

# ERSKINE PARK

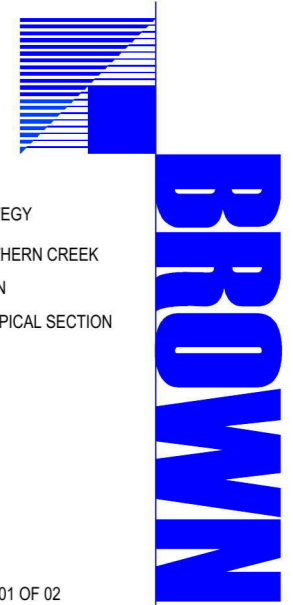
## TYRONE PLACE - PROPOSED SUBDIVISION OF LOT 22

### CIVIL & CREEK WORKS DESIGN FOR DEVELOPMENT APPLICATION

#### DRAWING LIST

##### GENERAL

DA00	COVER SHEET
DA01	LOT 22 OVERALL SITE PLAN & GRADING STRATEGY
DA02	LOT 22 PROPOSED CREEK WORKS PLAN NORTHERN CREEK
DA03	LOT 22 PROPOSED SWALE REALIGNMENT PLAN
DA04	TYRONE PLACE LONGITUDINAL SECTION & TYPICAL SECTION
DA05	EARTHWORKS SECTIONS SHEET 01 OF 05
DA06	EARTHWORKS SECTIONS SHEET 02 OF 05
DA07	EARTHWORKS SECTIONS SHEET 03 OF 05
DA08	EARTHWORKS SECTIONS SHEET 04 OF 05
DA09	EARTHWORKS SECTIONS SHEET 05 OF 05
DA10	NORTHERN CREEK TYPICAL SECTIONS
DA11	SOIL & WATER MANAGEMENT PLAN
DA12	SOIL & WATER MANAGEMENT DETAILS SHEET 01 OF 02
DA13	SOIL & WATER MANAGEMENT DETAILS SHEET 02 OF 02



LOCALITY PLAN  
N.T.S.

PENRITH COUNCIL  
LOT 22, TYRONE PLACE,  
ERSKINE PARK

ERSKINE PARK  
TYRONE PLACE - PROPOSED LOT 22  
X03033.46

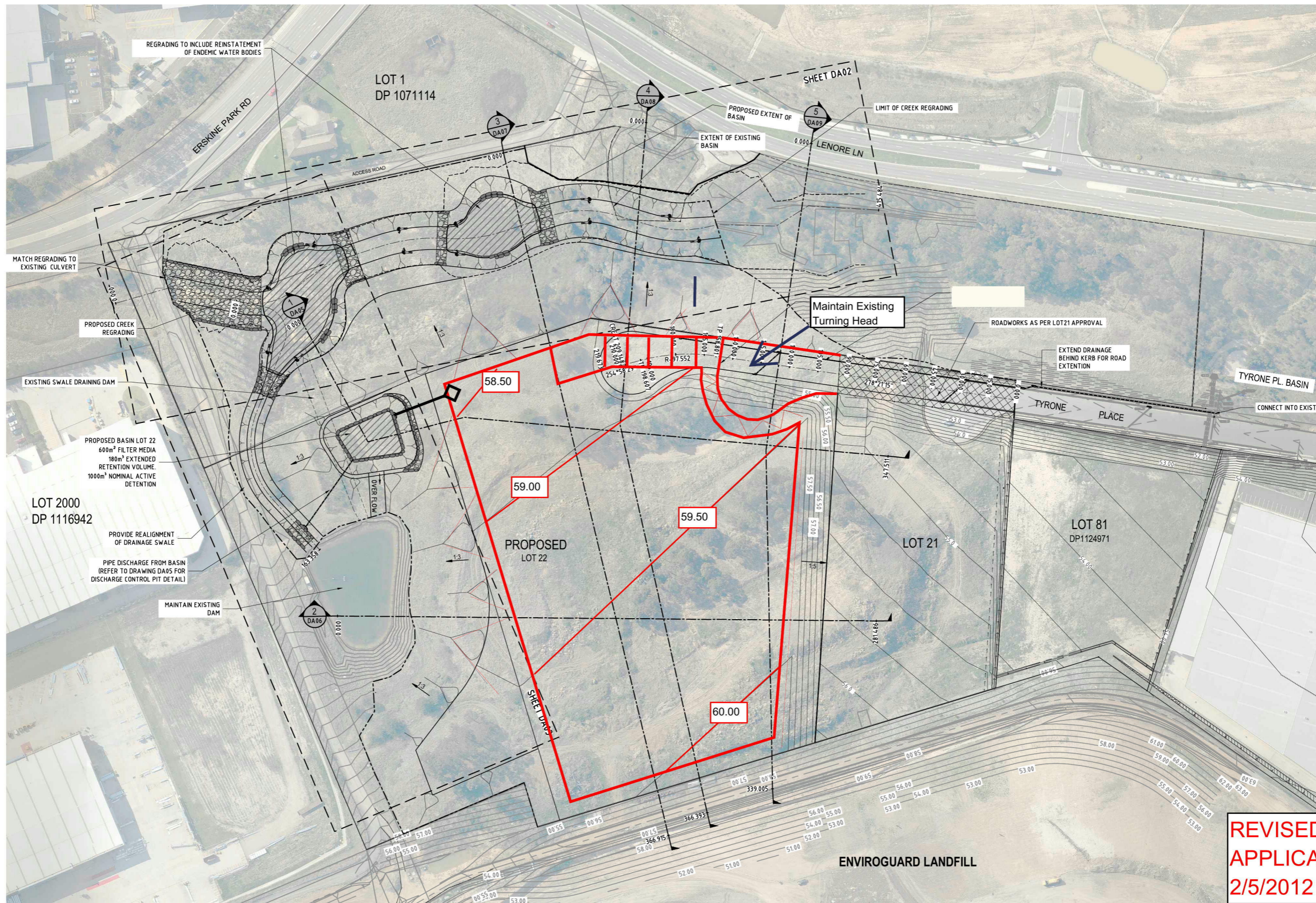
[Brown Consulting \(NSW\) Pty Ltd](#)

Level 2, 2 Burbank Place, Norwest Business Park  
Baulkham Hills NSW Australia 2153  
Telephone: 02 8808 5000 Facsimile: 02 8808 5099

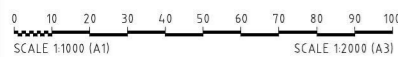
©2011



REVISED  
APPLICATION  
2/5/2012



**REVISED  
APPLICATION  
2/5/2012**



**DEVELOPMENT APPLICATION**

REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	
		REVISIONS			

Disclaimer and Copyright:  
ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE.  
© Brown Consulting Pty Ltd

Brown Consulting (NSW) Pty Ltd  
Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
Telephone: 02 8808 5000 Facsimile: 02 8808 5099

Sydney  
Canberra  
Brisbane  
Melbourne  
Singapore

Client: **CSR LIMITED**

Project: **ERSKINE PARK  
TYRONE PLACE - PROPOSED LOT 22**

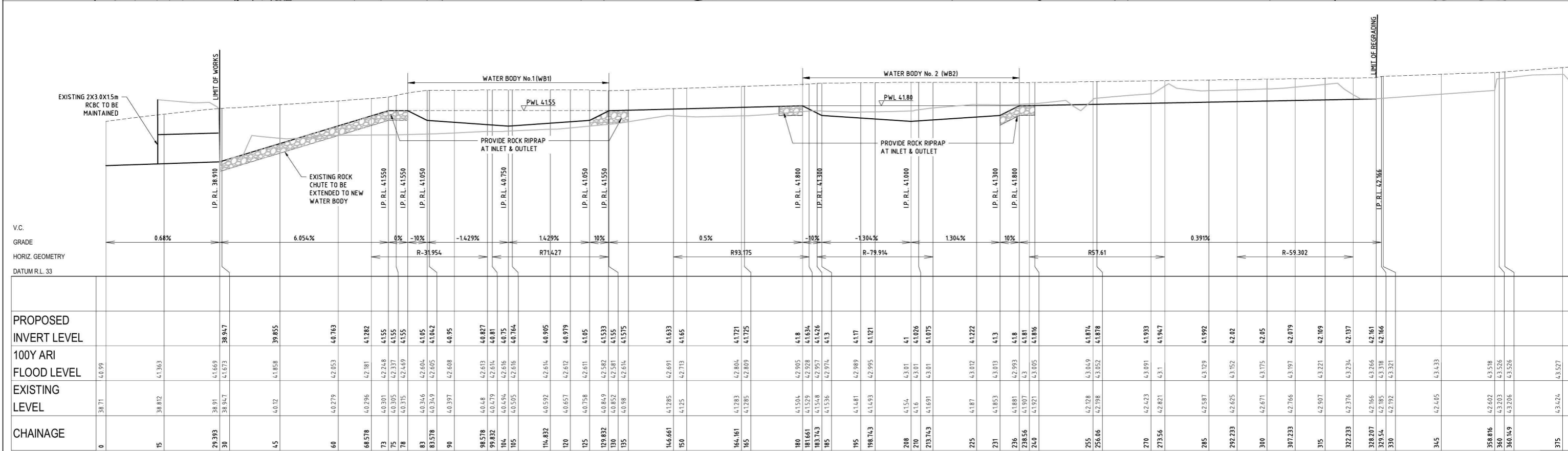
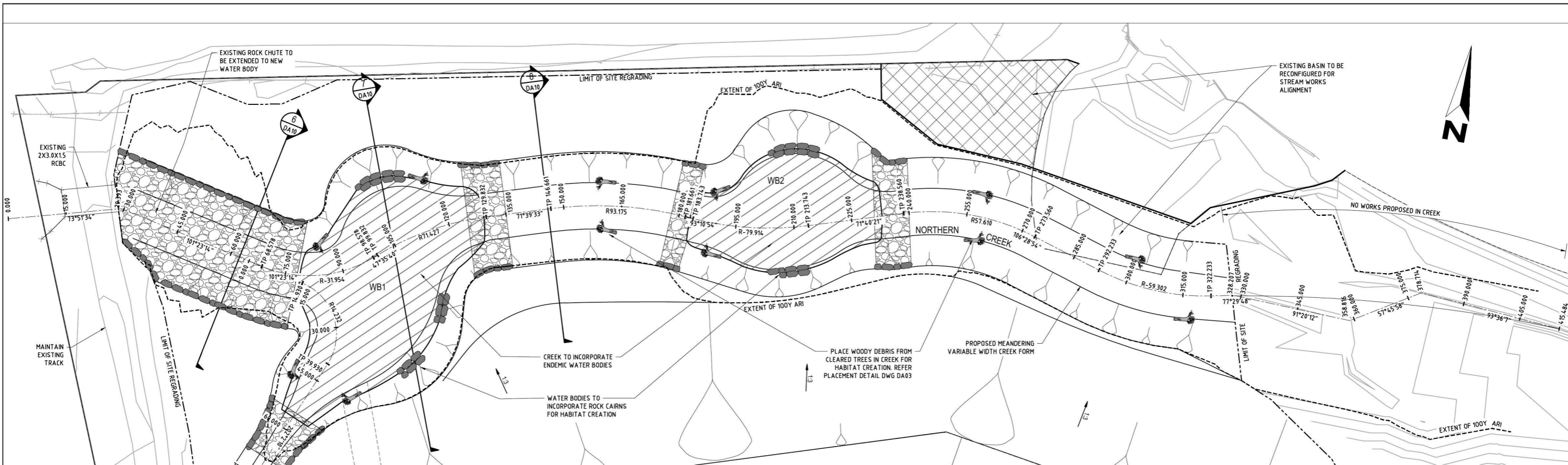
Drawing: **LOT 22 OVERALL SITE PLAN &  
GRADING STRATEGY**

Project No: **X03033.46**

Drawing No: **DA01**

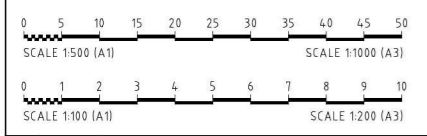
Scale(A1): **1:1000**

Revision: **03**



LONGITUDINAL SECTION CENTRELINE - NORTHERN CREEK

SCALE 1:500 (H)  
SCALE 1:100 (V)



# DEVELOPMENT APPLICATION

REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	

Disclaimer and Copyright:  
ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE.  
© Brown Consulting Pty Ltd

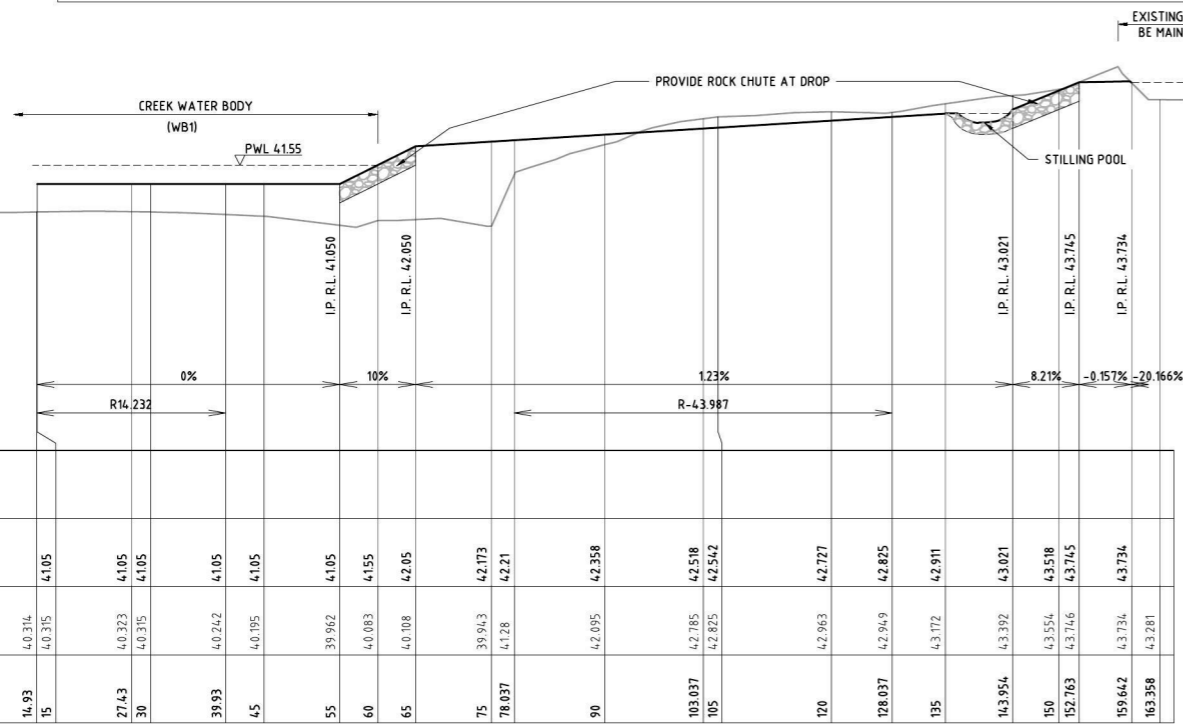
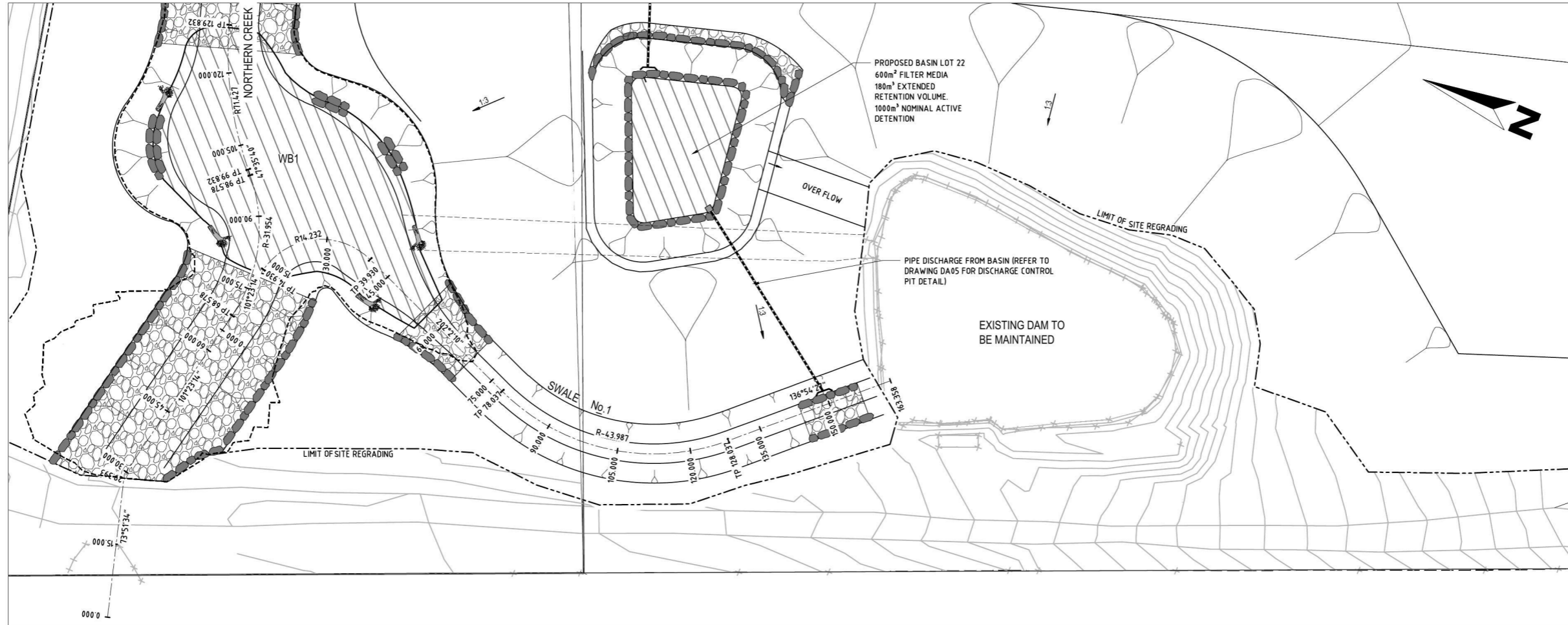
Brown Consulting (NSW) Pty Ltd  
Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
Telephone: 02 8808 5000 Facsimile: 02 8808 5099

Client:  
**CSR LIMITED**

Project:  
ERSKINE PARK  
TYRON PLACE - PROPOSED LOT 22

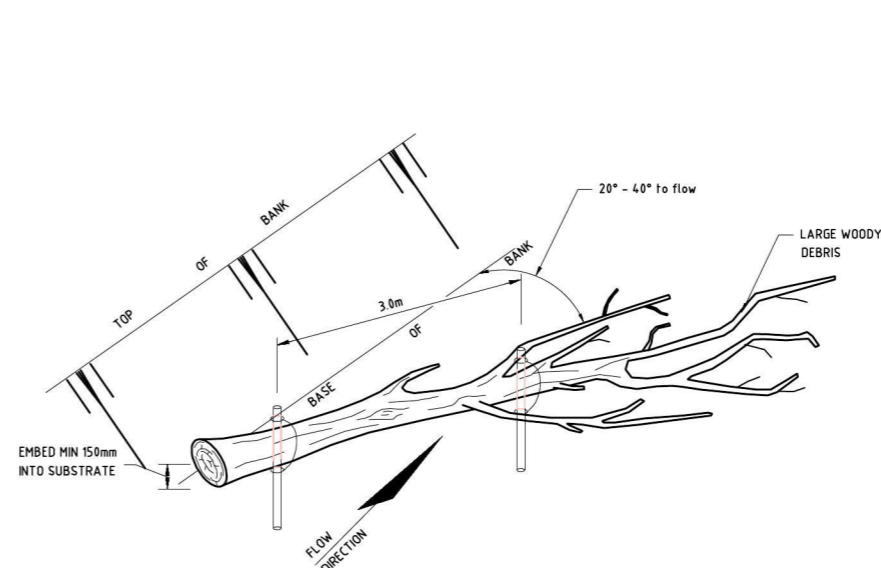
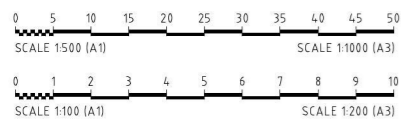
Drawing:  
**LOT 22 PROPOSED CREEK WORKS PLAN  
NORTHERN CREEK**

Drawn by: RB	Scale(A1): 1:500(H)
Design by: PB	1:100(V)
Project No: X03033.46	Revision: 03
Drawing No: DA02	



LONGITUDINAL SECTION CENTRELINE - SWALE No.1

SCALE 1:500 (H)  
SCALE 1:100 (V)



NOTE: - WHERE REQUIRED WITHIN THE EXISTING CREEKLINE IN THE EASTERN CONSERVATION ZONE - EXISTING FLOWS ARE TO BE DEFLECTED, TRAINED AND DIRECTED INTO THE PROPOSED DETENTION BASIN WITH THE USE OF BIO-ENGINEERED PLACEMENT OF LARGE WOODY DEBRIS

LARGE WOODY DEBRIS PLACEMENT/ ANCHORING DETAIL  
N.T.S.

**LARGE WOODY DEBRIS (LWD) GENERAL NOTES:**

1. THE WOODY DEBRIS IS TO BE LEFT AS COMPLETE AS POSSIBLE WITH ROOTBALLS ATTACHED AND INTACT (SOME LIMBS WILL REQUIRE TRIMMING TO ALLOW FOR TRANSPORT). BRANCHES AND ROOT WADS INCREASE THE RANGE OF HABITAT AVAILABLE - COMPLEX GEOMETRY IS MORE EFFECTIVE THAN SIMPLE CYLINDRICAL LOGS IN REDUCING SEDIMENT DISCHARGE. AVOID THE USE OF INTRODUCED SPECIES SUCH AS WILLOW AND POPLARS AS THEY DECAY RAPIDLY AND ARE INAPPROPRIATE FOR BIOFILM AND INVERTEBRATE COLONISATION - RIVER RED GUMS WITH TRUNK DIAMETERS OF 0.3m OR GREATER HAVE A LOW DECAY COEFFICIENT AND ARE PREFERRED.
  2. FOR HYDRAULIC EFFICIENCY THE DEBRIS SHOULD BE ORIENTED AT APPROX. 20-40 DEG. TO THE FLOW DIRECTION.
  3. THE ROOT WAD SHOULD FACE UPSTREAM AND THE TRUNK DOWNSTREAM.
  4. THERE IS A GENERALLY ACCEPTED RULE THAT IF INTRODUCED LWD OCCUPIES LESS THAN 10% OF THE CROSS-SECTIONAL AREA OF THE BANKFUL CHANNEL, IT WILL NOT SIGNIFICANTLY INCREASE FLOOD LEVELS (GIPPEL ET AL. 1998).
  5. LOGS ARE TO BE CABLED WITH TWO OR THREE INDIVIDUAL LOOPS AND THEN SECURED TO THE STREAMBED USING PLATYPUS EARTH ANCHORS (OR SIMILAR APPROVED) - SECURED IN ACCORDANCE WITH MANUFACTURERS STANDARD SPECIFICATION. THE CABLE USED SHOULD BE 6mm DIAMETER 19 STRAND GALVANISED CABLE FASTENED WITH 2 U-BOLTS.
- ALTERNATIVELY
- SELECT TWO 5M LONG STRAIGHT LOGS AND PILE DRIVE THEM INTO THE STREAM BED (USING THE BUCKET OF AN EXCAVATOR) AT A 3m SPACING ALONG THE LINE OF EACH TRUNK AND TO A DEPTH OF 4m BELOW THE NOMINATED TOP WATER LEVEL. ATTACH A SUITABLE LENGTH OF CABLE TO THE EXPOSED BASE OF EACH PILE AND LAY IT OUT ON THE GROUND SO THAT IT EXTENDS UPSTREAM POSITION THE LOG ON THE UPSTREAM SIDE OF THE PILE AND ON TOP OF THE CABLE BRING EACH CABLE BACK OVER THE LOG WITH TENSION APPLIED USING A TRACTOR AND TIE IT TO THE PILE USING CABLE CLAMPS.
6. TO PREVENT FAILURE BY UNDERCUTTING EMBED THE BASE LOG AT LEAST 0.15m INTO THE SUBSTRATE. RIP-RAP CAN BE PLACED OVER LOG ENDS TO REDUCE THE CHANCE OF UNDERCUTTING AND THE MIN. LOG SIZE IS 0.3m(DIA.) X 5.5m LONG OR 0.6m(DIA.) X 3m LONG (MAX. 1.6m<sup>2</sup>)

**DEVELOPMENT APPLICATION**

REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	

Disclaimer and Copyright:  
ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE.  
© Brown Consulting Pty Ltd

Brown Consulting (NSW) Pty Ltd  
Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
Telephone: 02 8808 5000 Facsimile: 02 8808 5099

**BROWN**

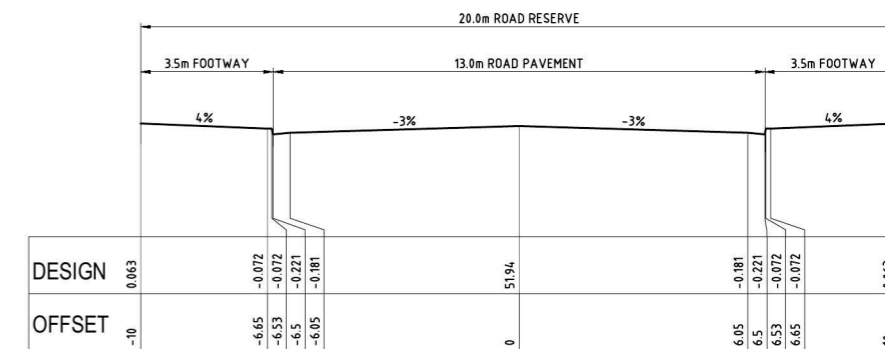
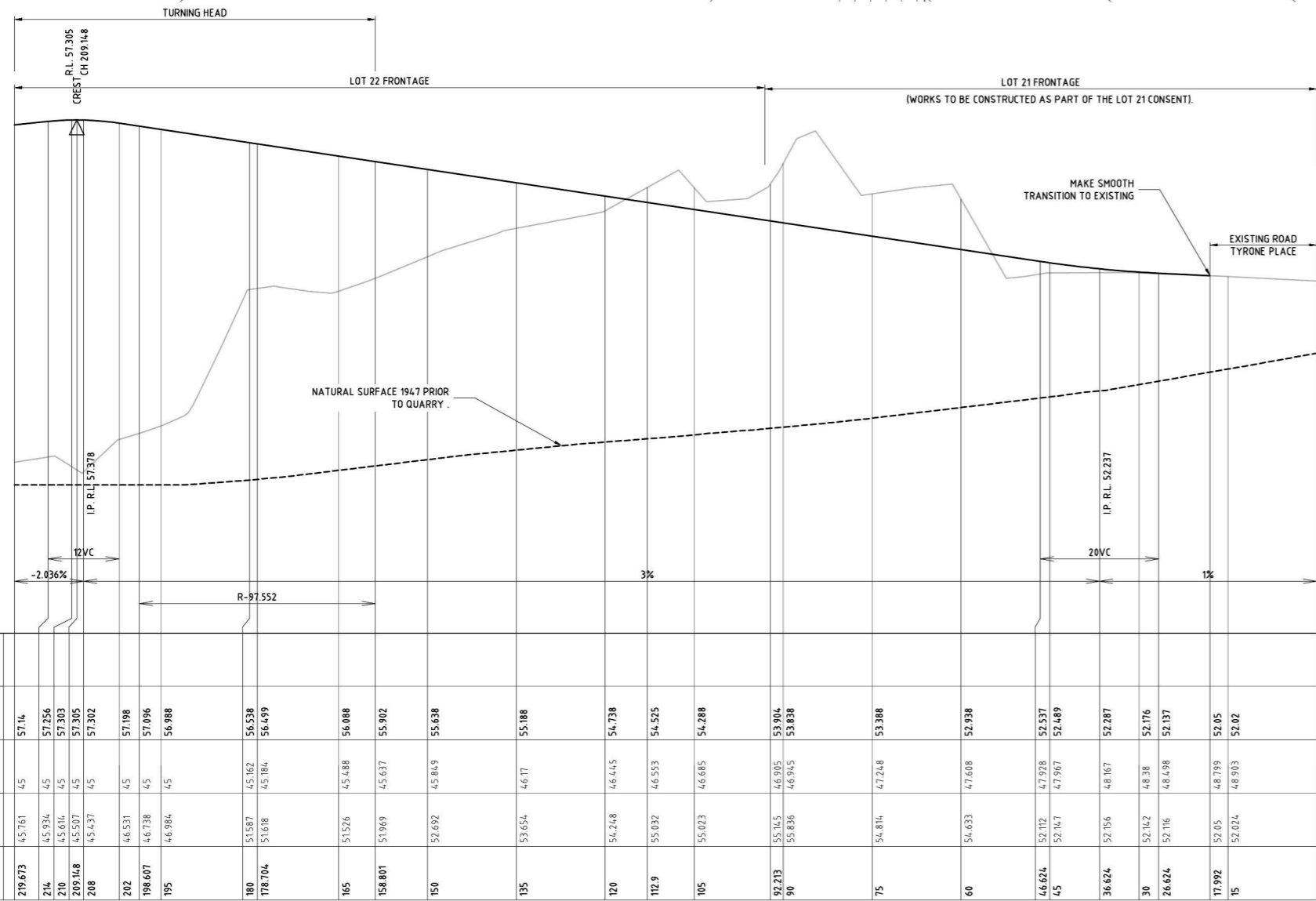
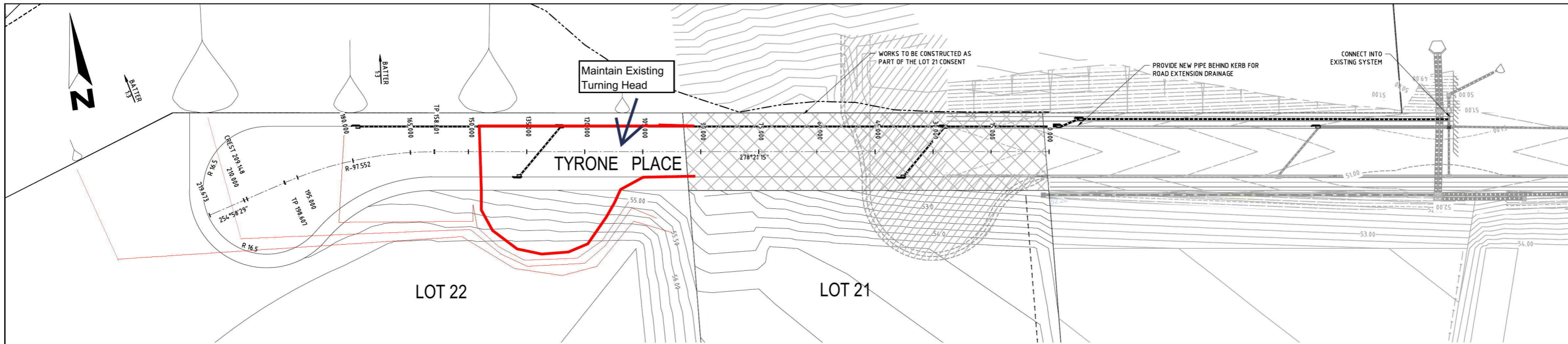
Sydney  
Canberra  
Brisbane  
Melbourne  
Singapore

Client: **CSR LIMITED**

Project: **ERSKINE PARK TYRON PLACE - PROPOSED LOT 22**

Drawing: **LOT 22 PROPOSED SWALE REALIGNMENT PLAN**

Drawn by: RB  
Design by: PB  
Project No: X03033.46  
Drawing No: DA03  
Scale(A1): 1:500(H)  
Scale(A3): 1:100(V)  
Revision: 03



TYPICAL SECTION - ROAD  
SCALE: 1:100 (NATURAL)

**PAVEMENT DESIGN**  
 70mm AC14 (2 LAYERS OF 35mm) ON  
 7mm SINGLE COAT SEAL ON  
 150mm BASE COURSE DGB20 ON  
 190mm SUBBASE COURSE  
 SUBGRADE TO CONFORM TO PCC 3071  
 SUBBASE TO CONFORM TO PCC 3051  
 PAVEMENT PROVIDED BY PENRITH CITY COUNCIL

**REVISED APPLICATION**  
**2/5/2012**

**DEVELOPMENT APPLICATION**

REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	

Disclaimer and Copyright:  
 ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE.  
 © Brown Consulting Pty Ltd

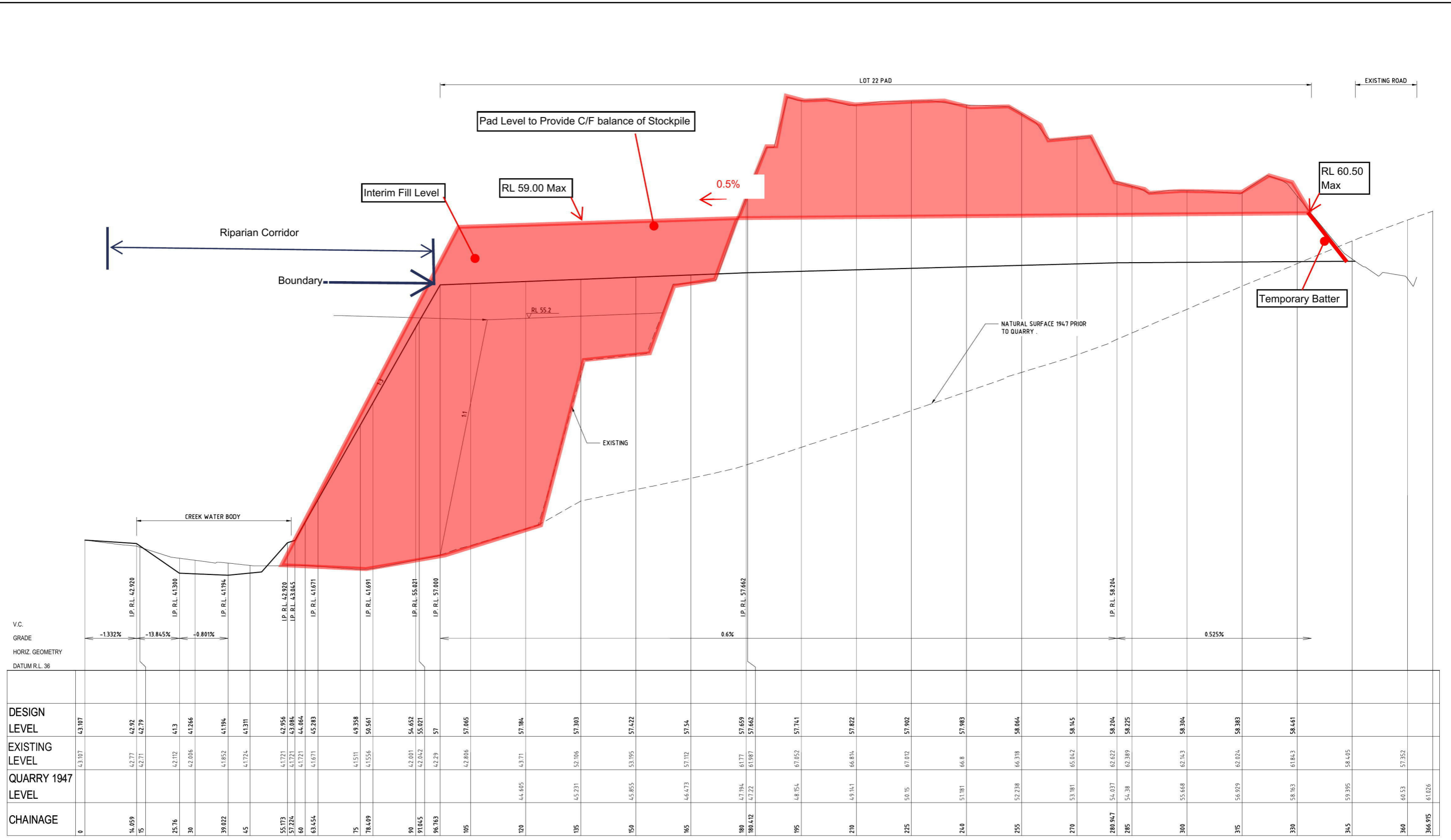
Brown Consulting (NSW) Pty Ltd  
 Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
 Telephone: 02 8808 5000 Facsimile: 02 8808 5099

**BROWN**

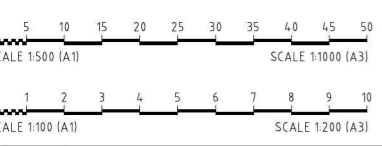
Sydney  
 Canberra  
 Brisbane  
 Melbourne  
 Singapore

Client: **CSR LIMITED**  
 Project: **ERSKINE PARK TYRONE PLACE - PROPOSED LOT 22**

Drawing: **TYRONE PLACE LONGITUDINAL SECTION & TYPICAL SECTION**  
 Drawing No: **X03033.46**  
 Revision: **03**



CHAINAGE	DESIGN LEVEL	EXISTING LEVEL	QUARRY 1947 LEVEL
0	43.107	43.107	
14.059	42.92	42.77	
15	42.79	42.71	
25.76	41.3	42.112	
30	41.266	42.006	
39.022	41.194	41.852	
45	41.311	41.724	
55.173	42.956	41.721	
57.224	43.084	41.721	
60	44.064	41.721	
63.454	45.283	41.671	
75	49.358	41.511	
78.409	50.561	41.556	
90	54.652	42.001	
91.045	55.021	42.042	
96.763	57	42.29	
105	57.065	42.806	
120	57.184	44.605	
135	57.303	45.231	
150	57.422	45.855	
165	57.54	46.473	
180	57.659	47.194	
180.412	57.662	47.22	
195	57.741	48.154	
210	57.872	49.141	
225	57.902	50.15	
240	57.983	51.181	
255	58.064	52.238	
270	58.145	53.181	
280.947	58.204	54.037	
285	58.225	54.38	
300	58.304	55.668	
315	58.383	56.929	
330	58.461	58.103	
345	58.405	59.395	
360	57.352	60.53	
366.915	61.026	61.026	



SECTION 3  
 SCALE: 1:500 (H)  
 SCALE: 1:100 (V)

**REVISED APPLICATION**  
**2/5/2012**

**DEVELOPMENT APPLICATION**

REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	

Disclaimer and Copyright:  
 ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE.  
 © Brown Consulting Pty Ltd

Brown Consulting (NSW) Pty Ltd  
 Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
 Telephone: 02 8808 5000 Facsimile: 02 8808 5099

**BROWN**

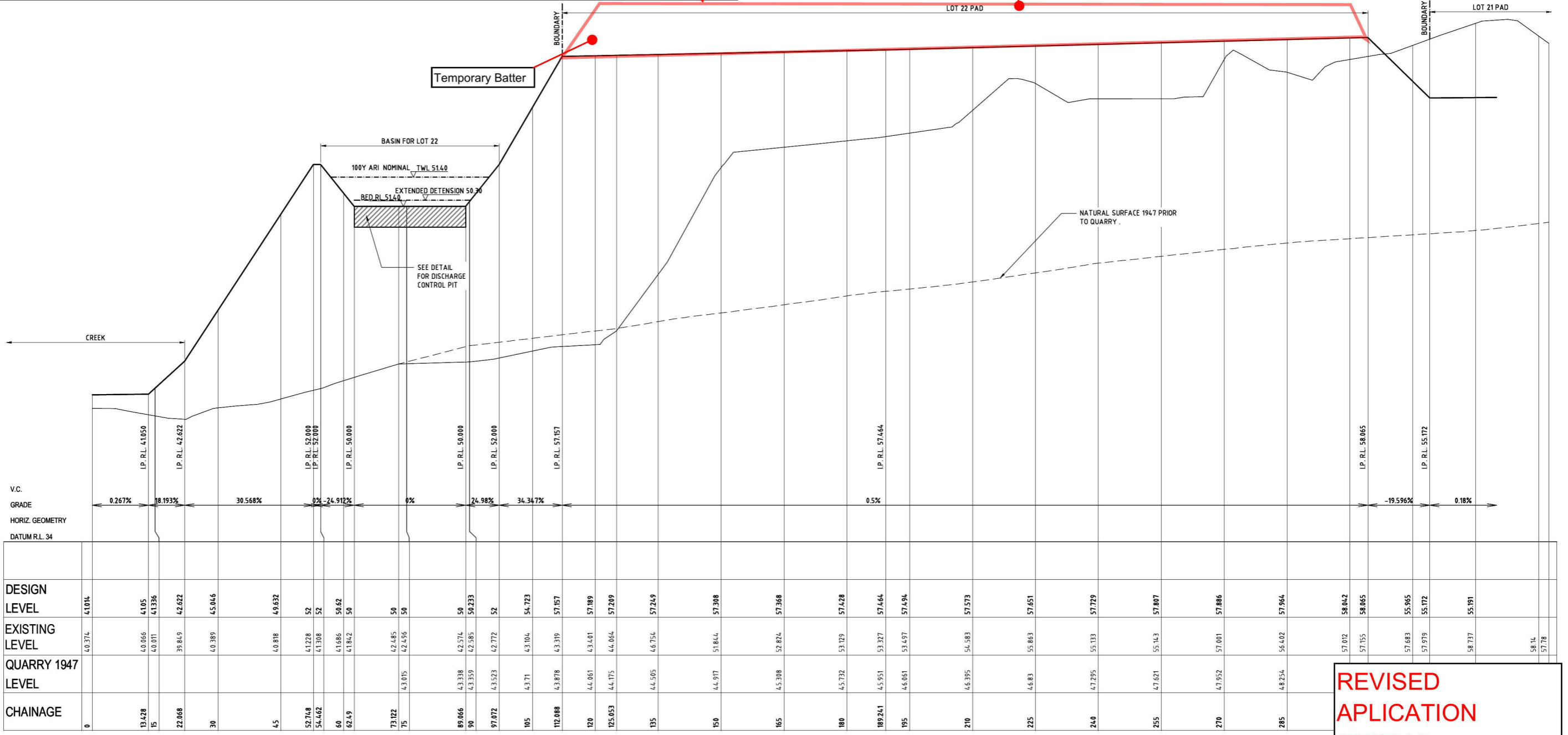
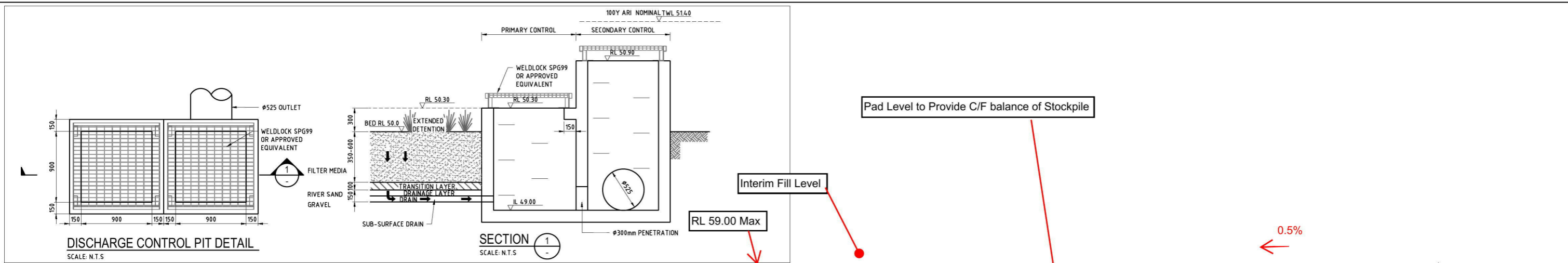
Sydney  
 Canberra  
 Brisbane  
 Melbourne  
 Singapore

Client: **CSR LIMITED**

Project: **ERSKINE PARK TYRON PLACE - PROPOSED LOT 22**

Drawing: **EARTHWORKS SECTIONS SHEET 03 OF 05**

Drawn by: RB  
 Design by: PB  
 Project No: X03033.46  
 Drawing No: DA07  
 Scale(A1): 1:500(H)  
 Scale(A3): 1:100(V)  
 Revision: 03



**REVISED APPLICATION**  
2/5/2012

SECTION 1  
SCALE: 1:500 (H)  
SCALE: 1:100 (V)

**DEVELOPMENT APPLICATION**

REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	

Disclaimer and Copyright:  
ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE.  
© Brown Consulting Pty Ltd

Brown Consulting (NSW) Pty Ltd  
Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
Telephone: 02 8808 5000 Facsimile: 02 8808 5099

**BROWN**

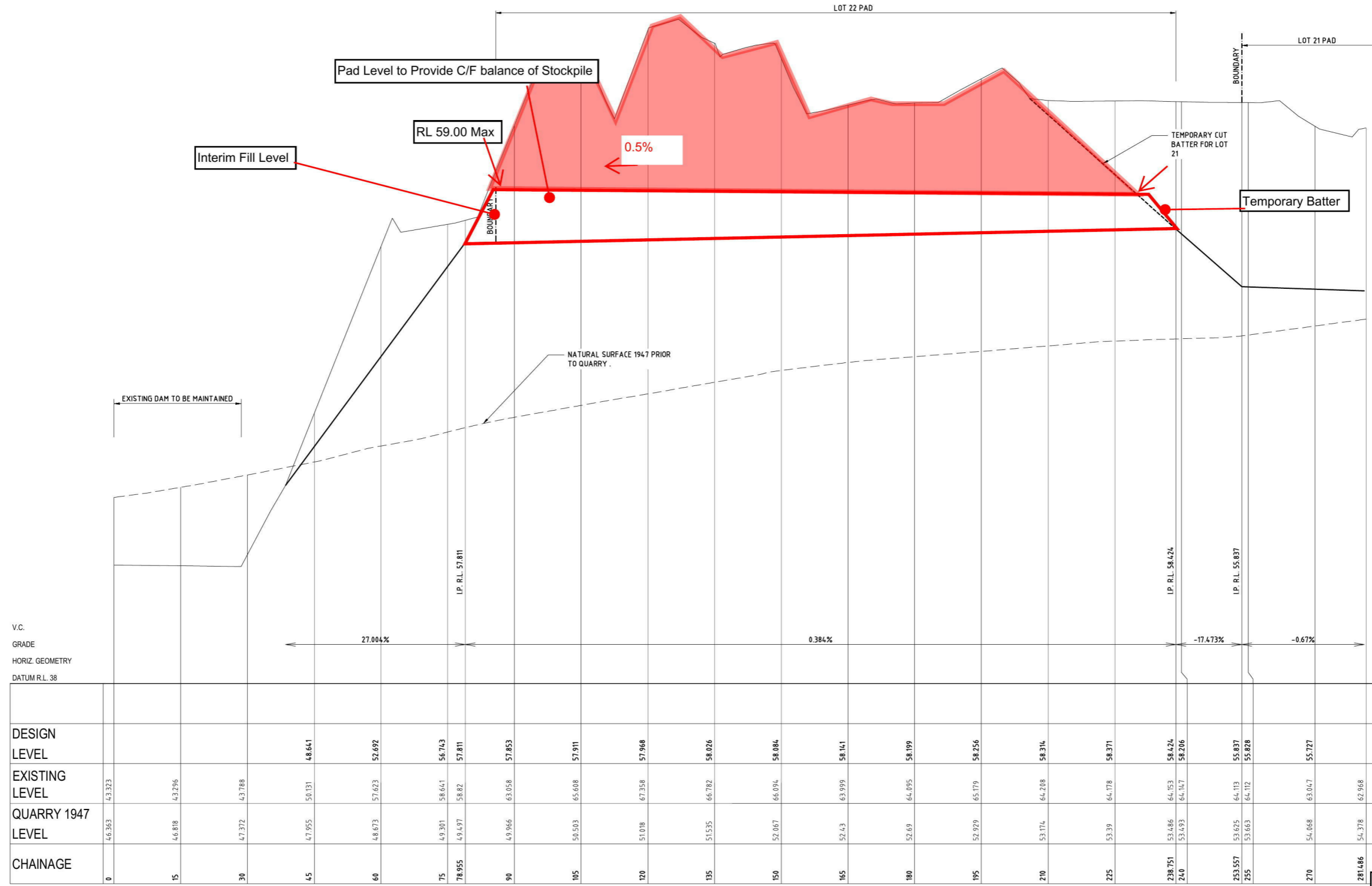
Sydney  
Canberra  
Brisbane  
Melbourne  
Singapore

Client: **CSR LIMITED**  
Project: **ERSKINE PARK TYRON PLACE - PROPOSED LOT 22**

Drawing: **EARTHWORKS SECTIONS SHEET 01 OF 05**

Drawn by: RB  
Design by: PB  
Project No: X03033.46  
Drawing No: DA05  
Revision: 03

Scale(A1): 1:500(H)  
1:100(V)

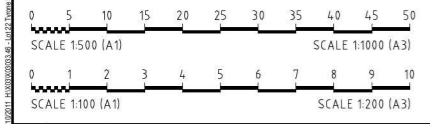


CHAINAGE	0	15	30	45	60	75	78.955	90	105	120	135	150	165	180	195	210	225	238.751	240	253.557	255	270	281.686	
DESIGN LEVEL				48.641	52.692	56.743	57.811	57.853	57.911	57.968	58.026	58.084	58.141	58.199	58.256	58.314	58.371	58.424	58.206	55.837	55.828	55.727		
EXISTING LEVEL	43.323	43.276	43.788	50.131	57.623	58.641	58.82	65.058	65.608	67.358	66.782	66.094	63.999	64.095	65.179	64.208	64.178	64.153	64.147	64.113	64.112	63.047	62.968	
QUARRY 1947 LEVEL	46.363	46.818	47.372	47.955	48.673	49.381	49.497	49.966	50.503	51.018	51.535	52.067	52.43	52.69	52.979	53.174	53.39	53.486	53.493	53.625	53.663	54.068	54.378	

SECTION 2 (2) DA01  
 SCALE: 1:500 (H)  
 SCALE: 1:100 (V)

**REVISED APPLICATION**  
**2/5/2012**

**DEVELOPMENT APPLICATION**



REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	

Disclaimer and Copyright:  
 ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE.  
 © Brown Consulting Pty Ltd

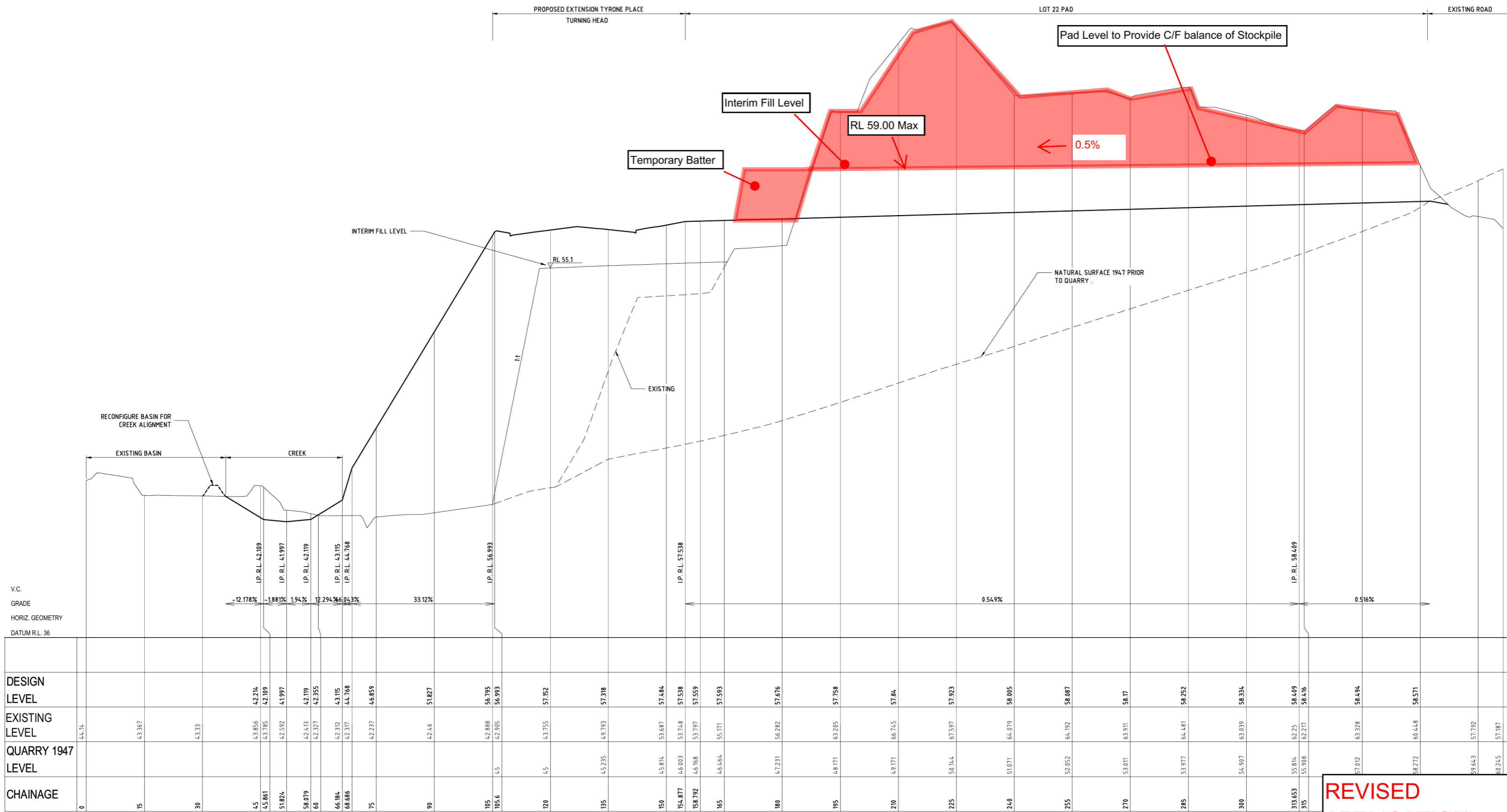
Brown Consulting (NSW) Pty Ltd  
 Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
 Telephone: 02 8808 5000 Facsimile: 02 8808 5099

Sydney  
 Canberra  
 Brisbane  
 Melbourne  
 Singapore

Client: **CSR LIMITED**  
 Project: **ERSKINE PARK TYRON PLACE - PROPOSED LOT 22**

Drawing: **EARTHWORKS SECTIONS SHEET 02 OF 05**

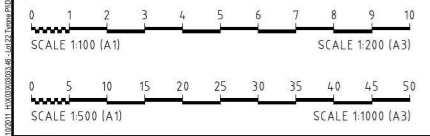
Drawn by: RB  
 Design by: PB  
 Project No: X03033.46  
 Drawing No: DA06  
 Scale(A1): 1:500(H)  
 1:100(V)  
 Revision: 03



SECTION 4  
 SCALE: 1:500 (H)  
 SCALE: 1:100 (V)

**REVISED APPLICATION**  
**2/5/2012**

**DEVELOPMENT APPLICATION**



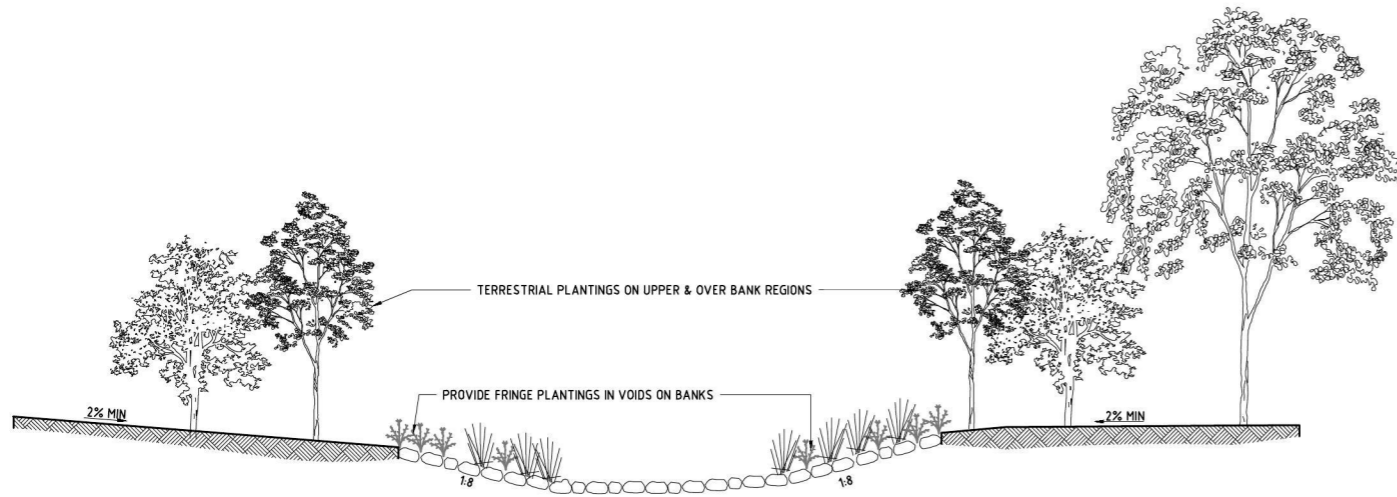
REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	

Disclaimer and Copyright:  
 ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE.  
 © Brown Consulting Pty Ltd

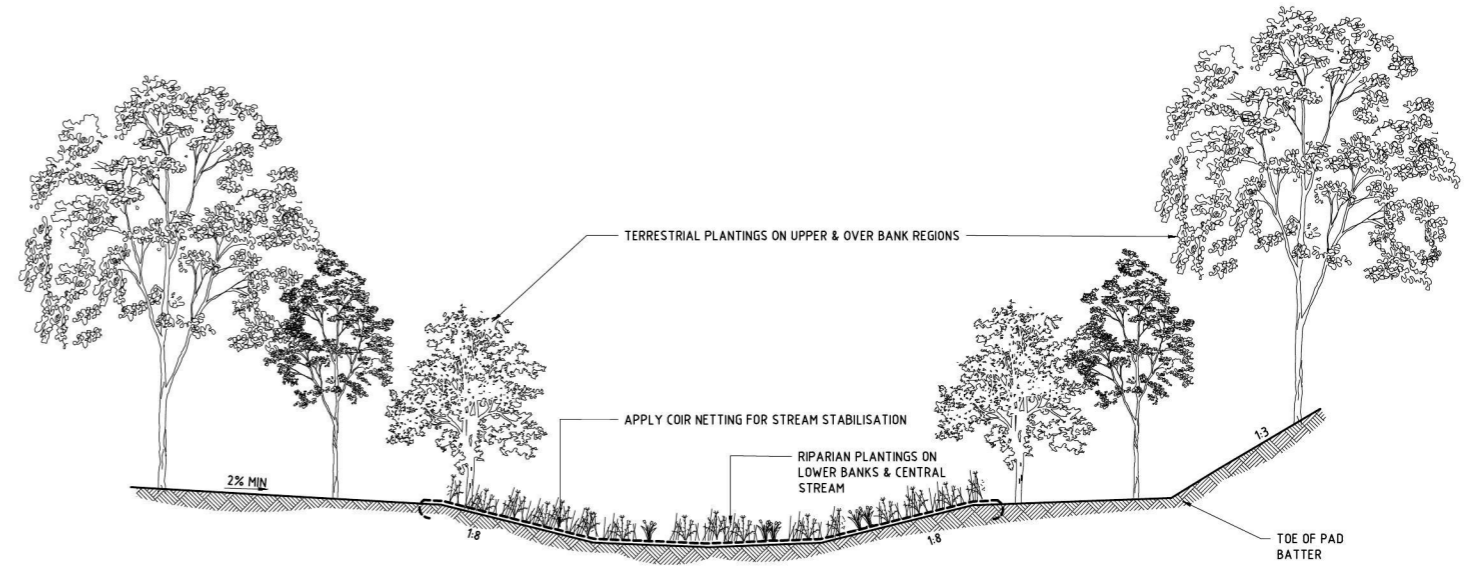
Brown Consulting (NSW) Pty Ltd  
 Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
 Telephone: 02 8808 5000 Facsimile: 02 8808 5099

Client: **CSR LIMITED**  
 Project: **ERSKINE PARK TYRONE PLACE - PROPOSED LOT 22**

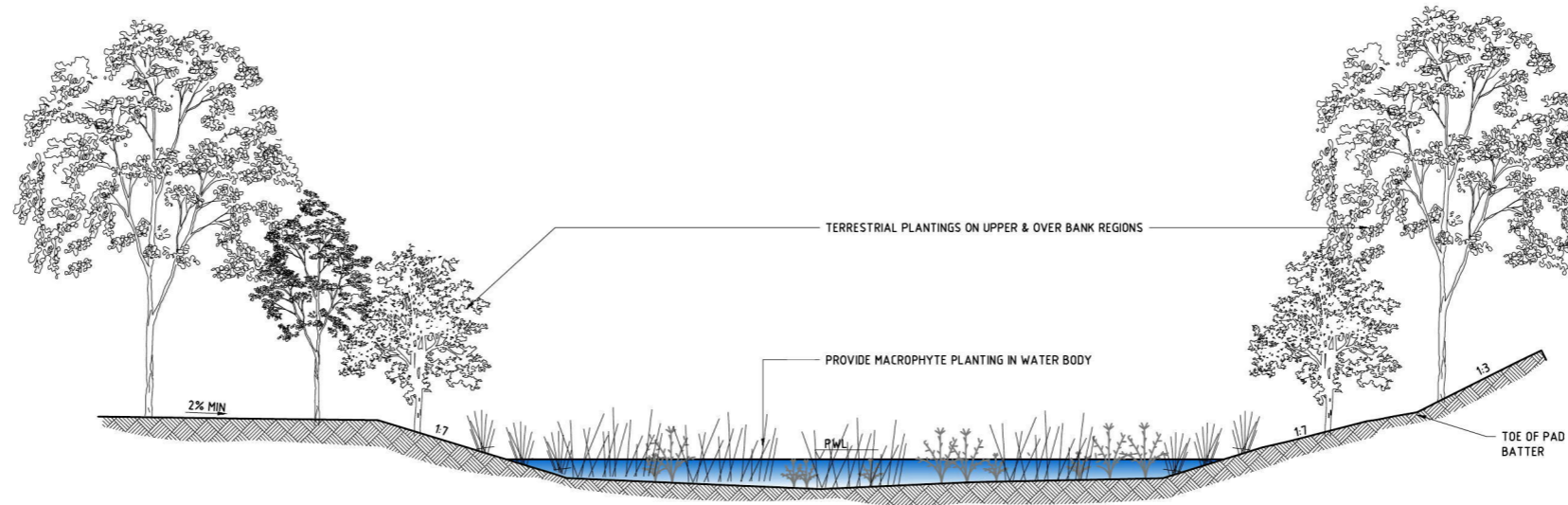
Drawing: **EARTHWORKS SECTIONS SHEET 04 OF 05**  
 Project No: **X03033.46**  
 Drawing No: **DA08**  
 Scale(A1): **1:500(H)**  
 Scale(A1): **1:100(V)**  
 Revision: **03**



**ROCK HYDRAULIC DROP TREATMENT** (6)  
 SCALE: N.T.S.  
 CH 29.393-77.997  
 CH 129.832-135.00  
 CH 135.00-163.358 (SWALE No.1)  
 CH 54.842-75.00 (SWALE No.1)



**CREEK VEGETATED TREATMENT** (8)  
 SCALE: N.T.S.  
 CH 135.00-180.00  
 CH 236.00-328.207



**WATER BODY TYPICAL SECTION** (7)  
 SCALE: N.T.S.  
 CH 77.997-129.832  
 CH 180.00-236.00

**DEVELOPMENT APPLICATION**

REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	

Disclaimer and Copyright:  
 ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE.  
 © Brown Consulting Pty Ltd



Brown Consulting (NSW) Pty Ltd  
 Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
 Telephone: 02 8808 5000 Facsimile: 02 8808 5099

**BROWN**

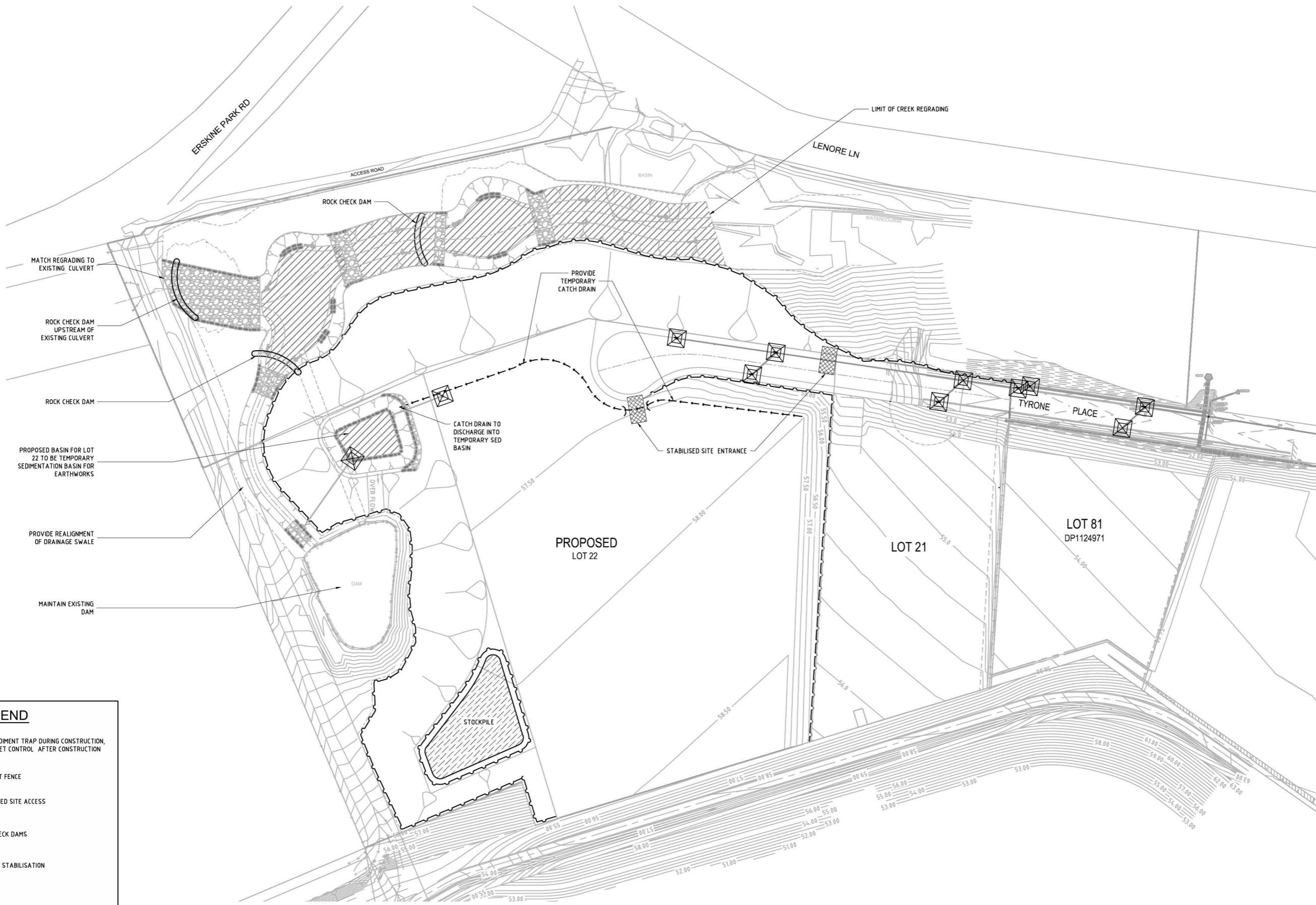
Sydney  
 Canberra  
 Brisbane  
 Melbourne  
 Singapore

Client:  
**CSR LIMITED**

Project:  
**ERSKINE PARK  
 TYRON PLACE - PROPOSED LOT 22**

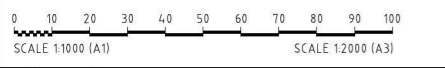
Drawing:  
**NORTHERN CREEK TYPICAL SECTIONS**

Drawn by: RB	Scale(A1): N.T.S
Design by: PB	
Project No: X03033.46	
Drawing No: DA10	Revision: 03



**LEGEND**

- INLET SEDIMENT TRAP DURING CONSTRUCTION, KERB INLET CONTROL AFTER CONSTRUCTION
- SEDIMENT FENCE
- STABILISED SITE ACCESS
- ROCK CHECK DAMS
- COIR NET STABILISATION



**DEVELOPMENT APPLICATION**

REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	
		REVISIONS			

Disclaimer and Copyright:  
 ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE.  
 © Brown Consulting Pty Ltd

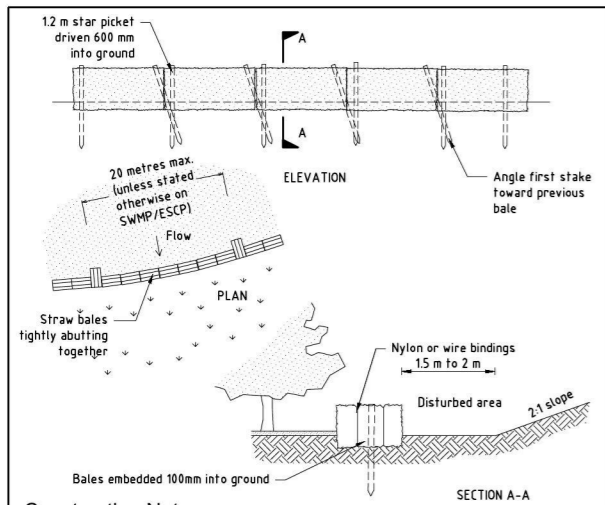
Brown Consulting (NSW) Pty Ltd  
 Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
 Telephone: 02 8808 5000 Facsimile: 02 8808 5099

**BROWN**

Sydney  
 Canberra  
 Brisbane  
 Melbourne  
 Singapore

Client:	<b>CSR LIMITED</b>
Project:	<b>ERSKINE PARK TYRON PLACE - PROPOSED LOT 22</b>

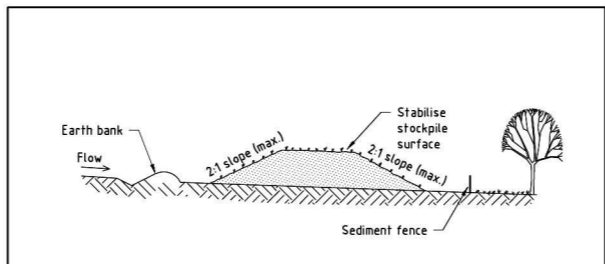
Drawing:	<b>SOIL &amp; WATER MANAGEMENT PLAN</b>	Drawn by: RB	Scale(A1): 1:1000
		Design by: PB	
		Project No: X03033.46	
		Drawing No: DA11	Revision: 03



**Construction Notes**

- Construct the straw bale filter as close as possible to being parallel to the contours of the site.
- Place bales lengthwise in a row with ends tightly abutting. Use straw to fill any gaps between bales. Straws are to be placed parallel to ground.
- Ensure that the maximum height of the filter is one bale.
- Embed each bale in the ground 75 mm to 100 mm and anchor with two 12 metre star pickets or stakes. Angle the first star picket or stake in each bale towards the previously laid bale. Drive them 600 mm into the ground and, if possible, flush with the top of the bales. Where star pickets are used and they protrude above the bales, ensure they are fitted with.
- Where a straw bale filter is constructed downslope from a disturbed batter, ensure the bales are placed 1 to 2 metres downslope from the toe safety caps.
- Establish a maintenance program that ensures the integrity of the bales is retained - they could require replacement each two to four months.

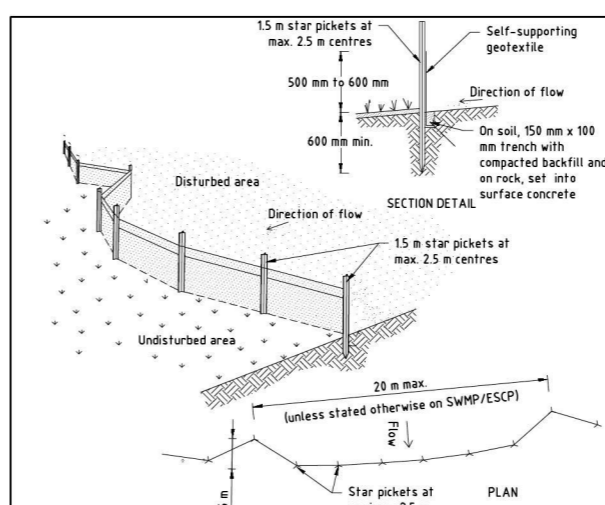
**STRAW BALE FILTER**



**Construction Notes**

- Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
- Construct on the contour as low, flat, elongated mounds.
- Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
- Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
- Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

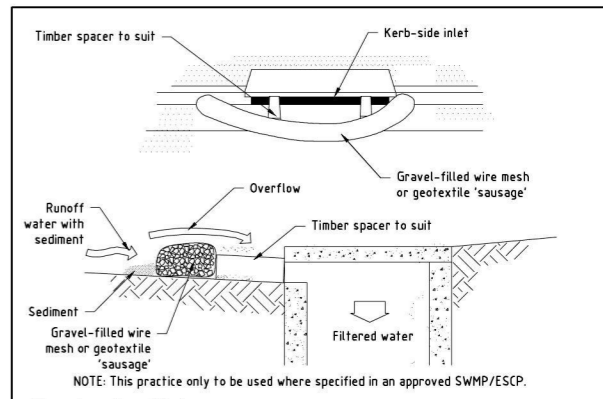
**STOCKPILES**



**Construction Notes**

- Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
- Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
- Drive 15 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
- Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
- Join sections of fabric at a support post with a 150-mm overlap.
- Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

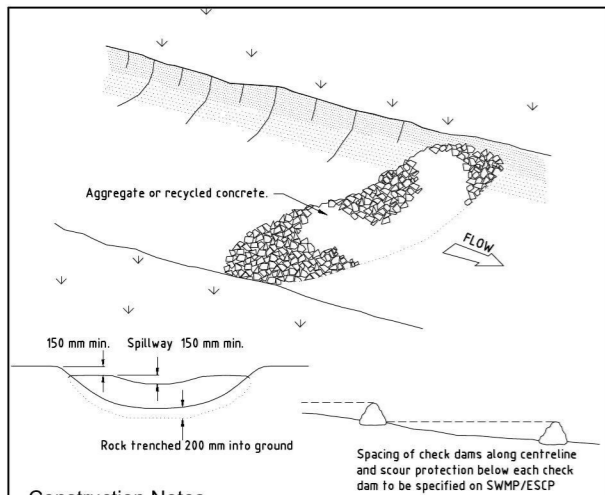
**SEDIMENT FENCE**



**Construction Notes**

- Install filters to kerb inlets only at sag points.
- Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
- Form an elliptical cross-section about 150 mm high x 400 mm wide.
- Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
- Form a seal with the kerb to prevent sediment bypassing the filter.
- Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.

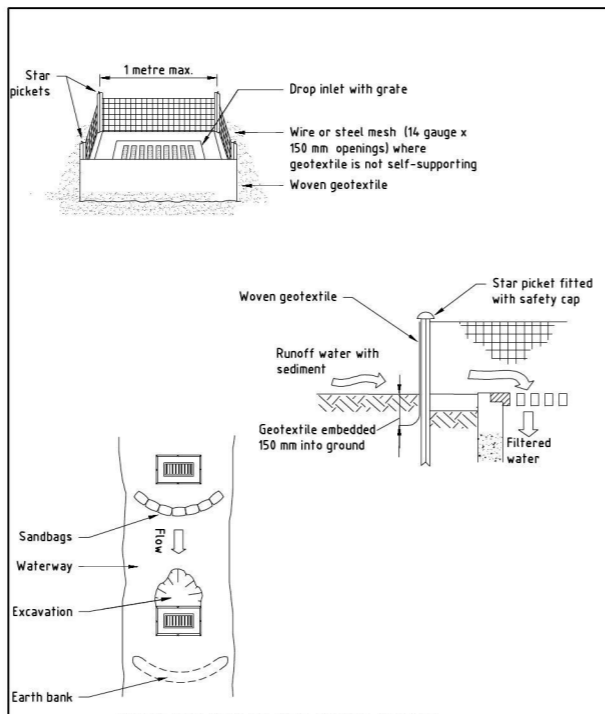
**MESH AND GRAVEL INLET FILTER**



**Construction Notes**

- Check dams can be built with various materials, including rocks, logs, sandbags and straw bales. The maintenance program should ensure their integrity is retained, especially where constructed with straw bales. In the case of bales, this might require their replacement each two to four months.
- Trench the check dam 200 mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100 mm above the ground surface to reduce the risk of undercutting.
- Normally, their maximum height should not exceed 600 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.
- Space the dams so the toe of the upstream dam is level with the spillway of the next downstream dam.

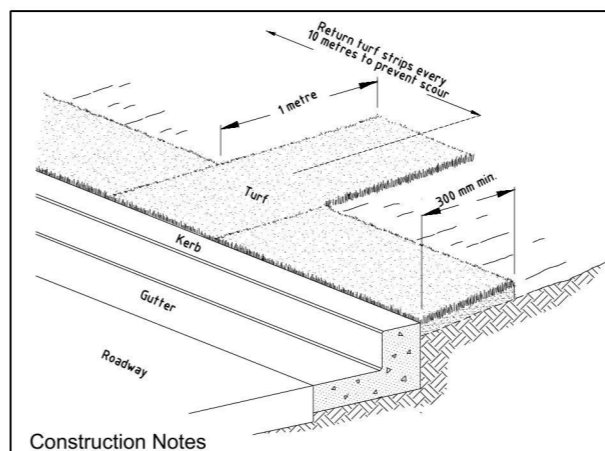
**ROCK CHECK DAM DETAIL**



**Construction Notes**

- Fabricate a sediment barrier made from geotextile or straw bales.
- Follow Standard Drawing 6-8 for installation procedures for geofabric. Reduce the picket spacing to 1 metre centres.
- In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
- Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

**GEOTEXTILE INLET FILTER**



**Construction Notes**

- Install a 400 mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
- Lay 14 metre long turf strips normal to the kerb every 10 metres.
- Rehabilitate disturbed soil behind the turf strip following the ESCP/SWMP.

**KERBSIDE TURF STRIP**

**DEVELOPMENT APPLICATION**

REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	

Disclaimer and Copyright:  
ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE.  
© Brown Consulting Pty Ltd



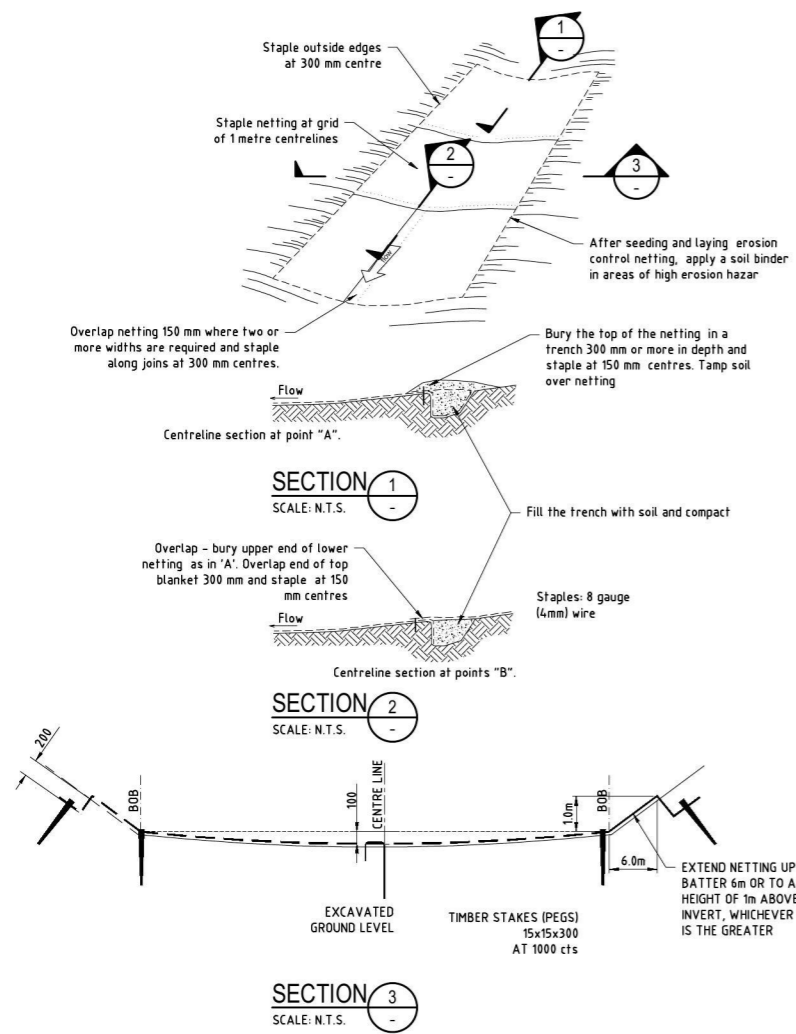
Brown Consulting (NSW) Pty Ltd  
Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
Telephone: 02 8808 5000 Facsimile: 02 8808 5099

Sydney  
Canberra  
Brisbane  
Melbourne  
Singapore

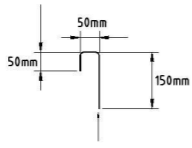
Client: **CSR LIMITED**  
Project: **ERSKINE PARK TYRON PLACE - PROPOSED LOT 22**

Drawing: **SOIL & WATER MANAGEMENT DETAILS SHEET 01 OF 02**

Drawn by: RB  
Design by: PB  
Project No: X03033.46  
Drawing No: DA12  
Revision: 03



- COIR NET NOTES**
- EXCAVATE THE SLOPE TO FORM A SMOOTH PROFILE, FREE FROM VEGETATION, ROOTS, STONES etc FILLING ANY VOIDS.
  - COMPACT SLOPE, PARTICULARLY IN BACKFILLED AREAS.
  - EXCAVATE ANCHOR TRENCHES AT BOTH EXTENTS OF THE BANK NOT LESS THAN 200 DEEP.
  - PLACE NETTING IN EITHER TRENCH, PEG AT 1.0m cts AND UNROLL AT TENSION ACCROSS THE CHANNEL, PEG AT 1.0 cts AT OTHER TRENCH. AVOID LONGITUDINAL PLACEMENT ON STEEP SLOPES.
  - BACKFILL ANCHOR TRENCHES & COMPACT.
  - OVERLAPS OF 200 SHOULD BE MADE WITH THE UPSTREAM SECTION LAID OVER THE DOWNSTREAM SECTION. ALL OVERLAPS SHOULD BE PINNED AT 1.0 cts. m
  - FREE EDGES SHOULD BE ADEQUATELY PINNED.
  - UPSTREAM EDGES TO BE KEYED INTO CHANNEL EXCAVATION.



**FIXING PIN DETAIL**  
SCALE: 1:20

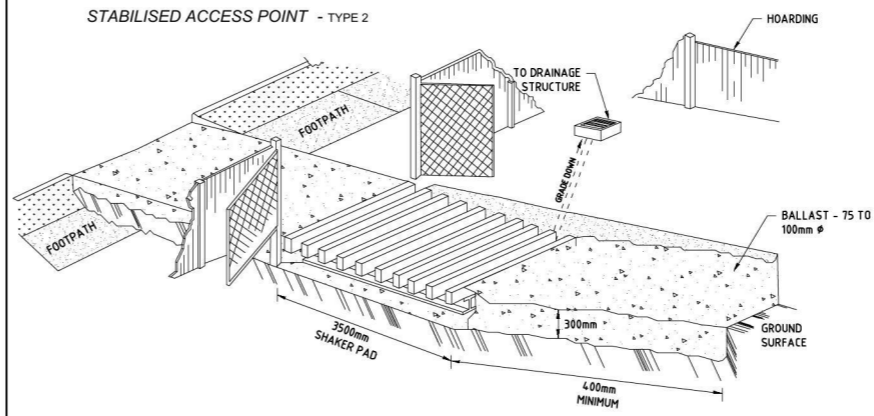
**COIR NET CHANNEL DETAIL**

**STABILISED ACCESS POINT**

**TYPE II SAP**

THE TYPE II SAP DESIGN IS MORE DEFINED IN THAT IT REQUIRES AN AREA OF BALLAST WITHIN THE SITE COMBINED WITH A SHAKER PAD, ADJACENT TO THE SHAKER PAD AND IN THE PUBLIC WAY IS A TEMPORARY (CONCRETE) VEHICULAR CROSSING. (SEE DIAGRAM)

**STABILISED ACCESS POINT - TYPE 2**



- IN BOTH TYPE I AND TYPE II SAP'S, THE TEMPORARY VEHICULAR CROSSING MUST:
- CONNECT TO AN EXISTING GUTTER LAYBACK (WHERE THE KERB AND GUTTER EXIST). IF A GUTTER LAYBACK DOES NOT EXIST THEN THE CONNECTION MUST BE MADE TO THE GUTTER BY REMOVING THE ADJACENT KERB SECTION ONLY.
  - CONNECT TO A DISH CROSSING (WHERE KERB AND GUTTER DOES NOT EXIST). IF A DISH CROSSING DOES NOT EXIST, THEN IT MUST BE CONSTRUCTED IN ACCORDANCE WITH DETAILS CONTAINED IN COUNCIL'S ISSUED FOOTPATH CROSSING LEVELS.

IT SHOULD BE NOTED THAT THESE TYPES OF SAPS ARE CONSIDERED TO BE APPLICABLE FOR THE MAJORITY OF ACTIVITIES HOWEVER SOME SITES MAY REQUIRE SPECIAL CONSIDERATION.

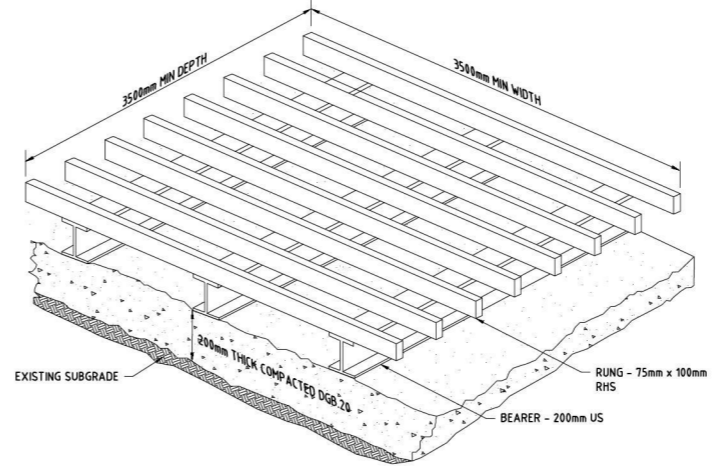
**SHAKER PAD (CATTLE GRID)**

A CORRECTLY DESIGNED AND INSTALLED SHAKER PAD WILL ASSIST IN PREVENTING SEDIMENT TRANSFER FROM A SITE. ANY STABILISED ACCESS POINT (SAP) CAN BE DESIGNED WITH A SHAKER PAD (COMPULSOPRY IN TYPE II SAP'S)

SHAKER PADS CAN BE DESIGNED AND CONSTRUCTED TO ENABLE RE-USE ON FUTURE PROJECTS.

- THE SHAKER PAD:
- MUST BE DESIGNED AND CERTIFIED BY A PRACTICING STRUCTURAL ENGINEER. THE CERTIFIED DESIGN SHOULD BE SUBMITTED WITH THE RELEVANT APPLICATION.
  - CAN BE CONSTRUCTED FROM ANY SUITABLE MATERIAL.
  - MUST BE LOCATED ON A SUITABLY PREPARED AND COMPACTED SUB-GRADE/BASE MATERIAL.
  - MUST BE SITUATED SUCH THAT THE RUNGS OF THE SHAKER PAD ARE LEVEL WITH THE ADJOINING NATURAL SURFACE.
  - MUST BE A MINIMUM OF 3.5m IN LENGTH.
  - MUST BE A MINIMUM OF 3.5m IN WIDTH.
  - MUST HAVE CLEAR SPACING BETWEEN RUNGS OF 200 - 250mm.
  - RUNGS MUST HAVE A MAXIMUM WIDTH (BEARING AREA) OF 75mm.
  - MUST HAVE A MINIMUM CLEAR DEPTH OF 300mm IE FORM THE TOP OF THE RUNG TO THE FINISHED SUB-GRADE/BASE LEVEL.

THE SHAKER PAD MUST BE PROVIDED WITH SUITABLE BARRIERS AT THE SIDES TO ENSURE THAT ALL TYRES OF VEHICLES LEAVING THE SITE TRAVERSE THE DECKE.



**DEVELOPMENT APPLICATION**

REV	DATE	DESCRIPTION	BY	VER	APP
03	14/10/2011	AMENDED INTERIM FILL	PB	RP	
02	19/09/2011	ADDED INTERIM FILL	PB	RP	
01	31/08/2011	DEVELOPMENT APPLICATION	PB	RP	

Disclaimer and Copyright:  
ALL DIMENSIONS TO BE CHECKED ON SITE BY SUPERINTENDENT PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE.  
© Brown Consulting Pty Ltd

Brown Consulting (NSW) Pty Ltd  
Level 2, 2 Burbank Place Norwest Business Park NSW Australia 2153  
Telephone: 02 8808 5000 Facsimile: 02 8808 5099

Sydney  
Canberra  
Brisbane  
Melbourne  
Singapore

**BROWN**

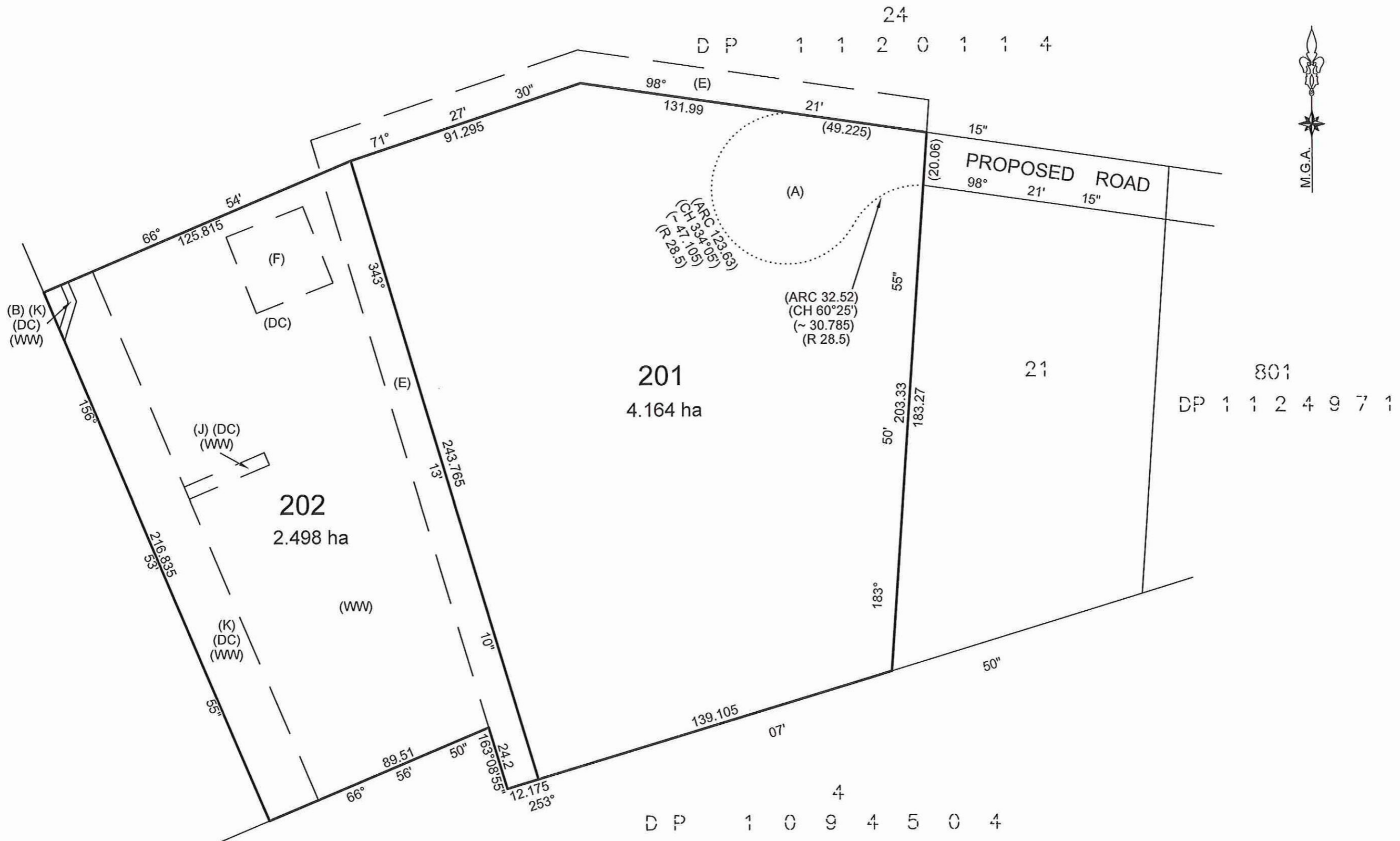
Quality System  
Quality Endorsed Company  
Member Firm

Client: **CSR LIMITED**

Project: **ERSKINE PARK TYRON PLACE - PROPOSED LOT 22**

Drawing: **SOIL & WATER MANAGEMENT DETAILS SHEET 02 OF 02**

Drawn by: RB  
Design by: PB  
Project No: X03033.46  
Drawing No: DA13  
Scale(A1): N.T.S.  
Revision: 03




STREET

RICKARD



NOTE : ALL DIMENSIONS AND AREAS ARE APPROXIMATE AND SUBJECT TO FINAL SURVEY

- (A) TEMPORARY TURNING CIRCLE AND RIGHT OF CARRIAGEWAY VARIABLE WIDTH
- (B) EASEMENT FOR ELECTRICITY PURPOSES 3 WIDE (VIDE DP 838541)
- (J) RIGHT OF CARRIAGEWAY & EASEMENT FOR BOREHOLES 5 WIDE (VIDE DP1094504)
- (K) RIGHT OF CARRIAGEWAY & EASEMENT FOR SERVICES 20 WIDE (VIDE DP1094504)
- (DC) RESTRICTION ON THE USE OF LAND (VIDE DP1112314)
- (WW) EASEMENT TO DRAIN WATER VARIABLE WIDTH (VIDE DP1112314)
- (E) PROPOSED EASEMENT FOR BATTER VARIABLE WIDTH
- (F) PROPOSED EASEMENT FOR RETENTION BASIN

  
 suite 317 / 5 celebration drive norwest business park nsw 2153  
 po box 7979 baulkham hills business centre nsw 2153  
 p: 88832622    f: 88832633    e: admin@cca.net.au

PLAN OF PROPOSED SUBDIVISION OF LOT 22 44 TYRONE PLACE, ERSKINE PARK		SHEET 1 OF 1 SHEETS
DATUM: N / A	RATIO: 1 : 1500	REFERENCE 31025 / PSU1
DATE: 2.05.2012	PRINCIPAL: CSR PROPERTY LTD	