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17/07/15

Level 12, 120 Collins Street
Melbourne
Victoria, 3000

For the attention of : - Jim Murray

Dear Jim,

**Harbord Diggers
Section 96 Application, Stormwater Statement**

As per your recent request, this letter is to confirm that the stormwater drainage strategy for the above development remains unchanged from the original DA lodgement.

This is to say, all stormwater runoff collected from the development will be drained via proposed hydraulic collector drains, gutters, downpipes and piped systems which will be largely reticulated within the basement. This in turn will drain to the north and ultimately out to the Ocean via a new dedicated drainage pipe. This is documented on the Civil engineering drawings and notably drawing CV-0610 as attached.

Prior to discharging water to the Ocean, treatment of water will be undertaken to provide enhanced quality as per the original design documentation. We would note that the Hydraulic requirements for rainwater harvesting and irrigation have resulted in a reduction the rainwater harvesting tank size from 200,000 litres to 50,000 litres.

The effects of this on water quality have been investigated using MUSIC software and we can confirm that this change does not impact on the system's ability to deliver water pollutant reduction targets as required in the DA conditions. The attached MUSIC modelling output demonstrates these requirements are satisfied using the 50,000 litre tank.

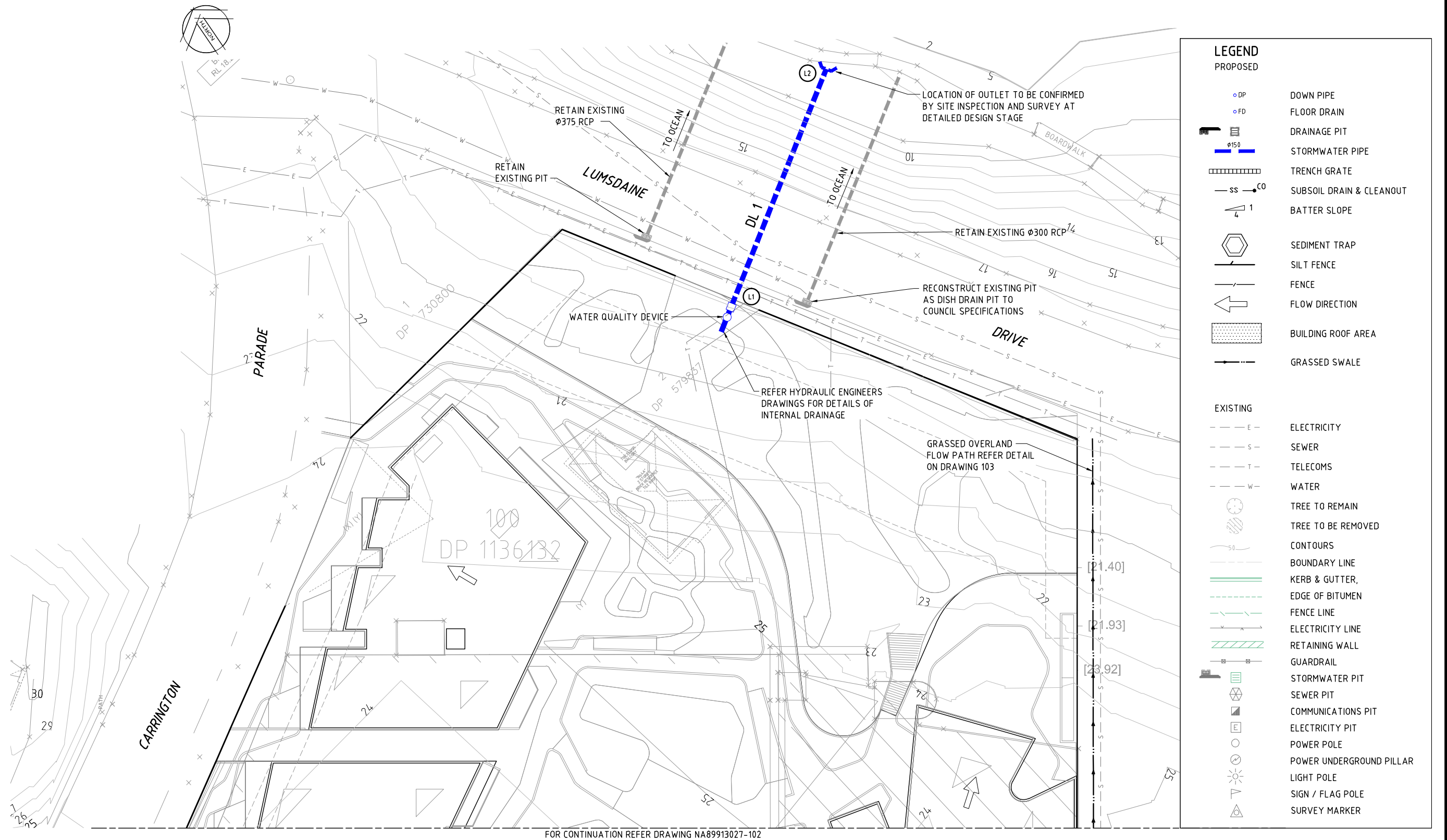
In all other respects, the system remains unchanged from the original application. If you have any queries, please contact the below.

Yours Sincerely,

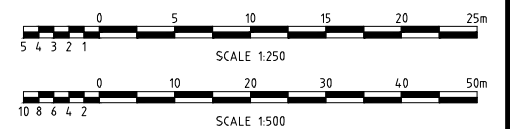


for
enstruct group pty ltd

Duncan Crook
Senior Engineer



PLAN
SCALE 1:250



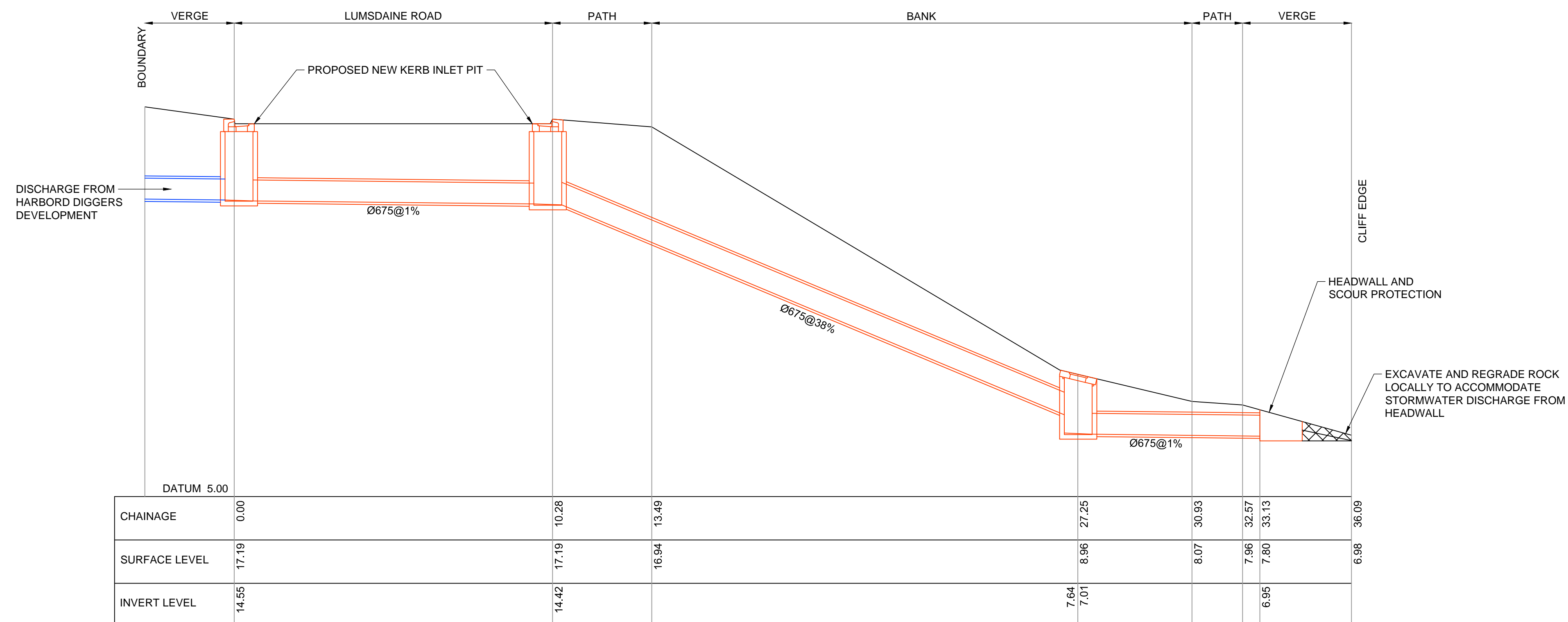
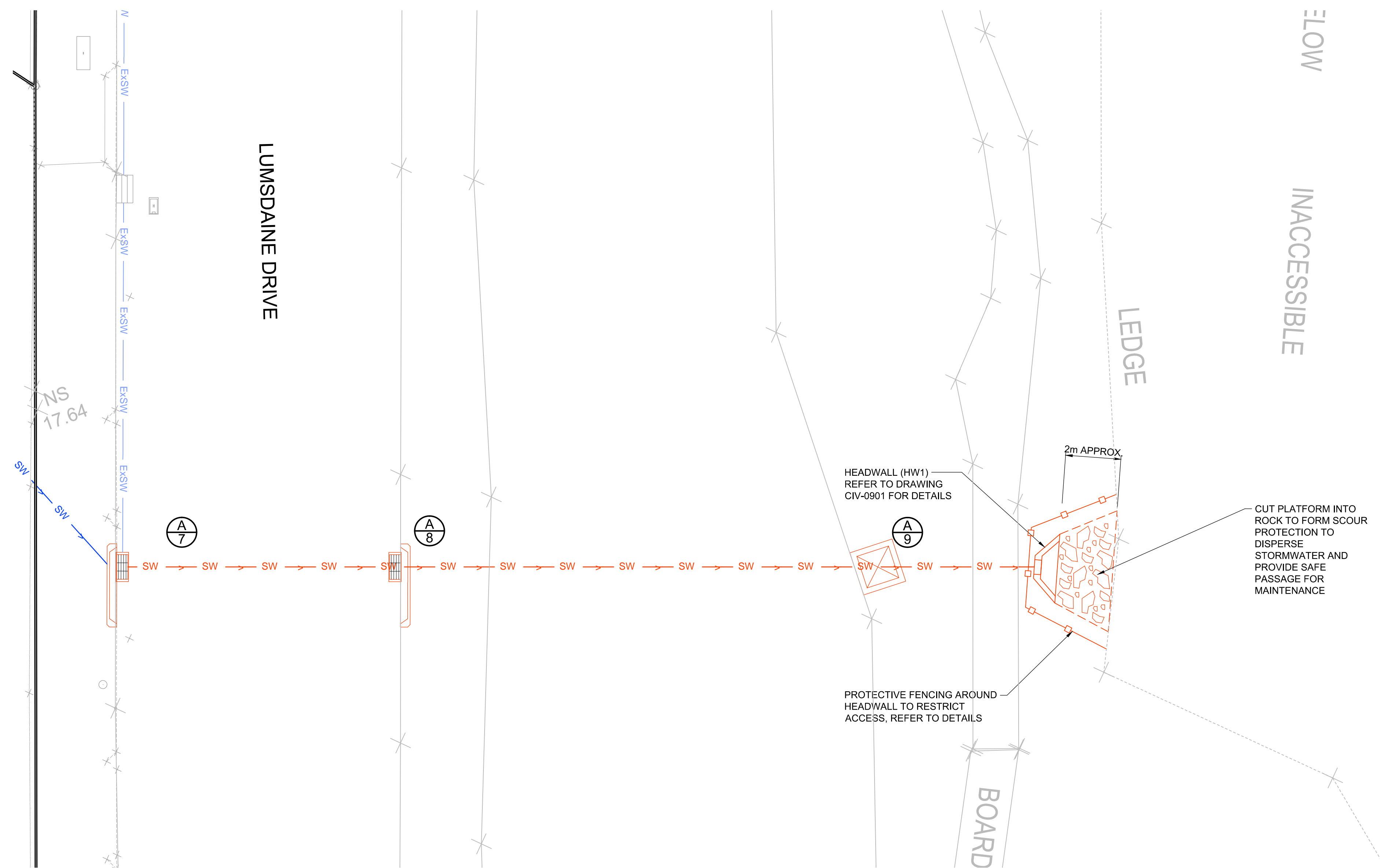
Rev	Date	Description	Drawn	Appr.
5	30/07/2014	ISSUED FOR CLIENT REVIEW	DH	DPS
4	25/07/2014	ISSUED FOR CLIENT REVIEW	DH	DPS
3	06/03/2013	ISSUED FOR DA APPROVAL	DPS	DNA
2	01/03/2013	ISSUED FOR DA APPROVAL	DPS	DNA
1	03/12/2012	ISSUED FOR DA APPROVAL	MJM	DNA

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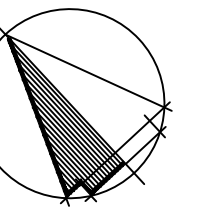


Drawn	MJM	Date	30/11/2012
Checked	DPS	Date	30/11/2012
Designed	JPE	Date	30/01/2012
Verified	DPS	Date	30/11/2012
Approved	DNA	Date	30/11/2012

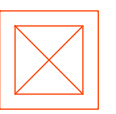
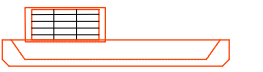
Client: MT PRITCHARD & DISTRICT COMMUNITY CLUB				
HARBORD DIGGERS CLUB 80 EVANS STREET, FRESHWATER		Status: NOT FOR CONSTRUCTION		
		Date: 30/11/2012	Datum: AHD	Scale: 1:250
		Drawing Number: NA89913027-101		Size: A1
		Revision: 5		
CONCEPT STORMWATER PLAN SHEET 1				



NOT FOR CONSTRUCTION



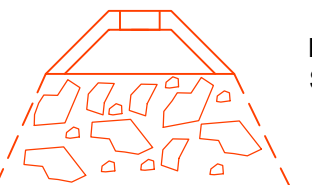
LEGEND

ADOPTABLE COUNCIL
PROPOSED DRAINAGE
PIT WITH SOLID COVERADOPTABLE COUNCIL
PROPOSED KERB INLET PITADOPTABLE COUNCIL
PROPOSED STORMWATER PIPEPRIVATE PROPOSED
STORMWATER PIPE

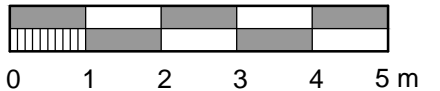
EXISTING STORMWATER PIPE



PROTECTIVE FENCING

HEADWALL (HW1) AND
SCOUR PROTECTION

SCALE 1:100

[illegible]

1	12/06/15	ISSUED FOR TENDER	CF	DC
rev	date	description	drn	ch'k

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client

project

HARBORD DIGGERS
80 EVANS STREET
FRESHWATER

drawing title

EARLY WORKS DRAINAGE PLAN

status

FOR TENDER

scale at A1
1:100

drawn by
HH

ed DC	date JUN -15
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project no.

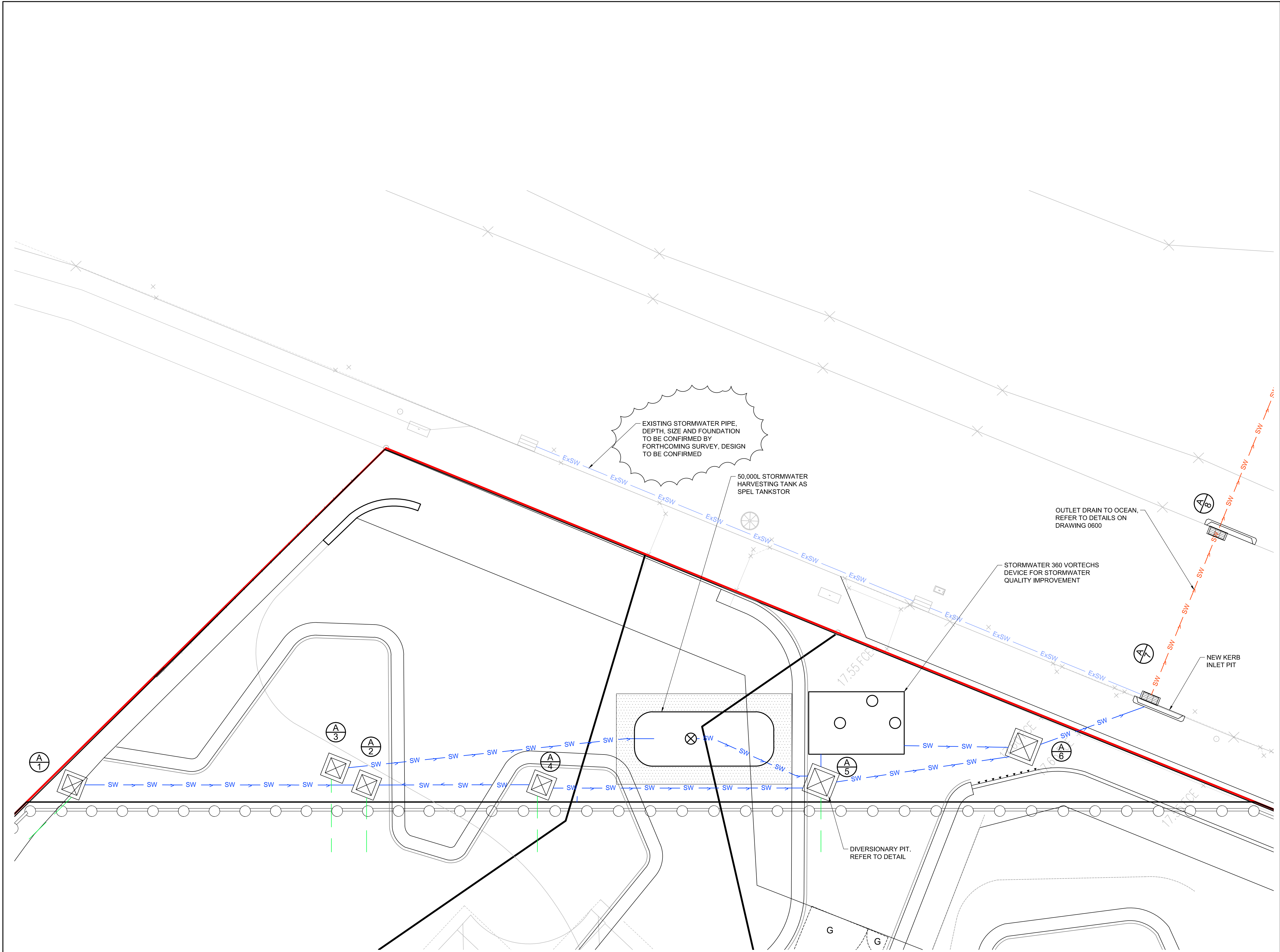
4774

drawing no.

CIV-0600

5.

1 |



PROPOSED DRAINAGE PLAN
SCALE 1:100

NOT FOR CONSTRUCTION

LEGEND

- PROPOSED DRAINAGE PIT WITH SOLID COVER
- PROPOSED KERB INLET PIT
- PIT LABEL
- PROPOSED STORMWATER PIPE
- ADOPTABLE COUNCIL STORMWATER DRAIN
- EXISTING STORMWATER PIPE
- INTERNAL BUILDING DRAINAGE BY OTHERS

SCALE 1:100

2	12.06.15	ISSUED FOR 70% TENDER	CF	DC
1	29.04.15	PRELIMINARY	HH	DC
rev	date	description	drn	ch'k

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project

**HARBORD DIGGERS
80 EVANS STREET
FRESHWATER**

drawing title

**PROPOSED DRAINAGE
PLAN**

status

PRELIMINARY

scale at A1 1:100	drawn by HH	checked DC	date APR -15
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project no. 4774	drawing no. CIV-0610	rev. 2
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DRAINAGE NOTES:

- PIT TYPES ID:

KIP KERB INLET PIT - AS PBKL0909 (900x900mm) BY ROCLA OR SIMILAR APPROVED.

DP DIVERSIONARY PIT - REFER TO ENSTRUCT DETAILS

GRATE TYPE ID:

1. DURHAM RECESSED INFILLED COVER CAC99B OR 99D (900x900) AND CUSTOM (1200x1200) OR SIMILAR APPROVED.
2. ROCLA ON-GRADE KERB INLET OKIC2400R WITH INTEGRATED GRATE OR SIMILAR APPROVED.

INSET A
SCALE 1:100

SCALE 1:100

0 1 2 3 4 5 m

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project

HARBORD DIGGERS
80 EVANS STREET
FRESHWATER

drawing title

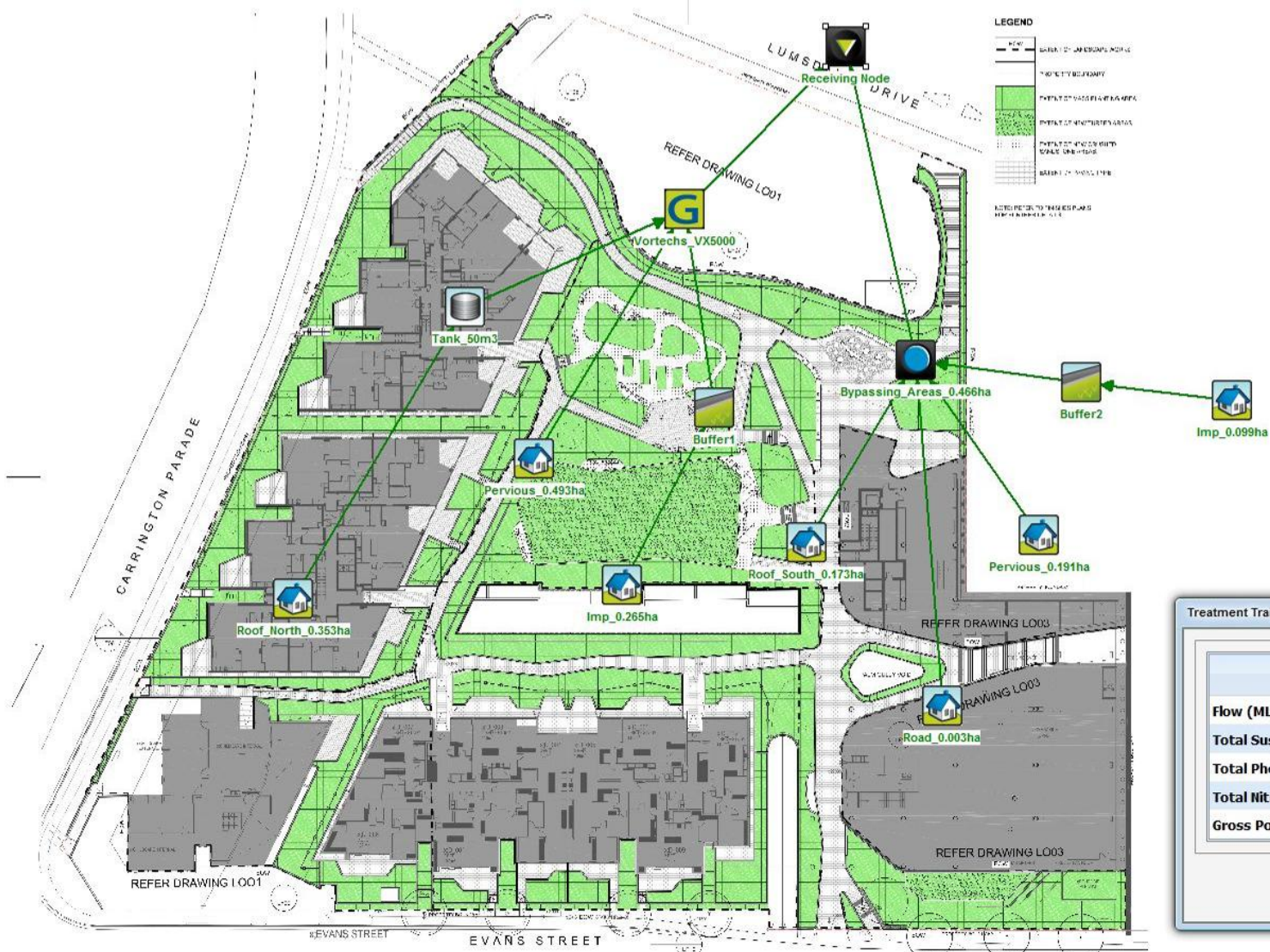
DRAINAGE SCHEDULE

status PRELIMINARY

scale at A1 N/A	drawn by CF	checked DC	date JUN -15
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project no. 4774	drawing no. CIV-0611	rev. 1
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NOT FOR CONSTRUCTION



Treatment Train Effectiveness - Receiving Node

	Sources	Residual Load	% Reduction
Flow (ML/yr)	14.2	8.28	41.8
Total Suspended Solids (kg/yr)	1070	157	85.3
Total Phosphorus (kg/yr)	2.85	1.1	61.2
Total Nitrogen (kg/yr)	28.5	15.4	46
Gross Pollutants (kg/yr)	260	54.5	79.1

WSP Buildings Pty Ltd
ABN 47 005 113 468

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PO Box 6245 North Sydney
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sydney@wspgroup.com.au
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Friday, 17 July 2015

Jim Murray
Urbis
Tower 2, Level 23, Darling Park / 201 Sussex St,
Sydney NSW 2000

Harbord Diggers Redevelopment - New Development WSP Infrastructure Works

Dear Jim

WSP have reviewed the Harbord Diggers Club Building Services development consent requirements specifically relating to stormwater condition 18 which nominates 200m³ rainwater re-use storage volume collecting from all building roofed areas.

The design has been developed in accordance with the latest architectural scheme to account for the amendments in the proposed section 96 application and to meet the current value engineering requirements which dictated that only blocks A and B are able to be drained via gravity to the rainwater re-use tank whilst buildings C, D and E must by-pass the storage tank and discharge directly to the civil stormwater drainage system designed by Enstruct which was dictated by maximum outfall pit depths.

The nominated 200m³ tank volume has been proposed to be reduced to 50m³ effective volume which has been assessed via a water balance calculation to provide approximately 10% potable water offset for irrigation, cooling tower and car-wash facility purposes.

It is noted that the BASIX report for the development does not require rainwater re-use to be incorporated into the development

Sincerely,



Neil Langford
Senior Hydraulic Engineer