



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

To,  
Deputy General Manager Projects  
Habib Rafiq Engineering (Pvt.) Limited  
Construction of Sky Gardens Tower, Lahore

Reference # CED/TFL **5355** (Dr. M Kashif)  
Reference of the request letter # HRLE/SKG/2024/AK Steel/154

Dated: 18-07-2024  
Dated: 18-07-2024

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

Date of Test 19-07-2024  
Gauge length 8 inches  
Description Deformed Steel Bar Tensile Test as per ASTM-A615

| Sr. No.                                       | Weight<br>(lbs/ft) | Diameter/<br>Size<br>(mm) |        | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|---|--------------------|---------------------------|--------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|   |                    | Nominal                   | Actual | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1   | 4.386              | 32                        | 32.54  | 1.25                       | 1.289  | 37200              | 63200                    | 65609                 | 63600  | 111465                   | 108100 | 1.30                 | 16.3         |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only one sample for tensile test</b> |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test                                     |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

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

Note:

- 1- You can See your reports On Internet in the following web site  
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To,  
Dy Dir Infra  
Defence Housing Authority, Gujranwala  
"Sector L."

Reference # CED/TFL **5362** (Dr. M Kashif)  
Reference of the request letter # 111/15/DD/RS/Lab/Sec L/1113

Dated: 19-07-2024  
Dated: 13-07-2024

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

Date of Test 19-07-2024  
Gauge length 8 inches  
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>Size |                  | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks  |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|----------|
|  |                    | Nominal<br>(#)    | Actual<br>(inch) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |          |
| 1  | 0.379              | 3                 | 0.377            | 0.11                       | 0.111  | 3280               | 4510                     | 65800                 | 64890  | 90400                    | 89300  | 1.20                 | 15.0         | SJ Steel |
| 2  | 0.378              | 3                 | 0.376            | 0.11                       | 0.111  | 3380               | 4890                     | 67800                 | 67070  | 98000                    | 97100  | 1.20                 | 15.0         |          |
| 3  | 4.266              | 10                | 1.264            | 1.27                       | 1.254  | 45800              | 57800                    | 79500                 | 80500  | 100400                   | 101600 | 1.40                 | 17.5         |          |
| 4  | 4.270              | 10                | 1.264            | 1.27                       | 1.255  | 40000              | 52400                    | 69500                 | 70240  | 91000                    | 92100  | 1.50                 | 18.8         |          |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |          |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |          |
| <b>Note: only four samples for tensile and two samples for bend test</b> |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |          |
| Bend Test  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |          |
| #3 Bar Bend Test Through 180° is Satisfactory                            |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |          |
| #10 Bar Bend Test Through 180° is Satisfactory                           |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |          |

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To,

Assistant Resident Engineer  
PEAS Consulting & Jv,  
Islamabad  
(Paradise City Bridge.)

Reference # CED/TFL **5363** (Dr. Asif Hameed)  
Reference of the request letter # PEAS/Paradise/2024/08

Dated: 19-07-2024  
Dated: 19-07-2024

**Tension Test Report** (Page -1/3)

Date of Test 19-07-2024  
Gauge length 600 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<br>(1/2")  | 780.0          | 784.0           | 18000                       | 176.58 | 19900                          | 195.22 | 199                               | >3.50        | xx                 |
| 2       | 12.70<br>(1/2")  | 780.0          | 784.0           | 18200                       | 178.54 | 19900                          | 195.22 | 198                               | >3.50        | xx                 |
| -       | -                | -              | -               | -                           | -      | -                              | -      | -                                 | -            |                    |
| -       | -                | -              | -               | -                           | -      | -                              | -      | -                                 | -            |                    |
| -       | -                | -              | -               | -                           | -      | -                              | -      | -                                 | -            |                    |
| -       | -                | -              | -               | -                           | -      | -                              | -      | -                                 | -            |                    |

**Only two 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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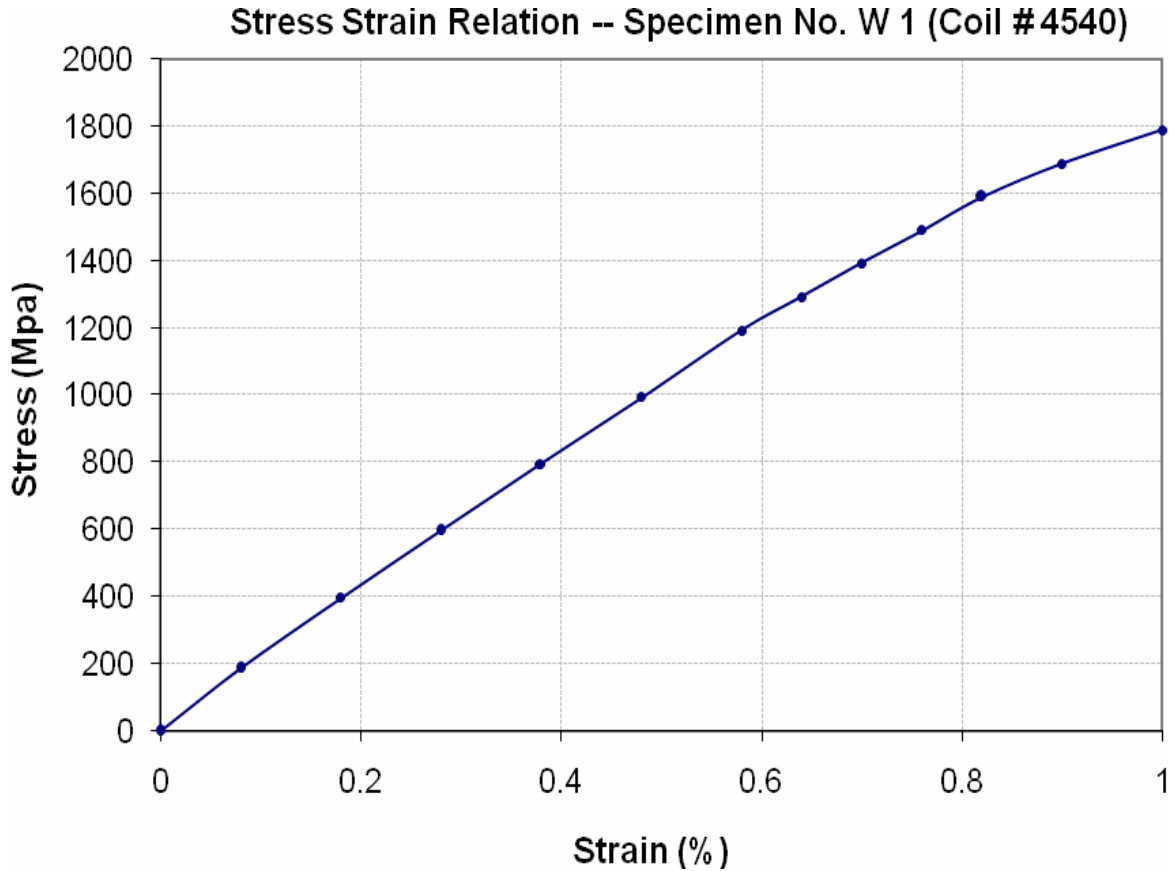
To,

Assistant Resident Engineer  
PEAS Consulting & Jv,  
Islamabad  
(Paradise City Bridge.)

Reference # CED/TFL **5363** (Dr. Asif Hameed)  
Reference of the request letter # PEAS/Paradise/2024/08

Dated: 19-07-2024  
Dated: 19-07-2024

**Graph** (Page – 2/3)



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To,

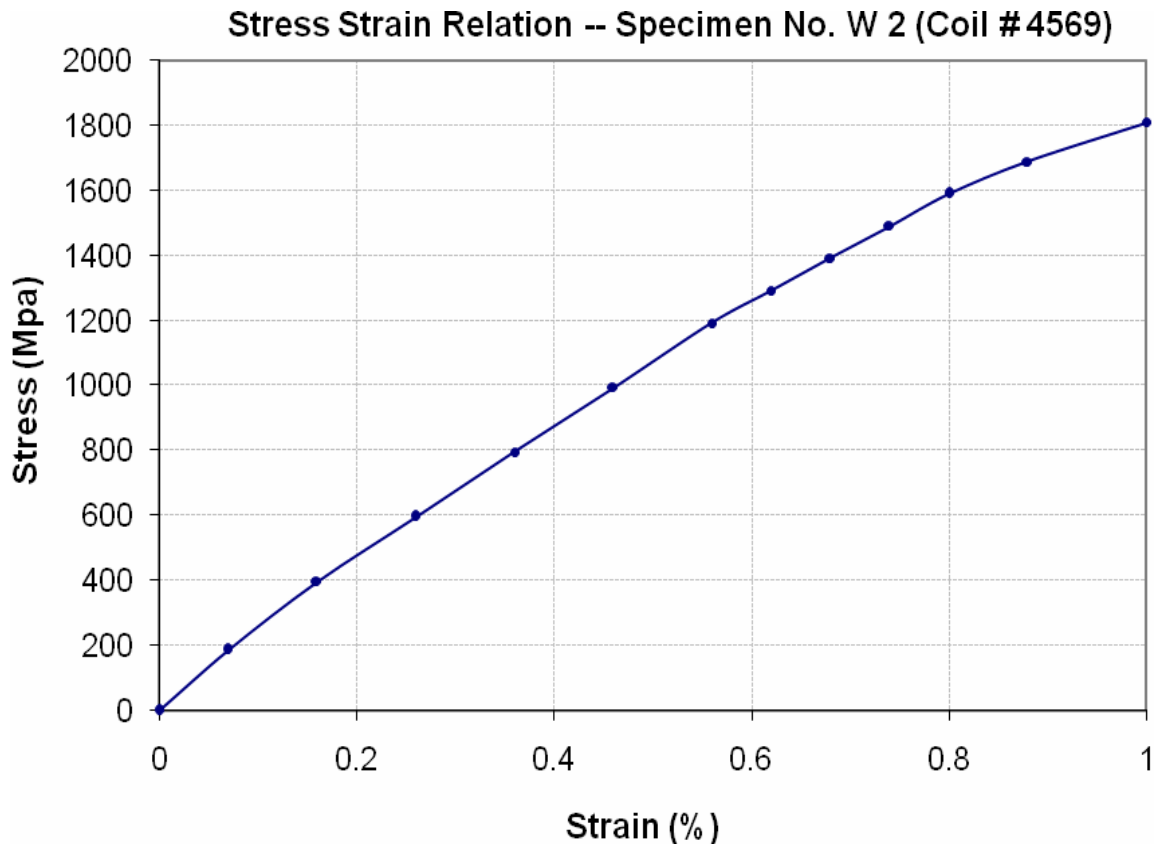
Assistant Resident Engineer  
PEAS Consulting & Jv,  
Islamabad  
(Paradise City Bridge.)

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Reference of the request letter # PEAS/Paradise/2024/08

Dated: 19-07-2024

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**Graph** (Page – 3/3)



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To,

Engineer's Representative  
Metroplan – Asian Jv  
Establishment of Jinnah Institute of Cardiology at Jinnah Hospital Lahore.

Reference # CED/TFL **5366** (Dr. M Kashif)

Dated: 19-07-2024

Reference of the request letter # Metroplan-Asian JV JIC-JHL-RE-222-2024 Dated: 19-07-2024

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

Date of Test 19-07-2024

Gauge length 8 inches

Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>Size |                  | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks           |  |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|-------------------|--|
|  |                    | Nominal<br>(#)    | Actual<br>(inch) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |                   |  |
| 1  | 0.363              | 3                 | 0.369            | 0.11                       | 0.107  | 3740               | 4690                     | 75000                 | 77270  | 94000                    | 96900  | 1.10                 | 13.8         | Sheikhoo<br>Steel |  |
| 2  | 0.362              | 3                 | 0.368            | 0.11                       | 0.106  | 3670               | 4660                     | 73600                 | 76080  | 93400                    | 96700  | 1.10                 | 13.8         |                   |  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                   |  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                   |  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                   |  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                   |  |
| <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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