ANALYTICAL REPORT

Lab Number:	L1638960
Client:	Floyd Snider Inc 601 Union Street Suite 600 Seattle, WA 98101
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Phone:	(206) 292-2078
Project Name:	LDW ENR/AC PILOT STUDY
Project Number:	LY15160310
Report Date:	12/22/16

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Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1638960-01	LDW-BA-SU-ENR-CA-CORE	SEDIMENT	LDW	11/26/16 17:15	12/01/16
L1638960-02	LDW-BA-SU-ENR-CB-CORE	SEDIMENT	LDW	11/26/16 17:30	12/01/16
L1638960-03	LDW-BA-SU-ENR-CC-CORE	SEDIMENT	LDW	11/26/16 15:35	12/01/16
L1638960-04	LDW-BA-SU-ENR+AC-CA-CORE	SEDIMENT	LDW	11/26/16 15:15	12/01/16
L1638960-05	LDW-BA-SU-ENR+AC-CB-CORE	SEDIMENT	LDW	11/26/16 14:20	12/01/16
L1638960-06	LDW-BA-SU-ENR+AC-CC-CORE	SEDIMENT	LDW	11/26/16 14:35	12/01/16
L1638960-07	LDW-BA-SU-ENR-CB-CORE	SEDIMENT	LDW	11/26/16 17:30	12/01/16

Project Name: LDW ENR/AC PILOT STUDY **Lab Number:** L1638960
Project Number: LY15160310 **Report Date:** 12/22/16

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

% SOOT

L1638960-01: The Sample Replicate RPD is outside the acceptance criteria of 30%. A double-burn re-analysis was performed with confirming results. The results of the original analysis are reported. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG961579-3 Laboratory Duplicate RPD, performed on L1638960-01, is outside the acceptance criteria for % Soot (Rep 2) (89%). The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG961579-4/-5 MS/MSD RPD for % Soot (Rep 2) (51%), performed on L1638960-01, is above the acceptance criteria.

Total Organic Carbon

The WG961577-3 Laboratory Duplicate RPD, performed on L1638960-01, is outside the acceptance criteria for Total Organic Carbon (Rep1) (37%). The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG961577-4/-5 MS/MSD recoveries for Total Organic Carbon (Rep1) (127%/69%) and Total Organic Carbon (Rep2) (468% MSD only), performed on L1638960-01, are outside the 75-125% acceptance criteria, possibly due to sample matrix. The associated SRM recoveries are within criteria indicating the sample batch was in control, and all sample results were accepted.

The WG961577-4/-5 MS/MSD RPD for Total Organic Carbon (Rep2) (62%), performed on L1638960-01, is above the acceptance criteria.

Grain Size Analysis

The WG963967-1 Laboratory Duplicate RPDs, performed on L1638960-02, are outside the acceptance criteria for % Fine Gravel (155%), and % Total Gravel (155%). The elevated RPDs have been attributed to the

Project Name:	LDW ENR/AC PILOT STUDY	**Lab Number:**	L1638960
Project Number:	LY15160310	**Report Date:**	12/22/16

Case Narrative (continued)

non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Susan E O'Neil Susan O' Neil

Title: Technical Director/Representative Date: 12/22/16

INORGANICS
&
MISCELLANEOUS

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-01
Client ID: LDW-BA-SU-ENR-CA-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 17:15
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.82		%	0.010	0.010	1	-	12/13/16 16:13	1,9060A	CM
Total Organic Carbon (Rep2)	1.60		%	0.010	0.010	1	-	12/13/16 16:13	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	5.00		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	5.00		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	2.10		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	9.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	20.5		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	31.9		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	53.3		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	9.80		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	63.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.104		%	0.010	NA	1	-	12/14/16 11:45	91,-	LC
% Soot (Rep 2)	0.257		%	0.010	NA	1	-	12/14/16 11:45	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-02
Client ID: LDW-BA-SU-ENR-CB-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 17:30
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	2.15		%	0.010	0.010	1	-	12/13/16 16:23	1,9060A	CM
Total Organic Carbon (Rep2)	1.98		%	0.010	0.010	1	-	12/13/16 16:23	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	3.90		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	3.90		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	2.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	9.10		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	14.4		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	25.8		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	62.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	8.20		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	70.3		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.171		%	0.010	NA	1	-	12/14/16 12:59	91,-	LC
% Soot (Rep 2)	0.146		%	0.010	NA	1	-	12/14/16 12:59	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-03
Client ID: LDW-BA-SU-ENR-CC-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 15:35
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.71		%	0.010	0.010	1	-	12/13/16 16:32	1,9060A	CM
Total Organic Carbon (Rep2)	1.74		%	0.010	0.010	1	-	12/13/16 16:32	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	0.900		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	0.900		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	1.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	6.80		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	19.4		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	27.5		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	63.8		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	7.80		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	71.6		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.059		%	0.010	NA	1	-	12/14/16 13:08	91,-	LC
% Soot (Rep 2)	0.066		%	0.010	NA	1	-	12/14/16 13:08	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-04
Client ID: LDW-BA-SU-ENR+AC-CA-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 15:15
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	2.06		%	0.010	0.010	1	-	12/13/16 16:42	1,9060A	CM
Total Organic Carbon (Rep2)	2.07		%	0.010	0.010	1	-	12/13/16 16:42	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	0.500		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	0.500		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	0.500		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	3.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	10.4		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	14.2		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	69.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	16.2		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	85.3		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.109		%	0.010	NA	1	-	12/14/16 13:28	91,-	LC
% Soot (Rep 2)	0.118		%	0.010	NA	1	-	12/14/16 13:28	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-05
Client ID: LDW-BA-SU-ENR+AC-CB-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 14:20
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.97		%	0.010	0.010	1	-	12/13/16 17:01	1,9060A	CM
Total Organic Carbon (Rep2)	2.02		%	0.010	0.010	1	-	12/13/16 17:01	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	2.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	2.30		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	1.00		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	3.40		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	17.3		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	21.7		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	63.4		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	12.6		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	76.0		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.040		%	0.010	NA	1	-	12/14/16 14:42	91,-	LC
% Soot (Rep 2)	0.051		%	0.010	NA	1	-	12/14/16 14:42	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-06
Client ID: LDW-BA-SU-ENR+AC-CC-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 14:35
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	2.12		%	0.010	0.010	1	-	12/13/16 17:11	1,9060A	CM
Total Organic Carbon (Rep2)	2.20		%	0.010	0.010	1	-	12/13/16 17:11	1,9060A	CM
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	0.300		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	2.50		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	10.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	12.9		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	73.3		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	13.8		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	87.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
General Chemistry - Mansfield Lab										
% Soot (Rep 1)	0.155		%	0.010	NA	1	-	12/14/16 13:48	91,-	LC
% Soot (Rep 2)	0.157		%	0.010	NA	1	-	12/14/16 13:48	91,-	LC

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

SAMPLE RESULTS

Lab ID: L1638960-07
Client ID: LDW-BA-SU-ENR-CB-CORE
Sample Location: LDW
Matrix: Sediment

Date Collected: 11/26/16 17:30
Date Received: 12/01/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Gravel	8.70		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Gravel	8.70		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Coarse Sand	6.90		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Medium Sand	24.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Fine Sand	33.2		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Sand	64.2		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Silt Fine	23.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Clay Fine	4.00		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP
% Total Fines	27.1		%	0.100	NA	1	-	12/22/16 14:54	12,D422	SP

Project Name: LDW ENR/AC PILOT STUDY **Lab Number:** L1638960

Project Number: LY15160310 **Report Date:** 12/22/16

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 01-06 Batch: WG961577-1										
Total Organic Carbon (Rep1)	ND		%	0.010	0.010	1	-	12/13/16 15:11	1,9060A	CM
Total Organic Carbon (Rep2)	ND		%	0.010	0.010	1	-	12/13/16 15:11	1,9060A	CM
General Chemistry - Mansfield Lab for sample(s): 01-06 Batch: WG961579-1										
% Soot (Rep 1)	ND		%	0.010	NA	1	-	12/14/16 11:12	91,-	LC
% Soot (Rep 2)	ND		%	0.010	NA	1	-	12/14/16 11:12	91,-	LC

Matrix Spike Analysis
Batch Quality Control

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310
Lab Number: L1638960
Report Date: 12/22/16

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG961577-4 WG961577-5 QC Sample: L1638960-01 Client ID: LDW-BA-SU-ENR-CA-CORE												
Total Organic Carbon (Rep1)	1.82	0.769	2.80	**127**	Q	2.37	**69**	Q	75-125	17		25
Total Organic Carbon (Rep2)	1.60	0.973	2.64	107		5.03	**468**	Q	75-125	**62**	Q	25
General Chemistry - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG961579-4 WG961579-5 QC Sample: L1638960-01 Client ID: LDW-BA-SU-ENR-CA-CORE												
% Soot (Rep 1)	0.104	0.825	0.974	105		1.03	104		75-125	6		25
% Soot (Rep 2)	0.257	1.47	1.67	96		0.987	87		75-125	**51**	Q	25

Lab Duplicate Analysis
Batch Quality Control

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG961577-3 QC Sample: L1638960-01 Client ID: LDW-BA-SU-ENR-CA-CORE						
Total Organic Carbon (Rep1)	1.82	1.25	%	**37**	Q	25
Total Organic Carbon (Rep2)	1.60	1.70	%	6		25
General Chemistry - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG961579-3 QC Sample: L1638960-01 Client ID: LDW-BA-SU-ENR-CA-CORE						
% Soot (Rep 1)	0.104	0.102	%	2		25
% Soot (Rep 2)	0.257	0.099	%	**89**	Q	25
Grain Size Analysis - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG963967-1 QC Sample: L1638960-02 Client ID: LDW-BA-SU-ENR-CB-CORE						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	ND	ND	%	NC		20
% Fine Gravel	3.90	0.500	%	**155**	Q	20
% Total Gravel	3.90	0.500	%	**155**	Q	20
% Coarse Sand	2.30	2.30	%	0		20
% Medium Sand	9.10	7.60	%	18		20
% Fine Sand	14.4	11.9	%	19		20
% Total Sand	25.8	21.8	%	17		20
% Silt Fine	62.1	69.4	%	11		20
% Clay Fine	8.20	8.30	%	1		20
% Total Fines	70.3	77.7	%	10		20

Project Name: LDW ENR/AC PILOT STUDY **Lab Number:** L1638960

Project Number: LY15160310 **Report Date:** 12/22/16

S.R.M. Standard Quality Control

Standard Reference Material (SRM): WG961577-2

Parameter	% Recovery	Qual	QC Criteria
Total Organic Carbon (Rep1)	93		75-125
Total Organic Carbon (Rep2)	100		75-125

Project Name: LDW ENR/AC PILOT STUDY **Lab Number:** L1638960

Project Number: LY15160310 **Report Date:** 12/22/16

S.R.M. Standard Quality Control

Standard Reference Material (SRM): WG961579-2

Parameter	% Recovery	Qual	QC Criteria
% Soot (Rep 1)	110		75-125
% Soot (Rep 2)	91		75-125

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1638960-01A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)
L1638960-01B	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-02A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)
L1638960-02B	Glass 120ml/4oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-02C	Glass 120ml/4oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-03A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)

*Values in parentheses indicate holding time in days

Project Name: LDW ENR/AC PILOT STUDY
Project Number: LY15160310

Lab Number: L1638960
Report Date: 12/22/16

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1638960-03B	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-04A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)
L1638960-04B	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-05A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)
L1638960-05B	Glass 250ml/8oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1638960-06A	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-SOOT(28),A2-TOC-9060-2REPS(28)
L1638960-06B	Glass 500ml/16oz unpreserved	A	N/A	4.5	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()

*Values in parentheses indicate holding time in days

Project Name:	LDW ENR/AC PILOT STUDY	**Lab Number:**	L1638960
Project Number:	LY15160310	**Report Date:**	12/22/16

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Project Name:	LDW ENR/AC PILOT STUDY	**Lab Number:**	L1638960
Project Number:	LY15160310	**Report Date:**	12/22/16

Data Qualifiers

reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.

91 Analysis of Soot following ES&T publications by Accardi-Dey and Gschwend, 2003; and Gustafsson (et. al.), 1997.

LIMITATION OF LIABILITIES

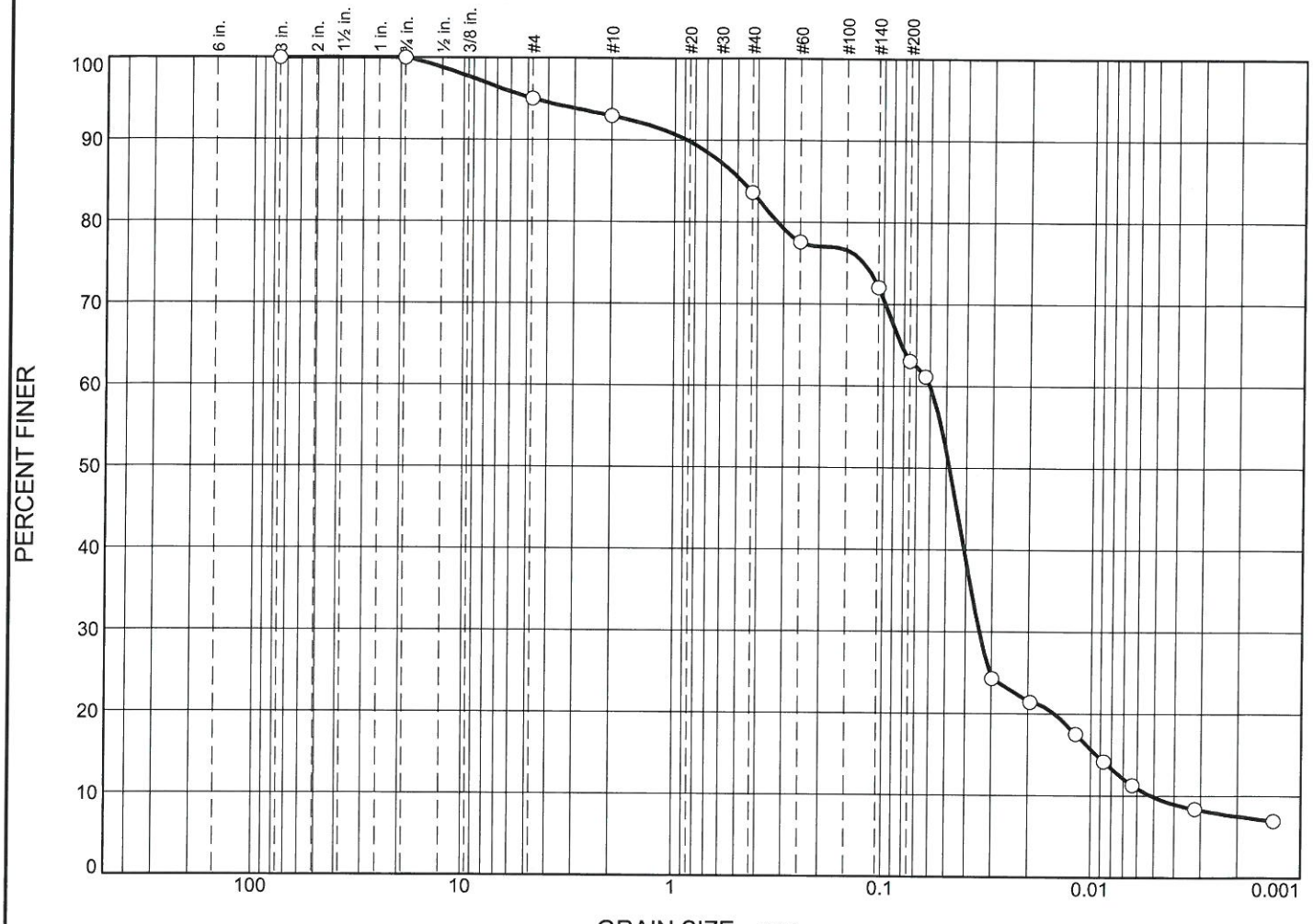
Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

ASTM D422-63

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	5.0	2.1	9.3	20.5	53.3	9.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.4774	0.0601	0.0481	0.0342	0.0094	0.0052	3.79	11.66

Material Description	USCS	AASHTO
○		

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-CA-CORE **Sample No.:** L1638960-01

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CA-CORE
Sample Number: L1638960-01

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
102.00	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	5.05	0.00	95.0
		#10	2.16	0.00	92.9
		#40	9.51	0.00	83.6
		#60	6.17	0.00	77.6
		#140	5.63	0.00	72.0
		#200	9.16	0.00	63.1
		#230	1.97	0.00	61.1

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 61.1
Weight of hydrometer sample =102.00
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0240	1.0252	0.0133	24.0	9.9	0.0298	24.3
5.00	21.8	1.0210	1.0222	0.0133	21.0	10.7	0.0196	21.4
15.00	21.8	1.0170	1.0182	0.0133	17.0	11.8	0.0118	17.5
30.00	21.8	1.0135	1.0147	0.0133	13.5	12.7	0.0087	14.2
60.00	21.8	1.0105	1.0117	0.0133	10.5	13.5	0.0063	11.3
250.00	21.8	1.0075	1.0087	0.0133	7.5	14.3	0.0032	8.4
1440.00	21.8	1.0060	1.0072	0.0133	6.0	14.7	0.0013	7.0

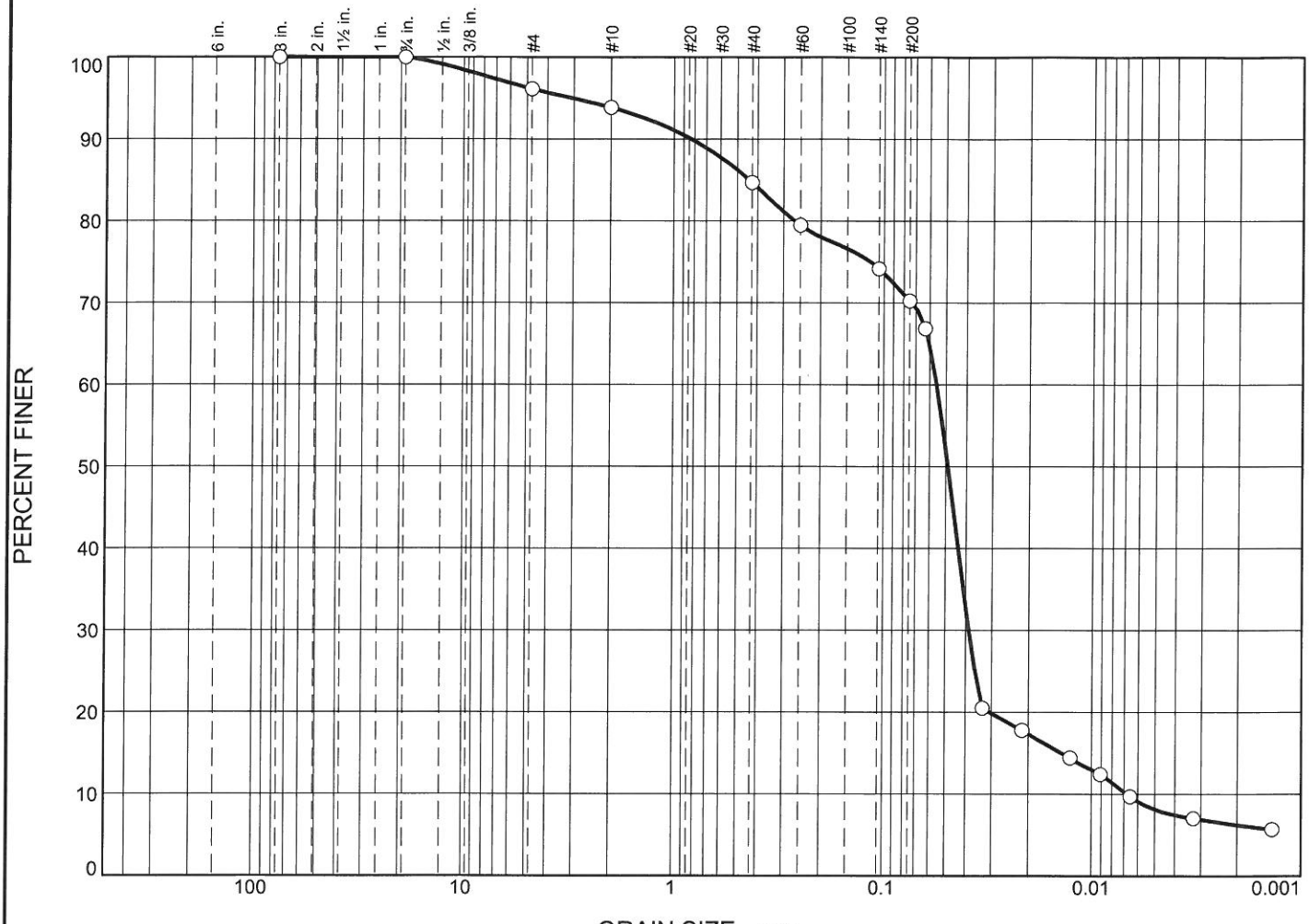
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.0	5.0	2.1	9.3	20.5	31.9	53.3	9.8	63.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0052	0.0094	0.0149	0.0342	0.0481	0.0601	0.3230	0.4774	0.8763	4.6772

Fineness Modulus	C_u	C_c
0.80	11.66	3.79

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.9	2.3	9.1	14.4	62.1	8.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.4384	0.0555	0.0489	0.0387	0.0139	0.0068	3.97	8.18

	Material Description	USCS	AASHTO
○			

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-CB-CORE **Sample No.:** L1638960-02

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CB-CORE
Sample Number: L1638960-02

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
79.77	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	3.08	0.00	96.1
		#10	1.83	0.00	93.8
		#40	7.30	0.00	84.7
		#60	4.17	0.00	79.5
		#140	4.21	0.00	74.2
		#200	3.14	0.00	70.3
		#230	2.72	0.00	66.8

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 66.8
Weight of hydrometer sample =79.77
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0150	1.0152	0.0133	15.0	12.3	0.0331	20.5
5.00	21.8	1.0130	1.0132	0.0133	13.0	12.9	0.0214	17.8
15.00	21.8	1.0105	1.0107	0.0133	10.5	13.5	0.0127	14.4
30.00	21.8	1.0090	1.0092	0.0133	9.0	13.9	0.0091	12.4
60.00	21.8	1.0070	1.0072	0.0133	7.0	14.4	0.0065	9.7
250.00	21.8	1.0050	1.0052	0.0133	5.0	15.0	0.0033	7.0
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	5.7

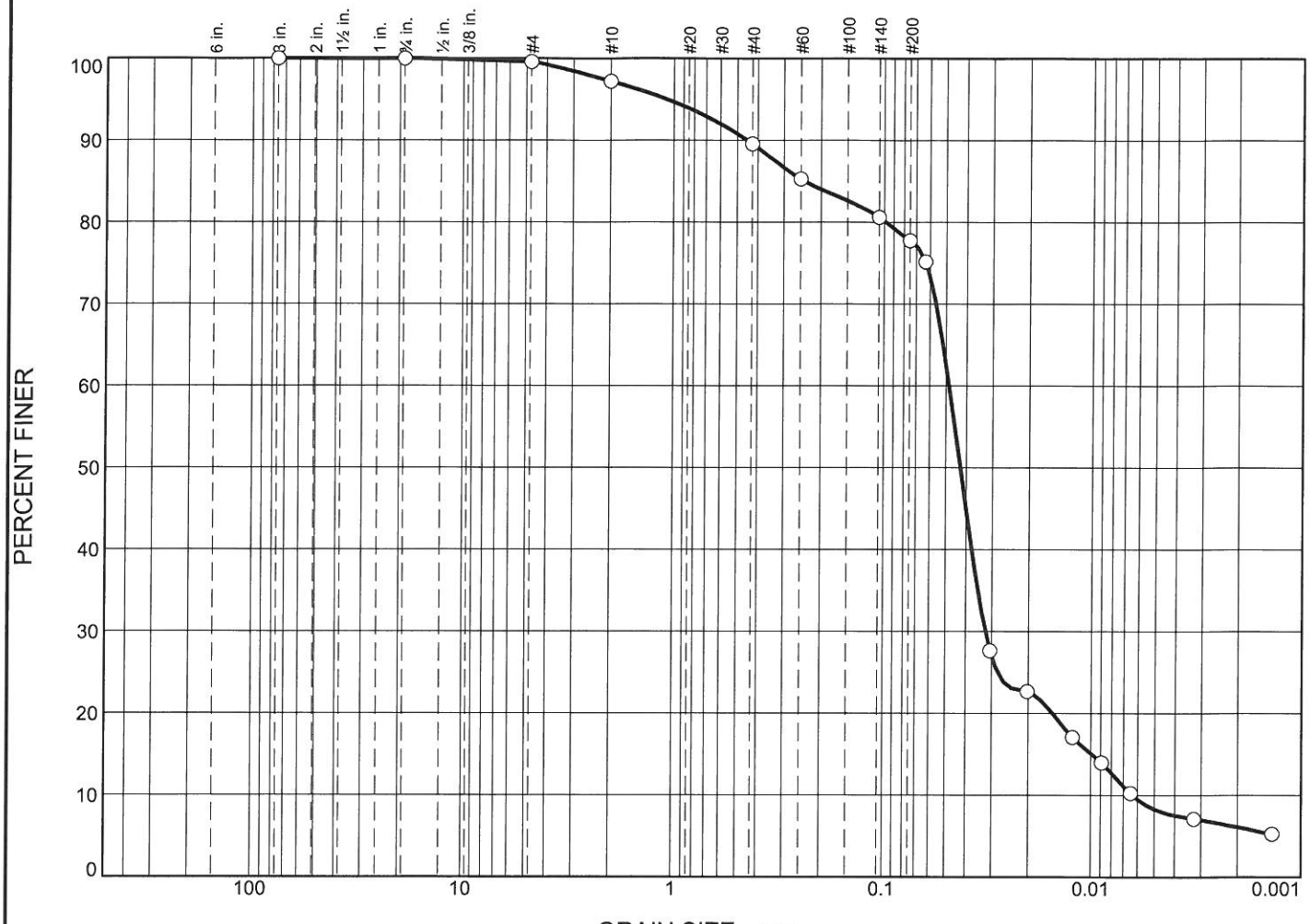
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.9	3.9	2.3	9.1	14.4	25.8	62.1	8.2	70.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0068	0.0139	0.0306	0.0387	0.0489	0.0555	0.2668	0.4384	0.8292	3.0635

Fineness Modulus	C_u	C_c
0.74	8.18	3.97

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.5	2.3	7.6	11.9	69.4	8.3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2401	0.0483	0.0426	0.0321	0.0099	0.0063	3.37	7.63

Material Description	USCS	AASHTO
○		

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-CB-CORE **Sample No.:** WG963967-1

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CB-CORE
Sample Number: WG963967-1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
96.97	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.45	0.00	99.5
		#10	2.25	0.00	97.2
		#40	7.43	0.00	89.6
		#60	4.16	0.00	85.3
		#140	4.53	0.00	80.6
		#200	2.77	0.00	77.7
		#230	2.52	0.00	75.1

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 75.1
Weight of hydrometer sample =96.97
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0220	1.0222	0.0133	22.0	10.5	0.0305	27.7
5.00	21.8	1.0180	1.0182	0.0133	18.0	11.5	0.0203	22.7
15.00	21.8	1.0135	1.0137	0.0133	13.5	12.7	0.0123	17.1
30.00	21.8	1.0110	1.0112	0.0133	11.0	13.4	0.0089	14.0
60.00	21.8	1.0080	1.0082	0.0133	8.0	14.2	0.0065	10.2
250.00	21.8	1.0055	1.0057	0.0133	5.5	14.8	0.0033	7.1
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	5.3

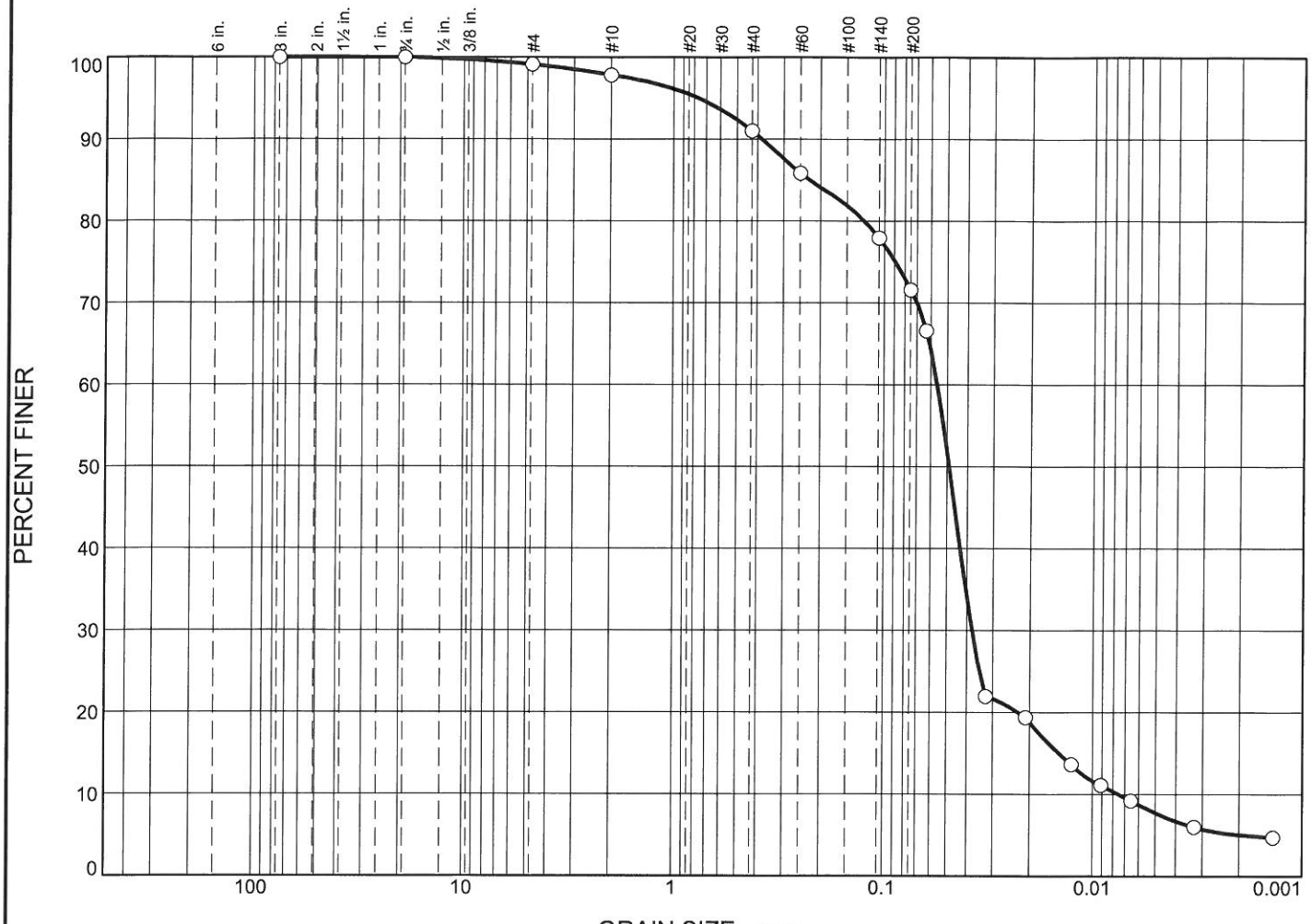
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	2.3	7.6	11.9	21.8	69.4	8.3	77.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0063	0.0099	0.0154	0.0321	0.0426	0.0483	0.0983	0.2401	0.4499	1.0809

Fineness Modulus	C_u	C_c
0.46	7.63	3.37

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.9	1.3	6.8	19.4	63.8	7.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2255	0.0559	0.0488	0.0377	0.0145	0.0075	3.37	7.42

	Material Description	USCS	AASHTO
○			

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-CC-CORE **Sample No.:** L1638960-03

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CC-CORE
Sample Number: L1638960-03

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
84.00	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.75	0.00	99.1
		#10	1.07	0.00	97.8
		#40	5.74	0.00	91.0
		#60	4.33	0.00	85.8
		#140	6.65	0.00	77.9
		#200	5.33	0.00	71.6
		#230	4.18	0.00	66.6

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 66.6
Weight of hydrometer sample =84
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0170	1.0172	0.0133	17.0	11.8	0.0324	21.9
5.00	21.8	1.0150	1.0152	0.0133	15.0	12.3	0.0210	19.4
15.00	21.8	1.0105	1.0107	0.0133	10.5	13.5	0.0127	13.7
30.00	21.8	1.0085	1.0087	0.0133	8.5	14.0	0.0091	11.1
60.00	21.8	1.0070	1.0072	0.0133	7.0	14.4	0.0065	9.2
250.00	21.8	1.0045	1.0047	0.0133	4.5	15.1	0.0033	6.0
1440.00	21.8	1.0035	1.0037	0.0133	3.5	15.4	0.0014	4.7

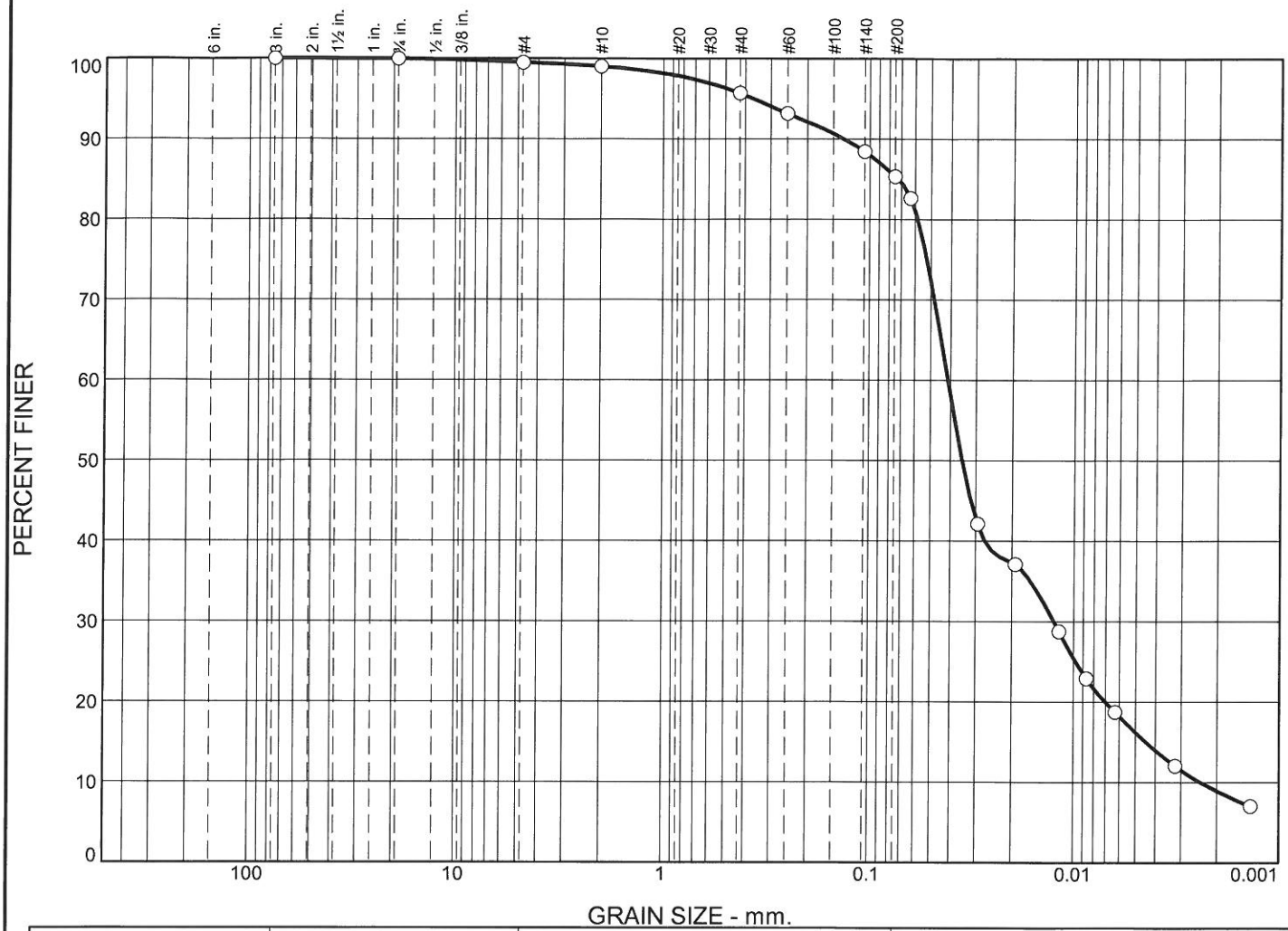
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.9	0.9	1.3	6.8	19.4	27.5	63.8	7.8	71.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0075	0.0145	0.0226	0.0377	0.0488	0.0559	0.1242	0.2255	0.3825	0.7626

Fineness Modulus	C_u	C_c
0.43	7.42	3.37

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.5	0.5	3.3	10.4	69.1	16.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0727	0.0411	0.0349	0.0126	0.0044	0.0024	1.60	17.19

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source:** LDW-BA-SU-ENR-AC-CA-CORE **Sample No.:** L1638960-04

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-AC-CA-CORE
Sample Number: L1638960-04

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
79.48	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.40	0.00	99.5
		#10	0.39	0.00	99.0
		#40	2.65	0.00	95.7
		#60	2.00	0.00	93.2
		#140	3.76	0.00	88.4
		#200	2.47	0.00	85.3
		#230	2.15	0.00	82.6

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 82.6
Weight of hydrometer sample =79.48
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0250	1.0252	0.0133	25.0	9.7	0.0294	42.1
5.00	21.8	1.0220	1.0222	0.0133	22.0	10.5	0.0193	37.1
15.00	21.8	1.0170	1.0172	0.0133	17.0	11.8	0.0118	28.7
30.00	21.8	1.0135	1.0137	0.0133	13.5	12.7	0.0087	22.9
60.00	21.8	1.0110	1.0112	0.0133	11.0	13.4	0.0063	18.7
250.00	21.8	1.0070	1.0072	0.0133	7.0	14.4	0.0032	12.1
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	7.0

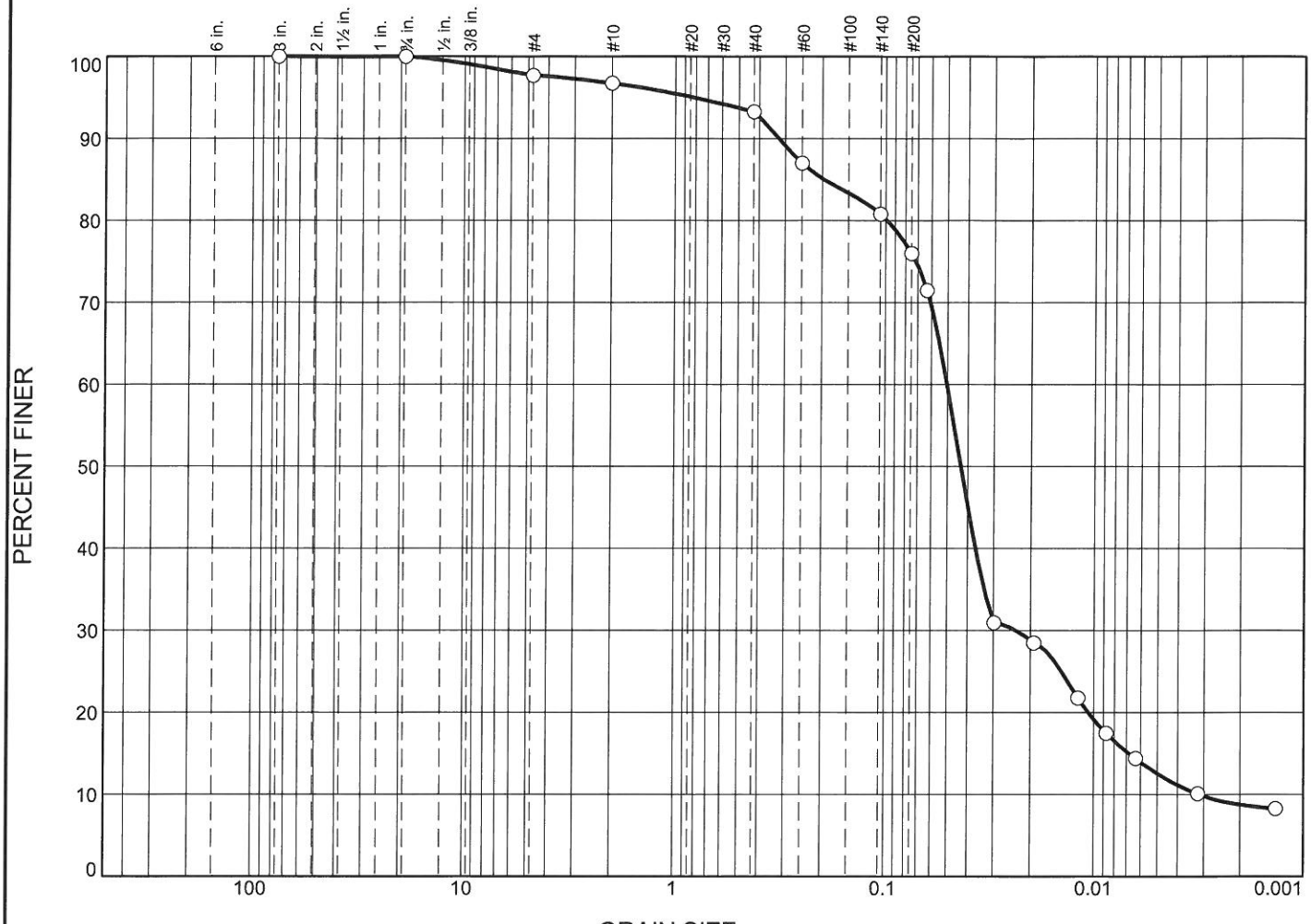
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	0.5	3.3	10.4	14.2	69.1	16.2	85.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0024	0.0044	0.0070	0.0126	0.0349	0.0411	0.0583	0.0727	0.1332	0.3659

Fineness Modulus	C_u	C_c
0.21	17.19	1.60

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	2.3	1.0	3.4	17.3	63.4	12.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1961	0.0503	0.0431	0.0234	0.0068	0.0031	3.47	16.03

	Material Description	USCS	AASHTO
○			

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-AC-CB-CORE **Sample No.:** L1638960-05

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-AC-CB-CORE
Sample Number: L1638960-05

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
93.55	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	2.16	0.00	97.7
		#10	0.91	0.00	96.7
		#40	3.22	0.00	93.3
		#60	5.88	0.00	87.0
		#140	5.82	0.00	80.8
		#200	4.49	0.00	76.0
		#230	4.21	0.00	71.5

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 71.5
Weight of hydrometer sample =93.55
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0240	1.0252	0.0133	24.0	9.9	0.0298	30.9
5.00	21.8	1.0220	1.0232	0.0133	22.0	10.5	0.0193	28.5
15.00	21.8	1.0165	1.0177	0.0133	16.5	11.9	0.0119	21.7
30.00	21.8	1.0130	1.0142	0.0133	13.0	12.9	0.0087	17.5
60.00	21.8	1.0105	1.0117	0.0133	10.5	13.5	0.0063	14.4
250.00	21.8	1.0070	1.0082	0.0133	7.0	14.4	0.0032	10.1
1440.00	21.8	1.0055	1.0067	0.0133	5.5	14.8	0.0014	8.2

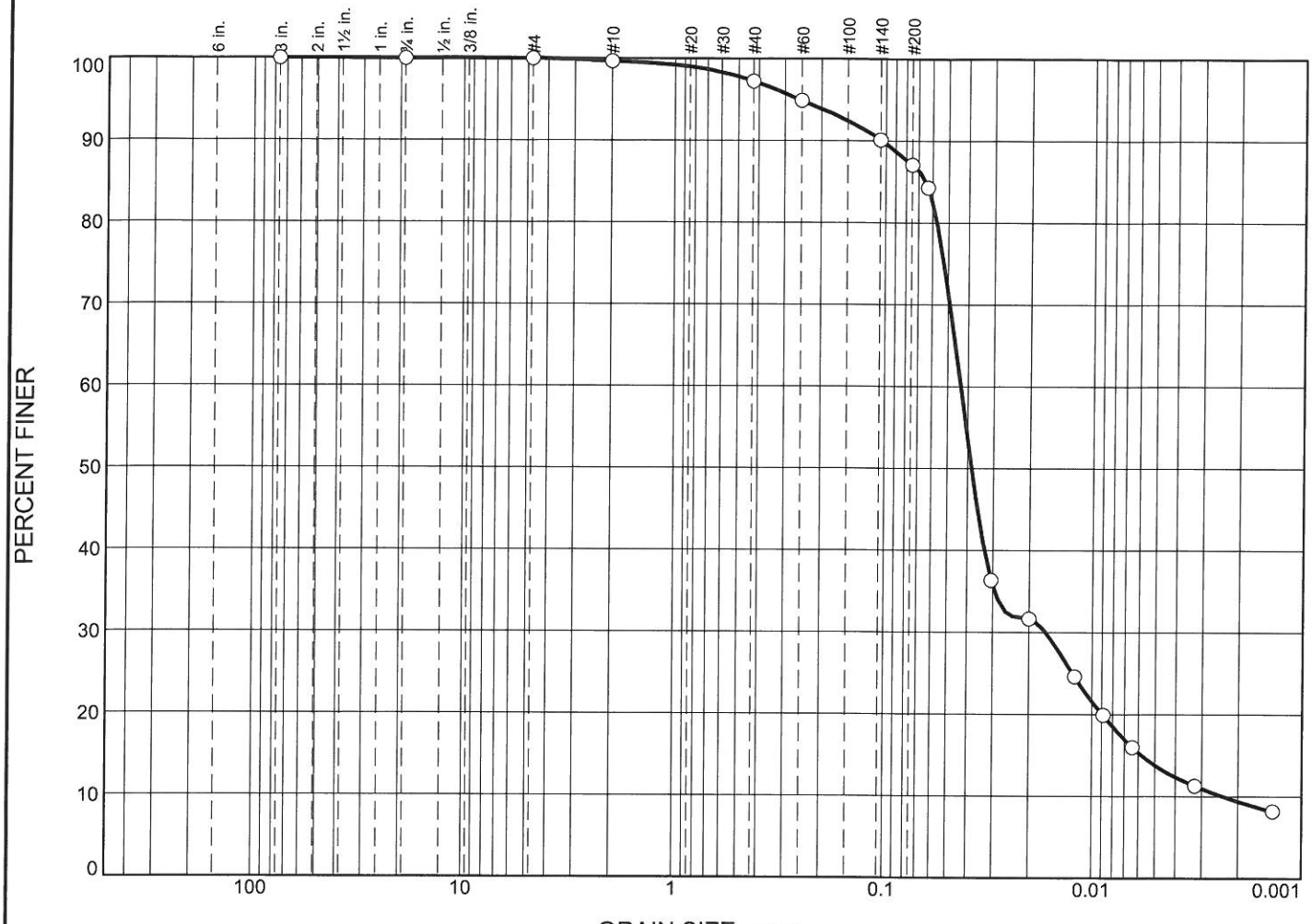
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.3	2.3	1.0	3.4	17.3	21.7	63.4	12.6	76.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0031	0.0068	0.0106	0.0234	0.0431	0.0503	0.0985	0.1961	0.3230	0.8188

Fineness Modulus	C_u	C_c
0.44	16.03	3.47

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.3	2.5	10.1	73.3	13.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0647	0.0433	0.0382	0.0168	0.0058	0.0024	2.76	18.35

	Material Description	USCS	AASHTO
○			

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-AC-CC-CORE **Sample No.:** L1638960-06

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-AC-CC-CORE
Sample Number: L1638960-06

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
86.49	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.29	0.00	99.7
		#40	2.09	0.00	97.2
		#60	2.03	0.00	94.9
		#140	4.15	0.00	90.1
		#200	2.64	0.00	87.1
		#230	2.40	0.00	84.3

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 84.3
Weight of hydrometer sample =86.49
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 1
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0220	1.0232	0.0133	22.0	10.5	0.0305	36.3
5.00	21.8	1.0190	1.0202	0.0133	19.0	11.3	0.0200	31.6
15.00	21.8	1.0145	1.0157	0.0133	14.5	12.5	0.0122	24.6
30.00	21.8	1.0115	1.0127	0.0133	11.5	13.3	0.0089	19.9
60.00	21.8	1.0090	1.0102	0.0133	9.0	13.9	0.0064	16.0
250.00	21.8	1.0060	1.0072	0.0133	6.0	14.7	0.0032	11.3
1440.00	21.8	1.0040	1.0052	0.0133	4.0	15.2	0.0014	8.2

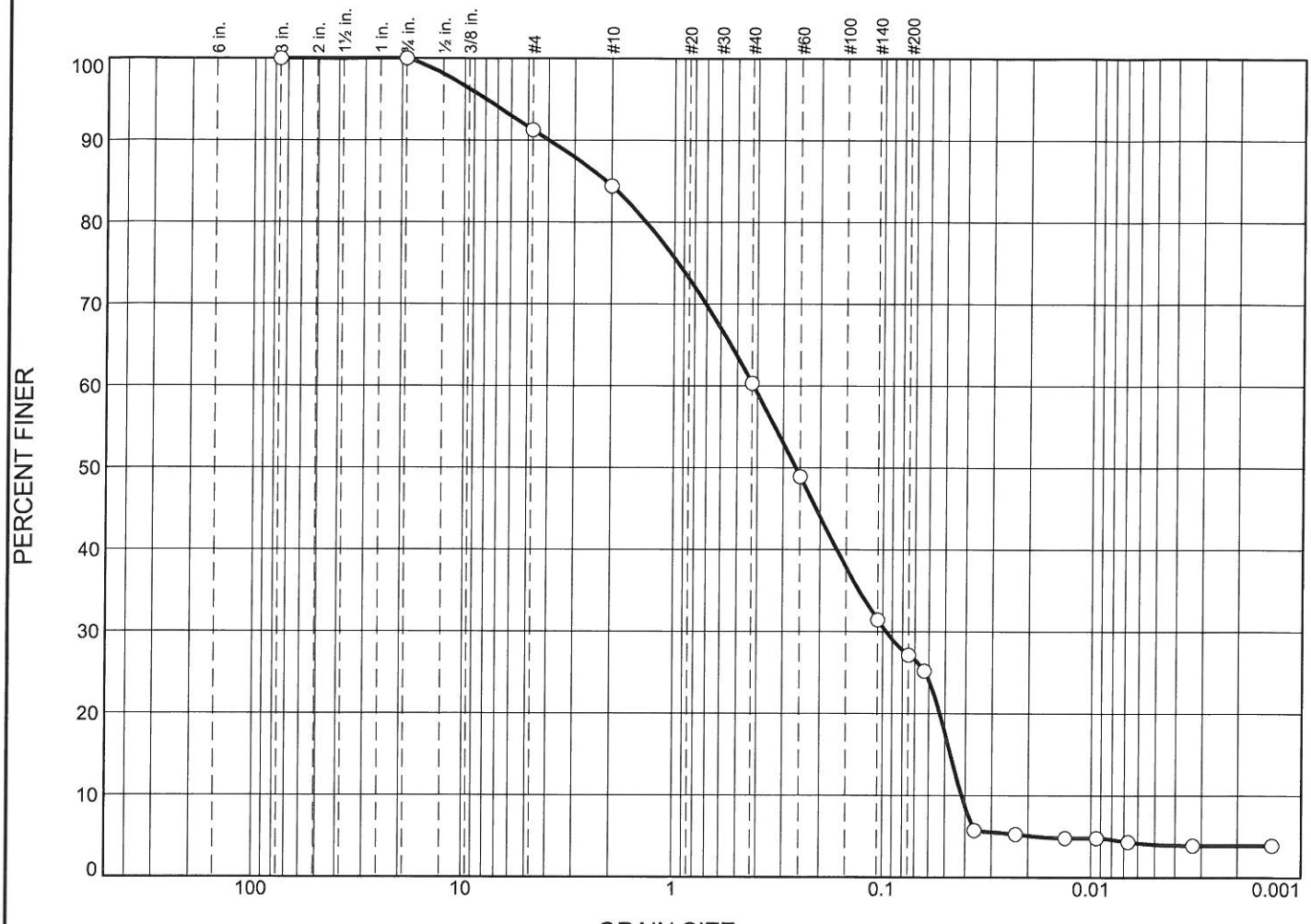
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	2.5	10.1	12.9	73.3	13.8	87.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0024	0.0058	0.0089	0.0168	0.0382	0.0433	0.0571	0.0647	0.1047	0.2554

Fineness Modulus	C_u	C_c
0.14	18.35	2.76

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	8.7	6.9	24.1	33.2	23.1	4.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			2.1266	0.4182	0.2626	0.0964	0.0471	0.0417	0.53	10.04

	Material Description	USCS	AASHTO
○			

Project No. **Client:**
Project:

○ **Source:** LDW-BA-SU-ENR-CB-CORE **Sample No.:** L1638960-07

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

12/22/2016

Location: LDW-BA-SU-ENR-CB-CORE
Sample Number: L1638960-07

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
44.04	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	3.85	0.00	91.3
		#10	3.02	0.00	84.4
		#40	10.60	0.00	60.3
		#60	5.03	0.00	48.9
		#140	7.69	0.00	31.4
		#200	1.90	0.00	27.1
		#230	0.85	0.00	25.2

Hydrometer Test Data

Hydrometer test uses material passing #230
Percent passing #230 based upon complete sample = 25.2
Weight of hydrometer sample =44.04
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	1.0060	1.0062	0.0133	6.0	14.7	0.0362	5.7
5.00	21.8	1.0055	1.0057	0.0133	5.5	14.8	0.0230	5.3
15.00	21.8	1.0050	1.0052	0.0133	5.0	15.0	0.0133	4.8
30.00	21.8	1.0050	1.0052	0.0133	5.0	15.0	0.0094	4.8
60.00	21.8	1.0045	1.0047	0.0133	4.5	15.1	0.0067	4.3
250.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0033	3.9
1440.00	21.8	1.0040	1.0042	0.0133	4.0	15.2	0.0014	3.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	8.7	8.7	6.9	24.1	33.2	64.2	23.1	4.0	27.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0417	0.0471	0.0531	0.0964	0.2626	0.4182	1.3637	2.1266	3.9837	7.8980

Fineness Modulus	C_u	C_c
1.91	10.04	0.53

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: ***EPA 3050B***

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF**.

Mansfield Facility:

Drinking Water
EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Date Rec'd in Lab: 12/1/16

ALPHA Job #: L1638960

Project Information

Project Name: LDW ENR/AC Pilot Study
Project Location: LDW
Project #: LY15160310
Project Manager: Liz Porta
ALPHA Quote #:

Report Information - Data Deliverables

☐ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Client Information

Client: Floyd Snider
Address: 601 union St., Suite 600, Seattle, WA 98101
Phone: 206-292-2078
Email: gretchen.heavner@floydsnider.com

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Additional Project Information:

ANALYSIS: VOC: ☐ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH; METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15; METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PCB ☐ PEST; TPH: ☐ Quant Only ☐ Fingerprint; Black Carbon; TOC; Grain size

SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Black Carbon	TOC	Grain size	Sample Comments	Total # Bottles
38960.01	LDW-BA-SU-ENR-CA-CORE	11/26/16	1715	Sed	JL	✓	✓		1-16oz amber	1
.01	↓	↓	↓	↓	↓			✓	↓	1
.02	LDW-BA-SU-ENR-CB-CORE	11/26/16	1730			✓	✓		1-16oz amber	1
.02	↓	↓	↓					✓	2-4oz amber	2
.03	LDW-BA-SU-ENR-CC-CORE	11/26/16	1535			✓	✓		1-16oz amber	1
.03	↓	↓	↓					✓		1
.04	LDW-BA-SU-ENR+AC-CA-CORE	11/26/16	1515			✓	✓			1
.04	↓	↓	↓					✓		1
.05	LDW-BA-SU-ENR+AC-CB-CORE	11/26/16	1420			✓	✓			1
.05	↓	↓	↓					✓	1-8oz amber	1
					Container Type		A →			
					Preservative		A →			

Container Type: P= Plastic, A= Amber glass, V= Vial, G= Glass, B= Bacteria cup, C= Cube, O= Other, E= Encore, D= BOD Bottle

Preservative: A= None, B= HCl, C= HNO_3, D= H_2SO_4, E= NaOH, F= MeOH, G= $NaHSO_4$, H = $Na_2S_2O_3$, I= Ascorbic Acid, J = NH_4Cl, K= Zn Acetate, O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
Julia Levengood FedEx	11/30/16 1300	FedEx Kim Ebach, ARL	12/1/16 10:27

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Date Rec'd in Lab: 12/1/16

ALPHA Job #: L1638960

Project Information

Project Name: LDW ENR/AC Pilot Study
Project Location: LDW
Project #: L415160310
Project Manager: Liz Porta
ALPHA Quote #:

Report Information - Data Deliverables

☐ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Client Information

Client: Floyd Snider
Address: 601 Union St., Suite 600, Seattle, WA 98101
Phone: 206-292-2078
Email: gretchen.heavener@floydsnider.com

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Additional Project Information:

ANALYSIS: VOC: ☐ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH; METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15; METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PCB ☐ PEST; TPH: ☐ Quant Only ☐ Fingerprint; Black Carbon; TOC; Grain Size

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Black Carbon	TOC	Grain Size	Sample Comments (SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do)	TOTAL # BOTTLES
38960.06	LDW-BA-SU-ENR+AC-CC-CORE	11/26/16	1435	Sed	JL	✓	✓		1-16 oz amber	1
06	↓	↓	↓	↓	↓			✓	↓	1

Container Type	Preservative
P= Plastic	A= None
A= Amber glass	B= HCl
V= Vial	C= HNO_3
G= Glass	D= H_2SO_4
B= Bacteria cup	E= NaOH
C= Cube	F= MeOH
O= Other	G= $NaHSO_4$
E= Encore	H = $Na_2S_2O_3$
D= BOD Bottle	I= Ascorbic Acid
	J = NH_4Cl
	K= Zn Acetate
	O= Other

	Black Carbon	TOC	Grain Size
Container Type	A		
Preservative	A		

Relinquished By:	Date/Time	Received By:	Date/Time
Julie Evensgard FedEx	11/30/16 1300	Fedex [illegible] AAL	12/1/16 10:27

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)