

# SUBMITTAL



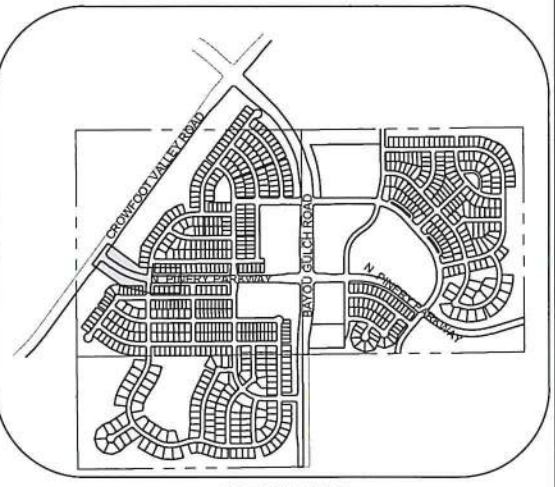
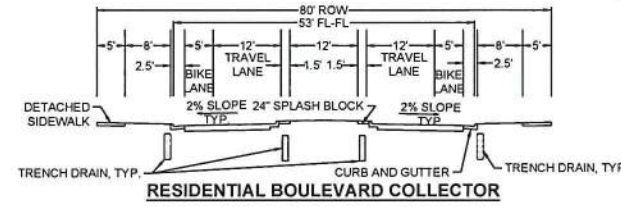
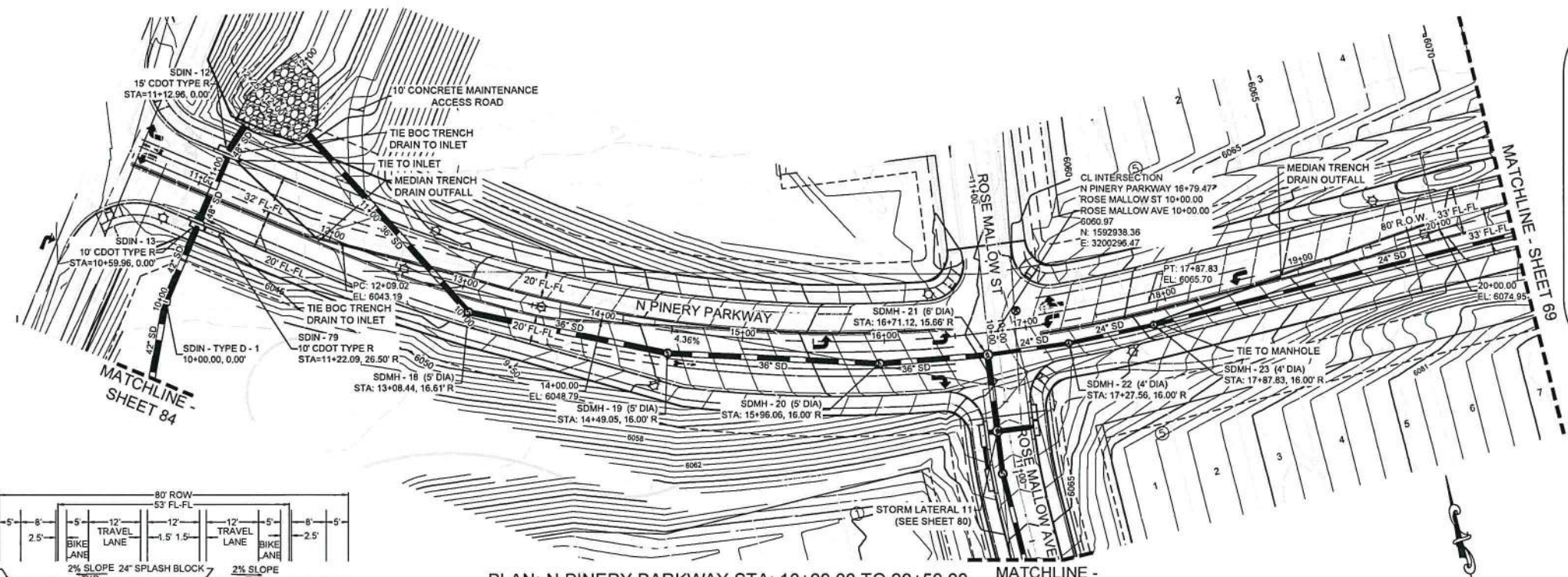
Submittal number	77.0	Date	11/13/2019
Project	TRAILS AT CROWFOOT F1 & 9	6954 N. CROWFOOT VALLEY RD. PARKER, CO 80134	
Project number	201810		
Spec section			
Subsection		Status	Open
Current action	Submitted	Ball in court	
Topic	North Pinery Parkway Backfill Reports		

Submitter	
Reviewer	
Cc	

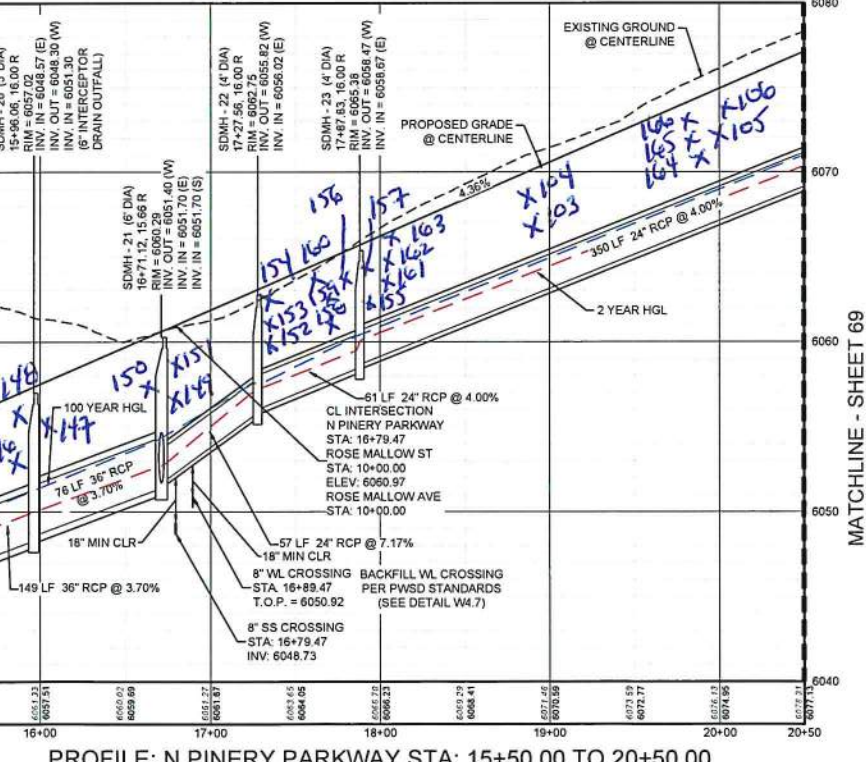
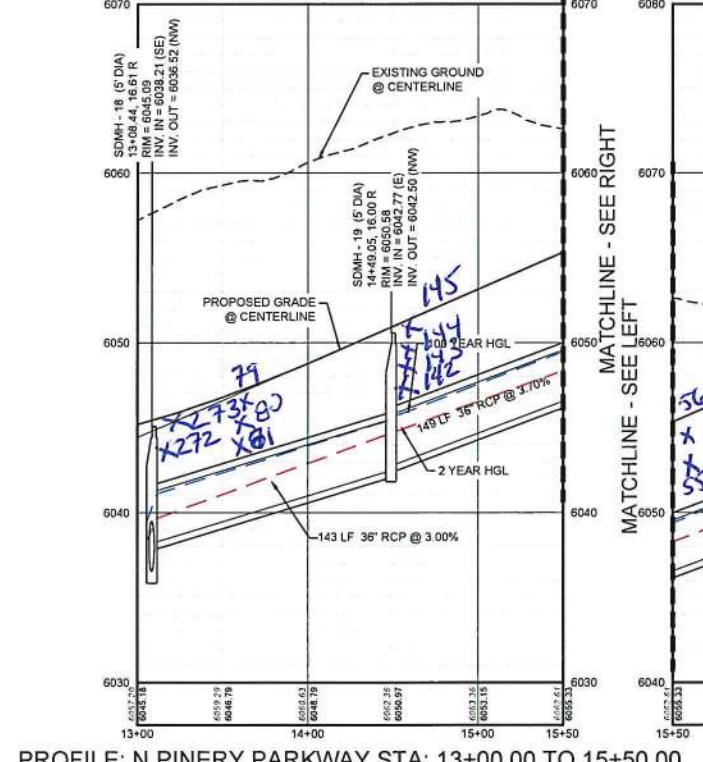
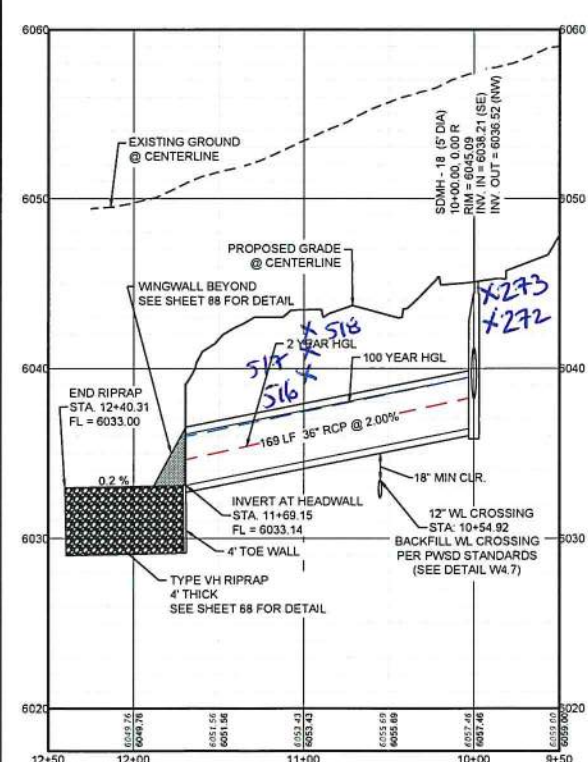
Date submitted	11/13/2019	Submission due date	11/13/2019
Released for review	11/13/2019	Review due date	11/13/2019
Date returned		Required on site date	11/18/2019
Date closed			

**Notes**

Please see attached Backfill reports for North Pinery Parkway Storm, Water Line, and Sanitary Sewer



②	BLOCK NUMBER	△	PROPOSED RANGE POINT
A	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊕	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⊕	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊕	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊕	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊕	PROPOSED FIRE HYDRANT	---	EXISTING 5' CONTOUR
⊕	PROPOSED W. FITTING WITH THRUST BLOCK	---	EXISTING 1' CONTOUR
⊕	PROPOSED FLARED END SECTION	---	PROPOSED 5' CONTOUR
⊕	PROPOSED LOW POINT BLOW-OFF	---	PROPOSED 1' CONTOUR
⊕	PROPOSED AIR VALVE	---	PROPOSED STORM DRAIN
⊕	FUTURE PHASE VALVE	---	PROPOSED SEWER LINE WITH MANHOLE
⊕	FUTURE FIRE HYDRANT	---	PROPOSED SEWER LATERAL
⊕	PROPOSED LIGHT POLE	---	PROPOSED WATER LATERAL W/ METER
⊕	PROPOSED SIDEWALK RAMP	---	SECTION LINE
⊕	EXISTING ELEVATION	---	FILING BOUNDARY
10.00	PROPOSED DESIGN ELEVATION	---	EXISTING FIBER OPTIC LINE
⊕	PROPOSED STORM DRAIN INLET	---	EXISTING OVERHEAD POWER
⊕	PROPOSED STORM DRAIN MANHOLE	---	EXISTING TELEPHONE LINE



**STORM DRAINAGE INFRASTRUCTURE NOTES:**

1. PROFILED STORM DRAINAGE INFRASTRUCTURE INCLUDES THE 2-YEAR AND 100-YEAR HGL FOR INFRASTRUCTURE DESIGNED FOR THE 100-YEAR STORM. INFRASTRUCTURE DESIGNED ONLY FOR THE 2-YEAR STORM WILL ONLY SHOW A 2-YEAR HGL.

**BENCHMARK**  
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD 88 DATUM.

**BASIS OF BEARINGS**  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

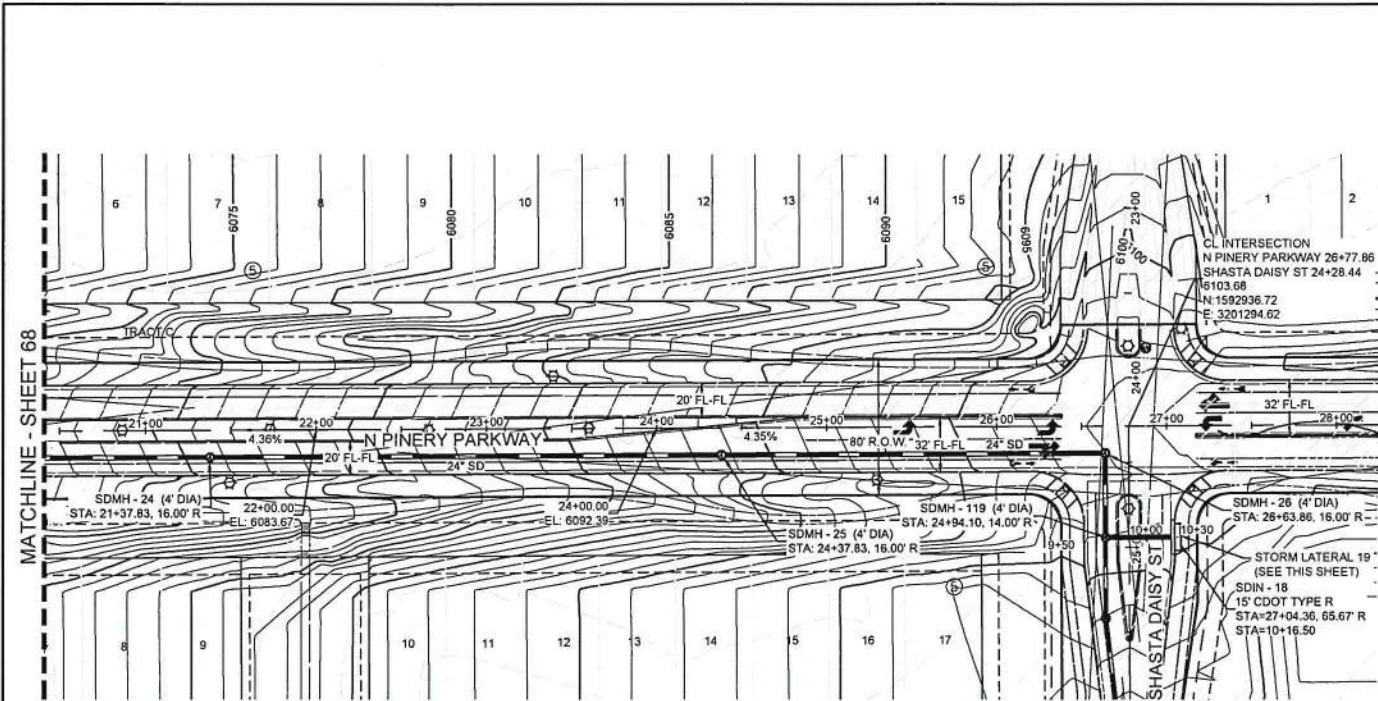
PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

The Town of Parker review constitutes general compliance with the Town's Standards and approved variances, subject to these plans being stamped, signed, and dated by the professional engineer of record. Review by the Town does not constitute approval of the plan design or accuracy and correctness of engineering calculations. Errors in the design or calculations remain the responsibility of the registered professional engineer whose stamp and signature are affixed to this document.

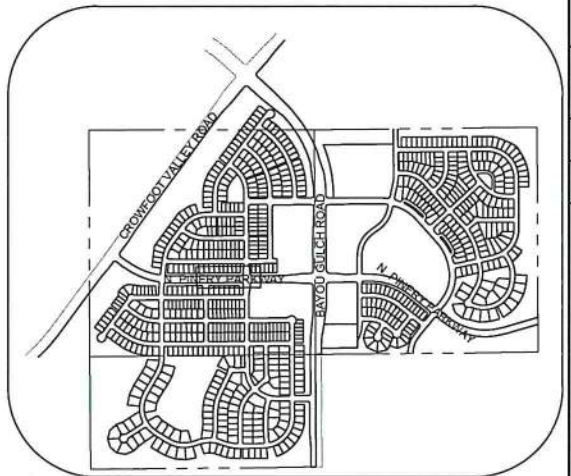
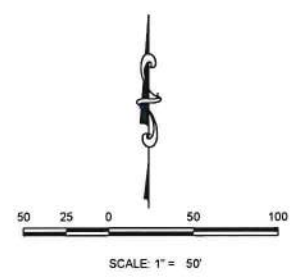
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CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
UNCC  
1-800-922-1987

10333 E Dry Creek Rd Englewood, CO 80112 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	No.	Date	Appr.	Date
<b>CVL</b> CONSULTANTS					
HR 935 LLC 7335 South Arroyo CENTENNIAL, CO 80112					
TRAILS AT CROWFOOT FILING 1 CONSTRUCTION DRAWINGS STORM PLAN & PROFILE NORTH PINERY PARKWAY					
SCALE: AS SHOWN	KID	FILE NO:	8130283701	DRAWN BY:	JU
CHECKED BY:	JU	DATE:	APRIL 2017		
SHEET NUMBER	68		12/03/2018		

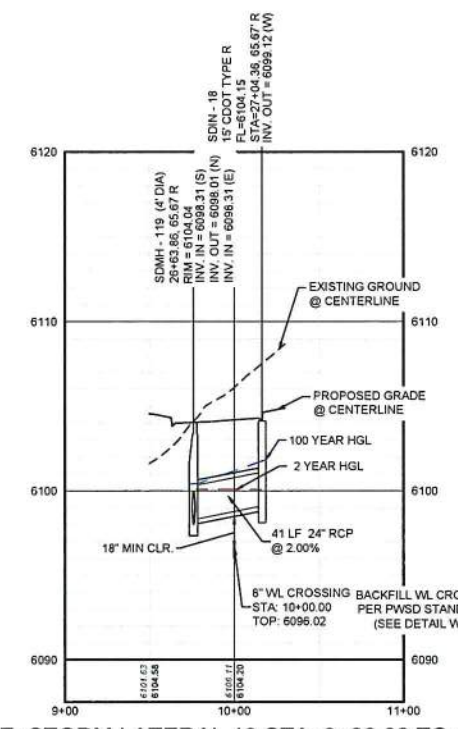


PLAN: N PINERY PARKWAY STA: 21+50.00 TO 33+50.00  
HORIZONTAL SCALE: 1" = 50'

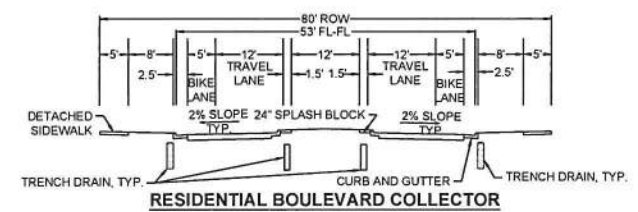


KEYMAP  
N.T.S.  
LEGEND

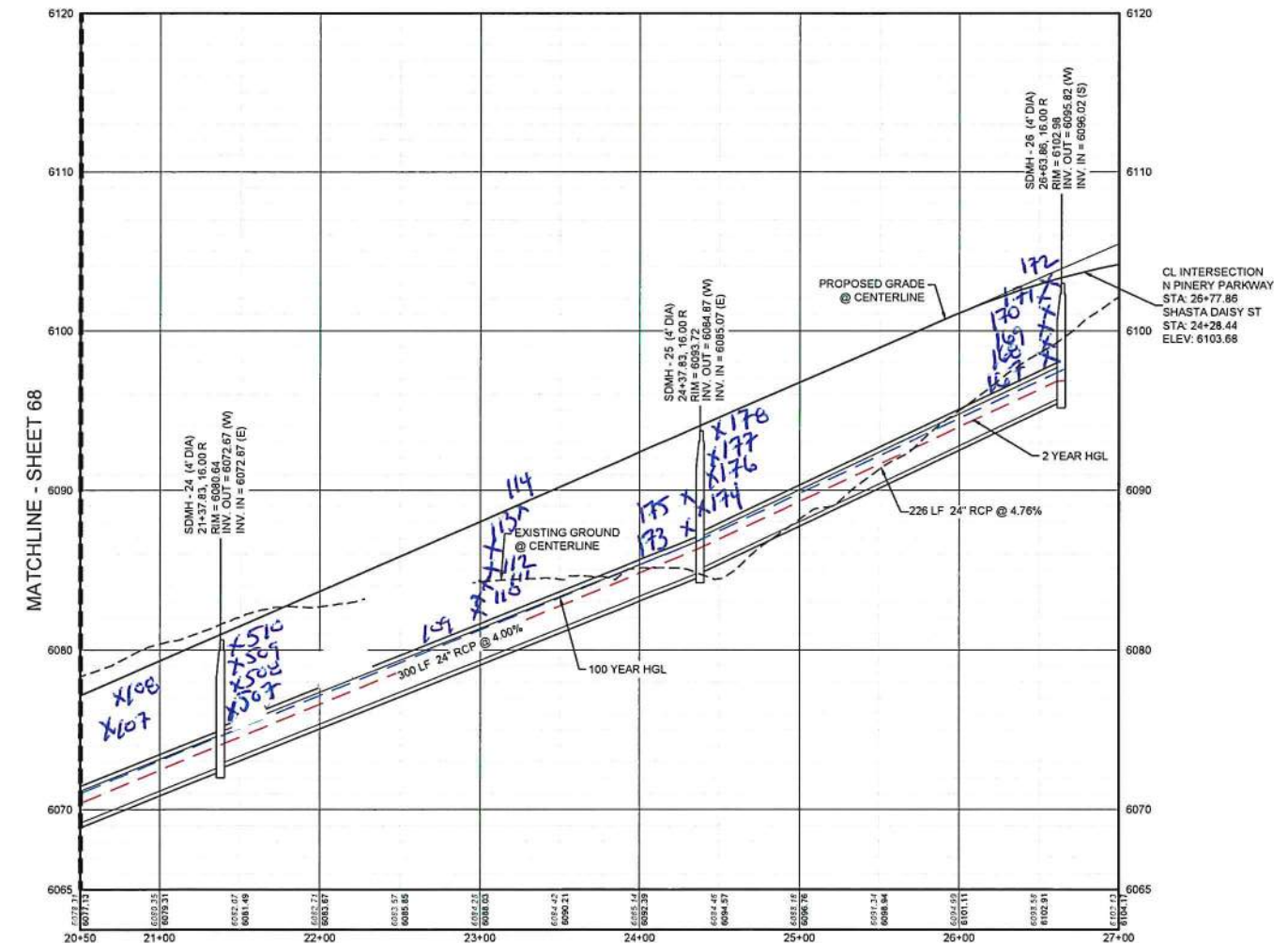
②	BLOCK NUMBER	△	PROPOSED RANGE POINT
(A)	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊗	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⌋	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊗	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊗	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊗	PROPOSED FIRE HYDRANT	---	EXISTING 5' CONTOUR
⊗	PROPOSED WL FITTING WITH THRUST BLOCK	---	EXISTING 1' CONTOUR
⊗	PROPOSED FLARED END SECTION	---	PROPOSED 5' CONTOUR
⊗	PROPOSED LOW POINT BLOW-OFF	---	PROPOSED 1' CONTOUR
⊗	PROPOSED AIR VALVE	---	PROPOSED STORM DRAIN
⊗	FUTURE PHASE VALVE	---	PROPOSED SEWER LINE WITH MANHOLE
⊗	FUTURE FIRE HYDRANT	---	PROPOSED SEWER LATERAL
⊗	PROPOSED LIGHT POLE	---	PROPOSED WATER LATERAL W/ METER
---	PROPOSED SIDEWALK	---	SECTION LINE
---	PROPOSED SIDEWALK RAMP	---	FLING BOUNDARY
---	EXISTING ELEVATION	---	EXISTING FIBER OPTIC LINE
10.00	PROPOSED DESIGN ELEVATION	---	EXISTING OVERHEAD POWER
---	PROPOSED STORM DRAIN INLET	---	EXISTING TELEPHONE LINE
⊗	PROPOSED STORM DRAIN MANHOLE	---	



PROFILE: STORM LATERAL 19 STA: 9+00.00 TO 11+00.00  
HORIZONTAL: 1" = 50'



RESIDENTIAL BOULEVARD COLLECTOR



PROFILE: N PINERY PARKWAY STA: 20+50.00 TO 27+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

**STORM DRAINAGE INFRASTRUCTURE NOTES:**

1. PROFILED STORM DRAINAGE INFRASTRUCTURE INCLUDES THE 2-YEAR AND 100-YEAR HGL FOR INFRASTRUCTURE DESIGNED FOR THE 100-YEAR STORM. INFRASTRUCTURE DESIGNED ONLY FOR THE 2-YEAR STORM WILL ONLY SHOW A 2-YEAR HGL.

**BENCHMARK**  
THE DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060332, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

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PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

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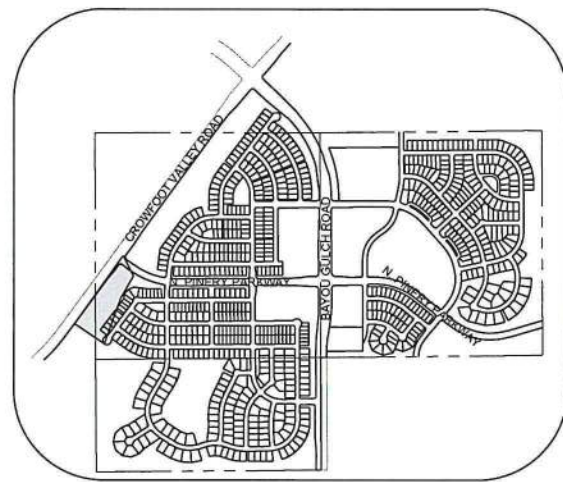
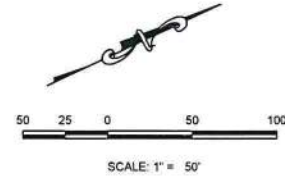
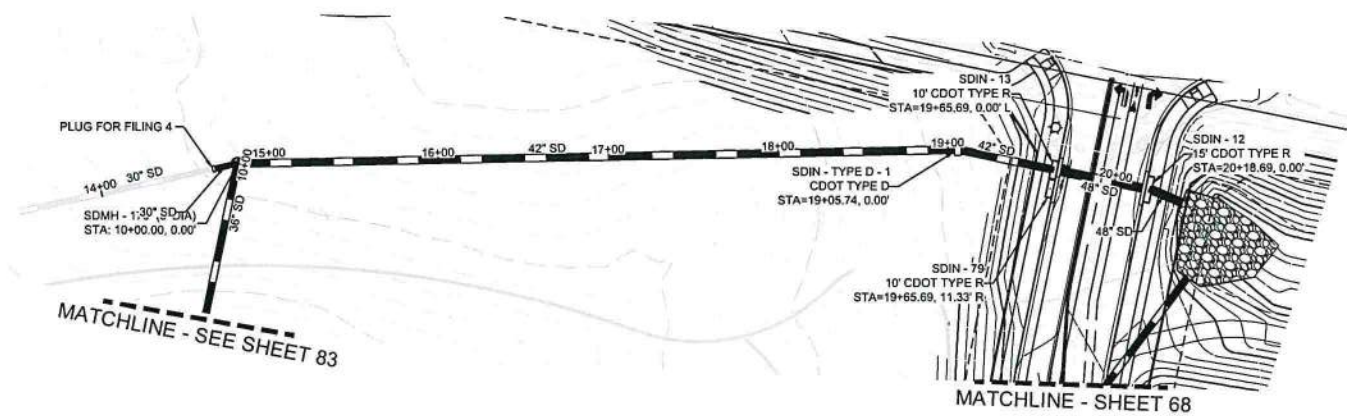
Town of Parker, Director of Engineering  
Date: 12/03/2018

10333 E Dry Creek Rd. Suite 240 Englewood, CO 80112 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	Date	Appr.	Date
 <b>CVL</b> CONSULTANTS	No.			
	HR 935 LLC 7353 South Arroyo Way CENTENNIAL, CO 80112			
TRAILS AT CROWFOOT FILING 1 CONSTRUCTION DRAWINGS STORM PLAN & PROFILE NORTH PINERY PARKWAY	SCALE	AS SHOWN	FILE NO.	8130283701
DRAWN BY: KJD	CHECKED BY: JJJ	DATE:	APRIL 2017	
SHEET NUMBER				69

CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
1-800-922-1987

N:\PROJECTS\ES\RANDI\ENGINEERING\DRG SET\DRG\170\W\OF PARKER\STORM PLAN AND PROFILE\1 NORTH PINERY PARKWAY STORM DRAINING, BRANNAN, 4921018 1:39 PM

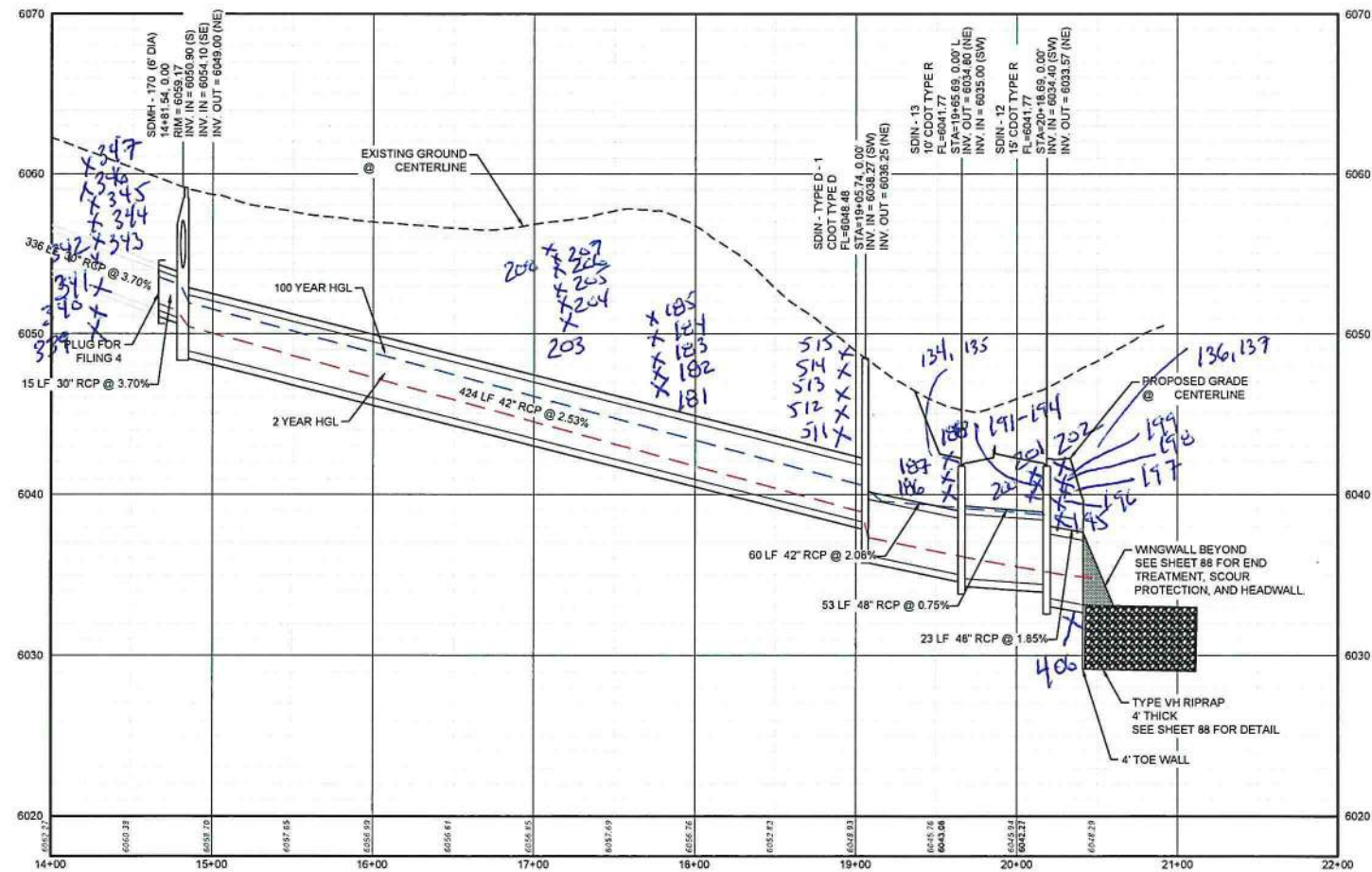




PLAN: SOUTHWEST STORM OUTFALL STA: 10+00.00 TO 19+50.00  
HORIZONTAL SCALE: 1" = 50'

KEYMAP  
N.T.S.  
LEGEND

⊙	BLOCK NUMBER	△	PROPOSED RANGE POINT
Ⓐ	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊗	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⊞	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊞	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
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⊞	EXISTING ELEVATION	---	FILING BOUNDARY
10.00	PROPOSED DESIGN ELEVATION	---	EXISTING FIBER OPTIC LINE
⊞	PROPOSED STORM DRAIN INLET	---	EXISTING OVERHEAD POWER
⊞	PROPOSED STORM DRAIN MANHOLE	---	EXISTING TELEPHONE LINE



PROFILE: SOUTHWEST STORM OUTFALL STA: 14+00.00 TO 22+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

ABBREVIATIONS

AD	ANGLE DIFFERENCE	MH	MANHOLE
AV	AIR VAC RELEASE VALVE	N.T.S.	NOT TO SCALE
BVC	BEGIN VERTICAL CURVE	PVC	POLYVINYL CHLORIDE
BVP	BEGIN VERTICAL PROFILE	PVI	PT. OF VERTICAL INTERSECTION
CBO	CAP WITH BLOW OFF	PVT	POINT OF VERTICAL TANGENT
CRR	CURB RETURN RADIUS	RCP	REINFORCED CONCRETE BOX CULVERT
EL	ELEVATION	RCPC	REINFORCED CONCRETE PIPE
EP	EDGE OF PAVEMENT	ROW	RIGHT OF WAY
EVC	END VERTICAL CURVE	SC	SANITARY CAP
EVP	END VERTICAL PROFILE	SD	STORM DRAIN
FG	FINISHED GROUND	SL	SECTION LINE
FH	FIRE HYDRANT	SS	SANITARY SEWER
FL	FLOW LINE	STA	STATION
GV	GATE VALVE	T.O.P.	TOP OF PIPE
HCR	HANDICAP CURB RAMP	UE	UTILITY EASEMENT
HP	HIGH POINT	VC	VERTICAL CURVE
INV	INVERT	WL	WATER LINE
K	CURVATURE COEFFICIENT	WLC	WATER LINE CONNECTION
LF	LINEAR FEET	WSE	WATER SURFACE ELEVATION

STORM DRAINAGE INFRASTRUCTURE NOTES:

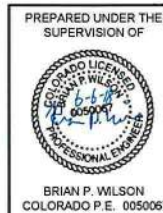
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BENCHMARK

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BRIAN P. WILSON  
COLORADO P.E. 0050067  
12/03/2016  
Town of Parker, Director of Engineering  
Date

10333 E. Dry Creek Rd. Suite 240 Englewood, CO 80112 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	Date	Appr.	Date
 <b>HR 935 LLC</b> 7351 South Alton Way CENTENNIAL, CO 80112	No.			
	TRAILS AT CROWFOOT FILING 1 CONSTRUCTION DRAWINGS STORM PLAN & PROFILE BIRDS FOOT TRAIL			
SCALE: AS SHOWN	FILE NO: 8130283701	DATE: APRIL 2017		
DRAWN BY: JJ	CHECKED BY: JJ	SHEET NUMBER: 84		

IMPROVED DESIGN ENGINEERING SHEET SETS OF TOWN OF PARKER'S STORM PLAN AND PROFILE, BIRDS FOOT TRAIL OUTFALL DWS, BRUNN, 4/20/17 2:08 PM

**CALL 811**  
 TWO WORKING DAYS  
**BEFORE YOU DIG**  
**UNCC 1-800-922-1987**

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
55		7/26/19	2	698A	CL	15.0	112.0	16.1	110.6	8	99	95	0 / 4	A
56		7/26/19	2	698A	CL	15.0	112.0	17.0	109.2	8	98	95	0 / 4	A
79		8/6/19	8	698A	CL	18.0	109.0	18.1	109.1	8	100	95	0 / 4	A
80		8/6/19	8	698A	CL	18.0	109.0	19.1	107.0	8	98	95	0 / 4	A
81		8/6/19	8	698A	CL	18.0	109.0	19.3	106.8	8	98	95	0 / 4	A
87		8/7/19	5	698A	SC	13.5	114.5	13.3	114.9	8	100	100	-2 / 2	A
88		8/7/19	5	698A	SC	13.5	114.5	13.6	114.3	8	100	100	-2 / 2	A
89		8/7/19	5	698A	SC	13.5	114.5	13.8	114.6	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
55	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 150' N of Rose Mallow Street	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
56	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 150' N of Rose Mallow Street	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
79	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 300' S of Crowfoot Valley Road	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
80	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 300' S of Crowfoot Valley Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
81	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 300' S of Crowfoot Valley Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
87	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 75' E of Bayou Gulch Road intersection, 50' W of SDMH 12	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
88	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 75' E of Bayou Gulch Road intersection, 50' W of SDMH 12	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
89	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 75' E of Bayou Gulch Road intersection, 50' W of SDMH 12	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  56: As requested by Rick with Kelley Trucking, a site visit was made to observe and test storm sewer trench backfill. The backfill was prepared prior to our arrival.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

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 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
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90		8/7/19	5	698A	SC	13.5	114.5	13.3	114.9	8	100	100	-2 / 2	A
91		8/7/19	5	698A	SC	13.5	114.5	14.1	114.8	8	100	100	-2 / 2	A
92		8/7/19	5	698A	SC	13.5	114.5	13.8	114.6	8	100	100	-2 / 2	A
93		8/7/19	4	698A	CL	16.0	109.0	17.6	106.6	8	98	95	0 / 4	A
94		8/7/19	4	698A	CL	16.0	109.0	17.8	107.1	8	98	95	0 / 4	A
95		8/7/19	4	698A	CL	16.0	109.0	17.1	107.5	8	99	95	0 / 4	A
96		8/7/19	4	698A	CL	16.0	109.0	17.2	107.1	8	98	95	0 / 4	A
97		8/7/19	4	698A	CL	16.0	109.0	17.6	107.2	8	98	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
90	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 75' E of Bayou Gulch Road intersection, 50' W of SDMH 12	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
91	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 75' E of Bayou Gulch Road intersection, 50' W of SDMH 12	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
92	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 75' E of Bayou Gulch Road intersection, 50' W of SDMH 12	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
93	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch Road, 75' E of SDMH 12	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
94	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch Road, 75' E of SDMH 12	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
95	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch Road, 75' E of SDMH 12	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
96	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch Road, 75' E of SDMH 12	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
97	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch Road, 75' E of SDMH 12	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>97:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test storm sewer trench backfill. We observed the contractor process/place fill with the loader, add moisture with the water truck, and apply compactive effort with the rex.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

**Denver**  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
98		8/8/19	4	698A	CL	16.0	109.0	17.6	107.2	8	98	95	0 / 4	A
99		8/8/19	4	698A	CL	16.0	109.0	17.3	106.7	8	98	95	0 / 4	A
100		8/8/19	4	698A	CL	16.0	109.0	17.9	106.9	8	98	95	0 / 4	A
Test Information														
Test #	Test Location							Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician	
98	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch Road, 15' W of SDMH 73							5.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
99	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch Road, 15' W of SDMH 73							4.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
100	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch Road, 15' W of SDMH 73							3.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
Remarks					Comments									
A: Test results comply with specifications.					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 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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
101		8/8/19	4	698A	CL	16.0	109.0	17.1	107.1	8	98	95	0 / 4	A
102		8/8/19	4	698A	CL	16.0	109.0	17.3	107.1	8	98	95	0 / 4	A
103		8/12/19	5	698A	SC	13.5	114.5	13.0	114.8	8	100	100	-2 / 2	A
104		8/12/19	5	698A	SC	13.5	114.5	12.8	114.2	8	100	100	-2 / 2	A
105		8/12/19	5	698A	SC	13.5	114.5	13.3	114.1	8	100	100	-2 / 2	A
106		8/12/19	5	698A	SC	13.5	114.5	12.4	114.9	8	100	100	-2 / 2	A
107		8/12/19	5	698A	SC	13.5	114.5	13.9	114.6	8	100	100	-2 / 2	A
108		8/12/19	5	698A	SC	13.5	114.5	13.5	114.0	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
101	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch Road, 15' W of SDMH 73	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
102	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch Road, 15' W of SDMH 73	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
103	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 200' E of Rosemallow Avenue intersection	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
104	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 200' E of Rosemallow Avenue intersection	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
105	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 300' E of Rosemallow Avenue intersection	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
106	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 300' E of Rosemallow Avenue intersection	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
107	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 50' NW of SDMH 24	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
108	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 50' NW of SDMH 24	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>102, 108:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test storm sewer trench backfill. We observed the contractor process/place fill with the loader, add moisture with the water truck, and apply compactive effort with the rex.

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
109		8/14/19	3	698A	CL	16.0	111.0	19.3	107.2	8	97	95	0 / 4	A
110		8/14/19	3	698A	CL	16.0	111.0	18.4	107.6	8	97	95	0 / 4	A
111		8/14/19	3	698A	CL	16.0	111.0	18.2	108.4	8	98	95	0 / 4	A
112		8/14/19	3	698A	CL	16.0	111.0	18.6	108.1	8	97	95	0 / 4	A
113		8/14/19	3	698A	CL	16.0	111.0	18.0	108.1	8	97	95	0 / 4	A
114		8/14/19	3	698A	CL	16.0	111.0	17.9	108.1	8	97	95	0 / 4	A
115		8/15/19	5	698A	SC	13.5	114.5	13.6	114.1	8	100	100	-2 / 2	A
116		8/15/19	5	698A	SC	13.5	114.5	13.8	114.1	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
109	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 175' E of SDMH 24	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
110	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 175' E of SDMH 24	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
111	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 175' E of SDMH 24	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
112	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 175' E of SDMH 24	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
113	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 175' E of SDMH 24	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
114	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy, 175' E of SDMH 24	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
115	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch, 100' W of SDMH 104	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
116	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch, 100' W of SDMH 104	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  114: As requested by Rick with Kelley Trucking, site visits were made to observe and test storm sewer trench backfill. We observed the contractor process/place fill with the loader, add moisture with the water truck, and apply compactive effort with the rex.

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
117		8/15/19	5	698A	SC	13.5	114.5	14.1	114.1	8	100	100	-2 / 2	A
118		8/15/19	5	698A	SC	13.5	114.5	13.7	114.2	8	100	100	-2 / 2	A
119		8/16/19	6	698A	SC	11.0	120.5	11.3	120.3	8	100	100	-2 / 2	A
120		8/16/19	6	698A	SC	11.0	120.5	11.8	119.9	8	100	100	-2 / 2	A
121		8/16/19	6	698A	SC	11.0	120.5	11.5	120.1	8	100	100	-2 / 2	A
122		8/16/19	6	698A	SC	11.0	120.5	12.0	120.1	8	100	100	-2 / 2	A
123		8/16/19	6	698A	SC	11.0	120.5	11.5	120.3	8	100	100	-2 / 2	A
124		8/16/19	6	698A	SC	11.0	120.5	11.4	120.1	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
117	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch, 100' W of SDMH 104	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
118	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch, 100' W of SDMH 104	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
119	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch, 50' NW of SDMH 104	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
120	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch, 50' NW of SDMH 104	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
121	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch, 50' NW of SDMH 104	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
122	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch, 50' NW of SDMH 104	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
123	Storm Sewer Trench Backfill: Mainline, N Pinery Pkwy and Bayou Gulch, 50' NW of SDMH 104	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
124	Storm Manhole Backfill: SDMH 104, N Pinery Pkwy, 1' E of E side	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  118: As requested by Rick with Kelley Trucking, site visits were made to observe and test storm sewer trench backfill. We observed the contractor process/place fill with the loader, add moisture with the water truck, and apply compactive effort with the rex.

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
125		8/16/19	6	698A	SC	11.0	120.5	11.4	120.4	8	100	100	-2 / 2	A
126		8/16/19	6	698A	SC	11.0	120.5	11.5	120.4	8	100	100	-2 / 2	A
127		8/16/19	6	698A	SC	11.0	120.5	11.3	120.3	8	100	100	-2 / 2	A
128		8/16/19	6	698A	SC	11.0	120.5	11.7	120.1	8	100	100	-2 / 2	A
129		8/16/19	6	698A	SC	11.0	120.5	11.2	120.2	8	100	100	-2 / 2	A
130		8/16/19	6	698A	SC	11.0	120.5	11.5	120.3	8	100	100	-2 / 2	A
131		8/16/19	6	698A	SC	11.0	120.5	11.7	120.1	8	100	100	-2 / 2	A
132		8/16/19	6	698A	SC	11.0	120.5	11.5	120.3	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
125	Storm Manhole Backfill: SDMH 104, N Pinery Pkwy, 1' E of E side	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
126	Storm Manhole Backfill: SDMH 104, N Pinery Pkwy, 1' E of E side	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
127	Storm Manhole Backfill: SDMH 104, N Pinery Pkwy, 1' E of E side	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
128	Storm Manhole Backfill: SDMH 73, N Pinery Pkwy, 1' N of N side	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
129	Storm Manhole Backfill: SDMH 73, N Pinery Pkwy, 1' S of S side	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
130	Storm Manhole Backfill: SDMH 73, N Pinery Pkwy, 1' N of N side	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
131	Storm Manhole Backfill: SDMH 73, N Pinery Pkwy, 1' W of W side	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
132	Storm Manhole Backfill: SDMH 73, N Pinery Pkwy, 1' E of E side	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
133		8/16/19	6	698A	SC	11.0	120.5	11.5	120.3	8	100	100	-2 / 2	A
134		8/19/19	6	698A	SC	11.0	120.5	11.6	120.2	8	100	100	-2 / 2	A
135		8/19/19	6	698A	SC	11.0	120.5	11.4	120.2	8	100	100	-2 / 2	A
136		8/19/19	6	698A	SC	11.0	120.5	11.5	120.4	8	100	100	-2 / 2	A
137		8/19/19	6	698A	SC	11.0	120.5	11.3	120.2	8	100	100	-2 / 2	A
142		8/20/19	5	698A	SC	13.5	114.5	13.7	115.0	8	100	100	-2 / 2	A
143		8/20/19	5	698A	SC	13.5	114.5	13.7	114.9	8	100	100	-2 / 2	A
144		8/20/19	5	698A	SC	13.5	114.5	14.1	114.8	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
133	Storm Manhole Backfill: SDMH 73, N Pinery Pkwy, 1' E of E side	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
134	Storm Inlet Backfill: N Pinery Pkwy, 100' E of Crowfoot Valley Road, inlet 13	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
135	Storm Inlet Backfill: N Pinery Pkwy, 100' E of Crowfoot Valley Road, inlet 13	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
136	Storm Inlet Backfill: N Pinery Pkwy, 75' SE of Crowfoot Valley Road, inlet 12	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
137	Storm Inlet Backfill: N Pinery Pkwy, 75' SE of Crowfoot Valley Road, inlet 12	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
142	Storm Manhole Backfill: STM MH#19. N. Pinery Pkwy and Bayou Gulch Rd. 1' E of E side.	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
143	Storm Manhole Backfill: STM MH#19. N. Pinery Pkwy and Bayou Gulch Rd. 1' S of S side.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
144	Storm Manhole Backfill: STM MH#19. N. Pinery Pkwy and Bayou Gulch Rd. 1' N of N side.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  133: As requested by Rick with Kelley Trucking, site visits were made to observe and test storm sewer trench backfill. We observed the contractor process/place fill with the loader, add moisture with the water truck, and apply compactive effort with the rex.

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
145		8/20/19	5	698A	SC	13.5	114.5	13.8	114.8	8	100	100	-2 / 2	A
146		8/24/19	5	698A	SC	13.5	114.5	13.6	114.6	8	100	100	-2 / 2	A
147		8/24/19	6	698A	SC	11.0	120.5	11.3	120.5	8	100	100	-2 / 2	A
148		8/24/19	6	698A	SC	11.0	120.5	11.6	119.9	8	100	100	-2 / 2	A
149		8/24/19	6	698A	SC	11.0	120.5	11.3	120.1	8	100	100	-2 / 2	A
150		8/24/19	6	698A	SC	11.0	120.5	11.6	120.2	8	100	100	-2 / 2	A
151		8/24/19	6	698A	SC	11.0	120.5	11.3	120.2	8	100	100	-2 / 2	A
152		8/24/19	6	698A	SC	11.0	120.5	11.6	120.2	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
145	Storm Manhole Backfill: STM MH19, N Pinery Pkwy and Bayou Gulch Road, 1' N of N side	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
146	Storm Manhole Backfill: STM MH#20. N. Pinery Pkwy . 1' N of N side.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
147	Storm Manhole Backfill: STM MH#20. N. Pinery Pkwy . 1' N of N side.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
148	Storm Manhole Backfill: STM MH#20. N. Pinery Pkwy . 1' N of N side.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
149	Storm Manhole Backfill: STM MH#21. N. Pinery Pkwy . 1' S of S side.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
150	Storm Manhole Backfill: STM MH#21. N. Pinery Pkwy . 1' S of S side.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
151	Storm Manhole Backfill: STM MH#21. N. Pinery Pkwy . 1' S of S side.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
152	Storm Manhole Backfill: STM MH#22. N. Pinery Pkwy . 1' E of E side.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. <b>145:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test storm sewer manhole backfill. We observed the contractor process/place fill with the loader, add moisture with the water truck, and apply compactive effort with the loader.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
153		8/24/19	6	698A	SC	11.0	120.5	11.7	119.9	8	100	100	-2 / 2	A
154		8/24/19	6	698A	SC	11.0	120.5	11.2	120.2	8	100	100	-2 / 2	A
155		8/26/19	14	ASTM D698A	SC	11.0	120.5	11.6	119.9	8	100	100	-2 / 2	A
156		8/26/19	14	ASTM D698A	SC	11.0	120.5	11.6	120.3	8	100	100	-2 / 2	A
157		8/26/19	14	ASTM D698A	SC	11.0	120.5	11.5	120.1	8	100	100	-2 / 2	A
158		8/26/19	5	698A	SC	13.5	114.5	13.6	114.8	8	100	100	-2 / 2	A
159		8/26/19	5	698A	SC	13.5	114.5	13.4	114.5	8	100	100	-2 / 2	A
160		8/26/19	5	698A	SC	13.5	114.5	13.4	114.8	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
153	Storm Manhole Backfill: STM MH#22. N. Pinery Pkwy . 1' E of E side.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
154	Storm Manhole Backfill: STM MH 22, N Pinery Pkwy, 1' S of S side	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
155	Storm Manhole Backfill: STM MH#23. N. Pinery Pkwy . 1' S of S side.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
156	Storm Manhole Backfill: STM MH#23. N. Pinery Pkwy . 1' S of S side.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
157	Storm Manhole Backfill: STM MH#23. N. Pinery Pkwy . 1' S of S side.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
158	Storm Sewer Trench Backfill: Mainline. N. Pinery Pkwy. 40' E of STM MH#22.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
159	Storm Sewer Trench Backfill: Mainline. N. Pinery Pkwy. 40' E of STM MH#22.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
160	Storm Sewer Trench Backfill: Mainline. N. Pinery Pkwy. 40' E of STM MH#22.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	<p>Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.</p> <p><b>154:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test storm sewer manhole backfill. We observed the contractor process/place fill with the loader, add moisture with the water truck, and apply compactive effort with the loader. The contractor was informed of the failing test results.</p>

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
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 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
161		8/26/19	5	698A	SC	13.5	114.5	13.6	114.8	8	100	100	-2 / 2	A
162		8/26/19	5	698A	SC	13.5	114.5	13.8	114.4	8	100	100	-2 / 2	A
163		8/26/19	5	698A	SC	13.5	114.5	13.6	114.3	8	100	100	-2 / 2	A
164		8/26/19	5	698A	SC	13.5	114.5	13.6	114.9	8	100	100	-2 / 2	A
165		8/26/19	5	698A	SC	13.5	114.5	14.1	114.5	8	100	100	-2 / 2	A
166		8/26/19	5	698A	SC	13.5	114.5	14.1	114.5	8	100	100	-2 / 2	A
167		8/26/19	4	698A	CL	16.0	109.0	17.1	108.8	8	100	95	0 / 4	A
168		8/26/19	4	698A	CL	16.0	109.0	17.6	107.5	8	99	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
161	Storm Sewer Trench Backfill: Mainline. N. Pinery Pkwy. 15' E of STM MH#23.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
162	Storm Sewer Trench Backfill: Mainline. N. Pinery Pkwy. 15' E of STM MH#23.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
163	Storm Sewer Trench Backfill: Mainline. N. Pinery Pkwy. 15' E of STM MH#23.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
164	Storm Sewer Trench Backfill: Mainline. N. Pinery Pkwy. 175' E of STM MH#23.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
165	Storm Sewer Trench Backfill: Mainline. N. Pinery Pkwy. 175' E of STM MH#23.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
166	Storm Sewer Trench Backfill: Mainline. N. Pinery Pkwy. 175' E of STM MH#23.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
167	Storm Manhole Backfill: STM MH#26. N. Pinery Pkwy and Shasta Daisy St. 1' N of N side.	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
168	Storm Manhole Backfill: STM MH#26. N. Pinery Pkwy and Shasta Daisy St. 1' S of S side.	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
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 Douglas County, CO

Denver  
 1971 West 12th Avenue  
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 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
169		8/26/19	4	698A	CL	16.0	109.0	17.0	108.6	8	100	95	0 / 4	A
170		8/26/19	5	698A	SC	13.5	114.5	13.5	114.7	8	100	100	-2 / 2	A
171		8/26/19	5	698A	SC	13.5	114.5	13.8	114.1	8	100	100	-2 / 2	A
172		8/26/19	5	698A	SC	13.5	114.5	14.0	114.4	8	100	100	-2 / 2	A
173		8/26/19	4	698A	CL	16.0	109.0	17.2	107.2	8	98	95	0 / 4	A
174		8/26/19	4	698A	CL	16.0	109.0	17.3	107.5	8	99	95	0 / 4	A
175		8/26/19	4	698A	CL	16.0	109.0	17.5	107.7	8	99	95	0 / 4	A
176		8/26/19	5	698A	SC	13.5	114.5	13.5	114.8	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
169	Storm Manhole Backfill: STM MH#26. N. Pinery Pkwy and Shasta Daisy St. 1' W of W side.	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
170	Storm Manhole Backfill: STM MH#26. N. Pinery Pkwy and Shasta Daisy St. 1' N of N side.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
171	Storm Manhole Backfill: STM MH#26. N. Pinery Pkwy and Shasta Daisy St. 1' S of S side.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
172	Storm Manhole Backfill: STM MH#26. N. Pinery Pkwy and Shasta Daisy St. 1' E of E side.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
173	Storm Manhole Backfill: STM MH#25. N. Pinery Pkwy. 1' S of S side.	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
174	Storm Manhole Backfill: STM MH#25. N. Pinery Pkwy. 1' N of N side.	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
175	Storm Manhole Backfill: STM MH#25. N. Pinery Pkwy. 1' W of W side.	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
176	Storm Manhole Backfill: STM MH#25. N. Pinery Pkwy. 1' E of E side.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
177		8/26/19	5	698A	SC	13.5	114.5	13.6	114.5	8	100	100	-2 / 2	A
178		8/26/19	5	698A	SC	13.5	114.5	13.6	114.5	8	100	100	-2 / 2	A
181		8/27/19	2	698A	CL	15.0	112.0	15.8	111.5	8	100	95	0 / 4	A
182		8/27/19	2	698A	CL	15.0	112.0	15.9	111.6	8	100	95	0 / 4	A
183		8/27/19	2	698A	CL	15.0	112.0	16.2	112.0	8	100	95	0 / 4	A
184		8/27/19	2	698A	CL	15.0	112.0	16.6	111.1	8	99	95	0 / 4	A
185		8/27/19	2	698A	CL	15.0	112.0	16.4	111.5	8	100	95	0 / 4	A
186		8/29/19	4	698A	CL	16.0	109.0	16.5	106.4	8	98	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
177	Storm Manhole Backfill: STM MH#25. N. Pinery Pkwy. 1' S of S side.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
178	Storm Manhole Backfill: STM MH#25. N. Pinery Pkwy. 1' N of N side.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
181	Storm Sewer Trench Backfill: Mainline. NW of N. Pinery Pkwy. 220' NW of Inlet #12	13.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
182	Storm Sewer Trench Backfill: Mainline. NW of N. Pinery Pkwy. 220' NW of Inlet #12	12.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
183	Storm Sewer Trench Backfill: Mainline. NW of N. Pinery Pkwy. 220' NW of Inlet #12	11.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
184	Storm Sewer Trench Backfill: Mainline. NW of N. Pinery Pkwy. 220' NW of Inlet #12	10.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
185	Storm Sewer Trench Backfill: Mainline, NW of N Pinery Pkwy, 220' NW of inlet 12	9.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
186	Storm Inlet Backfill: Inlet #13. Far North side of N. Pinery Pkwy. W side of inlet	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	<p>Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.</p> <p><b>185:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test storm sewer trench backfill. We observed the contractor process/place fill with the loader, add moisture with the water truck, and apply compactive effort with the loader.</p>

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
 Trails at Crowfoot, Filings 1 and 9  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
187		8/29/19	4	698A	CL	16.0	109.0	16.6	107.3	8	98	95	0 / 4	A
188		8/29/19	4	698A	CL	16.0	109.0	16.9	107.1	8	98	95	0 / 4	A
191		8/29/19	6	698A	SC	11.0	120.5	11.5	120.0	8	100	100	-2 / 2	A
192		8/29/19	6	698A	SC	11.0	120.5	11.6	120.2	8	100	100	-2 / 2	A
193		8/29/19	6	698A	SC	11.0	120.5	11.4	120.2	8	100	100	-2 / 2	A
194		8/29/19	6	698A	SC	11.0	120.5	11.7	120.2	8	100	100	-2 / 2	A
195		8/29/19	9	698A	CL	20.5	103.5	21.8	101.4	8	98	95	0 / 4	A
196		8/29/19	9	698A	CL	20.5	103.5	21.7	102.0	8	99	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
187	Storm Inlet Backfill: Inlet #13. Far North side of N. Pinery Pkwy. W side of inlet	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
188	Storm Inlet Backfill: Inlet #13. Far North side of N. Pinery Pkwy. W side of inlet	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
191	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. E side of inlet.	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
192	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. E side of inlet.	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
193	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. E side of inlet.	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
194	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. E side of inlet.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
195	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. W side of inlet.	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
196	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. W side of inlet.	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

Denver  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
197		8/29/19	9	698A	CL	20.5	103.5	22.3	101.5	8	98	95	0 / 4	A
198		8/29/19	9	698A	CL	20.5	103.5	21.6	101.8	8	98	95	0 / 4	A
199		8/29/19	9	698A	CL	20.5	103.5	22.8	101.9	8	98	95	0 / 4	A
200		8/29/19	9	698A	CL	20.5	103.5	21.7	102.4	8	99	95	0 / 4	A
Test Information														
Test #	Test Location							Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician	
197	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. W side of inlet.							5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
198	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. W side of inlet.							4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
199	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. W side of inlet.							3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
200	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. W side of inlet.							2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
Remarks						Comments								
A: Test results comply with specifications.						Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.								

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

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**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
201		8/29/19	9	698A	CL	20.5	103.5	22.8	101.2	8	98	95	0 / 4	A
202		8/29/19	9	698A	CL	20.5	103.5	22.8	101.2	8	98	95	0 / 4	A
203		9/4/19	9	698A	CL	20.5	103.5	22.4	101.9	8	98	95	0 / 4	A
204		9/4/19	9	698A	CL	20.5	103.5	22.7	101.2	8	98	95	0 / 4	A
205		9/4/19	9	698A	CL	20.5	103.5	22.7	101.1	8	98	95	0 / 4	A
206		9/4/19	9	698A	CL	20.5	103.5	22.8	101.9	8	98	95	0 / 4	A
207		9/4/19	9	698A	CL	20.5	103.5	22.5	101.9	8	98	95	0 / 4	A
208		9/4/19	9	698A	CL	20.5	103.5	22.5	101.5	8	98	95	0 / 4	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
201	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. W side of inlet.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
202	Storm Inlet Backfill: Inlet #12. Far North end of N. Pinery Pkwy. W side of inlet.	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
203	Storm Sewer Trench Backfill: Mainline. 250' W of N end of N. Pinery Pkwy.	8.0	BG	XPLORER / 3500 / 3394 / 2/21/2019	Tomich, Jake
204	Storm Sewer Trench Backfill: Mainline. 250' W of N end of N. Pinery Pkwy.	7.0	BG	XPLORER / 3500 / 3394 / 2/21/2019	Tomich, Jake
205	Storm Sewer Trench Backfill: Mainline. 250' W of N end of N. Pinery Pkwy.	6.0	BG	XPLORER / 3500 / 3394 / 2/21/2019	Tomich, Jake
206	Storm Sewer Trench Backfill: Mainline. 250' W of N end of N. Pinery Pkwy.	5.0	BG	XPLORER / 3500 / 3394 / 2/21/2019	Tomich, Jake
207	Storm Sewer Trench Backfill: Mainline. 250' W of N end of N. Pinery Pkwy.	4.0	BG	XPLORER / 3500 / 3394 / 2/21/2019	Tomich, Jake
208	Storm Sewer Trench Backfill: Mainline. 250' W of N end of N. Pinery Pkwy.	3.0	BG	XPLORER / 3500 / 3394 / 2/21/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
263		9/9/19	3	698A	CL	16.0	111.0	16.6	111.0	8	100	95	0 / 4	A
264		9/9/19	3	698A	CL	16.0	111.0	17.0	110.9	8	100	95	0 / 4	A
265		9/9/19	7	698A	CL	16.5	107.5	18.9	105.6	8	98	95	0 / 4	A
266		9/9/19	7	698A	CL	16.5	107.5	17.6	105.3	8	98	95	0 / 4	A
267		9/9/19	7	698A	CL	16.5	107.5	17.5	105.6	8	98	95	0 / 4	A
272		9/12/19	6	698A	SC	11.0	120.5	11.6	120.2	8	100	100	-2 / 2	A
273		9/12/19	6	698A	SC	11.0	120.5	11.5	120.1	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
263	Storm Manhole Backfill: SDMH#104. Bayou Gulch and N. Pinery Pkwy. 60' S of South Side of intersection.	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
264	Storm Manhole Backfill: SDMH#104. Bayou Gulch and N. Pinery Pkwy. 60' S of South Side of intersection.	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
265	Storm Manhole Backfill: SDMH#104. Bayou Gulch and N. Pinery Pkwy. 60' S of South Side of intersection.	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
266	Storm Manhole Backfill: SDMH#104. Bayou Gulch and N. Pinery Pkwy. 60' S of South Side of intersection.	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
267	Storm Manhole Backfill: SDMH#104. Bayou Gulch and N. Pinery Pkwy. 60' S of South Side of intersection.	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
272	Storm Manhole Backfill: SDMH 18, N side of N Pinery Pkwy, 250' S of intersection with Crowfoot Valley Road	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
273	Storm Manhole Backfill: SDMH 18, N side of N Pinery Pkwy, 250' S of intersection with Crowfoot Valley Road	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. <b>273:</b> As requested by Rick with Kelley Trucking, a site visit was made to observe and test storm sewer manhole backfill. The backfill was prepared prior to our arrival.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
339		10/1/19	4	698A	CL	16.0	109.0	17.6	107.1	8	98	95	0 / 4	A
340		10/1/19	4	698A	CL	16.0	109.0	17.7	106.7	8	98	95	0 / 4	A
341		10/1/19	4	698A	CL	16.0	109.0	18.0	106.9	8	98	95	0 / 4	A
342		10/1/19	4	698A	CL	16.0	109.0	18.0	107.1	8	98	95	0 / 4	A
343		10/1/19	4	698A	CL	16.0	109.0	18.4	107.4	8	99	95	0 / 4	A
344		10/1/19	4	698A	CL	16.0	109.0	18.3	106.3	8	98	95	0 / 4	A
345		10/1/19	4	698A	CL	16.0	109.0	17.5	107.8	8	99	95	0 / 4	A
346		10/1/19	4	698A	CL	16.0	109.0	17.6	107.8	8	99	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
339	Storm Sewer Trench Backfill: Mainline, 65' E of SDMH 170, SW of N end, N Pinery Pkwy	9.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
340	Storm Sewer Trench Backfill: Mainline, 65' E of SDMH 170, SW of N end, N Pinery Pkwy	8.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
341	Storm Sewer Trench Backfill: Mainline, 65' E of SDMH 170, SW of N end, N Pinery Pkwy	7.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
342	Storm Sewer Trench Backfill: Mainline, 75' E of SDMH 170, SW of N end, N Pinery Pkwy	6.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
343	Storm Sewer Trench Backfill: Mainline, 75' E of SDMH 170, SW of N end, N Pinery Pkwy	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
344	Storm Sewer Trench Backfill: Mainline, 75' E of SDMH 170, SW of N end, N Pinery Pkwy	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
345	Storm Sewer Trench Backfill: Mainline, 75' E of SDMH 170, SW of N end, N Pinery Pkwy	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
346	Storm Sewer Trench Backfill: Mainline, 75' E of SDMH 170, SW of N end, N Pinery Pkwy	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
347		10/1/19	4	698A	CL	16.0	109.0	17.5	107.5	8	99	95	0 / 4	A
406		10/8/19	6	698A	SC	11.0	120.5	10.7	120.9	8	100	100	-2 / 2	E

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
347	Storm Sewer Trench Backfill: Mainline, 75' E of SDMH 170, SW of N end, N Pinery Pkwy	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
406	Informational Testing: STM wingwall subgrade, N Pinery Pkwy, 30' E of SD inlet 13, 50' E of N Pinery Pkwy	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
<p><b>A:</b> Test results comply with specifications.</p> <p><b>E:</b> Test number for data entry purposes only.</p>	<p>Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.</p>

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-325  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
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 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
502		11/5/19	3	698A	CL	16.0	111.0	17.3	108.6	8	98	95	0 / 4	A
503		11/5/19	3	698A	CL	16.0	111.0	17.1	108.7	8	98	95	0 / 4	A
504		11/5/19	3	698A	CL	16.0	111.0	17.0	108.5	8	98	95	0 / 4	A
505		11/5/19	3	698A	CL	16.0	111.0	17.4	108.7	8	98	95	0 / 4	A
506		11/5/19	3	698A	CL	16.0	111.0	18.6	107.0	8	96	95	0 / 4	A
507		11/5/19	4	698A	CL	16.0	109.0	17.1	108.3	8	99	95	0 / 4	A
508		11/5/19	4	698A	CL	16.0	109.0	17.9	107.2	8	98	95	0 / 4	A
509		11/5/19	4	698A	CL	16.0	109.0	18.1	107.4	8	99	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
502	Storm Manhole Backfill: SDMH-69, Bayou Gulch Road and N Pinery Pkwy, 1' S of S side	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
503	Storm Manhole Backfill: SDMH-69, Bayou Gulch Road and N Pinery Pkwy, 1' N of N side	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
504	Storm Manhole Backfill: SDMH-69, Bayou Gulch Road and N Pinery Pkwy, 1' E of E side	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
505	Storm Manhole Backfill: SDMH-69, Bayou Gulch Road and N Pinery Pkwy, 1' W of W side	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
506	Storm Manhole Backfill: SDMH-69, Bayou Gulch Road and N Pinery Pkwy, 1' W of W side	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
507	Storm Manhole Backfill: SDMH-24, N Pinery Pkwy, STA 21+37.83, 1' W of E side	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
508	Storm Manhole Backfill: SDMH-24, N Pinery Pkwy, STA 21+37.83, 1' W of E side	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
509	Storm Manhole Backfill: SDMH-24, N Pinery Pkwy, STA 21+37.83, 1' W of E side	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
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Denver  
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**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
510		11/5/19	4	698A	CL	16.0	109.0	18.8	105.3	8	97	95	0 / 4	A
511		11/12/19	2	698A	CL	15.0	112.0	16.3	111.6	6	100	95	0 / 4	A
512		11/12/19	2	698A	CL	15.0	112.0	17.7	110.6	6	99	95	0 / 4	A
513		11/12/19	3	698A	CL	16.0	111.0	16.3	113.5	6	102	95	0 / 4	A
514		11/12/19	3	698A	CL	16.0	111.0	17.6	109.9	6	99	95	0 / 4	A
515		11/12/19	3	698A	CL	16.0	111.0	19.4	106.7	6	96	95	0 / 4	A
516		11/12/19	4	698A	CL	16.0	109.0	19.4	104.9	6	96	95	0 / 4	A
517		11/12/19	4	698A	CL	16.0	109.0	18.4	105.4	6	97	95	0 / 4	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
510	Storm Manhole Backfill: SDMH-24, N Pinery Pkwy, STA 21+37.83, 1' W of E side	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
511	Storm Sewer Trench Backfill: SDIN 1	4.0		XPLORER / 3500 / 2401 / 4/14/2016	Tomich, Jake
512	Storm Sewer Trench Backfill: SDIN 1	3.0		XPLORER / 3500 / 2401 / 4/14/2016	Tomich, Jake
513	Storm Sewer Trench Backfill: SDIN 1	2.0		XPLORER / 3500 / 2401 / 4/14/2016	Tomich, Jake
514	Storm Sewer Trench Backfill: SDIN 1	1.0		XPLORER / 3500 / 2401 / 4/14/2016	Tomich, Jake
515	Storm Sewer Trench Backfill: SDIN 1	0.0		XPLORER / 3500 / 2401 / 4/14/2016	Tomich, Jake
516	Storm Sewer Trench Backfill: N. Pinery Pkwy north channel outfall, station 11+00	3.0		XPLORER / 3500 / 2401 / 4/14/2016	Tomich, Jake
517	Storm Sewer Trench Backfill: N. Pinery Pkwy north channel outfall, station 11+00	2.0		XPLORER / 3500 / 2401 / 4/14/2016	Tomich, Jake

Remarks	Comments
<b>A:</b> Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>510:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test storm sewer trench backfill. The backfill was prepared prior to our arrival.

**Report Date:** 11/13/2019  
**Test Method:** ASTM D 6938

Denver  
 1971 West 12th Avenue  
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**Client:**  
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 Valley...  
 Douglas County, CO

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
518		11/12/19	3	698A	CL	16.0	111.0	16.9	111.4	6	100	95	0 / 4	A
Test Information														
Test #	Test Location						Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician		
518	Storm Sewer Trench Backfill: N. Pinery Pkwy north channel outfall, station 11+00						1.0		XPLOER / 3500 / 2401 / 4/14/2016			Tomich, Jake		
Remarks					Comments									
A: Test results comply with specifications.					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.									



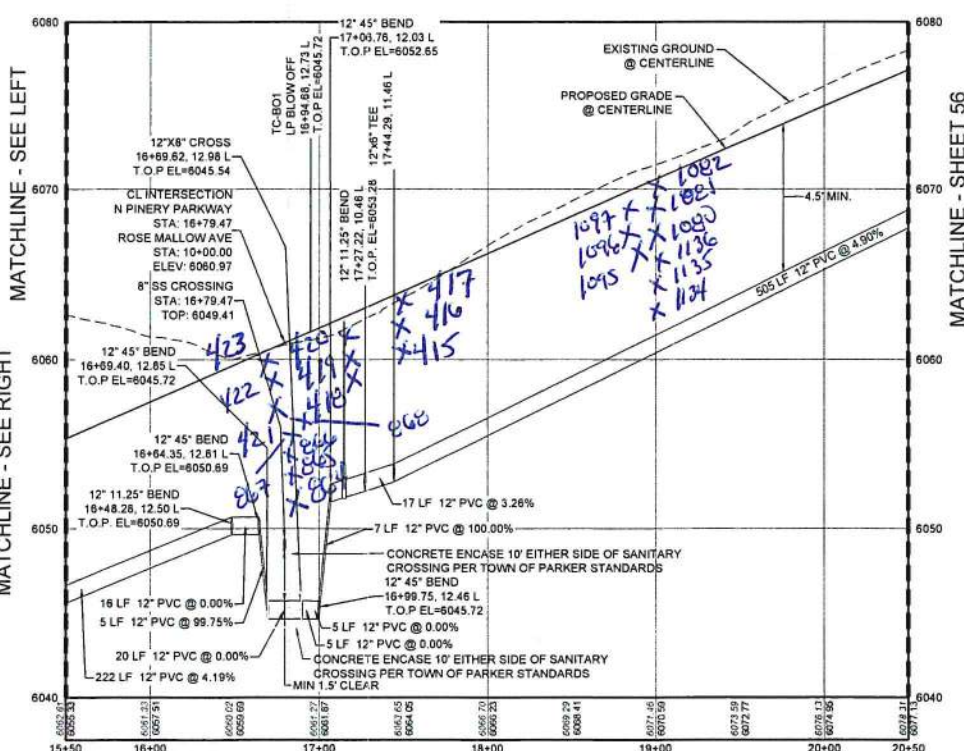
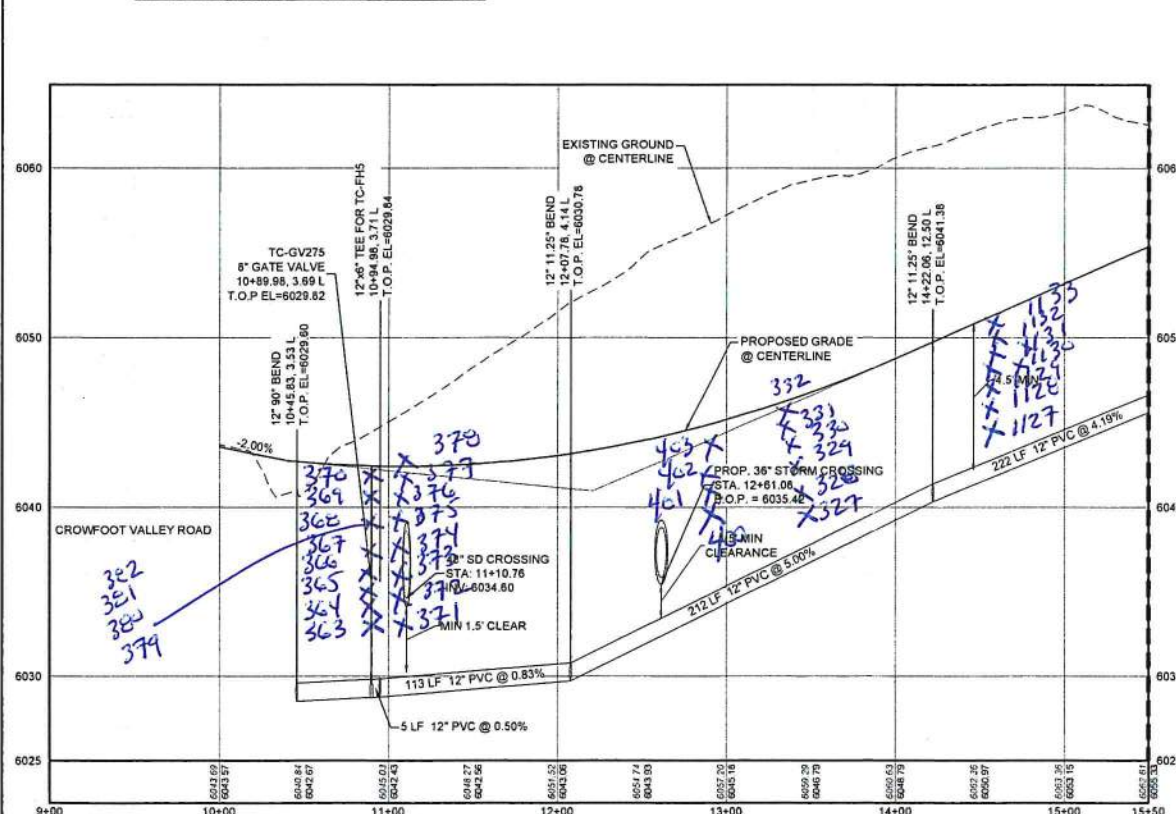
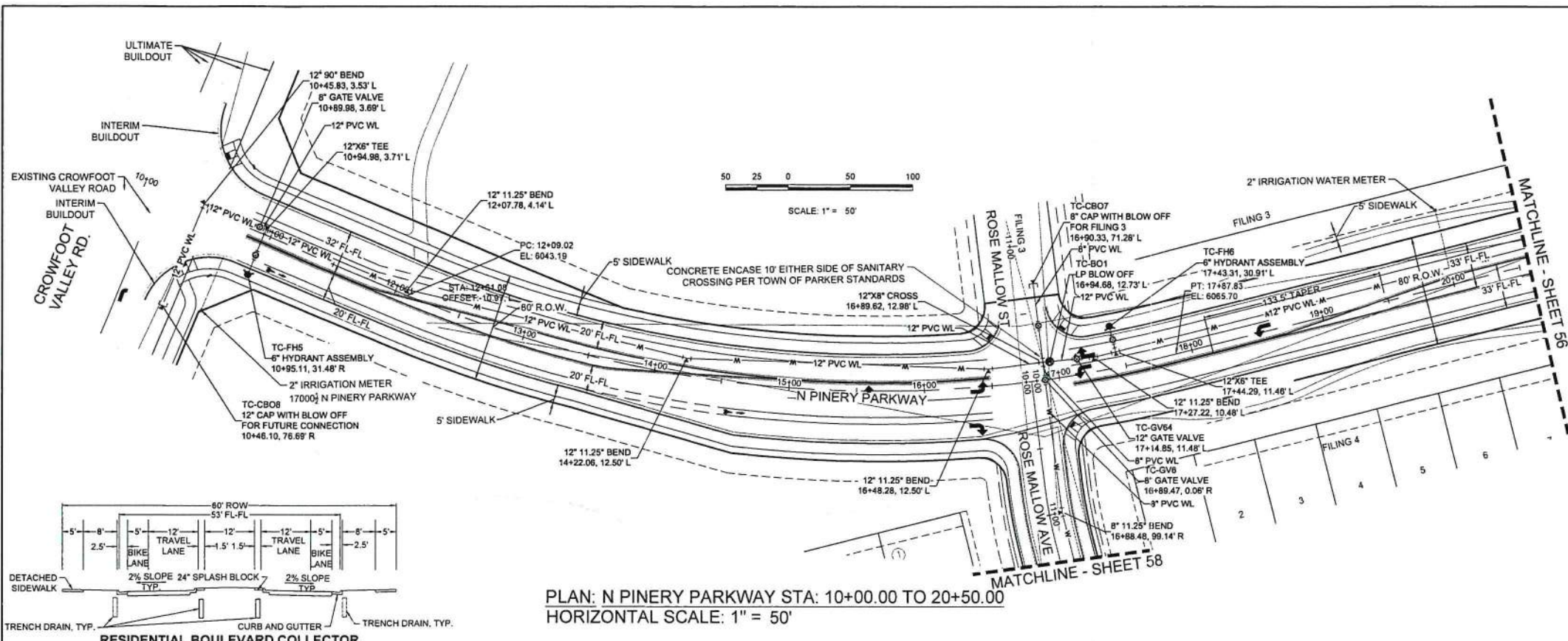
**KEYMAP**  
N.T.S.

**LEGEND**

(2)	BLOCK NUMBER	△	PROPOSED RANGE POINT
(A)	LOT TYPE	- - - -	CENTERLINE
6	LOT NUMBER	— — — —	RIGHT-OF-WAY
⊗	PROPOSED BUTTERFLY VALVE	— — — —	PROPERTY LINE
⊠	PROPOSED CAP WITH END OF LINE BLOWOFF	— — — —	EDGE OF PAVEMENT
⊞	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊕	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊖	PROPOSED FIRE HYDRANT	— — — —	EXISTING 5' CONTOUR
⊞ ⊞ ⊞	PROPOSED WL FITTING WITH THRUST BLOCK	— — — —	EXISTING 1' CONTOUR
⊞	PROPOSED FLARED END SECTION	— 5620 —	PROPOSED 5' CONTOUR
⊞	PROPOSED LOW POINT BLOW-OFF	— 5607 —	PROPOSED 1' CONTOUR
⊞	PROPOSED AIR VALVE	— — — —	PROPOSED STORM DRAIN
⊞	FUTURE PHASE VALVE	— — — —	PROPOSED SEWER LINE WITH MANHOLE
⊞	FUTURE FIRE HYDRANT	— — — —	PROPOSED SEWER LATERAL
⊞	PROPOSED LIGHT POLE	— — — —	PROPOSED WATER LINE
⊞	PROPOSED SIDEWALK	— — — —	PROPOSED LATERAL W/ METER
⊞	PROPOSED SIDEWALK RAMP	— — — —	SECTION LINE
⊞	EXISTING ELEVATION	— — — —	FILING BOUNDARY
10.00	PROPOSED DESIGN ELEVATION	— — — —	EXISTING FIBER
⊞	PROPOSED STORM DRAIN INLET	— — — —	OPTIC LINE
⊞	PROPOSED STORM DRAIN MANHOLE	— — — —	EXISTING OVERHEAD POWER
		— — — —	EXISTING TELEPHONE LINE

**ABBREVIATIONS**

AD	ANGLE DIFFERENCE	MH	MANHOLE
AV	AIR VAC RELEASE VALVE	N.T.S.	NOT TO SCALE
BVP	BEGIN VERTICAL PROFILE	PVC	POLYVINYL CHLORIDE
CBO	CAP WITH BLOW OFF	PVI	PT. OF VERTICAL INTERSECTION
CRR	CURB RETURN RADIUS	RCBC	REINFORCED CONCRETE BOX CULVERT
EL	ELEVATION	RCR	REINFORCED CONCRETE PIPE
EP	EDGE OF PAVEMENT	ROW	RIGHT OF WAY
EVC	END VERTICAL CURVE	SC	SANITARY CAP
EVP	END VERTICAL PROFILE	SD	STORM DRAIN
FG	FINISHED GROUND	SL	SECTION LINE
FH	FIRE HYDRANT	SS	SANITARY SEWER
FL	FLOW LINE	STA	STATION
GV	GATE VALVE	T.O.P.	TOP OF PIPE
HCR	HANDICAP CURB RAMP	UE	UTILITY EASEMENT
HP	HIGH POINT	VC	VERTICAL CURVE
IN	INVERT	WL	WATER LINE
K	CURVATURE COEFFICIENT	WLC	WATER LINE CONNECTION
LF	LINEAR FEET	WSE	WATER SURFACE ELEVATION



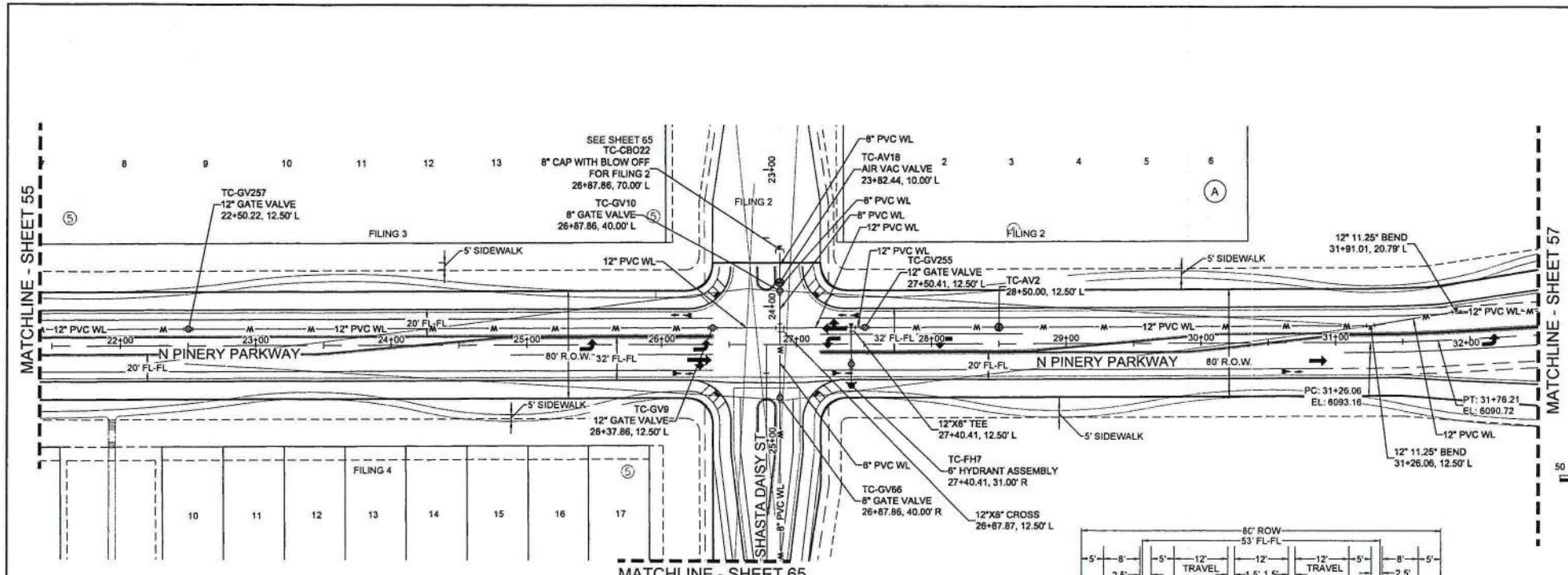
CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
UNCC 1-800-922-1987

**BENCHMARK**  
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.080032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 8 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD 88 DATUM

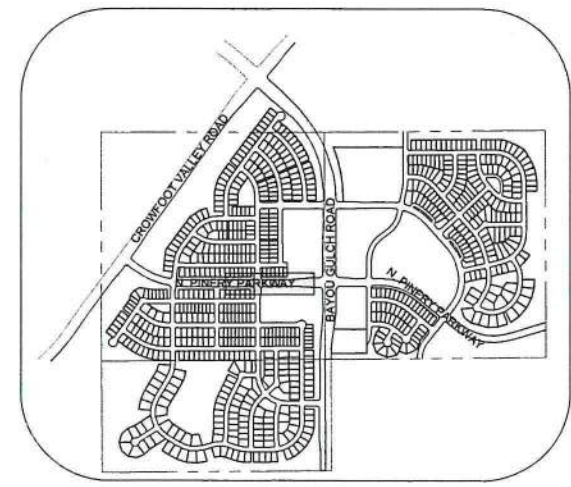
**BASIS OF BEARINGS**  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'00" EAST, 2648.70 FEET.

PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

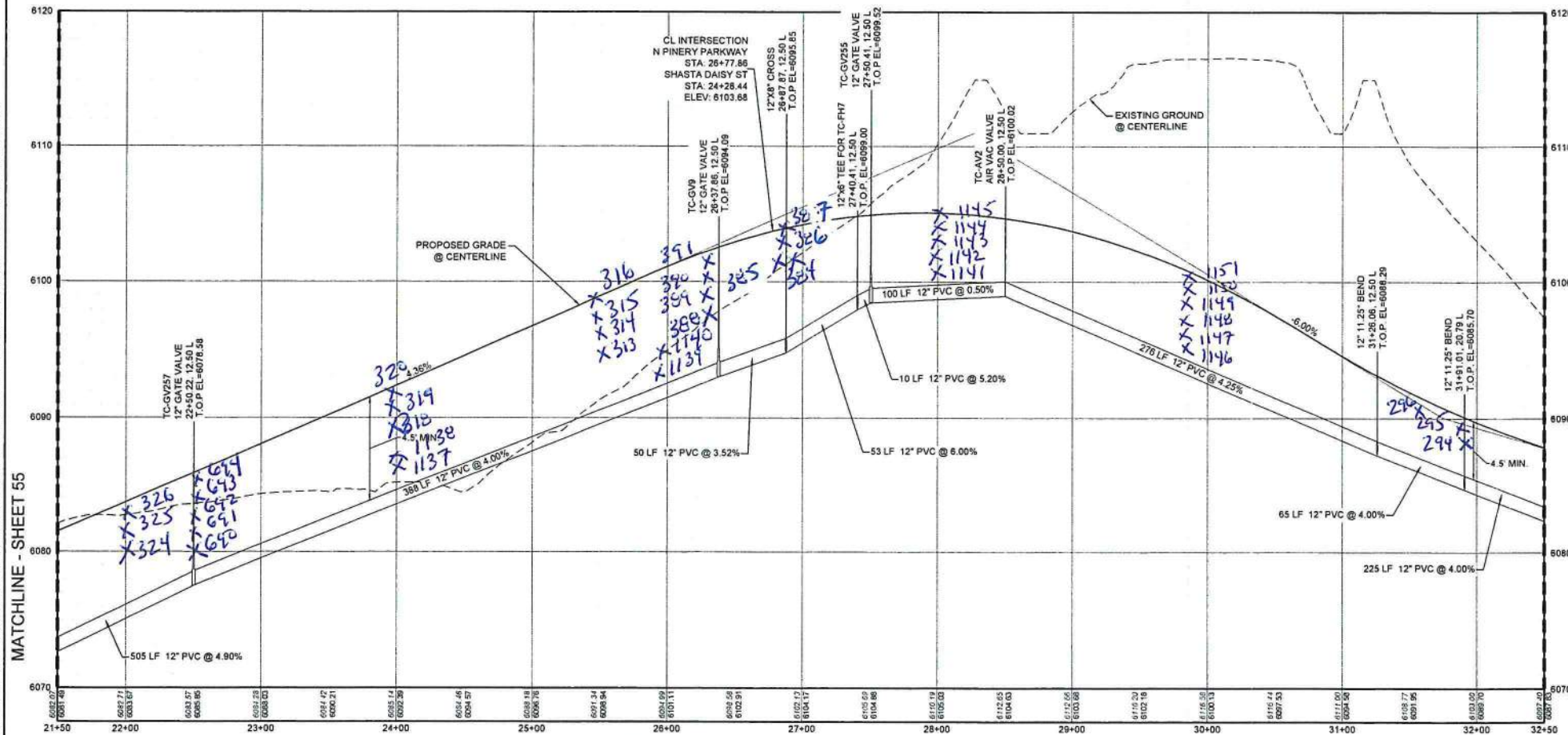
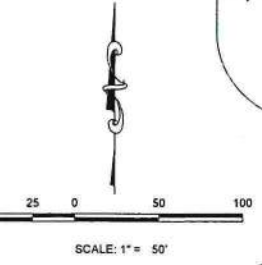
APPROVED  
NOV 29 2016  
PARKER WATER AND SANITATION DISTRICT



PLAN: N PINERY PARKWAY STA: 21+50.00 TO 32+50.00  
HORIZONTAL SCALE: 1" = 50'



KEYMAP  
N.T.S.



PROFILE: N PINERY PARKWAY STA: 21+50.00 TO 32+50.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

**LEGEND**

②	BLOCK NUMBER	△	PROPOSED RANGE POINT
Ⓐ	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊕	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⊞	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊟	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊠	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊡	PROPOSED FIRE HYDRANT	---	EXISTING 5' CONTOUR
⊢	PROPOSED WL FITTING WITH THRUST BLOCK	---	EXISTING 1' CONTOUR
⊣	PROPOSED FLARED END SECTION	---	EXISTING 5' CONTOUR
⊤	PROPOSED LOW POINT BLOW-OFF	---	EXISTING 1' CONTOUR
⊥	PROPOSED AIR VALVE	---	PROPOSED 5' CONTOUR
⊦	FUTURE PHASE VALVE	---	PROPOSED 1' CONTOUR
⊧	FUTURE FIRE HYDRANT	---	PROPOSED STORM DRAIN
⊨	PROPOSED LIGHT POLE	---	PROPOSED SEWER LINE WITH MANHOLE
⊩	PROPOSED SIDEWALK	---	PROPOSED SEWER LATERAL
⊪	PROPOSED SIDEWALK RAMP	---	PROPOSED WATER LINE
⊫	EXISTING ELEVATION	---	PROPOSED WATER LATERAL W/ METER
⊬	PROPOSED DESIGN ELEVATION	---	SECTION LINE
⊭	PROPOSED STORM DRAIN INLET	---	FILING BOUNDARY
⊮	PROPOSED STORM DRAIN MANHOLE	---	EXISTING FIBER OPTIC LINE
		---	EXISTING OVERHEAD POWER
		---	EXISTING TELEPHONE LINE

**ABBREVIATIONS**

AD	ANGLE DIFFERENCE	MH	MANHOLE
AV	AIR VAC RELEASE VALVE	N.T.S.	NOT TO SCALE
BVC	BEGIN VERTICAL CURVE	PVC	POLYVINYL CHLORIDE
BVP	BEGIN VERTICAL PROFILE	PVI	POINT OF VERTICAL INTERSECTION
CBO	CAP WITH BLOW OFF	PVT	POINT OF VERTICAL TANGENT
CRR	CURB RETURN RADIUS	RCBC	REINFORCED CONCRETE BOX CULVERT
EL	ELEVATION	RCPC	REINFORCED CONCRETE PIPE
EP	EDGE OF PAVEMENT	ROW	RIGHT OF WAY
EVC	END VERTICAL CURVE	SC	SANITARY CAP
EVP	END VERTICAL PROFILE	SD	STORM DRAIN
FG	FINISHED GROUND	SL	SECTION LINE
FH	FIRE HYDRANT	SS	SANITARY SEWER
FL	FLOW LINE	STA	STATION
GV	GATE VALVE	T.O.P.	TOP OF PIPE
HCR	HANDICAP CURB RAMP	UE	UTILITY EASEMENT
HP	HIGH POINT	VC	VERTICAL CURVE
INV	INVERT	WL	WATER LINE
K	CURVATURE COEFFICIENT	WLC	WATER LINE CONNECTION
LF	LINEAR FEET	WSE	WATER SURFACE ELEVATION

CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
1-800-922-1987

BENCHMARK  
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '83 DATUM.

BASIS OF BEARINGS:  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23055 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

APPROVED  
NOV 29 2018  
PARKER WATER AND SANITATION DISTRICT

10333 E Dry Creek Rd. Suite 240  
Englewood, CO 80152  
Tel: (720) 940-9232  
Fax: (720) 482-8848

**CVL CONSULTANTS**

HR 935 LLC  
7352 South Alton Way  
CENTENNIAL, CO 80112

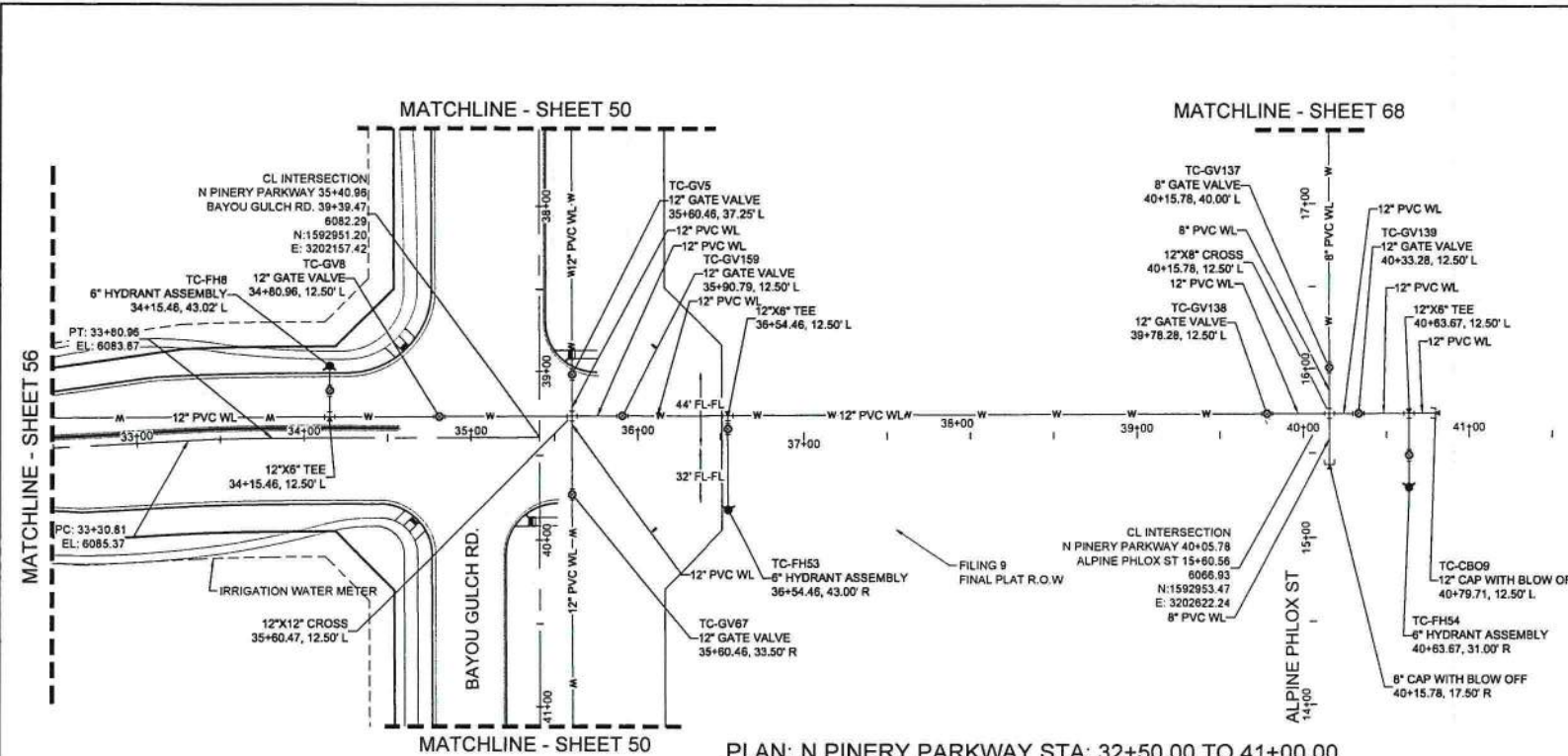
TRAILS AT CROWFOOT  
FILING 1 CONSTRUCTION DRAWINGS  
WATER PLAN & PROFILE  
NORTH PINERY PARKWAY

SCALE: AS SHOWN  
DRAWN BY: RRR  
CHECKED BY: JJJ  
DATE: APRIL 2017

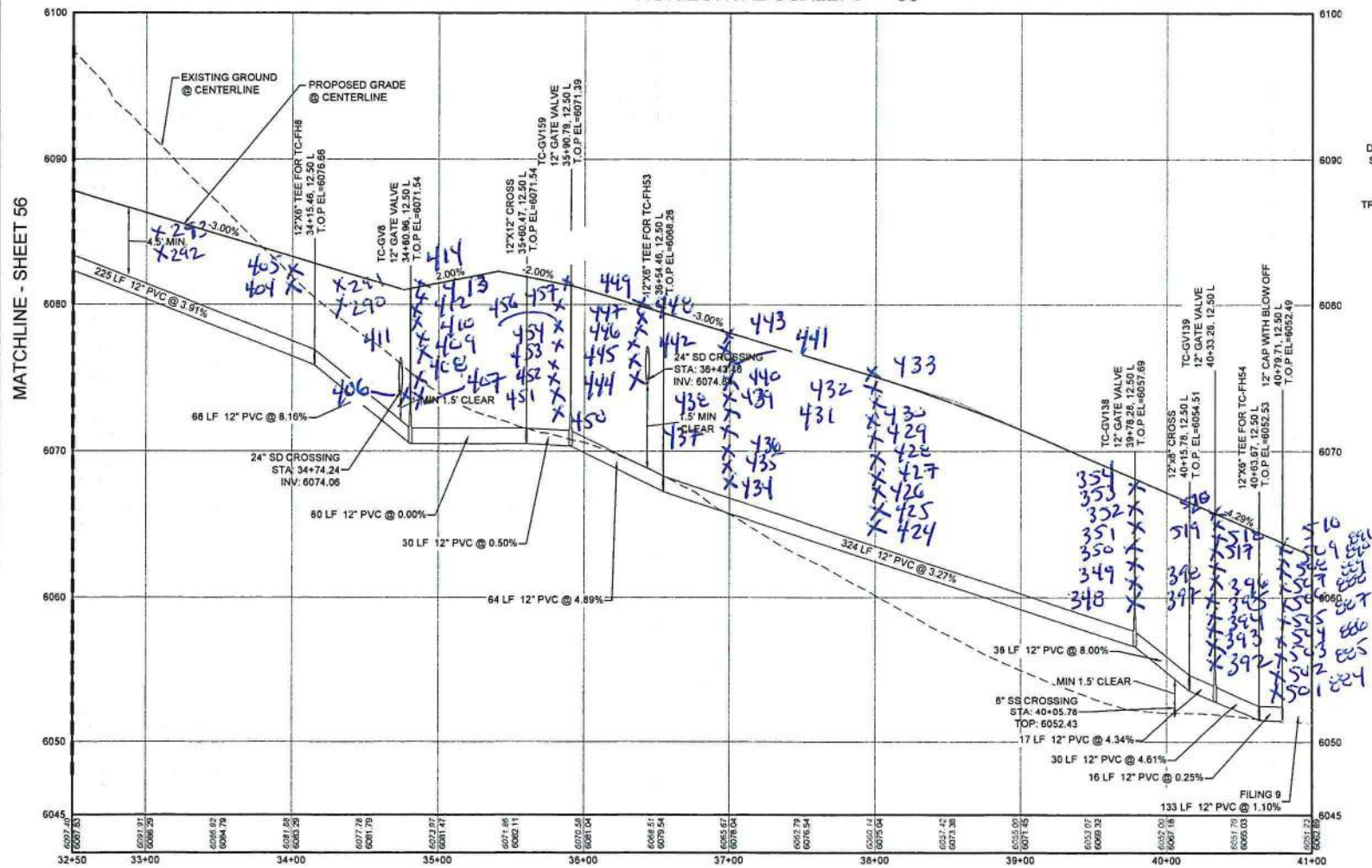
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SHEET NUMBER **56**

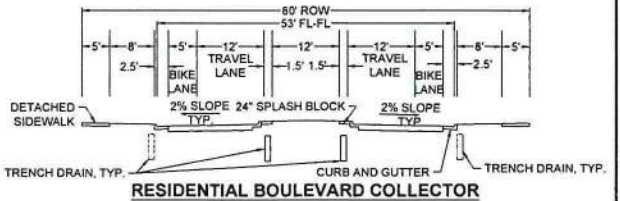
No. Revisions  
Date  
Init.  
Appr.  
Date



PLAN: N PINERY PARKWAY STA: 32+50.00 TO 41+00.00  
HORIZONTAL SCALE: 1" = 50'



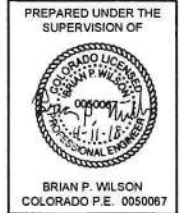
PROFILE: N PINERY PARKWAY STA: 32+50.00 TO 41+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'



RESIDENTIAL BOULEVARD COLLECTOR

LEGEND			
②	BLOCK NUMBER	△	PROPOSED RANGE POINT
Ⓐ	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊗	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⊞	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊞	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊞	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊞	PROPOSED FIRE HYDRANT	---	EXISTING 5' CONTOUR
⊞	PROPOSED WL FITTING WITH THRUST BLOCK	---	EXISTING 1' CONTOUR
⊞	PROPOSED FLARED END SECTION	5620	PROPOSED 5' CONTOUR
⊞	PROPOSED LOW POINT BLOW-OFF	5607	PROPOSED 1' CONTOUR
⊞	PROPOSED AIR VALVE	---	PROPOSED STORM DRAIN
⊞	FUTURE PHASE VALVE	---	PROPOSED SEWER LINE WITH MANHOLE
⊞	PROPOSED LIGHT POLE	---	PROPOSED SEWER LATERAL
⊞	PROPOSED SIDEWALK RAMP	---	PROPOSED WATER LATERAL W/ METER
⊞	EXISTING ELEVATION	---	SECTION LINE
10.00	PROPOSED DESIGN ELEVATION	---	FILING BOUNDARY
⊞	PROPOSED STORM DRAIN INLET	---	EXISTING FIBER
⊞	PROPOSED STORM DRAIN MANHOLE	---	OPTIC LINE
		---	POWER
		---	EXISTING OVERHEAD
		---	EXISTING TELEPHONE LINE

ABBREVIATIONS			
AD	ANGLE DIFFERENCE	MH	MANHOLE
AV	AIR VAC RELEASE VALVE	N.T.S.	NOT TO SCALE
BVC	BEGIN VERTICAL CURVE	PVC	POLYVINYL CHLORIDE
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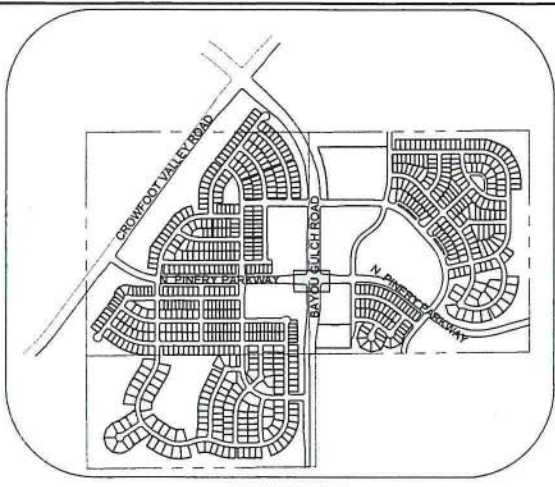


APPROVED  
NOV 29 2016  
PARKER WATER AND SANITATION DISTRICT

CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
1-800-922-1987

BENCHMARK  
THE DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 5-1/4" ALUMINUM CAP STAMPED LS 23055 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.



KEYMAP  
N.T.S.

No.	Revisions	Date	Appr.	Date

10333 E. Dry Creek Rd. Suite 240  
Englewood, CO 80152  
Tel: (720) 482-9528  
Fax: (720) 482-9549

**CVL**  
CONSULTANTS

HR 935 LLC  
7355 South Alton Way  
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT  
FILING 1 CONSTRUCTION DRAWINGS  
WATER PLAN & PROFILE  
NORTH PINERY PARKWAY

SCALE: AS SHOWN  
FILE NO: 8130283701  
DRAWN BY: RBR  
CHECKED BY: JU  
DATE: APRIL 2017

SHEET NUMBER  
**57**

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
290		6/25/19	9	698A	CL	20.5	103.5	21.3	102.3	8	99	95	0 / 4	A
291		6/25/19	9	698A	CL	20.5	103.5	21.8	102.7	8	99	95	0 / 4	A
292		6/25/19	9	698A	CL	20.5	103.5	22.5	101.1	8	98	95	0 / 4	A
293		6/25/19	9	698A	CL	20.5	103.5	21.7	101.2	8	98	95	0 / 4	A
294		6/25/19	9	698A	CL	20.5	103.5	21.4	102.2	8	99	95	0 / 4	A
295		6/25/19	9	698A	CL	20.5	103.5	21.9	102.7	8	99	95	0 / 4	A
296		6/25/19	9	698A	CL	20.5	103.5	21.8	102.8	8	99	95	0 / 4	A
Test Information														
Test #	Test Location							Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician	
290	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 60' NW of Bayou Gulch Road intersection							2.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
291	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 60' NW of Bayou Gulch Road intersection							1.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
292	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 150' NW of Bayou Gulch Road intersection							2.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
293	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 150' NW of Bayou Gulch Road intersection							1.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
294	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 300' NW of Bayou Gulch Road intersection							2.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
295	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 300' NW of Bayou Gulch Road intersection							1.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
296	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 320' NW of Bayou Gulch Road intersection							1.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
Remarks					Comments									
A: Test results comply with specifications.					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.									

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
313		6/27/19	9	698A	CL	20.5	103.5	23.0	101.0	8	98	95	0 / 4	A
314		6/27/19	9	698A	CL	20.5	103.5	23.6	100.2	8	97	95	0 / 4	A
315		6/27/19	9	698A	CL	20.5	103.5	23.6	100.5	8	97	95	0 / 4	A
316		6/27/19	9	698A	CL	20.5	103.5	22.4	103.8	8	100	95	0 / 4	A
317		6/28/19	8	698A	CL	18.0	109.0	19.1	109.0	8	100	95	0 / 4	A
318		6/28/19	8	698A	CL	18.0	109.0	18.5	109.3	8	100	95	0 / 4	A
319		6/28/19	8	698A	CL	18.0	109.0	18.7	109.2	8	100	95	0 / 4	A
320		6/28/19	8	698A	CL	18.0	109.0	18.3	109.0	8	100	95	0 / 4	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
313	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 100' NW of Shasta Daisy Street	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
314	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 100' NW of Shasta Daisy Street	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
315	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 100' NW of Shasta Daisy Street	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
316	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 100' NW of Shasta Daisy Street	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
317	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 250' NW of Shasta Daisy Street	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
318	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 250' NW of Shasta Daisy Street	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
319	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 250' NW of Shasta Daisy Street	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
320	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 250' NW of Shasta Daisy Street	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
<b>A:</b> Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>316:</b> As requested by Rick with Kelley Trucking, a site visit was made to observe and test waterline trench backfill. We observed the contractor process/place fill with the loader, add moisture with the water wagon, and apply compactive effort with the rex.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
324		7/1/19	3	698A	CL	16.0	111.0	18.8	109.1	8	98	95	0 / 4	A
325		7/1/19	3	698A	CL	16.0	111.0	19.4	109.0	8	98	95	0 / 4	A
326		7/1/19	3	698A	CL	16.0	111.0	18.5	109.4	8	99	95	0 / 4	A
327		7/8/19	1	698A	SC	12.5	118.5	12.5	118.6	8	100	100	-2 / 2	A
328		7/8/19	1	698A	SC	12.5	118.5	12.3	118.9	8	100	100	-2 / 2	A
329		7/8/19	1	698A	SC	12.5	118.5	11.7	118.9	8	100	100	-2 / 2	A
330		7/8/19	1	698A	SC	12.5	118.5	11.6	118.9	8	100	100	-2 / 2	A
331		7/8/19	1	698A	SC	12.5	118.5	11.4	118.8	8	100	100	-2 / 2	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
324	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 450' N of Shasta Daisy Street	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
325	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 450' N of Shasta Daisy Street	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
326	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 450' N of Shasta Daisy Street	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
327	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 350' SE of Crowfoot Valley Road	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
328	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 350' SE of Crowfoot Valley Road	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
329	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 350' SE of Crowfoot Valley Road	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
330	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 350' SE of Crowfoot Valley Road	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
331	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 350' SE of Crowfoot Valley Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
<b>A:</b> Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>326:</b> As requested by Rick with Kelley Trucking, a site visit was made to observe and test waterline trench backfill. The backfill was prepared prior to our arrival.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
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 Phone: 303-825-0777 | Fax: 303-825-4252

**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
332		7/8/19	1	698A	SC	12.5	118.5	11.5	118.7	8	100	100	-2 / 2	A
348		7/10/19	6	698A	SC	11.0	120.5	11.1	120.3	8	100	100	-2 / 2	A
349		7/10/19	6	698A	SC	11.0	120.5	11.7	120.1	8	100	100	-2 / 2	A
350		7/10/19	6	698A	SC	11.0	120.5	10.6	120.7	8	100	100	-2 / 2	A
351		7/10/19	6	698A	SC	11.0	120.5	11.1	120.4	8	100	100	-2 / 2	A
352		7/10/19	6	698A	SC	11.0	120.5	11.4	120.4	8	100	100	-2 / 2	A
353		7/10/19	6	698A	SC	11.0	120.5	11.2	120.4	8	100	100	-2 / 2	A
354		7/10/19	6	698A	SC	11.0	120.5	11.6	120.1	8	100	100	-2 / 2	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
332	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 350' SE of Crowfoot Valley Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
348	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 20' W of Alpine Phlox Lane	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
349	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 20' W of Alpine Phlox Lane	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
350	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 20' W of Alpine Phlox Lane	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
351	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 20' W of Alpine Phlox Lane	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
352	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 20' W of Alpine Phlox Lane	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
353	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 20' W of Alpine Phlox Lane	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
354	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 20' W of Alpine Phlox Lane	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
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**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
363		7/12/19	6	698A	SC	11.0	120.5	11.8	120.2	8	100	100	-2 / 2	A
364		7/12/19	6	698A	SC	11.0	120.5	11.6	119.9	8	100	100	-2 / 2	A
365		7/12/19	6	698A	SC	11.0	120.5	11.3	120.4	8	100	100	-2 / 2	A
366		7/12/19	6	698A	SC	11.0	120.5	11.1	120.2	8	100	100	-2 / 2	A
367		7/12/19	6	698A	SC	11.0	120.5	11.6	120.3	8	100	100	-2 / 2	A
368		7/12/19	6	698A	SC	11.0	120.5	11.1	120.3	8	100	100	-2 / 2	A
369		7/12/19	6	698A	SC	11.0	120.5	11.2	120.4	8	100	100	-2 / 2	A
370		7/12/19	6	698A	SC	11.0	120.5	11.4	120.3	8	100	100	-2 / 2	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
363	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
364	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
365	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
366	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
367	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
368	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
369	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
370	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

**Denver**  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
371		7/12/19	6	698A	SC	11.0	120.5	11.5	120.3	8	100	100	-2 / 2	A
372		7/12/19	6	698A	SC	11.0	120.5	11.8	120.3	8	100	100	-2 / 2	A
373		7/12/19	6	698A	SC	11.0	120.5	11.8	119.9	8	100	100	-2 / 2	A
374		7/12/19	6	698A	SC	11.0	120.5	11.1	120.3	8	100	100	-2 / 2	A
375		7/12/19	6	698A	SC	11.0	120.5	12.3	119.9	8	100	100	-2 / 2	A
376		7/12/19	6	698A	SC	11.0	120.5	11.4	120.1	8	100	100	-2 / 2	A
377		7/12/19	6	698A	SC	11.0	120.5	11.8	120.2	8	100	100	-2 / 2	A
378		7/12/19	6	698A	SC	11.0	120.5	11.7	120.2	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
371	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
372	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
373	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
374	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
375	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
376	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
377	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
378	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
379		7/12/19	6	698A	SC	11.0	120.5	12.1	120.3	8	100	100	-2 / 2	A
380		7/12/19	6	698A	SC	11.0	120.5	11.5	120.1	8	100	100	-2 / 2	A
381		7/12/19	6	698A	SC	11.0	120.5	11.6	120.2	8	100	100	-2 / 2	A
382		7/12/19	6	698A	SC	11.0	120.5	11.3	120.1	8	100	100	-2 / 2	A
383		7/12/19	3	698A	CL	16.0	111.0	16.5	108.0	8	97	95	0 / 4	A
384		7/12/19	3	698A	CL	16.0	111.0	17.0	108.8	8	98	95	0 / 4	A
385		7/12/19	3	698A	CL	16.0	111.0	16.4	109.0	8	98	95	0 / 4	A
386		7/12/19	3	698A	CL	16.0	111.0	16.3	109.5	8	99	95	0 / 4	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
379	Waterline Trench Backfill: Valve Box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
380	Waterline Trench Backfill: Valve Box, N Pinery Pkwy, 100' SW of Crowfoot Valley	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
381	Waterline Trench Backfill: Valve Box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
382	Waterline Trench Backfill: Valve Box, N Pinery Pkwy, 100' SW of Crowfoot Valley Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
383	Waterline Trench Backfill: AV MH, N Pinery Pkwy and Shasta Daisy Street, NE corner of intersection	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
384	Waterline Trench Backfill: AV MH, N Pinery Pkwy and Shasta Daisy Street, NE corner of intersection	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
385	Waterline Trench Backfill: AV MH, N Pinery Pkwy and Shasta Daisy Street, NE corner of intersection	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
386	Waterline Trench Backfill: AV MH, N Pinery Pkwy and Shasta Daisy Street, NE corner of intersection	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
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 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
387		7/12/19	3	698A	CL	16.0	111.0	17.4	109.1	8	98	95	0 / 4	A
388		7/12/19	3	698A	CL	16.0	111.0	16.2	108.5	8	98	95	0 / 4	A
389		7/12/19	3	698A	CL	16.0	111.0	16.6	109.3	8	98	95	0 / 4	A
390		7/12/19	3	698A	CL	16.0	111.0	16.3	109.5	8	99	95	0 / 4	A
391		7/12/19	3	698A	CL	16.0	111.0	17.2	109.6	8	99	95	0 / 4	A
392		7/12/19	5	698A	SC	13.5	114.5	13.2	114.7	8	100	100	-2 / 2	A
393		7/12/19	5	698A	SC	13.5	114.5	13.6	114.8	8	100	100	-2 / 2	A
394		7/12/19	5	698A	SC	13.5	114.5	13.1	114.9	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
387	Waterline Trench Backfill: AV MH, N Pinery Pkwy and Shasta Daisy Street, NE corner of intersection	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
388	Waterline Trench Backfill: Valve box adjacent to AV MH, N Pinery Pkwy and Shasta Daisy Street, NE corner of intersection	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
389	Waterline Trench Backfill: Valve box adjacent to AV MH, N Pinery Pkwy and Shasta Daisy Street, NE corner of intersection	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
390	Waterline Trench Backfill: Valve box adjacent to AV MH, N Pinery Pkwy and Shasta Daisy Street, NE corner of intersection	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
391	Waterline Trench Backfill: Valve box adjacent to AV MH, N Pinery Pkwy and Shasta Daisy Street, NE corner of intersection	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
392	Waterline Trench Backfill: Valve box, N Pinery Pkwy and Alpine Phlox Street, 30' SE of intersection	12.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
393	Waterline Trench Backfill: Valve box, N Pinery Pkwy and Alpine Phlox Street, 30' SE of intersection	11.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
394	Waterline Trench Backfill: Valve box, N Pinery Pkwy and Alpine Phlox Street, 30' SE of intersection	10.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
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**Project:**  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
395		7/12/19	5	698A	SC	13.5	114.5	13.3	114.5	8	100	100	-2 / 2	A
396		7/12/19	5	698A	SC	13.5	114.5	13.4	114.8	8	100	100	-2 / 2	A
397		7/12/19	6	698A	SC	11.0	120.5	11.5	120.3	8	100	100	-2 / 2	A
398		7/12/19	6	698A	SC	11.0	120.5	11.1	120.5	8	100	100	-2 / 2	A
399		7/12/19	6	698A	SC	11.0	120.5	11.3	120.6	8	100	100	-2 / 2	A
400		7/12/19	2	698A	CL	15.0	112.0	15.6	110.2	8	98	95	0 / 4	A
Test Information														
Test #	Test Location							Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician	
395	Waterline Trench Backfill: Valve box, N Pinery Pkwy and Alpine Phlox Street, 30' SE of intersection							9.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
396	Waterline Trench Backfill: Valve box, N Pinery Pkwy and Alpine Phlox Street, 30' SE of intersection							8.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
397	Waterline Trench Backfill: Valve box, N Pinery Pkwy and Alpine Phlox Street, 30' SE of intersection							7.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
398	Waterline Trench Backfill: Valve box, N Pinery Pkwy and Alpine Phlox Street, 30' SE of intersection							6.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
399	Waterline Trench Backfill: AV MH-2, N Pinery Pkwy, 100' E of Scarlet Sage Street							3.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
400	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 250' SW of Crowfoot Valley Road							4.0	BG	XPLOER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
Remarks					Comments									
A: Test results comply with specifications.					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.									

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
401		7/12/19	2	698A	CL	15.0	112.0	16.1	110.8	8	99	95	0 / 4	A
402		7/12/19	2	698A	CL	15.0	112.0	15.7	110.0	8	98	95	0 / 4	A
403		7/12/19	2	698A	CL	15.0	112.0	16.0	110.2	8	98	95	0 / 4	A
404		7/15/19	6	698A	SC	11.0	120.5	11.7	120.3	8	100	100	-2 / 2	A
405		7/15/19	6	698A	SC	11.0	120.5	11.6	119.9	8	100	100	-2 / 2	A
406		7/15/19	5	698A	SC	13.5	114.5	12.8	114.5	8	100	100	-2 / 2	A
407		7/15/19	5	698A	SC	13.5	114.5	13.1	114.9	8	100	100	-2 / 2	A
408		7/15/19	5	698A	SC	13.5	114.5	13.3	114.4	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
401	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 250' SW of Crowfoot Valley Road	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
402	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 250' SW of Crowfoot Valley Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
403	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 250' SW of Crowfoot Valley Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
404	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 110' N of Bayou Gulch Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
405	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 110' N of Bayou Gulch Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
406	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 110' N of Bayou Gulch Road adjacent to Lots 2-3 Block 5 Filing 4	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
407	Waterline Trench Backfill: Valve box, N Pinery Pkwy adjacent to Lots 2-3 Block 5 Filing 4	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
408	Waterline Trench Backfill: Valve box, N Pinery Pkwy adjacent to Lots 2-3 Block 5 Filing 4	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. <b>403:</b> As requested by Rick with Kelley Trucking, a site visit was made to observe and test waterline trench backfill. We observed the contractor process/place fill with the loader, add moisture with the water truck, and apply compactive effort with the loader.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
409		7/15/19	5	698A	SC	13.5	114.5	12.9	115.0	8	100	100	-2 / 2	A
410		7/15/19	5	698A	SC	13.5	114.5	12.8	114.0	8	100	100	-2 / 2	A
411		7/15/19	5	698A	SC	13.5	114.5	13.3	114.8	8	100	100	-2 / 2	A
412		7/16/19	6	698A	SC	11.0	120.5	11.5	120.0	8	100	100	-2 / 2	A
413		7/16/19	6	698A	SC	11.0	120.5	11.8	119.9	8	100	100	-2 / 2	A
414		7/16/19	6	698A	SC	11.0	120.5	11.4	120.2	8	100	100	-2 / 2	A
415		7/16/19	6	698A	SC	11.0	120.5	11.6	120.3	8	100	100	-2 / 2	A
416		7/16/19	6	698A	SC	11.0	120.5	11.3	120.5	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
409	Waterline Trench Backfill: Valve box, N Pinery Pkwy adjacent to Lots 2-3 Block 5 Filing 4	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
410	Waterline Trench Backfill: Valve box, N Pinery Pkwy adjacent to Lots 2-3 Block 5 Filing 4	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
411	Waterline Trench Backfill: Valve box, N Pinery Pkwy adjacent to Lots 2-3 Block 5 Filing 4	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
412	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, S side valve	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
413	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, S side valve	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
414	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, S side valve	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
415	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, N side valve	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
416	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, N side valve	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Denver**  
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**Project:**  
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 Valley...  
 Douglas County, CO

Remarks	Comments
<p><b>A:</b> Test results comply with specifications.</p>	<p>Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.</p> <p><b>411:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test waterline trench backfill. We observed the contractor process/place fill with the excavator and loader, add moisture with the water wagon, and apply compactive effort with the sheepsfoot roller.</p>

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
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 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
417		7/16/19	6	698A	SC	11.0	120.5	11.4	120.1	8	100	100	-2 / 2	A
418		7/16/19	6	698A	SC	11.0	120.5	11.4	120.6	8	100	100	-2 / 2	A
419		7/16/19	6	698A	SC	11.0	120.5	11.2	120.4	8	100	100	-2 / 2	A
420		7/16/19	6	698A	SC	11.0	120.5	11.7	120.2	8	100	100	-2 / 2	A
421		7/16/19	6	698A	SC	11.0	120.5	11.8	120.2	8	100	100	-2 / 2	A
422		7/16/19	6	698A	SC	11.0	120.5	11.0	120.4	8	100	100	-2 / 2	A
423		7/16/19	6	698A	SC	11.0	120.5	11.5	120.2	8	100	100	-2 / 2	A
424		7/16/19	3	698A	CL	16.0	111.0	16.9	109.8	8	99	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
417	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, N side valve	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
418	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, E side valve	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
419	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, E side valve	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
420	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, E side valve	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
421	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, W side valve	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
422	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, W side valve	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
423	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 50' E of intersection with Rose Mallow Street, W side valve	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
424	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 200' N of intersection with Alpine Phlox Street	10.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
425		7/16/19	3	698A	CL	16.0	111.0	17.7	108.6	8	98	95	0 / 4	A
426		7/16/19	3	698A	CL	16.0	111.0	17.8	109.0	8	98	95	0 / 4	A
427		7/16/19	2	698A	CL	15.0	112.0	17.0	110.9	8	99	95	0 / 4	A
428		7/16/19	2	698A	CL	15.0	112.0	17.2	110.0	8	98	95	0 / 4	A
429		7/16/19	2	698A	CL	15.0	112.0	16.9	111.2	8	99	95	0 / 4	A
430		7/16/19	2	698A	CL	15.0	112.0	17.9	108.5	8	97	95	0 / 4	A
431		7/16/19	2	698A	CL	15.0	112.0	16.9	109.8	8	98	95	0 / 4	A
432		7/16/19	2	698A	CL	15.0	112.0	17.5	109.9	8	98	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
425	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 200' N of intersection with Alpine Phlox Street	9.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
426	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 200' N of intersection with Alpine Phlox Street	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
427	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 210' N of intersection with Alpine Phlox Street	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
428	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 210' N of intersection with Alpine Phlox Street	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
429	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 210' N of intersection with Alpine Phlox Street	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
430	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 190' N of intersection with Alpine Phlox Street	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
431	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 190' N of intersection with Alpine Phlox Street	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
432	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 190' N of intersection with Alpine Phlox Street	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

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 Douglas County, CO

Denver  
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**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
433		7/16/19	2	698A	CL	15.0	112.0	17.0	109.6	8	98	95	0 / 4	A
434		7/18/19	5	698A	SC	13.5	114.5	13.9	114.0	8	100	100	-2 / 2	A
435		7/18/19	5	698A	SC	13.5	114.5	13.7	114.1	8	100	100	-2 / 2	A
436		7/18/19	5	698A	SC	13.5	114.5	13.9	114.5	8	100	100	-2 / 2	A
437		7/18/19	5	698A	SC	13.5	114.5	13.8	114.3	8	100	100	-2 / 2	A
438		7/18/19	5	698A	SC	13.5	114.5	13.5	114.3	8	100	100	-2 / 2	A
439		7/18/19	5	698A	SC	13.5	114.5	13.7	114.2	8	100	100	-2 / 2	A
440		7/18/19	5	698A	SC	13.5	114.5	13.6	114.3	8	100	100	-2 / 2	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
433	Waterline Trench Backfill: Mainline, N Pinery Pkwy, 190' N of intersection with Alpine Phlox Street	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
434	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' E of intersection with Bayou Gulch Road	10.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
435	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' E of intersection with Bayou Gulch Road	9.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
436	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' E of intersection with Bayou Gulch Road	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
437	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' E of intersection with Bayou Gulch Road	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
438	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' E of intersection with Bayou Gulch Road	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
439	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' E of intersection with Bayou Gulch Road	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
440	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' E of intersection with Bayou Gulch Road	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

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**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Remarks	Comments
<p><b>A:</b> Test results comply with specifications.</p>	<p>Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.</p> <p><b>433:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test waterline trench backfill. We observed the contractor process/place fill with the excavator and loader, add moisture with the water wagon, and apply compactive effort with the sheepsfoot roller.</p>

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
441		7/18/19	5	698A	SC	13.5	114.5	13.3	114.2	8	100	100	-2 / 2	A
442		7/18/19	5	698A	SC	13.5	114.5	13.8	114.5	8	100	100	-2 / 2	A
443		7/18/19	5	698A	SC	13.5	114.5	13.7	114.1	8	100	100	-2 / 2	A
444		7/18/19	2	698A	CL	15.0	112.0	16.5	111.4	8	99	95	0 / 4	A
445		7/18/19	2	698A	CL	15.0	112.0	17.3	110.3	8	98	95	0 / 4	A
446		7/18/19	2	698A	CL	15.0	112.0	17.3	110.4	8	99	95	0 / 4	A
447		7/18/19	2	698A	CL	15.0	112.0	16.4	110.7	8	99	95	0 / 4	A
448		7/18/19	2	698A	CL	15.0	112.0	16.5	111.5	8	100	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
441	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' E of intersection with Bayou Gulch Road	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
442	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' E of intersection with Bayou Gulch Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
443	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 100' E of intersection with Bayou Gulch Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
444	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
445	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
446	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
447	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
448	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	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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 7353 South Alton Way Suite A-100  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
449		7/18/19	2	698A	CL	15.0	112.0	16.2	110.7	8	99	95	0 / 4	A
450		7/18/19	5	698A	SC	13.5	114.5	13.7	114.2	8	100	100	-2 / 2	A
451		7/18/19	5	698A	SC	13.5	114.5	13.7	114.2	8	100	100	-2 / 2	A
452		7/18/19	5	698A	SC	13.5	114.5	13.2	114.4	8	100	100	-2 / 2	A
453		7/18/19	5	698A	SC	13.5	114.5	13.6	114.6	8	100	100	-2 / 2	A
454		7/18/19	5	698A	SC	13.5	114.5	13.3	114.5	8	100	100	-2 / 2	A
455		7/18/19	5	698A	SC	13.5	114.5	13.8	114.4	8	100	100	-2 / 2	A
456		7/18/19	5	698A	SC	13.5	114.5	13.5	114.4	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
449	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
450	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
451	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
452	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
453	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
454	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
455	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
456	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Report Date: 11/6/2019  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
457		7/18/19	5	698A	SC	13.5	114.5	13.7	114.3	8	100	100	-2 / 2	A
485		7/31/19	3	698A	CL	16.0	111.0	16.7	108.4	8	98	95	0 / 4	A
486		7/31/19	3	698A	CL	16.0	111.0	17.7	108.0	8	97	95	0 / 4	A
487		7/31/19	3	698A	CL	16.0	111.0	17.7	108.2	8	97	95	0 / 4	A
488		7/31/19	3	698A	CL	16.0	111.0	17.4	108.3	8	98	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
457	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 200' E of intersection with Bayou Gulch Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
485	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 25' E of Bayou Gulch Road	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
486	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 25' E of Bayou Gulch Road	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
487	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 25' E of Bayou Gulch Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
488	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 25' E of Bayou Gulch Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>457:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test waterline trench backfill. We observed the contractor process/place fill with the excavator and loader, add moisture with the water wagon, and apply compactive effort with the sheepsfoot roller.

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**Test Method:** ASTM D 6938

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
501		8/1/19	9	698A	CL	20.5	103.5	21.9	101.8	8	98	95	0 / 4	A
502		8/1/19	9	698A	CL	20.5	103.5	23.3	100.4	8	97	95	0 / 4	A
503		8/1/19	9	698A	CL	20.5	103.5	23.0	100.2	8	97	95	0 / 4	A
504		8/1/19	9	698A	CL	20.5	103.5	22.9	99.9	8	97	95	0 / 4	A
505		8/1/19	6	698A	SC	11.0	120.5	11.5	120.4	8	100	100	-2 / 2	A
506		8/1/19	6	698A	SC	11.0	120.5	11.3	120.2	8	100	100	-2 / 2	A
507		8/1/19	6	698A	SC	11.0	120.5	11.6	120.3	8	100	100	-2 / 2	A
508		8/1/19	6	698A	SC	11.0	120.5	11.5	120.2	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
501	Waterline Trench Backfill: Fire hydrant, TCFH-54, N Pinery Pkwy and Bayou Gulch Road	10.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
502	Waterline Trench Backfill: Fire hydrant, TCFH-54, N Pinery Pkwy and Bayou Gulch Road	9.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
503	Waterline Trench Backfill: Fire hydrant, TCFH-54, N Pinery Pkwy and Bayou Gulch Road	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
504	Waterline Trench Backfill: Fire hydrant, TCFH-54, N Pinery Pkwy and Bayou Gulch Road	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
505	Waterline Trench Backfill: Fire hydrant, TCFH-54, N Pinery Pkwy and Bayou Gulch Road	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
506	Waterline Trench Backfill: Fire hydrant, TCFH-54, N Pinery Pkwy and Bayou Gulch Road	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
507	Waterline Trench Backfill: Fire hydrant, TCFH-54, N Pinery Pkwy and Bayou Gulch Road	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
508	Waterline Trench Backfill: Fire hydrant, TCFH-54, N Pinery Pkwy and Bayou Gulch Road	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	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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**Client:**  
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 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
509		8/1/19	6	698A	SC	11.0	120.5	11.5	120.0	8	100	100	-2 / 2	A
510		8/1/19	6	698A	SC	11.0	120.5	11.6	120.3	8	100	100	-2 / 2	A
511		8/1/19	5	698A	SC	13.5	114.5	13.3	114.9	8	100	100	-2 / 2	A
512		8/1/19	5	698A	SC	13.5	114.5	13.6	114.3	8	100	100	-2 / 2	A
513		8/1/19	5	698A	SC	13.5	114.5	14.1	114.3	8	100	100	-2 / 2	A
514		8/1/19	5	698A	SC	13.5	114.5	13.8	114.4	8	100	100	-2 / 2	A
515		8/1/19	5	698A	SC	13.5	114.5	13.7	114.7	8	100	100	-2 / 2	A
516		8/1/19	5	698A	SC	13.5	114.5	13.7	114.2	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
509	Waterline Trench Backfill: Fire hydrant, TCFH-54, N Pinery Pkwy and Bayou Gulch Road	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
510	Waterline Trench Backfill: Fire hydrant, TCFH-54, N Pinery Pkwy and Bayou Gulch Road	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
511	Waterline Trench Backfill: Valve box, 10' NE of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	10.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
512	Waterline Trench Backfill: Valve box, 10' NE of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	9.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
513	Waterline Trench Backfill: Valve box, 10' NE of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
514	Waterline Trench Backfill: Valve box, 10' NE of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
515	Waterline Trench Backfill: Valve box, 10' NE of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
516	Waterline Trench Backfill: Valve box, 10' NE of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
517		8/1/19	5	698A	SC	13.5	114.5	14.2	114.3	8	100	100	-2 / 2	A
518		8/1/19	5	698A	SC	13.5	114.5	13.7	114.2	8	100	100	-2 / 2	A
519		8/1/19	5	698A	SC	13.5	114.5	13.5	114.6	8	100	100	-2 / 2	A
520		8/1/19	5	698A	SC	13.5	114.5	13.6	114.6	8	100	100	-2 / 2	A
521		8/1/19	3	698A	CL	16.0	111.0	17.0	109.1	8	98	95	0 / 4	A
522		8/1/19	3	698A	CL	16.0	111.0	17.2	109.0	8	98	95	0 / 4	A
523		8/1/19	3	698A	CL	16.0	111.0	17.5	109.1	8	98	95	0 / 4	A
524		8/1/19	3	698A	CL	16.0	111.0	17.1	108.8	8	98	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
517	Waterline Trench Backfill: Valve box, 10' NE of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
518	Waterline Trench Backfill: Valve box, 10' NE of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
519	Waterline Trench Backfill: Valve box, 10' NE of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
520	Waterline Trench Backfill: Valve box, 10' NE of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
521	Waterline Trench Backfill: Valve box, 15' N of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	10.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
522	Waterline Trench Backfill: Valve box, 15' N of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	9.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
523	Waterline Trench Backfill: Valve box, 15' N of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
524	Waterline Trench Backfill: Valve box, 15' N of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
525		8/1/19	3	698A	CL	16.0	111.0	16.8	109.4	8	99	95	0 / 4	A
526		8/1/19	3	698A	CL	16.0	111.0	17.0	109.0	8	98	95	0 / 4	A
527		8/1/19	3	698A	CL	16.0	111.0	16.8	108.6	8	98	95	0 / 4	A
528		8/1/19	3	698A	CL	16.0	111.0	17.7	108.8	8	98	95	0 / 4	A
529		8/1/19	3	698A	CL	16.0	111.0	17.3	109.2	8	98	95	0 / 4	A
530		8/1/19	3	698A	CL	16.0	111.0	17.0	109.1	8	98	95	0 / 4	A
531		8/1/19	5	698A	SC	13.5	114.5	13.6	114.8	8	100	100	-2 / 2	A
532		8/1/19	5	698A	SC	13.5	114.5	13.6	114.3	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
525	Waterline Trench Backfill: Valve box, 15' N of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
526	Waterline Trench Backfill: Valve box, 15' N of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
527	Waterline Trench Backfill: Valve box, 15' N of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
528	Waterline Trench Backfill: Valve box, 15' N of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
529	Waterline Trench Backfill: Valve box, 15' N of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
530	Waterline Trench Backfill: Valve box, 15' N of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
531	Waterline Trench Backfill: Valve box, 60' NW of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	10.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
532	Waterline Trench Backfill: Valve box, 60' NW of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	9.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

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Test Results														
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533		8/1/19	5	698A	SC	13.5	114.5	14.1	114.5	8	100	100	-2 / 2	A
534		8/1/19	5	698A	SC	13.5	114.5	13.8	114.4	8	100	100	-2 / 2	A
535		8/1/19	5	698A	SC	13.5	114.5	13.4	114.5	8	100	100	-2 / 2	A
536		8/1/19	5	698A	SC	13.5	114.5	13.8	114.6	8	100	100	-2 / 2	A
537		8/1/19	5	698A	SC	13.5	114.5	13.7	114.4	8	100	100	-2 / 2	A
538		8/1/19	5	698A	SC	13.5	114.5	13.5	114.4	8	100	100	-2 / 2	A
539		8/1/19	5	698A	SC	13.5	114.5	13.7	114.9	8	100	100	-2 / 2	A
540		8/1/19	5	698A	SC	13.5	114.5	13.8	114.4	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
533	Waterline Trench Backfill: Valve box, 60' NW of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
534	Waterline Trench Backfill: Valve box, 60' NW of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
535	Waterline Trench Backfill: Valve box, 60' NW of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
536	Waterline Trench Backfill: Valve box, 60' NW of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
537	Waterline Trench Backfill: Valve box, 60' NW of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
538	Waterline Trench Backfill: Valve box, 60' NW of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
539	Waterline Trench Backfill: Valve box, 60' NW of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
540	Waterline Trench Backfill: Valve box, 60' NW of TCFH-54, Alpine Phlox Street and N Pinery Pkwy	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	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 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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
690		8/26/19	4	698A	CL	16.0	109.0	17.4	106.7	8	98	95	0 / 4	A
691		8/26/19	4	698A	CL	16.0	109.0	17.8	105.9	8	97	95	0 / 4	A
692		8/26/19	4	698A	CL	16.0	109.0	18.3	105.3	8	97	95	0 / 4	A
693		8/26/19	14	ASTM D698A	SC	11.0	120.5	11.6	119.9	8	100	100	-2 / 2	A
694		8/26/19	14	ASTM D698A	SC	11.0	120.5	11.5	120.3	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
690	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 75' NE of STM-MH 24	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
691	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 75' NE of STM-MH 24	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
692	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 75' NE of STM-MH 24	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
693	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 75' NE of STM-MH 24	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
694	Waterline Trench Backfill: Valve box, N Pinery Pkwy, 75' NE of STM-MH 24	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>694:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test waterline trench backfill. We observed the contractor process/place fill with the loader, add moisture with the water truck, and apply compactive effort with the rex.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
864		9/19/19	2	698A	CL	15.0	112.0	15.9	111.6	8	100	95	0 / 4	A
865		9/19/19	2	698A	CL	15.0	112.0	17.0	109.1	8	97	95	0 / 4	A
866		9/19/19	2	698A	CL	15.0	112.0	17.7	109.3	8	98	95	0 / 4	A
867		9/19/19	2	698A	CL	15.0	112.0	16.6	109.7	8	98	95	0 / 4	A
868		9/19/19	2	698A	CL	15.0	112.0	16.5	109.4	8	98	95	0 / 4	A
884		9/20/19	6	698A	SC	11.0	120.5	11.3	120.2	8	100	100	-2 / 2	A
885		9/20/19	6	698A	SC	11.0	120.5	11.5	119.9	8	100	100	-2 / 2	A
886		9/20/19	6	698A	SC	11.0	120.5	11.7	120.1	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
864	Waterline Trench Backfill: Mainline, 40' W of N Pinery Pkwy and Rose Mallow Ave intersection	8.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
865	Waterline Trench Backfill: Mainline, 40' W of N Pinery Pkwy and Rose Mallow Ave intersection	7.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
866	Waterline Trench Backfill: Mainline, 35' W of N Pinery Pkwy and Rose Mallow Ave intersection	6.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
867	Waterline Trench Backfill: Mainline, 35' W of N Pinery Pkwy and Rose Mallow Ave intersection	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
868	Waterline Trench Backfill: Mainline, 30' W of N Pinery Pkwy and Rose Mallow Ave intersection	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
884	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 50' E of Alpine Phlox St intersection	7.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
885	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 50' E of Alpine Phlox St intersection	6.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
886	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 50' E of Alpine Phlox St intersection	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	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 Method:** ASTM D 6938

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
887		9/20/19	6	698A	SC	11.0	120.5	11.4	120.2	8	100	100	-2 / 2	A
888		9/20/19	2	698A	CL	15.0	112.0	16.6	111.7	8	100	95	0 / 4	A
889		9/20/19	2	698A	CL	15.0	112.0	17.0	110.9	8	99	95	0 / 4	A
890		9/20/19	2	698A	CL	15.0	112.0	17.2	111.2	8	99	95	0 / 4	A
891		9/20/19	2	698A	CL	15.0	112.0	16.5	111.3	8	99	95	0 / 4	A
892		9/20/19	2	698A	CL	15.0	112.0	17.1	109.8	8	98	95	0 / 4	A
893		9/20/19	2	698A	CL	15.0	112.0	16.9	110.3	8	98	95	0 / 4	A
894		9/20/19	2	698A	CL	15.0	112.0	16.8	110.8	8	99	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
887	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 50' E of Alpine Phlox St intersection	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
888	Waterline Trench Backfill: Mainline, Rose Mallow Avenue and N Pinery Pkwy adjacent to SSMH 17	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
889	Waterline Trench Backfill: Mainline, Rose Mallow Avenue and N Pinery Pkwy adjacent to SSMH 17	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
890	Waterline Trench Backfill: Mainline, Rose Mallow Avenue and N Pinery Pkwy adjacent to SSMH 17	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
891	Waterline Trench Backfill: Mainline, Rose Mallow Avenue and N Pinery Pkwy adjacent to SSMH 17	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
892	Waterline Trench Backfill: Mainline, Rose Mallow Avenue and N Pinery Pkwy, 50' W of SSMH 17	8.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
893	Waterline Trench Backfill: Mainline, Rose Mallow Avenue and N Pinery Pkwy, 50' W of SSMH 17	7.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
894	Waterline Trench Backfill: Mainline, Rose Mallow Avenue and N Pinery Pkwy, 50' W of SSMH 17	6.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
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**Project:**  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
895		9/20/19	2	698A	CL	15.0	112.0	17.4	109.5	8	98	95	0 / 4	A
896		9/20/19	6	698A	SC	11.0	120.5	11.6	120.0	8	100	100	-2 / 2	A
897		9/20/19	6	698A	SC	11.0	120.5	11.5	120.3	8	100	100	-2 / 2	A
Test Information														
Test #	Test Location							Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician	
895	Waterline Trench Backfill: Mainline, Rose Mallow Avenue and N Pinery Pkwy, 50' W of SSMH 17							5.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake	
896	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 50' E of Alpine Phlox St intersection							3.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake	
897	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 50' E of Alpine Phlox St intersection							2.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake	
Remarks						Comments								
A: Test results comply with specifications.						Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.								

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
898		9/20/19	6	698A	SC	11.0	120.5	11.3	120.1	8	100	100	-2 / 2	A
Test Information														
Test #	Test Location						Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician		
898	Waterline Trench Backfill: Fire hydrant, N Pinery Pkwy, 50' E of Alpine Phlox St intersection						1.0	BG	XPLOERER / 3500 / 1988 / 8/30/2019			Tomich, Jake		
Remarks						Comments								
A: Test results comply with specifications.						Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.								

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
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 7353 South Alton Way Suite A-100  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
1080		10/22/19	1	698A	SC	12.5	118.5	11.2	118.2	8	100	100	-2 / 2	A
1081		10/22/19	1	698A	SC	12.5	118.5	10.9	118.1	8	100	100	-2 / 2	A
1082		10/22/19	1	698A	SC	12.5	118.5	10.7	118.5	8	100	100	-2 / 2	A
1083		10/22/19	1	698A	SC	12.5	118.5	10.8	118.0	8	100	100	-2 / 2	A
1084		10/22/19	1	698A	SC	12.5	118.5	11.1	118.3	8	100	100	-2 / 2	A
1085		10/22/19	1	698A	SC	12.5	118.5	10.9	118.8	8	100	100	-2 / 2	A
1095		10/23/19	1	698A	SC	12.5	118.5	12.0	118.8	8	100	100	-2 / 2	A
1096		10/23/19	1	698A	SC	12.5	118.5	11.6	118.8	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
1080	Waterline Trench Backfill: Irrigation sleeve crossing, N half of N Pinery Pkwy, 200' E of intersection of N Pinery Pkwy and Rose Mallow Ave	3.0	BG	XPLORER / 3500 / 3404 / 2/7/2019	Sidney, Christopher
1081	Waterline Trench Backfill: Irrigation sleeve crossing, N half of N Pinery Pkwy, 200' E of intersection of N Pinery Pkwy and Rose Mallow Ave	2.0	BG	XPLORER / 3500 / 3404 / 2/7/2019	Sidney, Christopher
1082	Waterline Trench Backfill: Irrigation sleeve crossing, N half of N Pinery Pkwy, 200' E of intersection of N Pinery Pkwy and Rose Mallow Ave	1.0	BG	XPLORER / 3500 / 3404 / 2/7/2019	Sidney, Christopher
1083	Waterline Trench Backfill: Irrigation sleeve crossing on N Pinery Pkwy, 20' E of intersection of N Pinery Pkwy and Rose Mallow Ave	3.0	BG	XPLORER / 3500 / 3404 / 2/7/2019	Sidney, Christopher
1084	Waterline Trench Backfill: Irrigation sleeve crossing on N Pinery Pkwy, 20' E of intersection of N Pinery Pkwy and Rose Mallow Ave	2.0	BG	XPLORER / 3500 / 3404 / 2/7/2019	Sidney, Christopher
1085	Waterline Trench Backfill: Irrigation sleeve crossing on N Pinery Pkwy, 20' E of intersection of N Pinery Pkwy and Rose Mallow Ave	1.0	BG	XPLORER / 3500 / 3404 / 2/7/2019	Sidney, Christopher
1095	Waterline Trench Backfill: Irrigation sleeve crossing, S half of N Pinery Pkwy, 200' E of intersection of N Pinery Pkwy and Rose Mallow Ave	3.0	BG	XPLORER / 3500 / 3404 / 2/7/2019	Sidney, Christopher
1096	Waterline Trench Backfill: Irrigation sleeve crossing, S half of N Pinery Pkwy, 200' E of intersection of N Pinery Pkwy and Rose Mallow Ave	2.0	BG	XPLORER / 3500 / 3404 / 2/7/2019	Sidney, Christopher

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>1085:</b> As requested by Alejo with Environmental, a site visit was made to observe and test waterline trench backfill. The backfill was prepared prior to our arrival.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-320  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
1097		10/23/19	1	698A	SC	12.5	118.5	11.1	119.6	8	101	100	-2 / 2	A
Test Information														
Test #	Test Location						Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician		
1097	Waterline Trench Backfill: Irrigation sleeve crossing, S half of N Pinery Pkwy, 200' E of intersection of N Pinery Pkwy and Rose Mallow Ave						1.0	BG	XPLOER / 3500 / 3404 / 2/7/2019			Sidney, Christopher		
Remarks						Comments								
A: Test results comply with specifications.						Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.								

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
1127		10/25/19	2	698A	CL	15.0	112.0	16.3	110.6	6	99	95	0 / 4	A
1128		10/25/19	2	698A	CL	15.0	112.0	17.6	108.3	6	97	95	0 / 4	A
1129		10/25/19	2	698A	CL	15.0	112.0	17.4	107.5	6	96	95	0 / 4	A
1130		10/25/19	5	698A	SC	13.5	114.5	14.9	114.8	6	100	100	-2 / 2	A
1131		10/25/19	5	698A	SC	13.5	114.5	14.1	116.1	6	101	100	-2 / 2	A
1132		10/25/19	5	698A	SC	13.5	114.5	13.6	116.6	6	102	100	-2 / 2	A
1133		10/25/19	4	698A	CL	16.0	109.0	19.6	105.3	6	97	95	0 / 4	A
1134		10/25/19	3	698A	CL	16.0	111.0	16.5	111.5	6	100	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
1127	Waterline Trench Backfill: N Pinery Pkwy station 14+50	7.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1128	Waterline Trench Backfill: N Pinery Pkwy station 14+50	6.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1129	Waterline Trench Backfill: N Pinery Pkwy station 14+50	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1130	Waterline Trench Backfill: N Pinery Pkwy station 14+50	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1131	Waterline Trench Backfill: N Pinery Pkwy station 14+50	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1132	Waterline Trench Backfill: N Pinery Pkwy station 14+50	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1133	Waterline Trench Backfill: N Pinery Pkwy station 14+50	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1134	Waterline Trench Backfill: N Pinery Pkwy station 19+00	8.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

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 E5X Management  
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Test Results														
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1135		10/25/19	3	698A	CL	16.0	111.0	16.7	108.8	6	98	95	0 / 4	A
1136		10/25/19	3	698A	CL	16.0	111.0	16.5	108.9	6	98	95	0 / 4	A
1137		10/25/19	4	698A	CL	16.0	109.0	19.3	105.4	6	97	95	0 / 4	A
1138		10/25/19	2	698A	CL	15.0	112.0	17.6	109.9	6	98	95	0 / 4	A
1139		10/25/19	2	698A	CL	15.0	112.0	16.3	110.6	6	99	95	0 / 4	A
1140		10/25/19	5	698A	SC	13.5	114.5	15.1	114.1	6	100	100	-2 / 2	A
1141		10/25/19	4	698A	CL	16.0	109.0	17.9	107.8	6	99	95	0 / 4	A
1142		10/25/19	4	698A	CL	16.0	109.0	17.9	107.0	6	98	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
1135	Waterline Trench Backfill: N Pinery Pkwy station 19+00	7.0	BG	XPLOER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1136	Waterline Trench Backfill: N Pinery Pkwy station 19+00	6.0	BG	XPLOER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1137	Waterline Trench Backfill: N Pinery Pkwy station 24+00	5.0	BG	XPLOER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1138	Waterline Trench Backfill: N Pinery Pkwy station 24+00	5.0	BG	XPLOER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1139	Waterline Trench Backfill: N Pinery Pkwy station 26+00	7.0	BG	XPLOER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1140	Waterline Trench Backfill: N Pinery Pkwy station 26+00	6.0	BG	XPLOER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1141	Waterline Trench Backfill: N Pinery Pkwy station 28+00	5.0	BG	XPLOER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1142	Waterline Trench Backfill: N Pinery Pkwy station 28+00	4.0	BG	XPLOER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

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**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
1143		10/25/19	4	698A	CL	16.0	109.0	18.5	106.6	6	98	95	0 / 4	A
1144		10/25/19	2	698A	CL	15.0	112.0	15.5	113.2	6	101	95	0 / 4	A
1145		10/25/19	2	698A	CL	15.0	112.0	16.7	113.1	6	101	95	0 / 4	A
1146		10/25/19	3	698A	CL	16.0	111.0	17.9	107.5	6	97	95	0 / 4	A
1147		10/25/19	4	698A	CL	16.0	109.0	18.9	105.1	6	96	95	0 / 4	A
1148		10/25/19	4	698A	CL	16.0	109.0	19.1	104.5	6	96	95	0 / 4	A
1149		10/25/19	3	698A	CL	16.0	111.0	16.1	110.8	6	100	95	0 / 4	A
1150		10/25/19	5	698A	SC	13.5	114.5	15.0	115.0	6	100	100	-2 / 2	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
1143	Waterline Trench Backfill: N Pinery Pkwy station 28+00	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1144	Waterline Trench Backfill: N Pinery Pkwy station 28+00	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1145	Waterline Trench Backfill: N Pinery Pkwy station 28+00	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1146	Waterline Trench Backfill: N Pinery Pkwy station 30+00	6.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1147	Waterline Trench Backfill: N Pinery Pkwy station 30+00	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1148	Waterline Trench Backfill: N Pinery Pkwy station 30+00	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1149	Waterline Trench Backfill: N Pinery Pkwy station 30+00	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1150	Waterline Trench Backfill: N Pinery Pkwy station 30+00	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

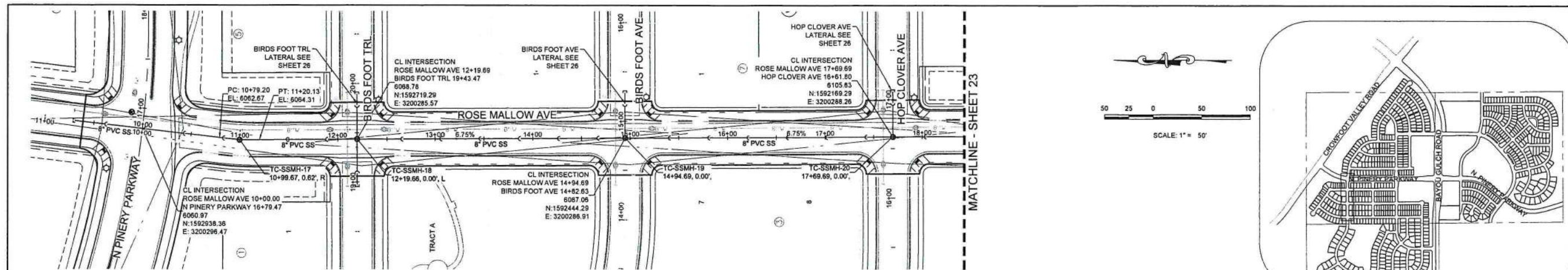
**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
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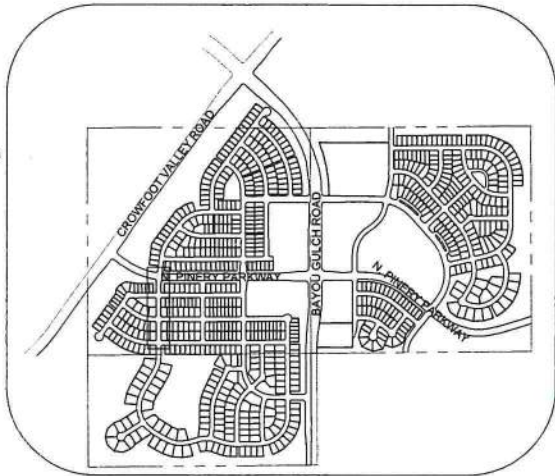
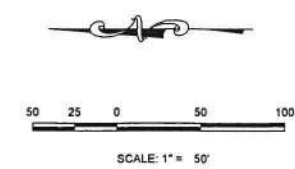
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Test Results														
Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
1151		10/25/19	2	698A	CL	15.0	112.0	16.4	111.2	6	99	95	0 / 4	A
Test Information														
Test #	Test Location						Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician		
1151	Waterline Trench Backfill: N Pinery Pkwy station 30+00						1.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake		
Remarks					Comments									
A: Test results comply with specifications.					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.									



PLAN: ROSE MALLOW AVE STA: 9+00.00 TO 18+50.00  
HORIZONTAL SCALE: 1" = 50'

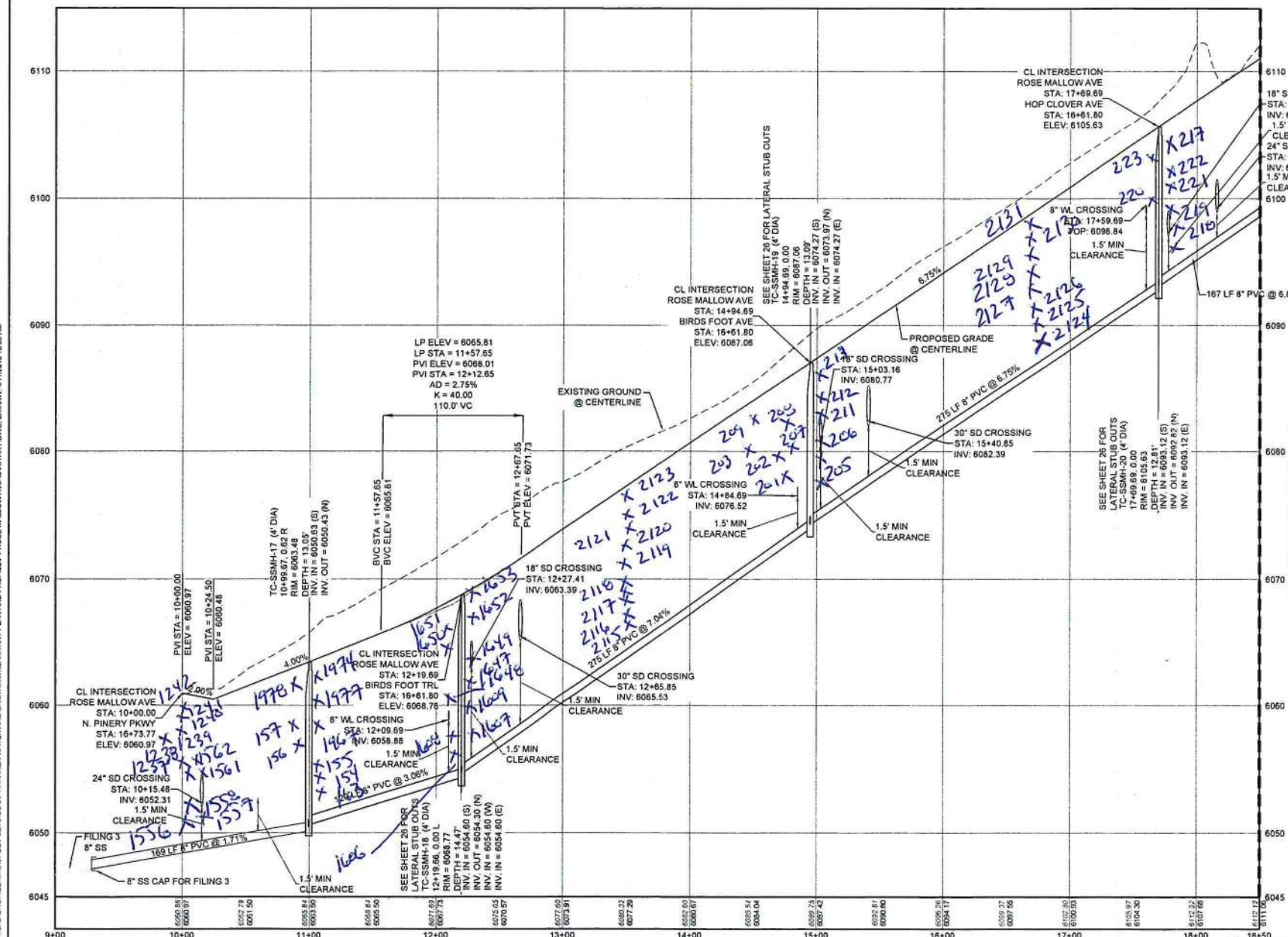


KEYMAP  
N.T.S.  
LEGEND

②	BLOCK NUMBER	△	PROPOSED RANGE POINT
Ⓐ	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊗	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⊔	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊞	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊕	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊖	PROPOSED FIRE HYDRANT	---	EXISTING 5' CONTOUR
⊞	PROPOSED WL FITTING WITH THRUST BLOCK	---	EXISTING 1' CONTOUR
⊞	PROPOSED FLARED END SECTION	---	EXISTING 5' CONTOUR
⊞	PROPOSED LOW POINT BLOW-OFF	---	PROPOSED 5' CONTOUR
⊞	PROPOSED AIR VALVE	---	PROPOSED 1' CONTOUR
⊞	FUTURE PHASE VALVE	---	PROPOSED STORM DRAIN
⊞	FUTURE FIRE HYDRANT	---	PROPOSED SEWER LINE WITH MANHOLE
⊞	PROPOSED LIGHT POLE	---	PROPOSED SEWER LATERAL
⊞	PROPOSED SIDEWALK RAMP	---	PROPOSED WATER LINE
⊞	EXISTING ELEVATION	---	PROPOSED WATER LATERAL W/ METER
10.00	PROPOSED DESIGN ELEVATION	---	SECTION LINE
⊞	PROPOSED STORM DRAIN INLET	---	FLING BOUNDARY
⊞	PROPOSED STORM DRAIN MANHOLE	---	EXISTING FIBER OPTIC LINE
		---	EXISTING OVERHEAD POWER
		---	EXISTING TELEPHONE LINE

ABBREVIATIONS

AD	ANGLE DIFFERENCE	MH	MANHOLE
AV	AIR VAC RELEASE VALVE	N.T.S.	NOT TO SCALE
BVC	BEGIN VERTICAL CURVE	PVC	POLYVINYL CHLORIDE
BVP	BEGIN VERTICAL PROFILE	PVI	PT. OF VERTICAL INTERSECTION
CBO	CAP WITH BLOW OFF	PVT	POINT OF VERTICAL TANGENT
CRR	CURB RETURN RADIUS	RCBC	REINFORCED CONCRETE BOX CULVERT
EL	ELEVATION	RCP	REINFORCED CONCRETE PIPE
EP	EDGE OF PAVEMENT	ROW	RIGHT OF WAY
EVC	END VERTICAL CURVE	SC	SANITARY CAP
EVP	END VERTICAL PROFILE	SD	STORM DRAIN
FG	FINISHED GROUND	SL	SECTION LINE
FL	FIRE HYDRANT	SS	SANITARY SEWER
FL	FLOW LINE	STA	STATION
GV	GATE VALVE	T.O.P.	TOP OF PIPE
HCR	HANDICAP CURB RAMP	UE	UTILITY EASEMENT
HP	HIGH POINT	VC	VERTICAL CURVE
INV	INVERT	WL	WATER LINE
K	CURVATURE COEFFICIENT	WLC	WATER LINE CONNECTION
LF	LINEAR FEET	WSE	WATER SURFACE ELEVATION



PROFILE: ROSE MALLOW AVE STA: 9+00.00 TO 18+50.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

BENCHMARK  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 8935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2548.70 FEET.

APPROVED  
NOV 29 2018  
PARKER WATER AND SANITATION DISTRICT

PREPARED UNDER THE SUPERVISION OF  
BRIAN P. WILSON  
COLORADO P.E. 0050067

CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
1-800-922-1987

10333 E. Dry Creek Rd. Suite 240  
Englewood, CO 80112  
Phone: (720) 482-8848  
Fax: (720) 482-8848

**CVL**  
CONSULTANTS

HR 935 LLC  
7355 South Alton Way  
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT  
FILING 1 CONSTRUCTION DRAWINGS  
SANITARY SEWER PLAN AND PROFILE  
ROSE MALLOW AVE

SCALE: AS SHOWN  
FILE NO: 8130283701

DRAWN BY: KJD  
CHECKED BY: JJJ  
DATE: APR 2017

SHEET NUMBER  
**22**

No. Revisions  
Date Init. Appr. Date



**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-315  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
154		1/30/19	6	698A	SC	11.0	120.5	10.9	120.5	8	100	100	-2 / 2	A
155		1/30/19	6	698A	SC	11.0	120.5	10.7	120.1	8	100	100	-2 / 2	A
156		1/30/19	6	698A	SC	11.0	120.5	10.6	120.1	8	100	100	-2 / 2	A
157		1/30/19	6	698A	SC	11.0	120.5	10.6	119.9	8	100	100	-2 / 2	A
163		1/30/19	6	698A	SC	11.0	120.5	11.2	120.3	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
154	Manhole: SSMH-17, N side of site, 2' W of W side	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
155	Manhole: SSMH-17, N side of site, 2' E of E side	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
156	Manhole: SSMH-17, N side of site, 2' E of E side	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
157	Manhole: SSMH-17, N side of site, 2' N of N side	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
163	Manhole: SSMH-17, 2' W of W side	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	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 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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
201		2/12/19	5	698A	SC	13.5	114.5	13.1	114.7	8	100	100	-2 / 2	A
202		2/12/19	5	698A	SC	13.5	114.5	12.7	114.8	8	100	100	-2 / 2	A
203		2/12/19	5	698A	SC	13.5	114.5	12.7	114.3	8	100	100	-2 / 2	A
204	167	2/12/19	7	698A	CL	16.5	107.5	17.4	105.8	8	98	95	0 / 4	A
205		2/13/19	5	698A	SC	13.5	114.5	13.4	114.3	8	100	100	-2 / 2	A
206		2/13/19	5	698A	SC	13.5	114.5	13.8	114.2	8	100	100	-2 / 2	A
207		2/13/19	5	698A	SC	13.5	114.5	13.6	114.8	8	100	100	-2 / 2	A
208		2/13/19	5	698A	SC	13.5	114.5	13.4	114.5	8	100	100	-2 / 2	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
201	Sanitary Trench Backfill: 45' N of MH-19	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
202	Sanitary Trench Backfill: 45' N of MH-19	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
203	Sanitary Trench Backfill: 45' N of MH-19	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
204	Sanitary Trench Backfill: 115' W of MH-18	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
205	Manhole: MH-19, 2' W of W side	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
206	Manhole: MH-19, 2' W of W side	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
207	Manhole: Trench, 30' N of MH-19	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
208	Manhole: Trench, 30' N of MH-19	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
<b>A:</b> Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>204:</b> As requested by Rick with E5X, site visits were made to observe and test sanitary sewer trench backfill. We observed the contractor place fill with the excavator and loader, add moisture with a water truck, and apply compactive effort with the sheepsfoot roller.

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**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
209		2/13/19	5	698A	SC	13.5	114.5	13.7	114.2	8	100	100	-2 / 2	A
210		2/13/19	5	698A	SC	13.5	114.5	13.8	114.3	8	100	100	-2 / 2	A
211		2/14/19	1	698A	SC	12.5	118.5	11.9	118.5	8	100	100	-2 / 2	A
212		2/14/19	1	698A	SC	12.5	118.5	12.5	118.0	8	100	100	-2 / 2	A
213		2/14/19	1	698A	SC	12.5	118.5	12.8	118.1	8	100	100	-2 / 2	A
214		2/14/19	1	698A	SC	12.5	118.5	13.2	118.1	8	100	100	-2 / 2	A
215		2/14/19	1	698A	SC	12.5	118.5	13.3	118.4	8	100	100	-2 / 2	A
216		2/14/19	1	698A	SC	12.5	118.5	13.2	118.6	8	100	100	-2 / 2	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
209	Manhole: Trench, 50' N of MH-19	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
210	Manhole: Trench, 50' N of MH-19	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
211	Manhole: MH-19, 2' E of E side	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
212	Manhole: MH-19, 2' E of E side	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
213	Manhole: MH-19, 2' E of E side	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
214	Sanitary Trench Backfill: Trench, 50' W of MH-20	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
215	Sanitary Trench Backfill: Trench, 50' W of MH-20	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
216	Sanitary Trench Backfill: Trench, 50' W of MH-20	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
<b>A:</b> Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>210:</b> As requested by Rick with E5X, site visits were made to observe and test sanitary sewer trench backfill. We observed the contractor place fill with the excavator and loader, add moisture with a water truck, and apply compactive effort with the sheepsfoot roller.

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
217		2/14/19	6	698A	SC	11.0	120.5	10.1	120.1	8	100	100	-2 / 2	A
218		2/14/19	6	698A	SC	11.0	120.5	10.3	120.4	8	100	100	-2 / 2	A
219		2/14/19	6	698A	SC	11.0	120.5	11.0	120.2	8	100	100	-2 / 2	A
220		2/14/19	6	698A	SC	11.0	120.5	10.9	120.4	8	100	100	-2 / 2	A
221		2/14/19	6	698A	SC	11.0	120.5	11.1	120.4	8	100	100	-2 / 2	A
222		2/14/19	6	698A	SC	11.0	120.5	11.9	120.2	8	100	100	-2 / 2	A
223		2/14/19	6	698A	SC	11.0	120.5	10.6	120.1	8	100	100	-2 / 2	A
Test Information														
Test #	Test Location							Elevation	Reference	Gauge			Field Technician	
217	Manhole: MH-20, 1' S of S side							4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
218	Manhole: MH-20, 1' S of S side							7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
219	Manhole: MH-20, 1' S of S side							6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
220	Manhole: MH-20, 1' W of W side							5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
221	Manhole: MH-20, 1' W of W side							4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
222	Manhole: MH-20, 1' N of N side							3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
223	Manhole: MH-20, 1' N of N side							2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018			Tomich, Jake	
Remarks					Comments									
A: Test results comply with specifications.					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 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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
870		4/30/19	6	698A	SC	11.0	120.5	11.2	120.3	8	100	100	-2 / 2	A
871		4/30/19	6	698A	SC	11.0	120.5	11.8	120.0	8	100	100	-2 / 2	A
872		4/30/19	6	698A	SC	11.0	120.5	11.3	120.3	8	100	100	-2 / 2	A
873		4/30/19	6	698A	SC	11.0	120.5	11.3	120.4	8	100	100	-2 / 2	A
874		4/30/19	6	698A	SC	11.0	120.5	11.3	120.5	8	100	100	-2 / 2	A
875		5/2/19	5	698A	SC	13.5	114.5	13.1	114.4	8	100	100	-2 / 2	A
876		5/2/19	9	698A	CL	20.5	103.5	21.3	103.4	8	100	95	0 / 4	A
877		5/2/19	2	698A	CL	15.0	112.0	16.0	112.2	8	100	95	0 / 4	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
870	Sanitary Trench Backfill: Mainline, 40' W of MH-245	12.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
871	Sanitary Trench Backfill: Mainline, 40' W of MH-245	11.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
872	Sanitary Trench Backfill: Mainline, 40' W of MH-245	10.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
873	Sanitary Trench Backfill: Mainline, 40' W of MH-245	9.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
874	Sanitary Trench Backfill: Mainline, 45' W of MH-245	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
875	Manhole: 2' S of SSMH-246	8.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas
876	Manhole: 2' N of SSMH-246	8.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas
877	Manhole: 3' N of SSMH-245	7.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas

Remarks	Comments
<b>A:</b> Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>874:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test sanitary sewer trench backfill. We observed the contractor place fill with the loader, add moisture with the water wagon, and apply compactive effort with equipment traffic.

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**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
878		5/2/19	2	698A	CL	15.0	112.0	16.0	112.8	8	101	95	0 / 4	A
879		5/6/19	4	698A	CL	16.0	109.0	17.5	108.1	8	99	95	0 / 4	A
880		5/6/19	4	698A	CL	16.0	109.0	16.9	106.9	8	98	95	0 / 4	A
881		5/6/19	4	698A	CL	16.0	109.0	16.6	107.9	8	99	95	0 / 4	A
882		5/6/19	2	698A	CL	15.0	112.0	17.4	110.4	8	99	95	0 / 4	A
883		5/6/19	7	698A	CL	16.5	107.5	18.7	102.9	8	96	95	0 / 4	A
884		5/6/19	7	698A	CL	16.5	107.5	17.1	106.1	8	99	95	0 / 4	A
885		5/6/19	7	698A	CL	16.5	107.5	17.0	105.5	8	98	95	0 / 4	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
878	Manhole: 3' S of SSMH-245	6.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas
879	Manhole: 2' S of SSMH-246	6.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas
880	Manhole: 3' N and 4' W of N side of SSMH-246	5.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas
881	Manhole: 3' N of N side of SSMH-246	4.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas
882	Manhole: 2' S of S side of SSMH-246	3.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas
883	Manhole: 2' S and 4' E of S side of SSMH-246	2.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas
884	Manhole: 3' E of E side of SSMH-245	4.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas
885	Manhole: 2' N and 3' E of E side of SSMH-245	5.0	BG	XPLORER / 3500 / 2417 / 4/15/2019	Meritt, Nicolas

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>878:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test sanitary sewer trench backfill. We observed the contractor place fill with the loader, add moisture with the water wagon, and apply compactive effort with equipment traffic.

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886		5/6/19	2	698A	CL	15.0	112.0	16.0	111.0	8	99	95	0 / 4	A
887		5/6/19	2	698A	CL	15.0	112.0	16.0	111.0	8	99	95	0 / 4	A
888		5/6/19	4	698A	CL	16.0	109.0	18.2	107.4	8	99	95	0 / 4	A
Test Information														
Test #	Test Location							Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician	
886	Manhole: 3' E and 3' N of E side of SSMH-245							6.0	BG	XPLOER / 3500 / 2417 / 4/15/2019			Meritt, Nicolas	
887	Manhole: 3' N of N side of SSMH-245							3.0	BG	XPLOER / 3500 / 2417 / 4/15/2019			Meritt, Nicolas	
888	Manhole: 3' NE of N side of SSMH-245							2.0	BG	XPLOER / 3500 / 2417 / 4/15/2019			Meritt, Nicolas	
Remarks					Comments									
A: Test results comply with specifications.					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.  <b>888:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test sanitary sewer trench backfill. We observed the contractor place fill with the loader, add moisture with the water wagon, and apply compactive effort with equipment traffic.									

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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
959		7/11/19	7	698A	CL	16.5	107.5	17.1	106.4	8	99	95	0 / 4	A
960		7/11/19	7	698A	CL	16.5	107.5	17.3	106.0	8	99	95	0 / 4	A
961		7/11/19	7	698A	CL	16.5	107.5	16.8	106.7	8	99	95	0 / 4	A
962		7/11/19	7	698A	CL	16.5	107.5	17.5	105.4	8	98	95	0 / 4	A
963		7/11/19	7	698A	CL	16.5	107.5	17.1	105.5	8	98	95	0 / 4	A
964		7/11/19	7	698A	CL	16.5	107.5	17.3	105.7	8	98	95	0 / 4	A
965		7/11/19	7	698A	CL	16.5	107.5	16.7	106.8	8	99	95	0 / 4	A
966		7/11/19	7	698A	CL	16.5	107.5	17.3	106.6	8	99	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
959	Manhole: MH-247, 1' W of W side	9.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
960	Manhole: MH-247, 1' W of W side	8.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
961	Manhole: MH-247, 1' W of W side	7.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
962	Manhole: MH-247, 1' E of E side	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
963	Manhole: MH-247, 1' E of E side	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
964	Manhole: MH-247, 1' N of N side	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
965	Manhole: MH-247, 1' N of N side	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
966	Manhole: MH-247, 1' N of N side	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	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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 NE of Pradera Parkway & North Crowfoot  
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 Douglas County, CO

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
967		7/11/19	7	698A	CL	16.5	107.5	17.2	106.4	8	99	95	0 / 4	A
Test Information														
Test #	Test Location						Elevation	Reference	Gauge Make / Model / SN / Calibrated				Field Technician	
967	Manhole: MH-247, 1' N of N side						1.0	BG	XPLOER / 3500 / 1988 / 9/4/2018				Tomich, Jake	
Remarks					Comments									
A: Test results comply with specifications.					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. <b>967:</b> As requested by Rick with Kelley Trucking, site visits were made to observe and test inlet backfill. We observed the contractor process/place fill with the loader, add moisture with the water wagon, and apply compactive effort with the loader.									

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-315  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
1237		7/31/19	5	698A	SC	13.5	114.5	13.8	114.8	8	100	100	-2 / 2	A
1238		7/31/19	5	698A	SC	13.5	114.5	14.1	114.6	8	100	100	-2 / 2	A
1239		7/31/19	5	698A	SC	13.5	114.5	13.6	114.8	8	100	100	-2 / 2	A
1240		7/31/19	5	698A	SC	13.5	114.5	13.5	114.8	8	100	100	-2 / 2	A
1241		7/31/19	5	698A	SC	13.5	114.5	13.9	114.8	8	100	100	-2 / 2	A
1242		7/31/19	5	698A	SC	13.5	114.5	13.7	114.8	8	100	100	-2 / 2	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
1237	Sanitary Trench Backfill: Mainline, N Pinery Pkwy and Rose Mallow Street intersection	6.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
1238	Sanitary Trench Backfill: Mainline, N Pinery Pkwy and Rose Mallow Street intersection	5.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
1239	Sanitary Trench Backfill: Mainline, N Pinery Pkwy and Rose Mallow Street intersection	4.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
1240	Sanitary Trench Backfill: Mainline, N Pinery Pkwy and Rose Mallow Street intersection	3.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
1241	Sanitary Trench Backfill: Mainline, N Pinery Pkwy and Rose Mallow Street intersection	2.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake
1242	Sanitary Trench Backfill: Mainline, N Pinery Pkwy and Rose Mallow Street intersection	1.0	BG	XPLORER / 3500 / 1988 / 9/4/2018	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	<p>Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.</p> <p><b>1242:</b> As requested by Rick with Kelley Trucking, a site visit was made to observe and test sanitary sewer trench backfill. We observed the contractor process/place fill with the loader, add moisture with the water wagon, and apply compactive effort with the rex.</p>

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-315  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
1556		9/11/19	2	698A	CL	15.0	112.0	15.6	113.9	8	102	95	0 / 4	A
1557		9/11/19	2	698A	CL	15.0	112.0	16.1	112.5	8	100	95	0 / 4	A
1558		9/11/19	2	698A	CL	15.0	112.0	15.8	113.3	8	101	95	0 / 4	A
1559		9/11/19	2	698A	CL	15.0	112.0	15.9	111.6	8	100	95	0 / 4	A
1560		9/11/19	2	698A	CL	15.0	112.0	16.6	110.8	8	99	95	0 / 4	A
1561		9/11/19	2	698A	CL	15.0	112.0	16.7	112.1	8	100	95	0 / 4	A
1562		9/11/19	2	698A	CL	15.0	112.0	16.7	112.3	8	100	95	0 / 4	A
Test Information														
Test #	Test Location							Elevation	Reference	Gauge Make / Model / SN / Calibrated			Field Technician	
1556	Sanitary Trench Backfill: N Pinery Pkwy and Rose Mallow Avenue, N side of SSMH 17							10.0	BG	XPLOER / 3500 / 1994 / 5/30/2019			Flynn, Christopher	
1557	Sanitary Trench Backfill: N Pinery Pkwy and Rose Mallow Avenue, S side of SSMH 17							9.0	BG	XPLOER / 3500 / 1994 / 5/30/2019			Flynn, Christopher	
1558	Sanitary Trench Backfill: N Pinery Pkwy and Rose Mallow Avenue, WML, 50' W of SSMH 17							9.0	BG	XPLOER / 3500 / 1994 / 5/30/2019			Flynn, Christopher	
1559	Sanitary Trench Backfill: N Pinery Pkwy and Rose Mallow Avenue, N side of SSMH 17							8.0	BG	XPLOER / 3500 / 1994 / 5/30/2019			Flynn, Christopher	
1560	Sanitary Trench Backfill: N Pinery Pkwy and Rose Mallow Avenue, S side of SSMH 17							7.0	BG	XPLOER / 3500 / 1994 / 5/30/2019			Flynn, Christopher	
1561	Sanitary Trench Backfill: N Pinery Pkwy and Rose Mallow Avenue, W side of SSMH 17							6.0	BG	XPLOER / 3500 / 1994 / 5/30/2019			Flynn, Christopher	
1562	Sanitary Trench Backfill: N Pinery Pkwy and Rose Mallow Avenue, E side of SSMH 17							5.0	BG	XPLOER / 3500 / 1994 / 5/30/2019			Flynn, Christopher	
Remarks					Comments									
A: Test results comply with specifications.					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.									

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-315  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
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 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
1563		9/11/19	2	698A	CL	15.0	112.0	16.2	113.3	8	101	95	0 / 4	A
1564		9/11/19	2	698A	CL	15.0	112.0	17.0	111.3	8	99	95	0 / 4	A
1606		9/13/19	2	698A	CL	15.0	112.0	17.5	109.4	8	98	95	0 / 4	A
1607		9/13/19	2	698A	CL	15.0	112.0	17.3	109.0	8	97	95	0 / 4	A
1608		9/13/19	2	698A	CL	15.0	112.0	17.6	109.2	8	98	95	0 / 4	A
1609		9/13/19	2	698A	CL	15.0	112.0	17.2	109.1	8	97	95	0 / 4	A
1610		9/13/19	2	698A	CL	15.0	112.0	17.4	109.5	8	98	95	0 / 4	A
1646		9/16/19	2	698A	CL	15.0	112.0	15.6	112.5	8	100	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
1563	Sanitary Trench Backfill: N Pinery Pkwy and Rose Mallow Avenue, N side of SSMH 17	4.0	BG	XPLORER / 3500 / 1994 / 5/30/2019	Flynn, Christopher
1564	Sanitary Trench Backfill: N Pinery Pkwy and Rose Mallow Avenue, S side of SSMH 17	3.0	BG	XPLORER / 3500 / 1994 / 5/30/2019	Flynn, Christopher
1606	Manhole: SSMH #18. 1' E of E side.	12.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1607	Manhole: SSMH #18. 1' W of W side.	11.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1608	Manhole: SSMH #18. 1' S of S side.	10.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1609	Manhole: SSMH #18. 1' N of N side.	9.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1610	Manhole: SSMH #18. 1' W of W side.	8.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
1646	Manhole: SSMH 18, Rose Mallow Ave and N Pinery Pkwy, 1' E of E side	8.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
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**Project:**  
 DN48372.000F-315  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
1647		9/16/19	2	698A	CL	15.0	112.0	15.9	111.6	8	100	95	0 / 4	A
1648		9/16/19	2	698A	CL	15.0	112.0	16.1	111.2	8	99	95	0 / 4	A
1649		9/16/19	2	698A	CL	15.0	112.0	15.8	111.3	8	99	95	0 / 4	A
1650		9/16/19	2	698A	CL	15.0	112.0	16.5	110.1	8	98	95	0 / 4	A
1651		9/16/19	2	698A	CL	15.0	112.0	17.4	109.5	8	98	95	0 / 4	A
1652		9/16/19	2	698A	CL	15.0	112.0	17.7	109.6	8	98	95	0 / 4	A
1653		9/16/19	2	698A	CL	15.0	112.0	17.2	109.6	8	98	95	0 / 4	A
Test Information														
Test #	Test Location							Elevation	Reference	Gauge			Field Technician	
	Make / Model / SN / Calibrated													
1647	Manhole: SSMH 18, Rose Mallow Ave and N Pinery Pkwy, 1' E of E side							7.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake	
1648	Manhole: SSMH 18, Rose Mallow Ave and N Pinery Pkwy, 1' N of N side							6.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake	
1649	Manhole: SSMH 18, Rose Mallow Ave and N Pinery Pkwy, 1' N of N side							5.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake	
1650	Manhole: SSMH 18, Rose Mallow Ave and N Pinery Pkwy, 1' W of W side							4.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake	
1651	Manhole: SSMH 18, Rose Mallow Ave and N Pinery Pkwy, 1' W of W side							3.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake	
1652	Manhole: SSMH 18, Rose Mallow Ave and N Pinery Pkwy, 1' E of E side							2.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake	
1653	Manhole: SSMH 18, Rose Mallow Avenue and N Pinery Pkwy, 1' E of E side							1.0	BG	XPLOER / 3500 / 1988 / 8/30/2019			Tomich, Jake	
Remarks					Comments									
A: Test results comply with specifications.					Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.									

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
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Denver  
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 Phone: 303-825-0777 | Fax: 303-825-4252

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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
2115		11/4/19	3	698A	CL	16.0	111.0	18.4	109.6	8	99	95	0 / 4	A
2116		11/4/19	3	698A	CL	16.0	111.0	17.0	111.6	8	101	95	0 / 4	A
2117		11/4/19	3	698A	CL	16.0	111.0	19.0	107.1	8	96	95	0 / 4	A
2118		11/4/19	3	698A	CL	16.0	111.0	17.5	108.0	8	97	95	0 / 4	A
2119		11/4/19	4	698A	CL	16.0	109.0	19.6	105.2	8	97	95	0 / 4	A
2120		11/4/19	4	698A	CL	16.0	109.0	18.2	104.9	8	96	95	0 / 4	A
2121		11/4/19	4	698A	CL	16.0	109.0	19.3	103.8	8	95	95	0 / 4	A
2122		11/4/19	3	698A	CL	16.0	111.0	16.1	112.9	8	102	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
2115	Sanitary Trench Backfill: Rose Mallow Avenue, STA 13+50	10.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2116	Sanitary Trench Backfill: Rose Mallow Avenue, STA 13+50	9.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2117	Sanitary Trench Backfill: Rose Mallow Avenue, STA 13+50	8.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2118	Sanitary Trench Backfill: Rose Mallow Avenue, STA 13+50	7.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2119	Sanitary Trench Backfill: Rose Mallow Avenue, STA 13+50	6.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2120	Sanitary Trench Backfill: Rose Mallow Avenue, STA 13+50	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2121	Sanitary Trench Backfill: Rose Mallow Avenue, STA 13+50	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2122	Sanitary Trench Backfill: Rose Mallow Avenue, STA 13+50	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-315  
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 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
2123		11/4/19	2	698A	CL	15.0	112.0	18.2	109.1	8	97	95	0 / 4	A
2124		11/4/19	2	698A	CL	15.0	112.0	16.6	109.1	8	97	95	0 / 4	A
2125		11/4/19	2	698A	CL	15.0	112.0	17.4	106.9	8	95	95	0 / 4	A
2126		11/4/19	4	698A	CL	16.0	109.0	17.0	109.4	8	100	95	0 / 4	A
2127		11/4/19	4	698A	CL	16.0	109.0	18.6	109.4	8	100	95	0 / 4	A
2128		11/4/19	7	698A	CL	16.5	107.5	19.7	103.8	8	97	95	0 / 4	A
2129		11/4/19	7	698A	CL	16.5	107.5	19.8	105.8	8	98	95	0 / 4	A
2130		11/4/19	3	698A	CL	16.0	111.0	17.9	109.4	8	99	95	0 / 4	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
2123	Sanitary Trench Backfill: Rose Mallow Avenue, STA 13+50	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2124	Sanitary Trench Backfill: Rose Mallow Avenue, STA 16+75	10.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2125	Sanitary Trench Backfill: Rose Mallow Avenue, STA 16+75	9.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2126	Sanitary Trench Backfill: Rose Mallow Avenue, STA 16+75	8.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2127	Sanitary Trench Backfill: Rose Mallow Avenue, STA 16+75	7.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2128	Sanitary Trench Backfill: Rose Mallow Avenue, STA 16+75	6.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2129	Sanitary Trench Backfill: Rose Mallow Avenue, STA 16+75	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2130	Sanitary Trench Backfill: Rose Mallow Avenue, STA 16+75	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
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**Project:**  
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 Trails at Crowfoot, Filings 1 and 9  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
2131		11/4/19	3	698A	CL	16.0	111.0	18.8	108.2	8	97	95	0 / 4	A
2132		11/4/19	8	698A	CL	18.0	109.0	18.6	106.7	8	98	95	0 / 4	A
2133		11/4/19	3	698A	CL	16.0	111.0	18.8	110.6	8	100	95	0 / 4	A
2134		11/4/19	5	698A	SC	13.5	114.5	14.9	114.6	8	100	100	-2 / 2	A
2135		11/4/19	3	698A	CL	16.0	111.0	16.9	109.9	8	99	95	0 / 4	A
2136		11/4/19	3	698A	CL	16.0	111.0	16.6	109.9	8	99	95	0 / 4	A
2137		11/4/19	2	698A	CL	15.0	112.0	18.5	106.3	8	95	95	0 / 4	A
2138		11/4/19	2	698A	CL	15.0	112.0	18.1	108.5	8	97	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
2131	Sanitary Trench Backfill: Rose Mallow Avenue, STA 16+75	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2132	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	12.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2133	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	11.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2134	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	10.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2135	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	9.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2136	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	8.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2137	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	7.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2138	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
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**Project:**  
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 Trails at Crowfoot, Filings 1 and 9  
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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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
2139		11/4/19	2	698A	CL	15.0	112.0	19.0	107.1	8	96	95	0 / 4	A
2140		11/4/19	2	698A	CL	15.0	112.0	18.5	108.0	8	96	95	0 / 4	A
2141		11/4/19	3	698A	CL	16.0	111.0	19.1	107.1	8	96	95	0 / 4	A
2142		11/4/19	3	698A	CL	16.0	111.0	17.2	111.9	8	101	95	0 / 4	A
2143		11/4/19	5	698A	SC	13.5	114.5	13.9	114.1	8	100	100	-2 / 2	A
2147		11/4/19	3	698A	CL	16.0	111.0	18.2	108.5	8	98	95	0 / 4	A
2150		11/4/19	3	698A	CL	16.0	111.0	17.6	108.7	8	98	95	0 / 4	A
2153		11/4/19	3	698A	CL	16.0	111.0	17.2	106.7	8	96	95	0 / 4	A

Test Information					
Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
2139	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2140	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2141	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2142	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 36+25	1.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2143	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 39+00	11.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2147	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 39+00	10.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2150	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 39+00	9.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2153	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 39+00	8.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

**Report Date:** 11/6/2019  
**Test Method:** ASTM D 6938

**Client:**  
 E5X Management  
 7353 South Alton Way Suite A-100  
 Englewood, CO 80112

**Project:**  
 DN48372.000F-315  
 Trails at Crowfoot, Filings 1 and 9  
 NE of Pradera Parkway & North Crowfoot  
 Valley...  
 Douglas County, CO

Denver  
 1971 West 12th Avenue  
 Denver, CO 80204  
 Phone: 303-825-0777 | Fax: 303-825-4252

**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)	Probe Depth (in)	Percent Compaction	Min Comp. (%)	Optimum Moisture Tolerance (%)	Remark
2155		11/4/19	5	698A	SC	13.5	114.5	15.1	114.1	8	100	100	-2 / 2	A
2157		11/4/19	5	698A	SC	13.5	114.5	15.0	114.7	8	100	100	-2 / 2	A
2158		11/4/19	5	698A	SC	13.5	114.5	15.1	115.4	8	101	100	-2 / 2	A
2159		11/4/19	3	698A	CL	16.0	111.0	17.9	110.3	8	99	95	0 / 4	A
2160		11/4/19	3	698A	CL	16.0	111.0	17.2	110.5	8	100	95	0 / 4	A

**Test Information**

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
2155	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 39+00	7.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2157	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 39+00	5.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2158	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 39+00	4.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2159	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 39+00	3.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake
2160	Sanitary Trench Backfill: N Pinery Pkwy Avenue, STA 39+00	2.0	BG	XPLORER / 3500 / 1988 / 8/30/2019	Tomich, Jake

Remarks	Comments
A: Test results comply with specifications.	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.