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373/002/006

Mr Palmer  
224 2443

28th April, 1987

Dear Sir;

Biocycle Household Sewage Treatment Plant - 6 000 L Capacity

Reference is made to your application for the authorisation of the Biocycle household sewage treatment plants dated 9th May, 1986 and subsequent submission of effluent test results.

It is advised that the evaluation of the plant's performance has been completed and the Biocycle 6 000 L household sewage treatment plant, as detailed in the drawings and equipment specification submitted with the application, is authorised for use in Queensland subject to the following conditions.

1. The plants shall continue to perform satisfactorily in service and produce an effluent of the prescribed standard.
2. Each unit shall be permanently marked with the manufacturer's name, registered trademark and product identification in a way that will be readily visible after installation.
3. No modification of the process, design, material (including the particular type and surface area of media in the aeration compartment), identification, etc., of the plant shall be made without prior request to the Department to review the authorisation.
4. Illustrative brochures for the plant shall emphasise the need for regular maintenance to maintain the effluent quality of the plant and inform readers of typical operating costs involved with such an installation.
5. A network of servicing agents shall be established throughout the distribution areas for the plant, sufficient to meet the requirements of 3 monthly routine servicing of units, effecting repairs within 24 hours of notification of breakdown, providing a 24 hour per day call service and maintaining a readily available supply of spare parts. The Department shall be kept notified of changes to the manufacturer's approved servicing agents and the Local Authority areas in which they operate.

.../2

The Director,  
Biocycle Pty Ltd,  
56A Old Barrenjoey Road,  
AVALON. N.S.W. 2107

6. Each installation of the plant shall be subject to the prior approval of the Local Authority and shall be subject to any conditions the Local Authority might impose in granting a permit.

Yours faithfully,

*K.J.M.*

Director of Local Government.

*per [Signature]*

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Cops  
orig on file

224 2443  
Mr Palmer  
373/002/003

14th July, 1988

The Director,  
Biocycle Pty Ltd,  
56A Old Barrenjoey Road,  
AVALON. N.S.W. 2107

Dear Sir,

Biocycle Household Sewage Treatment Plant - 6 000 L Capacity

Reference is made to the authorisation of the Biocycle 6 000 L household sewage treatment plant, dated 28th April, 1987, issued by the Director of Local Government. By-law 186 of the Standard Sewerage By-laws has been amended and now requires household sewage treatment plants to be authorised by the Commissioner of Water Resources.

It is advised that re-evaluation of the plant's performance is not required and the Biocycle 6 000 L household sewage treatment plant, as detailed in the drawings and equipment specification submitted with the application on 9th May, 1986, is authorised for use in Queensland subject to the following conditions:

1. The plants shall continue to perform satisfactorily in service and produce an effluent of the prescribed standard.
2. Each unit shall be permanently marked with the manufacturer's name, registered trademark and product identification in a way that will be readily visible after installation.
3. No modification of the process, design, material (including the particular type and surface area of media in the aeration compartment), identification, etc., of the plant shall be made without prior request to the Commissioner to review the authorisation.
4. Illustrative brochures for the plant shall emphasise the need for regular maintenance to maintain the effluent quality of the plant and inform readers of typical operating costs involved with such an installation.

5. A network of servicing agents shall be established throughout the distribution areas for the plant, sufficient to meet the requirements of three-monthly routine servicing of units, effecting repairs within 24 hours of notification of breakdown, providing a 24 hour per day call service and maintaining a readily available supply of spare parts. The Commissioner shall be kept notified of changes to the manufacturer's approved servicing agents and the Local Authority areas in which they operate.
6. Each installation of the plant shall be subject to the prior approval of the Local Authority and shall be subject to any conditions the Local Authority might impose in granting a permit.

Yours faithfully,

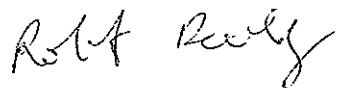
*Raw*

for Commissioner of Water Resources.

**Department of Natural Resources and Mines  
Queensland**

**MODEL APPROVAL (Biocycle 6000L AWTS)  
AMENDMENT No. 2  
Section 77—Standard Sewerage Law 1998**

1. The Biocycle 6000 Litre Aerated Wastewater Treatment System was approved for use in Queensland by letter of authorisation dated 28 April 1987.
2. On 2 January 1992, the then Commissioner of Water Resources approved, as set out in the amended authorisation of that date, the use of reinforced concrete as the material to be used in the construction of the tank.
3. On 6 August 2001 it was approved, as set out in the amended approval, the substitution of a concrete baffle component in place of the fibreglass baffle component.
4. Department of Natural Resources and Mines has been advised that the approval for the Biocycle 6000L was acquired by Jowa Group Pty Ltd on 4 October 2000 and the approval should be amended.
5. Approval is given for the modification described in clause 4 above and the conditions applying to the authorisation dated 28 April 1987, together with amendments dated 2 January 1992 and 6 August 2001 apply to the amended approval.



**R Reilly  
General Manager  
Water Industry Compliance**

Date approved: 3 July 2003

**Department of Natural Resources and Mines  
Queensland**

**MODEL APPROVAL (Biocycle 6000L AWTS)  
AMENDMENT No. 1  
Section 77—Standard Sewerage Law 1998**

1. The Biocycle 6000 Litre Aerated Wastewater Treatment System was approved for use in Queensland by letter of authorisation dated 28 April 1987.
2. On 2 January 1992, the then Commissioner of Water Resources approved, as set out in the amended authorisation of that date, the use of reinforced concrete as the material to be used in the construction of the tank.
3. On 14 December 2000 the manufacturer requested approval to modify, as described in the schedule, the authorised model to allow the substitution of a concrete baffle component in place of the fibreglass baffle component.
4. Approval is given for the modification described in clause 3 above and the conditions applying to the authorisation dated 28 April 1987 and 2 January 1992 apply to the amended authorisation.

*Robert Reilly*

R Reilly  
**General Manager  
Water Industry Compliance**

Date approved: 6/8/2001

**SCHEDULE**

<b>Attachment 1</b>	Specifications
<b>Attachment 2</b>	Drawings

**SCHEDULE**

**Attachment 1**

Fibreglass component manufacturing specifications - One page.  
Epoxy adhesive specification:- Megapoxy Technical Bulletin pages 1-3.

Dept of Natural Resources & Mines Queensland
<b>MODEL APPROVAL</b>
Amendment No.: <u>1</u> .....
Date of Issue: <u>6/8/2021</u> .....
General Manager: <u>[Signature]</u> .....
Water Industry Compliance

ATTABEND PTY LTD  
T/A  
**FABKOOL GLASS**

ABN: 59 011 030 934

**HEAD OFFICE:**  
298A STAPYLTON/JACOBS WELL RD  
STAPYLTON QLD 4207

**PHONE:** 07 3807 1922  
**FAX:ORDERS** 07 3807 4933  
**FAX:ADMIN** 07 3807 6527

4<sup>th</sup> May 2001

Mr Robert Coleman  
Biocycle Corporation  
Fax: 5598 3243

Dear Sir

**Re: Manufacturing Specifications**

As requested please find enclosed our material specification for the manufacturing of the Biocycle Internal Pods and Lid.

The material used in the pods and glass construction is GP Resin which complies with the Biocycle specification, MEK catalyst and 18oz continuous fibreglass rovings.

The pods are manufactured to a thickness of 6mm which complies with the Biocycle specifications.

The method of construction is the use of a chopper gun and paddle roller for laying up the glass and laminating.

We trust this covers your inquiry. If you have any queries please do not hesitate in contacting me.

Yours faithfully



Bill Allan  
Director

Dept of Natural Resources & Mines Queensland
<b>MODEL APPROVAL</b>
Amendment No.: <u>1</u>
Date of Issue: <u>6/8/2001</u>
General Manager: <u>R. V. [Signature]</u>
Water Industry Compliance



# Technical Bulletin

# Megapoxy

2961



## MEGAPOXY P1

### GAP FILLING EPOXY PASTE ADHESIVE FOR CIVIL ENGINEERING USE

MEGAPOXY P1 is a two component epoxy paste based on DGEBA epoxy resin and carbonate free filler. Easy to use, this product sets after mixing with excellent properties for a wide range of applications.

### RECOMMENDED APPLICATIONS

#### BONDING

Precast concrete article ;  
Metal to metal or concrete  
Grouting bolts  
Natural stones  
Bricks and ceramics  
Bonding compressed cement sheet

#### FILLING & REPAIRS

Concrete pipes and tanks  
Fibreglass articles  
Concrete floors and stairs  
Concrete column  
Insitu formed concrete  
Flush-filling countersunk  
screws in fibre cement sheet

### CHARACTERISTICS

Simple 1:1 mix ratio  
Creamy texture, blends easily  
Non-sag on vertical & overhead surfaces  
Adheres and cures under adverse conditions (cold & damp)  
Good strength retention after prolonged immersion in water  
Very high strength permanent bonds  
Tensile and compressive strengths superior to concrete  
Excellent chemical resistance

Dept of Natural Resources & Mines Queensland	
<b>MODEL APPROVAL</b>	
Amendment No.:	1
Date of Issue:	6/8/2001
General Manager:	<i>R. V. Kelly</i>
Water Industry Compliance	

### AVAILABILITY

MEGAPOXY P1 is available in 4 Litre & 20 Litre kits. Shelf life of unopened kits is 2 years minimum. The product should be stored in a cool, dry place.



## VIVACITY ENGINEERING PTY. LTD.

A.C.N. 001 666 557

3 Sefton Road, Thornleigh, Sydney, N.S.W. 2120, Australia

Telephone: (02) 9871 3044 Fax: (02) 9875 3665 Fax International: +61-2-9875 3665

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PRODUCT SPECIFICATION

	PART "A"	PART "B"
Colour	White	Black
Consistency	Thixotropic paste	Thixotropic paste
Flash point	Above 130°C	Above 100°C

SURFACE PREPARATION

**METALS** : Metals should be grit blasted to clean surface. If this is not possible, mechanically abrade to clean bright metal surface and degrease by flooding the abraded surface with Megapoxy Degreaser. Wire brushing is not entirely satisfactory and gives minimal adhesion only.

**CONCRETE** : Concrete should be free from grease and oil. If necessary, clean with industrial heavy duty degreaser. When clean, remove surface laitence. This is best done by mechanical abrasion such as scabbling, grit blasting or grinding. If this is not possible acid etching must be carried out. Mix concentrated hydrochloric acid with equal volume of water and spread at the rate of 0.5 litre per square metre of concrete surface. Allow to react for about 10 minutes and wash the area thoroughly and scrub with a stiff bristled broom to remove loose sand. Allow to dry for 24 hours. For maximum adhesion concrete should be dry.

**PAINTED SURFACES** : Steps should be taken to remove all paint.

Metals : Good quality paint stripper should be used, followed by grit blasting

Concrete : The surface may be either flame-cleaned, or mechanically treated with a scutching tool. Complete the preparation by grinding or scabbling

PROCESSING DATA

Mixing Ratio : 1 part "A" to 1 part "B" by volume  
 Mixing : Mix until uniform grey  
 Usable life at 25°C : 60 minutes  
 Minimum cure time : 24 Hours at 25°C  
 Full cure time : 4 Days at 25°C  
 Minimum recommended application temperature : 10°C

Dept of Natural Resources & Mines Queensland	
<b>MODEL APPROVAL</b>	
Amendment No.:	1
Date of Issue:	6/8/2001
General Manager:	<i>R. H. Bell</i>
Water Industry Compliance	

-3-

**MIXING PRECAUTIONS**

It is essential that the correct mixing ratio be used and that the part "A" and part "B" are thoroughly mixed together before use. Inaccuracies and poor mixing will result in lower physical properties of the cured system and, if the error is sufficiently large, the system may not cure satisfactorily and discolour on aging.

**TYPICAL CURED PROPERTIES**

Tensile strength	: 45 MPa
Tensile shear strength	: 14 MPa
Compressive strength	: 80 MPa
Flexural strength	: 18 MPa
Modulus of elasticity	: 2,000 MPa
Maximum operating Temperature	: 80°C
Density	: 1.45 kg per litre
Dielectric strength 50Hz @ 25°C (Kv/cm)	: 190

**CLEANING UP**

To keep mixing implements and working tools clean use Megapoxy Thinners. Use disposable rubber gloves to protect hands and maintain proper industrial hygiene. For further details refer to Bulletin No. 100.

Dept of Natural Resources & Mines Queensland
<b>MODEL APPROVAL</b>
Amendment No.: <u>1</u>
Date of Issue: <u>6/8/2001</u>
General Manager: <u>[Signature]</u>
Water Industry Compliance

Department of Natural Resources and Mines  
Queensland

**SCHEDULE**

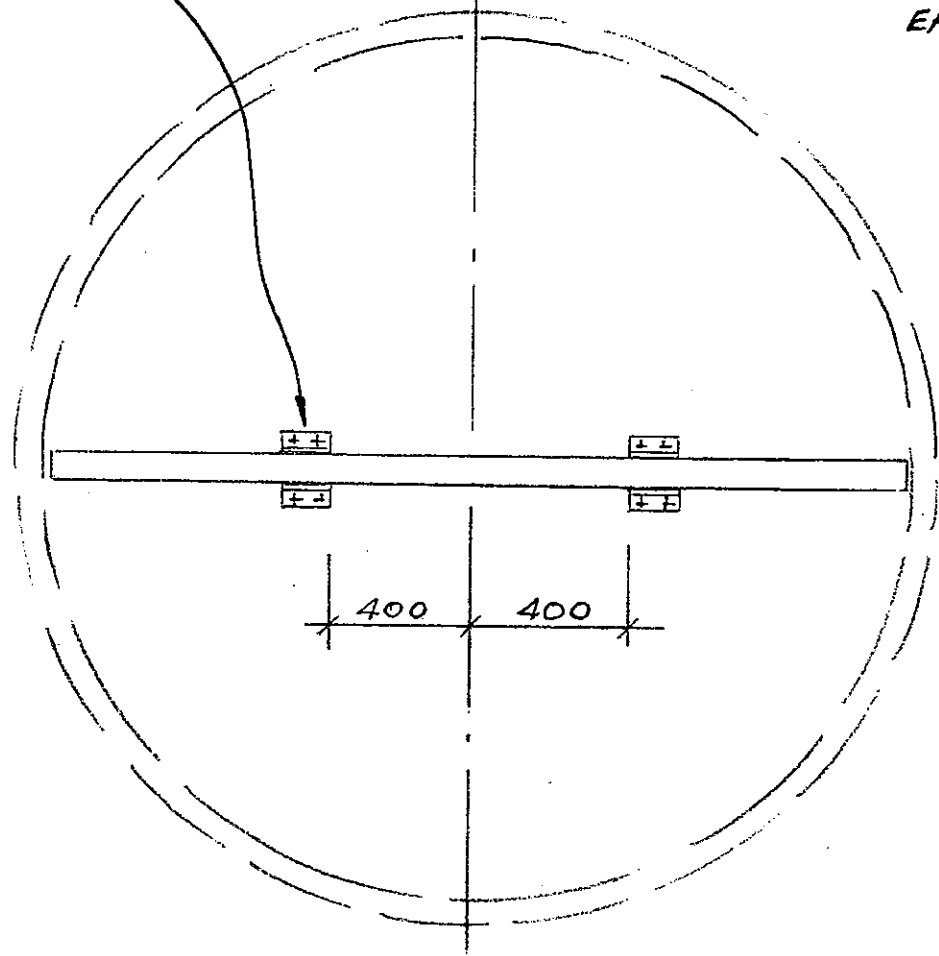
**Attachment 2**

Concrete baffle Drawing No. 2000-143-1  
Fibreglass pods Drawing No. 2000-143-2B

Dept of Natural Resources & Mines Queensland
<b>MODEL APPROVAL</b>
Amendment No.: <i>1</i>
Date of Issue: <i>6/8/2001</i>
General Manager: <i>R. M. Kelly</i>
Water Industry Compliance

Dept of Natural Resources & Mines  
 Queensland  
**MODEL APPROVAL**  
 Amendment No.: 1  
 Date of Issue: 6/8/2001  
 General Manager: *R. M. Hughes*  
 Water Industry Compliance

4 - 60x60x4 GRADE 316  
 STAINLESS ANGLES  
 ATTACH EACH TO FLOOR ONLY  
 WITH 2 - M8 STAINLESS  
 'DYNABOLTS'

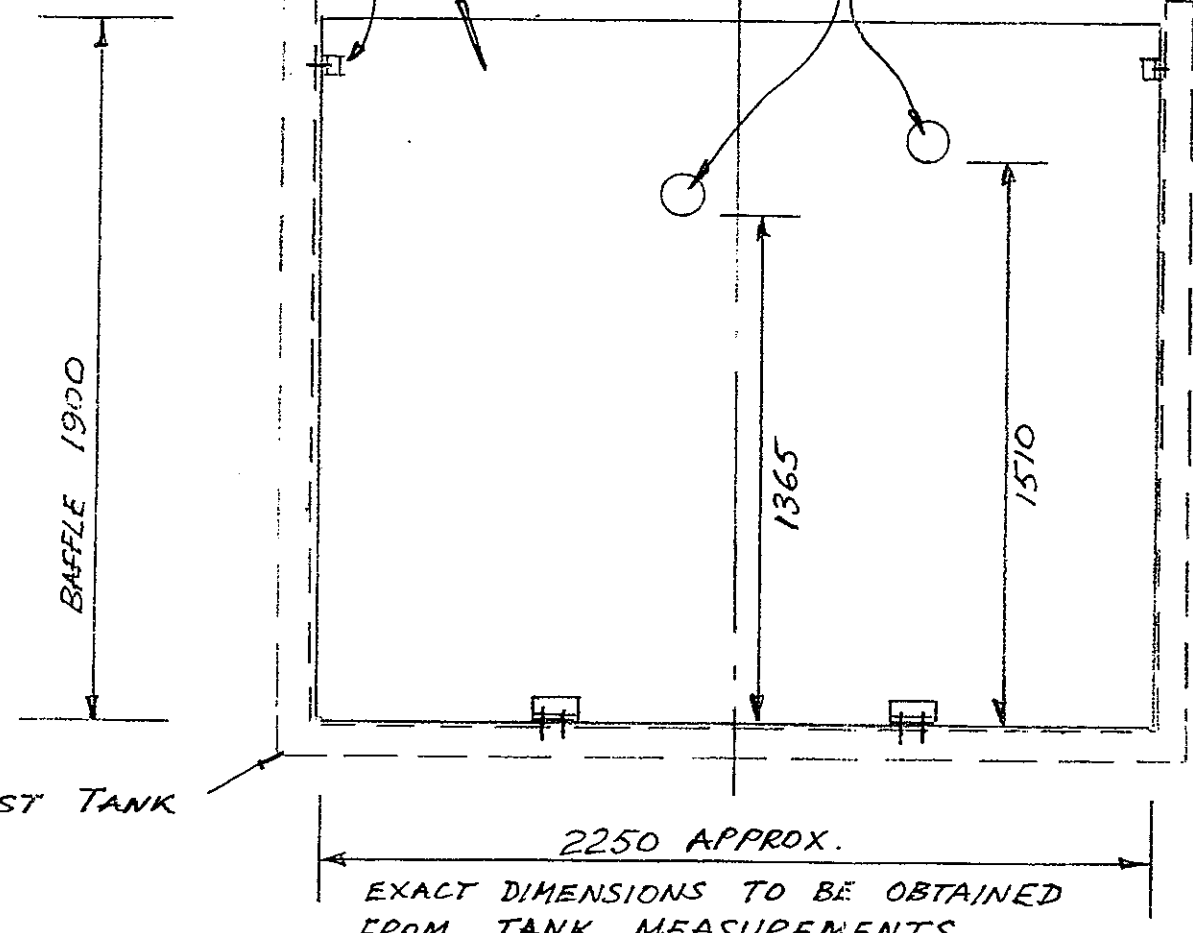


PLAN

REINFORCE BAFFLE WITH  
 F81 MESH CENTRALLY PLACED

STAINLESS STEEL ANGLES  
 & FIXINGS TO HOLD BAFFLE  
 STABLE UNTIL WALL-TO-BAFFLE  
 EPOXY HAS SET

90φ HOLES  
 LATERAL POSITIONS  
 AS REQUIRED



ELEVATION

- NOTES :- BAFFLE IS FOR USE WITH TANK SHOWN ON EVERHARD  
 DRAWING M426 OF 19-2-96 AS APPROVED.
- CONCRETE 32 MPa , 10MM MAX. AGGREGATE  
 SULPHATE-RESISTING CEMENT IS RECOMMENDED
  - ATTACH FIBREGLASS PODS EITHER SIDE  
 OF BAFFLE WITH STAINLESS BOLTS  
 THRU HOLES IN BAFFLE AS REQUIRED

*R. M. Hughes* RPEQ 869.

**HUGHES BEAL & WRIGHT Pty Ltd**  
 CONSULTING ENGINEERS, CIVIL, STRUCTURAL & GEOTECHNICAL  
 12 Ovendean Street, Yeronga 4104 Brisbane ACN 010588548  
 Phone (07) 38489524, 38781212 Fax (07) 38485666, 38781404

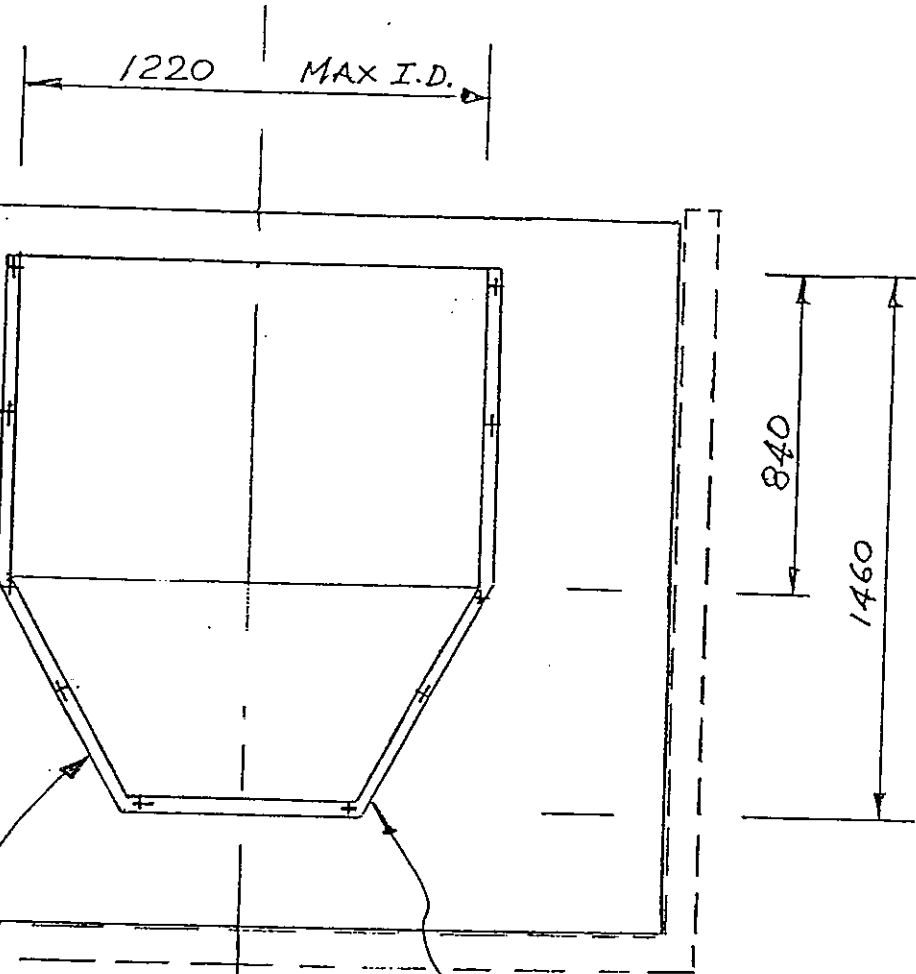
JOWA GROUP / BIOCYCLE.  
 SUITE 4, 1095 GOLD COAST HWY,  
 PALM BEACH, QLD.

CENTRE BAFFLE FOR  
 BIOCYCLE 6000 LITRE  
 CONCRETE TANK.

Job No 2000-143-1  
 Date 8-11-2000  
 Drawn RMH

CONCRETE CENTRE WALL TO BE SEALED TO CONCRETE TANK WALL WITH MEGA-POXY AS PER ATTACHED SPECIFICATION.

CONCRETE  
BAFFLE  
65MM THICK



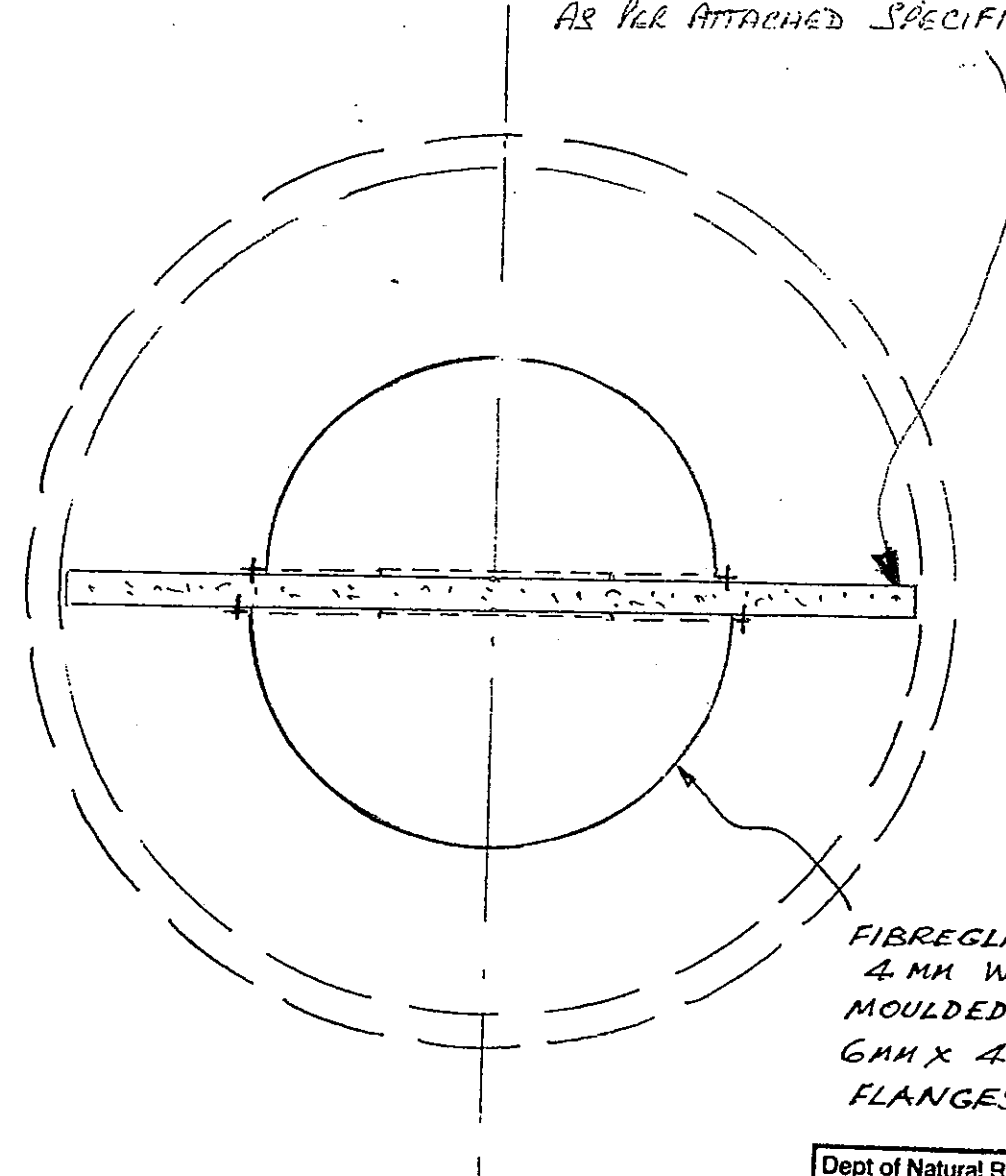
PRECAST  
CONCRETE  
TANK

ELEVATION

CONNECTION TO BAFFLE:  
HOLES DRILLED THRU  
FIBREGLASS FLANGES,  
NEAT SIZE FOR BEARING,  
TO ACCEPT M8 STAINLESS  
DYNABOLTS, TOTAL 10  
PER POD. USE STAINLESS  
WASHERS UNDER BOLT HEADS

FIBREGLASS PODS ARE TO BE SEALED TO THE  
CENTRE WALL WITH MEGA-POXY AS PER  
ATTACHED SPECIFICATION.

40% FIBREGLASS, POLYESTER ISOTHALIC RESIN



FIBREGLASS PODS  
4 MM WALLS  
MOULDED TO  
6MM X 40MM WIDE  
FLANGES

PLAN

READ THIS DRAWING IN CONJUNCTION  
WITH DRAWING 2000-143-1

Dept of Natural Resources & Mines Queensland
<b>MODEL APPROVAL</b>
Amendment No.: 1
Date of issue: 6/8/2001
General Manager: R. M. H. [Signature]
Water Industry Compliance

A 2-5-01 10 DYNABOLTS

**HUGHES BEAL & WRIGHT Pty Ltd**  
CONSULTING ENGINEERS, CIVIL, STRUCTURAL & GEOTECHNICAL  
12 Ovendean Street, Yeronga 4104 Brisbane ACN 010588548  
Phone (07) 38489524, 38781212 Fax (07) 38485666, 38781404

JOWA GROUP / BIOCYCLE  
SUITE 4, 1095 GOLD COAST HWY,  
PALM BEACH, QLD.

BIOCYCLE 6000 LITRE TANK -  
CONNECTION OF FIBREGLASS  
PODS TO CENTRE BAFFLE

Job No 2000-143-2X
Date 15-11-2000
Drawn RMH