



**ENTECH**  
ENGINEERING, INC.

505 ELKTON DRIVE  
COLORADO SPRINGS, CO 80907  
PHONE (719) 531-5599  
FAX (719) 531-5238

September 13, 2022  
Revised September 26, 2022

SR Land, LLC  
20 Boulder Crescent, 2<sup>nd</sup> Floor  
Colorado Springs, CO 80903

Attn: Chaz Collins

Re: Laboratory Test Results – Recycled Concrete  
Sterling Ranch Stockpiles  
Sterling Ranch – Filing No. 2  
Colorado Concrete Crushing  
El Paso County, Colorado  
Entech Job No. 220394

Dear Mr. Collins:

As requested, Entech Engineering, Inc. have performed additional laboratory testing on representative samples of recycled concrete obtained from the stockpile at Colorado Crushing at Sterling Ranch. The sampling of the stockpile was performed by personnel of Entech Engineering, Inc. This letter presents the results of the laboratory testing.

The stockpile is located southwest of the future Dines Boulevard and Sterling Ranch Road Intersection. This is the only source location for the reclaimed concrete on the subject site. The pile appears to be of uniform material based on visual observations during sampling. Testing was performed to determine the support characteristic of the crushed concrete for use in the Filing No. 2 roadways

Sieve analyses and Atterberg Limits testing were performed on the samples. A proctor test and CBR testing were performed to determine the strength limiting criteria. In addition, LA Abrasion (ASTM C-131) testing was performed on the sample

A “R” value of 83 was determined using Section D.4.1.C (of the Pavement Design Criteria) which meets the requirements of the El Paso County Pavement Design Criteria Materials Specifications Table D-3 for recycled concrete (R=78+). The recycled concrete is non plastic and meets the gradation for Class 5 and 6.

The results of the laboratory testing are summarized below and are presented in Figures 1 through 5. Lead testing of the recycled concrete is pending.

<u>Soil Properties</u>	<u>Recycled Concrete</u>
Liquid Limit	NV
Plastic Index	NP
%200	7.9
LA Abrasion Loss (%)	44
Modified Proctor	113.1 pcf @ 9.5% moisture
R Value @ 95%	83

SR Land, LLC  
Laboratory Test Results – Recycled Concrete (Revised)  
Sterling Ranch Stockpiles  
Sterling Ranch – Filing No. 2  
El Paso County, Colorado  
Entech Job No. 220394

We trust that this report contains the information you require. If you have questions or need additional information, please contact us.

Respectfully Submitted,

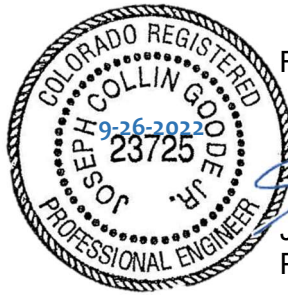
ENTECH ENGINEERING, INC.



Daniel P. Stegman

Encl.

AAprojects/2022/220394 Reconc R-value Rev

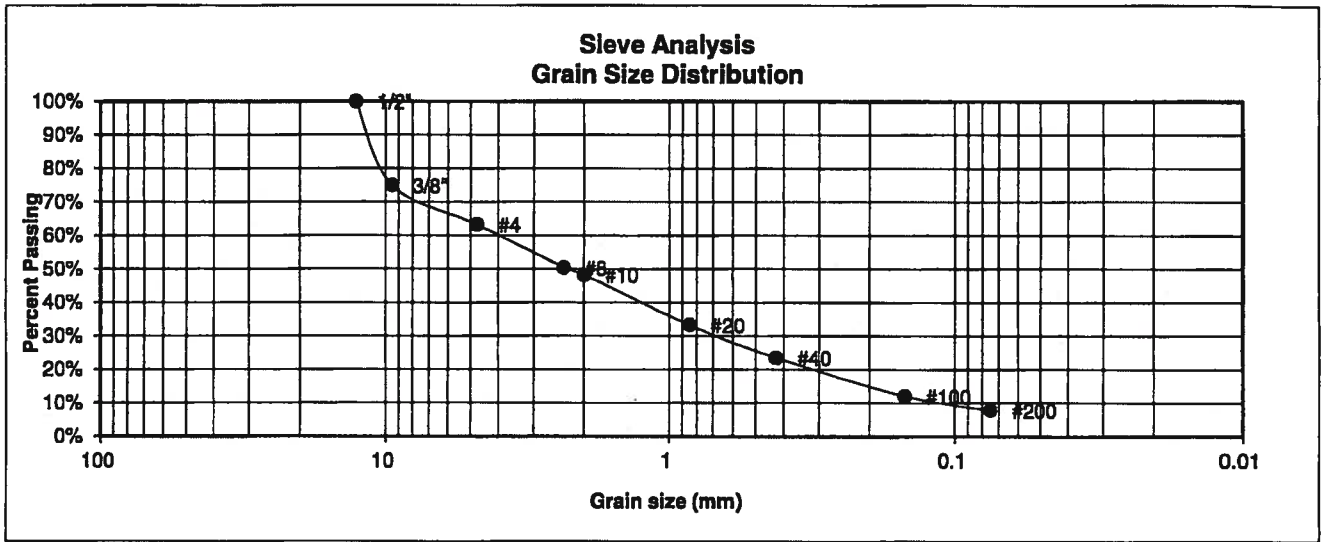


Reviewed By:



Joseph C. Goode, Jr., P.E.  
President

<b>SOIL TYPE #</b>	CRUSHED CONCRETE	<b>UNIFIED CLASSIFICATION</b>	SM-SW	<b>TEST BY</b>	BL
<b>CLIENT</b>	SR LAND, LLC	<b>AASHTO CLASSIFICATION</b>		<b>JOB NO.</b>	220394
<b>PROJECT</b>	STERLING RANCH, FILING 2			<b>DATE</b>	4/15/2022



U.S. Sieve #	Percent Finer	CLASS 2	CLASS 5	CLASS 6
3"		Base Aggregates		
1 1/2"		95-100		
1"			100	
3/4"			95-100	
1/2"	100.0%			100
3/8"	75.0%			
4	63.3%		30-70	30-65
8	50.4%			25-55
10	48.3%			
20	33.3%			
40	23.5%			
100	12.0%			
200	7.9%	3-15	3-15	3-12

Atterberg Limits		FHA Swell		
Plastic Limit	NP	Moisture at start		
Liquid Limit	NV	Moisture at finish		
Plastic Index	NP	Moisture increase		
		Initial dry density (pcf)		
		Swell (psf)		
			35 max	30 max
			6 max	6 max

**ENTECH ENGINEERING, INC.**  
505 ELKTON DRIVE  
COLORADO SPRINGS, COLORADO 80907

**LABORATORY TEST RESULTS**

DRAWN:	DATE:	CHECKED:	DATE:
		25	4/15/22

JOB NO.:  
220394  
FIG NO.:  
1



# Laboratory Test Report

Client: **Entech Engineering, Inc.**  
Project: **20220841.001A**  
**08-000L - Entech Lab**

Report No.: **22-DEN-00237 Rev. 0** Issued: **4/13/2022**

Sampled by: **Entech Lab** Date: **4/1/2022**  
Submitted by: **Entech Lab** Date: **4/1/2022**

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**Aggregate Test Report: Los Angeles Abrasion**

Tested on **4/6/2022** by **MJ Landrus**  
Material Description: **Light Gray, Reconstituted Concrete**

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Test Method: **ASTM C131 Grading B**

Loss after 500 revolutions: **44**

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Remarks:

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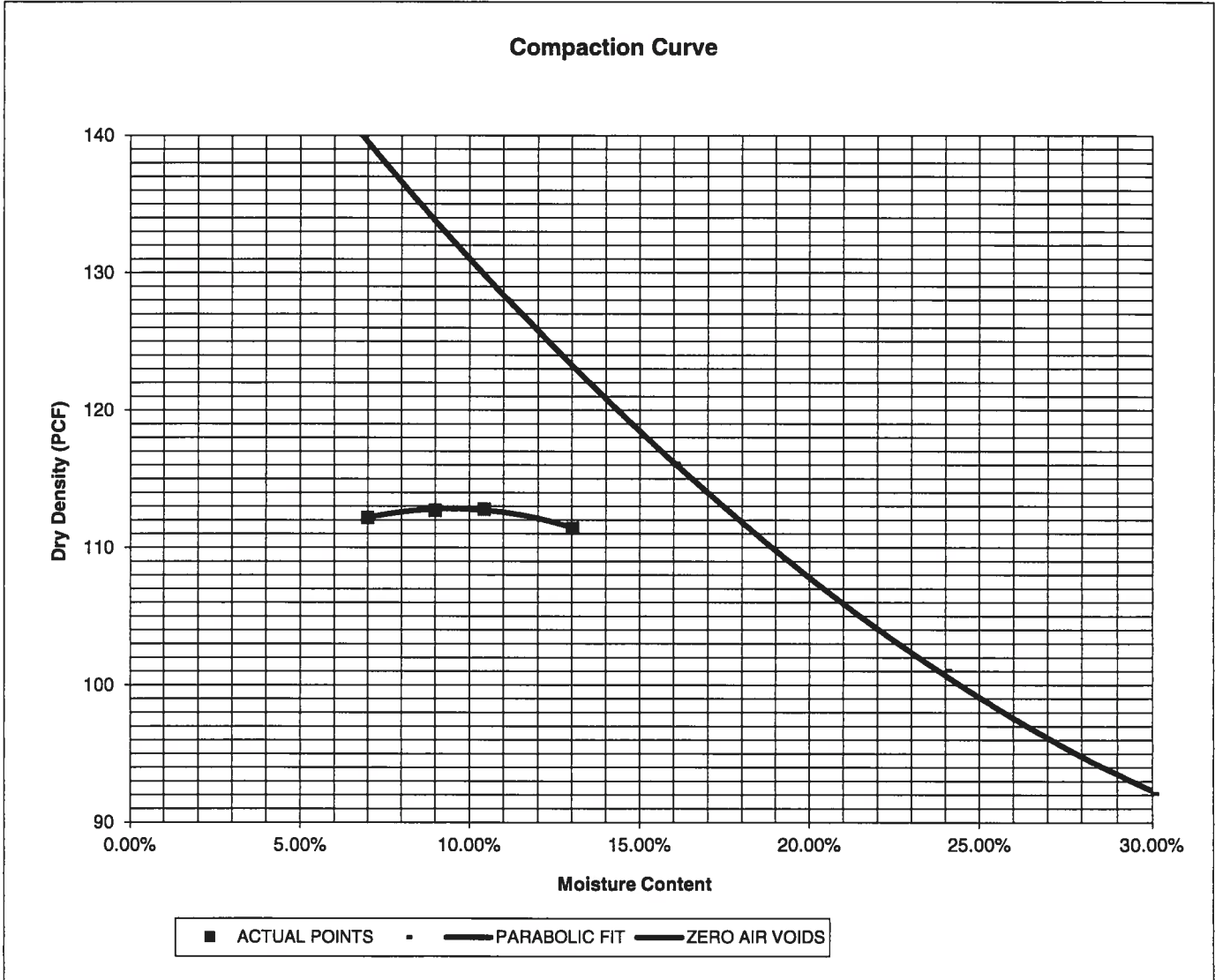
Reviewed on 4/13/2022 by Tim Ryan,  
Project Manager

Limitations Pursuant to applicable building codes the results presented in this report are for the exclusive use of the client and the registered design professional in responsible charge. The results apply only to the samples tested. If changes to the specifications were made and not communicated to Kleinfelder Kleinfelder assumes no responsibility for pass/fail statements (meets/did not meet) if provided. This report may not be reproduced except in full without written approval of Kleinfelder.

Kleinfelder Denver Lab | 130 Capital Drive, Suite C & D | Golden, CO 80401 | (303) 237-6601

<u>PROJECT</u>	STERLING RANCH	<u>CLIENT</u>	SRLAND
<u>SAMPLE LOCATION</u>	ON-SITE, GRAB	<u>JOB NO.</u>	220394
<u>SOIL DESCRIPTION</u>	RECYCLED CONCRETE	<u>DATE</u>	09/13/22

<u>IDENTIFICATION</u>	GM-GP	<u>COMPACTION TEST #</u>	1
<u>TEST DESIGNATION / METHOD</u>	ASTM D-1557-C	<u>TEST BY</u>	BL
<u>MAXIMUM DRY DENSITY (PCF)</u>	113.1	<u>OPTIMUM MOISTURE</u>	9.5%




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**MOISTURE DENSITY RELATION**

DRAWN:	DATE:	CHECKED: <i>DS</i>	DATE: <i>9/13/22</i>
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JOB NO.:  
220394  
FIG NO.:  
*3*

**CBR TEST LOAD DATA**

JOB NO: 220394  
 CLIENT: SR LAND  
 PROJECT: COLORADO CONCRETE CRUSHING  
 SOIL TYPE: 1

PISTON DIAMETER (cm)	PISTON AREA (in <sup>2</sup> )		10 BLOWS		25 BLOWS		56 BLOWS	
4.958	2.99250919		MOLD # 13		MOLD # 5		MOLD # 1	
PENETRATION DEPTH (INCHES)	LOAD(LBS)	STRESS (PSI)	LOAD(LBS)	STRESS (PSI)	LOAD(LBS)	STRESS (PSI)	LOAD(LBS)	STRESS (PSI)
0.000	0	0.00	0	0.00	0	0.00	0	0.00
0.025	151	50.46	68	22.72	196	65.50		
0.050	299	99.92	299	99.92	525	175.44		
0.075	420	140.35	492	164.41	845	282.37		
0.100	545	182.12	797	266.33	1587	530.32		
0.125	606	202.51	849	283.71	1794	599.50		
0.150	691	230.91	1072	358.23	2171	725.48		
0.175	763	254.97	1258	420.38	2549	851.79		
0.200	847	283.04	1488	497.24	2812	939.68		
0.300	1200	401.00	2307	770.92	4226	1412.19		
0.400	1455	486.21	2939	982.12	5039	1683.87		
0.500	1777	593.82	3585	1197.99	5929	1981.28		

**FINAL MOISTURE CONTENT**

	MOLD # 13	MOLD # 5	MOLD # 1
CAN #	354	353	347
WT. CAN	6.86	6.83	7.06
WT. CAN+WET	187.1	115.78	108.89
WT. CAN+DRY	165	105	100
WT. H2O	22.1	10.78	8.89
WT. DRY SOIL	158.14	98.17	92.94
MOISTURE CONTENT	13.97%	10.98%	9.57%

WET DENSITY (PCF)	119.2	124.0	130.1
DRY DENSITY (PCF)	108.1	112.4	117.9

BEARING RATIO 18.21 26.63 53.03

90% OF DRY DENSITY 106.1  
 95% OF DRY DENSITY 112.0

BEARING RATIO AT 90% OF MAX	14.44 ~ R VALUE	65.22
BEARING RATIO AT 95% OF MAX	25.94 ~ R VALUE	83.15



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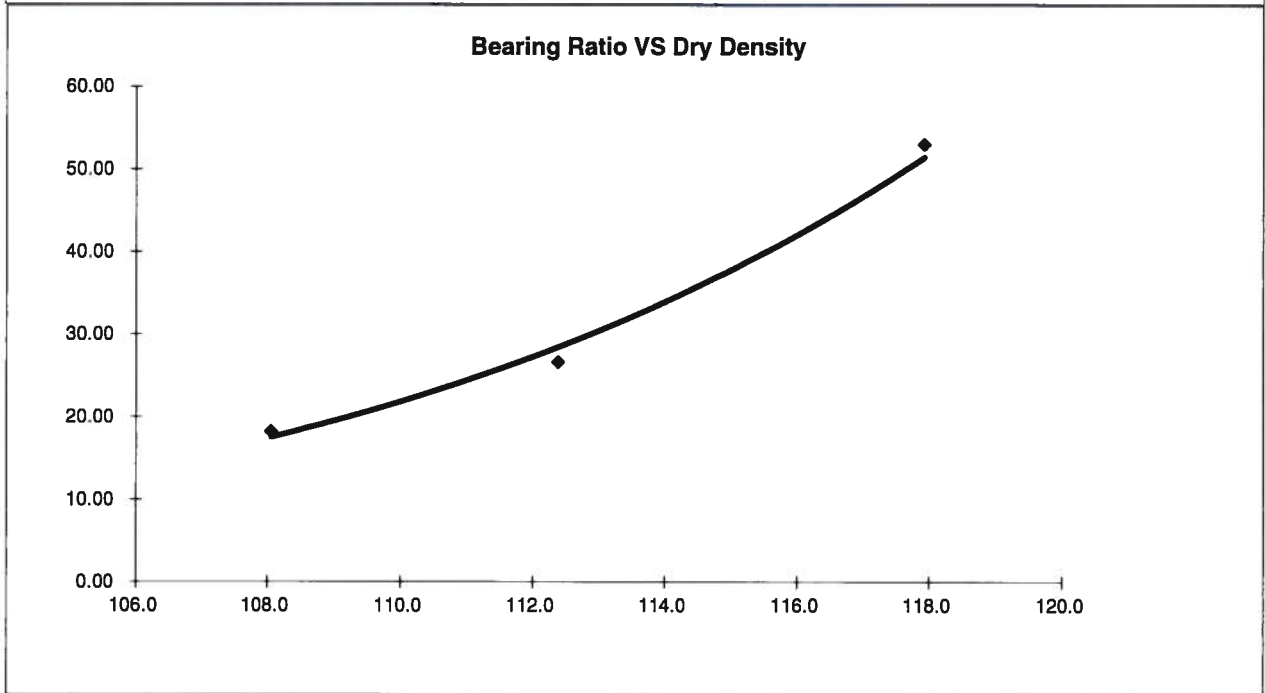
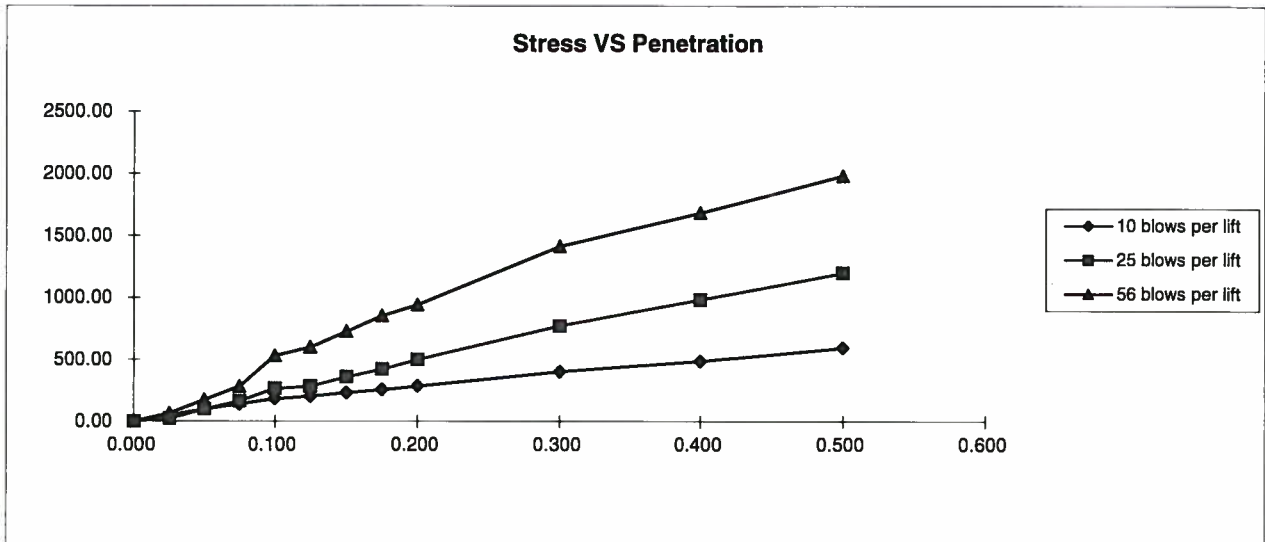
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**CBR TEST DATA**

DRAWN: DATE: CHECKED: *DJ* DATE: *9/26/22*

JOB NO.: 220394

FIG NO.: *A*



<b>BEARING RATIO AT 90% OF MAX</b>	14.44 ~ R VALUE	65.22
<b>BEARING RATIO AT 95% OF MAX</b>	25.94 ~ R VALUE	83.15

JOB NO: 220394  
SOIL TYPE: 1



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### CALIFORNIA BEARING RATIO

DRAWN:

DATE:

CHECKED:

DATE:

*DS*

*9/2/22*

JOB NO:  
220394

FIG NO:

*5*