



LETTER OF TRANSMITTAL

PIPELINE CONTRACTORS

8600 Verbena St.
Commerce City, CO 80022
Office 303-289-4355
Fax 303-289-4353

ISSUED TO:

Owner ATTN: Owner Representative

DATE:

REGARDING:

TRANSMITTAL NO.:

Project JBS Job No 0210

We are issuing you under separate cover the following (via):

- Blue Prints
- Submittals
- Change Order
- Request for Information
- Copy of a letter
- Shop Drawings

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#	Copies	Item Dated	Item #	Description
	1-Electronic		A-0010	Rip Rap

- For your bid
- For Approval
- As Requested
- Returned for Correction
- For Review and Comment
- For Pricing

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-
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Prints are loaned to you and are to be returned to us by: Date: _____

Bids are due on or before: Date: _____

COMMENTS

CC:

Amie Parent
Amie Parent
JBS Pipeline Contractors

March 12, 2019

Albert Frei and Sons, Inc.
PO Box 700
Henderson, Colorado 80640

Attention: Mr. Joe Frei

Subject: Physical Properties Testing (ASTM)
Riprap and Boulders, Pit 6
Project No. CT16542.000-400

Dear Mr. Frei:


This report presents results of physical properties testing performed on material delivered to our laboratory on January 3, 2019. Representative samples delivered were identified as Riprap and Boulders from Pit 6 and sampled on January 2, 2019. Testing was performed to determine the materials compliance with ASTM specifications. The following testing was performed in general conformance with the applicable standards.

- 1) Specific Gravity & Absorption – ASTM C 127
- 2) Sodium Sulfate Soundness – ASTM D 5240
- 3) Magnesium Sulfate Soundness – ASTM D 5240
- 4) Los Angeles Abrasion – ASTM C 131
- 5) Los Angeles Abrasion – ASTM C 535
- 6) Compressive Strength – ASTM C 170
- 7) Freeze-Thaw Testing – ASTM D 5312

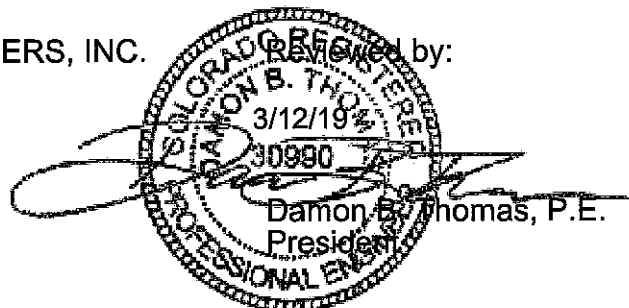
A summary of the aggregate test results is attached, followed by the complete test results. If you have any questions regarding this report, please call.

Respectfully submitted,

CTL | THOMPSON MATERIALS ENGINEERS, INC.


Daniel L. Barrett
Materials Lab Manager

DLB:DBT/clm
Enclosures
1 copy sent
1 copy emailed: jfrei@albertfreiansons.com





Aggregate Qualification Summary - ASTM Specifications (ASTM C 33)

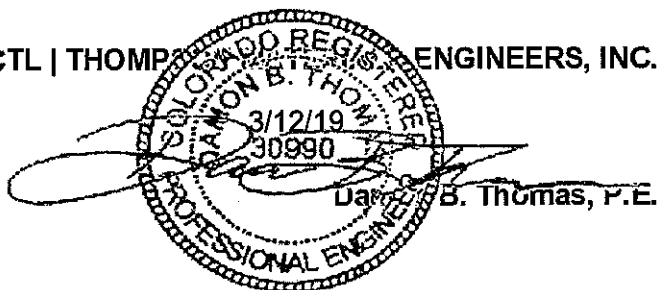
Albert Frei and Sons, Inc. - Pit 6, Riprap and Boulders

Project No. CT16542.000-400

Report Date: March 11, 2019

Test	Results	Specification
Specific Gravity (ASTM C 127)	2.98	-
Absorption (ASTM C 127)	0.1%	-
Sodium Sulfate Soundness (ASTM D 5240)	0% Average Loss	12% Max
Magnesium Sulfate Soundness (ASTM D 5240)	0% Average Loss	18% Max
Los Angeles Abrasion (ASTM C 131)	28%	50% Max
Los Angeles Abrasion (ASTM C 535)	22%	50% Max
Compressive Strength psi (perpendicular to rift)	29,740	Average of 5
Compressive Strength psi (parallel to rift)	27,660	Average of 5
Freeze-Thaw Testing (ASTM D 5312)	0%	Average of 5

CTL | THOMPSON REGISTERED ENGINEERS, INC.



Damon B. Thomas, P.E.



ATTACHMENT A
LABORATORY TEST RESULTS

PHYSICAL PROPERTIES OF AGGREGATES



Company Name: Albert Frei and Sons, Inc.
Material Source: Pit 6
Material Type: Riprap and Boulders

Project No. CT16542.000-400
Report Date: March 11, 2019

Specific Gravity and Absorption of Coarse Aggregate
 (ASTM C 127)

Oven Dry Weight (lbs)	SSD in Air Weight (lbs)	Submerged Weight (lbs)	Bulk Volume	Bulk (SSD) Specific Gravity	Absorption (%)
89.7	89.8	59.7	30.1	2.98	0.1

Soundness of Riprap by Use of Sodium Sulfate
 (ASTM D 5240)

Sample ID	Weight Before (g)	Weight After (g)	Percent Loss
1	3567.4	3116.0	0.1
2	2890.9	3562.1	0.1
3	3020.2	3378.0	0.1
4	3062.8	3525.9	0.1
5	2986.1	3549.9	0.0

Total Weighted Loss: 0%

Soundness of Riprap by Use of Magnesium Sulfate
 (ASTM D 5240)

Sample ID	Weight Before (g)	Weight After (g)	Percent Loss
1	3545.4	3540.8	0.1
2	3494.3	3493.3	0.0
3	3344.6	3342.9	0.1
4	3687.7	3685.8	0.1
5	3195.7	3193.9	0.1

Total Weighted Loss: 0%

Resistance to Degradation of Small-Size Coarse Aggregate
 by Abrasion and Impact in the Los Angeles Machine
 (ASTM C131)

Grading	Initial Weight	Final Weight	Percent Loss
A	4990.4	3595.7	28

Resistance to Degradation of Large-Size Coarse Aggregate
 by Abrasion and Impact in the Los Angeles Machine
 (ASTM C 535)

Grading	Initial Weight	Final Weight	Percent Loss
1	10,052.3	7850.2	22

TEST REPORT FOR COMPRESSIVE STRENGTH OF STONE

Tested in general accordance with ASTM C 170



Client: Albert Frei and Sons, Inc.
Project: 2019 Qualification Testing
Project No. CT16542.000-400

Sample ID: Riprap and
Boulders

Pit Name: 6

TEST INFORMATION: Cores were tested in an oven-dry condition.

COMPRESSIVE STRENGTH RESULTS

Sample ID: Riprap
Perpendicular to the rift

Sample No.	Height (in)	Diameter (in)	Area (in ²)	Correction Factor	Load (lbs)	Compressive Strength (psi)
1	2.97	2.97	6.93	1	218,500	31,530
2	2.97	2.97	6.93	1	206,700	29,830
3	2.97	2.97	6.93	1	203,000	29,290
4	2.97	2.97	6.93	1	200,700	28,960
5	2.97	2.97	6.93	1	201,600	29,090
Average, (psi):						29,740

Sample ID: Riprap
Parallel to the rift

Sample No.	Height (in)	Diameter (in)	Area (in ²)	Correction Factor	Load (lbs)	Compressive Strength (psi)
6	2.97	2.97	6.93	1	201,300	29,050
7	2.97	2.97	6.93	1	201,700	29,110
8	2.97	2.97	6.93	1	205,900	29,710
9	2.97	2.97	6.93	1	200,400	28,920
10	2.97	2.97	6.93	1	149,100	21,520
Average, (psi):						27,660



**Evaluation of Durability of Rock for Erosion Control
ASTM D 5312**

Client: Albert Frei and Sons, Inc.
Project: 2019 Qualification Testing
Project No. CT16542.000-400

Sample ID: Riprap and Boulders
Pit Name: 6

TEST INFORMATION

30 manual cycles in our laboratory freezer and thawing tank.

FREEZE-THAW TEST RESULTS

Sample ID: Riprap

Sample ID	Weight Before (g)	Weight After (g)	% Loss
1	3267.0	3264.8	0.1%
2	2972.1	2968.7	0.1%
3	3396.8	3394.7	0.1%
4	3258.7	3257.7	0.0%
5	3325.8	3324.4	0.0%
Average:			0.0%