



City of Alamogordo

Purchasing Dept. • 2600 N. Florida Ave. • Alamogordo, NM 88310 • (575) 439-4115 • FAX (575) 439-4117

May 21, 2018

**ADDENDUM NO. 1
PUBLIC WORKS BID NO. 2018-003
GRIGGS RESERVOIR OUTFALL STRUCTURE MODIFICATIONS AND STORM DRAIN
IMPROVEMENTS**

Each bidder shall acknowledge receipt of this Addendum Number One (1) by including in the Bid proposal.

Addendum Number 1 is issued to provide changes and/or clarifications to the above referenced PWB as follows:

Question: Can precast concrete box culverts be used instead of cast in place?

Answer: Yes. Contractor will be required to submit compliance certificates and shop drawings for approval during the submittal process.

Question: Advertisement for Bid Section pg. SEC 1 – PG 1. Prime Contractor needs to possess only one of the three listed CID Classifications correct?

Answer: Correct.

Question: Sheet G3.0, Note 21 WASTE MATERIAL. Does this note apply to dirt spoils generated from construction activities, or can the spoils be placed at the reservoir site?

Answer: Dirt/concrete/asphalt spoils can be placed at the reservoir site in the Public Works yard, excluding vegetation.

Question: Sheet G3.0, Note 21 WASTE MATERIAL. Does this note apply to present vegetation, or can the vegetation be moved to an area outside of the reservoir footprint?

Answer: Vegetation shall be hauled off site.

Question: Sheet G3.0, Note 30 SURFACE FEATURES. Will restoration of paved areas at parking lot East of Florida and inside City Yard be incidental to the project?

Answer: No. Refer to Bid Schedule Item no. 11 and Article 02-027.1, sub-paragraphs 5.0 and 6.0. Also refer to attached revised sheets R-102 and D1.6.

Question: Are there any underground fuel tanks in the vicinity of the storm drain route?

Answer: There are two (2) underground fuel tanks between the Purchasing Department and Central Receiving buildings, approximately 100 feet south of the storm drain route. Both tanks have been drained and out of service for several years.

Question: Reference Sheet RC1.5. Please provide detail for Premanufactured Tee SDMH.

Answer: Bid Item No. 19, Tee Manhole, is deleted and is replaced with three (3) additional 8' diameter manholes, Bid Item No. 14. Refer to attached revised sheets Q1.0, RC1.3, RC1.4, RC1.5, and revised Section 3 – Bid Schedule.

Question: Are there any anticipated permit fees with the city of Alamogordo that the contractor will be required to pay?

Answer: No.

Question: Is a soil report available? If not, is the onsite soil -generally considered acceptable for structural fill?

Answer: Geotechnical report attached. Refer to Clarification section of this Addendum.

Question: Per the trench and backfill specification- it appears that all backfill under roadway is required to be Type II Aggregate Base. Is the asphalt section of the Public Works yard (Sta. 18+55 to 33+00) considered a roadway section and will it require all backfill to be Type II Aggregate Base?

Answer: Yes. Refer to attached revised sheet D1.6.

Question: Will trenches out of the roadway require Type II Aggregate Base for the bedding zone and Native material meeting the native material spec for the haunch zone, initial backfill zone and final backfill zone?

Answer: Pipe trenching shall meet NMDOT Specification 206 - Excavation and Backfill for Culverts and Minor Structures.

Question: Will the water line relocations at Sta. 18+02 and 18+79, be paid under the utility allowance?

Answer: Yes.

Question: Can debris (trees mixed with dirt, concrete, asphalt, trash) located in the pond/reservoir area be disposed of onsite in the public works yard area? How will this debris be quantified and paid for?

Answer: Dirt/concrete/asphalt spoils can be placed at the reservoir site in the Public Works yard, excluding vegetation. Vegetation shall be hauled off site. Payment shall be made under Bid Item 3, Project Removals.

Question: Can dirt from the unclassified excavation cut around station 2+00 to 10+00 be disposed of onsite or at a city site nearby? A nearby site would save the city on trucking costs.

Answer: Dirt/concrete/asphalt spoils can be placed at the reservoir site in the Public Works yard, excluding vegetation. Vegetation shall be hauled off site.

Question: Griggs Reservoir spillways is shown as 6" thick on sheet C-101 and 5" on the bid form. Please confirm section.

Answer: 6" thick is correct. Refer to revised Section 3 – Bid Schedule.

Question: Sheet C-102 shows 2” thick gravel mulch on the pond slope Section E1. Can a bid item be added for this?

Answer: Not required. Note deleted from attached revised sheet C-102.

Question: Is site seeding /remediation required for disturbed areas? If so, can a bid item be added?

Answer: Not required.

Question: Will box culvert over excavation be paid for under Unclassified Excavation?

Answer: Over excavation for the box culvert shall be incidental to the installation. Refer to attached revised sheets C-101, C-102, and C-501 for clarification of earthwork.

Clarification:

1. Prospective bidders are advised that UPS and FEDEX cannot guarantee delivery by 2:00 p.m.
2. The geotechnical report is attached.
3. The attendance list from the May 9, 2018 non-mandatory prebid conference is attached.
4. Section 2 – Instructions to Bidders, 17.0 – Submission of Bids – Delete reference to “Section 15 – Certification Regarding Lobbying”. This form is part of the Agreement execution; not to be submitted with the bid documents.

All other provisions of the Contract Documents shall remain unchanged. This addendum is hereby made part of the Contract Documents. Each bidder shall acknowledge receipt of this Addendum Number One (1) using this acknowledgement page and submit with the Bid proposal.

Sincerely,

Barbara Pyeatt
Chief Procurement Officer

Received By: _____

Date Received: _____

Business Name: _____

Signature: _____

SECTION 3 - BID SCHEDULE

BIDDER agrees to perform all of the work described in the specifications and shown on the plans for the following unit or lump sum prices. Prices should be written in numerals in the spaces provided.

**Public Works Bid No. 2018-003
Griggs Reservoir Outfall Structure Modifications and Storm Drain Improvements
ADDENDUM NO. 1**

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	TOTAL AMOUNT
1	Mobilization	LS	1		
2	Clearing and Grubbing	LS	1		
3	Project Removals	LS	1		
4	Stormwater Pollution Prevention Plan (SWPPP)	LS	1		
5	Traffic Control Management	LS	1		
6	Construction Staking and Surveying	LS	1		
7	Utility Allowance	AL	1	\$20,000	\$20,000
8	Diversion and Care of Storm Water Allowance	AL	1	\$8,000	\$8,000
9	Unclassified Excavation	CY	35,000		
10	Embankment of Engineered Fill	CY	4,200		
11	4" HMA SP-IV Complete, Includes Subgrade Prep, Base Course, and Prime Coat, CIP	SY	390		
12	Standard Curb and Gutter, Type II	LF	20		
13	Concrete Sidewalk, 4" Thick	SY	20		
14	Manhole, 8' Diameter	EA	7		
15	48" Ultraflo Storm Drain Pipe, Including Trenching	LF	662		
16	54" Ultraflo Storm Drain Pipe, Including Trenching	LF	1,110		
17	60" Ultraflo Storm Drain Pipe, Including Trenching	LF	1,104		
18	60" Culvert Headwall	EA	1		
19	Not Used	EA	0		
20	1' Thick Wire Enclosed Rip Rap	CY	81		

21	6' X 6' Junction Box, Precast Concrete Structure	EA	1		
22	Channel Outlet, Includes Bleeder Pipe with Flap Gate, and Concrete Weir, CIP	LS	1		
23	Griggs Concrete Intake Riser, Includes Foundation, Soil Cement Slab, CIP	LS	1		
24	30" X 30" Concrete Box Culvert, Including Excavation and Backfill	LF	152		
25	Griggs Emergency Spillway, 6" Thick Reinforced Concrete, Including Cutoff Wall, CIP	CY	200		
26	Remove and Replace Existing Asphalt Per City of Alamogordo Pavement Patch Detail	SY	1,206		

TOTAL BASE BID AMOUNT EXCLUDING NMGR

\$ _____

NOTE: Gross receipts tax shall be paid with each pay request as it is submitted at the current tax rate for the City of Alamogordo, New Mexico (8.0%)

To the City of Alamogordo, New Mexico (hereinafter called "OWNER"), the undersigned, (hereinafter called "BIDDER"), in compliance with your invitation for bids for the construction of **Griggs Reservoir Outfall Structure Modifications and Storm Drain Improvements, Public Works Bid No. 2018-003**, having carefully examined the Contract Documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth herein, and at the unit prices stated above. These prices are to cover all expenses incurred in performing the work required under the Contract Documents of which this Bid Schedule is a part. Quantities shown in this Bid Schedule are estimated and actual payment will be made on the basis of the unit bid prices for confirmed quantities as constructed.

BIDDER acknowledges receipt of the following addenda: _____

CALLOUT NOTICE ACKNOWLEDGMENT:

Authorized Signature of Bidder

Business Name of Bidder

Authorized Signature of Bidder

Printed Name and Title of Authorized Signature

BIDDER'S New Mexico Contractor's License No. & Classification

Address

Telephone

Fax

(SEAL) If Bid Proposal is submitted by a corporation



City of Alamogordo



ATTENDANCE ROSTER
GRIGGS RESERVOIR OUTFALL STRUCTURE MODIFICATIONS & STORM DRAIN IMPROVEMENTS
PWB 2018-003
PRE-BID CONFERENCE
MAY 9, 2018 1:30 P.M.
PUBLIC WORKS ADMINISTRATION

Name: <i>Bob Johnson</i>	Signature: <i>Bob Johnson</i>	
Company: <i>COA-ENG</i>	Phone: <i>575.439.4337</i>	E-Mail: <i>bjohnson@ci.alamogordo.nm.us</i>

Name: <i>JOE MARTIN</i>	Signature: <i>J Martin</i>	
Company: <i>COA-ENG</i>	Phone: <i>430 575 5051</i>	E-Mail: <i>jmartin@ci.alamogordo.nm.us</i>

Name: <i>Rick Marsh</i>	Signature: <i>Rick Marsh</i>	
Company: <i>COA</i>	Phone: <i>430-4967</i>	E-Mail: <i>Rmarsh@ci.alamogordo.nm.us</i>

Name: <i>William Dalton</i>	Signature: <i>William Dalton</i>	
Company: <i>Williams Construction</i>	Phone: <i>970-729-3205</i>	E-Mail: <i>will@williamsconstruction.biz</i>

Name: <i>Brigitte Fuller</i>	Signature: <i>B. Fuller</i>	
Company: <i>Wilson & Company</i>	Phone: <i>505 948 5121</i>	E-Mail: <i>brfuller@wilsonco.com</i>

Name: <i>Joel Dzuley</i>	Signature: <i>Joel 7. Dzuley</i>	
Company: <i>L2 L2 Dirt</i>	Phone: <i>437-1134</i>	E-Mail: <i>office@l2l2dirt.com</i>

Name: <i>SHANE BENDER</i>	Signature: <i>Shane Bender</i>	
Company: <i>AUI INC</i>	Phone: <i>505-242-4848</i>	E-Mail: <i>julier@auinc.net</i>

Name: <i>JEFF PIPKIN</i>	Signature: <i>JEFF</i>	
Company: <i>MEDIAN CON</i>	Phone: <i>(505) 218-3456</i>	E-Mail: <i>J.Pipkin@MEDIANCON.NET</i>

Name: <i>James Vaccaro</i>	Signature: <i>J Vaccaro</i>	
Company: <i>Mevacon LLC</i>	Phone: <i>505-377-3148</i>	E-Mail: <i>James@mevacon.com</i>

Name: <i>Tim Wesselmar</i>	Signature: <i>Tim Wesselmar</i>	
Company: <i>Gandydancer LLC</i>	Phone: <i>505-367-8323</i>	E-Mail: <i>timothy.wesselmar@gandydancer.net</i>



City of Alamogordo



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PWB 2018-003
PRE-BID CONFERENCE
MAY 9, 2018 1:30 P.M.
PUBLIC WORKS ADMINISTRATION

Name: LAWRENCE BROOKEY	Signature: <i>Lawrence Brookey</i>	
Company: GENERAL HYDRONICS UTILITIES	Phone: 575 640-7388	E-Mail: lbrookey@centurylink.net

Name: KEITH RATWIFF	Signature: <i>Keith Ratwiff</i>	
Company: GENERAL HYDRONICS	Phone: 491-0857	E-Mail: KEITH@GENERALHYDRONICS.COM

Name: <i>Jan Lutseman</i>	Signature: <i>Jan Lutseman</i>	
Company: Mesa Verde	Phone: 434-2975	E-Mail:

Name: JEFF CRAIN	Signature: <i>Jeff Crain</i>	
Company: Alamo Earthworks	Phone: 437-3337	E-Mail: jefferain@alamoearthworks.com

Name: Trevor Giest	Signature: <i>Trevor Giest</i>	
Company: LANCON INC	Phone: 575-491-9451	E-Mail: lancon@totacc.com

Name: Byrie Smith	Signature: <i>Byrie Smith</i>	
Company: Smithro Construction, Inc	Phone: 575-894-6161	E-Mail: smithro@smithro.cc

Name: Alonso Acosta	Signature: <i>Alonso Acosta</i>	
Company: Mesa Verde Ent, Inc	Phone: 575-491-1378	E-Mail: alonsoacosta@mesaverdeinc.com

Name: Romendo Rio Jr	Signature: <i>Romendo P. Rio Jr</i>	
Company: Rincado Construct	Phone: 575-523-2600	E-Mail: Zelke greer@hotmail.com

Name: Charles Martin	Signature: <i>Charles Martin</i>	
Company: General Hydraulic Utilities	Phone: 575-430-5727	E-Mail: charlie@generalhydraulic.com

Name: Bobbi Guthrie	Signature: <i>Bobbi Guthrie</i>	
Company: Mesa Verde	Phone: 437-2995	E-Mail: bobbiguthrie@mesaverdeinc.com



**GEOTECHNICAL ENGINEERING
SERVICES
JOB NO. 1-60902
PUBLIC WORKS YARD
DRAINAGE MANAGEMENT
ALAMOGORDO, NEW MEXICO**

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PREPARED FOR
CITY OF ALAMOGORDO

January 19, 2017
Job No.1-60902

**City of Alamogordo
1376 East Ninth Street
Alamogordo, New Mexico 88310**

ATTN: Mr. Bob Johnson

RE: Geotechnical Engineering Services
Public Works Yard-Drainage Management
Alamogordo, New Mexico

Dear Mr. Johnson:

Submitted herein is the Geotechnical Engineering Services Report for the above referenced project. The report contains the results of our field investigation, laboratory testing, and recommendations for general site grading.

It has been a pleasure to serve you on this project. If you should have any questions, please contact this office.

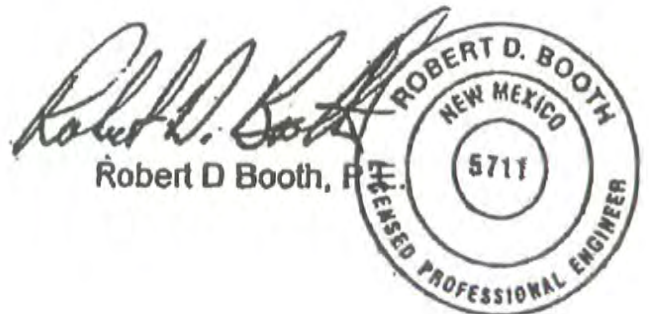
Respectfully submitted:

Reviewed by:

GEO-TEST, INC.



Timothy Matson
Staff Engineer



Robert D Booth, P.E.

cc: Addressee

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INTRODUCTION

This report presents the results of the geotechnical investigation performed by this firm for the public works yard drainage management plan, in Alamogordo, New Mexico.

The objectives of this investigation were to:

- 1) Evaluate the nature and engineering properties of the subsurface soils underlying a portion of the proposed storm drain and new drainage pond.
- 2) Provide recommendations for general site grading and percolation rates at the ponding area.

The investigation includes subsurface exploration, selected soil sampling, laboratory testing of the samples, performing an engineering analysis and preparation of this report.

PROPOSED CONSTRUCTION

It is understood that the project consists of the construction of new storm drain system running from the Griggs Reservoir along the driveway in the public works yard to a ponding area west of Florida Avenue, a distance of approximately one-half mile.

Should details vary significantly from those outlined above, this firm should be notified for review and revision of recommendations contained herein.

FIELD EXPLORATION

Three exploratory borings were drilled to depths ranging from approximately 15 to 16 feet below existing site grades. In addition, two percolation tests were performed at depths of about 10 feet below existing site grades. Locations of the borings and percolation tests are shown on the attached Boring Location Map, Figure 1. The soils encountered in the borings were continuously examined, visually classified and logged during the drilling operation. The boring logs are presented in a following section of this report. Drilling was accomplished using a truck mounted drill rig equipped with 5.5-inch diameter continuous flight hollow stem auger. Subsurface materials were sampled at five-foot intervals or less in the borings utilizing an open tube split barrel sampler driven by a standard penetration test hammer.

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LABORATORY TESTING

Selected soil samples were tested in the laboratory to determine certain engineering properties of the soils. Moisture contents were determined to evaluate the various soil deposits with depth. The results of these tests are presented on the boring logs.

Sieve analysis, Atterberg limits and hydrometer tests were performed on selected samples to aid in soil classification. Results of these tests are presented in the Summary of Laboratory Results and on the individual test reports presented in a following section of this report.

SITE CONDITIONS

A brief site reconnaissance was performed during our site exploration. The site for the proposed storm drain starts in the public works yard, just south of Griggs Reservoir and runs in a west direction, crossing Florida Avenue to a vacant lot, where the ponding area will be located. The western side of the proposed ponding area was once occupied with several mobile homes and several of the concrete slabs were still visible. We also observed several fire hydrants located within the proposed ponding area.

SUBSURFACE SOIL CONDITIONS

The native soils encountered in the exploratory borings consist primarily of medium plasticity clays. These soils ranged from moderately firm to firm near the surface, becoming very firm to hard with depth. Low plasticity clayey sands with gravel were encountered at the surface in boring no. 3, and extended to about 2 feet below existing site grades.

No free groundwater was encountered in the borings and soil moisture contents were low to moderate throughout the extent of the borings.

CONCLUSIONS AND RECOMMENDATIONS

Based upon our field and laboratory investigation, open cut trenches through the surficial soils can be readily excavated throughout the majority of the proposed utility alignment using normal earth-moving equipment.

Excavated slopes for storm drain construction should be designed and constructed in accordance with 29 CFR 1926, Subpart P, and any applicable state or local regulations. The encountered at the boring locations soils classify as Type A/B soils according to the OSHA Technical Manual and temporary cut slopes should not exceed 1 horizontal to 1 vertical in the hard clay soils.

Flattening of the slopes may be necessary should the soil conditions vary from those encountered in the borings. Shoring, bracing or benching should be performed by the contractor in accordance with the strictest governing safety standards.

During trenching, the excavated material should be piled far enough away from the banks of the trench to avoid overloading and to prevent cave-ins. All surface waters should be routed so that water does not flow down the face of the excavation slopes.

PERCOLATION TESTING

The clay soils possess relatively low percolation rates as evidenced by the results of the percolation tests. A percolation rate of 120 minutes per inch was recorded at percolation test hole no. P1 and 240 minutes per inch was recorded at percolation test hole no. P2, with an average percolation rate of 180 minutes per inch. These soils classify as Silty Clay Loam according to the National Conservation Service (NRCS), and have a low infiltration rate as well, estimated to be on the order of about 0.1 to 0.2 inches per hour.

PIPE BEDDING AND BACKFILL

Bedding and pipe embedment materials to be used around the proposed utilities should consist of well graded sand or gravel that conforms to the pipe manufacturer's recommendations and should be placed and compacted in accordance with project specifications, local requirements or governing jurisdiction. General fill to be used above pipe embedment materials should be placed and compacted in accordance with the plans and specifications. Most on-site excavated soils may be used as general fill above pipe embedment materials. Clays are not recommended for bedding material. Water jetting of trench backfill should not be allowed.

SITE GRADING

The following general guidelines should be included in the project construction specifications to provide a basis for quality control during earthwork. It is recommended that all structural fill and backfill be placed and compacted under engineering observation and in accordance with the following:

- 1) After making the required excavations, the exposed cut surface should be cleaned of all loose material prior to placement of bedding material and storm drain piping.
- 2) All backfill shall be placed in a maximum of 8-inch loose lifts and

compacted with approved compaction equipment. Each lift should be firm and non-yielding. Loose lifts should be reduced to 4-inches when hand held compaction equipment is used. All compaction of fill or backfill shall be accomplished to a minimum of 90 percent of the maximum dry density as determined in accordance with ASTM D-1557, or 95 percent of the maximum dry density in accordance with ASTM D-698, if the native clay soils are used for backfill. The moisture content of the fill or backfill, during compaction, should be within 2 percent of the optimum moisture content.

- 3) Tests for degree of compaction shall be determined by the ASTM D-1556 method or ASTM D-2922. Observation and field tests shall be carried out during fill and backfill placement by the geotechnical engineer to assist the contractor in obtaining the required degree of compaction. If less than the required percentage of compaction is indicated, additional compaction effort shall be made with adjustment of the moisture content as necessary until the required compaction is obtained.

PROJECT REVIEW AND INSPECTION

This report has been prepared to aid in the evaluation of this site and to assist in the design of this project. It is recommended that the geotechnical engineer be provided the opportunity to review the final design drawings and specifications in order to determine whether the recommendations in this report are applicable to the final design. Review of the final design drawings and specifications should be noted in writing by the geotechnical engineer.

Variations from soil conditions presented herein may be encountered during construction of this project. In order to permit correlation between the conditions encountered during construction and to confirm recommendations presented herein, it is recommended that the geotechnical engineer be retained to perform sufficient review during construction of this project. Observation and testing should be performed during construction to confirm that suitable fill soils are placed upon competent materials and properly compacted.

CLOSURE

The data and analyses presented herein are:

- 1) Based upon our evaluation and interpretation of the findings of the field and laboratory program.
- 2) Based upon an interpolation of soil conditions between and beyond the explorations.

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- 3) Subject to confirmation of the conditions encountered during construction.
- 4) Based upon the assumption that sufficient observation will be provided during construction.
- 5) Prepared in accordance with generally accepted professional geotechnical engineering principles and practice.

This report has been prepared for the sole use of the City of Alamogordo, specifically to aid in the design of the public works maintenance yard drainage project in Alamogordo, New Mexico and is not for the use by any third parties.

We make no other warranty, either express or implied. Any person using this report for bidding or construction purposes should perform such independent investigation as he deems necessary to satisfy himself as to the surface and subsurface conditions to be encountered and the procedures to be used in the performance of work on this project. If conditions encountered during construction appear to be different than indicated by this report, this office should be notified.

All soil samples will be discarded 60 days after the date of this report unless we receive a specific request to retain the samples for a longer period of time.

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BORING LOCATION MAP

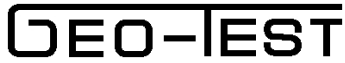


Public Works Yard-Drainage Management
Alamogordo, New Mexico
Job No. 1-60902

Figure 1



GEO-TEST
GEOTECHNICAL ENGINEERING
AND MATERIAL TESTING



Project: Public Works Yard Drainage Management
 Date: 12/29/2016 Project No: 1-60902
 Elevation: Type: 5.5" OD HSA

LOG OF TEST BORINGS

GROUNDWATER DEPTH

NO: 1

During Drilling: none

After 24 Hours:

DEPTH (Ft)	LOG	SAMPLE						SUBSURFACE PROFILE	
		SAMPLE INTERVAL	TYPE	N. BLOWS/FT	MOISTURE %	DRY DENSITY (pcf)	USC	DESCRIPTION	N blows/ft
			AC		6				
			SS	8-11-12 23	12				23
5			SS	10-13-19 32	11				32
10			SS	23-50 73	12		CL	CLAY, medium plasticity, firm to hard, dry to slightly moist, light brown to brown	73
15			SS	50 50	12			Stopped Auger @ 14.5 feet Sampler Refusal @ 15 feet	
20									

LOG OF TEST BORING 1-60902 PUBLIC WORKS DRAINAGE.GPJ GEO TEST.GDT 1/10/17

LEGEND

- SS - Split Spoon
- AC - Auger Cuttings
- UD/SL - Undisturbed Sleeve
- AMSL - Above Mean Sea Level
- CS - Continuous Sampler
- UD - Undisturbed
- ST - Shelby Tube

Stratification lines represent approximate boundaries between soil types. Transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.



Project: Public Works Yard Drainage Management
 Date: 12/29/2016 Project No: 1-60902
 Elevation: Type: 5.5" OD HSA

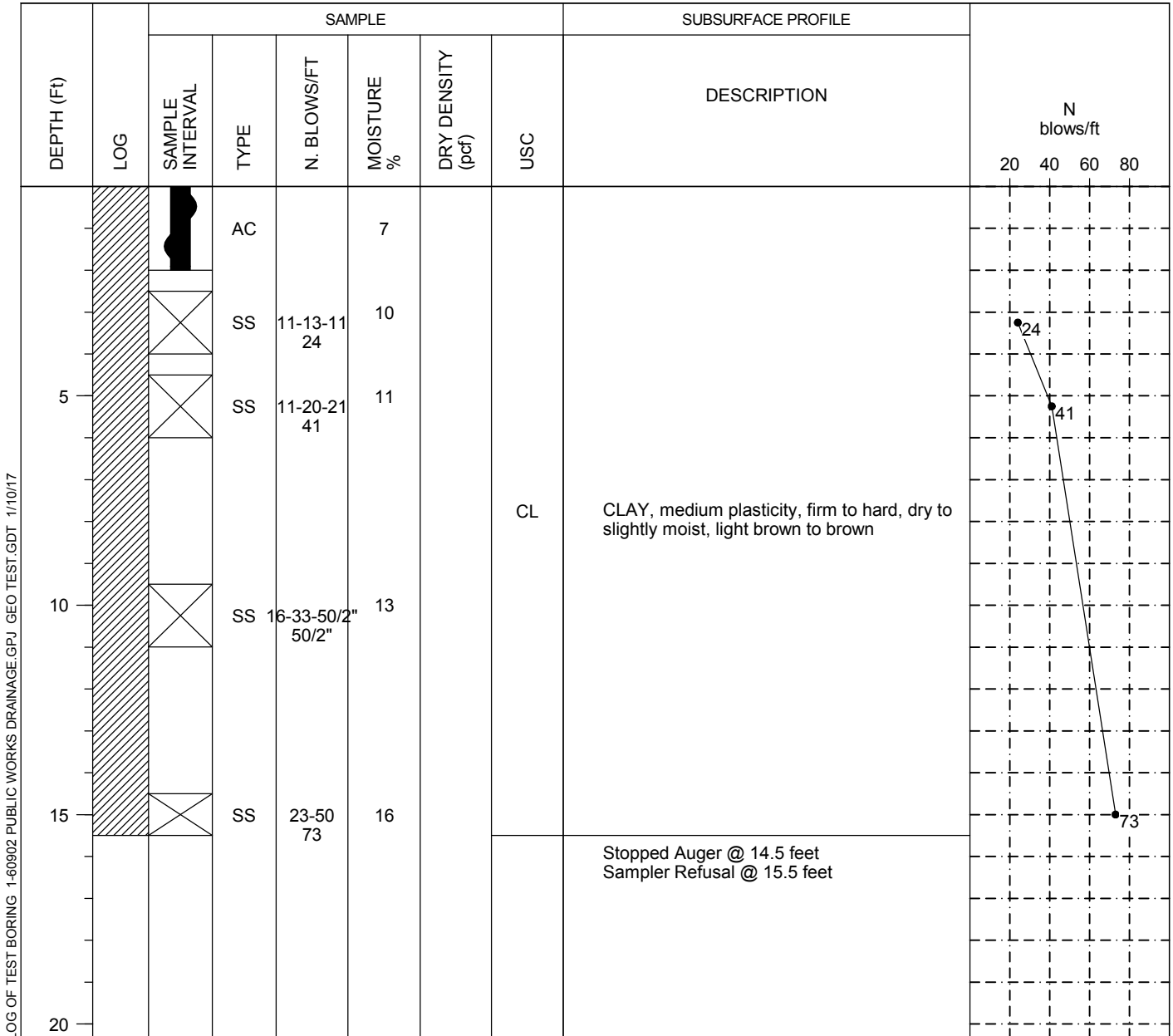
LOG OF TEST BORINGS

GROUNDWATER DEPTH

NO: 2

During Drilling: none

After 24 Hours:

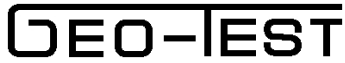


LOG OF TEST BORING 1-60902 PUBLIC WORKS DRAINAGE.GPJ GEO TEST.GDT 1/10/17

LEGEND

- SS - Split Spoon
- AC - Auger Cuttings
- UD/SL - Undisturbed Sleeve
- AMSL - Above Mean Sea Level
- CS - Continuous Sampler
- UD - Undisturbed
- ST - Shelby Tube

Stratification lines represent approximate boundaries between soil types. Transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.



Project: Public Works Yard Drainage Management
 Date: 12/29/2016 Project No: 1-60902
 Elevation: Type: 5.5" OD HSA

LOG OF TEST BORINGS

GROUNDWATER DEPTH

NO: 3

During Drilling: none

After 24 Hours:

DEPTH (Ft)	LOG	SAMPLE						SUBSURFACE PROFILE	
		SAMPLE INTERVAL	TYPE	N. BLOWS/FT	MOISTURE %	DRY DENSITY (pcf)	USC	DESCRIPTION	N blows/ft
			AC		5		SC	CLAYEY SAND with GRAVEL, low plasticity, slightly moist, light brown	20 40 60 80
5			SS	4-4-7 11	13		CL	CLAY, medium plasticity, moderately firm to firm, slightly moist, brown	11
			SS	5-6-8 14	12				14
10			SS	6-9-9 18	15				18
15			SS	6-7-11 18	14				18
20								Stopped Auger @ 14.5 feet Stopped Sampler @ 16 feet	

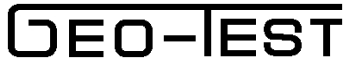
LOG OF TEST BORING 1-60902 PUBLIC WORKS DRAINAGE.GPJ GEO TEST.GDT 1/10/17

LEGEND

SS - Split Spoon
 AC - Auger Cuttings
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Project: Public Works Yard Drainage Management
 Date: 12/29/2016 Project No: 1-60902
 Elevation: Type: 5.5" OD HSA

LOG OF TEST BORINGS

GROUNDWATER DEPTH

NO: P1

During Drilling: none

After 24 Hours:

DEPTH (Ft)	LOG	SAMPLE						SUBSURFACE PROFILE				
		SAMPLE INTERVAL	TYPE	N. BLOWS/FT	MOISTURE %	DRY DENSITY (pcf)	USC	DESCRIPTION	N blows/ft 20 40 60 80			
5		AC			9			CLAY, medium plasticity, slighty moist, light brown to brown				
10		AC			9							
10		Stopped Auger @ 10 feet										

LOG OF TEST BORING 1-60902 PUBLIC WORKS DRAINAGE.GPJ GEO TEST.GDT 1/10/17

LEGEND

- SS - Split Spoon
- AC - Auger Cuttings
- UD/SL - Undisturbed Sleeve
- AMSL - Above Mean Sea Level
- CS - Continuous Sampler
- UD - Undisturbed
- ST - Shelby Tube

Stratification lines represent approximate boundaries between soil types. Transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.



Project: Public Works Yard Drainage Management
 Date: 12/29/2016 Project No: 1-60902
 Elevation: Type: 5.5" OD HSA

LOG OF TEST BORINGS

GROUNDWATER DEPTH

NO: P2

During Drilling: none

After 24 Hours:

DEPTH (Ft)	LOG	SAMPLE						SUBSURFACE PROFILE				
		SAMPLE INTERVAL	TYPE	N. BLOWS/FT	MOISTURE %	DRY DENSITY (pcf)	USC	DESCRIPTION	N blows/ft			
									20	40	60	80
5			AC		8			CLAY, medium plasticity, slightly moist, light brown to brown				
			AC		11							
10								Stopped Auger @ 10 feet				
15												
20												

LOG OF TEST BORING 1-60902 PUBLIC WORKS DRAINAGE.GPJ GEO TEST.GDT 1/10/17

LEGEND

- SS - Split Spoon
- AC - Auger Cuttings
- UD/SL - Undisturbed Sleeve
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Stratification lines represent approximate boundaries between soil types. Transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

SUMMARY OF LABORATORY RESULTS

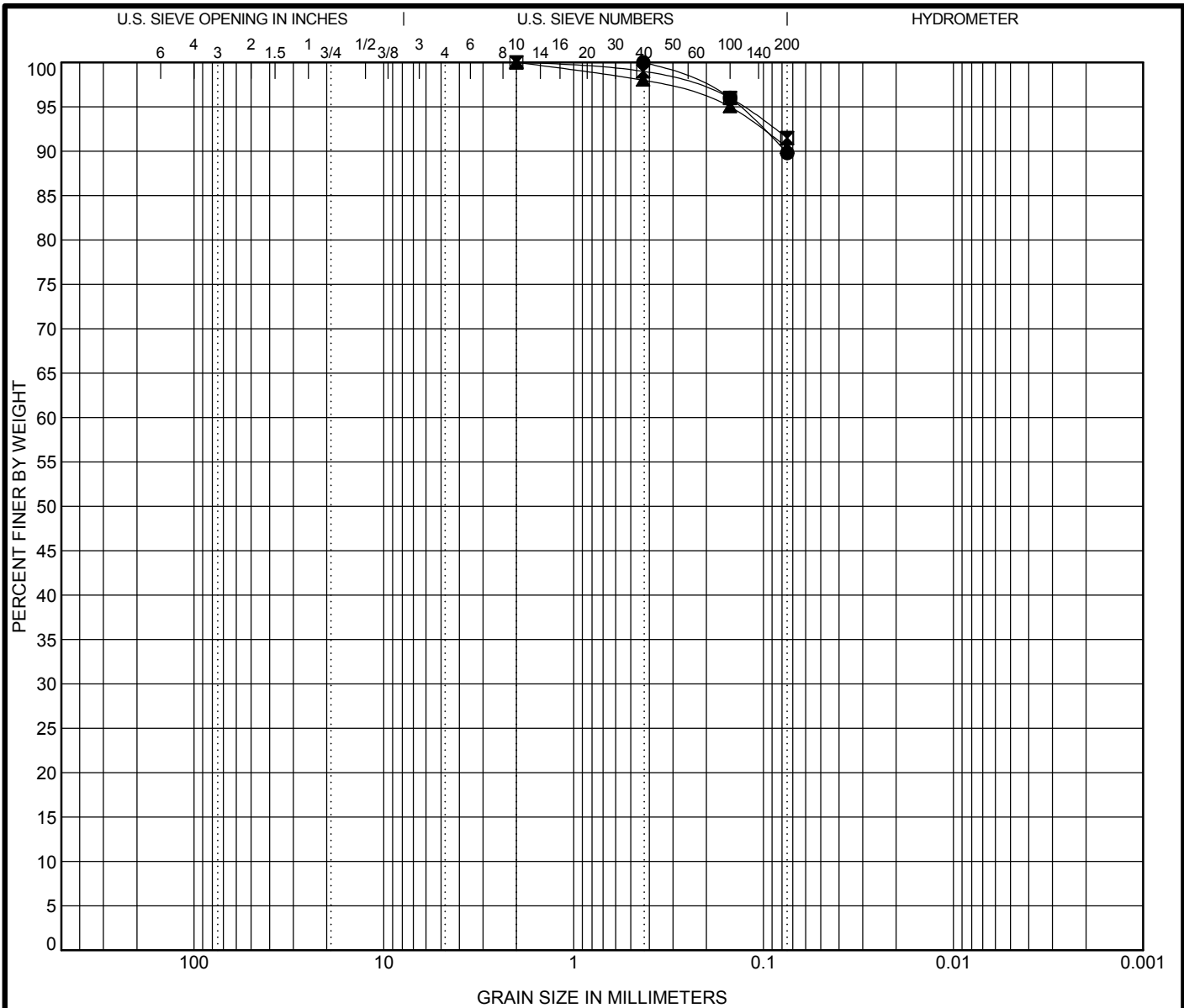
SUMMARY OF LABORATORY RESULTS: 1-60902 PUBLIC WORKS DRAINAGE.GPJ GEO TEST.GDT 1/10/17

TEST HOLE	DEPTH (FEET)	UNIFIED CLASS	(% MOIST)	LL	PI	SIEVE ANALYSIS PERCENT PASSING											
						NO 200	NO 100	NO 40	NO 10	NO 4	3/8"	1/2"	3/4"	1"	1 1/2"	2"	4"
1	1.0		6.1														
1	3.0		11.8														
1	5.0	CL	10.6	36	15	90	96	100									
1	10.0		11.8														
1	15.0	CL	11.6	42	20	92	96	99	100								
2	1.0		6.9														
2	3.0		9.8														
2	5.0		10.6														
2	10.0	CL	13.2	40	16	90	95	98	100								
2	15.0		15.8														
3	1.0	SC	4.5	23	8	32	39	48	64	75	88	92	97	100			
3	3.0		13.1														
3	5.0	CL	12.5	28	11	92	97	99	100								
3	10.0	CL	15.0	31	13	91	96	99	100								
3	15.0		14.0														
P1	2.0	CL	8.9	34	14	92	97	100									
P1	7.0		8.8														
P2	2.0		8.3														
P2	7.0	CL	10.7	39	20	90	95	100									



LL = LIQUID LIMIT
PI = PLASTICITY INDEX
NP = NON PLASTIC or NO VALUE

Project: Public Works Yard Drainage Management
Location: Alamogordo, New Mexico
Number: 1-60902



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● 1 5.0	LEAN CLAY(CL)	36	21	15		
■ 1 15.0	LEAN CLAY(CL)	42	22	20		
▲ 2 10.0	LEAN CLAY(CL)	40	24	16		

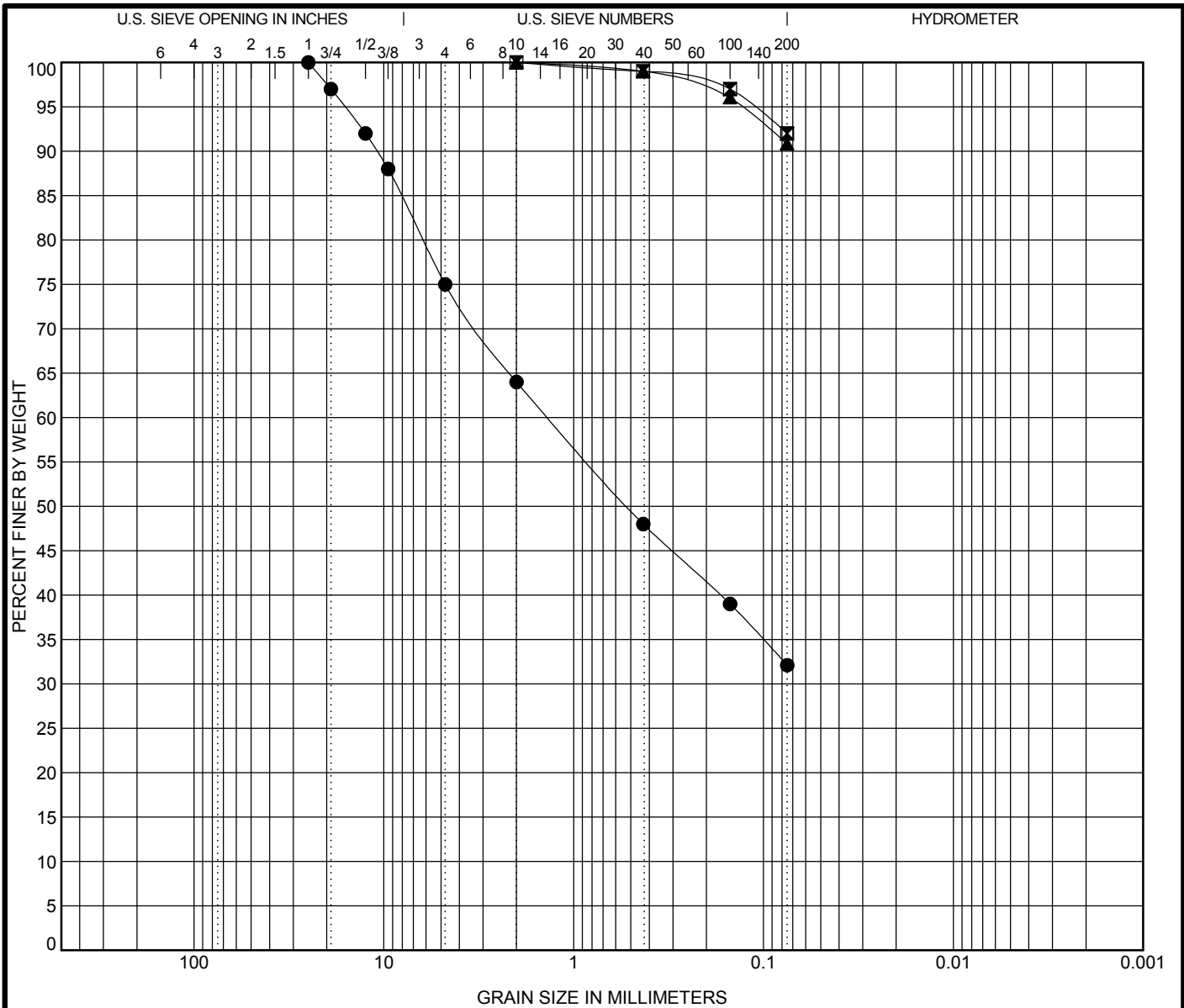
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 1 5.0	0.43				0.0	10.2	89.8	
■ 1 15.0	2				0.0	8.5	91.5	
▲ 2 10.0	2				0.0	9.6	90.4	



GRAIN SIZE DISTRIBUTION

Project: Public Works Yard Drainage Management
 Location: Alamogordo, New Mexico
 Number: 1-60902

U.S. GRAIN SIZE 1-60902 PUBLIC WORKS DRAINAGE.GPJ GEO TEST.GDT 1/10/17



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● 3 1.0	CLAYEY SAND with GRAVEL(SC)	23	15	8		
☒ 3 5.0	LEAN CLAY(CL)	28	17	11		
▲ 3 10.0	LEAN CLAY(CL)	31	18	13		

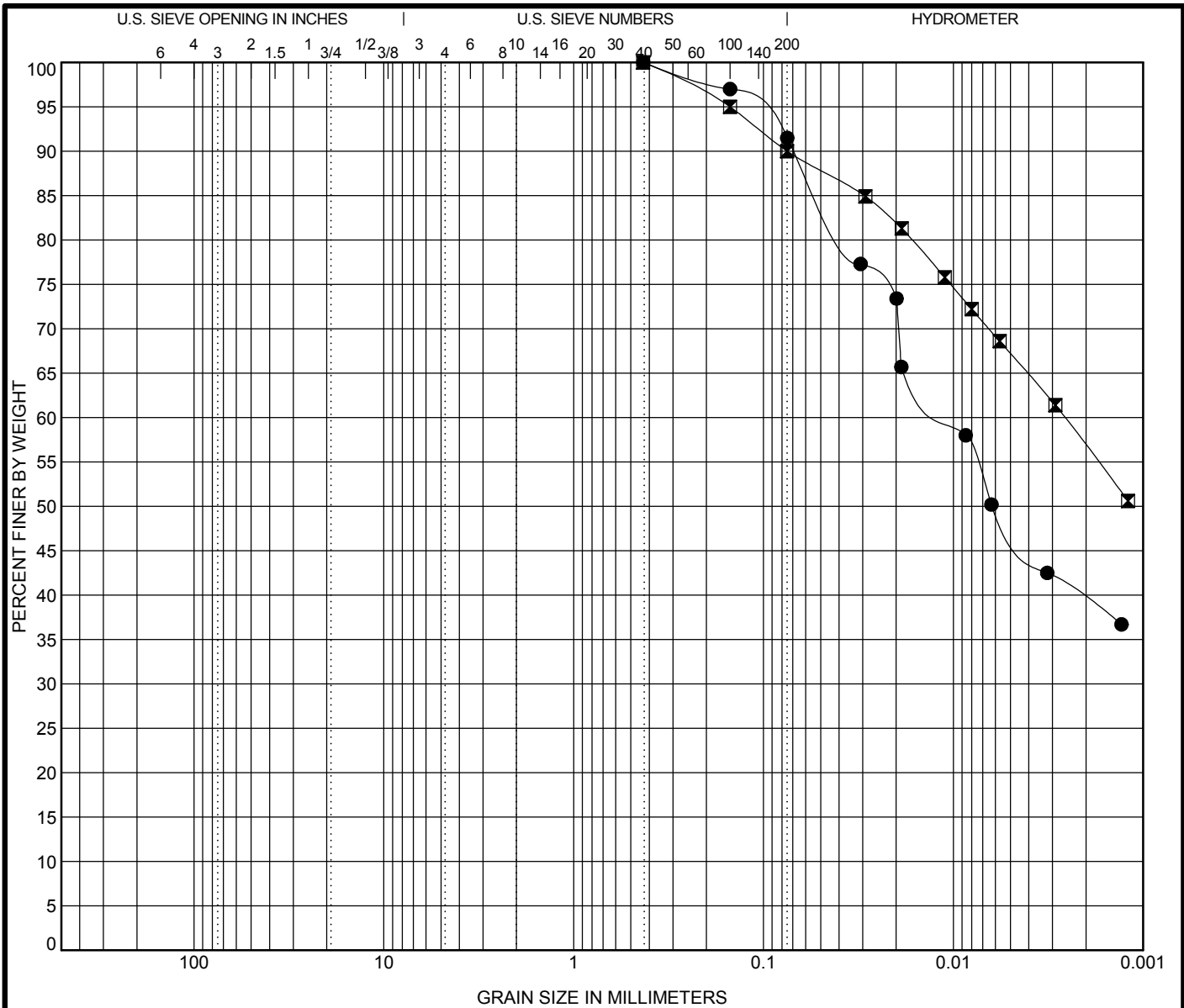
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 3 1.0	25	1.362			25.0	42.9	32.1	
☒ 3 5.0	2				0.0	8.0	92.0	
▲ 3 10.0	2				0.0	9.2	90.8	



GRAIN SIZE DISTRIBUTION

Project: Public Works Yard Drainage Management
 Location: Alamogordo, New Mexico
 Number: 1-60902

U.S. GRAIN SIZE 1-60902 PUBLIC WORKS DRAINAGE.GPJ GEO TEST.GDT 1/10/17



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● P1	LEAN CLAY(CL)	34	20	14		
■ P2	LEAN CLAY(CL)	39	19	20		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● P1	2.0	0.43	0.011		0.0	8.5	43.9	47.6
■ P2	7.0	0.43	0.003		0.0	10.0	22.8	67.2



GRAIN SIZE DISTRIBUTION

Project: Public Works Yard Drainage Management
 Location: Alamogordo, New Mexico
 Number: 1-60902

US GRAIN SIZE 1-60902 PUBLIC WORKS DRAINAGE.GPJ GEO TEST.GDT 1/16/17