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.

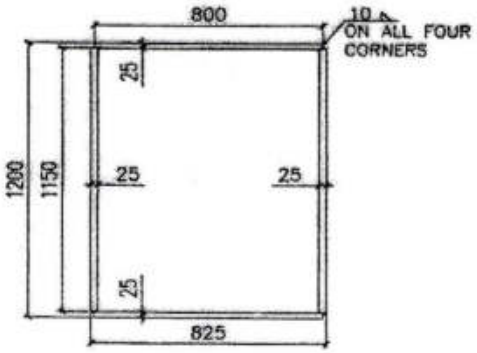
Model WPSS for
Railway BOW STRING GIRDER
(with SV Loading and Congestion Factor)

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)

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/WPSS/72.0m/01/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425 # **Bottom Long Beam** Section 1-1, 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~~ 2020 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.,)



SECTION 1-1

7.2 Joint preparation	:	As per IS 4353 – 1995, Cl.7, IRS B1 – 2001. Cl. 17.3 & WBC – 2001

सहायक अनुसंधान अधिकारी (सा
Assistant Research Officer (M
पू०म०रा०सं० रेल मंत्रालय वडोदर

WELDING PROCEDURE SPECIFICATION SHEET

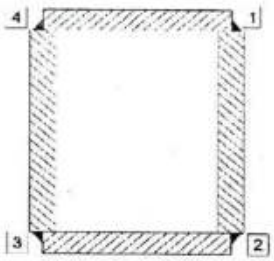
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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	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



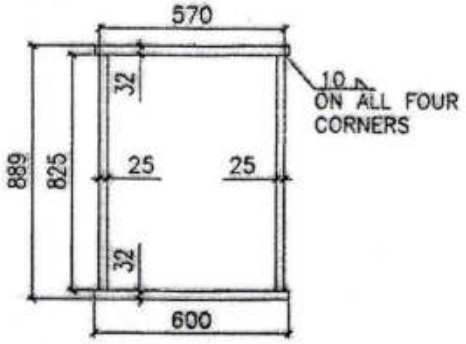
11. Provision of run-on/run-off tabs : Yes
12. Cleaning of weld bead before laying of next weld bead : ~~N.A.~~
13. Root preparation before welding other side of groove weld : N.A.
14. Preheating and inter-pass temperature : 150°C
15. Peening : N.A.
16. Post welds treatment : N.A.
17. Rectification of weld defect : By grinding of the defective weld & rectifying the weld as per Cl. 32.2 of IS 9595-96, using ~~A3~~ B2 class of electrodes of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

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/WPSS/72.0m/02/22-23 Rev 0
1. 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.
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~~ 2020 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.,)



SECTION 2-2

7.2. Joint preparation	:	As per IS 4353 – 1995, Cl.7, IRS B1 – 2001. Cl. 17.3 & WBC – 2001

Assistant Research Officer (M.

WELDING PROCEDURE SPECIFICATION SHEET

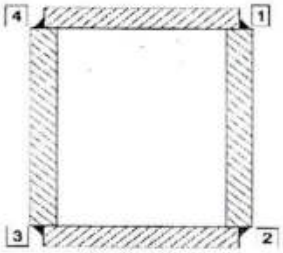
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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.~~ 43
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~~ B2 class of electrodes of specification. IRS M. 28-~~02~~ 20 after conducting D P Test.
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

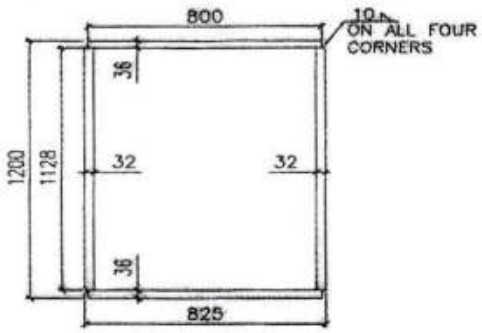
6/09/2022

वरिष्ठ अनुसंधान अधिकारी (वा
Analatmi 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/WPSS/72.0m/03/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425 # **Arch** Section on 3-3, Top / Bottom Flange. Pl. to Side Pl. Outside Location
2. Weld Joint description	:	Fillet (10 mm)
3. Base Metal	:	36 mm & 32 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~~ 2020 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.,)



SECTION 3-3

7.2 Joint preparation	:	As per IS 4353 – 1995, Cl.7, IRS B1 – 2001. Cl. 17.3 & WBC – 2001

Assistant Research Officer (M

WELDING PROCEDURE SPECIFICATION SHEET

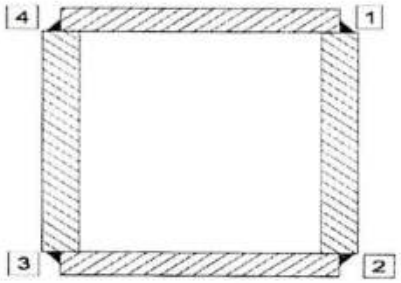
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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.



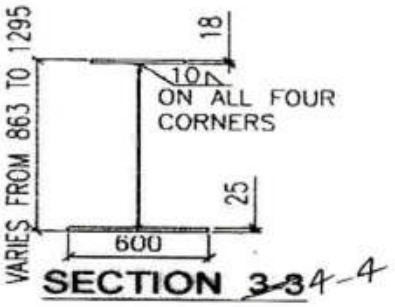
11. Provision of run-on/run-off tabs : Yes
12. Cleaning of weld bead before laying of next weld bead : ~~N.A.~~ 493
13. Root preparation before welding other side of groove weld : N.A.
14. Preheating and inter-pass temperature : 150°C
15. Peening : N.A.
16. Post welds treatment : N.A.
17. Rectification of weld defect : By grinding of the defective weld & rectifying the weld as per Cl. 32.2 of IS 9595-96, using ~~A3~~ B2 class of electrodes of specification. IRS M. 28-02 20 after conducting DP Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

04/09/12
सहायक अनुसंधान अधिकारी (सा
Assistant Research Officer (M
दक्षिण मध्य रेल मण्डल

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/WPSS/72.0m/04/22-23 Rev 0
1. 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)
3. 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
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~~ 2020 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

सहायक अनुसंधान अधिकारी (सा
Assistant Research Officer (M

WELDING PROCEDURE SPECIFICATION SHEET

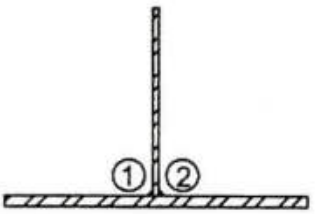
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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.



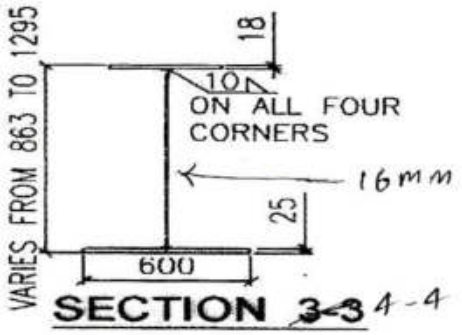
11. Provision of run-on/run-off tabs : Yes
12. Cleaning of weld bead before laying of next weld bead : ~~N.A.~~
13. Root preparation before welding other side of groove weld : N.A.
14. Preheating and inter-pass temperature : 150°C
15. Peening : N.A.
16. Post welds treatment : N.A.
17. Rectification of weld defect : By grinding of the defective weld & rectifying the Weld as per Cl. 32.2 of IS 9595-96, using ~~13~~ 09 class of electrodes of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

सहायक अनुसंधान अधिकारी (जा
Assistant Research Officer (M
रेल मन्त्रालय भारत

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/WPSS/72.0m/05/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425 # **Intt. Bottom Cross Beam** Section on 4-4, Bottom Flange. Pl. to Web Pl.
2. Weld Joint description	:	Fillet (10 mm)
3. Base Metal	:	25 mm & 16 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~~ 2020 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

WELDING PROCEDURE SPECIFICATION SHEET

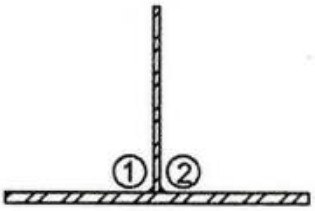
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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	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.



06/05/2022
Assistant Research Officer (M.

11. Provision of run-on/run-off tabs : Yes
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 : 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~~ B2 class of electrodes of specification. IRS M. 28-~~02~~ 22 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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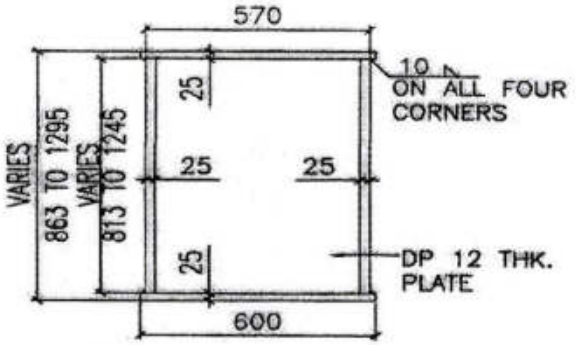
WELDING PROCEDURE SPECIFICATION SHEET

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/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~~ 2020 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.,)

06/06/2023



SECTION 5-5

7.2 Joint preparation	:	As per IS 4353 – 1995, Cl.7, IRS B1 – 2001. Cl. 17.3 & WBC – 2001

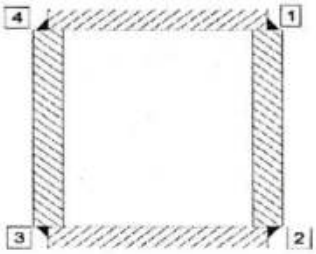
WELDING PROCEDURE SPECIFICATION SHEET

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	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.



06/05/2025

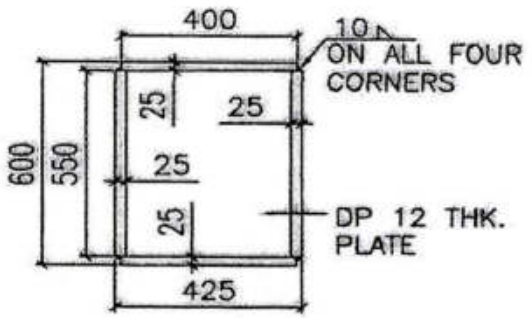
सहायक अनुसंधान अधिकारी (यां
Assistant Research Officer (M
उत्तर मध्य रेल मुख्यालय प्रयागराज

11.	Provision of run-on/run-off tabs		: Yes
12.	Cleaning of weld bead before laying of next weld bead		: ~~N.A.~~ Yes
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~~ B2 class of electrodes of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18.	Inspection of Weld	:	Visual, D.P. Test & Macro Etching
19.	Any other relevant details	:	None

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/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		
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~~ 2020 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.,)



SECTION 6-6

7.2 Joint preparation	:	As per IS 4353 – 1995, Cl.7, IRS B1 – 2001. Cl. 17.3 & WBC – 2001

WELDING PROCEDURE SPECIFICATION SHEET

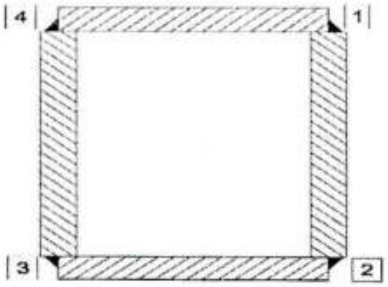
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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	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.



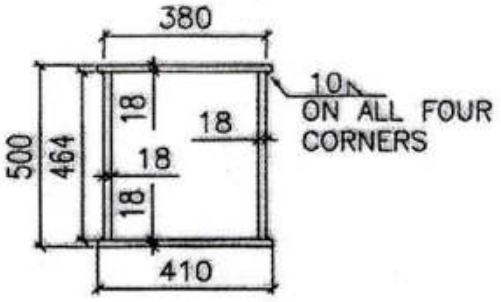
सहायक अनुसंधान अधिकारी (सा.इ
Assistant Research Officer (M.
अ.अ.सा.सं. रेल मन्त्रालय लखनऊ

11. Provision of run-on/run-off tabs : Yes
12. Cleaning of weld bead before laying of next weld bead : ~~N.A.~~ ५३३
13. Root preparation before welding other side of groove weld : N.A.
14. Preheating and inter-pass temperature : ~~N.A.~~ 110 to 150°C
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~~ B3 class of electrodes of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

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/WPSS/72.0m/08/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425 # **Top Diagonal Tie Beam** Section on 7-7 Top/Bottom Flange. Pl. to Side Pl. Outside Location
2. Weld Joint description	:	Fillet (10 mm)
3. Base Metal	:	18 mm & 18 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~~ 2020 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.,)



SECTION 7-7

7.2 Joint preparation	:	As per IS 4353 – 1995, Cl.7, IRS B1 – 2001. Cl. 17.3 & WBC – 2001

04/01/2023
सहायक अनुसंधान अधिकारी (मार्ग)
Assistant Research Officer (M

WELDING PROCEDURE SPECIFICATION SHEET

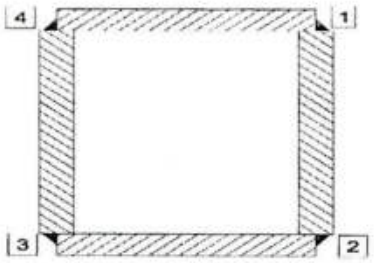
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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.~~ ওয়ার
13. Root preparation before welding other side of groove weld : N.A.
14. Preheating and inter-pass temperature : ~~N.A.~~ 110°C - 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. 28-02 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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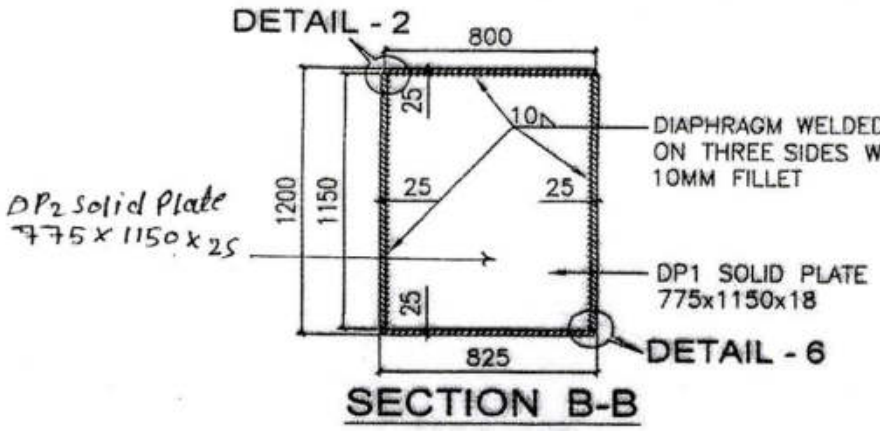
WELDING PROCEDURE SPECIFICATION SHEET

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/WPSS/72.0m/09/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425 # **Bottom Long Beam Diaphragm** at Section A-A, DP To Bottom/Side Pl.- Inside Location
2. Weld Joint description	:	Fillet (10 mm)
3. Base Metal	:	25 mm & 25/18 mm IS 2062-11: E 350 B0, fully killed. Normalized/Control cooled with DP1 & DP2
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~~ 2020, 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_2. 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

सहायक अनुसंधान अधिकारी (मा
Assistant Research Officer (M
रेल मंत्रालय भारत

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WELDING PROCEDURE SPECIFICATION SHEET

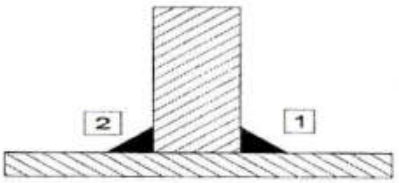
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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	24-28	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:



04/08/2026

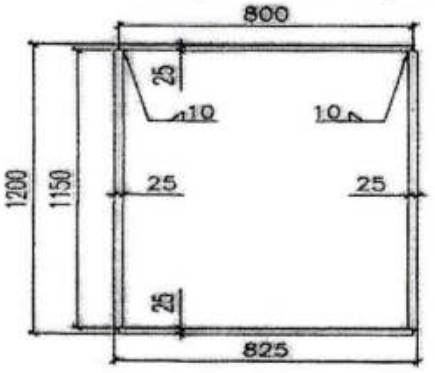
सहायक अनुसंधान अधिकारी (वायु
Assistant Research Officer (M
रेलवे अनुसंधान एवं मानक संगठन

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~~ B-2 class of electrodes of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18. Inspection of Weld: Visual, D.P. Test & Macro Etching
19. Any other relevant details: None

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/WPSS/72.0m/10/22-23 Rev 0
1. 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	:	Flat/Horizontal-2F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46–~~2003/IS 6419:1996~~ 2020, 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_2. 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.,)



SECTION 1-1

04/04/2023

Assistant Research Officer (M

7.2 Joint preparation	:	As per IS 10178 – 1995, Cl. 8 IRS B1 – 2001. Cl. 17.3 & WBC – 2001

WELDING PROCEDURE SPECIFICATION SHEET

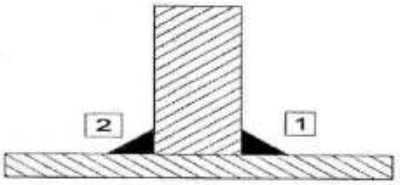
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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	24-28	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
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~~ B2 class of electrodes of specification. IRS M. 28-~~02~~ 2C after conducting D P Test
18. Inspection of Weld: Visual, D.P. Test & Macro Etching
19. Any other relevant details: None

अनुसंधान अधिकारी (आर
Assistant Research Officer (M

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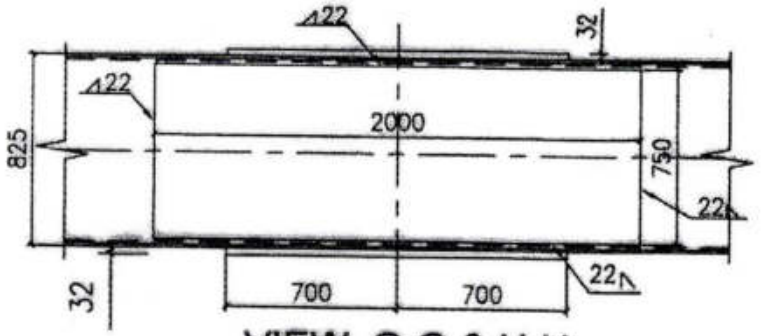
WELDING PROCEDURE SPECIFICATION SHEET

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/WPSS/72.0m/11/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/5 # **Bottom Long Beam - Splice plate,** Section J-J, Details of Splice Elevation View G-G & H-H
2. 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		
6.1. Electrode/Wire	:	Class: I of IRS M. 46 – 2003/ ~~IS:6419:1996,~~ 2020 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_2 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.,)



VIEW G-G & H-H

7.2 Joint preparation	:	As per IS 10178 – 1995, Cl. 8 IRS B1 – 2001. Cl. 17.3 & WBC – 2001

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	24-28	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.

06/09/2022

वरिष्ठ अनुसंधान अधिकारी (आर
Assistant Research Officer (M
उ०प०पा०सं० रेल मन्त्रालय लखनऊ

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~~ B2U class of electrodes of specification. IRS M. 28-~~02~~ 20 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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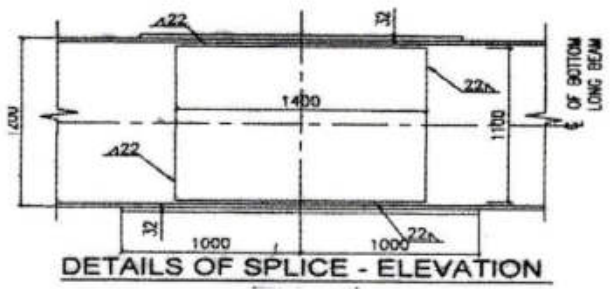
WELDING PROCEDURE SPECIFICATION SHEET

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/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	:	32 ~~30~~ 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~~ 2020 / ~~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_2 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.,)



DETAILS OF SPLICE - ELEVATION

7.2 Joint preparation	:	As per IS 10178 – 1995, Cl. 8 IRS B1 – 2001. Cl. 17.3 & WBC – 2001

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.

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	24-30	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.

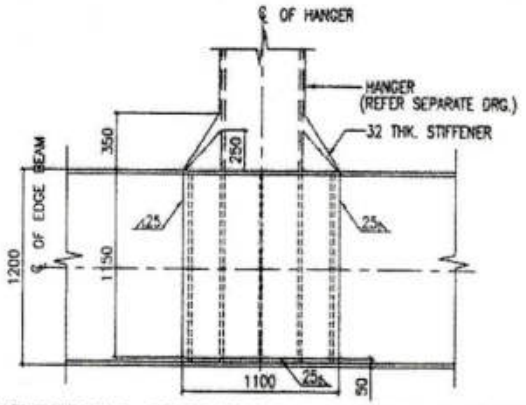
Assistant Research Officer (M

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~~ 52 class of electrodes of specification. IRS M. 28-02 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

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/13/22-23 Rev 0
1. 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)
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	:	Vertical 3F / Overhead 4F
6. Welding Consumable		
6.1. Electrode/Wire	:	Class: I of IRS M. 46 – 2003/~~IS 6419:1996~~ 2020 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.,)



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

7.2 Joint preparation	:	As per IS 10178 – 1995, Cl. 8 IRS B1 – 2001. Cl. 17.3 & WBC – 2001

WELDING PROCEDURE SPECIFICATION SHEET

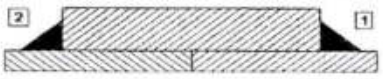
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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 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.
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 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

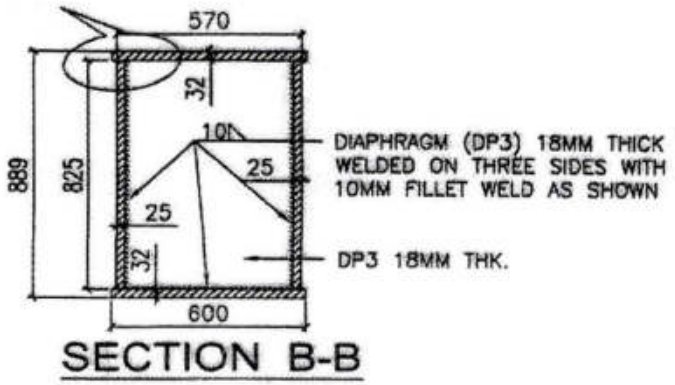
4/04/2018

सहायक अनुसंधान अधिकारी (आर
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/14/22-23 Rev 0
1. 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.
5. Welding Position	:	Flat/Horizontal 2F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – 2003/~~IS 6419:1996~~ 2020, 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.)



SECTION B-B

7.2 Joint preparation	:	As per IS 10178 – 1995, Cl. 8 IRS B1 – 2001. Cl. 17.3 & WBC – 2001

WELDING PROCEDURE SPECIFICATION SHEET

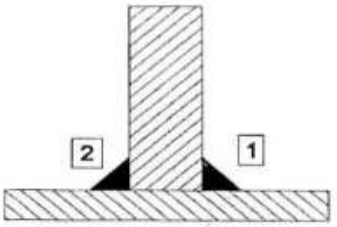
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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	24-28	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~~ B2u class of electrodes of specification. IRS M. 28-02 2C after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

06.01.2020

वरिष्ठ अनुसंधान अधिकारी (आर
Assistant Research Officer (M

E. C. Rly., Pt. Deendayal Upadhyaya

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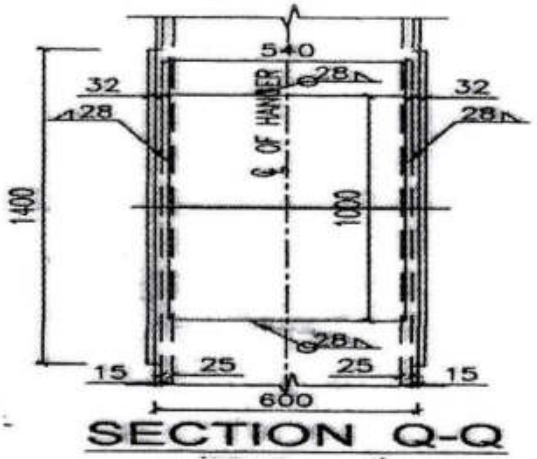
WELDING PROCEDURE SPECIFICATION SHEET

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/15/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/9 # **Hanger – Splice plate** Plan of Hanger Details of Splice, Section Q-Q
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	:	Flat/Horizontal-2F
6. Welding Consumable		
6.1. Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003/IS 6419: 1996~~, 2020 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_2 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.)



SECTION Q-Q

7.2 Joint preparation	:	As per IS 10178 – 1995, Cl. 8 IRS B1 – 2001. Cl. 17.3 & WBC – 2001

Assistant Research Officer (M

WELDING PROCEDURE SPECIFICATION SHEET

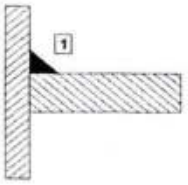
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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

10.2 Welding sequence and technique:

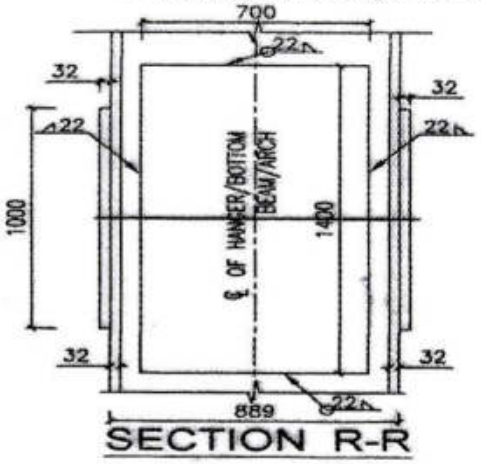


11. Provision of run-on/run-off tabs : N.A.
12. Cleaning of weld bead before laying of next weld bead: Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.
13. Root preparation before welding other side of groove weld : 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~~ B2 class of electrodes Of spec. IRS M. 28-02 2C after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

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
1. RDSO Drawing	:	RDSO/B-10425/9 # **Hanger – Splice plate** Plan of Hanger Details of Splice, Section R-R
2 Weld Joint description	:	Fillet (Weld Size 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		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – 2003/~~IS 6419: 1996,~~ 2020 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_2 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 PROCEDURE SPECIFICATION SHEET

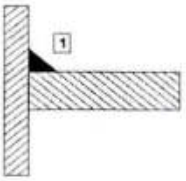
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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 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:



06/05/2026

सहायक अनुसंधान अधिकारी (ब
Assistant Research Officer (I
दक्षिण मध्य रेल अन्वाहय भवन

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 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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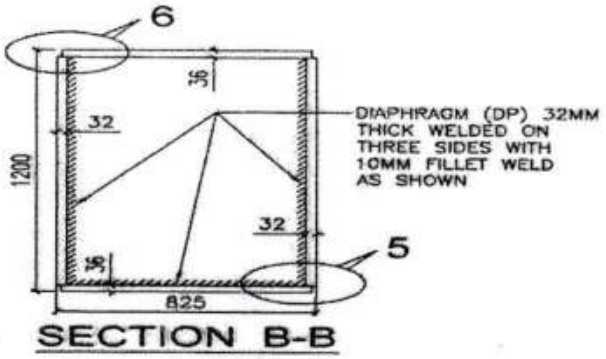
WELDING PROCEDURE SPECIFICATION SHEET

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
2. 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,~~ 2020 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.)



SECTION B-B

7.2	Joint preparation	:	As per IS 10178 – 1995, Cl. 8 IRS B1 – 2001. Cl. 17.3 & WBC – 2001

2/4

WELDING PROCEDURE SPECIFICATION SHEET

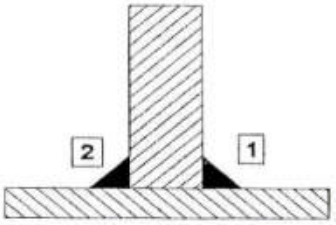
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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	24-28	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:



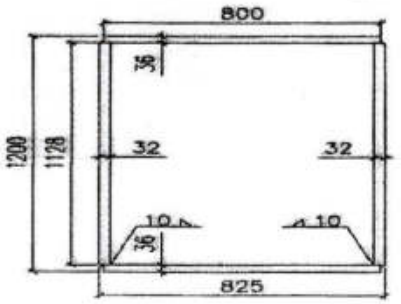
04/07/2022

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~~ B2 class of electrodes of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

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.
5. Welding Position	:	Flat/Horizontal
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003/IS 6419:1996~~, 2020 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.)



SECTION 3-3

7.2	Joint preparation	:	As per IS 10178 – 1995, Cl. 8 IRS B1 – 2001. Cl. 17.3 & WBC – 2001

WELDING PROCEDURE SPECIFICATION SHEET

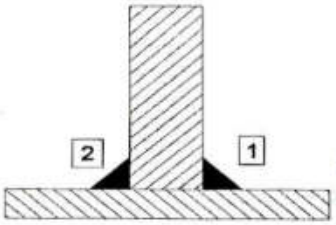
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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	24-28	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~~ B2 class of electrodes of specification. IRS M. 28-02 3C 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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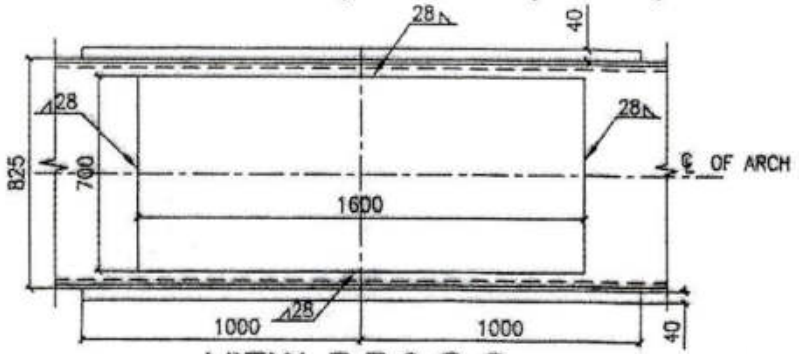
WELDING PROCEDURE SPECIFICATION SHEET

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/19/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/2 # **Arch - splice plate,** Details of Splice Elevation View F-F & G-G
2. Weld Joint description	:	Fillet (Weld Size ~~25~~ 28 mm)
3. Base Metal	:	36 mm & 45 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~~ 2020/ ~~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_2 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.,)



VIEW F-F & G-G

7.2 Joint preparation	:	As per IS 10178 – 1995, Cl. 8 IRS B1 – 2001. Cl. 17.3 & WBC – 2001

06/05/2025

Dr. Deendayal Upadhyaya

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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	24-28	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.

06/07/2022

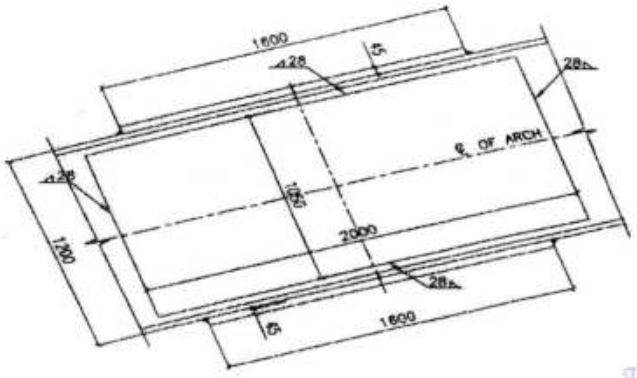
Assistant Research Officer (M

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~~ B2 class of electrodes of specification. IRS M. 28-02 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

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		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003/ IS:6419. 1996,~~ 2020 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_2 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

04/09/2020

बहादुर मुखलाल अधिकारी (आर
Assistant Research Officer (M
अनु. रेल अनुसंधान संगठन

Private

Pt. Deendayal Upadhyaya

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	24-28	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.

04/09/2025

वरिष्ठ अनुसंधान अधिकारी (आर
Assistant Research Officer (M
दक्षिण रेल अभियांत्रिकी कार्यालय

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~~ 52 class of electrodes of specification. IRS M. 28-02 20 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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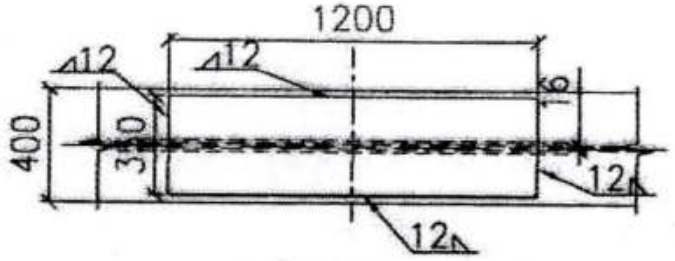
WELDING PROCEDURE SPECIFICATION SHEET

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/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~~ 2020, 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_2 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

Assistant Research Officer (M

Pt. Deendayal Upadhyaya

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	24-28	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:

06/01/2020

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~~ B2 class of electrodes Of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Micro Etching
19. Any other relevant details : None

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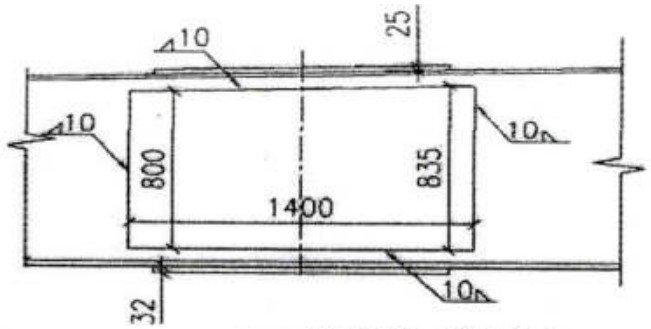
WELDING PROCEDURE SPECIFICATION SHEET

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/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
5. Welding Position	:	Flat/Horizontal (2F)
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003/IS 6419:1996,~~ 2022 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_2 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

06/09/2022

सहायक अनुसंधान अधिकारी (मा
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.

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

10.2 Welding sequence and technique:

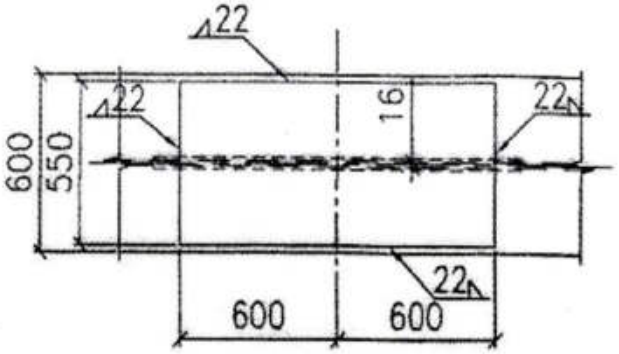
11. Provision of run-on/run-off tabs : N.A.
12. Cleaning of weld bead before laying of next weld bead : Prior to weld clean paint/rust properly through grinder wire brush/manual removal of any substance which might affect the quality of weld.
13. Root preparation before welding other side of groove weld : N.A.
14. Preheating and inter-pass temperature : ~~N.A.~~ 110-150°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~~ B2 class of electrodes Of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Micro Etching
19. Any other relevant details : None

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/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
5. Welding Position	:	Flat/Horizontal (2F)
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – 2003/~~IS 6419:1996~~, 2020 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_2 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

06/9/2020

सहायक अनुसंधान अधिकारी (सि
Assistant Research Officer (M
रेल मंत्रालय भारत

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	24-28	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:

06/08/2020
सहायक अनुसंधान अधिकारी (सा
Assistant Research Officer (M
रेल मंत्रालय भारत

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~~ G2 class of electrodes Of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Micro Etching
19. Any other relevant details : None

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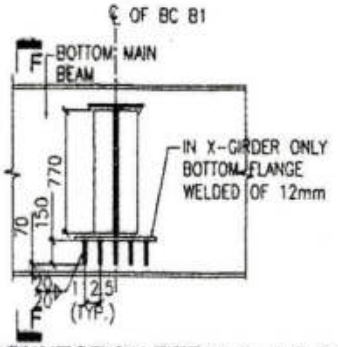
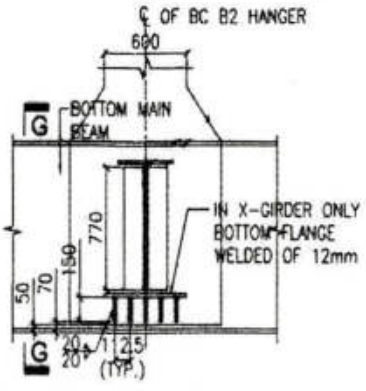
WELDING PROCEDURE SPECIFICATION SHEET

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.

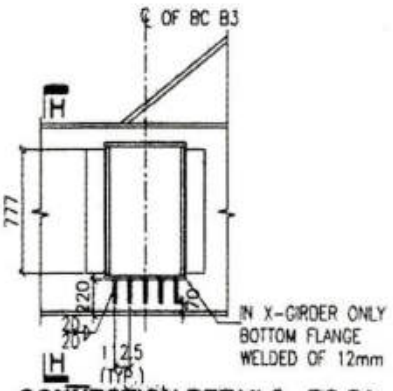
Name & address of fabricator	:	**NAALSONS ENGINEERS (I) PVT. LTD.**
Welding Procedure Specification No.	:	NEIPL/BSG/72.0m/WPSS/24/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/6 # **X Girder Connection** X Girder Connection to Bottom Long Beam Connection Detail of BCB1, BCB2 & BCB3
2. Weld Joint description	:	Fillet (Weld Size 12 mm)
3. 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.
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~~ 2020 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_2. 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.,)



CONNECTION DETAILS - BC B1



CONNECTION DETAILS - BC B2



CONNECTION DETAILS - BC B3

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	24-28	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.
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~~ 12 class of electrodes of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18. Inspection of Weld: Visual, D.P. Test & Macro Etching
19. Any other relevant details: None

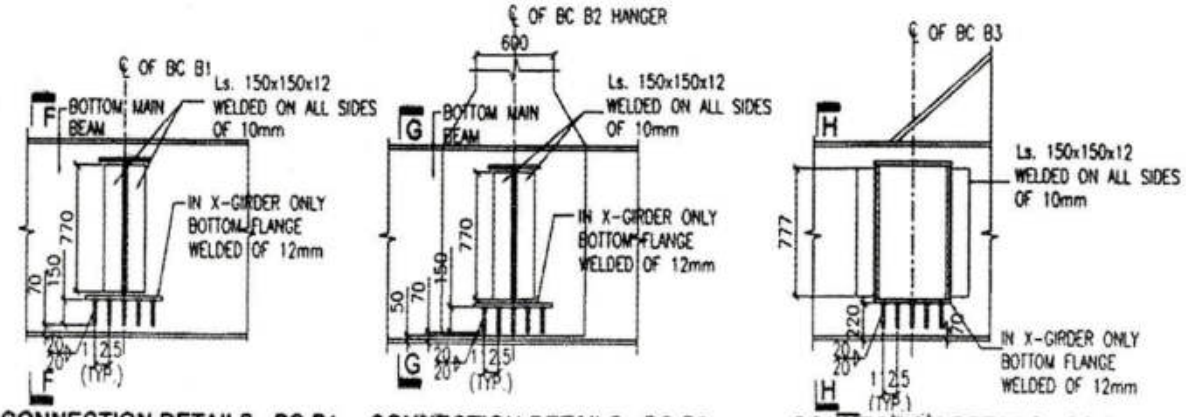
06/08/2025

सहायक अनुसंधान अधिकारी (वाहु
Assistant Research Officer (M
लखनऊ रेल अनुसंधान संस्थान

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/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.
5. Welding Position	:	Flat / Horizontal 2F / Vertical 3F / Overhead 4F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: 1 of IRS M. 46-2003/~~IS 6419:1996~~ 2020 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_2. 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.,)



CONNECTION DETAILS - BC B1 CONNECTION DETAILS - BC B2 CONNECTION DETAILS - BC B3

7.2 Joint preparation	:	As per IS 10178 – 1995, Cl. 8, IRS B1 – 2001. Cl. 17.3 & WBC – 2001

WELDING PROCEDURE SPECIFICATION SHEET

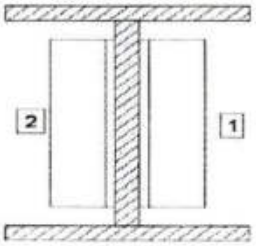
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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	24-28	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: Welding from one end to another end.



04.07.2018

सहायक अनुसंधान अधिकारी (वा
Assistant Research Officer (M
रेल मंत्रालय सचिव

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.
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~~ B-2) class of electrodes of specification. IRS M. 28-02 3-0 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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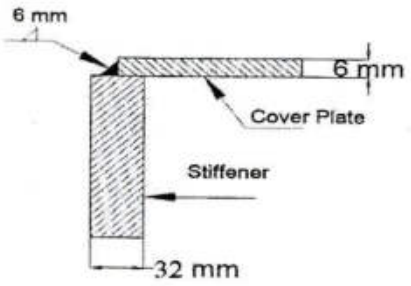
WELDING PROCEDURE SPECIFICATION SHEET

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)
3. 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,~~ 2020 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_2 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
8. Welding Current	:	Type: DC, Polarity: Reverse

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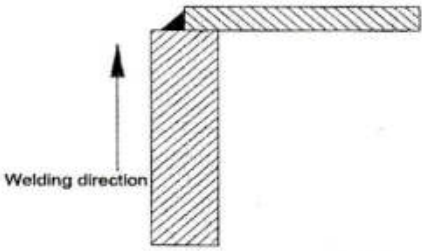
9. Welder Qualification : As per IS 7310 (Part I) – 1974

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:



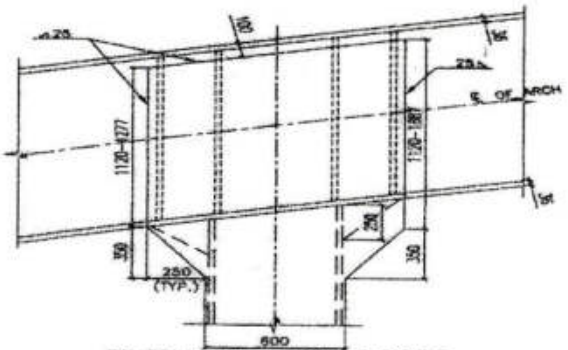
11. Provision of run-on/run-off tabs : N.A.
12. Cleaning of weld bead before laying of next weld bead : ~~N.A.~~ Yes by wire brush
13. Root preparation before welding other side of groove weld : N.A.
14. Preheating and inter-pass temperature : 150°C
15. Peening : N.A.
16. Post welds treatment : N.A.
17. Rectification of weld defect : By grinding of the defective weld & rectifying the as per Cl. 32.2 of IS 9595-96, using ~~A3~~ B2 class of electrodes Of specification. IRS M. 28-02 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

Assistant Accounts 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/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
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	:	Flat/Horizontal-2F
6. Welding Consumable		
6.1. Electrode/Wire	:	Class: I of IRS M. 46 – 2003~~/IS 6419: 1996,~~ 2020 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_2 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 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	24-28	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:

Assistant Research Officer (M

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~~ B20 class of electrodes of spec. IRS M. 28-~~02~~ 20 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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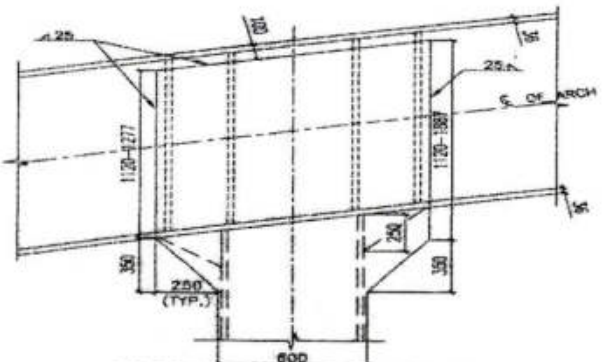
WELDING PROCEDURE SPECIFICATION SHEET

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/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,~~ 2020 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
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.,)



ELEVATION OF JOINT
(U1 TO U6)

7.2. Joint preparation	:	As per IS 10178 – 1995, Cl. 8 IRS B1 – 2001. Cl. 17.3 & WBC – 2001

NAALSONS ... Private Limited

सहायक अनुसंधान अधिकारी (आई
Assistant Research Officer (M
रेल मंत्रालय भारत

WELDING PROCEDURE SPECIFICATION SHEET

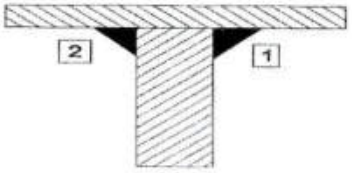
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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	24-28	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:



सहायक अनुसंधान अधिकारी (आ
Assistant Research Officer (M
रेल मंत्रालय भारत

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~~ 20 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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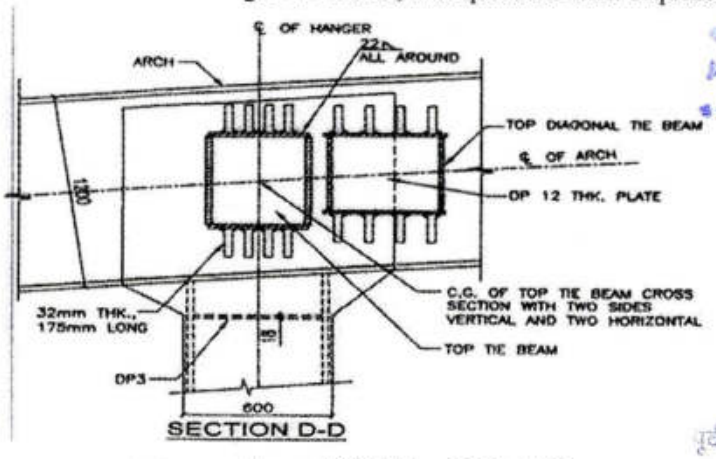
WELDING PROCEDURE SPECIFICATION SHEET

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/29/22-23 Rev 0
1. 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.
5. Welding Position	:	Flat Horizontal 2F / Vertical 3F / Overhead-4F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003/IS 6419:1996,~~ 2020 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_2 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

सहायक अनुसंधान अधिकारी (यां
Assistant Research Officer (M
उ०म०रा०शं० रेल मन्त्रालय लखनऊ

WELDING PROCEDURE SPECIFICATION SHEET

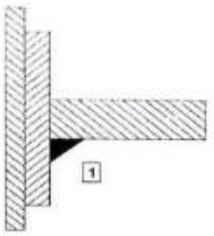
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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
4+	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.4 Welding sequence and technique:



सहायक अनुसंधान अधिकारी (मार्ग
Assistant Research Officer (M
इलाहाबाद रेल अभियांत्रिकी संस्थान

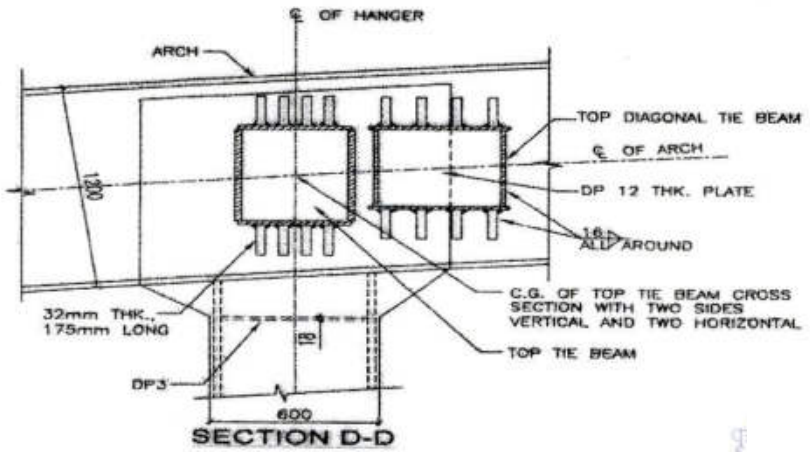
11. Provision of run-on/run-off tabs : N.A.
12. Cleaning of weld bead before laying of next weld bead: Prior to each run through manual removal of Slag, Spatter and any substance which might affect the quality of weld.
13. Root preparation before welding other side of groove weld : N.A.
14. Preheating 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~~ A2 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

पूर्व

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/30/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/3 # **Top Diagonal Tie Beam to Hanger** Section D-D & F-F
2. Weld Joint description	:	Fillet (Weld Size 16 mm)
3. Base Metal	:	18 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 / Vertical 3F / Overhead-4F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003/IS 6419:1996,~~ 2020 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_2 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

Assistant Research Officer (M

WELDING PROCEDURE SPECIFICATION SHEET

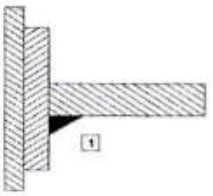
Proposed six lane Road Over Bridge (2 x 72.0 m Clear Span Bow String Steel Girder) at Railway km-445/27-29 between stns. Hathidah JN -Rampur Dumra at Road Chainage 202+306 of NH-31 state of Bihar.

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
4	1.2	180-250	24-28	4-6	N.A.	12-15	16-18

10.5 Welding sequence and technique:



06/09/2022

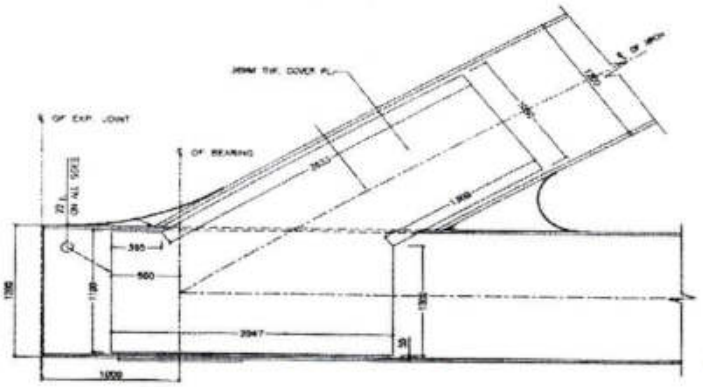
Assistant Research Officer (M

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~~ B2 class of electrodes Of specification. IRS M. 28-~~02~~ 20 after conducting D P Test
18. Inspection of Weld : Visual, D.P. Test & Macro Etching
19. Any other relevant details : None

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
1. 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
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003/IS 6419:1996,~~ 2020 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_2 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

04/09/2022
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.

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
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.

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 ~~E5~~ E6 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/32/22-23 Rev 0
1. RDSO Drawing	:	All relevant drawings on the above
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		
6.1 Electrode/Wire	:	Class: ~~A5~~ B20 of IRS M. 28 – ~~2002~~ 2020, with Amend. 1 of 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 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
8. Welding Current	:	Type: DC, Polarity: Reverse

Research Officer (M

Dr. Deendayal Upadhyay

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	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.

16. Post welds treatment : N.A.

17. Rectification of weld defect : N.A.

18. Inspection of Weld : Visual, DP

19. Any other relevant details : None

04/08/22

Research Officer (M

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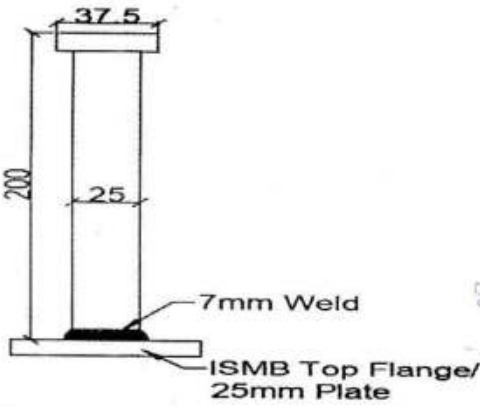
WELDING PROCEDURE SPECIFICATION SHEET

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/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.
7. Ferrule	:	Matching ferrule should be used and these shall be free 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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Deendayal Upadhyay

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 Pass	Stud dia. (mm)	Current (Amps)	Lift (mm)	Weld Time (Sec.)	Plunge/Protrusion (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 : 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

04/09/2020

Research Officer (M

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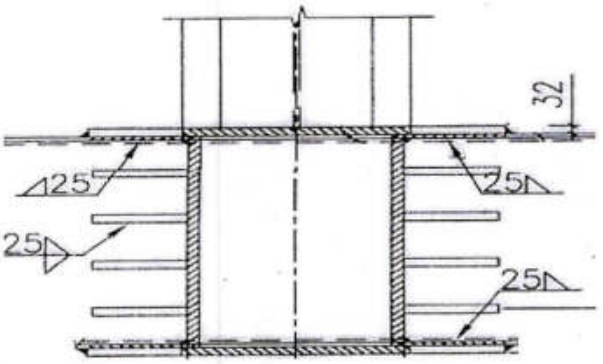
Field WPSS

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	

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/33/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/5 # **Stiffener Pl to Bottom Long Beam and Hanger web Pl**
2. Weld Joint description	:	Fillet (Weld Size 25 mm)
3. Base Metal	:	32 mm & 25/25 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 / 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	:	Argon - CO_2 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
8. Welding Current	:	Type: DC, Polarity: Reverse

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.

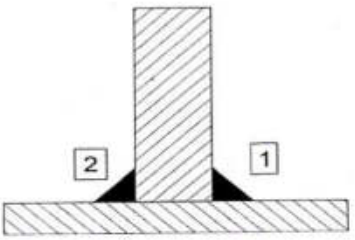
9. Welder Qualification : As per IS 7310 (Part I) – 1974

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.



06/09/2024
सहायक अनुसंधान अधिकारी (सा
Assistant Research Officer (M
रेल मंत्रालय भारत

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 : None

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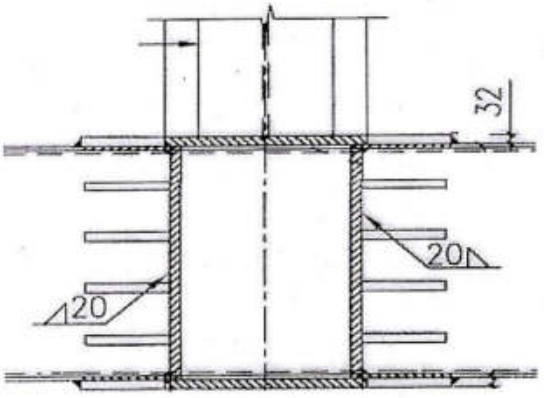
WELDING PROCEDURE SPECIFICATION SHEET

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/34/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/5 # **Bottom Long Beam to Hanger web Pl**
2. Weld Joint description	:	Fillet (Weld Size 20 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	:	Flat / Horizontal 2F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003~~ 2020/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_2 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.,)



मुख्य कारखाना प्रबधक / वी0डब्ल्यू0
पू0 मध्य रेल्वे प0 दीनदयाल उपाध्याय
Chief Workshop Manager/BW
E.C. Rly., P.T. Deendayal Upadhyaya

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

06/06/2022

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.

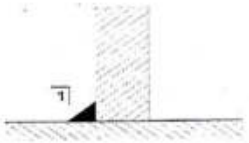
9. Welder Qualification : As per IS 7310 (Part I) – 1974

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.



06/09/2018

11. Provision of run-on/run-off tabs : N.A.

सहायक अनुसंधान अधिकारी (वा
Assistant Research Officer (M
अनुसंधान डेरा मनोहर

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~~ B2 class of electrodes Of specification. IRS M. 28-~~02~~ 20 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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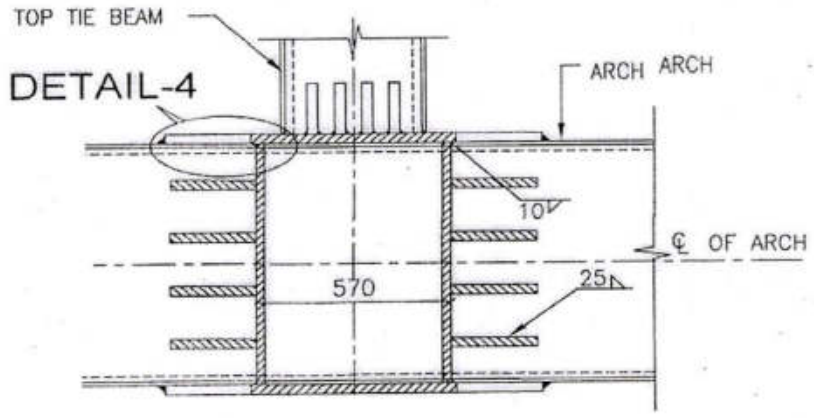
WELDING PROCEDURE SPECIFICATION SHEET

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/35/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/2 # **Stiffener Pl to Arch and Hanger**
2. Weld Joint description	:	Fillet (Weld Size 25 mm)
3. Base Metal	:	32 mm & 36/25 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~~ 2020/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_2 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
8. Welding Current	:	Type: DC, Polarity: Reverse

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.

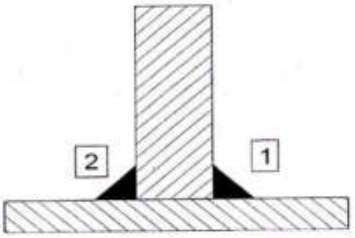
9. Welder Qualification : As per IS 7310 (Part I) – 1974

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.



Assistant Research Officer (M

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.

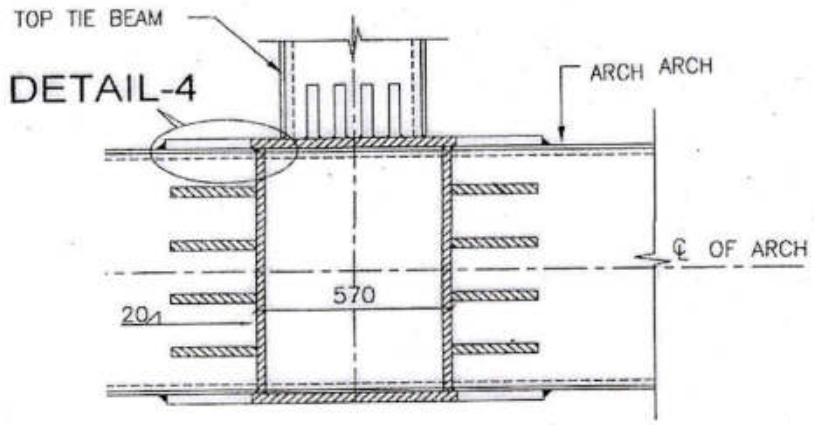
18. Inspection of Weld : Visual, D.P. Test & Macro Etching

19. Any other relevant details : None

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/36/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/2 # **Arch to Hanger web Pl**
2. Weld Joint description	:	Fillet (Weld Size 20 mm)
3. Base Metal	:	36 mm & 25 mm, IS 2062-11, E 350 B0, fully killed. Normalized / Control cooled
4. Welding Process	:	F.C.A.W.
5. Welding Position	:	Overhead 4F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003~~ 2020/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_2 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
8. Welding Current	:	Type: DC, Polarity: Reverse

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.

04/09/2020

सहायक अनुसंधान अधिकारी (मा
Assistant Research Officer (M
रेल अनुसंधान केंद्र लखनऊ

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 ~~A5~~ 57 class of electrodes Of specification. IRS M. 28-02 20 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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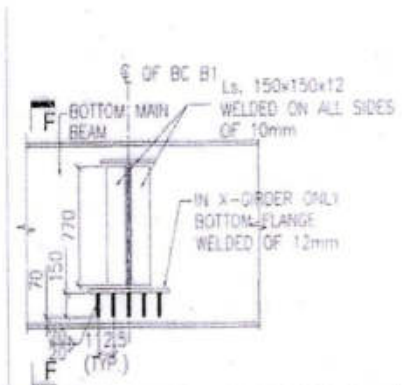
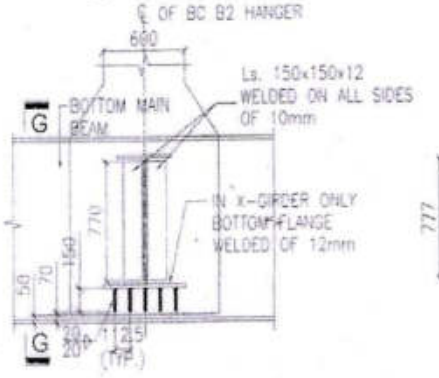
WELDING PROCEDURE SPECIFICATION SHEET

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.

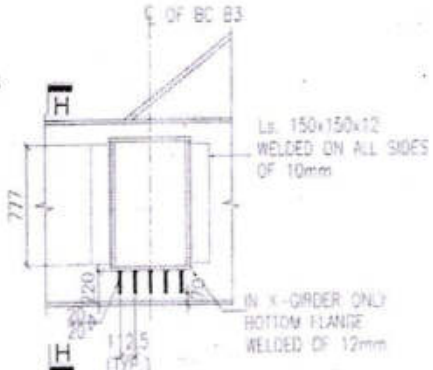
Name & address of fabricator	:	**NAALSONS ENGINEERS (I) PVT. LTD.**
Welding Procedure Specification No.	:	NEIPL/BSG/72.0m/WPSS/37/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/6 # **Stiffener Pl to Cross Beam & Bottom Long Beam**
2. Weld Joint description	:	Fillet (Weld Size 20 mm)
3. Base Metal	:	25 mm & 25 mm, IS 2062-11, E 350 B0, fully killed. Normalized / Control cooled
4. Welding Process	:	F.C.A.W.
5. Welding Position	:	Flat / Horizontal 2FVertical 3F / Overhead 4F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003~~ 2020/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_2 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.,)



CONNECTION DETAILS - BC B1



CONNECTION DETAILS - BC B2



CONNECTION DETAILS - BC B3

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

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.

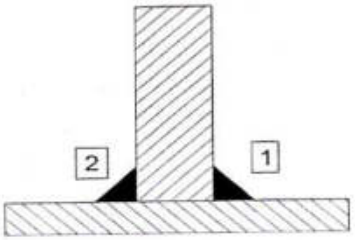
9. Welder Qualification : As per IS 7310 (Part I) – 1974

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.



06/12/2025

सहायक अनुसंधान अधिकारी (मा.यं.)
Assistant Research Officer (M.)
रेल मंत्रालय भारत सरकार

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 ~~43~~ 52 class of electrodes Of specification. IRS M. 28-~~02~~ 20 after conducting D P Test

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

19. Any other relevant details : None

पूर्ण।

Workshop Manager/BW

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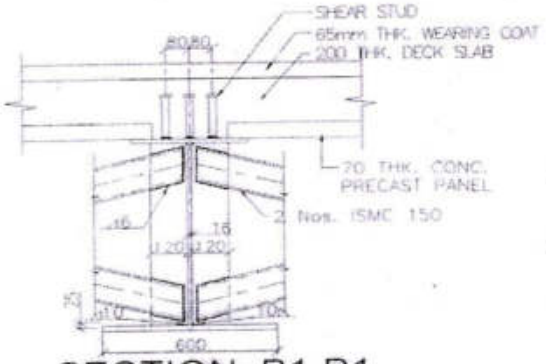
WELDING PROCEDURE SPECIFICATION SHEET

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/38/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/6 # **ISMC 150 to Stiffener Pl in intermediate Cross Beam**
2. Weld Joint description	:	Fillet (Weld Size 6 mm)
3. Base Metal	:	ISMC 150 & 10 mm, IS 2062-11, E 350 B0, fully killed. Normalized / Control cooled
4. Welding Process	:	F.C.A.W.
5. Welding Position	:	Flat / Horizontal 2FVertical 3F / Overhead 4F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003~~ 2020/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_2 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.,)



SECTION B1-B1

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

Workshop Manager/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.

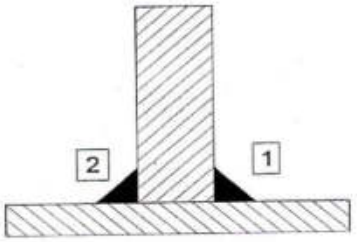
9. Welder Qualification : As per IS 7310 (Part I) – 1974

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

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



04.09.2018

सहायक अनुसंधान अधिकारी (सा
Assistant Research Officer (M
रेल मंत्रालय

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 : None

Project Manager/RW

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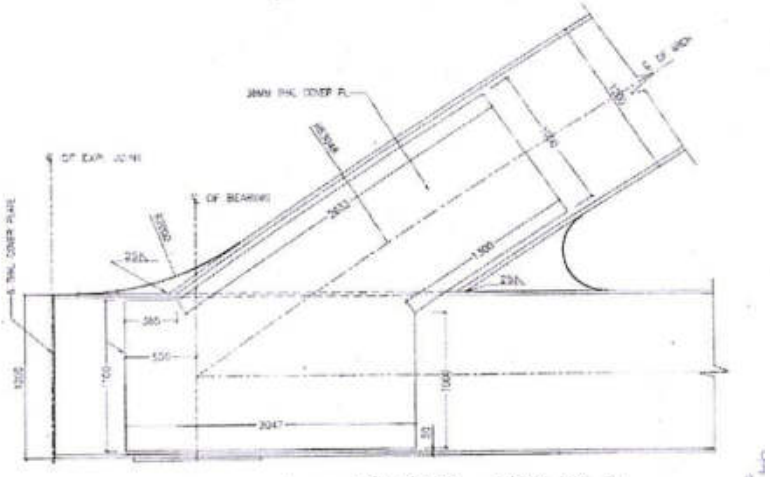
WELDING PROCEDURE SPECIFICATION SHEET

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/39/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/4 # **Arch to Bottom Long Beam**
2. Weld Joint description	:	Fillet (Weld Size 25 mm)
3. 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.
5. Welding Position	:	Vertical 3F / Overhead 4F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003~~ 2020/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_2 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
8. Welding Current	:	Type: DC, Polarity: Reverse

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.

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

Chief Workshop Manager/BW

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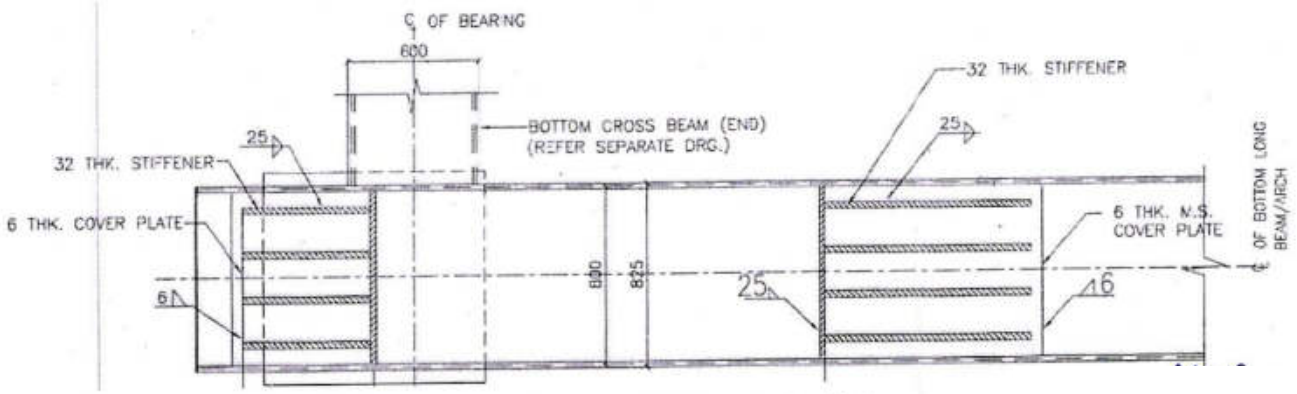
WELDING PROCEDURE SPECIFICATION SHEET

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/40/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/4 # **Stiffener pl to Arch to Bottom Long Beam**
2. Weld Joint description	:	Fillet (Weld Size 25 mm)
3. 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.
5. Welding Position	:	Flat / Horizontal 2F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – ~~2003~~ 2020/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_2 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
8 Welding Current	:	Type: DC, Polarity: Reverse

06/08/2022

सहायक अनुसंधान अधिकारी (मा
Assistant Research Officer (M
सहायक अनुसंधान एवं मानकीकरण संगठन

Chief Workshop Manager/BW

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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.

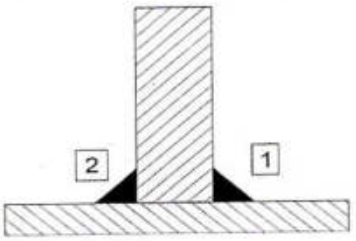
9. Welder Qualification : As per IS 7310 (Part I) – 1974

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.



06/12/2022
Assistant Research Officer (M
रेल मन्त्रालय

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~~ B2 class of electrodes Of specification. IRS M. 28-~~02~~ 20 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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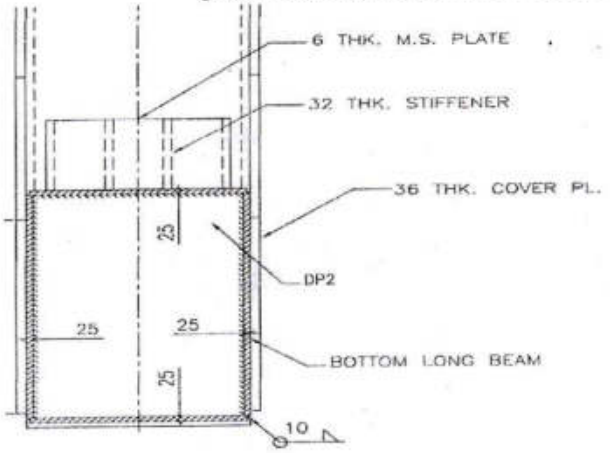
WELDING PROCEDURE SPECIFICATION SHEET

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/41/22-23 Rev 0
1. RDSO Drawing	:	RDSO/B-10425/4 # **Bearing Shoe to Bottom Long Beam**
2. Weld Joint description	:	Fillet (Weld Size 10 mm)
3. Base Metal	:	32/25 mm & 25mm, IS 2062-11, E 350 B0, fully killed. Normalized / Control cooled
4. Welding Process	:	F.C.A.W.
5. Welding Position	:	Flat / Horizontal 2F / Overhead 4F
6. Welding Consumable		
6.1 Electrode/Wire	:	Class: I of IRS M. 46 – 2003/2020/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_2 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
8. Welding Current	:	Type: DC, Polarity: Reverse

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

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.

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~~ B2 class of electrodes Of specification. IRS M. 28-~~02~~ 20 after conducting D P Test

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

19. Any other relevant details : None

सहायक अनुसंधान अधिकारी (आर
Assistant Research Officer (M
अनुसंधान रेल मंत्रालय लखनऊ