



INVITATION TO BID/PROPOSAL COVER SHEET

Bid Number : 17-34349 Date Issued: December 1, 2017  
Date & Time Bid Opening: Tuesday, December 5, 2017 at 10:00 a.m.

Main Street Gravity/Pump Station Stormwater Outfall Replacement  
*Addendum #1*

Item No. 1 - The City has installed a Piezometer to assist the Contractor with the dewatering design and in monitoring existing and future groundwater level (Refer to the attached Geotechnical Piezometer Report).

Item No. 2 – Bypass Stormwater Design Criteria:

1. Bypass Stormwater Pump Design will require 100% redundancy.
2. Contractor is to assume that water flow through the existing 60" RC Pipe (Sloped at approximately 1%) is continuous with the normal water depth equal to 15 inches above flow line elevation.
3. Contractor shall limit the height of water in the junction located just on the inside of the existing concrete floodwall to 8'.

Plans, specifications, proposal forms and other contract documents may be examined at the following locations:

- [www.nlr.ar.gov](http://www.nlr.ar.gov), click on the tab "Business", click on "Bids and Vendors" and then click on "Current Bids".
- Commerce Department, 120 Main Street, North Little Rock, Arkansas 72118

→ Please direct technical questions and/or comments to: Chris Wilbourn at 501-340-8333.

→ General questions should be directed to the Commerce Department at 501-975-8881.

Responses to relevant questions will be posted on the Commerce web page at [www.nlr.ar.gov](http://www.nlr.ar.gov), click on the tab "Business", click on "Bids and Vendors" and then click on "Current Bids".

The City of North Little Rock encourages participation of small, minority, and woman own business enterprises in the procurement of goods, services, professional services, and construction, either as a general contractor or sub-contractor. It is further requested that whenever possible, majority contractors who require sub-contractors, seek qualified small, minority, and woman businesses to partner with them.

If you are obtaining this bid from our website, please be reminded that addendums may occur. It is therefore advisable that you review our listings for attachments including any changes to the bid.

Acknowledgement of Addendum

Upon signing this page, the organization certifies that they have read and agree to the requirements set forth in this bid including conditions set forth and pertinent information requests.

Name of Firm: \_\_\_\_\_ Phone No.: \_\_\_\_\_

Tax I.D. #: \_\_\_\_\_

Business Address: \_\_\_\_\_

Signature of Authorized Person: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_, 2017

**UNSIGNED COVER SHEETS STATEMENTS WILL BE REJECTED**



November 29, 2017  
Job No. 17-107

North Little Rock Public Works  
500 West 13<sup>th</sup> Street  
North Little, Arkansas 72114

Attn: Mr. D. Chris Wilbourn, P.E., S.E., CFM  
City Engineer

**RESULTS of PIEZOMETER INSTALLATION  
MAIN STREET PUMP STATION OUTFALL REPAIR  
NORTH LITTLE ROCK, ARKANSAS**

**INTRODUCTION**

The report provides the results of the piezometer installation at the Main Street Pump Station Outfall repair site in North Little Rock, Arkansas. These services were authorized by Mr. Chris Wilbourn on behalf of North Little Rock Public Works on November 14, 2017. Preliminary results of the piezometer installation were provided as information was developed.

**SUBSURFACE EXPLORATION**

Subsurface conditions at the outfall location were initially explored by drilling one (1) sample boring (Boring 1) to 75-ft depth. To facilitate long-term measurement of groundwater levels, Piezometer P1 was installed on November 21, 2017. The site vicinity is shown on Plate 1. The approximate locations of Boring 1 and Piezometer P1 are shown on the Plan of Borings, Plate 2. The log of Boring 1 is provided on Plate 3. The log of the boring drilled for installation of Piezometer P1 is provided on Plate 4. A key to the terms and symbols used on the logs is presented on Plate 5.

Boring P1 was drilled with a truck-mounted SIMCO 2800 rotary-drilling rig using a combination of dry-auger and rotary-wash drilling procedures. Soil samples were obtained using a 2-in.-diameter split-barrel sampler driven into the strata by blows of a 140-lb safety hammer with 30-in. drop in accordance with Standard Penetration Test (SPT) procedures (ASTM D-1586). The number of blows required to drive the standard split-barrel sampler the final 12 in. of an 18-in. total drive, or a portion thereof is defined as the N-value. Recorded N-values are shown on the boring log in the "Blows Per Ft" column.

All samples were removed from sampling tools in the field, examined, and visually classified by the field geologist. Samples were then placed in appropriate containers to prevent moisture loss and/or change in condition during transfer to our laboratory for further examination and testing.

As noted, the borings were advanced using dry-auger drilling procedures to the extent possible to facilitate observation of the groundwater level. The groundwater levels were measured

in the borings during and after completion of drilling. These observations are noted on the boring logs, Plates 3 and 4.

To obtain long-term groundwater data, an open standpipe piezometer was installed at the P1 location. The piezometer consists of 2-in.-diameter, Schedule 40 PVC, flush-thread well pipe placed in a 6-in.-diameter borehole. The piezometer included a 5-ft-long, 0.010-in. slotted screen section, a 20/40 filter sand pack and a bentonite seal. The borehole annulus above the bentonite seal was backfilled to near the ground surface with bentonite. A riser cover was placed at the top of the piezometer. The piezometer detail and a summary of periodic piezometer readings are provided in Appendix A.

### **LABORATORY TESTING**

Laboratory tests consisting of natural water content determinations and classification tests were performed on selected representative soil samples from Boring 1. No testing was performed on samples obtained from Boring P1.

Natural water content determinations (ASTM D-2216) were performed to develop information on *in-situ* soil water content. Water contents are plotted on the log as a solid circle in accordance with the scale and symbols shown in the legend located in the upper-right corner of the log.

To verify field classification and to evaluate soil plasticity, liquid and plastic limit (Atterberg limits, ASTM D-4318) determinations and sieve analyses (ASTM D-422 or D-1140) were performed on selected representative samples. The Atterberg limits are plotted on the Boring 1 log as pluses inter-connected with a dashed line using the water content scale. The percentage of soil passing through the No. 200 Sieve is noted in the "- No. 200 %" column on the appropriate Boring 1 log.

Classification test results, as well as soil classification by the Unified Soil Classification System and grain-size distribution curves, are presented in Appendix B. The grain-size distribution curves show the 50 percent passing ( $D_{50}$ ), 30 percent passing ( $D_{30}$ ) and 10 percent passing ( $D_{10}$ ) sieve sizes as estimated from the plots.

### **CLOSURE**

The information provided herein is not intended to constitute a detailed geotechnical investigation. This report provides the results of one (1) boring performed at the outfall location. Subsurface conditions could vary at other locations.

The following illustrations are attached and complete this submittal.

Plate 1	Site Vicinity Map
Plate 2	Plan of Borings
Plates 3 and 4	Boring Logs
Plate 5	Key to Terms and Symbols
Appendix A	Piezometer P1 Detail and Readings
Appendix B	Classification Test Results

\* \* \* \* \*

We appreciate the opportunity to be of continued service to you on this project. Should you have any questions regarding this information, or if we can be of additional service, please call on us.

Sincerely,

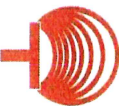
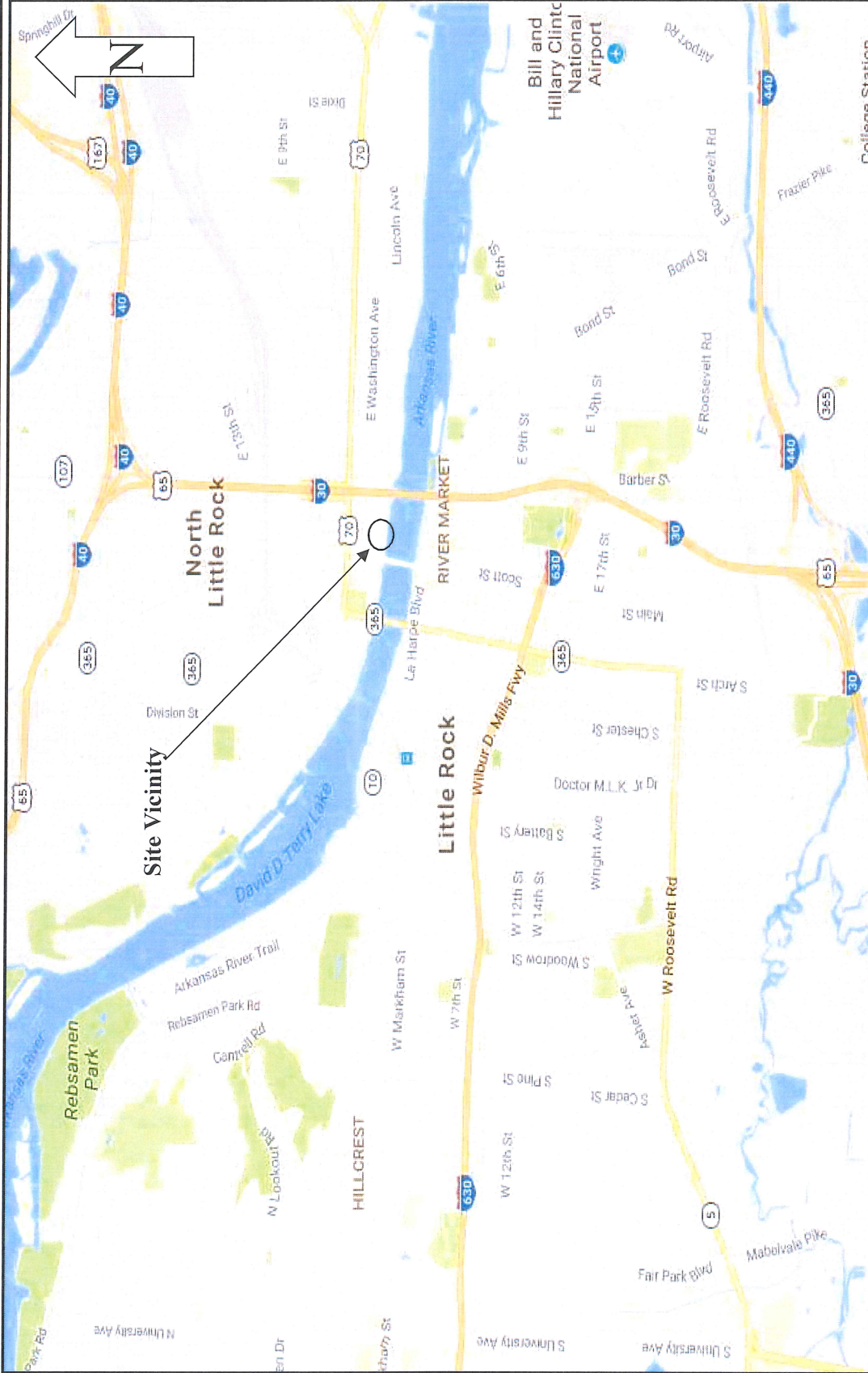
GRUBBS, HOSKYN,  
BARTON & WYATT, INC.



Mark E. Wyatt, P.E.  
President

MEW:jw

Copies Submitted: North Little Rock Public Works  
Attn: Mr. D. Chris Wilbourn, P.E., S.E., CFM (1+email)

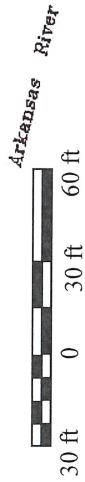
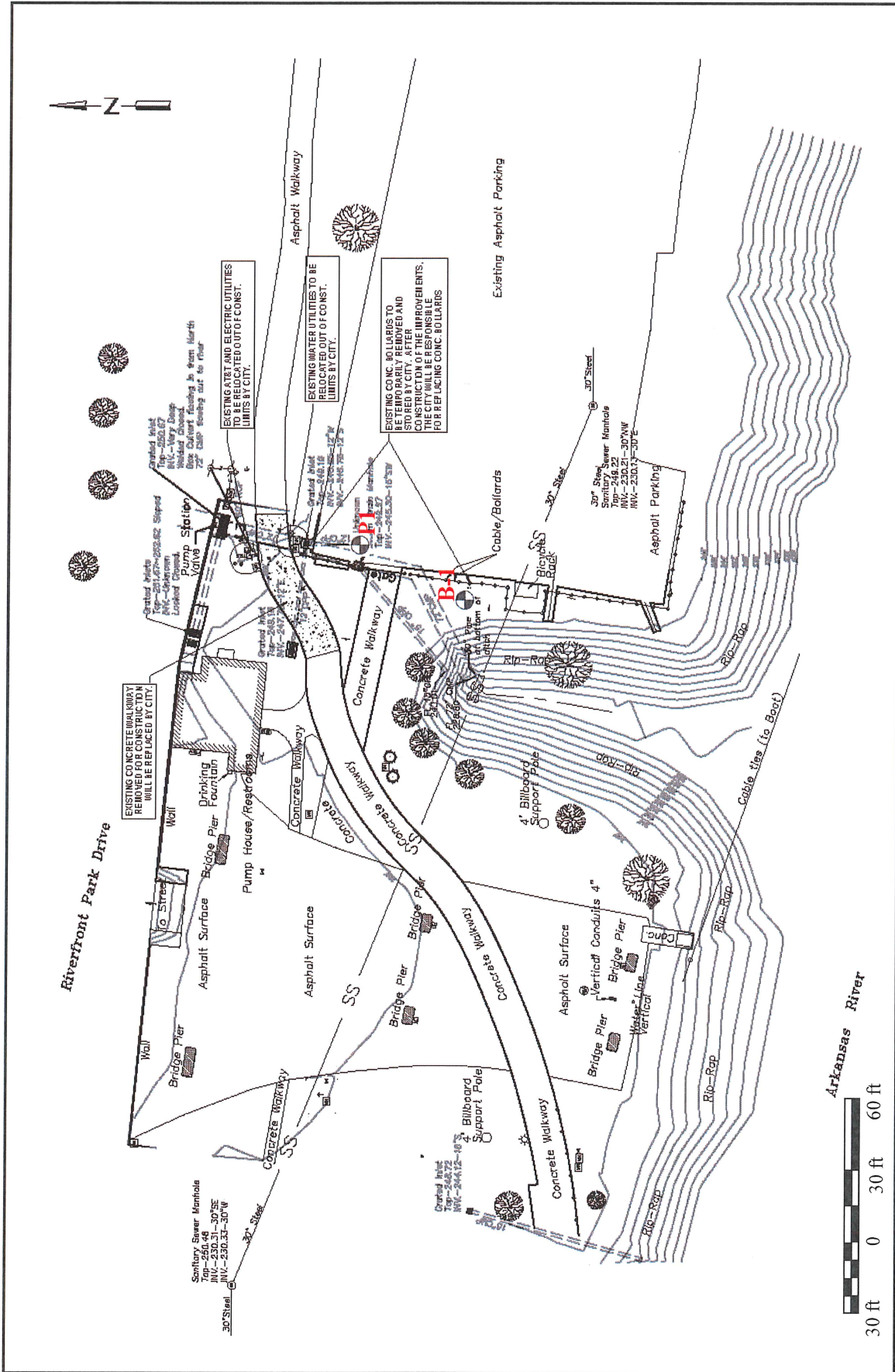


**Grubbs, Hoskyn,  
Barton & Wyatt, INC.**  
CONSULTING ENGINEERS

Site Vicinity Map  
Main Street Pump Station Outfall  
North Little Rock, Arkansas

Job No. 17-107

Plate 1



<p><b>PLAN OF BORINGS</b> Main Street Pump Station Outfall North Little Rock, Arkansas</p>	<p>Scale: As shown Job No. 17-107 Plate 2</p>
<p><b>Grubbs, Hoskyn, Barton &amp; Wyatt, INC.</b> CONSULTING ENGINEERS</p>	



**Grubbs, Hoskyn,  
Barton & Wyatt, Inc.**  
Consulting Engineers

# LOG OF BORING NO. 1

Main Street Pump Station Outfall  
North Little Rock, Arkansas

TYPE: Auger to 20 ft /Wash

LOCATION: See Plate 2

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT			- No. 200 %
						PLASTIC LIMIT	WATER CONTENT	LIQUID LIMIT	
SURF. EL: 248±									
5			Stiff reddish brown fine sandy clay w/some sandstone and shale fragments (fill)	20					
			- grayish brown below 2 ft	15					
			- soft at 4 - 6 ft	6					
			- firm with concrete debris and less shale and sandstone fragments at 6 - 8ft	8					68
10			- with some coarse gravel and glass fragments below 8 ft	50/5"					
15			Medium dense brownish gray silty fine sand w/a little fine gravel, wet (fill)	29					21
20			Stiff brownish gray clay w/silt seams and layers (fill)	11					
25			- very stiff with some shale and sandstone fragments below 23 ft	25					
30			Dense to very dense gray fine to medium sand	50/11"					3
35			- with some fine to coarse gravel below 33 ft	50					
40				50					4
45			Medium dense gray and tan medium sand w/some fine to coarse gravel	23					
50			- dense at 48 - 53 ft	49					2
55			- dense to very dense below 53 ft	50/8"					
60				50					
65			Dense to very dense tan sandy fine to coarse gravel	50/8"					
70				50/8"					1
75			Moderately hard to hard dark gray shale	50/1"					

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COMPLETION DEPTH: 75.0 ft  
DATE: 8-22-17

DEPTH TO WATER  
IN BORING: 15 ft

DATE: 8/22/2017



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Barton & Wyatt, Inc.**  
Consulting Engineers

# LOG OF BORING NO. P1

Main Street Pump Station Outfall  
North Little Rock, Arkansas

TYPE: Auger to 20 ft /Wash

LOCATION: See Plate 2

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT				- No. 200 %
						PLASTIC LIMIT	WATER CONTENT	LIQUID LIMIT		
SURF. EL: 250±										
0			6 Inches: Asphalt Concrete Pavement							
5			Firm to stiff brown, tan and gray silty clay w/shale fragments (fill)	13						
10			- with silty fine sand pockets below 7 ft - with sandstone fragments and cobbles below 8 ft	15						
15			Loose brown silty fine sand (fill)	7						
20			- with numerous shale and sandstone fragments and sandstone cobbles below 18 ft - water at 20 ft	10						
25			- 100% water loss at 22 ft Stiff dark brown clay pockets w/silty fine sand (fill)	17						
30			Dense gray fine sand, slightly silty	50/8"						
			Note: Piezometer P1 installed in this borehole.							
COMPLETION DEPTH: 30.0 ft				DEPTH TO WATER IN BORING: 20 ft				DATE: 11/21/2017		

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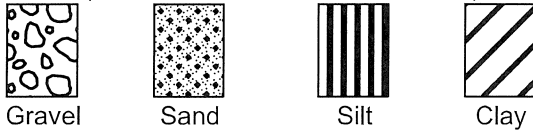




## SYMBOLS AND TERMS USED ON BORING LOGS

### SOIL TYPES

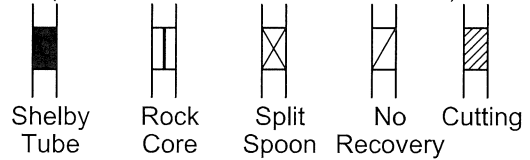
(SHOWN IN SYMBOLS COLUMN)



Gravel      Sand      Silt      Clay  
Predominant type shown heavy

### SAMPLER TYPES

(SHOWN ON SAMPLES COLUMN)



Shelby Tube      Rock Core      Split Spoon      No Recovery      Cutting

### TERMS DESCRIBING CONSISTENCY OR CONDITION

**COARSE GRAINED SOILS** (major portion retained on No. 200 sieve): Includes (1) Clean gravels and sands, and (2) silty or clayey gravels and sands. Condition is rated according to relative density, as determined by laboratory tests.

DESCRIPTIVE TERM	N-VALUE	RELATIVE DENSITY
VERY LOOSE	0-4	0-15%
LOOSE	4-10	15-35%
MEDIUM DENSE	10-30	35-65%
DENSE	30-50	65-85%
VERY DENSE	50 and above	85-100%

**FINE GRAINED SOILS** (major portion passing No. 200 sieve): Includes (1) Inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings or by unconfined compression tests.

DESCRIPTIVE TERM	UNCONFINED COMPRESSIVE STRENGTH TON/SQ. FT.
VERY SOFT	Less than 0.25
SOFT	0.25-0.50
FIRM	0.50-1.00
STIFF	1.00-2.00
VERY STIFF	2.00-4.00
HARD	4.00 and higher

NOTE: Slickensided and fissured clays may have lower unconfined compressive strengths than shown above, because of planes of weakness or cracks in the soil. The consistency ratings of such soils are based on penetrometer readings.

### TERMS CHARACTERIZING SOIL STRUCTURE

**SLICKENSIDED** - having inclined planes of weakness that are slick and glossy in appearance.

**FISSURED** - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.

**LAMINATED** - composed of thin layers of varying color and texture.

**INTERBEDDED** - composed of alternate layers of different soil types.

**CALCAREOUS** - containing appreciable quantities of calcium carbonate.

**WELL GRADED** - having a wide range in grain sizes and substantial amounts of all intermediate particle sizes.

**POORLY GRADED** - predominantly of one grain size, or having a range of sizes with some intermediate sizes missing.

Terms used on this report for describing soils according to their texture or grain size distribution are in accordance with the UNIFIED SOIL CLASSIFICATION SYSTEM, as described in Technical Memorandum No.3-357, Waterways Experiment Station, March 1953

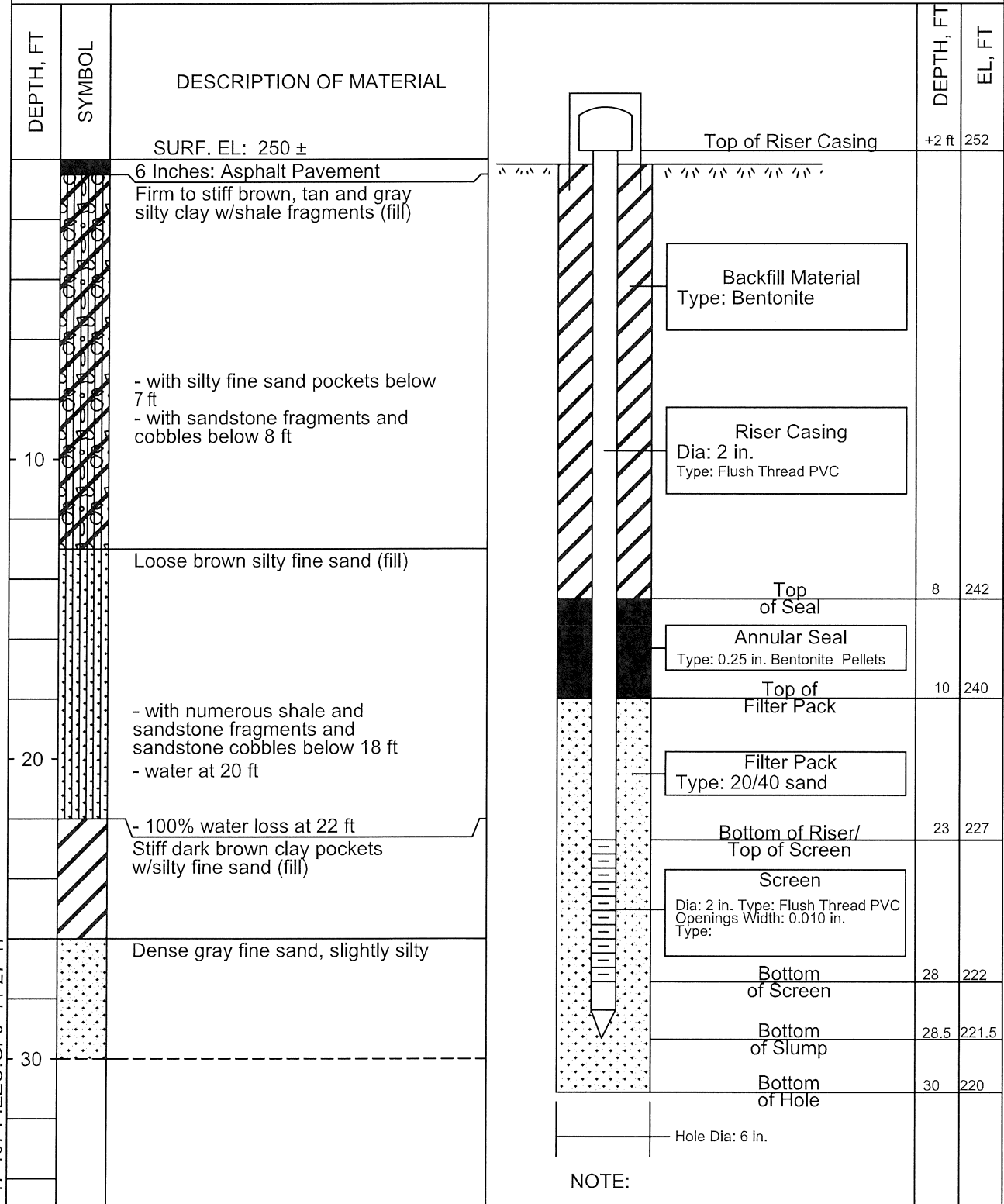
**APPENDIX A**



Grubbs, Hoskyn,  
Barton & Wyatt, Inc.  
Consulting Engineers

**LOG OF PIEZOMETER NO. P1**  
Main Street Pump Station Outfall  
North Little Rock, Arkansas

LOCATION: Boring P1



NOTE:

BORING COMPLETION DATE: 11/21/2017 DEPTH TO WATER IN BORING: 20 ft

DATE: 11/21/2017

PIEZO 17-107 PIEZO.GPJ 11-27-17

# SUMMARY of PIEZOMETER READINGS

PROJECT: Main Street Pump Station Outfall

LOCATION: North Little Rock, Arkansas

JOB NUMBER: 17-107

**Piezometer No.:** P1

Surface Elevation: 250 (approximate)  
Tip Depth, ft: 28.5  
Tip Elevation: 221.5  
Top Filter Pack, ft: 10  
Top Filter Pack, El.: 240  
Riser Height (ft): 2 ft above grade (riser cover)

DATE	Elapsed Time, days	Depth to water, ft	Groundwater Elevation, ft
21-Nov-17	0	20	230
22-Nov-17	1	17.7	232.3
22-Nov-17	1	20	230
22-Nov-17	1	17.7	232.3
27-Nov-17	6	18.3	231.7

**APPENDIX B**

# SUMMARY of CLASSIFICATION TEST RESULTS

PROJECT: Main Street Pump Station Outfall

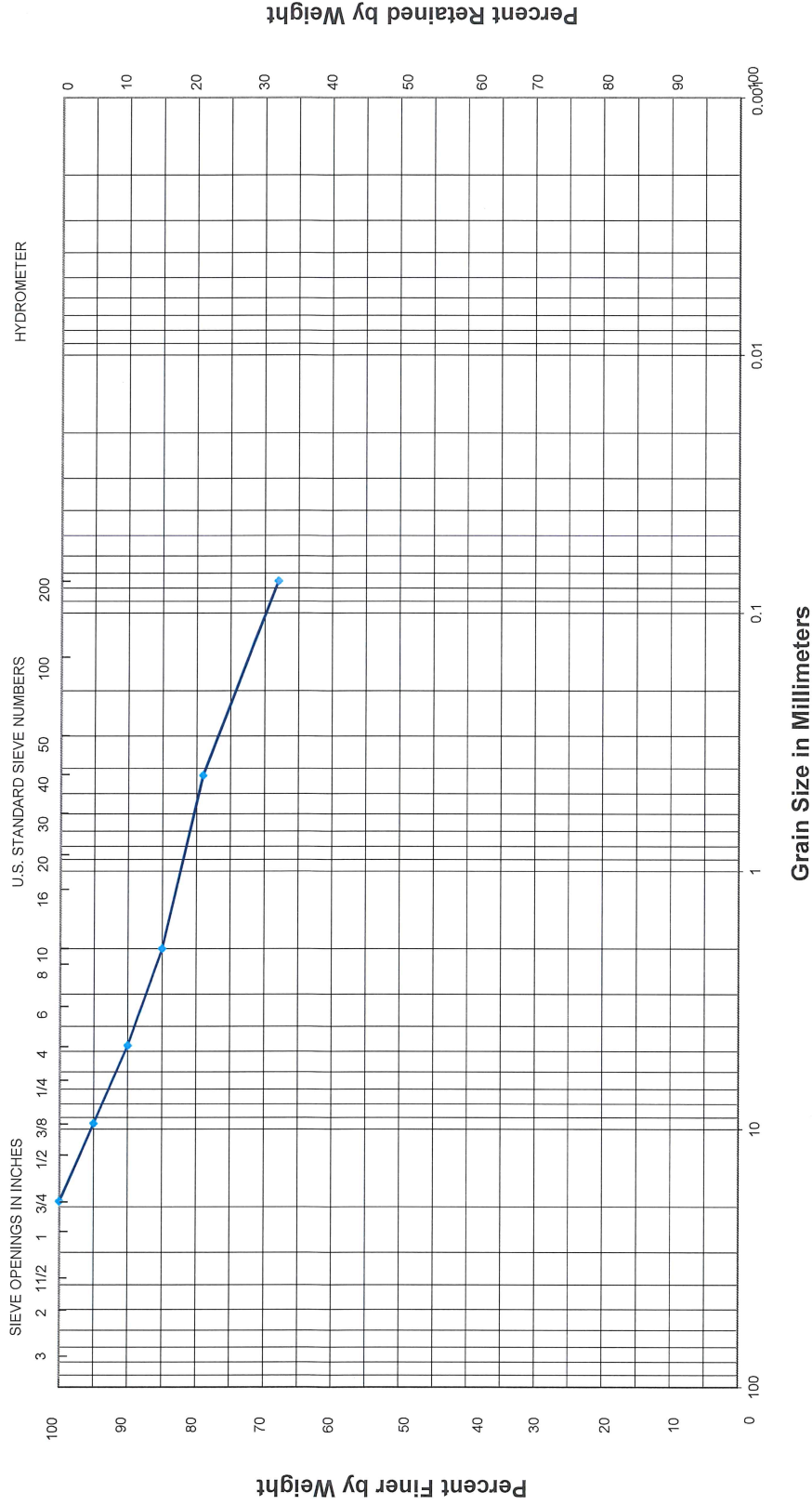
LOCATION: North Little Rock, Arkansas

JOB NUMBER: 17-107

BORING NO.	SAMPLE DEPTH (ft)	WATER CONTENT (%)	ATTERBERG LIMITS		PLASTICITY INDEX	SIEVE ANALYSIS PERCENT PASSING							UNIFIED CLASS.
			LIQUID LIMIT	PLASTIC LIMIT		1 in.	3/4 in.	3/8 in.	#4	#10	#40	#200	
1	4.5-7.5	15	30	16	14	100	100	95	90	85	79	68	CL
1	14-15	16	Non-plastic			--	--	--	--	--	--	21	SM
1	29-30	24	----	----	----	--	--	--	--	100	77	3	SP
1	39-40	13	----	----	----	100	97	85	78	70	30	4	SP
1	49-50	15	----	----	----	100	95	80	76	70	7	2	SP
1	69-70	21	----	----	----	100	92	39	16	8	3	1	GP

17-107

# GRAIN SIZE CURVE



GRAVEL		SAND		SILT		OR		CLAY	
COARSE	FINE	COARSE	MEDIUM	FINE					

Sample: Boring 1, 4.5-7.5 ft; LL = 30, PL = 16, PI = 14

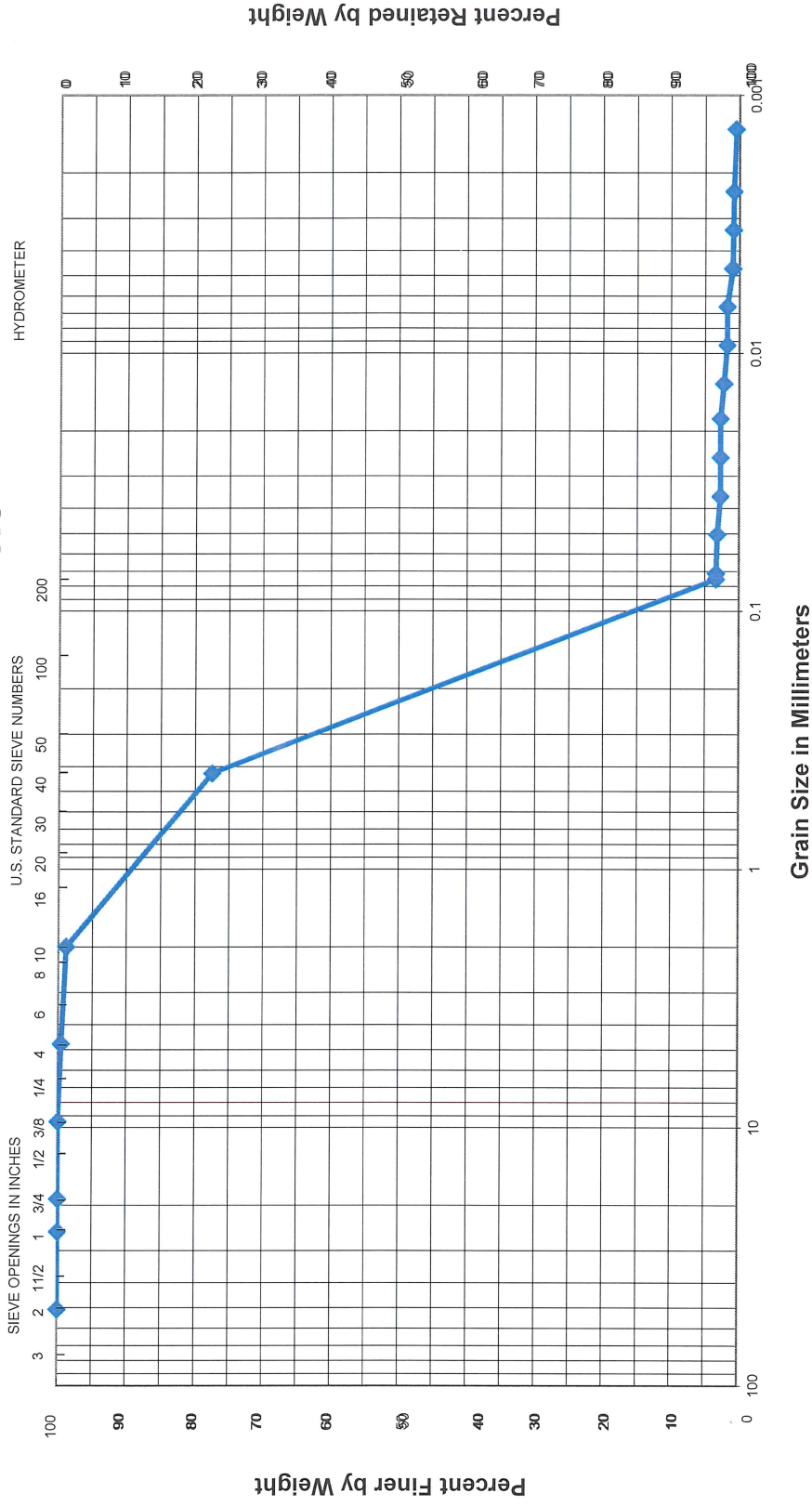
Description: Reddish brown fine sandy CLAY with trace fine gravel

USCS = CL

17-107

# GRAIN SIZE CURVE

## HYDROMETER ANALYSIS



GRAVEL		SAND		SILT	CLAY
		COARSE	FINE		
COARSE	FINE	COARSE	MEDIUM	FINE	

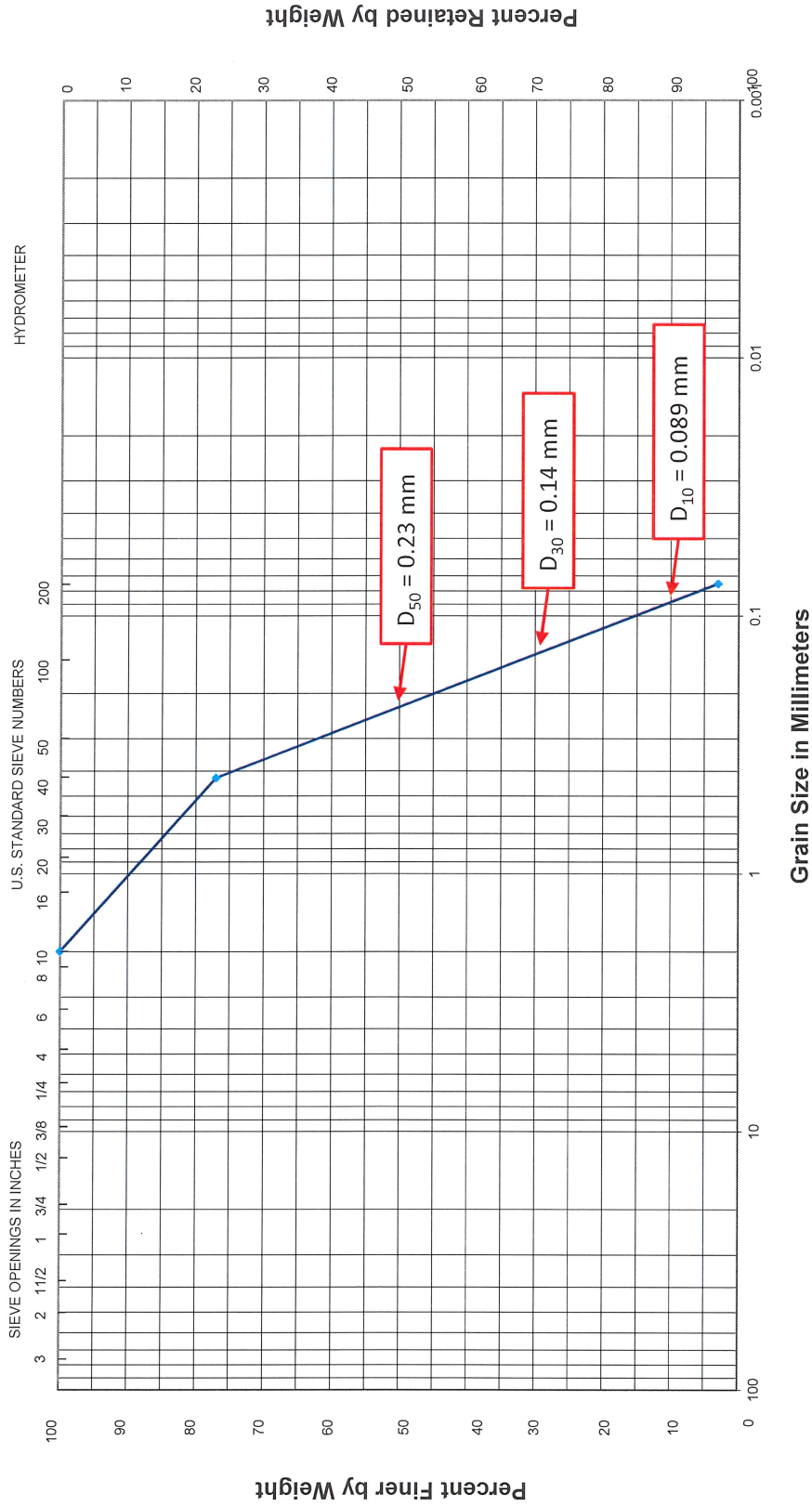
Sample: Boring 1, 29-30 ft  
 Properties:  $G_s = 2.635$   
 Description: Tan and gray fine to medium SAND

USCS = SP



17-107

# GRAIN SIZE CURVE



GRAVEL		SAND			SILT	OR	CLAY
		COARSE	MEDIUM	FINE			

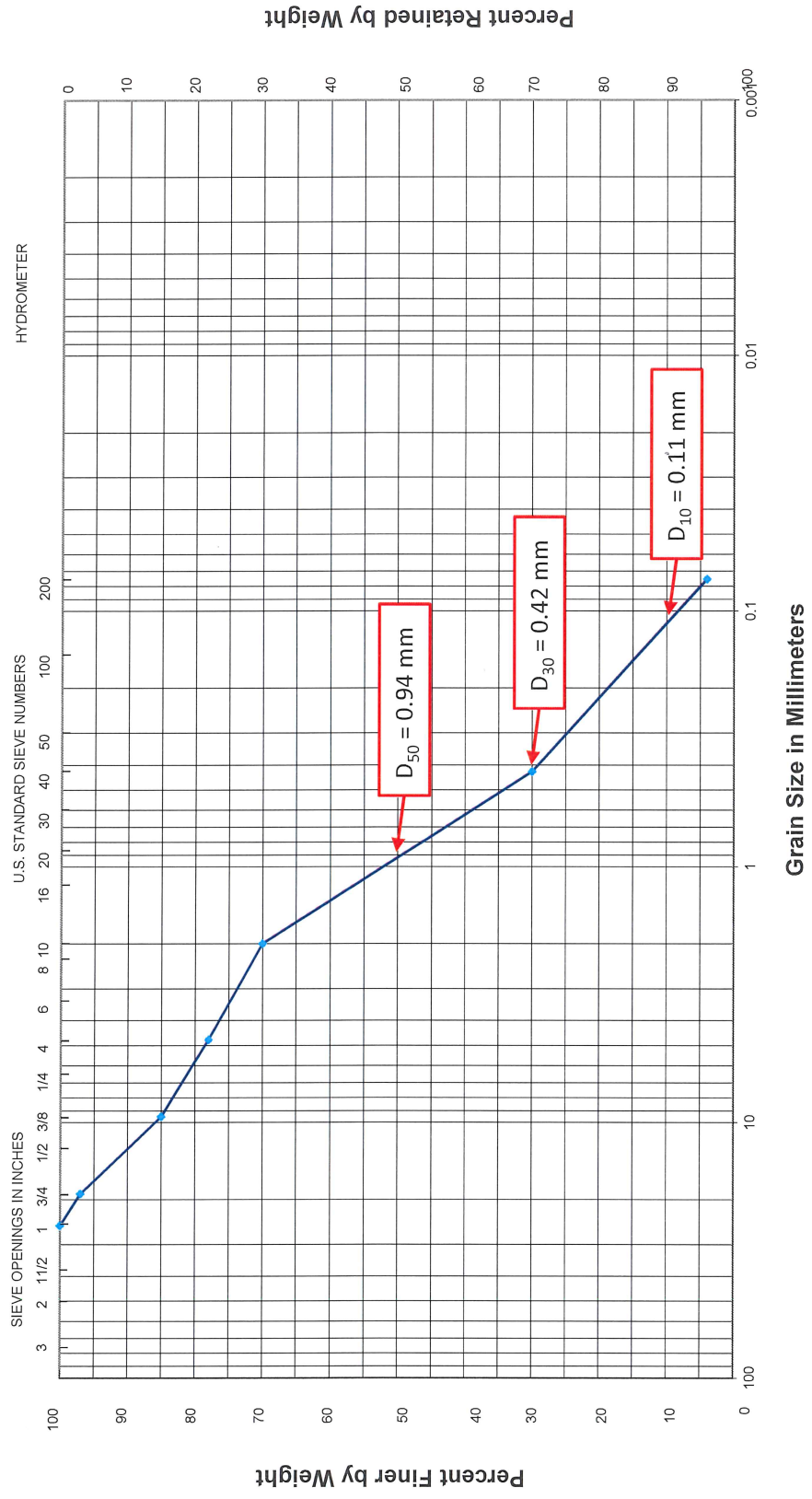
Sample: Boring 1, 29-30 ft

Description: Gray fine to medium SAND

**USCS = SP**

17-107

# GRAIN SIZE CURVE

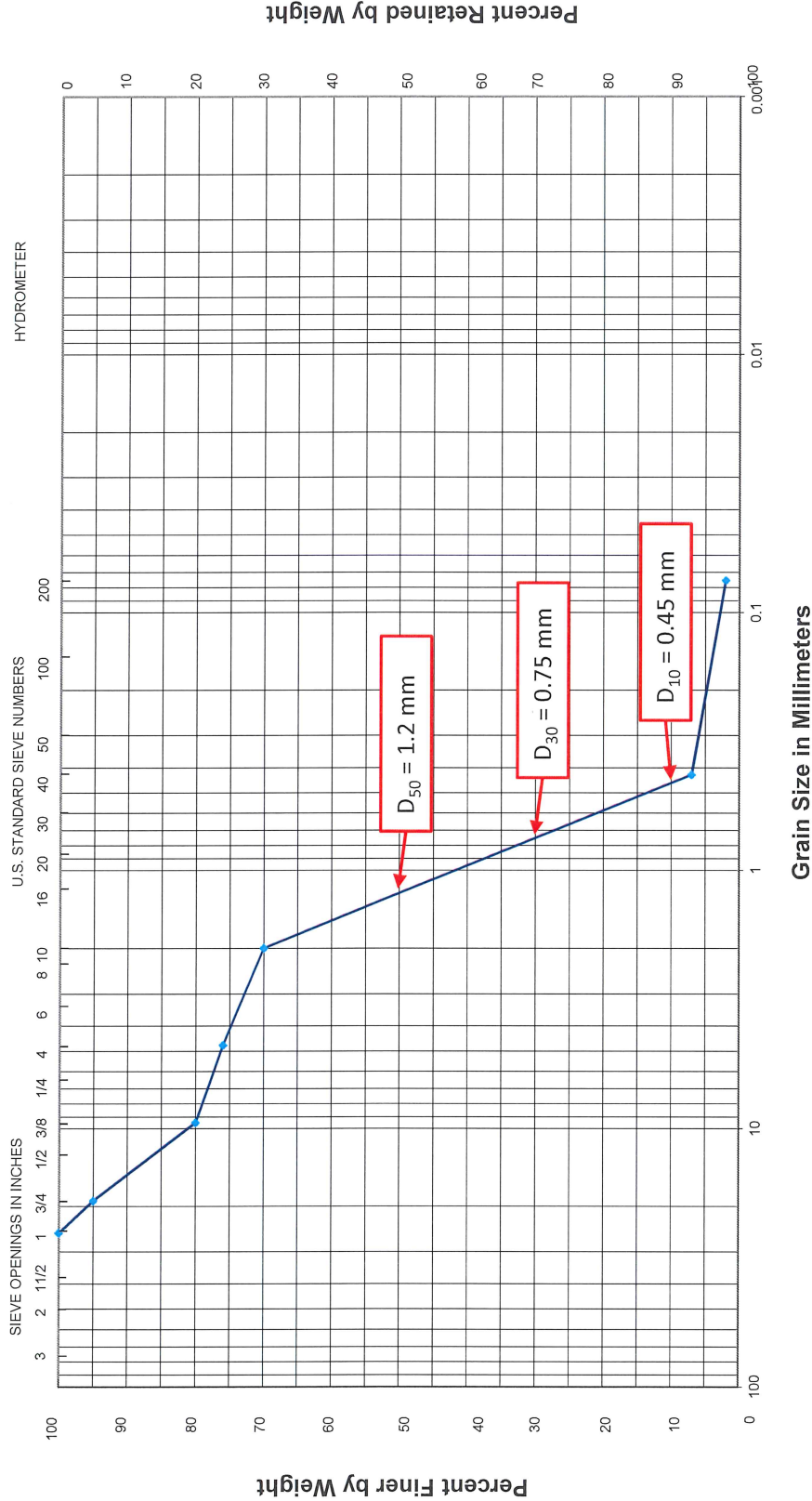


GRAVEL		SAND			SILT	OR	CLAY
		COARSE	MEDIUM	FINE			

Sample: Boring 1, 39-40 ft  
 Description: Gray and tan medium SAND with a little fine gravel  
**USCS = SP**

17-107

# GRAIN SIZE CURVE

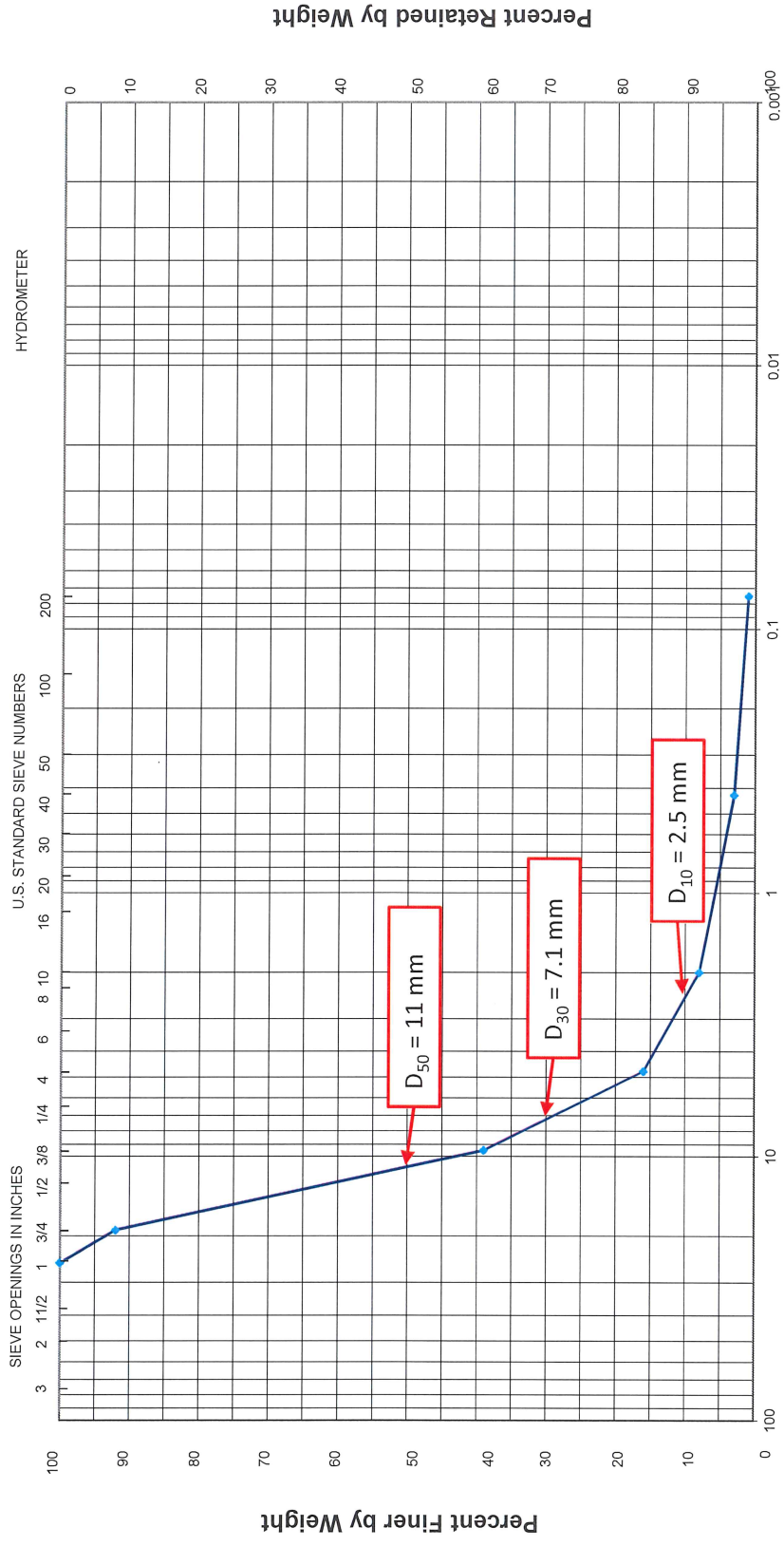


GRAVEL		SAND			SILT	OR	CLAY
		COARSE	FINE	MEDIUM			

Sample: Boring 1, 49-50 ft  
 Description: Gray and tan medium SAND with a little fine gravel  
**USCS = SP**

17-107

# GRAIN SIZE CURVE



Grain Size in Millimeters

GRAVEL		SAND		SILT		OR		CLAY	
COARSE	FINE	COARSE	MEDIUM	FINE					

Sample: Boring 1, 69-40 ft  
 Description: Tan sandy fine to coarse GRAVEL

USCS = GP