



STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Resident Engineer
Zeeruk International (Pvt) Ltd
Dualization of Indus Highway (N-55) Karak to Kohat Project
(WMI)
Reference # CED/TFL **37182** (Dr. Usman Akmal)
Reference of the request letter # ZI/P-2/RE/2021/382

Dated: 11-10-2021
Dated: 30-09-2021

Tension Test Report (Page -1/5)

Date of Test 14-10-2021
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		Young's Modulus of Elasticity "E"	% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)	GPa		
1	12.70 (1/2")	775.0	778.0	17500	171.68	19300	189.33	199	>3.50	22574
2	12.70 (1/2")	775.0	782.0	18000	176.58	19600	192.28	199	>3.50	22576
3	12.70 (1/2")	775.0	782.0	18100	177.56	19600	192.28	199	>3.50	22733
4	12.70 (1/2")	775.0	792.0	18300	179.52	19800	194.24	198	>3.50	22739
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

Only four samples for Test

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:

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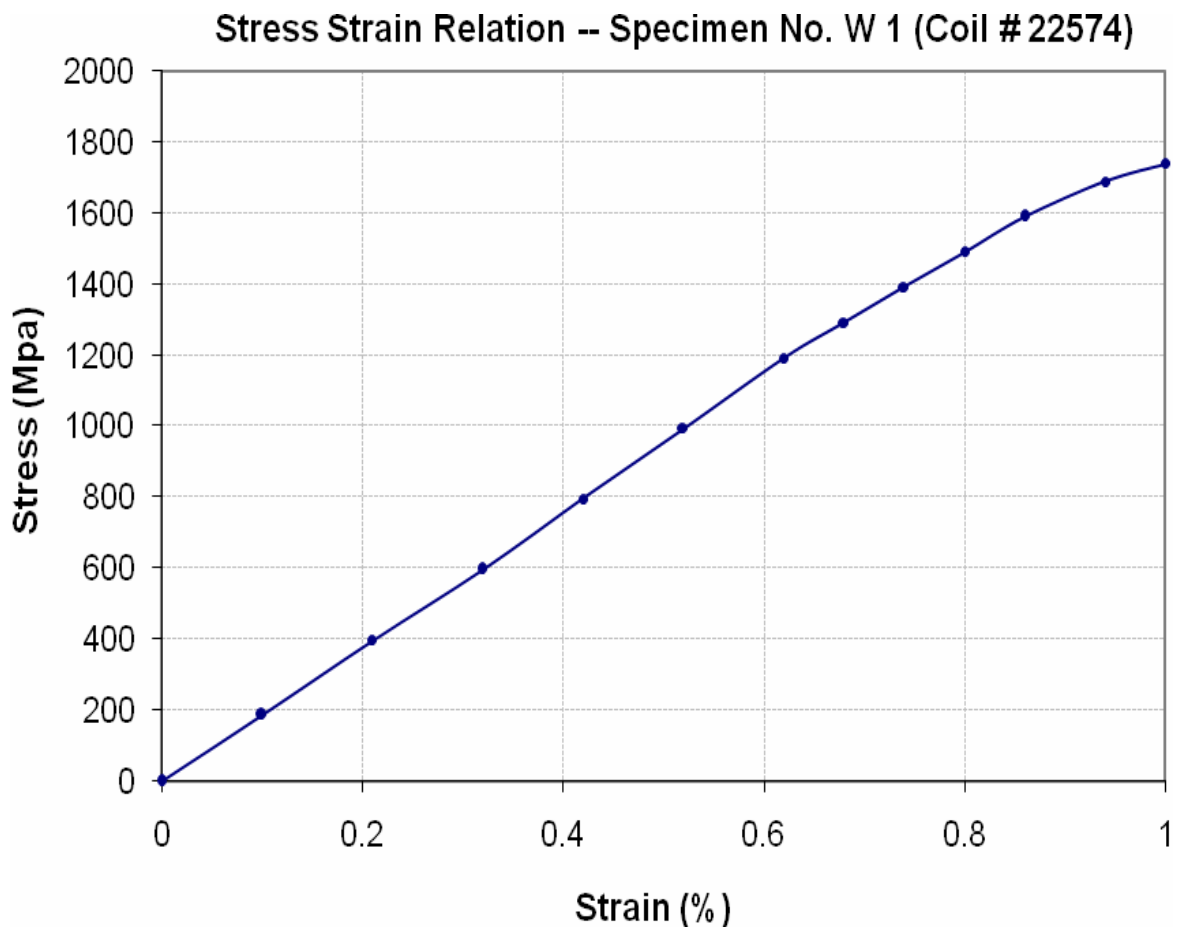


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Graph (Page – 2/5)



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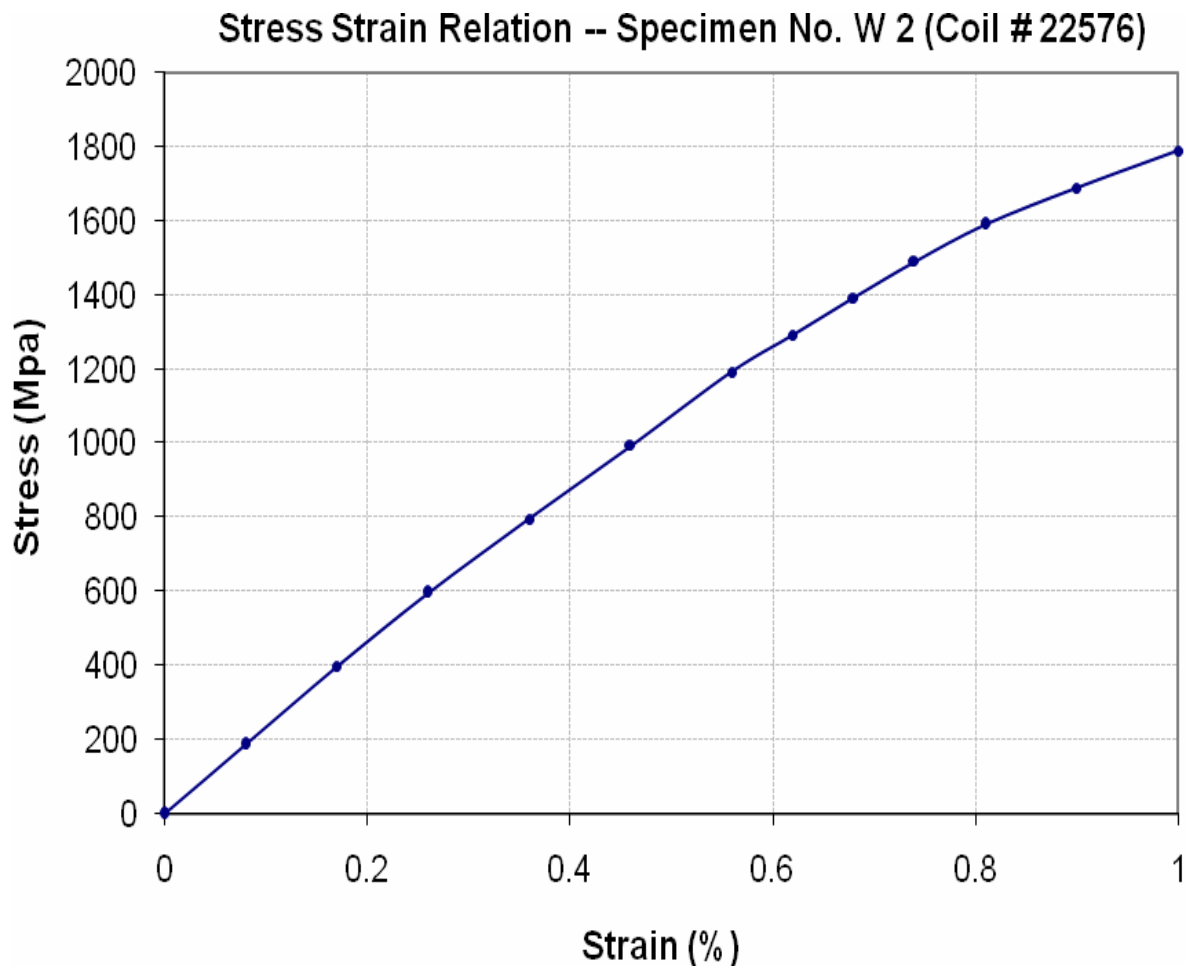


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Graph (Page – 3/5)



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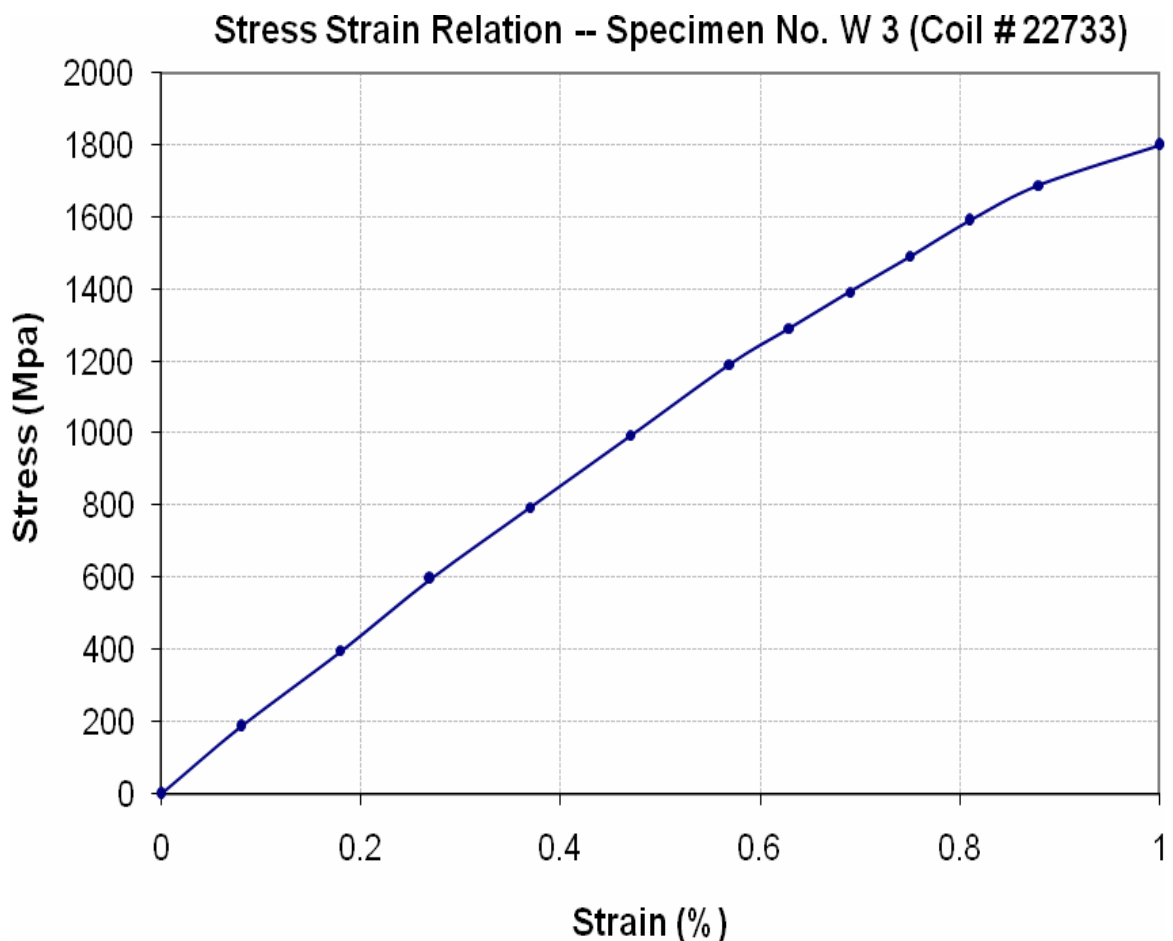


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Graph (Page – 4/5)



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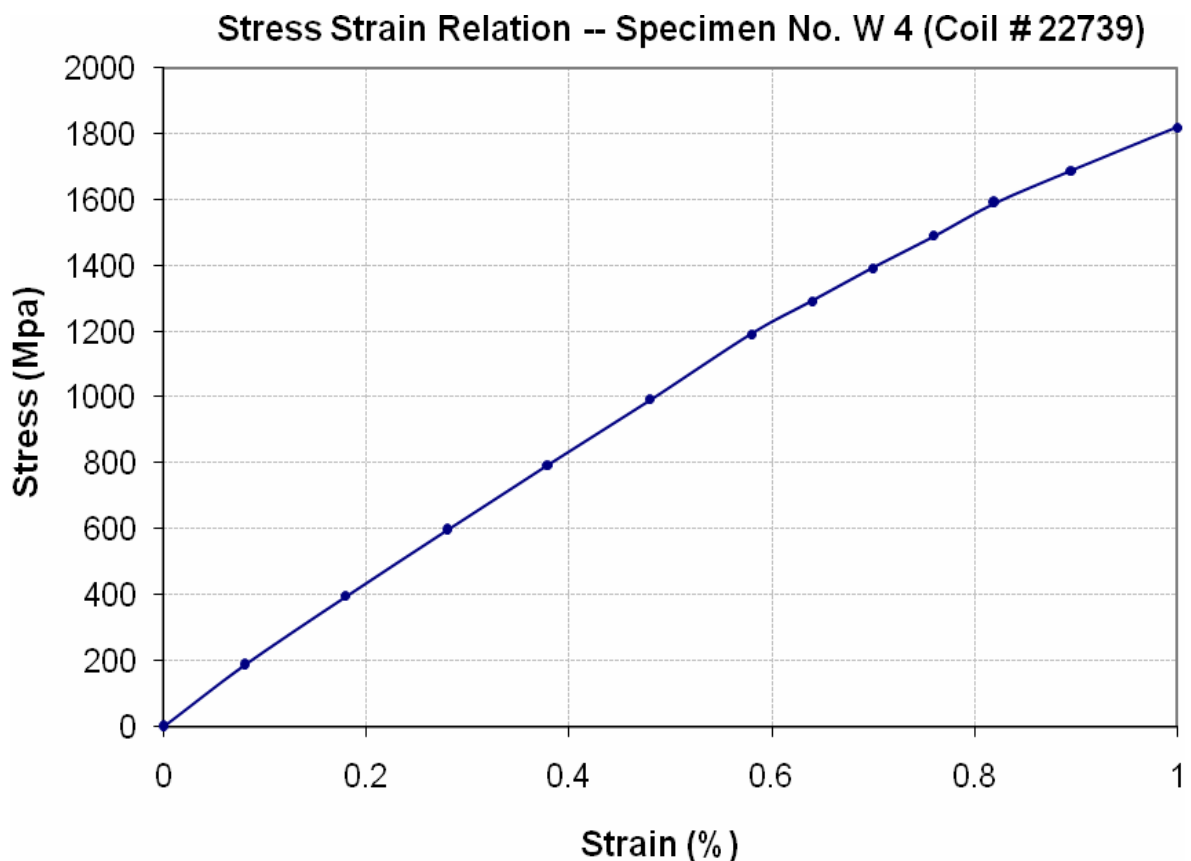


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Graph (Page – 5/5)



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To,
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Dualization of Indus Highway (N-55) Karak to Kohat Project
(WMI)
Reference # CED/TFL **37183** (Dr. Usman Akmal)
Reference of the request letter # ZI/P-2/RE/2021/339

Dated: 11-10-2021
Dated: 01-05-2021

Tension Test Report (Page -1/4)

Date of Test 14-10-2021
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		Young's Modulus of Elasticity "E"	% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)			
1	12.70 (1/2")	775.0	775.0	18400	180.50	20000	196.20	199	>3.50	22422
2	12.70 (1/2")	775.0	777.0	17300	169.71	19300	189.33	198	>3.50	22420
3	12.70 (1/2")	775.0	780.0	17400	170.69	19700	193.26	199	>3.50	22429
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
Only three samples for Test										

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

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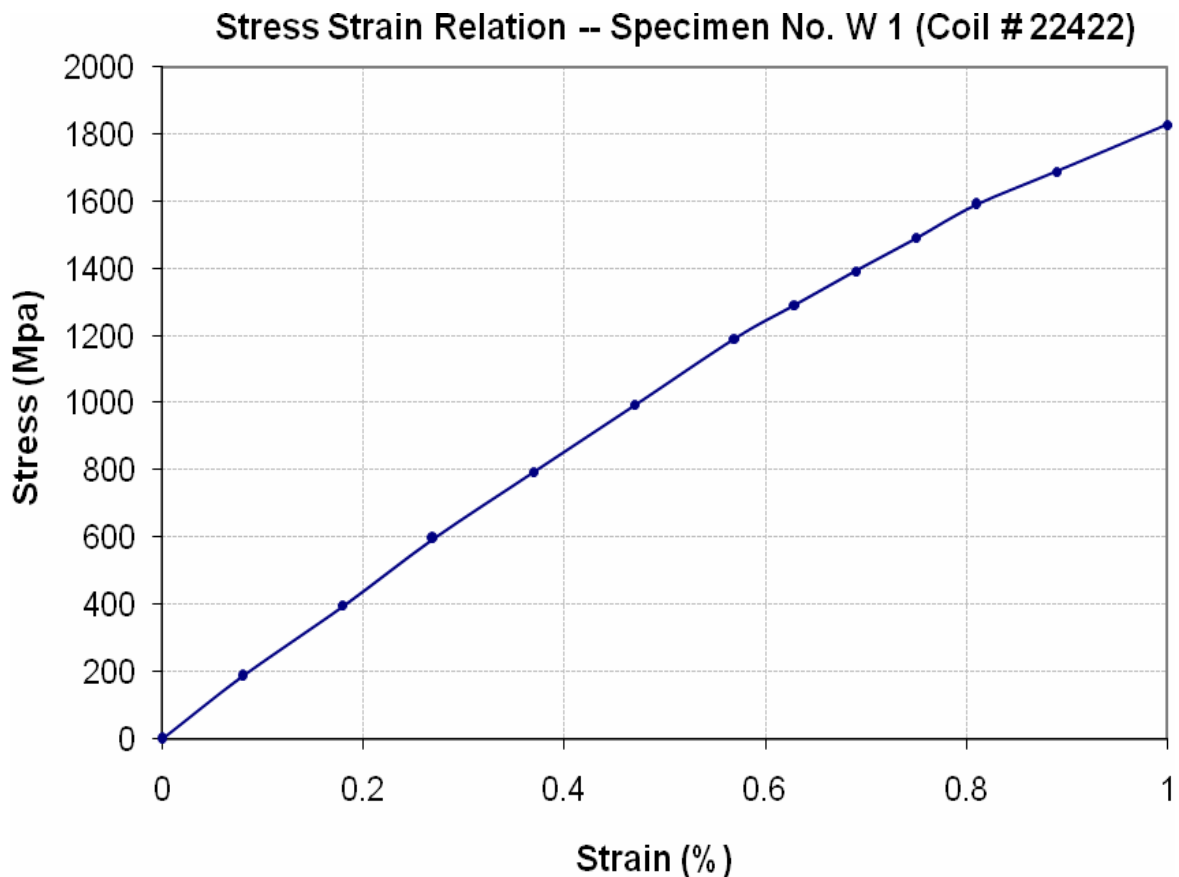


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Graph (Page – 2/5)



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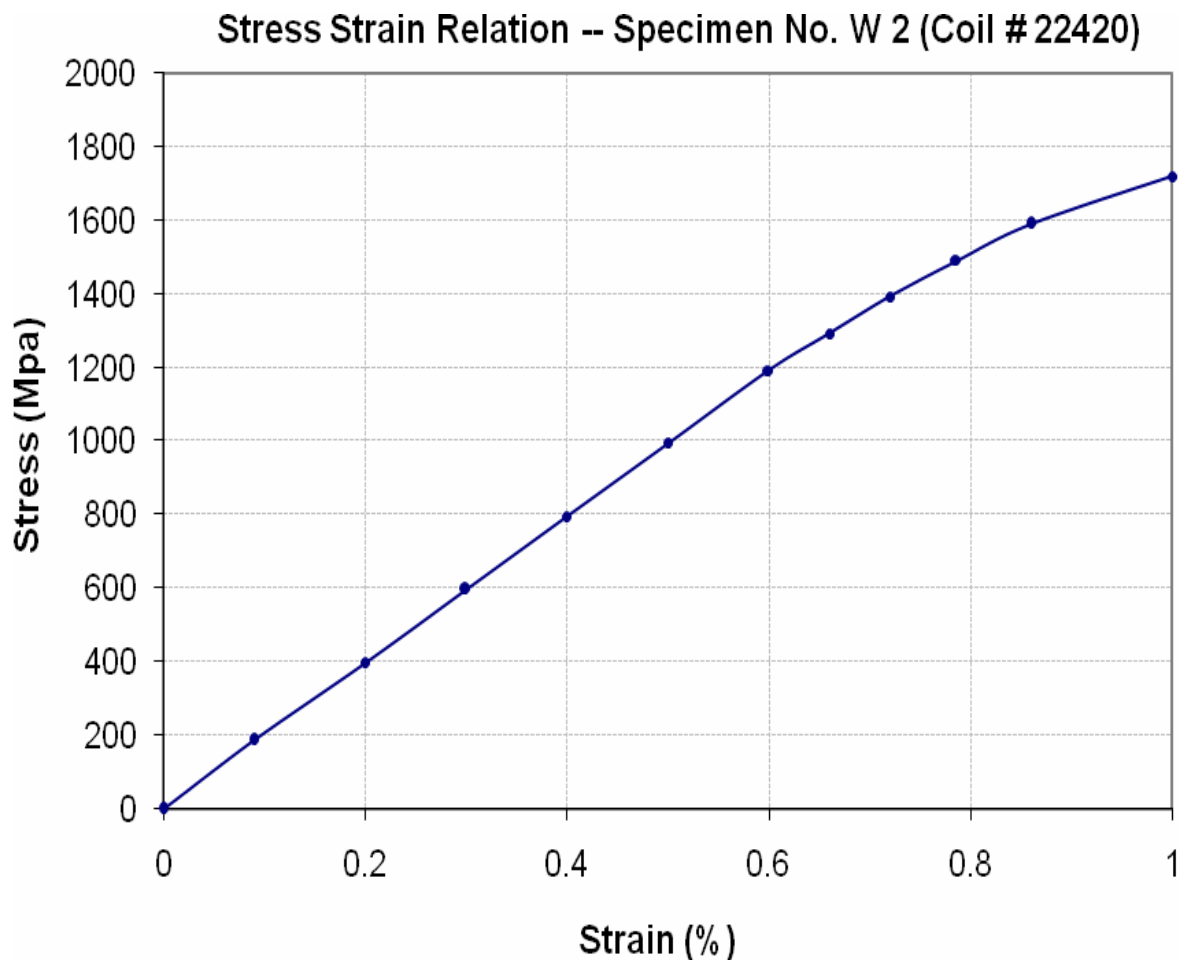


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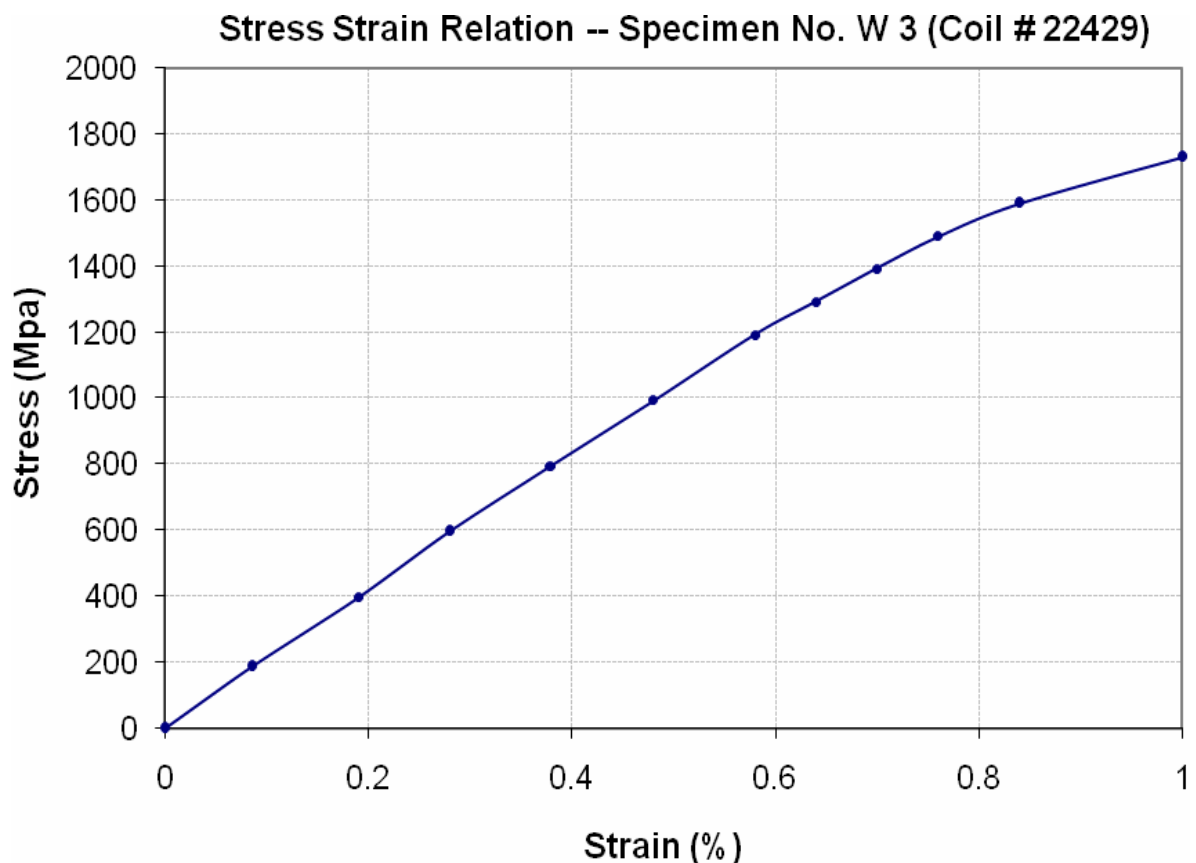


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Dated: 11-10-2021
Dated: 14-09-2021

Tension Test Report (Page -1/5)

Date of Test 14-10-2021
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		Young's Modulus of Elasticity "E"	% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)	GPa		
1	12.70 (1/2")	775.0	782.0	17200	168.73	19300	189.33	199	>3.50	22843
2	12.70 (1/2")	775.0	794.0	17000	166.77	18800	184.43	199	>3.50	22847
3	12.70 (1/2")	775.0	789.0	17100	167.75	19200	188.35	198	>3.50	22850
4	12.70 (1/2")	775.0	783.0	17100	167.75	19000	186.39	199	>3.50	22855
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

Only four samples for Test

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

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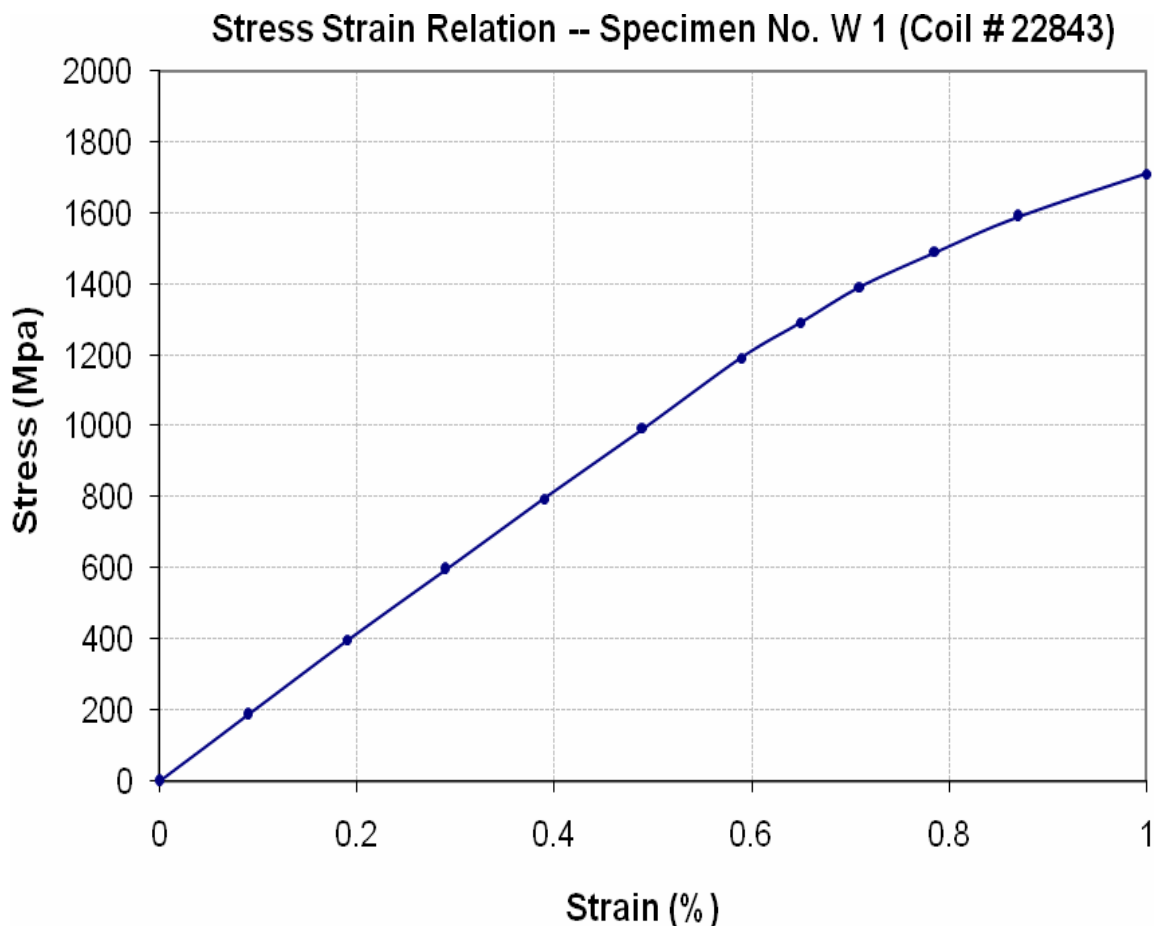


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Graph (Page – 2/5)



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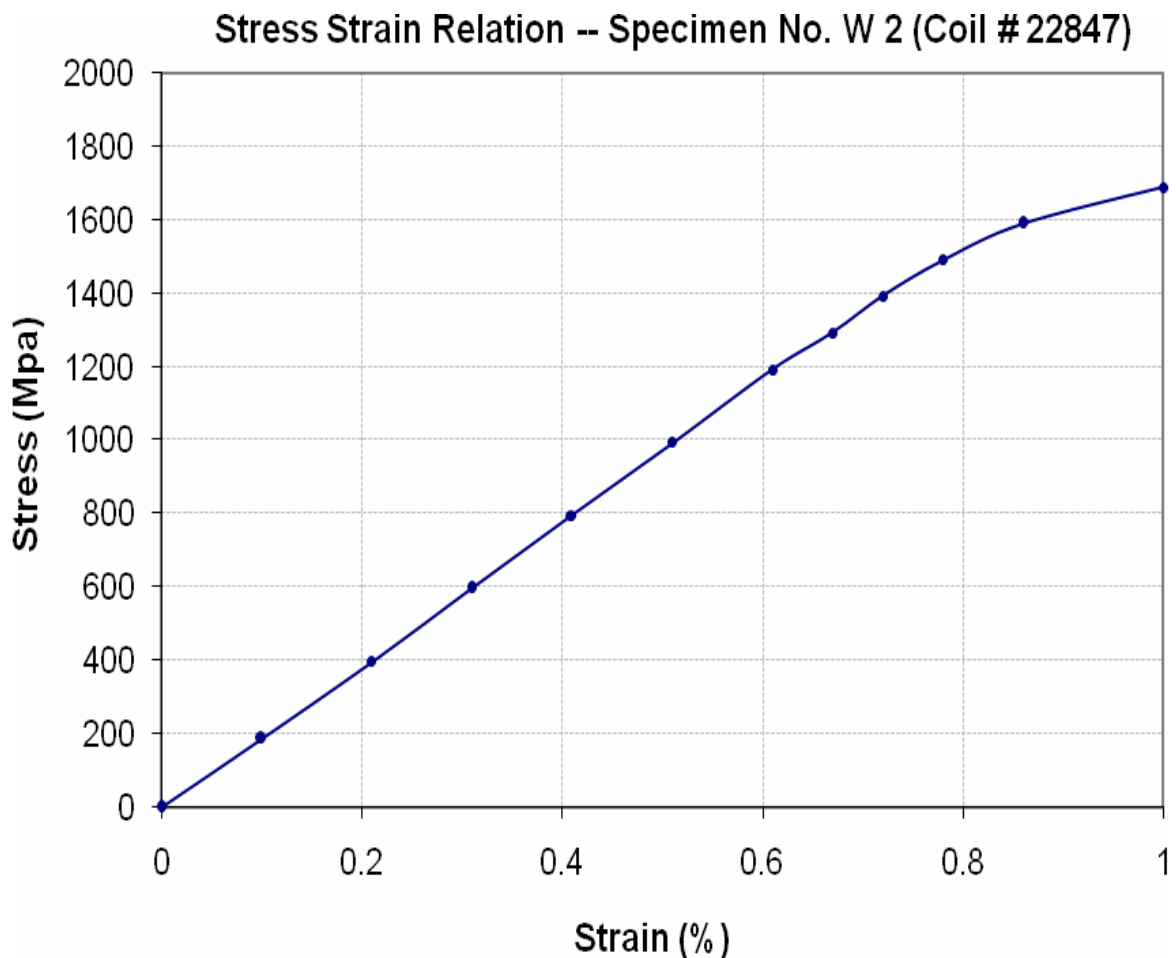


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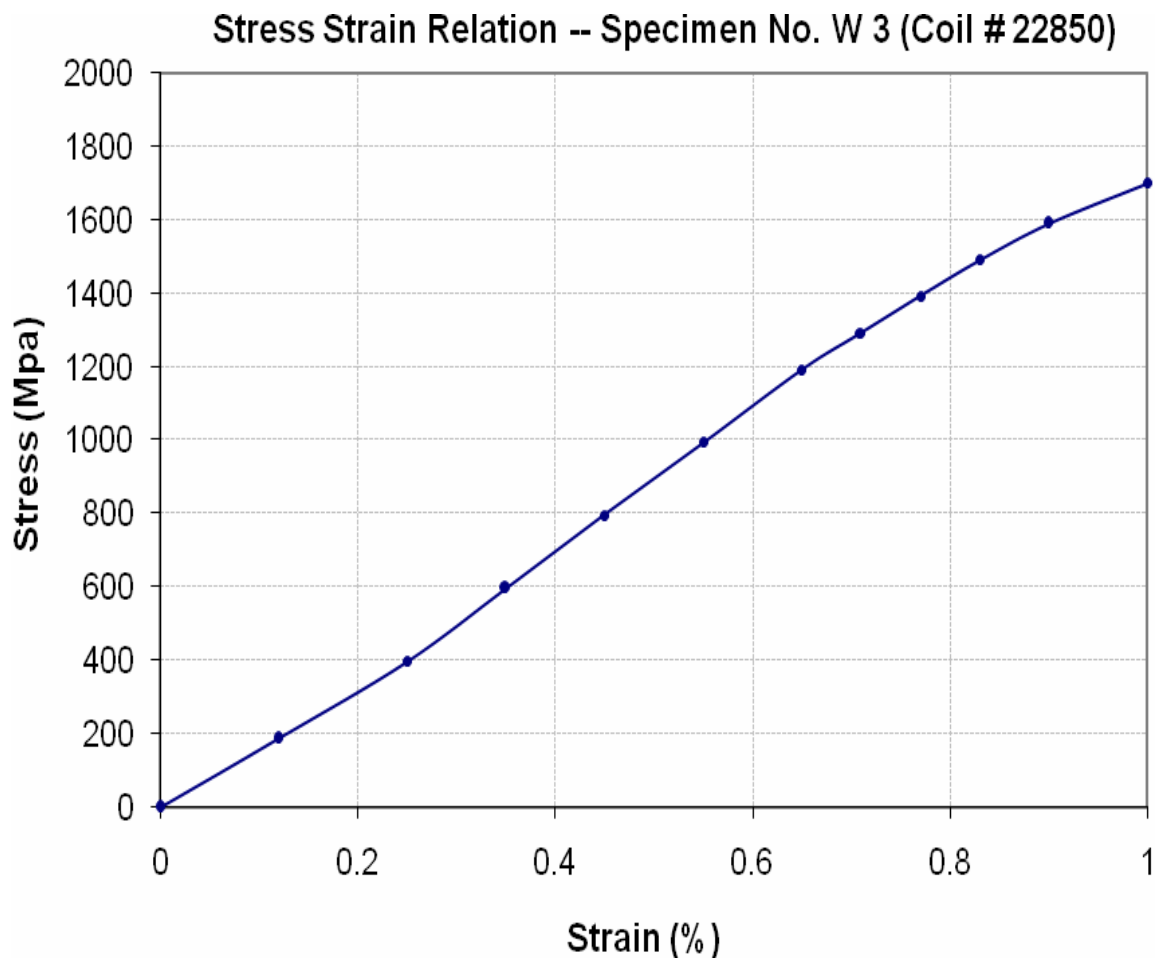


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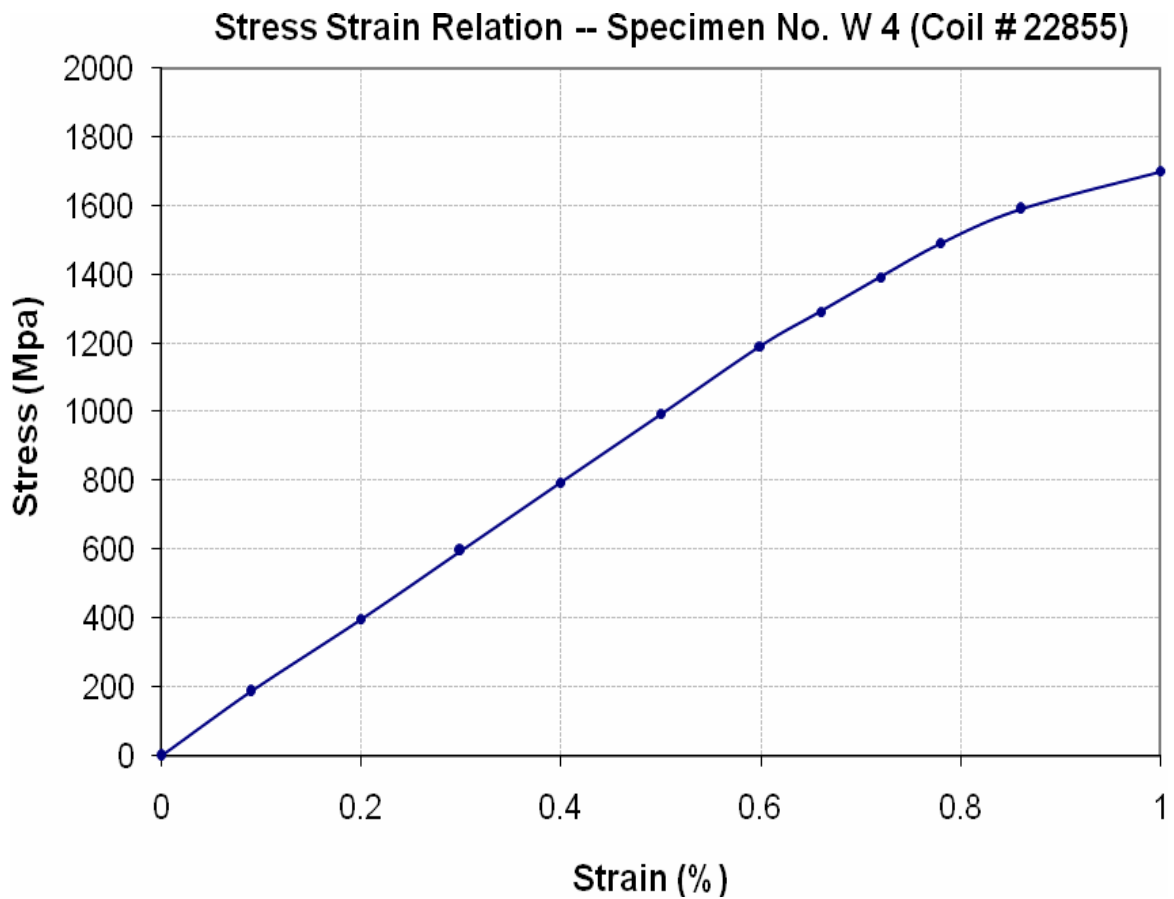


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To,
M/S Engineers Associated Precast (Pvt) Ltd.
Sheikhupura Road,

Reference # CED/TFL **37198** (Dr. Usman Akmal)
Reference of the request letter # EAP/UET/2021/2462

Dated: 13-10-2021

Dated: 10-10-2021

Tension Test Report (Page -1/2)

Date of Test 14-10-2021
Gauge length 8 inches
Description MS Wire Tensile Test

Sr. No.	Weight (kg/m)	Diameter/ size		Area (mm ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (MPa) Actual	Ultimate Stress (MPa) Actual	Elongation (inch)	% Elongation	Remarks
		Nominal (mm)	Actual (mm)	Nominal	Actual							
1	0.151	5	4.95	-----	19.3	-----	1140	-----	580	0.30	3.8	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
Note: only one sample for tensile test												
Bend Test												

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UET Lahore, Pakistan.

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Sheikhupura Road,

Reference # CED/TFL **37198** (Dr. Usman Akmal)
Reference of the request letter # EAP/UET/2021/2462

Dated: 13-10-2021

Dated: 10-10-2021

Tension Test Report (Page -2/2)

Date of Test 14-10-2021
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		% Elongation	Remarks/ Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)		
1	9.53 (3/8")	432.0	442.0	9900	97.12	11100	108.89	>3.50	xx
2	11.11 (7/16")	582.0	585.0	10800	105.95	14600	143.23	>3.50	xx
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
Only two samples for Test									

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To,
M/S Junaid (Pvt.) Limited
Lahore

Reference # CED/TFL **37200** (Dr. Usman Akmal)
Reference of the request letter # JPL/Poles/02

Dated: 13-10-2021
Dated: 13-10-2021

Tension Test Report (Page -1/2)

Date of Test 14-10-2021
Gauge length 8 inches
Description MS Wire Tensile Test

Sr. No.	Weight (kg/m)	Diameter/ size		Area (mm ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (MPa) Actual	Ultimate Stress (MPa) Actual	Elongation (inch)	% Elongation	Remarks
		Nominal (mm)	Actual (mm)	Nominal	Actual							
1	0.143	5	4.82	-----	18.3	-----	1300	-----	699	0.30	3.8	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
Note: only one sample for tensile test												
Bend Test												

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Dated: 13-10-2021

Dated: 13-10-2021

Tension Test Report (Page -2/2)

Date of Test 14-10-2021

Gauge length 640 mm

Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		% Elongation	Remarks/ Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)		
1	9.53 (3/8")	432.0	418.0	9400	92.21	10400	102.02	>3.50	xx
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
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Only one sample for Test									

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:

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STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Snr Proj Mngr
Project Management Unit
National Logistics Cell Torkham
(WMI)

Reference # CED/TFL **37203** (Dr. Usman Akmal)
Reference of the request letter # 607/Gen/Testing/Proj

Dated: 13-10-2021
Dated: 13-10-2021

Tension Test Report (Page -1/4)

Date of Test 14-10-2021
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		Young's Modulus of Elasticity "E" GPa	% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)			
1	12.70 (1/2")	775.0	787	18700	183.45	19800	194.24	198	>3.50	22960
2	12.70 (1/2")	775.0	785	18200	178.54	19400	190.31	199	>3.50	22963
3	12.70 (1/2")	775.0	787	18100	177.56	19500	191.30	199	>3.50	22966
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

Only three samples for Test

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

I/C Testing Laboratoires
UET Lahore, Pakistan.

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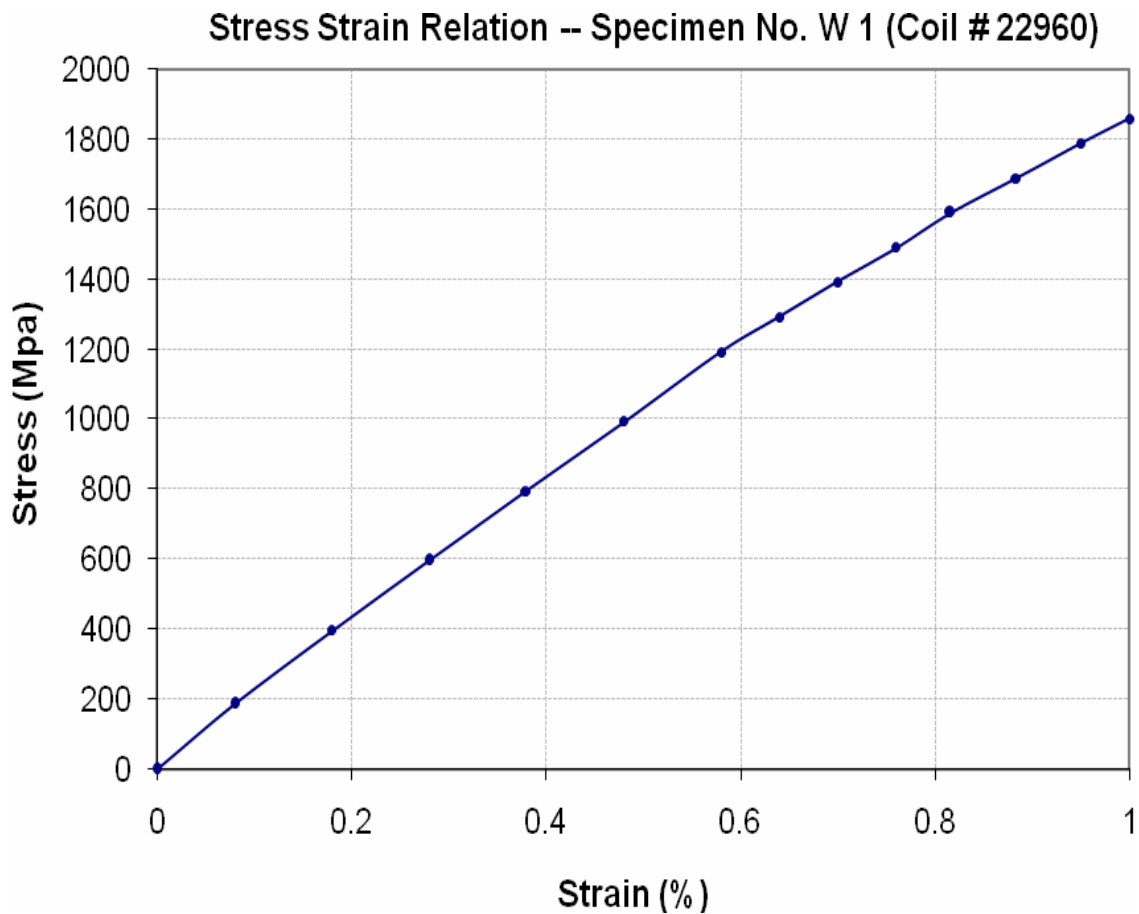
To,
Snr Proj Mngr
Project Management Unit
National Logistics Cell Torkham
(WMI)

Reference # CED/TFL **37203** (Dr. Usman Akmal)
Reference of the request letter # 607/Gen/Testing/Proj

Dated: 13-10-2021

Dated: 13-10-2021

Graph (Page – 2/4)



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UET Lahore, Pakistan.

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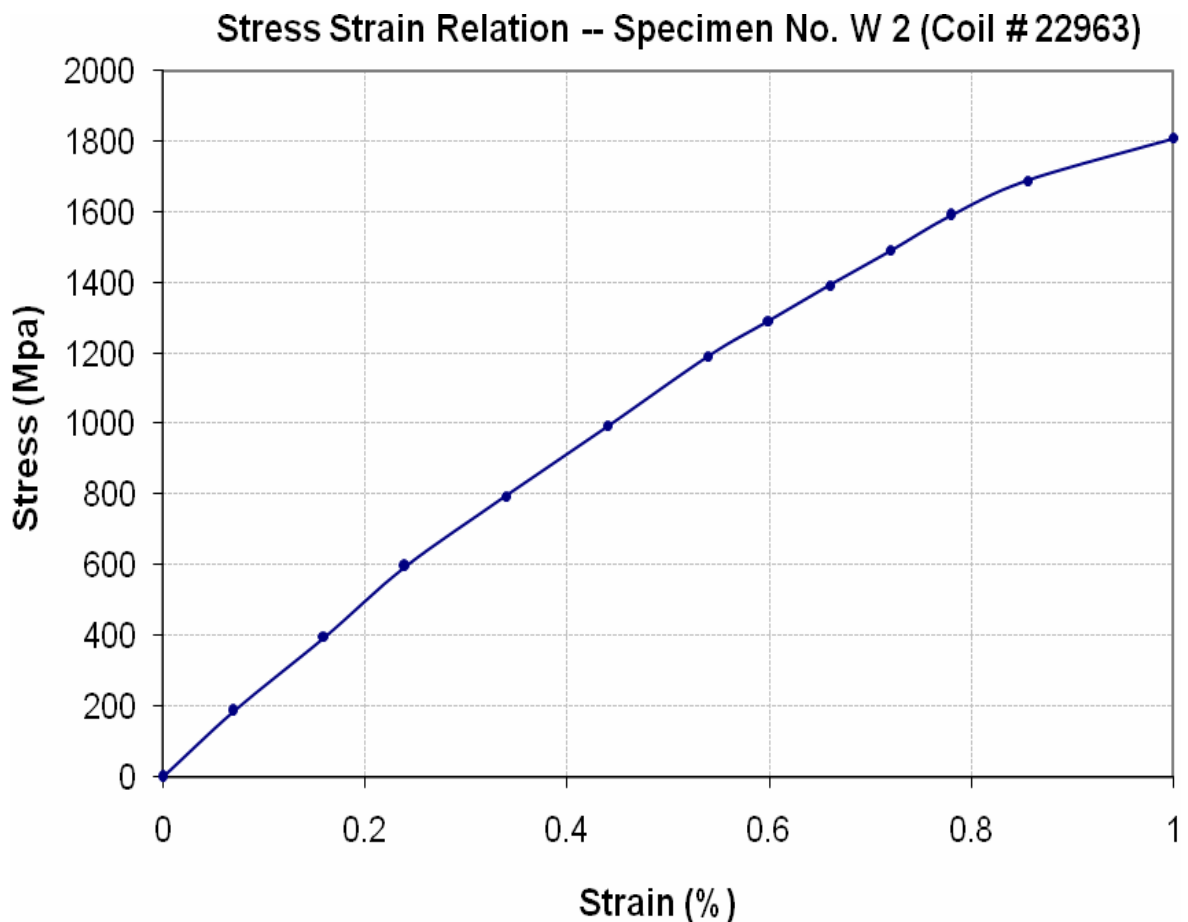
To,
Snr Proj Mngr
Project Management Unit
National Logistics Cell Torkham
(WMI)

Reference # CED/TFL **37203** (Dr. Usman Akmal)
Reference of the request letter # 607/Gen/Testing/Proj

Dated: 13-10-2021

Dated: 13-10-2021

Graph (Page – 3/4)



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UET Lahore, Pakistan.

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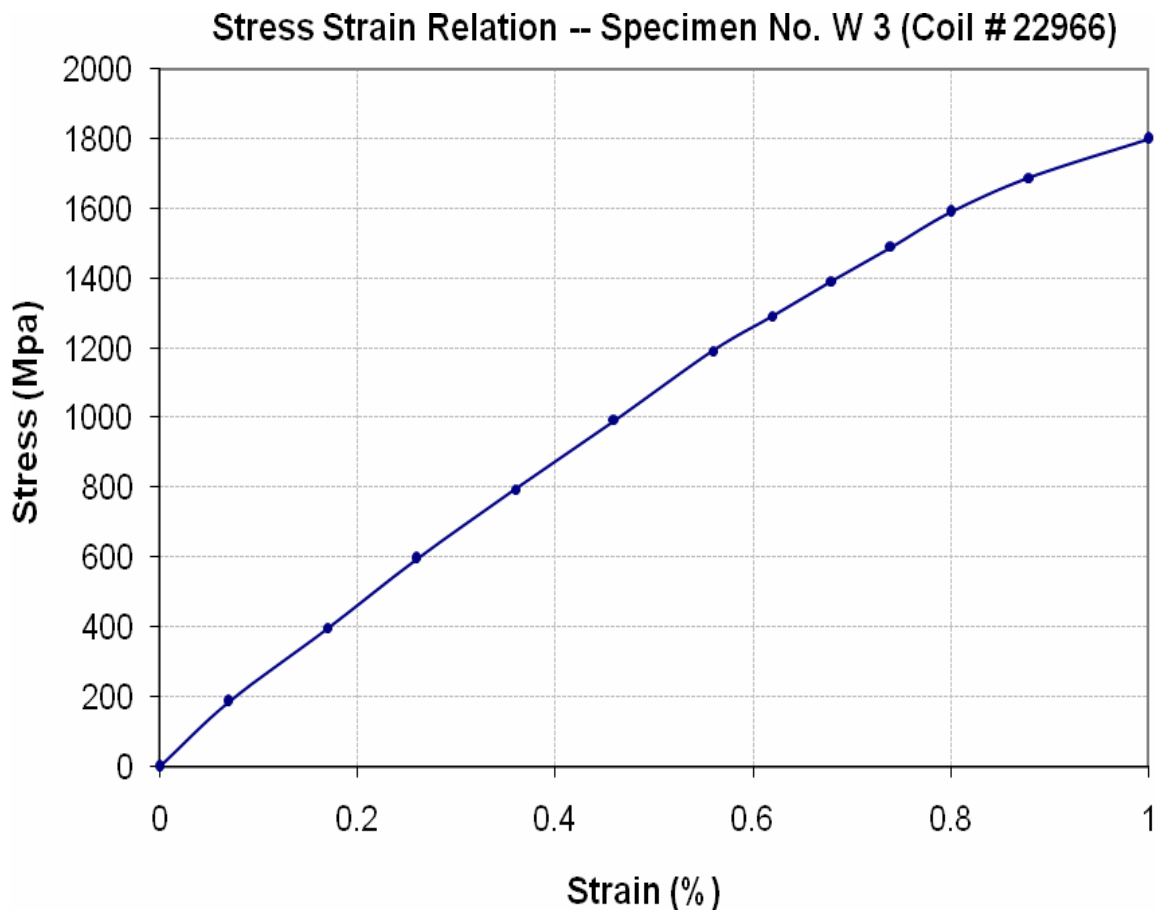
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Project Management Unit
National Logistics Cell Torkham
(WMI)

Reference # CED/TFL **37203** (Dr. Usman Akmal)
Reference of the request letter # 607/Gen/Testing/Proj

Dated: 13-10-2021

Dated: 13-10-2021

Graph (Page – 4/4)



I/C Testing Laboratories
UET Lahore, Pakistan.

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STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
 Resident Engineer
 Orbit Housing
 The Spring Apartment Homes, Lahore

Reference # CED/TFL 37207 (Dr. Asad Ali)
 Reference of the request letter # Nil

Dated: 14-10-2021
 Dated: 13-10-2021

Tension Test Report (Page -1/1)

Date of Test 14-10-2021
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.378	3	0.376	0.11	0.111	3430	5200	68800	68130	104200	103300	1.00	12.5	
2	0.370	3	0.372	0.11	0.109	3440	5250	69000	69730	105200	106500	1.00	12.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:

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STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
 Resident Engineer
 NESPAK
 Construction of Office Complex, DHA Bahawalpur

Reference # CED/TFL **37211** (Engr. M Rehan Ashraf)
 Reference of the request letter # 4401/NY/T/05/55

Dated: 14-10-2021
 Dated: 12-10-2021

Tension Test Report (Page -1/1)

Date of Test 14-10-2021
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.395	3	0.385	0.11	0.116	3160	4510	63400	59970	90400	85600	1.30	16.3	Gujjar Steel
2	0.425	3	0.399	0.11	0.125	3640	5120	73000	64150	102600	90300	1.40	17.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

Witness by Naeem Yousaf (NESPAK)

I/C Testing Laboratoires
UET Lahore, Pakistan.

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