



**ENTECH**  
ENGINEERING, INC.

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

December 14, 2021

FLRD #6  
2138 Flying Horse Club Drive  
Colorado Springs, CO 80921

Attn: Jim Boulton

Re: Density Testing – Sanitary Sewer  
Forest Lakes Residential Development, Filing 6  
Colorado Springs, Colorado  
Report No. 17, Tests 871 – 930

Dear Mr. Boulton,

As requested, personnel of Entech Engineering, Inc. have performed density testing at the above referenced site.

Density testing on this site was performed on November 22, 2021 – December 3, 2021. The density testing indicates that the materials have been adequately compacted at the depths and in the locations noted. Results of the density tests are enclosed with this letter.

We trust that this has provided you with the information you require. Should you have any questions or need further information, please do not hesitate to contact us.

Respectfully Submitted,

ENTECH ENGINEERING, INC.

  
Joseph C. Goode,  
President



JCG/kw

Enclosure

Entech Job No. 201326

F:\AA projects\2020\201326-FLRD-Forest Lakes F6-110-ConMat\201326\_2cl17.doc

<b>Client:</b> FLRD #6	<b>Entech Job #:</b> 201326.2	<b>Proctor Value Key:</b> M = modified, ASTM D-1557
<b>Project:</b> Forest Lakes Residential Development, Filing 6	<b>Tested By:</b> J. Claton	S = standard, ASTM D-698
<b>Subject:</b> Sanitary Sewer	<b>Report Date:</b> 12-14-2021	T = AASHTO, T-180

Test #	Test Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
871	Sanitary Main, Station 3 + 00, on Mesa Top Drive, 16' below grade.	11/22/21	98	98	8.1	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
872	Sanitary Main, Station 3 + 00, on Mesa Top Drive, 14' below grade.	11/22/21	98	98	7.2	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
873	Sanitary Main, Station 3 + 00, on Mesa Top Drive, 12' below grade.	11/22/21	98	98	7.3	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
874	Sanitary Main, Station 3 + 00, on Mesa Top Drive, 10' below grade.	11/22/21	99	98	7.4	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
875	Sanitary Main, Station 3 + 00, on Mesa Top Drive, 8' below grade.	11/22/21	96	95	6.9	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
876	Sanitary Main, Station 3 + 00, on Mesa Top Drive, 6' below grade.	11/22/21	97	95	7.3	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
877	Sanitary Main, Station 3 + 00, on Mesa Top Drive, 4' below grade.	11/22/21	97	95	7.6	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
878	Sanitary Main, Station 3 + 00, on Mesa Top Drive, 2' below grade.	11/22/21	96	95	7.5	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
879	Sanitary Main, Station 3 + 00, on Mesa Top Drive, at grade.	11/22/21	96	95	7.9	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
880	Sanitary Sewer Manhole #5, on Mesa Top Drive North, 10' below grade.	11/22/21	98	98	8.2	SM	M - 130.3 @ 7.6	<input type="checkbox"/>

**Comments:**

Scope of Observation: PERIODIC; CONTRACTOR'S OR CLIENT'S REPRESENTATIVE ADVISED

All dimensions are approximate. Cl. = Centerline



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FIELD DENSITY RESULTS

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


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Test #	Test Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
881	Sanitary Sewer Manhole #5, on Mesa Top Drive North, 8' below grade.	11/22/21	95	95	8.4	SM	M - 130.3 @ 7.6	<input checked="" type="checkbox"/>
882	Sanitary Sewer Manhole #5, on Mesa Top Drive North, 6' below grade.	11/22/21	97	95	7.8	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
883	Sanitary Sewer Manhole #5, on Mesa Top Drive North, 4' below grade.	11/22/21	97	95	8.1	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
884	Sanitary Sewer Manhole #5, on Mesa Top Drive North, 2' below grade.	11/22/21	96	95	7.4	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
885	Sanitary Sewer Manhole #5, on Mesa Top Drive North, at grade.	11/22/21	96	95	7.0	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
886	Sanitary Sewer Main, Station 1 + 50, on Mesa Top Drive North, 13' below grade.	11/23/21	99	98	8.1	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
887	Sanitary Sewer Main, Station 1 + 50, on Mesa Top Drive North, 11' below grade.	11/23/21	99	98	7.9	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
888	Sanitary Sewer Main, Station 1 + 50, on Mesa Top Drive North, 9' below grade.	11/23/21	98	95	7.1	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
889	Sanitary Sewer Main, Station 1 + 50, on Mesa Top Drive North, 7' below grade.	11/23/21	97	95	6.5	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
890	Sanitary Sewer Main, Station 1 + 50, on Mesa Top Drive North, 5' below grade.	11/24/21	96	95	6.8	SM	M - 130.3 @ 7.6	<input type="checkbox"/>

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Test #	Test Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
891	Sanitary Sewer Main, Station 1 + 50, on Mesa Top Drive North, 3' below grade.	11/24/21	97	95	7.2	SM	M - 130.3 @ 7.6	<input checked="" type="checkbox"/> = Fail
892	Sanitary Sewer Main, Station 1 + 50, on Mesa Top Drive North, 1' below grade.	11/24/21	95	95	7.9	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
893	Sanitary Sewer Main, Station 1 + 50, on Mesa Top Drive North, at grade.	11/24/21	96	95	8.3	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
894	Sanitary Service to Lot #21, on Mesa Top Drive North, 12' below grade.	11/29/21	98	98	5.8	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
895	Sanitary Service to Lot #21, on Mesa Top Drive North, 10' below grade.	11/29/21	99	98	6.2	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
896	Sanitary Service to Lot #21, on Mesa Top Drive North, 8' below grade.	11/29/21	97	95	6.4	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
897	Sanitary Service to Lot #21, on Mesa Top Drive North, 6' below grade.	11/29/21	96	95	6.1	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
898	Sanitary Service to Lot #21, on Mesa Top Drive North, 4' below grade.	11/29/21	96	95	5.9	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
899	Sanitary Service to Lot #21, on Mesa Top Drive North, 2' below grade.	11/29/21	97	95	6.7	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
900	Sanitary Service to Lot #21, on Mesa Top Drive North, at grade.	11/29/21	95	95	8.1	SM	M - 130.3 @ 7.6	<input type="checkbox"/>

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Test #	Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
901	Sanitary Service to Lot #22, on Mesa Top Drive North, 16' below grade.	11/30/21	98	98	7.1	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
902	Sanitary Service to Lot #22, on Mesa Top Drive North, 14' below grade.	11/30/21	98	98	6.5	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
903	Sanitary Service to Lot #22, on Mesa Top Drive North, 12' below grade.	11/30/21	98	98	7.2	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
904	Sanitary Service to Lot #22, on Mesa Top Drive North, 10' below grade.	11/30/21	98	98	5.8	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
905	Sanitary Service to Lot #22, on Mesa Top Drive North, 8' below grade.	11/30/21	99	95	7.3	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
906	Sanitary Service to Lot #22, on Mesa Top Drive North, 6' below grade.	11/30/21	96	95	6.9	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
907	Sanitary Service to Lot #22, on Mesa Top Drive North, 4' below grade.	11/30/21	97	95	7.0	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
908	Sanitary Service to Lot #22, on Mesa Top Drive North, 2' below grade.	11/30/21	97	95	6.8	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
909	Sanitary Service to Lot #22, on Mesa Top Drive North, at grade.	11/30/21	95	95	6.4	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
910	Sanitary Service to Lot #23, on Mesa Top Drive North, 12' below grade.	12/1/21	98	98	8.0	SM	M - 130.3 @ 7.6	<input type="checkbox"/>

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Test #	Test Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
911	Sanitary Service to Lot #23, on Mesa Top Drive North, 10' below grade.	12/1/21	98	98	7.5	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
912	Sanitary Service to Lot #23, on Mesa Top Drive North, 8' below grade.	12/1/21	96	95	6.9	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
913	Sanitary Service to Lot #23, on Mesa Top Drive North, 6' below grade.	12/1/21	96	95	7.2	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
914	Sanitary Service to Lot #23, on Mesa Top Drive North, 4' below grade.	12/1/21	97	95	8.3	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
915	Sanitary Service to Lot #23, on Mesa Top Drive North, 2' below grade.	12/1/21	97	95	9.1	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
916	Sanitary Service to Lot #23, on Mesa Top Drive North, at grade.	12/1/21	96	95	8.7	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
917	Sanitary Service to Lot #24, on Mesa Top Drive North, 12' below grade.	12/2/21	98	98	7.5	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
918	Sanitary Service to Lot #24, on Mesa Top Drive North, 10' below grade.	12/2/21	98	98	8.2	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
919	Sanitary Service to Lot #24, on Mesa Top Drive North, 8' below grade.	12/2/21	97	95	6.5	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
920	Sanitary Service to Lot #24, on Mesa Top Drive North, 6' below grade.	12/2/21	96	95	6.7	SM	M - 130.3 @ 7.6	<input type="checkbox"/>

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Test #	Test Location	Testing Date	Percent Compaction	Percent Required	Percent Moisture	Soil Type	Proctor Type/Value	Pass/Fail
921	Sanitary Service to Lot #24, on Mesa Top Drive North, 4' below grade.	12/2/21	96	95	6.1	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
922	Sanitary Service to Lot #24, on Mesa Top Drive North, 2' below grade.	12/2/21	96	95	7.2	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
923	Sanitary Service to Lot #24, on Mesa Top Drive North, at grade.	12/2/21	95	95	6.9	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
924	Sanitary Service to Lot #25, on Mesa Top Drive North, 12' below grade.	12/3/21	98	98	7.6	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
925	Sanitary Service to Lot #25, on Mesa Top Drive North, 10' below grade.	12/3/21	98	98	7.4	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
926	Sanitary Service to Lot #25, on Mesa Top Drive North, 8' below grade.	12/3/21	97	95	7.8	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
927	Sanitary Service to Lot #25, on Mesa Top Drive North, 6' below grade.	12/3/21	97	95	6.9	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
928	Sanitary Service to Lot #25, on Mesa Top Drive North, 4' below grade.	12/3/21	96	95	7.2	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
929	Sanitary Service to Lot #25, on Mesa Top Drive North, 2' below grade.	12/3/21	96	95	8.1	SM	M - 130.3 @ 7.6	<input type="checkbox"/>
930	Sanitary Service to Lot #25, on Mesa Top Drive North, at grade.	12/3/21	96	95	8.4	SM	M - 130.3 @ 7.6	<input type="checkbox"/>

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