Hanson Construction Materials Pty Ltd

Water Cycle Management Plan:

Concrete Batching Plant
Lot 10 Glebe Island, Rozelle NSW.

P1706122JR02V02
February 2018

Limitations Statement

The sole purpose of this report and the associated services performed by Martens & Associates Pty Ltd is to provide a water cycle management report in accordance with the scope of services set out in the contract / quotation between Martens & Associates Pty Ltd and Hanson Construction Materials Pty Ltd (hereafter known as the Client). That scope of works and services were defined by the requests of the Client.

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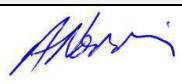
Erica Zhu	Andrew Norris	Andrew Norris	

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All enquiries regarding this project are to be directed to the Project Manager.

Contents

1 Introduction

1.1 Overview

This water cycle management report outlines an environmentally sustainable strategy for the management of wastewater and stormwater generated from the proposed concrete batching plant development at Lot 10 DP1170710 Glebe Island, Rozelle (hereafter known as "the site") and provides details for a suitable water conservation and supply system.

The report is written to support a State Significant Development (SSD) project application to the NSW Department of Planning and Environment (DoPE).

1.2 Project Scope and Aims

The main objectives of this report are as follows:

1. Address the Secretary's Environmental Assessment Requirements (SEARs) as they relate to water management.
2. Identify relevant planning controls and policies that will determine the layout and performance criteria for the water cycle management system;
3. Identify wastewater sources and develop a site wastewater management solution;
4. Report the results of stormwater quality modelling and develop a suitable stormwater management and re-use system;
5. Develop a water monitoring plan including mitigation measures; and
6. Document proposed water supply sources and opportunities for on-site reuse.

This report provides best practice stormwater and wastewater management for the development and achieves potable water conservation through re-use of stormwater to satisfy site demands.

1.3 Relevant Planning Controls and Design Principals

The following planning controls and design principals have been consulted and, where relevant, incorporated into the design of the site's proposed water cycle management system;

- State Regional Environmental Plan (Infrastructure) 2007;

- Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 and Foreshores and Waterways DCP;

- Leichhardt Municipal Council Local Environmental Plan 2013 (due to council amalgamation, Leichhardt Council no longer exists, but Inner West Council is relying on former council LEPs until consolidation instruction is gazetted);

- Leichhardt Municipal Council Development Control Plan (DCP) 2013; *Part E – Water*.

- BMT WBM NSW MUSIC Modelling Guidelines 2015.

2 Background

Hanson is seeking development consent to develop a new concrete batching plant at Glebe Island. The Site has been selected so as to facilitate the co-location of the concrete plant with aggregate shipping facilities, which in proximity to the Sydney CBD and Bays Precinct offers several logistical and environmental benefits. Hanson, and its subsidiary Hymix, already provide 30-35% of Sydney's concrete demand from the two nearby sites (Blackwattle Bay and Pyrmont). The proposed facility at Glebe Island will allow Hanson to continue its supply of concrete to a range of concrete intensive projects around Central Sydney, in a way that is efficient, reduces overall environmental impact and that minimises regional road traffic impacts by securing ongoing aggregate shipping terminal capability.

3 Description of Proposed Development FACIOL

3.1 Overview

Hanson propose to develop a new intermodal aggregate storage facility and concrete plant to be located adjacent to Glebe Island Berth one (GLB1 - legally described as Lot 10 in DP 1170710) (the Site), as shown in Figure 1. The plant will be designed with a capacity to produce up to 1 million cubic metres of concrete per annum and will supply aggregate to other Hanson sites in the vicinity. The proposed plant will serve two purposes:

- To act as a shipping facility that will support a number of Hanson (and Hymix) concrete batching plants by improving the delivery of aggregates into the city centre; and
- To operate as a concrete batching plant that can supply concrete for infrastructure and buildings in the CBD and inner suburbs.

Figure 1: The site

The concrete batching plant will be supported by new aggregate shipping terminal facilities at GLB1 with the capacity to manage up to 1 million tonnes of concrete aggregates per annum delivered by ship from the Hanson Bass Point Quarry and other facilities if deemed viable. By facilitating delivery by ship, the proposed development will reduce the number of trucks required to haul aggregates into Sydney on the regional road network by up to 65,000 trips per annum.

3.2 Description of Process

3.2.1 Operation

The proposed hours for the operation of the concrete batching plant are 24 hours a day, seven days a week. The proposed plant will employ approximately 67 full time equivalent employees. Three main types of commercial vehicles will operate at the plant:

- Total of 55 concrete agitator trucks – delivering concrete mixed at the plant on-site to building sites throughout the city. Some of these are standard rigid-axle agitator vehicles and some are articulated agitator vehicles

- Cement tankers – delivering cement to the Site, this cement will most likely come from the Cement Australia Glebe Island facilities and therefore will not have to access the public road network.

- Aggregate trucks – two tipper trucks will be based at the Site, trucks based at other Hanson facilities may also access the plant. Aggregate trucks dispatch aggregates and sand to other concrete batching plant facilities – including the Hymix plant at Pyrmont. These are typically truck and dog trailer combinations.

Other on-site vehicles will include forklift, a bobcat and two loaders. Cement deliveries are expected to be made by B-Double tankers. Concrete agitator trucks are usually parked on the Site overnight, day shift drivers will arrive to the Site in the morning between 5am and 8am to start the shift, leaving the Site between 3pm and 6pm in the evening. It is anticipated that the majority of staff will travel to the Site by car. All batching activities will take place within an enclosed building. A plan of the proposed plant is provided as Figure 2. A brief description of the batching process is provided below.

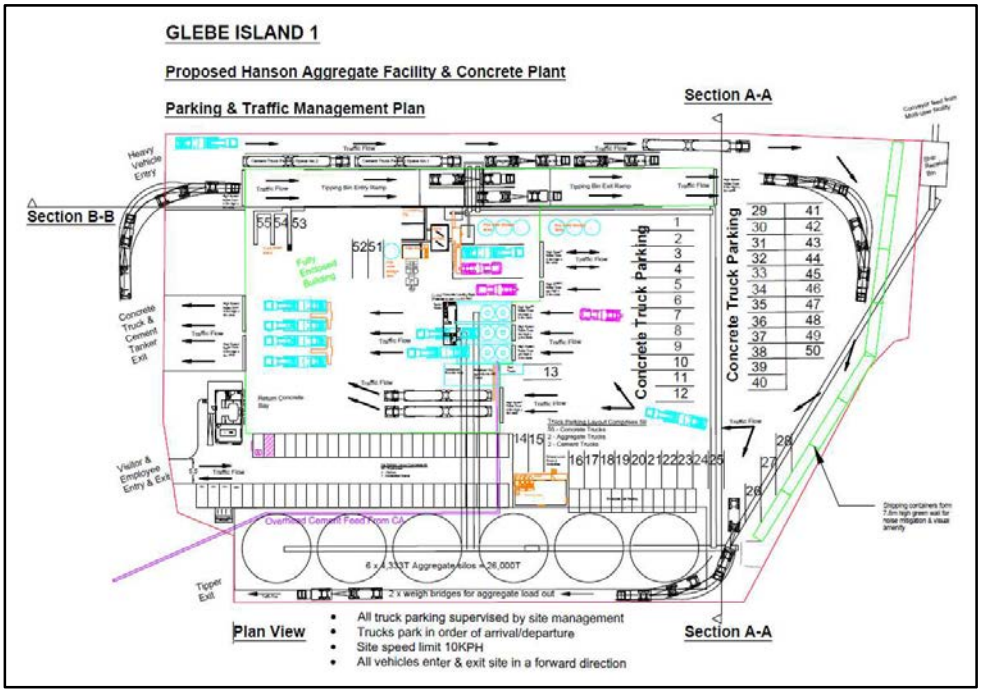


Figure 2: Site layout

3.2.2 *Delivery*

Delivery vehicles will access the Site from James Craig Road beneath the old Glebe Island Bridge abutment. Cement tankers will enter the building from the east and exit from the west. Aggregate trucks will deliver sand entering the building from the west and exit from the east. Cement and fly ash delivered to the Site will be stored in silos. All deliveries will take place within the enclosed building. Ships will deliver aggregate to the Site via GLB1. Aggregate and sand will be conveyed to the storage silos by enclosed overhead conveyors.

3.2.3 *Batching*

Concrete agitator trucks will move from their holding area to within the enclosed building to receive the concrete for delivery. Concrete agitator trucks will enter the building from the east. Aggregate, sand, cement and fly ash will be transported from their storage silos via an enclosed conveyor system to weigh hoppers. From here, the ingredients will be transferred to an agitator truck within the enclosed building. The concrete agitator trucks will mix the ingredients before moving to the slump stand for final quality checking.

3.2.4 *Dispatch*

Once the concrete trucks are loaded, they can depart from the west of the enclosed building. Concrete agitator trucks will exit the Site via James

Craig Road and from there, travel to where their delivery is required. When the plant is operating at peak capacity, up to 120 concrete deliveries can be made from the plant each hour. However this is only likely to occur a minimal number of times a year depending on demand.

Aggregates not used in the batching of concrete on the Site will be dispatched from the storage silos by conveyor directly for loading to an aggregate truck for dispatch to another concrete batching plant.

3.3 Physical Description

The plant is proposed to adopt a low profile design sympathetic to its surrounding environs. The majority of the batching activities will be undertaken in an enclosed area in order to limit the noise and air quality impacts of the proposed plant.

Physical elements of the plant will include:

- Cement silos;
- Aggregate silos;
- Sand silos;
- Water tanks;
- Weigh bridges;
- Weigh hoppers;
- Slump stand;
- Conveyors,
- Truck parking;
- Car parking;
- Building enclosure; and
- Ancillary offices and staff areas.

4 Site Description

4.1 Location and existing Land-use

The site is located in the south-eastern portion of Lot 10 Glebe Island, Rozelle, NSW with a total area of approximately 16,200 m^2. It is bound by White Bay to the north, Johnson Bay to the east, Rozelle Bay to the south and mainland Rozelle to the west. The site has been recently used for industrial and port activities, and is currently 100% impervious unused hardstand.

The site falls under the jurisdiction and management of the Port Authority of NSW. It is situated in the Inner West Council (formerly Leichhardt Municipal Council) Local Government Area.

4.2 Rainfall and Evaporation

Rozelle area is characterised by moderate average annual rainfall of 1215.7 mm/year. Rainfall varies throughout the year as shown in Table1. Comparison with evaporation data indicates that the regional area surrounding Rozelle experiences a significant moisture deficit on average. Evaporation exceeds precipitation every month of the year expect April, May, June and July.

Table 1: Monthly climatic information based on average monthly rainfall data and average daily evaporation data from Sydney (Observatory Hill).

mm	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall	102.2	117.6	130.9	128.5	118.6	133.2	96.6	80.7	67.9	76.4	83.8	77.6	1215.7
Evap.	211.9	177.3	163.3	122.3	87.8	72.8	78.6	110.8	137.8	179.2	189.2	228.8	1738.6

4.3 Topography and Drainage

The site is predominately flat at approximately 3m AHD. During a recent site walkover inspection (September 7, 2017) the site drainage was observed to comprise of overland flow to grated drains discharging to the adjacent bay.

Council Flood Map shows the west portion of the site is affected by 100 year ARI floodwaters up to 0.4m (Attachment B, Figure 1).

4.4 Geology and Soils

The Sydney 1:100,000 Geological Sheet 9130 (NSW Dept. of Mineral Resources, 1983) describes geology at the site being underlain by man-made fill, including dredged estuarine sand and mud, demolition rubble, and industrial and household waste.

The NSW Environment and Heritage eSPADE website identifies the site as having disturbed soils and artificial fill areas with sandy loam or compacted clay over fill or waste materials.

4.5 Hydrogeology

Review of NSW Department of Primary Industries Water's database indicated no groundwater bores are located within 500 m of the investigation area (refer to Figure 2, Attachment B).

Given proximity to Johnson Bay and underlying fill, groundwater levels are likely to be within 1 to 2 m of the existing ground surface. Further investigations would be required to fully characterise site groundwater conditions.

5 Water Supply Strategy

5.1 Overview

This analysis assesses likely water demands from the proposed concrete plant development and assesses likely supply sources. A strategy for providing site water is presented. The site water supply strategy is outlined in Attachment A – EZ00.

5.2 Methodology

The method for this assessment can be separated into three stages.

1. Site Water Demand. Estimation of average daily water demands for the proposed development.

2. Site Water Supply. Consideration of available water supply options including: townwater, rainwater harvested from roofs, runoff from hardstand, and recycled wastewaters.

3. Site Water Balance. A site water balance was undertaken to determine supply requirements to meet long-term water demands for the proposed development.

5.3 Water Demand

Table 2 summaries site water demands as provided by the client, these have been documented based on 250 production days a year. These values were converted to average daily demand to match MUSIC modelling output units, which are shown as average daily values (Table 5). This was necessary as the amount of harvested rainwater and stormwater used in the water balance calculation (Section 7.5) is obtained from MUSIC.

Table 2: Summary of water demands for the Glebe Island Concrete Batching Plant.

Demand	250 production days (kL/day)	Average daily demand (kL/day)
Dust Suppression	1	0.7
Slump Water	80	54.8
Amenities	7	4.8
Concrete Production	500	342.5
Washdown	62.51	42.81[1]
Barrel Washout	220	150.71[1]

Notes:

[1] Water used for these purposes is recycled onsite and is then a supply for subsequent uses.

5.4 Water Supply

The proposed development relies on four water supply sources:

1. Roof water from site roofs to be used for concrete production.
2. Stormwater runoff from hardstand areas, to be used for concrete production.
3. Industrial wastewater (section 6.2.2) recirculated through site stirrer pit. Used for concrete production and for washdown of works area and barrel washout.
4. Town water used for amenities potable uses and to supplement other supplies as required.

5.5 Site Water Balance

Table 3 summaries the site water balance. The average demand on the roofwater supply is 11.7kL/day and demand on the stormwater supply is 18.7kL/day.

Table 3: Water balance for the developed site.

Use	Demand (kL/day)	Supplied by wastewater reuse (kL/day)	Supplied by roofwater (RW) and stormwater (SW) (kL/day)	Supplied by town water (kL/day)
Dust suppression	0.7	0	0	0.7
Slump water	54.8	0	0	54.8
Amenities	4.8	0	0.38	4.42
Concrete Production	342.5	0.7[1]	30.03[2]	311.77
Washdown	42.8	42.8	0	0
Barrel washout	150.7	150.7	0	0
Total	596.3	194.21	30.42	371.67

Notes:

[1] Value is from dust suppression.

[2] MUSIC modelling shows 18.7kL/day (of a total of 30.042kL/day) is supplied by the harvested stormwater.

Water balance modelling shows that, on average, 371.7kL/day of town water which equals approximately 135.7ML/year, is required to meet long-term water demands for the proposed development.

Stormwater and reclaimed wastewater captured and reused on site reduce the townwater demand by approximately 33%. Remaining water demands are to be satisfied by town water supply.

Completed analysis demonstrates that increased storage of stormwater runoff would have minimum impact on the total town water demand for the site.

5.6 Recommendations

We recommend that final design of the system should be undertaken at the construction certificate stage. A suitably qualified engineer should undertake all elements of the water supply system design for the construction stage.

6 Site Wastewater Management Plan

6.1 Overview

The proposed site wastewater management system has been designed to provide a sustainable outcome for the proposed development.

Whilst the plant is to be approved for 24 hour / 7 day per week operation it is, according to Hanson, likely the concrete batching plant will operate 250 days per year. The wastewater generation rates summarised below are average daily values based on 250 production days per year.

6.2 Wastewater Sources and Generation Rates

6.2.1 Staff Amenities Wastewater

Wastewater generated by staff amenities is estimated to be 7 kL/day. A total of 67 staff are expected to be onsite at any one time. Amenities are to be provided for both drivers and site staff members.

6.2.2 Industrial Wastewater

Industrial wastewater is generated on site from a number of sources and processes; all industrial wastewaters are to be collected and recycled onsite. Sources of industrial wastewater are listed below:

1) Dust suppression – approximately 1kL/day of wastewater will be produced and re-collected within the stirrer pit to supplement other supplies.

2) Washdown and Barrel 'Washout' water – approximately 61.5kL/day of wastewater will be generated from washing down work areas and trucks, and 220kL/day from washing out truck concrete barrels. All wash down/washout water shall be collected within the stirrer pit then used to supplement other water supply from product.

Each of the identified wastewater systems is considered a 'closed' self sufficient system, where wastewater is recollected and reused onsite. Therefore, no industrial wastewater requiring off site disposal shall be generated.

6.3 Proposed Wastewater Management System

The closed industrial wastewater system, means only sewage water from staff amenities shall be disposed of offsite to Sydney Water sewer.

7 Stormwater Management Strategy

7.1 Stormwater Quality Assessment

7.1.1 Water Quality Objective

Leichhardt DCP (2013) Part E requires new developments to use stormwater treatment methods to achieve the following water quality objectives:

- Post development average annual load reduction for total gross pollutants (GP) – 90%
- Post development average annual load reduction for total suspended solids (TSS) – 85%
- Post development average annual load reduction for total phosphorus – *65%*.
- Post development average annual load reduction for total nitrogen – *45%*.

7.1.2 Modelling Methodology

Overview

Model for Urban Stormwater Improvement Conceptualisation (MUSIC, Version 6.2) was used to evaluate the treatment train effectiveness against Council's water quality objectives.

Modelling was undertaken in accordance with Leichhardt DCP (2013) for the proposed site. The model is developed based on conceptual site layout and catchment area details (refer to Attachment A).

Climate Data

10 years of 6-minute pluviography data for the purpose of modelling was obtained from eWater (station 66062; Sydney Observatory Hill). Average monthly evaporation data for Sydney Observatory Hill was obtained from the Bureau of Meteorology.

Input Parameters

Input parameters for source and treatment nodes are consistent with BMT WBM NSW MUSIC Modelling Guidelines (2015) and are provided in Attachment C.

Catchment Areas

Catchment areas were subdivided into areas corresponding to roofs and hardstand areas. Catchment area details, with the post-development MUSIC model layout, are provided in Attachment A.

7.1.3 Treatment Train Philosophy

The stormwater treatment strategy for the site uses several devices to achieve treatment objectives. Individual stormwater quality improvement devices (SQIDs) are outlined in the following sections.

Rainwater tank

It is proposed that six rainwater tanks with a total volume of 275kL will be provided to collect runoff from the batching plant roof. A demand of 105kL/day was placed on the tank to account for intended roofwater re-use in the product.

Rainwater from the drivers' lunch room and amenities will be connected to a 4kL rainwater tank with an average reuse rate of 4kL/day for supplying toilet flushing demands.

Enviropods

Runoff from hardstand areas shown in Attachment A - E700 will be diverted to Enviropods to capture hydrocarbons, litter, debris and other pollutants. A high flow bypass parameter of 20 L/s for each Enviropod has been applied as per the manufacturer's specifications.

Stormwater collection tank

Stormwater collection tanks are to be provided to collect runoff from selected areas of site hardstand, they are modelled as sedimentation basins. Modelling specifications are summarised in Table 4.

Table 4: Summary of stormwater collection tank details.

Tanks Number	Volume (kL)	Reuse Demand (kl/day)
1	37	121
2	27	89
3	25	82

7.1.4 MUSIC Results

Results extracted from MUSIC model are provided in Table 5.

Table 5: MUSIC treatment train effectiveness results.

Parameter	Source	Residual load	% Reduction	Performance criteria target (%)
TSS (kg/year)	4500	675	85	85
TP (kg/year)	8.1	2.08	74.3	65
TN (kg/year)	40.5	11.9	70.6	45
Gross Pollutants (kg/year)	420	25.7	93.9	90

The results indicate that Council's developed condition water quality objectives will be met by the proposed water quality treatment systems. Further refinement of the models at the detailed design stage may alter the sizes and locations of the proposed systems. However, performance outcomes of the final design are to achieve the specifications provided in this report.

7.2 Stormwater Drainage System

7.2.1 Objectives

Site stormwater management has been designed to provide effective site drainage and to allow implementation of SQID as required to comply with the objectives of Leichhardt DCP (2013).

7.2.2 Pit and Pipe Network

The concept stormwater design for the proposed development is provided in Attachment A. Runoff from the western catchment is diverted to the northern discharge points via pit and pipe network and stormwater collection tanks. The eastern catchment discharges into the surrounding bays via a separate pit and pipe network, a stormwater collection tank and overland flow.

The proposed drainage system will be designed in detail at the construction certificate stage.

8 Water Quality Monitoring Plan

8.1 Objective

The objective of the site water quality monitoring plan is to provide means to assess the effectiveness of the implemented water quality control measures. Given roof runoff is expected to be of generally good quality the monitoring plan is prepared to address the runoff from the uncovered site hardstand areas.

8.2 Sampling Location

Sampling is to be conducted in each of the hardstand stormwater collection systems located to the north of the site (see Attachment D).

Sampling from these locations shall provide the most appropriate indication of potential adverse water quality impacts as a result of the site's operation.

8.3 Sampling Frequency

Sampling is to be undertaken on an approximately quarterly basis. Sampling is to be timed to target wet weather runoff from hardstand.

Sampling should be undertaken only after adequate rainfall to generate site runoff in the 48 hour period prior to sampling.

It is recommended that sampling be undertaken for 1 year, following which a water quality analysis report should be provided to NSW EPA (site's licensing authority). Depending on results of analysis, the sampling regime may be amended subject to NSW EPA's approval.

8.4 Sampling Methodology

Water sampling is to be undertaken by an appropriately qualified professional using grab sampling method. Water sampling procedures as follows:

- Wear a clean pair of gloves before the start of sampling process to minimise potential contamination problems;
- Place a sample pole and uniquely labelled container(s) (provided by the laboratory) and appropriate for testing

proposed into the tank approximately 2-300 mm below the water surface;

- Fill container(s) completely to exclude air and replace cap;
- Place container(s) into a suitable box for transportation;
- Complete field data sheets (ie. date and time of sample collection, antecedent rainfall for 48 days prior from BOM station - Sydney Observatory Hill, water level in the tank and sample appearance at the time of collection); and
- Deliver samples to the laboratory accompanied by chain of custody documentation within hold time for analytes selected.

8.5 Testing Laboratory

Testing shall be conducted by a National Association Testing Authorities (NATA) accredited analytical testing laboratory.

8.6 Analysis Parameters

Collected water samples are to be tested for parameters targeting the likely pollutants from the site. TSS, TP and TN are targeted as primary pollutants from a roadway while PH is proposed due to the alkaline nature of cementitious material.

- Total Suspended Solids (TSS);
- Total Phosphorus (TP);
- Total Nitrogen (TN);
- pH

8.7 Assessment Criteria

Laboratory analysis results are to be assessed against the MUSIC modelling results. Criteria of each parameters is summarised in Table 6 based on council water quality objectives. pH criteria is specified based on ANZECC (2000).

Table 6: Proposed stormwater runoff assessment criteria.

Parameter	Assessment Criteria
Total suspended solids (TSS)	114.8 mg/L
Total Phosphorus (TP)	0.35 mg/L
Total Nitrogen (TN)	2.02 mg/L
pH	6.5-8.5

An annual monitoring report will be prepared summarising the following information:

- Discussion of trends in water quality;
- Discussion of exceedances in water quality parameters;
- Review and recommendation regarding ongoing monitoring required in light of test results;
- Identification of any contamination and potential causes of contamination;
- Recommendations to address any water quality issues; and
- Advice for ongoing sampling requirements (ie. sampling number and frequency) for the next monitoring period (1 year).

8.8 Mitigation Measures

The mitigation measures identified to address adverse potential impacts anticipated during the construction and operation of the proposed concrete plant are summarised in Table 7.

Table 7: Summary of mitigation measures.

Type of pollutants	Impacts	Mitigation measures
TSS, TP and TN	**Construction impacts:** Increased sediment loads in the adjacent bay. **Operational impacts:** Increased level of TSS and nutrients in the adjacent bay, causing reduced water clarity, eutrophication and degradation of marine ecosystem.	Implementation and management of sediment and erosion control measures. Implementation and maintenance of the stormwater treatment train assessed by MUSIC as achieving council's performance standard.
pH	Increased pH in the downstream waterbody, adversely affecting aquatic life and ecosystem.	The impacts are addressed by stopping stormwater from interacting with the cementitious material by containing batching and loading operations to areas covered by roof.
Hydrocarbons	Increased hydrocarbons in the downstream waterbody, adversely affecting aquatic life and ecosystem and visual impacts.	The impacts will be prevented or minimised by regular inspection and maintenance of vehicles and accessibility to spill prevention and response equipment.

9 Integrated Water Cycle Management

9.1 Overview

This section provides a summary of the site water management system for the development including stormwater quality control, generation rates and reuse, reuse of wastewater, and supply of water for site demands.

9.2 Stormwater Management

9.2.1 Stormwater Drainage System

A concept stormwater drainage system has been developed for the proposed concrete batching plant. The proposed drainage system has been designed to convey site runoff via reuse and treatment to discharge points at surrounding bays.

9.2.2 Stormwater Quality

The proposed treatment train for the post developed site, which includes roof and hardstand runoff storage tanks and Enviropods achieves required Leichhardt Council performance criteria.

9.3 Wastewater Management

Staff will generate approximately 7kL/day of wastewater that will be disposed of to town sewer.

As wastewater produced by the operation are to be captured and reused on the site, no industrial wastewater requiring offsite disposal is generated.

Identified sources of industrial wastewater are all considered to be 'closed' self sufficient systems, where wastewater is recollected and reused onsite. Therefore, no industrial wastewater is generated.

9.4 Water Supply Analysis

Water supply for site demands comes from four sources:

- roofwater;
- stormwater runoff reuse,
- industrial wastewater reuse; and
- town water.

Water balance modelling shows that reuse of stormwater and reclamation of production wastewater results in a reduction in town water demand of 33%. 30.4ML/year is supplied by reuse of stormwater and wastewater with 135.7ML/year of town water required.

9.5 Additional Works

Detailed design of a number of water cycle management system components presented in this report shall be provided to during the construction certificate (CC) stage. These include:

1. Detailed design of the rainwater tanks/stormwater collection tanks.

2. Complete design details of the roof water collection, reticulation, treatment and transfer/supply system, including treatment system manufacturing details, pump specifications, pipe sizes etc.

3. Design details for all stormwater infrastructure including necessary site bunding and drainage pits and pipes to ensure collection of potentially contaminated stormwater runoff and its treatment in accordance with the conceptual design documented in the project MUSIC model.

4. Preparation of a management plan to address risks to water supply.

10 References

Australian and New Zealand Environment and Conservation Council (ANZECC 2000), *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.

BMT WBM NSW MUSIC Modelling Guidelines (2015).

Leichhardt DCP (2013). Part E: WATER.

Leichhardt Municipal Council Local Environmental Plan (2013).

NSW Department of Mineral Resources, (1983) *Sydney 1:100,000 Geological Sheet 9130*.

NSW DPI Water groundwater database, accessed 18 September, 2017, http://allwaterdata.water.nsw.gov.au/water.stm.

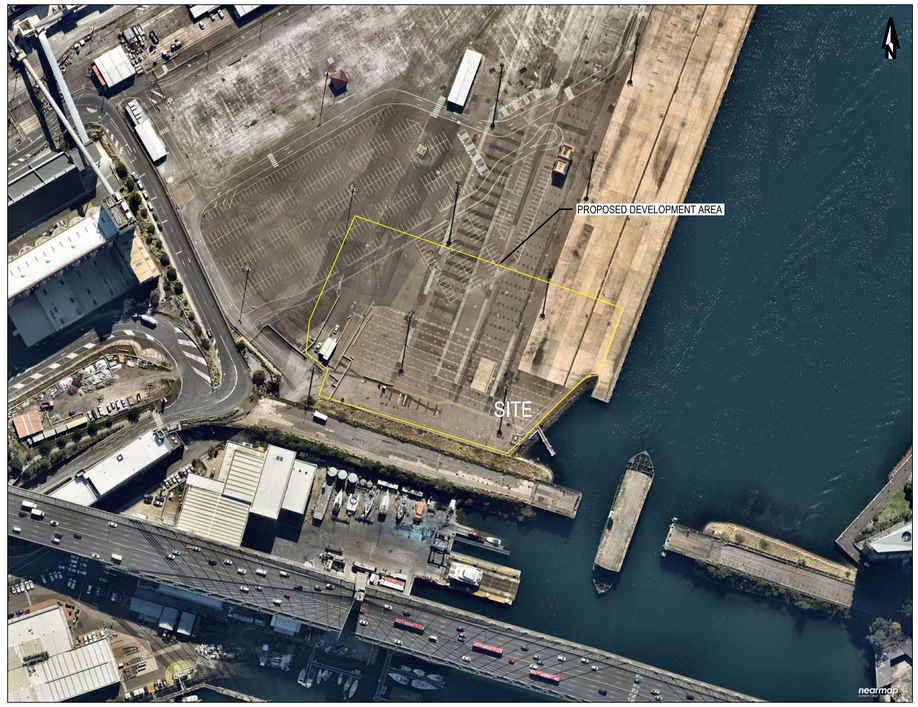
Secretary's Environmental Assessment Requirements (2017).

11 Attachment A – Planset

PROJECT: PROPOSED CONCRETE BATCHING PLANT

PLANSET: WATER MANAGEMENT CONCEPT PLAN

CLIENT: HANSON CONSTRUCTION MATERIALS PTY LTD



LOCALITY PLAN
N.T.S.

DRAWING LIST		
DWG NO.	REV	DWG TITLE
GENERAL		
PS02-A000	B	COVER SHEET
CONSTRUCTION MANAGEMENT WORKS		
PS02-B300	B	SEDIMENT & EROSION CONTROL PLAN
PS02-B301	B	SEDIMENT & EROSION CONTROL DETAILS
DRAINAGE		
PS02-E100	B	DRAINAGE PLAN
PS02-E700	B	WATER QUALITY CATCHMENT PLAN, MODEL & RESULT
PS02-EZ00	B	WATER BALANCE

LGA: INNER WEST COUNCIL

GLEBE ISLAND, ROZELLE, NSW
Lot 10, DP 1170710

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	CHECKED & APPROVED	08/02/2017	KH	EZ	AN	AN
A	INITIAL RELEASE	16/11/2017	EZ/RK	EZ		

SCALE

GRID	DATUM	PROJECT MANAGER
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CLIENT: HANSON CONSTRUCTION MATERIALS P/L

PROJECT NAME/PLANSET TITLE: PROPOSED CONCRETE BATCHING PLANT
WATER MANAGEMENT CONCEPT PLAN
GLEBE ISLAND
Lot 10 DP 1170710

martens & Associates Pty Ltd
Consulting Engineers
Environment
Water
Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

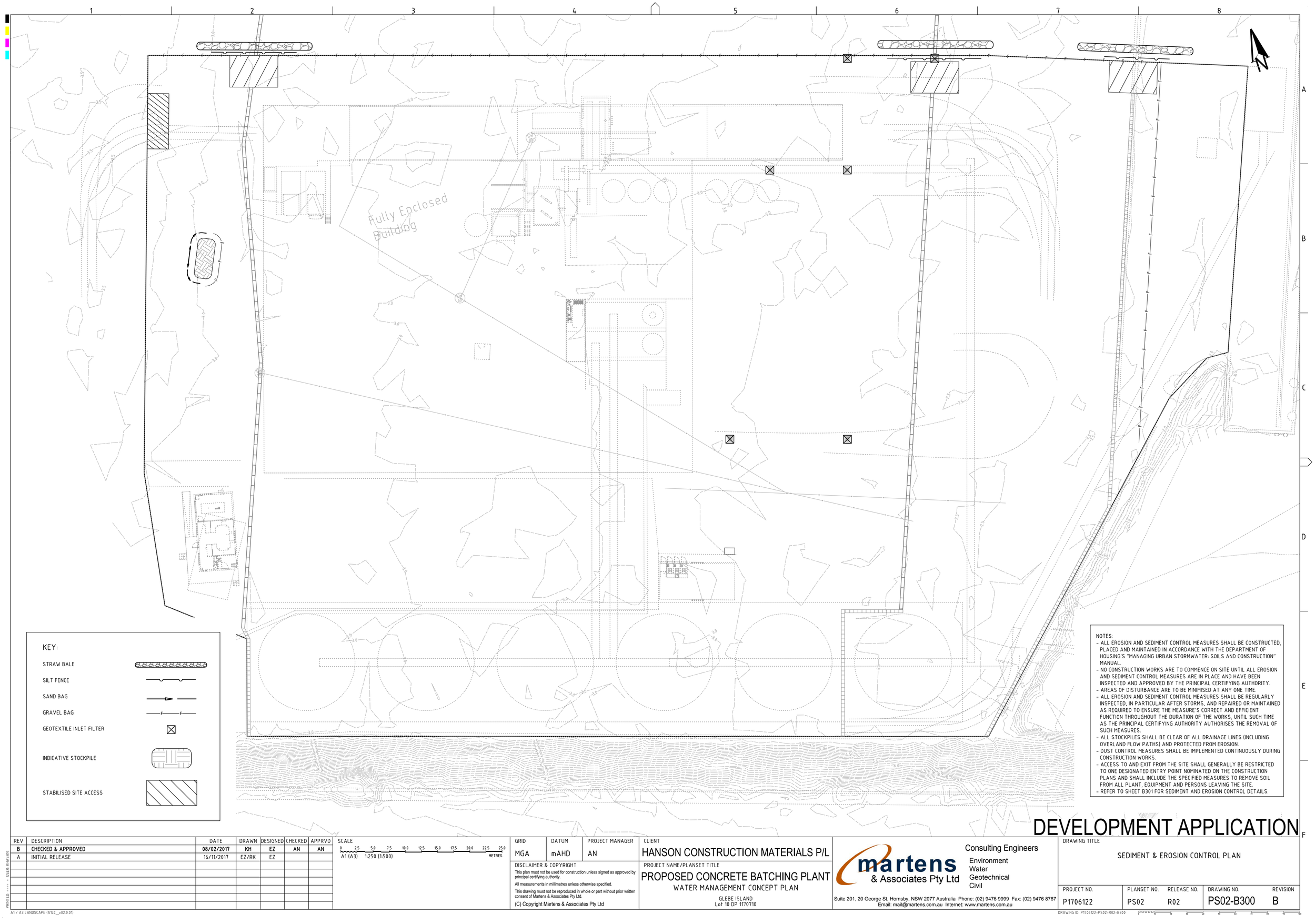
DRAWING TITLE: COVER SHEET

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706122	PS02	R02	PS02-A000	B

DRAWING ID: P1706122-PS02-R02-A000

PRINTED: --- - USER: KHASAN

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



KEY:

- STRAW BALE
- SILT FENCE
- SAND BAG
- GRAVEL BAG
- GEOTEXTILE INLET FILTER
- INDICATIVE STOCKPILE
- STABILISED SITE ACCESS

NOTES:
- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH THE DEPARTMENT OF HOUSING'S "MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION" MANUAL.
- NO CONSTRUCTION WORKS ARE TO COMMENCE ON SITE UNTIL ALL EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE AND HAVE BEEN INSPECTED AND APPROVED BY THE PRINCIPAL CERTIFYING AUTHORITY.
- AREAS OF DISTURBANCE ARE TO BE MINIMISED AT ANY ONE TIME.
- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REGULARLY INSPECTED, IN PARTICULAR AFTER STORMS, AND REPAIRED OR MAINTAINED AS REQUIRED TO ENSURE THE MEASURE'S CORRECT AND EFFICIENT FUNCTION THROUGHOUT THE DURATION OF THE WORKS, UNTIL SUCH TIME AS THE PRINCIPAL CERTIFYING AUTHORITY AUTHORISES THE REMOVAL OF SUCH MEASURES.
- ALL STOCKPILES SHALL BE CLEAR OF ALL DRAINAGE LINES (INCLUDING OVERLAND FLOW PATHS) AND PROTECTED FROM EROSION.
- DUST CONTROL MEASURES SHALL BE IMPLEMENTED CONTINUOUSLY DURING CONSTRUCTION WORKS.
- ACCESS TO AND EXIT FROM THE SITE SHALL GENERALLY BE RESTRICTED TO ONE DESIGNATED ENTRY POINT NOMINATED ON THE CONSTRUCTION PLANS AND SHALL INCLUDE THE SPECIFIED MEASURES TO REMOVE SOIL FROM ALL PLANT, EQUIPMENT AND PERSONS LEAVING THE SITE.
- REFER TO SHEET B301 FOR SEDIMENT AND EROSION CONTROL DETAILS.

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**CHECKED & APPROVED**	**08/02/2017**	**KH**	**EZ**	**AN**	**AN**
A	INITIAL RELEASE	16/11/2017	EZ/RK	EZ		

SCALE
0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:250 (1:500)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	AN

CLIENT
HANSON CONSTRUCTION MATERIALS P/L

PROJECT NAME/PLANSET TITLE
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WATER MANAGEMENT CONCEPT PLAN

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DRAWING TITLE
SEDIMENT & EROSION CONTROL PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706122	PS02	R02	PS02-B300	B

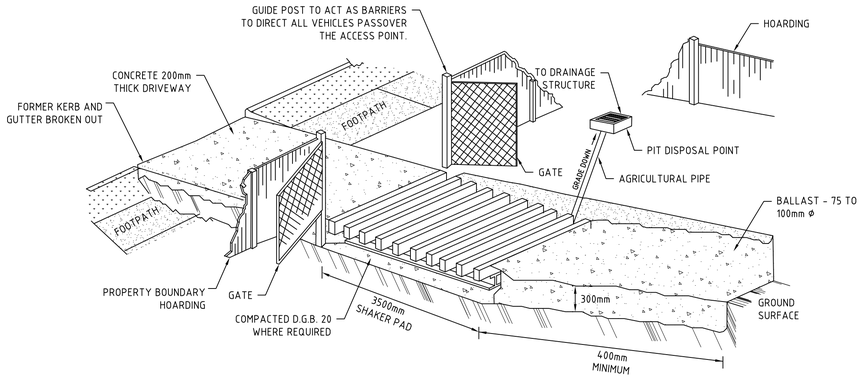
PRINTED: --- - USER: KHUSAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)
DRAWING ID: P1706122-PS02-R02-B300

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 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 ADJCENT 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)

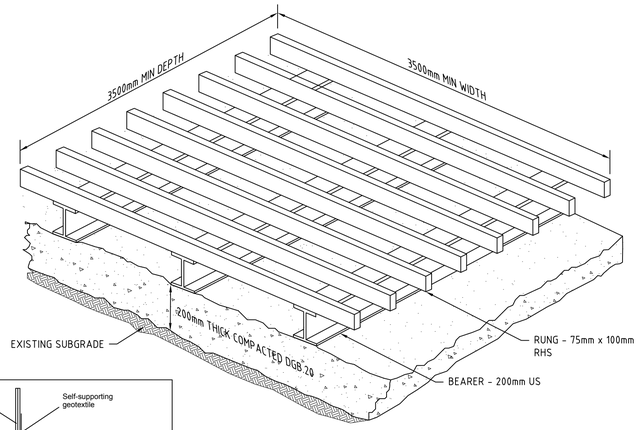
A CORRECTLY DESIGNED AND INSTALLED SHAKER PAD WILL ASSIST IN PREVENTING SEDIMENT TRANSFERE FROM A SITE. ANY STABILISED ACCESS POINT (SAP) CAN BE DESIGNED WITH A SHAKER PAD (COMPULSOPRY IN TYPE II SAP'S)

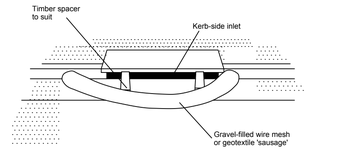
SHAKER PADS CAN BE DESIGNED AND CONSTRUCTED TO ENABLE RE-USE ON FUTURE PROJECTS.

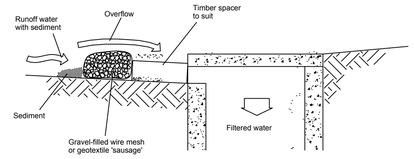
THE SHAKER PAD:

- MUST BE DESIGNED AND CERTIFIED BY A PRACTICING STRUCTURAL ENGINEER. THE CERTIFIED DESIGN SHOULD BE SUBMITTED WITH THE RELEVENT 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 MINIMUN 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 TYERS OF VEHICLES LEAVING THE SITE TRAVERSE THE DEVICE.





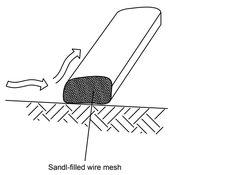


NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

Construction Notes

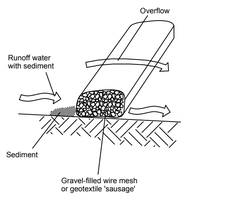
1. Install filters to kerb inlets only at sag points.
2. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
5. Form a seal with the kerb to prevent sediment bypassing the filter.
6. 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 ☒ SD 6-11



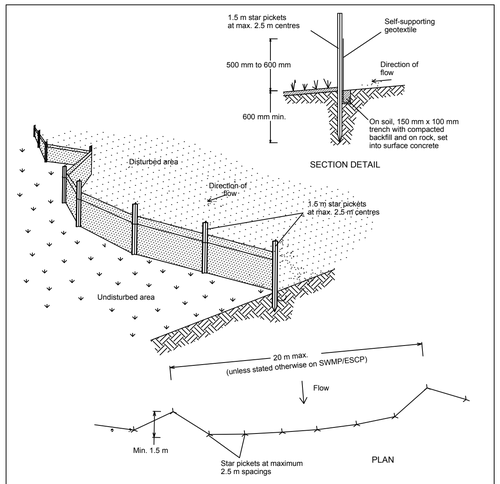
NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

SAND BAG



NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

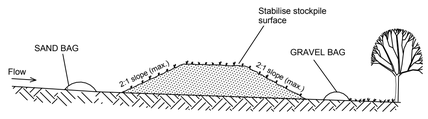
GRAVEL BAG



Construction Notes

1. 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.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 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.
4. 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.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

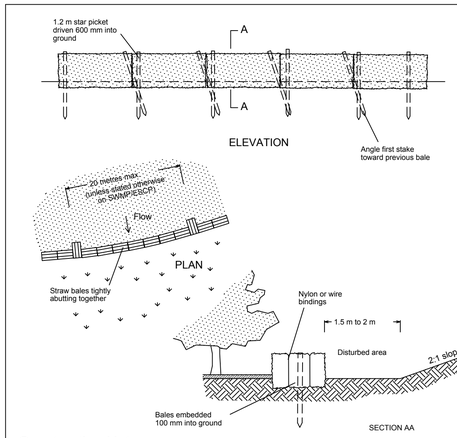
SILT FENCE SD 6-8



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. 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.
5. Construct sand bags on the upslope side to divert water around stockpiles and gravel bags 1 to 2 metres downslope.

STOCKPILES SD 4-1



Construction Notes

1. Construct the straw bale filter as close as possible to being parallel to the contours of the site.
2. 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.
3. Ensure that the maximum height of the filter is one bale.
4. Embed each bale in the ground 75 mm to 100 mm and anchor with two 1.2 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 safety caps.
5. 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.
6. 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 SD 6-7

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	CHECKED & APPROVED	08/02/2017	KH	EZ	AN	AN
A	INITIAL RELEASE	16/11/2017	EZ/RK	EZ		

SCALE

GRID: ---
DATUM: ---
PROJECT MANAGER: AN

CLIENT: HANSON CONSTRUCTION MATERIALS P/L

PROJECT NAME/PLANSET TITLE
PROPOSED CONCRETE BATCHING PLANT
WATER MANAGEMENT CONCEPT PLAN
GLEBE ISLAND
Lot 10 DP 1170710

martens & Associates Pty Ltd
Consulting Engineers
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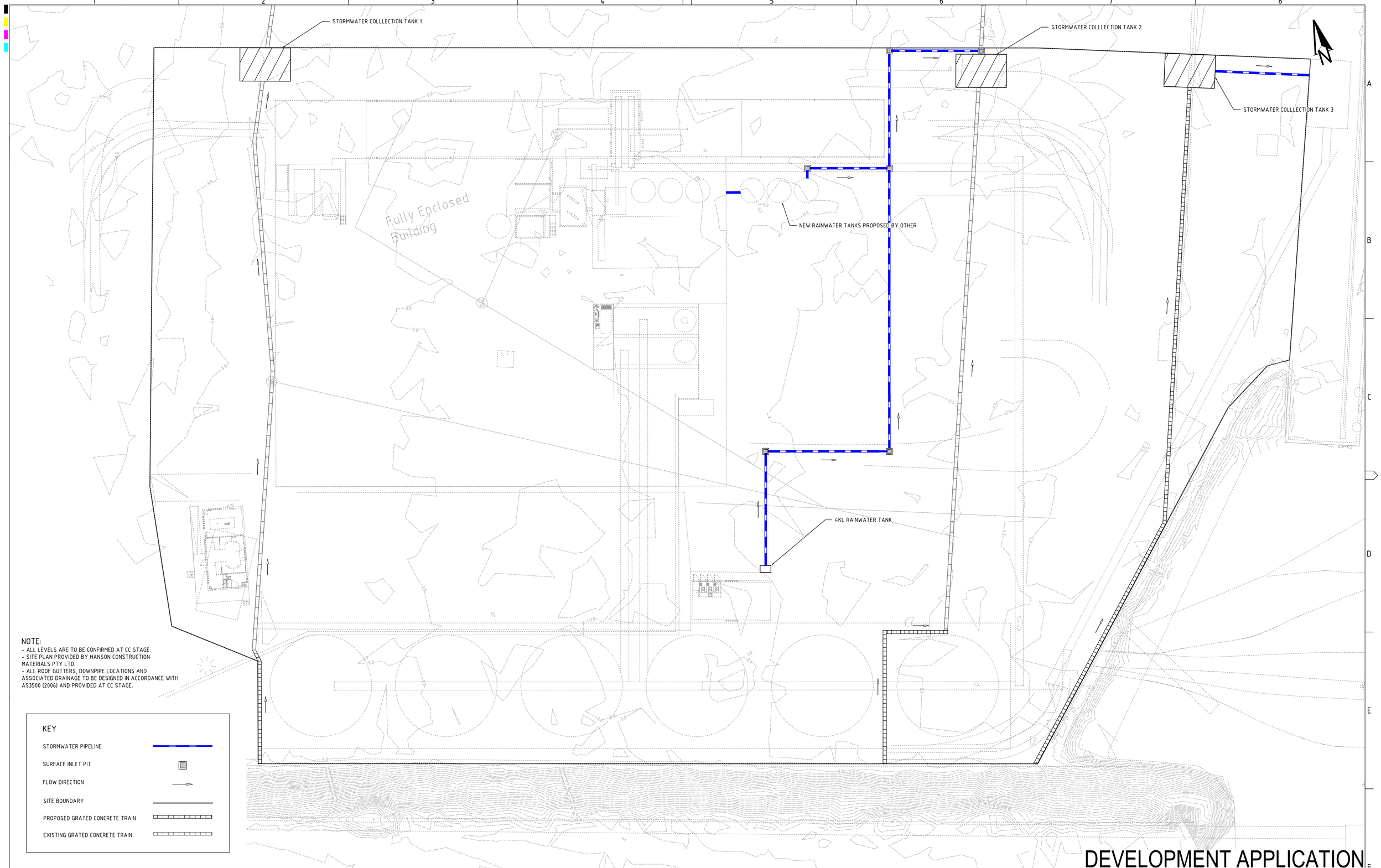
Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
SEDIMENT & EROSION CONTROL DETAILS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706122	PS02	R02	PS02-B301	B

PRINTED: --- - USER: KHASAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)
DRAWING ID: P1706122-PS02-R02-B301



NOTE:
- ALL LEVELS ARE TO BE CONFIRMED AT CC STAGE.
- SITE PLAN PROVIDED BY HANSON CONSTRUCTION MATERIALS PTY LTD.
- ALL ROOF GUTTERS, DOWNPIPE LOCATIONS AND ASSOCIATED DRAINAGE TO BE DESIGNED IN ACCORDANCE WITH AS3500 (2006) AND PROVIDED AT CC STAGE.

KEY

- STORMWATER PIPELINE
- SURFACE INLET PIT
- FLOW DIRECTION
- SITE BOUNDARY
- PROPOSED GRATED CONCRETE TRAIN
- EXISTING GRATED CONCRETE TRAIN

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**CHECKED & APPROVED**	**08/02/2017**	**KH**	**EZ**	**AN**	**AN**
A	INITIAL RELEASE	16/11/2017	EZ/RK	EZ		

SCALE
0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:250 (1:500)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	AN

CLIENT
HANSON CONSTRUCTION MATERIALS P/L

PROJECT NAME/PLANSET TITLE
PROPOSED CONCRETE BATCHING PLANT
WATER MANAGEMENT CONCEPT PLAN
GLEBE ISLAND
Lot 10 DP 1170710

martens & Associates Pty Ltd
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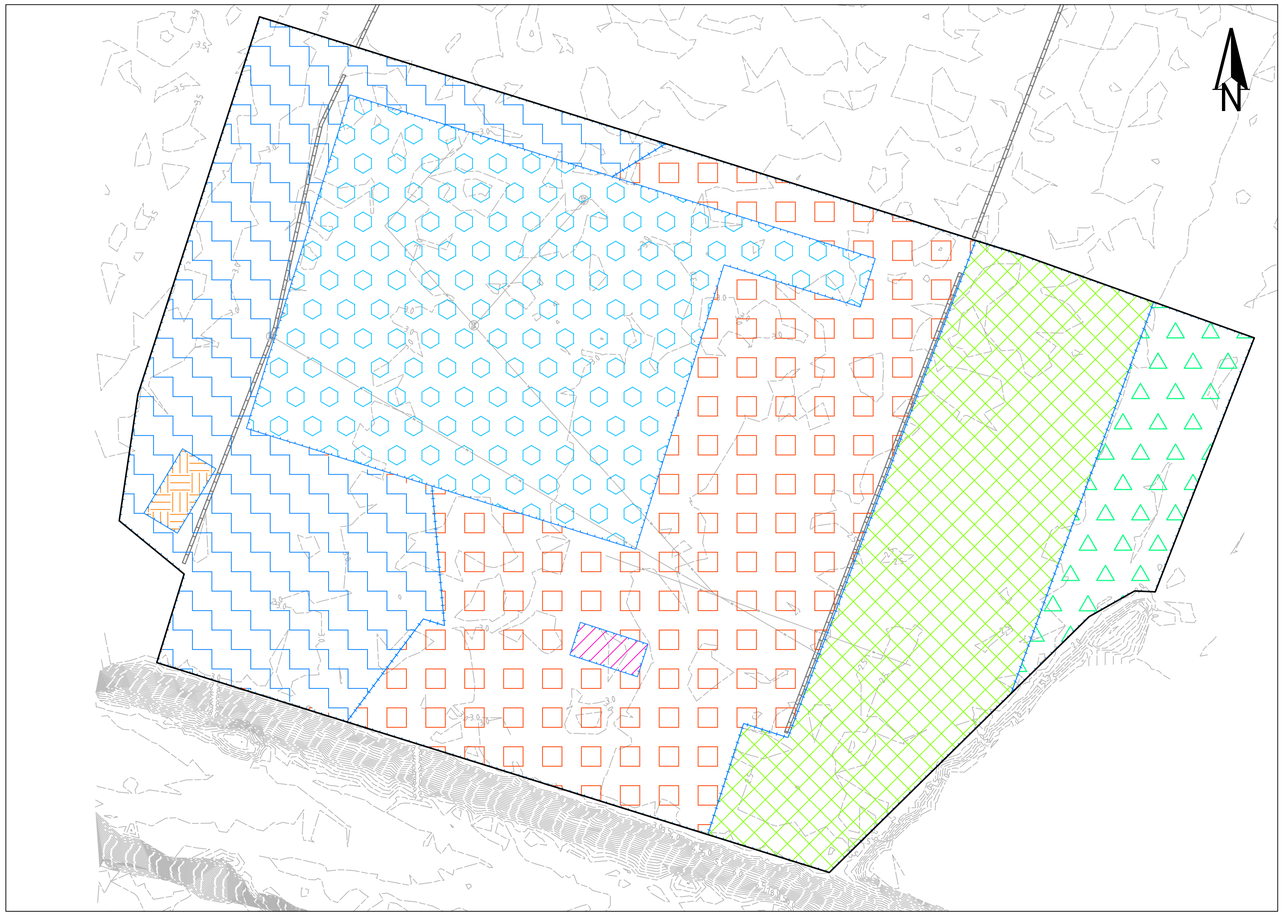
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
DRAINAGE PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706122	PS02	R02	PS02-E100	B

PRINTED: --- USER: MHASAN
A1 / A3 LANDSCAPE (A1LC__v02.0.01)
DRAWING ID: P1706122-PS02-R02-E100



MUSIC CATCHMENT PLAN

MUSIC CATCHMENTS (P1706122MUS01V02)					
KEY	DESCRIPTION	MUSIC NODE ID	AREA (ha)	IMPERVIOUS %	MUSIC NODE REFERENCE
	ROOF DRAINS INTO 275KL RWTs	1A01A	0.398	100	NSW MUSIC MODELLING GUIDELINES (2015)
	ROOF DRAINS INTO 4KL RWTs	1A02A	0.016	100	NSW MUSIC MODELLING GUIDELINES (2015)
	ROOF BYPASSES RWTS	1A03A	0.01	100	NSW MUSIC MODELLING GUIDELINES (2015)
	ROADS TO STORMWATER COLLECTION TANK 1	1B01A	0.458	100	NSW MUSIC MODELLING GUIDELINES (2015)
	ROADS TO STORMWATER COLLECTION TANK 2	1B02A	0.337	100	NSW MUSIC MODELLING GUIDELINES (2015)
	ROADS TO STORMWATER COLLECTION TANK 3	1B03A	0.308	100	NSW MUSIC MODELLING GUIDELINES (2015)
	ROADS BYPASSES	1B04A	0.092	100	NSW MUSIC MODELLING GUIDELINES (2015)
TOTAL SITE					
		TOTAL - OVERALL	1.619		= 100 % OF OVERALL AREA
		TOTAL - IMPERVIOUS	1.619		= 100% OF OVERALL AREA
		TOTAL - PERVIOUS	0		= 0 % OF OVERALL AREA

MUSIC CATCHMENT SUMMARY

MUSIC MODELLING RESULTS (P1706122MUS01V02)				
MUSIC NODE	POST DEVELOPMENT NODE			
PARAMETER	SOURCES	RESIDUAL LOAD	% REDUCTION	% TARGET
FLOW (ML/YR)	17.3	5.88	66.1	NONE
TOTAL SUSPENDED SOLIDS (KG/YR)	4500	675	85	85
TOTAL PHOSPHORUS (KG/YR)	8.1	2.08	74.3	65
TOTAL NITROGEN (KG/YR)	40.5	11.9	70.6	45
GROSS POLLUTANTS (KG/YR)	420	25.7	93.9	90

MUSIC MODELLING RESULT

MUSIC MODEL LAYOUT

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**CHECKED & APPROVED**	**08/02/2017**	**KH**	**EZ**	**AN**	**AN**
A	INITIAL RELEASE	16/11/2017	EZ/RK	EZ		

SCALE: A1 (A3) 1:500 (1:1,000) — 0 5 10 15 20 25 30 35 40 45 50 METRES

GRID: MGA | DATUM: mAHD | PROJECT MANAGER: AN

CLIENT: HANSON CONSTRUCTION MATERIALS P/L

PROJECT NAME/PLANSET TITLE: PROPOSED CONCRETE BATCHING PLANT
WATER MANAGEMENT CONCEPT PLAN
GLEBE ISLAND
Lot 10 DP 1170710

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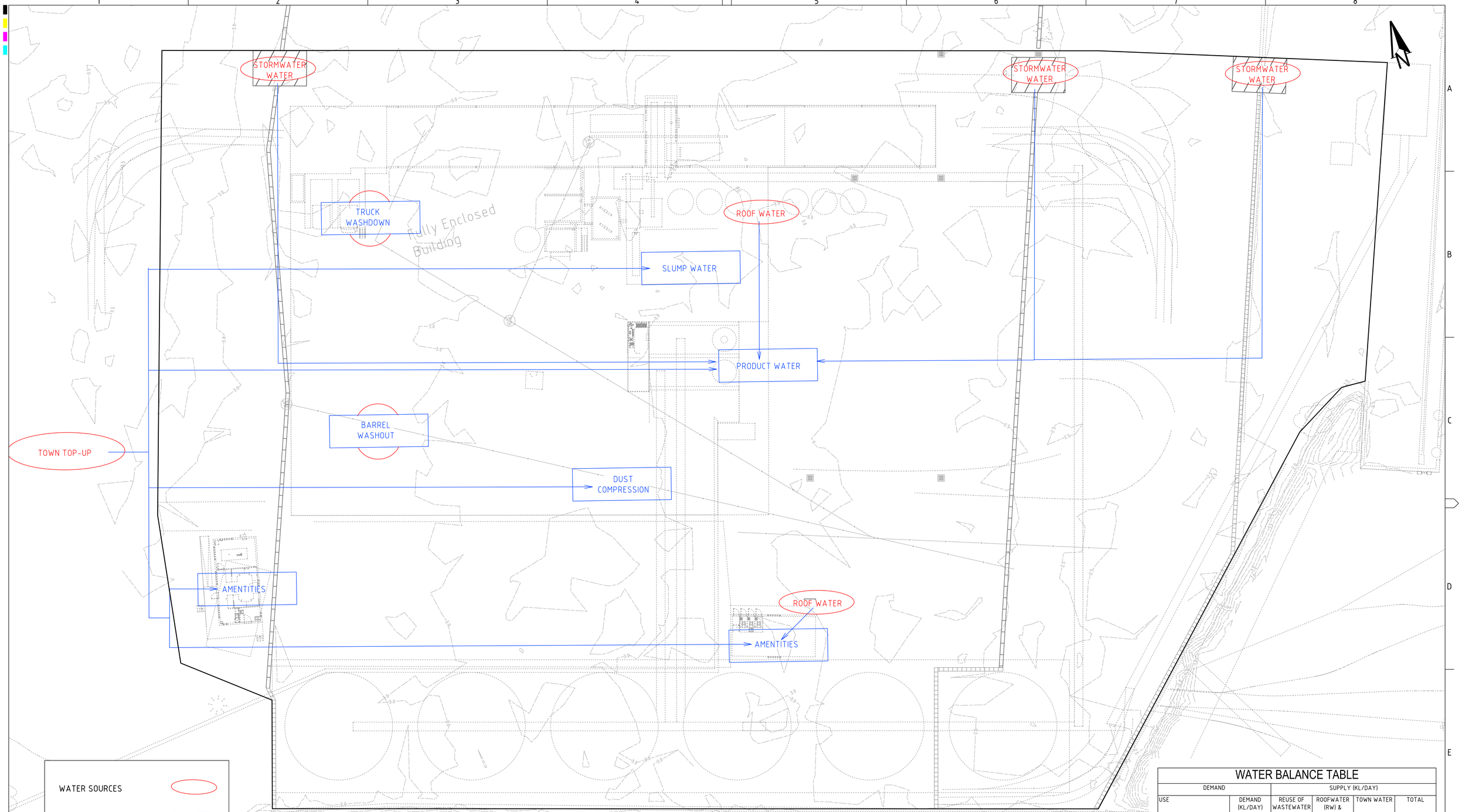
DRAWING TITLE: WATER QUALITY CATCHMENT PLAN, MODEL & RESULTS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706122	PS02	R02	PS02-E700	B

PRINTED: --- USER: KHASAN
A1 / A3 LANDSCAPE (A1LC_v02.0.01)
DRAWING ID: P1706122-PS02-R02-E700



WATER BALANCE TABLE

DEMAND	SUPPLY (KL/DAY)				
USE	DEMAND (KL/DAY)	REUSE OF WASTEWATER	ROOFWATER (RW) & STORMWATER (SW)	TOWN WATER	TOTAL
DUST SUPPRESSION	0.7	0	0	0.7	0.7
SLUMP WATER	54.8	0	0	54.8	54.8
AMENITIES	4.8	0	0.38	4.42	4.8
CONCRETE PRODUCTION	342.5	0.7	30.03	311.77	342.5
WASHDOWN	42.8	42.8	0	0	42.8
BARREL WASHOUT	150.7	150.7	0	0	150.7
TOTAL	596.3	194.21	30.42	371.67	596.3

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**CHECKED & APPROVED**	**08/02/2017**	**KH**	**EZ**	**AN**	**AN**
A	INITIAL RELEASE	16/11/2017	EZ/RK	EZ		

SCALE: 0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:250 (1:500)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	AN

CLIENT: HANSON CONSTRUCTION MATERIALS P/L

PROJECT NAME/PLANSET TITLE: PROPOSED CONCRETE BATCHING PLANT
WATER MANAGEMENT CONCEPT PLAN

GLEBE ISLAND
Lot 10 DP 1170710

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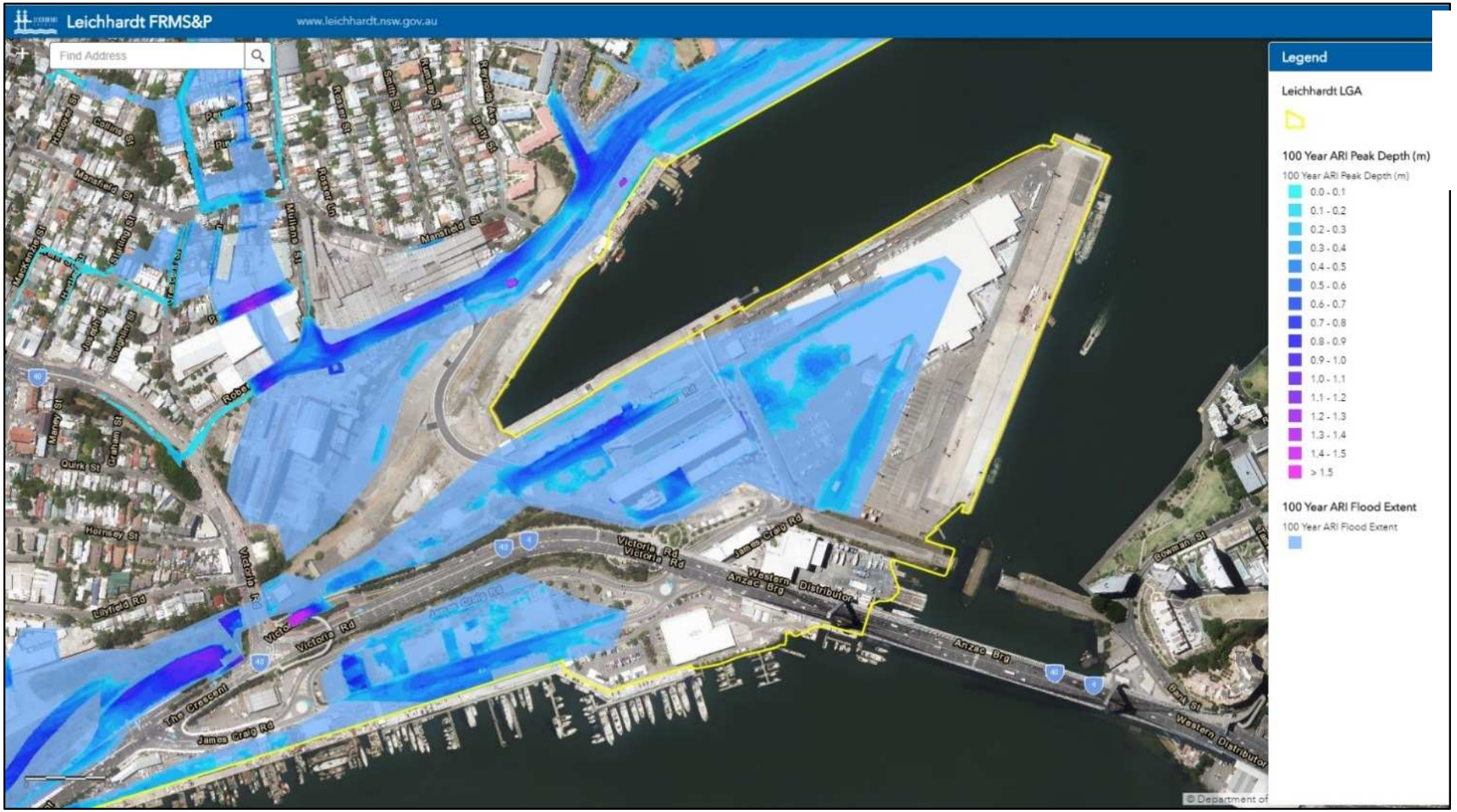
DRAWING TITLE: WATER BALANCE

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706122	PS02	R02	PS02-EZ00	B

PRINTED: 16/11/2017 - USER: KHOLMAN
A1 / A3 LANDSCAPE (A:\LC_v02.0.01)
DRAWING ID: P1706122-PS02-R02-EZ00

12 Attachment B – Figures



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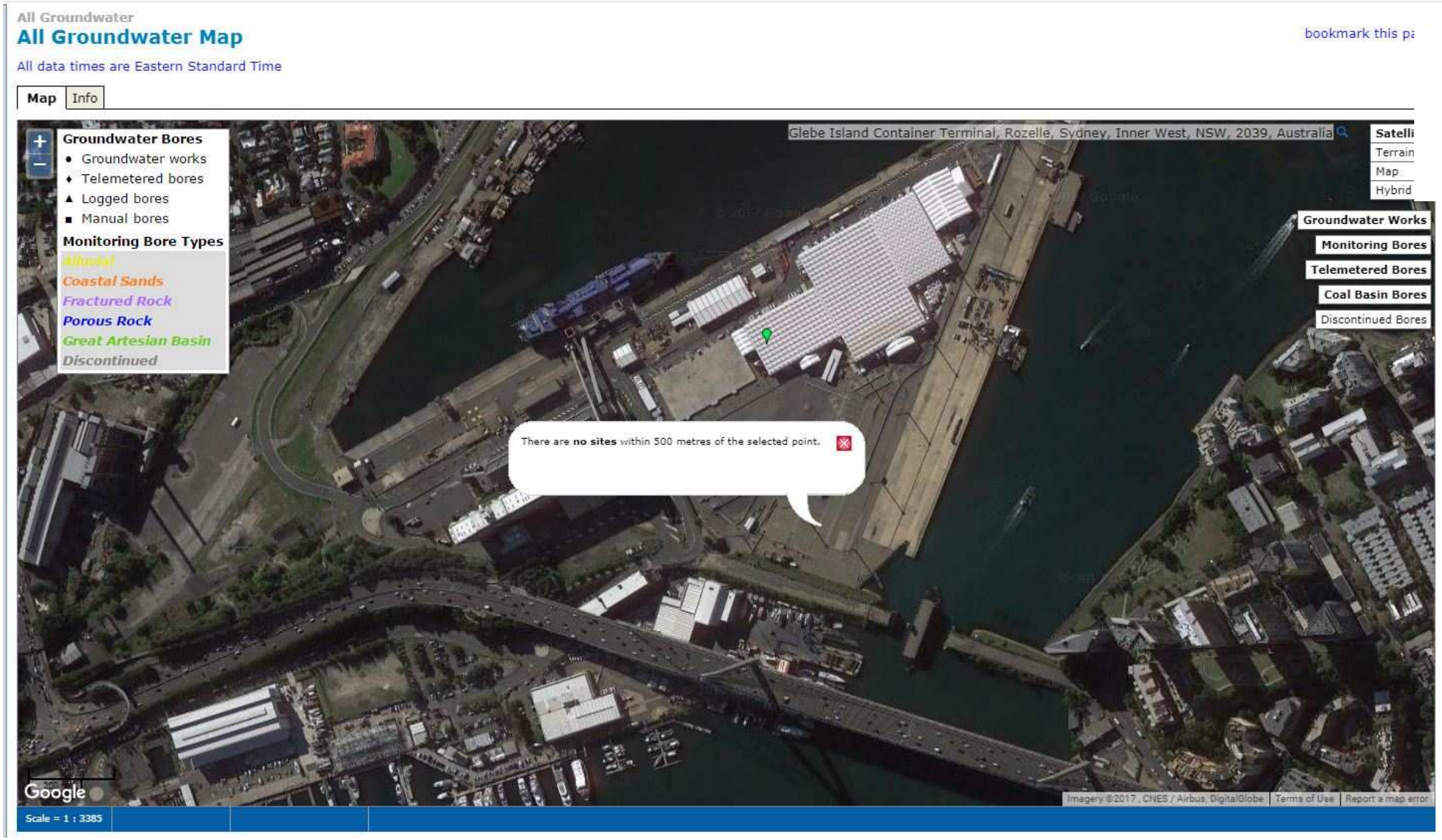
Martens & Associates Pty Ltd ABN 85 070 240 890		**Environment | Water | Wastewater | Geotechnical | Civil | Management**	
Drawn:	EZ	**100 year ARI Flood Map** **Glebe Island, Rozelle, NSW (Lot 10 DP 1170710)** **Source: Leichhardt Council Flood Mapping Tool, 2017**	Drawing No: Figure 1
Approved:	AN		
Date:	Nov 2017		
Scale:	Not to Scale		Job No: P1706122



Martens & Associates Pty Ltd ABN 85 070 240 890		**Environment | Water | Wastewater | Geotechnical | Civil | Management**	
Drawn:	CS	**Groundwater Bore Locations** **Glebe Island, Rozelle, NSW (Lot 10 DP 1170710)** **Source: NSW DPI Water Groundwater Database, 2017**	Drawing No: Figure 2
Approved:	AN		
Date:	Oct 2017		
Scale:	Not to Scale		Job No: P1706122

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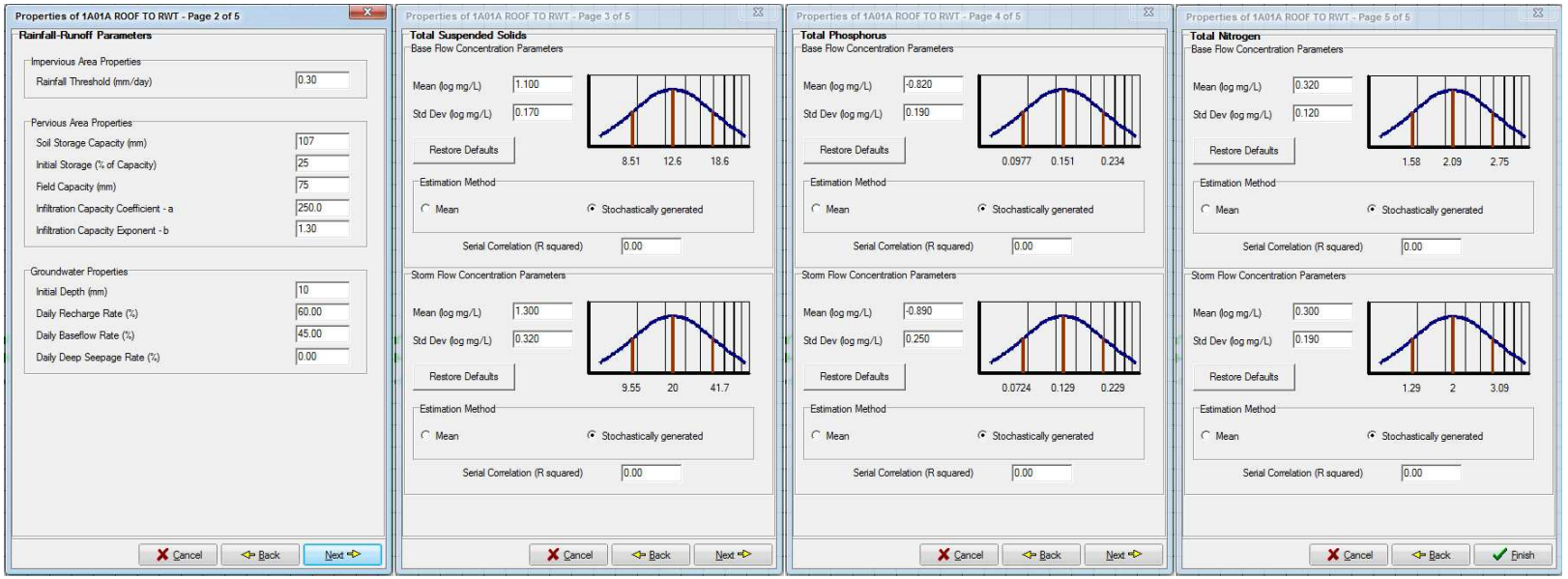
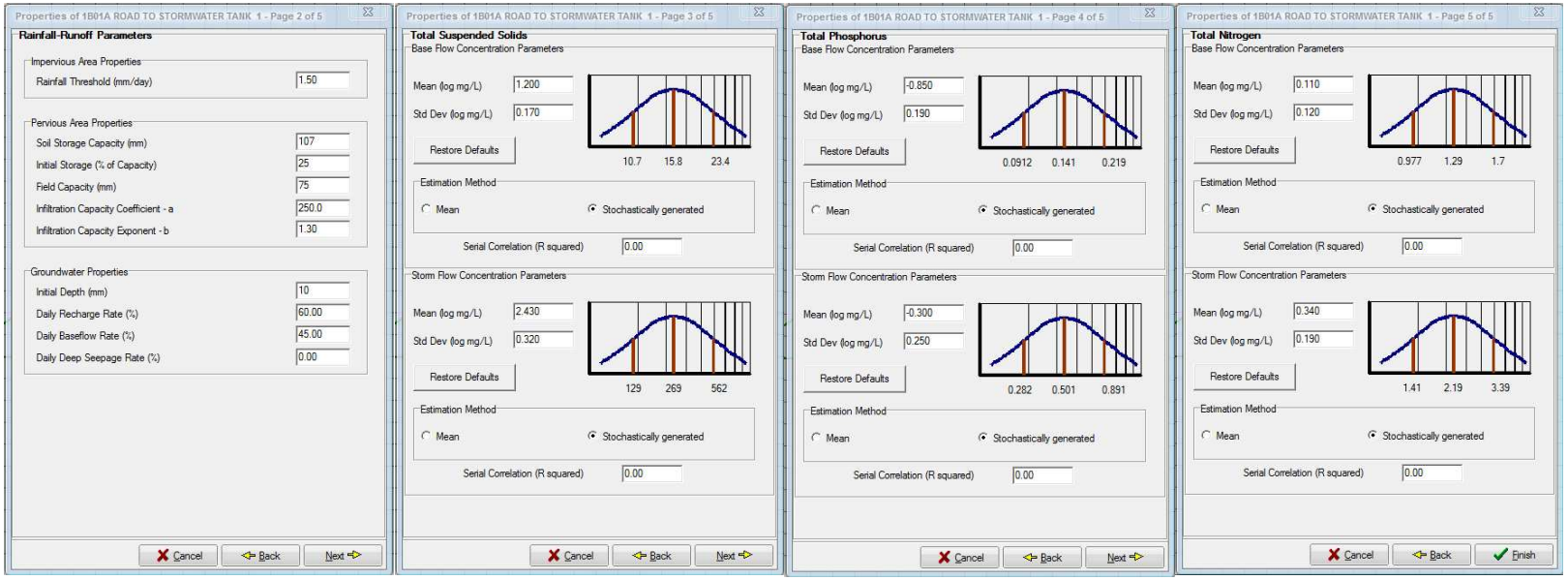
13 Attachment C – Summary of MUSIC input parameters

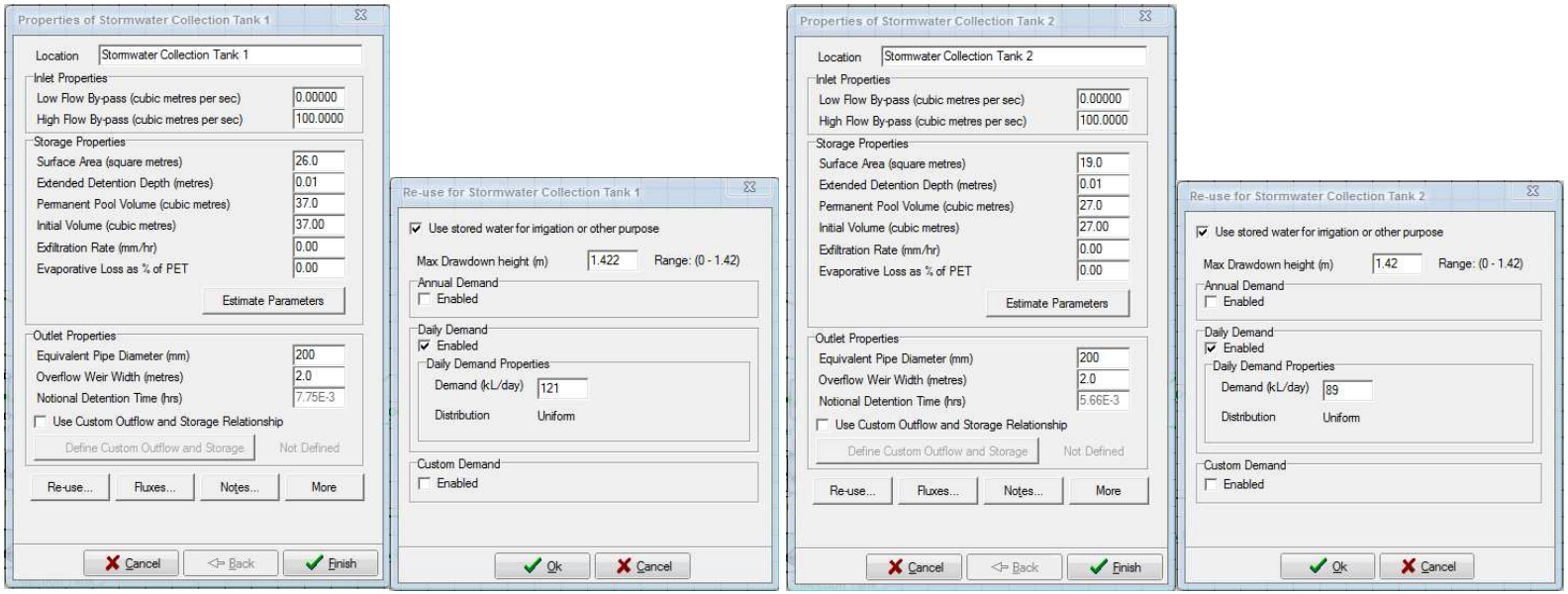
INPUTS FOR ROOFS

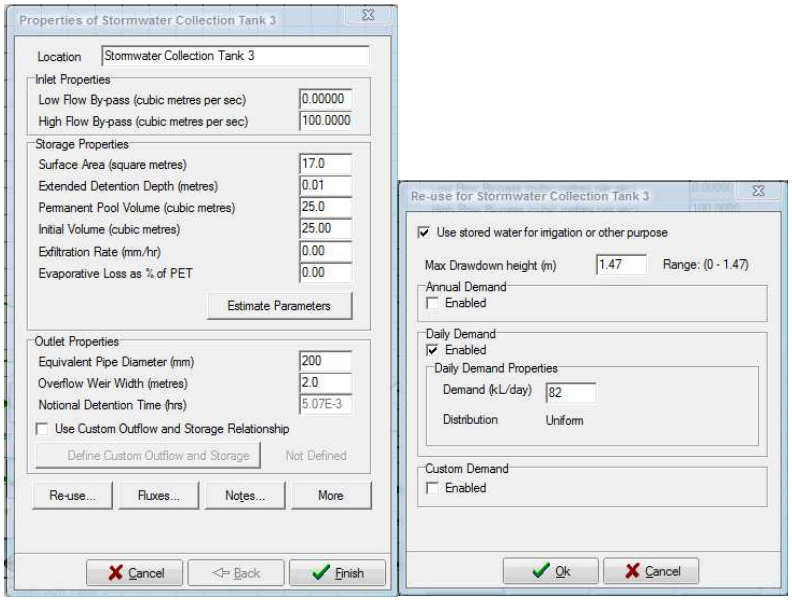


INPUTS FOR HARDSTAND AREAS

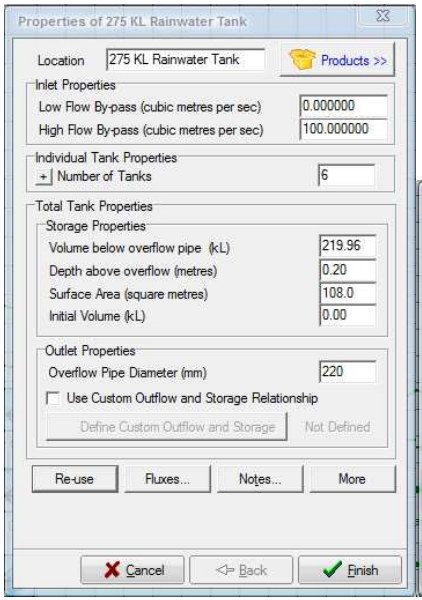


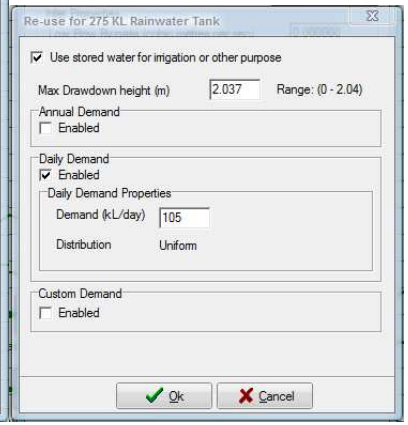
INPUTS FOR STORMWATER COLLECTION TANKS

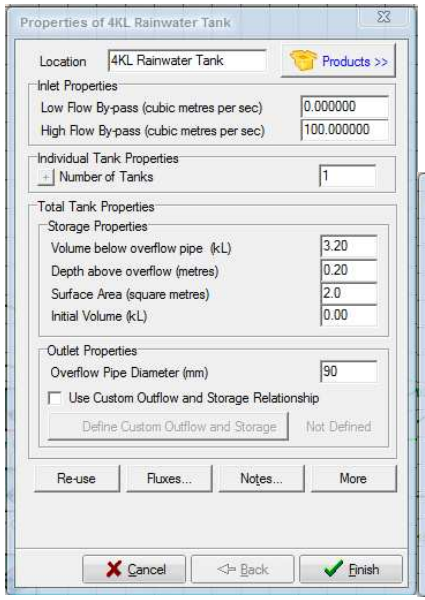


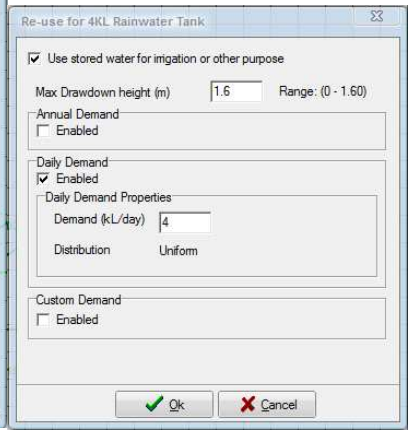

Properties of Stormwater Collection Tank 3
Location
Stormwater Collection Tank 3
Inlet Properties
Low Flow By-pass (cubic metres per sec)
0.00000
High Flow By-pass (cubic metres per sec)
100.0000
Storage Properties
Surface Area (square metres)
17.0
Extended Detention Depth (metres)
0.01
Permanent Pool Volume (cubic metres)
25.0
Initial Volume (cubic metres)
25.00
Exfiltration Rate (mm/hr)
0.00
Evaporative Loss as % of PET
0.00
Estimate Parameters
Outlet Properties
Equivalent Pipe Diameter (mm)
200
Overflow Weir Width (metres)
2.0
Notional Detention Time (hrs)
5.07E-3
Use Custom Outflow and Storage Relationship
Define Custom Outflow and Storage
Not Defined
Re-use...
Fluxes...
Notes...
More
Cancel
Back
Finish
Re-use for Stormwater Collection Tank 3
Use stored water for irrigation or other purpose
Max Drawdown height (m)
1.47
Range: (0 - 1.47)
Annual Demand
Enabled
Daily Demand
Enabled
Daily Demand Properties
Demand (kL/day)
82
Distribution
Uniform
Custom Demand
Enabled
Ok
Cancel

INPUTS FOR RAINWATER TANKS

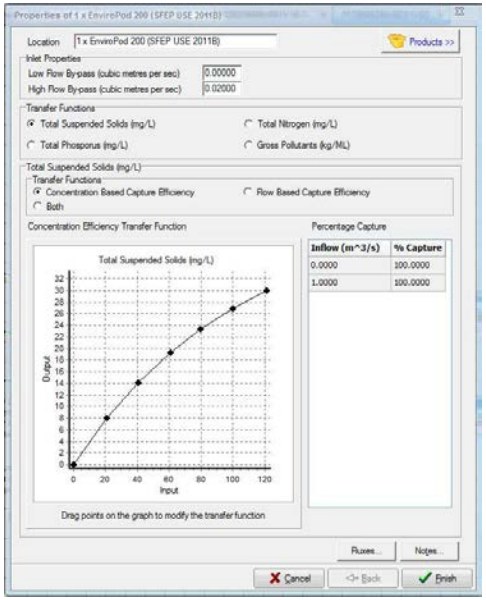


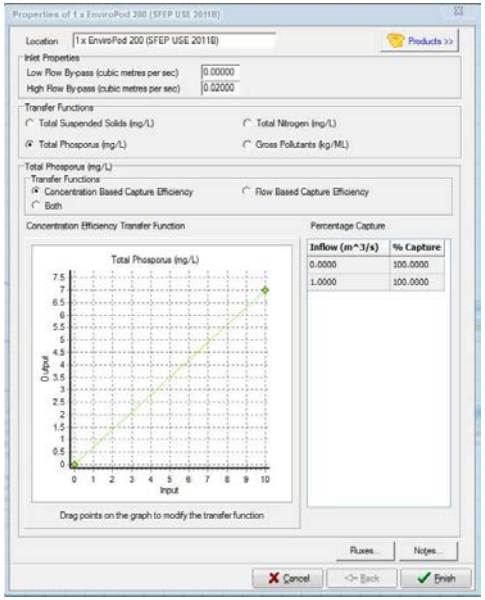


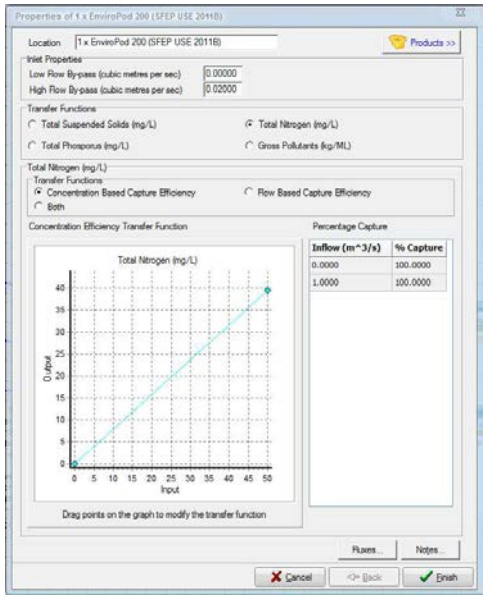


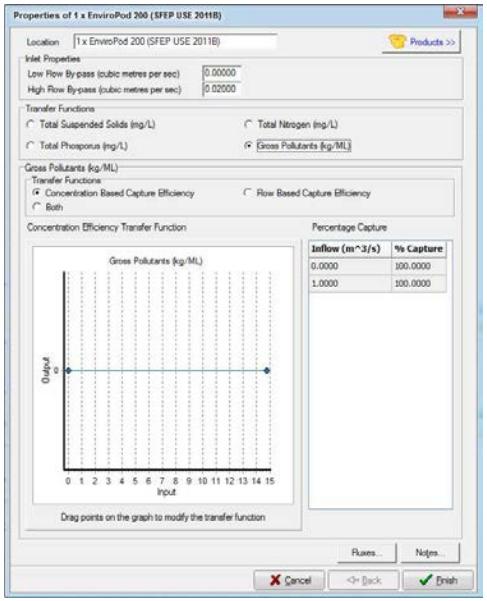


INPUTS FOR ENVIROPODS

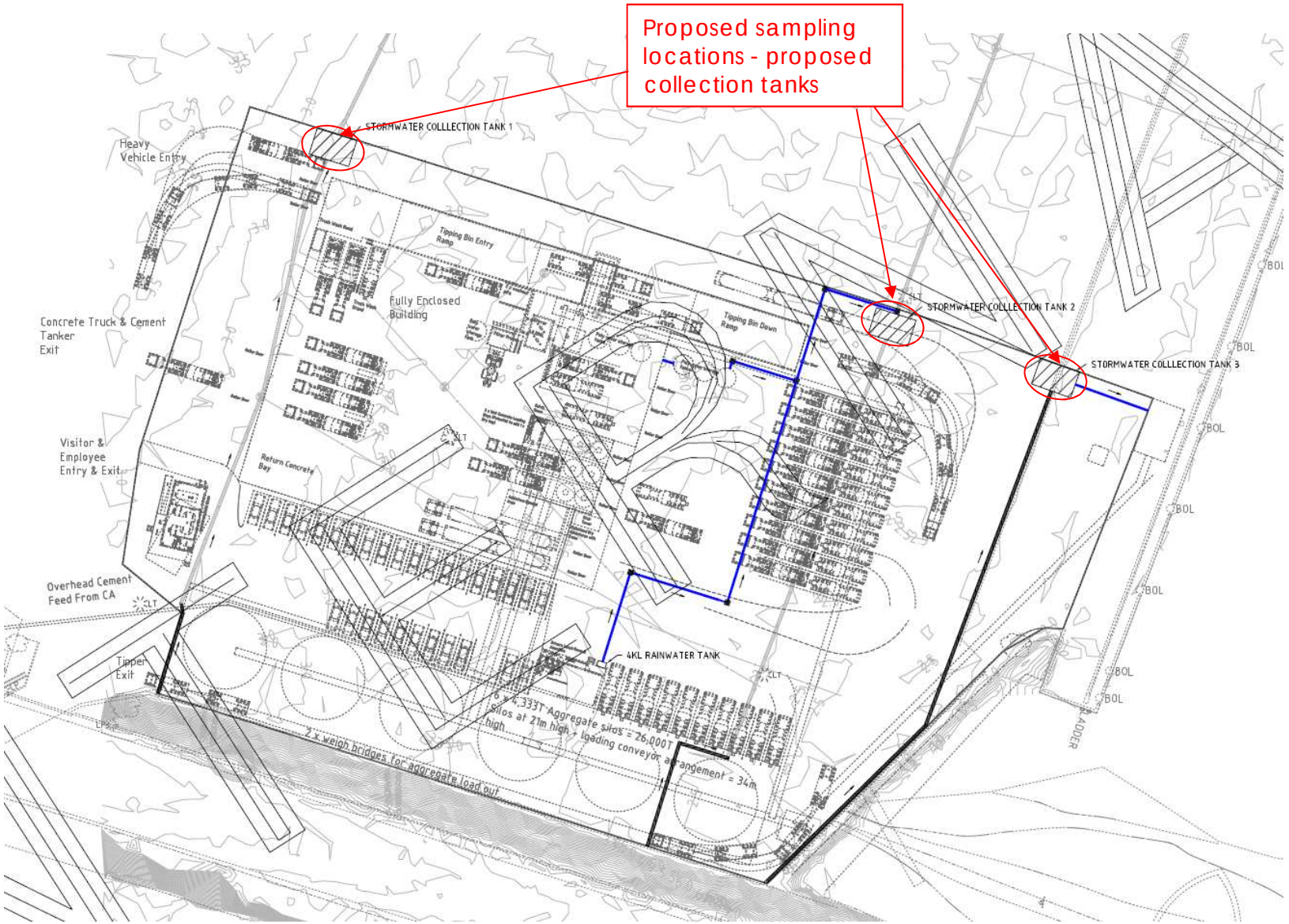







Properties of 1 x EnviroPod 200 (SFEP USE 2011B)
Location
1 x EnviroPod 200 (SFEP USE 2011B)
Products >>
Inlet Properties
Low Flow By-pass (cubic metres per sec)
0.00000
High Flow By-pass (cubic metres per sec)
0.02000
Transfer Functions
Total Suspended Solids (mg/L)
Total Nitrogen (mg/L)
Total Phosporus (mg/L)
Gross Pollutants (kg/ML)
Gross Pollutants (kg/ML)
Transfer Functions
Concentration Based Capture Efficiency
Flow Based Capture Efficiency
Both
Concentration Efficiency Transfer Function
Gross Pollutants (kg/ML)
Output
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Input
Drag points on the graph to modify the transfer function
Percentage Capture
Inflow (m^3/s)
% Capture
0.0000
100.0000
1.0000
100.0000
Fluxes...
Notes...
Cancel
<< Back
Finish

14 Attachment D – Site Testing Plan



martens

Martens & Associates Pty Ltd ABN 85 070 240 890		**Environment | Water | Wastewater | Geotechnical | Civil | Management**	
Drawn:	EZ	**100 year ARI Flood Map** **Glebe Island, Rozelle, NSW (Lot 10 DP 1170710)** **Source: Leichhardt Council Flood Mapping Tool, 2017**	Drawing No: Figure 1
Approved:	AN		
Date:	Nov 2017		
Scale:	Not to Scale		Job No: P1706122

15 Attachment E – Agency Consultation

Table 1: Summary of the consultation with government agencies and statutory authorities and response provided.

Date	Stakeholder	Method of contact	Enquiry	Response Provided	Where addressed in report
28-Sep-17	Tatjana Djuric-Simovic	Phone & letter	Enquired whether Inner West Council has any requirements in addition to SEARs (water, waste and contamination). Stormwater Quality Management: MUSIC model to comply with NorBE rather than 85/65/45 reduction rates for TSS, TP and TN.	Contamination Management: Inner West Council would request that no works involve the disturbance of existing concrete slabs or soils due to the contamination issues of the Blackwattle Bay. Water Quality Management: Inner West Council has no right to change the water treatment objectives. Two documents should be refer to during the preparation of water assessment: 1. Sydney Harbour Catchment Water Quality Improvement Plan (Local land Services Greater Sydney) and; 2. Sydney Harbour CZMP (Sydney Coastal Councils Group).	Not required S 7.1.1 – Council WQ objectives adopted for study. S 7.1.4 – Demonstrated compliance of proposed treatment train to performance standard specified by Council.
29-Sep-17	Michael Soo	Letter	Enquired whether City of Sydney Council has any requirements in addition to SEARs (water, waste and contamination).	None required	Not required
28-Sep-17	Ricardo Prieto-Curiel	Phone & letter	Enquired whether PANSW has any requirements in addition to SEARs (water, waste and contamination).	None required	Not required

6-Oct-17	Claire Miles	Phone & letter	Enquired whether EPA has any requirements in addition to SEARs (water, waste and contamination).	Water Quality Management: 1. The EPA recommends that any assessment references the NSW Water Quality Objectives and the Australian and NEW Zealand guidelines for fresh and marine water quality: Volume 1 (2000); 2. The EPA recommends that the EIS provide details of how the proponent will ensure that water discharged from the site meets the criteria defined in the assessment (e.g. sampling regime). If the proponent is not proposing to undertake water sampling, the EIS should provide clear justification for the decision; and 3. The EIS should also incorporate: • A description of the construction erosion and sediment controls; • A description of the surface and stormwater management system measures to treat or reuse water for the construction and operational phase; • An assessment of potential surface water impacts associated with the development; and • Details of all impact mitigation, management and monitoring measures Waste Management: 1. The EIS should provide details of liquid waste and non-liquid waste management, including: • The transportation, assessment and handling of waste generated at the site; • The methods for storage and disposal of all waste materials including stockpiling of wastes materials at the site; • Any waste processing related to the project including on-site treatment; • The proposed controls for managing the environmental impacts of these activities; and • Detail the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the NSW Waste Avoidance and Resource Recovery Strategy 2014.	S 8.7 and Table 8 - ANZECC (2000) water quality trigger values adopted for pH being the most significant potential pollutant from a concrete plant other than TSS, TN and TP which are all address by Council controls. Council controls adopted for other WQ parameters. S 8.8 and Table 9 detail water quality mitigation measures to ensure compliance to adopted trigger values. Plan PS02-B300 provides detailed of construction phase sediment and erosion controls. S 7.1.3 and PS01-E100 detail stormwater quality control measures to treat and reuse stormwater. S 8 provides details of a stormwater monitoring plan for the site.

6-Oct-17	Lulu Huang	Phone & letter	Enquired whether Sydney Water has any requirements in addition to SEARs (water, waste and contamination).	None required	Not required
6-Oct-17	Rachel Nicholson (road team)	Phone	Enquired whether RMS has any requirements in addition to SEARs (water, waste and contamination).	Road team: none required Maritime team: waiting for response.	Not required
6-Oct-17	Janne Grose	Phone & letter	Enquired whether DPI (Water) has any requirements in addition to SEARs (water, waste and contamination).	None required	Not required
27-Sep-17	Scott Carter	Phone & letter	Enquired whether DPI (Fisheries) has any requirements in addition to SEARs (water, waste and contamination).	None required	Not required
6-Oct-17	Mark Reilly	Phone	Enquired whether FRNSW has any requirements in addition to SEARs (water, waste and contamination).	FRNSW will provide comments after the EIS is submitted.	Not required

Erica Zhu

From: Tatjana Djuric-Simovic <Tatjana.Djuric-Simovic@innerwest.nsw.gov.au>
Sent: Thursday, 5 October 2017 9:35 AM
To: Erica Zhu
Cc: Simon Lowe
Subject: RE: Glebe Island Concrete Batching Plant SEARs
Attachments: SEARs Concrete Batching Plant (SEAR No 8544) IWC Submission.pdf

Dear Erica
I have reviewed the final SEARs available from the DPE web site.
IWC provided comments to the draft SEARs to the DPE in July 2017 (please see the attachment).

In relation to contamination we would request that no works involve the disturbance of the existing concrete slabs or soils due to the contamination issues of the Blackwattle Bay.

The following documents should be referred to:

1) Sydney Harbour Catchment Water Quality Improvement Plan (Local Land Services Greater Sydney); and
2) Sydney Harbour CZMP (Sydney Coastal Councils Group), June 2015.

I hope that this would be of assistance to you.

Regards

Tatjana Djuric-Simovic | Executive Strategic Planner
Inner West Council
p: 02 9392 5278 | **e:** Tatjana.Djuric-Simovic@innerwest.nsw.gov.au | **w:** www.innerwest.nsw.gov.au

Ashfield Service Centre: 260 Liverpool Road, Ashfield NSW 2131
Leichhardt Service Centre: 7-15 Wetherill Street, Leichhardt NSW 2040
Petersham Service Centre: 2-14 Fisher Street, Petersham NSW 2049

INNER WEST COUNCIL

Council acknowledges the traditional Aboriginal owners of this land.

Tatjana Djuric-Simovic | Executive Strategic Planner
Inner West Council
p: 9367 9278 | **e:** Tatjana.Djuric-Simovic@innerwest.nsw.gov.au

Ashfield Service Centre: 260 Liverpool Road, Ashfield NSW 2131
Leichhardt Service Centre: 7-15 Wetherill Street, Leichhardt NSW 2040
Petersham Service Centre: 2-14 Fisher Street, Petersham NSW 2049

Council acknowledges the Traditional Custodians of this land, the Gadigal-Wangal people of the Eora Nation.

From: Erica Zhu [mailto:ezhu@martens.com.au]
Sent: Thursday, 28 September 2017 4:57 PM
To: Tatjana Djuric-Simovic
Cc: Gill Dawson; Harjeet Atwal
Subject: RE: Glebe Island Concrete Batching Plant SEARs

Good afternoon Tatjana,

Thank you for your time on the phone earlier.

As discussed, we have been requested to provide a water, waste and contamination assessment to assist with the preparation of an Environmental Impact statement (EIS) for a Concrete Batching Plant at Glebe Island. Per SEARs, we are required to consult with all the relevant agencies

I have attached the updated site layout plan for your information. Would you please advise if Inner West Council has any requirements in addition to SEARs?

Regarding the water quality assessment, would it be permissible to achieve NorBE (Neutral or Beneficial Effect) instead of the required water treatment objectives? Considering the site was previously a dock (100% impervious), it would be difficult to achieve the pollutant reduction for this site than NorBE.

Kind regards,

Erica Zhu
Civil Engineer
MEng (water), BEng (Env)

Martens & Associates Pty Ltd
Suite 201, 20 George St
Hornsby, NSW 2077
P + 61 2 9476 9999
F + 61 2 9476 8767
www.martens.com.au

From: Roger Rankin [mailto:Roger.Rankin@innerwest.nsw.gov.au]
Sent: Thursday, 28 September 2017 2:29 PM
To: Erica Zhu <ezhu@martens.com.au>
Cc: Tatjana Djuric-Simovic <Tatjana.Djuric-Simovic@innerwest.nsw.gov.au>; Gill Dawson <Gill.Dawson@innerwest.nsw.gov.au>; Harjeet Atwal <Harjeet.Atwal@innerwest.nsw.gov.au>
Subject: Glebe Island Concrete Batching Plant SEARs
Importance: High

Hi Erica,

Your contact point for this will be:

Tatjana Djuric-Simovic | Executive Strategic Planner
Inner West Council
p: 02 9392 5278 | **e:** Tatjana.Djuric-Simovic@innerwest.nsw.gov.au | **w:** www.innerwest.nsw.gov.au

Tatjana is taking this role over so it will take her a day or two to review Council's original submission on the SEARs, but please forward the email you told me you would be sending to her.

Roger

Roger Rankin | Team Leader Strategic Planning
Inner West Council
p: 9367 9174 | **e:** Roger.Rankin@innerwest.nsw.gov.au

Ashfield Service Centre: 260 Liverpool Road, Ashfield NSW 2131
Leichhardt Service Centre: 7-15 Wetherill Street, Leichhardt NSW 2040
Petersham Service Centre: 2-14 Fisher Street, Petersham NSW 2049

Council acknowledges the Traditional Custodians of this land, the Gadigal-Wangal people of the Eora Nation.

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Erica Zhu

From: Michael Soo <MSoo@cityofsydney.nsw.gov.au>
Sent: Friday, 29 September 2017 3:12 PM
To: Erica Zhu
Subject: FW: SEARs Agency Consultation for Glebe Island Batch Plant - City of Sydney Council
Attachments: 17142_SEARs Request_Glebe Island.pdf; Final SEARs 7.7.17CR.pdf; Glebe Island 1 GAs_overlaid on SWG872B.pdf

Dear Erica,

I note that the subject land is within the Inner West Council area and not within the City of Sydney boundaries. Accordingly, besides the SEARs, the City has no other requirements.

Regards,

Michael

From: Erica Zhu [mailto:ezhu@martens.com.au]
Sent: Friday, 29 September 2017 1:32 PM
To: Michael Soo <MSoo@cityofsydney.nsw.gov.au>
Subject: SEARs Agency Consultation for Glebe Island Batch Plant - City of Sydney Council

Good afternoon Michael,

I received your contact information from an officer in City of Sydney, who suggested you are the best person to contact to regarding state significate developments.

We have been requested to provide a water, waste and contamination assessment to assist with the preparation of an Environmental Impact statement (EIS) for a Concrete Batching Plant at Glebe Island. Per SEARs, we are required to consult with all the relevant agencies.

I have attached JBA's letter, SEARs and the updated site layout plan for your information. Would you please advise if City of Sydney Council has any requirements in addition to SEARs?

Thank you.

Kind regards,

Erica Zhu
Civil Engineer
MEng (water), BEng (Env)

martens & Associates Pty Ltd

Martens & Associates Pty Ltd
Suite 201, 20 George St
Hornsby, NSW 2077
P + 61 2 9476 9999
F + 61 2 9476 8767
www.martens.com.au

Erica Zhu

From: Ricardo Prieto-Curiel <RPrieto-Curiel@portauthoritynsw.com.au>
Sent: Tuesday, 3 October 2017 11:51 AM
To: Erica Zhu
Cc: Driver, Andrew (Parramatta) AUS; Ryan Bennett; Stephen Massoud
Subject: FW: SEARs Agency Consultation for Glebe Island Batch Plant - Port Authority of NSW
Attachments: 17142_SEARs Request_Glebe Island.pdf; Final SEARs 7.7.17CR.PDF; Glebe Island 1 GAs_overlaid on SWG872B.PDF

Hi Erica

Thanks for your email.

The Port Authority of NSW does not have any requirements additional to those in the SEARs for the water quality, waste and contamination investigations of the EIS for the Hanson's Concrete Batching Plant.

Note that consultation with Hanson is currently underway for other aspects of the EIS (eg. navigation, public consultation, etc).

Note also that land owner's consent from the Port Authority will be required prior to the EIS public exhibition.

Regards

Ricardo

Ricardo Prieto-Curiel | Senior Town Planner

Port Authority of New South Wales
Level 4, 20 Windmill Street | Walsh Bay NSW 2000 Australia
PO Box 25, Millers Point | NSW 2000 Australia

E: RPrieto-Curiel@portauthoritynsw.com.au
T: +61 2 9296 4596 | F: +61 2 9296 4766
www.portauthoritynsw.com.au

PORT AUTHORITY OF NEW SOUTH WALES

YAMBA | NEWCASTLE | SYDNEY | PORT KEMBLA | EDEN

From: Erica Zhu [mailto:ezhu@martens.com.au]
Sent: Thursday, 28 September 2017 2:43 PM
To: Ricardo Prieto-Curiel <RPrieto-Curiel@portauthoritynsw.com.au>
Subject: SEARs Agency Consultation for Glebe Island Batch Plant - Port Authority of NSW

Good afternoon Ricardo,

Thank you for your time on the phone earlier.

As discussed, we have been requested to provide a water, waste and contamination assessment to assist with the preparation of an Environmental Impact statement (EIS) for a Concrete Batching Plant at Glebe Island. Per SEARs, we are required to consult with all the relevant agencies.

I have attached JBA's letter, SEARs and the updated site layout plan for your information. Would you please advise if Port Authority of NSW has any requirements in addition to SEARs?

Kind regards,

Erica Zhu
Civil Engineer
MEng (water), BEng (Env)

Martens & Associates Pty Ltd
Suite 201, 20 George St
Hornsby, NSW 2077
P + 61 2 9476 9999
F + 61 2 9476 8767
www.martens.com.au

From: Ricardo Prieto-Curiel [mailto:RPrieto-Curiel@portauthoritynsw.com.au]
Sent: Thursday, 28 September 2017 2:39 PM
To: Erica Zhu <ezhu@martens.com.au>
Subject: FW: Port Authority contacts

From: Ryan Bennett
Sent: Wednesday, 27 September 2017 11:54 AM
To: ezhu@martins.com.au
Cc: Ricardo Prieto-Curiel <RPrieto-Curiel@portauthoritynsw.com.au>
Subject: Port Authority contacts

Hi Erica

As mentioned, please send through any information to Ricardo, who is cc'd on this email.

Ricardo, I understand that Martins & Associates have been engaged by Hanson to do the water, waste and contamination assessments for the Hanson SSD proposal.

Cheers
Ryan

Ryan Bennett | Senior Planning and Sustainability Manager

Port Authority of New South Wales
Level 4, 20 Windmill Street | Walsh Bay NSW 2000 Australia
PO Box 25, Millers Point | NSW 2000 Australia

E: rbennett@portauthoritynsw.com.au
T: +61 2 9296 4674 | F: +61 2 9296 4766
www.portauthoritynsw.com.au

PORT AUTHORITY
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YAMBA | NEWCASTLE | SYDNEY | PORT KEMBLA | EDEN

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Erica Zhu

From: Claire Miles <Claire.Miles@epa.nsw.gov.au>
Sent: Wednesday, 11 October 2017 9:07 PM
To: Erica Zhu
Cc: Jacinta Hanemann; Mike Sharpin; Alex McGuirk
Subject: Proposed Concrete Batching Plant - Glebe Island - Agency Consultation - SEARs - SSD - 8544
Attachments: DOC17_489852-01.pdf

Hello Erica,

Thank you for the opportunity to comment on the SEARs for the proposed Glebe Island Concrete Batch Plant and Bulk Shipping facility. Please find attached the EPA's recommendations in relation to water, waste and contamination. If you have any comments or wish to discuss this, please do not hesitate to contact either myself on 9995 5167 or Alex McGuirk on 9995 6571.

Kind regards,

Claire Miles
Operations Officer
NSW Environment Protection Authority
9995 5167
claire.miles@epa.nsw.gov.au

Erica Zhu

From: UrbanGrowth <UrbanGrowth@sydneywater.com.au>
Sent: Wednesday, 11 October 2017 11:08 AM
To: Erica Zhu
Subject: RE: SEARs Agency Consultation for Glebe Island Batch Plant

Hi Erica,

Thank you for contacting Sydney Water.

We have reviewed the SEARs documents and have no further requirements to add at this stage. However, the development proposal and the design plan of the project will be reviewed at the exhibition phase once the EIS is referred to Sydney water for comments.

Should you have further questions, please contact me on the details provided below.

Kind regards,

Lulu Huang
Student Town Planner
Growth Planning and Development | Liveable City Solutions
Sydney Water, Level 7, 1 Smith Street, Parramatta NSW 2150

Ph 8849 4269
lulu.huang@sydneywater.com.au
urbangrowth@sydneywater.com.au

From: Erica Zhu [mailto:ezhu@martens.com.au]
Sent: Wednesday, 11 October 2017 9:15 AM
To: UrbanGrowth <UrbanGrowth@sydneywater.com.au>
Subject: RE: SEARs Agency Consultation for Glebe Island Batch Plant

Good morning Lulu,

I sent you an email last week regarding the Secretary's Environmental Assessment requirements (SEARs) for a concrete batching plant at Glebe Island.

I haven't heard back from you yet so I am checking to find out if you have had time to look at this application for me?

Please feel free to contact me if you have any questions.

Regards,

Erica Zhu
Civil Engineer
MEng (water), BEng (Env)

Martens & Associates Pty Ltd

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Hornsby, NSW 2077
P + 61 2 9476 9999
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www.martens.com.au

From: Erica Zhu
Sent: Friday, 6 October 2017 9:18 AM
To: urbangrowth@sydneywater.com.au
Subject: FW: SEARs Agency Consultation for Glebe Island Batch Plant

Good morning Lulu,

Thank you for your time on the phone earlier.

As discussed, we have been requested to provide a water, waste and contamination assessment to assist with the preparation of an Environmental Impact statement (EIS) for a Concrete Batching Plant at Glebe Island. Per SEARs, we are required to consult with all the relevant agencies.

I have attached JBA's letter, SEARs and the updated site layout plan for your information. Would you please advise if Sydney Water has any requirements in addition to SEARs?

Thank you.

Kind regards,

Erica Zhu
Civil Engineer
MEng (water), BEng (Env)

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F + 61 2 9476 8767
www.martens.com.au

Erica Zhu

From: Janne Grose <janne.grose@dpi.nsw.gov.au>
Sent: Friday, 6 October 2017 10:09 AM
To: Erica Zhu
Subject: Re: SEARs Agency Consultation for Glebe Island Batch Plant - DPI

Hi Erica

Thank you for phoning this morning. As discussed the Crown Lands and Water Division (former DPI Water) has no additional issues at this stage to those identified in the DPI SEARs submission. The DPI SEARs submission should be used to address Crown Lands and Water Division issues in preparing the EIS.

kind regards from
Janne
6/10/2017 .

Janne Grose
Water Regulation Officer
Water Regulation
Crown Lands & Water Division | Water
Department of Industry
Level 11 | 10 Valentine Avenue | Parramatta NSW 2150
Locked Bag 5123 | Parramatta NSW 2124
T: : 02 8838 7505 | F: 02 8838 7554
E: janne.grose@dpi.nsw.gov.au
W: www.water.nsw.gov.au

Please note the postal address has now changed and is Locked Bag 5123, Parramatta.

On 6 October 2017 at 09:33, Erica Zhu <ezhu@martens.com.au> wrote:

> Good morning Janne,
>
> Thank you for your time on the phone earlier.
>
> As per our discussion, Department of Primary Industries has no specific requirements for the proposed Concrete Batching Plant at Glebe Island, Rozelle.
>
> Please feel free to contact me if you have any questions or comments.
>
> Kind regards,
>
> **Erica Zhu**
>
> **Civil Engineer**
> MEng (water), BEng (Env)
>
> **Martens & Associates Pty Ltd**

Suite 201, 20 George St

Hornsby, NSW 2077

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Erica Zhu

From: Scott Carter <scott.carter@dpi.nsw.gov.au>
Sent: Wednesday, 27 September 2017 4:22 PM
To: Erica Zhu
Subject: Re: SEARs Agency Consultation for Glebe Island Batch Plant - DPI Fisheries

Erica

That is correct. the plant is not being constructed in Key Fish Habitat and pollution issues that may concern us should be covered by SEARS from the OEH.

regards

Scott Carter
Regional Manager - Central/Metro,
Fisheries Ecosystems
`·.><((((º>`·. .· `·. .· `·... ><((((º>
NSW Department of Primary Industries, Locked Bag 1, NELSON BAY NSW 2315
Port Stephens Fisheries Institute, Taylors Beach Road, Taylors Beach TAYLORS BEACH NSW 2316
T: 02 4916 3931, F: 02 4982 1232,
W: www.industry.nsw.gov.au | www.dpi.nsw.gov.au

FISH HABITAT PROTECTION POLICIES AND PERMIT APPLICATION FORMS AVAILABLE AT:
http://www.dpi.nsw.gov.au/fisheries/habitat/help/permit
Email Completed Applications to: **ahp.central@industry.nsw.gov.au**
Chqs payable to: Department of Trade and Investment
* NB - from date of receipt of application please allow up to 28 days for Land Owners Consent, Permits and Consultations. Please allow up to 40 days for Integrated Development Applications

On 27 September 2017 at 15:33, Erica Zhu <ezhu@martens.com.au> wrote:

> Good afternoon Scott,
>
> Thank you for your time on the phone earlier.
>
> As per our discussion, Department of Primary Industries (Fisheries) has no specific requirements for the proposed Concrete Batching Plant at Glebe Island, Rozelle.
>
> Kind regards,

Erica Zhu

Civil Engineer
MEng (water), BEng (Env)

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