

GROUND ENGINEERING

January 31, 2018

Subject: Laboratory Testing
Services, Delivered Class 6
Recycled Concrete Sample

Job No. 18-1007

Mr. Gary Hansen
Allied Recycled Aggregates
P.O. Box 566
Commerce City, Colorado 80037-0566.

Dear Mr. Hansen,

As requested, analytical testing was completed on a sample of recycled concrete delivered to our laboratory by your representative. The following testing was completed in general accordance with the respective standards; Modified Proctor (ASTM D 1557), Sieve Analysis (ASTM C 136), Atterberg Limits (ASTM D 4318), R-Value (ASTM D 2844) and Los Angeles Abrasion (ASTM C 131). The sample location was identified as 4082. This sample meets CDOT Class 6 Aggregate Base Course Grading requirements. This sample also meets the City of Aurora Type 2 Base Grading requirements.

The results of the testing have been attached.

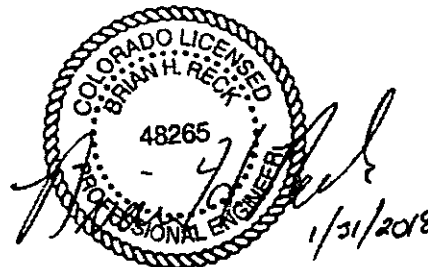
If you have any questions regarding this data, please do not hesitate to contact our office.

GROUND ENGINEERING CONSULTANTS, INC.

Sincerely,


Nick Andrade
Laboratory Supervisor

Reviewed by
Brian H. Reck, PG, CEG, PE





GRADATION PROPERTIES

Project: Allied Recycled Aggregates
Job Number: 18-1007

Date: 4/26/2018

Reported to: Allied Recycled Aggregates
P.O. Box 566
Commerce City, CO 80037

Attn: Mr. Gary Hansen

Sample Information

Sample Number: Soil2489; 18-1007.SoilSampling.0007; ver1
Sample Location: 4082
Aggregate Identification: Class 6 Recycled Concrete
Date Sampled: 4/23/2018
Sampled By: GROUND Representative

Gradation Analysis

Sieve Size (opening)	Passing (%)	Specifications	
		CDOT CL6 (%)	Aurora T2 Base (%)
1"	100	100	100
3/4"	100	95	
1/2"	85		
3/8"	75		50-85
#4	55	30-65	35-65
#8	42	25-55	
#10	39		25-50
#16	30		
#30	21		
#40	17		
#50	14		
#100	9		
#200	6.4	3-12	3-15
Liquid Limit:	NV		
Plasticity Index:	NP		

Ground Engineering's ID Number: Soil1738; Soil2489
 Sample location: 4082
 Date Sampled: 1-6-2018 and 4-23-2018
 Sample Identification: Class 6 Recycled Concrete

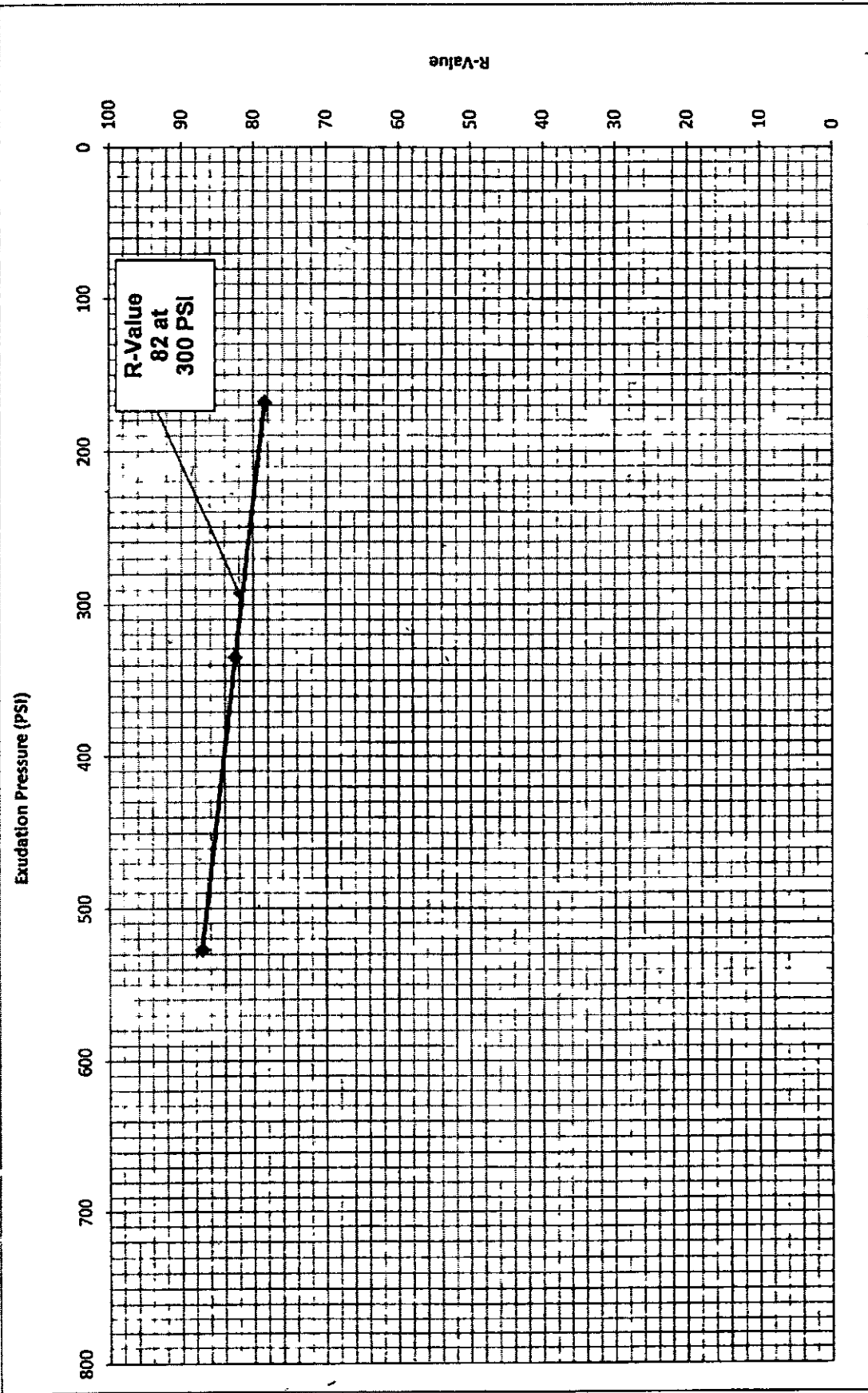
Table I. Sieve Analysis Results, (ASTM C 136)

Sieve Size	% Passing	CDOT Class 6 Specs.	City of Aurora Type 2 Base Specs.
1"	100	100	100
3/4"	100	95	--
1/2"	85	--	--
3/8"	75	--	50-85
No.4	55	30-65	35-65
No. 8	42	25-55	--
No. 10	39	--	25-50
No. 16	30	--	--
No. 30	21	--	--
No. 40	17	--	15-30
No. 50	14	--	--
No. 100	9	--	--
No. 200	6.4	3-12	3-15

Table II. Additional Test Results: Atterberg Limits, (ASTM D 4318), Los Angeles Abrasion, (ASTM C 131, Grading B), R-Value (ASTM D 2844), Modified Proctor (ASTM D 1557)

Test Method	Result	CDOT Class 6 Specs.	City of Aurora Type 2 Base Specs.
Atterberg Limits			
<i>Liquid Limit</i>	N/V	30 Maximum	25 Maximum
<i>Plasticity Index</i>	N/P	6 Maximum	15 Maximum
Modified Proctor			
<i>Maximum Dry Density (pcf)</i>	116.1	--	--
<i>Optimum Moisture Content (%)</i>	14.1	--	--
L. A. Abrasion (% loss) Grading B	45	50 Maximum	45 Maximum
R-Value	82	--	78 Minimum

Ground Engineering Consultants, Inc.



Location: 4082
Sample ID No.: Soil1738
Job No.: 18-1007
Soil Type: CDOT Class 6/Aurora Type 2 Recycled Concrete
GROUND ENGINEERING CONSULTANTS
R-VALUE TEST RESULT
 ASTM D2844/D2844M - 13
 ****Material will be considered "unstable" if optimum moisture is greater than 300 psi exudation moisture and the decrease in R-value from 400 psi to 300 psi exudation pressure is 10 or greater

Test Specimen	1	2	3
Moisture (%)	8.9	12.1	14.9
R-Value	87	83	78
Exudation Pressure	527	335	168

COMPACTION TEST REPORT

Curve No.: Soil1738

Project No.: 18-1007

Date: 1-9-2018

Project: Allied Recycled Aggregates 2018 Lab Testing

Client: Allied Recycled Aggregates

Location: Location 4082; C6-1618

Sample Number: Soil1738

Remarks:

MATERIAL DESCRIPTION

Description: CDOT Class 6 Aggregate Base Course / Aurora Type 2 Base

Classifications -

USCS:

AASHTO:

Nat. Moist. =

Sp.G. =

Liquid Limit = NV

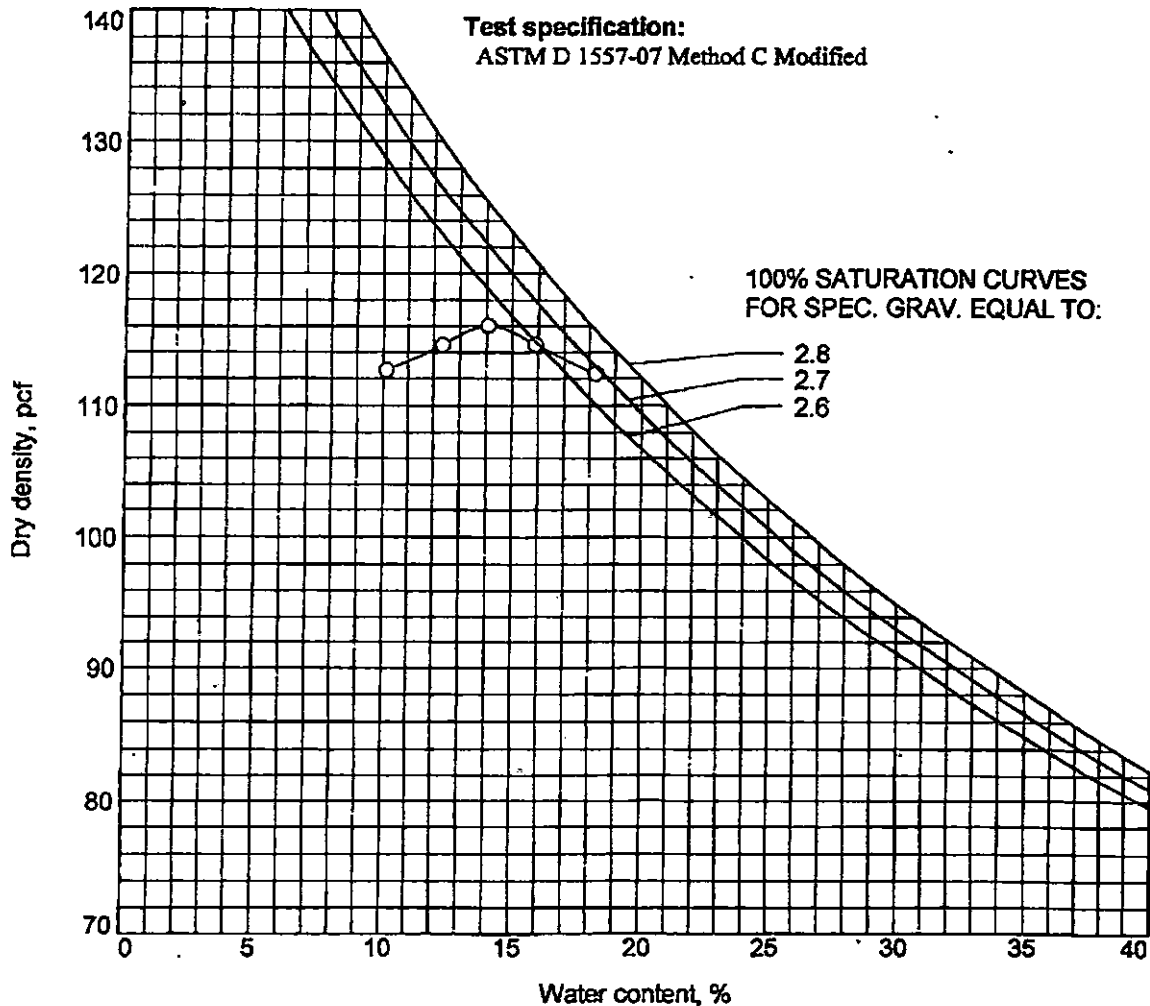
Plasticity Index = NP

% < No.200 = 3.8 %

TEST RESULTS

Maximum dry density = 116.1 pcf

Optimum moisture = 14.1 %





"Quality Through Cooperation"

MATERIALS TESTING LABORATORY

15700 East 32nd Avenue

Aurora, CO 80011

(303) 326-8270/FAX (303) 326-8271

**MATERIAL PRE-QUALIFICATION
TYPE 2 BASE COURSE**

(please type in all information)

APPROVED

MAY 16 2018

MATERIALS LAB

For use until June 1, 2019

Remarks for City Use

Company Name:	Allied Recycled Aggregates		
Contact Person:/ Email Address:	Russel Hawkins / russ.hawkins@alliedrecycle.com		
Mailing Address:	P.O. Box 566		
City, State, Zip:	Commerce City, Colorado 80037		
Telephone No.:	303-289-3366	Cell:	Fax No.: 303-289-3543
Plant or Pit Name:	Pit 1		
Plant or Pit Location:	7901 US Highway 85, Commerce City, CO, 80022		
Product Identification Code: <i>(As Found on Delivery Ticket)</i>	#4 Class 6 / Type 2		

ANALYSIS SUMMARY

SIEVE	% PASSING	SPECIFICATION
1"	100	100
3/4"	100	
1/2"	85	
3/8"	75	50 - 85
No. 4	55	35 - 65
No. 8	42	
No. 10	39	25 - 50
No. 16	30	
No. 30	21	
No. 40	17	15 - 30
No. 100	9	
No. 200 (Washed ASTM C 117)	6.4	3 - 15
Liquid Limit	N/V	25 Maximum
Plasticity Index	N/P	15 Maximum
Maximum Dry Density (ASTM D 1557)	116.1 pcf	
Optimum Moisture Content	14.1 %	
L. A. Abrasion	45 %	45% Maximum
Hveem "R" Value	82 %	78% Minimum

Note: The fraction passing the No. 200 sieve shall not be greater than 2/3 of the fraction passing the No. 40 sieve