MEMORANDUM

To: SFSWMA Joint Powers Board Members
From: Randall Kippenbrock, P.E., Executive Director RLK
Date: August 14, 2014
Subject: Request for Approval to Purchase Aggregate for the Cell 5B Liner Construction Project Under the Construction Agreement - Basalt Rock Crushing and Sales Operation for the Caja del Rio Landfill - with Del Hur Industries of Port Angeles, WA, in the Amount of $200,000.00.

BACKGROUND & SUMMARY:

On June 16, 2014, the Agency issued Request for Bids No. '14/43/B for the Cell 5B liner construction project at the Caja del Rio landfill. The specifications and bid documents were prepared by CDM Smith Inc. The bid documents did not include the purchase of the drainage layer material. The estimated quantity of the material is 27,000 cubic yards, which is equivalent to 40,000 tons.

On May 15, 2014, the Joint Powers Board approved RFP No. '14/29/P to Del Hur Industries of Port Angeles, WA, for the basalt rock crushing and sales operation for the Caja del Rio Landfill. The Construction Agreement states Del Hur will sell the Agency aggregate materials to be utilized for landfill projects (e.g., drainage layer material for liners, rock armor for final cover, and gravel for haul roads) at $5.00 per ton.

CDM Smith evaluated the cost of crushing the basalt rock available at the landfill versus the cost of hauling material from off-site for use as a drainage layer material for the Cell 5B liner construction project. The cost to the Agency for processing and screening basalt rock available on site is $5.00 per ton. As a price comparison, CDM Smith contacted several vendors that could deliver the required quality and quantity of material. The lowest cost to deliver the required material on site is $23.20 per ton (see attachment). In conclusion, CDM Smith recommended that the Agency use the on-site material for the drainage layer.

For payment purposes to Del Hur, the conversion factor for the drainage material is one cubic yard to 1.51 ton. Therefore, the Agency will need to purchase up to 40,000 tons of material from Del Hur at $5.00 per ton for an amount up to $200,000.00.

Funding is available in the Operating Fund.

ACTION REQUESTED:

The Agency is requesting the Board approve the purchase of aggregate up to 40,000 tons for the Cell 5B liner construction project under the Construction Agreement - Basalt Rock Crushing and Sales Operation for the Caja del Rio Landfill - with Del Hur Industries in the amount of $200,000.00.

The Agency also requests approval of a budget increase to 52510.572970 (WIP - Cell 5B Construction) from 5500.100700 (Operating Fund Cash) in the amount of $200,000.00.

Attachments: Budget Adjustment Request
CDM Smith's Cost Evaluation for On-Site vs Off-Site Materials
Del Hur Industries' Written Quote
Western Technologies' Laboratory Reports

M:/Memo/Memo081214.1.docx

ATTACHMENT

Budget Adjustment Request

#_____

City of Santa Fe, New Mexico

BUDGET ADJUSTMENT REQUEST (BAR)

DEPARTMENT / DIVISION / SECTION / UNIT NAME SANTA FE SOLID WASTE MANAGEMENT AGENCY					DATE
		<--(Finance Dept Use Only)-->			
ITEM DESCRIPTION	BU / LINE ITEM	SUBLEDGER / SUBSIDIARY	DR / (CR)	INCREASE	DECREASE
Operating Fund	52501.700150	5507	DR	200,000.00	
Cell Development	51507.600150	5500	(CR)	(200,000.00)	
WIP Cell 5B Construction-Drainage	52510.572970		DR	200,000.00	
JUSTIFICATION: *(use additional page if needed)* ***--Attach supporting documentation/memo***			**TOTAL**	200,000.00	-

BAR to transfer cash from 5500.100700 (Operating Fund Cash) to 5507.100700 (Cell Development Reserve Fund)

to purchase 40,000 tons of crushed basalt from Del Hur for the Cell 5B Drainage Layer

Approved at JPB Meeting of August 21, 2014

Angelica G. Salazar	Date	**CITY COUNCIL APPROVAL** *City Council Approval Required* ☐	Budget Officer Date
		City Council Approval Date	Finance Director Date
Randall Kippenbrock, P.E. Exec Direc	Date	*Agenda Item #:*	City Manager Date

ATTACHMENT

CDM Smith's Cost Evaluation for On-Site vs Off-Site Materials

CDM Smith
6000 Uptown Blvd. NE, Suite 200
Albuquerque, NM 87110
tel: 505 243-3200
fax: 505 243-2700

August 12, 2014

Mr. Randall Kippenbrock, P.E.
Executive Director
Santa Fe Solid Waste Management Agency
149 Wildlife Way
Santa Fe, New Mexico 87506-8342

Subject: Caja del Rio Landfill
Cost Evaluation of Drainage Material for Cell 5B Construction
CDM Smith Project No.: 10679-91152

Dear Mr. Kippenbrock:

The Santa Fe Solid Waste Management Agency (SFSWMA) requested that CDM Smith Inc. (CDM Smith) evaluate the cost of crushing the basalt rock available on-site versus the cost of hauling drainage material from off-site for use as drainage layer material for Cell 5B construction at the Caja del Rio Landfill (Landfill). This letter presents a summary of the evaluation.

The quantity of material required for the construction of Cell 5B is approximately 40,000 tons. The drainage layer material shall conform to the following gradation requirements:

Sieve Size	Percent Passing By Weight
0.5-inch	100
200	<15

The drainage layer material shall meet these requirements:

- Well-graded, inorganic non-calcareous material, free from organic substance (<5%) and other deleterious matter.
- Minimum hydraulic conductivity of 1 x 10-4 cm/sec or greater.
- Uniformity coefficient (Cu) shall be less than 6, where Cu is defined as D60/D10.

The cost to the SFSWMA for processing and screening basalt rock available on site is $5.00 per ton. As a price comparison, CDM Smith contacted several vendors that could deliver the required quality and quantity of drainage material. The lowest cost to deliver the required drainage on site is $23.20 per ton. Attached is the price quote from Lafarge Aggregates detailing the material specifications from the Placitas, NM source pit.

In summary, CDM Smith recommends SFSWMA facilitate the processing and screening to process and screen the on-site basalt rock material for use as the drainage layer material for Cell 5B construction at the Landfill.

If you have any questions, please contact us at (505) 243-3200.

Sincerely,

Kerrie L. Greenfelder, PE, BCEE
Project Manager
CDM Smith Inc.

Enclosure

cc: Ravi Kadambala, CDM Smith
Tom Parker, CDM Smith
File

Quote

LAFARGE AGGREGATES
1500 N. Renaissance Blvd. NE Suite B
Albuquerque, NM 87107
Ron Polnaszek: 505-506-2400
e-mail: ron.polnaszek@lafarge-na.com
Fax: 505-343-7686

Attention:
Customer Number: 1549508
Customer Name: ALL BIDDERS - US
Customer Phone:
Customer Fax:

Date: 08/12/2014
Acceptance Date: 09/11/2014
Quote Number: 879505
Please refer to Quote No. when ordering

Project Description: CAJA DEL RIO LANDFILL
Project Address: 149 WILDLIFE WAY - MP 13
City: SANTA FE
State and Zip Code: NM 87507

We are pleased to offer the following quotation for the supply of aggregate. Prices are valid for 30 days from the date of this quotation.

Lafarge Southwest, Inc., (referred to as "Seller"), is pleased to quote the following prices for aggregate requirements for the above referenced project. Prices are subject to the terms and conditions stated on the following page of this proposal. The quoted prices are based on current costs. In the event these costs increase (including diesel fuel); Lafarge has the option to increase rates accordingly. Any rate increase will be substantiated with applicable documentation. Material prices do not include applicable sales tax. Customer agrees to remit to Lafarge the applicable sales tax for the point of sale unless the Customer provides Lafarge with a current Certificate of Exemption for exempt purchases. Please fax Tax Documents to 505-343-7686.

All applicable sales taxes are extra

Code	Material Description	Source	Estimated Quantity	Unit	Material Price	Truck Type	Freight Price	Total Price
AG2109	WASHED CONCRETE SAND ASTM	PLACITAS	40,000	TN	$ 15.75	Tandem	$ 11.60	$ 27.35
						End Dump	$ 7.45	$ 23.20
AG7450	MASONRY SAND ASTM C144	PLACITAS	1	TN	$ 17.00	Tandem	$ 11.60	$ 28.60
						End Dump	$ 7.45	$ 24.45

All delivered materials larger than 2" will be assessed an additional $1.00 per ton.
This amount will be in addition to the Haul Rate quoted above.

AGREEMENT: This Agreement excludes and supercedes all other writings or oral understandings. Quote is contingent on the availability of material. Tons quoted are estimates only. Actual yields are the responsibility of purchaser. Customer assumes responsibility of materials upon receipt of the scale ticket. Reasonable notification required for timely delivery.

Thank you for the opportunity of quoting.

Sincerely,

Ron Polnaszek
Inside Sales Representative
Lafarge Aggregates

ATTACHMENT

Del Hur Industries' Written Quote

DELHUR INDUSTRIES, INC.
GENERAL CONTRACTORS

2443 West Highway 176
Andrews, TX 79714
(432) 897-4301
FAX (432) 360-4273

Rick Hurworth Cell: 970-799-0994
Email: rhurworth@delhur.com

To: Randall Kippenbrock – SFSWMA

From: Rick Hurworth

RE: Stockpiling 40,000 Tons Ops Layer Material

August 05, 2014

Randall,

Consistent with our Rock Marketing Proposal, DelHur is pleased to provide SFSWMA this pricing for the subject material:

- Price: $5.00 per ton (measured and paid for in a stockpile adjacent to Crusher)
- Measurement: Survey measure in our stockpile converted to tons using 1.51 tons per cubic yard conversion
- Payment: per ton in the stockpile using above conversion factor
- Terms: 30 days after stockpile complete

DelHur has performed the following preliminary testing and provided SFSWMA with all results:

- Gradation: Pass
- Proctor
- Permeability: Pass

We assume that material is acceptable based on these results.

Thank You For The Opportunity,

Rick Hurworth
Vice President

ATTACHMENT

Western Technologies' Laboratory Reports

Western Technologies Inc.
The Quality People
Since 1955

8305 Washington Place N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488 • fax 821-2963

June 24, 2014

To Whom It May Concern

RE: Delhur Industries - Caja Del Rio Aggregate Pit - Santa Fe, New Mexico

Western Technologies Inc. is an accredited ***AMRL*** laboratory by the American Association of State Highway and Transportation Officials (AASHTO) doing business in the greater Albuquerque area since 1984. We have provided quality control and materials acceptance reports on many of the products produced out of the Caja Del Rio Pit for many years. As such, we can attest that the materials produced out of the pit have been tested and acceptable by many agencies that specify aggregates for highway, bridge, and building materials. We have tested and produced reports for the following agencies:

- New Mexico Department of Transportation (NMDOT)
- Bureau of Indian Affairs(BIA)
- Federal Highway Administration(FHWA)
- City of Santa Fe Public Works
- Private Contractors and subcontractors.
- Federal Aviation Administration (FAA)

The aggregate pit is a basalt flow crushed material that meets the aggregate index required by the NMDOT for concrete, asphalt, and base course materials. In addition, the aggregates meet the durability requirements of the FHWA section 703, for concrete, asphalt, base course, and RIP RAP materials. The coarse aggregates have been used for concrete on Santa Fe Public Works projects for years and meet all requirements of ASTM C-33.

Respectfully Stated,

WESTERN TECHNOLOGIES INC.

Andrew L. Cuaderes, SR. - Managing Director/Vice President

Western Technologies Inc.
The Quality People
Since 1955

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488

PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **08-05-14**
Job No. **3244JK004**
Event / Invoice No. **4L444** Lab No. **4L444**
Authorized by **RICK HURWORTH** Date **08-05-14**
Sampled by **CLIENT** Date **08-05-14**
Submitted by **CLIENT** Date **08-05-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **STOCKPILES**
Testing Authorized : **UNIT WEIGHT @ 3% MOISTURE**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **08-05-14**

TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27
FINER THAN #200 ☐ ASTM C117 ☐ AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION

LIQUID LIMIT & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED ☐ YES ☐ NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
☐ ASTM C125 →

ORGANIC IMPURITIES
☐ ASTM C40
☐ AASHTO T21
PLATE NO →

CLEANNESS VALUE
☐ CA 227 →

PHYSICAL PROPERTIES		RESULTS	SPECS
UNIT WEIGHT & VOIDS ☒ ASTM C29 ☐ AASHTO T19 ☒ RODDING ☐ JIGGING ☐ LOOSE	FINE AGGREGATE UNIT WEIGHT, PCF → VOIDS, % → COARSE AGGREGATE UNIT WEIGHT, PCF → VOIDS, % →	112	
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE ☐ ASTM C128 ☐ AASHTO T84 AGGREGATE DRIED ☐ YES ☐ NO BULK SPECIFIC GRAVITY → BULK SPECIFIC GRAVITY (SSD) → APPARENT SPECIFIC GRAVITY → ABSORPTION, % →		
	COARSE AGGREGATE ☐ ASTM C127 ☐ AASHTO T85 AGGREGATE DRIED ☐ YES ☐ NO BULK SPECIFIC GRAVITY → BULK SPECIFIC GRAVITY (SSD) → APPARENT SPECIFIC GRAVITY → ABSORPTION, % →		
SAND EQUIVALENT VALUE ☐ ASTM D2419 ☐ AASHTO T176 SE, % →			
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE ☐ ASTM C131 ☐ AASHTO T96 GRADING 100 REV., %LOSS → GRADING 500 REV., %LOSS →		
	LARGE COARSE AGGREGATE ☐ ASTM C535 GRADING 200 REV., %LOSS → GRADING 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES ☐ ASTM C123 ☐ AASHTO T113	FINE AGGREGATE, % → COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES ☐ ASTM C142 ☐ AASHTO T112	FINE AGGREGATE, % → COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT ☐ AZ 212 ☐ FLH T507 ☐ FAA	ONE OR MORE FACES, % → TWO OR MORE FACES, % →		
DURABILITY INDEX ☐ ASTM D3744 ☐ AASHTO T210 PROCEDURE : A ☐ COARSE B ☐ FINE C ☐ COARSE & FINE	D_c → D_f →		
UNCOMPACTED VOID CONTENT ☐ AZ 247 ☐ ASTM C1252 METHOD	VC, % →		

Comments :

Copies to : **CLIENT (1)**

REVIEWED BY J.KELLY
(SIGNED COPY ON FILE)

Laboratory Report for
Western Technologies, Inc.

PO#3244PO585

August 4, 2014

Daniel B. Stephens & Associates, Inc.

4400 Alameda Blvd. NE, Suite C • Albuquerque, New Mexico 87113

August 4, 2014

Justin Kelly
Western Technologies, Inc.
8305 Washington Place N.E.
Albuquerque, NM 87113
(505) 823-4488

Re: DBS&A Laboratory Report for the Western Technologies, Inc. PO#3244PO585 Samples

Dear Mr. Kelly:

Enclosed is the report for the Western Technologies, Inc. PO#3244PO585 samples. Please review this report and provide any comments as samples will be held for a maximum of 30 days. After 30 days samples will be returned or disposed of in an appropriate manner.

All testing results were evaluated subjectively for consistency and reasonableness, and the results appear to be reasonably representative of the material tested. However, DBS&A does not assume any responsibility for interpretations or analyses based on the data enclosed, nor can we guarantee that these data are fully representative of the undisturbed materials at the field site. We recommend that careful evaluation of these laboratory results be made for your particular application.

The testing utilized to generate the enclosed report employs methods that are standard for the industry. The results do not constitute a professional opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. You have acknowledged that all the testing undertaken by us, and the report provided, constitutes mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion, having waived any claim of conflict of interest by DBS&A.

We are pleased to provide this service to Western Technologies, Inc. and look forward to future laboratory testing on other projects. If you have any questions about the enclosed data, please do not hesitate to call.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.
SOIL TESTING & RESEARCH LABORATORY

Crystal Krous

Crystal Krous
Quality Analyst; for Joleen Hines

Enclosure

Daniel B. Stephens & Associates, Inc.
Soil Testing & Research Laboratory
4400 Alameda Blvd. NE, Suite C
Albuquerque, NM 87113
505-889-7752
FAX 505-889-0258

Summaries

Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties[1]			Saturated Hydraulic Conductivity[2]			Moisture Characteristics[3]								Particle Size[4]			Specific Gravity[5]		Air Perm-eability	Atterberg Limits	Proctor Compaction
	G	VM	VD	CH	FH	FW	HC	PP	FP	DPP	RH	EP	WHC	K_{unsat}	DS	WS	H	F	C			
Caja Del Rio Landfill Setting #1 (116.1, 90%)	X	X		X																		
Caja Del Rio Landfill Setting #4 (116.2, 90%)	X	X		X																		

[1] G = Gravimetric Moisture Content, VM = Volume Measurement Method, VD = Volume Displacement Method

[2] CH = Constant Head Rigid Wall, FH = Falling Head Rigid Wall, FW = Falling Head Rising Tail Flexible Wall

[3] HC = Hanging Column, PP = Pressure Plate, FP = Filter Paper, DPP = Dew Point Potentiometer, RH = Relative Humidity Box, EP = Effective Porosity, WHC = Water Holding Capacity, Kunsat = Calculated Unsaturated Hydraulic Conductivity

[4] DS = Dry Sieve, WS = Wet Sieve, H = Hydrometer

[5] F = Fine (<4.75mm), C = Coarse (>4.75mm)

Notes

Sample Receipt:
Two samples were hand delivered, each in a full 6" x 12" plastic cylinder sealed with a lid, on July 25, 2014 and July 28, 2014.

Sample Preparation and Testing:
Two sub-samples were prepared for saturated hydraulic conductivity testing by remolding the material into testing rings to target 90% of the maximum dry bulk density, based on the client provided standard proctor compaction testing results. The density (in pcf) and the percent of maximum dry bulk density achieved were added to the sample ID's.

Total porosity calculations were performed using an assumed specific gravity value of 2.65.

Summary of Sample Preparation/Volume Changes

	Proctor Data			Target Remold Parameters[1]				Actual Remold Data				Volume Change Post Saturation[2]			
Sample Number	Opt. Moist. Cont. (%, g/g)	Max. Dry Density (g/cm^3)	Max. Dry Density (pcf)	Moist. Cont. (%, g/g)	Dry Bulk Density (g/cm^3)	Dry Bulk Density (pcf)	% of Max. Density (%)	Moist. Cont. (%, g/g)	Dry Bulk Density (g/cm^3)	Dry Bulk Density (pcf)	% of Max. Density (%)	Dry Bulk Density (g/cm^3)	Dry Bulk Density (pcf)	% Volume Change (%)	% of Max. Density (%)
Caja Del Rio Landfill Setting #1 (116.1, 90%)	12.0	2.06	128.5	10.0	1.85	115.7	90%	9.5	1.86	116.1	90.4%	1.86	116.1	---	90.4%
Caja Del Rio Landfill Setting #4 (116.2, 90%)	12.0	2.06	128.5	10.0	1.85	115.7	90%	9.5	1.86	116.2	90.4%	1.86	116.2	---	90.4%

[1]Target Remold Parameters: Provided by the client: 90% of maximum dry density.

[2]Volume Change Post Saturation: Volume change measurements were obtained after saturated hydraulic conductivity testing.

Notes:

"+" indicates sample swelling, "-" indicates sample settling, and "---" indicates no volume change occurred.

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	Oversize Corrected K_{sat} (cm/sec)	Method of Analysis	
			Constant Head	Falling Head
Caja Del Rio Landfill Setting #1 (116.1, 90%)	2.2E-02	NA	X	
Caja Del Rio Landfill Setting #4 (116.2, 90%)	4.5E-02	NA	X	

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Saturated Hydraulic Conductivity

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	Oversize Corrected K_{sat} (cm/sec)	Method of Analysis	
			Constant Head	Falling Head
Caja Del Rio Landfill Setting #1 (116.1, 90%)	2.2E-02	NA	X	
Caja Del Rio Landfill Setting #4 (116.2, 90%)	4.5E-02	NA	X	

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NR = Not requested
NA = Not applicable

Saturated Hydraulic Conductivity
Constant Head Method

Job Name: Western Technologies, Inc.
Job Number: LB14.0152.00
Sample Number: Caja Del Rio Landfill Setting #1
PO Number: 3244PO585
Depth: NA

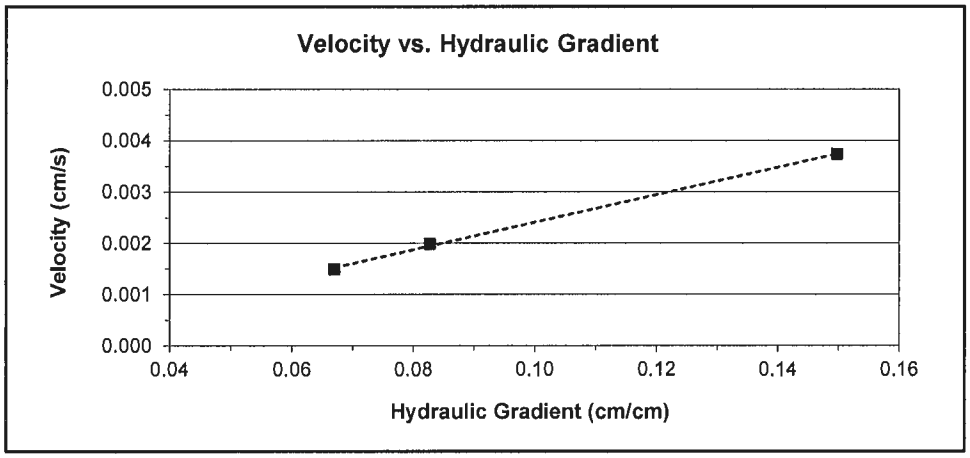
Type of water used: TAP
Collection vessel tare (g): 10.96
Sample length (cm): 12.68
Sample diameter (cm): 9.73
Sample x-sectional area (cm^2): 74.31

Date	Time	Temp (°C)	Head (cm)	Q + Tare (g)	Q (cm^3)	Elapsed time (sec)	Ksat (cm/sec)	Ksat @ 20°C (cm/sec)
Test # 1:								
31-Jul-14	13:28:00	23.0	1.9	30.36	19.4	70	2.5E-02	2.3E-02
31-Jul-14	13:29:10							
Test # 2:								
31-Jul-14	13:44:00	23.0	1.05	19.80	8.8	60	2.4E-02	2.2E-02
31-Jul-14	13:45:00							
Test # 3:								
31-Jul-14	14:01:00	23.0	0.85	17.58	6.6	60	2.2E-02	2.1E-02
31-Jul-14	14:02:00							

***Average Ksat* (cm/sec):** **2.2E-02**
***Oversize Corrected Ksat* (cm/sec):** **NA**

Comments:

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NA = Not applicable



Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

Saturated Hydraulic Conductivity
Constant Head Method

Job Name: Western Technologies, Inc.
Job Number: LB14.0152.00
Sample Number: Caja Del Rio Landfill Setting #4
PO Number: 3244PO585
Depth: NA

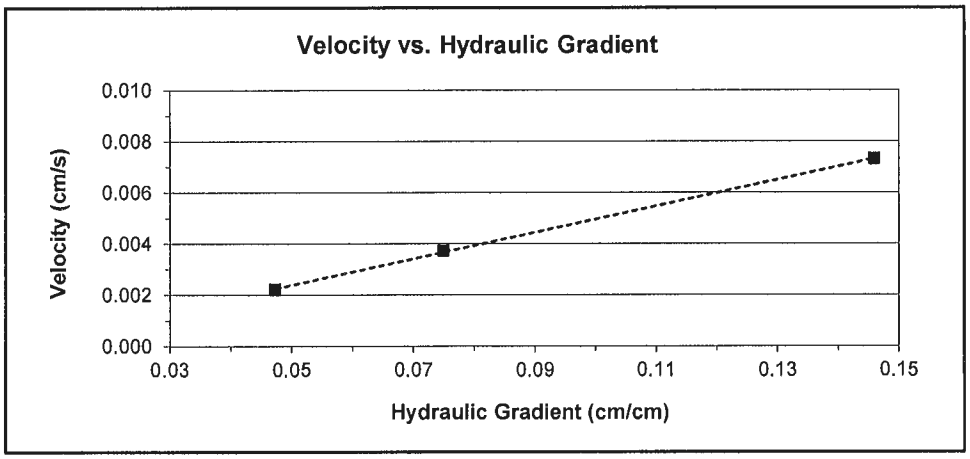
Type of water used: TAP
Collection vessel tare (g): 10.97
Sample length (cm): 12.67
Sample diameter (cm): 9.74
Sample x-sectional area (cm^2): 74.57

Date	Time	Temp (°C)	Head (cm)	Q + Tare (g)	Q (cm^3)	Elapsed time (sec)	Ksat (cm/sec)	Ksat @ 20°C (cm/sec)
Test # 1:								
31-Jul-14	13:28:30	23.0	1.85	43.62	32.7	60	5.0E-02	4.7E-02
31-Jul-14	13:29:30							
Test # 2:								
31-Jul-14	13:43:30	23.0	0.95	27.62	16.7	60	5.0E-02	4.6E-02
31-Jul-14	13:44:30							
Test # 3:								
31-Jul-14	14:01:30	23.0	0.6	20.85	9.9	60	4.7E-02	4.3E-02
31-Jul-14	14:02:30							

***Average Ksat* (cm/sec):** **4.5E-02**
***Oversize Corrected Ksat* (cm/sec):** **NA**

Comments:

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NA = Not applicable



Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

Laboratory Tests and Methods

Tests and Methods

Dry Bulk Density:	ASTM D7263
Moisture Content:	ASTM D7263
Saturated Hydraulic Conductivity:	
Constant Head: (Rigid Wall)	ASTM D 2434 (modified apparatus)

Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties[1]			Saturated Hydraulic Conductivity[2]			Moisture Characteristics[3]								Particle Size[4]			Specific Gravity[5]		Air Perm-eability	Atterberg Limits	Proctor Compaction
	G	VM	VD	CH	FH	FW	HC	PP	FP	DPP	RH	EP	WHC	K_{unsat}	DS	WS	H	F	C			
Caja Del Rio Landfill Setting #1 (116.1, 90%)	X	X		X																		
Caja Del Rio Landfill Setting #4 (116.2, 90%)	X	X		X																		

[1] G = Gravimetric Moisture Content, VM = Volume Measurement Method, VD = Volume Displacement Method

[2] CH = Constant Head Rigid Wall, FH = Falling Head Rigid Wall, FW = Falling Head Rising Tail Flexible Wall

[3] HC = Hanging Column, PP = Pressure Plate, FP = Filter Paper, DPP = Dew Point Potentiometer, RH = Relative Humidity Box, EP = Effective Porosity, WHC = Water Holding Capacity, Kunsat = Calculated Unsaturated Hydraulic Conductivity

[4] DS = Dry Sieve, WS = Wet Sieve, H = Hydrometer

[5] F = Fine (<4.75mm), C = Coarse (>4.75mm)

Western Technologies Inc.
The Quality People
Since 1955

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488

PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-1** Lab No. **4L423-1**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 1**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	100	
3/8	91	
1/4	70	
No.4	59	
8	40	
10	37	
16	29	
30	22	
40	19	
50	17	
100	13	
200	10	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40
[ ] AASHTO T21 PLATE NO.→

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES		RESULTS	SPECS
UNIT WEIGHT & VOIDS	FINE AGGREGATE UNIT WEIGHT,KG/M³ → [ ] ASTM C29 [ ] AASHTO T19 VOIDS, % → [ ] RODDING [ ] JIGGING [ ] LOOSE COARSE AGGREGATE UNIT WEIGHT,KG/M³ → VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE BULK SPECIFIC GRAVITY → [ ] ASTM C128 [ ] AASHTO T84 BULK SPECIFIC GRAVITY (SSD) → AGGREGATE DRIED APPARENT SPECIFIC GRAVITY → [ ] YES [ ] NO ABSORPTION, % → COARSE AGGREGATE BULK SPECIFIC GRAVITY → [ ] ASTM C127 [ ] AASHTO T85 BULK SPECIFIC GRAVITY (SSD) → AGGREGATE DRIED APPARENT SPECIFIC GRAVITY → [ ] YES [ ] NO ABSORPTION, % →		
SAND EQUIVALENT VALUE	[ ] ASTM D2419 [ ] AASHTO T176 SE, % →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE GRADING 100 REV., %LOSS → [ ] ASTM C131 [ ] AASHTO T96 GRADING 500 REV., %LOSS → LARGE COARSE AGGREGATE GRADING 200 REV., %LOSS → [ ] ASTM C535 GRADING 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES	FINE AGGREGATE, % → [ ] ASTM C123 [ ] AASHTO T113 COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES	FINE AGGREGATE, % → [ ] ASTM C142 [ ] AASHTO T112 COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT	ONE OR MORE FACES, % → [ ] AZ 212 [ ] FLH T507 [ ] FAA TWO OR MORE FACES, % →		
DURABILITY INDEX	[ ] ASTM D3744 [ ] AASHTO T210 D_c → PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE D_f →		
UNCOMPACTED VOID CONTENT	[ ] AZ 247 [ ] ASTM C1252 METHOD VC, % →		

Comments :

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The Quality People
Since 1955

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Albuquerque, New Mexico 87113-1670
(505) 823-4488

PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-2** Lab No. **4L423-2**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 2**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	**100**	
3/8	**94**	
1/4	**76**	
No.4	**66**	
8	**47**	
10	**43**	
16	**34**	
30	**26**	
40	**23**	
50	**20**	
100	**16**	
200	**12**	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40
[ ] AASHTO T21 PLATE NO →

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES		RESULTS	SPECS
UNIT WEIGHT & VOIDS	FINE AGGREGATE — UNIT WEIGHT,KG/M3 →		
[ ] ASTM C29 [ ] AASHTO T19	VOIDS, % →		
[ ] RODDING [ ] JIGGING [ ] LOOSE	COARSE AGGREGATE — UNIT WEIGHT,KG/M3 →		
	VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE — BULK SPECIFIC GRAVITY →		
[ ] ASTM C128 [ ] AASHTO T84	BULK SPECIFIC GRAVITY (SSD) →		
AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
[ ] YES [ ] NO	ABSORPTION, % →		
	COARSE AGGREGATE — BULK SPECIFIC GRAVITY →		
[ ] ASTM C127 [ ] AASHTO T85	BULK SPECIFIC GRAVITY (SSD) →		
AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
[ ] YES [ ] NO	ABSORPTION, % →		
SAND EQUIVALENT VALUE [ ] ASTM D2419 [ ] AASHTO T176	SE, % →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE — GRADING — 100 REV., %LOSS →		
[ ] ASTM C131 [ ] AASHTO T96	GRADING — 500 REV., %LOSS →		
	LARGE COARSE AGGREGATE — GRADING — 200 REV., %LOSS →		
[ ] ASTM C535	GRADING — 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES	FINE AGGREGATE, % →		
[ ] ASTM C123 [ ] AASHTO T113	COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES	FINE AGGREGATE, % →		
[ ] ASTM C142 [ ] AASHTO T112	COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT	ONE OR MORE FACES, % →		
[ ] AZ 212 [ ] FLH T507 [ ] FAA	TWO OR MORE FACES, % →		
DURABILITY INDEX	D_c →		
[ ] ASTM D3744 [ ] AASHTO T210	D_f →		
PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE			
UNCOMPACTED VOID CONTENT			
[ ] AZ 247 [ ] ASTM C1252 METHOD	VC, % →		

Comments :

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Albuquerque, New Mexico 87113-1670
(505) 823-4488

PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-3** Lab No. **4L423-3**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 3**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	**100**	
3/8	**95**	
1/4	**80**	
No.4	**71**	
8	**51**	
10	**46**	
16	**36**	
30	**28**	
40	**24**	
50	**21**	
100	**16**	
200	**12**	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40
[ ] AASHTO T21
PLATE NO →

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES		RESULTS	SPECS
UNIT WEIGHT & VOIDS [ ] ASTM C29 [ ] AASHTO T19 [ ] RODDING [ ] JIGGING [ ] LOOSE	FINE AGGREGATE UNIT WEIGHT,KG/M³ → VOIDS, % → COARSE AGGREGATE UNIT WEIGHT,KG/M³ → VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION FINE AGGREGATE [ ] ASTM C128 [ ] AASHTO T84 AGGREGATE DRIED [ ] YES [ ] NO	BULK SPECIFIC GRAVITY → BULK SPECIFIC GRAVITY (SSD) → APPARENT SPECIFIC GRAVITY → ABSORPTION, % →		
COARSE AGGREGATE [ ] ASTM C127 [ ] AASHTO T85 AGGREGATE DRIED [ ] YES [ ] NO	BULK SPECIFIC GRAVITY → BULK SPECIFIC GRAVITY (SSD) → APPARENT SPECIFIC GRAVITY → ABSORPTION, % →		
SAND EQUIVALENT VALUE [ ] ASTM D2419 [ ] AASHTO T176	SE, % →		
RESISTANCE TO DEGRADATION SMALL COARSE AGGREGATE [ ] ASTM C131 [ ] AASHTO T96	GRADING 100 REV., %LOSS → GRADING 500 REV., %LOSS →		
LARGE COARSE AGGREGATE [ ] ASTM C535	GRADING 200 REV., %LOSS → GRADING 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES [ ] ASTM C123 [ ] AASHTO T113	FINE AGGREGATE, % → COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES [ ] ASTM C142 [ ] AASHTO T112	FINE AGGREGATE, % → COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT [ ] AZ 212 [ ] FLH T507 [ ] FAA	ONE OR MORE FACES, % → TWO OR MORE FACES, % →		
DURABILITY INDEX [ ] ASTM D3744 [ ] AASHTO T210 PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE	D_c → D_f →		
UNCOMPACTED VOID CONTENT [ ] AZ 247 [ ] ASTM C1252 METHOD	VC, % →		

Comments :

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PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-4** Lab No. **4L423-4**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 4**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	**100**	
3/8	**94**	
1/4	**76**	
No.4	**66**	
8	**46**	
10	**41**	
16	**31**	
30	**23**	
40	**20**	
50	**17**	
100	**13**	
200	**10**	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40
[ ] AASHTO T21
PLATE NO →

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES			RESULTS	SPECS
UNIT WEIGHT & VOIDS	FINE AGGREGATE	UNIT WEIGHT,KG/M^3 →		
[ ] ASTM C29 [ ] AASHTO T19		VOIDS, % →		
[ ] RODDING [ ] JIGGING [ ] LOOSE	COARSE AGGREGATE	UNIT WEIGHT,KG/M^3 →		
		VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE	BULK SPECIFIC GRAVITY →		
	[ ] ASTM C128 [ ] AASHTO T84	BULK SPECIFIC GRAVITY (SSD) →		
	AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
	[ ] YES [ ] NO	ABSORPTION, % →		
	COARSE AGGREGATE	BULK SPECIFIC GRAVITY →		
	[ ] ASTM C127 [ ] AASHTO T85	BULK SPECIFIC GRAVITY (SSD) →		
	AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
	[ ] YES [ ] NO	ABSORPTION, % →		
SAND EQUIVALENT VALUE	[ ] ASTM D2419 [ ] AASHTO T176	SE, % →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE	GRADING 100 REV., %LOSS →		
	[ ] ASTM C131 [ ] AASHTO T96	GRADING 500 REV., %LOSS →		
	LARGE COARSE AGGREGATE	GRADING 200 REV., %LOSS →		
	[ ] ASTM C535	GRADING 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES		FINE AGGREGATE, % →		
[ ] ASTM C123 [ ] AASHTO T113		COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES		FINE AGGREGATE, % →		
[ ] ASTM C142 [ ] AASHTO T112		COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT		ONE OR MORE FACES, % →		
[ ] AZ 212 [ ] FLH T507 [ ] FAA		TWO OR MORE FACES, % →		
DURABILITY INDEX	[ ] ASTM D3744 [ ] AASHTO T210	D_c →		
PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE		D_f →		
UNCOMPACTED VOID CONTENT				
[ ] AZ 247 [ ] ASTM C1252	METHOD	VC, % →		

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PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-5** Lab No. **4L423-5**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 1**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	100	
3/8	95	
1/4	80	
No.4	72	
8	53	
10	48	
16	38	
30	29	
40	25	
50	22	
100	18	
200	13	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40
[ ] AASHTO T21 PLATE NO →

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES		RESULTS	SPECS
UNIT WEIGHT & VOIDS	FINE AGGREGATE UNIT WEIGHT,KG/M³ → VOIDS, % → COARSE AGGREGATE UNIT WEIGHT,KG/M³ → VOIDS, % →		
[ ] ASTM C29 [ ] AASHTO T19 [ ] RODDING [ ] JIGGING [ ] LOOSE			
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE BULK SPECIFIC GRAVITY → [ ] ASTM C128 [ ] AASHTO T84 BULK SPECIFIC GRAVITY (SSD) → AGGREGATE DRIED APPARENT SPECIFIC GRAVITY → [ ] YES [ ] NO ABSORPTION, % →		
	COARSE AGGREGATE BULK SPECIFIC GRAVITY → [ ] ASTM C127 [ ] AASHTO T85 BULK SPECIFIC GRAVITY (SSD) → AGGREGATE DRIED APPARENT SPECIFIC GRAVITY → [ ] YES [ ] NO ABSORPTION, % →		
SAND EQUIVALENT VALUE [ ] ASTM D2419 [ ] AASHTO T176	SE, % →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE GRADING 100 REV., %LOSS → [ ] ASTM C131 [ ] AASHTO T96 GRADING 500 REV., %LOSS →		
	LARGE COARSE AGGREGATE GRADING 200 REV., %LOSS → [ ] ASTM C535 GRADING 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES [ ] ASTM C123 [ ] AASHTO T113	FINE AGGREGATE, % → COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES [ ] ASTM C142 [ ] AASHTO T112	FINE AGGREGATE, % → COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT [ ] AZ 212 [ ] FLH T507 [ ] FAA	ONE OR MORE FACES, % → TWO OR MORE FACES, % →		
DURABILITY INDEX [ ] ASTM D3744 [ ] AASHTO T210 PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE	D_c → D_f →		
UNCOMPACTED VOID CONTENT [ ] AZ 247 [ ] ASTM C1252 METHOD	VC, % →		

Comments :

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PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-6** Lab No. **4L423-6**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 1**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	100	
3/8	94	
1/4	79	
No.4	70	
8	51	
10	47	
16	37	
30	28	
40	24	
50	22	
100	17	
200	13	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40
[ ] AASHTO T21
PLATE NO →

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES			RESULTS	SPECS
UNIT WEIGHT & VOIDS	FINE AGGREGATE	UNIT WEIGHT,KG/M3 →		
[ ] ASTM C29 [ ] AASHTO T19		VOIDS, % →		
[ ] RODDING [ ] JIGGING [ ] LOOSE	COARSE AGGREGATE	UNIT WEIGHT,KG/M3 →		
		VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE	BULK SPECIFIC GRAVITY →		
	[ ] ASTM C128 [ ] AASHTO T84	BULK SPECIFIC GRAVITY (SSD) →		
	AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
	[ ] YES [ ] NO	ABSORPTION, % →		
	COARSE AGGREGATE	BULK SPECIFIC GRAVITY →		
	[ ] ASTM C127 [ ] AASHTO T85	BULK SPECIFIC GRAVITY (SSD) →		
	AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
	[ ] YES [ ] NO	ABSORPTION, % →		
SAND EQUIVALENT VALUE	[ ] ASTM D2419 [ ] AASHTO T176	SE, % →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE	GRADING 100 REV., %LOSS →		
	[ ] ASTM C131 [ ] AASHTO T96	GRADING 500 REV., %LOSS →		
	LARGE COARSE AGGREGATE	GRADING 200 REV., %LOSS →		
	[ ] ASTM C535	GRADING 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES		FINE AGGREGATE, % →		
[ ] ASTM C123 [ ] AASHTO T113		COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES		FINE AGGREGATE, % →		
[ ] ASTM C142 [ ] AASHTO T112		COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT		ONE OR MORE FACES, % →		
[ ] AZ 212 [ ] FLH T507 [ ] FAA		TWO OR MORE FACES, % →		
DURABILITY INDEX	[ ] ASTM D3744 [ ] AASHTO T210	D_c →		
PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE		D_f →		
UNCOMPACTED VOID CONTENT	[ ] AZ 247 [ ] ASTM C1252	METHOD VC, % →		

Comments :

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PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-7** Lab No. **4L423-7**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 2**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	100	
3/8	94	
1/4	78	
No.4	69	
8	50	
10	45	
16	36	
30	27	
40	23	
50	20	
100	15	
200	11	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40
[ ] AASHTO T21 PLATE NO.→

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES		RESULTS	SPECS
UNIT WEIGHT & VOIDS	FINE AGGREGATE UNIT WEIGHT,KG/M3 → [ ] ASTM C29 [ ] AASHTO T19 VOIDS, % → [ ] RODDING [ ] JIGGING [ ] LOOSE COARSE AGGREGATE UNIT WEIGHT,KG/M3 → VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE BULK SPECIFIC GRAVITY → [ ] ASTM C128 [ ] AASHTO T84 BULK SPECIFIC GRAVITY (SSD) → AGGREGATE DRIED APPARENT SPECIFIC GRAVITY → [ ] YES [ ] NO ABSORPTION, % → COARSE AGGREGATE BULK SPECIFIC GRAVITY → [ ] ASTM C127 [ ] AASHTO T85 BULK SPECIFIC GRAVITY (SSD) → AGGREGATE DRIED APPARENT SPECIFIC GRAVITY → [ ] YES [ ] NO ABSORPTION, % →		
SAND EQUIVALENT VALUE	[ ] ASTM D2419 [ ] AASHTO T176 SE, % →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE GRADING 100 REV., %LOSS → [ ] ASTM C131 [ ] AASHTO T96 GRADING 500 REV., %LOSS → LARGE COARSE AGGREGATE GRADING 200 REV., %LOSS → [ ] ASTM C535 GRADING 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES	FINE AGGREGATE, % → [ ] ASTM C123 [ ] AASHTO T113 COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES	FINE AGGREGATE, % → [ ] ASTM C142 [ ] AASHTO T112 COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT	ONE OR MORE FACES, % → [ ] AZ 212 [ ] FLH T507 [ ] FAA TWO OR MORE FACES, % →		
DURABILITY INDEX	[ ] ASTM D3744 [ ] AASHTO T210 D_c → PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE D_f →		
UNCOMPACTED VOID CONTENT	[ ] AZ 247 [ ] ASTM C1252 METHOD VC, % →		

Comments :

Copies to : **CLIENT (1)**

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The Quality People
Since 1955

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488

PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-8** Lab No. **4L423-8**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 2**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	100	
3/8	95	
1/4	78	
No.4	68	
8	47	
10	42	
16	32	
30	23	
40	20	
50	17	
100	13	
200	10	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40 [ ] AASHTO T21 PLATE NO.→

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES		RESULTS	SPECS
UNIT WEIGHT & VOIDS	FINE AGGREGATE — UNIT WEIGHT,KG/M3 →		
[ ] ASTM C29 [ ] AASHTO T19	VOIDS, % →		
[ ] RODDING [ ] JIGGING [ ] LOOSE	COARSE AGGREGATE — UNIT WEIGHT,KG/M3 →		
	VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE — BULK SPECIFIC GRAVITY →		
[ ] ASTM C128 [ ] AASHTO T84	BULK SPECIFIC GRAVITY (SSD) →		
AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
[ ] YES [ ] NO	ABSORPTION, % →		
	COARSE AGGREGATE — BULK SPECIFIC GRAVITY →		
[ ] ASTM C127 [ ] AASHTO T85	BULK SPECIFIC GRAVITY (SSD) →		
AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
[ ] YES [ ] NO	ABSORPTION, % →		
SAND EQUIVALENT VALUE [ ] ASTM D2419 [ ] AASHTO T176	SE, % →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE — GRADING — 100 REV., %LOSS →		
[ ] ASTM C131 [ ] AASHTO T96	GRADING — 500 REV., %LOSS →		
	LARGE COARSE AGGREGATE — GRADING — 200 REV., %LOSS →		
[ ] ASTM C535	GRADING — 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES	FINE AGGREGATE, % →		
[ ] ASTM C123 [ ] AASHTO T113	COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES	FINE AGGREGATE, % →		
[ ] ASTM C142 [ ] AASHTO T112	COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT	ONE OR MORE FACES, % →		
[ ] AZ 212 [ ] FLH T507 [ ] FAA	TWO OR MORE FACES, % →		
DURABILITY INDEX	D_c →		
[ ] ASTM D3744 [ ] AASHTO T210	D_f →		
PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE			
UNCOMPACTED VOID CONTENT			
[ ] AZ 247 [ ] ASTM C1252 METHOD	VC, % →		

Comments :

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(505) 823-4488

PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-9** Lab No. **4L423-9**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 3**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	**100**	
3/8	**96**	
1/4	**81**	
No.4	**73**	
8	**54**	
10	**49**	
16	**39**	
30	**29**	
40	**25**	
50	**22**	
100	**17**	
200	**13**	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40
[ ] AASHTO T21
PLATE NO.→

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES		RESULTS	SPECS
UNIT WEIGHT & VOIDS	FINE AGGREGATE — UNIT WEIGHT,KG/M3 →		
[ ] ASTM C29 [ ] AASHTO T19	VOIDS, % →		
[ ] RODDING [ ] JIGGING [ ] LOOSE	COARSE AGGREGATE — UNIT WEIGHT,KG/M3 →		
	VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE — BULK SPECIFIC GRAVITY →		
[ ] ASTM C128 [ ] AASHTO T84	BULK SPECIFIC GRAVITY (SSD) →		
AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
[ ] YES [ ] NO	ABSORPTION, % →		
	COARSE AGGREGATE — BULK SPECIFIC GRAVITY →		
[ ] ASTM C127 [ ] AASHTO T85	BULK SPECIFIC GRAVITY (SSD) →		
AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
[ ] YES [ ] NO	ABSORPTION, % →		
SAND EQUIVALENT VALUE [ ] ASTM D2419 [ ] AASHTO T176	SE, % →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE — GRADING — 100 REV., %LOSS →		
[ ] ASTM C131 [ ] AASHTO T96	GRADING — 500 REV., %LOSS →		
	LARGE COARSE AGGREGATE — GRADING — 200 REV., %LOSS →		
[ ] ASTM C535	GRADING — 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES	FINE AGGREGATE, % →		
[ ] ASTM C123 [ ] AASHTO T113	COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES	FINE AGGREGATE, % →		
[ ] ASTM C142 [ ] AASHTO T112	COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT	ONE OR MORE FACES, % →		
[ ] AZ 212 [ ] FLH T507 [ ] FAA	TWO OR MORE FACES, % →		
DURABILITY INDEX	D_c →		
[ ] ASTM D3744 [ ] AASHTO T210	D_f →		
PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE			
UNCOMPACTED VOID CONTENT			
[ ] AZ 247 [ ] ASTM C1252 METHOD	VC, % →		

Comments :

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PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-10** Lab No. **4L423-10**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 3**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	100	
3/8	93	
1/4	74	
No.4	63	
8	44	
10	39	
16	30	
30	22	
40	19	
50	16	
100	12	
200	7.8	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40
[ ] AASHTO T21
PLATE NO →

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES		RESULTS	SPECS
UNIT WEIGHT & VOIDS	FINE AGGREGATE UNIT WEIGHT,KG/M3 → VOIDS, % → COARSE AGGREGATE UNIT WEIGHT,KG/M3 → VOIDS, % →		
[ ] ASTM C29 [ ] AASHTO T19 [ ] RODDING [ ] JIGGING [ ] LOOSE			
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE BULK SPECIFIC GRAVITY → [ ] ASTM C128 [ ] AASHTO T84 BULK SPECIFIC GRAVITY (SSD) → AGGREGATE DRIED APPARENT SPECIFIC GRAVITY → [ ] YES [ ] NO ABSORPTION, % → COARSE AGGREGATE BULK SPECIFIC GRAVITY → [ ] ASTM C127 [ ] AASHTO T85 BULK SPECIFIC GRAVITY (SSD) → AGGREGATE DRIED APPARENT SPECIFIC GRAVITY → [ ] YES [ ] NO ABSORPTION, % →		
SAND EQUIVALENT VALUE [ ] ASTM D2419 [ ] AASHTO T176 SE, % →			
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE GRADING 100 REV., %LOSS → [ ] ASTM C131 [ ] AASHTO T96 GRADING 500 REV., %LOSS → LARGE COARSE AGGREGATE GRADING 200 REV., %LOSS → [ ] ASTM C535 GRADING 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES FINE AGGREGATE, % → [ ] ASTM C123 [ ] AASHTO T113 COARSE AGGREGATE, % →			
CLAY LUMPS & FRIABLE PARTICLES FINE AGGREGATE, % → [ ] ASTM C142 [ ] AASHTO T112 COARSE AGGREGATE, % →			
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT ONE OR MORE FACES, % → [ ] AZ 212 [ ] FLH T507 [ ] FAA TWO OR MORE FACES, % →			
DURABILITY INDEX [ ] ASTM D3744 [ ] AASHTO T210 D_c → PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE D_f →			
UNCOMPACTED VOID CONTENT [ ] AZ 247 [ ] ASTM C1252 METHOD VC, % →			

Comments :

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PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-11** Lab No. **4L423-11**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 4**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS [X] ASTM C136 [ ] AASHTO T27
FINER THAN #200 [X] ASTM C117 [ ] AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	**100**	
3/8	**97**	
1/4	**87**	
No.4	**80**	
8	**60**	
10	**55**	
16	**43**	
30	**31**	
40	**26**	
50	**23**	
100	**17**	
200	**13**	

LIQUID LIMIT & PLASTIC PROPERTIES
[ ] ASTM D4318 [ ] AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED [ ] YES [ ] NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
[ ] ASTM C125 →

ORGANIC IMPURITIES
[ ] ASTM C40
[ ] AASHTO T21 PLATE NO →

CLEANNESS VALUE
[ ] CA 227 →

PHYSICAL PROPERTIES			RESULTS	SPECS
UNIT WEIGHT & VOIDS	[ ] ASTM C29 [ ] AASHTO T19	FINE AGGREGATE UNIT WEIGHT,KG/M³ →		
		VOIDS, % →		
	[ ] RODDING [ ] JIGGING [ ] LOOSE	COARSE AGGREGATE UNIT WEIGHT,KG/M³ →		
		VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE	BULK SPECIFIC GRAVITY →		
	[ ] ASTM C128 [ ] AASHTO T84	BULK SPECIFIC GRAVITY (SSD) →		
	AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
	[ ] YES [ ] NO	ABSORPTION, % →		
	COARSE AGGREGATE	BULK SPECIFIC GRAVITY →		
	[ ] ASTM C127 [ ] AASHTO T85	BULK SPECIFIC GRAVITY (SSD) →		
	AGGREGATE DRIED	APPARENT SPECIFIC GRAVITY →		
	[ ] YES [ ] NO	ABSORPTION, % →		
SAND EQUIVALENT VALUE	[ ] ASTM D2419 [ ] AASHTO T176	SE, % →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE	GRADING 100 REV., %LOSS →		
	[ ] ASTM C131 [ ] AASHTO T96	GRADING 500 REV., %LOSS →		
	LARGE COARSE AGGREGATE	GRADING 200 REV., %LOSS →		
	[ ] ASTM C535	GRADING 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES		FINE AGGREGATE, % →		
	[ ] ASTM C123 [ ] AASHTO T113	COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES		FINE AGGREGATE, % →		
	[ ] ASTM C142 [ ] AASHTO T112	COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT		ONE OR MORE FACES, % →		
	[ ] AZ 212 [ ] FLH T507 [ ] FAA	TWO OR MORE FACES, % →		
DURABILITY INDEX	[ ] ASTM D3744 [ ] AASHTO T210	D_c →		
	PROCEDURE : A [ ] COARSE B [ ] FINE C [ ] COARSE & FINE	D_f →		
UNCOMPACTED VOID CONTENT	[ ] AZ 247 [ ] ASTM C1252 METHOD	VC, % →		

Comments :

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PHYSICAL PROPERTIES OF AGGREGATES

Client **DELHUR INDUSTRIES**
P.O. BOX 1116
PORT ANGELES, WA 98362

Date of Report **07-30-14**
Job No. **3244JK004**
Event / Invoice No. **4L423-12** Lab No. **4L423-12**
Authorized by **RICK HURWORTH** Date **07-24-14**
Sampled by **CLIENT** Date **07-24-14**
Submitted by **CLIENT** Date **07-24-14**

Project **CAJA DEL RIO PIT CRUSHER CONTROL**
Contractor **N/A**
Type / Use of Material **OPS LAYER**
Sample Source / Location **SETTING 4**
Testing Authorized : **SA**
Special Instructions :

Location **SANTA FE NM**
Arch. / Engr. **N/A**
Supplier / Source **DEL HUR**
Source / Location Desig. By **CLIENT** Date **07-24-14**

TEST RESULTS

SIEVE ANALYSIS ☒ ASTM C136 ☐ AASHTO T27
FINER THAN #200 ☒ ASTM C117 ☐ AASHTO T11

SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION
4		
3		
2		
1 1/2		
1 1/4		
1		
3/4		
1/2	100	
3/8	96	
1/4	85	
No.4	76	
8	55	
10	50	
16	38	
30	28	
40	24	
50	21	
100	16	
200	12	

LIQUID LIMIT & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90
METHOD
SAMPLE AIR DRIED ☐ YES ☐ NO
ESTIMATED % RETAINED ON NO 40

	RESULTS	SPECS
LIQUID LIMIT →		
PLASTIC LIMIT →		
PLASTICITY INDEX →		

FINENESS MODULUS
☐ ASTM C125 →

ORGANIC IMPURITIES
☐ ASTM C40 ☐ AASHTO T21 PLATE NO.→

CLEANNESS VALUE
☐ CA 227 →

PHYSICAL PROPERTIES		RESULTS	SPECS
UNIT WEIGHT & VOIDS ☐ ASTM C29 ☐ AASHTO T19 ☐ RODDING ☐ JIGGING ☐ LOOSE	FINE AGGREGATE — UNIT WEIGHT,KG/M3 →		
	VOIDS, % →		
	COARSE AGGREGATE — UNIT WEIGHT,KG/M3 →		
	VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION FINE AGGREGATE ☐ ASTM C128 ☐ AASHTO T84	BULK SPECIFIC GRAVITY →		
	BULK SPECIFIC GRAVITY (SSD) →		
AGGREGATE DRIED ☐ YES ☐ NO	APPARENT SPECIFIC GRAVITY →		
	ABSORPTION, % →		
COARSE AGGREGATE ☐ ASTM C127 ☐ AASHTO T85	BULK SPECIFIC GRAVITY →		
	BULK SPECIFIC GRAVITY (SSD) →		
AGGREGATE DRIED ☐ YES ☐ NO	APPARENT SPECIFIC GRAVITY →		
	ABSORPTION, % →		
SAND EQUIVALENT VALUE ☐ ASTM D2419 ☐ AASHTO T176	SE, % →		
RESISTANCE TO DEGRADATION SMALL COARSE AGGREGATE ☐ ASTM C131 ☐ AASHTO T96	GRADING 100 REV., %LOSS →		
	GRADING 500 REV., %LOSS →		
LARGE COARSE AGGREGATE ☐ ASTM C535	GRADING 200 REV., %LOSS →		
	GRADING 1000 REV., %LOSS →		
LIGHTWEIGHT PIECES ☐ ASTM C123 ☐ AASHTO T113	FINE AGGREGATE, % →		
	COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES ☐ ASTM C142 ☐ AASHTO T112	FINE AGGREGATE, % →		
	COARSE AGGREGATE, % →		
FRACTURED FACES OF COARSE AGGREGATES BY WEIGHT ☐ AZ 212 ☐ FLH T507 ☐ FAA	ONE OR MORE FACES, % →		
	TWO OR MORE FACES, % →		
DURABILITY INDEX ☐ ASTM D3744 ☐ AASHTO T210	D_c →		
PROCEDURE : A ☐ COARSE B ☐ FINE C ☐ COARSE & FINE	D_f →		
UNCOMPACTED VOID CONTENT ☐ AZ 247 ☐ ASTM C1252	METHOD VC, % →		

Comments :

Copies to : **CLIENT (1)**

REVIEWED BY J.KELLY
(SIGNED COPY ON FILE)