

**MODIFIED CONSTRUCTION CERTIFICATE**

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**CERTIFICATE NO:** CC140503-1M1

Date of Certificate: 22 January 2015

Description of the Proposed development: **Bioreactor (Modification to include Retaining Walls)**  
Associated with Water Recycling Plant

Classification under the *Building Code of Australia:* 10b

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**APPLICANT**

Name: Mr S Merange

Address: John Holland Pty Ltd  
303/1 Sylvan Ave  
BALGOWLAH NSW 2093

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**PROPERTY (The Land)**

Address: Lot 4 Googong Dam Road GOOGONG

Lot/Sec/DP: lot 4 DP 1179941

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**DEVELOPMENT CONSENT**

Development Consent Number: MP 08-0236

Date of Consent: 24/11/2011 modified 09/07/14

Consent authority: NSW Planning & Environment Director of Infrastructure Projects as a delegate for the Minister for Planning

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**CERTIFYING AUTHORITY**

Name: Annette Owen

Signature: Accreditation No: **BPB 1771**Accred: **Building Professionals Board**

**CERTIFICATION**

Annette Owen of BCA Certifiers Australia Pty Ltd certifies

That work completed in accordance with the documentation accompanying the application for this certificate (with such modifications, if any, verified by me as may be shown on that documentation) will comply with the requirements of the *Environmental Planning & Assessment Regulation 2000* as referred to in s.81A(5) of the *Environmental Planning & Assessment Act 1979*.

The documents listed below accompanied the application for this certificate.

*Note: The certificate is to be endorsed upon all relevant plans and specifications.*

**ATTACHMENTS**

(Tick as appropriate)

- Schedule of Approved Plans and Specifications
- The conditions of the certificate
- Fire Safety Schedule

**SCHEDULE OF APPROVED PLANS AND SPECIFICATIONS**

	Prepared By
Architectural Plans	Site Plan MWH ref no: 83500349-01-001G102 dated 11/08/14
Structural Plans	MWH ref no: 83502156-01-G003-4 S003-5 100101 103 -107 109 dated 19/09/14
Retaining Wall details (21/1/15)	MWH Ref 83502156-01-001-S023 4 25 26 dated 19/12/14 B

**Inspections**

The builder is to notify BCA Certifiers upon reaching each inspection stage outlined below by telephoning 62851199. **The builder is not to proceed beyond an inspection stage until written approval to proceed has been given by BCA Certifiers.**

The stages are:

- After excavation for, and prior to the placement of any footings.
- Prior to the pouring of any in-situ reinforced concrete building element.
- Prior to the covering of any stormwater drainage connections.
- After the building work has been completed and prior to any occupation certificate being issued in relation to the building.

MWH Ref. 83502156-LT-DM-005

16<sup>th</sup> January 2015

John Holland Pty Ltd  
Level 3, 65 Pirrama Road,  
Pyrmont NSW 2009

Steve Merange  
Project Manager

Dear Sir,

**Googong WRP Project – Structural Design of Retaining Walls  
Certificate of Compliance**

This is to certify that the Structural Design of the Retaining Walls detailed on drawings 83502156-01-001-S023 to S031 and 83502156-01-001-G004 have been carried out in accordance with the current editions of the following Australian Standards and other relevant standards referred to therein, BCA: Building Code of Australia, where applicable, and in accordance with good engineering practice and principles.

- AS 3600 – Concrete structures
- AS 3700 – Masonry Structures
- AS/NZS 1170.0 – Structural design actions – General principles
- AS/NZS 1170.1- Structural design actions – Permanent Imposed and Other Actions
- AS/NZS 1170.1- Structural design actions – Wind Actions

I also confirm that that the design calculations and drawings have been checked and reviewed in accordance with our ISO 9001 certified Quality Assurance System.

Yours Sincerely,

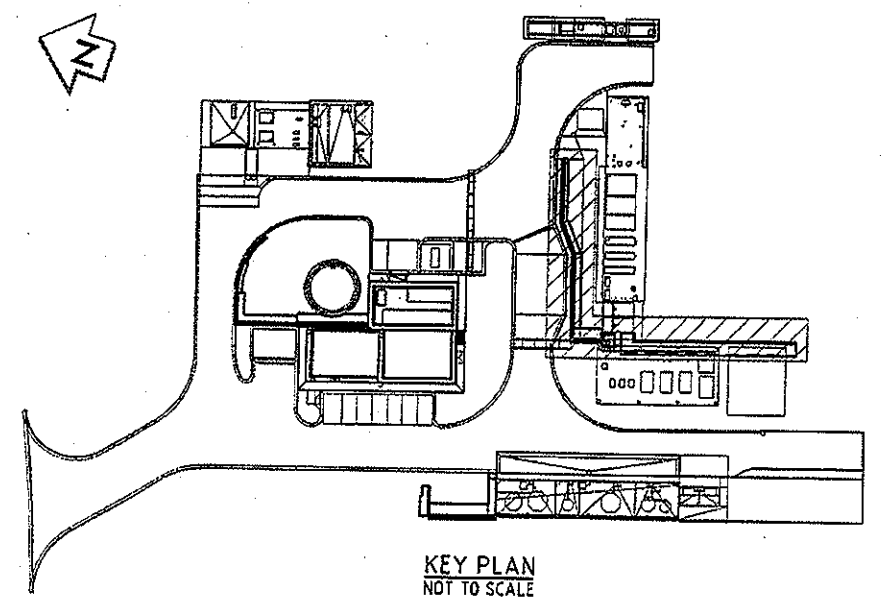


BUILDING A BETTER WORLD

**Jaya Weerasinghe**  
**BSc(Eng), FIEAust, CPEng, NPER & RPEQ (Civil & Structural), MICE CEng**  
**Chief Engineer (Structural) Asia Pacific**

### RETAINING WALL SETOUT

POINT	EASTING	NORTHING	REDUCED LEVELS		REMARKS
			TOP OF FOOTING	TOP OF WALL	
SP1	703674.66	6078254.94	724.00	725.00	
SP2	703670.87	6078253.67	724.00	725.00	725.20
SP3	703667.08	6078252.40	724.00	725.20	725.40
SP4	703662.78	6078250.97	724.00	725.40	725.60
SP5	703657.73	6078246.75	724.50	725.60	725.80
SP6	703652.04	6078244.84	724.53	725.80	726.00
SP7	703648.25	6078243.57	724.55	726.00	726.20
SP8	703643.51	6078241.99	724.58	726.20	726.40
SP9	703641.45	6078241.30	724.60		726.40
SP10	703641.52	6078241.11	724.60		726.56
SP11	703642.70	6078237.59	724.60		727.49
SP12	703643.33	6078235.69	724.60		727.49
SP13	703643.43	6078235.40	724.60		727.85
SP14	703644.65	6078235.81	724.60		727.49
SP15	703645.25	6078234.01	724.60		727.49
SP16	703646.97	6078229.84	724.44		727.69
SP17	703645.69	6078229.41	724.44		727.69
SP18	703656.20	6078198.01	724.44		727.69

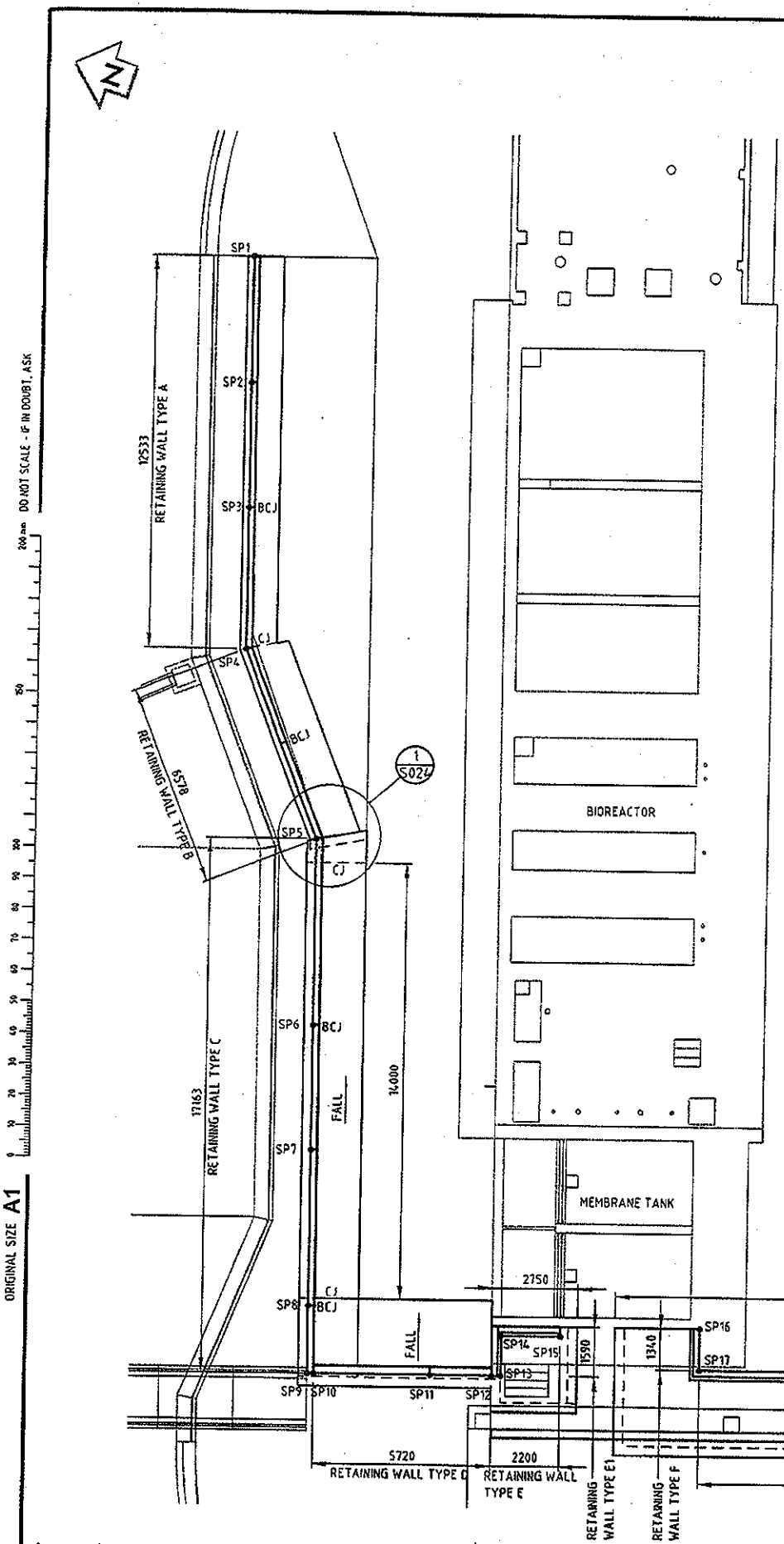
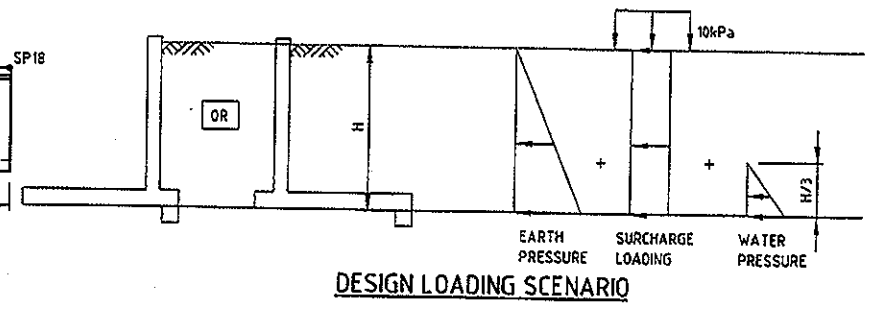


**BCA certifiers**  
 ABN: 58 119 755 134  
**CONSTRUCTION CERTIFICATE MODIFIED**  
 CC140503-1M1  
 22 January 2015  
 Principal Certifying Authority  
 Annette Owen BPB1771

- NOTES**
- FOR GENERAL NOTES REFER DRG G003 & G004.
  - MINIMUM ALLOWABLE SAFE BEARING CAPACITY = 200kPa
  - GRADE OF CONCRETE = M32.
  - THE NW/SW ROCK PROFILE SHOWN IS BASED ON LINEAR INTERPOLATION BETWEEN AVAILABLE BORE LOGS. ACTUAL ROCK PROFILE MAY VARY. ANY VARIATION SHALL BE NOTIFIED TO THE SUPERINTENDENT FOR DESIGN VERIFICATION PRIOR TO CONSTRUCTION.
  - THE GEOTEXTILE/SEPERATION LAYER SHALL BE BIDIM A29, STRENGTH CLASS C OR APPROVED EQUIVALENT.
  - BCJ - DENOTES BLOCKWORK CONTROL JOINT. REFER DRG No S309.

**CONCRETE COVER TO REINFORCEMENT**

STRUCTURE	MEMBER	TOP	BOTTOM	SIDE		EXPOSURE CLASSIFICATION
		EXT	INT			
RETAINING WALL	BASE SLAB	40	40	40	40	B1
	WALL (CONCRETE)	-	-	40	40	B1



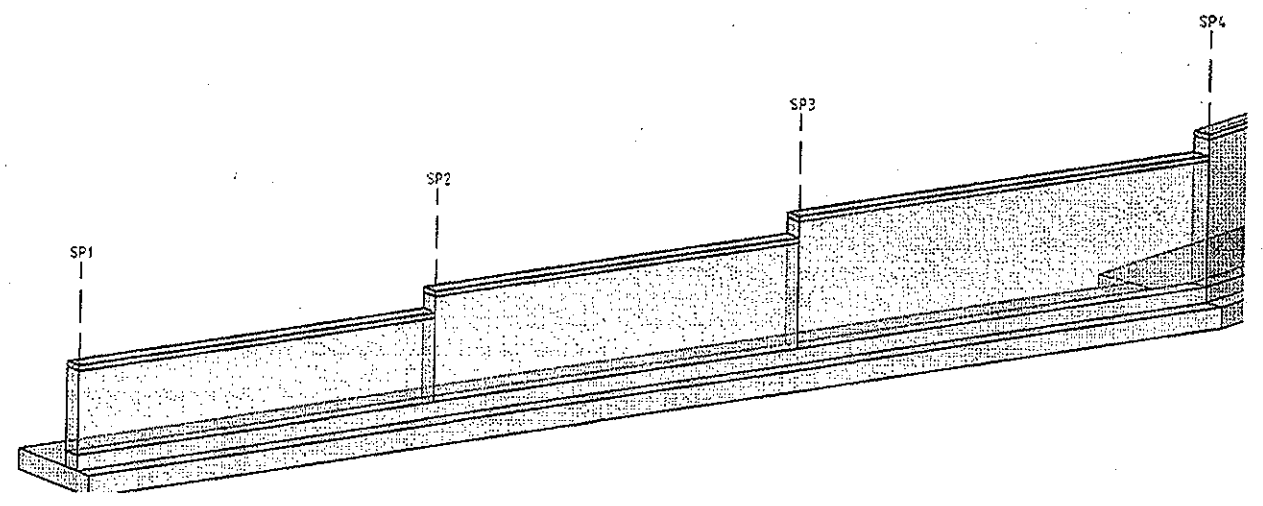
ORIGINAL SIZE A1



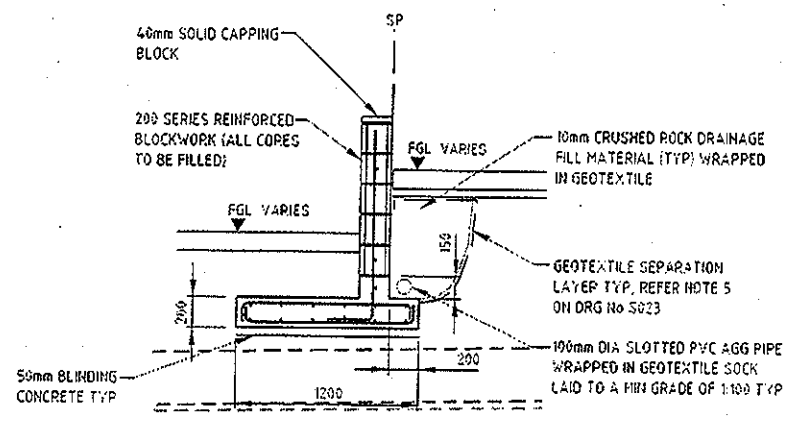
**PLAN**  
SCALE 1:100

<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>REV</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>B</td> <td>FOR REVIEW</td> <td></td> </tr> <tr> <td>A</td> <td>ISSUED FOR 90% REVIEW</td> <td></td> </tr> </tbody> </table>	REV	DESCRIPTION	DATE	B	FOR REVIEW		A	ISSUED FOR 90% REVIEW		<p>SURVEYED</p> <p>DESIGNED: Anagh Deshpande 26.10.14</p> <p>DRAWN: Steve Coyle 24.10.14</p> <p>CAD REVIEW: Alan Gilbert 28.10.14</p> <p>DESIGN CHECK: Anagh Deshpande 28.10.14</p> <p>DESIGN REVIEW: Jaya Weerasunge 28.10.14</p> <p>APPROVED: Stephen Chapman 19.12.14</p> <p>PRDF REGISTRATION:</p>			<p><b>GOOGONG WATER RECYCLING PLANT STAGE AB</b></p> <p><b>RETAINING WALLS - BIOREACTOR</b></p> <p><b>PLAN AND SETOUT DETAILS</b></p>	<p style="text-align: right;"><b>NOT FOR CONSTRUCTION</b></p> <p style="text-align: center;"><b>FOR REVIEW</b></p> <p>Status Stamp</p> <p>Date Stamp: 19.12.14</p> <p>Scale AS SHOWN</p> <p>Drawing No: 83502156-01-001-S023</p> <p style="text-align: right;">Rev: B</p>
REV	DESCRIPTION	DATE												
B	FOR REVIEW													
A	ISSUED FOR 90% REVIEW													

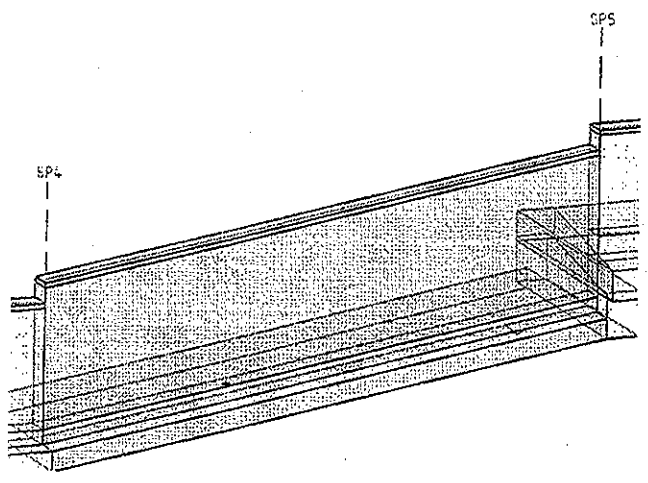
ORIGINAL SIZE A1



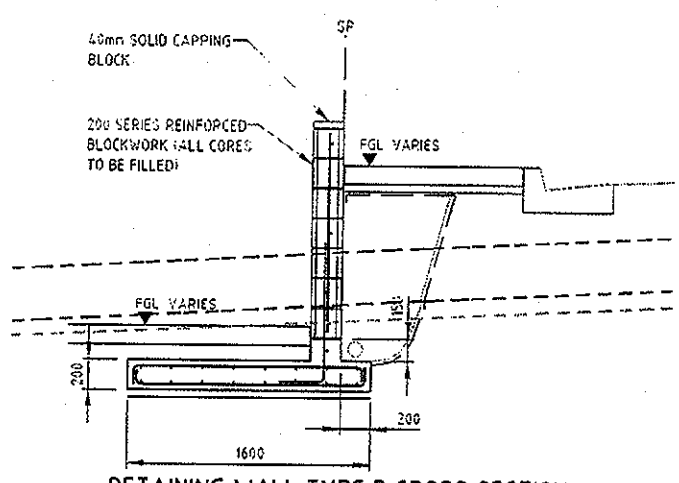
**RETAINING WALL TYPE A PERSPECTIVE**  
NOT TO SCALE  
BCJ NOT SHOWN



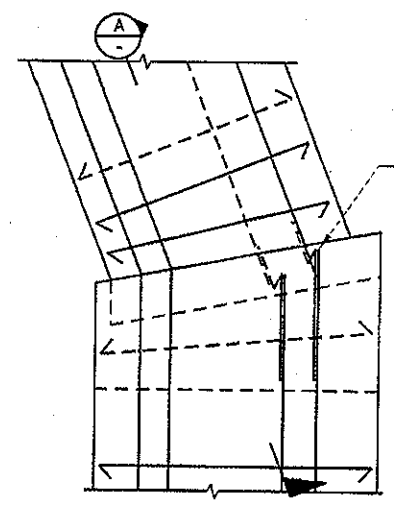
**RETAINING WALL TYPE A CROSS SECTION**  
SCALE 1:25



**RETAINING WALL TYPE B PERSPECTIVE**  
NOT TO SCALE

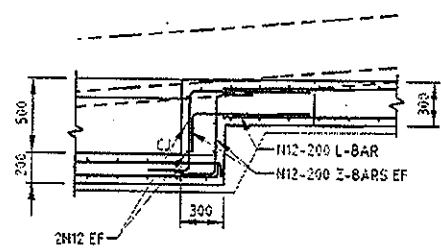


**RETAINING WALL TYPE B CROSS SECTION**  
SCALE 1:25

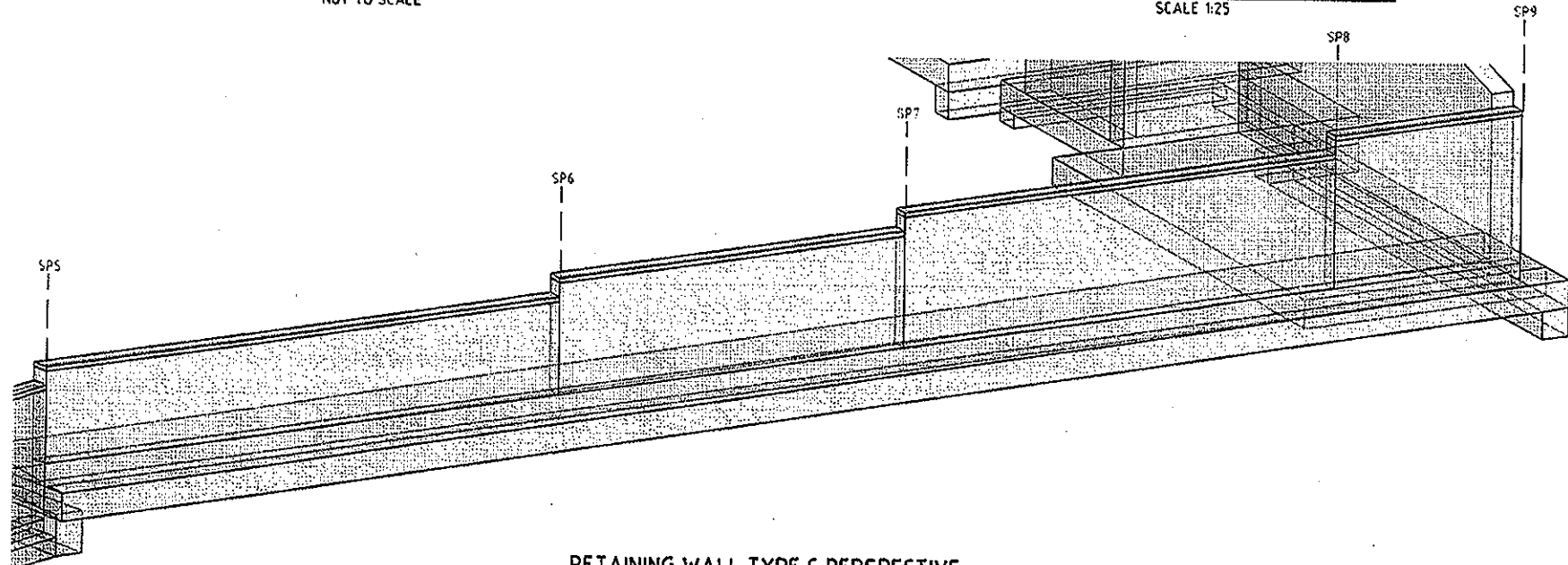


**DETAIL 1**  
SCALE 1:25  
S023

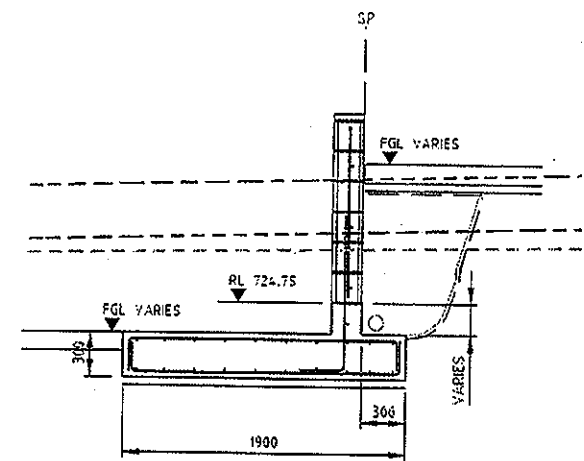
FAN OUT TOP AND BOTTOM TRANSVERSE REINFORCEMENT TO SUIT



**SECTION A**  
SCALE 1:25



**RETAINING WALL TYPE C PERSPECTIVE**  
NOT TO SCALE  
BCJ NOT SHOWN



**RETAINING WALL TYPE C CROSS SECTION**  
SCALE 1:25

**NOTES**

1. FOR NOTES REFER ORG S023

**LEGEND**

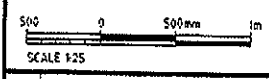
- TOPSOIL/SLOPEWASH
- RESIDUAL SOIL
- EW/HW & HW ROCK
- HW/SW & LESS WEATHERED ROCK

**REINFORCEMENT TABLE**

RETAINING WALL TYPE	BASE SLAB	WALLS		REMARKS
		VERTICAL	HORIZONTAL	
A	N12-200 EW T&B	N12-400	N12-600	BLOCK WALL
B	N12-200 EW T&B	N12-400	N12-600	BLOCK WALL
C	N16-200 EW T&B	N16-200	N16-400	BLOCK WALL

PROVIDE CONTINUITY OF BLOCK WALL HORIZONTAL REINFORCEMENT AT ALL WALL JUNCTIONS

**FOOTING TO BE CAST DIRECTLY ON BLINDING CONCRETE**



REV	DESCRIPTION	DATE	BY	CHK	APP
1	ISSUED FOR 30% REVIEW	19.12.14	SBC	JV	SC
2	ISSUED FOR 90% REVIEW	27.10.14	SBC	JV	SC

ACTIVITY	NAME	DATE
SURVEYED		
DESIGNED	Amogh Deshpande	24.10.14
DRAWN	Steve Coyle	24.10.14
CAD REVIEW	Alan Gilbert	28.10.14
DESIGN CHECK	Amogh Deshpande	28.10.14
DESIGN REVIEW	Jaya Weerasinghe	28.10.14
APPROVED	Stephen Chapman	19.12.14
PROF REGISTRATION		

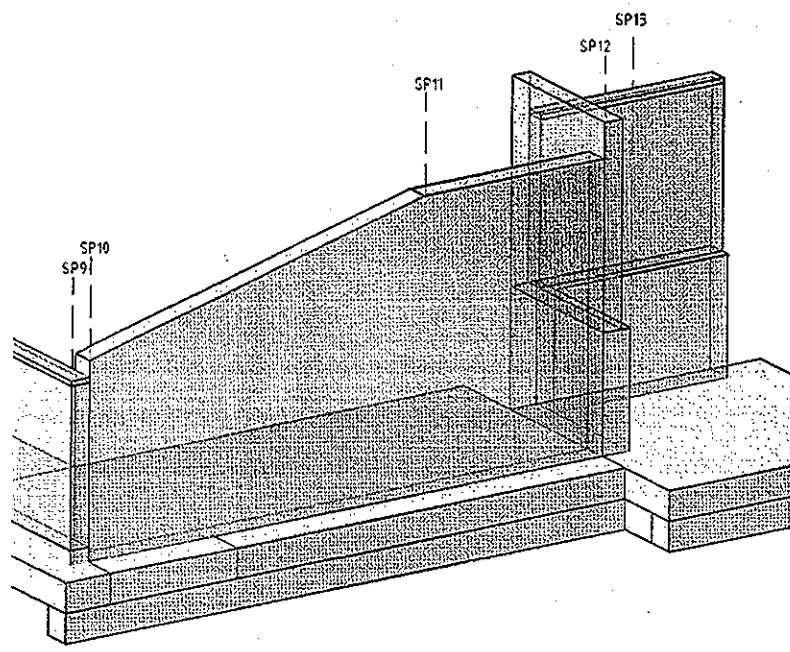


**GOOGONG WATER RECYCLING PLANT STAGE AB**  
**RETAINING WALLS - BIOREACTOR**  
**SECTIONS AND DETAILS - SHEET 1**

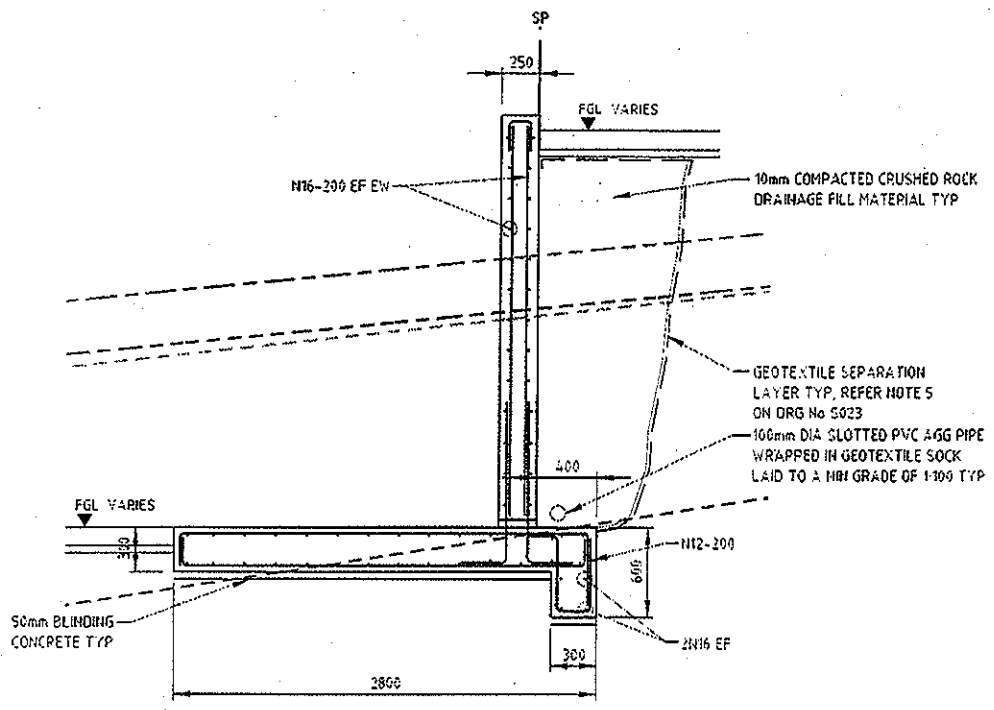
**NOT FOR CONSTRUCTION**

Status Stamp	<b>FOR REVIEW</b>
Date Stamp	<b>19.12.14</b>
Drawn By	AS SHOWN
Drawn No.	83502156-01-001-S024
Rev.	<b>B</b>

ORIGINAL SIZE A1

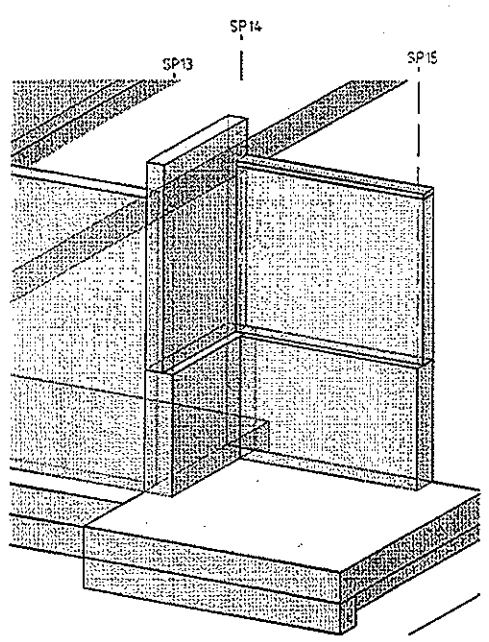


**RETAINING WALL TYPE D PERSPECTIVE**  
NOT TO SCALE

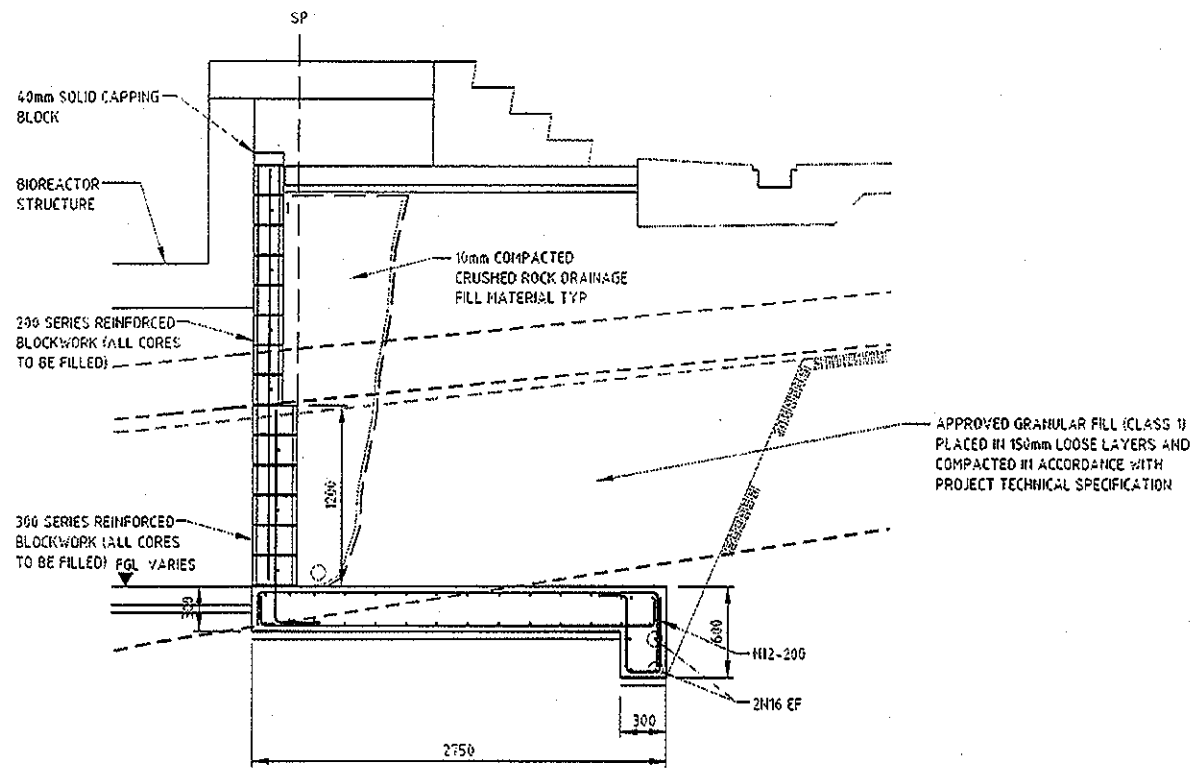


**RETAINING WALL TYPE D CROSS SECTION**  
SCALE 1:25

- NOTES**  
1. FOR NOTES REFER ORG S023.
- LEGEND**
- TOPSOIL/SLOPEWASH
  - RESIDUAL SOIL
  - EW/HW & HW ROCK
  - HW/SW & LESS WEATHERED ROCK



**RETAINING WALL TYPES E & E1 PERSPECTIVE**  
NOT TO SCALE



**RETAINING WALL TYPE E CROSS SECTION**  
SCALE 1:25  
RETAINING WALL TYPE E1 SIMILAR EXCEPT NO CAPPING BLOCK

**REINFORCEMENT TABLE**

RETAINING WALL TYPE	BASE SLAB	WALLS		REMARKS
		VERTICAL	HORIZONTAL	
D	N16-200 EW T&B	N16-200 EF	N16-200 EF	CONCRETE WALL
E/E1	N16-200 EW T&B	N16-200	N16-400	BLOCK WALL

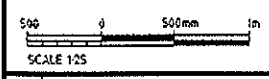
PROVIDE CONTINUITY OF BLOCK WALL HORIZONTAL REINFORCEMENT AT ALL WALL JUNCTIONS

**FOOTING TO BE CAST DIRECTLY ON BLINDING CONCRETE**

**BCA certifiers**  
ABN: 58 119 755 734

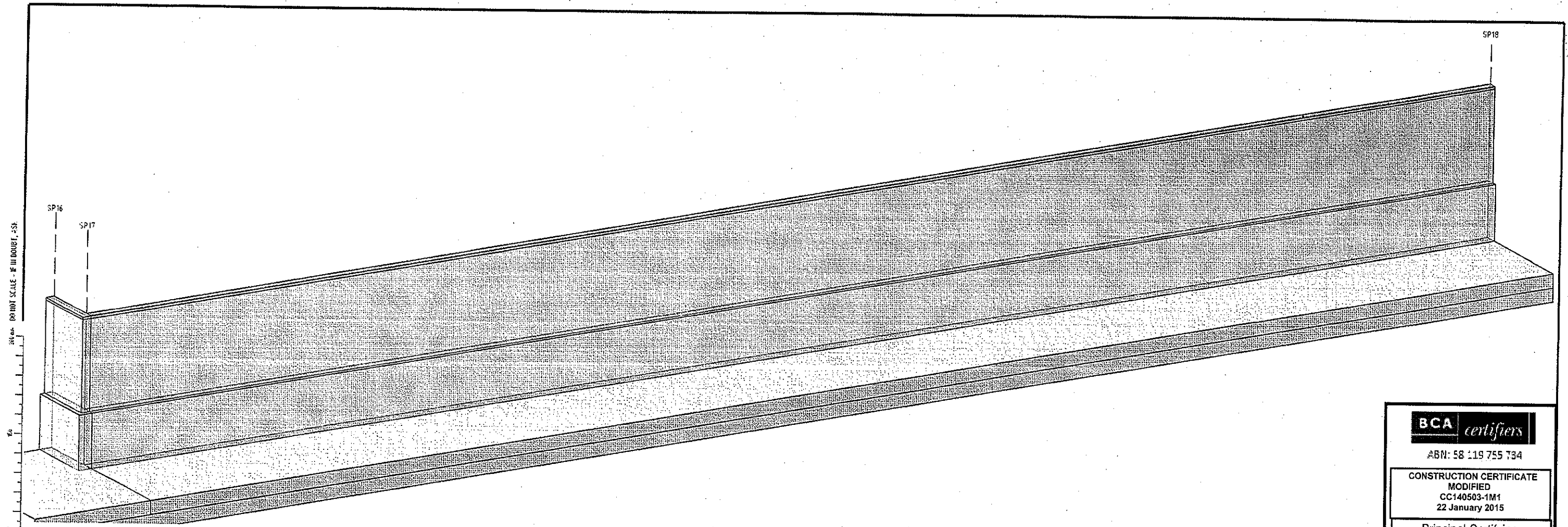
**CONSTRUCTION CERTIFICATE MODIFIED**  
CC140503-1M1  
22 January 2015

Principal Certifying Authority  
Annette Owen BPB1771



**NOT FOR CONSTRUCTION**

<p>GOOGONG WATER RECYCLING PLANT STAGE AB</p>		<p>Status Stamp</p> <p><b>FOR REVIEW</b></p>
<p>RETAINING WALLS - BIOREACTOR SECTIONS AND DETAILS - SHEET 2</p>		<p>Date Stamp</p> <p><b>19.12.14</b></p>
<p>Scale: AS SHOWN</p>		<p>Drawing No.</p> <p><b>83502156-01-001-S025</b></p>
<p>REV. B 19C FOR REVIEW</p> <p>REV. A ISSUED FOR 99% REVIEW</p>		<p>Rev.</p> <p><b>B</b></p>

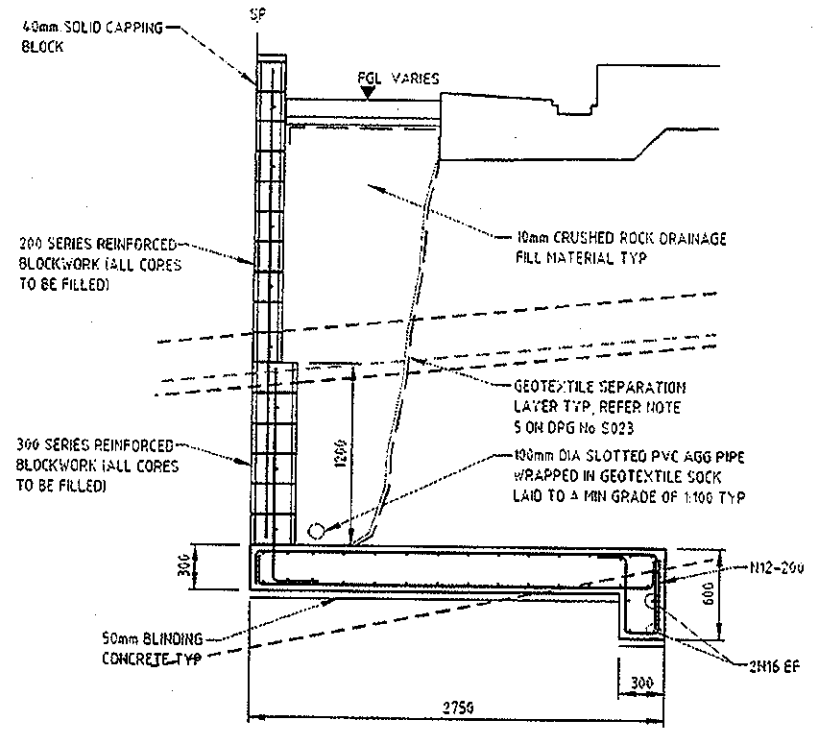


**RETAINING WALL TYPE F PERSPECTIVE**  
NOT TO SCALE  
BCJ NOT SHOWN

**BCA certifiers**  
ABN: 58 119 755 734

CONSTRUCTION CERTIFICATE  
MODIFIED  
CC140503-1M1  
22 January 2015

Principal Certifying  
Authority  
Annette Owen BPB1771



**RETAINING WALL TYPE F CROSS SECTION**  
SCALE 1:25

**REINFORCEMENT TABLE**

RETAINING WALL TYPE	BASE SLAB	WALLS		REMARKS
		VERTICAL	HORIZONTAL	
F	N16-200 EW T&B	N16-200	N16-400	BLOCK WALL

PROVIDE CONTINUITY OF BLOCKWALL HORIZONTAL REINFORCEMENT AT ALL WALL JUNCTIONS

**FOOTING TO BE CAST DIRECTLY ON BLINDING CONCRETE**

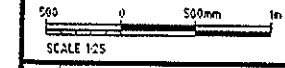
**NOTES**

1. FOR NOTES REFER DRG S023.

**LEGEND**

- TOPSOIL/SLOPEWASH
- RESIDUAL SOIL
- EW/RW & HW ROCK
- MW/SW & LESS WEATHERED ROCK

**NOT FOR CONSTRUCTION**



REV	DESCRIPTION	BY	CHK	APP	DATE
B	IFC FOR REVIEW	SBC	JW	SC	19.12.14
A	ISSUED FOR 90% REVIEW	SBC	JW	SC	17.10.14
REVISIONS					
		DRN	CHK	APP	DATE

ACTIVITY	BY	DATE
SURVEYED		
DESIGNED	Amogh Deshpande	24.10.14
DRAWN	Shane Coyle	24.10.14
CAD REVIEW	Alan Gilbert	28.10.14
DESIGN CHECK	Amogh Deshpande	28.10.14
DESIGN REVIEW	Jaya Weerasinghe	28.10.14
APPROVED	Stephen Chapman	19.12.14
PRF REGISTRATION		



**GOOGONG WATER RECYCLING PLANT STAGE A8**

**RETAINING WALLS - BIOREACTOR SECTIONS AND DETAILS - SHEET 3**

Status Stamp	<b>FOR REVIEW</b>
Date Stamp	<b>19.12.14</b>
Scale	AS SHOWN
Drawing No.	83502156-01-001-S026
Rev.	<b>B</b>