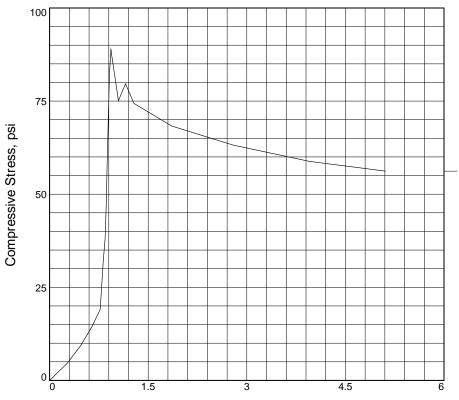
# **UNCONFINED COMPRESSION TEST**







Axial Strain, %

Sample No.	1	
Unconfined strength, psi	88.77	
Undrained shear strength, psi	44.38	
Failure strain, %	0.9	
Strain rate, %/min.	0.30	
Water content, %	28.0	
Wet density, pcf	111.7	
Dry density, pcf	87.3	
Saturation, %	81.3	
Void ratio	0.9315	
Specimen diameter, in.	2.27	
Specimen height, in.	4.67	
Height/diameter ratio	2.06	

**Description:** Intact Rock Core

LL = PL = PI = Assumed GS= 2.7 Type: Intact Rock

**Project No.:** PR&C W33SJG32408326, W.O. # 834e

#### **Date Sampled:**

#### Remarks:

Tests performed in accordance with ASTM D2938

& D2216.

**Client:** Wilmington/Charleston District

Project: Charleston Harbor Entrance Channel Rock Testing

**Location:** EC-13-B-28, K2/3204

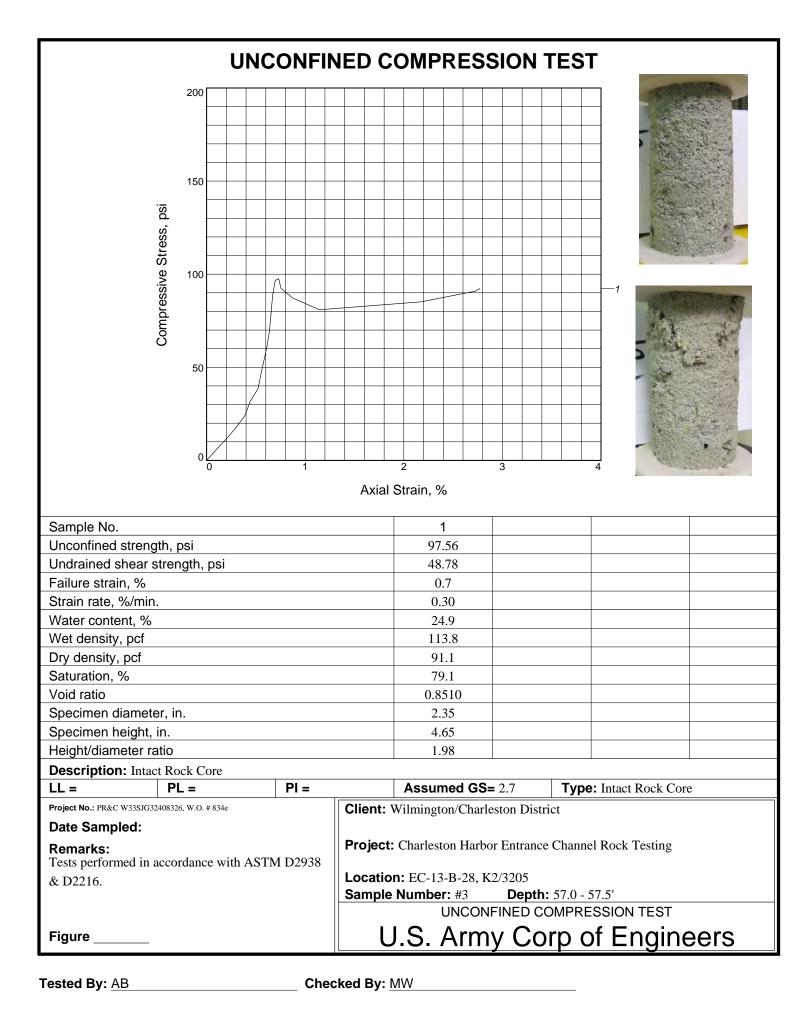
**Depth**: 54.1 - 54.6' Sample Number: #2

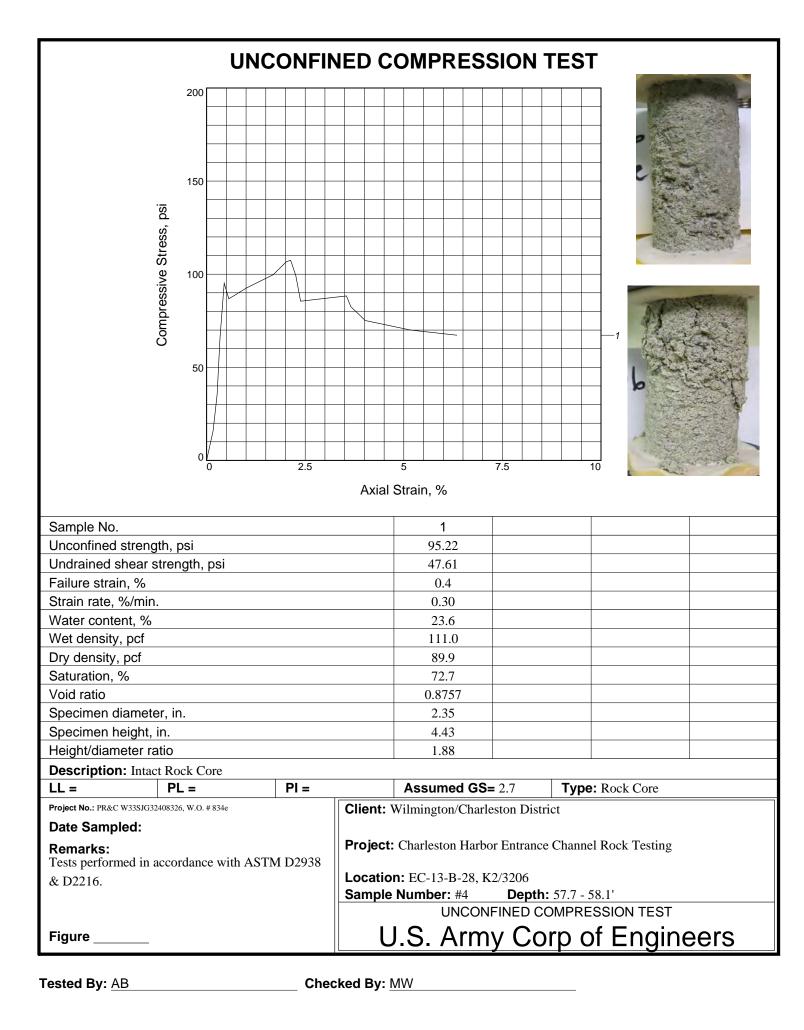
**UNCONFINED COMPRESSION TEST** 

U.S. Army Corp of Engineers

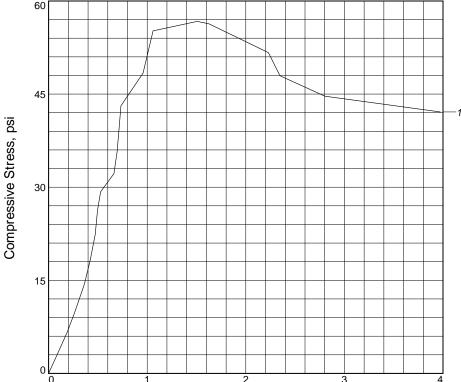
**Figure** 

Checked By: MW Tested By: AB





# UNCONFINED COMPRESSION TEST







Axial Strain, %

Sample No.	1	
Unconfined strength, psi	56.71	
Undrained shear strength, psi	28.35	
Failure strain, %	1.5	
Strain rate, %/min.	0.30	
Water content, %	22.8	
Wet density, pcf	108.1	
Dry density, pcf	88.1	
Saturation, %	67.3	
Void ratio	0.9137	
Specimen diameter, in.	2.35	
Specimen height, in.	4.70	
Height/diameter ratio	2.00	

**Description:** Intact Rock Core

LL = PL = PI = Assumed GS = 2.7 Type: Rock Core

**Project No.:** PR&C W33SJG32408326, W.O. # 834e

#### **Date Sampled:**

#### Remarks:

Tests performed in accordance with ASTM D2938 & D2216.

**Client:** Wilmington/Charleston District

Project: Charleston Harbor Entrance Channel Rock Testing

**Location:** EC-13-B-28, K2/3207

**Sample Number:** #5 **Depth:** 58.8 - 59.3'

**UNCONFINED COMPRESSION TEST** 

U.S. Army Corp of Engineers

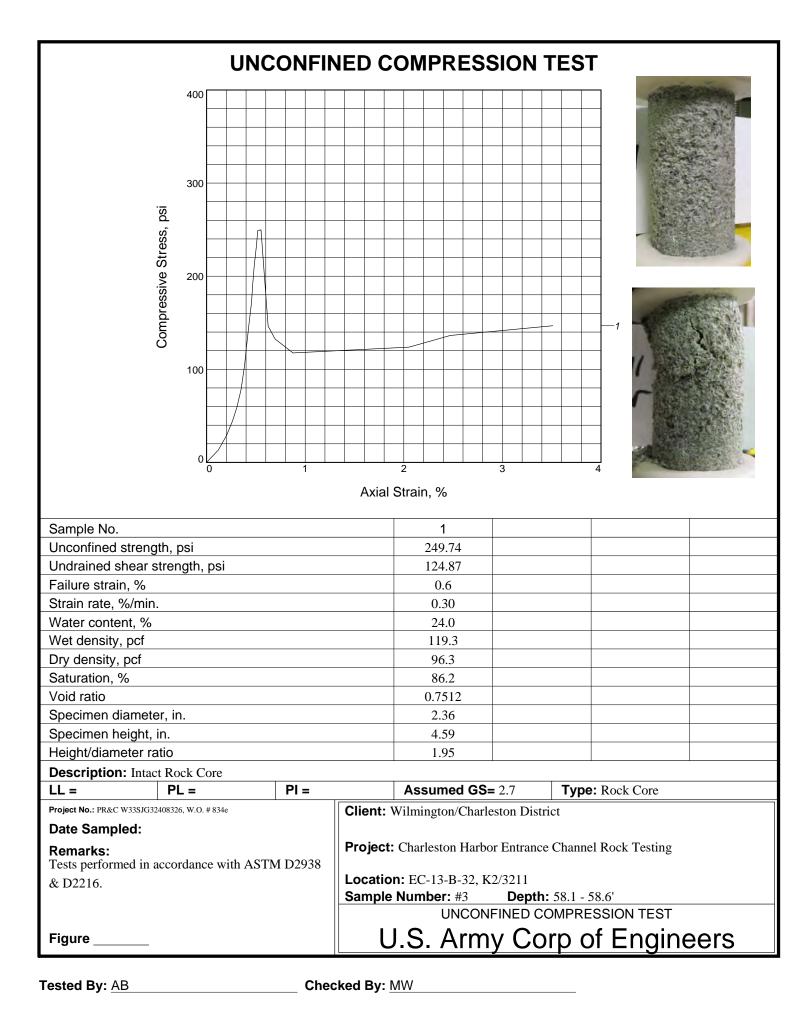
Figure \_\_\_\_

#### **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 Unconfined strength, psi 189.42 Undrained shear strength, psi 94.71 Failure strain, % 2.6 Strain rate, %/min. 0.30 Water content, % 20.2 Wet density, pcf 113.5 Dry density, pcf 94.4 Saturation, % 69.6 Void ratio 0.7855 Specimen diameter, in. 2.33 Specimen height, in. 4.68 Height/diameter ratio 2.01 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-32, K2/3210 & D2216. Sample Number: #2 **Depth:** 56.0 - 56.5' **UNCONFINED COMPRESSION TEST**

U.S. Army Corp of Engineers

Tested By: AB Checked By: MW

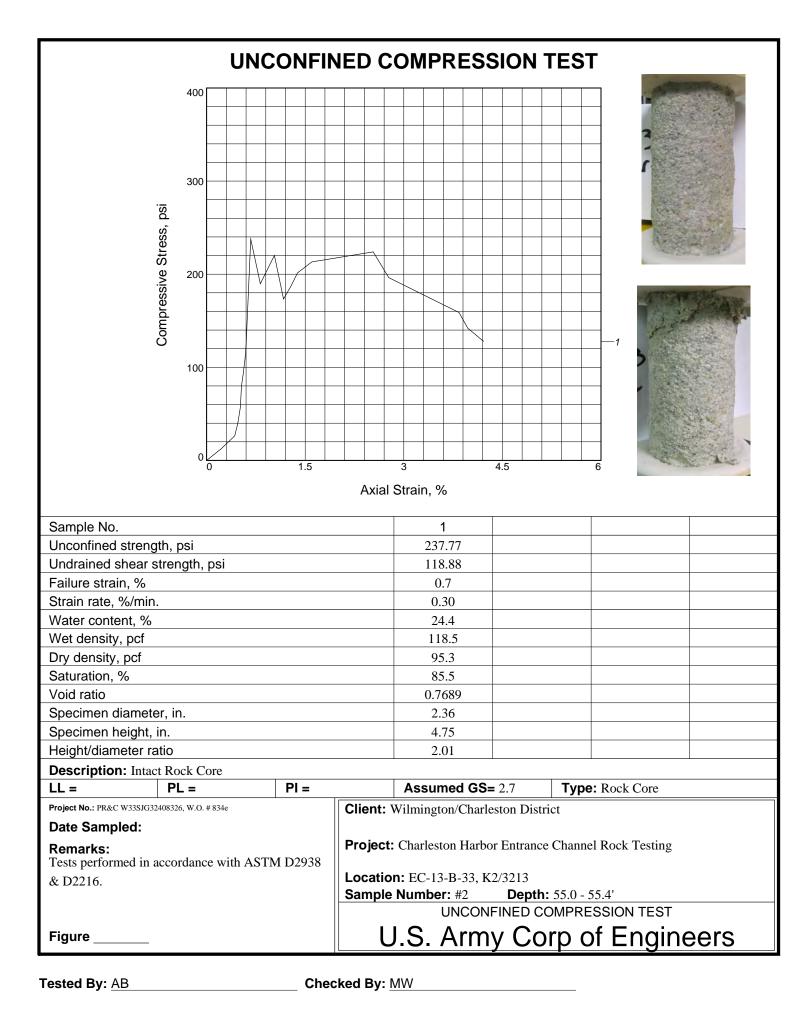
**Figure** 



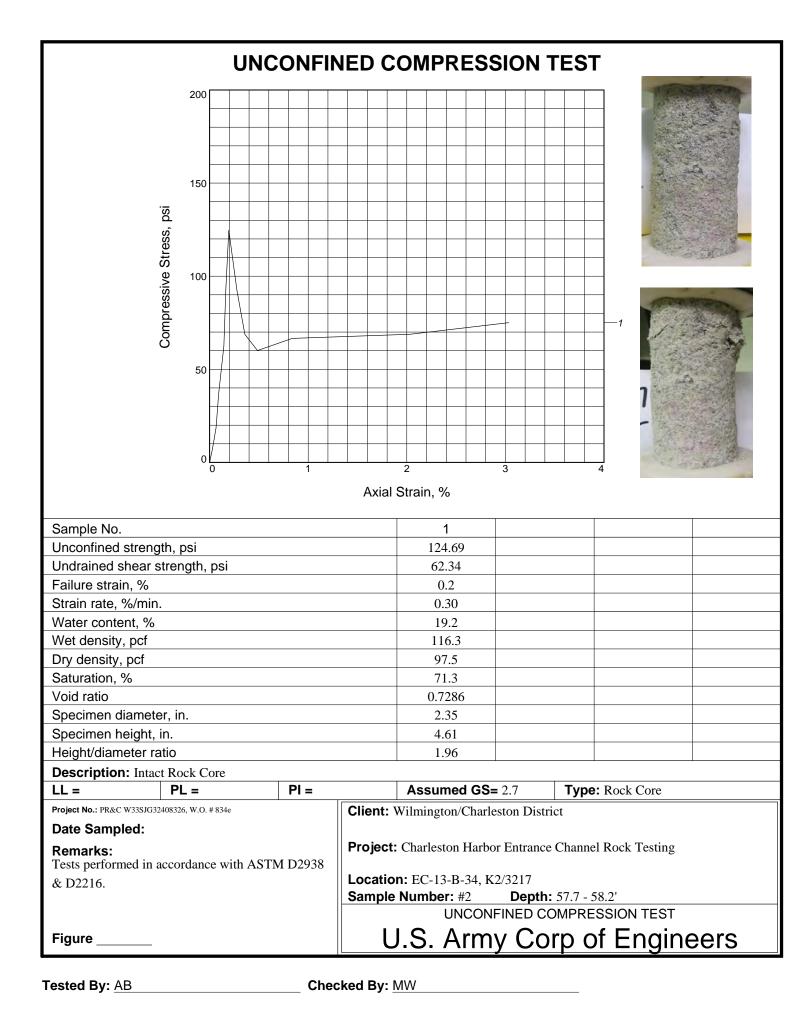
# **UNCONFINED COMPRESSION TEST** 400 300 Compressive Stress, psi 200 100 Axial Strain, % Sample No. 1 Unconfined strength, psi 350.86 Undrained shear strength, psi 175.43 Failure strain, % 0.6 Strain rate, %/min. 0.30 Water content, % 25.1 Wet density, pcf 122.4 Dry density, pcf 97.8 Saturation, % 93.8 Void ratio 0.7231 Specimen diameter, in. 2.35 Specimen height, in. 4.63 Height/diameter ratio 1.98 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-33, K2/3212 & D2216. Sample Number: #1 **Depth:** 53.1 - 53.5' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**

Checked By: MW

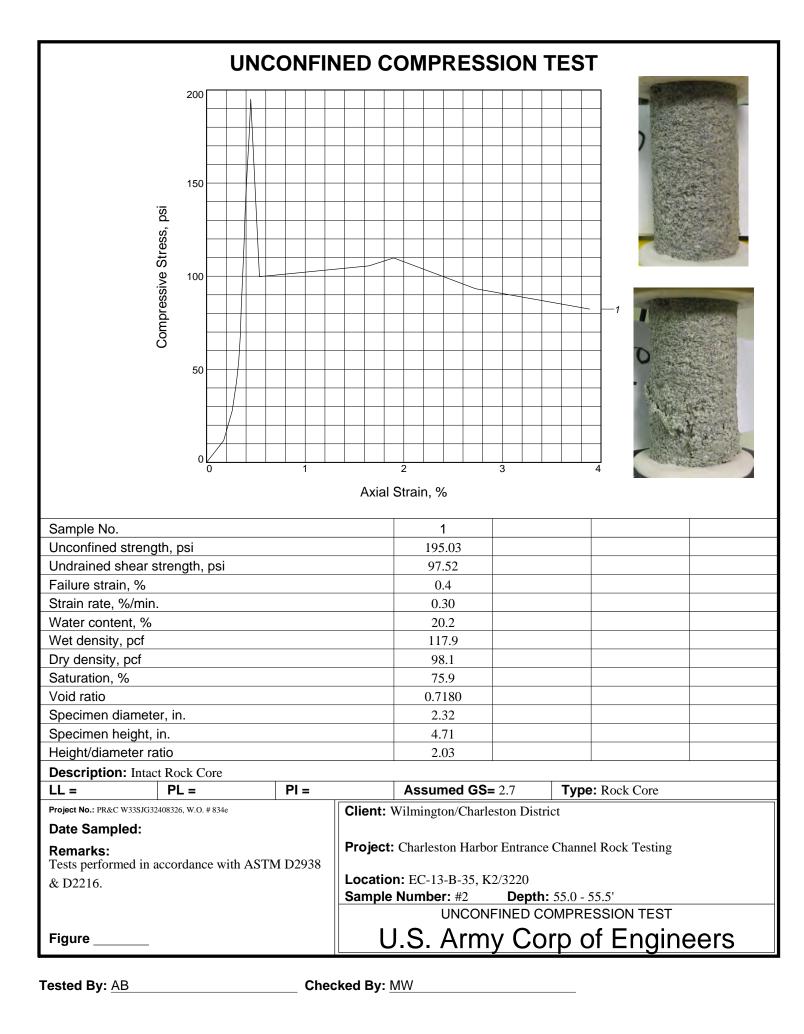
Tested By: AB



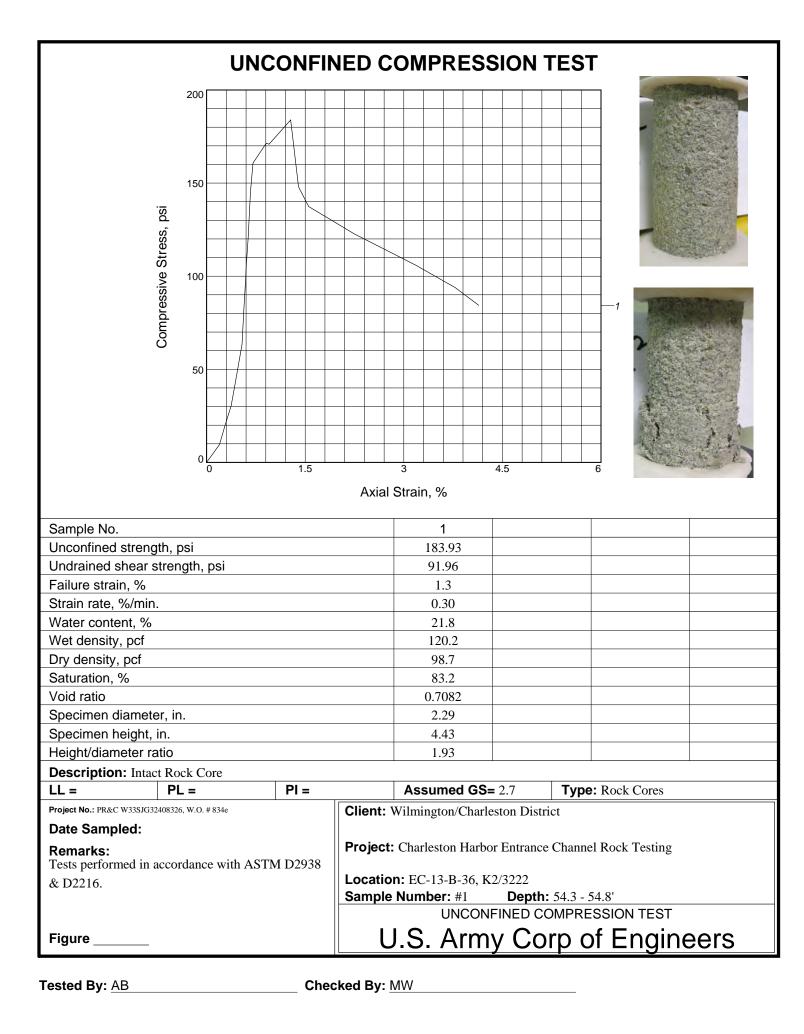
# **UNCONFINED COMPRESSION TEST** 400 300 Compressive Stress, psi 200 100 Axial Strain, % Sample No. 1 Unconfined strength, psi 322.07 Undrained shear strength, psi 161.03 Failure strain, % 0.8 Strain rate, %/min. 0.30 Water content, % 15.7 Wet density, pcf 125.7 Dry density, pcf 108.6 Saturation, % 76.9 Void ratio 0.5523 Specimen diameter, in. 2.37 Specimen height, in. 4.71 Height/diameter ratio 1.99 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-33, K2/3215 & D2216. Sample Number: #4 **Depth:** 58.5 - 58.9' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**



#### **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 Unconfined strength, psi 194.55 Undrained shear strength, psi 97.27 Failure strain, % 0.3 Strain rate, %/min. 0.30 Water content, % 23.7 Wet density, pcf 119.6 Dry density, pcf 96.7 Saturation, % 86.1 Void ratio 0.7437 Specimen diameter, in. 2.31 Specimen height, in. 4.60 Height/diameter ratio 1.99 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-34, K2/3218 & D2216. Sample Number: #3 **Depth:** 59.7 - 60.2' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure** Tested By: AB Checked By: MW



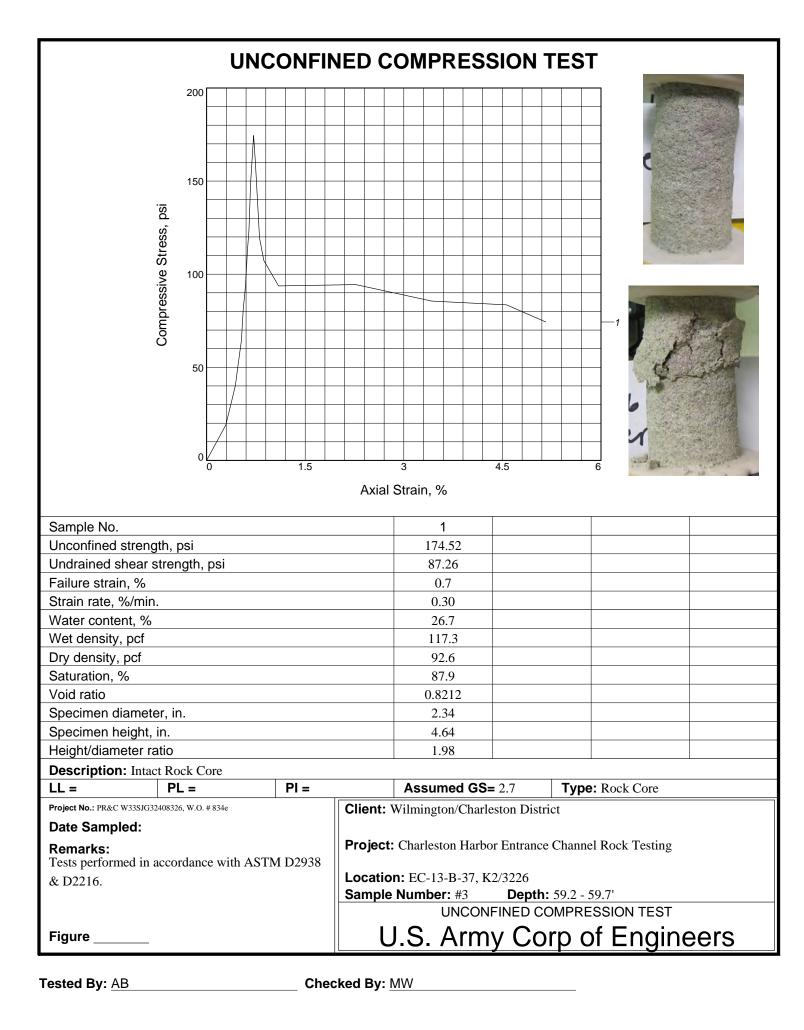
# **UNCONFINED COMPRESSION TEST** 400 300 Compressive Stress, psi 200 100 Axial Strain, % Sample No. 1 Unconfined strength, psi 230.97 Undrained shear strength, psi 115.48 Failure strain, % 0.5 Strain rate, %/min. 0.30 Water content, % 19.9 Wet density, pcf 115.4 Dry density, pcf 96.3 Saturation, % 71.5 Void ratio 0.7501 Specimen diameter, in. 2.38 Specimen height, in. 4.73 Height/diameter ratio 1.99 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-35, K2/3221 & D2216. Sample Number: #3 **Depth:** 59.0 - 59.5' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**

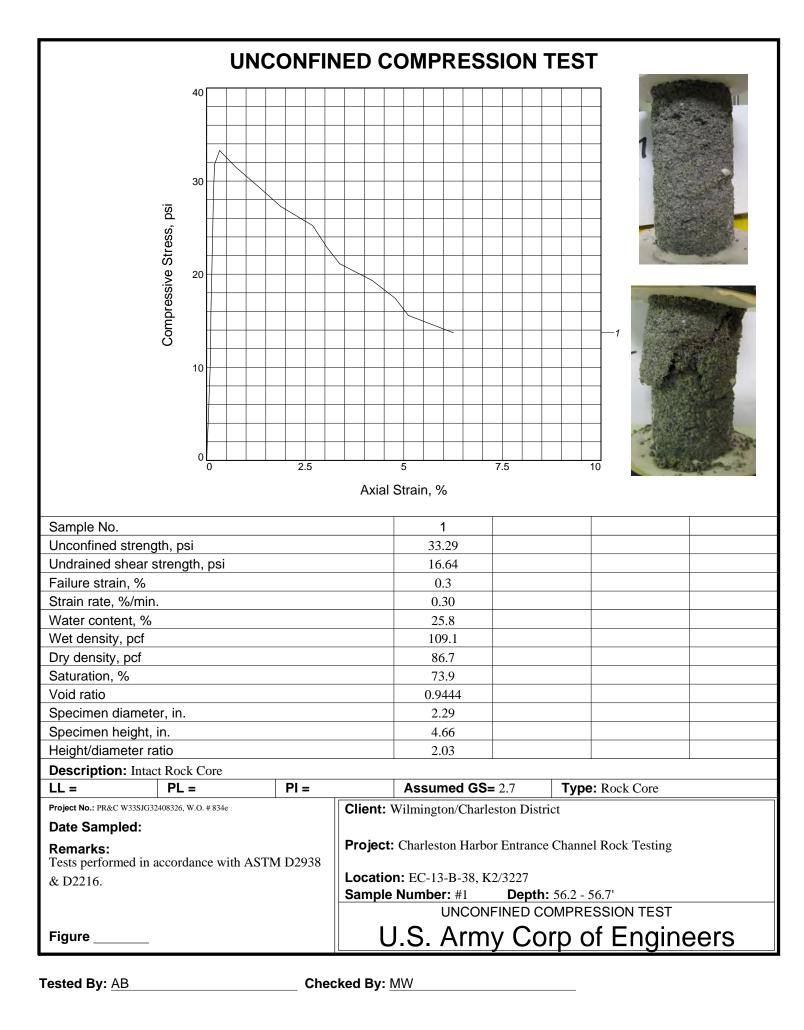


# **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 Unconfined strength, psi 145.38 Undrained shear strength, psi 72.69 Failure strain, % 1.2 Strain rate, %/min. 0.30 Water content, % 21.2 Wet density, pcf 114.4 Dry density, pcf 94.4 Saturation, % 72.8 Void ratio 0.7860 Specimen diameter, in. 2.35 Specimen height, in. 4.57 Height/diameter ratio 1.94 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-36, K2/3223 & D2216. Sample Number: #2 **Depth:** 56.7 - 57.2' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**

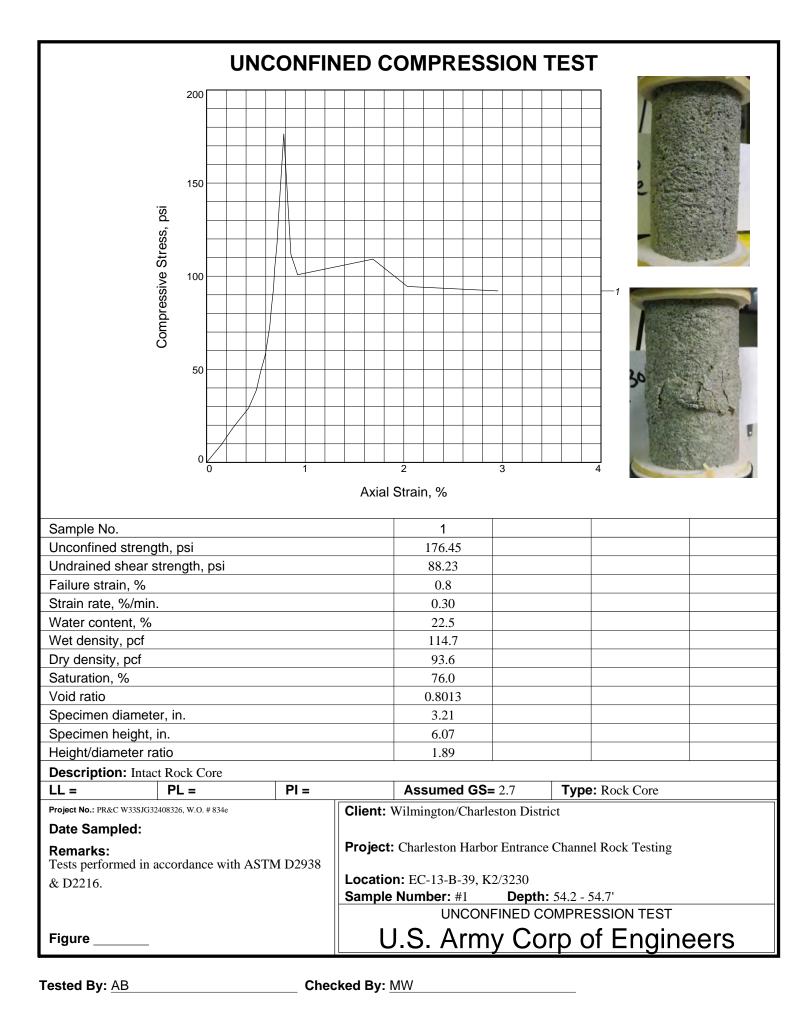
Checked By: MW

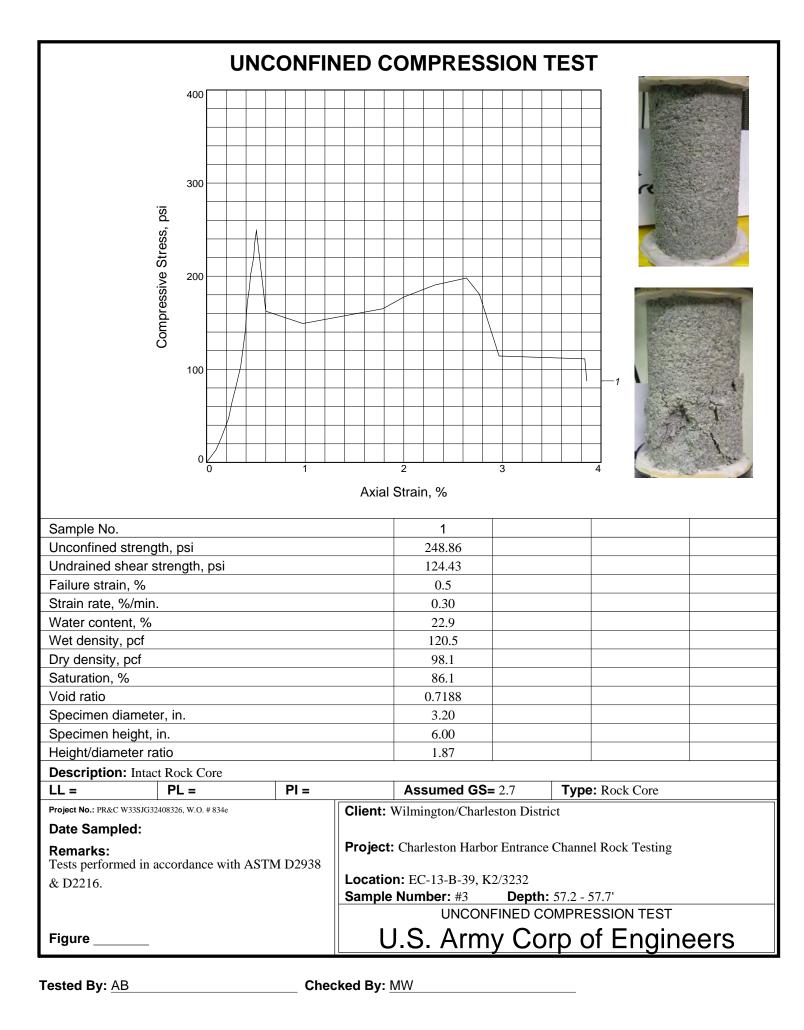
Tested By: AB

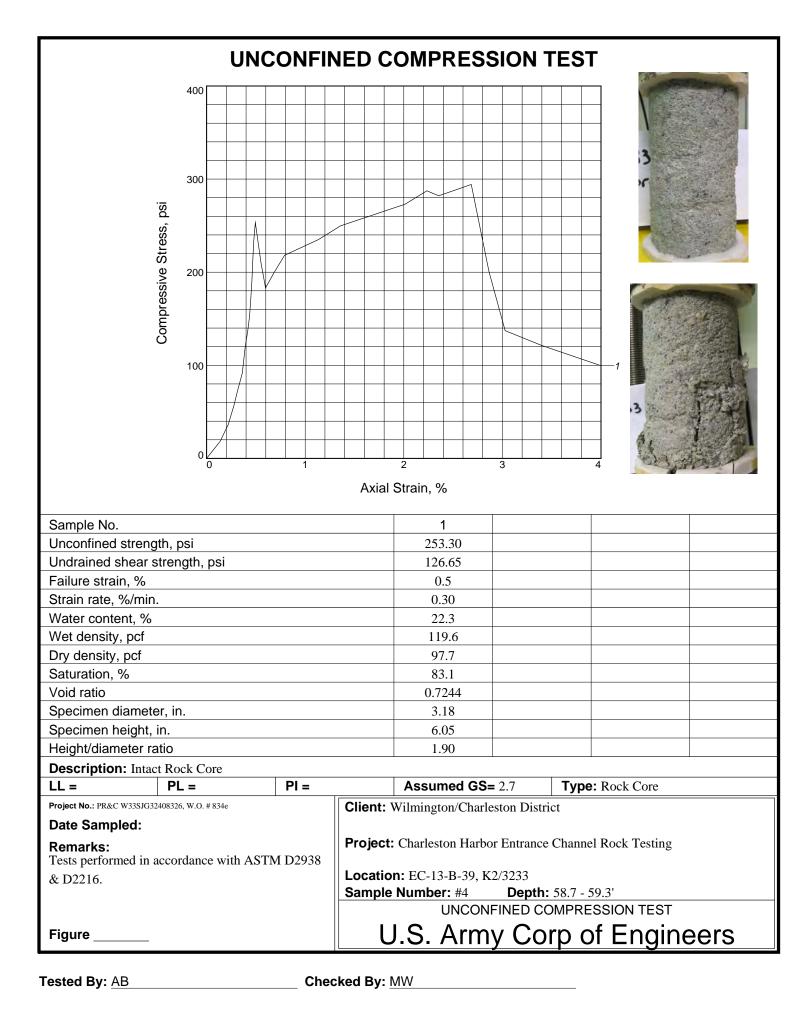




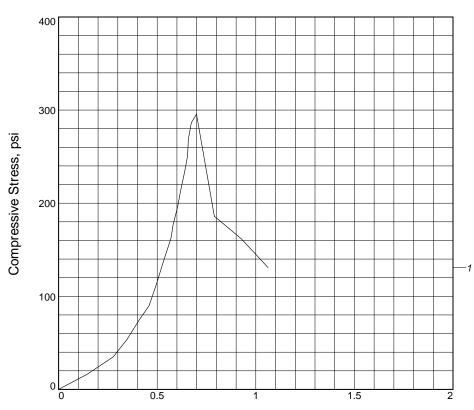
#### **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 10 Axial Strain, % Sample No. 1 Unconfined strength, psi 100.72 Undrained shear strength, psi 50.36 Failure strain, % 2.6 Strain rate, %/min. 0.30 Water content, % 22.5 Wet density, pcf 109.4 Dry density, pcf 89.3 Saturation, % 68.5 Void ratio 0.8869 Specimen diameter, in. 2.32 Specimen height, in. 4.63 Height/diameter ratio 1.99 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 Location: EC-13-B-38, K2/3229 & D2216. Sample Number: #3 **Depth:** 59.0 - 59.5' UNCONFINED COMPRESSION TEST U.S. Army Corp of Engineers **Figure**







# **UNCONFINED COMPRESSION TEST**





Axial Strain, %

Sample No.	1	
Unconfined strength, psi	295.52	
Undrained shear strength, psi	147.76	
Failure strain, %	0.7	
Strain rate, %/min.	0.30	
Water content, %	24.9	
Wet density, pcf	118.5	
Dry density, pcf	94.9	
Saturation, %	86.5	
Void ratio	0.7761	
Specimen diameter, in.	3.23	
Specimen height, in.	5.98	
Height/diameter ratio	1.85	

**Description:** Intact Rock Core

LL = PL = PI = Assumed GS= 2.7 Type: Rock Core

**Project No.:** PR&C W33SJG32408326, W.O. # 834e

#### **Date Sampled:**

#### Remarks:

Tests performed in accordance with ASTM D2938 & D2216.

**Location:** EC-13-B-40, K2/3235

Client: Wilmington/Charleston District

Sample Number: #1 **Depth:** 53.7 - 54.3'

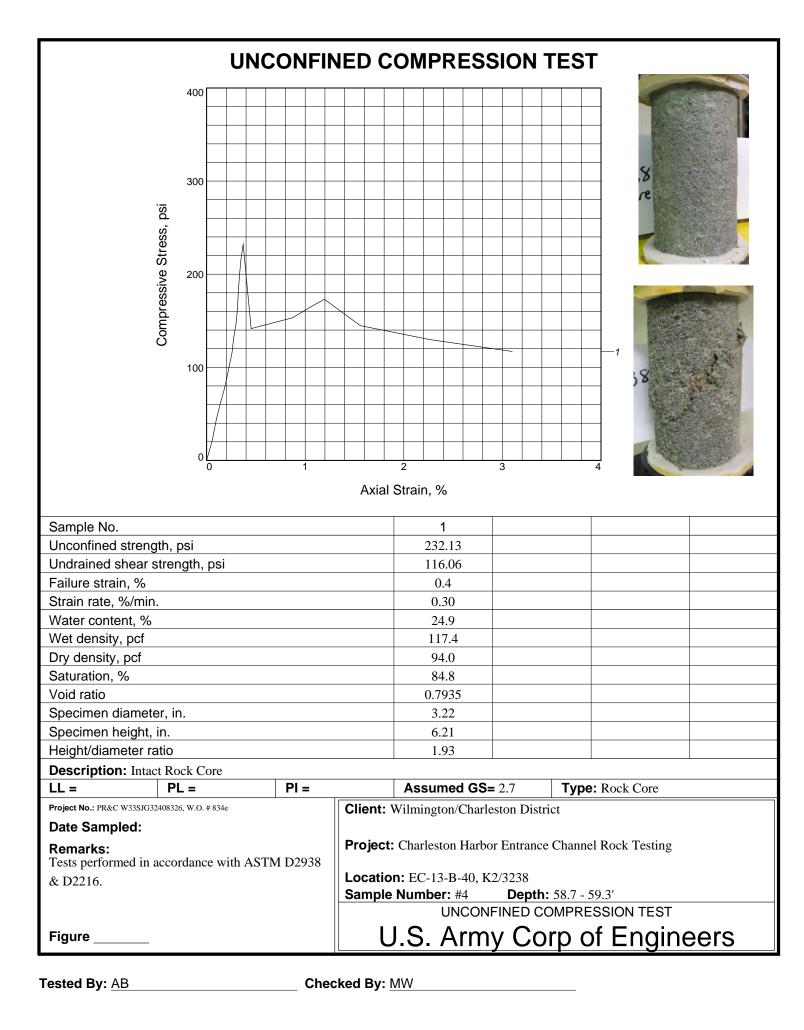
Project: Charleston Harbor Entrance Channel Rock Testing

**UNCONFINED COMPRESSION TEST** 

U.S. Army Corp of Engineers

**Figure** 

#### **UNCONFINED COMPRESSION TEST** 400 300 Compressive Stress, psi 200 100 0.5 0.75 Axial Strain, % Sample No. 1 Unconfined strength, psi 292.92 Undrained shear strength, psi 146.46 Failure strain, % 0.7 Strain rate, %/min. 0.30 Water content, % 24.1 Wet density, pcf 120.6 97.2 Dry density, pcf Saturation, % 88.6 Void ratio 0.7347 Specimen diameter, in. 3.21 Specimen height, in. 6.20 Height/diameter ratio 1.94 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 Location: EC-13-B-40, K2/3236 & D2216. Sample Number: #2 **Depth:** 55.8 - 56.3' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**



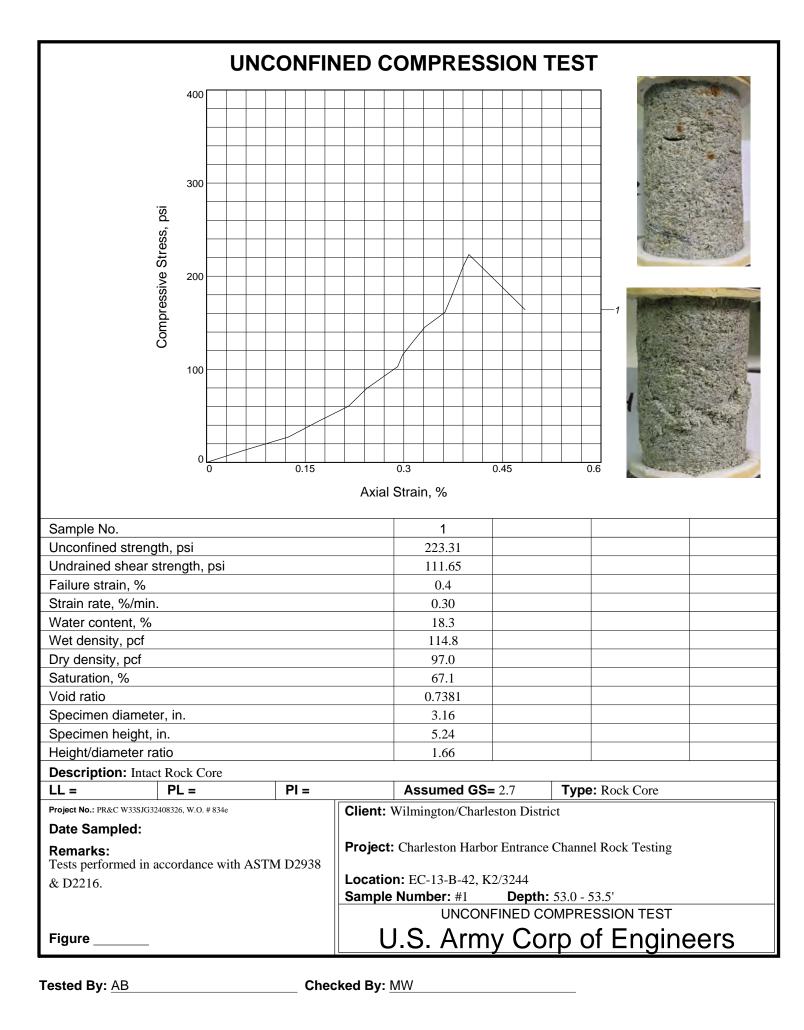
# **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 Unconfined strength, psi 185.98 Undrained shear strength, psi 92.99 Failure strain, % 0.5 Strain rate, %/min. 0.30 Water content, % 24.8 Wet density, pcf 116.7 Dry density, pcf 93.5 Saturation, % 83.3 Void ratio 0.8027 Specimen diameter, in. 3.15 Specimen height, in. 5.97 Height/diameter ratio 1.89 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 Location: EC-13-B-41, K2/3239 & D2216. Sample Number: #1 **Depth:** 53.6 - 54.1' UNCONFINED COMPRESSION TEST U.S. Army Corp of Engineers **Figure**

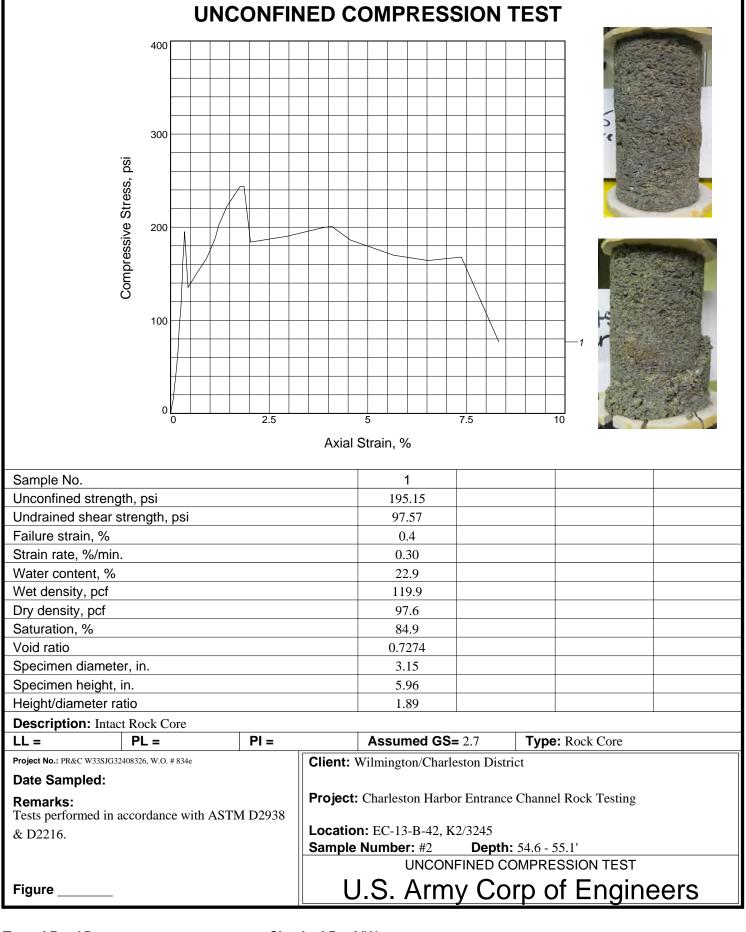
# **UNCONFINED COMPRESSION TEST** 400 300 Compressive Stress, psi 200 100 Axial Strain, % Sample No. 1 Unconfined strength, psi 226.31 Undrained shear strength, psi 113.16 Failure strain, % 0.7 Strain rate, %/min. 0.30 Water content, % 23.6 Wet density, pcf 118.3 Dry density, pcf 95.8 Saturation, % 83.7 Void ratio 0.7599 Specimen diameter, in. 3.11 Specimen height, in. 5.91 Height/diameter ratio 1.90 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-41, K2/3240 & D2216. Sample Number: #2 **Depth:** 55.9 - 59.1 **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**

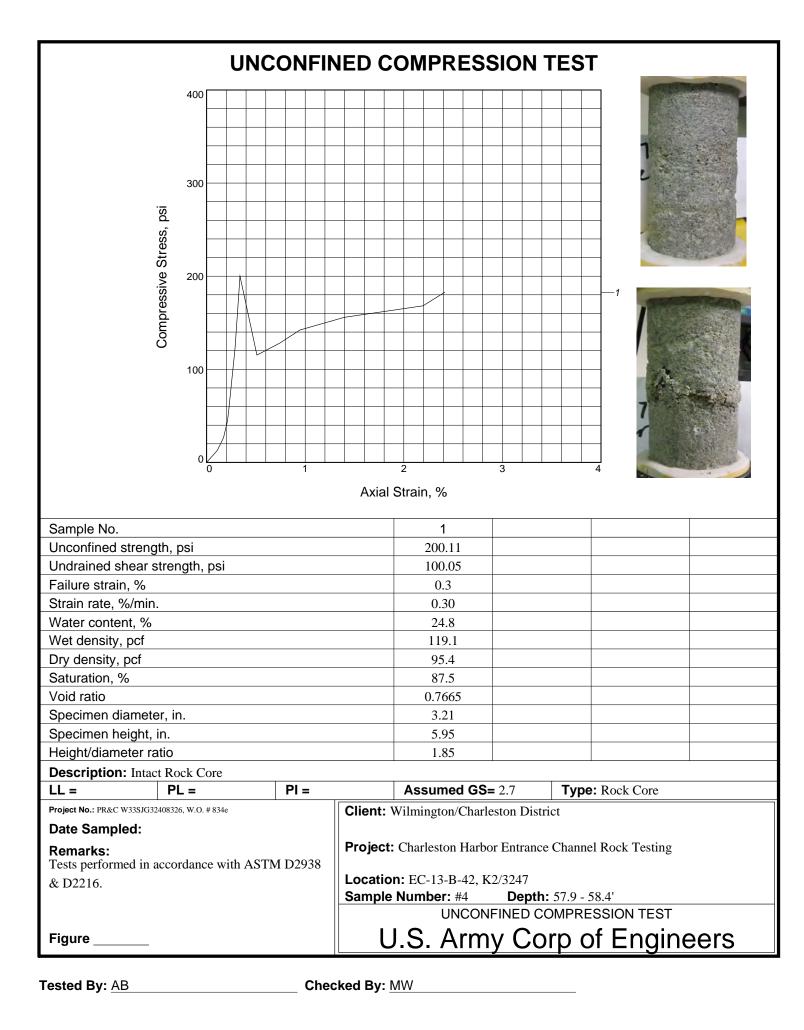
# **UNCONFINED COMPRESSION TEST** 400 300 Compressive Stress, psi 200 100 Axial Strain, % Sample No. 1 Unconfined strength, psi 273.67 Undrained shear strength, psi 136.83 Failure strain, % 1.4 Strain rate, %/min. 0.30 Water content, % 24.6 Wet density, pcf 116.5 Dry density, pcf 93.5 Saturation, % 82.7 Void ratio 0.8020 Specimen diameter, in. 3.19 Specimen height, in. 6.24 Height/diameter ratio 1.96 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-41, K2/3243 & D2216. Sample Number: #5 **Depth:** 59.5 - 60.0' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**

Checked By: MW

Tested By: AB





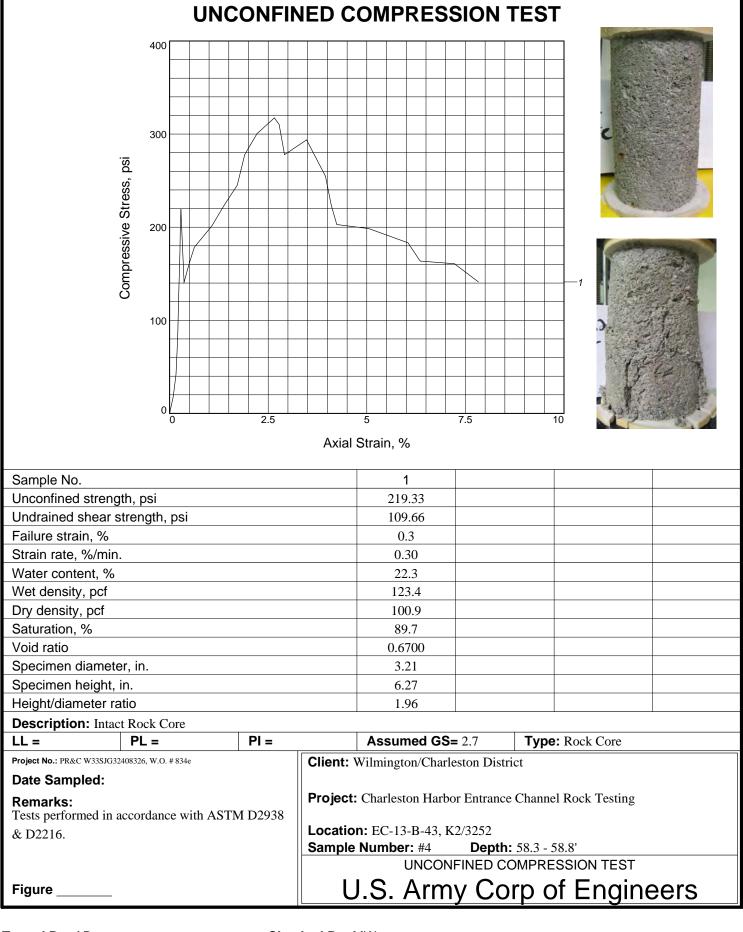


# **UNCONFINED COMPRESSION TEST** 400 300 Compressive Stress, psi 200 100 Axial Strain, % Sample No. 1 Unconfined strength, psi 369.17 Undrained shear strength, psi 184.58 Failure strain, % 0.9 Strain rate, %/min. 0.30 Water content, % 22.0 Wet density, pcf 120.1 Dry density, pcf 98.4 Saturation, % 83.4 Void ratio 0.7128 Specimen diameter, in. 3.21 Specimen height, in. 6.05 Height/diameter ratio 1.88 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 Location: EC-13-B-43, K2/3249 & D2216. Sample Number: #1 **Depth:** 54.0 - 54.5' UNCONFINED COMPRESSION TEST U.S. Army Corp of Engineers **Figure**

Checked By: MW

Tested By: AB

#### **UNCONFINED COMPRESSION TEST** 600 450 Compressive Stress, psi 300 150 0.5 0.75 Axial Strain, % Sample No. 1 Unconfined strength, psi 415.83 Undrained shear strength, psi 207.91 Failure strain, % 0.5 Strain rate, %/min. 0.30 Water content, % 22.7 Wet density, pcf 121.6 Dry density, pcf 99.1 Saturation, % 87.4 Void ratio 0.7003 Specimen diameter, in. 3.21 Specimen height, in. 6.81 Height/diameter ratio 2.12 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-43, K2/3251 & D2216. Sample Number: #3 **Depth:** 56.6 - 57.1' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**



#### **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 114.56 Unconfined strength, psi Undrained shear strength, psi 57.28 Failure strain, % 0.3 Strain rate, %/min. 0.30 Water content, % 21.7 Wet density, pcf 122.0 Dry density, pcf 100.3 Saturation, % 85.9 Void ratio 0.6806 Specimen diameter, in. 3.17 Specimen height, in. 5.90 Height/diameter ratio 1.86 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-44, K2/3254 & D2216. Sample Number: #1 **Depth:** 56.8 - 57.3' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure** Tested By: AB Checked By: MW

# **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 Unconfined strength, psi 158.72 Undrained shear strength, psi 79.36 Failure strain, % 0.5 Strain rate, %/min. 0.30 Water content, % 24.4 Wet density, pcf 118.6 Dry density, pcf 95.3 Saturation, % 85.8 Void ratio 0.7685 Specimen diameter, in. 3.18 Specimen height, in. 6.25 Height/diameter ratio 1.96 **Description:** Intact Rock Core

 LL =
 PL =

 Project No.: PR&C W338JG32408326, W.O. # 834e

**Date Sampled:** 

Remarks:

Tests performed in accordance with ASTM D2938

& D2216.

**Client:** Wilmington/Charleston District

Assumed GS= 2.7

**Project:** Charleston Harbor Entrance Channel Rock Testing

**Location:** EC-13-B-44, K2/3256

**Sample Number:** #3 **Depth:** 59.4 - 59.9'

**UNCONFINED COMPRESSION TEST** 

Type: Rock Core

U.S. Army Corp of Engineers

Figure	

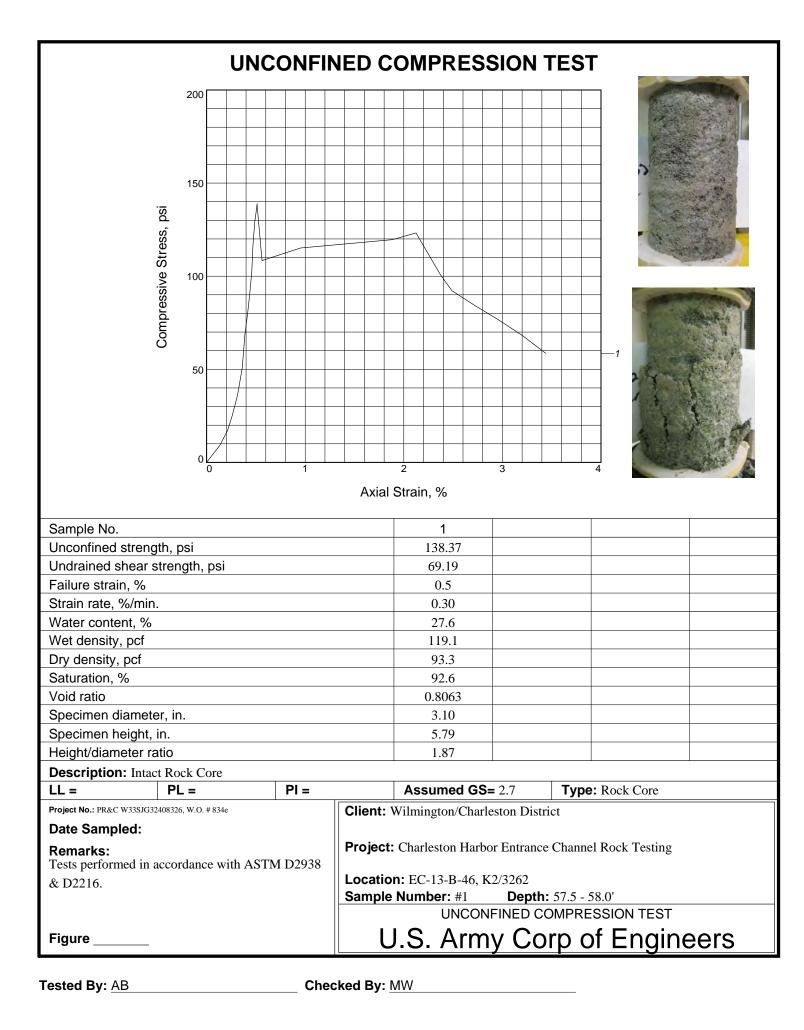
Tested By: AB Checked By: MW

PI =

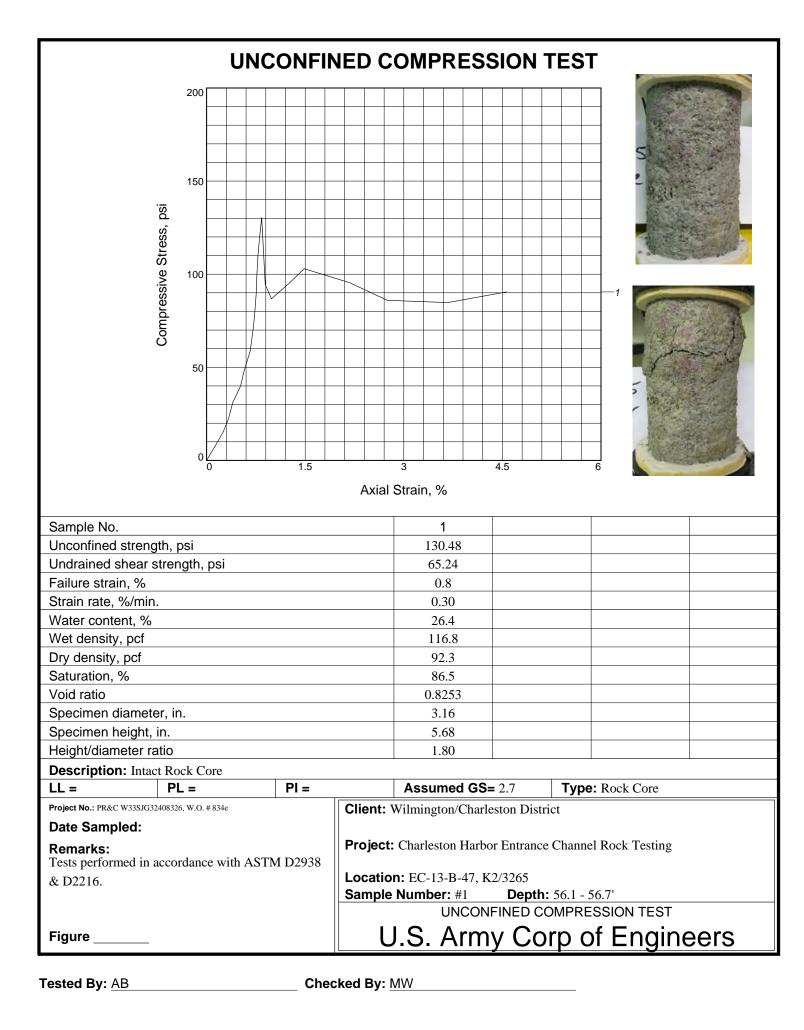
#### **UNCONFINED COMPRESSION TEST** 400 300 Compressive Stress, psi 200 100 0.5 0.75 Axial Strain, % Sample No. 1 Unconfined strength, psi 227.36 Undrained shear strength, psi 113.68 Failure strain, % 0.4 Strain rate, %/min. 0.30 Water content, % 24.8 Wet density, pcf 114.1 Dry density, pcf 91.4 Saturation, % 79.3 Void ratio 0.8442 Specimen diameter, in. 3.21 Specimen height, in. 5.63 Height/diameter ratio 1.75 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-45, K2/3257 & D2216. Sample Number: #1 **Depth:** 53.7 - 54.2' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**

# **UNCONFINED COMPRESSION TEST** 400 300 Compressive Stress, psi 200 100 Axial Strain, % Sample No. 1 Unconfined strength, psi 200.46 Undrained shear strength, psi 100.23 Failure strain, % 0.4 Strain rate, %/min. 0.30 Water content, % 23.1 Wet density, pcf 119.1 Dry density, pcf 96.8 Saturation, % 84.0 Void ratio 0.7410 Specimen diameter, in. 3.19 Specimen height, in. 6.20 Height/diameter ratio 1.94 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 Location: EC-13-B-45, K2/3259 & D2216. Sample Number: #3 **Depth:** 55.8 - 56.3' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**

## **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 0.5 0.75 Axial Strain, % Sample No. 1 Unconfined strength, psi 191.35 Undrained shear strength, psi 95.67 Failure strain, % 0.5 Strain rate, %/min. 0.30 Water content, % 20.3 Wet density, pcf 117.9 Dry density, pcf 98.0 Saturation, % 76.2 Void ratio 0.7198 Specimen diameter, in. 3.19 Specimen height, in. 6.01 Height/diameter ratio 1.89 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-45, K2/3260 & D2216. Sample Number: #4 **Depth:** 57.8 - 58.3' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**



## **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 Unconfined strength, psi 170.46 Undrained shear strength, psi 85.23 Failure strain, % 0.4 Strain rate, %/min. 0.30 Water content, % 28.3 Wet density, pcf 119.1 Dry density, pcf 92.9 Saturation, % 93.6 Void ratio 0.8151 Specimen diameter, in. 3.09 Specimen height, in. 5.83 Height/diameter ratio 1.89 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-46, K2/3264 & D2216. Sample Number: #3 **Depth:** 59.9 - 60.4' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure** Tested By: AB Checked By: MW



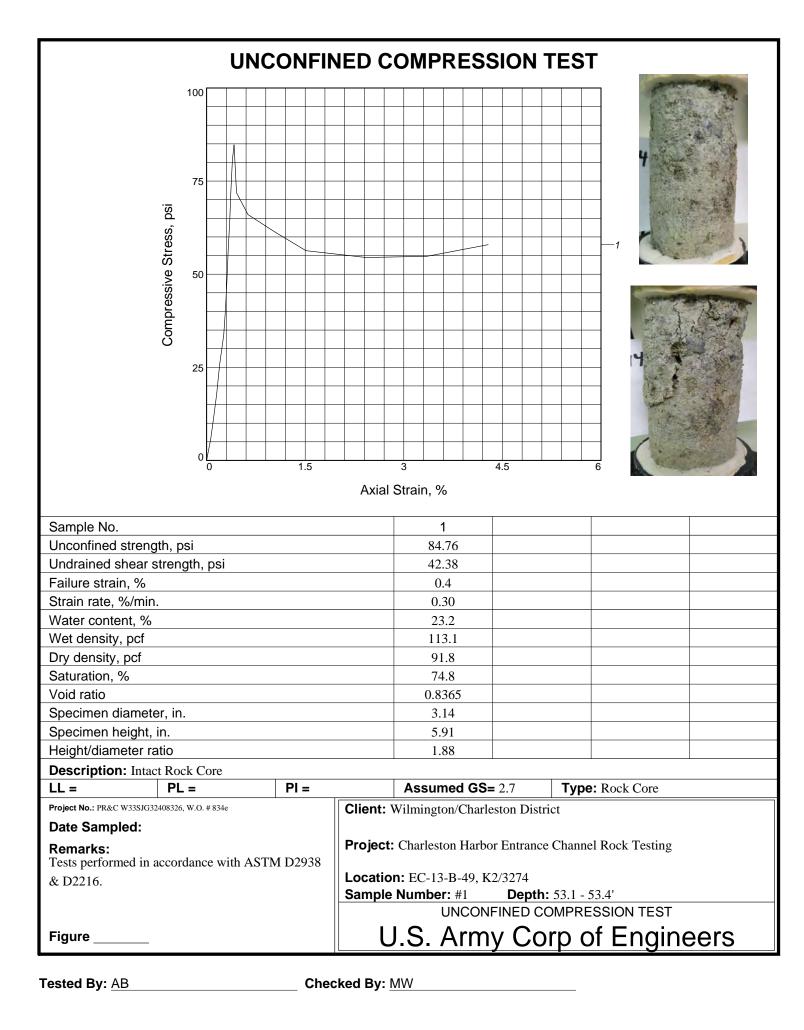
## **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 Unconfined strength, psi 152.33 Undrained shear strength, psi 76.17 Failure strain, % 0.8 Strain rate, %/min. 0.30 Water content, % 23.9 Wet density, pcf 117.5 Dry density, pcf 94.8 Saturation, % 83.1 Void ratio 0.7772 Specimen diameter, in. 3.20 Specimen height, in. 6.16 Height/diameter ratio 1.93 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-47, K2/3267 & D2216. Sample Number: #3 **Depth:** 58.5 - 59.0' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure** Tested By: AB Checked By: MW

## **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 Unconfined strength, psi 98.44 Undrained shear strength, psi 49.22 Failure strain, % 0.4 Strain rate, %/min. 0.30 Water content, % 27.1 Wet density, pcf 113.1 Dry density, pcf 89.0 Saturation, % 81.8 Void ratio 0.8944 Specimen diameter, in. 3.14 Specimen height, in. 5.73 Height/diameter ratio 1.83 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-48, K2/3268 & D2216. Sample Number: #1 **Depth:** 52.7 - 53.2' UNCONFINED COMPRESSION TEST U.S. Army Corp of Engineers **Figure**

## **UNCONFINED COMPRESSION TEST** 400 300 Compressive Stress, psi 200 100 0.5 0.75 Axial Strain, % Sample No. 1 Unconfined strength, psi 204.94 Undrained shear strength, psi 102.47 Failure strain, % 0.6 Strain rate, %/min. 0.30 Water content, % 28.8 Wet density, pcf 120.4 Dry density, pcf 93.5 Saturation, % 96.7 Void ratio 0.8036 Specimen diameter, in. 3.16 Specimen height, in. 6.17 Height/diameter ratio 1.95 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 Location: EC-13-B-48, K2/3269 & D2216. Sample Number: #2 **Depth:** 52.9 - 53.4' UNCONFINED COMPRESSION TEST U.S. Army Corp of Engineers **Figure**

## **UNCONFINED COMPRESSION TEST** 100 75 Compressive Stress, psi 50 25 Axial Strain, % Sample No. 1 Unconfined strength, psi 89.08 Undrained shear strength, psi 44.54 Failure strain, % 0.7 Strain rate, %/min. 0.30 Water content, % 25.5 Wet density, pcf 122.7 Dry density, pcf 97.8 Saturation, % 95.1 Void ratio 0.7239 Specimen diameter, in. 3.12 Specimen height, in. 6.01 Height/diameter ratio 1.92 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-48, K2/3271 & D2216. Sample Number: #4 **Depth:** 57.7 - 58.2' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**

## **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 Unconfined strength, psi 142.44 Undrained shear strength, psi 71.22 Failure strain, % 0.2 Strain rate, %/min. 0.30 Water content, % 24.7 Wet density, pcf 121.8 Dry density, pcf 97.6 Saturation, % 92.0 Void ratio 0.7264 Specimen diameter, in. 3.14 Specimen height, in. 6.08 Height/diameter ratio 1.93 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-48, K2/3272 & D2216. Sample Number: #5 **Depth:** 59.7 - 60.2' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**



# UNCONFINED COMPRESSION TEST





Compressive Stress, psi

Axial Strain, %

Sample No.	1	
Unconfined strength, psi	88.09	
Undrained shear strength, psi	44.04	
Failure strain, %	0.6	
Strain rate, %/min.	0.30	
Water content, %	28.4	
Wet density, pcf	117.7	
Dry density, pcf	91.7	
Saturation, %	91.5	
Void ratio	0.8381	
Specimen diameter, in.	3.14	
Specimen height, in.	6.18	
Height/diameter ratio	1.97	

**Description:** Intact Rock Core

LL = PL = PI = Assumed GS = 2.7 Type: Rock Core

**Project No.:** PR&C W33SJG32408326, W.O. # 834e

**Date Sampled:** 

Remarks:

Tests performed in accordance with ASTM D2938

& D2216.

**Client:** Wilmington/Charleston District

**Project:** Charleston Harbor Entrance Channel Rock Testing

**Location:** EC-13-B-49, K2/3275

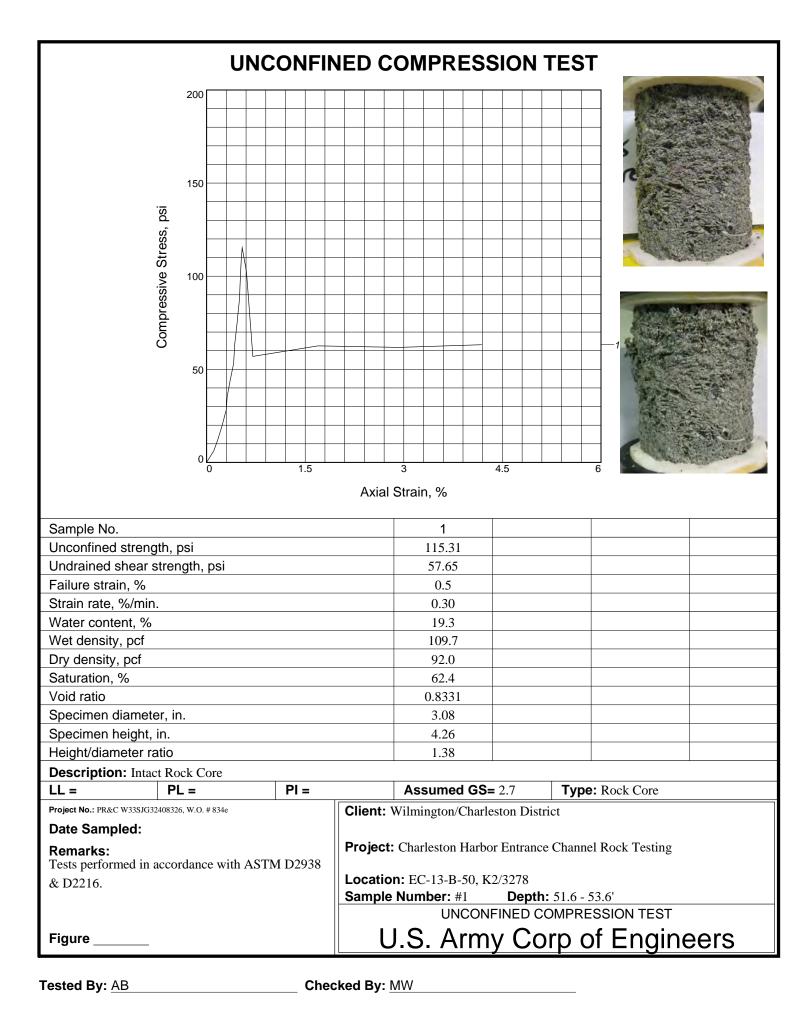
**Sample Number:** #2 **Depth:** 55.7 - 56.2'

**UNCONFINED COMPRESSION TEST** 

U.S. Army Corp of Engineers

Figure \_\_\_\_\_

# **UNCONFINED COMPRESSION TEST** 4.5 Compressive Stress, psi 1.5 0.05 Axial Strain, % Sample No. Unconfined strength, psi Undrained shear strength, psi Failure strain, % Strain rate, %/min. Water content, % Wet density, pcf Dry density, pcf Saturation, % Void ratio Specimen diameter, in. Specimen height, in. Height/diameter ratio **Description:** Intact Rock Core LL = PL = PI = Assumed GS= Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled: Project:** Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-49, K2/3277 & D2216. Sample Crumbled and fell apart and was Sample Number: #4 **Depth:** 58.4 - 58.9' not testable for Unconfined Compressive Strength. **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure** Tested By: AB Checked By: MW



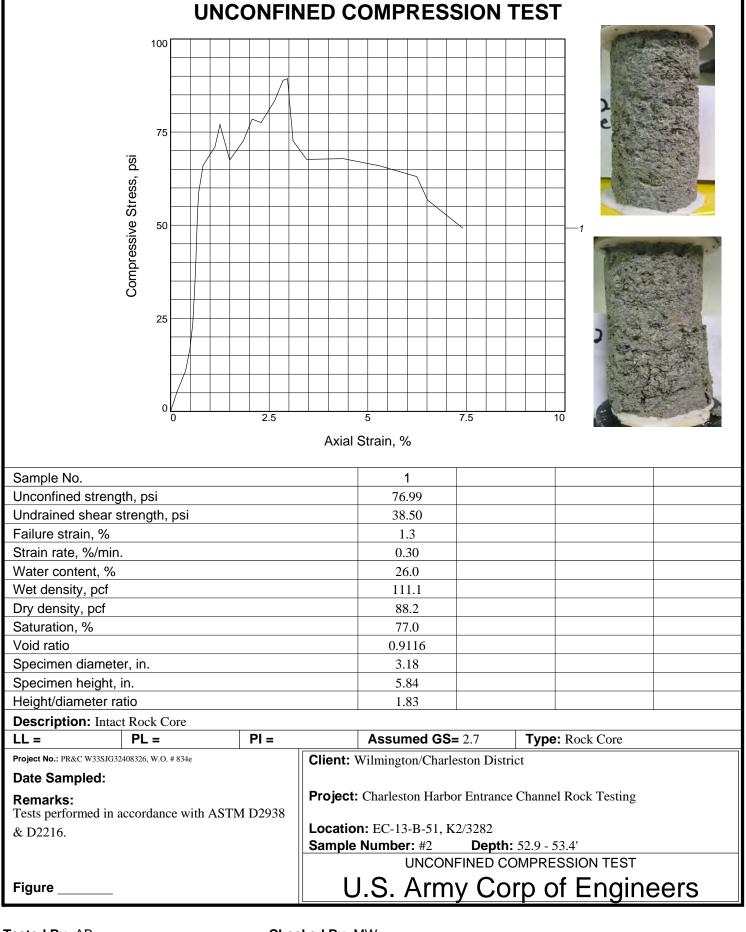
## **UNCONFINED COMPRESSION TEST** 100 75 Compressive Stress, psi 50 25 Axial Strain, % Sample No. 1 Unconfined strength, psi 73.66 Undrained shear strength, psi 36.83 Failure strain, % 0.5 Strain rate, %/min. 0.30 Water content, % 25.9 Wet density, pcf 105.1 Dry density, pcf 83.5 Saturation, % 68.6 Void ratio 1.0180 Specimen diameter, in. 3.15 Specimen height, in. 3.94 Height/diameter ratio 1.25 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 Location: EC-13-B-50, K2/3279 & D2216. Sample Number: #2 **Depth:** 53.2 - 53.6' UNCONFINED COMPRESSION TEST U.S. Army Corp of Engineers **Figure** Tested By: AB Checked By: MW

# **UNCONFINED COMPRESSION TEST** 100 75 Compressive Stress, psi 50 25 Axial Strain, % Sample No. 1 Unconfined strength, psi 76.36 Undrained shear strength, psi 38.18 Failure strain, % 0.8 Strain rate, %/min. 0.30 Water content, % 17.9 Wet density, pcf 100.8 Dry density, pcf 85.5 Saturation, % 49.8 Void ratio 0.9710 Specimen diameter, in. 3.18 Specimen height, in. 6.47 Height/diameter ratio 2.03 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-51, K2/3281 & D2216. Sample Number: #1 **Depth:** 51.5 - 51.9'

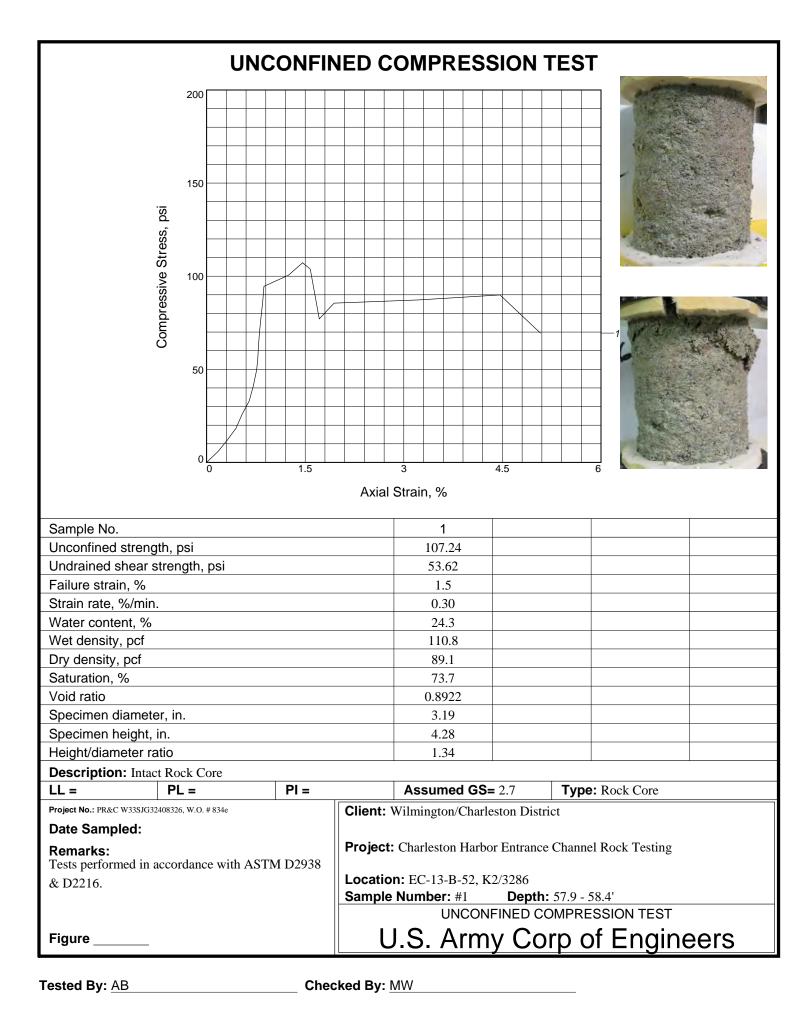
UNCONFINED COMPRESSION TEST
U.S. Army Corp of Engineers

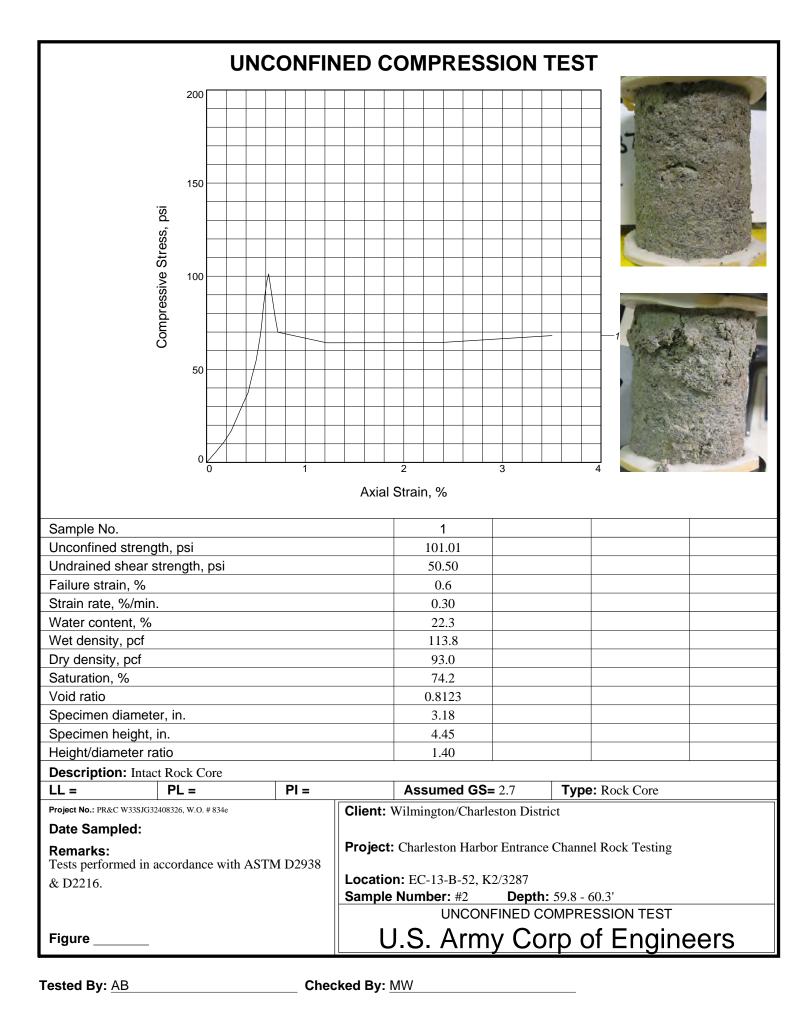
Tested By: AB Checked By: MW

**Figure** 



# **UNCONFINED COMPRESSION TEST** 100 75 Compressive Stress, psi 50 25 Axial Strain, % Sample No. 1 Unconfined strength, psi 95.29 Undrained shear strength, psi 47.64 Failure strain, % 0.9 Strain rate, %/min. 0.30 Water content, % 24.8 Wet density, pcf 112.1 Dry density, pcf 89.8 Saturation, % 76.4 Void ratio 0.8769 Specimen diameter, in. 3.15 5.15 Specimen height, in. Height/diameter ratio 1.64 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-51, K2/3284 & D2216. Sample Number: #4 **Depth:** 56.0 - 56.6' UNCONFINED COMPRESSION TEST U.S. Army Corp of Engineers **Figure**





# **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 Axial Strain, % Sample No. 1 Unconfined strength, psi 139.84 Undrained shear strength, psi 69.92 Failure strain, % 1.0 Strain rate, %/min. 0.30 Water content, % 24.1 Wet density, pcf 124.8 Dry density, pcf 100.6 Saturation, % 96.2 Void ratio 0.6752 Specimen diameter, in. 2.23 Specimen height, in. 4.80 Height/diameter ratio 2.15 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-18, K2/3502 & D2216. Sample Number: #1 **Depth:** 53.9 - 54.4' UNCONFINED COMPRESSION TEST U.S. Army Corp of Engineers **Figure**

Checked By: MW

Tested By: AB

## **UNCONFINED COMPRESSION TEST** 200 150 Compressive Stress, psi 100 50 0.5 0.75 Axial Strain, % Sample No. 1 Unconfined strength, psi 139.12 Undrained shear strength, psi 69.56 Failure strain, % 0.6 Strain rate, %/min. 0.30 Water content, % 23.1 Wet density, pcf 120.0 Dry density, pcf 97.5 Saturation, % 85.5 Void ratio 0.7283 Specimen diameter, in. 2.34 Specimen height, in. 5.04 Height/diameter ratio 2.15 **Description:** Intact Rock Core LL = PL = PI = Assumed GS= 2.7 Type: Rock Core Project No.: PR&C W33SJG32408326, W.O. # 834e Client: Wilmington/Charleston District **Date Sampled:** Project: Charleston Harbor Entrance Channel Rock Testing Remarks: Tests performed in accordance with ASTM D2938 **Location:** EC-13-B-18, K2/3504 & D2216. Sample Number: #3 **Depth:** 57.3 - 57.8' **UNCONFINED COMPRESSION TEST** U.S. Army Corp of Engineers **Figure**