

NO.	QTY.	Description
1	1	CBD concrete slab with inserts general assembly
2	1	CBD reactor tank

Nozzle list		
No.	DN	Description
N1	(800)	manhole (non-standard flange)
N2	(800)	manhole (non-standard flanges)
N3	150	overflow (the diameter is oversized to handle a floating layer)
N4	(600)	connection central insert (non-standard flange)
N5	(100)	connection hydraulics, air and drain (not a nozzle on tank wall/roof!)
N6	200	hopper outlet
N7	200	hopper outlet
N8	200	hopper outlet
N9	40	measuring loop return (pH/temperature)
N10	40	measuring (optional function)
N11	40	measuring level control
N12	300	HOLD 1 (removal inert floating layer, alternative for overflow)
N13	-	void (reserved no.)
N14	40	sample
N15	40	sample
N16	40	sample
N17	40	sample
N18	40	sample
N19	40	sample
N20	40	HOLD 1 (MgO supply)
N21	300	influent sprayer connection (influent pipe = DN100)
N22	300	recycle sprayer connection (recycle pipe = DN150)
N23	300	recycle sprayer connection (recycle pipe = DN150)
N24	300	recycle sprayer connection (recycle pipe = DN150)
N25	300	recycle sprayer connection (recycle pipe = DN150)
N26	(500)	ventilation/lifting arm 1 internal (non-standard flange)
N27	(1820)	cerite oculus for PRV/lifting internals (non-standard flange)
N28	250	biogas out (the diameter is oversized to handle compact foam)
N29	(500)	ventilation/lifting arm 2 internal (non-standard flange)

PARAMETERS TANK:
Diameter: ø 22 m, wall height: 17.6 m, angle roof: 1:5 (11,3 °)
Content level normal working conditions: 16.6 m
Content level max: 17.4 m (elevation overflow connection)
Density content: 1060 kg/m3
Mass empty tank: approximately 150 ton (1.5 MN)
Location: Wijster Drenthe Netherlands
Tank flanges: EN 1092-1 type 01 PN10 (when not specified else e.g: N1)
Local elevation system: top of annular ring = 000+

DESIGN PARAMETERS:
Design standard: EN 14015
Internal pressure tank: 50 mbar
Internal negative pressure tank: 5 mbar
Wind speed: 45 m/s <- according to design standard !
Wind shape factor tank with ladder: 0.8 (recommended)
Wind shape factor roof/rafters/handrails: 1.2 (recommended)
Seismic parameters: HOLD
Live load roof: to be determined (HOLD)
Snow load roof: according to EN 1991-1-3
Corrosion allowance tank wall general: HOLD, to be confirmed by client
Corrosion allowance is mandatory for:
The bottom wall ring (1.5 mm), annular plate & floor plate (2 mm).

LOADS ON SLAB:
Mass tank and content nominal: 6840 ton (68.4 MN)
Mass tank and content maximal: 7160 ton (71.6 MN)
Wind shear load: 45.9 ton (459 kN)
Wind overturning moment: 463 tonm (4626 MNm)

LOADS ON CENTRE INSERT RCC SLAB:
Vertical load incl. (gas/water) pressure on square plate: 10 ton (100 kN)
Torque: 5 tonm (50 kNm), Bending moment worst case: 4 tonm (40 kNm)

LOAD ON ROOF OCULUS (N27):
The dead weight of the PRV is 0.4 ton (4 kN)




LOADS ON HOPPERS:
Vertical water load hopper 1: 12 ton (120 kN)
Floating uplift during casting of concrete: approx. 0.4 ton (4 kN)
Vertical water load hopper 2: 19.5 ton (195 kN)
Floating uplift during casting of concrete: approx. 0.2 ton (2 kN)
Uplift load is floating force minus dead weight

ANCHORS TANK:
The slab is provided with typical 24 anchors, to be calculated by supplier.
Recommended is to cast the anchor rods directly in the slab.
Final size and # to be decided by tank builder and civil contractor.

COATING SYSTEM:
Internal coating typical: Micro Resources P4 viz. sigmacover 280/805/805.
External coating (roof, supports): Micro Resources spec. P3
Coating under thermal insulation: HOLD (t.b.d. with client)

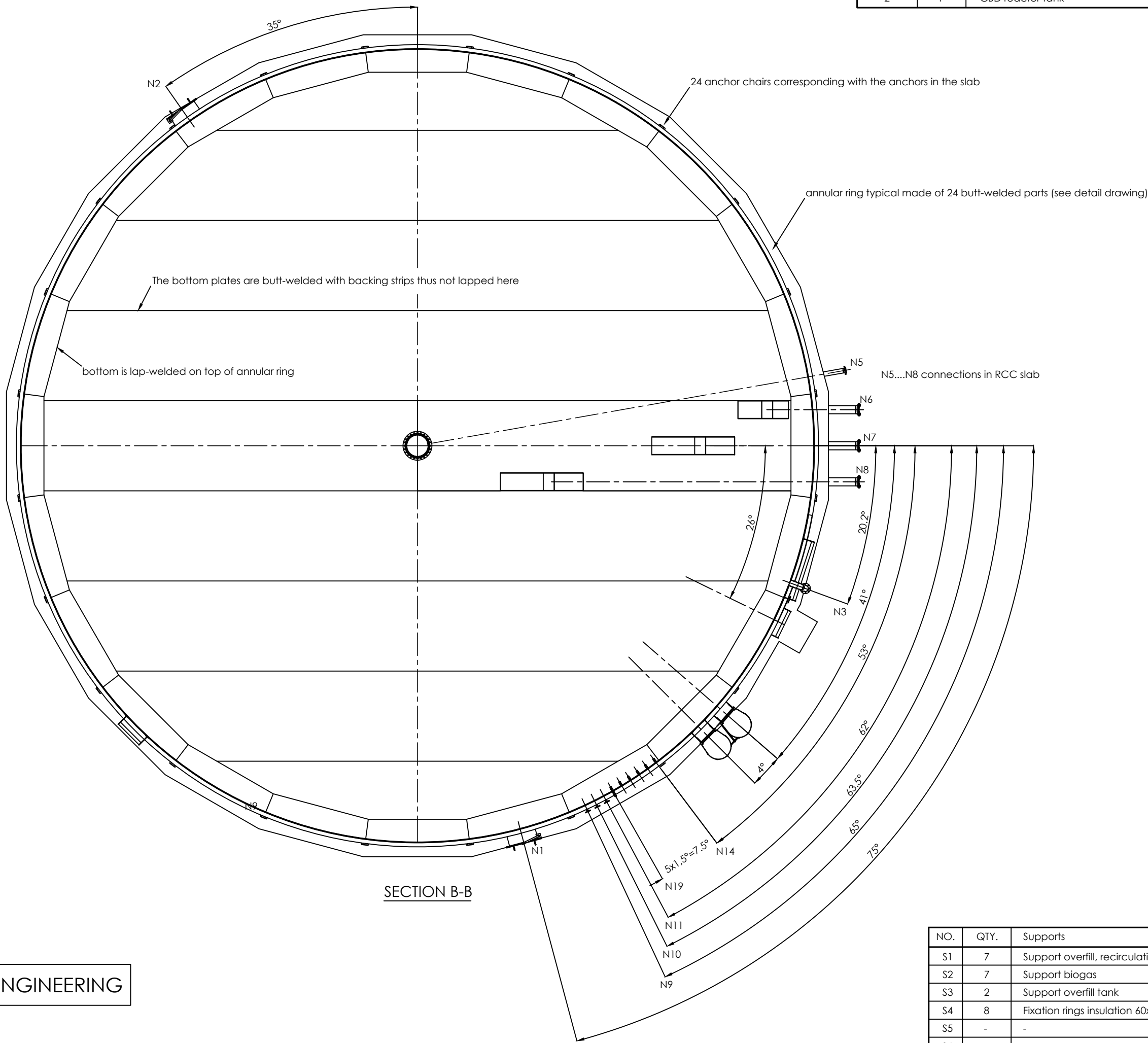
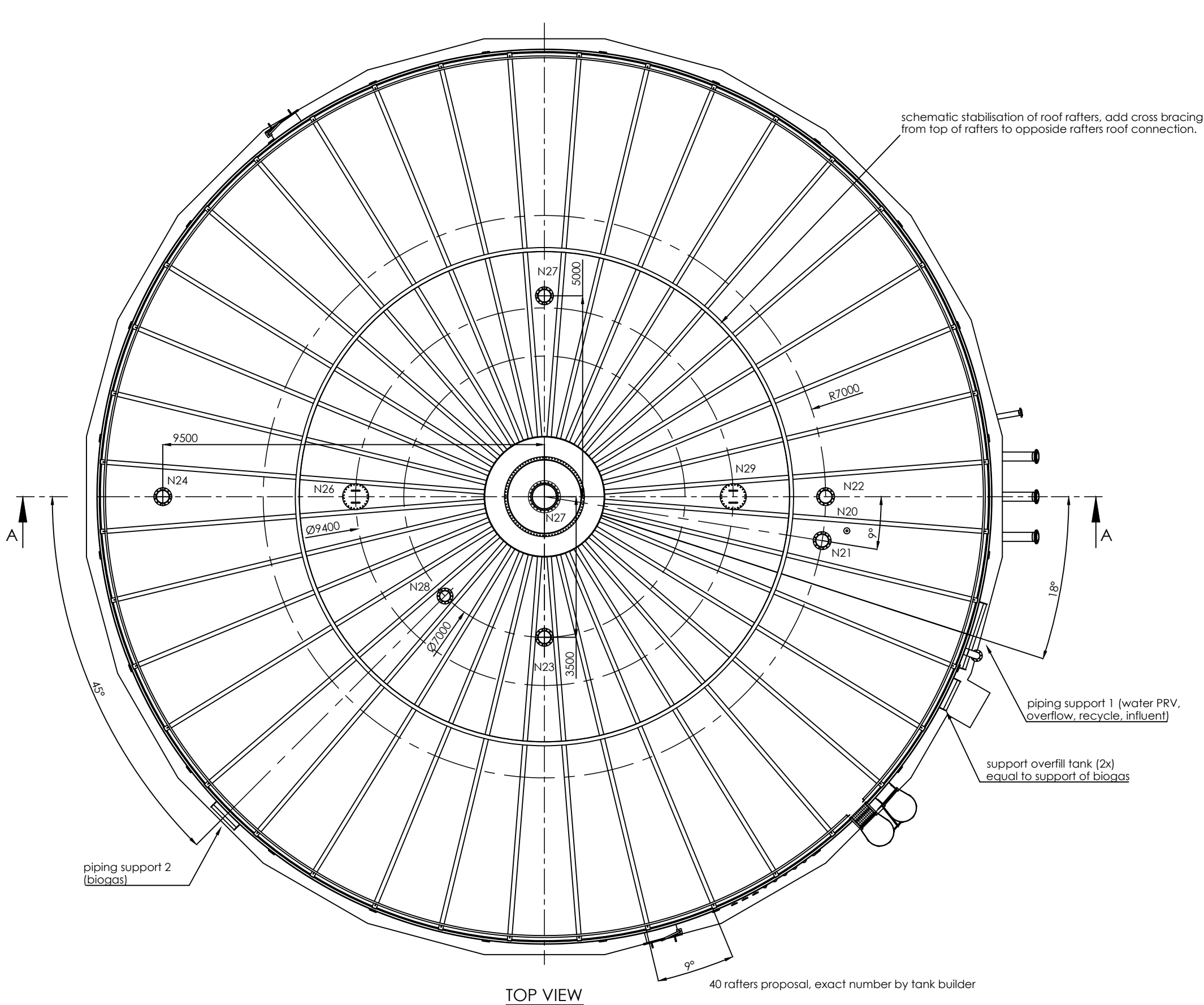
THERMAL INSULATION AND CLADDING:
Insulation wall: typical 100 mm PUR or rockwool (HOLD)
Insulation roof: HOLD
Cladding: typical corrugated steel sheet with plastic cover (HOLD)
Rings for fixation of insulation and cladding have to be provided by the tank constructor according to the design standard.

REMARKS:
This design covers the basic engineering requirements.
Detailed design of hel foundation structure by civil engineers is required prior to the manufacturing thereof.
It is civil manufacturer's and contractor's responsibility to ensure that the total design is conform all applicable codes and national statutory regulations, and to obtain all necessary approvals from statutory authorities

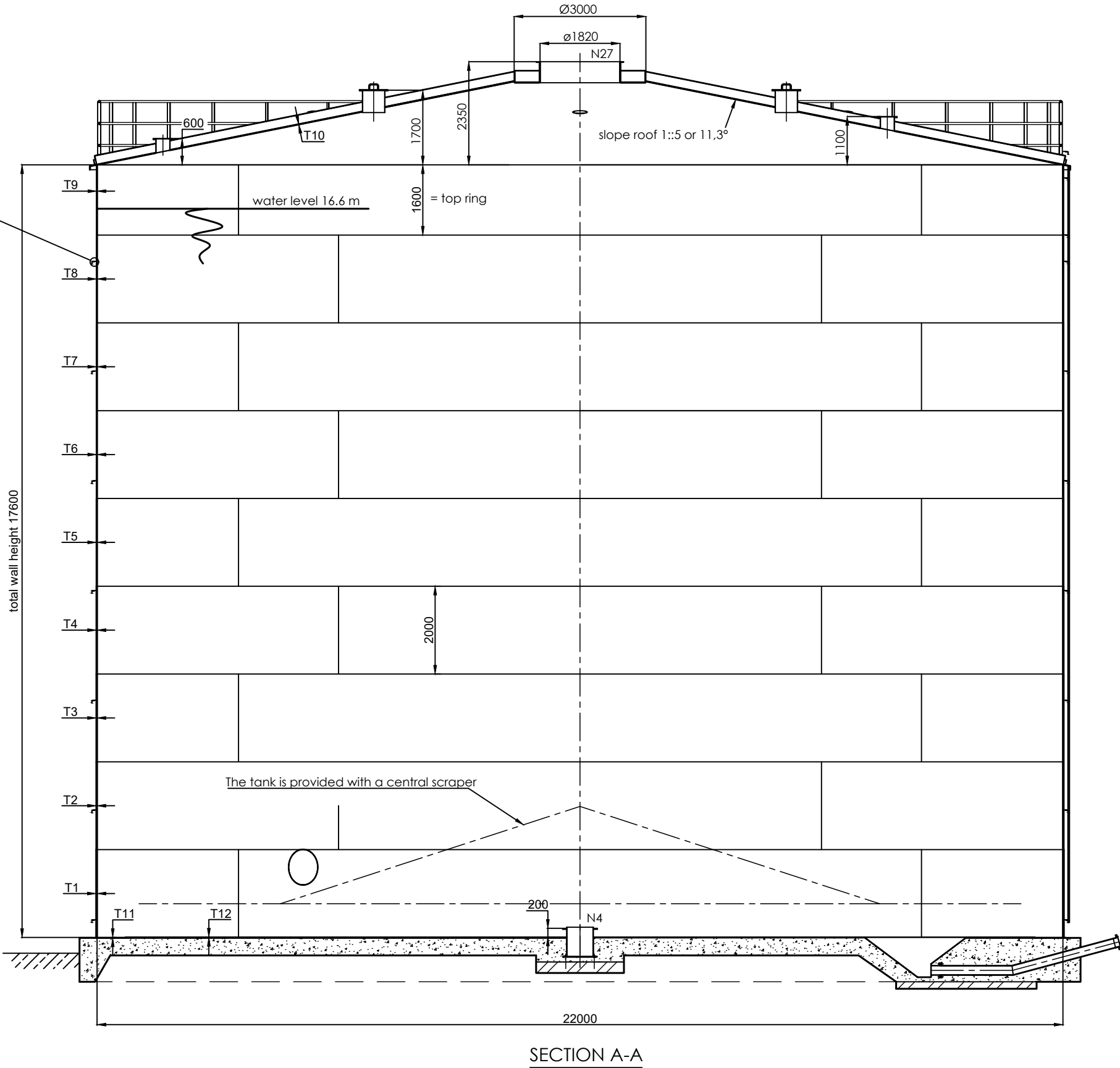
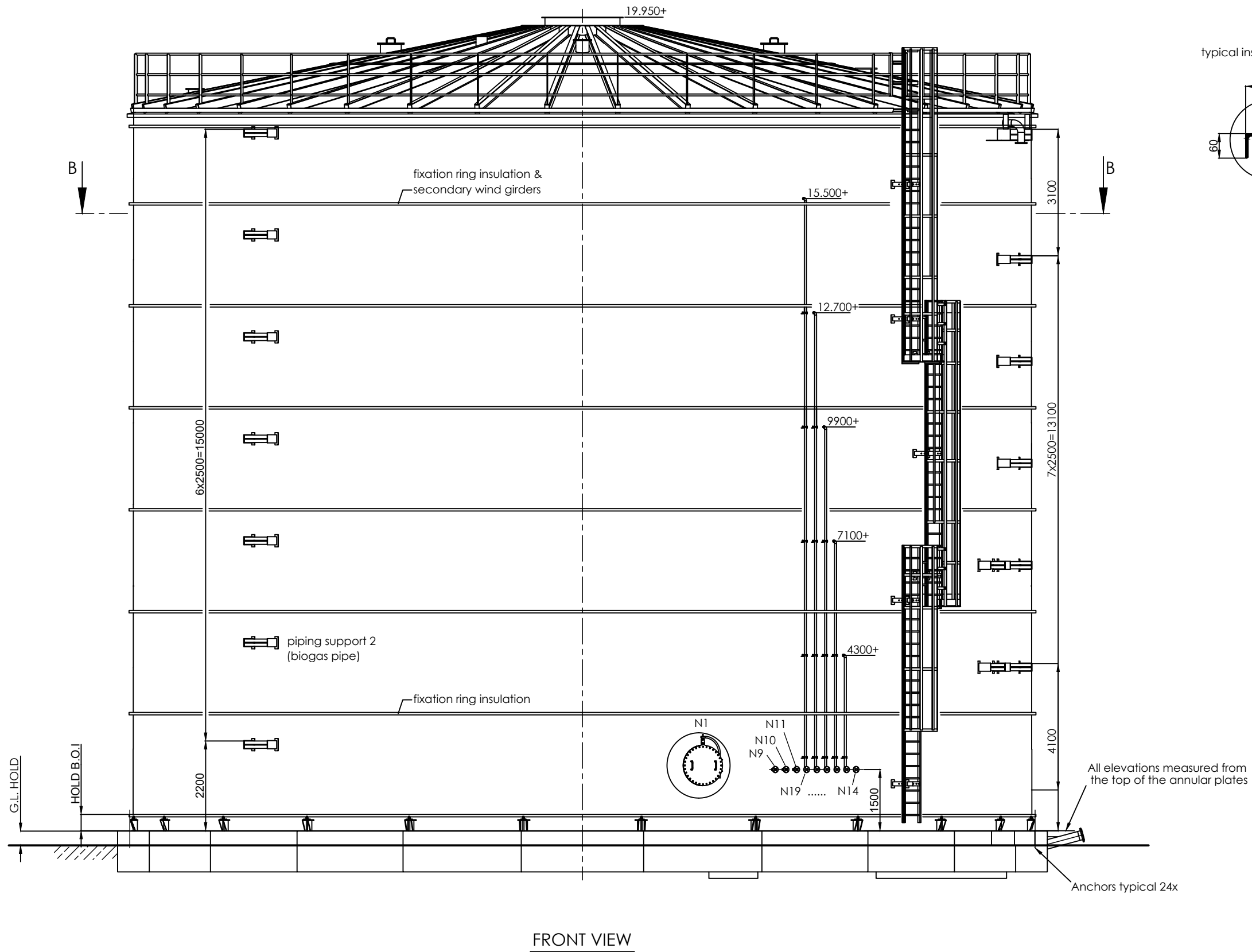


-	-	TJO	N.A.	26-11-2019
Rev. nr.	Rev. description:	Drawn:	Check:	Date:
Project: Green Create - Wijster W2V				
Description: CBD reactor tank 22x17.6 m with concrete slab				
Final	Sign	Date	Project nr.: -	
Drawn.	TJO	26-11-2019	Client: Green Create	
Chkd.	-	-	Drawing status: For quotation	
Appd.	-	-	Drawing ID: -	
Projection:		Units: mm	Scale: 1=100	Form: A1 841x594

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LOCATIONS OF ALL NOZZLES: HOLD FOR FINAL ENGINEERING



NO.	QTY.	Supports
S1	7	Support overflow, recirculation, etc.
S2	7	Support biogas
S3	2	Support overflow tank
S4	8	Fixation rings insulation 60x60x6
S5	-	-
S6	-	-
S7	1	Support 1 sample tray
S8	1	Support 2 sample tray
S9	-	Pipe support 1 roof
S10	-	Pipe support 2 roof
S11	-	Pipe support 3 roof
S12	-	Pipe support 4 roof
S13	-	Pipe support 5 roof

Tolerance plate thickness according to EN 10229 Class A		
thickness	minus	plus
3<t<5	0,4	0,8
5<t<8	0,4	1,1
8<t<15	0,5	1,2
15<t<25	0,6	1,3

INDICATION of thicknesses, S235JR corrosion allowance = number between (), thickness tol. class A. Final calculating and responsibility of thickness by tank manufacturer		
TAG	mm	Description
T11	8 (2)	floor plate
T11	12	annular ring
T10	6	roof cone
T9	6 (min.)	wall ring
T8	6 (min)	
T7	6 (min)	
T6	8 (1.9)	
T5	8 (0.5)	
T4	10 (0.9)	
T3	12 (1.4)	
T2	15 (3.0)	
T1	15 (1.5)	wall ring