



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

Ref: CED/TFL/12/2388

Dated: 02-12-2022

Dated of Test: 12-12-2022

To

**Resident Engineer**  
**EA Consulting Pvt. Ltd.**  
**Development of Housing Scheme at Kuchlak Road - Quetta**  
**(PHA-Foundation)(ZCC)**

Subject: **TESTING OF R.C.C. PIPE [ASTM-C76 - 08a]**

Reference to your letter No. EA/RE/PHA-F/2022/284, dated 31.10.2022

on the subject cited above. Five R.C.C. Pipes as received by us have been tested. The results are tabulated as under.

Sr. No	Nominal Size	Total Length	Loaded Length	External Diameter	Internal Diameter	Wall Thickness	Proof load	Ultimate Load	Proof Stress	Ultimate Stress
	(inch)	(foot)	(foot)	(inch)	(inch)	(inch)	(kg)	(kg)	Pound/Linear foot/foot	Pound/Linear foot/foot
1	9	7.76	7.32	11.02	8.52	1.25	7700	9500	3268	4032
2	12	7.77	7.36	16.14	11.92	2.11	7600	14000	2293	4225
3	15	7.75	7.35	19.65	14.96	2.34	7400	13500	1781	3249
4	18	7.78	7.35	22.83	17.90	2.47	7600	11300	1529	2273
5	24	7.78	7.19	30.16	24.29	2.94	10770	13680	1633	2074

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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To,

Material Engineer  
MM Pakistan (Pvt) Ltd  
Peshawar Sustainable Bus Rapid Transit Project Chamkani Lot-2

Reference # CED/TFL **2391** (Dr. M Rizwan Riaz)  
Reference of the request letter # ME/MMP/BRT/PSH/60

Dated: 02-12-2022  
Dated: 01-12-2022

**Tension Test Report** (Page – 1/1)

Date of Test 12-12-2022  
Gauge length 2 inches  
Description Expansion Joint Aluminum Strip Tensile Test

Sr. No.	Designation	Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
	(mm)	(mm)	(mm <sup>2</sup> )	(kg)	(kg)	(MPa)	(MPa)	(in)		
1	Expansion Joint	21.30x4.15	88.40	21.80	25.00	247	283	0.30	15.00	
2		20.00x4.15	83.00	20.01	25.70	241	310	0.20	10.00	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
<b>Only Two Samples for Tensile Test</b>										
<b>Bend Test</b>										

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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To,  
Resident Engineer  
NESPAK  
Construction of Bridge at Zero Line Kartarpur Sahib Corridor

Reference # CED/TFL **2406** (Dr. M Kashif)  
Reference of the request letter # 4371/021/TA/01/065

Dated: 05-12-2022  
Dated: 05-12-2022

**Tension Test Report** (Page -1/4)

Date of Test 12-12-2022  
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	783.0	17400	170.69	19200	188.35	199	>3.50	157
2	12.70 (1/2")	775.0	779.0	17900	175.60	19700	193.26	198	>3.50	159
3	12.70 (1/2")	775.0	785.0	18500	181.49	19900	195.22	199	>3.50	164
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
<b>Only three samples for Test</b>										

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 Laboratories**  
**UET Lahore, Pakistan.**

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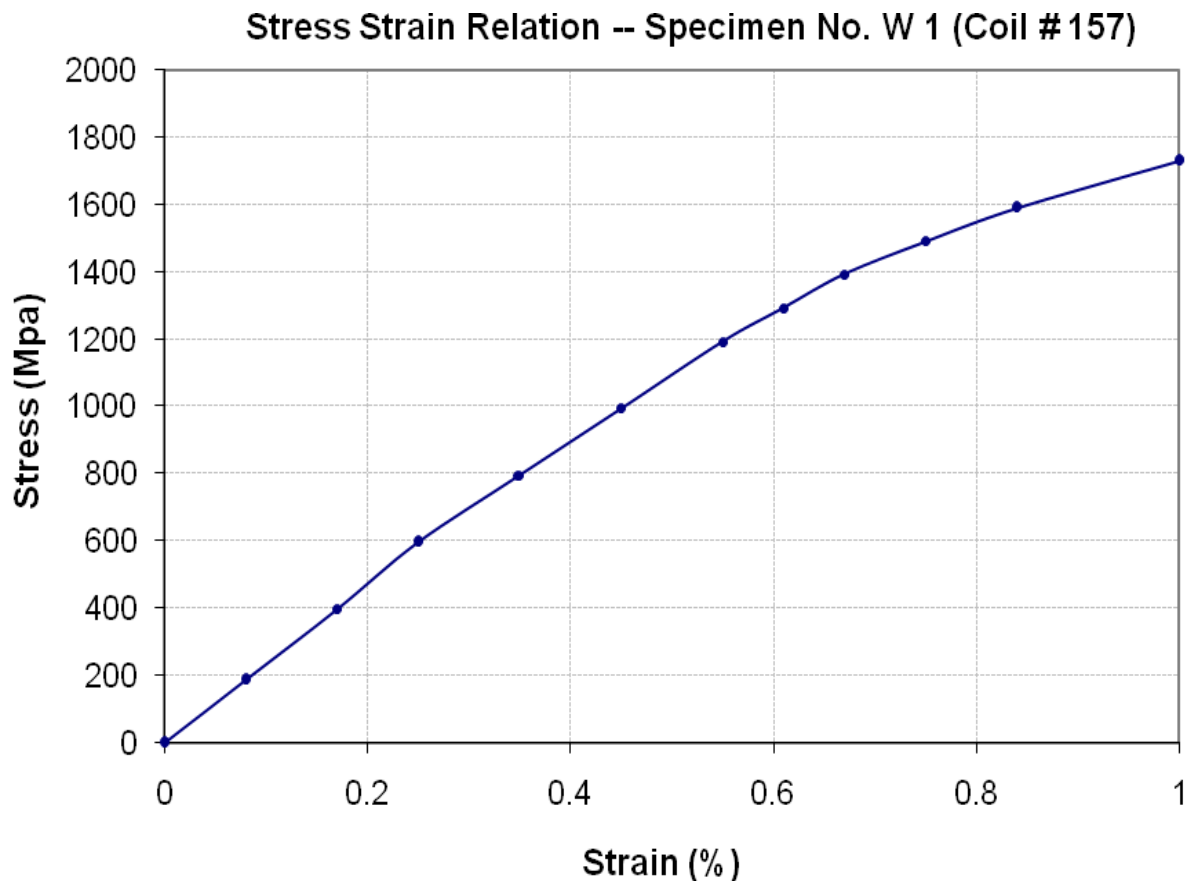
To,

Resident Engineer  
NESPAK  
Construction of Bridge at Zero Line Kartarpur Sahib Corridor

Reference # CED/TFL **2406** (Dr. M Kashif)  
Reference of the request letter # 4371/021/TA/01/065

Dated: 05-12-2022  
Dated: 05-12-2022

**Graph** (Page – 2/4)



**I/C Testing Laboratories**  
**UET Lahore, Pakistan.**

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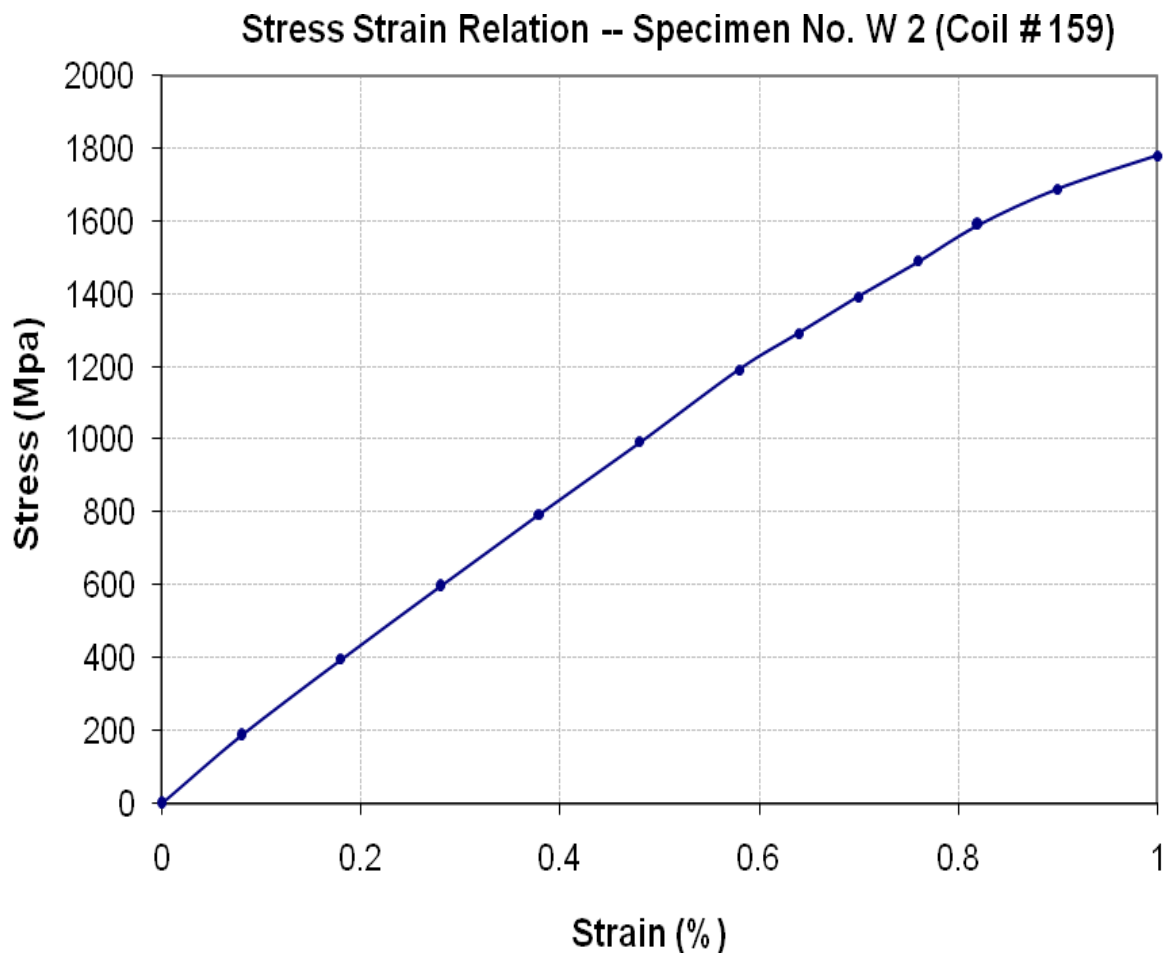
To,

Resident Engineer  
NESPAK  
Construction of Bridge at Zero Line Kartarpur Sahib Corridor

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Reference of the request letter # 4371/021/TA/01/065

Dated: 05-12-2022  
Dated: 05-12-2022

**Graph** (Page – 3/4)



**I/C Testing Laboratories**  
**UET Lahore, Pakistan.**

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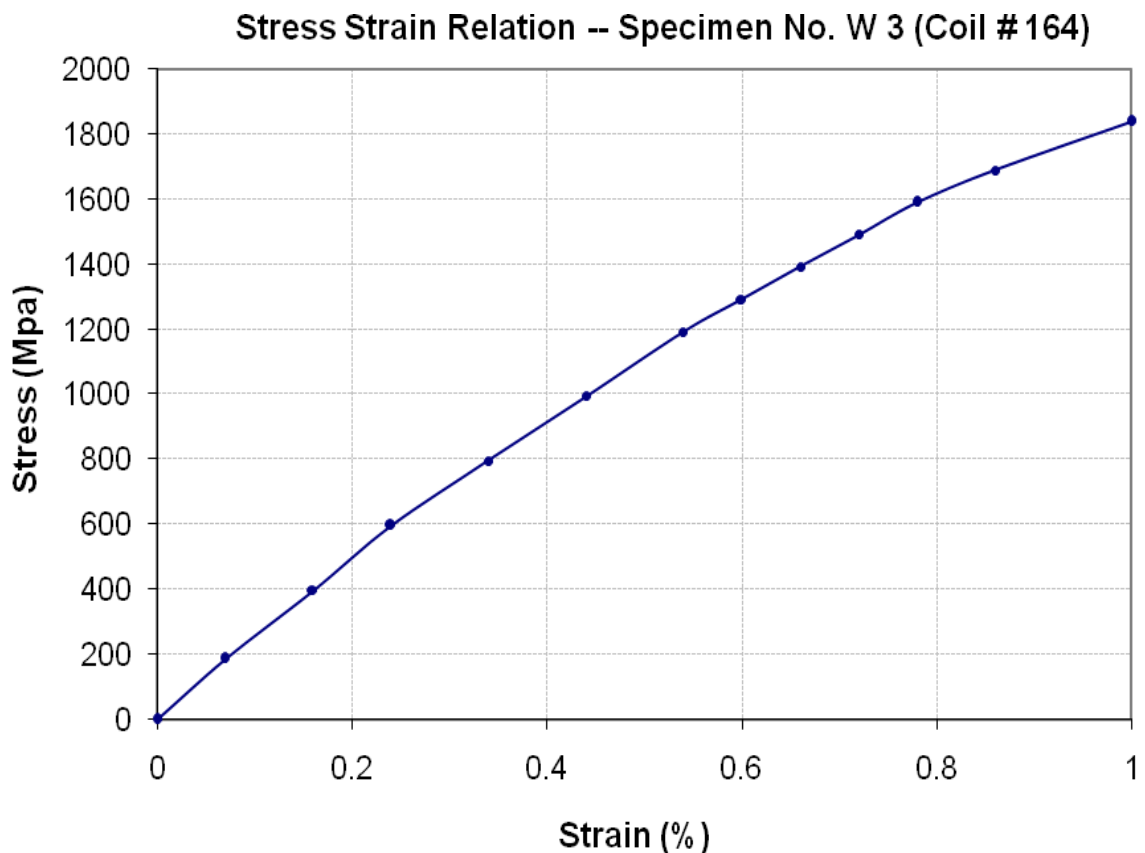
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NESPAK  
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Reference # CED/TFL **2406** (Dr. M Kashif)  
Reference of the request letter # 4371/021/TA/01/065

Dated: 05-12-2022  
Dated: 05-12-2022

**Graph** (Page – 4/4)



**I/C Testing Laboratories**  
**UET Lahore, Pakistan.**

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**Department of Civil Engineering**  
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**Pakistan. Ph: 92-42-99029202**

To,  
 Project Director  
 Overseas Construction Co. (Pvt) Ltd  
 Gulberg City Centre, Lahore

Reference # CED/TFL **2430** (Dr. Rizwan Azam)  
 Reference of the request letter # OCC/Steel/20

Dated: 09-12-2022  
 Dated: 09-12-2022

**Tension Test Report** (Page -1/1)

Date of Test 12-12-2022  
 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 <sup>2</sup> )		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	0.369	3	0.372	0.11	0.109	3600	4700	72200	73080	94200	95500	1.00	12.5	Afco Steel
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only one sample for tensile and one sample for bend test</b>														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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**Test Floor Laboratory**  
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**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
 M/S Civil & Urban Engineers  
 Lahore  
 (Fast Developers International (FDI) at FIEMDC, Faisalabad)

Reference # CED/TFL **2431** (Dr. Rizwan Azam)  
 Reference of the request letter # Nil

Dated: 09-12-2022  
 Dated: 08-12-2022

**Tension Test Report** (Page -1/1)

Date of Test 12-12-2022  
 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 <sup>2</sup> )		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	0.374	3	0.374	0.11	0.110	3200	4800	64200	64200	96200	96300	1.40	17.5	
2	0.373	3	0.373	0.11	0.110	3200	4800	64200	64400	96200	96600	1.50	18.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile and one sample for bend test</b>														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

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To,  
 Sub Divisional Officer  
 The Punjab Employees Social Security Institute  
 3-A, Gulberg V Lahore  
 (Construction of Social Security Hospital Sargodha)

Reference # CED/TFL **2432** (Dr. Rizwan Azam)  
 Reference of the request letter # SS.DC(207)/566

Dated: 09-12-2022  
 Dated: 08-12-2022

**Tension Test Report** (Page -1/1)

Date of Test 12-12-2022  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size		Area (in <sup>2</sup> )		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	0.372	3	0.373	0.11	0.109	3300	4600	66200	66460	92200	92700	1.20	15.0	
2	0.370	3	0.372	0.11	0.109	3500	5000	70200	71030	100200	101500	1.20	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile test</b>														
Bend Test														

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To,

Resident Engineer  
NESPAK

Matta Bypass from Ditpani (Matta-Fazal Banda Road) to Baidara (Chakdara-Bagh Dheri Road) District Swat Package-II (6 km Road & 2 Nos Bridge of Various Span) (WMI)

Reference # CED/TFL **2435** (Dr. Rizwan Azam)

Dated: 12-12-2022

Reference of the request letter # SA-483/PKHA/SAAS/106/2022

Dated: 30-11-2022

**Tension Test Report** (Page -1/2)

Date of Test 12-12-2022

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	779.0	18200	178.54	19700	193.26	199	>3.50	24274
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
<b>Only three samples for Test</b>										

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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To,

Resident Engineer  
NESPAK

Matta Bypass from Ditpani (Matta-Fazal Banda Road) to Baidara (Chakdara-Bagh Dheri Road) District Swat Package-II (6 km Road & 2 Nos Bridge of Various Span) (WMI)

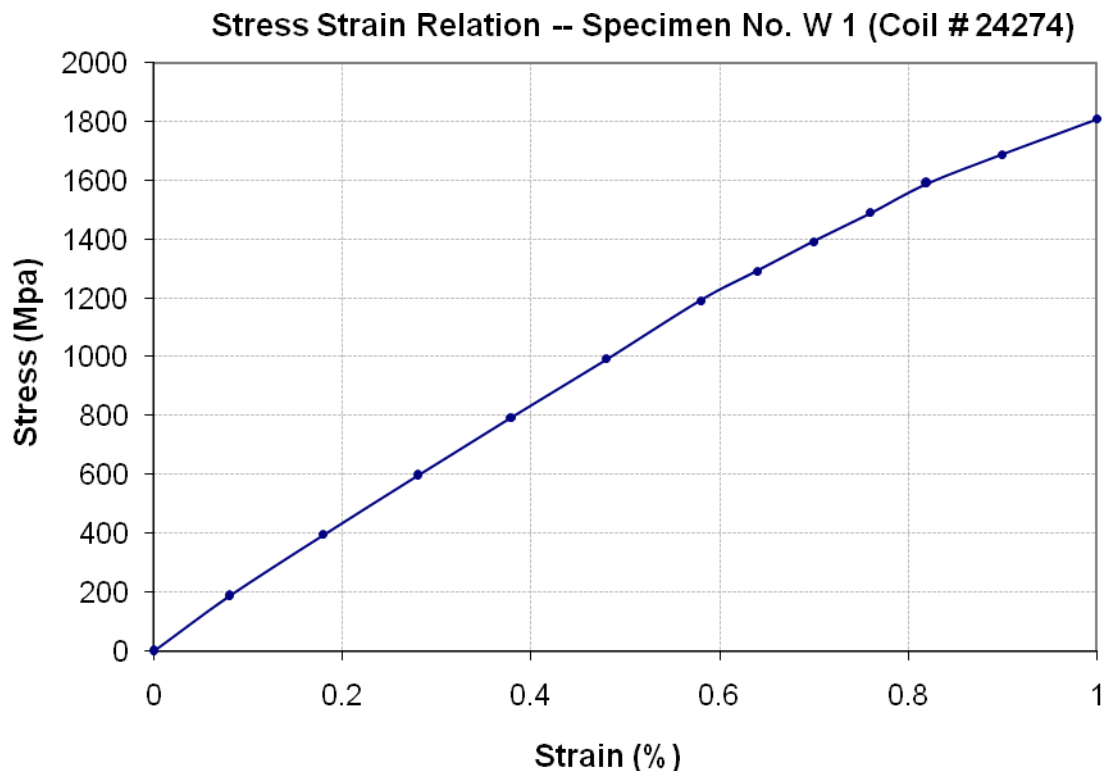
Reference # CED/TFL **2435** (Dr. Rizwan Azam)

Dated: 12-12-2022

Reference of the request letter # SA-483/PKHA/SAAS/106/2022

Dated: 30-11-2022

**Graph** (Page – 2/2)



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