



Kumar & Associates, Inc.®
Geotechnical and Materials Engineers
and Environmental Scientists

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An Employee Owned Company

Office Locations: Denver (HQ), Parker, Colorado Springs, Fort Collins, Glenwood Springs, and Summit County, Colorado

June 25, 2026

Colorado Aggregate Recycling
Attn: Matt Bustamante
8900 Highway 93, Unit A
Golden, Colorado 80403

Subject: Laboratory Test Results, Class 6 Aggregate Base Course/Recycled Concrete,
2026 Colorado Aggregate Recycling, DEN North Yard, Denver, Colorado

Project No. 26-1-168

Dear Mr. Bustamante:

Attached are the results of laboratory testing performed on a bulk sample of recycled concrete material submitted to our Denver laboratory by a representative of Colorado Aggregate Recycling. The sample was assigned Kumar & Associates, Inc. (K+A) laboratory sample number 98664. We understand the sample was requested to be tested to evaluate the material's suitability to be classified as CDOT Class 6 aggregate base course (ABC). The sample originated from Colorado Aggregate Recycling's Denver International Airport (DEN) North Yard. Laboratory testing was performed to determine the material classification parameters, including Atterberg Limits, gradation, and moisture-density relationships (modified Proctor). R-Value (Hveem-stabilometer) and Los Angeles Abrasion testing was also performed. The results of the testing are summarized in the attached Table and figures.

Based on the testing results, the submitted sample meets the gradation and Atterberg limit specifications for Class 6 ABC presented on Table 703-2 in the Colorado Department of Transportation's (CDOT) 2025 *Standard Specifications for Road and Bridge Construction*. The testing indicated the material had an R-value of 78 at an exudation pressure of 300 psi and a 34% loss as evaluated by the Los Angeles Abrasion test.

If you have questions or need further information, please call.

Sincerely,

KUMAR & ASSOCIATES, INC.

Justin Cupich, P.E.

JDC/db
Attachment
cc: File





TABLE 1
SUMMARY OF LABORATORY TEST RESULTS
DEN NORTH YARD

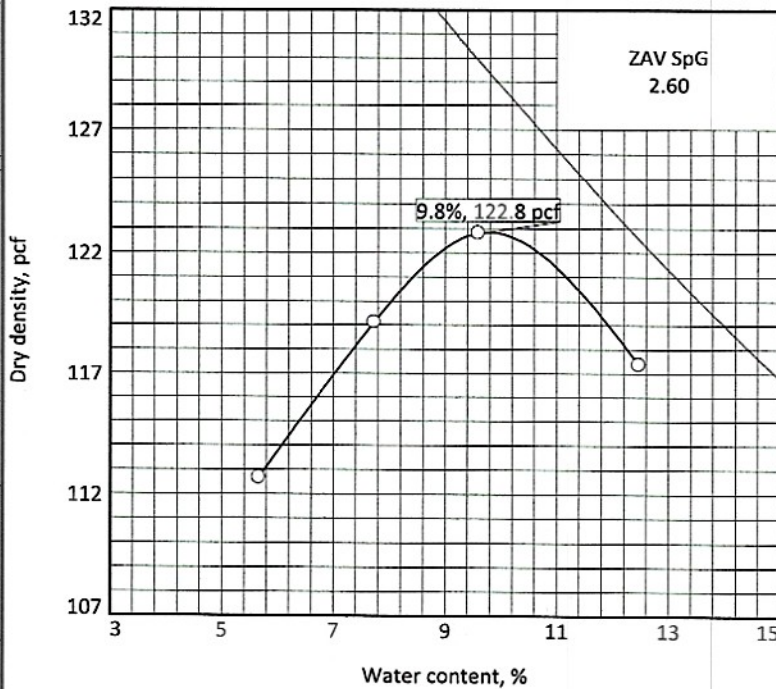
PROJECT NO.: 26-1-168
PROJECT NAME: 2026 COLORADO AGGREGATE RECYCLING LABORATORY TESTING
DATE RECEIVED: 5/29/2026

SAMPLE NO.	DATE TESTED	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)	GRADATION		PERCENT PASSING No. 200 SIEVE	ATTERBERG LIMITS		R-VALUE ● 300 PSI	LOS ANGELES ABRASION (ASTM C-131)		SOIL OR BEDROCK TYPE
				GRAVEL (%)	SAND (%)		LIQUID LIMIT (%)	PLASTICITY INDEX (%)		GRADING	PERCENT LOSS (%)	
98664	6/11/26	122.8	9.8	60	34	6	29	5	78	B	34	WELL-GRADED GRAVEL WITH SILT AND SAND - ABC CLASS 6 (RECYCLED CONCRETE)

These test results apply only to the samples which were tested. The testing report shall not be reproduced, except in full, without the written approval of K & A, Inc.

COMPACTION TEST REPORT

Curve No. 98664



Preparation Method			
Rammer:	Wt. 10 lb.	Drop	18 in.
	Type	Manual	
Layers:	No. five	Blows per	56
Mold Size	0.075 cu. ft.		
Test Performed on Material			
Passing	3/4 in.	Sieve	
%>3/4 in.	0	%<No.200	6.3
Atterberg (D 4318):	LL 29	PI	5
NM (D 2216)	Sp.G. (D 854)		2.6
USCS (D 2487)	GW-GM		
AASHTO (M 145)	A-1-a		
Date: Sampled	5/29/26		
Received	5/29/26		
Tested	6/11/26		
Tested By	AS		

COMPACTION TESTING DATA ASTM D 1557-12 Method C Modified

	1	2	3	4	5	6
WM + WS	10525.0	10842.0	11056.0	10968.0		
WM	6459.0	6459.0	6459.0	6459.0		
WW + T #1	560.7	638.8	547.5	627.3		
WD + T #1	538.9	608.8	513.1	574.9		
TARE #1	154.1	220.7	154.5	154.7		
WW + T #2						
WD + T #2						
TARE #2						
MOIST.	5.7	7.7	9.6	12.5		
DRY DENS.	112.7	119.1	122.8	117.4		

SIEVE TEST RESULTS

Opening Size	% Passing	Specs.
1"	100	100
3/4"	100	95-100
3/8"	61	
#4	40	30-65
#8	35	25-55
#16	27	
#30	19	
#50	13	
#100	9	
#200	6.3	3-12

TEST RESULTS

Maximum dry density = 122.8 pcf

Optimum moisture = 9.8 %

Project No. 26-1-168 Client: Colorado Aggregate Recycling
Project: Colorado Aggregate Recycling - 2026 Various Laboratory Projects

Location: DEN North Yard - Queensburg Pit Sample Number: 98664

Kumar & Associates, Inc.

Denver, Colorado

Material Description

well-graded gravel with silt and sand
ABC Class 6 (Recycled)

Remarks:

Checked by: JJM

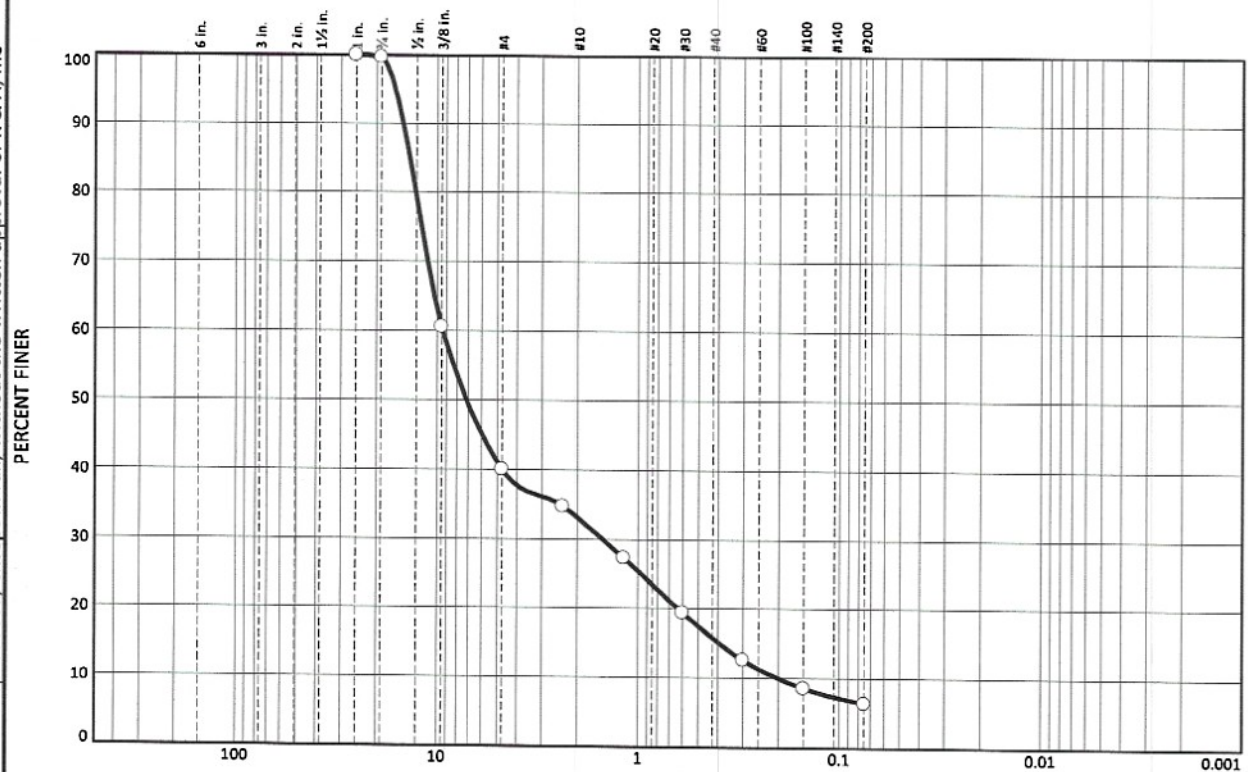
Title: Lab Manager

Figure

These test results apply only to the samples which were tested. the testing report shall not be reproduced, except in full, without the written approval of K & A, Inc

Particle Size Distribution Report

ASTM C136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	60	7	17	10	6	

Test Results (ASTM C136)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1"	100	100		
3/4"	100	95-100		
3/8"	61			
#4	40	30-65		
#8	35	25-55		87
#16	27			68
#30	19			48
#50	13			31
#100	5			21
#200	3	3-12		16

* CDOT - ABC Class 6

Location: DEN North Yard - Queensburg Pit
Sample Number: 98664

Material Description
well-graded gravel with silt and sand
ABC Class 6 (Recycled)

Atterberg Limits
PL= 24 LL= 29 PI= 5

Classification
USCS= GW-GM AASHTO= A-1-a

Test Remarks

Sample Date: 5/29/26

Kumar & Associates, Inc.

Denver, Colorado

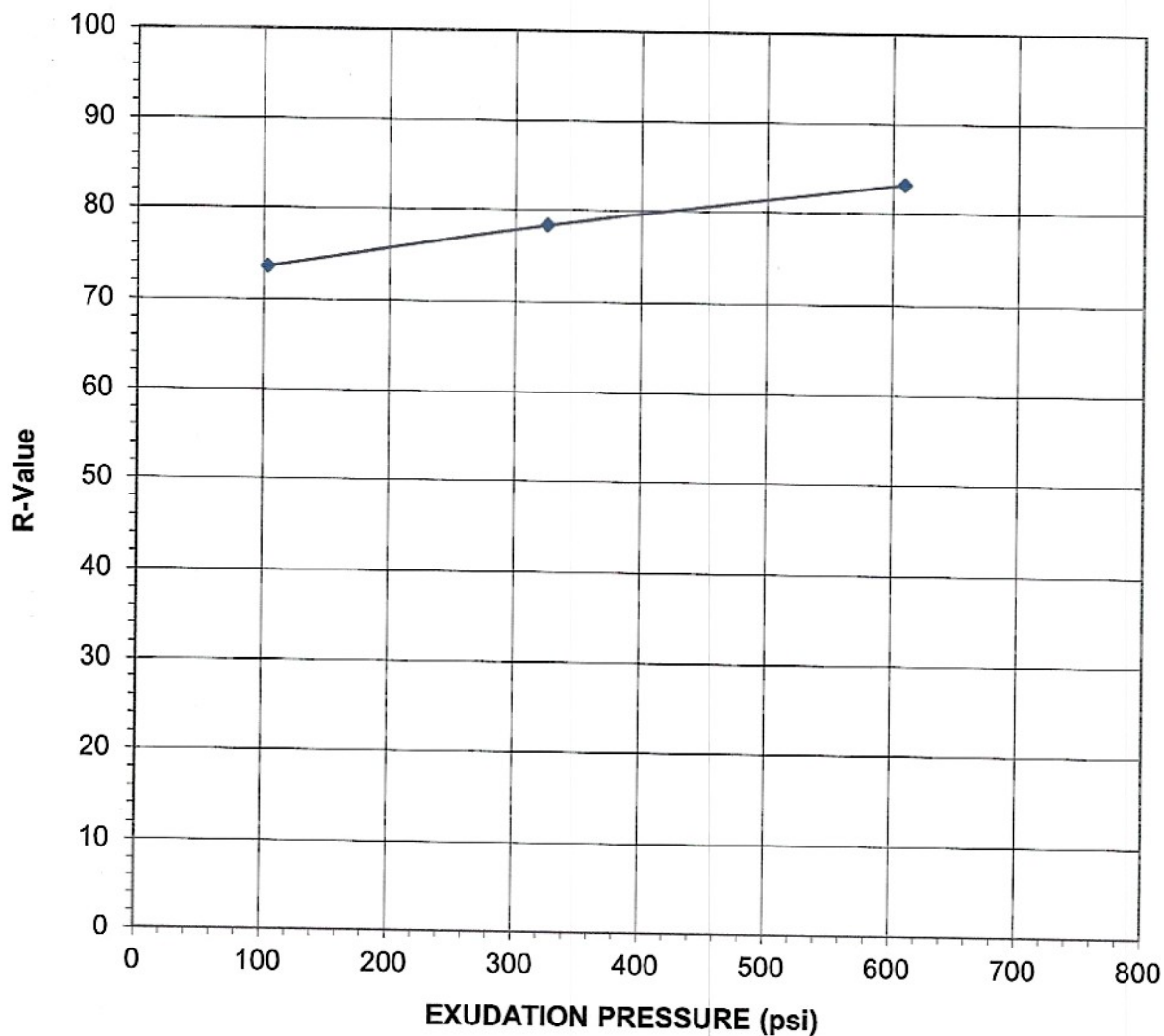
Client: Colorado Aggregate Recycling
Project: Colorado Aggregate Recycling - 2026 Various Laboratory Projects

Project No: 26-1-168

Figure

Checked By: JJM

R-VALUE					
TEST SPECIMEN	1	2	3	4	R-VALUE (300 psi)
MOISTURE CONTENT (%)	12.6	14.3	15.2		78
DENSITY (pcf)	116.1	115.2	102.6		
EXPANSION PRESSURE (psi)	0.000	0.000	0.000		
EXUDATION PRESSURE (psi)	610	326	104		
R-VALUE	83	78	74		



SOIL TYPE: Well-Graded Gravel with Sand and Silt - ABC Class 6 (Recycled)

LOCATION: DEN North Queensburg Pit

DATE SAMPLED: 5/29/26

DATE RECEIVED: 5/29/26

DATE TESTED: 6/11/26

GRAVEL: 60

SAND: 34

SILT AND CLAY: 6

LIQUID LIMIT: 29

PLASTICITY INDEX: 5

These test results apply to the samples which were tested. The testing report shall not be reproduced, except in full, without the written approval of Kumar & Associates, Inc. R-value performed in accordance with ASTM D2844. Atterberg limits performed in accordance with ASTM D4318. Sieve analyses performed in accordance with ASTM D422, D1140

26-1-168

KUMAR & ASSOCIATES

HVEEM STABILOMETER TEST RESULTS

98664

Denver (HQ)
2390 South Lipan Street
Denver, CO 80223
Phone: 3037429700

LA Abrasion - Small-Size Coarse Agg

ASTM C131

Client:

Colorado Aggregate Recycling
8900 Highway 93, Unit A
Golden, CO 80403

Project:

26-1-168
Colorado Aggregate Recycling - 2026 Various
Laboratory Projects
8900 Highway 93, Unit A
Golden, CO 80403

Sample Information

Sample Number:	98664	Sample Date:	05/29/2026
Sample From:	Stockpile	Sampling Method:	Not Provided
Location Details:	DEN North Yard - Queensburg Pit		
Material Description:	Recycled Base Aggregate	Technician:	Client

Laboratory Test Results

Grading Designation	Nominal Maximum Aggregate Size	Percent Loss (%)
B	19 mm (3/4 inch)	34

Test Completed Date: 06/17/2026

Test Completed By: Tsering Chokteng