



Business Management System

Bulk Material Service

Scope of Work - Repair pipe section with steel grade 300WA
pipe as and when required

Document Identifier

240-123775530

Rev

2

Effective Date

09/04/2021

Review Date

09/04/2026

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SCOPE OF WORK

INSTALLATION SITE

: KOMATI WATER SCHEME PIPELINES

DIAMETER OF PIPE SECTION TO BE REPAIRED

: PIPE DIAMETER SHALL BE CONFIRMED ON SITE BEFORE EACH REPAIR

DIAMETER OF STEEL PIPES

: 1200 NB, 200NB, 1100NB AND 1180NB (15 mm THICK, STEEL GRADE 300WA) WOULD BE USED FOR PRISING

SCOPE OF WORK (A)

: 1200NB X 11000 LONG AND 4 OFF 1200NB X1500 WITH STUB AS PER DRAWING. ATTACHED DRAWING MUST BE USED FOR QUOTATION PURPOSES ONLY. FINAL DRAWING AND SUPPORT DESIGNS MUST BE PRODUCED BY THE SUCCESSFUL CONTRACTOR ONCE THE EXISTING PIPE DIMENSIONS HAVE BEEN VERIFIED ON SITE. THE DRAWINGS ARE TO BE SUBMITTED TO ESKOM FOR APPROVAL.

SCOPE OF WORK (B)

: 200NB SCOUR/DRAIN PIPE REPLACEMENT.

SCOPE OF WORK (C)

: 1100NB X 5000 LONG WITH 150NB STUB AND TWO ADAPTOR FLANGES AS PER . ATTACHED DRAWING WHICH SHOULD BE USED FOR QUOTATION PURPOSES ONLY. FINAL SIZES WILL BE CONFIRMED BEFORE FABRICATION BY THE SUCCESSFUL CONTRACTOR.


SCOPE OF WORK (D)

: REPLACE 1180NB PRECAST CONCRETE PIPE WITH A STEEL PIPE SECTION




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APPROVALS

QUALITY CONTROLLER		TECHNICIAN		PROJECT MANAGER		COMPLIANCE ENGINEER		ENGINEER	
NAME		NAME	MG NTULI	NAME	LB NKONDE	NAME	MJ MOKOENA	NAME	
SIGNATURE		SIGNATURE		SIGNATURE		SIGNATURE		SIGNATURE	
DATE		DATE	10/05/2023	DATE	10/05/2023	DATE	10/05/2023	DATE	

Background

The Bosloop to Wintershoek A pipeline is used to pump water from Bosloop reservoir to Nooitgedacht dam and forms part of the Komati Water Scheme supplying water to Arnot, Hendrina, Duvha and Komati power stations. The first 20 km of the pipeline is a 1200 NB Diameter steel pipe and the next 22km of the pipeline is precast concrete. The pipeline is installed underground level but several sections of the pipeline is exposed. At one of the exposed sections, the steel pipe is joined with a VJ type coupling.

After an internal inspection, it was noted that the two ends of the pipe had pushed into each other over a period of time and damaged the ends of the pipe to such an extent that the VJ coupling could not seal the join anymore.


In order to repair the leak, the existing join will have to be cut out, and a new section of pipe has to be welded in. After welding in the section of pipe and leaving sufficient gap for the pipe to expand and contract a new coupling can be fitted.

DESCRIPTION		RESPONSIBILITIES
1.1	Approved outage plan/ Corrective Maintenance	PED and KWS
1.2	Request a Permit To Work	KWS
1.3	Isolate, and Scour pipeline section	KWS

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1.4	Prove positive isolation	KWS		
1.5	Load a purchase requisition including this scope of work	KWS		
1.6	Fabricate and install new pipe sections as per final approved drawing for each pipe repair method.	Successful Contractor		
SCOPE OR WORK FOR THE REPAIRS OF THE VJ COUPLING (A)				
DESCRIPTION		Quantity	UNIT PRICE	TOTAL EXCL. VAT
2.1	Safety file shall be approved before site establishment	Every year (5)	R	R
2.2	Using the attached drawings (Bosloop to Wintershoek Pipeline VJ Coupling Pipeline repair), (Bosloop to Wintershoek Pipeline coupling) as reference to produce final and approved drawings and designs for Pipe leak repair.	Every repair (10)	R	R
2.3	<p>Before any work can commence on site, the design for the temporary supports to be placed at point A and T (on attached drawing) will be approved by Eskom.</p> <p>At point A and point T the temporary supports must be able to support the weight of the existing pipe once it is cut.</p> <p>For quotation purposes, the existing pipes dimensions are 1200NB X 16meters long X 15mm thick with 20mm mortar lining.</p>	Every repair (10)	R	R

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2.4	The existing pipe must be cut at point B, 100mm before the existing support C. At point S, the existing pipe must be cut 100mm after the existing support R.	Every repair (10)	R	R
2.5	Fabricate four pipe sections as indicated on drawing points D,F,O and Q. The pipe should be mortar lined.	Every repair (10)	R	R
2.6	Supply 2X Klamflex couplings for point E and P, refer to "Bosloop to Wintershoek Pipeline coupling" drawing. Consider ambient temperature while fitting clamps to ensure correct setting gap.	Every repair (10)	R	R
2.7	3 X permanent supports to be cast for point G,J and N as per approved plinth design compiled by Contractor and approved by Eskom.	Every repair (10)	R	R
2.8	Supply 1200NB pipe 15mm thick, for quotation purposes, 11m long with 2 X lifting lugs at point I and L. The pipe should be mortar lined.	Every repair (10)	R	R
2.9	Prepare pipes and fillet weld inside and outside at point B, H, M and S on site Allow an extra 4 welds in case of unplanned conditions on site.	Every repair (10)	R	R
2.10	All welds shall comply with the API1104 standard. (8mm Fillet weld)	Every repair (10)	R	R
2.11	All pipe sections to be coated with "2 pack Epoxy" externally with a minimum 250µm dry film thickness plus Re-coatable polyurethane Brilliant Green H10 40µm topcoat.	Every repair (10)	R	R
2.12	Include third party for welding test MPI and to issue a test report	Every repair (10)	R	R

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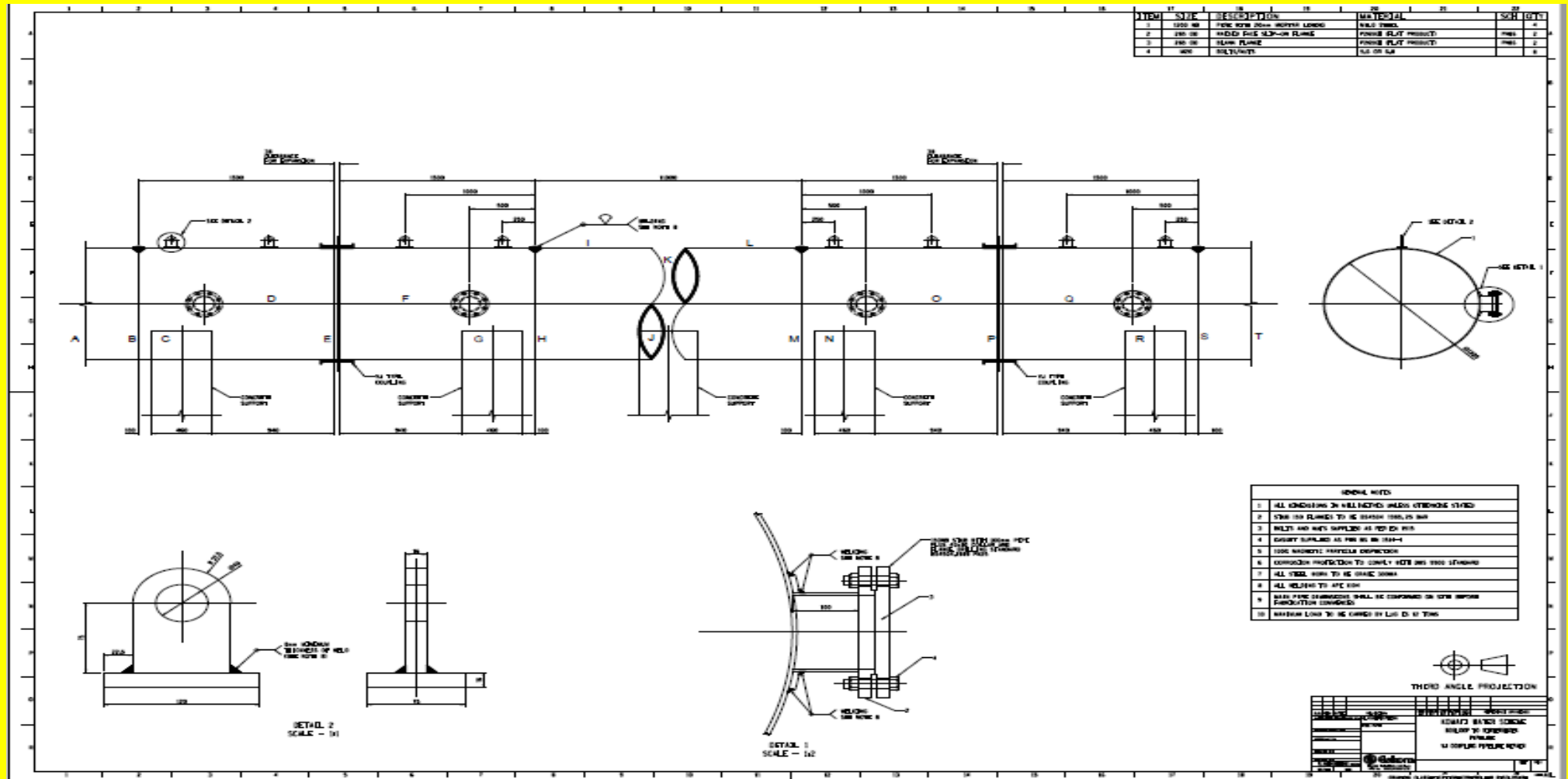
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2.13	Supply 4 X 1200NB smart seals (for quotation purposes, final sizes to be confirmed on site) each complete with 2 stainless steel compression rings from Delmon Mining and Civils.	Every repair (10)	R	R
2.14	Supply 8 X 500ml EPIDERMIX 365 Clear from ABE	Every repair (10)	R	R
2.15	<p>For the duration of the project on site, the Contractor will be responsible for the following:</p> <ul style="list-style-type: none"> The supply of a mobile generator suitable for cutting and welding on site. Welding and cutting machines Lifting machine and lifting tackle in line with "Driven Machinery regulation" Drinking water and portable toilets Work would be done at an open veld 	Every repair (10)	R	R
TOTAL COSTS FOR DESIGNS, FABRICATION AND INSATLLATION OF THE VJ COUPLING			R	R

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SCOPE OR WORK FOR THE REPAIRS OF THE SCOUR VALVE (B)

DESCRIPTION		Quantity	UNIT PRICE	TOTAL EXCL. VAT
3.1				
3.2	Refer to the photograph in 3.1 for repairs to scour pipe			
3.3	Point A – In order to expose undamaged section of the pipe, cut concrete 1500mm X 1500mm X 200mm depth from the surface of the slab.	Every repair (10)	R	R

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3.4	Point B – Cut pipe 100mm from the remaining concrete surface. Weld 200NB, 15mm thick pipe, 400mm long pipe to extend the pipe above the concrete surface	Every repair (10)	R	R
3.5	Point C – Weld a 200NB, 15mm thick, 90° long radius elbow pipe to extended pipe.	Every repair (10)	R	R
3.6	Point D – Weld a flange with a drilling table matching the existing valve. (For quotation purposes, consider it to be BS4504 of 1989 PN40 drilling table)	Every repair (10)	R	R
3.7	Fabricated pipe sections should be corrosion protected to DWS9900 specifications. All pipe sections lining to be 400µm minimum and to be coated with “2 pack Epoxy” externally with a minimum 250µm dry film thickness plus Re-coatable polyurethane Brilliant Green H10 40µm topcoat.	Every repair (10)	R	R
3.8	Include third party for welding test MPI and to issue a test report	Every repair (10)	R	R
3.9	For the duration of the project on site, the Contractor will be responsible for the following: <ul style="list-style-type: none"> The supply of a mobile generator suitable for cutting and welding on site. Welding and cutting machines Lifting machine and lifting tackle in line with “Driven Machinery regulation” Drinking water and portable toilets Work would be done at an open veld 	Every repair (10)	R	R
TOTAL COSTS FOR THE FABRICATION AND INSATLLATION OF THE SCOUR PIPE			R	R

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SCOPE OF WORK FOR THE REPAIRS OF STEEL PIPE SECTION ©





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DESCRIPTION		Quantity	UNIT PRICE	TOTAL EXCL. VAT
4.1	Fabricate steel pipe section making attached drawing as a reference, once final sizes are confirmed on site	Every repair (10)	R	R
4.2	Internal corrosion protect pipe with cement mortar lining 20 mm thickness and allow for mortar lining repairs on site after welding	Every repair (10)	R	R
4.3	Apply bitumen primer on pipe external only	Every repair (10)	R	R
4.4	All welds shall comply with the API1104 standard.	Every repair (10)	R	R
4.5	Include third party for welding test MPI and to issue a test report before corrosion protection is done at the factory	Every repair (10)	R	R
4.6	Transport of pipe section to site 270 km from Middelburg MP	Every repair (10)	R	R

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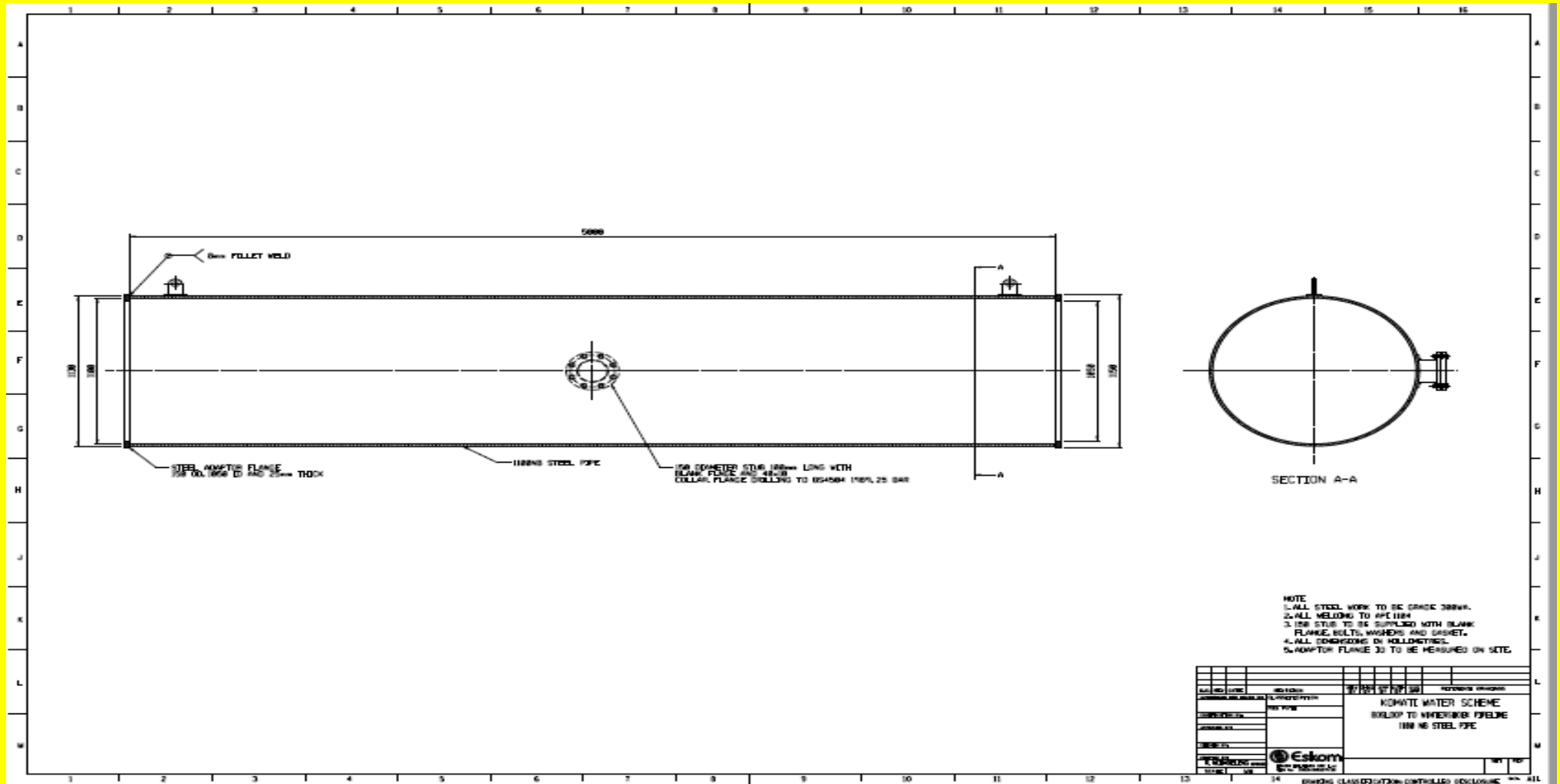
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4.7	<p>For the duration of the project on site, the Contractor will be responsible for the following:</p> <ul style="list-style-type: none"> The supply of a mobile generator suitable for cutting and welding on site. Welding and cutting machines Lifting machine and lifting tackle in line with "Driven Machinery regulation" Drinking water and portable toilets Work would be done at an open veld 	Every repair (10)	R	R
4.8	Cut and remove pipe section on site to accommodate fabricated pipe section	Every repair (10)	R	R
4.9	Note that the existing pipe is mortar lined and access point is about 200m from the leaking area	Every repair (10)	R	R
4.10	Prepare pipe ends and fit a new pipe section	Every repair (10)	R	R
4.11	Weld pipe in position inside and outside, use 150 NB stub for cables and pipes	Every repair (10)	R	R
4.12	Include third party for welding test MPI and to issue a test report on site before mortar lining repairs are done	Every repair (10)	R	R
4.13	Repair mortar lining and cover welded areas	Every repair (10)	R	R
TOTAL COSTS FOR FABRICATION AND INSTALLATION ON SITE			R	R

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SCOPE OR WORK FOR REPLACING PRE-CAST CONCRETE PIPE WITH STEEL PIPE SECTION (D)

DESCRIPTION		Quantity	UNIT PRICE	TOTAL EXCL. VAT
5.1	Fabricate FOUR concrete to steel pipe adaptor as per Eskom drawing number 0.80/6135 Rev. 1	Every repair (10)	R	R
5.2	Inspection and release for coating. Note: the face to be welded on site shall have antirust material.	Every repair (10)	R	R
5.3	Corrosion protection to DWS 9900, Solvent free epoxy	Every repair (10)	R	R
5.4	Inspect and release for site work	Every repair (10)	R	R
5.5	Site about 270 km from Middelburg Mpumalanga between Carolina and Machadodorp on the servitude road	Every repair (10)	R	R
5.6	Cut four sides (allowing for pieces if there are gaps on site) of 1100 Nominal bore 15 mm thick pipe and prepare for welding	Every repair (10)	R	R
5.7	Provide two lifting lugs and weld them on the pipe	Every repair (10)	R	R
5.8	Supply 4 X 1200NB smart seals (for quotation purposes, final sizes to be confirmed on site) each complete with 2 stainless steel compression rings from Delmon Mining and Civils.	Every repair (10)	R	R
5.9	Supply 8 X 500ml EPIDERMIX 365 Clear from ABE	Every repair (10)	R	R

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5.10	Supply Four 20mm round bar rolled to 1180 OD steel grade 300WA	Every repair (10)	R	R
5.12	Fit two concrete to steel pipe adaptor on both concrete pipes prepared on site	Every repair (10)	R	R
5.13	Position steel pipe between adaptors and align for welding	Every repair (10)	R	R
5.14	150mm stubs on the adaptor will be used for cable during welding, mobile welding and generator shall be provided by contractor	Every repair (10)	R	R
5.15	Weld both sides of the pipe inside and outside to adaptors (Note: confined space work)	Every repair (10)	R	R
5.16	<p>For the duration of the project on site, the Contractor will be responsible for the following:</p> <ul style="list-style-type: none"> The supply of a mobile generator suitable for cutting and welding on site. Welding and cutting machines Lifting machine and lifting tackle in line with "Driven Machinery regulation" Drinking water and portable toilets Work would be done at an open veld 	Every repair (10)	R	R
5.17	Include third party for welding test and to issue a test report	Every repair (10)	R	R

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5.18	Include Lifting Machinery and Tackles for site work	Every repair (10)	R	R
TOTAL COSTS FOR FABRICATION AND SITE WELDING			R	R

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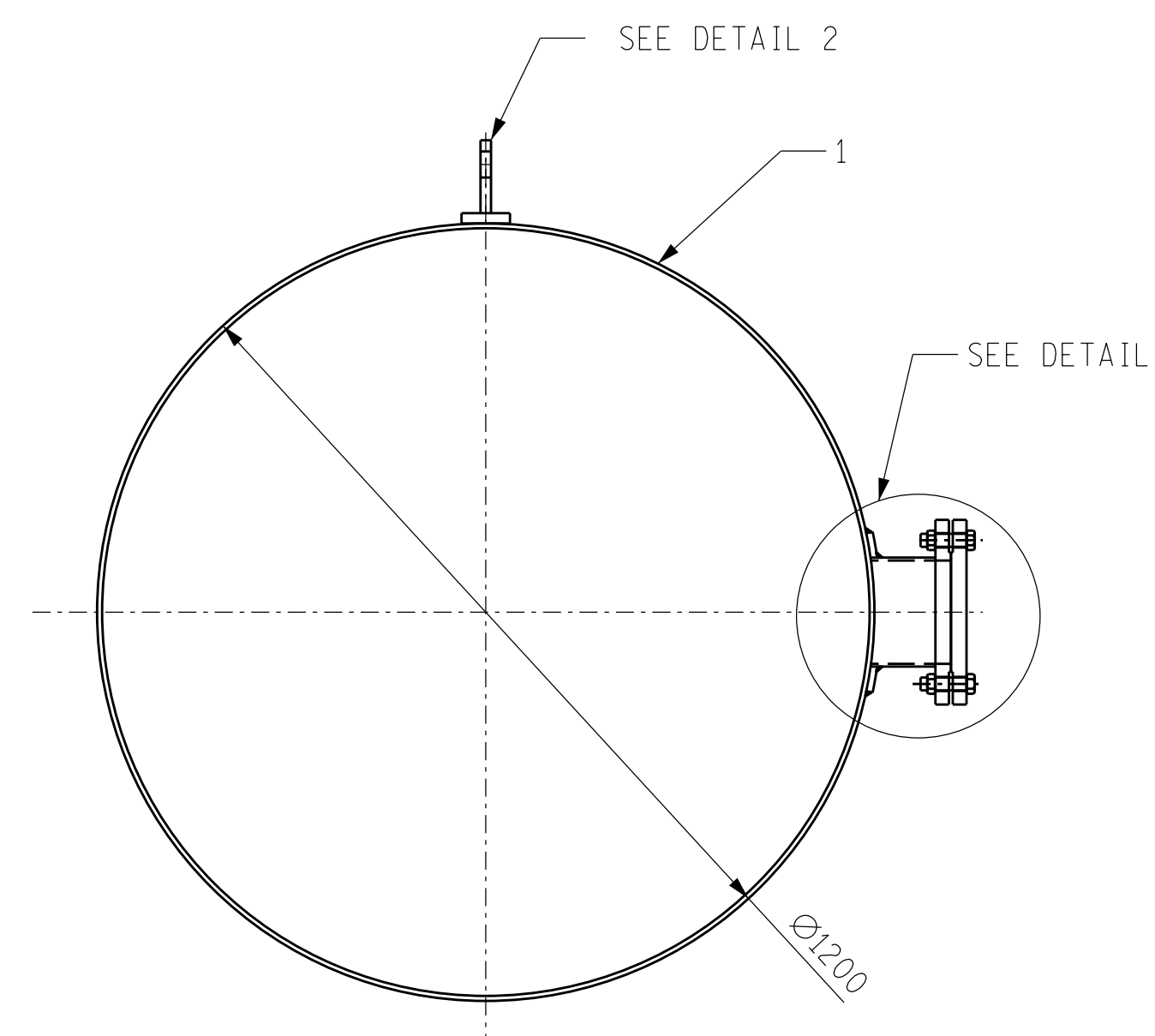
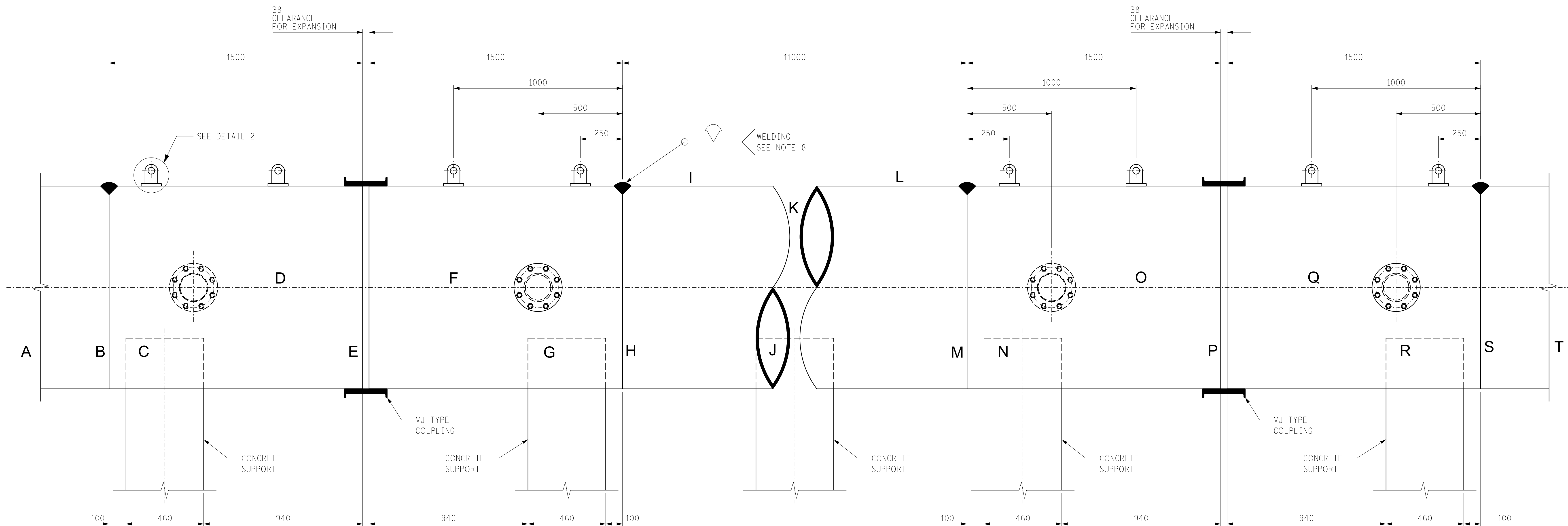
COSTS SUMMARY	TOTAL UNIT PRICE	TOTAL PRICE
SCOPE OR WORK FOR THE REPAIRS OF THE VJ COUPLING (A)	R	R
SCOPE OR WORK FOR THE REPAIRS OF THE SCOUR VALVE (B)	R	R
SCOPE OR WORK FOR THE REPAIRS OF STEEL PIPE SECTION (C)	R	R
SCOPE OR WORK FOR REPLACING PRE-CAST CONCRETE PIPE WITH STEEL PIPE SECTION (D)	R	R
FINAL PRICES SUM OF A,B,C,AND D SCOPE	R	R

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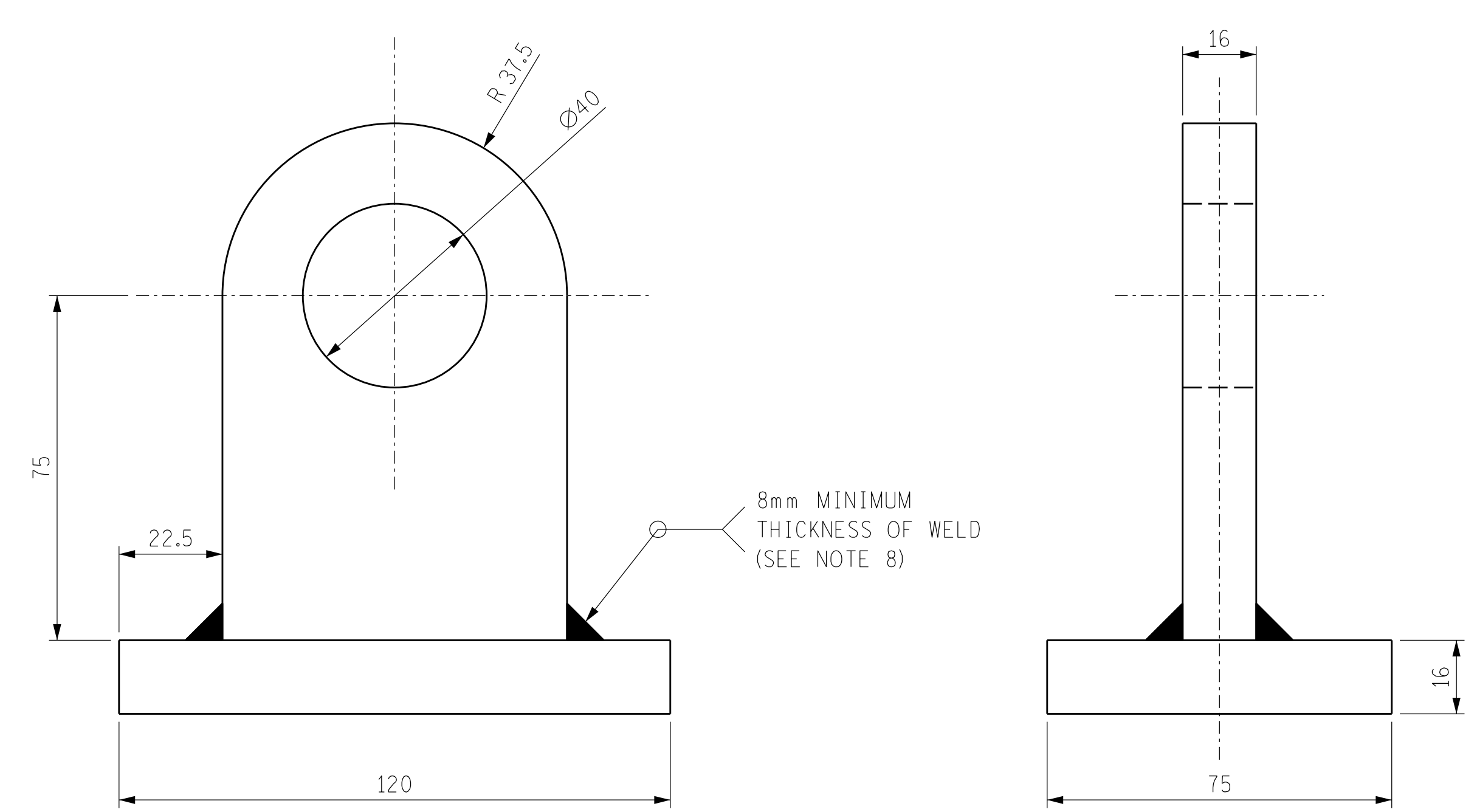
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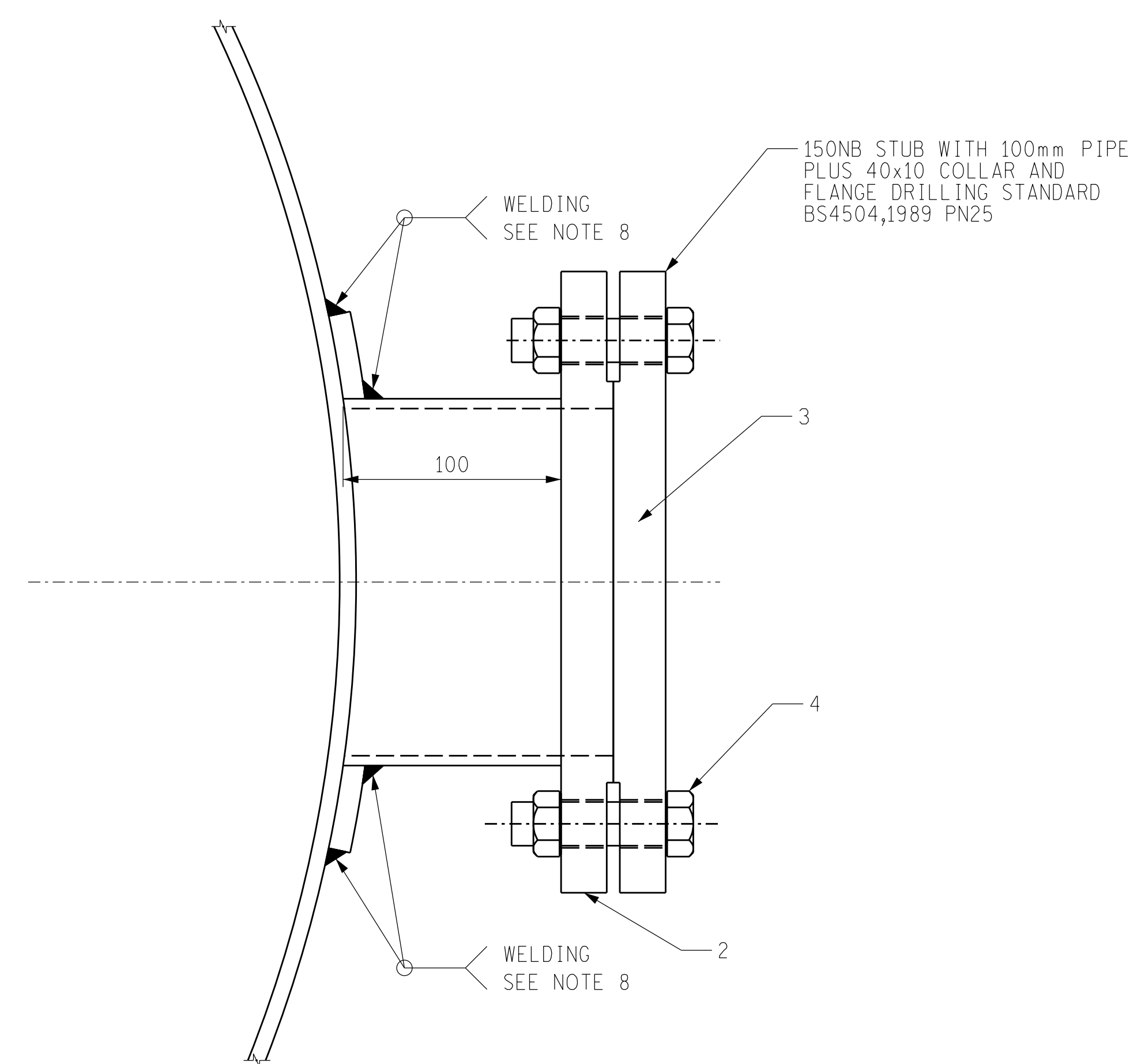
17		18	19	20	21	22	
ITEM	SIZE	DESCRIPTION		MATERIAL		SCH	QTY
1	1200 NB	PIPE WITH 20mm MORTAR LINING		MILD STEEL			4
2	285 OD	RAISED FACE SLIP-ON FLANGE		P265GH (FLAT PRODUCT)		PN16	2
3	285 OD	BLANK FLANGE		P265GH (FLAT PRODUCT)		PN16	2
4	M20	BOLTS/NUTS		5,6 OR 6,8			8



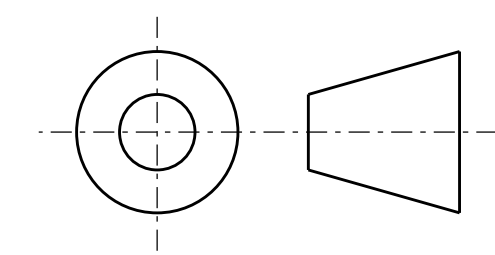
GENERAL NOTES	
1	ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED
2	STUB 150 FLANGES TO BE BS4504 1989, 25 BAR
3	BOLTS AND NUTS SUPPLIED AS PER EN 1515
4	GASKET SUPPLIED AS PER BS EN 1514-1
5	100% MAGNETIC PARTICLE INSPECTION
6	CORROSION PROTECTION TO COMPLY WITH DWS 9900 STANDARD
7	ALL STEEL WORK TO BE GRADE 300WA
8	ALL WELDING TO API 1104
9	MAIN PIPE DIMENSIONS SHALL BE CONFIRMED ON SITE BEFORE FABRICATION COMMENCES
10	MAXIMUM LOAD TO BE CARRIED BY LUG IS 12 TONS



DETAIL 2
SCALE - 1:1

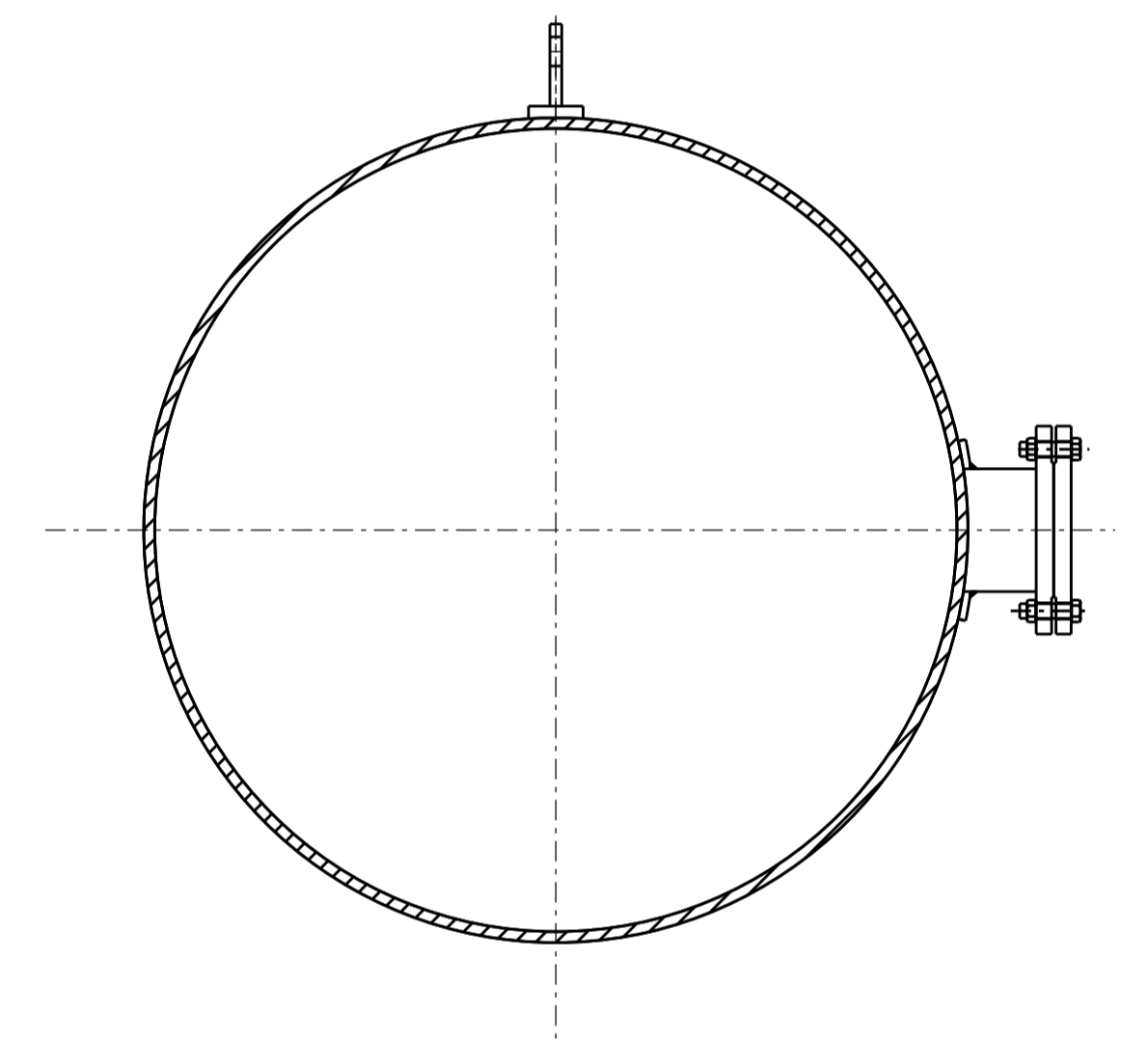


DETAIL 1
SCALE - 1:2



THIRD ANGLE PROJECTION

[illegible]



NOTE

1. ALL STEEL WORK TO BE GRADE 300WA.
2. ALL WELDING TO API 1104
3. 150 STUB TO BE SUPPLIED WITH BLANK FLANGE, BOLTS, WASHERS AND GASKET.
4. ALL DIMENSIONS IN MILLIMETRES.
5. ADAPTOR FLANGE ID TO BE MEASURED ON SITE.

DRAWING CLASSIFICATION: CONTROLLED DISCLOSURE SIZE A1L

