

April 12, 2019



ENTECH
ENGINEERING, INC.

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

Tech Contractors
3575 Kenyon Street, Suite 200
San Diego, California 92110

Attn: Jeff Scheble

Re: Cement Stabilized Subgrade Results - Laboratory Testing
Windingwalk, Filing 1, Phase 3
El Paso County File No. SF 18-002
El Paso County, Colorado

Approved
by Elizabeth Nijkamp
El Paso County Planning and Community Development
on behalf of Jennifer Irvine, County Engineer, ECM Administrator
04/23/2019 9:45:22 AM

Ref: Pavement Recommendations Report by Entech Engineering, Inc., dated April 12, 2019, Entech Job No. 190128

Dear Mr. Scheble:

As requested, personnel of Entech Engineering, Inc. have performed strength testing on two sets of soil/cement composite samples for the above reference project. Testing was performed on soil samples prepared with 2% and 4% Portland Cement Type 1/2, from Martin Marietta, near Pueblo, Colorado.

A minimum compression strength of 160 psi is recommended for cement stabilized subgrade. The 5-day average strength values of the 2% mix was 201 psi. The 5-day average strength values of the 4% mix was 222 psi. A 2% mix is recommended based on the laboratory test results. A summary of the testing results is attached.

Pending the results of the field density testing, microfracturing of the stabilized subgrade may be required. Soil strengths in excess 200 psi require microfracturing.

We trust this has provided you with the information you required. if you have any questions or need additional information, please do not hesitate to contact us.

Respectfully Submitted,

ENTECH ENGINEERING, INC


Stan C. Culp, P.E.
Senior Engineer

SCC/sc

Encl.

Entech Job No. 190128
AAprojects/2019/190128/190128 cssr — lab_ph3



Reviewed by:


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

SUMMARY OF CTS TEST RESULTS
LAB TESTING

CLIENT TECH CONTRACTORS
 PROJECT WINDING WALK, PHASE 3
 FIELD SAMPLE ID TB-11 @ 0-3'
 SOIL ADDITIVE TYPE I/II CEMENT

JOB NO 190128
 DATE 3/25/19
 BY BL

<i>ADDITIVE %</i>	<i>WATER %</i>	<i>DENSITY (dry)</i>	<i>AGE (days)</i>	<i>STRENGTH (psi)</i>
2	8.2	123.9	5	190
2	8.2	123.5	5	199
2	8.2	123.7	5	213
AVERAGE:				201
4	8.2	123.8	5	230
4	8.2	123.8	5	222
4	8.2	124.0	5	214
AVERAGE:				222

CURING METHOD

100° HUMIDIFIED OVEN