REPORT

Gladesville Bridge Marina Development

Stormwater Management Report

Client: Gladesville Bridge Marina

Reference: PA1891-RHD-ZZ-XX-RP-Z-0002

Status: S0/P01.01

Date: 22-Oct-19

Royal HaskoningDHV

Enhancing Society Together

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Classification
Internal use only

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1 Introduction & Background

Royal HaskoningDHV (RHDHV) was engaged by Gladesville Bridge Marina (GBM) to prepare a Stormwater Management Plan for the proposed redevelopment of the Gladesville Bridge Marina. The Stormwater Management Report has been prepared as part of an Environmental Impact Statement (EIS) to accompany a Development Application (DA), lodged with Canada Bay Council under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Gladesville Bridge Marina includes a water-based structure and a land based building, which is located at 380 Victoria Place, Drummoyne within the Canada Bay Local Government Area (LGA). The site is located on the southern foreshore of the Parramatta River, to the west of the Gladesville Bridge.

The site is approximately 19,740 m^2 in area, comprising an approximate 1,740 m^2 land based component and an approximate 18,000 m^2 of lease area, which accommodates the water-based component. An aerial photograph of the existing site is shown below in Figure 1-1.

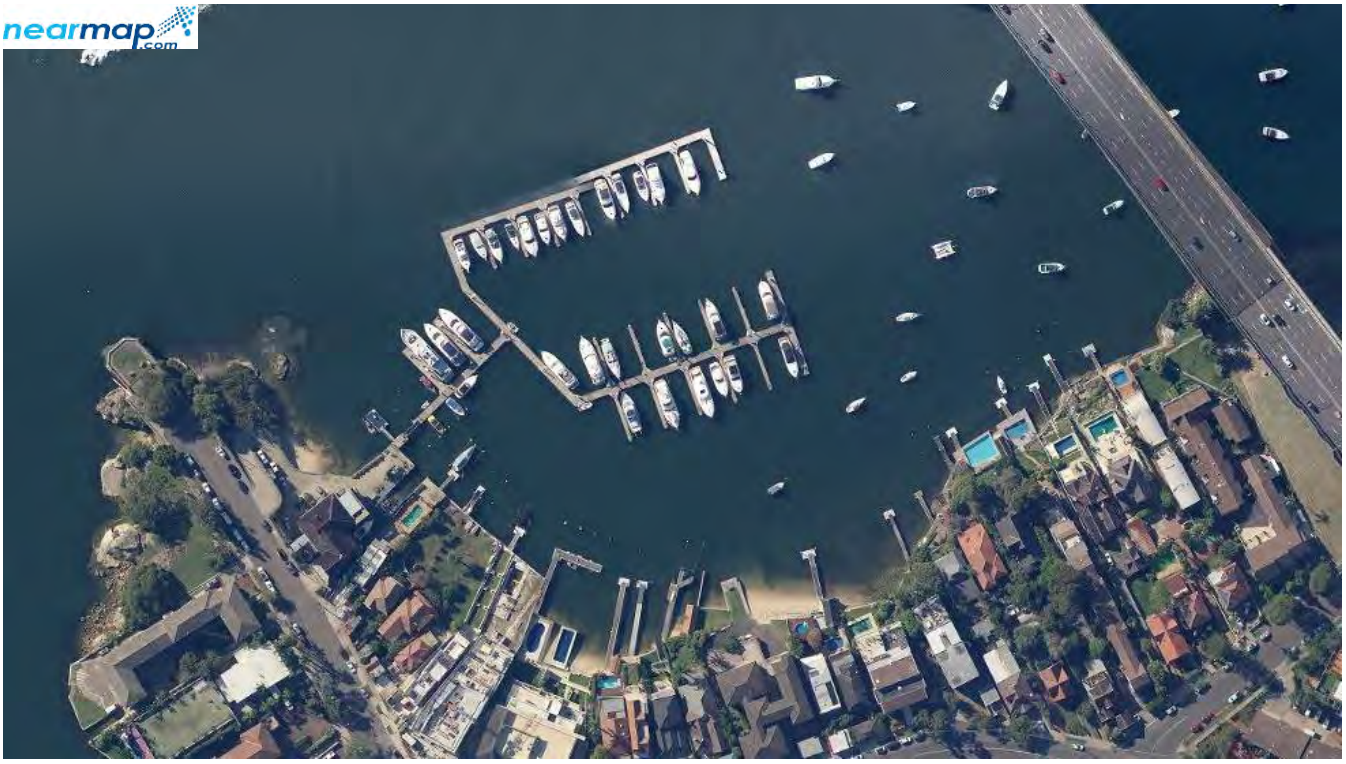

Figure 1-1. Aerial photograph of the existing marina site

Gladesville Bridge Marina currently provides services including:

- 50 floating berths ranging in size from 25’ to 75.5’ (7.6m to 23m);
- 44 swing moorings available for boats, with the most popular lengths from 17’ (5.2m) up to 50’ (15m); however, there is not length limit;
- Total marina capacity for 99 boats;
- Complimentary tender service available 7 days a week, transporting customers to and from the marina pontoons to their vessels on the swing moorings;
- Dinghy availability for after-hours use;

- Slipways – antifouling, boat surveys and painting. The slipway can accommodate vessels up to 60’ (18m) LOA and 16’ (5m) beam. Non-flybridge power vessels of up to 40’ (13m) are able to be housed in our undercover slipway area for all weather painting and repairs;
- Pump out facilities;
- Food and beverage kiosk (currently machine based);
- Boat repairs;
- Shipwright services;
- Mechanical services;
- Work berths;
- New and used boat sales;
- Charter operation (back-of-house).

The proposed development constitutes alterations and additions to the marina berth layout to provide overall storage for 130 vessels comprising 15 swing moorings and 115 floating berths. The works include:

- removal of 29 existing moorings and retention of 15 existing swing moorings;
- construction of 65 new floating berth spaces of varying sizes, that increases the number of floating berths from 50 to 115;
- cessation of slipway activities;
- demolition of the slipway rails and demolition of the internal office mezzanine structure within the covered slipway area; and
- provision of 8 new valet car parking spaces within the existing slipway area.

The proposed marina layout can be observed in Appendix A.

As the proposed development constitutes a ‘Marina’, with an intended capacity of more than 15 vessels having a length of 20 metres or more and an intended capacity of more than 80 vessels of any size, it is classified as ‘Designated Development’ under Schedule 3, Clause 23 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

2 Description of Existing Site

Gladesville Bridge Marina is located on the eastern foreshore of Five Dock Point, at 380 Victoria Place, Drummoyne. The foreshore in the vicinity of the marina is heavy modified from its natural state (refer Figure 2-1). Seawalls and jetties form the waterfront along the shore, with rock outcrops dominant at Five Dock Point, and near Gladesville Bridge. Two sand beaches have accumulated at the site, one immediately at the foreshore of the marina (refer Figure 2-2), and another fronting 334 to 342 Victoria Place.

The site is currently used by members of the Gladesville Bridge Marina and landowners of the surrounding waterfront properties. The Parramatta River is utilised frequently by various marine users, including RiverCat, monohulled and catamaran charters, power craft, jet skis and local rowing clubs.

Figure 2-1. Heavily modified foreshore near marina

Figure 2-2. Sand beach and rock outcrop near marina driveway

The existing site drains directly into the Parramatta River through a combination of an internal drainage network and surface water. A series of grated stormwater drains are located across the site which discharge surface runoff into the waterway. Figure 2-3, Figure 2-4 and Figure 2-5 indicate the location of these drainage inlets and discharge points. Higher runoff flows discharge directly into the Parramatta River via overland flow across the site.

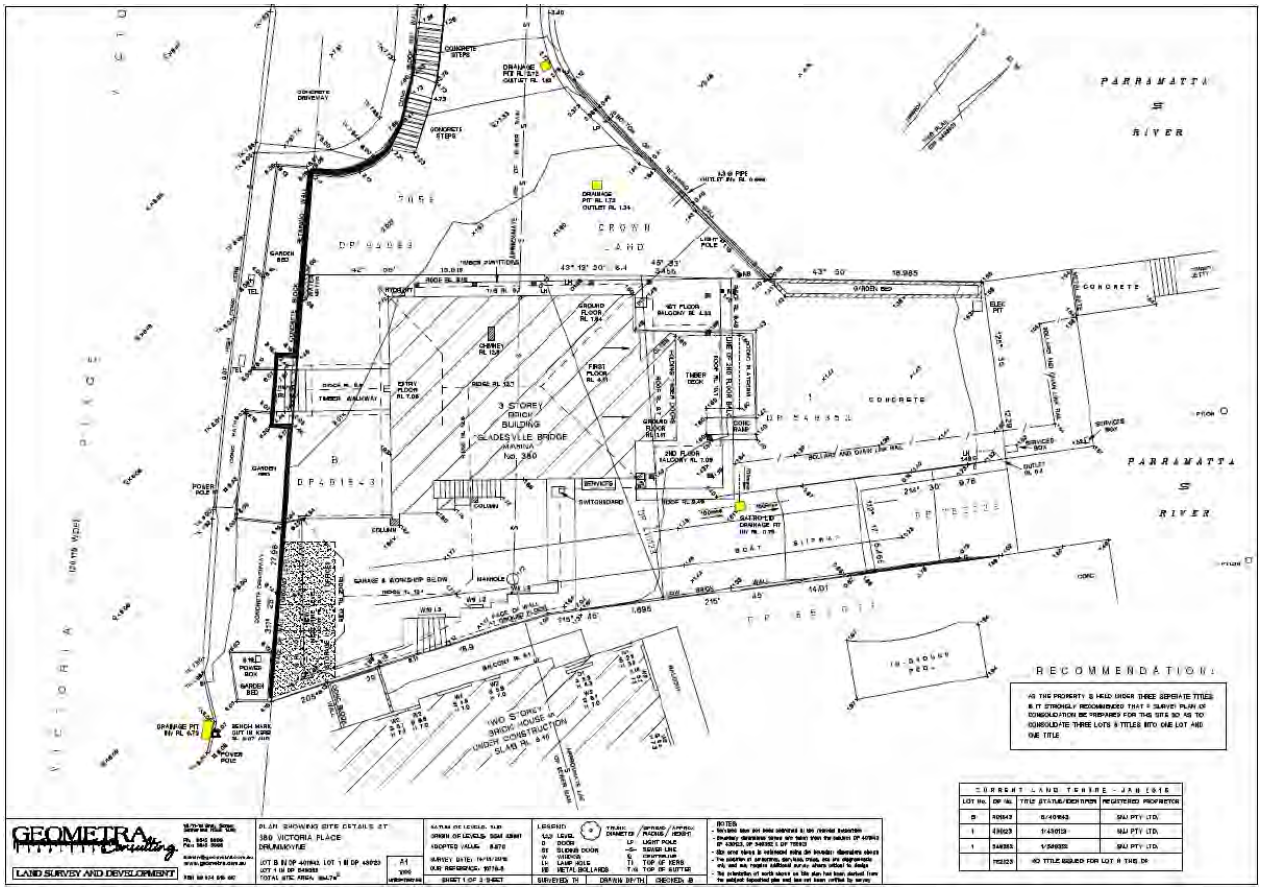

Figure 2-3. Existing drainage infrastructure (highlighted in yellow) (Source: Geometra Consulting - Land Survey and Development)

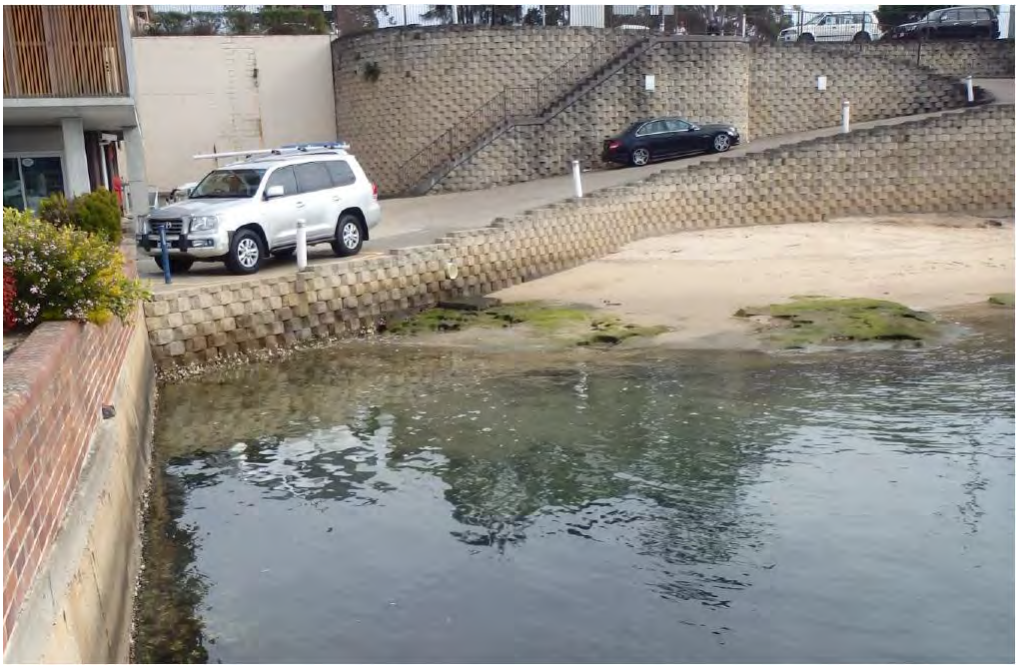

Figure 2-4. Existing stormwater drainage outlet

Figure 2-5. Existing stormwater drainage grates

There are existing drainage pits along Victoria Place, which drain the road reserve through pipes along the southern and northern boundaries of the Marina. Figure 2-6 and Figure 2-7 depicts the location of this network. No alterations will be made to this network during the redevelopment.

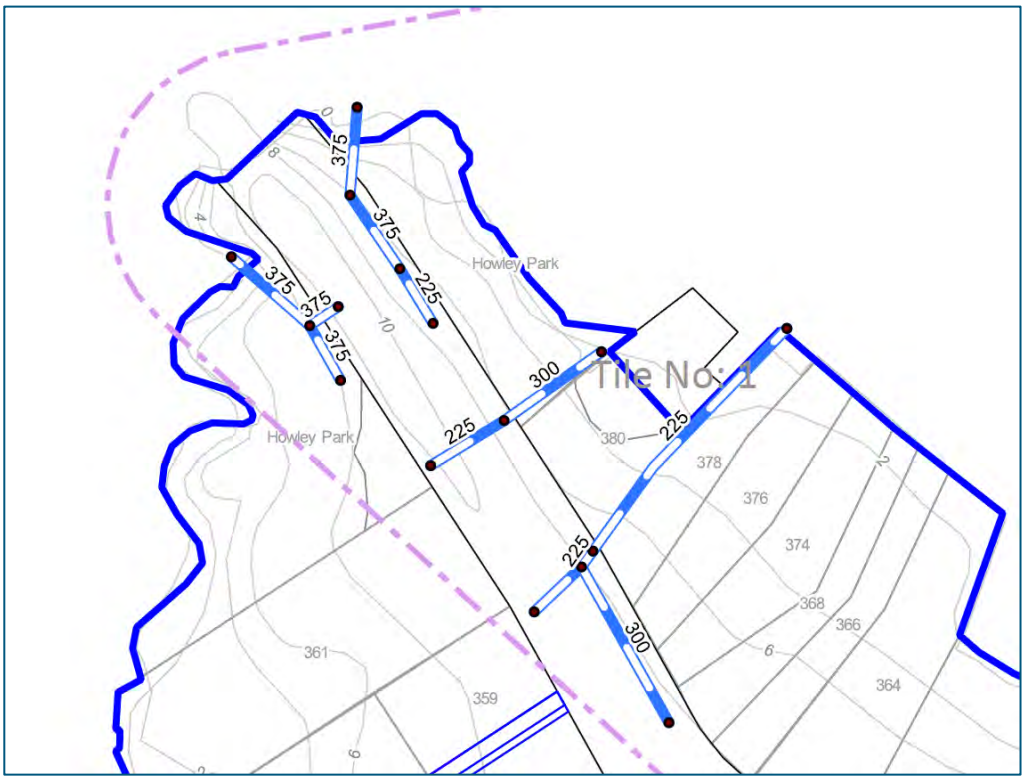

Figure 2-6. Existing stormwater pipes (City of Canada Bay)

Figure 2-7. Existing road drainage inlet pits

3 Assessment Requirements

RHDHV undertook a review of the key planning and environmental regulatory framework applicable to the development, including the identification of relevant environmental planning instruments and key development approval requirements.

3.1 Review of Secretary's Environmental Assessment Requirements (SEARs)

The SEARs assessment (ref. SEAR 1268) received from NSW Department of Planning and Environment (dated 15/11/2018) indicated the following key issues relating to stormwater management:

Soil and Water

- A description of local soils, topography, drainage and landscapes (refer Section 3, and Geomorphology Report)
- An assessment of potential impacts on the quality and quantity of surface and groundwater resources (refer Section 5);
- Details of sediment and erosion controls (refer Water Management Plan);
- Details of the proposed stormwater and wastewater management systems (including sewerage), water monitoring program and other measures to mitigate surface and groundwater impacts (refer Section 5; further details to be provided in Civil Infrastructure and Stormwater Plans).

Water Resources:

- An assessment of potential impacts on floodplain and stormwater management and any impact to flooding in the catchment (refer Section 5).

3.2 Review of City of Canada Bay Development Control Plan

RHDHV undertook a review of the relevant sections of the City of Canada Bay Development Control Plan, namely *Appendix 2 – Engineering Specifications – Stormwater Management*.

The proposed development is defined as Non-Urban, in accordance with Table C-J of the DCP *("boat launching ramps, boat sheds, jetty")*.

In accordance with Table C-K, the High Flood Risk of the site requires Controls 1 and 5. Table 3-1 outlines the DCP requirements for the proposed development, as detailed in Part C – General Controls.

Table 3-1. Relevant DCP Requirements

Relevant Section of the DCP	DCP Requirements
C7.5 Floor Level	C1. Floor levels to be equal to or greater than the 20 year Average Recurrence Interval (ARI) flood level plus freeboard.
	C5. A restriction is to be placed on the title of the land, pursuant to S.88B of the Conveyancing Act, where the lowest habitable floor area is elevated more than 1.5m above finished ground level, confirming that the subfloor space is not to be enclosed.
C7.5 Building Components and Methods	C1. All structures to have flood compatible building components below the 100 year ARI flood level plus freeboard.

C7.5 Structural Soundness	C1. An Engineer's report is required to certify that the structure can withstand the forces of floodwater, debris and buoyancy up to and including a 100 year ARI flood level plus freeboard.
C7.5 Flood Affectation	C1. An Engineer's report is required to demonstrate how and certify that the development will not increase flood affectation elsewhere, having regard to: a) loss of flood storage; b) changes in flood levels, flows and velocities caused by alterations to flood flows; and c) the cumulate impact of multiple potential developments in the vicinity.
C7.5 Car Parking and Driveway Access	C1. The minimum surface level of open parking spaces or carports shall be as high as practical, but no lower than 0.1m below the 100 year ARI flood level. In the case of garages, the minimum surface level shall be as high as practical, but no lower than the 100 year ARI flood level.
	C5. The level of the driveway providing access between the road and parking spaces shall be no lower than 0.2m below the 100 year ARI flood level.
C7.5 Evacuation	C1. Reliable access for pedestrians required during a 20 year ARI peak flood.
	C5. Applicant is to demonstrate that evacuation in accordance with the requirements of this DCP is available for the potential development resulting from the subdivision.
C7.5 Management and Design	C1. Applicant is to demonstrate that potential development as a consequence of a subdivision proposal can be undertaken in accordance with this clause, and any applicable flood study, FRMS and FRMP.
C8 Contaminated Land	C1. All development must take precautionary steps to prevent the release of substances that cause contamination of soil, surface water, air or groundwater.

4 Stormwater Management and Recommendations

A review of local floodplain mapping found that the marina does not fall within the flood planning level area of the Canada Bay Council LEP. However, no flood study or floodplain risk management study and plan for the local area has been prepared by Council. Considering this information and the location of the redevelopment at the Parramatta River foreshore, the proposed construction will not have any flooding implications to the surrounding catchment.

In considering the relevant controls for the proposed development, it is expected that the development will not alter the existing land-based infrastructure, from a stormwater perspective. As a result, the existing drainage paths and infrastructure will be maintained in the existing condition.

The only alterations and increase in impervious area are within the Parramatta River waterway itself (i.e. the marina pontoons). Therefore, the design does not need to consider the DCP flood impact requirements.

However, as the pontoons, piles and mooring berths will be subject to flood events, the proposed structures will need to be designed to withstand the forces of floodwater, debris and buoyancy.

In addition, it is recommended that where practical the use of a rainwater tank(s) ought to be used to captured rainwater from any new and existing building roof to be reused on site.

Potential waterway contamination from fuel and oil spills have been mitigated in the proposed development, with the exclusion of refuelling operations and fuel storage at the marina and the cessation of slipway maintenance activities.

Erosion, sediment and contaminant control measures will be implemented during construction to prevent any adverse impacts on the surrounding environment. See Erosion and Sediment Management Plan and Water Management plan for further details.

Appendix A – Proposed Marina Layout

N

BERTH SCHEDULE

VESSEL LENGTH (m)	QTY	RATIO (%)	LINEAR METRES
8	1	0.9	8
12	18	15.7	216
15	30	26.1	450
17	16	13.9	272
18	4	3.5	72
20	35	30.4	700
25	2	1.7	50
30	5	4.3	150
35	3	2.6	105
45	1	0.9	45
TOTAL	115	100	2068

NOTES:

1. CADASTRAL INFORMATION FROM NSW DEPARTMENT OF LANDS, DCDB, 2012
2. ALL BERTH WIDTHS, FINGER LENGTHS, FAIRWAYS & CHANNEL WIDTHS AS PER AS 3962.
3. THE BERTH SCHEDULE IDENTIFIES CURRENT AND PROPOSED VESSEL SIZES. THE MARINA STRUCTURE (ARMS AND FINGERS) DIMENSIONS ARE AS PER AUSTRALIAN STANDARD AS 3962.
4. CONCEPT GEOMETRY ONLY, NOT FOR CONSTRUCTION
5. LOCATION OF NEW MOORING PEN APPROXIMATED FROM RMS DAXXXX, LARGEST ALLOWABLE VESSEL IS 10.36m AS PER DA.
6. LOCATION OF NEW MOORING PEN APPROXIMATED FROM RMS DA190303920, LARGEST ALLOWABLE VESSEL IS 21m.
7. BATHYMETRY TAKEN FROM HARVEY HYDROGRAPHIC SURVEY "GLADESVILLE MARINA DRUMMOYNE" 16/08/16. DATUM IS ZERO TIDE GAUGE FORT DENISON.
8. EXISTING MARINA HAS BEEN LOCATED BASED ON COORDINATES ON DP1019271.
9. NEARMAPS IMAGERY ACCURATE TO +-0.15 m
10. VESSELS IN PRIVATE BERTHS HAVE BEEN APPROXIMATED AS LARGEST CREDIBLE WRT ARRANGEMENT OF PENS AND MOORING PILES
11. ROWERS COURSE BASED ON DGW PROVIDED BY RMS ON 13.12.2018

LEGEND:

RMS MARITIME TITLE BOUNDARY

ROWERS COURSE

No	Revision	Drawn	Job Manager	Project Director	Date
G	PRELIMINARY - NOT FOR CONSTRUCTION	HM	SG	JN	08.10.19
F	REVISED DRAWING NOTES	MR	SG	JN	03.09.19
E	PRELIMINARY - NOT FOR CONSTRUCTION - REVISED MOORING PEN 42 DRUMMOYNE AVE	MR	SG	JN	01.05.19
D	PRELIMINARY - NOT FOR CONSTRUCTION	MR	SG	JN	20.12.18
C	PRELIMINARY - NOT FOR CONSTRUCTION	MR	SG	JN	14.12.18

Note: * indicates signatures on original issue of drawing or last revision of drawing

0 7.5 15 22.5 30 37.5m
SCALE 1:750 AT ORIGINAL SIZE

gladesville bridge MARINA

GHD

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DO NOT SCALE

Drawn M.ROBERTSON | Designer A.CHAN
Drafting Check | Design Check C.ALFRED
Approved (Project Director)
Date
Scale 1:750 | This Drawing must not be used for Construction unless signed as Approved

Client **GLADESVILLE BRIDGE MARINA**
Project **MARINA EXPANSION**
Title **CONCEPT LAYOUT**

Original Size **A1** Drawing No: **21-27558-K101** Rev: **G**

Plot Date: 7 October 2019 - 8:00 PM Plotted by: Harry Mitchell Cad File No: G:\21\27558\CADD\Drawings\21-27558-K001.dwg

Appendix B – Site Photographic Record

Site Photos (25/7/19)

Location of Site Images (Google Earth, 2019)

Royal HaskoningDHV

Site Photo at Location #1 (25/7/19)

Site Photo at Location #2 (25/7/19)

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Site Photo at Location #3 (25/7/19)

Site Photo at Location #4 (25/7/19)