



Construction Materials Testing
Waterline Installation—Backfill Compaction
Gates Subdivision Unit 2
Bexar County, Texas

InTEC Project No. S232134-2
February 5, 2025

MEH Holding Company LTD
5210 Thousand Oaks, Suite 1318
San Antonio, Texas 78233



Integrated Testing and Engineering Company of San Antonio, L.P.

Geotechnical & Environmental Engineering • Construction Services • Geologic Assessment

February 5, 2025

E.A. Palaniappan, Ph.D., P.E.
Murali Subramaniam, Ph.D., P.E.
Kausi Subramaniam, B.S.

MEH Holding Company LTD
5210 Thousand Oaks, Suite 1318
San Antonio, Texas 78233

Attention: Ms. Jaime L. Johnson

Re: Construction Materials Testing
Waterline Installation – Backfill Compaction
Gates Subdivision Unit 2
Bexar County, Texas

InTEC Project #: S232134-2

Ladies and Gentlemen:

Integrated Testing and Engineering Company of San Antonio, L.P. (InTEC) performed compaction evaluation at the above referenced project site between February 17, 2024 and February 23, 2024.

Field density tests were performed on an “on call” basis by the contractor. Full time observation of fill placement was not performed. The Laboratory Compaction and Field Density Tests results at the above referenced project site are presented for your review.

We appreciate and wish to thank you for the opportunity to be of service to you on this project. If we can be of additional assistance, or if you have any questions, please call us.

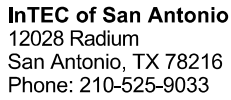
Respectfully Submitted,
InTEC of San Antonio, L.P.

Murali Subramaniam, Ph.D., P.E.

Copies Submitted: Above (1)



02/12/2025



Client:

Project:

S232134
Gates Subdivision Unit 2
29.381265682887246, -98.32008373231879
Bexar County, TX

Sample Number: 25976

Sample Date: 02/02/2024

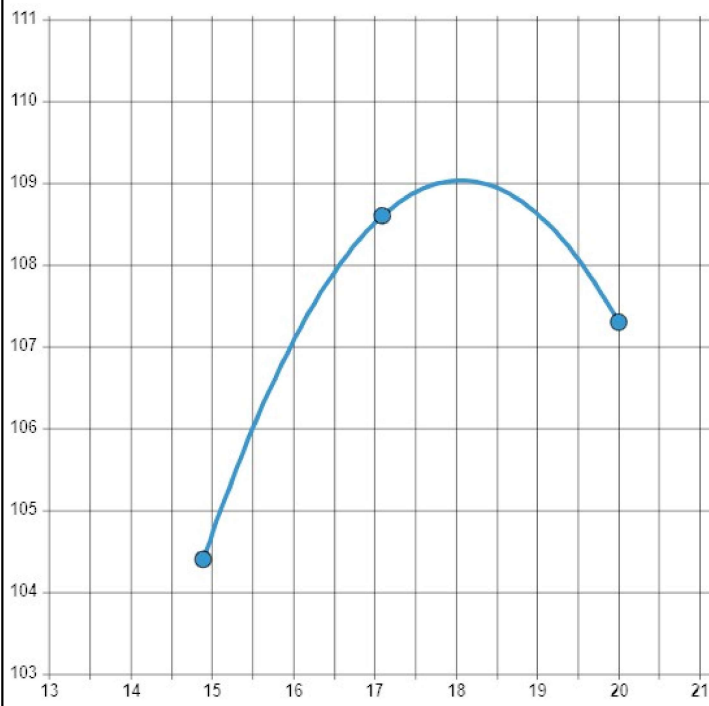
Technician: Johnson, Thomas

Material Use: Utility Backfill

Sample Location: Stockpile

Material Description: Tan Clay with Gravel

Test Method: Tex 113E



Maximum Dry Density (pcf): 109.0

Optimum Moisture (%): 18.1

Soil Classification: CH Clay

Test Completed Date: 02/06/2024

Test Completed By: Agare, Ovie



Moisture Density Relationship

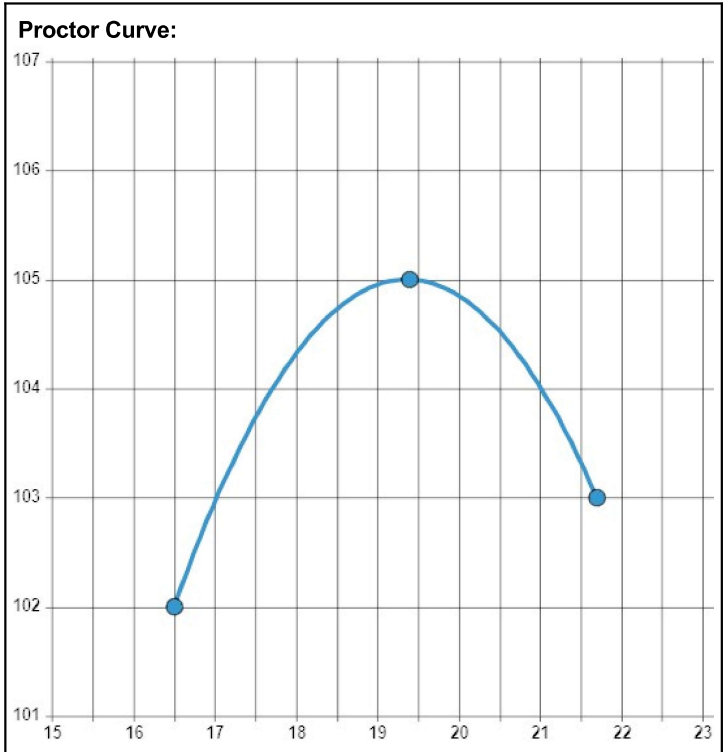
InTEC of San Antonio 12028 Radium San Antonio, TX 78216 Phone: 210-525-9033	Client: MEH Holding Company LTD 5210 Thousand Oaks, Suite 1318 San Antonio, TX 78233	Project: S232134 Gates Subdivision Unit 2 29.381265682887246, -98.32008373231879 Bexar County, TX
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SAMPLE DATA

Sample Number: 25977
Sample Date: 02/02/2024
Technician: Johnson, Thomas
Material Use: Utility Backfill
Sample Location: Stockpile
Material Description: Tan to Brown Clay with Gravel

LAB DATA

Test Method: Tex 113E



Maximum Dry Density (pcf): 105.0
Optimum Moisture (%): 19.4
Soil Classification: CH Clay with gravel

Test Completed Date: 02/06/2024
Test Completed By: Agare, Ovie



InTEC of San Antonio
12028 Radium
San Antonio, TX 78216
Phone: 210-525-9033

Compaction Evaluation

Report Date: 02/14/2025
Test Method: ASTM D6938, Tex 115E

Client:

MEH Holding Company LTD
5210 Thousand Oaks, Suite 1318
San Antonio, TX 78233

Project:

S232134
Gates Subdivision Unit 2
29.381265682887246, -98.32008373231879
Bexar County, TX

Test Results															
Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
228		02/17/24	U25977		CH	19.4	105.0	21.3	103.6	125.7	6	98.7	98	-2 / 2	C
229		02/17/24	U25977		CH	19.4	105.0	21.2	103.7	125.7	6	98.8	98	-2 / 2	C
230		02/17/24	U25977		CH	19.4	105.0	21.1	103.2	125.0	6	98.3	98	-2 / 2	C
231		02/17/24	U25977		CH	19.4	105.0	21.1	103.2	125.0	6	98.3	98	-2 / 2	C
239		02/19/24	U25977		CH	19.4	105.0	18.8	103.9	123.4	6	99.0	98	-2 / 2	C
240		02/19/24	U25977		CH	19.4	105.0	18.8	103.3	122.7	6	98.4	98	-2 / 2	C
241		02/19/24	U25977		CH	19.4	105.0	18.3	103.5	122.4	6	98.6	98	-2 / 2	C
242		02/19/24	U25977		CH	19.4	105.0	18.1	103.4	122.1	6	98.5	98	-2 / 2	C
Test Information															
Test #	Test Location			Elevation	Reference	Gauge Specs Make / Model / SN / Calibrated				Gauge Standardization Density Standard/Moisture Standard			Field Technician		
228	Water Main: Hawkell Ln, Block 6 Lot 35				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1605 / 550			Villarreal Sr., Robert		
229	Water Main: Hawkell Ln, Block 6 Lot 41				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1605 / 550			Villarreal Sr., Robert		
230	Water Main: Kestis Ln, Block 7 Lot 17				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1605 / 550			Villarreal Sr., Robert		
231	Water Main: Kestis Ln, Block 7 Lot 23				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1605 / 550			Villarreal Sr., Robert		
239	Water Main: Hawkell Ln, Block 6 Lot 35				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
240	Water Main: Hawkell Ln, Block 6 Lot 41				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
241	Water Main: Kestis Ln, Block 7 Lot 17				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
242	Water Main: Kestis Ln, Block 7 Lot 23				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
Remarks					Comments										
C: Compliant					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.										

Testing performed when called in.
InTEC did not observe the installation of the material.
Testing directed by the City Inspector when present.
Test results apply only to the specific locations and materials noted and may not represent any other locations or elevations.



InTEC of San Antonio
12028 Radium
San Antonio, TX 78216
Phone: 210-525-9033

Compaction Evaluation

Report Date: 02/14/2025
Test Method: ASTM D6938, Tex 115E

Client:

MEH Holding Company LTD
5210 Thousand Oaks, Suite 1318
San Antonio, TX 78233

Project:

S232134
Gates Subdivision Unit 2
29.381265682887246, -98.32008373231879
Bexar County, TX

Test Results															
Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
243		02/19/24	U25977		CH	19.4	105.0	19.9	103.5	124.1	6	98.6	98	-2 / 2	C
244		02/19/24	U25977		CH	19.4	105.0	19.4	103.4	123.5	6	98.5	98	-2 / 2	C
245		02/19/24	U25977		CH	19.4	105.0	18.8	103.1	122.5	6	98.2	98	-2 / 2	C
246		02/19/24	U25977		CH	19.4	105.0	19.1	103.5	123.3	6	98.6	98	-2 / 2	C
247		02/19/24	U25977		CH	19.4	105.0	18.1	103.7	122.5	6	98.8	98	-2 / 2	C
248		02/19/24	U25977		CH	19.4	105.0	18.6	103.5	122.8	6	98.6	98	-2 / 2	C
249		02/19/24	U25977		CH	19.4	105.0	17.9	103.2	121.7	6	98.3	98	-2 / 2	C
250		02/19/24	U25977		CH	19.4	105.0	17.8	103.3	121.7	6	98.4	98	-2 / 2	C
Test Information															
Test #	Test Location			Elevation	Reference	Gauge Specs Make / Model / SN / Calibrated				Gauge Standardization Density Standard/Moisture Standard			Field Technician		
243	Water Main: Fieldstone Way, Block 8 Lot 5				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
244	Water Main: Fieldstone Way, Block 8 Lot 10				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
245	Water Main: Frostwood Hts, Block 5 Lot 179				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
246	Water Main: Frostwood Hts, Block 5 Lot 172				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
247	Water Main: Trout Lily, Block 5 Lot 165				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
248	Water Main: Duskview Hill, Block 5 Lot 156				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
249	Water Main: Hastings Way, Block 5 Lot 155				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
250	Water Main: Hastings Way, Block 5 Lot 79				1st Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 550			Villarreal Sr., Robert		
Remarks					Comments										
C: Compliant					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.										

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Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
266		02/21/24	U25976		CH	18.1	109.0	16.6	106.9	124.6	6	98.1	98	-2 / 2	C
267		02/21/24	U25976		CH	18.1	109.0	16.8	106.9	124.9	6	98.1	98	-2 / 2	C
268		02/21/24	U25976		CH	18.1	109.0	17.1	107.1	125.4	6	98.3	98	-2 / 2	C
269		02/21/24	U25976		CH	18.1	109.0	17.8	107.8	127.0	6	98.9	98	-2 / 2	C
Test Information															
Test #	Test Location			Elevation	Reference	Gauge Specs Make / Model / SN / Calibrated				Gauge Standardization Density Standard/Moisture Standard			Field Technician		
266	Water Main: Fieldstone Way, Block 8 Lot 4				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 555			Villarreal Sr., Robert		
267	Water Main: Fieldstone Way, Block 8 Lot 9				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 555			Villarreal Sr., Robert		
268	Water Main: Frostwood Hts, Block 5 Lot 171				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 555			Villarreal Sr., Robert		
269	Water Main: Frostwood Hts, Block 5 Lot 180				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023				1600 / 555			Villarreal Sr., Robert		
Remarks					Comments										
C: Compliant					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.										

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147		02/09/24	U25977		CH	19.4	105.0	18.2	103.7	122.6	6	98.8	98	-2 / 2	C
148		02/09/24	U25977		CH	19.4	105.0	18.4	103.9	123.0	6	99.0	98	-2 / 2	C
149		02/09/24	U25977		CH	19.4	105.0	17.8	103.6	122.0	6	98.7	98	-2 / 2	C
279		02/22/24	U25977		CH	19.4	105.0	18.2	103.1	121.9	6	98.2	98	-2 / 2	C
280		02/22/24	U25977		CH	19.4	105.0	18.1	103.8	122.6	6	98.9	98	-2 / 2	C
281		02/22/24	U25977		CH	19.4	105.0	17.9	103.2	121.7	6	98.3	98	-2 / 2	C
282		02/22/24	U25977		CH	19.4	105.0	19.5	103.5	123.7	6	98.6	98	-2 / 2	C
283		02/22/24	U25977		CH	19.4	105.0	17.8	103.4	121.8	6	98.5	98	-2 / 2	C
Test Information															
Test #	Test Location			Elevation	Reference	Gauge Specs Make / Model / SN / Calibrated			Gauge Standardization Density Standard/Moisture Standard				Field Technician		
147	Water Services: Kestis Ln , Block 8 Lot 4/5				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1600 / 551				Villarreal Sr., Robert		
148	Water Services: Kestis Ln , Block 8 Lot 8/9				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1600 / 551				Villarreal Sr., Robert		
149	Water Services: Kestis Ln , Block 8 Lot 10/11				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1600 / 551				Villarreal Sr., Robert		
279	Water Services: Hawkell Ln, Block 7 Lot 13/14				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
280	Water Services: Hawkell Ln, Block 7 Lot 9/10				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
281	Water Services: Hawkell Ln, Block 7 Lot 5/6				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
282	Water Services: Hawkell Ln, Block 7 Lot 13/14				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
283	Water Services: Hawkell Ln, Block 7 Lot 9/10				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
Remarks					Comments										
C: Compliant					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.										

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Compaction Evaluation

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284		02/22/24	U25977		CH	19.4	105.0	17.9	103.3	121.8	6	98.4	98	-2 / 2	C
285		02/22/24	U25977		CH	19.4	105.0	18.1	103.6	122.4	6	98.7	98	-2 / 2	C
286		02/22/24	U25977		CH	19.4	105.0	18.8	103.5	123.0	6	98.6	98	-2 / 2	C
287		02/22/24	U25977		CH	19.4	105.0	18.2	103.5	122.3	6	98.6	98	-2 / 2	C
288		02/22/24	U25977		CH	19.4	105.0	18.5	103.6	122.8	6	98.7	98	-2 / 2	C
289		02/22/24	U25977		CH	19.4	105.0	18.6	103.1	122.3	6	98.2	98	-2 / 2	C
290		02/22/24	U25977		CH	19.4	105.0	21.0	103.5	125.2	6	98.6	98	-2 / 2	C
291		02/22/24	U25977		CH	19.4	105.0	19.8	103.1	123.5	6	98.2	98	-2 / 2	C
Test Information															
Test #	Test Location			Elevation	Reference	Gauge Specs Make / Model / SN / Calibrated			Gauge Standardization Density Standard/Moisture Standard				Field Technician		
284	Water Services: Hawkell Ln, Block 7 Lot 5/6				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
285	Water Services: Hastings Way, Block 6 Lot 3/4				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
286	Water Services: Hastings Way, Block 6 Lot 7/8				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
287	Water Services: Hastings Way, Block 6 Lot 11/12				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
288	Water Services: Duskview Hill, Block 6 Lot 16/15				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
289	Water Services: Duskview Hill, Block 6 Lot 20/19				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
290	Water Services: Duskview Hill, Block 6 Lots 16/15				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
291	Water Services: Duskview Hill, Block 6 Lots 20/19				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555				Villarreal Sr., Robert		
Remarks					Comments										
C: Compliant					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.										

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292		02/22/24	U25977		CH	19.4	105.0	18.5	103.2	122.3	6	98.3	98	-2 / 2	C
293		02/22/24	U25977		CH	19.4	105.0	18.6	103.2	122.4	6	98.3	98	-2 / 2	C
294		02/22/24	U25977		CH	19.4	105.0	17.9	103.4	121.9	6	98.5	98	-2 / 2	C
295		02/23/24	U25977		CH	19.4	105.0	18.5	103.5	122.6	6	98.6	98	-2 / 2	C
296		02/23/24	U25977		CH	19.4	105.0	18.2	103.3	122.1	6	98.4	98	-2 / 2	C
297		02/23/24	U25977		CH	19.4	105.0	18.5	103.5	122.6	6	98.6	98	-2 / 2	C
Test Information															
Test #	Test Location			Elevation	Reference	Gauge Specs Make / Model / SN / Calibrated			Gauge Standardization Density Standard/Moisture Standard			Field Technician			
292	Water Services: Frostwood Hts, Block 6 Lot 22/23				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555			Villarreal Sr., Robert			
293	Water Services: Frostwood Hts, Block 6 Lot 26/27				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555			Villarreal Sr., Robert			
294	Water Services: Frostwood Hts, Block 6 Lot 30/31				1st Lift	Troxler / 3430 / 30173 / 07/26/2023			1615 / 555			Villarreal Sr., Robert			
295	Water Services: Frostwood Hts, Block 6 Lot 22/23				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023			1605 / 555			Villarreal Sr., Robert			
296	Water Services: Frostwood Hts, Block 6 Lot 26/27				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023			1605 / 555			Villarreal Sr., Robert			
297	Water Services: Frostwood Hts, Block 6 Lot 30/31				2nd Lift	Troxler / 3430 / 30173 / 07/26/2023			1605 / 555			Villarreal Sr., Robert			
Remarks					Comments										
C: Compliant					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.										

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