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 $SGI_{sm}$.
(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 PHTOTO CONNECTION TEST SET-UP

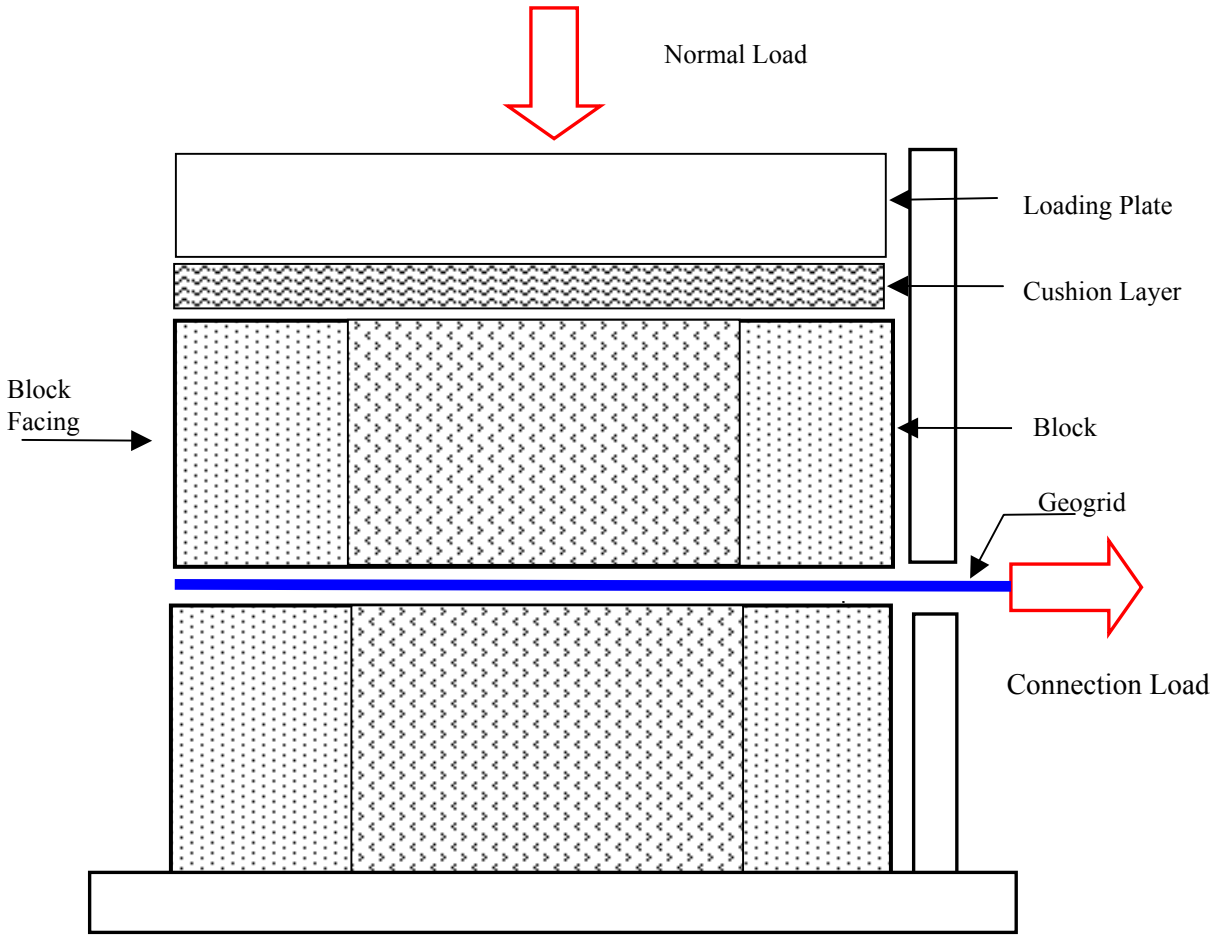



Figure A-1. Schematic Diagram of Test Set-up

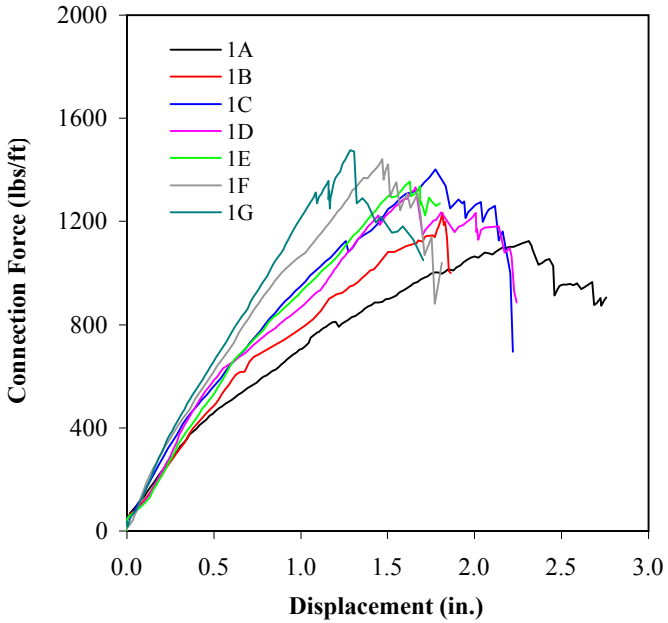
Figure A-2. Photo of Connection Test Set-up

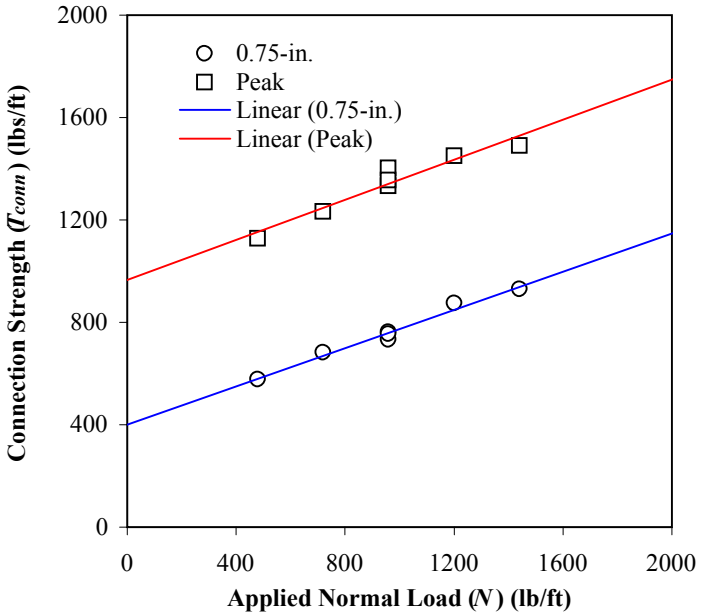
# ATTACHMENT 2

# CONNECTION TEST RESULTS

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

TEST SERIES NO. 1: Synteen 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 | |
| 1B | 34.0 | 5.0 | 720 | 9 | 6.0 | 682 | 1232 | $T_{0.75\text{-in.}} = 400 + (N) \tan(20^\circ)$ |
| 1C | 34.0 | 6.7 | 960 | 12 | 8.0 | 763 | 1403 | |
| 1D | 34.0 | 6.7 | 960 | 12 | 8.0 | 733 | 1332 | $T_{peak} = 965 + (N) \tan(21^\circ)$ |
| 1E | 34.0 | 6.7 | 960 | 12 | 8.0 | 756 | 1356 | |
| 1F | 34.0 | 8.3 | 1200 | 15 | 10.0 | 875 | 1450 | |
| 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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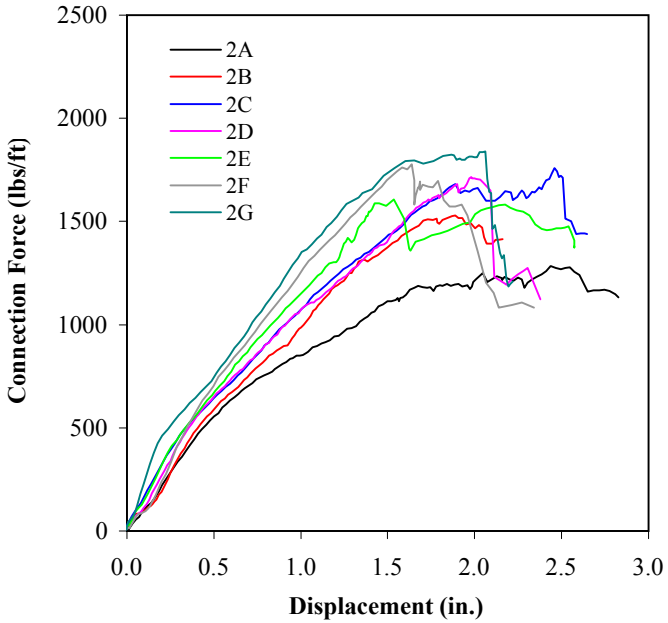
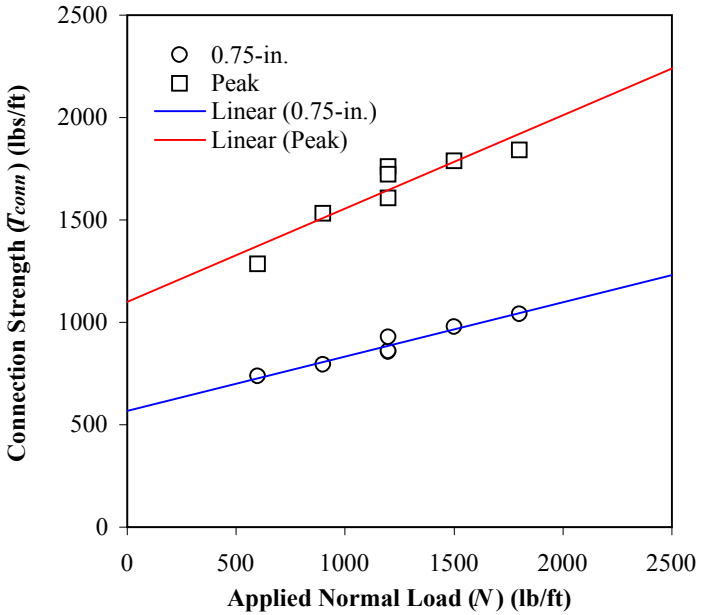
| FIGURE NO. | C-1 |
| PROJECT NO. | SGI8014 |
| DOCUMENT NO. | |
| FILE NO. | |

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

TEST SERIES NO. 2: Synteen 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 | |
| 2B | 34.0 | 6.3 | 900 | 11 | 7.5 | 793 | 1530 | $T_{0.75\text{-in.}} = 565 + (N) \tan(15^\circ)$ |
| 2C | 34.0 | 8.3 | 1200 | 15 | 10.0 | 857 | 1760 | |
| 2D | 34.0 | 8.3 | 1200 | 15 | 10.0 | 861 | 1721 | $T_{peak} = 1100 + (N) \tan(24^\circ)$ |
| 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. |

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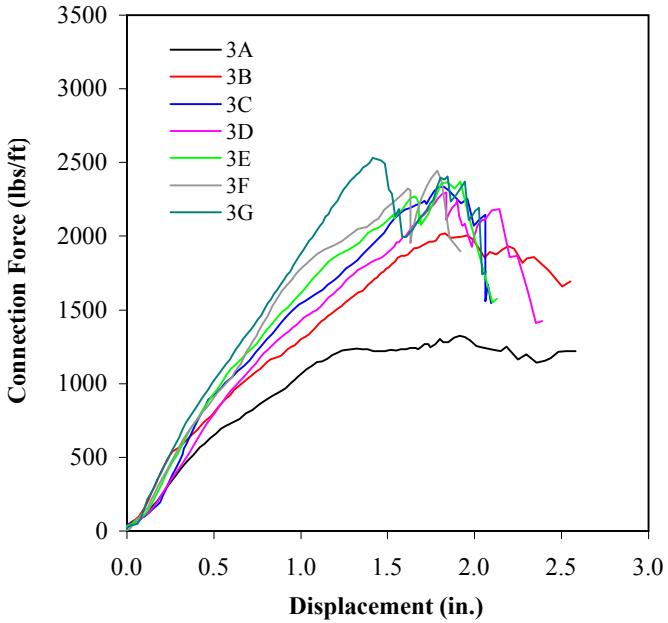
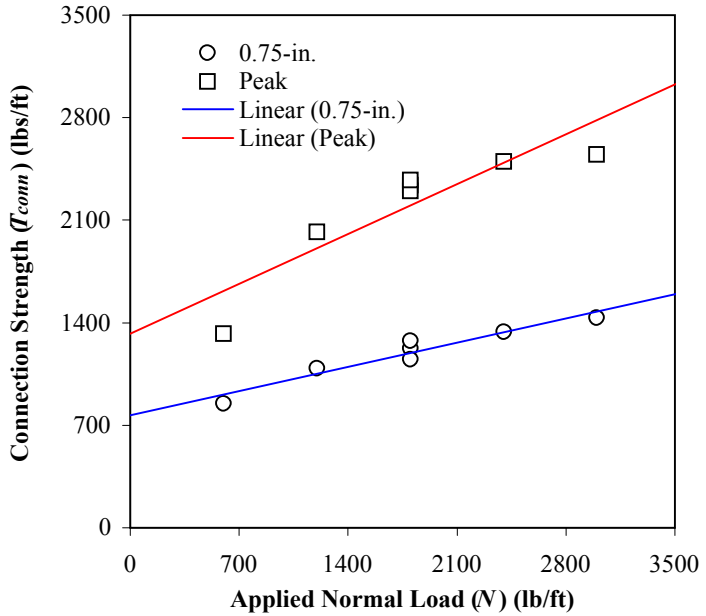
|---|---|
| FIGURE NO. | C-2 |
| PROJECT NO. | SGI8014 |
| DOCUMENT NO. | |
| FILE NO. | |

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

TEST SERIES NO. 3: Synteen 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 | |
| 3B | 34.0 | 8.3 | 1200 | 15 | 10.0 | 1086 | 2020 | $T_{0.75\text{-in.}} = 765 + (N) \tan(13^\circ)$ |
| 3C | 34.0 | 12.5 | 1800 | 23 | 15.0 | 1224 | 2336 | |
| 3D | 34.0 | 12.5 | 1800 | 23 | 15.0 | 1150 | 2297 | $T_{peak} = 1325 + (N) \tan(26^\circ)$ |
| 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. |

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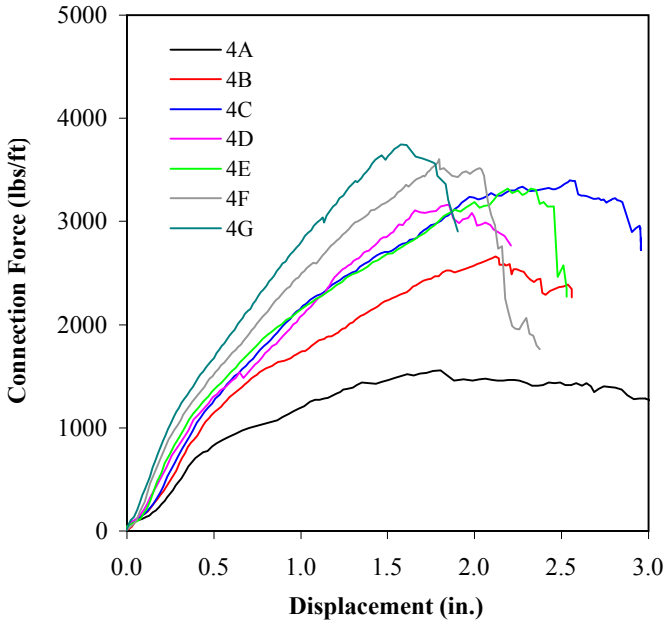
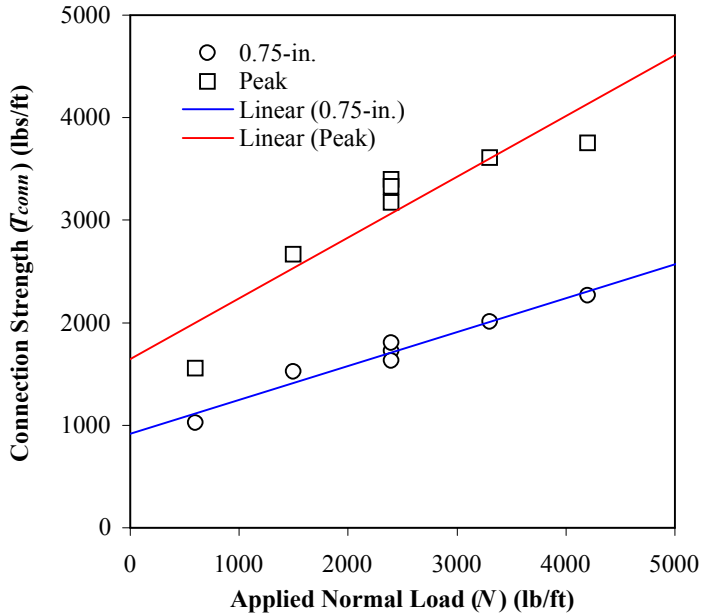
|---|---|
| FIGURE NO. | C-3 |
| PROJECT NO. | SGI8014 |
| DOCUMENT NO. | |
| FILE NO. | |

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

TEST SERIES NO. 4: Synteen 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 | |
| 4B | 34.0 | 10.4 | 1500 | 19 | 12.5 | 1521 | 2663 | $T_{0.75\text{-in.}} = 920 + (N) \tan(18^\circ)$ |
| 4C | 34.0 | 16.7 | 2400 | 30 | 20.0 | 1724 | 3397 | |
| 4D | 34.0 | 16.7 | 2400 | 30 | 20.0 | 1632 | 3172 | $T_{peak} = 1645 + (N) \tan(31^\circ)$ |
| 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. |

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