

Muhammad Nadeem Bhatti

Test Performed By:

Dr. /Engr.

S.Asad Ali Gillani

MP Projex(Engro Enfrashare)ID:EC1-SHW-06257,EC1-PPT-04991,EC1-LHR-05435,EC1-SKT-06526)

Client Reference: PCPi/Eng-04-B

Dated: 20-05-2022

SOM Lab Ref: CED/SOM/350(Page-1/3)

Dated: 20-05-2022

Test: Tension Test & Bend Test

Test Specification: ASTM-A 615

Sample Type: M S Deformed Bar

Gauge Length: 200 mm

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	kg/m	mm	mm	mm <sup>2</sup>	mm <sup>2</sup>	kN	kN	MPa	MPa	MPa	MPa	mm	mm	%	
1	0.923	12	12.26	113	118	66.50	83.00	588	564	734	704	22.5	200	11.3	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**BEND TEST:**

--	No Bend test performed	<b>Note:-</b>  Only One Sample Received and Tested

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Muhammad Nadeem Bhatti

Test Performed By:

Dr. /Engr.

S.Asad Ali Gillani

MP Projex(Engro Enfrashare)ID:EC1-SHW-06257,EC1-PPT-04991,EC1-LHR-05435,EC1-SKT-06526)

Client Reference: PCPi/Eng-05-B

Dated: 20-05-2022

SOM Lab Ref: CED/SOM/350(Page-2/3)

Dated: 20-05-2022

Test: Tension Test & Bend Test

Test Specification: ASTM-A 615

Sample Type: M S Deformed Bar

Gauge Length: 200 mm

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	kg/m	mm	mm	mm <sup>2</sup>	mm <sup>2</sup>	kN	kN	MPa	MPa	MPa	MPa	mm	mm	%	
1	1.551	16	15.88	201	198	115.70	127.00	575	585	632	642	27.5	200	13.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**BEND TEST:**

--	No Bend test performed	<b>Note:-</b>  Only One Sample Received and Tested

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Muhammad Nadeem Bhatti

**Test Performed By:** Dr. /Engr. S.Asad Ali Gillani

MP Projex(Engro Enfrashare)ID:EC1-SHW-06257,EC1-PPT-04991,EC1-LHR-05435,EC1-SKT-06526)

**Client Reference:** PCPi/Eng-06-B

**Dated:** 20-05-2022

**SOM Lab Ref:** CED/SOM/350(Page-3/3)

**Dated:** 20-05-2022

**Test:** Tension Test & Bend Test

**Test Specification:** ASTM-A 615

**Sample Type:** M S Deformed Bar

**Gauge Length:** 200 mm

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	kg/m	mm	mm	mm <sup>2</sup>	mm <sup>2</sup>	kN	kN	MPa	MPa	MPa	MPa	mm	mm	%	
1	2.254	20	19.12	314	287	125.00	163.70	398	436	521	571	30.0	200	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**BEND TEST:**

--	No Bend test performed	<b>Note:-</b>  Only One Sample Received and Tested

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Taslim Alam

Test Performed By: Dr. /Engr. Asad Ali Gillani

RE Nespak Zeroline Bridge, Kartarpur. (Const Of Bridge At Zeroline Kartarpur Sb Corridor)

Client Reference: 4371/021/TA/01/036

SOM Lab

Ref: 345 (Page-1/1)

Dated: 20-05-2022

Dated: 20-05-2022

Test: Tension Test & Bend Test

Test Specification: ASTM-A-615

Gauge Length: 8 inch

Sample Type: Deformed Bar (FF Steel)

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.536	8	0.974	0.79	0.745	24.64	32.90	68790	72940	91840	97380	1.40	8.0	17.5	
2	2.545	8	0.976	0.79	0.748	24.74	33.15	69070	72950	92550	97740	1.50	8.0	18.8	
3	0.603	4	0.475	0.20	0.177	5.71	7.92	62950	71130	87340	98690	1.20	8.0	15.0	
4	0.598	4	0.473	0.20	0.176	5.73	7.92	63180	71790	87340	99250	1.10	8.0	13.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

**BEND TEST:**

# 8	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  Only Six Samples Received and Tested
# 4	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Muhammad Akhtar Brigadier ®  
 PD New Metro City Housing Scheme, Sara-I-Alamgir

Test Performed By: Dr. /Engr. Asad Ali Gillani

Client Reference: PD/NMC/22/103

SOM Lab

Ref: 346 (Page-1/1)

Dated: 17-05-2022

Dated: 20-05-2022

Test: Tension Test & Bend Test

Test Specification: ASTM-A-615

Gauge Length: 8 inch

Sample Type:

Deformed Bar (Kamran Steel)

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.516	6	0.754	0.44	0.446	13.76	19.67	68980	68050	98610	97290	1.30	8.0	16.3	
2	0.650	4	0.493	0.20	0.191	6.22	8.43	68570	71800	92960	97340	1.00	8.0	12.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**BEND TEST:**

# 6	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  Only Four Samples Received and Tested
# 4	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Asim Chiragh

Test Performed By: Dr. /Engr. Asad Ali Gillani

RE Nespak Lhr.(Widening/Impro Of Carpet Rd From Adda W/S Sargodha Rd To KhanQah Bypass)

Client Reference: 3811/103/ADP/AC/49

SOM Lab

Ref: 347 (Page-1/1)

Dated: 26-04-2022

Dated: 20-05-2022

Test: Tension Test & Bend Test

Test Specification: ASTM-A-615

Gauge Length: 8 inch

Sample Type: Deformed Bar

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.544	8	0.976	0.79	0.748	21.00	34.42	58630	61920	96100	101500	1.30	8.0	16.3	
2	2.557	8	0.978	0.79	0.751	20.90	34.88	58340	61370	97380	102440	1.20	8.0	15.0	
3	1.510	6	0.752	0.44	0.444	16.53	19.75	82880	82130	98970	98080	1.20	8.0	15.0	
4	1.510	6	0.752	0.44	0.444	16.82	20.15	84310	83550	101020	100110	1.40	8.0	17.5	
5	0.652	4	0.494	0.20	0.192	6.63	8.74	73070	76110	96340	100350	1.00	8.0	12.5	
6	0.657	4	0.496	0.20	0.193	6.83	8.69	75320	78050	95770	99250	1.10	8.0	13.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

**BEND TEST:**

# 8	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  Only Nine Samples Received and Tested
# 6	Sample bend through 180 degrees Satisfactorily without any crack	
# 4	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Javaid Iqbal  
Riz Builders Lahore.(Din Plaza,Johar Town,Lahore)

Test Performed By: Dr. /Engr. Asad Ali Gillani

Client Reference: Nil

SOM Lab

Ref: 348 (Page-1/1)

Dated: 20-05-2022

Dated: 20-05-2022

Test: Tension Test & Bend Test

Test Specification: ASTM-A-615

Gauge Length: 8 inch

Sample Type: Deformed Bar

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.708	8	1.007	0.79	0.796	24.16	34.30	67450	66940	95760	95040	1.60	8.0	20.0	
2	1.523	6	0.755	0.44	0.448	13.48	18.50	67550	66340	92740	91080	1.40	8.0	17.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**BEND TEST:**

# 8	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  Only Four Samples Received and Tested
# 6	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Waqas  
Lahore

Test Performed By: Dr. /Engr. Asad Ali Gillani

Client Reference: Nil

SOM Lab

Ref: 349 (Page-1/1)

Dated: 18-05-2022

Dated: 20-05-2022

Test: Tension Test & Bend Test

Test Specification: ASTM-A-615

Gauge Length: 8 inch

Sample Type: Deformed Bar

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	0.679	4	0.505	0.20	0.200	5.93	8.89	65420	65420	98020	98020	1.20	8.0	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**BEND TEST:**

--	No Bend test performed	<b>Note:-</b>  Only One Sample Received and Tested

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)



Muhammad Irfan

Test Performed By:

Dr. /Engr. Asad Ali Gillani

Project Engr. DHA Gujranwala.( Const. Works Of Subject Sector G)

Client Reference: 111/15/PE/RS/Pkg-2B/389

SOM Lab

Ref: 352 (Page-1/1)

Dated: 19-05-2022

Dated: 20-05-2022

Test: Tension Test & Bend Test

Test Specification:

ASTM-A-615

Gauge Length: 8 inch

Sample Type:

Deformed Bar (Batala Steel)

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.658	8	0.997	0.79	0.781	22.50	34.40	62810	63530	96050	97150	1.30	8.0	16.3	
2	2.656	8	0.997	0.79	0.781	22.50	34.63	62810	63530	96670	97790	1.20	8.0	15.0	
3	1.479	6	0.744	0.44	0.435	13.99	20.44	70100	70910	102450	103620	1.10	8.0	13.8	
4	1.481	6	0.744	0.44	0.435	13.81	20.29	69240	70030	101680	102850	1.10	8.0	13.8	
5	0.655	4	0.494	0.20	0.192	6.29	8.82	69360	72250	97230	101290	0.90	8.0	11.3	
6	0.657	4	0.496	0.20	0.193	6.29	8.99	69360	71870	99150	102740	0.90	8.0	11.3	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

**BEND TEST:**

# 8	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  Only Nine Samples Received and Tested
# 6	Sample bend through 180 degrees Satisfactorily without any crack	
# 4	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

**Test Performed By:** Dr. Nauman Khurram

Irshad Ahmad Bohio  
The Engineer, Basol Dam Project,  
ACE Limited Karachi.  
(Construction Of Basol Dam Project, Omara Gwadar)

**Client Reference:** R05/BDP/1717

Dated: 25-03-2022

**SOM Laboratory Reference :** CED/SOM/255-351(Page-1/4)

Dated: 26-04-2022

**Test:** Stiffness, Tensile ,Flexure & Compression Test

**Sample Type:** GRP Pipe 800mm Diameter ( Bin Tariq (Pvt.) Ltd- Lahore)

**Stiffness Test (Parallel Plate Loading Test as per ASTM-D-2412)**

(GRP Pipe 800mm)

Total Length = 305 mm, External Diameter = 820 mm, Wall Thickness = 12.15 mm

Percentage Reduction in Diameter of Sample	Compression Load, P (kN)	Stiffness (Corrected)			Remarks
		Pipe Stiffness (kN/m <sup>2</sup> )	Stiffness Factor (N-m)	Specific Tangential initial Stiffness (N/m <sup>2</sup> )	
5%	4.7	385.24	592	6589	No Crack Observed

(GRP Pipe 800mm)

Total Length = 305 mm, External Diameter = 820 mm, Wall Thickness = 12.2 mm

Percentage Reduction in Diameter of Sample	Compression Load, P (kN)	Stiffness (Corrected)			Remarks
		Pipe Stiffness (kN/m <sup>2</sup> )	Stiffness Factor (N-m)	Specific Tangential initial Stiffness (N/m <sup>2</sup> )	
5%	2.2	339	592	6589	No Crack Observed

**Note:** Please always confirm the results of above report on web: [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

**Test Performed By:** Dr. Nauman Khurram

Irshad Ahmad Bohio  
The Engineer, Basol Dam Project,  
ACE Limited Karachi.  
(Construction Of Basol Dam Project, Omara Gwadar)

**Client Reference:** R05/BDP/1717

Dated: 25-03-2022

**SOM Laboratory Reference :** CED/SOM/255-351(Page-2/4)

Dated: 26-04-2022

**Test:** Stiffness, Tensile ,Flexure & Compression Test

**Sample Type:** GRP Pipe 800mm Diameter ( Bin Tariq (Pvt.) Ltd- Lahore)

### Tensile Test

Sample Type	Size of Sample (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
A 01	30.7 x 12.1	7.55	20.59
A 02	30.4 x 12.1	7.32	19.90
A 03	27.9 x 12	6.85	20.46
A 04	29.9 x 12.1	6.73	18.60
A 05	27.8 x 12.1	6.50	19.32
A 06	27.2 x 12.2	6.50	19.59
A 07	29.8 x 12.1	6.45	17.89
A 08	30.4 x 12.2	8.02	21.62
A 09	30.0 x 12.2	7.15	19.54
A 10	29.0 x 12.1	7.95	22.66

**Note:** Please always confirm the results of above report on web: [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

**Test Performed By:** Dr. Nauman Khurram

Irshad Ahmad Bohio  
The Engineer, Basol Dam Project,  
ACE Limited Karachi.  
(Construction Of Basol Dam Project, Omara Gwadar)

**Client Reference:** R05/BDP/1717

Dated: 25-03-2022

**SOM Laboratory Reference :** CED/SOM/255-351(Page-3/4)

Dated: 26-04-2022

**Test:** Stiffness, Tensile ,Flexure & Compression Test

**Sample Type:** GRP Pipe 800mm Diameter ( Bin Tariq (Pvt.) Ltd- Lahore)

### Compression Test

Sample #	Size of Sample (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
1	32.0 x 13.8	26.05	58.99
2	32.0 x 14.6	29.5	63.14
3	31.85 x 13.5	29.5	68.61
4	31.85 x 12.5	23.2	58.27
5	32.2 x 13.3	38.82	90.64
6	31.5 x 11.4	22.52	62.71
7	32.0 x 13.4	25.35	59.12

**Note:** Please always confirm the results of above report on web: [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

**Test Performed By:** Dr. Nauman Khurram

Irshad Ahmad Bohio  
The Engineer, Basol Dam Project,  
ACE Limited Karachi.  
(Construction Of Basol Dam Project, Omara Gwadar)

**Client Reference:** R05/BDP/1717

Dated: 25-03-2022

**SOM Laboratory Reference :** CED/SOM/255-351(Page-4/4)

Dated: 26-04-2022

**Test:** Stiffness, Tensile ,Flexure & Compression Test

**Sample Type:** GRP Pipe 800mm Diameter ( Bin Tariq (Pvt.) Ltd- Lahore)

**Span Length:** 192 mm

### Flexure Test

Sample Type	Size of Sample (Width X Thickness) (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
B 01	31.3 x 12.25	0.050	6.13
B 02	31.63 x 12.23	0.040	4.87
B 03	31.5 x 12.18	0.035	4.31
B 04	31.5 x 12.4	0.075	8.92
B 05	31.8 x 12.2	0.295	35.9

**Note:** Please always confirm the results of above report on web: [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

**Test Performed By:** Dr. Asad Ali Gillani

Irshad Ahmad Bohio  
The Engineer, Basol Dam Project,  
ACE Limited Karachi.  
(Construction Of Basol Dam Project, Omara Gwadar)

**Client Reference:** R05/BDP/1717

Dated: 25-03-2022

**SOM Laboratory Reference :** CED/SOM/255-351(Page-1/4)

Dated: 26-04-2022

**Test:** Stiffness, Tensile ,Flexure & Compression Test

**Sample Type:** GRP Pipe 800mm Diameter ( Bin Tariq (Pvt.) Ltd- Lahore)

**Stiffness Test (Parallel Plate Loading Test as per ASTM-D-2412)**

(Sample 1, GRP Pipe 800mm)

Total Length = 305 mm, External Diameter = 820 mm, Wall Thickness = 12.15 mm

Percentage Reduction in Diameter of Sample	Compression Load, P (kN)	Stiffness (Corrected)			Remarks
		Pipe Stiffness (kN/m <sup>2</sup> )	Stiffness Factor (N-m)	Specific Tangential initial Stiffness (N/m <sup>2</sup> )	
5%	4.7	406	3984	7905	No Crack Observed

(Sample 2, GRP Pipe 800mm)

Total Length = 305 mm, External Diameter = 820 mm, Wall Thickness = 12.2 mm

Percentage Reduction in Diameter of Sample	Compression Load, P (kN)	Stiffness (Corrected)			Remarks
		Pipe Stiffness (kN/m <sup>2</sup> )	Stiffness Factor (N-m)	Specific Tangential initial Stiffness (N/m <sup>2</sup> )	
5%	4.0	345	3389	6730	No Crack Observed

**Note:** Please always confirm the results of above report on web: [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

**Test Performed By:** Dr. Nauman Khurram

Irshad Ahmad Bohio  
The Engineer, Basol Dam Project,  
ACE Limited Karachi.  
(Construction Of Basol Dam Project, Omara Gwadar)

**Client Reference:** R05/BDP/1717

Dated: 25-03-2022

**SOM Laboratory Reference :** CED/SOM/255-351(Page-2/4)

Dated: 26-04-2022

**Test:** Stiffness, Tensile ,Flexure & Compression Test

**Sample Type:** GRP Pipe 800mm Diameter ( Bin Tariq (Pvt.) Ltd- Lahore)

### Tensile Test

Sample Type	Size of Sample (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
A 01	30.7 x 12.1	7.55	20.59
A 02	30.4 x 12.1	7.32	19.90
A 03	27.9 x 12	6.85	20.46
A 04	29.9 x 12.1	6.73	18.60
A 05	27.8 x 12.1	6.50	19.32
A 06	27.2 x 12.2	6.50	19.59

A 07	29.8 x 12.1	6.45	17.89
A 08	30.4 x 12.2	8.02	21.62
A 09	30.0 x 12.2	7.15	19.54
A 10	29.0 x 12.1	7.95	22.66

**Note:** Please always confirm the results of above report on web: [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

**Test Performed By:** Dr. Nauman Khurram

Irshad Ahmad Bohio  
The Engineer, Basol Dam Project,  
ACE Limited Karachi.  
(Construction Of Basol Dam Project, Omara Gwadar)

**Client Reference:** R05/BDP/1717

Dated: 25-03-2022



**SOM Laboratory Reference** :CED/SOM/255-351(Page-3/4) Dated: 26-04-2022

**Test:** Stiffness, Tensile ,Flexure & Compression Test

**Sample Type:** GRP Pipe 800mm Diameter ( Bin Tariq (Pvt.) Ltd- Lahore)

### Compression Test

Sample #	Size of Sample (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
1	32.0 x 13.8	26.05	58.99
2	32.0 x 14.6	29.5	63.14
3	31.85 x 13.5	29.5	68.61
4	31.85 x 12.5	23.2	58.27
5	32.2 x 13.3	38.82	90.64
6	31.5 x 11.4	22.52	62.71
7	32.0 x 13.4	25.35	59.12

**Note:** Please always confirm the results of above report on web: [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

**Test Performed By:** Dr. Nauman Khurram

Irshad Ahmad Bohio  
The Engineer, Basol Dam Project,  
ACE Limited Karachi.  
(Construction Of Basol Dam Project, Omara Gwadar)

**Client Reference:** R05/BDP/1717

Dated: 25-03-2022

**SOM Laboratory Reference :** CED/SOM/255-351(Page-4/4)

Dated: 26-04-2022

**Test:** Stiffness, Tensile ,Flexure & Compression Test

**Sample Type:** GRP Pipe 800mm Diameter ( Bin Tariq (Pvt.) Ltd- Lahore)

**Span Length:** 192 mm

### Flexure Test

Sample Type	Size of Sample (Width X Thickness) (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
B 01	31.3 x 12.25	0.050	6.13
B 02	31.63 x 12.23	0.040	4.87
B 03	31.5 x 12.18	0.035	4.31
B 04	31.5 x 12.4	0.075	8.92
B 05	31.8 x 12.2	0.295	35.9

**Note:** Please always confirm the results of above report on web: [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

**Test Performed by:** Dr. Asad Ali Gillani

Muhammad Awais,  
GM-Material & Procurement,  
MARS Engineering Lahore.

(Mohmand Dam Project)

**Client Reference No.:** Nil

Dated: 19-05-2022

**SOM Lab Ref:** CED/SOM/344 (1/1Page)

Dated: 20-05-2022

**Test:** Tensile Test

**Sample Type:** Splice Coupler Rod With 25mm Dia M.S Steel bar

**Tension Test Results :-**

Sr. No.	Bar Size	Area	Ultimate Load	Ultimate stress	Ultimate stress	Remarks
	( mm )	(mm <sup>2</sup> )	kN	(psi)	(Mpa)	
1	25	491	344.7	101795	702	Steel Bar Breaks at this Load

**Note:**  
Please always confirm the results on web [www.uet-civil.edu.p](http://www.uet-civil.edu.p)