

SGI TESTING SERVICES

A Georgia Limited Liability Company

18 May 2008

Mr. David Agee
Geostone Retaining Wall Systems, Inc.
P.O. Box 325
Westover, AL 35185

Subject: Laboratory Test Results Transmittal
Connection Strength Testing
Synteen SF Geogrids/
Geostone Blocks (8" Thick)

Dear Mr. Agee,

SGI Testing Services, LLC (SGI) is pleased to present the attached test results for the above-mentioned testing program. The note section below addresses sample preparation, sample disposal and a disclosure statement.

SGI appreciates the opportunity to provide laboratory testing services to Geostone Retaining Wall Systems, Inc. Should you have any questions regarding the attached document(s), or if you require additional information, please do not hesitate to contact the undersigned.

Sincerely,

Zehong Yuan, Ph.D., P.E.
Laboratory Manager

Attachments

Notes:

- (1) Unless otherwise noted in the test results the sample(s)/specimen(s) were prepared in accordance with the applicable test standards or generally accepted sampling procedures.
- (2) Contaminated/chemical samples and all related laboratory generated waste (i.e., test liquids, PPE, absorbents, etc.) will be returned to the client or designated representative(s), at the client's cost, within 60 days following the completion of the testing program, unless special arrangements for proper disposal are made with SGI.
- (3) Materials that are not contaminated will be discarded after test specimens and archived specimens are obtained. All of the tested and archived specimens will be discarded 30 days after the completion of testing, unless long-term storage arrangements are specifically made with the laboratory.
- (4) The reported results apply only to the materials and test conditions used in the laboratory testing program. The results do not necessarily apply to other materials or test conditions. The test results should not be used in engineering analysis unless the test conditions model the anticipated field conditions. The testing was performed in accordance with general engineering testing standards and requirements. The reported results are submitted for the exclusive use of the client to whom they are addressed.

SGI8014-01

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ATTACHMENT 1
SCHEMATIC DIAGRAM AND PHOTO
CONNECTION TEST SET-UP

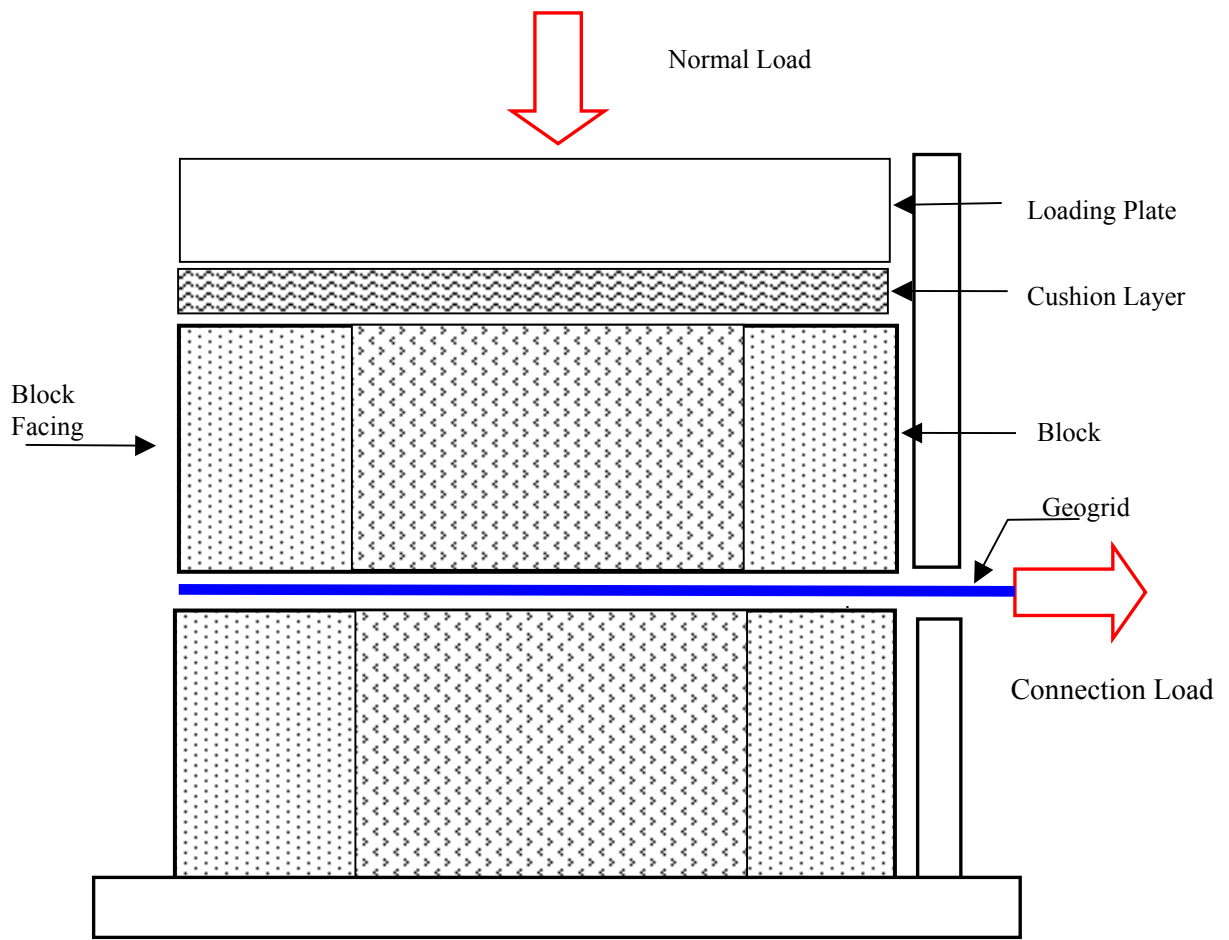


Figure A-1. Schematic Diagram of Test Set-up



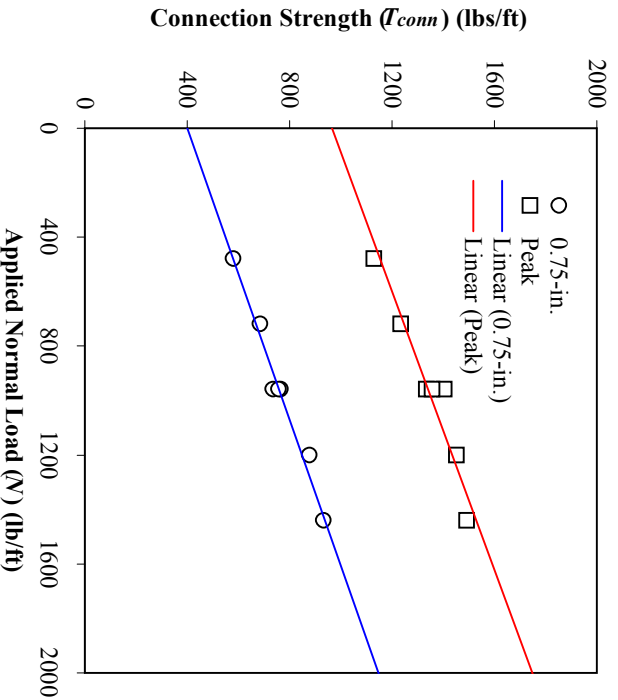
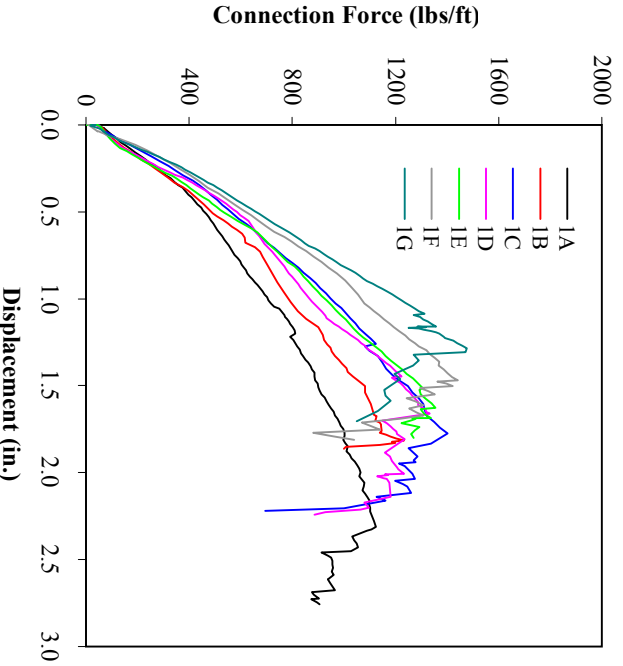
Figure A-2. Photo of Connection Test Set-up

ATTACHMENT 2

CONNECTION TEST RESULTS

**GEOSTONE RETAINING WALL SYSTEMS, INC.
CONNECTION STRENGTH TESTING (ASTM D 6638)**

TEST SERIES NO. 1: Synten SF20 geogrid in machine direction between two courses of Geostone blocks (8" thick) with compacted AASHTO #57 stone within block apertures and space between blocks

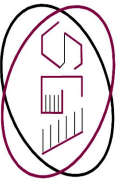


Test No.	Geogrid Specimen Nominal Width (in.)	Test Normal Stress (psi)	Equivalent Normal Load (lb/ft)	Approx. No. of Blocks	Approx. Wall Height (ft)	0.75-in. Strength (lb/ft)	Peak Strength (lb/ft)	Connection Strength Equations (T_{conn})	
1A	34.0	3.3	480	6	4.0	578	1128	$T_{0.75in} = 400 + (N) \tan (20 ^\circ)$	
1B	34.0	5.0	720	9	6.0	682	1232		
1C	34.0	6.7	960	12	8.0	763	1403		
1D	34.0	6.7	960	12	8.0	733	1332		
1E	34.0	6.7	960	12	8.0	756	1356		
1F	34.0	8.3	1200	15	10.0	875	1450		$T_{peak} = 965 + (N) \tan (21 ^\circ)$
1G	34.0	10.0	1440	18	12.0	930	1489		

NOTES:

Dimensions of Block: 18 in. wide by 12 in. long and 8 in. high.
 Weight of Full-Size Block: 70 lbs
 Unit Weight of Facing (Block & Gravel): 120 pcf
 Failure Mode of Geogrid: Abrasion and rupture of geogrid ribs in each test.

DATE REPORTED: 3/20/2008

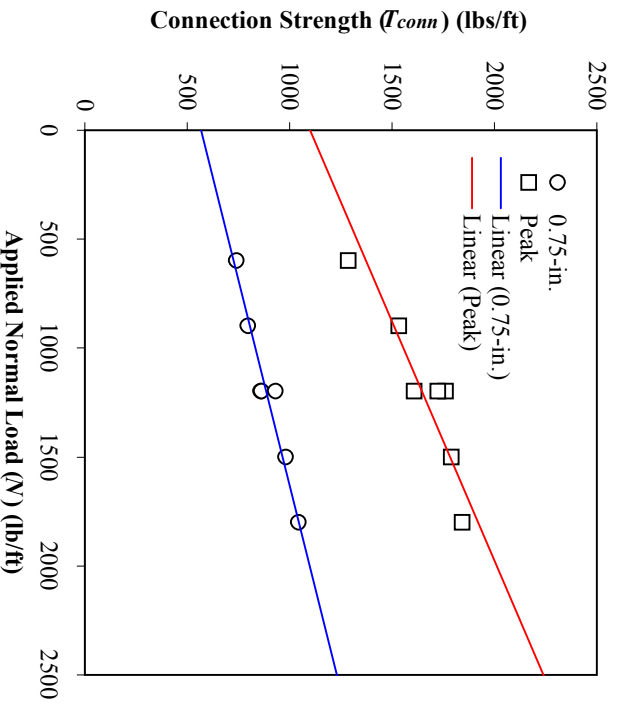
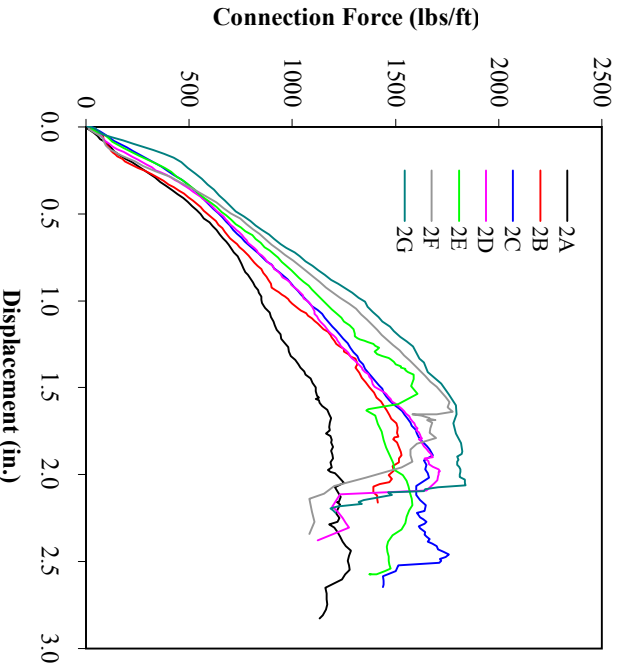


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FIGURE NO.	C-1
PROJECT NO.	SGI8014
DOCUMENT NO.	
FILE NO.	

**GEOSTONE RETAINING WALL SYSTEMS, INC.
CONNECTION STRENGTH TESTING (ASTM D 6638)**

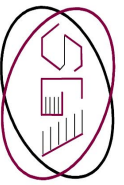
TEST SERIES NO. 2: Synten SF35 geogrid in machine direction between two courses of Geostone blocks (8" thick) with compacted AASHTO #57 stone within block apertures and space between blocks



Test No.	Geogrid Specimen Nominal Width (in.)	Test Normal Stress (psi)	Equivalent Normal Load (lb/ft)	Approx. No. of Blocks	Approx. Wall Height (ft)	0.75-in. Strength (lb/ft)	Peak Strength (lb/ft)	Connection Strength Equations (T_{conn})
2A	34.0	4.2	600	8	5.0	737	1284	$T_{0.75in} = 565 + (N) \tan (15 ^\circ)$ $T_{peak} = 1100 + (N) \tan (24 ^\circ)$
2B	34.0	6.3	900	11	7.5	793	1530	
2C	34.0	8.3	1200	15	10.0	857	1760	
2D	34.0	8.3	1200	15	10.0	861	1721	
2E	34.0	8.3	1200	15	10.0	929	1607	
2F	34.0	10.4	1500	19	12.5	980	1786	
2G	34.0	12.5	1800	23	15.0	1042	1840	

NOTES:
 Dimensions of Block: 18 in. wide by 12 in. long and 8 in. high.
 Weight of Full-Size Block: 70 lbs
 Unit Weight of Facing (Block & Gravel): 120 pcf
 Failure Mode of Geogrid: Abrasion and rupture of geogrid ribs in each test.

DATE REPORTED: 3/20/2008

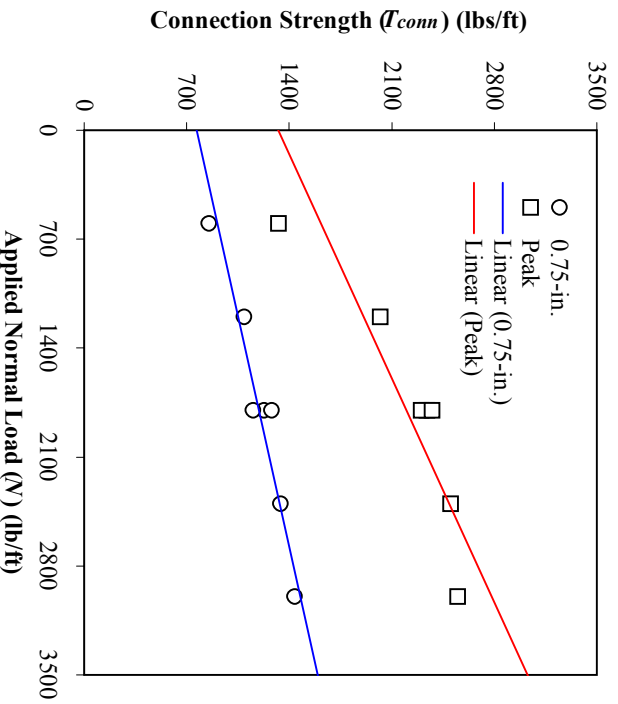
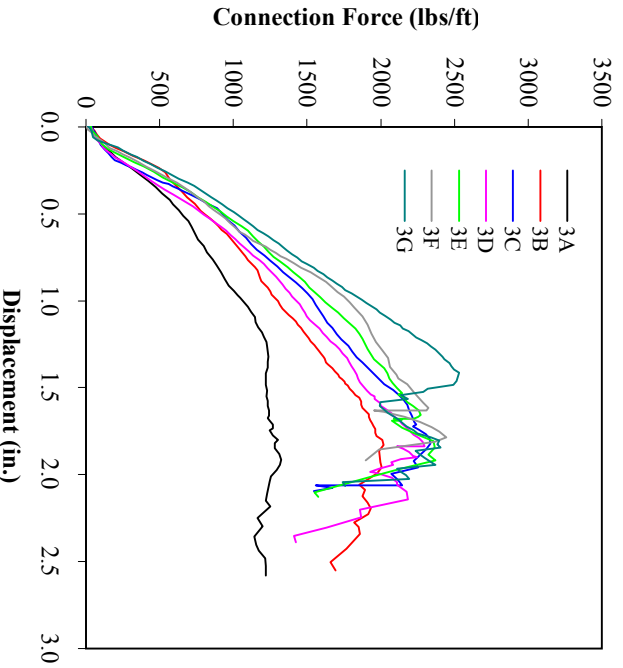


SGI TESTING SERVICES, LLC

FIGURE NO.	C-2
PROJECT NO.	SGI8014
DOCUMENT NO.	
FILE NO.	

**GEOSTONE RETAINING WALL SYSTEMS, INC.
CONNECTION STRENGTH TESTING (ASTM D 6638)**

TEST SERIES NO. 3: Synten SF55 geogrid in machine direction between two courses of Geostone blocks (8" thick) with compacted AASHTO #57 stone within block apertures and space between blocks

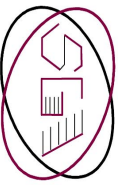


Test No.	Geogrid Specimen Nominal Width (in.)	Test Normal Stress (psi)	Equivalent Normal Load (lb/ft)	Approx. No. of Blocks	Approx. Wall Height (ft)	0.75-in. Strength (lb/ft)	Peak Strength (lb/ft)	Connection Strength Equations (T_{conn})
3A	34.0	4.2	600	8	5.0	846	1326	$T_{0.75in} = 765 + (N) \tan (13 ^\circ)$ $T_{peak} = 1325 + (N) \tan (26 ^\circ)$
3B	34.0	8.3	1200	15	10.0	1086	2020	
3C	34.0	12.5	1800	23	15.0	1224	2336	
3D	34.0	12.5	1800	23	15.0	1150	2297	
3E	34.0	12.5	1800	23	15.0	1278	2373	
3F	34.0	16.7	2400	30	20.0	1335	2498	
3G	34.0	20.8	3000	38	25.0	1431	2546	

NOTES:

Dimensions of Block: 18 in. wide by 12 in. long and 8 in. high.
 Weight of Full-Size Block: 70 lbs
 Unit Weight of Facing (Block & Gravel): 120 pcf
 Failure Mode of Geogrid: Abrasion and rupture of geogrid ribs in each test.

DATE REPORTED: 3/20/2008

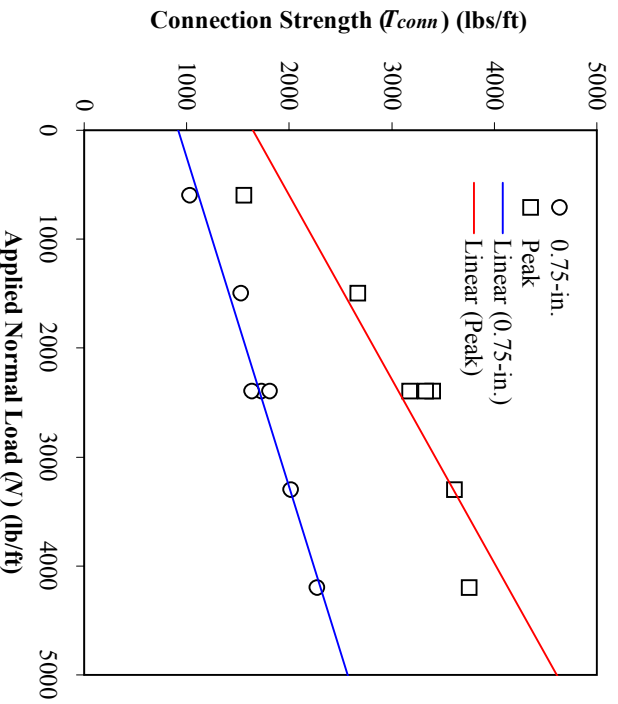
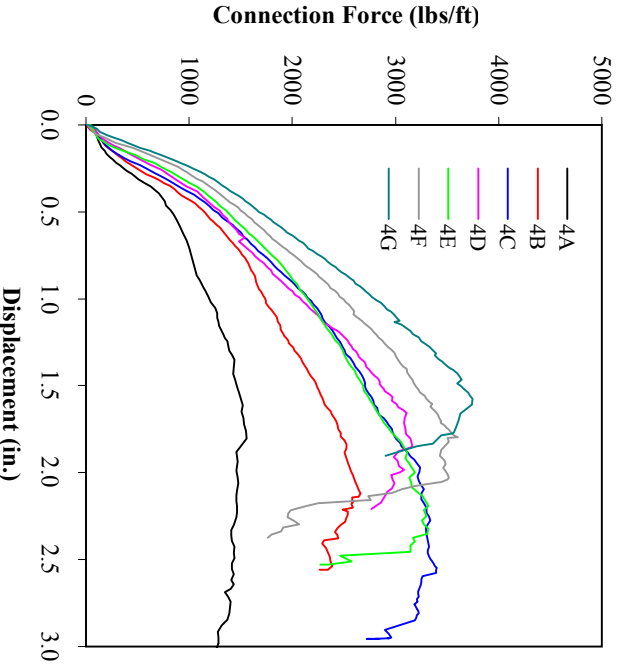


SGI TESTING SERVICES, LLC

FIGURE NO.	C-3
PROJECT NO.	SGI8014
DOCUMENT NO.	
FILE NO.	

**GEOSTONE RETAINING WALL SYSTEMS, INC.
CONNECTION STRENGTH TESTING (ASTM D 6638)**

TEST SERIES NO. 4: Synten SF80 geogrid in machine direction between two courses of Geostone blocks (8" thick) with compacted AASHTO #57 stone within block apertures and space between blocks

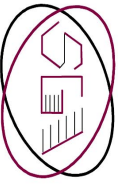


Test No.	Geogrid Specimen Nominal Width (in.)	Test Normal Stress (psi)	Equivalent Normal Load (lb/ft)	Approx. No. of Blocks	Approx. Wall Height (ft)	0.75-in. Strength (lb/ft)	Peak Strength (lb/ft)	Connection Strength Equations (T_{conn})
4A	34.0	4.2	600	8	5.0	1022	1557	$T_{0.75in} = 920 + (N) \tan (18 ^\circ)$ $T_{peak} = 1645 + (N) \tan (31 ^\circ)$
4B	34.0	10.4	1500	19	12.5	1521	2663	
4C	34.0	16.7	2400	30	20.0	1724	3397	
4D	34.0	16.7	2400	30	20.0	1632	3172	
4E	34.0	16.7	2400	30	20.0	1803	3328	
4F	34.0	22.9	3300	41	27.5	2012	3607	
4G	34.0	29.2	4200	53	35.0	2265	3749	

NOTES:

Dimensions of Block: 18 in. wide by 12 in. long and 8 in. high.
 Weight of Full-Size Block: 70 lbs
 Unit Weight of Facing (Block & Gravel): 120 pcf
 Failure Mode of Geogrid: Abrasion and rupture of geogrid ribs in each test.

DATE REPORTED: 3/20/2008



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FIGURE NO.	C-4
PROJECT NO.	SGI8014
DOCUMENT NO.	
FILE NO.	