

SGI TESTING SERVICES

A GEORGIA LIMITED LIABILITY COMPANY

12 December 2009

Mr. Mark A. Woolbright
SmartSlope, LLC
3430 2nd Street, Suite 300
Brooklyn, MD 21225

Subject: Laboratory Test Results Transmittal
Connection Strength Testing
30 kN Paraweb Connected to SmartSlope Blocks

Dear Mr. Woolbright,

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 SmartSlope, LLC. Should you have any questions regarding the attached document, 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. Archived specimens will be discarded 30 days after the completion of the testing program, unless long-term storage arrangements are specifically made with SGI.
- (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.

SGI9054.REPORT.09.01

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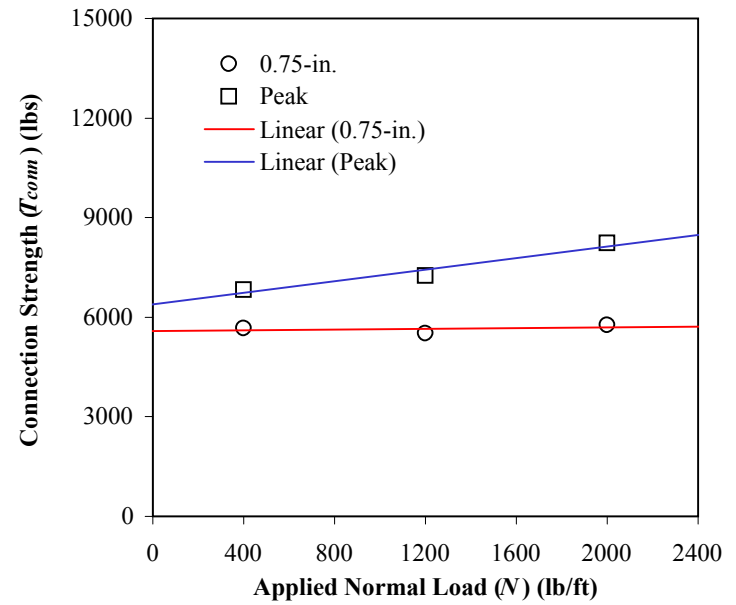
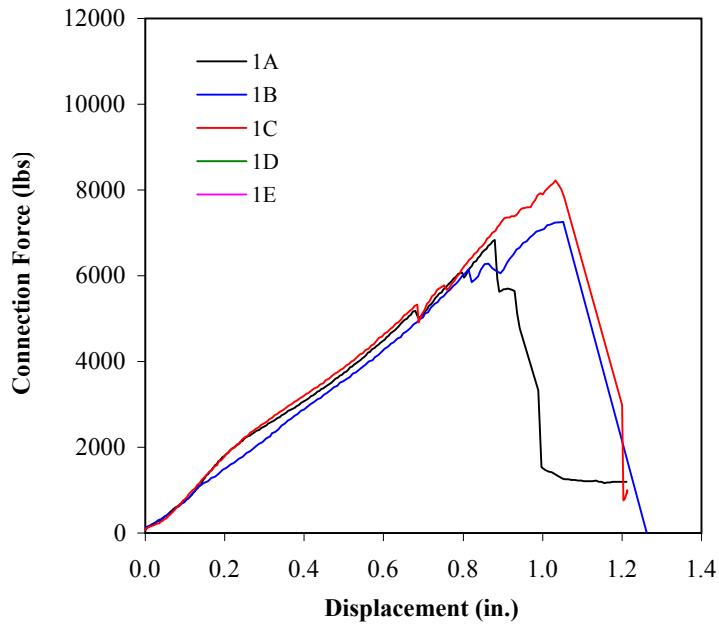
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ATTACHMENT A

CONNECTION TEST RESULTS

SMARTSLOPE, LLC
CONNECTION STRENGTH TESTING (ASTM D 6638)

TEST SERIES NO. 1: One 30 kN Paraweb connected to the slot within the bottom of SmartSlope block with 2 legs of the Paraweb forming a "V" shape and approximately 15 degree spreading angle as shown in Figure B-1 (No infill material in and between blocks)



Test No.	ParaWeb Nominal Width (in.)	Test Normal Stress (psi)	Equivalent Normal Load (lb/ft)	Approx. No. of Blocks	Approx. Wall Height (ft)	0.75-in. Strength (lbs)	Peak Strength (lbs)	Connection Strength Equations
								(T_{conn})
1A	3.3	2.2	400	5	3.2	5674	6829	$T_{0.75-in.} = 5585 + (N) \tan (3^\circ)$ $T_{peak} = 6390 + (N) \tan (41^\circ)$
1B	3.3	6.7	1200	14	9.6	5522	7254	
1C	3.3	11.1	2000	24	16.0	5761	8224	
1D								
1E								

NOTES:

Dimensions of Block: 20 in. wide by 15 in. long and 8 in. high.
 Weight of Full-Size Block: . 89 lbs
 Assumed Unit Weight of Facing (Block & Soil): 100 pcf
 Failure Mode of Paraweb: Abrasion on coating against the connection slot.
 Failure Mode of Block: Rupture of block in each test.

DATE REPORTED: 9/18/2009

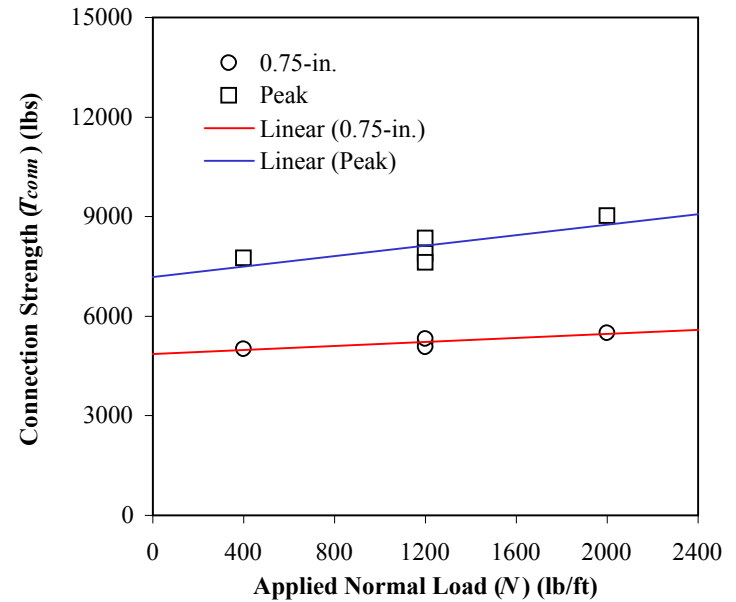
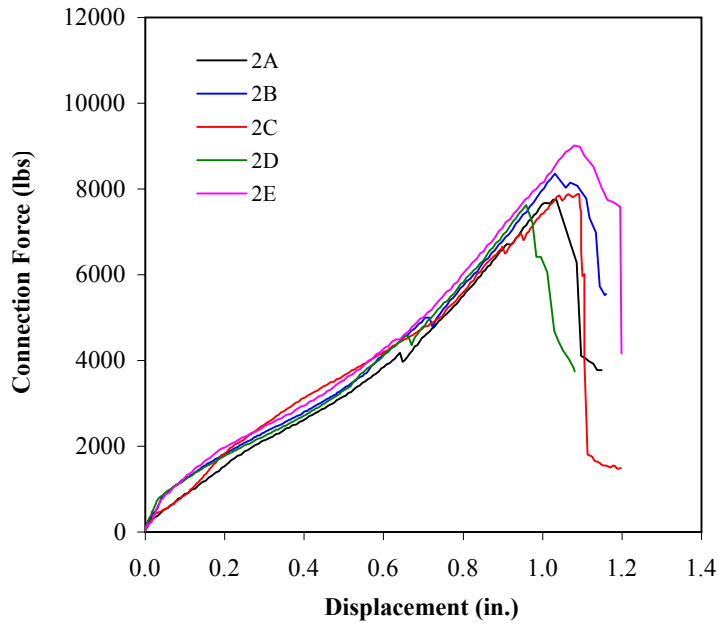


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FIGURE NO. A-1
 PROJECT NO. SGI9054
 DOCUMENT NO.
 FILE NO.

SMARTSLOPE, LLC
CONNECTION STRENGTH TESTING (ASTM D 6638)

TEST SERIES NO. 2: One 30 kN Paraweb connected to the slot within the bottom of SmartSlope block with 2 legs of the Paraweb forming a "V" shape and approximately 15 degree spreading angle as shown in Figures B-2, B-3, and B-4 (with nominally compacted sand within and between blocks)



Test No.	ParaWeb Nominal Width (in.)	Test Normal Stress (psi)	Equivalent Normal Load (lb/ft)	Approx. No. of Blocks	Approx. Wall Height (ft)	0.75-in. Strength (lbs)	Peak Strength (lbs)	Connection Strength Equations
								(T_{conn})
2A	3.3	2.2	400	5	3.2	5014	7755	$T_{0.75-in.} = 4860 + (N) \tan (17^\circ)$ $T_{peak} = 7180 + (N) \tan (38^\circ)$
2B	3.3	6.7	1200	14	9.6	5205	8355	
2C	3.3	6.7	1200	14	9.6	5073	7885	
2D	3.3	6.7	1200	14	9.6	5323	7622	
2E	3.3	11.1	2000	24	16.0	5499	9014	

NOTES:

Dimensions of Block: 20 in. wide by 15 in. long and 8 in. high.
 Weight of Full-Size Block: . 89 lbs
 Assumed Unit Weight of Facing (Block & Soil): 100 pcf
 Failure Mode of Paraweb: Abrasion on coating against the connection slot.
 Failure Mode of Block: Rupture of block in each test.

DATE REPORTED: 9/25/2009

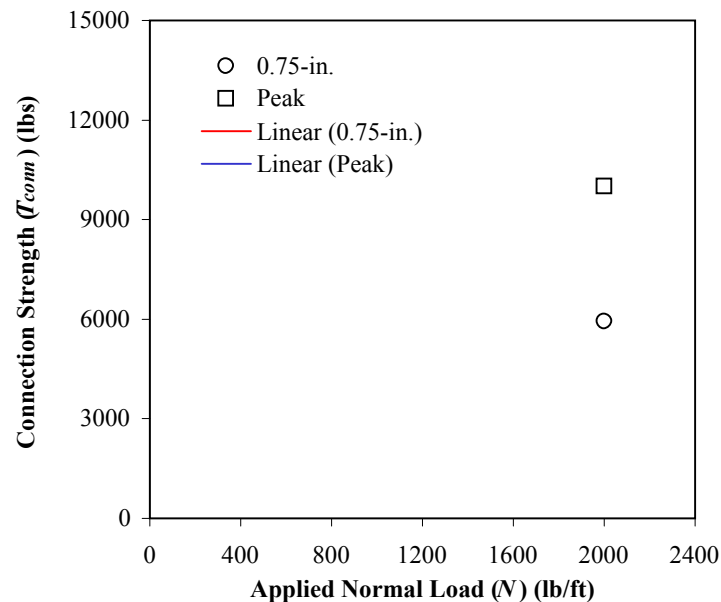
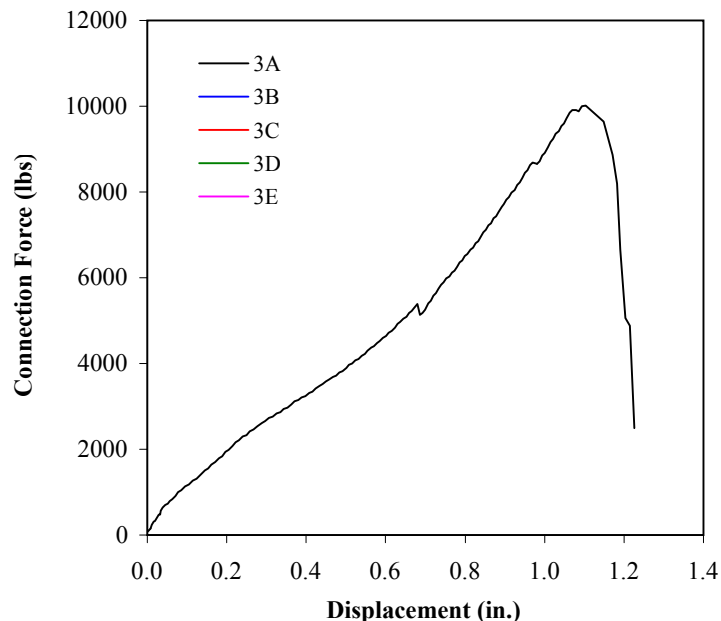


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FIGURE NO.	A-3
PROJECT NO.	SGI9054
DOCUMENT NO.	B-2

SMARTSLOPE, LLC
CONNECTION STRENGTH TESTING (ASTM D 6638)

TEST SERIES NO. 3: One 30 kN Paraweb connected to the slot within the bottom of rebar-reinforced SmartSlope block with 2 legs of the Paraweb forming a "V" shape and approximately 15 degree spreading angle as shown in Figures B-2 (with nominally compacted sand within and between blocks)



Test No.	ParaWeb Nominal Width (in.)	Test Normal Stress (psi)	Equivalent Normal Load (lb/ft)	Approx. No. of Blocks	Approx. Wall Height (ft)	0.75-in. Strength (lbs)	Peak Strength (lbs)	Connection Strength Equations (T_{conn})
3A	3.3	11.1	2000	24	16.0	5944	10012	
3B								
3C								
3D								
3E								

NOTES:

Dimensions of Block: 20 in. wide by 15 in. long and 8 in. high.
 Weight of Full-Size Block: 89 lbs
 Assumed Unit Weight of Facing (Block & Soil): 100 pcf
 Failure Mode of Paraweb: Abrasion on coating against the connection slot.
 Failure Mode of Block: Rupture of block.

DATE REPORTED: 10/9/2009



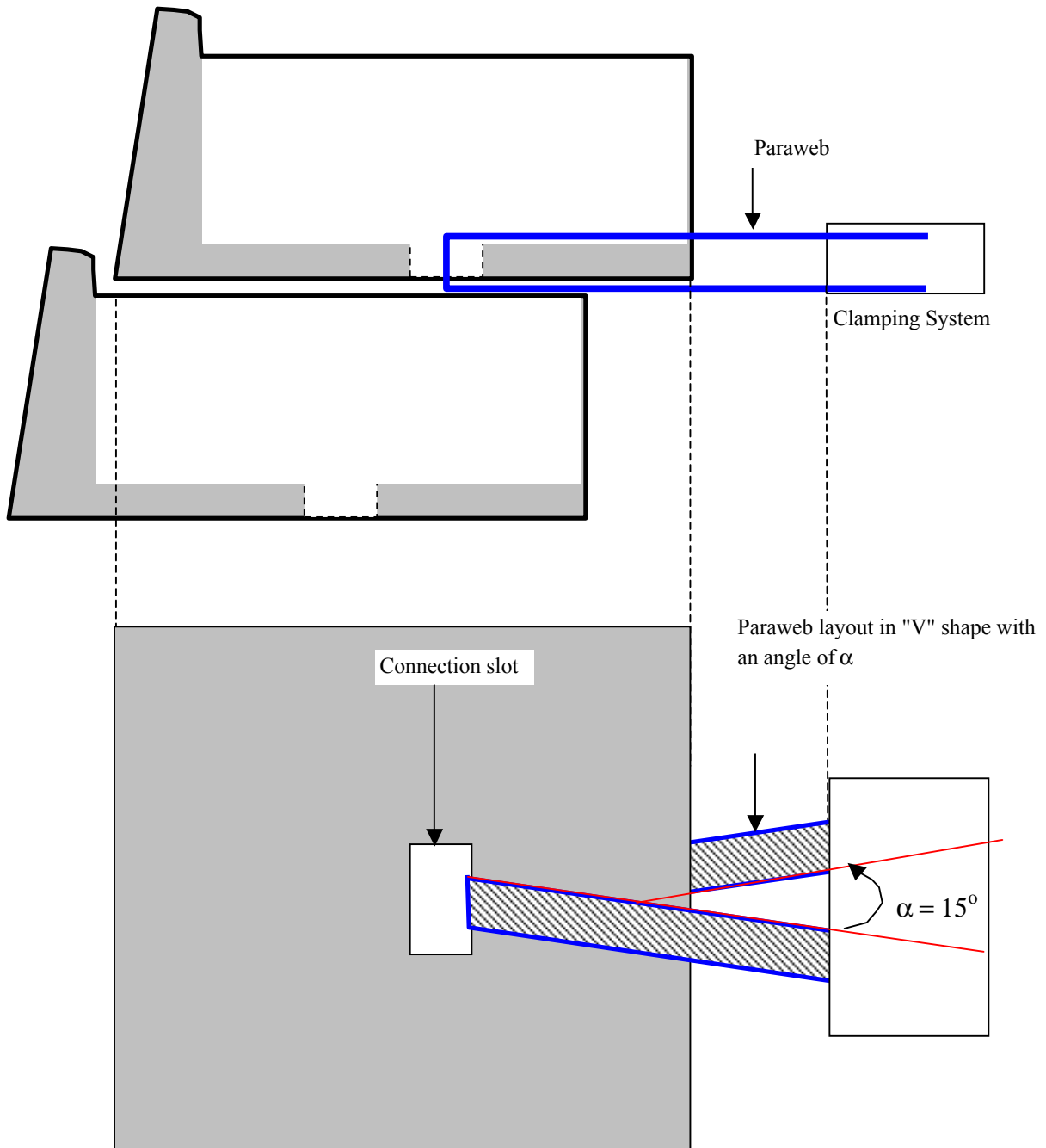
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FIGURE NO. A-3
 PROJECT NO. SGI9054
 DOCUMENT NO.
 FILE NO.

ATTACHMENT B

SCHEMATIC DIAGRAMS AND FAILURE MODES

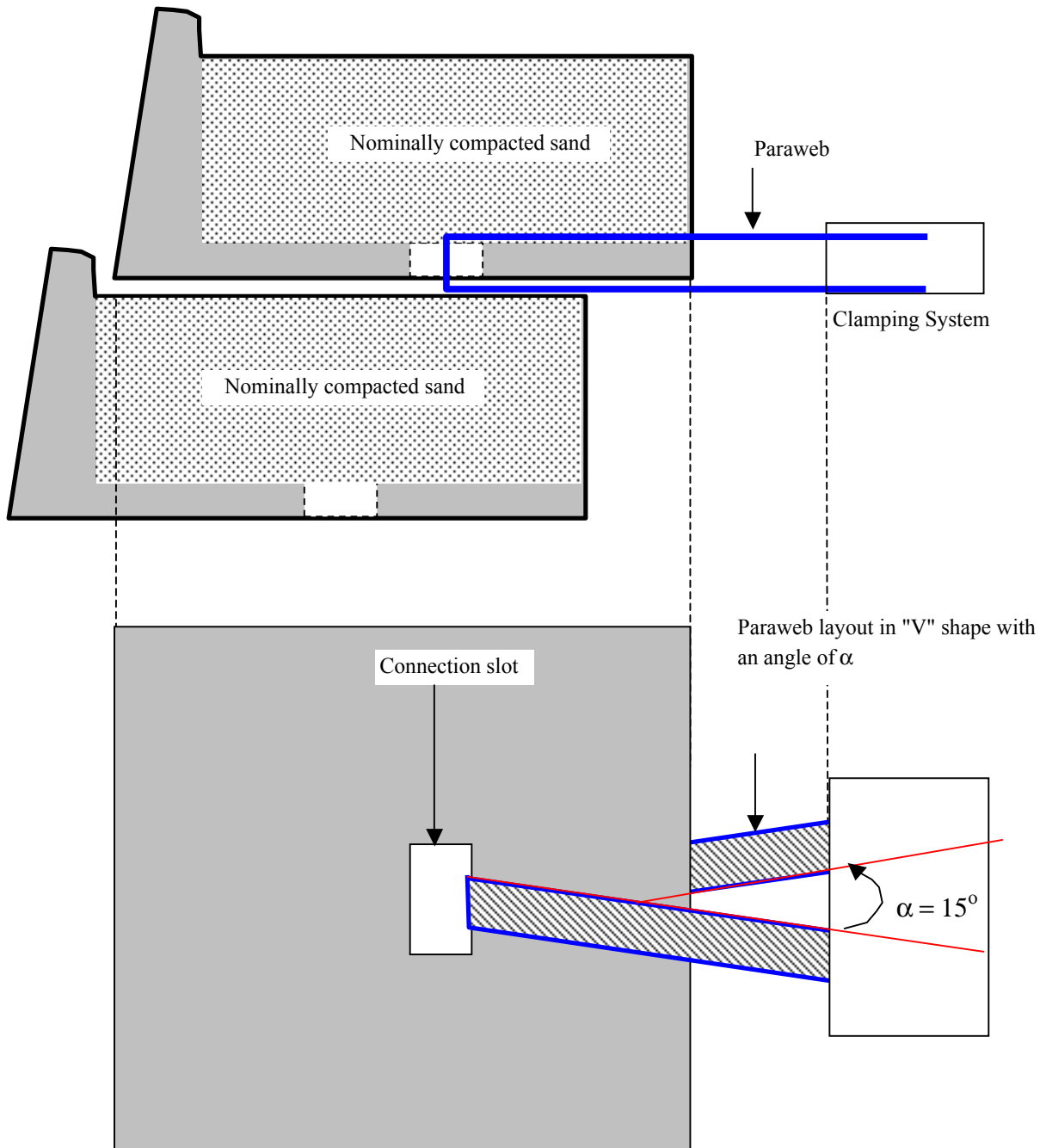
**SCHEMATIC DIAGRAM - CONNECTION TEST SET-UP
PARAWEB TO SMARTSLOPE BLOCKS
(NOTE: NO INFILL MATERIAL IN AND BETWEEN BLOCKS)**



SGI TESTING SERVICES, LLC

FIGURE NO.	B-1
PROJECT NO.	
DOCUMENT NO.	
FILE NO.	

**SCHEMATIC DIAGRAM - CONNECTION TEST SET-UP
PARAWEB TO SMARTSLOPE BLOCKS WITH
NOMINALLY COMPACTED SAND IN AND BETWEEN BLOCKS**



SGI TESTING SERVICES, LLC

FIGURE NO.	B-2
PROJECT NO.	
DOCUMENT NO.	
FILE NO.	



Figure B-3. Sand nominally compacted within and between SmartSlope Blocks.



Figure B-4. Close view of the connection between ParaWeb and SmartSlope block.



Figure B-5. Bottom View: cracking (rupture) of SmartSlope block at the completion of a connection test

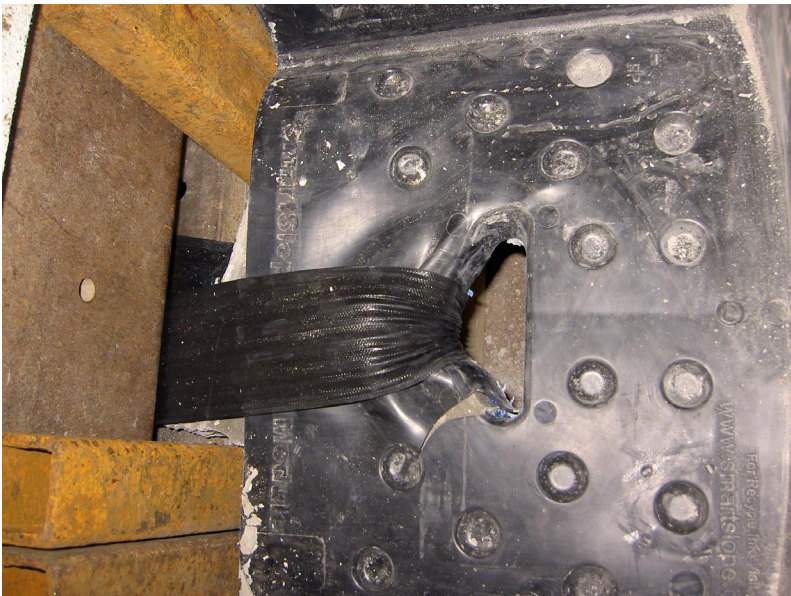


Figure B-6. Top View: failure of SmartSlope block and liner at the completion of a connection test



Figure B-7. Bottom View: cracking (rupture) of rebar-reinforced SmartSlope block at the completion of a connection test



Figure B-8. Close view of rebar.