



Certificate of Accreditation

Sewage Management Facility

Constructed Wetland Treatment System

This Certificate of Accreditation is issued by the Secretary of the NSW Ministry of Health pursuant to Clause 41(1) of the Local Government (General) Regulation 2005.

System: *UBI Aqua Aerated Wet Cell Reed Bed
Advanced Secondary Treatment System*

Manufacturer: *Global Roto-moulding Pty Ltd*

Of: *14 Nans Road, Helidon, QLD, 4344*

The UBI Aqua Aerated Wet Cell Reed Bed Advanced Secondary Treatment System as described in Schedule 1, has been accredited as a sewage management facility for use in single domestic premises in NSW. This accreditation is subject to the conditions of accreditation and permitted uses specified in Schedule 2.

*A/Director, Environmental Health
for Secretary (delegation PH335)*

Issued: *1 / August / 2023*

Certificate No: *STS-CWTS002*

Expires: *31 December 2027*

Schedule 1: Specification

UBI Aqua Aerated Wet Cell Reed Bed Advanced Secondary Treatment System (Constructed Wetland Treatment System)

General Description:

Name & Model – UBI Aqua Aerated Wet Cell Reed Bed Advanced Secondary Treatment System (Aerated Wet Cell Reed Bed)

Treatment Capacity - The Aerated Wet Cell Reed Bed is designed to treat sewage from a residential dwelling occupied by a maximum of 10 persons. The Aerated Wet Cell Reed Bed septic tank is contained in a single multi-chambered vessel with a design capacity of 6000L; NSW Health Accreditation Number STCW021. The 1000pump wells are also under Accreditation Number STCW021.

The Aerated Wet Cell Reed Bed consists of:

- A UBI Aqua 6,000L Septic Tank with a baffle wall and fitted with an outlet filter.
- 2 x 7,100L to 7,300L reed beds in series filled with specified cobble and gravel media and planted with a combination of Bamboo (*Bambusa oldhamii*) and Vetiver Grass (*Chrysopogon zizanioides*).
- A 1,000L pump well is installed after the first reed bed and is fitted with a Pentair PrioX / Pedrollo sump pump which recirculates effluent back to the first reed bed intermittently through an annular venturi and 900mm speece cone for aeration.
- Simultaneously, effluent treated in the first reed bed also overflows to the second reed bed again planted with a combination of Bamboo (*Bambusa oldhamii*) and Vetiver Grass (*Chrysopogon zizanioides*).
- Treated effluent flows from the second reed bed through a UPOL Aqua Chlorine applicator using solid trichlorocyanuric acid and into another pump well of 1,000L capacity fitted with either a Davey DV15A or Davey D42A submersible pump suitable for the type of final effluent reuse.
- There is an electrical control box / wet cell controller and high-water alarms.
- Emergency storage of 1000L is achieved using spare capacity above the normal operating levels in the 1000L pump wells.
- See attached layout plan
- Some local macrophyte species may be more suitable as alternates and may include:

Species Botanic Name	Common Name	Height (m)
Baumea articulata	Jointed twigrush	2.5
Baumea rubiginosa	Twigrush	1
Bolboschoenus fluviatilis	Marsh clubrush	2.5
Eleocharis sphacelata	Tall spikerush	2
Lepironia articulata	Grey rush	4
Schoenoplectus mucronatus	Star clubrush	1
Schoenoplectus validus	River clubrush	3
Typha orientalis	Bullrush or cumbungi	4
Phragmites australis	Common reed	6
Lomandra hystrix	Mat rush	1.5

Source: Dirou et al., 2003.

Schedule 2: Conditions of Accreditation

1. General

- 1.1 The owner/occupier of the premises shall make an application to the local council to install an Aerated Wet Cell Reed Bed as a waste management facility in accordance with Section 68, Part C of the *Local Government Act 1993* and Clause 28 of the *Local Government (General) Regulation 2021*.
- 1.2 The Aerated Wet Cell Reed Bed shall be supplied, constructed, and installed in accordance with the design as submitted and accredited by the NSW Ministry of Health.
- 1.3 Any modification or variations to the accredited design of the Aerated Wet Cell Reed Bed shall be submitted for separate consideration and variation of the Certificate of Accreditation by the Secretary of the NSW Ministry of Health.
- 1.4 Each Aerated Wet Cell Reed Bed shall be permanently and legibly marked on a non-corrosive metal plaque or equivalent, attached to the lid with the following information:
 - The brand name of the system;
 - The manufacturer's name or registered trademark;
 - The month and year of manufacture.
- 1.5 The manufacturer shall supply the owner/occupier of the premises with an owner's manual, which sets out the care, operation, maintenance, and on-going management requirements of the system.
- 1.6 The manufacturer shall provide the following information to each local council where it is intended to install an Aerated Wet Cell Reed Bed in their area once Ministry accreditation has been obtained:
 - Statement of warranty
 - Statement of service life
 - Quality Assurance Certification
 - Installation Manual
 - Service Manual
 - Owner's Manual
 - Service Report Form
 - Engineering Drawings on A3 format
 - Detailed Specifications
 - A4 Plans
 - Accreditation documentation from NSW Health.

2. Installation and Commissioning

- 2.1 The conditions of the Certificate of Accreditation issued by the Secretary of the NSW Ministry of Health in respect of the plans or design of the Aerated Wet Cell Reed Bed shall be complied with.
- 2.2 The installation of the Aerated Wet Cell Reed Bed shall be inspected and checked by the manufacturer or the manufacturer's agent. On completion of the installation the manufacturer or the agent is to certify that the installation has been installed and commissioned in accordance with its design, the conditions of accreditation and any additional requirements of the local council.
- 2.3 All electrical work must be carried out by a licensed electrician and in accordance with the relevant provisions of AS/NZS 3000.

3. Maintenance

- 3.1 The owner / occupier of the premises shall enter into a minimum 12-month contract or agreement with a service agent and ensure that the Aerated Wet Cell Reed Bed is serviced:
 - in accordance with the manufacturer's / supplier's service manual and using the manufacturer's / supplier's service sheet; and
 - by a service agent who
 - has completed a course on the servicing and maintenance of STS; and has some supervised servicing experience or extensive un-supervised experience;

- is employed or authorised by the manufacturer / supplier of the Aerated Wet Cell Reed Bed;
- uses replacement parts which meet the minimum specification of the Aerated Wet Cell Reed Bed;
- has advised of their name, contact details and credentials to the local authority;
- submits a completed NSW Health "Local Council Service Report" (attached) to the local authority immediately after every service;
- shall report to the local authority any instances where the owner / occupier refuses to authorise repairs, replacement of parts or maintenance; and
- does not perform electrical work or enter confined spaces unless trained and is suitably qualified to do so.

3.2 The owner/occupier shall not service the Aerated Wet Cell Reed Bed unless they are an authorised agent.

3.3 The Aerated Wet Cell Reed Bed once installed and commissioned shall be serviced at 3 monthly intervals.

3.4 The manufacturer / supplier of the Aerated Wet Cell Reed Bed shall place on its web site a copy of the service manual, service sheet or form and specifications for the Aerated Wet Cell Reed Bed to facilitate servicing, maintenance, and repairs. Commercial-in-confidence documents may be provided directly to the service agent without uploading to the web site.

3.5 Each three monthly service shall, as a minimum where provided, include a check on all mechanical, electrical, and functioning parts of the system including:

- The chlorinator and replenishment of the disinfectant,
- Pumps,
- The alarm system,
- Excess growth on the gravel,
- Operation of the return system,
- The effluent irrigation area,
- On-site testing for free residual chlorine, pH and dissolved oxygen at the appropriate check points.

4. Verification

4.1 Effluent from the Aerated Wet Cell Reed Bed taken in any random grab sample shall comply with the following standard:

- BOD⁵ less than 30 mg/L
- TSS less than 45 mg/L
- E. coli less than 100 cfu/100 ml
- Free residual chlorine greater than 0.2 and less than 2.0 mg/L

5. Permitted uses

5.1 The effluent is suitable for re-use for garden purposes by way of any of the forms of irrigation as described in AS/NZS 1547:2012:

- above ground spray irrigation; and/or
- surface drip irrigation covered by mulch; and/or
- sub-surface drip irrigation installed at around 100 mm depth; and or
- any form of sub-soil application.

Each of the forms of irrigation or application is subject to the approval of the local council.

6. Advanced Secondary Treatment System

6.1 The Aerated Wet Cell Reed Bed when tested by a Product Certification Body in accordance with AS1546.3:2017 was found to comply with the Advanced Secondary Effluent Criteria as follows:

**TABLE 2.1 (Abrev) AS1546.3:2017
ADVANCED SECONDARY EFFLUENT COMPLIANCE CRITERIA FOR A STS**

Parameter	Advanced secondary effluent	
	90% of Samples	Maximum
BOD5	≤ 10mg/L	20 mg/L
TSS	≤ 10 mg/L	20 mg/L
<i>E. coli</i> *	≤ 10 cfu/100mL	30 cfu/100mL
FAC p	Minimum 0.5 mg/L†	N/A
Turbidity †	N/A	10 NTU

* Where disinfection is required.

p Where chlorine disinfection is used.

† Minimum level, not 90% of samples.

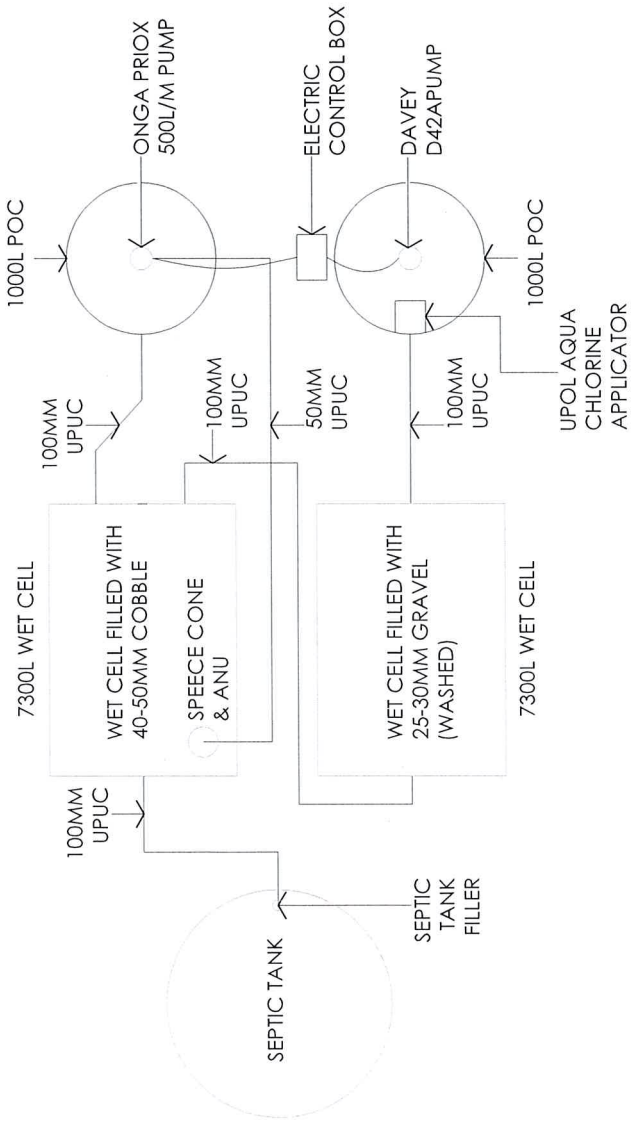
‡ Where UV light is used for disinfection.



Local Council STS Service Report: February 2018		
Owner's Name:		Local Council:
Installation Address:		
System Brand & Model:	Domestic	Commercial
Date of this service: / /	Date of last Service: / /	Next service due: / /
Has the STS/DGTS been serviced in accordance with the manufacturer's / supplier's requirements and using the service sheet? <input type="checkbox"/> Yes <input type="checkbox"/> No If "No" why not?		
STS/DGTS functioning correctly? <input type="checkbox"/> Yes <input type="checkbox"/> No If "No" why not?		
According to sludge-judge or other methodology is de-sludging needed? <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes" what action is recommended?		
Offensive odours? <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes" what action is recommended?		
Alarms tested and functional? <input type="checkbox"/> Yes <input type="checkbox"/> No If not "functional" what action is recommended?		
Final Effluent Quality		
Tested? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Disinfected? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Chlorine tablets remaining. <input type="checkbox"/> Yes <input type="checkbox"/> No		
Quality? <input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory		
On what evidence is this judgement made? If "Unsatisfactory" what action was recommended?		
Land Application Area		
Surface ponding? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Run off? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Excess plant growth? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Effluent leaving premises? <input type="checkbox"/> Yes <input type="checkbox"/> No		
High risk areas contaminated? * <input type="checkbox"/> Yes <input type="checkbox"/> No * Patio, play areas, BBQ, etc		
Operating satisfactorily? <input type="checkbox"/> Yes <input type="checkbox"/> No If "Not operating satisfactorily" what action was recommended?		
Overall Condition of STS? <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor		
Comments / Action Recommended / Repairs Needed / Repairs Performed:		
Has the owner / occupier taken recommended actions? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Service Agent:		Contact Details:
Signature:		Date:

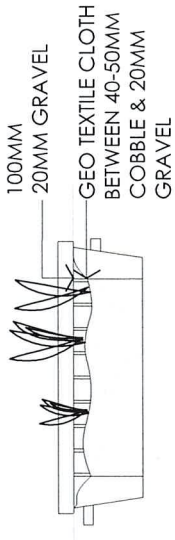
Source: Adapted from "Checklist 4.2: Operational AWTS inspection report for use by service providers and Council inspectors" in *Designing and Installing On-Site Wastewater Systems*, Sydney Catchment Authority, May 2012

NOTES:



TANK & WET CELL LAYOUT - PLAN
SCALE 1:100

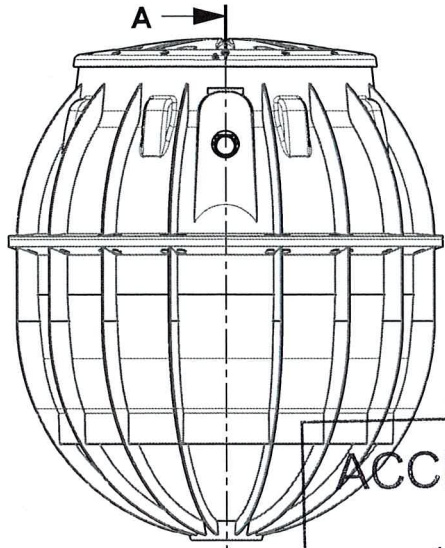
ACCREDITED
1 AUG 2023
NSW MINISTRY OF HEALTH



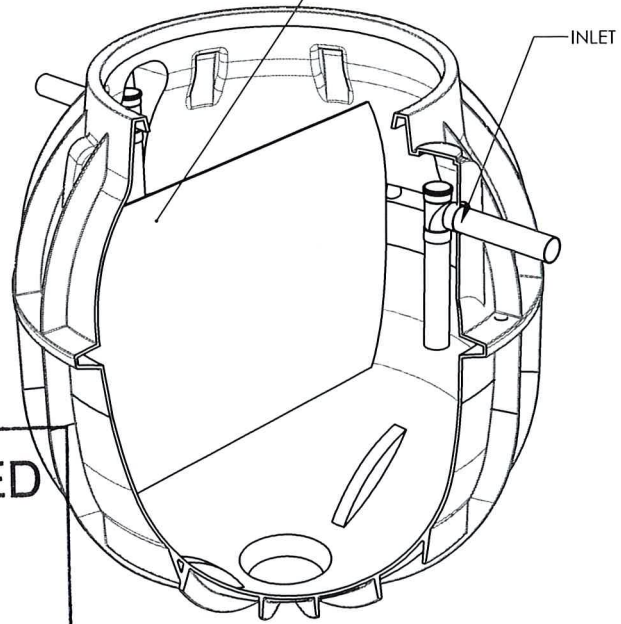
7300L REED BED ELEVATION
SCALE 1:100

<p>Do not scale from these drawings. Verify all dimensions before commencing construction or shop drawings. This drawing is to be produced or otherwise dealt with, without permission of Global Rotomoulding.</p>	<p>REV. NO. AMENDMENTS / ISSUE</p> <p>PRELIMINARY ISSUE</p>	<p>DRAWING DRAWN IN</p>	<p>PROJECT TANK & WET CELL LAYOUT - PLAN 7300L REED BED - ELEVATION</p>	<p>CLIENT</p>	<p>SCALE 1:100 ON A4</p> <p>DATE 18/04/23</p> <p>DRAWN IN</p> <p>PROJECT</p> <p>DRAWING No. A100</p> <p>REV No</p>
			<p>OPTIONAL INCLUDES AUTOMATICALLY ISSUED</p>		
<p>T 0427 792 879 roy@globalwater.com.au</p>					

12-568 6000L SEPTIC TANK - BAFFLE



SIDE VIEW



SECTIONAL PICTORIAL VIEW

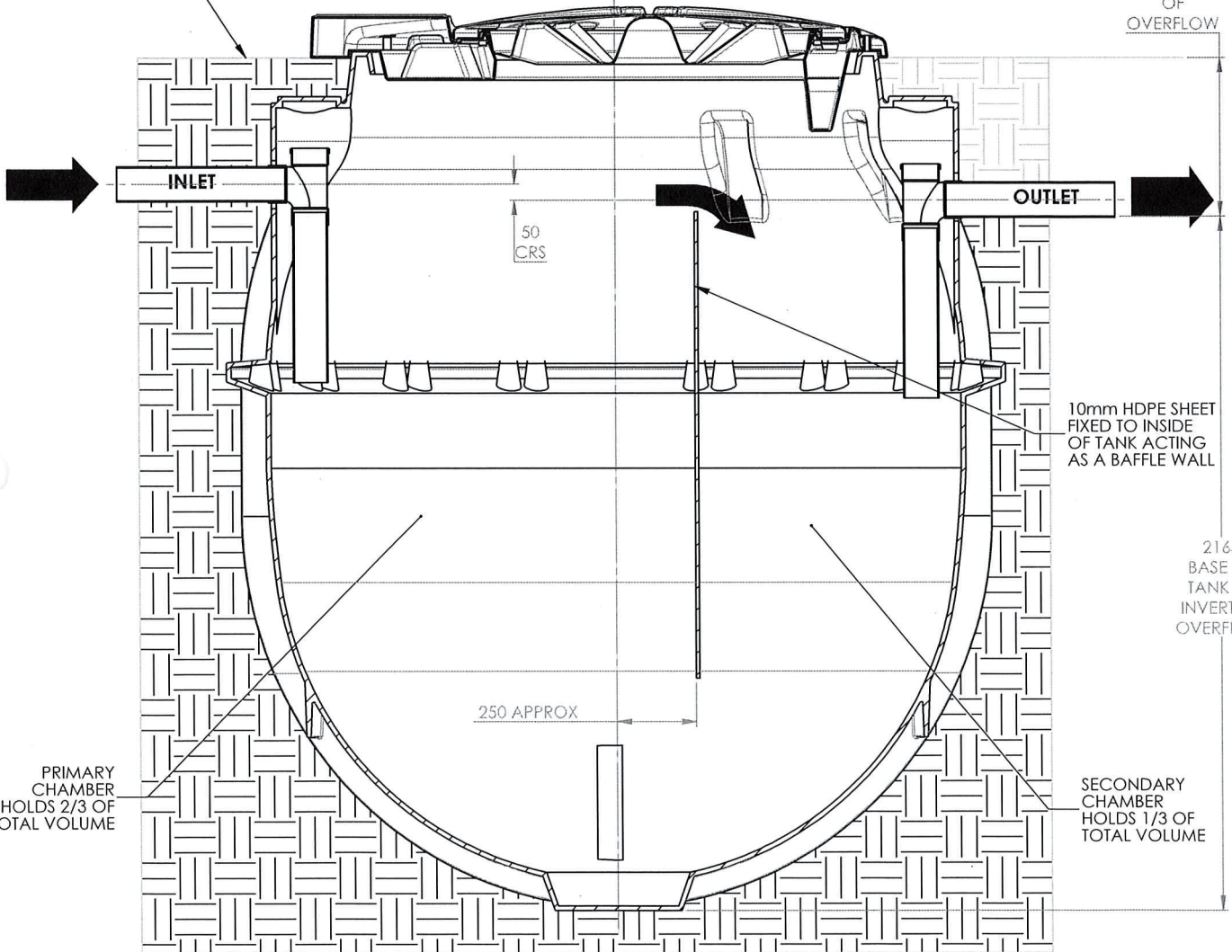
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NSW MINISTRY OF HEALTH

BAFFLE
FIXED TO INSIDE
OF TANK

INLET

GROUND LEVEL

495
GROUND
TO INVERT
OF
OVERFLOW



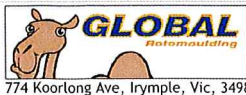
SECTION A-A
SCALE 1 : 15

PRIMARY
CHAMBER
HOLDS 2/3 OF
TOTAL VOLUME

10mm HDPE SHEET
FIXED TO INSIDE
OF TANK ACTING
AS A BAFFLE WALL

2165
BASE OF
TANK TO
INVERT OF
OVERFLOW

SECONDARY
CHAMBER
HOLDS 1/3 OF
TOTAL VOLUME



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info@globalwater.com.au

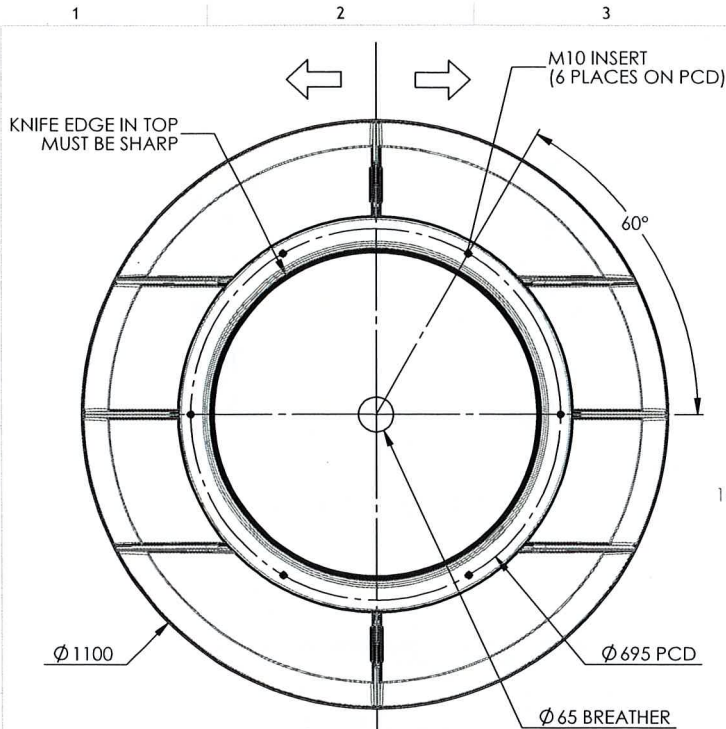
CUSTOMER: GLOBAL ROTO.
DESCRIPTION: 6000L SEPTIC BAFFLE WORKING DRAWING
FILE NAME: 12-568 6000lt Septic Tank Baffle Working Drawing
This drawing is the property of Trymak Pty Ltd. It cannot be copied in part or full without the written permission of Trymak Pty Ltd.

DRAWN: LC
MATERIAL:
SURFACE FINISH:
TOLERANCE: ±1mm UNLESS NOTED OTHERWISE

SCALE: 1:50
SHEET 1 OF 1
DATE: 4/11/2015

12-568 NO

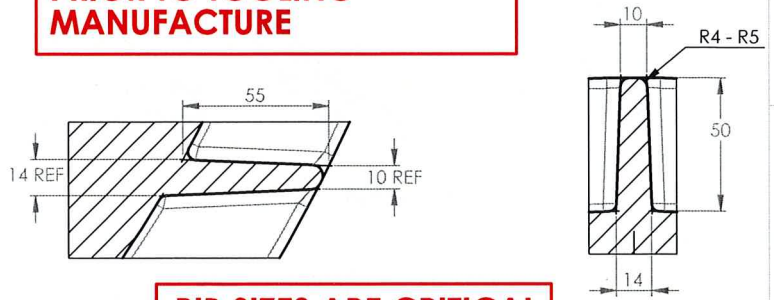
A3



PRODUCT SIZES SHOWN

PLEASE ADD 3% SHRINKAGE FOR TOOLING SIZES

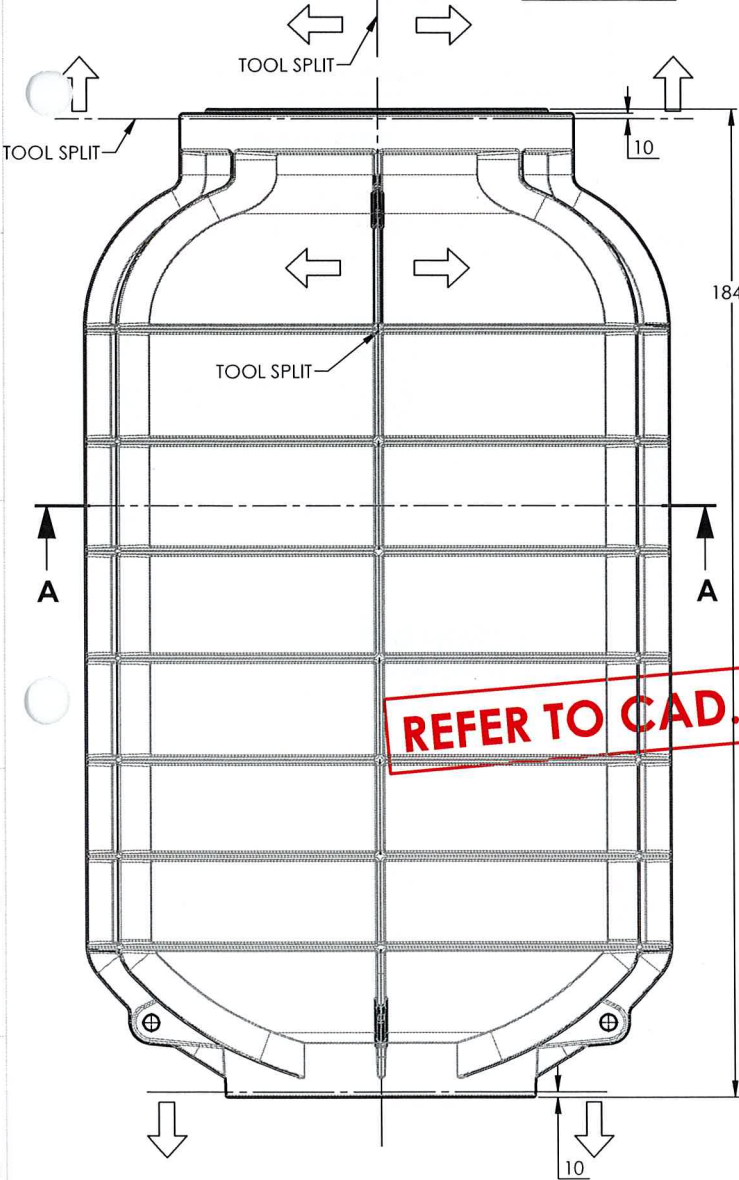
PLEASE SUPPLY TOOLING CAD FILE FOR CHECKING PRIOR TO TOOLING MANUFACTURE



RIB SIZES ARE CRITICAL

SECTION A-A

SECTION A-A



REFER TO CAD. IF IN DOUBT - ASK.

REFER TO CAD IF SPEC'D
NO STRUCTURAL ENGINEERING HAS BEEN CONSIDERED

PRODUCT SIZES

SIGNED: _____ DATE: _____

REV	DESCRIPTION	DATE	DRN
C			
B			
A			

NOTE: ALL TOLERANCES ±1% UNLESS NOTED OTHERWISE

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Ph: (03) 9558 3455 Fax: (03) 9558 3466
www.trymak.com.au

CUSTOMER: GLOBAL ROTOMOULDING
DESCRIPTION: 1000LT POC

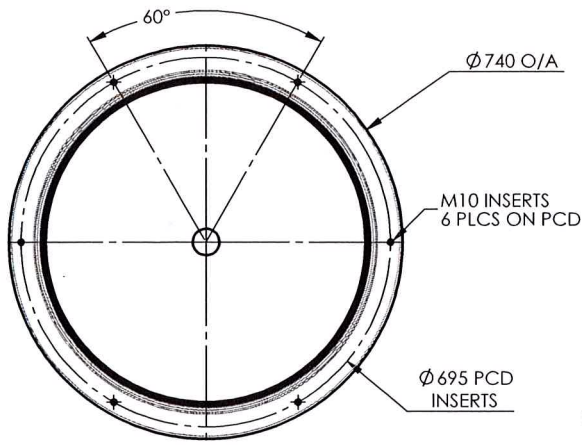
SURFACE FINISH: SMOOTH
MATERIAL: MDPE
WEIGHT: NA
WALL THICKNESS: NA

FILE NAME: 16-864 1000lt POC PRODUCT RELEASE 20180628
DRAWN: AMCD
DATE: 28/06/2018
SCALE: 1:10
SHEET 1 OF 2

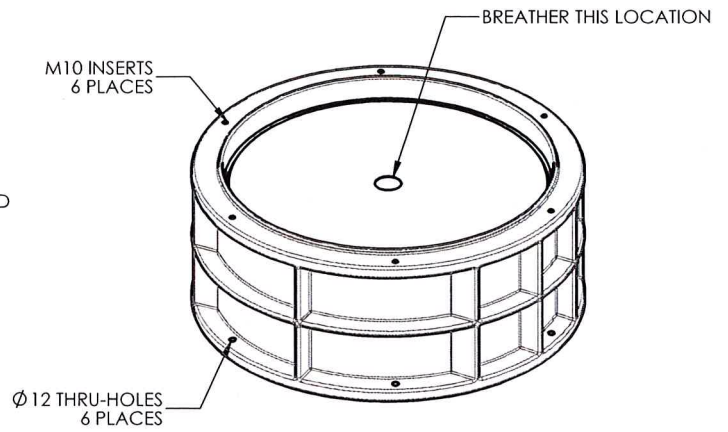
16-864
864 O/A PROD

A3

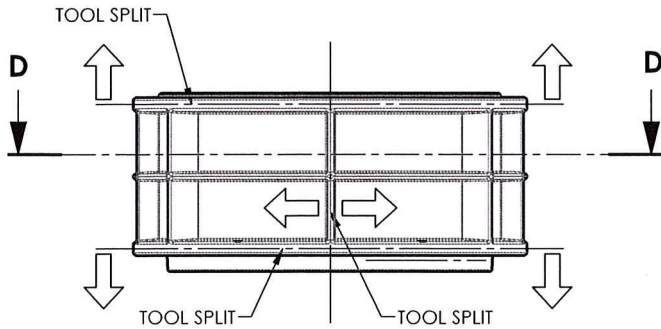




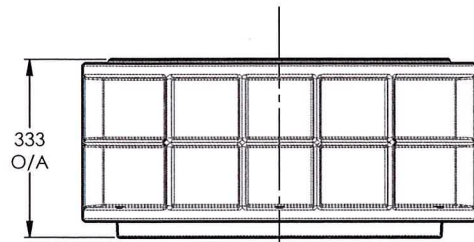
PLAN VIEW



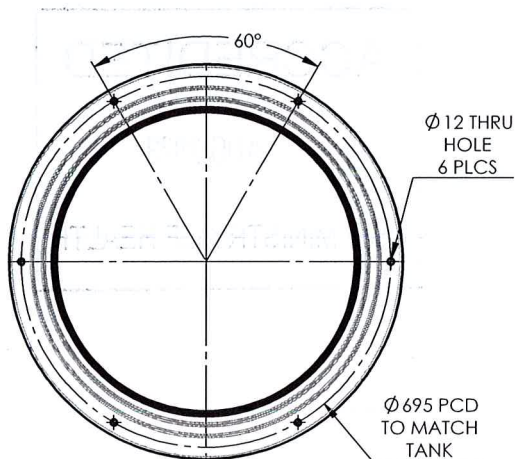
PICTORIAL VIEW



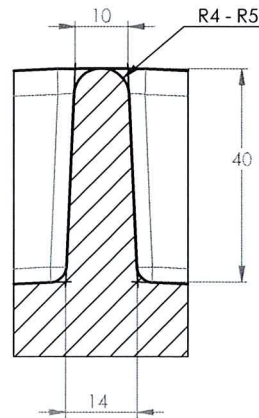
SIDE VIEW



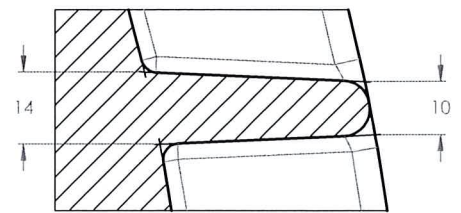
SIDE VIEW



UNDERSIDE VIEW



RIB SIZES ARE CRITICAL



SECTION D-D
RIB DETAILS

PRODUCT SIZES SHOWN

**PLEASE ADD 3% SHRINKAGE
FOR TOOLING SIZES**

**PLEASE SUPPLY TOOLING
CAD FILE FOR CHECKING
PRIOR TO TOOLING
MANUFACTURE**

REFER TO CAD. IF IN DOUBT - ASK.

REFER TO CAD IF SPEC'D
NO STRUCTURAL ENGINEERING HAS BEEN CONSIDERED

PRODUCT SIZES

SIGNED: _____ DATE: _____

C				
B				
A				

CUSTOMER: GLOBAL ROTOMOULDED
DESCRIPTION: 1000LT POC

SURFACE FINISH: SMOOTH
MATERIAL: MDPE
WEIGHT: NA
WALL THICKNESS: NA

REV	DESCRIPTION	DATE	DRN
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NOTE: ALL TOLERANCES ±1% UNLESS NOTED OTHERWISE

FILE NAME: 16-864 1000lt POC PRODUCT RELEASE 20180628

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DRAWN: AMCD
DATE: 28/06/2018
SCALE: 1:10
SHEET 2 OF 2

16-864
864 O/A PROD

A3

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