

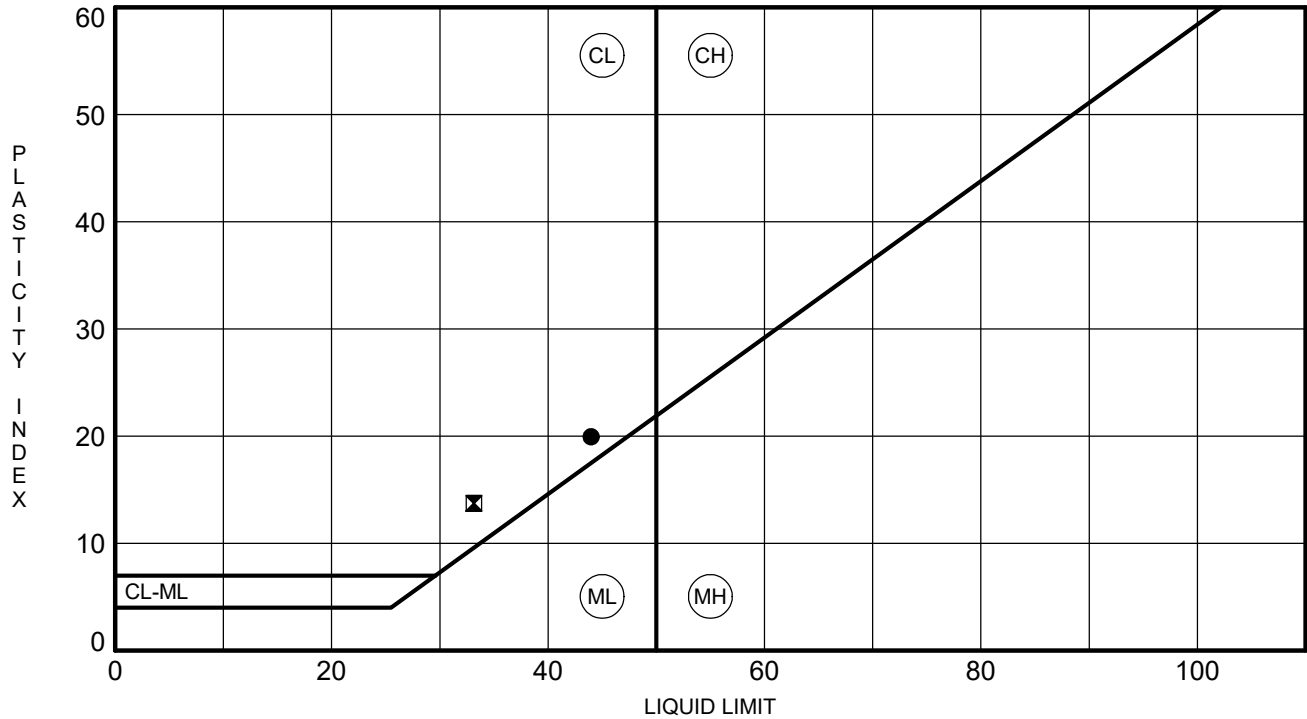


# ATTERBERG LIMITS' RESULTS

PROJECT ID E6950.002 - Task 04212

PROJECT NAME S-42-31 over Peters Creek

PROJECT COUNTY Spartanburg



ATTERBERG LIMITS E6950.002 - TASK 04212 - S-42-31 OVER Peters Creek.GPJ SCDOT DATA TEMPLATE 01\_30\_2015.GDT 6/26/24

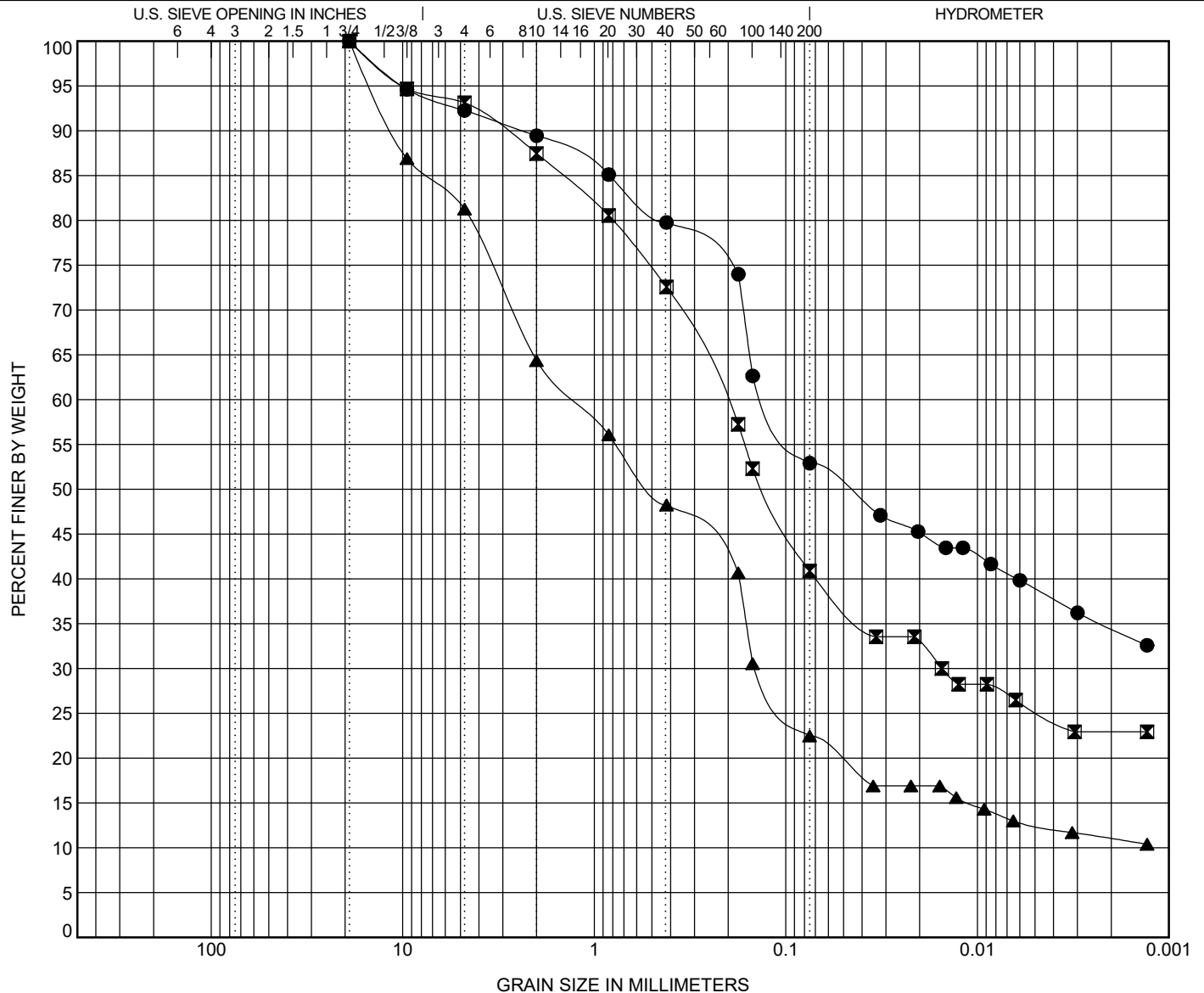


# GRAIN SIZE DISTRIBUTION

PROJECT ID E6950.002 - Task 04212

PROJECT NAME S-42-31 over Peters Creek

PROJECT COUNTY Spartanburg



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-1	23.8	SANDY LEAN CLAY (CL/A-7-6)					44	24	20		
■ B-1	25.8	CLAYEY SAND (SC/A-6)					33	19	14		
▲ B-1	27.8	Silty Clayey SAND with Gravel (SC-SM)									
BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
● B-1	23.8	19	0.124			7.7	39.3	14.0	38.9		
■ B-1	25.8	19	0.207	0.015		6.9	52.2	15.6	25.3		
▲ B-1	27.8	19	1.268	0.142		18.8	58.7	10.0	12.5		

GRAIN SIZE E6950.002 - TASK 04212 - S-42-31 OVER PETERS CREEK.GPJ SCDOT DATA TEMPLATE\_01\_30\_2015.GDT 6/26/24

**F&ME CONSULTANTS, INC.****MOISTURE CONTENT DETERMINATION  
(AASHTO T265)**

<b>PROJECT:</b>	S-42-31 over Peters Creek	<b>F&amp;ME PROJECT No.:</b>	E6950.002 - Task 04212
<b>SAMPLE NUMBER:</b>	24-1910	<b>DATE SAMPLE RECEIVED:</b>	6/10/2024
<b>DESCRIPTION OF SOIL:</b>	Various		
<b>TESTED BY:</b>	JJ/TE	<b>DATE SETUP:</b>	6/11/2024
<b>WEIGHED BY:</b>	--	<b>DATE OF WEIGHING:</b>	6/12/2024

BORING NO.	B-1	B-1	B-1		
SAMPLE NO.	---	---	---		
SAMPLE DEPTH (FT.)	0-2 (21.8-23.8)	2-4 (23.8-25.78)	4-6 (25.8-27.8)		
WATER CONTENT, W%	23.3	21.2	18.4		

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH (FT.)					
WATER CONTENT, W%					

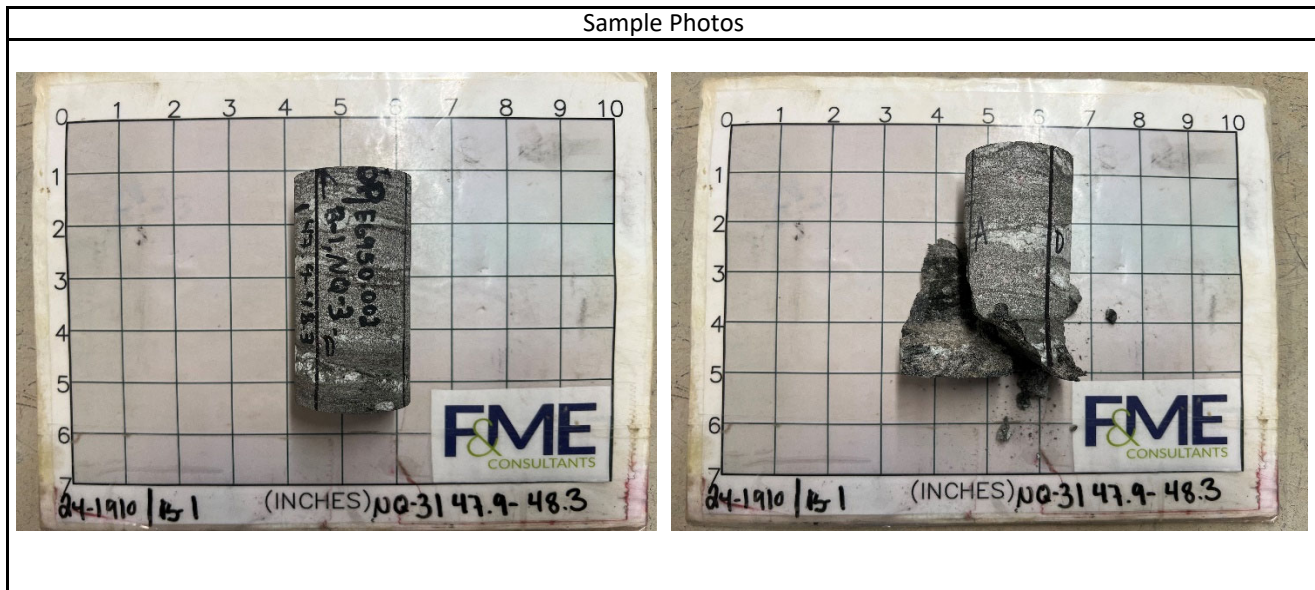
BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH (FT.)					
WATER CONTENT, W%					

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH (FT.)					
WATER CONTENT, W%					

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.877	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	3.72	Reviewed By	WAP
Boring	B-1	Unit Weight (pcf)	168.2	Core Size	NQ
Sample No.	NQ-3 / 24-1910	L/D Ratio	1.98	Recovery	87%
Depth	47.9' - 48.3'	Load Rate (psi/sec)	20	RQD	10%
Description	Black/White Para Gneiss				

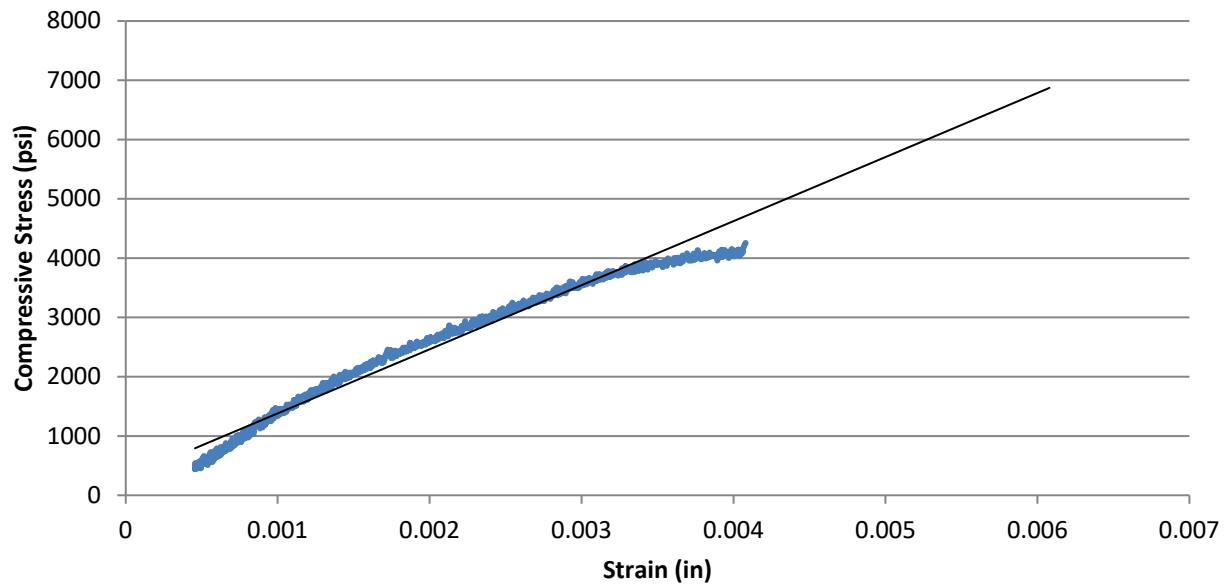
Test Data						
Percent of Failure Load	Strain (10 <sup>-6</sup> )		Load (lbs)	Compressive Stress (psi)	Secant Modulus x10 <sup>6</sup> (psi)	Poisson's Ratio
	Axial	Radial				
10%	Sample Preload Range					
20%	-710	99	2,362	853	2.40	0.14
30%	-931	131	3,530	1,276	2.74	0.14
40%	-1218	164	4,712	1,703	2.80	0.13
50%	-1569	196	5,892	2,129	2.71	0.13
60%	-1966	229	7,069	2,555	2.60	0.12
70%	-2396	254	8,247	2,980	2.49	0.11
80%	-2839	284	9,420	3,404	2.40	0.10
90%	-3305	317	10,598	3,830	2.32	0.10
100%	-4079	421	11,775	4,255		



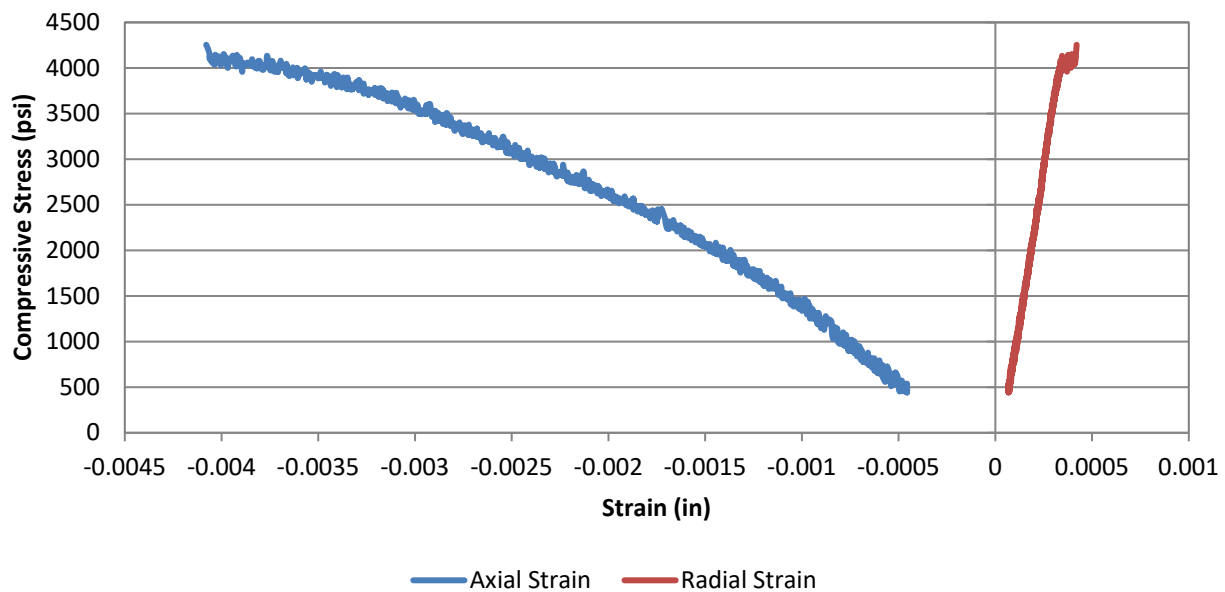
Test Results			
Unconfined Compressive Strength (psi)	4,260	Elastic Modulus (psi)	2.68E+06
		Poisson's Ratio in Elastic Range	0.12
Comments	Elastic range was taken as between 0.001 and 0.0025 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.		

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.877	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	3.72	Reviewed By	WAP
Boring	B-1	Unit Weight (pcf)	168.2	Core Size	NQ
Sample No.	NQ-3 / 24-1910	L/D Ratio	1.98	Recovery	87%
Depth	47.9' - 48.3'	Load Rate (psi/sec)	20	RQD	10%
Description	Black/White Para Gneiss				

**Axial Stress vs. Strain**



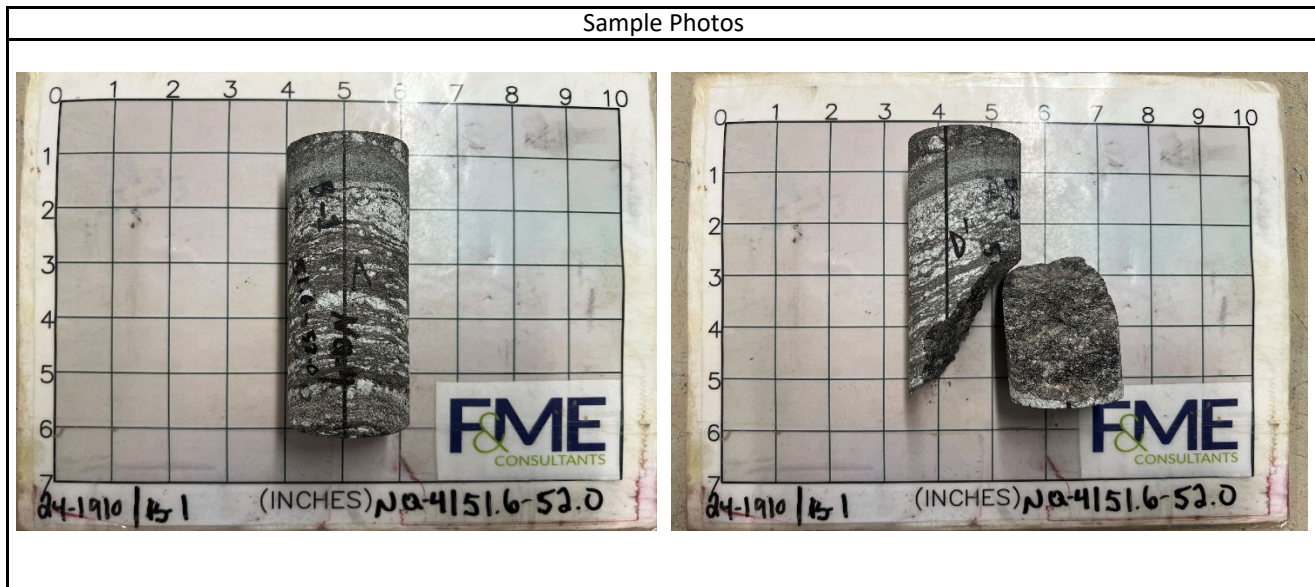
**Stress vs. Strain**



Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.87	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.396	Reviewed By	WAP
Boring	B-1	Unit Weight (pcf)	167.2	Core Size	NQ
Sample No.	NQ-4 / 24-1910	L/D Ratio	2.35	Recovery	97%
Depth	51.6' - 52.0'	Load Rate (psi/sec)	20	RQD	57%
Description	Black/White Para Gneiss				

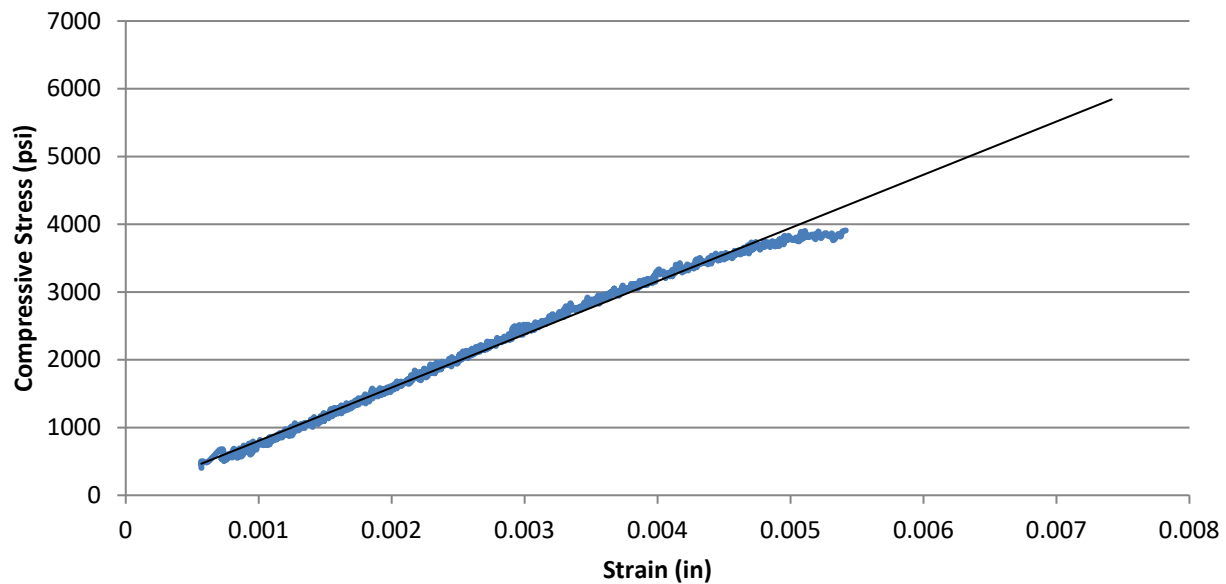
Test Data						
Percent of Failure Load	Strain (10 <sup>-6</sup> )		Load (lbs)	Compressive Stress (psi)	Secant Modulus x10 <sup>6</sup> (psi)	Poisson's Ratio
	Axial	Radial				
10%	Sample Preload Range					
20%	-1020	88	2,147	782	1.53	0.09
30%	-1544	150	3,225	1,174	1.52	0.10
40%	-1990	227	4,298	1,565	1.57	0.11
50%	-2429	325	5,376	1,957	1.61	0.13
60%	-2879	450	6,450	2,349	1.63	0.16
70%	-3393	614	7,510	2,735	1.61	0.18
80%	-3960	836	8,591	3,128	1.58	0.21
90%	-4520	1102	9,668	3,520	1.56	0.24
100%	-5416	1550	10,736	3,909		



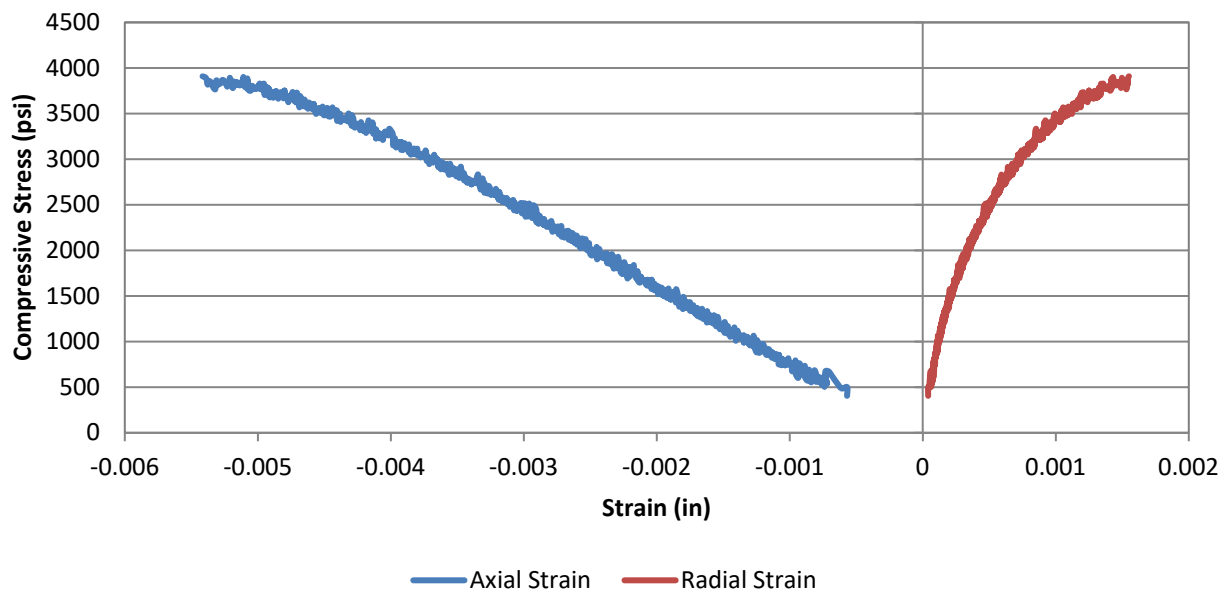
Test Results				
Unconfined Compressive Strength (psi)		3,910	Elastic Modulus (psi)	1.56E+06
			Poisson's Ratio in Elastic Range	0.11
Comments	Elastic range was taken as between 0.001 and 0.0025 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.			

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.87	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.396	Reviewed By	WAP
Boring	B-1	Unit Weight (pcf)	167.2	Core Size	NQ
Sample No.	NQ-4 / 24-1910	L/D Ratio	2.35	Recovery	97%
Depth	51.6' - 52.0'	Load Rate (psi/sec)	20	RQD	57%
Description	Black/White Para Gneiss				

**Axial Stress vs. Strain**



**Stress vs. Strain**

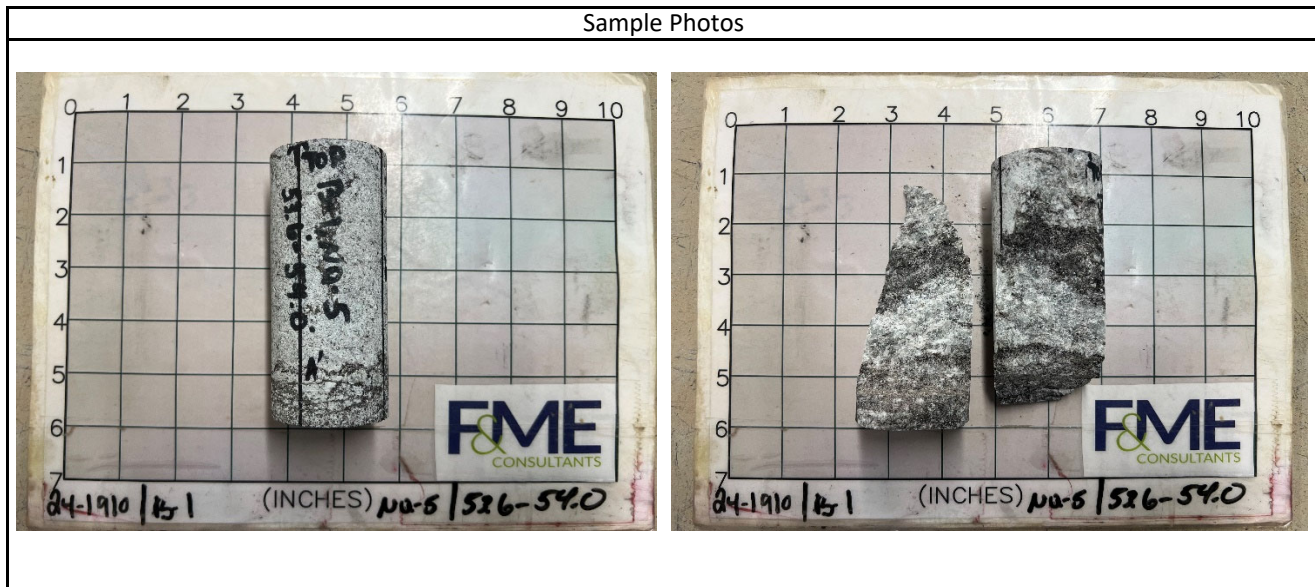




Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.872	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.322	Reviewed By	WAP
Boring	B-1	Unit Weight (pcf)	165.2	Core Size	NQ
Sample No.	NQ-5 / 24-1910	L/D Ratio	2.31	Recovery	93%
Depth	53.6' - 54.0'	Load Rate (psi/sec)	20	RQD	78%
Description	Black/White Para Gneiss				

Test Data						
Percent of Failure Load	Strain ( $10^{-6}$ )		Load (lbs)	Compressive Stress (psi)	Secant Modulus $\times 10^6$ (psi)	Poisson's Ratio
	Axial	Radial				
10%	-363	50	2,318	842	4.64	0.14
20%	-644	106	4,632	1,683	5.23	0.16
30%	-955	169	6,956	2,527	5.29	0.18
40%	-1276	234	9,281	3,372	5.29	0.18
50%	-1617	303	11,588	4,210	5.21	0.19
60%	-1965	384	13,944	5,066	5.16	0.20
70%	-20159	262	16,227	5,896	0.58	0.01
80%	-20573	351	18,547	6,739	0.66	0.02
90%	-21240	485	20,865	7,581	0.71	0.02
100%	-23053	865	23,185	8,424		

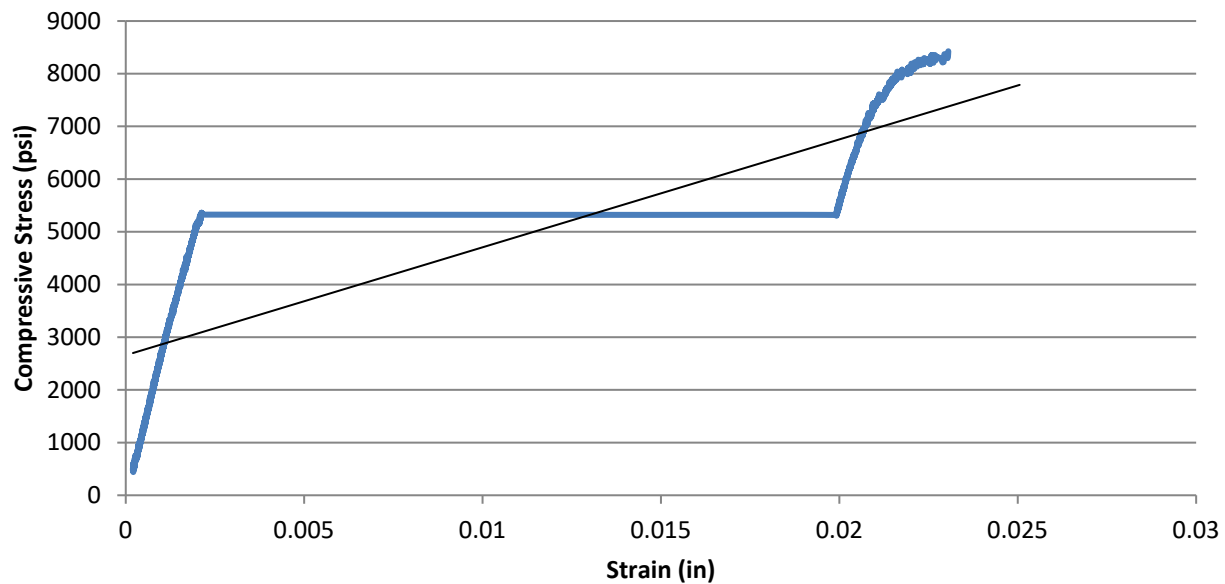


Test Results			
Unconfined Compressive Strength (psi)		<b>8,420</b>	Elastic Modulus (psi)
			5.28E+06
			Poisson's Ratio in Elastic Range
			0.18
Comments	Elastic range was taken as between 0.0005 and 0.0015 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.		

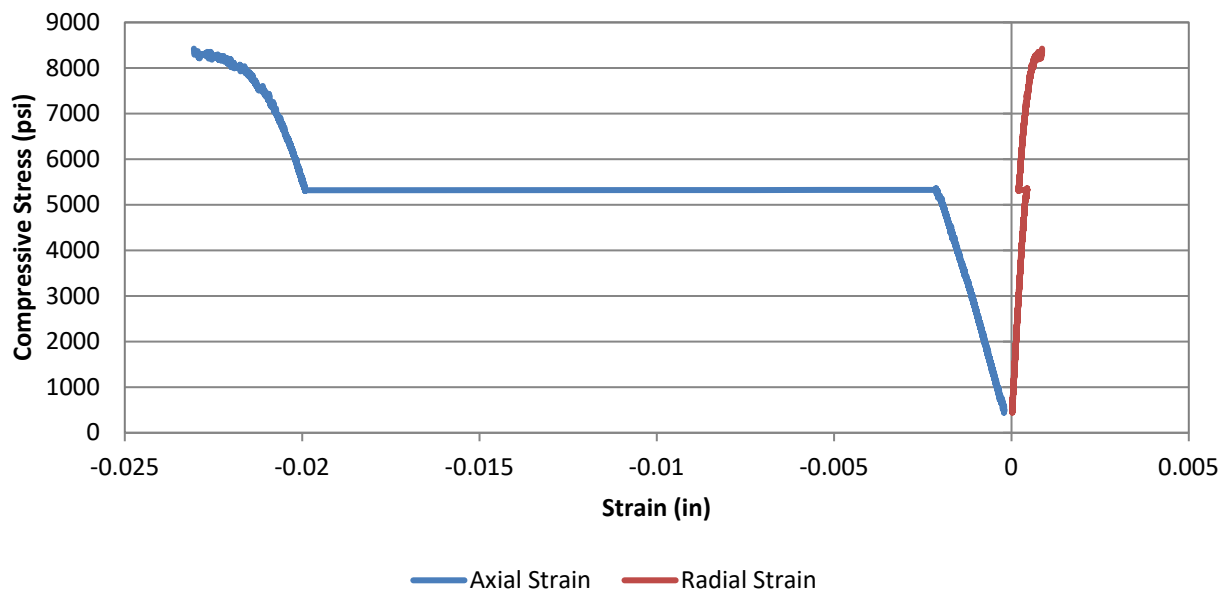


Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.872	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.322	Reviewed By	WAP
Boring	B-1	Unit Weight (pcf)	165.2	Core Size	NQ
Sample No.	NQ-5 / 24-1910	L/D Ratio	2.31	Recovery	93%
Depth	53.6' - 54.0'	Load Rate (psi/sec)	20	RQD	78%
Description	Black/White Para Gneiss				

**Axial Stress vs. Strain**



**Stress vs. Strain**

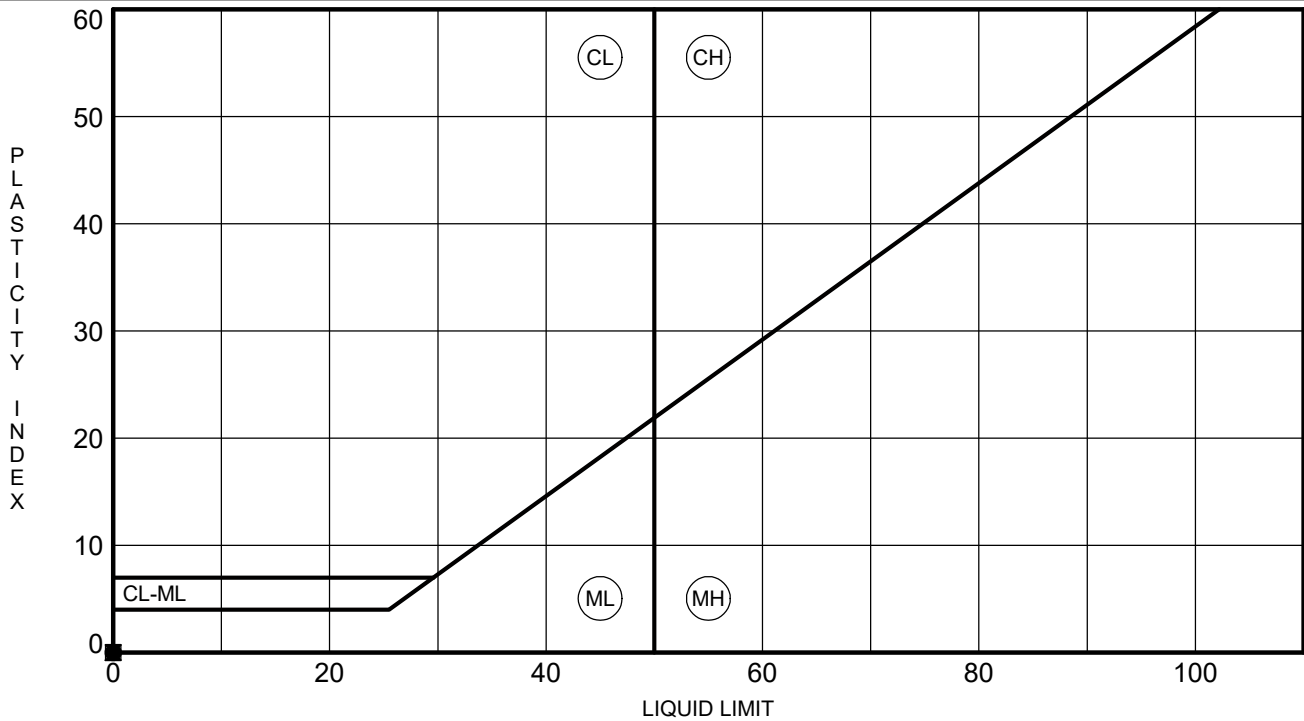


## ATTERBERG LIMITS' RESULTS

**PROJECT ID** E6950.002 - Task 04212

**PROJECT NAME** S-42-31 over Peters Creek

**PROJECT COUNTY** Spartanburg

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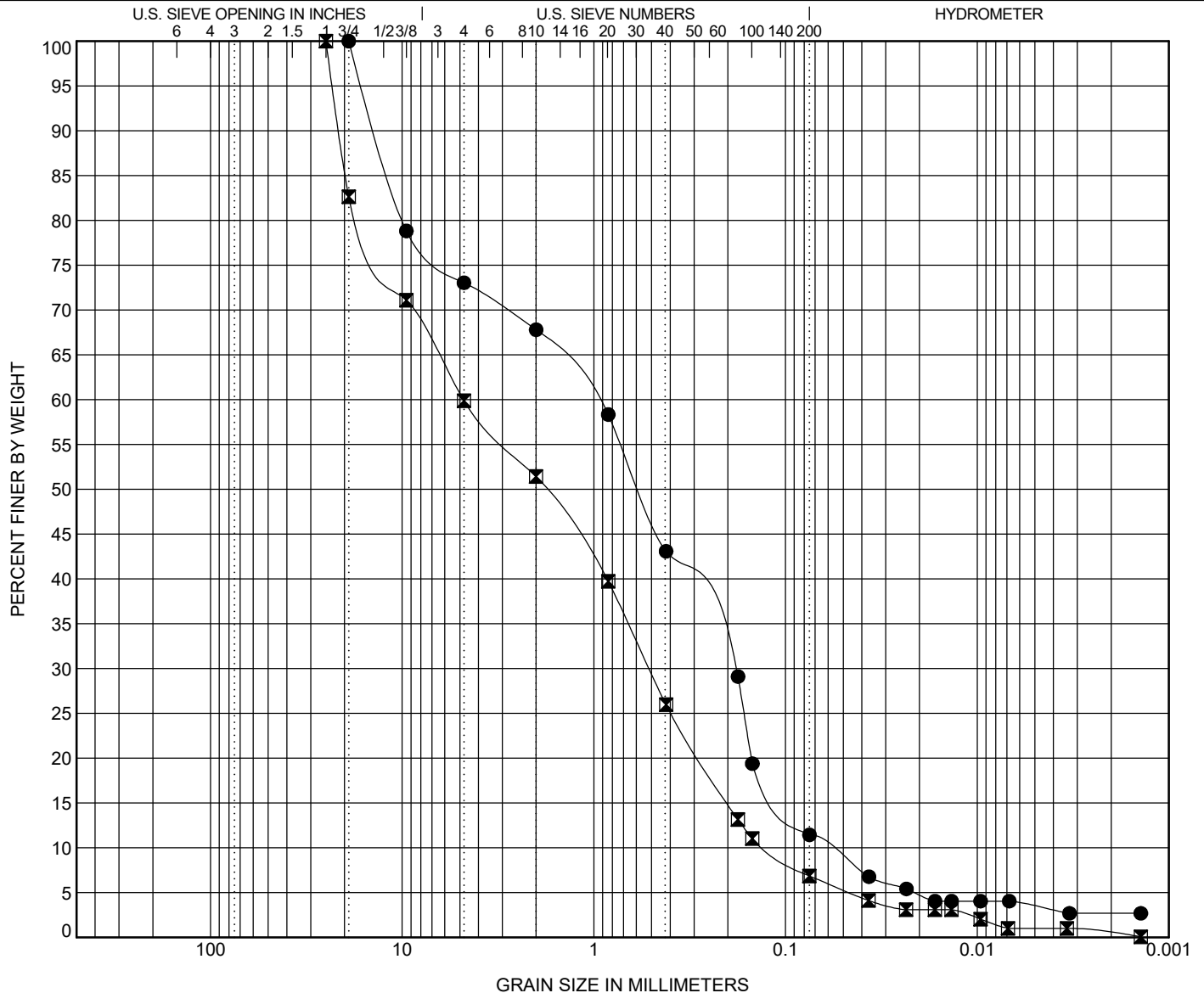


# GRAIN SIZE DISTRIBUTION

PROJECT ID E6950.002 - Task 04212

PROJECT NAME S-42-31 over Peters Creek

PROJECT COUNTY Spartanburg



BOREHOLE		DEPTH	Classification					LL	PL	PI	Cc	Cu
●	B-2	40.8	POORLY GRADED SAND with SILT and GRAVEL (SP-SM/A-1-b)					NP	NP	NP	0.59	16.26
⊠	B-2	42.8	POORLY GRADED SAND with SILT and GRAVEL (SP-SM/A-1-b)					NP	NP	NP	0.44	38.08
BOREHOLE		DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
●	B-2	40.8	19	0.979	0.187	0.06	27.0	61.6	8.0	3.5		
⊠	B-2	42.8	25	4.8	0.515	0.126	40.2	53.0	5.8	1.0		

GRAIN SIZE E6950.002 - TASK 04212 - S-42-31 OVER PETERS CREEK.GPJ SCDOT DATA TEMPLATE\_01\_30\_2015.GDT 6/26/24

**F&ME CONSULTANTS, INC.****MOISTURE CONTENT DETERMINATION  
(AASHTO T265)**

<b>PROJECT:</b>	S-42-31 over Peters Creek	<b>F&amp;ME PROJECT No.:</b>	E6950.002 - Task 04212
<b>SAMPLE NUMBER:</b>	24-1911	<b>DATE SAMPLE RECEIVED:</b>	6/10/2024
<b>DESCRIPTION OF SOIL:</b>	Various		
<b>TESTED BY:</b>	JJ/TE	<b>DATE SETUP:</b>	6/11/2024
<b>WEIGHED BY:</b>	--	<b>DATE OF WEIGHING:</b>	6/12/2024

BORING NO.	B-2	B-2			
SAMPLE NO.	---	---			
SAMPLE DEPTH (FT.)	2-4 (38.8-40.8)	4-6 (40.8-42.8)			
WATER CONTENT, W%	17.9	15.0			

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH (FT.)					
WATER CONTENT, W%					

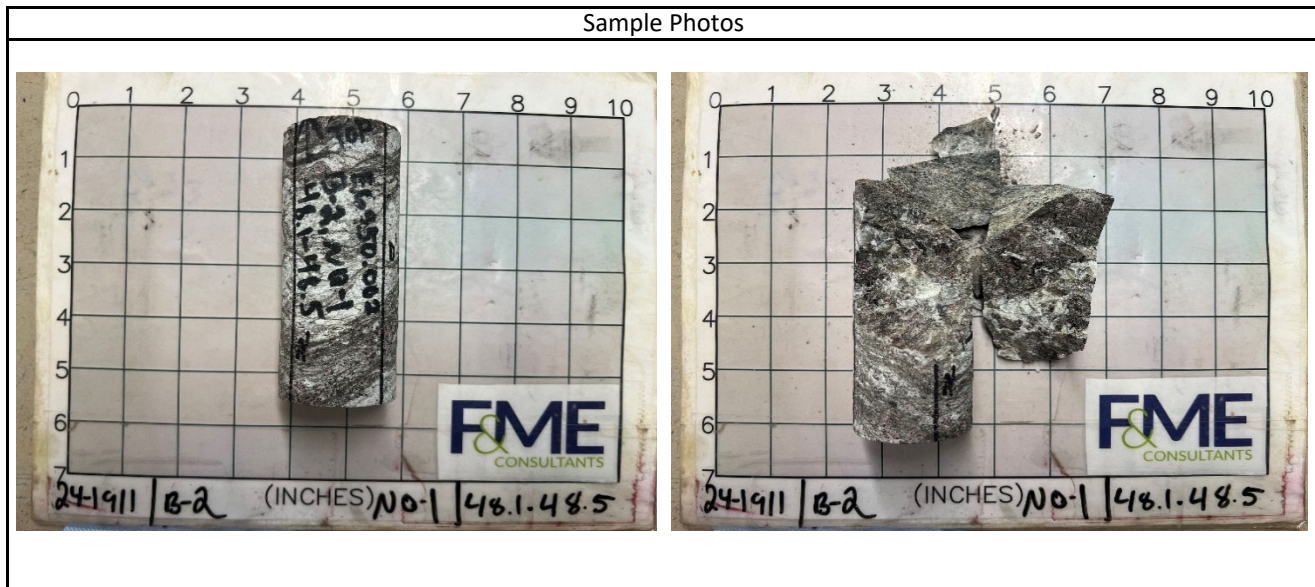
BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH (FT.)					
WATER CONTENT, W%					

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH (FT.)					
WATER CONTENT, W%					

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.872	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.33	Reviewed By	WAP
Boring	B-2	Unit Weight (pcf)	167.0	Core Size	NQ
Sample No.	NQ-1 / 24-1911	L/D Ratio	2.31	Recovery	89%
Depth	48.1' - 48.5'	Load Rate (psi/sec)	20	RQD	50%
Description	Dark Gray/White/Pink Para Gneiss				

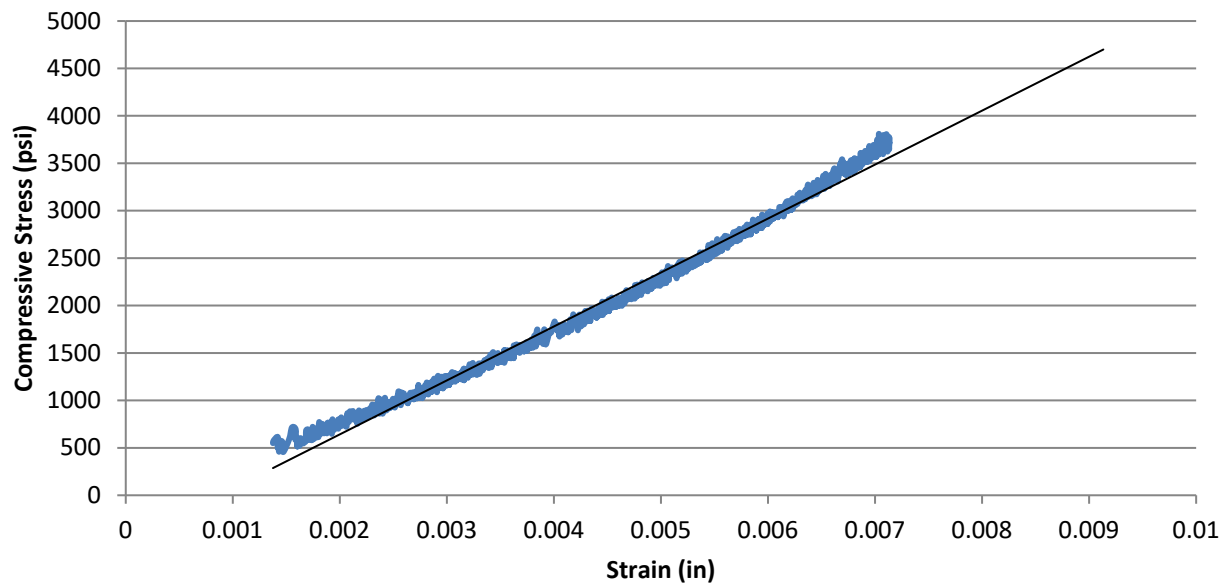
Test Data						
Percent of Failure Load	Strain (10 <sup>-6</sup> )		Load (lbs)	Compressive Stress (psi)	Secant Modulus x10 <sup>6</sup> (psi)	Poisson's Ratio
	Axial	Radial				
10%	Sample Preload Range					
20%	-2047	208	2,096	762	0.74	0.10
30%	-2944	324	3,145	1,143	0.78	0.11
40%	-3751	452	4,188	1,522	0.81	0.12
50%	-4182	531	5,249	1,907	0.91	0.13
60%	-5019	714	6,293	2,286	0.91	0.14
70%	-5654	904	7,344	2,668	0.94	0.16
80%	-6211	1088	8,393	3,049	0.98	0.18
90%	-6771	1479	9,445	3,431	1.01	0.22
100%	-7036	2167	10,489	3,811		



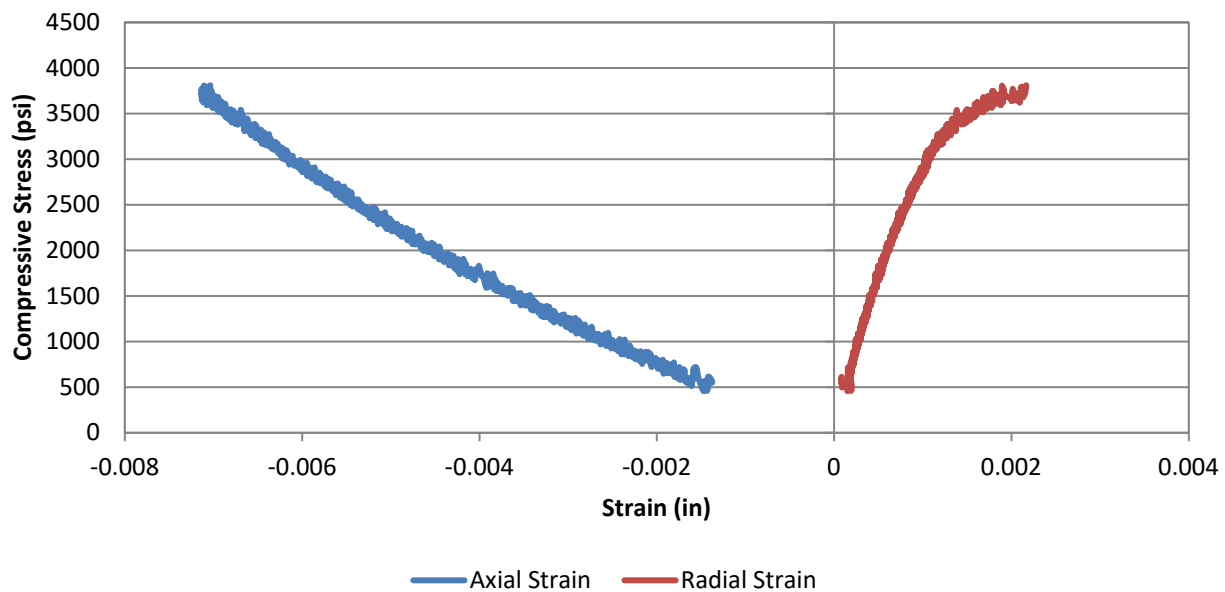
Test Results				
Unconfined Compressive Strength (psi)		3,810	Elastic Modulus (psi)	7.99E+05
			Poisson's Ratio in Elastic Range	0.11
Comments	Elastic range was taken as between 0.002 and 0.004 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.			

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.872	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.33	Reviewed By	WAP
Boring	B-2	Unit Weight (pcf)	167.0	Core Size	NQ
Sample No.	NQ-1 / 24-1911	L/D Ratio	2.31	Recovery	89%
Depth	48.1' - 48.5'	Load Rate (psi/sec)	20	RQD	50%
Description	Dark Gray/White/Pink Para Gneiss				

**Axial Stress vs. Strain**



**Stress vs. Strain**

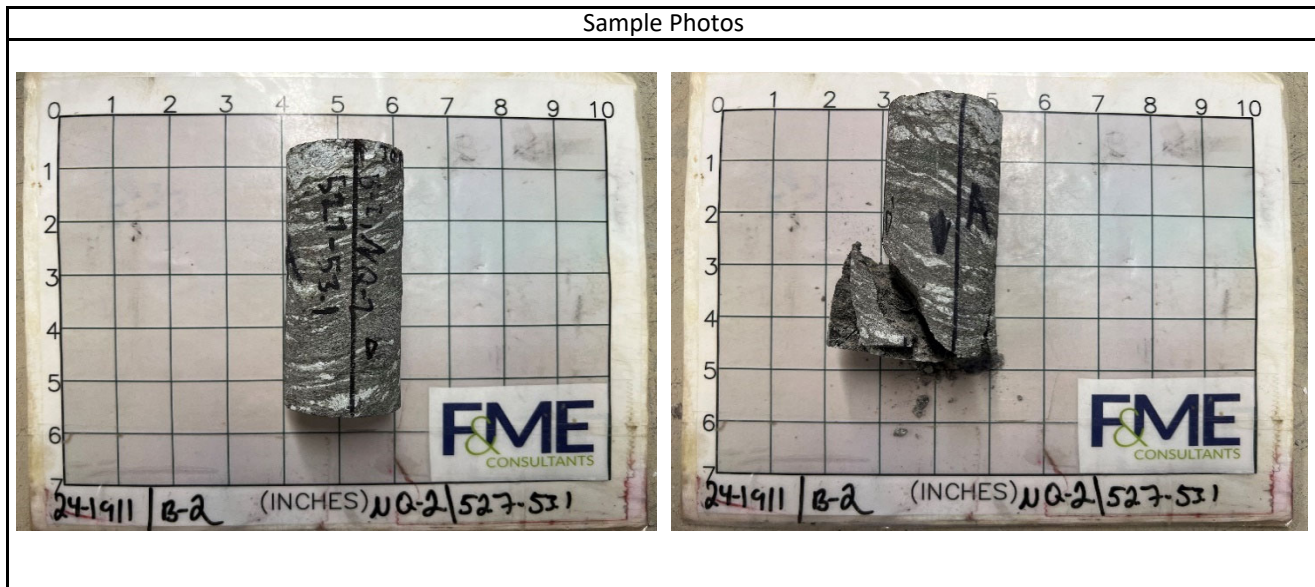




Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.87	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.163	Reviewed By	WAP
Boring	B-2	Unit Weight (pcf)	164.9	Core Size	NQ
Sample No.	NQ-2 / 24-1911	L/D Ratio	2.23	Recovery	93%
Depth	52.7' - 53.1'	Load Rate (psi/sec)	20	RQD	38%
Description	Black/White/Pink Para Gneiss				

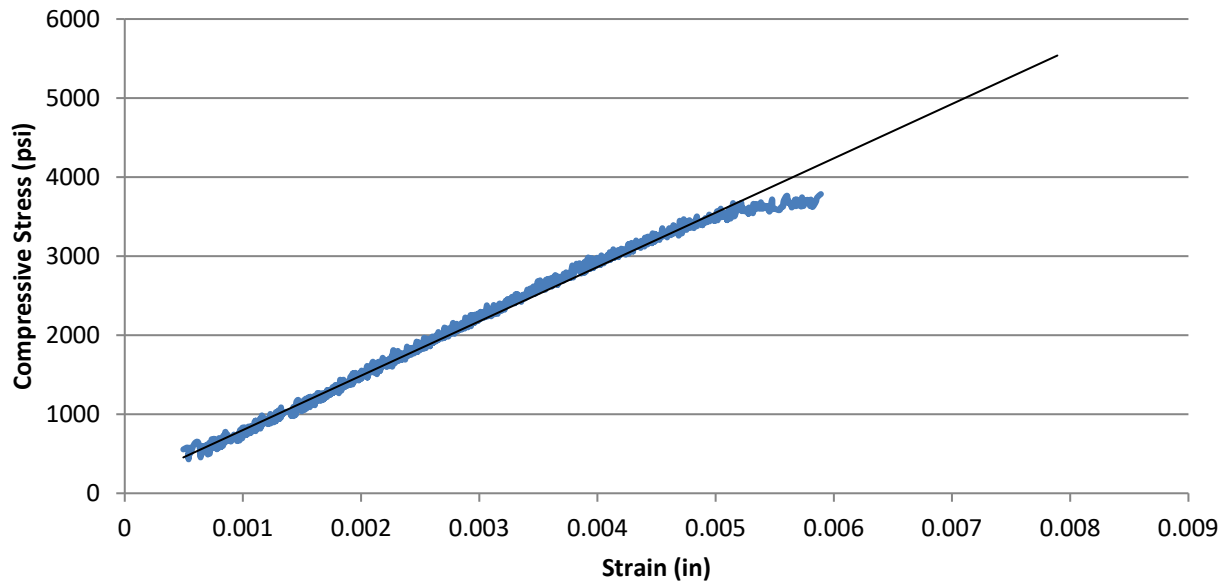
Test Data						
Percent of Failure Load	Strain (10 <sup>-6</sup> )		Load (lbs)	Compressive Stress (psi)	Secant Modulus x10 <sup>6</sup> (psi)	Poisson's Ratio
	Axial	Radial				
10%	Sample Preload Range					
20%	-1053	138	2,078	757	1.44	0.13
30%	-1522	193	3,115	1,134	1.49	0.13
40%	-1929	255	4,163	1,516	1.57	0.13
50%	-2497	381	5,200	1,893	1.52	0.15
60%	-3099	561	6,243	2,273	1.47	0.18
70%	-3616	777	7,275	2,649	1.47	0.21
80%	-4238	1074	8,321	3,030	1.43	0.25
90%	-6212	2179	9,355	3,406	1.10	0.35
100%	-5891	2159	10,395	3,785		



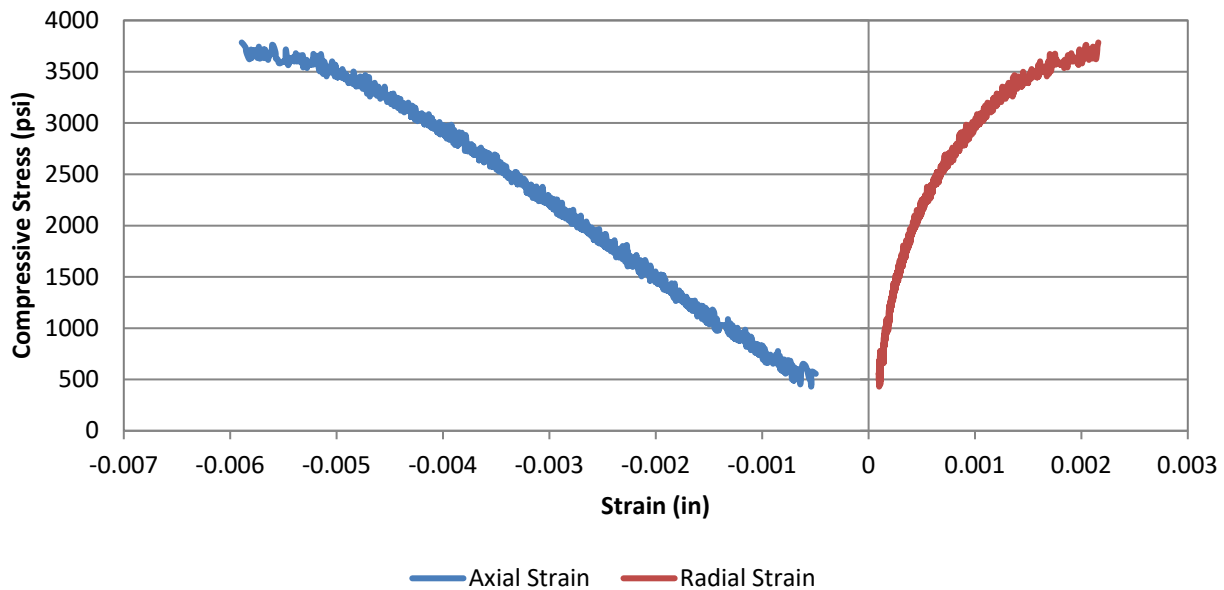
Test Results			
Unconfined Compressive Strength (psi)		3,790	Elastic Modulus (psi)
			1.48E+06
			Poisson's Ratio in Elastic Range
			0.14
Comments	Elastic range was taken as between 0.001 and 0.003 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.		

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.87	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.163	Reviewed By	WAP
Boring	B-2	Unit Weight (pcf)	164.9	Core Size	NQ
Sample No.	NQ-2 / 24-1911	L/D Ratio	2.23	Recovery	93%
Depth	52.7' - 53.1'	Load Rate (psi/sec)	20	RQD	38%
Description	Black/White/Pink Para Gneiss				

**Axial Stress vs. Strain**



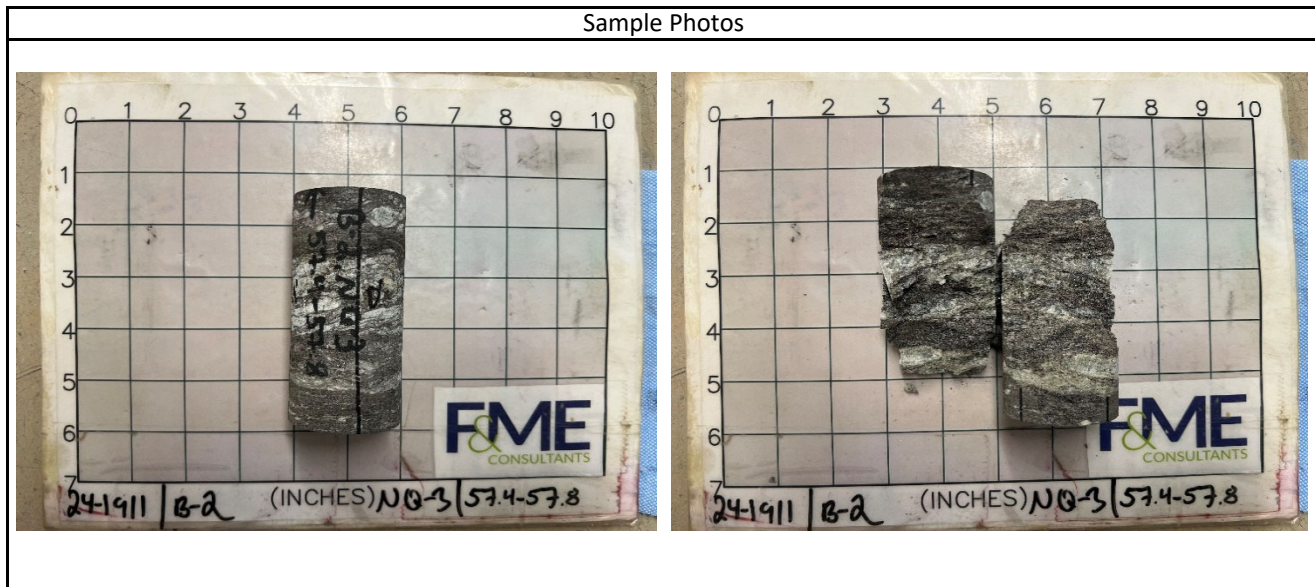
**Stress vs. Strain**



Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.87	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	3.85	Reviewed By	WAP
Boring	B-2	Unit Weight (pcf)	166.5	Core Size	NQ
Sample No.	NQ-3 / 24-1911	L/D Ratio	2.06	Recovery	89%
Depth	57.4' - 57.8'	Load Rate (psi/sec)	20	RQD	50%
Description	Black/White/Pink Para Gneiss				

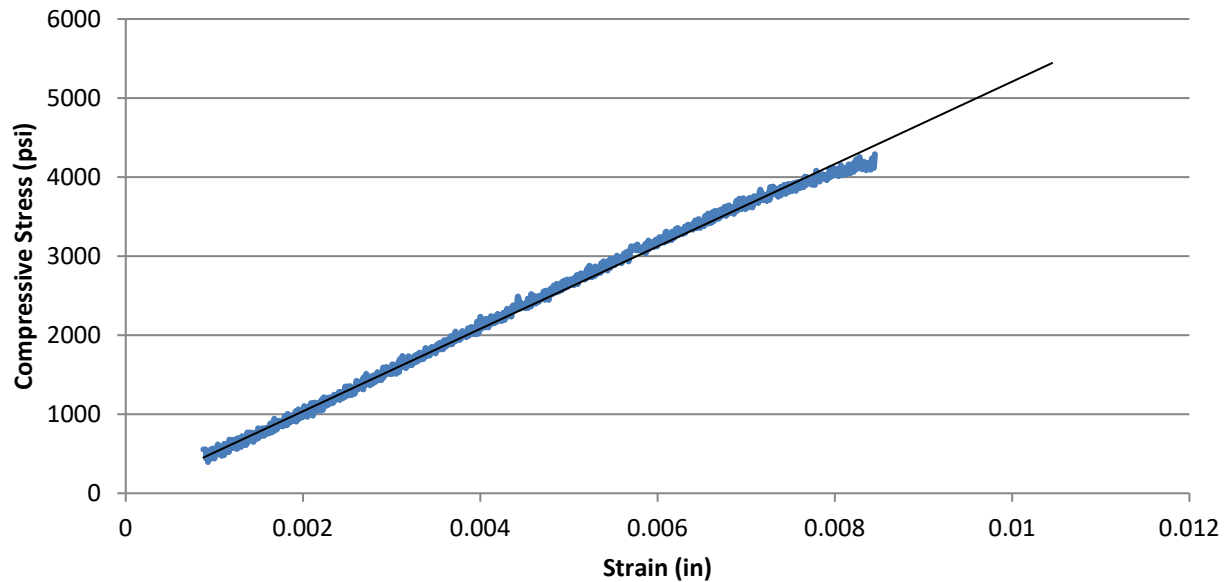
Test Data						
Percent of Failure Load	Strain (10 <sup>-6</sup> )		Load (lbs)	Compressive Stress (psi)	Secant Modulus x10 <sup>6</sup> (psi)	Poisson's Ratio
	Axial	Radial				
10%	Sample Preload Range					
20%	-1742	114	2,359	859	0.99	0.07
30%	-2549	212	3,536	1,288	1.01	0.08
40%	-3320	335	4,710	1,715	1.03	0.10
50%	-4120	500	5,884	2,143	1.04	0.12
60%	-4884	699	7,067	2,573	1.05	0.14
70%	-5672	990	8,242	3,001	1.06	0.17
80%	-6605	1481	9,419	3,429	1.04	0.22
90%	-7553	2208	10,599	3,859	1.02	0.29
100%	-8453	3350	11,777	4,288		



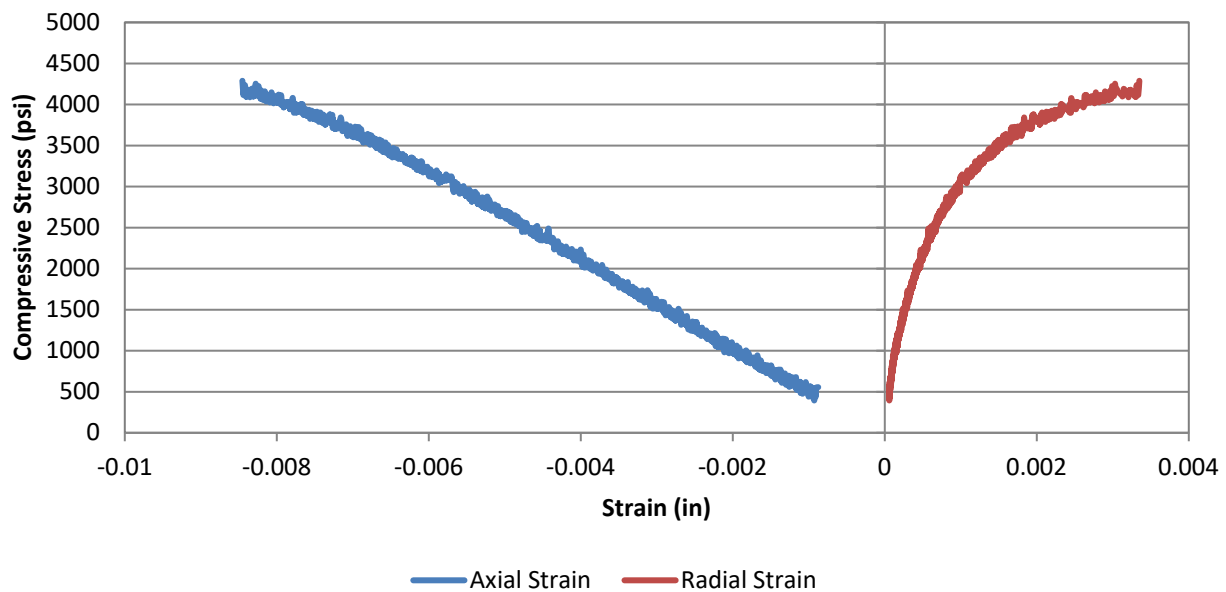
Test Results			
Unconfined Compressive Strength (psi)		<b>4,290</b>	Elastic Modulus (psi)
			1.03E+06
			Poisson's Ratio in Elastic Range
			0.09
Comments	Elastic range was taken as between 0.002 and 0.004 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.		

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.87	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	3.85	Reviewed By	WAP
Boring	B-2	Unit Weight (pcf)	166.5	Core Size	NQ
Sample No.	NQ-3 / 24-1911	L/D Ratio	2.06	Recovery	89%
Depth	57.4' - 57.8'	Load Rate (psi/sec)	20	RQD	50%
Description	Black/White/Pink Para Gneiss				

**Axial Stress vs. Strain**



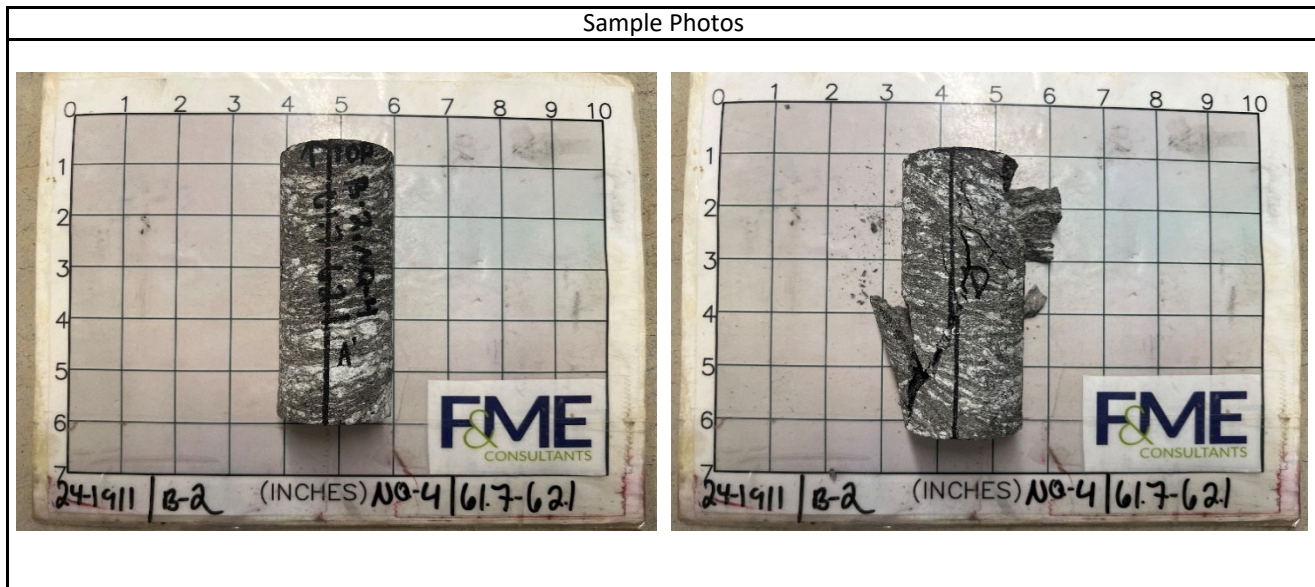
**Stress vs. Strain**



Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.87	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.403	Reviewed By	WAP
Boring	B-2	Unit Weight (pcf)	164.7	Core Size	NQ
Sample No.	NQ-4 / 24-1911	L/D Ratio	2.35	Recovery	100%
Depth	61.7' - 62.1'	Load Rate (psi/sec)	20	RQD	55%
Description	Black/White/Pink Para Gneiss				

Test Data						
Percent of Failure Load	Strain (10 <sup>-6</sup> )		Load (lbs)	Compressive Stress (psi)	Secant Modulus x10 <sup>6</sup> (psi)	Poisson's Ratio
	Axial	Radial				
10%	Sample Preload Range					
20%						
30%	-3075	259	2,432	885	0.58	0.08
40%	-3955	365	3,241	1,180	0.60	0.09
50%	-5038	534	4,053	1,476	0.59	0.11
60%	-6055	759	4,863	1,771	0.58	0.13
70%	-6986	972	5,671	2,065	0.59	0.14
80%	-7992	1262	6,477	2,358	0.59	0.16
90%	-9622	1849	7,291	2,655	0.55	0.19
100%	-10629	2266	8,103	2,950		

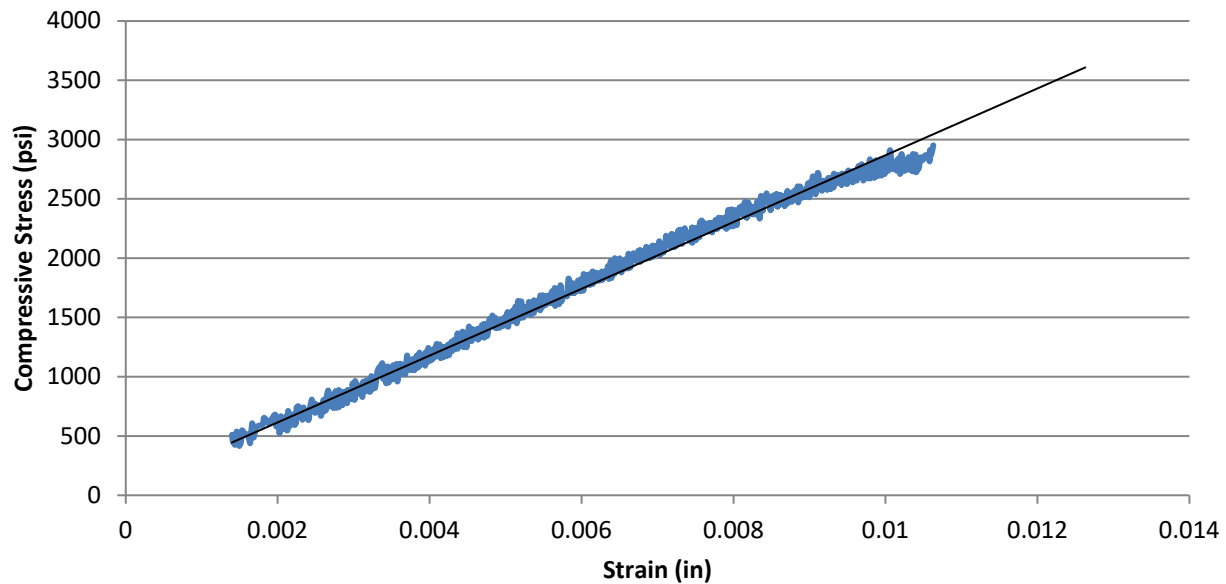


Test Results			
Unconfined Compressive Strength (psi)	2,950	Elastic Modulus (psi)	5.83E+05
		Poisson's Ratio in Elastic Range	0.09
Comments	Elastic range was taken as between 0.002 and 0.005 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.		

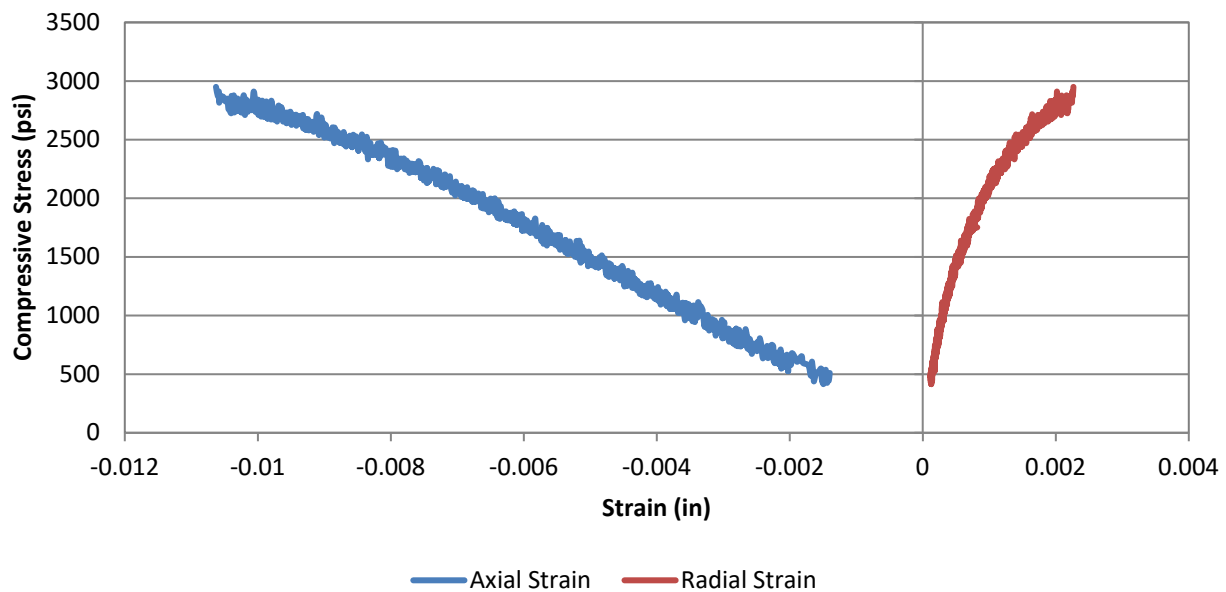


Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.87	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.403	Reviewed By	WAP
Boring	B-2	Unit Weight (pcf)	164.7	Core Size	NQ
Sample No.	NQ-4 / 24-1911	L/D Ratio	2.35	Recovery	100%
Depth	61.7' - 62.1'	Load Rate (psi/sec)	20	RQD	55%
Description	Black/White/Pink Para Gneiss				

**Axial Stress vs. Strain**



**Stress vs. Strain**

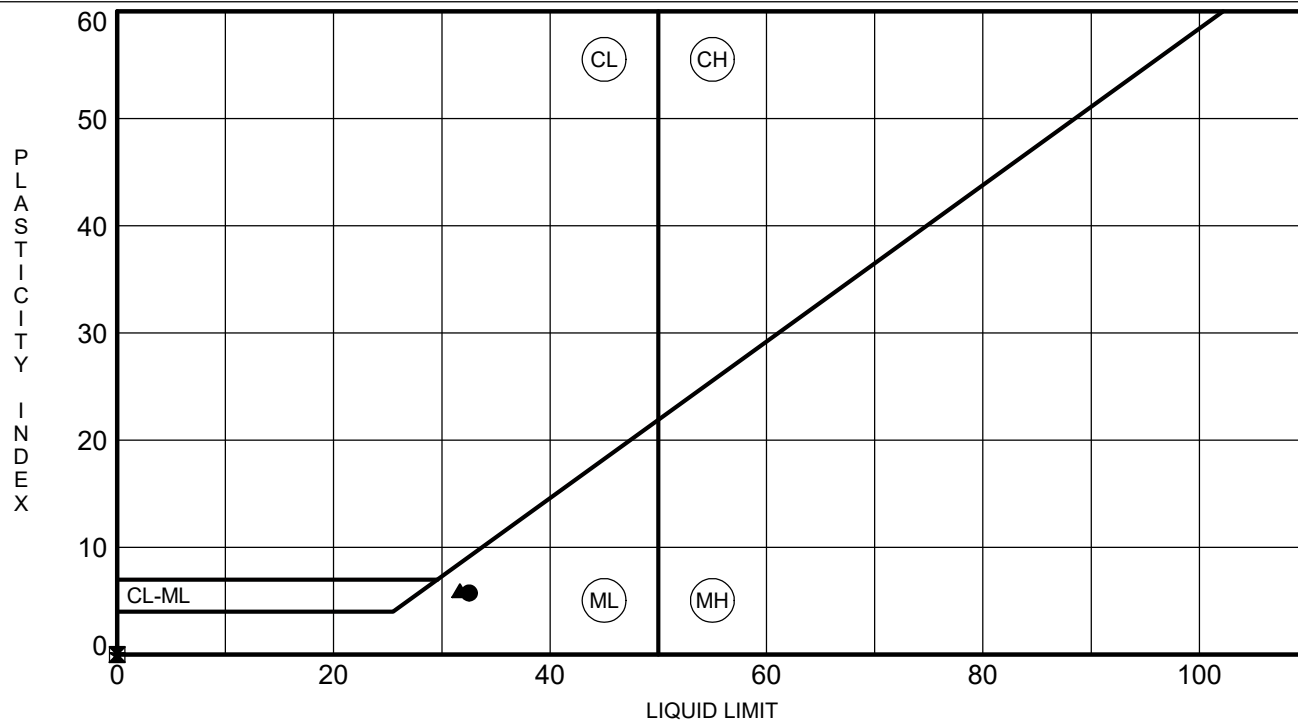






**PROJECT NAME** S-42-31 over Peters Creek

**PROJECT COUNTY** Spartanburg

[illegible]

ATTERBERG LIMITS E6950.002 - TASK 04212 - S-42-31 OVER Peters CREEK.GPJ SCDOT DATA TEMPLATE 01 30 2015.GDT 6/26/24

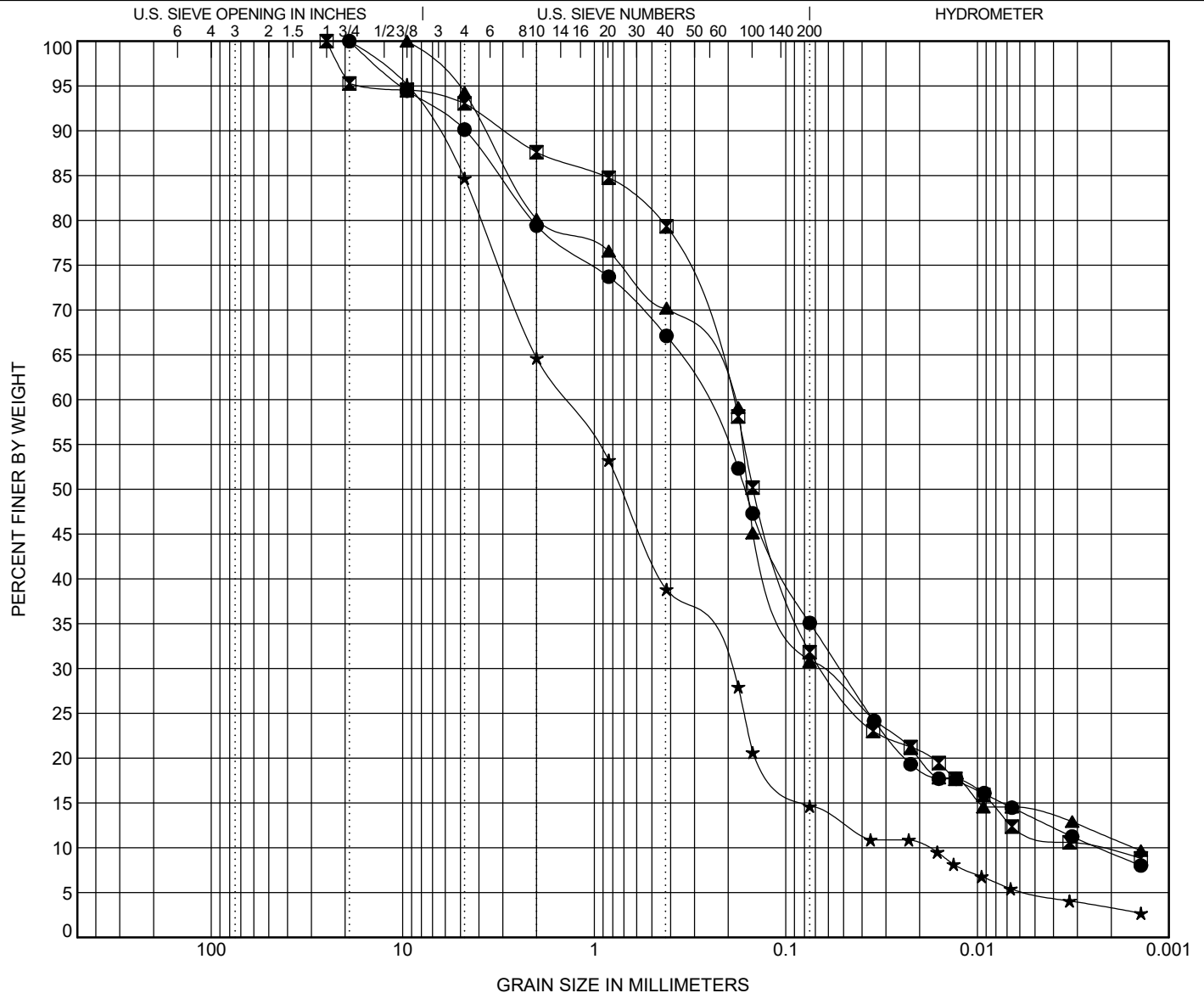


# GRAIN SIZE DISTRIBUTION

PROJECT ID E6950.002 - Task 04212

PROJECT NAME S-42-31 over Peters Creek

PROJECT COUNTY Spartanburg



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
● B-3	24.7	SILTY SAND (SM/A-2-4)	33	27	6	4.25	119.24
■ B-3	26.7	SILTY SAND (SM/A-2-4)	NP	NP	NP	8.66	77.22
▲ B-3	28.7	SILTY SAND (SM/A-2-4)	32	26	6	16.22	124.93
★ B-3	30.7	SILTY SAND with GRAVEL (SM/A-1-b)	NP	NP	NP	1.69	76.97

BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-3	24.7	19	0.277	0.052	0.002	9.9	55.0	21.8	13.2
■ B-3	26.7	25	0.191	0.064	0.002	7.0	61.2	20.2	11.7
▲ B-3	28.7	9.51	0.19	0.068	0.002	5.8	63.5	16.9	13.9
★ B-3	30.7	19	1.407	0.208	0.018	15.4	70.0	9.8	4.9

GRAIN SIZE E6950.002 - TASK 04212 - S-42-31 OVER PETERS CREEK.GPJ SCDOT DATA TEMPLATE\_01\_30\_2015.GDT 6/26/24

**F&ME CONSULTANTS, INC.****MOISTURE CONTENT DETERMINATION  
(AASHTO T265)**

<b>PROJECT:</b>	S-42-31 over Peters Creek	<b>F&amp;ME PROJECT No.:</b>	E6950.002 - Task 04212
<b>SAMPLE NUMBER:</b>	24-1912	<b>DATE SAMPLE RECEIVED:</b>	6/10/2024
<b>DESCRIPTION OF SOIL:</b>	Various		
<b>TESTED BY:</b>	JJ/TE	<b>DATE SETUP:</b>	6/11/2024
<b>WEIGHED BY:</b>	--	<b>DATE OF WEIGHING:</b>	6/12/2024

BORING NO.	B-3	B-3	B-3	B-3	
SAMPLE NO.	---	---	---		
SAMPLE DEPTH (FT.)	0-2 (22.7-24.7)	2-4 (24.7-26.7)	4-6 (26.7-28.7)	6-8 (28.7-30.7)	
WATER CONTENT, W%	16.0	18.6	21.2	27.3	

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH (FT.)					
WATER CONTENT, W%					

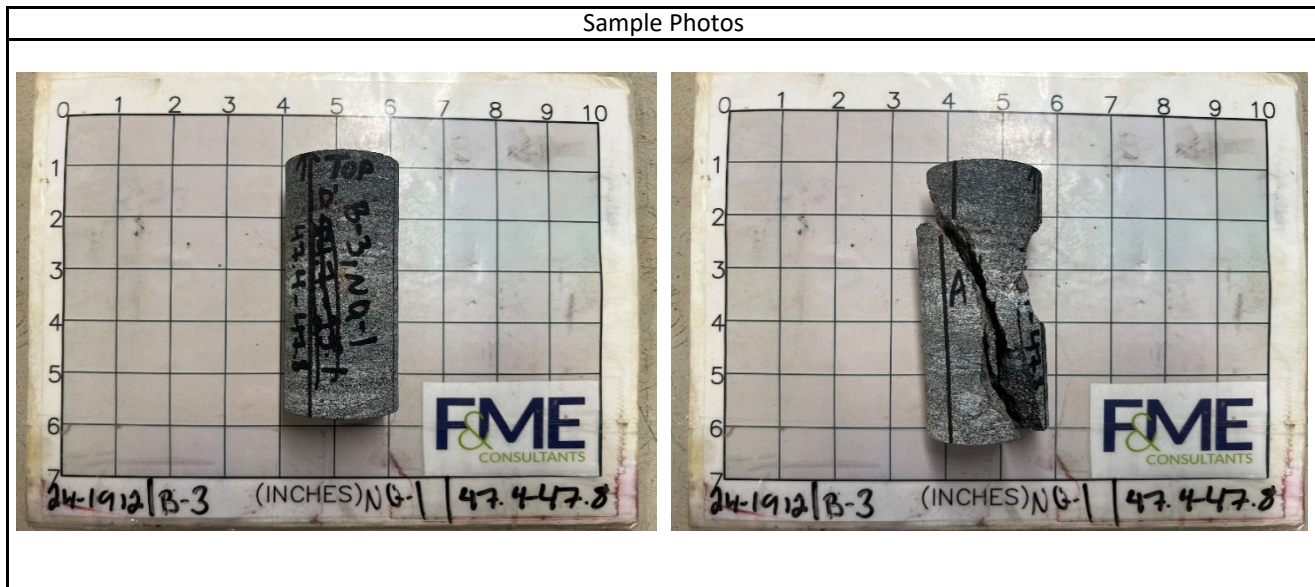
BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH (FT.)					
WATER CONTENT, W%					

BORING NO.					
SAMPLE NO.					
SAMPLE DEPTH (FT.)					
WATER CONTENT, W%					

Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.878	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.148	Reviewed By	WAP
Boring	B-3	Unit Weight (pcf)	170.7	Core Size	NQ
Sample No.	NQ-1 / 24-1912	L/D Ratio	2.21	Recovery	72%
Depth	47.4' - 47.8'	Load Rate (psi/sec)	20	RQD	15%
Description	Black/White/Pink Para Gneiss				

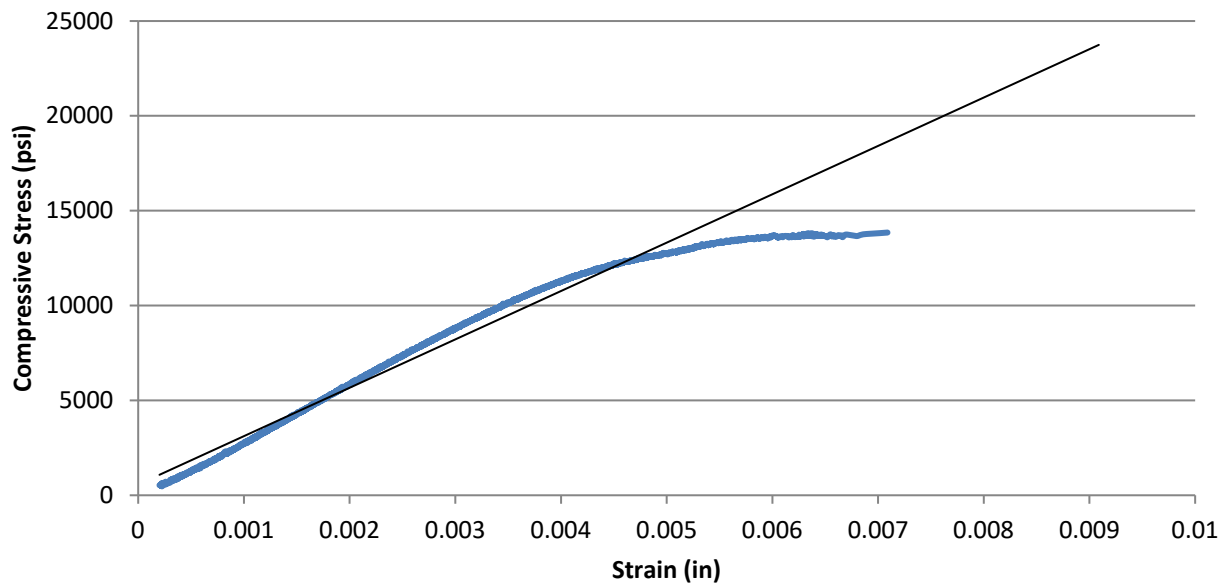
Test Data						
Percent of Failure Load	Strain ( $10^{-6}$ )		Load (lbs)	Compressive Stress (psi)	Secant Modulus $\times 10^6$ (psi)	Poisson's Ratio
	Axial	Radial				
10%	-541	145	3,825	1,381	5.10	0.27
20%	-1020	249	7,670	2,769	5.43	0.24
30%	-1471	374	11,504	4,153	5.65	0.25
40%	-1901	518	15,340	5,538	5.83	0.27
50%	-2354	707	19,175	6,922	5.88	0.30
60%	-2819	938	23,021	8,311	5.90	0.33
70%	-3332	1254	26,844	9,691	5.82	0.38
80%	-3899	1724	30,676	11,075	5.68	0.44
90%	-4732	3147	34,499	12,454	5.26	0.67
100%	-7089	18231	38,349	13,844		



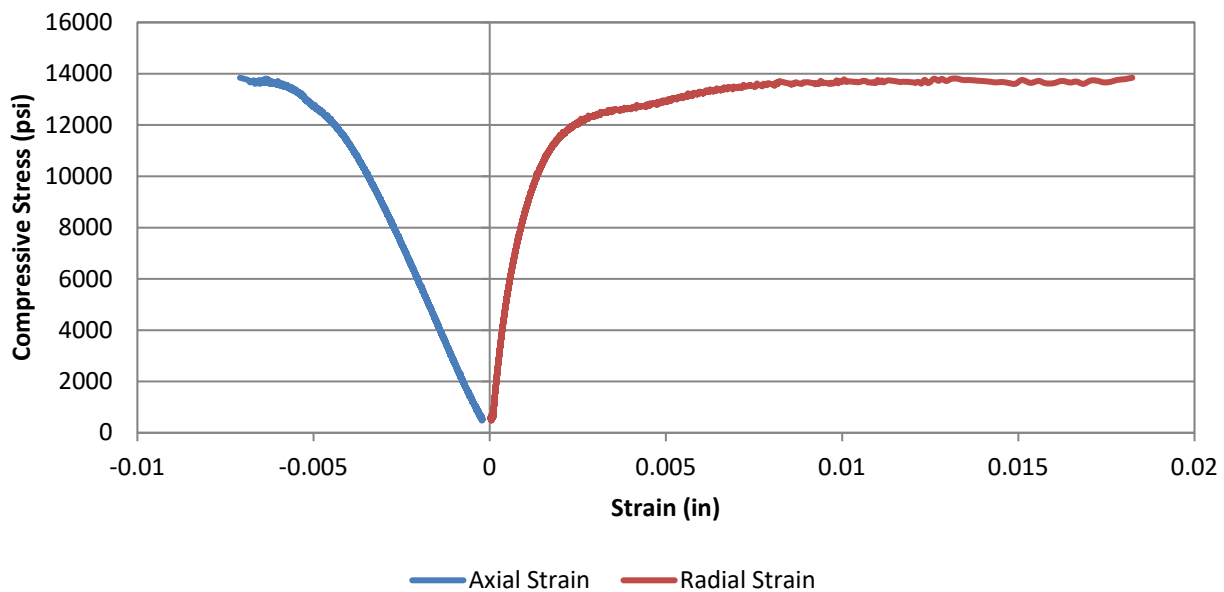
Test Results			
Unconfined Compressive Strength (psi)		<b>13,840</b>	Elastic Modulus (psi)
			5.78E+06
			Poisson's Ratio in Elastic Range
			0.28
Comments	Elastic range was taken as between 0.001 and 0.003 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.		

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.878	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.148	Reviewed By	WAP
Boring	B-3	Unit Weight (pcf)	170.7	Core Size	NQ
Sample No.	NQ-1 / 24-1912	L/D Ratio	2.21	Recovery	72%
Depth	47.4' - 47.8'	Load Rate (psi/sec)	20	RQD	15%
Description	Black/White/Pink Para Gneiss				

**Axial Stress vs. Strain**



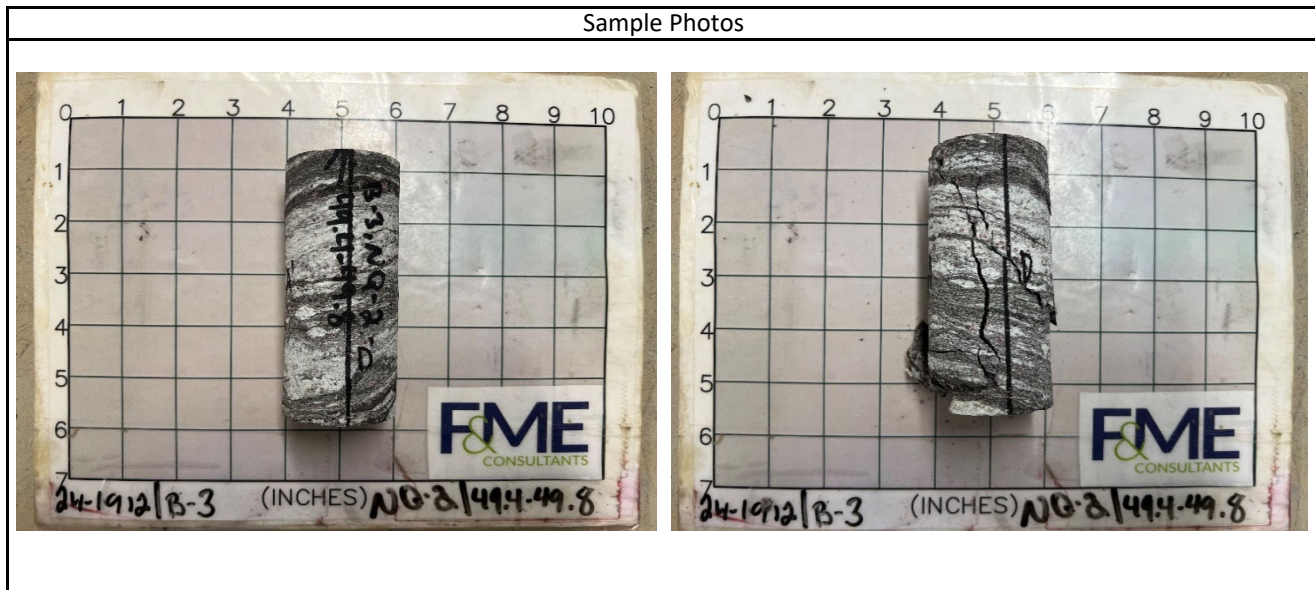
**Stress vs. Strain**



Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.871	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.266	Reviewed By	WAP
Boring	B-3	Unit Weight (pcf)	170.2	Core Size	NQ
Sample No.	NQ-2 / 24-1912	L/D Ratio	2.28	Recovery	100%
Depth	49.4' - 49.8'	Load Rate (psi/sec)	20	RQD	72%
Description	Black/White/Pink Para Gneiss				

Test Data						
Percent of Failure Load	Strain (10 <sup>-6</sup> )		Load (lbs)	Compressive Stress (psi)	Secant Modulus x10 <sup>6</sup> (psi)	Poisson's Ratio
	Axial	Radial				
10%	Sample Preload Range					
20%	-2937	101	2,493	907	0.62	0.03
30%	-4062	218	3,741	1,361	0.67	0.05
40%	-5029	354	4,999	1,818	0.72	0.07
50%	-6039	548	6,237	2,268	0.75	0.09
60%	-6900	759	7,483	2,722	0.79	0.11
70%	-7757	1036	8,733	3,176	0.82	0.13
80%	-8587	1366	9,980	3,630	0.85	0.16
90%	-9387	1832	11,229	4,084	0.87	0.20
100%	-10755	2764	12,474	4,537		

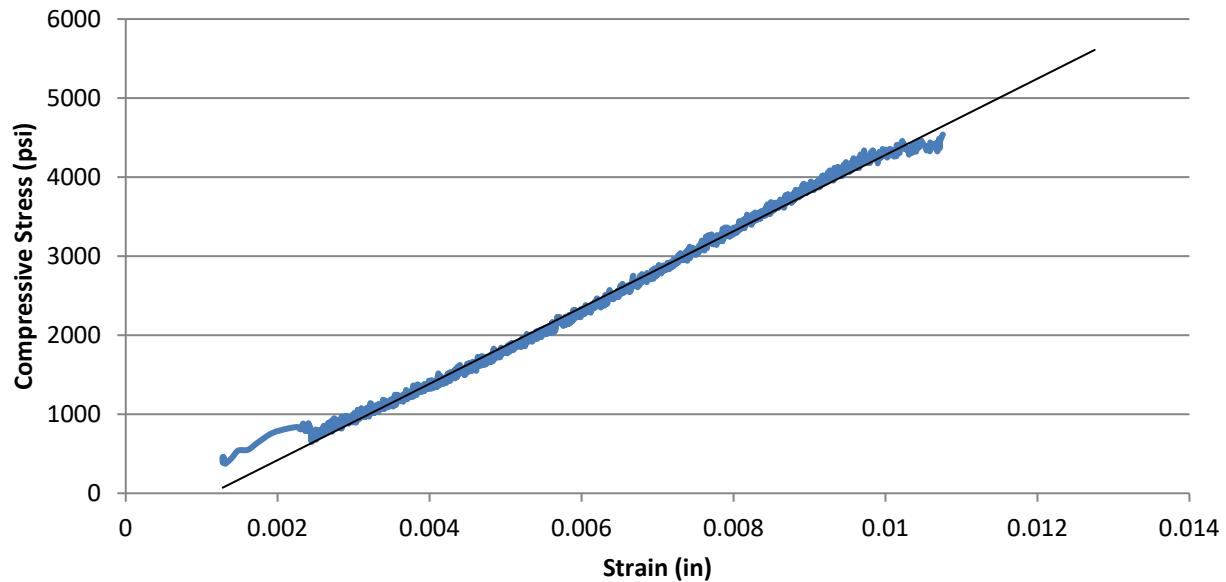


Test Results			
Unconfined Compressive Strength (psi)		4,540	Elastic Modulus (psi)
			6.81E+05
			Poisson's Ratio in Elastic Range
			0.05
Comments	Elastic range was taken as between 0.003 and 0.005 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.		

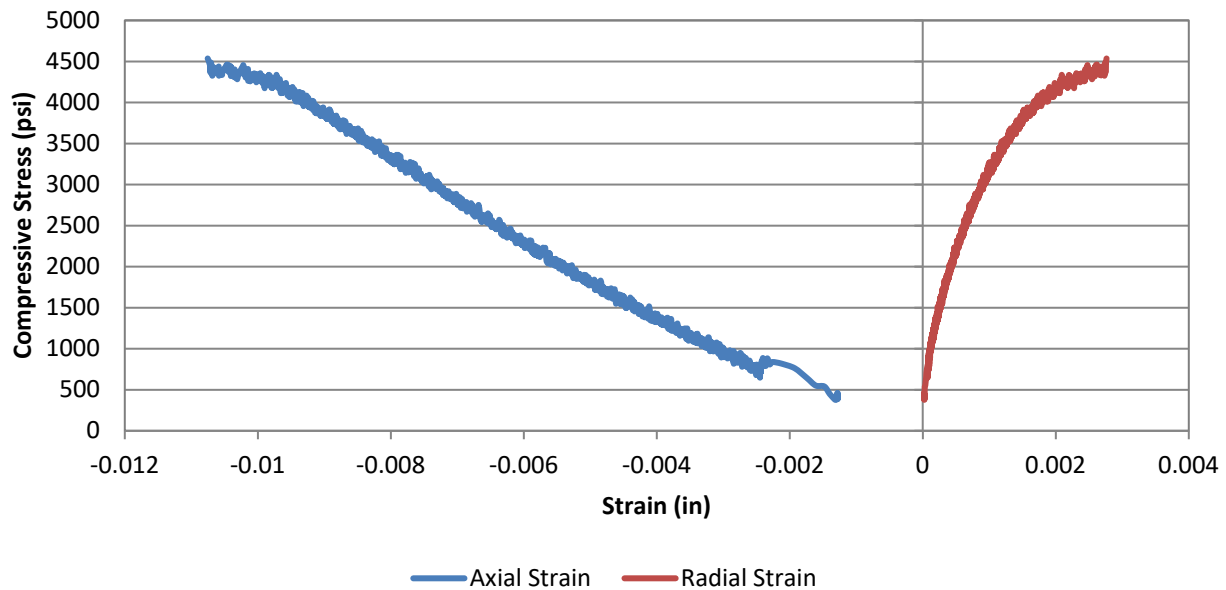


Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.871	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.266	Reviewed By	WAP
Boring	B-3	Unit Weight (pcf)	170.2	Core Size	NQ
Sample No.	NQ-2 / 24-1912	L/D Ratio	2.28	Recovery	100%
Depth	49.4' - 49.8'	Load Rate (psi/sec)	20	RQD	72%
Description	Black/White/Pink Para Gneiss				

**Axial Stress vs. Strain**



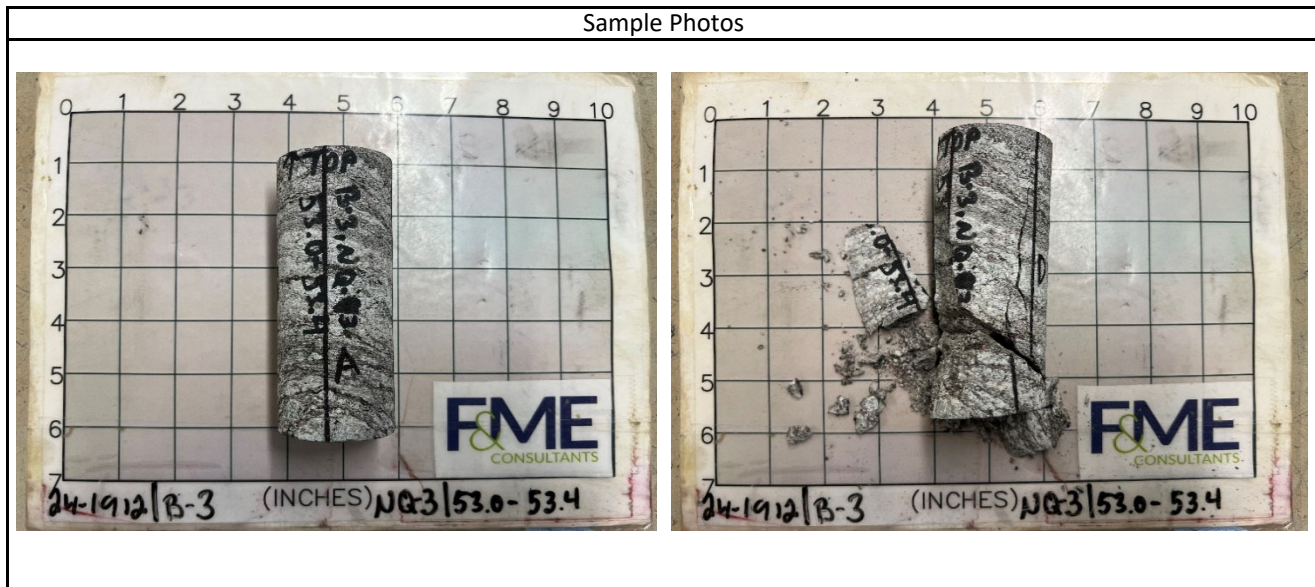
**Stress vs. Strain**



Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.87	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.464	Reviewed By	WAP
Boring	B-3	Unit Weight (pcf)	167.5	Core Size	NQ
Sample No.	NQ-3 / 24-1912	L/D Ratio	2.39	Recovery	95%
Depth	53.0' - 53.4'	Load Rate (psi/sec)	20	RQD	62%
Description	Black/White/Pink Para Gneiss				

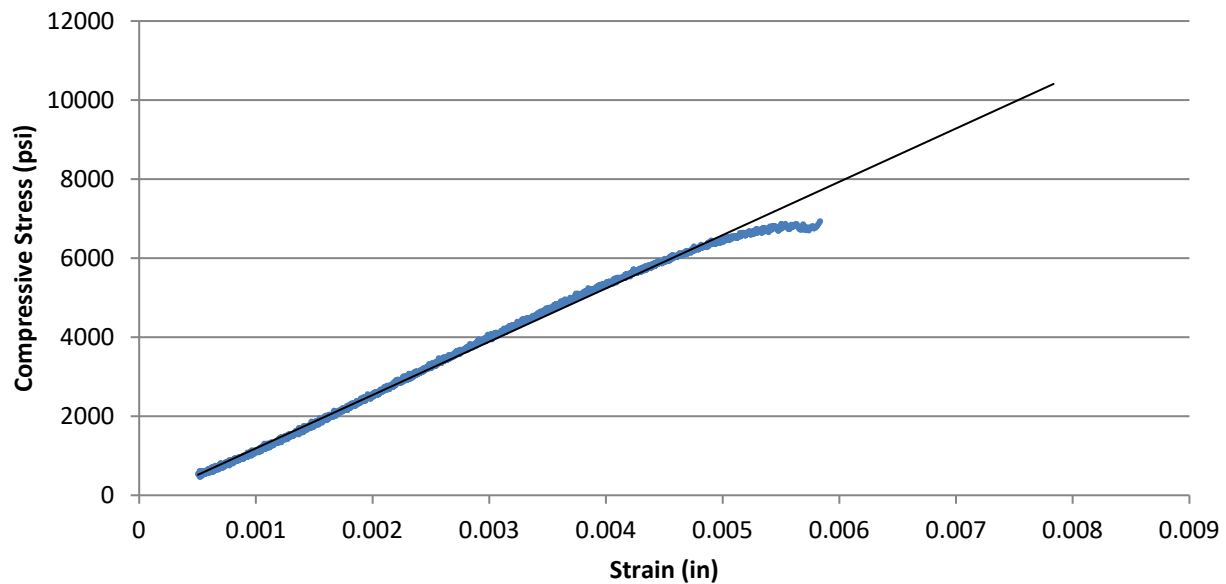
Test Data						
Percent of Failure Load	Strain ( $10^{-6}$ )		Load (lbs)	Compressive Stress (psi)	Secant Modulus $\times 10^6$ (psi)	Poisson's Ratio
	Axial	Radial				
10%	-671	31	1,906	694	2.07	0.05
20%	-1198	71	3,801	1,384	2.31	0.06
30%	-1704	122	5,699	2,075	2.43	0.07
40%	-2159	182	7,616	2,773	2.57	0.08
50%	-2594	254	9,519	3,466	2.67	0.10
60%	-3126	364	11,429	4,161	2.66	0.12
70%	-3626	494	13,334	4,855	2.68	0.14
80%	-4181	669	15,237	5,548	2.65	0.16
90%	-4792	900	17,141	6,241	2.61	0.19
100%	-5836	1279	19,046	6,935		



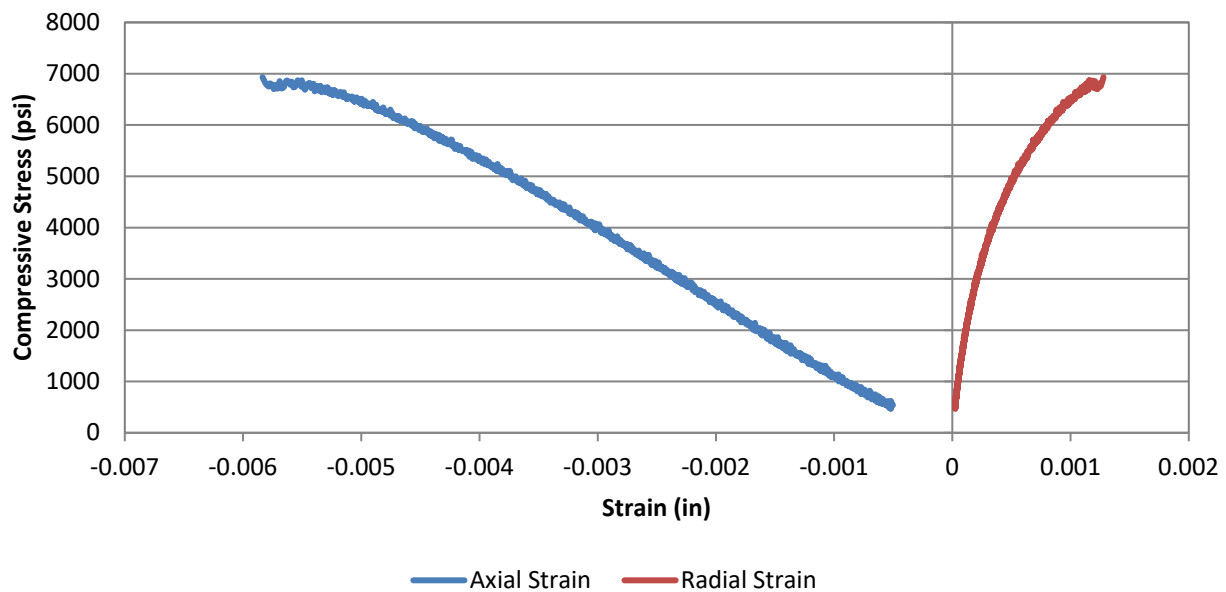
Test Results				
Unconfined Compressive Strength (psi)		6,940	Elastic Modulus (psi)	2.72E+06
			Poisson's Ratio in Elastic Range	0.11
Comments	Elastic range was taken as between 0.001 and 0.003 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.			

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.87	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.464	Reviewed By	WAP
Boring	B-3	Unit Weight (pcf)	167.5	Core Size	NQ
Sample No.	NQ-3 / 24-1912	L/D Ratio	2.39	Recovery	95%
Depth	53.0' - 53.4'	Load Rate (psi/sec)	20	RQD	62%
Description	Black/White/Pink Para Gneiss				

**Axial Stress vs. Strain**



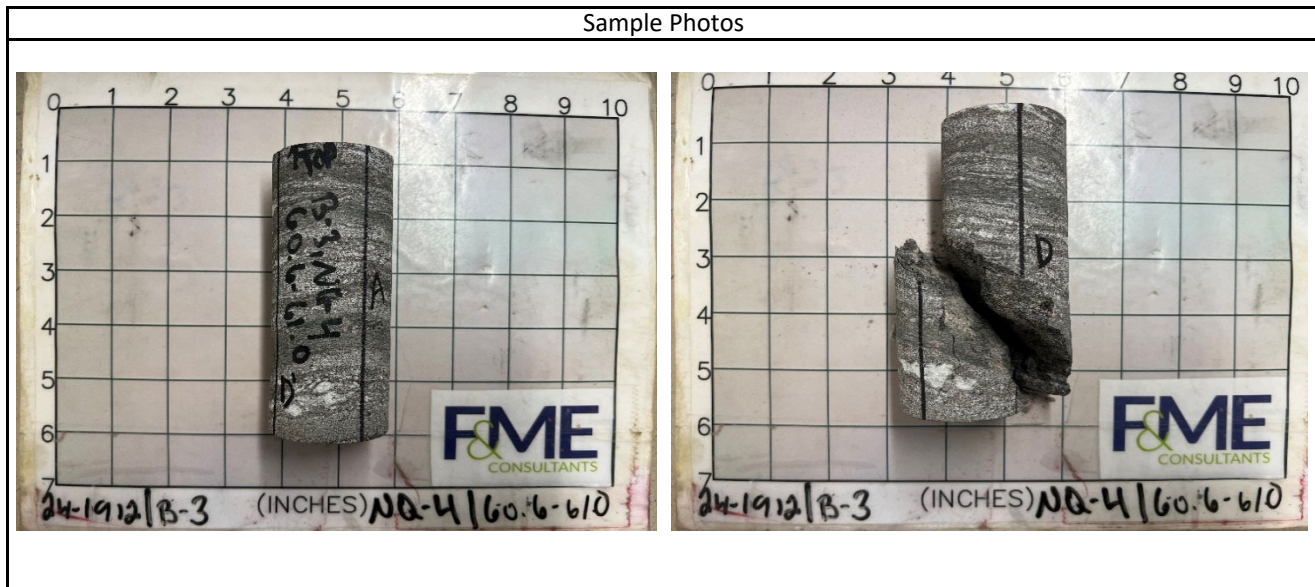
**Stress vs. Strain**



Compressive Strength and Elastic Moduli of Intact Rock Core Specimens  
ASTM D7012 - Method D / SC-T-39

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.872	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.376	Reviewed By	WAP
Boring	B-3	Unit Weight (pcf)	170.2	Core Size	NQ
Sample No.	NQ-4 / 24-1912	L/D Ratio	2.34	Recovery	100%
Depth	60.6' - 61.0'	Load Rate (psi/sec)	20	RQD	80%
Description	Black/White/Pink Para Gneiss				

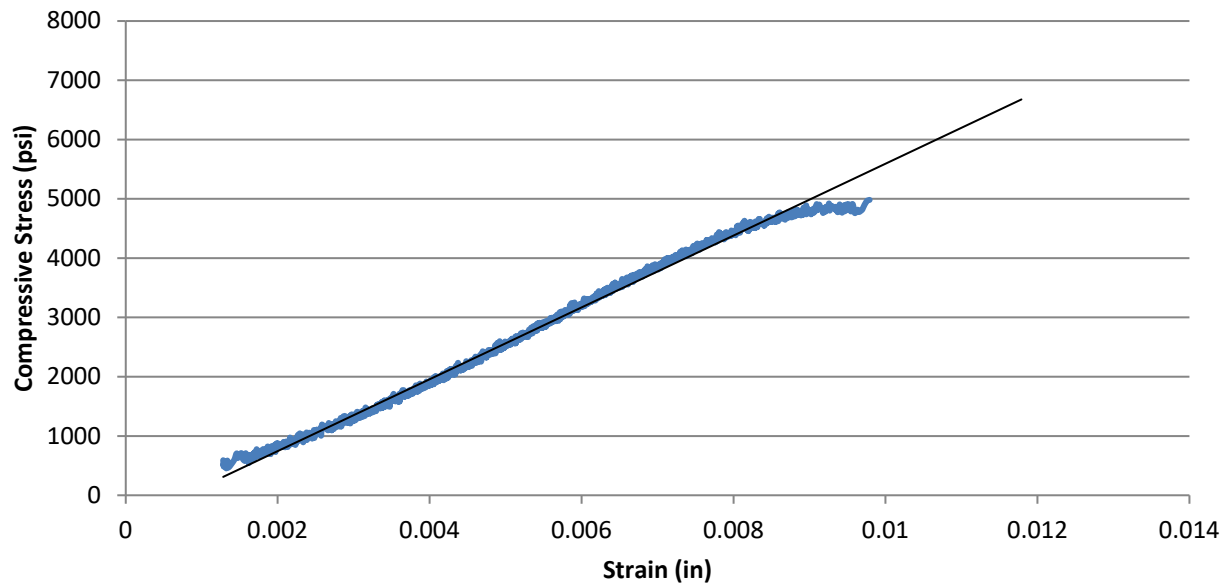
Test Data						
Percent of Failure Load	Strain (10 <sup>-6</sup> )		Load (lbs)	Compressive Stress (psi)	Secant Modulus x10 <sup>6</sup> (psi)	Poisson's Ratio
	Axial	Radial				
10%	Sample Preload Range					
20%	-2454	110	2,738	995	0.81	0.04
30%	-3343	175	4,110	1,493	0.89	0.05
40%	-4181	267	5,485	1,993	0.95	0.06
50%	-4986	393	6,857	2,491	1.00	0.08
60%	-5695	544	8,228	2,989	1.05	0.10
70%	-6452	763	9,597	3,487	1.08	0.12
80%	-7200	1065	10,964	3,984	1.11	0.15
90%	-10310	5159	12,344	4,485	0.87	0.50
100%	-9790	3802	13,712	4,982		



Test Results			
Unconfined Compressive Strength (psi)		4,980	Elastic Modulus (psi)
			8.75E+05
			Poisson's Ratio in Elastic Range
			0.05
Comments	Elastic range was taken as between 0.002 and 0.004 inches of axial strain. This range was chosen to avoid any non-linear behavior from the initial loading and the inflection point at the end of the elastic range.		

Project	S-42-31 over Peters Creek			Date	6/25/2024
Project No.	E6950.002 - Task 04212	Sample Diameter (in.)	1.872	Tested By	TP
SCDOT ID	04212	Sample Length (in.)	4.376	Reviewed By	WAP
Boring	B-3	Unit Weight (pcf)	170.2	Core Size	NQ
Sample No.	NQ-4 / 24-1912	L/D Ratio	2.34	Recovery	100%
Depth	60.6' - 61.0'	Load Rate (psi/sec)	20	RQD	80%
Description	Black/White/Pink Para Gneiss				

**Axial Stress vs. Strain**



**Stress vs. Strain**

