# **DISCLAIMER**

The details like name of project, name of fabricator, etc. are indicative only. These should never be referred for any WPSS related matters. Only the technical details should be referred and followed for the WPSS purpose.

# Model WPSS for Railway BOW STRING GIRDER (with SV Loading and Congestion Factor)

Railway BOW STRING GIRDER
(with SV Loading and Congestion Factor)
72.0m clear span 3 lane
Model WPSS No: RDSO/Infra-II/B&S/ROB/BSG/
WPSS/72.0 series (42 Nos)



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. : NEIPL/BSG/WPSS/72.0m/01/22-23 Rev 0

RDSO Drawing : RDSO/B-10425 # Bottom Long Beam

Section 1-1, Top / Bottom Flange. Pl. to Side Pl. Outside

Location.

Weld Joint description Fillet (10 mm)

3. Base Metal 25 mm & 25 mm IS 2062-11: E 350 B0, Fully Killed. :

Normalized / Control cooled

Welding Process S.A.W. 5. Welding Position Flat

Welding Consumable

Class: W2 of IRS M. 39-2001 6.1. Electrode/Wire :

Type: Copper coated mild steel wire

Drying method: N.A.

6.2. Flux Class: F2 of IRS M. 39-20012020

Type: Agglomerated

० तं० रेख जन्मासम् **स्थान** Drying method: Recommendation of Manufacturer or 250°C for

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one hour before use.

6.3 Shielding Gas N.A.

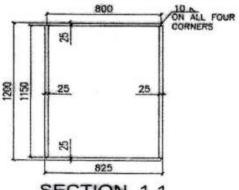
Base metal preparation Fusion faces and adjacent surfaces are cleaned and made free

from cracks, notches, mill scale, grease, paint, rust etc., which

may affect weld quality.

7.1 Joint design details (Sketch showing arrangements of parts, weld groove details,

passes & their sequence Etc.,)



SECTION 1-1

7.2 Joint preparation As per IS 4353 - 1995, Cl.7,

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current Type: DC, Polarity: Reverse

9. Welder Qualification As per IS 7310 (Part I) - 1974

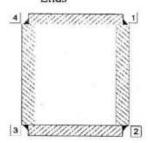
10. Welding parameters and technique

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	4	480-530	28-32	1.2-1.4	0.40-0.45	15-20	N.A.
2	4	500-550	28-32	1.2-1.4	0.40-0.45	15-20	N.A.

10.2 Welding sequence and technique

: Welding from run on to run off tabs at the free Ends



11. Provision of run-on/run-off tabs

: Yes

12. Cleaning of weld bead before laying of next weld bead

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13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment : N.A.

17. Rectification of weld defect

By grinding of the defective weld & rectifying the weld as

per Cl. 32.2 of IS 9595-96, using As class of electrodes of

specification. IRS M. 28-92 after conducting D P Test

18. Inspection of Weld Visual, D.P. Test & Macro Etching

19. Any other relevant details

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/WPSS/72.0m/02/22-23 Rev 0

**RDSO Drawing** 

RDSO/B-10425 # Hanger

Section on 2-2, Top/Bottom Flange. Pl to Side Pl. Outside

Location.

2. Weld Joint description Fillet (10 mm)

3. Base Metal 32 mm & 25 mm IS 2062-11: E 350 B0, Fully Killed.

Normalized/Control cooled

4. Welding Process S.A.W.

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5. Welding Position Flat

Welding Consumable

6.1. Electrode/Wire

Class: W2 of IRS M. 39-2001-9.0 20 Type: Const.

Type: Copper coated mild steel wire Drying method: N.A.

6.2. Flux

Class: F2 of IRS M. 39-2001 2020

Type: Agglomerated

Drying method: Recommendation of Manufacturer or 250°C for

one hour before use.

6.3. Shielding Gas

N.A.

Base metal preparation

Fusion faces and adjacent surfaces are cleaned and made free

from cracks, notches, mill scale, grease, paint, rust etc., which

may affect weld quality.

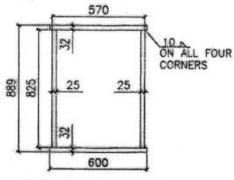
7.1 Joint design details

(Sketch showing arrangements of parts, weld groove details,

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passes & their sequence Etc.,)



SECTION 2-2

Joint preparation

As per IS 4353 - 1995, Cl.7,



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current Type: DC, Polarity: Reverse

9. Welder Qualification

As per IS 7310 (Part I) - 1974

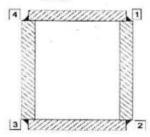
10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	4	480-530	28-32	1.2-1.4	0.40-0.45	15-20	N.A.
2	4	500-550	28-32	1.2-1.4	0.40-0.45	15-20	N.A.

10.2 Welding sequence and technique

: Welding from run on to run off tabs at the free ends.



11. Provision of run-on/run-off tabs

: Yes

12. Cleaning of weld bead before laying of next weld bead : N.A. Ys

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature : 150°C

15. Peening : N.A.

16. Post welds treatment : N.A.

17. Rectification of weld defect By grinding of the defective weld & rectifying the weld

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as per Cl. 32.2 of IS 9595-96, using A3 class of electrodes of specification. IRS M. 28-02 after

conducting D P Test.

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details

: None

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/WPSS/72.0m/03/22-23 Rev 0

RDSO Drawing

RDSO/B-10425 # Arch

Section on 3-3, Top / Bottom Flange. Pl. to Side Pl. Outside

Location

Weld Joint description 2.

Fillet (10 mm)

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Base Metal

36 mm & 32 mm IS 2062-11: E 350 B0, Fully Killed.

Normalized/Control cooled

Welding Process 4. 5. Welding Position S.A.W. Flat

Welding Consumable 6.

6.1 Electrode/Wire

Class: W2 of IRS M. 39-2001 2020

Type: Copper coated mild steel wire

Drying method: N.A.

6.2. Flux

Class: F2 of IRS M. 39-20012020

Type: Agglomerated

Drying method: Recommendation of Manufacturer or 250°C for

one hour before use.

6.3 Shielding Gas

N.A.

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Base metal preparation

Fusion faces and adjacent surfaces are cleaned and made

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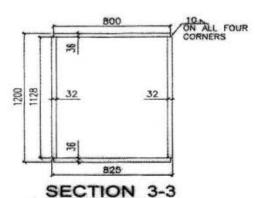
free from cracks, notches, mill scale, grease, paint, rust

etc., which may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld groove details,

passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 4353 - 1995, Cl.7,



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN-Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current 8.

Type: DC, Polarity: Reverse

Welder Qualification

As per IS 7310 (Part I) - 1974

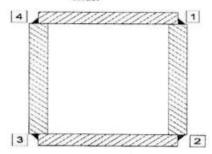
10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	4	480-530	28-32	1.2-1.4	0.40-0.45	15-20	N.A.
2	4	500-550	28-32	1.2-1.4	0.40-0.45	15-20	N.A.

10.2 Welding sequence and technique

: Welding from run on to run off tabs at the free ends.



11. Provision of run-on/run-off tabs

: Yes

Cleaning of weld bead before laying of next weld bead 12.

: N.A. 4.9>

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13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening : N.A.

16. Post welds treatment

: N.A.

Rectification of weld defect

By grinding of the defective weld & rectifying the weld as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes of specification. IRS M. 28-02 after conducting DP Test

18. Inspection of Weld Visual, D.P. Test & Macro Etching

Any other relevant details

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator:

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/WPSS/72.0m/04/22-23 Rev 0

RDSO Drawing

RDSO/B-10425 # Intt. Bottom Cross Beam

Section on 4-4, Top Flange. Pl. to Web Pl.

2. Weld Joint description

Fillet (10 mm)

Base Metal

18 mm & 16 mm IS 2062-11: E 350 B0, Fully Killed.

Normalized/Control cooled

4. Welding Process

S.A.W.

5. Welding Position

Flat

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Welding Consumable

6.1 Electrode/Wire

Class: W2 of IRS M. 39-2001 2020

Type: Copper coated mild steel wire

Drying method: N.A.

6.2 Flux

Class: F2 of IRS M. 39-20012 020

Type: Agglomerated

Drying method: Recommendation of Manufacturer or 250°C for

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one hour before use.

6.3 Shielding Gas

N.A.

Base metal preparation

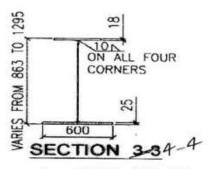
Fusion faces and adjacent surfaces are cleaned and made free from cracks, notches, mill scale, grease, paint, rust etc., which

may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, Weld groove details,

passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 4353 - 1995, Cl.7,

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification

As per IS 7310 (Part I) - 1974

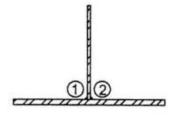
10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	4	480-530	28-32	1.2-1.4	0.40-0.45	15-20	N.A.
2	4	500-550	28-32	1.2-1.4	0.40-0.45	15-20	N.A.

10.2 Welding sequence and technique

: Welding from run on to run off tabs at the free



11. Provision of run-on/run-off tabs

: Yes

12. Cleaning of weld bead before laying of next weld bead : N.A. PANELLET

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13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature : 150°C

15. Peening : N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect: By grinding of the defective weld & rectifying the Weld

as per Cl. 32.2 of IS 9595-96, using A3 class of electrodes

of specification. IRS M. 28-92 after conducting D P Test

18. Inspection of Weld : Visual, D.P. Test & Macro Etching

19. Any other relevant details

: None

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN-Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator: NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. NEIPL/BSG/WPSS/72.0m/05/22-23 Rev 0

RDSO/B-10425 # Intt. Bottom Cross Beam 1. RDSO Drawing :

Section on 4-4, Bottom Flange. Pl. to Web Pl.

Weld Joint description Fillet (10 mm) \*

3. Base Metal : 25 mm & 16 mm IS 2062-11: E 350 B0, Fully Killed.

Normalized/Control cooled

Welding Process S.A.W. 5. Welding Position Flat

6. Welding Consumable

Class: W2 of IRS M. 39-2001 2 020 6.1 Electrode/Wire

Type: Copper coated mild steel wire

Drying method: N.A.

Class: F2 of IRS M. 39-2001 2020 6.2 Flux

Type: Agglomerated

Drying method: Recommendation of Manufacturer or 250°C for

one hour before use.

6.3 Shielding Gas N.A.

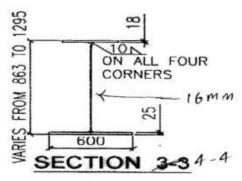
7. Base metal preparation : Fusion faces and adjacent surfaces are cleaned and made free

from cracks, notches, mill scale, grease, paint, rust etc., which

may affect weld quality.

7.1 Joint design details (Sketch showing arrangements of parts, Weld groove details,

passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 4353 - 1995, Cl.7,

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

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Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification

As per IS 7310 (Part I) - 1974

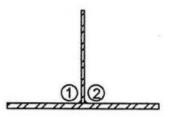
10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	4	480-530	28-32	1.2-1.4	0.40-0.45	15-20	N.A.
2	4	500-550	28-32	1.2-1.4	0.40-0.45	15-20	N.A.

10.2 Welding sequence and technique

: Welding from run on to run off tabs at the free ends.



11. Provision of run-on/run-off tabs

12. Cleaning of weld bead before laying of next weld bead : N.A. ५७-४०थ०वा०वं० देख यन्द्रायम द्यस्त

Architect Research Officer (M.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature : 150°C

15. Peening : N.A.

16. Post welds treatment

: N.A.

Rectification of weld defect: By grinding of the defective weld & rectifying the Weld

as per Cl. 32.2 of IS 9595-96, using As class of electrodes

of specification. IRS M. 28-92 after conducting D P Test

18. Inspection of Weld

: Visual, D.P. Test & Macro Etching

19. Any other relevant details

: None

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#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar,

Name & address of fabricator: NAALSONS ENGINEERS (I) PVT. LTD.

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Welding Procedure Specification No.

NEIPL/BSG/WPSS/72.0m/06/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425 # End Bottom Cross Beam

Section on 5-5, Top/Bottom Flange, Pl. to Side Pl. Outside

Location

2. Weld Joint description

Fillet (10 mm)

3. Base Metal

25 mm & 25 mm IS 2062-11: E 350 B0, Fully Killed.

Normalized/Control cooled

4. Welding Process

S.A.W.

5. Welding Position

Flat

6. Welding Consumable

6.1 Electrode/Wire

Class: W2 of IRS M. 39-2001 2020

Type: Copper coated mild steel wire

Drying method: N.A.

6.2 Flux

Class: F2 of IRS M. 39-2001 2 02 0

Type: Agglomerated

Drying method: Recommendation of Manufacturer or 250°C for

one hour before use.

6.3 Shielding Gas

N.A.

7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease, paint, rust etc., which may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts,

Weld groove details, passes & their sequence Etc.,) A. Mant Research Officer (M.

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7.2 Joint preparation

As per IS 4353 - 1995, Cl.7,



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current Type: DC, Polarity: Reverse

9. Welder Qualification As per IS 7310 (Part I) - 1974

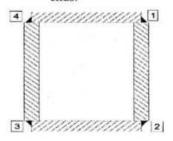
10. Welding parameters and technique

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (1/min)
1	4	480-530	28-32	1.2-1.4	0.40-0.45	15-20	N.A.
2	4	500-550	28-32	1.2-1.4	0.40-0.45	15-20	N.A.

10.2 Welding sequence and technique

: Welding from run on to run off tabs at the free ends.



11. Provision of run-on/run-off tabs : Yes

12. Cleaning of weld bead before laying of next weld bead : N.A. 485

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13. Root preparation before welding other side of groove weld : N.A.

14. Preheating and inter-pass temperature : 150°C

16. Post welds treatment

Peening

15.

: N.A.

: N.A.

17. Rectification of weld defect By grinding of the defective weld & rectifying the Weld

as per Cl. 32.2 of IS 9595-96, using A3 class of electrodes of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld Visual, D.P. Test & Macro Etching

19. Any other relevant details

None

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Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. NEIPL/BSG/WPSS/72.0m/07/22-23 Rev 0 :

1. RDSO Drawing : RDSO/B-10425 # Top Tie Beam

Section on 6-6 Top/Bottom Flange. Pl. to Side Pl.

Outside Location

2. Weld Joint description : Fillet (10 mm)

3. Base Metal 25 mm & 25 mm IS 2062-11, E 350 B0, Fully Killed. .

Normalized/Control cooled

4. Welding Process S.A.W. 5. Welding Position Flat

6. Welding Consumable

Class: W2 of IRS M. 39-2001 2 0 20 6.1 Electrode/Wire

Type: Copper coated mild steel wire

Drying method: N.A.

Class: F2 of IRS M. 39-2001 2020 6.2 Flux :

Type: Agglomerated

Research Officer (Mi Drying method: Recommendation of Manufacturer

or 250°C for one hour before use.

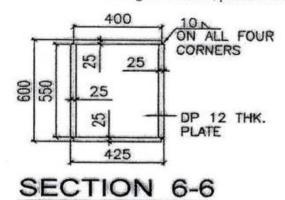
6.3 Shielding Gas N.A.

६०७ - मारुवं रेख सन्तास्य सस्तरह Base metal preparation : Fusion faces and adjacent surfaces are cleaned and

> made free from cracks, notches, mill scale, grease, paint, rust etc., which may affect weld quality.

7.1. Joint design details (Sketch showing arrangements of parts,

Weld groove details, passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 4353 - 1995, Cl.7,



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification

As per IS 7310 (Part I) - 1974

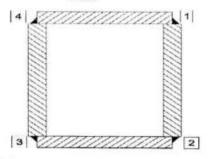
Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	4	480-530	28-32	1.2-1.4	0.40-0.45	15-20	N.A.
2	4	500-550	28-32	1.2-1.4	0.40-0.45	15-20	N.A.

10.2 Welding sequence and technique

: Welding from run on to run off tabs at the free ends.



वस्थान बनुतंत्रान विज्ञतारी (बार् Assistant Research Officer (M. जिल्ला को के सम्बाख्य **सब्द**न

11. Provision of run-on/run-off tabs

: Yes

12. Cleaning of weld bead before laying of next weld bead CLP A.M:

Root preparation before welding other side of groove weld 13.

14. Preheating and inter-pass temperature : N.A. 11501500C

15. Peening : 150°C NA

16. Post welds treatment : N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the weld as

per Cl. 32.2 of IS 9595-96, using A3 class of electrodes of

specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld Visual, D.P. Test & Macro Etching

19. Any other relevant details

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### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

NAALSONS ENGINEERS (I) PVT. LTD. Name & address of fabricator

NEIPL/BSG/WPSS/72.0m/08/22-23 Rev 0 Welding Procedure Specification No.

RDSO/B-10425 # Top Diagonal Tie Beam RDSO Drawing

Section on 7-7 Top/Bottom Flange. Pl. to Side Pl.

Outside Location

Fillet (10 mm) 2. Weld Joint description :

3. Base Metal 18 mm & 18 mm IS 2062-11, E 350 B0, Fully Killed.

Normalized/Control cooled

S.A.W. 4. Welding Process 5. Welding Position Flat

Welding Consumable

Class: W2 of IRS M. 39-2001 2020 6.1 Electrode/Wire

Type: Copper coated mild steel wire

Drying method: N.A.

Class: F2 of IRS M. 39-2001 2 020 6.2 Flux

Type: Agglomerated

Drying method: Recommendation of Manufacturer

or 250°C for one hour before use.

6.3 Shielding Gas N.A.

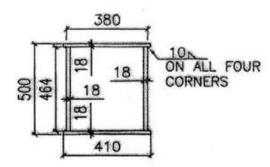
Base metal preparation Fusion faces and adjacent surfaces are cleaned and :

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality.

7.1. Joint design details (Sketch showing arrangements of parts,

> Weld groove details, passes & their sequence Etc.,) वश्वक कवृत्वान अधिकारी (बार्



SECTION 7-7

7.2 Joint preparation

As per IS 4353 - 1995, Cl.7,



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification

As per IS 7310 (Part I) - 1974

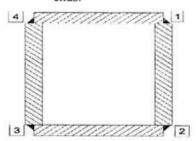
10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	4	480-530	28-32	1.2-1.4	0.40-0.45	15-20	N.A.
2	4	500-550	28-32	1.2-1.4	0.40-0.45	15-20	N.A.

10.2 Welding sequence and technique

: Welding from run on to run off tabs at the free ends.



त्राकारी (बाबू श्रध्यक अनुसद्धात व Assistant Research Officer (Mo : Yes •०४०था०थं० रेख सन्धालम ससम्ब

11. Provision of run-on/run-off tabs

12. Cleaning of weld bead before laying of next weld bead Lep. A.H:

13. Root preparation before welding other side of groove weld

14. Preheating and inter-pass temperature : N.A. 11000 -15000

15. Peening : N.A.

16. Post welds treatment : N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the weld as

per Cl. 32.2 of IS 9595-96, using A3 class of electrodes of

specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld Visual, D.P. Test & Macro Etching

19. Any other relevant details



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

NAALSONS ENGINEERS (I) PVT. LTD. Name & address of fabricator

Welding Procedure Specification No. : NEIPL/BSG/WPSS/72.0m/09/22-23 Rev 0

RDSO/B-10425 # Bottom Long Beam Diaphragm 1. RDSO Drawing :

at Section A-A, DP To Bottom/Side Pl.- Inside Location

Fillet (10 mm) 2. Weld Joint description :

25 mm & 25/18 mm IS 2062-11: E 350 B0, fully killed. Base Metal :

Normalized/Control cooled With DP1 & DP2

Welding Process F.C.A.W. 4. :

Flat/Horizontal-2F 5. Welding Position :

Welding Consumable

Class: I of IRS M. 46–2003/4S 6419:1996, 6.1. Electrode/Wire

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2. Flux : Class: N.A.

Type: N.A.

Drying method: N.A.

6.3. Shielding Gas Argon-CO<sub>2</sub>. Mix

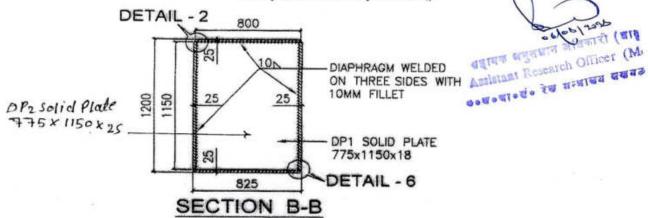
7. Base metal preparation Fusion faces and adjacent surfaces are cleaned and made free

from cracks, notches, mill scale, grease, paint, rust etc., which

may affect weld quality.

7.1 Joint design details (Sketch showing arrangements of parts, weld groove details,

weld passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification

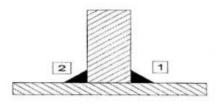
As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2+	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique:



11. Provision of run-on/run-off tabs

: N.A. बहुाबक बनुतंधान अधिकारी (बाहु

12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per Cl.

32.2 of IS 9595-96, using 🖼 class of electrodes of

specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld: Visual, D.P. Test & Macro Etching

19. Any other relevant details: None

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/WPSS/72.0m/10/22-23 Rev 0

RDSO Drawing

RDSO/B-10425 # Bottom Long Beam

Section 1-1, Top / Bottom Flange. Pl. to Side Pl. - Inside

Location

:

:

:

:

:

:

2. Weld Joint description

Fillet (10 mm)

3. Base Metal

25 mm & 25 mm IS 2062-11: E 350 B0, fully killed.

Normalized/Control cooled

4. Welding Process

F.C.A.W.

5. Welding Position

6.1 Electrode/Wire

Flat/Horizontal-2F

Welding Consumable

Class: I of IRS M. 46-2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas

Argon-CO2. Mix

Base metal preparation

Fusion faces and adjacent surfaces are cleaned and made free

from cracks, notches, mill scale, grease, paint, rust etc., which

may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld groove details,

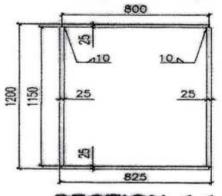
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व्यक्तिकारो (श्रात

Assistant Research Officer (Mi

क्रब्स ब्यान विश्व विश्व सम्बास्य स्थानक

weld passes & their sequence Etc.,)



SECTION 1-1

7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

Welder Qualification

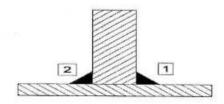
As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2+	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.3 Welding sequence and technique:



11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

बगुजक चनुत्रधान अखिकारी (बाह्

Assistant Research Officer (M

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

्या वर्ष केश सन्धासम्बद्ध स्थापन By grinding of the defective weld & rectifying the as per Cl.

32.2 of IS 9595-96, using AB class of electrodes of

specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld: Visual, D.P. Test & Macro Etching

19. Any other relevant details: None

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. NEIPL/BSG/WPSS/72.0m/11/22-23 Rev 0 :

 RDSO Drawing : RDSO/B-10425/5 # Bottom Long Beam - Splice plate.

Section J-J, Details of Splice Elevation View G-G & H-H

Weld Joint description Fillet (22 mm)

3. Base Metal 32 mm & 25 mm IS 2062-11, E 350 B0, fully killed.

Normalized/Control cooled

4. Welding Process F.C.A.W.

5. Welding Position Flat/Horizontal-2F :

6. Welding Consumable

Class: I of IRS M. 46 – 2003/-IS:6419: 1996, Dia.1.2 6.1. Electrode/Wire :

mm, Grade as per AWS A 5.20, E 71T-1C

Drying method: N.A.

6.2. Flux Class: N.A.

Type: N.A.

Drying method: N.A.

6.3. Shielding Gas Argon - CO2

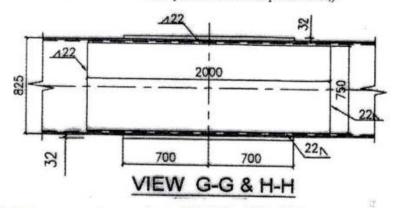
Base metal preparation Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality.

7.1 Joint design details (Sketch showing arrangements of parts, weld groove details,

weld passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current Type: DC, Polarity: Reverse

9. Welder Qualification As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique:

Welding from run on to run off tabs at the free

ends.



11. Provision of run-on/run-off tabs

: N.A.

वस्यान अनुस्थान अधिकारी (बाबू

Assistant Research Officer (M.

**६०प व्यावस्थ देख सन्दाख्य स्थानक** 12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

17. Rectification of weld defect:

: N.A.

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

Any other relevant details

Assistant Research Officer (M.

#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/12/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/5 # Bottom Long Beam - Splice plate,

Details of Elevation View, Section J-J

2. Weld Joint description

Fillet (Weld Size 22 mm)

3. Base Metal

: 22.3900 mm & 25 mm IS 2062-11, E 350 B0, fully killed.

Normalized/Control cooled

4. Welding Process

F.C.A.W.

:

5. Welding Position

Vertical 3F / Overhead 4F

Welding Consumable

6.1 Electrode/Wire

Class: I of IRS M. 46 – 2003/IS:6419: 1996; Dia.1.2

mm, Grade as per AWS A 5.20, E 71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas

7. Base metal preparation

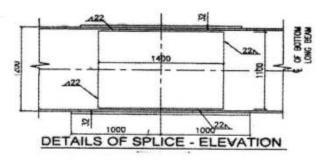
Fusion faces and adjacent surfaces are cleaned and a second a second and a second a second and a second a second and a second and a second and a second and a second a second and a second and a second a second a second and a second made free from cracks, notches, mill scale, grease, paint, rust

etc., which may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld groove details,

weld passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

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Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current Type: DC, Polarity: Reverse

9. Welder Qualification: As per IS 7310 (Part I) - 1974

Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: Welding from run on to run off tabs at the free ends.



11. Provision of run-on/run-off tabs

: N.A.

Assistant Research Officer (M.

क्रमार्थे देश संस्थित स्थाप 12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

:

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details

06/00/24

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Assistant Research Officer (M. 我心理中国 中國 中國 医二次间隔 经期间决

### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/13/22-23 Rev 0

RDSO Drawing

RDSO/B-10425/5 # Bottom Long Beam to

Hanger Flyar plate, Joint Details Elevation (L1, L2, L3, L4,

L5 & L6), Detail 4

2. Weld Joint description

Fillet (Weld Size 25 mm)

Base Metal

32 mm & 25 mm IS 2062-11: E 350 B0, fully killed.

Normalized/Control cooled

4. Welding Process

F.C.A.W.

5. Welding Position

Vertical 3F / Overhead 4F

6. Welding Consumable

6.1. Electrode/Wire

Class: I of IRS M. 46 - 2003/IS 6419:1996

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2. Flux

Class: N.A.

Type: N.A.

 $CO_2$ 

6.3. Shielding Gas 7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and

paint, rust etc., which may affect weld quality.

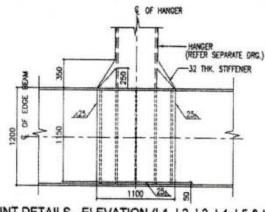
made free from cracks, notches, mill scale, grease,

7.1 Joint design details

(Sketch showing arrangements of parts, weld groove details,

Drying method: N.A.

weld passes & their sequence Etc.,)



JOINT DETAILS - ELEVATION (L1, L2, L3, L4, L5 & L6)

7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8

बहायक शयुरंकान अधिकारी (बाह

stant Research Officer (M

# WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification

As per IS 7310 (Part I) - 1974

Welding parameters and technique: 10.

#### 10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stickout (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	NA	12-15	16-18
3	1.2	180-250	24-30	4-6	NA	12-15	16-18
4+	1.2	180-250	24-30	4-6	NA	12-15	16-18

10.2 Welding sequence and technique:



11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

17. Rectification of weld defect:

: N.A.

By grinding of the defective weld & rectifying the as per Cl. 32.2 of IS 9595-96, using 33 class of electrodes

IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/14/22-23 Rev 0

RDSO Drawing

RDSO/B-10425/9 # Hanger - Diaphragm

At Section B-B, DP3. To Bottom/Side Pl. - Inside Location

2. Weld Joint description

Fillet (Weld Size 10 mm)

3. Base Metal

32/25 mm & 18 mm IS 2062-11, E 350 B0, Fully

Killed. Normalized/Control cooled

4. Welding Process

F.C.A.W.

:

4

5. Welding Position

Flat/Horizontal 2F

6. Welding Consumable

6.1 Electrode/Wire

Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas

CO<sub>2</sub>

7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality

7.1 Joint design details

(Sketch showing arrangements of parts, weld asistant Research Officer (M.

Groove details, weld passes & their sequence Etc.)

570 DIAPHRAGM (DP3) 18MM THICK WELDED ON THREE SIDES WITH 10MM FILLET WELD AS SHOWN 88 325 DP3 18MM THK. 600 SECTION B-B

7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

Welder Qualification

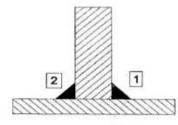
As per IS 7310 (Part I) - 1974

Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2+	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique:



11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

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Assistant Research Officer (M.

15. Peening

16. Post welds treatment

17. Rectification of weld defect: By grinding of the defective weld & rectifying the start of th

as per Cl. 32.2 of IS 9595-96, using A3 class of electrodes of

specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

: Visual, D.P. Test & Macro Etching

19. Any other relevant details

: None



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. NEIPL/BSG/72.0m/WPSS/15/22-23 Rev 0 :

 RDSO Drawing RDSO/B-10425/9 # Hanger - Splice plate :

Plan of Hanger Details of Splice, Section Q-Q

Weld Joint description Fillet (Weld Size 28 mm)

3. Base Metal 32 mm & 40 mm IS 2062-11: E 350 B0, fully killed. :

Normalized/Control cooled

Welding Process F.C.A. W

5. Welding Position Flat/Horizontal-2F

6. Welding Consumable

Class: I of IRS M. 46 – 2003/IS 6419: 1996, 6.1. Electrode/Wire :

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2. Flux Class: N.A.

Type: N.A.

Drying method: N.A.

6.3. Shielding Gas Argon - CO<sub>2</sub> Mix

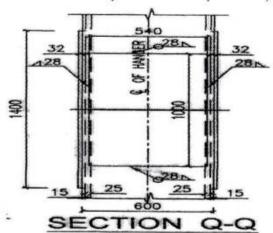
ग्यक समुलंबान अधिकारी (बाहु Base metal preparation Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality.

7.1 Joint design details : (Sketch showing arrangements of parts, weld Groove details,

weld passes & their sequence Etc.)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current 8.

Type: DC, Polarity: Reverse

Welder Qualification 9.

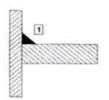
As per IS 7310 (Part I) - 1974

Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stickout (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	NA	12-15	16-18
3	1.2	180-250	24-30	4-6	NA	12-15	16-18
4+	1.2	180-250	24-30	4-6	NA	12-15	16-18

10.2 Welding sequence and technique:



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11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

Of spec. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details



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#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. NEIPL/BSG/72.0m/WPSS/16/22-23 Rev 0

**RDSO Drawing** RDSO/B-10425/9 # Hanger - Splice plate :

Plan of Hanger Details of Splice, Section R-R

Weld Joint description Fillet (Weld Size 22 mm) 2 :

Base Metal 32 mm & 25 mm IS 2062-11: E 350 B0, fully killed. 3.

Normalized/Control cooled

Welding Process 4. . F.C.A. W

5. Welding Position Flat/Horizontal-2F

Welding Consumable

Class: I of IRS M. 46 – 2003/IS 6419; 1996,-6.1 Electrode/Wire

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux Class: N.A.

> Type: N.A. Drying method: N.A.

6.3 Shielding Gas Argon - CO2 Mix

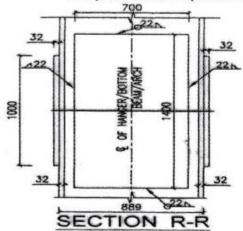
Base metal preparation Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality.

7.1 Joint design details (Sketch showing arrangements of parts, weld Groove details,

weld passes & their sequence Etc.)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification

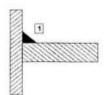
As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stickout (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	NA	12-15	16-18
3	1.2	180-250	24-30	4-6	NA	12-15	16-18
4+	1.2	180-250	24-30	4-6	NA	12-15	16-18

10.3 Welding sequence and technique:



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11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

Post welds treatment

: N.A.

17. Rectification of weld defect :

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

Of spec. IRS M. 28-92 after conducting D P Test

18. Inspection of Weld :

Visual, D.P. Test & Macro Etching

19. Any other relevant details

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Architeat Research Officer (M

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### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/17/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/2 # Arch - Diaphragm

At Section B-B, DP3. To Bottom/Side Pl. - Inside

Location

Weld Joint description

Fillet (Weld Size 10 mm)

3. Base Metal

36/32 mm & 32 mm IS 2062-11: E 350 B0, Fully Killed.

Normalized/Control cooled

4. Welding Process

F.C.A.W.

:

:

:

5. Welding Position

Flat/Horizontal 2F

6. Welding Consumable

6.1 Electrode/Wire

Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas

CO

7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and made free

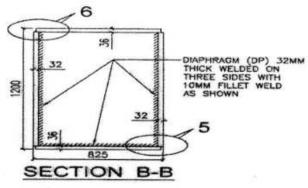
from cracks, notches, mill scale, grease, paint, rust etc., which

may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld Groove details,

weld passes & their sequence Etc.)



7.2

Joint preparation

ion

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

Welder Qualification

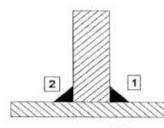
As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2+	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.3 Welding sequence and technique:



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11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect : By grinding of the defective weld & rectifying the as per Cl. 32.2 of IS

9595-96, using A3 class of electrodes of specification. IRS M. 28-02<sup>20</sup>

after conducting D P Test

18. Inspection of Weld

: Visual, D.P. Test & Macro Etching

19. Any other relevant details

: None



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#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/18/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/1 # Arch

At Section 3-3, Bottom Pl. To Side Pl. - Inside

Location

2. Weld Joint description

Fillet (Weld Size 10 mm) :

3. Base Metal

36 mm & 32 mm IS 2062-11: E 350 B0, Fully Killed.

Normalized/Control cooled

4. Welding Process

F.C.A.W.

:

\$

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5. Welding Position

Flat/Horizontal

6. Welding Consumable

6.1 Electrode/Wire

Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas

 $CO_2$ 

7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and made free

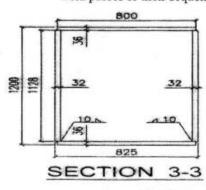
from cracks, notches, mill scale, grease, paint, rust etc., which

may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld Groove details,

weld passes & their sequence Etc.)



7.2

Joint preparation

As per IS 10178 - 1995, Cl. 8

IRS B1 - 2001, Cl. 17.3 & WBC - 2001 - PT. Deendayal Upadhyay



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification

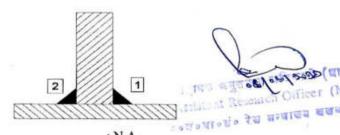
As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2-	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique:



11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect

: By grinding of the defective weld & rectifying the as per Cl.

32.2 of IS 9595-96, using A3 class of electrodes of

specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

: Visual, D.P. Test & Macro Etching

19. Any other relevant details

: None

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#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

NAALSONS ENGINEERS (I) PVT. LTD. Name & address of fabricator

Welding Procedure Specification No. NEIPL/BSG/72.0m/WPSS/19/22-23 Rev 0

RDSO/B-10425/2 # Arch - splice plate, RDSO Drawing :

Details of Splice Elevation View F-F & G-G

Fillet (Weld Size 28 mm) Weld Joint description

36 mm & 45 mm IS 2062-11, E 350 B0, fully killed. Base Metal

Normalized/Control cooled

F.C.A.W. Welding Process

5. Welding Position Flat/Horizontal-2F

Welding Consumable

Class: I of IRS M. 46 – 2003/48:6419: 1996, Dia.1.2 6.1 Electrode/Wire

mm, Grade as per AWS A 5.20, E 71T-1C

Drying method: N.A.

6.2 Flux Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas Argon - CO<sub>2</sub> Mix

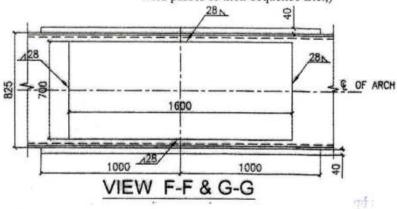
7. Base metal preparation Fusion faces and adjacent surfaces are cleaned and made free

from cracks, notches, mill scale, grease, paint, rust etc., which

may affect weld quality.

7.1 Joint design details (Sketch showing arrangements of parts, weld groove details,

weld passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8



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# WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification:

As per IS 7310 (Part I) - 1974

Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.3 Welding sequence and technique: Welding from one end to another end,



11. Provision of run-on/run-off tabs

: N.A.

वश्यक्षाक्षंक रेख भन्यासम् खर्णवरू 12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details



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#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. NEIPL/BSG/72.0m/WPSS/20/22-23 Rev 0

1. RDSO Drawing \* RDSO/B-10425/2 # Arch - Splice plate,

Details of Splice Elevation, View G-G & H-H

2. Weld Joint description Fillet (Weld Size 28 mm)

3. Base Metal 32 mm & 40 mm IS 2062-11, E 350 B0, fully killed.

Normalized/Control cooled

4. Welding Process F.C.A.W.

5. Welding Position Vertical 3F / Overhead 4F

6. Welding Consumable

6.3 Shielding Gas

Class: I of IRS M. 46 – 2003/48:6419. 1996, Dia 1.2 6.1 Electrode/Wire

mm, Grade as per AWS A 5.20, E 71T-1C

Drying method: N.A.

6.2 Flux Class: N.A.

Type: N.A.

Drying method: N.A. Argon - CO<sub>2</sub>

Atthtant Research Officer (M. Fusion faces and adjacent surfaces are cleaned and 7. Base metal preparation

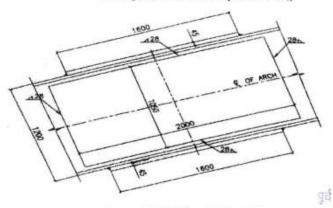
made free from cracks, notches, mill scale, grease, paint, rust

etc., which may affect weld quality.

Mix

7.1 Joint design details (Sketch showing arrangements of parts, weld groove details,

weld passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification As per IS 7310 (Part I) - 1974

Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: Welding from one end to another end.



11. Provision of run-on/run-off tabs

: N.A.

प्रदानक समुत्रमान अधिकारी (बाह

Research Officer (M. रेख अन्धास्त्र द्वारत

12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using \*3 class of electrodes of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/21/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/6 # X-Girder- Splice Joint

Section 3-3, 6-6 & 9-9. Detail at 1-1, 4-4

2. Weld Joint description

Fillet (Weld Size 12 mm)

3. Base Metal

25 mm & 18 mm (Top Splice Joint) IS 2062-11, E 350 B0,

fully killed. Normalized/Control cooled

4. Welding Process

F.C.A. W

:

5. Welding Position

Flat/Horizontal (2F)

6. Welding Consumable

6.1 Electrode/Wire

Class: I of IRS M. 46 - 2003/IS 6419:1996.

Dia.1.2 mm, Grade as per AWS A 5.20, E 71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas

Argon - CO2 Mix

7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and made free

from cracks, notches, mill scale, grease, paint, rust etc., which

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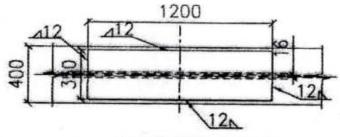
१९ मध्यान वेज रेख सन्दर्शि**य सल्या**ट

may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld groove details,

weld passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN-Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification As per IS 7310 (Part I) - 1974

Welding parameters and technique :

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
37	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique:



: N.A.

11. Provision of run-on/run-off tabs

्वाप्रवास्थित हेल सन्यासम् **स्थानः** 

12. Cleaning of weld bead before laying of next weld bead

: Prior to weld clean paint/rust

वस्थल बच्चामान अनिकारी (बाह Arthun Research Officer (M.

properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

16. Post welds treatment

15. Peening

: N.A.

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Micro Etching

19. Any other relevant details

वस्थाक वापुसवान जीवकारी

## WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/22/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/6 # X-Girder- Splice Joint

Detail of Splice SP1, SP2 & SP3

2. Weld Joint description

Fillet (Weld Size 10 mm)

3. Base Metal

16 mm & 12 mm (Web Splice Joint) IS 2062-11, E 350 B0,

fully killed. Normalized/Control cooled

4. Welding Process

F.C.A. W

:

2

2

:

5. Welding Position

Flat/Horizontal (2F)

6. Welding Consumable

6.1 Electrode/Wire

Class: I of IRS M. 46 - 2003/18 6419:1996;

Dia.1.2 mm, Grade as per AWS A 5.20, E 71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas

Argon - CO<sub>2</sub> Mix

7. Base metal preparation

Andstant Research Officer Fusion faces and adjacent surfaces are cleaned and made free

from cracks, notches, mill scale, grease, paint, rust etc., which

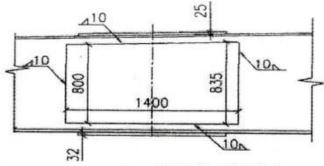
may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld groove details,

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weld passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification As per IS 7310 (Part I) - 1974

Welding parameters and technique

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2+	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique:



11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead

: Prior to weld clean paint/rust

सः अवस्य चार्यकारः (सामृ

properly through grinder wire brush/manual removal of any

substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: N.A. 110-Smat Research Officer (M

15. Peening

: N.A.

16. Post welds treatment

: N.A.

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17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

Of specification. IRS M. 28-92 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Micro Etching

19. Any other relevant details

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# WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/23/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/6 # X-Girder- Splice Joint

2. Weld Joint description

Fillet (Weld Size 22 mm)

3. Base Metal

25 mm & 32 mm (Bottom Splice Joint) IS 2062-11, E 350 B0,

fully killed. Normalized/Control cooled

4. Welding Process

F.C.A. W

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5. Welding Position

Flat/Horizontal (2F)

6. Welding Consumable

6.1 Electrode/Wire

Class: 1 of IRS M. 46 - 2003/IS 6419:1996,

Dia.1.2 mm, Grade as per AWS A 5.20, E 71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas

Argon - CO<sub>2</sub> Mix

7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and made free

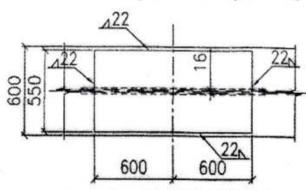
from cracks, notches, mill scale, grease, paint, rust etc., which

may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld groove details, सरीतक शर्बात आहर्ता (दाह

weld passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification As per IS 7310 (Part I) - 1974

10. Welding parameters and technique

10.1 Welding Parameters:

Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (I/min)
1.2	180-230	24-28	4-6	N.A.	12-15	16-18
- 1.2	180-250	24-30	4-6	N.A.	12-15	16-18
1.2	180-250	24-30	4-6	N.A.	12-15	16-18
1.2	180-250	24-30	4-6	N.A.	12-15	16-18
	Wire dia. (mm)  1.2  1.2  1.2	Wire dia. (Amps)  1.2 180-230  1.2 180-250  1.2 180-250	Wire dia. (mm)     (Amps)     Voltage (volt)       1.2     180-230     24-28       1.2     180-250     24-30       1.2     180-250     24-30	Wire dia. (mm)         (Amps)         Voltage (volt)         Speed (m/min)           1.2         180-230         24-28         4-6           1.2         180-250         24-30         4-6           1.2         180-250         24-30         4-6	Wire dia. (mm)         (Amps)         Voltage (volt)         Speed (m/min)         Speed (m/min)           1.2         180-230         24-28         4-6         N.A.           1.2         180-250         24-30         4-6         N.A.           1.2         180-250         24-30         4-6         N.A.           1.2         180-250         24-30         4-6         N.A.	Wire dia. (mm)         (Amps)         Voltage (volt)         Speed (m/min)         Speed (m/min)         Stick-out (mm)           1.2         180-230         24-28         4-6         N.A.         12-15           1.2         180-250         24-30         4-6         N.A.         12-15           1.2         180-250         24-30         4-6         N.A.         12-15

10.2 Welding sequence and technique:



11. Provision of run-on/run-off tabs

12. Cleaning of weld bead before laying of next weld bead

: N.Agostosto रेख सन्दासय खुडाउ : Prior to weld clean paint/rust

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sarah Officer (M

properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

Post welds treatment

: N.A.

17. Rectification of weld defect :

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By grinding of the defective weld & rectifying the as per Cl. 32.2 of IS 9595-96, using As class of electrodes

Of specification. IRS M. 28-92 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Micro Etching

19. Any other relevant details



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN-Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/24/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/6 # X Girder Connection X Girder Connection to Bottom Long Beam Connection Detail of BCB1, BCB2 & BCB3

2. Weld Joint description

Fillet (Weld Size 12 mm)

Base Metal

X- Girder (16/18/25 mm) to Bottom Long Beam (25 mm) IS 20620 E 250 B0 And 25/ 16 mm IS 2062-11: E 350 B0 Fully

Killed. Normalized/Control cooled

4. Welding Process

F.C.A.W.

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5. Welding Position

Flat/Horizontal 2F / Vertical 3F / Overhead 4F

6. Welding Consumable

6.2 Electrode/Wire

Class: 1 of IRS M. 46-2003/IS-6419:1996-

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux

Class: NA

Type: NA Drying method: NA

6.3 Shielding Gas

Argon-CO2. Mix

7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and

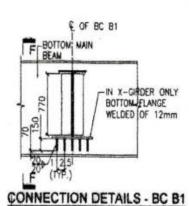
made free from cracks, notches, mill scale, grease, paint, rust etc., which may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts,

OF BC B2 HANGER

Weld groove details, passes & their sequence Etc.,)



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**CONNECTION DETAILS - BC B2** 

OF BC B3 IN X-GIRDER ONLY BOTTOM FLANGE WELDED OF 12mm CONNECTION DETAILS - BC B3

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parti Officer (Mi

7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8,

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

IN X-GIRDER ONLY BOTTOM FLANGE WELDED OF 12mm



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
3~	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique:

Welding from one end to another end.

11. Provision of run-on/run-off tabs

: Yes

12. Cleaning of weld bead before laying of next weld bead : Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld : N.A.

14. Preheating and inter-pass temperature : 150°C

15. Peening : N.A.

16. Post welds treatment : N.A.

बहादक अपुन्तवास शासकारी (वाद Rectification of weld defect: By grinding of the defective weld & rectifying the weld as 17.

per Cl. 32.2 of IS 9595-96, using B3 class of electrodes of

specification. IRS M. 28-02 after conducting D P Test

Inspection of Weld: Visual, D.P. Test & Macro Etching

Any other relevant details: None

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/25/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/6 # X Girder Connection

Angle 150x150x12 to X Girder / Bottom Long Beam

Connection Detail of BCB1, BCB2 & BCB3

2. Weld Joint description

Fillet (Weld Size 10 mm)

3. Base Metal

Angle 150x150x12- IS 20620 E 250 B0 And 25/ 16 mm IS

2062-11: E 350 B0 Fully Killed. Normalized/Control cooled

4. Welding Process

F.C.A.W.

Welding Position

Flat / Horizontal 2F / Vertical 3F / Overhead 4F

Welding Consumable

.

:

:

Class: 1 of IRS M. 46-2003/IS-6419:1996

6.1 Electrode/Wire :

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux

Class: NA

Type: NA Drying method: NA

6.3 Shielding Gas

Argon-CO<sub>2</sub>. Mix

7. Base metal preparation

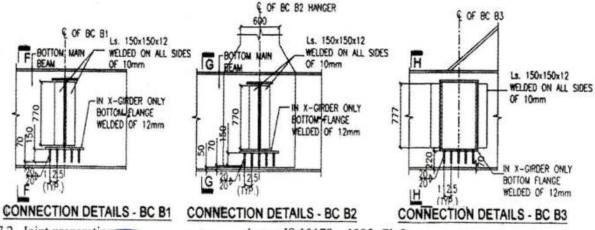
Fusion faces and adjacent surfaces are cleaned and made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts,

Weld groove details, passes & their sequence Etc.,)



7.2 Joint preparation

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As per IS 10178 - 1995, Cl. 8,



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification

As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

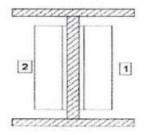
10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (I/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2-4	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

:

10.2 Welding sequence and technique:

Welding from one end to another end.



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Provision of run-on/run-off tabs

: Yes

 Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

Rectification of weld defect

By grinding of the defective weld & rectifying the weld as

per Cl. 32.2 of IS 9595-96, using A3 class of electrodes of

specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld: Visual, D.P. Test & Macro Etching

19. Any other relevant details: None

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#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator :

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/26/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/4 # 6mm Thk. Cover Pl. To Stiffener Pl.

At Sectional Elevation at L0 - Outside Location

2. Weld Joint description

Fillet (Weld Size 6 mm)

Base Metal

32 mm & 6 mm IS 2062-11: E 350 B0, fully killed.

Normalized/Control cooled & Inside Location

4. Welding Process

F.C.A.W.

:

:

:

5. Welding Position

Flat/Horizontal-2F (Uphill)

6. Welding Consumable

6.1. Electrode/Wire

Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2. Flux

Class: N.A.

Type: N.A.

Argon - CO<sub>2</sub>

6.3. Shielding Gas

Drying method: N.A.

7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality.

7.1. Joint design details

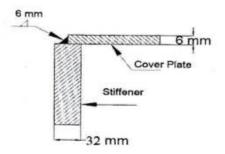
(Sketch showing arrangements of parts, weld Groove details,

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11.00 EE49

weld passes & their sequence Etc.,)

Mix



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

8. Welding Curnent

Type: DC, Polarity: Reverse



इस सन्द्राचम स्वापन

# WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

9. Welder Qualification:

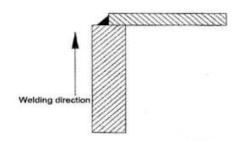
As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stickout (mm)	Gas flow (l/min)
1-	1.2	180-200	24-28	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique:



: N.A.

: N.A.

: 150°C

: N.A.

: N.A.

11. Provision of run-on/run-off tabs

12. Cleaning of weld bead before laying of next weld bead

13. Root preparation before welding other side of groove weld

14. Preheating and inter-pass temperature

15. Peening

16. Post welds treatment

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld :

Visual, D.P. Test & Macro Etching

Any other relevant details

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/27/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/2 # Arch to Hanger

Elevation of joint U1, U2, U3, U4, U5 & U6 (Detail-3). Outside

Location

:

:

:

Weld Joint description

Fillet (Weld size 25 mm)

3. Base Metal

32 mm & 32 mm IS 2062-11: E 350 B0, Fully

Killed. Normalized/Control cooled

Welding Process

F.C.A. W

Welding Position

Flat/Horizontal-2F

Welding Consumable

6.1. Electrode/Wire

Class: I of IRS M. 46 - 2003/48 6419: 1996;

Mix

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2. Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3. Shielding Gas

Argon - CO2

7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and

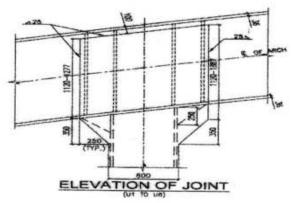
made free from cracks, notches, mill scale, grease, and and the

paint, rust etc., which may affect weld quality, subtant Research Officer (M.

7.1 Joint design details

(Sketch showing arrangements of parts, weld

groove details, weld passes & their sequence Etc.,)



7.2 Joint preparation

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current Type: DC, Polarity: Reverse

Welder Qualification

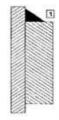
As per IS 7310 (Part I) - 1974

Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	NA	12-15	16-18
3	1.2	180-250	24-30	4-6	NA	12-15	16-18
4	1.2	180-250	24-30	4-6	NA	12-15	16-18
5+	1.2	180-250	24-30	4-6	NA	12-15	16-18

10.4 Welding sequence and technique:





11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per Cl. 32.2 of IS 9595-96, using A3 class of electrodes of spec. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details

None

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Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/28/22-23 Rev 0

1. RDSO Drawing

RDSO/B-10425/2 # Arch to Hanger

Elevation of joint U1, U2, U3, U4, U5 & U6 (Detail-3). Outside

Location

2. Weld Joint description

Fillet (Weld size 25 mm)

3. Base Metal

32 mm & 32 mm IS 2062-11: E 350 B0, Fully

Killed. Normalized/Control cooled

4. Welding Process

F.C.A.W.

5. Welding Position

Vertical 3F

6. Welding Consumable

6.1 Electrode/Wire

Class: I of IRS M. 46 - 2003/IS 6419:1996;

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas

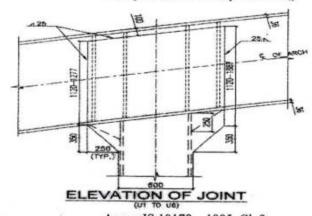
7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and a stantal (with made free from cracks note). made free from cracks, notches, mill scale, grease, tank Research Officer (Manual Property of the paint, rust etc., which manual control of the paint, rust etc., which manual control of the paint of t

7.1 Joint design details

paint, rust etc., which may affect weld quality. (Sketch showing arrangements of parts, weld groove details,

weld passes & their sequence Etc.,)



7.2. Joint preparation

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current

Type: DC, Polarity: Reverse

9. Welder Qualification

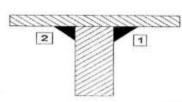
As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-28	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
4	1.2	180-250	24-30	4-6	N.A.	12-15	16-18
5+	1.2	180-250	24-30	4-6	N.A.	12-15	16-18

10.3 Welding sequence and technique:



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11. Provision of run-on/run-off tabs

: N.A.

 Cleaning of weld bead before laying of next weld bead: Prior to each run through manual removal of Slag, Spatter and any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

:

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

. 100

16. Post welds treatment

: N.A.

: N.A.

17. Rectification of weld defect :

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/29/22-23 Rev 0

RDSO Drawing

RDSO/B-10425/3 # Top Tie Beam to Hanger

Section D-D

2. Weld Joint description

Fillet (Weld Size 22 mm)

3. Base Metal

25 mm & 32 mm, IS 2062-11, E 350 B0, fully killed.

Normalized/Control cooled

4. Welding Process

F.C.A.W.

Welding Position

Flat Horizontal 2F / Vertical 3F / Overhead-4F

Welding Consumable

6.1 Electrode/Wire

Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas

Argon - CO<sub>2</sub>

7. Base metal preparation

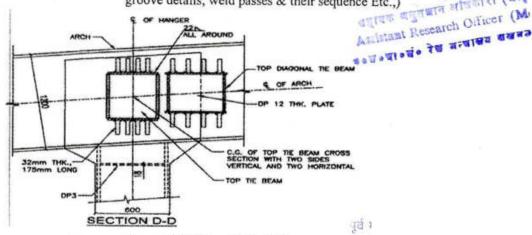
Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease, paint, rust etc., which may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld

वश्यक वयुत्रधान शांचकारी (बार् groove details, weld passes & their sequence Etc.,)



7.2. Joint preparation

As per IS 10178 - 1995, Cl. 8



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welding Current 8.

Type: DC, Polarity: Reverse

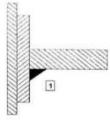
9. Welder Qualification As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	- 1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.4 Welding sequence and technique:



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11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual removal of Slag, Spatter and any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect :

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using \$3 class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details

None

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Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. NEIPL/BSG/72.0m/WPSS/30/22-23 Rev 0 :

RDSO/B-10425/3 # Top Diagonal Tie Beam to Hanger **RDSO Drawing** :

Section D-D & F-F

2. Weld Joint description Fillet (Weld Size 16 mm) t

Base Metal 3. 18 mm & 32 mm, IS 2062-11, E 350 B0, fully killed. :

Normalized / Control cooled

Welding Process 4. F.C.A.W.

5. Welding Position Flat /Horizontal 2F / Vertical 3F / Overhead-4F

6. Welding Consumable

6.3 Shielding Gas

Class: I of IRS M. 46 - 2003/IS 6419:1996. 6.1 Electrode/Wire

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux Class: N.A.

Type: N.A.

Drying method: N.A. Argon - CO<sub>2</sub> Mix

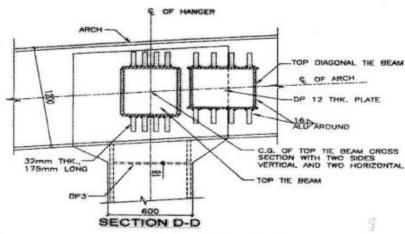
7. Base metal preparation \* Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld and the Research Officer (Moreover 14.1) groove details, weld passes & their sequence Etc.



7.2. Joint preparation

As per IS 10178 - 1995, Cl. 8

IRS B1 - 2001. Cl. 17.3 & WBC - 2001



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# WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current Type: DC, Polarity: Reverse

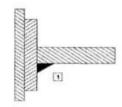
9. Welder Qualification As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
44	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.5 Welding sequence and technique:



11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual

removal of Slag, Spatter and any substance which

might affect the quality of weld.

13. Root preparation before welding other side of groove weld

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

17. Rectification of weld defect:

: N.A.

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using 43 class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details



Research Officer (M

# WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/31/22-23 Rev 0

RDSO Drawing

RDSO/B-10425/4 # L0 Cover Pl to Bottom Long Beam/Arch

Elevation joint L0

2. Weld Joint description

Fillet (Weld Size 22 mm)

3. Base Metal

36 mm & 25/36 mm, IS 2062-11, E 350 B0, fully killed.

Normalized / Control cooled

4. Welding Process

F.C.A.W.

5. Welding Position

Flat / Horizontal 2F / Vertical 3F / Overhead-4F

Welding Consumable

6.1 Electrode/Wire

Class: I of IRS M. 46 - 2003/IS 6419:1996.

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Drying method: N.A.

6.3 Shielding Gas

Type: N.A. Dryi Argon - CO<sub>2</sub> Mix

:

7. Base metal preparation

Fusion faces and adjacent surfaces are cleaned and

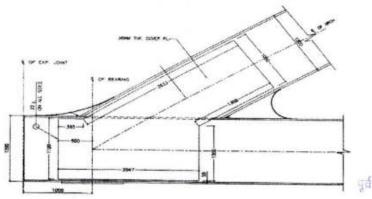
made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld

groove details, weld passes & their sequence Etc., 1900



7.2. Joint preparation

As per IS 10178 - 1995, Cl. 8



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#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN-Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Welding Current Type: DC, Polarity: Reverse

Welder Qualification

As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (1/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: One Side to Other Side.



11. Provision of run-on/run-off tabs

: N.A.

१०४०मा**०७० रेख सन्यास्य समा**स्य 12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual

removal of Slag, Spatter and any substance which

might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect :

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

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Visual, D.P. Test & Macro Etching

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19. Any other relevant details

None

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Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. NEIPL/BSG/72.0m/WPSS/32/22-23 Rev 0 :

: All relevant drawings on the above RDSO Drawing

2. Weld Joint description 5mm Tack weld on all filled joints

3. Base Metal Plates - IS 2062 - 11, E 350 B0

Rolled Section - IS 2062 - 11, 2350 B0

4. Welding Process M.M.A.W.

5. Welding Position Horizontal - Vertical

6. Welding Consumable Bas

Class: As of IRS M. 28 – 2002, with Amend. 1 of 6.1 Electrode/Wire

2003 Type: Rutile coated

Drying method: As

recommended by the manufacturer

6.2 Flux Class: N.A.

Type: N.A.

Drying method: N.A.

6.3 Shielding Gas N.A.

7. Base metal preparation Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease, paint, rust

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Assumed Research Officer (M.

etc., which may affect weld quality.

7.1 Joint design details Length of Tack weld-50mm: Gap between Tack

welds-300/mm (Sketch showing arrangements of parts, weld

groove details, weld passes & them

7.2 Joint preparation As per IS 9595 - 1996, Cl. 13

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

Welding Current Type: DC, Polarity: Reverse

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# WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welder Qualification

As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld	Electrode/	Current	Arc	Wire Feed	Travel	Electrode	Gas flow
Pass	Wire dia. (mm)	(Amps)	Voltage (volt)	Speed (m/min)	Speed (m/min)	Stick-out (mm)	(l/min)
1	4	140-180	24-26	N.A.	N.A.	N.A.	N.A.

10.2	Welding sequence and technique	: N.A.	
11.	Provision of run-on/run-off tabs	: N.A.	
12.	Cleaning of weld bead before laying of next weld bead	: N.A.	
13.	Root preparation before welding other side of groove weld	: N.A.	
14.	Preheating and inter-pass temperature	: N.A.	
15.	Peening	: N.A.	arlalisas
16.	Post welds treatment	: N.A.	A Research Officer (Mo
17.	Rectification of weld defect	: N.A.	०००वाव्यंव देख बन्धांचय सम्बद्ध

18. Inspection of Weld : Visual , DP

19. Any other relevant details : None



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#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. : NEIPL/BSG/72.0m/WPSS/32/22-23 Rev 0

1. RDSO Drawing RDSO/B-10425/6 Stud 25x200 on Top Surface of

X Girder

2. Weld Joint description Flash 7 mm weld- All around

3. Base Metal Plates 18/25 mm / X Girder top surface -IS 2062 - 11, E 350

B0 Fully killed. Normalized/Controlled cooled.

Shear Stud-25 mm Dia.

4. Welding Process Drawn Arc Stud welding with ferrule.

5. Welding Position Down hand

6. Welding Consumable

6.1 Electrode/Wire N.A.

6.2 Flux N.A.

6.3 Shielding Gas N.A.

Limit Research Officer (M Matching ferrule should be used and these shall be free; a warm warm 7. Ferrule

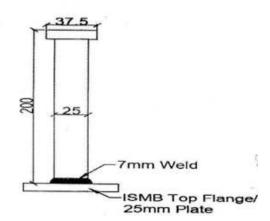
from moisture.

7.1 Base metal preparation Stud should be cut straight square & fitted with

aluminum tool tip. Top flange of the girder to free from

scale, dirt, grease, paint ... etc. by scrapping.

7.2 Joint design details (Sketch showing arrangements of welding details.)







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Manual Research Officer (M

#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

8. Joint Preparation

ISO 13918:2008

9. Type of joint

Fusion fillet

10. Welding Current

Type: DC, Polarity: Straight.

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld	Stud dia.	Current	Lift	Weld Time (Sec.)	Plunge/Protrusion
Pass	(mm)	(Amps)	(mm)		(mm)
1	25	1500-2000	3.00	0.90	4.00

10.2 Welding sequence and technique

: N.A.

11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead : N.A.

13. Root preparation before welding other side of groove weld : N.A.

14. Preheating and inter-pass temperature : N.A.

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17.

Rectification of weld defect

्रवाश्वाविक रेख सन्धास्य स्थल : Remove of defective stud and new stud weld after

proper grinding of structure.

18.

Inspection of Weld

: Visual, Ring test & Bend Test

19.

Any other relevant details

: None

# INDEX

,	1
(	30
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	1

Sr No.	WPSS No.	Component	Welding Process	Weld Joint- Position	Weld Size	Remarks
34	NEIPL/BSG/WPSS/72.0m/34/22- 23 Rev 0	Stiffener Pl to Bottom Long Beam and Hanger	FCAW	Flat / Horizontal 2F / Vertical 3F	25 mm	
35	NEIPL/BSG/WPSS/72.0m/35/22- 23 Rev 0	Bottom Long Beam to Hanger	FCAW	Flat / Horizontal 2F	20 mm	
36 /	NEIPL/BSG/WPSS/72.0m/36/22- 23 Rev 0	Stiffener pl ton Arch and Hanger	FCAW	Vertical 3F , / Overhead 4F	25 mm	
37 /	NEIPL/BSG/WPSS/72.0m/37/22- 23 Rev 0	Arch to Hanger	FCAW	Overhead 4F	20 mm	
38 /	NEIPL/BSG/WPSS/72.0m/38/22- 23 Rev 0	Stiffener pl to Cross Beam & Bottom Long Beam	FCAW	Flat / Horizontal 2F / Vertical 3F / Overhead 4F	20 mm	
39/	NEIPL/BSG/WPSS/72.0m/39/22- 23 Rev 0	ISMC 150 to Stiffener pl in Intermediate Cross Beam	FCAW	Vertical 3F / Overhead 4F	6 mm	
40 /	NEIPL/BSG/WPSS/72.0m/40/22- 23 Rev 0	Arch to Bottom Long Beam	FCAW	Flat / Horizontal 2F	25 mm	
41 /	NEIPL/BSG/WPSS/72.0m/41/22- 23 Rev 0	Stiffener pl to Bottom Long Beam to Arch	FCAW,	Flat / Horizontal 2F / Vertical 3F	25 mm	
42/	NEIPL/BSG/WPSS/72.0m/42/22- 23 Rev 0	Bearing Shoe to Bottom Long Beam	FCAW	Flat / Horizontal 2F / Overhead 4F	10 mm	



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# WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

NAALSONS ENGINEERS (I) PVT. LTD. Name & address of fabricator

NEIPL/BSG/72.0m/WPSS/33/22-23 Rev 0 Welding Procedure Specification No.

RDSO/B-10425/5 # Stiffener Pl to Bottom Long Beam and **RDSO Drawing** 

Hanger web Pl

Fillet (Weld Size 25 mm) Weld Joint description 2.

32 mm & 25/25 mm, IS 2062-11, E 350 B0, fully killed. 3. Base Metal

Normalized / Control cooled

F.C.A.W. Welding Process

Flat / Horizontal 2F / Vertical 3F 5. Welding Position

Welding Consumable

7. Base metal preparation

Class: I of IRS M. 46 - 2003/IS 6419:1996, : 6.1 Electrode/Wire

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

Class: N.A. 6.2 Flux

Drying method: N.A. बद्दायक व्युत्तंद्वान व्यक्तिहोरी (बाड् Type: N.A.

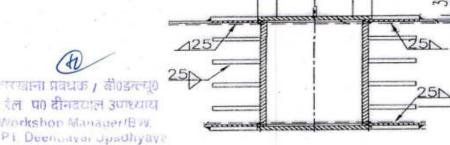
Argon - CO<sub>2</sub> 6.3 Shielding Gas

Analstant Research Officer (M. Fusion faces and adjacent surfaces are cleaned and to artiful address.

made free from cracks, notches, mill scale, grease, paint, rust etc., which may affect weld quality.

(Sketch showing arrangements of parts, weld 7.1 Joint design details

groove details, weld passes & their sequence Etc.,)



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7.2. Joint preparation

As per IS 10178 - 1995, Cl. 8

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

8. Welding Current . : Type: DC, Polarity: Reverse



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welder Qualification

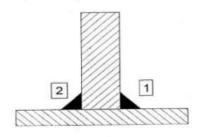
As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: One Side to Other Side.



«द्धन समुसद्यान आवर्गारो (शामु Assistant Research Officer (M. ००व०पा०पं० रेख जन्यावय समाना

11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual

removal of Slag, Spatter and any substance which

might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator : NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. : NEIPL/BSG/72.0m/WPSS/34/22-23 Rev 0

RDSO/B-10425/5 # Bottom Long Beam to Hanger web PI

Weld Joint description : Fillet (Weld Size 20 mm)

Base Metal : 25 mm, IS 2062-11, E 350 B0, fully killed.

Normalized / Control cooled

4. Welding Process : F.C.A.W.

Welding Position : Flat / Horizontal 2F

Welding Consumable

6.1 Electrode/Wire : Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

2020

Drying method: N.A.

6.2 Flux : Class: N.A.

Type: N.A. Drying method: N.A.

6.3 Shielding Gas : Argon - CO<sub>2</sub> Mix

7. Base metal preparation : Fusion faces and adjacent surfaces are cleaned and grant strategy (No. 1)

made free from cracks, notches, mill scale, grease, Research Officer (M.

paint, rust etc., which may affect weld quality. To do to well a war and the well a

7.1 Joint design details : (Sketch showing arrangements of parts, weld

groove details, weld passes & their sequence Etc.,)

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मुख्य कारखाना प्रबंधक / बीवडबल्यू० पूर्व मध्य रेलं प0 बीनवयाल उपाध्याय पार्व Workshop ManageriBW ( त., P.I. Deendayar Dyadhyaya

7.2. Joint preparation

As per IS 10178 - 1995, Cl. 8

IRS B1 - 2001. Cl. 17.3 & WBC - 2001.

8. Welding Current :

Type: DC, Polarity: Reverse



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welder Qualification

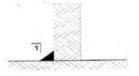
As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: One Side to Other Side.



11. Provision of run-on/run-off tabs

: N.A. बस्यम सनुसद्यान आवटार।

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual course (Mo removal of Slag, Spatter and any substance which

might affect the quality of weld.

13. Root preparation before welding other side of groove weld

Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

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17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator : NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. : NEIPL/BSG/72.0m/WPSS/35/22-23 Rev 0

RDSO Drawing : RDSO/B-10425/2 # Stiffener Pl to Arch and Hanger

Weld Joint description : Fillet (Weld Size 25 mm)

Base Metal : 32 mm & 36/25 mm, IS 2062-11, E 350 B0, fully killed.

Normalized / Control cooled

Welding Process : F.C.A.W.

Welding Position : Vertical 3F / Overhead 4F

6. Welding Consumable

6.1 Electrode/Wire : Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux : Class: N.A.

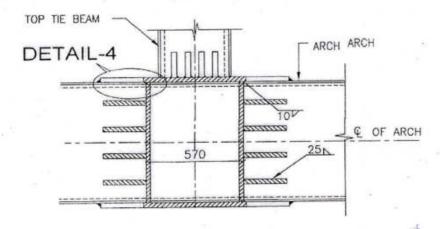
Type: N.A. Drying method: N.A.

6.3 Shielding Gas : Argon - CO<sub>2</sub> Mix

7. Base metal preparation : Fusion faces and adjacent surfaces are cleaned and to account the surfaces are cleaned and to account the surfaces are cleaned and to account the surfaces are cleaned and the surfaces are cle

made free from cracks, notches, mill scale, grease, paint, rust etc., which may affect weld quality. (Sketch showing arrangements of parts, weld

7.1 Joint design details : (Sketch showing arrangements of parts, weld groove details, weld passes & their sequence Etc.,)



7.2. Joint preparation : As per IS 10178 – 1995, Cl. 8

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

8. Welding Current : Type: DC, Polgrity: Reverse



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN-Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

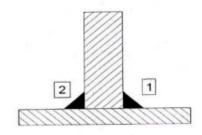
9. Welder Qualification As per IS 7310 (Part I) - 1974

Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: One Side to Other Side.



्रायम जनुसम्राम् वर्ष Audstant Research Officer (Mo : N.A. कव्यव्यावर्थं देख सम्बाख्य स्वान्ड

11. Provision of run-on/run-off tabs

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual

removal of Slag, Spatter and any substance which

might affect the quality of weld.

Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator : NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. : NEIPL/BSG/72.0m/WPSS/36/22-23 Rev 0

RDSO Drawing : RDSO/B-10425/2 # Arch to Hanger web Pl

2. Weld Joint description : Fillet (Weld Size 20 mm)

Base Metal : 36 mm & 25 mm, IS 2062-11, E 350 B0, fully killed.

Normalized / Control cooled

Welding Process : F.C.A.W.

Welding Position : Overhead 4F

6. Welding Consumable

6.1 Electrode/Wire : Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux : Class: N.A.

Type: N.A. Drying method: N.A.

6.3 Shielding Gas : Argon - CO<sub>2</sub> Mix

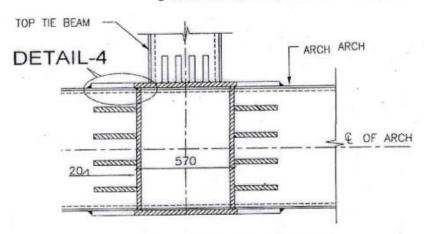
7. Base metal preparation : Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality. at Research Officer (M.

7.1 Joint design details : (Sketch showing arrangements of parts, weld would be seen as a second of the second of

groove details, weld passes & their sequence Etc.,)



7.2. Joint preparation : As per IS 10178 – 1995, Cl. 8

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

8. Welding Current : Type: DC, Polarity: Reverse



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welder Qualification

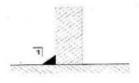
As per IS 7310 (Part I) - 1974

Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: One Side to Other Side.



11. Provision of run-on/run-off tabs

वहाबक बादुलशान आवि : N.A. Assistant Research Officer (Mo

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual removal of Slag, Spatter and any substance which

might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

: N.A.

16. Post welds treatment

Peening

: N.A.

Ed

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using a class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details

## WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator

NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No.

NEIPL/BSG/72.0m/WPSS/37/22-23 Rev 0

**RDSO Drawing** 

RDSO/B-10425/6 # Stiffener Pl to Cross Beam & Bottom

Long Beam

Weld Joint description 2.

Fillet (Weld Size 20 mm)

3. Base Metal 25 mm & 25 mm, IS 2062-11, E 350 B0, fully killed.

Normalized / Control cooled

Welding Process 4.

F.C.A.W.

:

:

:

:

5. Welding Position Flat / Horizontal 2FVertical 3F / Overhead 4F

Welding Consumable

6.1 Electrode/Wire

Class: I of IRS M. 46 - 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux

Class: N.A.

Drying method: N.A. Type: N.A.

6.3 Shielding Gas

Argon - CO<sub>2</sub> Mix

7. Base metal preparation

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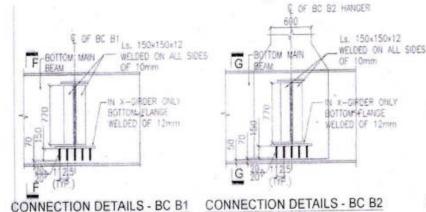
Fusion faces and adjacent surfaces are cleaned and search Officer (M made free from cracks, notches, mill scale, grease,

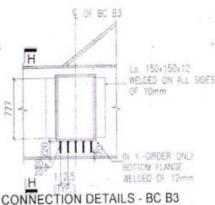
paint, rust etc., which may affect weld quality.

7.1 Joint design details

(Sketch showing arrangements of parts, weld

groove details, weld passes & their sequence Etc.,)





7.2. Joint preparation

As per IS 10178 - 1995, Cl. 8

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

Welding Current

Type: DC, Polarity: Reverse



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welder Qualification

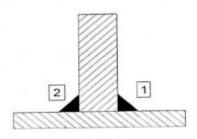
As per IS 7310 (Part I) - 1974

Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: One Side to Other Side.



रकाशक वानुसम्मान कोमकारा (**मा**र् Assistant Research Officer (Mo : N.A. क्षा व्या के देख वन्यायय सम्बद्ध

11. Provision of run-on/run-off tabs

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual

removal of Slag, Spatter and any substance which might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using & class of electrodes Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details



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## WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

NAALSONS ENGINEERS (I) PVT. LTD. Name & address of fabricator

NEIPL/BSG/72.0m/WPSS/38/22-23 Rev 0 Welding Procedure Specification No.

RDSO/B-10425/6 # ISMC 150 to Stiffener Pl in intermediate **RDSO Drawing** 

Cross Beam

Fillet (Weld Size 6 mm) Weld Joint description 2.

ISMC 150 & 10 mm, IS 2062-11, E 350 B0, fully killed. 3. Base Metal

Normalized / Control cooled

F.C.A.W. 4. Welding Process

Flat / Horizontal 2FVertical 3F / Overhead 4F 5. Welding Position

Welding Consumable 6.

Class: I of IRS M. 46 - 2003/IS 6419:1996, : 6.1 Electrode/Wire

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

2020

Drying method: N.A.

Class: N.A. 6.2 Flux :

Type: N.A. Drying method: N.A.

Argon - CO<sub>2</sub> Mix 6.3 Shielding Gas

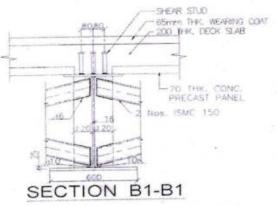
Fusion faces and adjacent surfaces are cleaned and 7. Base metal preparation

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality.

(Sketch showing arrangements of parts, weld : 7.1 Joint design details

groove details, weld passes & their sequence Etc.,)



As per IS 10178 - 1995, Cl. 8 7.2. Joint preparation

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

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Type: DC, Polarity: Reverse 8. Welding Current

ocsoon Manager/Byy

# WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

9. Welder Qualification

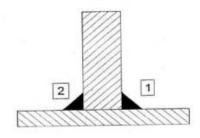
As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia.	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
14	1.2	180-230	24-26	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: One Side to Other Side.



11. Provision of run-on/run-off tabs

अहावक अनुकदान जीवकारो (बाह् : N.A.Assistant Research Officer (Mi

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual

removal of Slag, Spatter and any substance which might affect the quality of weld.

Root preparation before welding other side of groove weld

.... Welfor Manager SW

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using & class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld :

Visual, D.P. Test & Macro Etching

19. Any other relevant details :



Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator : NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. :

NEIPL/BSG/72.0m/WPSS/39/22-23 Rev 0

1. RDSO Drawing : RDSO/B-10425/4 # Arch to Bottom Long Beam

Weld Joint description : Fillet (Weld Size 25 mm)

Base Metal : 32/36 mm & 25 mm, IS 2062-11, E 350 B0, fully killed.

Normalized / Control cooled

4. Welding Process : F.C.A.W.

Welding Position : Vertical 3F / Overhead 4F

6. Welding Consumable

6.1 Electrode/Wire : Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

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Drying method: N.A.

6.2 Flux : Class: N.A.

Type: N.A. Drying method: N.A.

6.3 Shielding Gas : Argon - CO<sub>2</sub> Mix

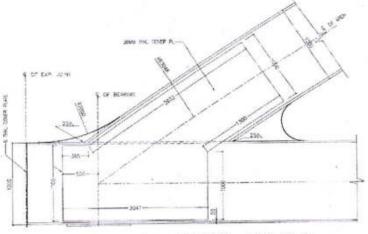
7. Base metal preparation : Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality great Research Officer (Me

7.1 Joint design details : (Sketch showing arrangements of parts, weld

groove details, weld passes & their sequence Etc.,)



7.2. Joint preparation

As per IS 10178 - 1995, Cl. 8

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

8. Welding Current

Type: DC, Polarity: Reverse

अहाबक जबुतकाम आवश्वारः (**बाव्** 

# WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

9. Welder Qualification

As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: One Side to Other Side.



11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual

removal of Slag, Spatter and any substance which

might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld :

Visual, D.P. Test & Macro Etching

19. Any other relevant details :

None

and Workshop Manager/BW

्रावक बनुत्रधान बन्निकारा (

#### WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator : NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. : NEIPL/BSG/72.0m/WPSS/40/22-23 Rev 0

RDSO Drawing : RDSO/B-10425/4 # Stiffener pl to Arch to Bottom Long

Beam

Weld Joint description : Fillet (Weld Size 25 mm)

Base Metal : 32 mm & 25/36 mm, IS 2062-11, E 350 B0, fully killed.

Normalized / Control cooled

4. Welding Process : F.C.A.W.

Welding Position : Flat / Horizontal 2F

Welding Consumable

6.1 Electrode/Wire : Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux : Class: N.A.

Type: N.A. Drying method: N.A.

6.3 Shielding Gas : Argon - CO<sub>2</sub> Mix

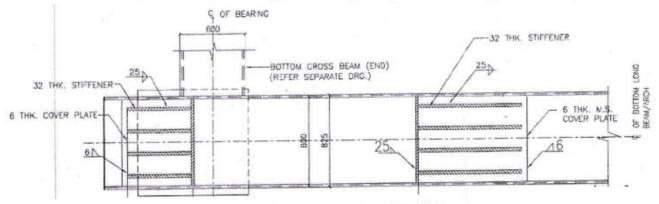
7. Base metal preparation : Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease,

paint, rust etc., which may affect weld quality.

7.1 Joint design details : (Sketch showing arrangements of parts, weld

groove details, weld passes & their sequence Etc.,)



7.2. Joint preparation : As per IS 10178 – 1995, Cl. 8

IRS B1 - 2001. Cl. 17.3 & WBC - 2001

Welding Current : Type: DC, Polarity: Reverse

Charleshop Manacon BW

## WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welder Qualification

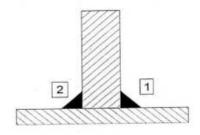
As per IS 7310 (Part I) - 1974

Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia.	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
4+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: One Side to Other Side.



Assistant Research Officer (Me

11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual

removal of Slag, Spatter and any substance which

might affect the quality of weld.

13. Root preparation before welding other side of groove weld

: N.A.

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

Cl. 32.2 of IS 9595-96, using A3 class of electrodes

Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details

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Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Name & address of fabricator : NAALSONS ENGINEERS (I) PVT. LTD.

Welding Procedure Specification No. : NEIPL/BSG/72.0m/WPSS/41/22-23 Rev 0

RDSO Drawing : RDSO/B-10425/4 # Bearing Shoe to Bottom Long Beam

Weld Joint description : Fillet (Weld Size 10 mm)

Base Metal : 32/25 mm & 25mm, IS 2062-11, E 350 B0, fully killed.

Normalized / Control cooled

Welding Process : F.C.A.W.

Welding Position : Flat / Horizontal 2F / Overhead 4F

6. Welding Consumable

6.1 Electrode/Wire : Class: I of IRS M. 46 – 2003/IS 6419:1996,

Dia. 1.2mm, Grade as per AWS A 5.20, E71T-1C

Drying method: N.A.

6.2 Flux : Class: N.A.

Type: N.A. Drying method: N.A.

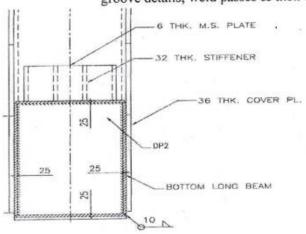
6.3 Shielding Gas : Argon - CO<sub>2</sub> Mix

7. Base metal preparation : Fusion faces and adjacent surfaces are cleaned and

made free from cracks, notches, mill scale, grease, paint, rust etc., which may affect weld quality.

7.1 Joint design details : (Sketch showing arrangements of parts, weld as a light of the state o

groove details, weld passes & their sequence Etc.,)



7.2. Joint preparation : As per IS 10178 – 1995, Cl. 8

IRS B1 - 2001, Cl. 17.3 & WBC - 2001

8. Welding Current : Type: DC, Polarity: Reverse

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Assistant Researc : Officer (Me

३ व्यवसावर्थेक देश सन्दा**लम सल**न्य

## WELDING PROCEDURE SPECIFICATION SHEET

Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

Welder Qualification 9.

As per IS 7310 (Part I) - 1974

10. Welding parameters and technique:

10.1 Welding Parameters:

Weld Pass	Electrode/ Wire dia. (mm)	Current (Amps)	Arc Voltage (volt)	Wire Feed Speed (m/min)	Travel Speed (m/min)	Electrode Stick-out (mm)	Gas flow (l/min)
1	1.2	180-230	24-26	4-6	N.A.	12-15	16-18
2	1.2	180-250	24-28	4-6	N.A.	12-15	16-18
3+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.2 Welding sequence and technique: One Side to Other Side.

11. Provision of run-on/run-off tabs

: N.A.

12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual

removal of Slag, Spatter and any substance which

might affect the quality of weld.

13. Root preparation before welding other side of groove weld

14. Preheating and inter-pass temperature

: 150°C

15. Peening

: N.A.

16. Post welds treatment

: N.A.

17. Rectification of weld defect:

By grinding of the defective weld & rectifying the as per

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Of specification. IRS M. 28-02 after conducting D P Test

18. Inspection of Weld

Visual, D.P. Test & Macro Etching

19. Any other relevant details