East Darling Harbour Infrastructure Report

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Client

Sydney Harbour Foreshore Authority

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EXECUTIVE SUMMARY

The East Darling Harbour (EDH) urban renewal will bring a significant addition to the Sydney CBD contributing new built form of some 399,800 sq.m. in Gross Floor Area and some 11Ha of publicly accessible open space. This renewal will present a significant extra load on the existing city infrastructure services.

This report has been prepared on behalf of Sydney Harbour Foreshore Authority (the Foreshore Authority) and is aimed at assessing the existing capacity of existing infrastructure servicing the site and sets out the likely upgrade requirements and, where appropriate, the potential opportunities for the infrastructure servicing EDH.

Generally, the infrastructure servicing the site is either at full capacity and/or unsuitable for the proposed land uses to take place on the EDH site. Discussions with service providers have confirmed the requirement for significant infrastructure upgrades in order to provide a fit for purpose level of services to the EDH precinct in some areas. Close consultation with service providers will be necessary as the designs for EDH progress and as the timing and sequence of development become known,

The size, geographical location, and absence of suitable existing infrastructure provide potential opportunities for the Foreshore Authority to investigate innovative methods of infrastructure service delivery. This document does not discuss these opportunities in great detail, however this report should be read in conjunction with the Ecologically Sustainable Design (ESD) and Water Sensitive Urban Design (WSUD) reports prepared for the EDH Concept Plan.

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1 Introduction

1.1 Report Objective

The objectives of this report are:

- To review the existing infrastructure against the Concept Plan in the following areas:

– Electrical Services;
– Communications Services;
– Sewer Services;
– Potable Water Services;
– Gas Services; and
– Stormwater Services

- Report on discussions with the supply authorities in relation to the assessed Concept Plan services requirements.

- Introduce, where appropriate, the opportunities created for the Foreshore Authority in a particular infrastructure service area.

1.2 Considerations

Sources of information for this report are:

- Urban Design built form pattern and land use tables

- Meetings, discussions and correspondence between Lincolne Scott, the Authority and various infrastructure service providers.

1.3 Limitations

This report has been prepared based on information with the level of detail required for the preparation of the Concept Plan. Exact infrastructure requirements will be determined from a more detailed stage of design. As such, all advice is based on the current design and actual results will be dependant on the final implementation of the design.

2 Electrical Services

2.1 Existing Facilities

The area is currently served by a variety of electrical services infrastructure suitable for the current wharf operations use. The current electrical infrastructure is inadequate in respect to its capacity and configuration for the proposed future development on the site.

2.2 Consultation with Service Provider

The current Concept Plan scheme has been reviewed for potential usage and area. The assessed electrical requirement for the site is envisaged to be around 60 MVA demand. The commercial component of the load has been identified as an extension of the CBD triplex electrical supply system.

Lincolne Scott and the Foreshore Authority have conducted a briefing meeting with Energy Australia to discuss the impact of the development and the timing of the anticipated load.

Energy Australia has advised that the proposed redevelopment of EDH has not been factored into the current planning for the Sydney CBD, and has not yet been able to confirm how the development proposal is to be supplied from the High Voltage network. However, given the anticipated timing for development and subject to confirmation of site-by-site electrical demands, there are no immediate constraints on Energy Australia's ability to accommodate the EDH redevelopment process.

3 Communication Services

The provision of a common services trench with non-carrier owned conduit and pit facilities within the EDH development is considered essential in order to allow a number of communications carriers to provide services to the site.

The communications requirements are likely to be diverse in nature. Provision for the following current communications services technologies is anticipated:

- Analogue and Digital business communications services
- Public telephones
- Residential broadband (fixed and wireless)
- Residential fixed line analogue services
- Pay TV

3.1 Telstra

As one of the main communications carriers Lincolne Scott and the Foreshore Authority have consulted Telstra and conducted a briefing meeting to discuss the proposed redevelopment and the timing of the anticipated requirements provided by the carrier.

The EDH precinct is currently served by a variety of Telstra services that are, again, more suited to the current uses on site.

Based on the proposed scale of redevelopment and the anticipated site population, network capacity is not expected to be adversely affected, however close ongoing liaison with communications infrastructure and service providers is crucial to the provision of fit for purpose communication services on EDH.

4 Sewer Services

4.1 Existing Sewer Services

The existing sewer infrastructure available to the EDH site includes:

- Sewer Pump Station SP1129
- Sewer Pump Station SP14
- Gravity Sewer main in Hickson Road

The EDH site is located within a catchment area which includes King Street Wharf, Walsh Bay and Kent Street. These catchment areas all drain to either Sewer Pumping Station SP1129 or SP14

4.2 Existing Sewer Capabilities

Generally, the existing sewer services are at capacity and will not be able to provide for the redevelopment of EDH in their current configuration. Sydney Water has confirmed the following:

- SP1129 has been designed to hold 3 hours storage in the even of a system failure
- SP1129 has no spare capacity
- SP14 has no spare capacity
- The Sydney Water carrier sewer main in Kent and Carrington Streets does not have any spare capacity
- Sydney Water is currently undertaking a scheme to separate stormwater and sewer infrastructure which may provide additional capacity upon its completion in 2007.
- The EDH site has not been included in the Sydney Water sewer modelling. The proposed additional 399,800 sq.m. of development will have a significant impact on Sydney Water's assets.

4.3 Consultation with Service Provider

Consultation with various Sydney Water divisions has taken place with respect to the limitations of the existing sewer services.

To service the EDH site the following options are available

- Construction of a new sewer pumping station sized to drain the entire EDH site including amplification of the sewer carrier main and new pumped connection to the amplified sewer carrier.
- On site wastewater treatment and/or re-use strategies.

An appropriate solution will be formulated in conjunction with Sydney Water. Investigation of options that involve the capital funding requirements of amplifying the existing sewer and applying it to alternative technologies has been described in more detail by the WSUD and ESD reports prepared for the EDH Concept Plan.

5 Potable Water Services

5.1 Existing Potable Water Services

The current water infrastructure available to the EDH site Includes

- 300mm diameter main in Hickson Road

The EDH site has access to the following feeder mains

- 400mm diameter main in Kent Street
- 300mm diameter main in Sussex Street
- 600mm diameter main in Liverpool Street

The 300mm diameter main in Hickson Road is reticulated to existing customers in Walsh Bay to the north of the EDH site and the service must be maintained

5.2 Existing Water Capacity

Sydney Water has confirmed the following

- The existing 300mm appears to have sufficient capacity to service the EDH site
- The EDH site has not been included in the Sydney Water water modelling. The proposed additional 399,800 sq.m. of development will have an impact on Sydney Water's assets.

5.3 Consultation with Service Provider

A feasibility application was submitted to Sydney Water which outlined the proposed re-development of the site.

Sydney Water has advised that in order to maintain existing pressures, 1.8Km of 500mm water main to be constructed from end of the 600mm trunk main in Liverpool St, at intersection with Kent St, then along Liverpool St to Sussex St then along Sussex St and Hickson Rd to the development site would, in principle, be required.

However there may be other options, which could be explored as investigations are progressed, taking into more detailed account of potable water demand reduction strategies and actual staging of the development.

6 Gas Services

6.1 Existing Gas Services

The current gas infrastructure available to the EDH Site includes

- 110mm low pressure (7KPa) nylon main in Hickson Road
- 100mm high pressure (1050KPa) steel main at the corner of Sussex and Napoleon Streets

The 110mm low pressure service is reticulate to existing customers in Walsh Bay area and the service must be maintained.

6.2 Existing Gas Capacity

Lincolne Scott and the Authority have undertaken consultation with Agility Gas. Agility has confirmed in discussion the following

- The 110mm low pressure main does not have the capacity to service the EDH site
- The 100mm high pressure main has the capacity to service the EDH Site

Agility has installed a high pressure main to service the EDH site under a previous scheme.

6.3 Consultation with Service Provider

A feasibility application was submitted to Agility which outlined the proposed redevelopment of the site.

The feasible advice will confirm the adequacy of the existing infrastructure to service the development and any anticipated contribution.

6.4 Gas Service Upgrade

Following discussion with Agility it appears that the existing infrastructure has sufficient capacity to service the EDH development and there will be no upgrades required. However, should alternative energy sources, such as gas, be considered to manage peak electrical demand, then the existing gas infrastructure would need to be reviewed.

7 Stormwater Services

7.1 Existing Stormwater Services

Currently the EDH site is situated at the bottom of a larger catchment that drains directly into the harbour via a network of stormwater pipes and pits.

There are a large number of stormwater pits located along Hickson Road which have frontage to the EDH site. These pits traverse through the site, typically from one pipe per pit and drain into the harbour.

7.2 Existing Stormwater Capacity

A detailed stormwater catchment study will be required to determine the existing capacity of the stormwater network which drains to the EDH site and then into Sydney Harbour.

However, as the site is situated at the bottom of the catchment, there is no down stream infrastructure to be impacted on by the proposed redevelopment. Further, the reduction of impervious materials on the EDH site in conjunction with the other WSUD and ESD initiatives recommended for the site should result in less stormwater entering the harbour.

7.3 Stormwater Services Upgrades

Stormwater service upgrades have not been determined at this time. However, it is envisaged that the EDH site will undergo a complete refurbishment of stormwater infrastructure that will capture as much stormwater from the site and surrounds for reuse as possible with discharge to Sydney Harbour for overflow purposes following treatment. Changes to the stormwater infrastructure on EDH would include:

- Diversion of external catchment drainage systems
- Treatment of external catchments prior to discharge to harbour
- Rainwater and Stormwater harvesting on the EDH site
- Potential harvesting of the external catchment

The above strategies are discussed in more detail in the Water Sensitive Urban Design (WSUD) report prepared for the EDH Concept Plan.

8 Conclusion

The objective of this report was to provide an overview of the existing services infrastructure currently available to the East Darling Harbour site and the capacity and ability of the existing infrastructure to deal with the proposed increase in built density and population on the site.

Based on the level of detail provided at this Concept Plan stage and discussions with service providers, it is concluded that the vast majority of the existing services infrastructure is, in its current configuration, at full capacity and not capable of accommodating the proposed redevelopment of EDH. Significant capital expenditure will be required to upgrade and amplify the existing infrastructure network.

However, given the size and geographical location of the East Darling Harbour site, the urban renewal process presents an opportunity to consider the feasibility of alternative delivery methodologies following appropriate feasibility analysis and ongoing liaison with service providers.