S. Asad Ali

**Assitant Executive Engineer Test Performed By:** Dr. /Engr. Gillani

Pakistan Railways, Pakistan Railways, Faisalabad

**Tension Test & Bend Test** 

**SOM Lab** 

**Client Reference:** W/3/Spl/2019 Ref: 999(Page-1/1) 24-06-2019

**Test Specification:** 

08-06-2019 Dated: Dated:

> **ASTM-A-615 Deformed**

Gauge Length: **Sample Type:** 8 inch Bar

|       | Dia.   |         | Α          | rea             | Yield           | Ultimate | Yield | Stress                         | Ult. S                          | tress                          |                                 | _          | u            |                 |         |
|-------|--------|---------|------------|-----------------|-----------------|----------|-------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|------------|--------------|-----------------|---------|
| S.No. | Weight | Nominal | Calculated | Nominal         | Calculated      | Load     | Load  | (according to<br>nominal area) | (according to<br>measured area) | (according to<br>nominal area) | (according to<br>measured area) | Elongation | Gauge Length | %age Elongation | Remarks |
|       | lb/ft  | #       | in         | in <sup>2</sup> | in <sup>2</sup> | Tons     | Tons  | psi                            | psi                             | psi                            | psi                             | in         | in           | %               |         |
| 1     | 1.448  | 6       | 0.736      | 0.44            | 0.426           | 16.26    | 19.78 | 81500                          | 84180                           | 99130                          | 102380                          | 1.00       | 8.0          | 12.5            |         |
| 2     | 0.656  | 4       | 0.496      | 0.20            | 0.193           | 6.47     | 8.31  | 71380                          | 73970                           | 91610                          | 94940                           | 1.10       | 8.0          | 13.8            |         |
| -     | -      | -       | -          | -               | -               | -        | -     | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -        | -     | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | 1               | -        | -     | -                              | •                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               | •               | -        | -     | -                              |                                 | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               | •               | -        | -     | -                              |                                 | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               | 1               |          | -     | -                              | 1                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               |                 | -        | -     | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -        | -     | -                              | -                               | -                              | -                               | -          | -            | -               |         |
|       |        |         |            |                 |                 |          |       |                                |                                 |                                |                                 |            |              |                 |         |

# **BEND TEST:**

Test:

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

Engr. Muhammad Mubashar

**Test Performed By:** Dr. /Engr.

S. Asad Ali Gillani Raja

Resident Engineer, COE, Tandlianwala Distt, Faisalabad AI -Imam Enterprises (Pvt) Ltd )

1000(Page-**SOM Lab** 

**Client Reference:** RE/UET/CETW/06/19/81 Ref: 1/1)

Dated: 19-06-2019

Dated: 24-06-2019

**Tension Test & Bend Test Test Specification:** Test: **ASTM-A-615** 

Guage Length: Sample Type: **Deformed Bar(FF Steel)** 8 inch

|       |        |         | ia.        | Α               | rea             | Yield | Ultimate | Yield                          | Stress                          | Ult. S                         | tress                           |            |              | L               |         |
|-------|--------|---------|------------|-----------------|-----------------|-------|----------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|------------|--------------|-----------------|---------|
| S.No. | Weight | Nominal | Calculated | Nominal         | Calculated      | Load  | Load     | (according to<br>nominal area) | (according to<br>measured area) | (according to<br>nominal area) | (according to<br>measured area) | Elongation | Gauge Length | %age Elongation | Remarks |
|       | lb/ft  | #       | in         | in <sup>2</sup> | in <sup>2</sup> | Tons  | Tons     | psi                            | psi                             | psi                            | psi                             | in         | in           | %               |         |
| 1     | 1.502  | 6       | 0.749      | 0.44            | 0.441           | 16.02 | 20.23    | 80320                          | 80140                           | 101420                         | 101190                          | 1.20       | 8.0          | 15.0            |         |
| 2     | 1.513  | 6       | 0.753      | 0.44            | 0.445           | 16.26 | 20.41    | 81500                          | 80580                           | 102290                         | 101140                          | 1.30       | 8.0          | 16.3            |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               |                 | •     |          | •                              | -                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
|       |        |         |            |                 |                 |       |          |                                |                                 |                                |                                 |            |              |                 |         |

#### **BEND TEST:**

| # 6 | Sample bend through 180 degrees Satisfactorily without any crack | Note:-              |
|-----|------------------------------------------------------------------|---------------------|
|     |                                                                  | Only Three Samples  |
|     |                                                                  | Received and Tested |
|     |                                                                  |                     |

S. Asad Ali

Khushi Mohammad & Brothers Test Performed By: Dr. /Engr. Gillani

**Construction Company, (Subject: Beaconhouse School Sahiwal)** 

**SOM Lab** 

Client Reference: nil Ref: 1002(Page-1/1)
Dated: Dated: 24-06-2019

Deformed

Gauge Length: 8 inch Sample Type: Bar

|       |        | D       | ia.        | Α               | rea             | Yield | Ultimate | Yield                          | Stress                          | Ult. S                         | tress                           |            | _            | n               |         |
|-------|--------|---------|------------|-----------------|-----------------|-------|----------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|------------|--------------|-----------------|---------|
| S.No. | Weight | Nominal | Calculated | Nominal         | Calculated      | Load  | Load     | (according to<br>nominal area) | (according to<br>measured area) | (according to<br>nominal area) | (according to<br>measured area) | Elongation | Gauge Length | %age Elongation | Remarks |
|       | lb/ft  | #       | in         | in <sup>2</sup> | in <sup>2</sup> | Tons  | Tons     | psi                            | psi                             | psi                            | psi                             | in         | in           | %               |         |
| 1     | 2.570  | 8       | 0.980      | 0.79            | 0.755           | 22.53 | 33.46    | 62890                          | 65810                           | 93400                          | 97730                           | 1.30       | 8.0          | 16.3            |         |
| 2     | 1.460  | 6       | 0.739      | 0.44            | 0.429           | 12.66 | 17.89    | 63460                          | 65090                           | 89670                          | 91970                           | 1.40       | 8.0          | 17.5            |         |
| 3     | 0.653  | 4       | 0.494      | 0.20            | 0.192           | 6.12  | 8.46     | 67450                          | 70260                           | 93300                          | 97190                           | 1.30       | 8.0          | 16.3            |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | •                               | -                              | •                               | -          | 1            | 1               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              |                                 | -                              | -                               | -          | •            | 1               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              |                                 | -                              | -                               | -          | •            | 1               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | 1            | 1               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | 1            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               | _       |
|       |        |         | •          |                 | •               |       |          |                                |                                 |                                |                                 |            |              |                 |         |

# **BEND TEST:**

| # 8 | Sample bend through 180 degrees Satisfactorily without any crack | Note:-              |
|-----|------------------------------------------------------------------|---------------------|
| # ( | Sample bend through 180 degrees Satisfactorily without any crack |                     |
| # 4 | Sample bend through 180 degrees Satisfactorily without any crack | Only Six Samples    |
|     |                                                                  | Received and Tested |
|     |                                                                  | 7                   |

Engr. Ahad Johri Test Performed By: Dr. /Engr. M. Rizwan Riaz Ahad And Associates, Consulting Engineers & Planners,(Project: 76-A Commercial Plaza Guberg, Lahore)

 Client Reference:
 Nil
 SOM Lab Ref:
 1003(Page-1/1)

 Dated:
 24-06-2019
 Dated:
 24-06-2019

Test: Tension Test Test Specification: ASTM-A-615
Gauge Length: 8 inch Sample Type: Deformed Bar

|       |        | D       | ia.        | Α               | rea             | Yield | Ultimate | Yield                          | Stress                          | Ult. S                         | tress                           |            | _            | _ u             |         |
|-------|--------|---------|------------|-----------------|-----------------|-------|----------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|------------|--------------|-----------------|---------|
| S.No. | Weight | Nominal | Calculated | Nominal         | Calculated      | Load  | Load     | (according to<br>nominal area) | (according to<br>measured area) | (according to<br>nominal area) | (according to<br>measured area) | Elongation | Gauge Length | %age Elongation | Remarks |
|       | lb/ft  | #       | in         | in <sup>2</sup> | in <sup>2</sup> | Tons  | Tons     | psi                            | psi                             | psi                            | psi                             | in         | in           | %               |         |
| 1     | 1.437  | 6       | 0.733      | 0.44            | 0.422           | 13.12 | 17.25    | 65760                          | 68570                           | 86450                          | 90140                           | 1.50       | 8.0          | 18.8            |         |
| 2     | 0.644  | 4       | 0.491      | 0.20            | 0.189           | 5.63  | 7.03     | 62050                          | 65660                           | 77560                          | 82080                           | 1.70       | 8.0          | 21.3            |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
|       |        |         |            |                 |                 |       |          |                                |                                 |                                |                                 |            |              |                 |         |

### **BEND TEST:**

| <br>No Bend test performed | Note:-              |
|----------------------------|---------------------|
|                            |                     |
|                            | Only Two Samples    |
|                            | Received and Tested |
|                            |                     |

s. Asad Ali Gillani Wajid Ali Shah **Test Performed By:** Dr. /Engr.

**GM - Works, FF Steel Lahore** 

**SOM Lab** 

1004(Page-1/1) **Client Reference:** <u>Nil</u> Ref: Dated: 20-06-019

24-06-2019 Dated:

Test: **Tension Test Test Specification: ASTM-A-615 Deformed** 

Gauge Length: **Sample Type:** 8 inch Bar

|       | Dia.   |         | ia.        | Α               | rea             | Yield | Ultimate | Yield                          | Stress                          | Ult. S                         | tress                           |            |              | L.              |         |
|-------|--------|---------|------------|-----------------|-----------------|-------|----------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|------------|--------------|-----------------|---------|
| S.No. | Weight | Nominal | Calculated | Nominal         | Calculated      | Load  | Load     | (according to<br>nominal area) | (according to<br>measured area) | (according to<br>nominal area) | (according to<br>measured area) | Elongation | Gauge Length | %age Elongation | Remarks |
|       | lb/ft  | #       | in         | in <sup>2</sup> | in <sup>2</sup> | Tons  | Tons     | psi                            | psi                             | psi                            | psi                             | in         | in           | %               |         |
| 1     | 1.059  | 5       | 0.629      | 0.31            | 0.311           | 10.60 | 14.95    | 75420                          | 75180                           | 106390                         | 106050                          | 1.30       | 8.0          | 16.3            |         |
| 2     | 1.055  | 5       | 0.628      | 0.31            | 0.310           | 10.70 | 15.06    | 76150                          | 76150                           | 107120                         | 107120                          | 1.10       | 8.0          | 13.8            |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               | -               | •     | -        | -                              | -                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | _                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
|       |        |         |            |                 |                 |       |          |                                |                                 |                                |                                 |            |              |                 |         |

# **BEND TEST:**

| <br>No Bend test performed | Note:-              |  |  |  |  |  |  |
|----------------------------|---------------------|--|--|--|--|--|--|
|                            |                     |  |  |  |  |  |  |
|                            | Only Two Samples    |  |  |  |  |  |  |
|                            | Received and Tested |  |  |  |  |  |  |
|                            |                     |  |  |  |  |  |  |

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

Sub Divisional Officer Test Performed By: Dr. /Engr. Ubaid A Mughal

**Buildings Sub Division, Toba Tek Singh** 

**SOM Lab** 

Client Reference: <u>2452-</u> Ref: 1007 (Page-1/2

Dated: 29-05-2019 Dated: 24-06-2019

Test: Tension Test Test Specification: ASTM-A-615

**Deformed** 

Gauge Length: 8 inch Sample Type: Bar

|       |        | D       | ia.        | Α               | rea             | Yield | Ultimate | Yield                          | Stress                          | Ult. S                         | tress                           |            | _            | n               |         |
|-------|--------|---------|------------|-----------------|-----------------|-------|----------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|------------|--------------|-----------------|---------|
| S.No. | Weight | Nominal | Calculated | Nominal         | Calculated      | Load  | Load     | (according to<br>nominal area) | (according to<br>measured area) | (according to<br>nominal area) | (according to<br>measured area) | Elongation | Gauge Length | %age Elongation | Remarks |
|       | lb/ft  | #       | in         | in <sup>2</sup> | in <sup>2</sup> | Tons  | Tons     | psi                            | psi                             | psi                            | psi                             | in         | in           | %               |         |
| 1     | 1.483  | 6       | 0.745      | 0.44            | 0.436           | 16.23 | 19.57    | 81340                          | 82090                           | 98100                          | 99000                           | 1.00       | 8.0          | 12.5            |         |
| 2     | 0.661  | 4       | 0.497      | 0.20            | 0.194           | 7.72  | 9.55     | 85100                          | 87730                           | 105330                         | 108590                          | 1.00       | 8.0          | 12.5            |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | 1                               | -                              | 1                               | -          | -            | ı               |         |
| -     | -      | -       | -          | -               | -               |       | -        | -                              | 1                               | -                              | -                               | -          | -            | ı               |         |
| -     | -      | -       | -          | -               | -               |       | -        | -                              | 1                               | -                              | •                               | -          | -            | ı               |         |
|       |        |         |            |                 |                 |       |          |                                |                                 |                                |                                 |            |              |                 |         |

# **BEND TEST:**

| # 6 | Sample bend through 180 degrees Satisfactorily without any crack | Note:-                                |
|-----|------------------------------------------------------------------|---------------------------------------|
| # 4 | Sample bend through 180 degrees Satisfactorily without any crack |                                       |
|     |                                                                  | Only Four Samples Received and Tested |
|     |                                                                  | Neceived and rested                   |

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

Sub Divisional Officer Test Performed By: Dr. /Engr. Ubaid A Mughal

**Buildings Sub Division, Toba Tek Singh** 

**SOM Lab** 

Client Reference: <u>2196-</u> Ref: 1007 (Page-2/2

Dated: 29-04-2019 Dated: 24-06-2019

Deformed

Gauge Length: 8 inch Sample Type: Bar

|       | Weight | Dia.    |            | Area            |                 | Yield | Ultimate | Yield Stress                   |                                 | Ult. Stress                    |                                 |            | _            | n               |         |
|-------|--------|---------|------------|-----------------|-----------------|-------|----------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|------------|--------------|-----------------|---------|
| S.No. |        | Nominal | Calculated | Nominal         | Calculated      | Load  | Load     | (according to<br>nominal area) | (according to<br>measured area) | (according to<br>nominal area) | (according to<br>measured area) | Elongation | Gauge Length | %age Elongation | Remarks |
|       | lb/ft  | #       | in         | in <sup>2</sup> | in <sup>2</sup> | Tons  | Tons     | psi                            | psi                             | psi                            | psi                             | in         | in           | %               |         |
| 1     | 1.486  | 6       | 0.746      | 0.44            | 0.437           | 18.20 | 21.87    | 91210                          | 91830                           | 109600                         | 110350                          | 1.10       | 8.0          | 13.8            |         |
| 2     | 1.501  | 6       | 0.749      | 0.44            | 0.441           | 18.73 | 22.27    | 93860                          | 93650                           | 111640                         | 111390                          | 1.00       | 8.0          | 12.5            |         |
| 3     | 0.652  | 4       | 0.494      | 0.20            | 0.192           | 6.88  | 8.31     | 75880                          | 79040                           | 91610                          | 95430                           | 1.00       | 8.0          | 12.5            |         |
| 4     | 0.658  | 4       | 0.496      | 0.20            | 0.193           | 7.44  | 8.94     | 82060                          | 85040                           | 98580                          | 102160                          | 0.90       | 8.0          | 11.3            |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | -       | -          | -               | -               | -     | -        | -                              | -                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | ı       | -          | -               | •               | •     | -        | -                              | ı                               | -                              | -                               | -          | -            | -               |         |
| -     | -      | ı       | -          | -               | -               | •     | -        | -                              | 1                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | ı       | -          | -               | -               | •     | -        | -                              | 1                               | -                              | -                               | -          | -            | 1               |         |
| -     | -      | ı       | -          | -               | -               | •     | -        | -                              | 1                               | -                              | -                               | -          | -            | 1               |         |
|       |        |         |            |                 |                 |       |          |                                | <del>-</del>                    |                                |                                 |            |              |                 |         |

# **BEND TEST:**

| # 6 | Sample bend through 180 degrees Satisfactorily without any crack | Note:-              |
|-----|------------------------------------------------------------------|---------------------|
| # 4 | Sample bend through 180 degrees Satisfactorily without any crack | Only Six Samples    |
|     |                                                                  | Received and Tested |

| Note: Please always confirm the results of above report on web www.uet-civil.edu.pk |  |  |  |  |  |  |  |
|-------------------------------------------------------------------------------------|--|--|--|--|--|--|--|