EXHIBIT E

Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

July 22, 2013
File Number 13-13-0070

Youngquist Brothers, Inc.
15465 Pine Ridge Road
Fort Myers, FL 33908

Attention: Bill Musselwhite

Subject: Rock Core Testing, City of LaBelle, Injection Well IW-1

Gentlemen:

As requested, vertical and horizontal permeability, unconfined compression and specific gravity tests have been completed on ten rock cores provided for testing by your firm. The cores were received on May 20, 2013 and designated as follows:

Segment Number	Core Number	Depth (feet)
1	1	2124.1 - 2125.3
2		2128.3 - 2129.2
3	2	2208.2 - 2209.0
4	3	2325.8 - 2326.8
5	4	2401.7 - 2402.1
6		2407.5 - 2408.4
7	5	2482.3 - 2483.2
8	6	2488.2 - 2488.9
9		2495.2 - 2496.2
10	7	2588.8 - 2589.5

Photographs of the vertical permeability test core specimens after cutting to length are attached.

Permeability Tests

Permeability tests were performed in general accordance with ASTM Standard D5084 "Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter" using the constant head (Method A) test method. The permeability test results are presented on the attached Hydraulic Conductivity Test Reports. A total of twenty permeability tests were performed.

Unconfined Compression Tests

Unconfined compression tests were performed in general accordance with ASTM Standard D7012 "Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures" using the unconfined test method (Method C). The unconfined compression test results are presented on the attached test reports. Unconfined compression tests were performed on nine samples.

Specific Gravity

The measured mineral specific gravities are presented on the attached test reports. The specific gravity tests were performed in general accordance with ASTM Standard D854 "Specific Gravity of Soil Solids by Water Pycnometer" using 80 to 100 gram specimens ground to pass the U.S. Standard No. 40 sieve. A total of ten specific gravity tests were performed.

The test samples were reported to be from the client-specified designations herein. The test results are indicative of only the specimens that were actually tested. The test results presented are based upon accepted industry practice as well as test method(s) listed. Ardaman & Associates, Inc. neither accepts responsibility for, nor makes claims to the final use and purpose of the test results.

Please contact us if you have any questions about the test results or require additional information.

Very truly yours,
ARDAMAN & ASSOCIATES, INC.

Thomas S. Ingra, P.E.
Laboratory Director
Florida License No. 31987

S:\Projects\2013\13-13-0070\report01.docx

City of Labelle
13-13-0070
segment 1
core 1

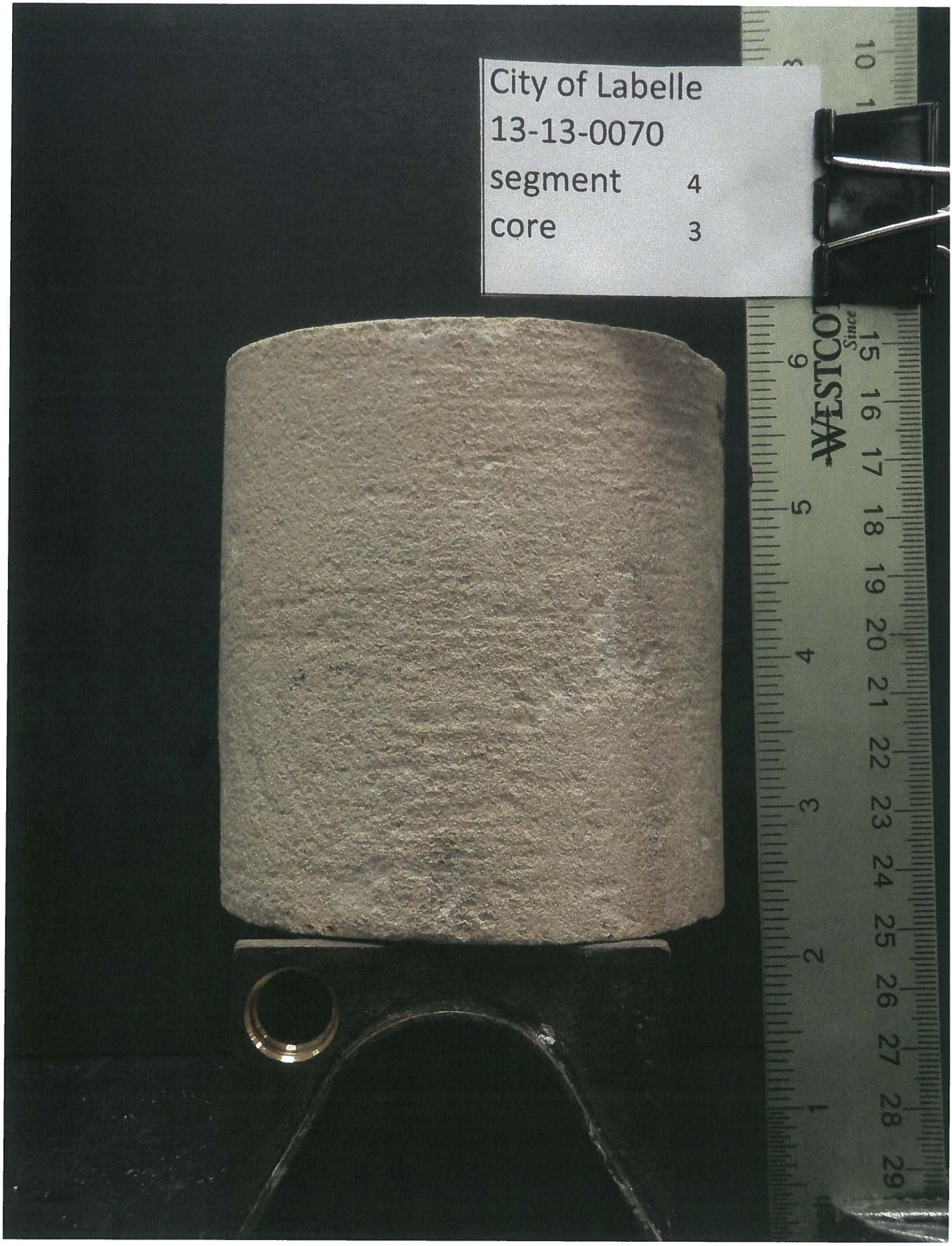

City of Labelle
13-13-0070
segment 1
core 1

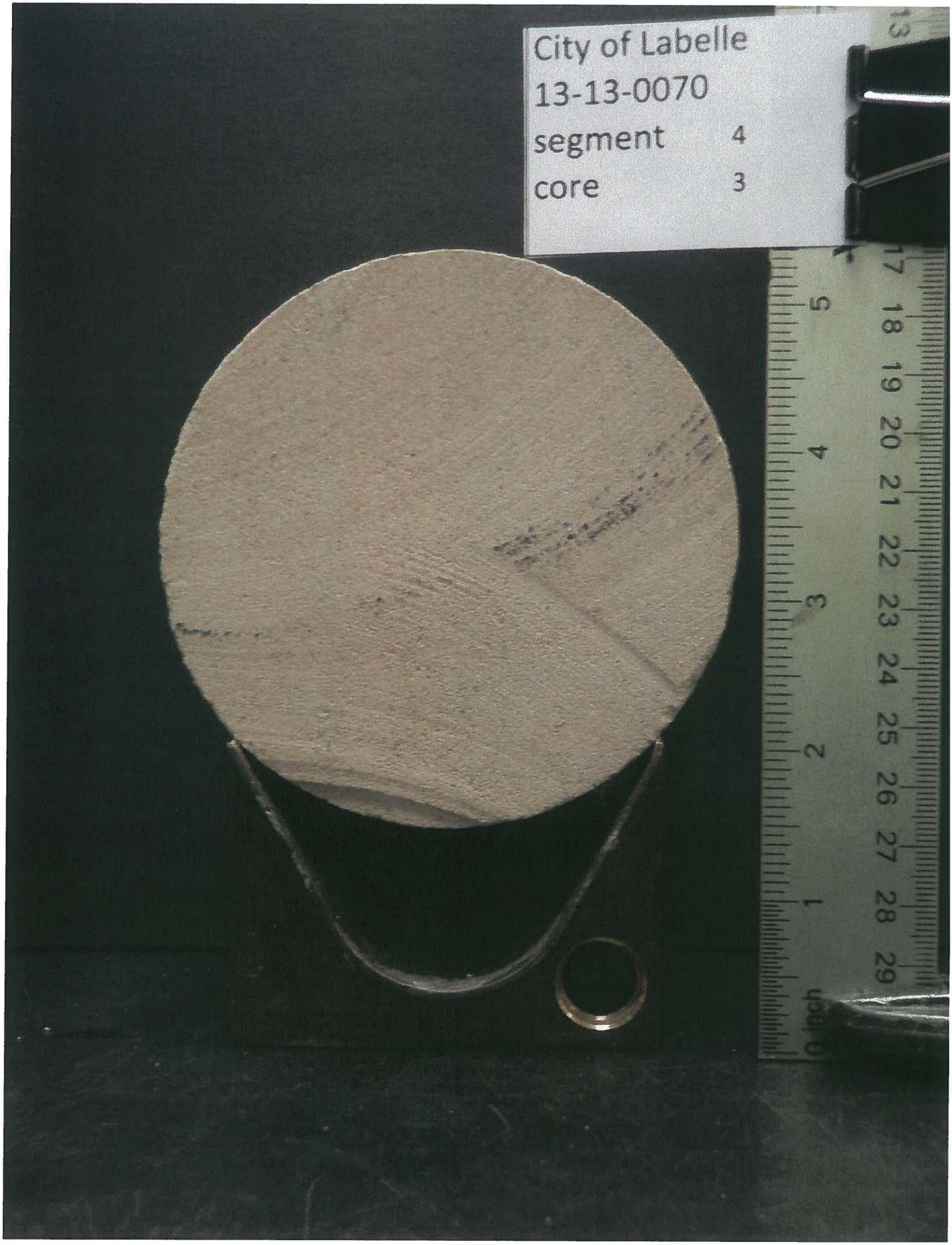
City of Labelle
13-13-0070
segment 2
core 1


City of Labelle
13-13-0070
segment 2
core 1

City of Labelle
13-13-0070
segment 3
core 2


City of Labelle
13-13-0070
segment 3
core 2

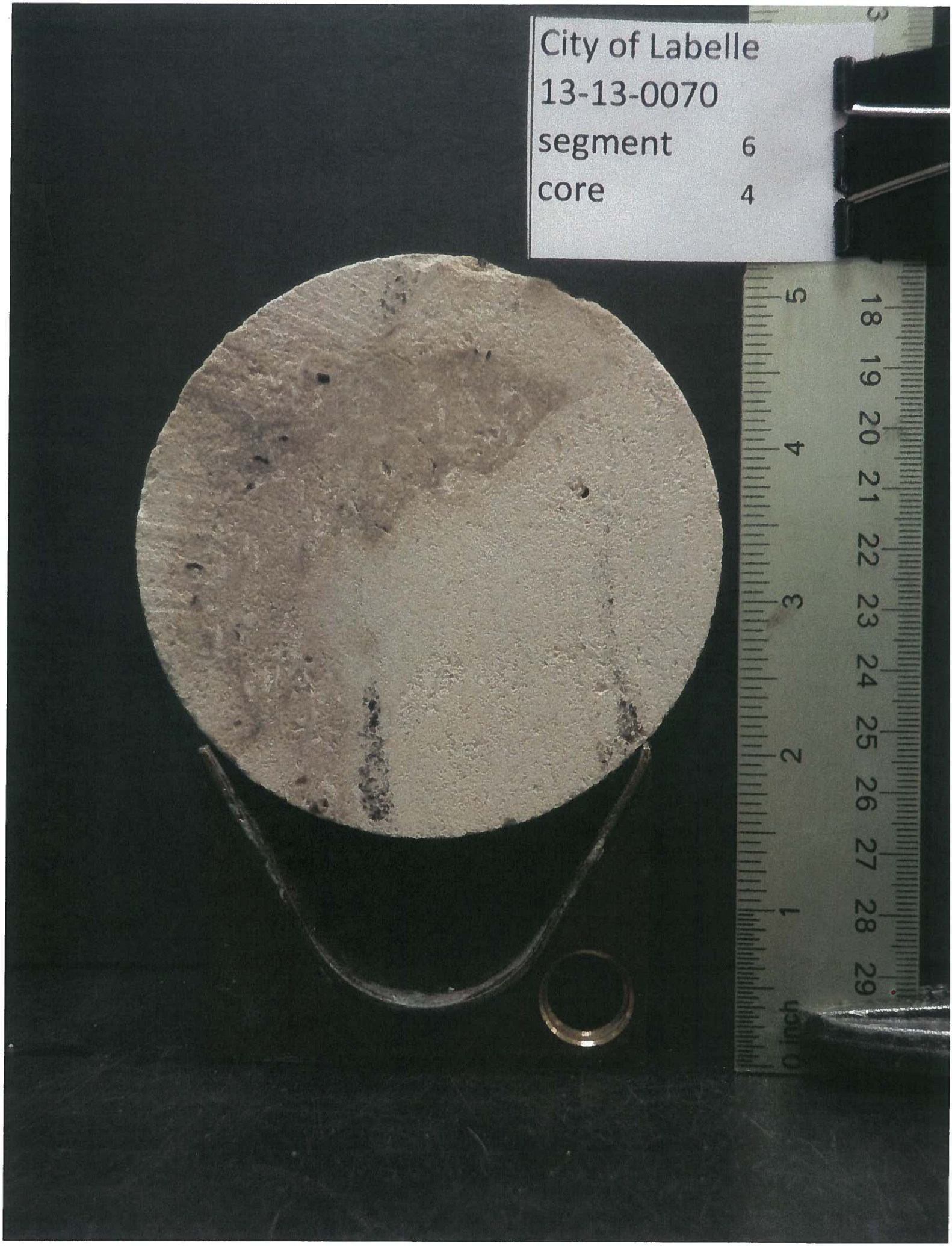

City of Labelle
13-13-0070
segment 4
core 3


City of Labelle
13-13-0070
segment 4
core 3

City of Labelle
13-13-0070
segment 5
core 4


City of Labelle
13-13-0070
segment 5
core 4
0 inch 1 2 3 4 5 6 7 18 19 20 21 22 23 24 25 26 27 28 29

City of Labelle
13-13-0070
segment 6
core 4


City of Labelle
13-13-0070
segment 6
core 4

City of Labelle
13-13-0070
segment 7
core 5

City of Labelle
13-13-0070
segment 7
core 5

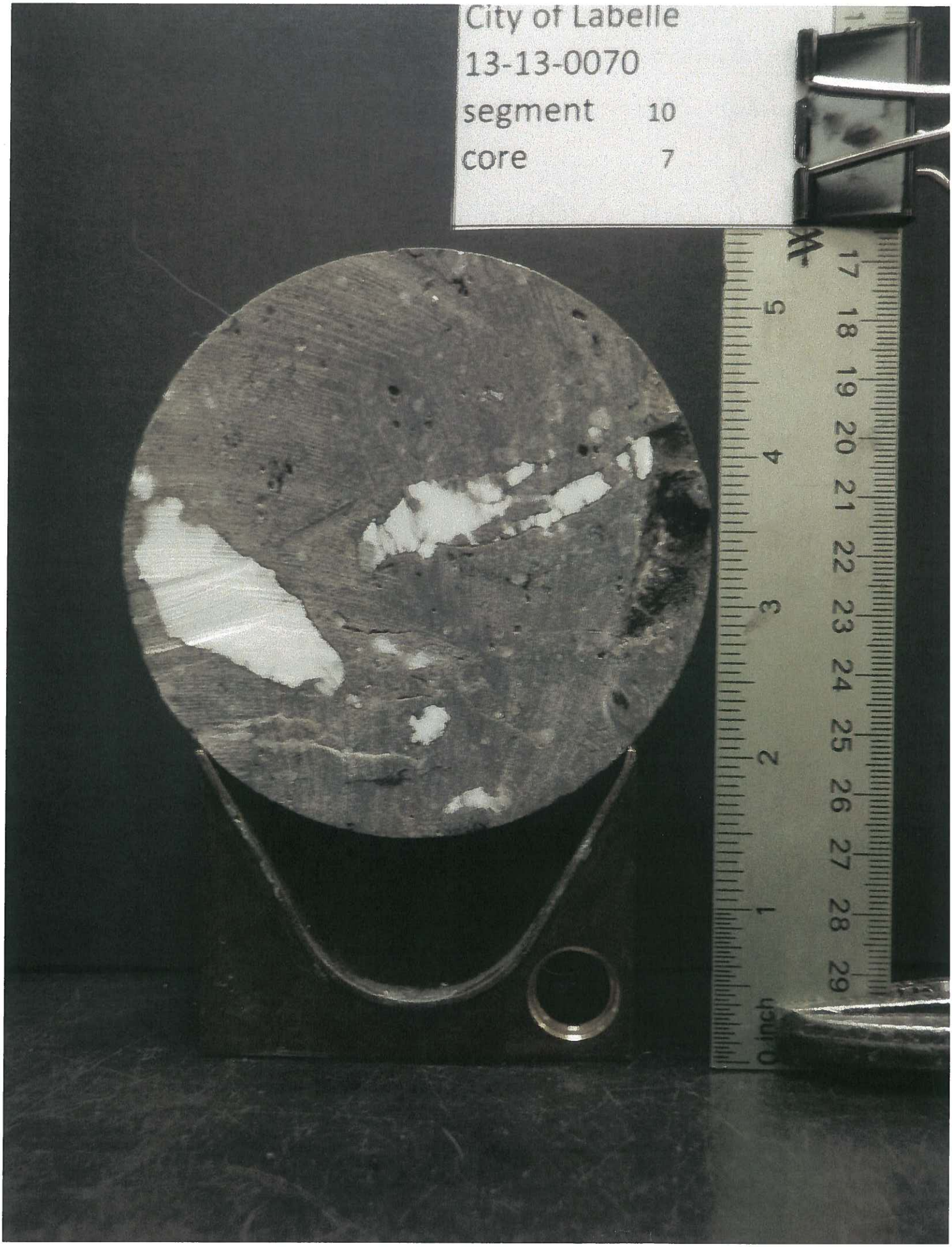
City of Labelle
13-13-0070
segment 8
core 6

City of Labelle
13-13-0070
segment 8
core 6

City of Labelle
13-13-0070
segment 9
core 6


City of Labelle
13-13-0070
segment 9
core 6

City of Labelle
13-13-0070
segment 10
core 7


City of Labelle
13-13-0070
segment 10
core 7

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 05/30/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 1, CORE 1**

DEPTH: 2124.1'-2125.3'

LABORATORY IDENTIFICATION NO.: 130070/1-1V

SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 86 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 8, 16, 21

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No

As-Received Length (inch): 14.7/12.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s: 2.73 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
10.02	10.02	790.31	16.8	114.7	0.327	95	30	160	26	2.3	1	1452.6	16.9	95	**7.4E-06**

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: JM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/09/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 1, CORE 1**

DEPTH: 2124.1'-2125.3'

LABORATORY IDENTIFICATION NO.: 130070/1-1H

SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 90 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 5, 11, 18

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 14.7/12.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s: 2.73 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
6.38	5.07	128.83	16.9	115.1	0.325	96	30	160	47	2.1	1	237.54	16.9	96	**1.3E-05**

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: TM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 05/30/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 2, CORE 1**

DEPTH: 2128.3'-2129.2'

LABORATORY IDENTIFICATION NO.: 130070/2-1V

SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 93 (stable) %

- ☐ Beginning of Test;
- ☒ End of Test

$\Delta\sigma_c$ (psi): 8, 16, 21

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No

As-Received Length (inch): 10.7/9.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s: 2.75

- ☐ Assumed
- ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
10.17	10.04	805.15	13.3	124.0	0.277	95	30	160	26	6.1	1	1600.0	13.4	96	**4.9E-05**

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: JM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/09/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 2, CORE 1**

DEPTH: 2128.3'-2129.2'

LABORATORY IDENTIFICATION NO.: 130070/2-1H

SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 90 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 5, 11, 18

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 10.7/9.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s: 2.75 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
6.30	5.07	127.04	13.4	122.9	0.284	93	30	160	22	5.8	1	250.18	13.4	93	**3.4E-04**

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: DM Date: 07/22/13

Form SR-2B: Rev. 0

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 05/29/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 3, CORE 2**

DEPTH: 2208.2'-2209.0'

LABORATORY IDENTIFICATION NO.: 130070/3-2V

SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 90 (stable) %

- ☐ Beginning of Test;
- ☒ End of Test

$\Delta\sigma_c$ (psi): 7, 11, 17

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No

As-Received Length (inch): 10.7/8.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s: 2.73 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
11.36	9.99	890.43	17.1	114.9	0.325	97	30	160	15	7.3	1	1640.1	17.1	97	**1.1E-04**

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: TM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/09/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 3, CORE 2**

DEPTH: 2208.2'-2209.0'

LABORATORY IDENTIFICATION NO.: 130070/3-2H

SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 92 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 11, 19, 25

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 10.7/8.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s: 2.73 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
6.51	5.07	131.17	16.9	115.2	0.323	97	30	160	41	6.1	1	242.26	17.1	98	**8.9E-05**

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: JM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/03/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 4, CORE 3**

DEPTH: 2325.8'-2326.8'

LABORATORY IDENTIFICATION NO.: 130070/4-3V

SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 94 (stable) %

- ☐ Beginning of Test;
- ☒ End of Test

$\Delta\sigma_c$ (psi): 5, 12, 19

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No

As-Received Length (inch): 12.0/9.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s: 2.73

- ☐ Assumed
- ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
10.64	10.04	842.60	11.7	128.0	0.248	96	30	160	18	2.1	1	1728.7	11.7	97	**1.3E-05**

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: TM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/09/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 4, CORE 3**

DEPTH: 2325.8'-2326.8'

LABORATORY IDENTIFICATION NO.: 130070/4-3H

SAMPLE DESCRIPTION: Light brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 94 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 5, 10, 17

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 12.0/9.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s: 2.73 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
6.65	5.07	134.02	11.7	128.6	0.245	98	30	160	38	1.5	1	276.16	11.7	98	**1.3E-05**

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: TM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/09/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 5, CORE 4**

DEPTH: 2401.7'-2402.1'

LABORATORY IDENTIFICATION NO.: 130070/5-4H

SAMPLE DESCRIPTION: Light brown dolomitic limestone with vugs

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 86 (stable) %

- ☐ Beginning of Test;
- ☒ End of Test

$\Delta\sigma_c$ (psi): 5, 11, 18

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 4.5/3.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s: 2.85

- ☐ Assumed
- ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
6.38	5.07	128.81	8.4	141.2	0.206	92	30	160	23	2.2	1	291.41	8.5	93	**9.5E-05**

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: TM Date: 07/22/13

Form SR-2B: Rev. 0

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 05/29/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 5, CORE 4**

DEPTH: 2401.7'-2402.1'

LABORATORY IDENTIFICATION NO.: 130070/5-4V

SAMPLE DESCRIPTION: Light brown dolomitic limestone with vugs

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 95 (stable) %

- ☐ Beginning of Test;
- ☒ End of Test

$\Delta\sigma_c$ (psi): 7, 11, 17

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No

As-Received Length (inch): 4.5/3.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s: 2.85

- ☐ Assumed
- ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
8.16	10.03	643.72	8.4	138.6	0.221	85	30	160	24	2.6	1	1429.7	8.5	86	**2.2E-05**

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: TM Date: 07/22/13

Form SR-2B: Rev. 0

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 05/30/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 6, CORE 4**

DEPTH: 2407.5'-2408.4'

LABORATORY IDENTIFICATION NO.: 130070/6-4V

SAMPLE DESCRIPTION: Light brown to brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 94 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 8, 16, 21

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No

As-Received Length (inch): 11.5/9.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s: 2.75 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
9.81	9.84	746.04	14.9	120.5	0.298	97	30	160	26	1.3	1	1440.4	14.9	97	**1.5E-05**

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: JM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/09/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 6, CORE 4**

DEPTH: 2407.5'-2408.4'

LABORATORY IDENTIFICATION NO.: 130070/6-4H

SAMPLE DESCRIPTION: Light brown to brown limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 91 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 9, 16, 21

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 11.5/9.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s: 2.75 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
6.13	5.07	123.63	14.9	119.4	0.304	94	30	160	48	4.1	1	236.52	14.9	94	**3.0E-05**

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: TM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/03/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 7, CORE 5**

DEPTH: 2482.3'-2483.2'

LABORATORY IDENTIFICATION NO.: 130070/7-5V

SAMPLE DESCRIPTION: Light brown limestone with trace anhydrite lenses

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 93 (stable) %

- ☐ Beginning of Test;
- ☒ End of Test

$\Delta\sigma_c$ (psi): 5, 12, 19

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No

As-Received Length (inch): 10.0/8.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s: 2.80

- ☐ Assumed
- ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
10.11	10.04	799.76	8.4	136.7	0.218	84	30	160	22	1.3	1	1751.5	8.4	84	**5.9E-06**

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: JM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/09/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 7, CORE 5**

DEPTH: 2482.3'-2483.2'

LABORATORY IDENTIFICATION NO.: 130070/7-5H

SAMPLE DESCRIPTION: Light brown limestone with trace anhydrite lenses

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 79 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 8, 15, 22, 30

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 10.0/8.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s: 2.80 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other _____

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
6.61	5.07	133.51	8.4	138.4	0.208	89	30	160	52	2.3	3	296.16	8.4	89	**5.6E-06**

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: JM Date: 07/22/13

Form SR-2B: Rev. 0

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 05/29/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 8, CORE 6**

DEPTH: 2488.2'-2488.9'

LABORATORY IDENTIFICATION NO.: 130070/8-6V

SAMPLE DESCRIPTION: Brown limestone with anhydrite lenses

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 89 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 7, 11, 17

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No

As-Received Length (inch): 8.5/7.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s: 2.87 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
7.76	10.01	610.55	1.9	158.9	0.113	44	30	160	30	1.9	1	1555.1	2.0	46	**1.4E-07**

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: TM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/09/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 8, CORE 6**

DEPTH: 2488.2'-2488.9'

LABORATORY IDENTIFICATION NO.: 130070/8-6H

SAMPLE DESCRIPTION: Brown limestone with anhydrite lenses

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 74 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 6, 13, 19, 28

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 8.5/7.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s: 2.87 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
6.70	5.07	135.27	2.0	161.3	0.099	53	30	160	47	1.5	3	349.71	2.0	53	**2.0E-08**

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: RM Date: 07/22/13

Form SR-2B: Rev. 0

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 05/29/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 9, CORE 6**

DEPTH: 2495.2'-2496.2'

LABORATORY IDENTIFICATION NO.: 130070/9-6V

SAMPLE DESCRIPTION: Light brown dolomitic limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 93 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 5, 12, 18

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No

As-Received Length (inch): 12.0/11.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s: 2.82 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
7.26	10.02	571.87	10.8	131.7	0.252	90	30	160	30	1.3	1	1207.1	10.9	92	**3.9E-06**

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: JM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/09/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 9, CORE 6**

DEPTH: 2495.2'-2496.2'

LABORATORY IDENTIFICATION NO.: 130070/9-6H

SAMPLE DESCRIPTION: Light brown dolomitic limestone

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 97 % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 11, 19, 25

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 12.0/11.0* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s: 2.82 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
6.71	5.07	135.66	10.5	131.7	0.252	88	30	160	40	1.4	1	286.32	10.9	92	**7.2E-06**

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: JM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 05/29/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 10, CORE 7**

DEPTH: 2588.8'-2589.5'

LABORATORY IDENTIFICATION NO.: 130070/10-7V

SAMPLE DESCRIPTION: Brownish-gray dolomitic limestone with anhydrite lenses

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: - %

- ☐ Beginning of Test;
- ☐ End of Test

$\Delta\sigma_c$ (psi): -

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☐ Yes ☒ No

As-Received Length (inch): 9.0/8.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☒ Vertical ☐ Horizontal

SPECIFIC GRAVITY, G_s: 2.87

- ☐ Assumed
- ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
8.73	10.07	694.93	1.1	169.2	0.055	56	30	160	78	2.1	1	1883.4	1.4	68	**1.9E-08**

COMMENTS: (1) Core sample was cut to length, air-dried, deaired under vacuum for a minimum of 24 hours, and then saturated with deaired tap water from the bottom up while maintaining the vacuum. (2) Final w_c from horizontal permeability test specimen. WDS calculated from measured wet mass and final w_c.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: JM Date: 07/22/13

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
ROCK CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: Youngquist Brothers, Inc.

PROJECT: City of LaBelle, Injection Well IW-1

FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13 SET UP: 06/09/13

DATE REPORTED: 07/22/13

INCOMING LABORATORY SAMPLE NO.: **SEGMENT 10, CORE 7**

DEPTH: 2588.8'-2589.5'

LABORATORY IDENTIFICATION NO.: 130070/10-7H

SAMPLE DESCRIPTION: Brownish-gray dolomitic limestone with anhydrite lenses

ASTM D5084 TEST METHOD:

- ☒ A - Constant Head
- ☐ B - Falling Head; Constant Tailwater
- ☐ C - Falling Head; Rising Tailwater
- ☐ F - Constant Volume; Falling Head - Rising Tailwater

B-FACTOR: 89 (stable) % ☐ Beginning of Test; ☒ End of Test

$\Delta\sigma_c$ (psi): 9, 16, 21

SPECIMEN DATA:

As-Received Diameter (inch): 4 Diameter Trimmed: ☒ Yes ☐ No

As-Received Length (inch): 9.0/8.5* Length Trimmed: ☒ Yes ☐ No

TEST SPECIMEN ORIENTATION: ☐ Vertical ☒ Horizontal

SPECIFIC GRAVITY, G_s: 2.87 ☐ Assumed ☒ Measured (ASTM D854)

PERMEANT: ☒ Deaired Tap Water ☐ Other

Initial Conditions							Test Conditions					Final Conditions			Hydraulic Conductivity
H (cm)	D (cm)	V (cm^3)	w_c (%)	γ_d (pcf)	n	S (%)	$\bar{\sigma}_c$ (psi)	u_b (psi)	i_{avg}	Q (cm^3)	t (days)	WDS (g)	w_c (%)	S (%)	k_{20} (cm/sec)
6.35	5.07	128.31	1.4	168.9	0.057	64	30	160	46	2.9	3	347.27	1.4	66	**1.8E-08**

COMMENTS: (1) Horizontal permeability test specimen was cross-cored from the corresponding vertical test specimen.
*First length is total sample length. Second length is useable length at full core diameter.

Where: H = Specimen height; D = Specimen diameter; V = Volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\bar{\sigma}_c$ = Isotropic effective confining stress; u_b = Back-pressure; i_{avg} = Average hydraulic gradient; Q = Flow volume; t = Test duration; k_{20} = Saturated hydraulic conductivity at 20°C; n = Total porosity; and G_s = Specific gravity.

Checked By: JM Date: 07/22/13

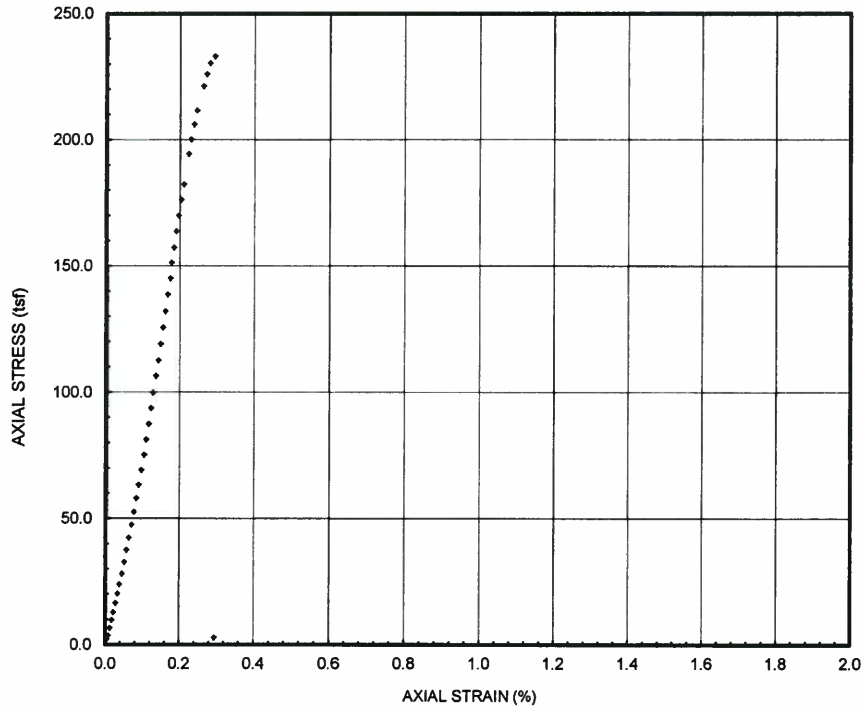
ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Youngquist Brothers, Inc.
PROJECT: City of LaBelle, Injection Well IW-1
FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13
DATE TEST SET-UP: 06/04/13
DATE REPORTED: 07/22/13

INCOMING SAMPLE NO.: **Segment 1, Core 1**
BORING: - SAMPLE: -
DEPTH: 2124.1-2125.3 ☒ ft; ☐ m
LABORATORY IDENTIFICATION NO.: 130070/1-1
SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a(ult) (lb/in^2)	Young's Tangent Modulus, E_{50} (lb/in^2)	Modulus Ratio [E_{50} / σ_a(ult)]
H (cm)	D (cm)	H/D	w_c (%)	γ_d (lb/ft^3)	S (%)	$\dot{\varepsilon}$ (cm/minute)	$\dot{\varepsilon}$ (%/minute)				
20.75	9.95	2.1	4.7	124.1	34	0.028	0.13	2.2	3,237	1.4E06	432



TEST PROCEDURES

ASTM Standard D7012 [Method A] and D4543 for specimen preparation
Air Temperature (°C): 20.1
Capping Material: ☐ None ☒ Lab-Stone
Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4
Specimen Sub-Cored for Testing:
☐ Yes
☒ No

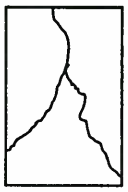
Specimen Side Straightness (Procedure S1)
☐ Satisfies Criterion of ≤ 0.020 inches
☒ 0.029": Does Not Satisfy Criterion

Specimen Side Parallelism (Procedure P2)
☐ Satisfies Criterion of ≤ 0.43%
☒ 1.5%: Does Not Satisfy Criterion

Specimen End Flatness (Procedure FP2)
☒ Specimen Capped – Not Applicable
☐ Satisfies Criterion of ≤ 0.001 inches
☐ Does Not Satisfy Criterion

G_s: 2.73 ☐ Assumed ☒ Measured

FAILURE SKETCH



Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\varepsilon}$ = Vertical displacement rate; G_s = Specific gravity; and E_{50} = Young's tangent modulus at 50%of unconfined compressive strength unless indicated otherwise.

Checked By: TM Date: 07/22/13

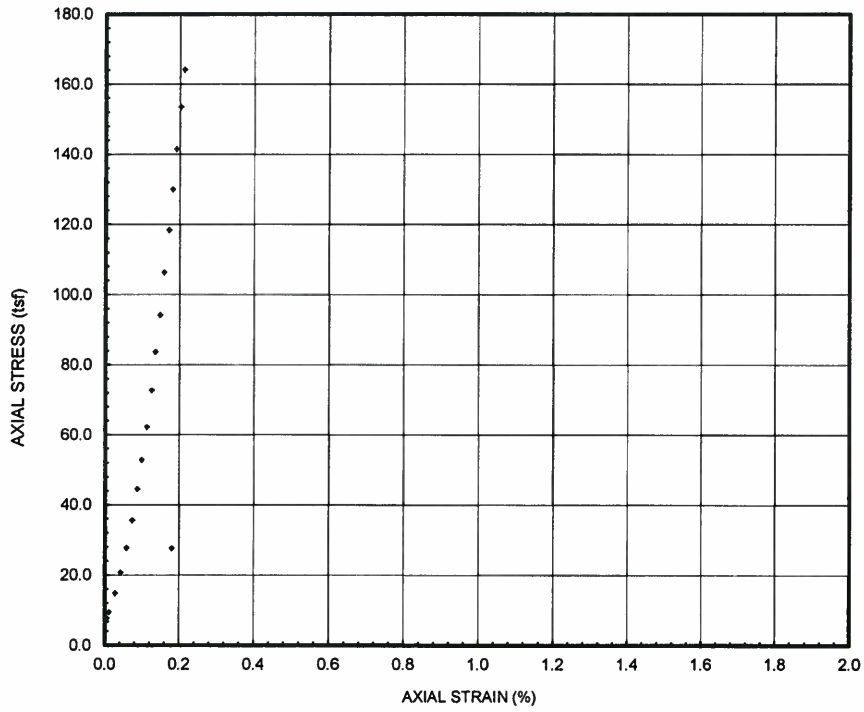
ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Youngquist Brothers, Inc.
PROJECT: City of LaBelle, Injection Well IW-1
FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13
DATE TEST SET-UP: 06/05/13
DATE REPORTED: 07/22/13

INCOMING SAMPLE NO.: **Segment 2, Core 1**
BORING: - SAMPLE: -
DEPTH: 2128.3-2129.2 ☒ ft; ☐ m
LABORATORY IDENTIFICATION NO.: 130070/2-1
SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a(ult) (lb/in^2)	Young's Tangent Modulus, E_{50} (lb/in^2)	Modulus Ratio [E_{50} / σ_a(ult)]
H (cm)	D (cm)	H/D	w_c (%)	γ_d (lb/ft^3)	S (%)	$\dot{\varepsilon}$ (cm/minute)	$\dot{\varepsilon}$ (%/minute)				
10.57	5.07	2.1	7.8	123.3	54	0.025	0.23	0.9	2,280	1.3E06	570



TEST PROCEDURES

ASTM Standard D7012 [Method A] and D4543 for specimen preparation
Air Temperature (°C): 19.7
Capping Material: ☐ None ☒ Lab-Stone
Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4
Specimen Sub-Cored for Testing:
☒ Yes
☐ No

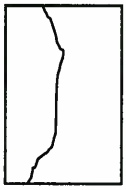
Specimen Side Straightness (Procedure S1)
☐ Satisfies Criterion of ≤ 0.020 inches
☒ 0.023": Does Not Satisfy Criterion

Specimen Side Parallelism (Procedure P2)
☐ Satisfies Criterion of ≤ 0.43%
☒ 1.5%: Does Not Satisfy Criterion

Specimen End Flatness (Procedure FP2)
☒ Specimen Capped – Not Applicable
☐ Satisfies Criterion of ≤ 0.001 inches
☐ Does Not Satisfy Criterion

G_s: 2.75 ☐ Assumed ☒ Measured

FAILURE SKETCH



Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\varepsilon}$ = Vertical displacement rate; G_s = Specific gravity; and E_{50} = Young's tangent modulus at 50%of unconfined compressive strength unless indicated otherwise.

Checked By: TM Date: 07/22/13

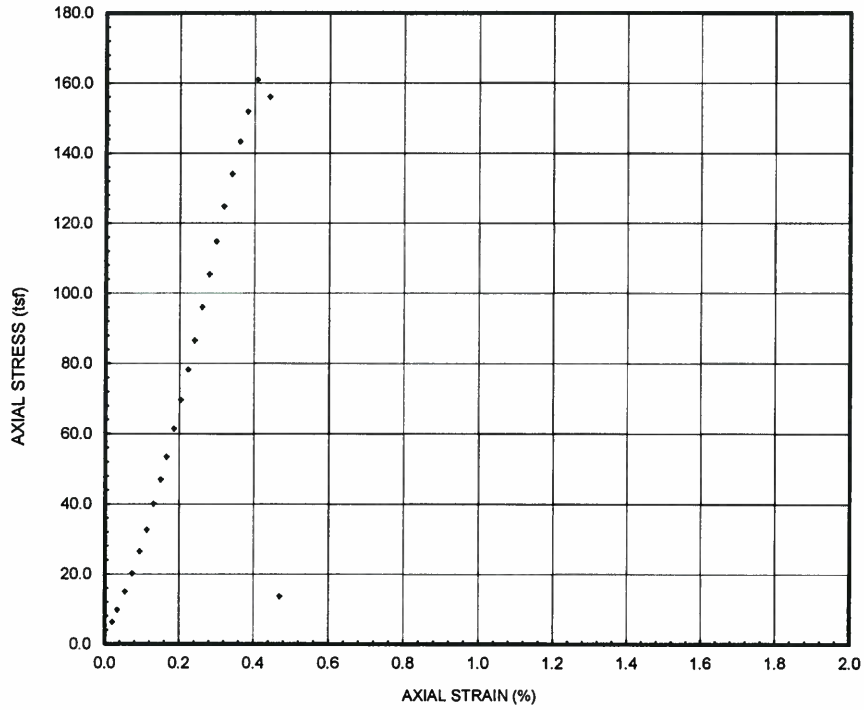
ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Youngquist Brothers, Inc.
PROJECT: City of LaBelle, Injection Well IW-1
FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13
DATE TEST SET-UP: 06/05/13
DATE REPORTED: 07/22/13

INCOMING SAMPLE NO.: **Segment 3, Core 2**
BORING: - SAMPLE: -
DEPTH: 2208.2-2209.0 ☒ ft; ☐ m
LABORATORY IDENTIFICATION NO.: 130070/3-2
SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a(ult) (lb/in^2)	Young's Tangent Modulus, E_{50} (lb/in^2)	Modulus Ratio [E_{50} / σ_a(ult)]
H (cm)	D (cm)	H/D	w_c (%)	γ_d (lb/ft^3)	S (%)	$\dot{\varepsilon}$ (cm/minute)	$\dot{\varepsilon}$ (%/minute)				
10.44	5.06	2.1	10.9	118.2	67	0.044	0.42	1.0	2,234	6.5E05	291



TEST PROCEDURES

ASTM Standard D7012 [Method A] and D4543 for specimen preparation
Air Temperature (°C): 19.7
Capping Material: ☐ None ☒ Lab-Stone
Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4
Specimen Sub-Cored for Testing:
☒ Yes
☐ No

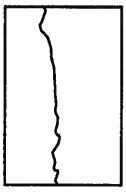
Specimen Side Straightness (Procedure S1)
☐ Satisfies Criterion of ≤ 0.020 inches
☒ 0.023": Does Not Satisfy Criterion

Specimen Side Parallelism (Procedure P2)
☐ Satisfies Criterion of ≤ 0.43%
☒ 2.9%: Does Not Satisfy Criterion

Specimen End Flatness (Procedure FP2)
☒ Specimen Capped – Not Applicable
☐ Satisfies Criterion of ≤ 0.001 inches
☐ Does Not Satisfy Criterion

G_s: 2.73 ☐ Assumed ☒ Measured

FAILURE SKETCH



Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\varepsilon}$ = Vertical displacement rate; G_s = Specific gravity; and E_{50} = Young's tangent modulus at 50%of unconfined compressive strength unless indicated otherwise.

Checked By: TM Date: 07/22/13

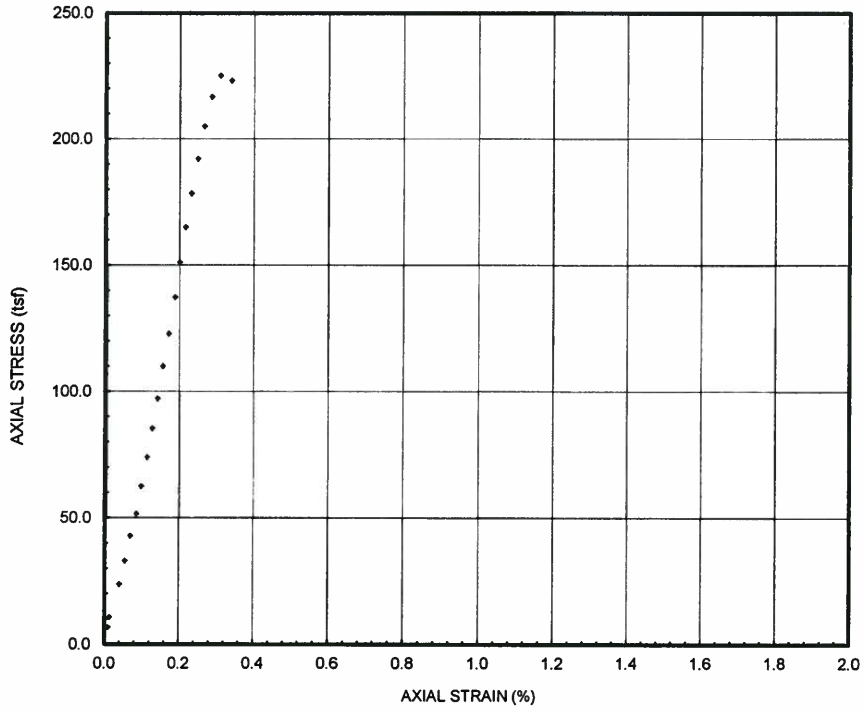
ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Youngquist Brothers, Inc.
PROJECT: City of LaBelle, Injection Well IW-1
FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13
DATE TEST SET-UP: 06/05/13
DATE REPORTED: 07/22/13

INCOMING SAMPLE NO.: **Segment 4, Core 3**
BORING: - SAMPLE: -
DEPTH: 2325.8-2326.8 ☒ ft; ☐ m
LABORATORY IDENTIFICATION NO.: 130070/4-3
SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a(ult) (lb/in^2)	Young's Tangent Modulus, E_{50} (lb/in^2)	Modulus Ratio [E_{50} / σ_a(ult)]
H (cm)	D (cm)	H/D	w_c (%)	γ_d (lb/ft^3)	S (%)	$\dot{\varepsilon}$ (cm/minute)	$\dot{\varepsilon}$ (%/minute)				
10.18	5.07	2.0	7.9	127.4	64	0.034	0.33	0.9	3,127	1.2E06	384



TEST PROCEDURES

ASTM Standard D7012 [Method A] and D4543 for specimen preparation

Air Temperature (°C): 19.7

Capping Material: ☐ None ☒ Lab-Stone

Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4

Specimen Sub-Cored for Testing:
☒ Yes
☐ No

Specimen Side Straightness (Procedure S1)
☐ Satisfies Criterion of ≤ 0.020 inches
☒ 0.023": Does Not Satisfy Criterion

Specimen Side Parallelism (Procedure P2)
☐ Satisfies Criterion of ≤ 0.43%
☒ 0.70%: Does Not Satisfy Criterion

Specimen End Flatness (Procedure FP2)
☒ Specimen Capped – Not Applicable
☐ Satisfies Criterion of ≤ 0.001 inches
☐ Does Not Satisfy Criterion

G_s: 2.73 ☐ Assumed ☒ Measured

FAILURE SKETCH

Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\varepsilon}$ = Vertical displacement rate; G_s = Specific gravity; and E_{50} = Young's tangent modulus at 50%of unconfined compressive strength unless indicated otherwise.

Checked By: TM Date: 07/22/13

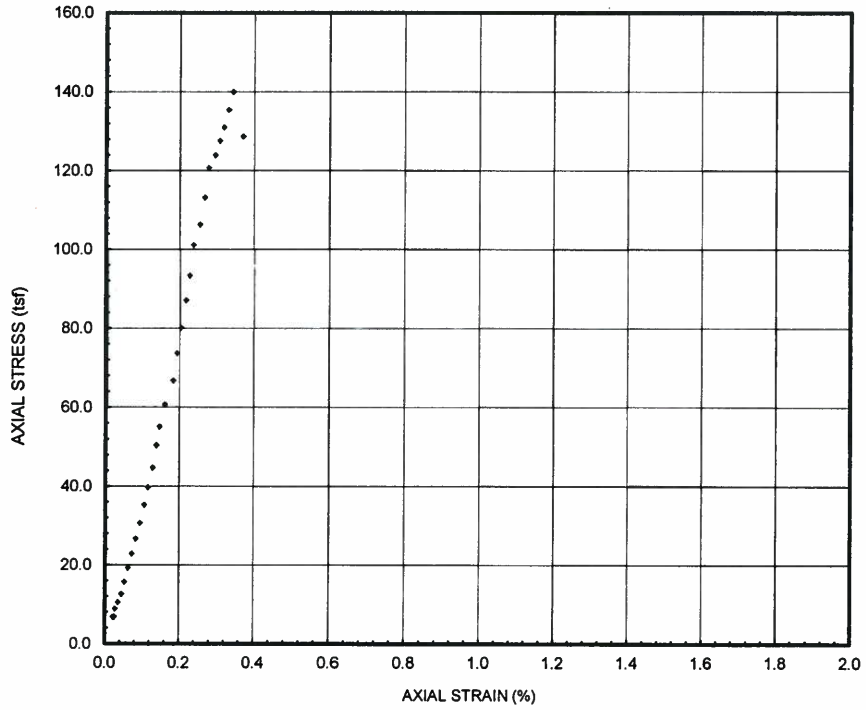
ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Youngquist Brothers, Inc.
PROJECT: City of LaBelle, Injection Well IW-1
FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13
DATE TEST SET-UP: 06/05/13
DATE REPORTED: 07/22/13

INCOMING SAMPLE NO.: **Segment 6, Core 4**
BORING: - SAMPLE: -
DEPTH: 2407.5-2408.4 ☒ ft; ☐ m
LABORATORY IDENTIFICATION NO.: 130070/6-4
SAMPLE DESCRIPTION: Light brown limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a(ult) (lb/in^2)	Young's Tangent Modulus, E_{50} (lb/in^2)	Modulus Ratio [E_{50} / σ_a(ult)]
H (cm)	D (cm)	H/D	w_c (%)	γ_d (lb/ft^3)	S (%)	$\dot{\varepsilon}$ (cm/minute)	$\dot{\varepsilon}$ (%/minute)				
10.47	5.07	2.1	7.7	128.1	62	0.025	0.24	1.4	1,943	6.1E05	314



TEST PROCEDURES

ASTM Standard D7012 [Method A] and D4543 for specimen preparation
Air Temperature (°C): 19.7
Capping Material: ☐ None ☒ Lab-Stone
Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4
Specimen Sub-Cored for Testing:
☒ Yes
☐ No

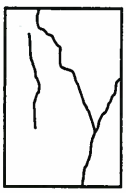
Specimen Side Straightness (Procedure S1)
☒ Satisfies Criterion of ≤ 0.020 inches
☐ ____: Does Not Satisfy Criterion

Specimen Side Parallelism (Procedure P2)
☐ Satisfies Criterion of ≤ 0.43%
☒ 2.4%: Does Not Satisfy Criterion

Specimen End Flatness (Procedure FP2)
☒ Specimen Capped – Not Applicable
☐ Satisfies Criterion of ≤ 0.001 inches
☐ Does Not Satisfy Criterion

G_s: 2.75 ☐ Assumed ☒ Measured

FAILURE SKETCH



Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\varepsilon}$ = Vertical displacement rate; G_s = Specific gravity; and E_{50} = Young's tangent modulus at 50%of unconfined compressive strength unless indicated otherwise.

Checked By: DM Date: 07/22/13

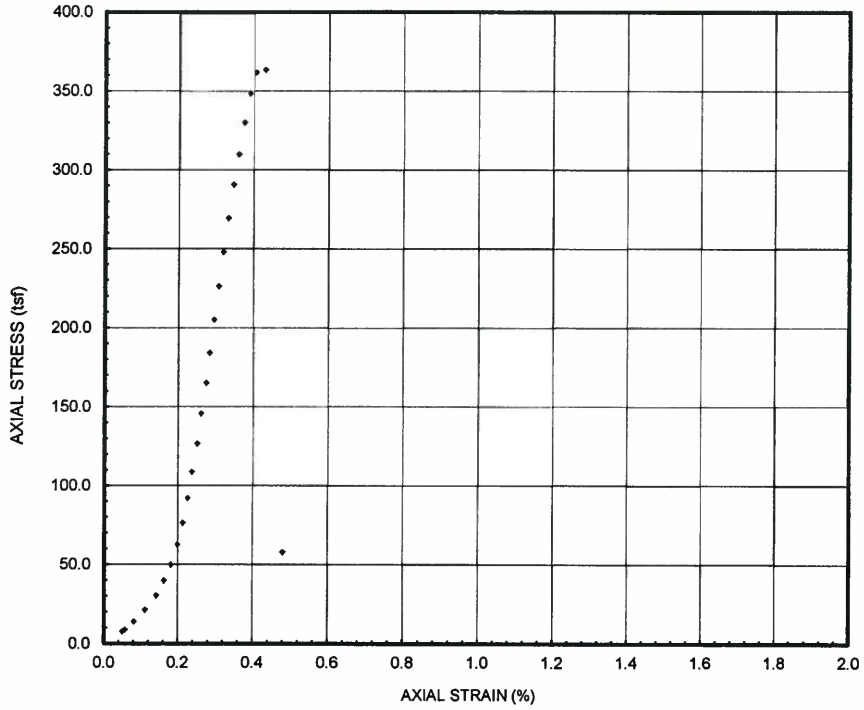
ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Youngquist Brothers, Inc.
PROJECT: City of LaBelle, Injection Well IW-1
FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13
DATE TEST SET-UP: 06/05/13
DATE REPORTED: 07/22/13

INCOMING SAMPLE NO.: **Segment 7, Core 5**
BORING: - SAMPLE: -
DEPTH: 2482.3-2483.2 ☒ ft; ☐ m
LABORATORY IDENTIFICATION NO.: 130070/7-5
SAMPLE DESCRIPTION: Light brown limestone with anhydrite lenses

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a(ult) (lb/in^2)	Young's Tangent Modulus, E_{50} (lb/in^2)	Modulus Ratio [E_{50} / σ_a(ult)]
H (cm)	D (cm)	H/D	w_c (%)	γ_d (lb/ft^3)	S (%)	$\dot{\varepsilon}$ (cm/minute)	$\dot{\varepsilon}$ (%/minute)				
10.66	5.07	2.1	6.6	138.8	83	0.039	0.36	1.2	5,045	2.5E06	496



TEST PROCEDURES

ASTM Standard D7012 [Method A] and D4543 for specimen preparation
Air Temperature (°C): 19.5
Capping Material: ☐ None ☒ Lab-Stone
Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4
Specimen Sub-Cored for Testing:
☒ Yes
☐ No

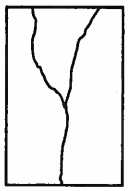
Specimen Side Straightness (Procedure S1)
☒ Satisfies Criterion of ≤ 0.020 inches
☐ ____: Does Not Satisfy Criterion

Specimen Side Parallelism (Procedure P2)
☐ Satisfies Criterion of ≤ 0.43%
☒ 2.0%: Does Not Satisfy Criterion

Specimen End Flatness (Procedure FP2)
☒ Specimen Capped – Not Applicable
☐ Satisfies Criterion of ≤ 0.001 inches
☐ Does Not Satisfy Criterion

G_s: 2.80 ☐ Assumed ☒ Measured

FAILURE SKETCH



Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\varepsilon}$ = Vertical displacement rate; G_s = Specific gravity; and E_{50} = Young's tangent modulus at 50%of unconfined compressive strength unless indicated otherwise.

Checked By: TM Date: 07/22/13

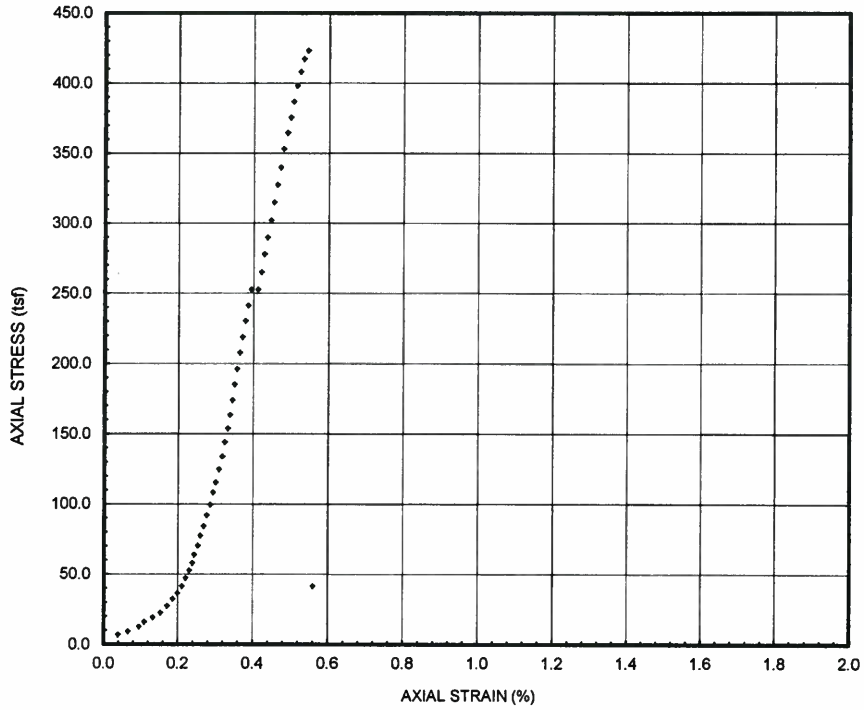
ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Youngquist Brothers, Inc.
PROJECT: City of LaBelle, Injection Well IW-1
FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13
DATE TEST SET-UP: 06/05/13
DATE REPORTED: 07/22/13

INCOMING SAMPLE NO.: **Segment 8, Core 6**
BORING: - SAMPLE: -
DEPTH: 2488.2-2488.9 ☒ ft; ☐ m
LABORATORY IDENTIFICATION NO.: 130070/8-6
SAMPLE DESCRIPTION: Light brown limestone with anhydrite lenses

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a(ult) (lb/in^2)	Young's Tangent Modulus, E_{50} (lb/in^2)	Modulus Ratio [E_{50} / σ_a(ult)]
H (cm)	D (cm)	H/D	w_c (%)	γ_d (lb/ft^3)	S (%)	$\dot{\varepsilon}$ (cm/minute)	$\dot{\varepsilon}$ (%/minute)				
10.43	5.07	2.1	3.3	154.6	60	0.023	0.22	2.5	5,878	2.2E06	374



TEST PROCEDURES

ASTM Standard D7012 [Method A] and D4543 for specimen preparation
Air Temperature (°C): 19.7
Capping Material: ☐ None ☒ Lab-Stone
Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4
Specimen Sub-Cored for Testing:
☒ Yes
☐ No

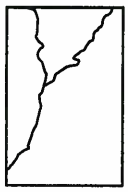
Specimen Side Straightness (Procedure S1)
☒ Satisfies Criterion of ≤ 0.020 inches
☐ ____: Does Not Satisfy Criterion

Specimen Side Parallelism (Procedure P2)
☐ Satisfies Criterion of ≤ 0.43%
☒ 1.6%: Does Not Satisfy Criterion

Specimen End Flatness (Procedure FP2)
☒ Specimen Capped – Not Applicable
☐ Satisfies Criterion of ≤ 0.001 inches
☐ Does Not Satisfy Criterion

G_s: 2.87 ☐ Assumed ☒ Measured

FAILURE SKETCH



Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\varepsilon}$ = Vertical displacement rate; G_s = Specific gravity; and E_{50} = Young's tangent modulus at 50%of unconfined compressive strength unless indicated otherwise.

Checked By: TM Date: 07/22/13

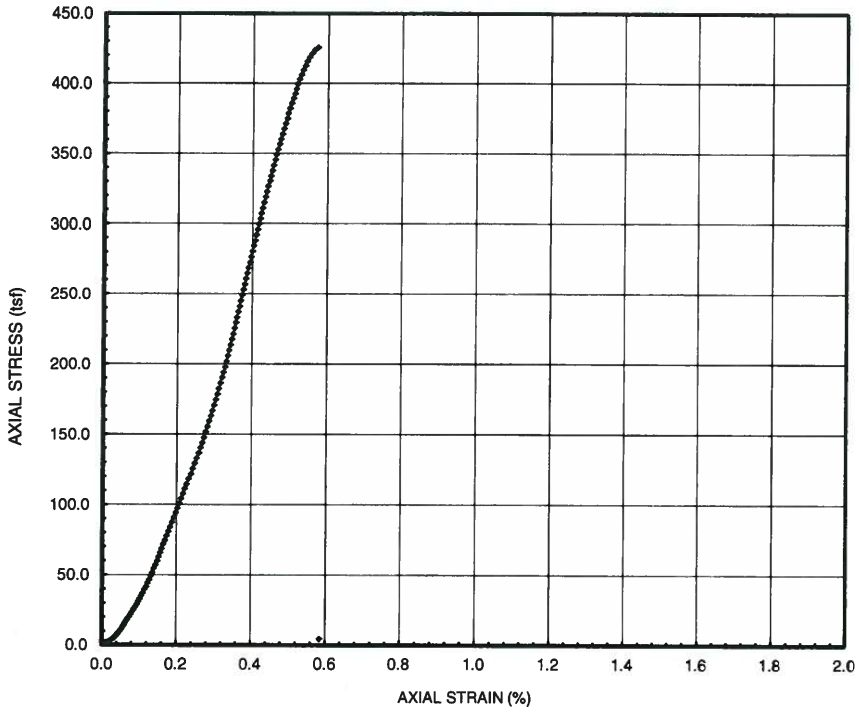
ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Youngquist Brothers, Inc.
PROJECT: City of LaBelle, Injection Well IW-1
FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13
DATE TEST SET-UP: 06/04/13
DATE REPORTED: 07/22/13

INCOMING SAMPLE NO.: **Segment 9, Core 6**
BORING: - SAMPLE: -
DEPTH: 2495.2-2496.2 ☒ ft; ☐ m
LABORATORY IDENTIFICATION NO.: 130070/9-6
SAMPLE DESCRIPTION: Light brown dolomitic limestone

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a(ult) (lb/in^2)	Young's Tangent Modulus, E_{50} (lb/in^2)	Modulus Ratio [E_{50}/ σ_a(ult)]
H (cm)	D (cm)	H/D	w_c (%)	γ_d (lb/ft^3)	S (%)	$\dot{\varepsilon}$ (cm/minute)	$\dot{\varepsilon}$ (%/minute)				
20.60	10.04	2.1	5.2	137.7	53	0.016	0.08	7.2	5,910	1.4E06	237



TEST PROCEDURES

ASTM Standard D7012 [Method A] and D4543 for specimen preparation
Air Temperature (°C): 20.1
Capping Material: ☐ None ☒ Lab-Stone
Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4
Specimen Sub-Cored for Testing:
☐ Yes
☒ No

Specimen Side Straightness (Procedure S1)
☐ Satisfies Criterion of ≤ 0.020 inches
☒ 0.027": Does Not Satisfy Criterion

Specimen Side Parallelism (Procedure P2)
☐ Satisfies Criterion of ≤ 0.43%
☒ 1.2%: Does Not Satisfy Criterion

Specimen End Flatness (Procedure FP2)
☒ Specimen Capped – Not Applicable
☐ Satisfies Criterion of ≤ 0.001 inches
☐ Does Not Satisfy Criterion

G_s: 2.82 ☐ Assumed ☒ Measured

FAILURE SKETCH

Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\varepsilon}$ = Vertical displacement rate; G_s = Specific gravity; and E_{50} = Young's tangent modulus at 50%of unconfined compressive strength unless indicated otherwise.

Checked By: TM Date: 07/22/13

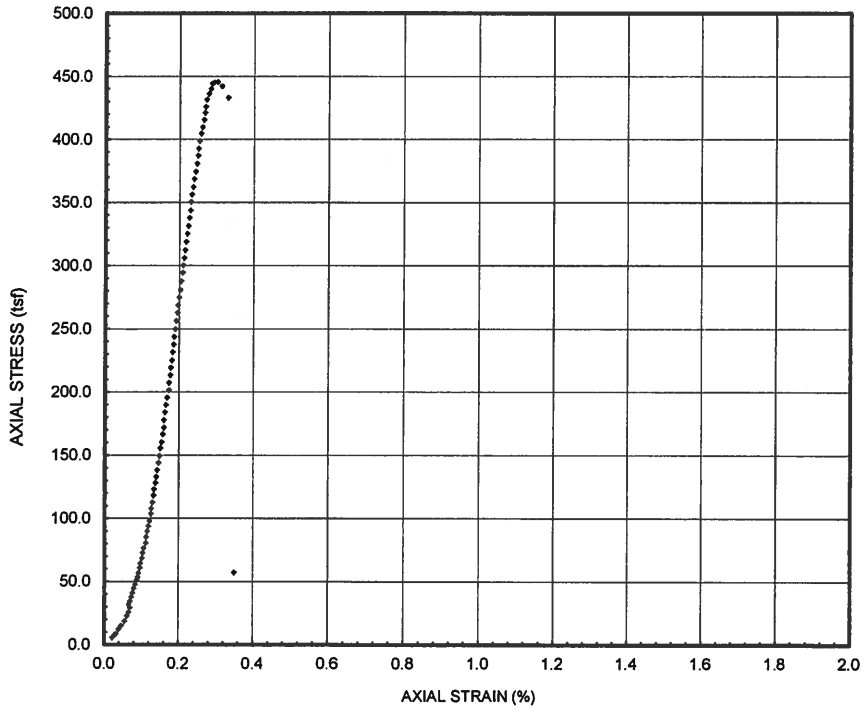
ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
INTACT ROCK CORE UNCONFINED COMPRESSION TEST REPORT

CLIENT: Youngquist Brothers, Inc.
PROJECT: City of LaBelle, Injection Well IW-1
FILE NO.: 13-13-0070

DATE SAMPLE RECEIVED: 05/20/13
DATE TEST SET-UP: 06/05/13
DATE REPORTED: 07/22/13

INCOMING SAMPLE NO.: **Segment 10, Core 7**
BORING: - SAMPLE: -
DEPTH: 2588.8-2589.5 ☒ ft; ☐ m
LABORATORY IDENTIFICATION NO.: 130070/10-7
SAMPLE DESCRIPTION: Brownish-gray dolomitic limestone with anhydrite lenses

Specimen Dimensions			Initial Conditions			Rate of Loading		Time to Failure (minutes)	Unconfined Compressive Strength, σ_a(ult) (lb/in^2)	Young's Tangent Modulus, E_{50} (lb/in^2)	Modulus Ratio [E_{50} / σ_a(ult)]
H (cm)	D (cm)	H/D	w_c (%)	γ_d (lb/ft^3)	S (%)	$\dot{\varepsilon}$ (cm/minute)	$\dot{\varepsilon}$ (%/minute)				
10.46	5.07	2.1	3.7	162.1	100	0.007	0.07	4.5	6,192	4.0E06	646



TEST PROCEDURES

ASTM Standard D7012 [Method A] and D4543 for specimen preparation
Air Temperature (°C): 19.7
Capping Material: ☐ None ☒ Lab-Stone
Comments:

SPECIMEN PREPARATION

Original Core Diameter (inch): 4
Specimen Sub-Cored for Testing:
☒ Yes
☐ No

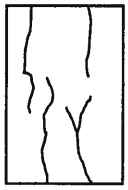
Specimen Side Straightness (Procedure S1)
☐ Satisfies Criterion of ≤ 0.020 inches
☒ 0.026": Does Not Satisfy Criterion

Specimen Side Parallelism (Procedure P2)
☐ Satisfies Criterion of ≤ 0.43%
☒ 0.56%: Does Not Satisfy Criterion

Specimen End Flatness (Procedure FP2)
☒ Specimen Capped – Not Applicable
☐ Satisfies Criterion of ≤ 0.001 inches
☐ Does Not Satisfy Criterion

G_s: 2.87 ☐ Assumed ☒ Measured

FAILURE SKETCH



Where: H = Specimen height; D = Specimen diameter; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; $\dot{\varepsilon}$ = Vertical displacement rate; G_s = Specific gravity; and E_{50} = Young's tangent modulus at 50%of unconfined compressive strength unless indicated otherwise.

Checked By: TM Date: 07/22/13

EXHIBIT E

Core Sections Between 2,475 And 2,600 Feet With Anhydrite Infilling

Core Sections Between 2,475 And 2,600 Feet With Anhydrite Infilling