As part of our research, we reviewed available groundwater data in order to determine regional groundwater depths. Recent water level data was obtained from the California State Water Resources Control Board, GeoTracker website, http://geotracker.waterboards.ca.gov/. Available data for a monitoring well, located approximately 4,200± feet west from the site, indicates a high groundwater level of 83± feet below the ground surface.

Infiltration Testing

The infiltration testing was performed in general accordance with Technical Guidance Document for Water Quality Management Plans, prepared for the County of San Bernardino Areawide Stormwater Program.

Pre-soaking

The first phase of the infiltration testing consisted of pre-soaking all fifteen (15) of the infiltration test holes. The pre-soaking process for the borings consisted of filling each test boring by inverting a full 5-gallon bottle of clear water supported over the hole so that the water flow into the hole holds constant at a level at least 5 times the hole's radius above the gravel at the bottom of each infiltration boring. Pre-soaking was considered complete after all of the water had percolated through each test hole or after 15 hours since initiating the pre-soak. All of the infiltration test borings were pre-soaked one (1) day prior to when the infiltration testing was conducted.

Infiltration Testing

Following the pre-soaking process of the infiltration test borings, SCG performed the infiltration testing over the next few days. The test holes were filled with water to a depth of at least 5 times the hole's radius above the gravel at the bottom of the test holes prior to each test interval. In accordance with the San Bernardino County guidelines, since "sandy soils" were encountered at the bottom of Infiltration Boring Nos. I-2, I-3, I-7, I-11, and I-13 (where 6 inches of water infiltrated into the surrounding soils for two-consecutive 25-minute readings), readings were taken at 10-minute intervals for a total of 1 hour at these five (5) infiltration test locations. Since "non-sandy soils" were encountered at the bottom of Infiltration Boring Nos. I-4, I-5, I-6, I-8, I-9, I-10, I-12, I-14, I-15, and I-16, readings were taken at 30-minute intervals for a total of 6 hours at these ten (10) infiltration test locations. After each reading, water was added to each test boring so that the depth of the water was again at a level of at least 5 times the hole's radius above the bottom of each infiltration boring. The 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 as the design infiltration rate. The rates are summarized below:

Infiltration Test No.	Depth (feet)	Soil Description	Infiltration Rate (inches/hour)
I-2	13	Silty fine to coarse Sand, little fine Gravel	8.7
I-3	20	Fine to coarse Sand, little fine Gravel, trace Silt	9.9
I-4	20	Silty Clay, trace fine Sand	0.0
I-5	13½	Fine Sandy Clay, little Silt	0.2
I-6	14	Silty Clay, little fine Sand	0.1
I-7	16	Fine Sandy Clay, little medium Sand, trace Silt	0.8
I-8	17	Clayey fine Sand to fine Sandy Clay, trace Silt	0.3
I-9	15	Silty Clay, trace fine Sand	0.0
I-10	10	Silty Clay	0.0
I-11	12	Fine Sandy Silt, trace Clay	1.1
I-12	11	Silty Clay, trace fine Sand	0.1
I-13	20	Silty fine Sand	4.8
I-14	20	Silty fine Sand, little Clay	1.0
I-15	13½	Silty Clay	0.0
I-16	14	Clayey Silt, trace fine Sand	0.2

Design Recommendations

A total of fifteen (15) infiltration tests were performed at the subject site. As noted above, the infiltration rates at these locations range from 0 to 9.9 inches per hour. The primary factors affecting the infiltration rates are the silt and clay content of the encountered soils, which vary at different depths and locations at the subject site. The high clay and silt content of the soils encountered at the bottom of Infiltration Boring Nos. I-4 through I-6, I-8 through I-10, I-12, I-15, and I-16 resulted in very low and nearly non-existent infiltration rates at these nine (9) infiltration test locations.

Based on the very low infiltration rates at the majority of the infiltration test locations, the on-site soils are generally not considered suitable for infiltration at the depths and locations tested. Although Infiltration Test Nos. I-2, I-3, I-11, I-13, and I-14 resulted in infiltration rates ranging from 1.0 to 9.9 inches per hour, the underlying interbedded silts and clays will restrict infiltration at this site. Therefore, we recommend that storm water infiltration not be utilized at this site.

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.

Scott McCann
Staff Scientist

Gregory K. Mitchell, GE 2364
Principal Engineer

Distribution: (1) Addressee

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

SOURCE: SAN BERNARDINO COUNTY
THOMAS GUIDE, 2013

SITE LOCATION MAP

ONTARIO GATEWAY CENTER

ONTARIO, CALIFORNIA

SCALE: 1" = 2400'

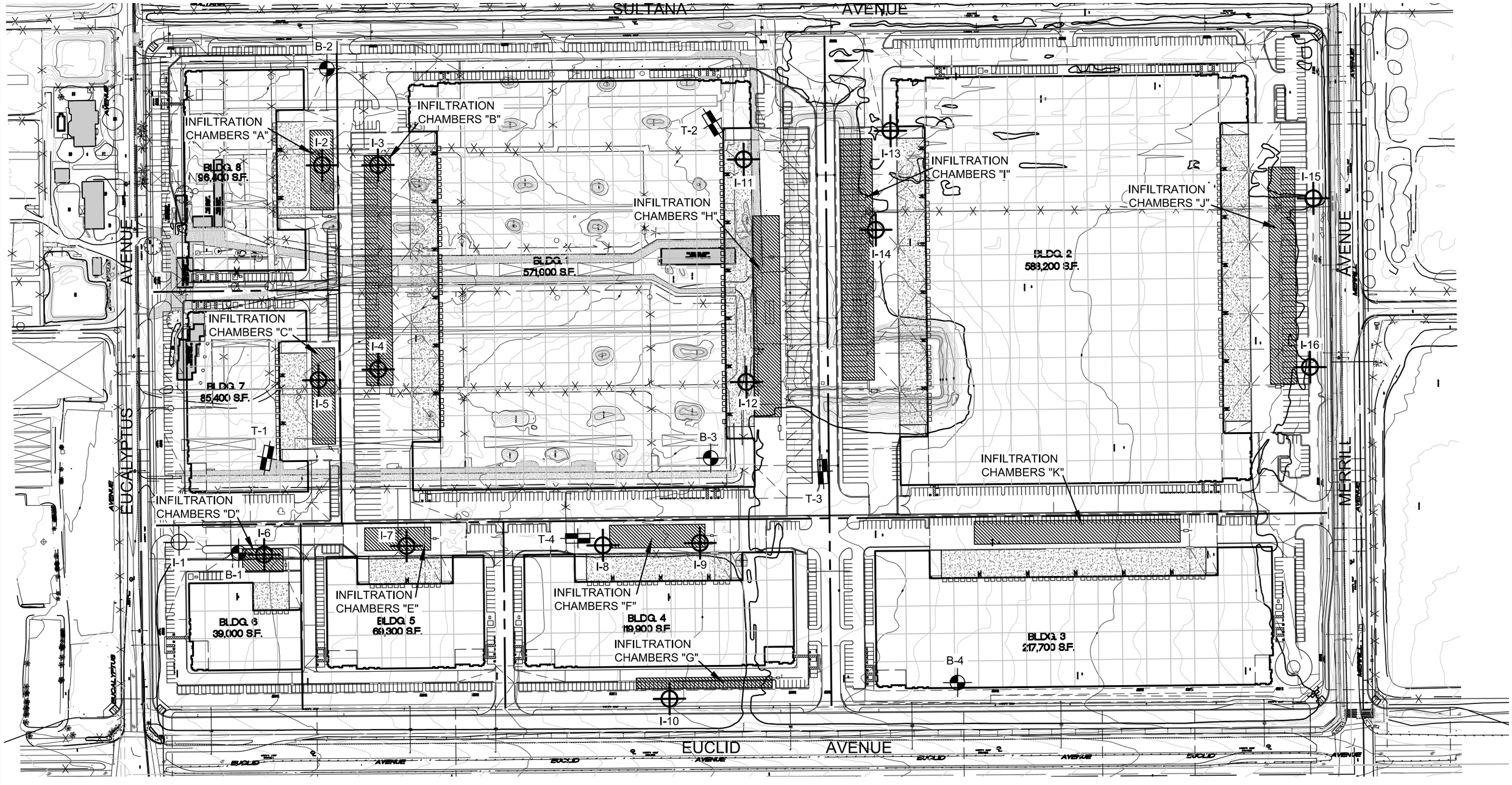
DRAWN: SM
CHKD: GKM

SCG PROJECT
18G129-3

PLATE 1

SoCalGeo

SOUTHERN CALIFORNIA GEOTECHNICAL



GEOTECHNICAL LEGEND

- APPROXIMATE INFILTRATION TEST LOCATION
- PREVIOUS BORING LOCATION (SCG PROJECT NO. 18G129-1)
- PREVIOUS TRENCH LOCATION (SCG PROJECT NO. 18G129-1)
- PREVIOUS INFILTRATION TEST LOCATION (SCG PROJECT NO. 18G129-2)

NORTH

NOTE: BASE MAP PREPARED BY THIENES ENGINEERING, INC.

INFILTRATION TEST LOCATION PLAN

ONTARIO GATEWAY CENTER

ONTARIO, CALIFORNIA

SCALE: 1" = 200'

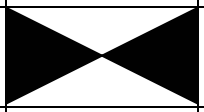
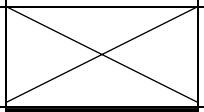
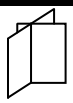
DRAWN: DRK
CHKD: GKM

SCG PROJECT 18G129-3

PLATE 2

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.

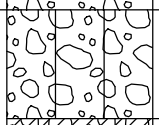
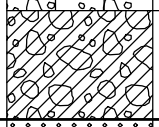
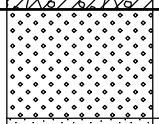
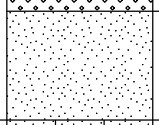
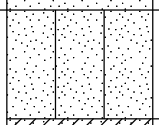
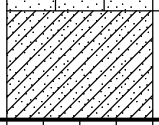
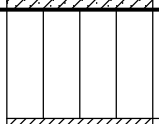
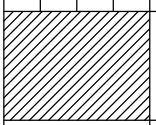
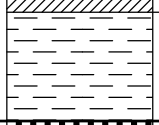
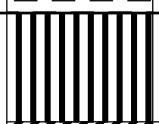
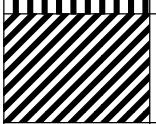
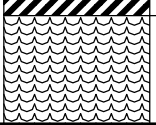
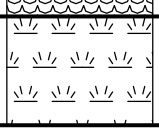
LIQUID LIMIT: The moisture content above which a soil behaves as a liquid.

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. I-2

JOB NO.: 18G129-3
PROJECT: Ontario Gateway Center
LOCATION: Ontario, California

DRILLING DATE: 7/12/18
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Anthony Luna

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

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
					3½ inches Manure							
		10			ALLUVIUM: Gray Brown fine Sandy Silt, loose to medium dense-moist to very moist		16					
		10					10					
5		15	3.5		Light Gray Silty Clay, trace fine Sand, trace calcareous veining, stiff to very stiff-moist to very moist		15					
10		35			Light Brown Silty fine to coarse Sand, little fine Gravel, dense-damp		5			13		
					Boring Terminated at 13'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG

PLATE I-1

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-3

JOB NO.: 18G129-3 | DRILLING DATE: 7/12/18 | WATER DEPTH: Dry
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
					2 inches Manure							
		14			ALLUVIUM: Gray Brown fine Sandy Silt, trace Clay, medium dense-moist		12					
		7					13					
5												
		26	4.5+		Light Gray Silty Clay, trace fine Sand, little calcareous veining, very stiff-moist to very moist		15					
		17	4.0		Light Gray fine Sandy Clay, trace calcareous and Iron oxide staining, very stiff-moist		14					
10												
					Light Gray Brown fine to medium Sand, little coarse Sand, trace fine Gravel, trace Silt, dense-damp							
		44					3					
15												
					Light Gray fine to coarse Sand, little fine Gravel, trace Silt, very dense-damp							
		82					2			5		
20												
					Boring Terminated at 20'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-2**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-4

JOB NO.: 18G129-3 | DRILLING DATE: 7/12/18 | WATER DEPTH: Dry
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
					4 inches Manure							
		16			ALLUVIUM: Gray Brown fine Sandy Silt, trace Clay, trace calcareous veining, medium dense-moist		14					
		8					14					
5												
		12	4.5+		Gray Brown Silty Clay, trace fine Sand, little calcareous veining/nodules, stiff to very stiff-very moist		20					
		17	4.0				18					
10												
					Light Gray Brown Silty fine Sand to fine Sandy Silt, trace medium Sand, medium dense-damp							
		28					7					
15												
					Light Gray Brown Silty Clay, trace fine Sand, stiff-very moist							
		14	1.5				28			87		
20					Boring Terminated at 20'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-3**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-5

JOB NO.: 18G129-3
PROJECT: Ontario Gateway Center
LOCATION: Ontario, California

DRILLING DATE: 7/12/18
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Anthony Luna

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

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
					3 inches Manure							
		10			ALLUVIUM: Gray Brown fine Sandy Silt, trace Clay, loose to medium dense-moist to very moist		13					
		11					16					
5												
		14	2.0		Light Gray fine Sandy Clay, stiff-very moist		20					
		17	4.5		Light Gray Brown fine Sandy Clay, little Silt, trace Iron oxide staining, trace calcareous nodules and veining, stiff to very stiff-very moist		18					
10												
		18	2.5				19			55		
					Boring Terminated at 13½'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG

PLATE I-4

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-6

JOB NO.: 18G129-3 | DRILLING DATE: 7/13/18 | WATER DEPTH: Dry
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
		27			ALLUVIUM: Gray Brown fine Sandy Silt, trace Clay, medium dense-damp to moist		9					
		15					10					
5		7	3.0		Gray Silty Clay, little fine Sand, trace calcareous veining, stiff-very moist		22					
		11	2.5				21					
10		12	3.0				19			83		
					Boring Terminated at 14'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-5**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-7

JOB NO.: 18G129-3 | DRILLING DATE: 7/13/18 | WATER DEPTH: Dry
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
		10			ALLUVIUM: Gray fine Sandy Silt, loose to medium dense-very moist		21					
		6					21					
5		17	4.5+		Gray Silty Clay, little fine Sand, trace Iron oxide staining, very stiff-moist to very moist		16					
		16	4.5				16					
10												
					Light Gray Brown fine Sandy Clay, little medium Sand, trace Silt, very stiff-moist to very moist							
15		24	2.0				17			57		
					Boring Terminated at 16'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-6**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-8

JOB NO.: 18G129-3 | DRILLING DATE: 7/13/18 | WATER DEPTH: Dry
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
		10			ALLUVIUM: Gray Brown fine Sandy Silt, loose to medium dense-moist		11					
		9	3.5		Gray Silty Clay, trace fine Sand, trace calcareous veining, stiff to very stiff-very moist		19					
5		13	3.5				19					
		18	4.5				17					
10												
					Light Gray Brown Clayey fine Sand to fine Sandy Clay, trace Silt, trace calcareous nodules, very stiff to medium dense-very moist							
15		18	4.0				20			52		
					Boring Terminated at 17'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-7**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-9

JOB NO.: 18G129-3 | DRILLING DATE: 7/13/18 | WATER DEPTH: Dry
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
		15			ALLUVIUM: Gray Brown fine Sandy Silt, trace Clay, medium dense-moist		11					
		12					15					
5		17	3.5		Gray Silty Clay, trace fine Sand, trace Iron oxide staining, stiff to very stiff-very moist		22					
		13	3.5				21					
10												
		20	4.0				26			87		
15					Boring Terminated at 15'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-8**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-10

JOB NO.: 18G129-3 | DRILLING DATE: 7/13/18 | WATER DEPTH: Dry
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
		11			ALLUVIUM: Dark Gray Brown fine Sandy Silt, trace Clay, medium dense-very moist		28					
		13	3.0		Gray Brown Clayey Silt to Silty Clay, trace fine Sand, stiff to very stiff-very moist		21					
5		9	3.5				19					
		19	3.5		Gray Silty Clay, very stiff-very moist		21			92		
10					Boring Terminated at 10'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-9**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-11

JOB NO.: 18G129-3 | DRILLING DATE: 7/12/18 | WATER DEPTH: Dry
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
		10			ALLUVIUM: Gray Brown fine Sandy Silt, little Clay, loose to medium dense-very moist		27					
		9					24					
5		7			Light Gray fine Sandy Silt, trace Clay, trace Iron oxide staining, loose-very moist to wet		42					
10		9					37			71		
					Boring Terminated at 12'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-10**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-12

JOB NO.: 18G129-3
PROJECT: Ontario Gateway Center
LOCATION: Ontario, California

DRILLING DATE: 7/12/18
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Anthony Luna

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

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
		12	4.0		ALLUVIUM: Dark Gray Brown Silty Clay, trace fine Sand, slightly porous, very stiff-very moist to wet		39					
		13	4.5				23					
5												
		14	2.5		Light Gray Silty Clay, trace fine Sand, trace calcareous nodules, stiff-very moist		22					
10		11	2.0				26			89		
					Boring Terminated at 11'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-11**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-13

JOB NO.: 18G129-3 | DRILLING DATE: 7/11/18 | WATER DEPTH: Dry
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
		12			ALLUVIUM: Dark Gray Brown fine Sandy Silt, little Clay, trace medium Sand, stiff-very moist		33					
		7					26					
5		10	1.5		Gray Brown Silty Clay, stiff-very moist		27					
		9			Gray Silty fine Sand to fine Sandy Silt, loose-very moist		25					
10												
		5	0.5		Gray Brown Silty Clay, trace fine Sand, soft to medium stiff-very moist		27					
15												
		17			Light Gray Brown Silty fine Sand, medium dense-moist		13			23		
20					Boring Terminated at 20'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-12**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-14

JOB NO.: 18G129-3 | DRILLING DATE: 7/11/18 | WATER DEPTH: 19.5 feet
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
		10			ALLUVIUM: Dark Gray Brown fine Sandy Silt, loose to medium dense-very moist							No Sample Recovered
		7					30					
5		8	2.0		Gray Brown Silty Clay, stiff-very moist		28					
		10			Gray Brown Silty fine Sand to fine Sandy Silt, medium dense-very moist		27					
10												
		24					22					
15												
		11			Brown Silty fine Sand, little Clay, medium dense-very moist to wet		33			45		
20					Boring Terminated at 20'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-13**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-15

JOB NO.: 18G129-3 | DRILLING DATE: 7/11/18 | WATER DEPTH: Dry
PROJECT: Ontario Gateway Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: ---
LOCATION: Ontario, California | LOGGED BY: Anthony Luna | READING TAKEN: At Completion

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
		8			ALLUVIUM: Dark Gray Brown fine Sandy Silt, trace Clay, loose-very moist		28					
		10	2.5		Dark Gray Brown Silty Clay, little fine Sand, stiff-very moist		23					
5		13	2.5		Gray Brown Silty Clay, trace Iron oxide staining, stiff to very stiff-very moist		21					
		18	3.0				23					
10					Gray Brown Silty Clay, stiff-very moist							
		12	2.0				26			92		
					Boring Terminated at 13½'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG **PLATE I-14**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. I-16

JOB NO.: 18G129-3
PROJECT: Ontario Gateway Center
LOCATION: Ontario, California

DRILLING DATE: 7/11/18
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Anthony Luna

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

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
		10	2.5		ALLUVIUM: Gray Brown fine Sandy Clay, stiff-very moist		20					
		13	4.5		Dark Gray Brown Silty Clay, little fine Sand, medium stiff to stiff-very moist to wet		38					
5		6	1.5				27					
		8	1.5		Dark Gray Brown Clayey Silt, trace fine Sand, medium stiff to stiff-very moist		32					
10												
		7	1.5				29			87		
					Boring Terminated at 14'							

TBL 18G129-3.GPJ SOCALGEO.GDT 8/9/18

TEST BORING LOG

PLATE I-15

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	13.3	(ft)

Infiltration Test Hole	I-2

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)	
P1	Initial	12:00 PM	25.0	11.51	1.79	0.90	8.09	Pre-Sat
	Final	12:25 PM		13.30				
P2	Initial	12:26 PM	25.0	11.60	1.70	0.85	8.03	
	Final	12:51 PM		13.30				
1	Initial	1:52 PM	10.0	11.60	1.04	1.18	9.27	Infiltration Testing
	Final	2:02 PM		12.64				
2	Initial	2:03 PM	10.0	11.60	1.02	1.19	9.02	
	Final	2:13 PM		12.62				
3	Initial	2:14 PM	10.0	11.60	1.01	1.20	8.90	
	Final	2:24 PM		12.61				
4	Initial	2:25 PM	10.0	11.60	1.01	1.20	8.90	
	Final	2:35 PM		12.61				
5	Initial	2:36 PM	10.0	11.60	0.99	1.21	8.66	
	Final	2:46 PM		12.59				
6	Initial	2:47 PM	10.0	11.60	0.99	1.21	8.66	
	Final	2:57 PM		12.59				

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	19.8	(ft)

Infiltration Test Hole	I-3

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)	
P1	Initial	12:05 PM	25.0	18.10	1.70	0.85	8.03	Pre-Sat
	Final	12:30 PM		19.80				
P2	Initial	12:31 PM	25.0	18.10	1.70	0.85	8.03	
	Final	12:56 PM		19.80				
1	Initial	1:57 PM	10.0	18.10	1.13	1.14	10.42	Infiltration Testing
	Final	2:07 PM		19.23				
2	Initial	2:08 PM	10.0	18.10	1.13	1.14	10.42	
	Final	2:18 PM		19.23				
3	Initial	2:19 PM	10.0	18.10	1.11	1.15	10.16	
	Final	2:29 PM		19.21				
4	Initial	2:30 PM	10.0	18.10	1.10	1.15	10.03	
	Final	2:40 PM		19.20				
5	Initial	2:41 PM	10.0	18.10	1.10	1.15	10.03	
	Final	2:51 PM		19.20				
6	Initial	2:52 PM	10.0	18.10	1.09	1.16	9.90	
	Final	3:02 PM		19.19				

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	19.8	(ft)

Infiltration Test Hole	I-4

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	10:10 AM	30.0	18.09	0.03	1.70	0.06
	Final	10:40 AM		18.12			
2	Initial	10:41 AM	30.0	18.10	0.02	1.69	0.04
	Final	11:11 AM		18.12			
3	Initial	11:12 AM	30.0	18.08	0.02	1.71	0.04
	Final	11:42 AM		18.10			
4	Initial	11:43 AM	30.0	18.10	0.01	1.70	0.02
	Final	12:13 PM		18.11			
5	Initial	12:14 PM	30.0	18.09	0.01	1.71	0.02
	Final	12:44 PM		18.10			
6	Initial	12:45 PM	30.0	18.10	0.02	1.69	0.04
	Final	1:15 PM		18.12			
7	Initial	1:16 PM	30.0	18.09	0.01	1.71	0.02
	Final	1:46 PM		18.10			
8	Initial	1:47 PM	30.0	18.10	0.01	1.70	0.02
	Final	2:17 PM		18.11			
9	Initial	2:18 PM	30.0	18.10	0.01	1.70	0.02
	Final	2:48 PM		18.11			
10	Initial	2:49 PM	30.0	18.10	0.02	1.69	0.04
	Final	3:19 PM		18.12			
11	Initial	3:20 PM	30.0	18.10	0.01	1.70	0.02
	Final	3:50 PM		18.11			
12	Initial	3:51 PM	30.0	18.10	0.01	1.70	0.02
	Final	4:21 PM		18.11			

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	13.3	(ft)

Infiltration Test Hole: I-5

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	10:00 AM	30.0	11.54	0.10	1.71	0.21
	Final	10:30 AM		11.64			
2	Initial	10:31 AM	30.0	11.53	0.08	1.73	0.17
	Final	11:01 AM		11.61			
3	Initial	11:02 AM	30.0	11.59	0.09	1.67	0.20
	Final	11:32 AM		11.68			
4	Initial	11:33 AM	30.0	11.60	0.08	1.66	0.18
	Final	12:03 PM		11.68			
5	Initial	12:04 PM	30.0	11.60	0.08	1.66	0.18
	Final	12:34 PM		11.68			
6	Initial	12:35 PM	30.0	11.59	0.08	1.67	0.17
	Final	1:05 PM		11.67			
7	Initial	1:06 PM	30.0	11.58	0.07	1.69	0.15
	Final	1:36 PM		11.65			
8	Initial	1:37 PM	30.0	11.60	0.08	1.66	0.18
	Final	2:07 PM		11.68			
9	Initial	2:08 PM	30.0	11.60	0.08	1.66	0.18
	Final	2:38 PM		11.68			
10	Initial	2:39 PM	30.0	11.60	0.07	1.67	0.15
	Final	3:09 PM		11.67			
11	Initial	3:10 PM	30.0	11.59	0.07	1.68	0.15
	Final	3:40 PM		11.66			
12	Initial	3:41 PM	30.0	11.60	0.07	1.67	0.15
	Final	4:11 PM		11.67			

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	14.2	(ft)

Infiltration Test Hole	I-6

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	10:30 AM	30.0	12.00	0.06	2.17	0.10
	Final	11:00 AM		12.06			
2	Initial	11:01 AM	30.0	12.00	0.06	2.17	0.10
	Final	11:31 AM		12.06			
3	Initial	11:32 AM	30.0	12.00	0.05	2.18	0.09
	Final	12:02 PM		12.05			
4	Initial	12:03 PM	30.0	12.00	0.04	2.18	0.07
	Final	12:33 PM		12.04			
5	Initial	12:34 PM	30.0	12.00	0.04	2.18	0.07
	Final	1:04 PM		12.04			
6	Initial	1:05 PM	30.0	12.00	0.04	2.18	0.07
	Final	1:35 PM		12.04			
7	Initial	1:36 PM	30.0	12.00	0.04	2.18	0.07
	Final	2:06 PM		12.04			
8	Initial	2:07 PM	30.0	12.00	0.03	2.19	0.05
	Final	2:37 PM		12.03			
9	Initial	2:38 PM	30.0	12.00	0.04	2.18	0.07
	Final	3:08 PM		12.04			
10	Initial	3:09 PM	30.0	12.00	0.04	2.18	0.07
	Final	3:39 PM		12.04			
11	Initial	3:40 PM	30.0	12.00	0.04	2.18	0.07
	Final	4:10 PM		12.04			
12	Initial	4:11 PM	30.0	12.00	0.04	2.18	0.07
	Final	4:41 PM		12.04			

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	15.9	(ft)

Infiltration Test Hole	I-7

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)	
P1	Initial	11:00 AM	25.0	13.90	1.14	1.43	3.43	Pre-Sat
	Final	11:25 AM		15.04				
P2	Initial	11:26 AM	25.0	13.90	0.78	1.61	2.11	
	Final	11:51 AM		14.68				
1	Initial	11:52 AM	10.0	13.90	0.28	1.86	1.66	Infiltration Testing
	Final	12:02 PM		14.18				
2	Initial	12:03 PM	10.0	13.90	0.24	1.88	1.41	
	Final	12:13 PM		14.14				
3	Initial	12:14 PM	10.0	13.90	0.15	1.93	0.86	
	Final	12:24 PM		14.05				
4	Initial	12:25 PM	10.0	13.90	0.14	1.93	0.80	
	Final	12:35 PM		14.04				
5	Initial	12:36 PM	10.0	13.90	0.14	1.93	0.80	
	Final	12:46 PM		14.04				
6	Initial	12:47 PM	10.0	13.90	0.14	1.93	0.80	
	Final	12:57 PM		14.04				

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	17.4	(ft)

Infiltration Test Hole	I-8

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	10:00 AM	30.0	14.50	0.14	2.83	0.19
	Final	10:30 AM		14.64			
2	Initial	10:31 AM	30.0	14.64	0.15	2.69	0.21
	Final	11:01 AM		14.79			
3	Initial	11:02 AM	30.0	14.79	0.15	2.54	0.22
	Final	11:32 AM		14.94			
4	Initial	11:33 AM	30.0	14.94	0.14	2.39	0.22
	Final	12:03 PM		15.08			
5	Initial	12:04 PM	30.0	15.08	0.14	2.25	0.23
	Final	12:34 PM		15.22			
6	Initial	12:35 PM	30.0	15.22	0.14	2.11	0.25
	Final	1:05 PM		15.36			
7	Initial	1:06 PM	30.0	15.36	0.14	1.97	0.26
	Final	1:36 PM		15.50			
8	Initial	1:37 PM	30.0	15.50	0.13	1.84	0.26
	Final	2:07 PM		15.63			
9	Initial	2:08 PM	30.0	15.63	0.13	1.71	0.28
	Final	2:38 PM		15.76			
10	Initial	2:39 PM	30.0	15.69	0.12	1.65	0.26
	Final	3:09 PM		15.81			
11	Initial	3:10 PM	30.0	15.70	0.12	1.64	0.27
	Final	3:40 PM		15.82			
12	Initial	3:41 PM	30.0	15.70	0.12	1.64	0.27
	Final	4:11 PM		15.82			

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	14.7	(ft)

Infiltration Test Hole	I-9

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	10:30 AM	30.0	12.90	0.02	1.79	0.04
	Final	11:00 AM		12.92			
2	Initial	11:01 AM	30.0	12.92	0.01	1.78	0.02
	Final	11:31 AM		12.93			
3	Initial	11:32 AM	30.0	12.93	0.01	1.77	0.02
	Final	12:02 PM		12.94			
4	Initial	12:03 PM	30.0	12.94	0.01	1.76	0.02
	Final	12:33 PM		12.95			
5	Initial	12:34 PM	30.0	12.95	0.01	1.75	0.02
	Final	1:04 PM		12.96			
6	Initial	1:05 PM	30.0	12.96	0.00	1.74	0.00
	Final	1:35 PM		12.96			
7	Initial	1:36 PM	30.0	12.96	0.01	1.74	0.02
	Final	2:06 PM		12.97			
8	Initial	2:07 PM	30.0	12.97	0.01	1.73	0.02
	Final	2:37 PM		12.98			
9	Initial	2:38 PM	30.0	12.98	0.01	1.72	0.02
	Final	3:08 PM		12.99			
10	Initial	3:09 PM	30.0	13.00	0.00	1.70	0.00
	Final	3:39 PM		13.00			
11	Initial	3:40 PM	30.0	13.00	0.01	1.70	0.02
	Final	4:10 PM		13.01			
12	Initial	4:11 PM	30.0	13.01	0.01	1.69	0.02
	Final	4:41 PM		13.02			

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	10.0	(ft)

Infiltration Test Hole: I-10

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	8:00 AM	30.0	8.00	0.01	2.00	0.02
	Final	8:30 AM		8.01			
2	Initial	8:31 AM	30.0	8.01	0.01	1.99	0.02
	Final	9:01 AM		8.02			
3	Initial	9:02 AM	30.0	8.02	0.00	1.98	0.00
	Final	9:32 AM		8.02			
4	Initial	9:33 AM	30.0	8.02	0.01	1.98	0.02
	Final	10:03 AM		8.03			
5	Initial	10:04 AM	30.0	8.03	0.01	1.97	0.02
	Final	10:34 AM		8.04			
6	Initial	10:35 AM	30.0	8.04	0.01	1.96	0.02
	Final	11:05 AM		8.05			
7	Initial	11:06 AM	30.0	8.05	0.00	1.95	0.00
	Final	11:36 AM		8.05			
8	Initial	11:37 AM	30.0	8.05	0.01	1.95	0.02
	Final	12:07 PM		8.06			
9	Initial	12:08 PM	30.0	8.06	0.01	1.94	0.02
	Final	12:38 PM		8.07			
10	Initial	12:39 PM	30.0	8.07	0.00	1.93	0.00
	Final	1:09 PM		8.07			
11	Initial	1:10 PM	30.0	8.07	0.01	1.93	0.02
	Final	1:40 PM		8.08			
12	Initial	1:41 PM	30.0	8.08	0.01	1.92	0.02
	Final	2:11 PM		8.09			

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	12.1	(ft)

Infiltration Test Hole	I-11

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)	
P1	Initial	9:00 AM	25.0	10.34	0.67	1.43	2.02	Pre-Sat
	Final	9:25 AM		11.01				
P2	Initial	9:26 AM	25.0	10.33	0.50	1.52	1.42	
	Final	9:51 AM		10.83				
1	Initial	9:52 AM	10.0	10.37	0.19	1.64	1.27	Infiltration Testing
	Final	10:02 AM		10.56				
2	Initial	10:03 AM	10.0	10.40	0.17	1.62	1.14	
	Final	10:13 AM		10.57				
3	Initial	10:14 AM	10.0	10.40	0.16	1.62	1.07	
	Final	10:24 AM		10.56				
4	Initial	10:25 AM	10.0	10.40	0.17	1.62	1.14	
	Final	10:35 AM		10.57				
5	Initial	10:36 AM	10.0	10.40	0.16	1.62	1.07	
	Final	10:46 AM		10.56				
6	Initial	10:47 AM	10.0	10.40	0.16	1.62	1.07	
	Final	10:57 AM		10.56				

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0.4
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	11.2	(ft)

Infiltration Test Hole: I-12

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	8:00 AM	30.0	9.41	0.05	1.77	0.10
	Final	8:30 AM		9.46			
2	Initial	8:31 AM	30.0	9.46	0.04	1.72	0.08
	Final	9:01 AM		9.50			
3	Initial	9:02 AM	30.0	9.50	0.04	1.68	0.09
	Final	9:32 AM		9.54			
4	Initial	9:33 AM	30.0	9.47	0.04	1.71	0.09
	Final	10:03 AM		9.51			
5	Initial	10:04 AM	30.0	9.49	0.04	1.69	0.09
	Final	10:34 AM		9.53			
6	Initial	10:35 AM	30.0	9.48	0.03	1.71	0.06
	Final	11:05 AM		9.51			
7	Initial	11:06 AM	30.0	9.49	0.03	1.70	0.06
	Final	11:36 AM		9.52			
8	Initial	11:37 AM	30.0	9.49	0.03	1.70	0.06
	Final	12:07 PM		9.52			
9	Initial	12:08 PM	30.0	9.50	0.04	1.68	0.09
	Final	12:38 PM		9.54			
10	Initial	12:39 PM	30.0	9.48	0.03	1.71	0.06
	Final	1:09 PM		9.51			
11	Initial	1:10 PM	30.0	9.49	0.03	1.70	0.06
	Final	1:40 PM		9.52			
12	Initial	1:41 PM	30.0	9.50	0.03	1.69	0.06
	Final	2:11 PM		9.53			

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	19.4	(ft)

Infiltration Test Hole	I-13

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)	
P1	Initial	10:15 AM	25.0	17.70	1.53	0.93	6.67	Pre-Sat
	Final	10:40 AM		19.23				
P2	Initial	10:41 AM	25.0	17.70	1.51	0.94	6.52	
	Final	11:06 AM		19.21				
1	Initial	11:07 AM	10.0	17.60	0.68	1.46	5.02	Infiltration Testing
	Final	11:17 AM		18.28				
2	Initial	11:18 AM	10.0	17.68	0.67	1.39	5.18	
	Final	11:28 AM		18.35				
3	Initial	11:29 AM	10.0	17.70	0.66	1.37	5.15	
	Final	11:39 AM		18.36				
4	Initial	11:40 AM	10.0	17.69	0.65	1.39	5.03	
	Final	11:50 AM		18.34				
5	Initial	11:51 AM	10.0	17.70	0.63	1.39	4.87	
	Final	12:01 PM		18.33				
6	Initial	12:02 PM	10.0	17.70	0.62	1.39	4.78	
	Final	12:12 PM		18.32				

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	19.8	(ft)

Infiltration Test Hole	I-14

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	10:00 AM	30.0	18.05	0.54	1.48	1.31
	Final	10:30 AM		18.59			
2	Initial	10:31 AM	30.0	18.00	0.51	1.55	1.19
	Final	11:01 AM		18.51			
3	Initial	11:02 AM	30.0	18.08	0.48	1.48	1.17
	Final	11:32 AM		18.56			
4	Initial	11:33 AM	30.0	18.10	0.47	1.47	1.15
	Final	12:03 PM		18.57			
5	Initial	12:04 PM	30.0	18.10	0.45	1.48	1.10
	Final	12:34 PM		18.55			
6	Initial	12:35 PM	30.0	18.09	0.44	1.49	1.06
	Final	1:05 PM		18.53			
7	Initial	1:06 PM	30.0	18.10	0.43	1.49	1.04
	Final	1:36 PM		18.53			
8	Initial	1:37 PM	30.0	18.10	0.42	1.49	1.01
	Final	2:07 PM		18.52			
9	Initial	2:08 PM	30.0	18.09	0.42	1.50	1.01
	Final	2:38 PM		18.51			
10	Initial	2:39 PM	30.0	18.08	0.42	1.51	1.00
	Final	3:09 PM		18.50			
11	Initial	3:10 PM	30.0	18.10	0.41	1.50	0.99
	Final	3:40 PM		18.51			
12	Initial	3:41 PM	30.0	18.10	0.41	1.50	0.99
	Final	4:11 PM		18.51			

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	13.3	(ft)

Infiltration Test Hole	I-15

Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	8:15 AM	30.0	11.14	0.02	2.15	0.03
	Final	8:45 AM		11.16			
2	Initial	8:46 AM	30.0	11.16	0.02	2.13	0.03
	Final	9:16 AM		11.18			
3	Initial	9:17 AM	30.0	11.18	0.01	2.12	0.02
	Final	9:47 AM		11.19			
4	Initial	9:48 AM	30.0	11.19	0.01	2.11	0.02
	Final	10:18 AM		11.20			
5	Initial	10:19 AM	30.0	11.20	0.02	2.09	0.04
	Final	10:49 AM		11.22			
6	Initial	10:50 AM	30.0	11.22	0.01	2.08	0.02
	Final	11:20 AM		11.23			
7	Initial	11:21 AM	30.0	11.23	0.00	2.07	0.00
	Final	11:51 AM		11.23			
8	Initial	11:52 AM	30.0	11.23	0.01	2.07	0.02
	Final	12:22 PM		11.24			
9	Initial	12:23 PM	30.0	11.24	0.01	2.06	0.02
	Final	12:53 PM		11.25			
10	Initial	12:54 PM	30.0	11.25	0.00	2.05	0.00
	Final	1:24 PM		11.25			
11	Initial	1:25 PM	30.0	11.25	0.01	2.05	0.02
	Final	1:55 PM		11.26			
12	Initial	1:56 PM	30.0	11.26	0.01	2.04	0.02
	Final	2:26 PM		11.27			

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

INFILTRATION CALCULATIONS

Project Name	Ontario Gateway Center
Project Location	Ontario, CA
Project Number	18G129-3
Engineer	Scott McCann

Test Hole Radius	4	(in)
Test Depth	14.3	(ft)

Infiltration Test Hole	I-16

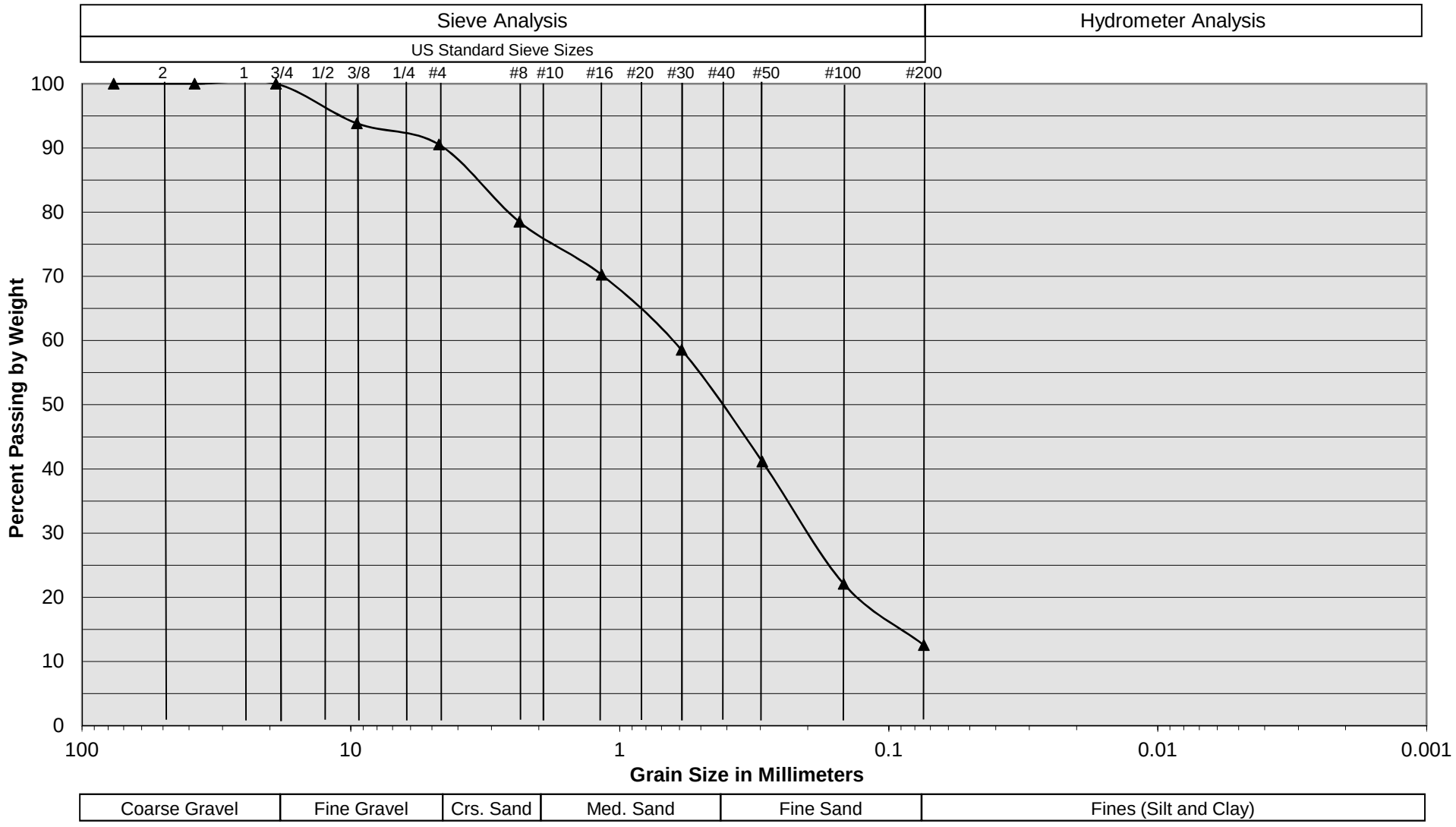
Interval Number		Time	Time Interval (min)	Water Depth (ft)	Change in Water Level (ft)	Average Head Height (ft)	Infiltration Rate Q (in/hr)
1	Initial	8:00 AM	30.0	13.09	0.07	1.18	0.21
	Final	8:30 AM		13.16			
2	Initial	8:31 AM	30.0	13.08	0.06	1.19	0.18
	Final	9:01 AM		13.14			
3	Initial	9:02 AM	30.0	13.09	0.06	1.18	0.18
	Final	9:32 AM		13.15			
4	Initial	9:33 AM	30.0	13.10	0.06	1.17	0.18
	Final	10:03 AM		13.16			
5	Initial	10:04 AM	30.0	13.09	0.05	1.19	0.15
	Final	10:34 AM		13.14			
6	Initial	10:35 AM	30.0	13.10	0.05	1.18	0.15
	Final	11:05 AM		13.15			
7	Initial	11:06 AM	30.0	13.09	0.06	1.18	0.18
	Final	11:36 AM		13.15			
8	Initial	11:37 AM	30.0	13.09	0.05	1.19	0.15
	Final	12:07 PM		13.14			
9	Initial	12:08 PM	30.0	13.10	0.05	1.18	0.15
	Final	12:38 PM		13.15			
10	Initial	12:39 PM	30.0	13.10	0.05	1.18	0.15
	Final	1:09 PM		13.15			
11	Initial	1:10 PM	30.0	13.09	0.05	1.19	0.15
	Final	1:40 PM		13.14			
12	Initial	1:41 PM	30.0	13.10	0.05	1.18	0.15
	Final	2:11 PM		13.15			

Per County Standards, Infiltration Rate calculated as follows:

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

Where: Q = 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 above GS= 0
H_{avg} = Average Head Height over the time interval

Grain Size Distribution



Sample Description	I-2 @ 11.5 to 13 feet
Soil Classification	Light Brown Silty fine to coarse Sand, little fine Gravel

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-1

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Grain Size Distribution

Sample Description	I-3 @ 18.5 to 20 feet
Soil Classification	Light Gray fine to coarse Sand, little fine Gravel, trace Silt

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-2

SoCalGeo
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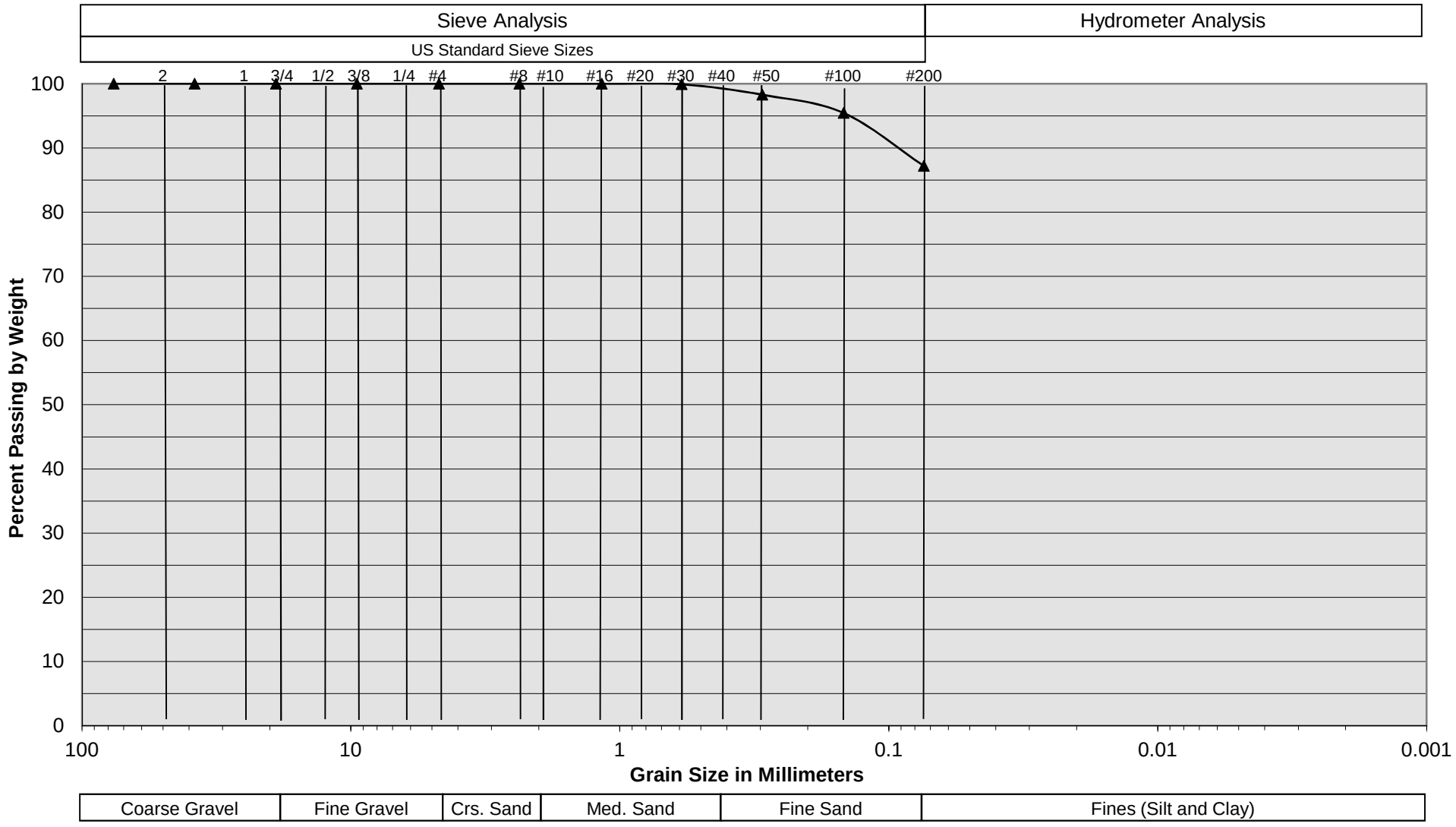
A California Corporation

Grain Size Distribution



Sample Description	I-4 @ 18.5 to 20 feet
Soil Classification	Light Gray Brown Silty Clay, trace fine Sand

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-3

SoCalGeo
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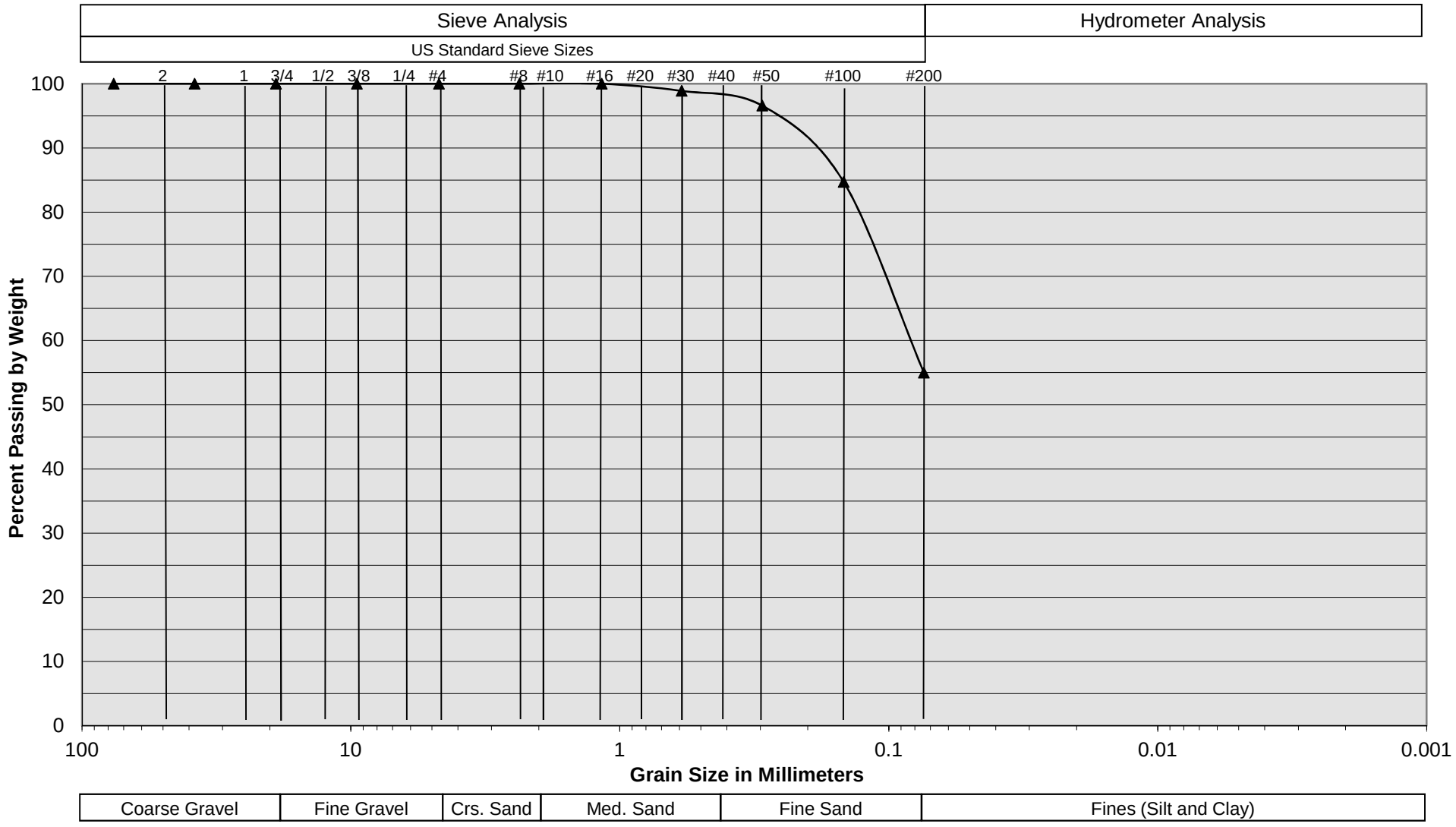
A California Corporation

Grain Size Distribution



Sample Description	I-5 @ 12 to 13.5 feet
Soil Classification	Light Gray Brown fine Sandy Clay, little Silt

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-4

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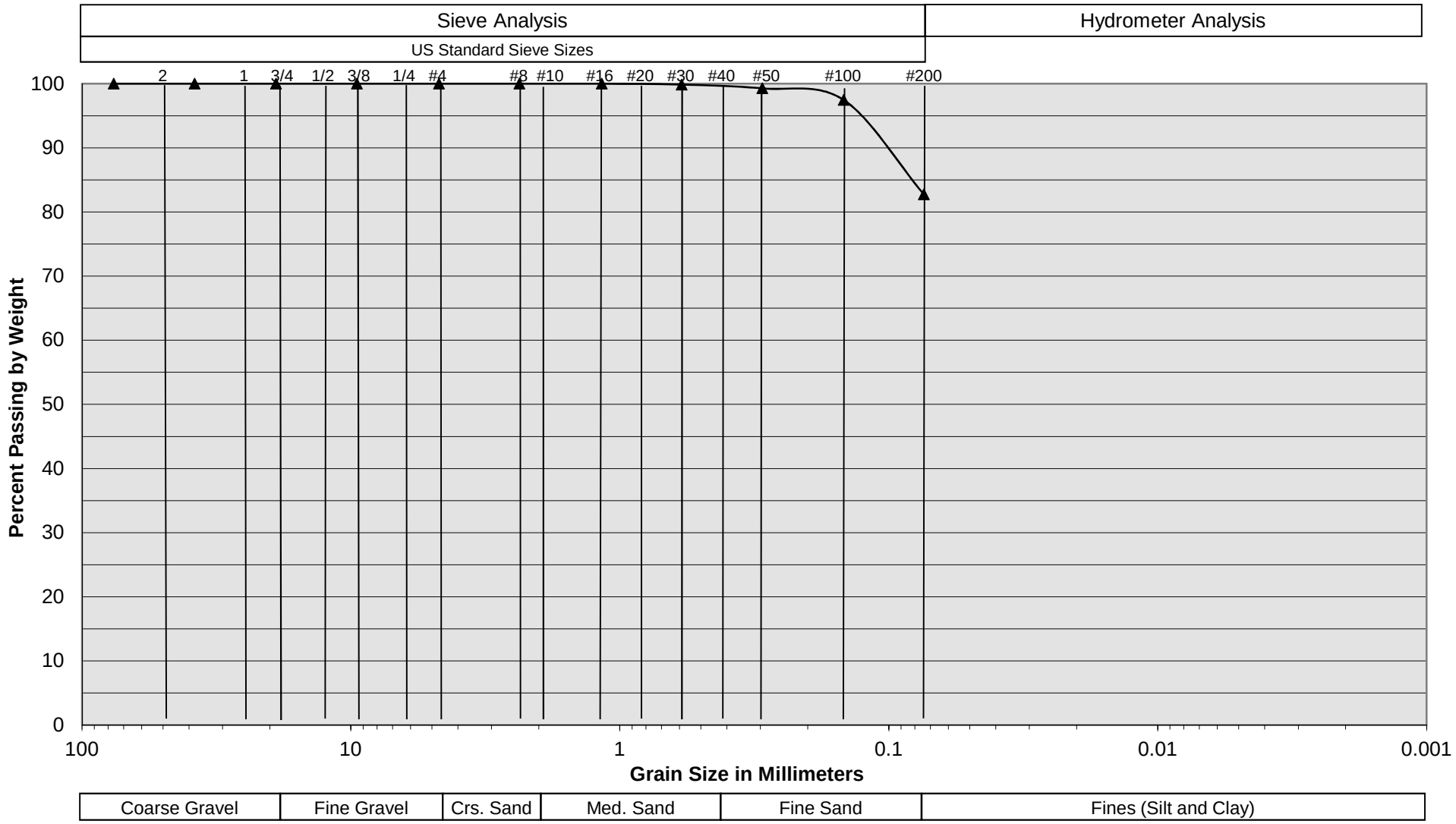
Grain Size Distribution



Sample Description	I-6 @ 12.5 to 14 feet
Soil Classification	Gray Silty Clay, little fine Sand

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-5

SoCalGeo
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A California Corporation

Grain Size Distribution

Sample Description	I-7 @ 14.5 to 16 feet
Soil Classification	Light Gray Brown fine Sandy Clay, little medium Sand, trace Silt

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-6

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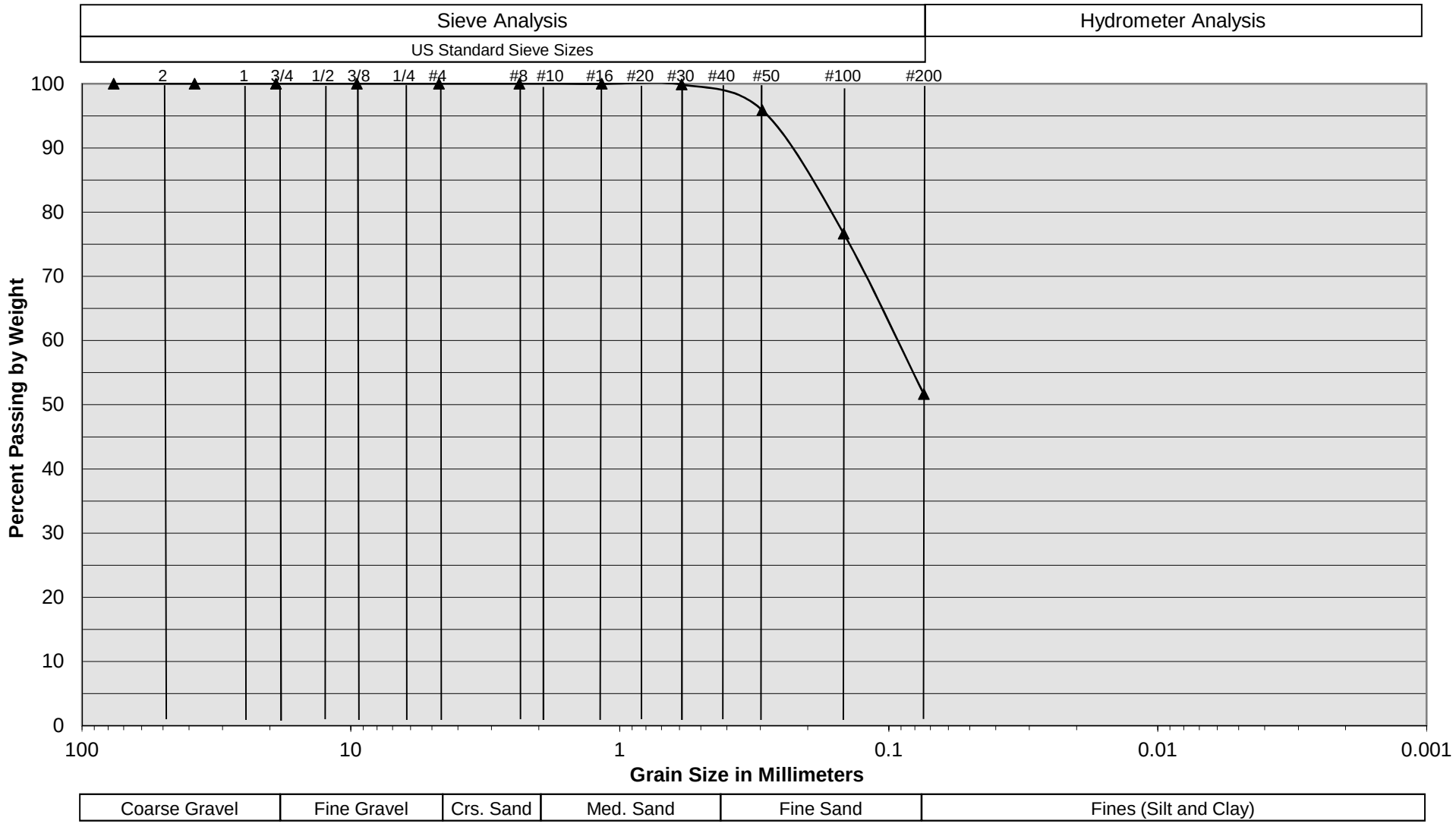
Grain Size Distribution



Sample Description	I-8 @ 15.5 to 17 feet
Soil Classification	Light Gray Brown Clayey fine Sand to fine Sandy Clay, trace Silt

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-7

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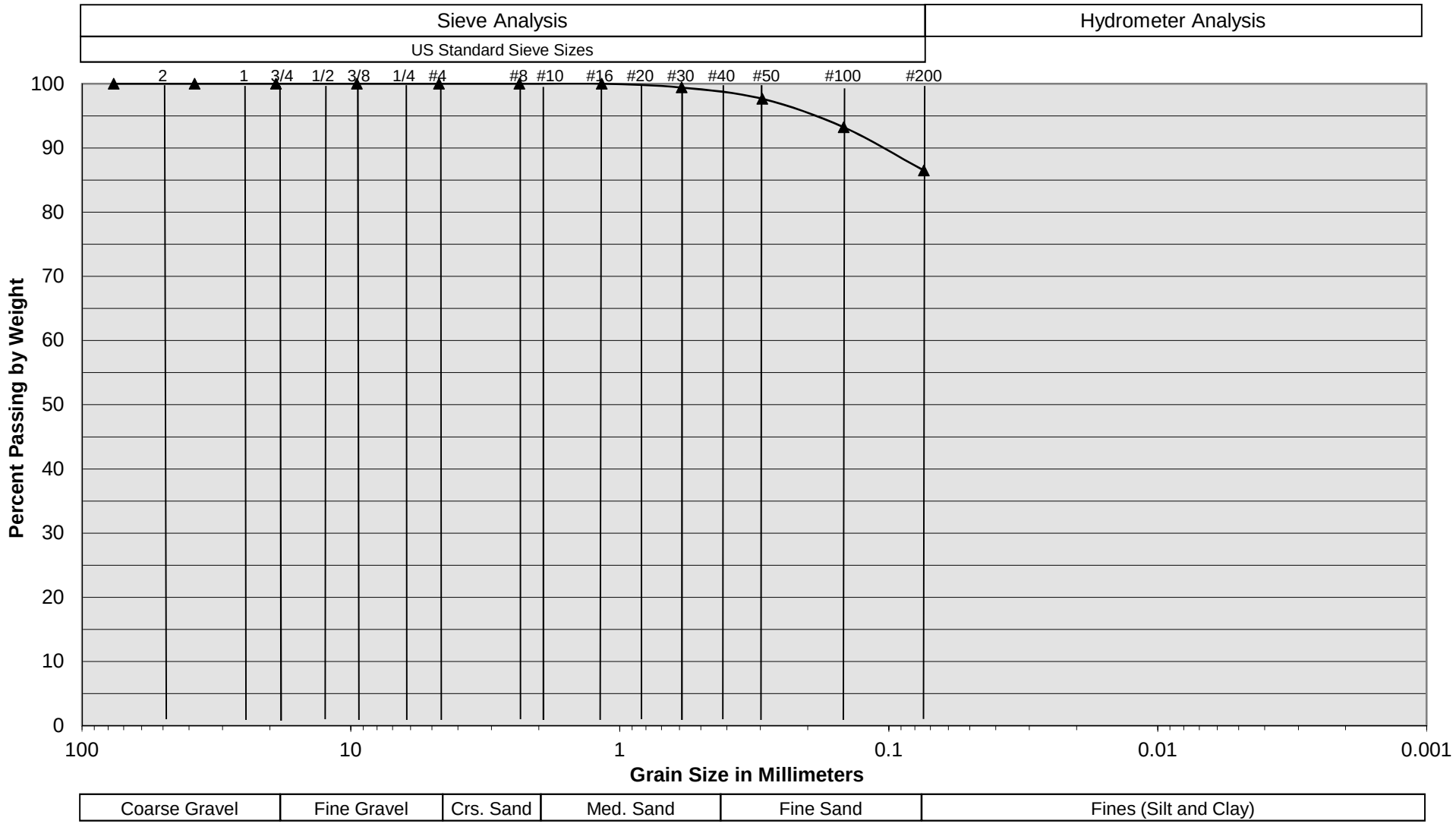
Grain Size Distribution



Sample Description	I-9 @ 13.5 to 15 feet
Soil Classification	Gray Silty Clay, trace fine Sand

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-8

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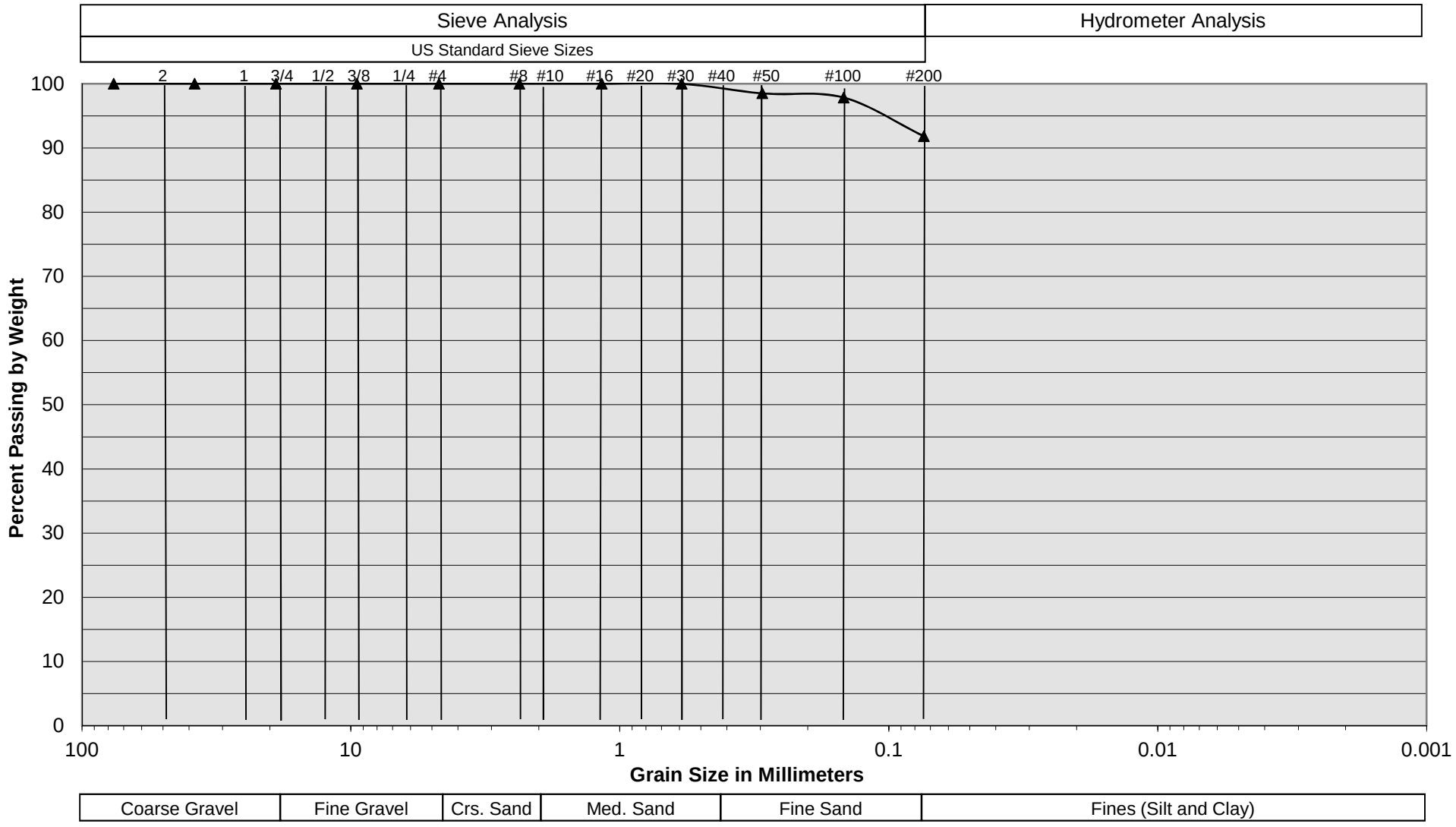
Grain Size Distribution



Sample Description	I-10 @ 8.5 to 10 feet
Soil Classification	Gray Silty Clay

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-9

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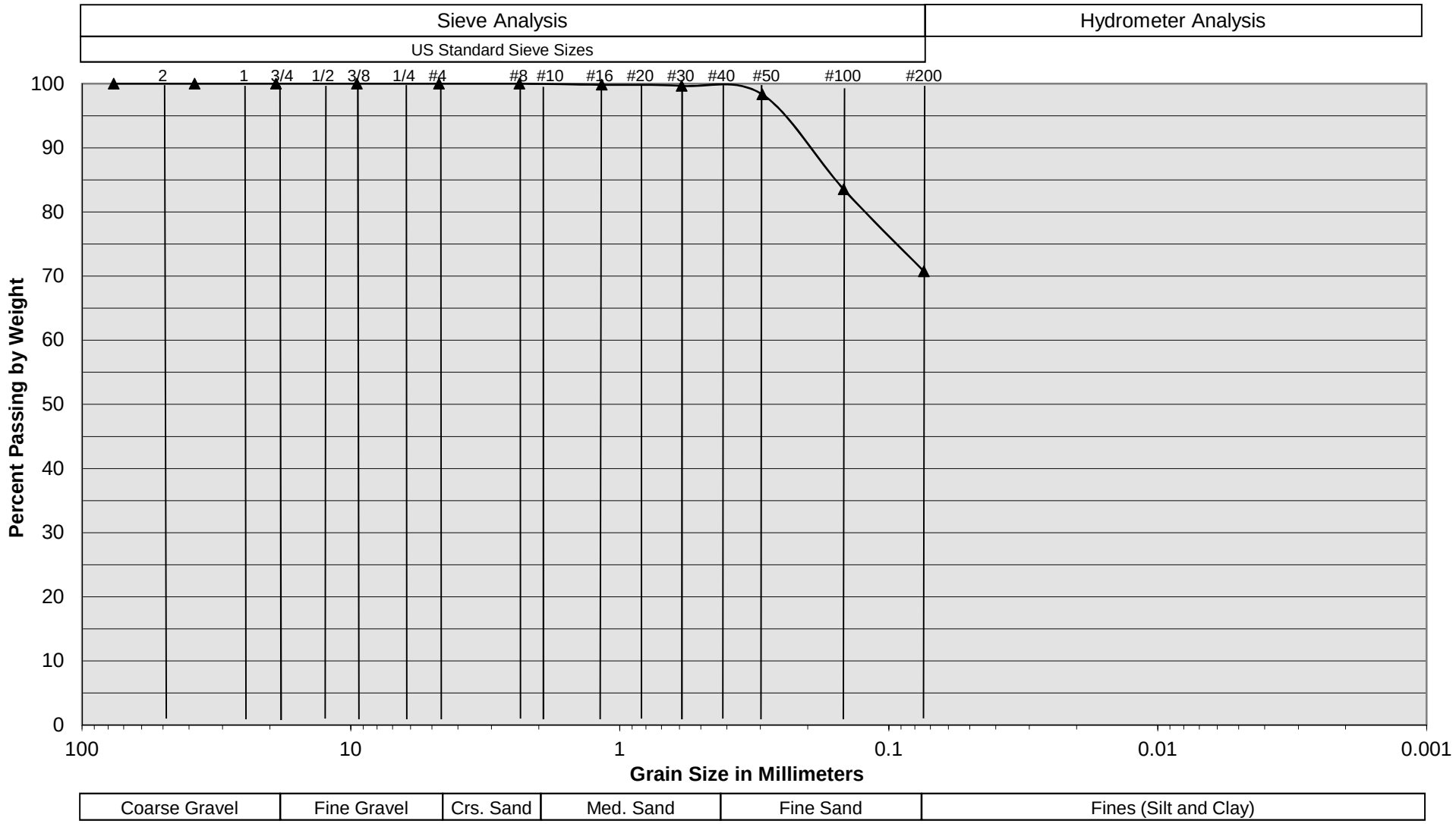
Grain Size Distribution



Sample Description	I-11 @ 10.5 to 12 feet
Soil Classification	Light Gray fine Sandy Silt, trace Clay

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-10

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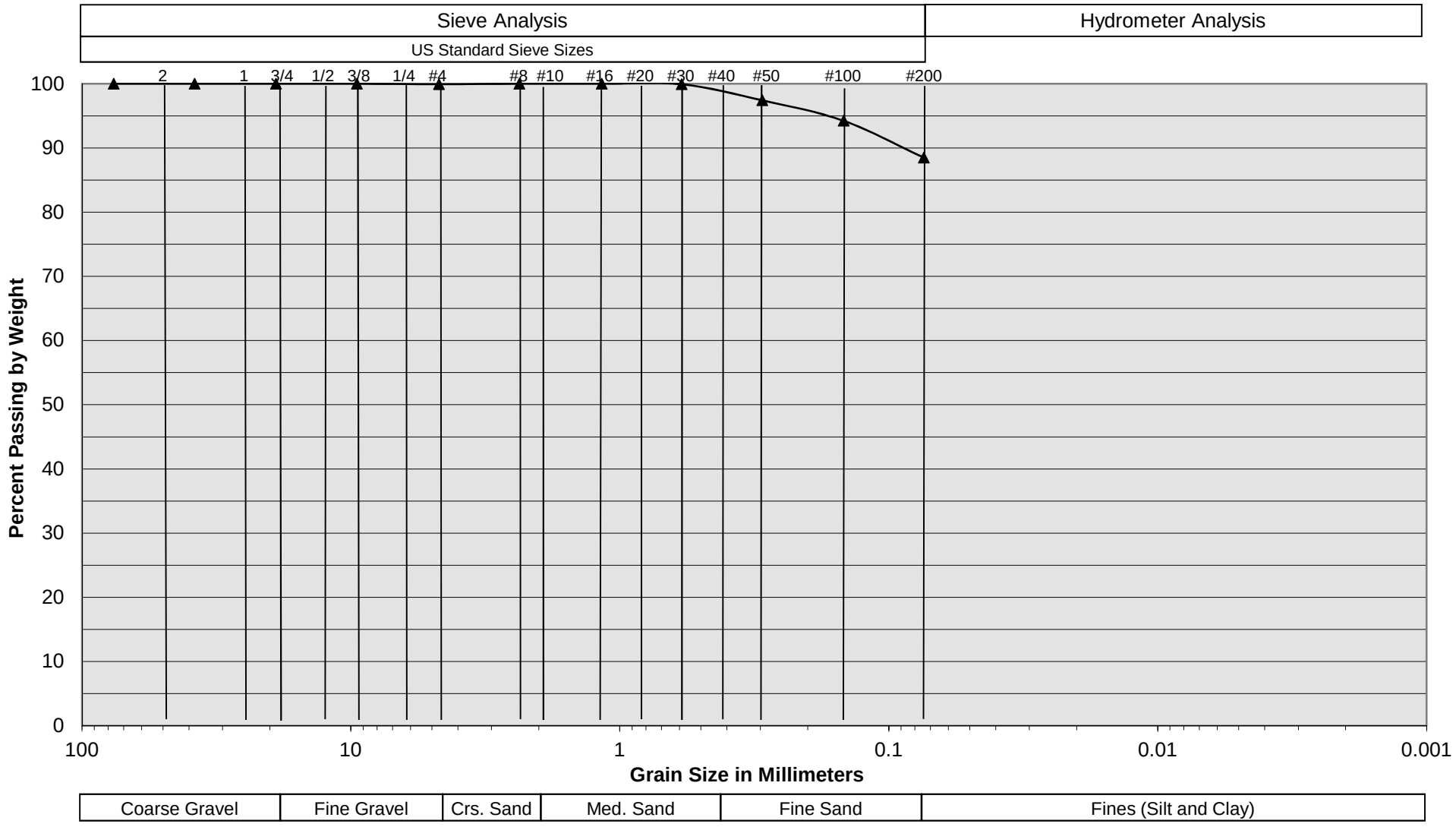
Grain Size Distribution



Sample Description	I-12 @ 9.5 to 11 feet
Soil Classification	Light Gray Silty Clay, trace fine Sand

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-11

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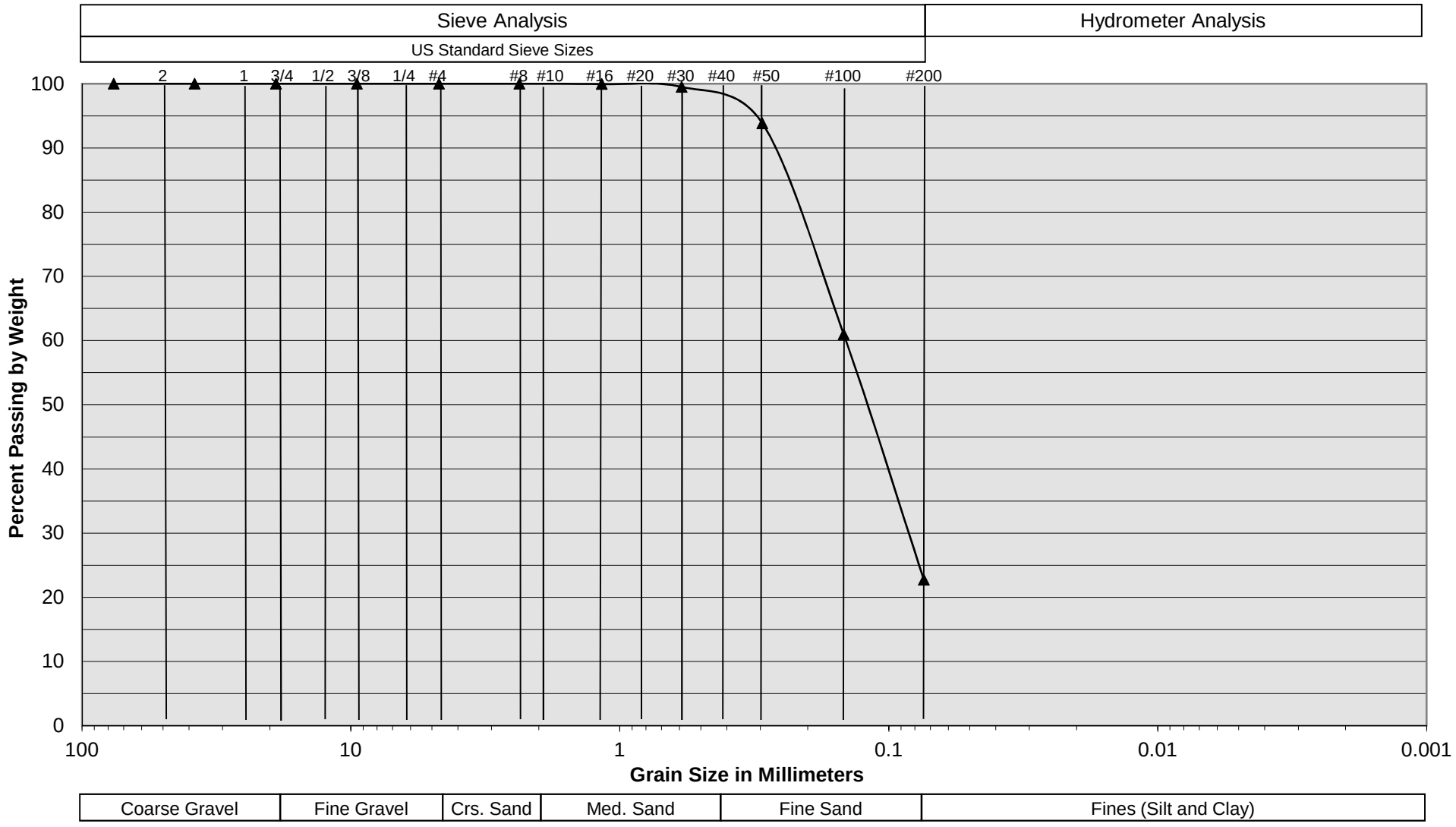
Grain Size Distribution



Sample Description	I-13 @ 18.5 to 20 feet
Soil Classification	Light Gray Brown Silty fine Sand

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-12

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Grain Size Distribution

Sample Description	I-14 @ 18.5 to 20 feet
Soil Classification	Brown Silty fine Sand, little Clay

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-13

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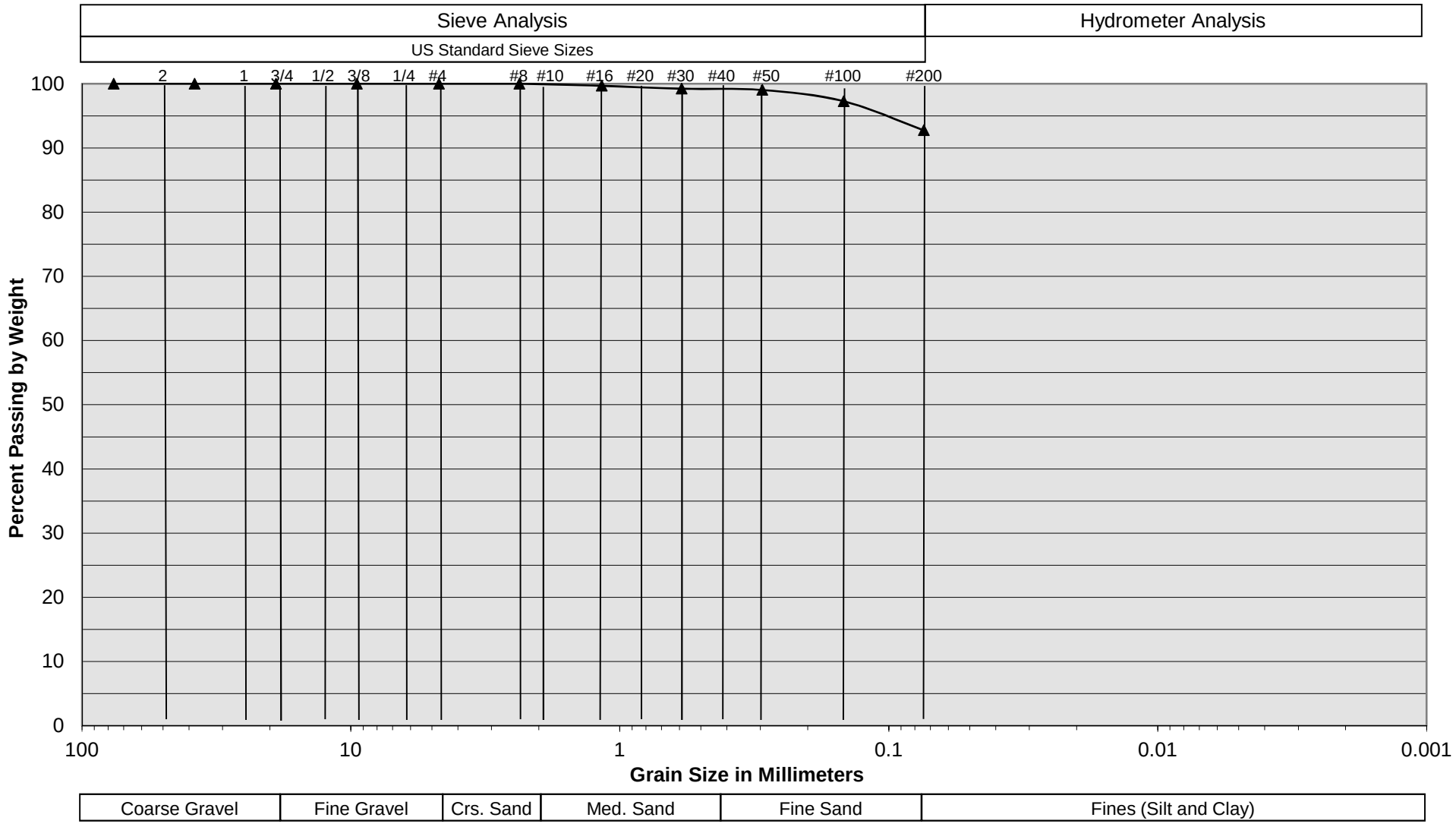
Grain Size Distribution



Sample Description	I-15 @ 12 to 13.5 feet
Soil Classification	Gray Brown Silty Clay

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-14

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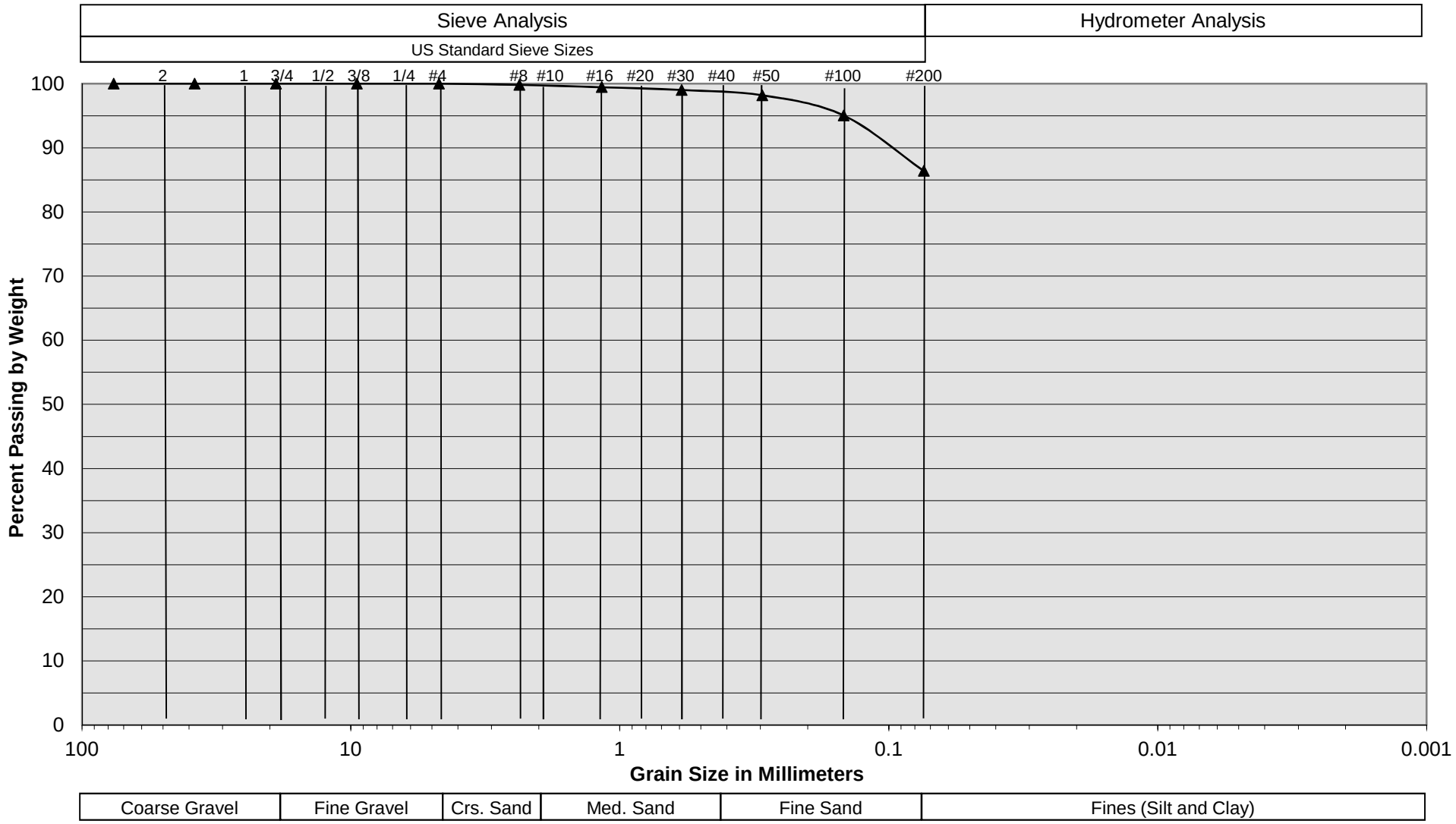
Grain Size Distribution



Sample Description	I-16 @ 12.5 to 14 feet
Soil Classification	Dark Gray Clayey Silt, trace fine Sand

Ontario Gateway Center
Ontario, CA
Project No. 18G129-3
PLATE C-15

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