

Mark Robertson
Senior Project Manager, Barangaroo
Lend Lease
30 The Bond, 30 Hickson Road, Millers Point

6 May 2014

Dear Mark

Barangaroo South - Stage 1a Public Domain Works (SSD 6303), Hickson Road, Millers Point

1.0 Introduction

This letter has been prepared by AECOM Australia Pty Limited (AECOM) for Lend Lease Pty Ltd to support the State Significant Development (SSD) 6303 works being completed in the Stage 1a Public Domain. The footprint of the Site is shown on the attached **Figure 1** (denoted by dashed red line).

The objective of this letter is to confirm that the proposed Stage 1a Public Domain development works are consistent with the *Amended Remedial Action Plan (RAP), Barangaroo - ORWS Area* (AECOM, 7 July 2011, herein referred to as the *ORWS Amended RAP*).

To this end, this letter considers whether the proposed Stage 1a Public Domain development (which may include the works also contemplated by the application to modify the approval issued in respect of MP10_0023 for Bulk Excavation and Basement Car Parking [here-in referred to as MP10_0023 MOD 6] for temporary public domain works):

- is consistent with the land uses contemplated in the *ORWS Amended RAP* (AECOM, 2011);
- is located within the footprint covered by the *ORWS Amended RAP* (AECOM, 2011); and
- will, in the opinion of AECOM, enable the relevant consent authority to comply with Clause 7(1) of the *State Environmental Planning Policy (SEPP 55) - Remediation of Land*.

In preparing this letter, AECOM has reviewed the following drawings and information:

Table 1 Reviewed Lend Lease Development Plans

| AECOM Figure No. | Drawing No./Date | Revision | Drawing Title |
|-------------------------|-------------------------|-----------------|-----------------------------------------------------------------|
| Figure 1 | LA_MP_AO_DA204 | K | Grading Plan |
| Figure 2 | Dated 1 May 2014 | F | RAP Boundary |
| Figure 4 | BB1_ASK_SC_O594 | 01 | Section through high voltage electrical conduits combined plant |

AECOM also consulted with the NSW EPA Accredited Site Auditor in relation to the contents of this letter (excepting the works contemplated by MP10_0023 MOD 6) by telephone on 7 February 2014 and again on 3 March 2014.

For clarity, the following terms have been adopted in this letter:

- 'Stage 1a development area' – refers to the first development stage of Barangaroo South (refer to the attached **Figure 1**). This general area is also referred to by other documents, including the *ORWS Amended RAP* as the Other Remediation Area (South) (ORWS);
- 'Stage 1a Public Domain' – refers to all open space areas, including roads, walkways and foreshore areas that will be accessible to the Public within the Stage 1a development area (refer to the attached **Figure 1**). It is noted that the commercial and retail building footprints have been approved under a separate development application);

- 'ORWS Public Domain' – the area defined in the *ORWS Amended RAP* (AECOM, 2011) to include the western portion of the Stage 1a development area, west of the Stage 1a basement groundwater retention wall system (refer to Figure 3 in the *ORWS Amended RAP* [AECOM, 2011]); and
- 'ORWS Development Area' – the area defined in the *ORWS Amended RAP* (AECOM, 2011) to include the eastern portion of the Stage 1a development area, east of the ORWS Public Domain (refer to Figure 4 in the *ORWS Amended RAP* [AECOM, 2011]).

2.0 Remedial Action Plans

The following Remedial Action Plans (RAPs) have been approved in relation to the Stage 1a development area and associated areas:

- *ORWS Amended RAP* (AECOM, 2011) – prepared for the Stage 1a development area (including Blocks 1 to 3 and the ORWS Public Domain). The *ORWS Amended RAP* (AECOM, 2011) was approved by the Minister of Planning and Infrastructure as part of Major Project MP10_0023 MOD 1 (dated 17 August 2011); and
- *Addendum to the Amended ORWS RAP, Harbour Heat Rejection (HHR) Inlet Area, Barangaroo South* (AECOM, 10 October 2012) - prepared to facilitate the excavation of a trench associated with the Harbour Heat Rejection (HHR) inlet system to be constructed immediately adjacent to the Stage 1a development area (at the northwest corner of the Stage 1a basement, refer to the attached **Figure 2**). The *Addendum to the Amended ORWS RAP* (AECOM, 2012) was approved by the Minister of Planning and Infrastructure as part of Major Project MP10_0023 MOD 5 (dated 8 August 2013).

3.0 Land Use

The footprint of the Stage 1a Public Domain includes portions of both the:

- ORWS Development Area; and
- ORWS Public Domain.

Based on the information provided by Lend Lease (refer to **Table 1**), it is understood that the proposed landuse within the Stage 1a Public Domain will include:

- Within the ORWS Development Area - overlying the Stage 1a basement:
 - Hickson Place - the paved gateway entry point to the Stage 1a development site and the future transport hub; and
 - Various roadways, walkways and associated paved open space areas.
- Within the ORWS Public Domain - located west of the Stage 1a basement:
 - Open space areas including:
 - Unpaved park areas associated with Globe Harbour (at the northern end) and the R1 Terrace Lawn (at the southern end); and
 - Paved areas, including timber structures (to be used as outdoor dining areas) and trees planted in buried concrete boxes filled with suitable fill (refer to Section 3.4.14 of the *ORWS Amended RAP* [AECOM, 2011]).

Section 1.3.1 of the *ORWS Amended RAP* (AECOM, 2011), states that the proposed landuse within the ORWS Public Domain will incorporate *open space with community, mixed commercial and retail land use, and landscaping (planter boxes¹, paved areas and parkland)*.

Section 1.3.1 of the *ORWS Amended RAP* (AECOM, 2011) states that the proposed landuse within the ORWS Development Area will incorporate high density residential and commercial multi storey towers, together with associated open space areas overlying the basement car parking.

The land uses described by the proposed Stage 1a Public Domain development are considered to be consistent with those contemplated by the *ORWS Amended RAP* (AECOM, 2011).

¹ The Stage 1a Public Domain development plans provide for planting trees in buried concrete boxes filled with Suitable Fill (refer to Section 3.4.14 of the *ORWS Amended RAP* [AECOM, 2011]).

4.0 Extent of Development

4.1 Surface Elevation

Section 3.2.5 of the *ORWS Amended RAP* (AECOM, 2011) anticipates that the level of the ORWS Public Domain would be *raised by approximately 1 m*. The original surface level within the ORWS Public Domain was at a Relative Level (RL) of approximately 2.2 m above Australian Height Datum (m AHD).

As detailed in the attached **Figure 1** the post-development level of the Stage 1a Public Domain is generally proposed to be in the order of RL 2.9 m AHD which is consistent with that contemplated by the *ORWS Amended RAP* (AECOM, 2011).

It is understood that the existing concrete slab will be removed in some localised areas of the ORWS Public Domain to facilitate construction of various underground services. The *ORWS Amended RAP* (AECOM, 2011) assumes that the existing concrete slab will remain in place but be perforated to allow drainage of surface water infiltration through the existing slab. This is consistent with the design as proposed by the Stage 1a Development Works.

4.2 Northern Stage 1a Public Domain Boundary

The development plans indicate that the northern extent of the Stage 1a Public Domain development extends slightly beyond the alignment of the Stage 1a basement groundwater retention wall in a limited area at the north west corner of the Stage 1a development area boundary (refer to the attached **Figure 2**). The *ORWS Amended RAP* (AECOM, 2011) was prepared on the basis that the alignment of the Stage 1a groundwater retention wall would correspond with the ORWS Development Area. However, it is considered that the area of work that falls outside the Stage 1a groundwater retention wall can be appropriately managed by the provisions of the *ORWS Amended RAP* (AECOM, 2011). This conclusion is based on the following lines of evidence:

- The area is located outside the Stage 1a basement groundwater retention wall and in potential hydraulic contact with Darling Harbour - this is consistent with the material to remain *in situ* within the ORWS Public Domain (referred to as Area A by the *ORWS Amended RAP* [AECOM, 2011]);
- Soil analytical data relevant to the discussed area is presented on **Table T1** and **Figure 3**, attached (taken from Figure F3 of the *Addendum to the Amended ORWS RAP* [AECOM, 2012]). Particular locations considered to be representative of the area are BH01, BH04, BH035, BH049, BH047 and BH37. Review of the available soil analytical results (both saturated and unsaturated material) indicates that Chemicals of Potential Concern (CoPC) concentrations are generally less than the 'Area A' Site Specific Target Criteria (SSTC) and relevant Site Specific Ecological Screening Criteria (SSESC, as detailed in Table T1 of the *ORWS Amended RAP* (AECOM, 2011). The only exceptions to this are:
 - Total Petroleum Hydrocarbons (TPH, C₆-C₉ fractionated group) and naphthalene concentrations at depth (between 21 and 22.2 m below the current ground level) in BH04 and BH37 exceeded the SSTC-A. As described by the *ORWS Amended RAP* (AECOM, 2011), SSTC-A are only applicable to unsaturated soil, therefore these results do not represent an unacceptable risk;
 - TPH (C₆-C₉ fractionated group) concentrations at depth at BH04 (between 21 and 22.2 m below the current ground level) exceeded the SSESC-A. These samples were collected from within natural marine sediments, from which contaminant flux is negligible. Therefore, these results are not considered to represent an unacceptable risk to the environment; and
 - Heavy metal concentrations (specifically copper [4 out of 39 samples] and zinc [1 out of 39 samples]) exceeded the SSESC-A in some of the samples analysed. These results are consistent with those reported within the ORWS Public Domain. As described by Section 6.1 and 7.3 of the *ORWS Amended RAP* (AECOM, 2011), the concentrations of copper and zinc reported are not considered to represent a risk to human health or the environment and are not considered to warrant remediation.
- The surface soil in the north west corner of the Stage 1a Public Domain development area will be excavated during the excavation works required for the HHR system inlet works which will be undertaken in accordance with the *Addendum to ORWS Amended RAP* (AECOM, 2012);
- As shown in the attached **Figure 4** cross section, the area will be excavated to a depth of approximately 600 mm below the current ground level to facilitate construction of the overlying roadway. This is consistent with the limited excavation anticipated by the *ORWS Amended RAP* (AECOM, 2011) in relation to Area A. This excavation can be suitably managed as per the validation requirements detailed in Section 16.3.1 ('Area A - Validation of Limited Excavation Areas');

- The volume of soil that will remain *in situ* within this area following the Stage 1a Public Domain development is small, particularly when considered in the context of volume of material that has been removed as part of the Stage 1a basement construction. Therefore, it is considered unlikely to represent an unacceptable risk to human health or the environment; and
- Section 20.9 of the *ORWS Amended RAP* (AECOM, 2011) presents contingency measures that are applicable in the event that the basement groundwater retention wall system design is refined as a result of the Lend Lease design process. In particular, it states that *minor lateral movement (i.e. by less than 5 m) of the retention wall system (i.e. to the east or west) will not affect the proposed management strategy of retaining material in this Area (i.e. in Area A behind the retention wall system) and its suitability for the proposed landuse.* The lateral movement of the retention wall system is less than 5 m and is therefore not considered to impact the strategy described by the *ORWS Amended RAP* (AECOM, 2011).

It is noted that a small portion of the ORWS diaphragm wall (the northwest corner) extends north of the alignment anticipated by the *ORWS Amended RAP* (2011) (refer to the attached **Figure 2**). It is considered that this outcome will result in a reduced risk to the environment and human health because:

- material remaining *in situ* within the retention wall will be retained within the alignment of the wall and not in hydraulic contact with Darling Harbour; and
- additional material will have been removed as part of the Stage 1a basement excavation.

4.3 Southern Boundary

The development plans indicate that the extent of the Stage 1a Public Domain development extends beyond the alignment of the Stage 1a basement groundwater retention wall in an area along the southern Stage 1a development area boundary (refer to the attached **Figure 2**). The *ORWS Amended RAP* (AECOM, 2011) was prepared on the basis that the southern alignment of the Stage 1a groundwater retention wall would correspond with the southern boundary of the ORWS Development Area. However, it is considered that the area of work that falls outside the Stage 1a groundwater retention wall can be appropriately managed by the provisions of the *ORWS Amended RAP* (AECOM, 2011). This conclusion is based on the following lines of evidence:

- The area is located outside the Stage 1a basement groundwater retention wall and in potential hydraulic contact with Darling Harbour - this is consistent with the material to remain *in situ* within the ORWS Public Domain (referred to as Area A by the *ORWS Amended RAP* [AECOM, 2011]);
- Review of the available soil analytical results (both saturated and unsaturated material) in the vicinity of the discussed area (i.e. boreholes BH21/22, BH093, BH312 and BH322, refer to Figure 5 in the *ORWS Amended RAP* [AECOM, 2011]) indicates that Chemicals of Potential Concern (CoPC) concentrations are less than the 'Area A' Site Specific Target Criteria (SSTC) and relevant Site Specific Ecological Screening Criteria (SSESC, as detailed in Table T1 of the *ORWS Amended RAP* (AECOM, 2011). This suggests that the material within the area does not represent an unacceptable risk to human health or the environment;
- The volume of soil that will remain *in situ* within this area following the Stage 1a Public Domain development is small, particularly when considered in the context of volume of material that has been removed as part of the Stage 1a basement construction. Therefore, it is considered unlikely to represent an unacceptable risk to human health or the environment; and
- Section 20.9 of the *ORWS Amended RAP* (AECOM, 2011) presents contingency measures that are applicable in the event that the basement groundwater retention wall system design is refined as a result of the Lend Lease design process. In particular, it states that *minor lateral movement (i.e. by less than 5 m) of the retention wall system (i.e. to the east or west) will not affect the proposed management strategy of retaining material in this Area (i.e. in Area A behind the retention wall system) and its suitability for the proposed landuse.* The lateral movement of the retention wall system is less than 5 m and is therefore not considered to impact the strategy described by the *ORWS Amended RAP* (AECOM, 2011).

5.0 Public Domain Works in the C6 Area, R1 Area and Temporary Public Domain Works (MP10_0023 MOD 6)

It is understood that Lend Lease has made an application pursuant to Section 75W of the *Environmental Planning and Assessment Act* (1979) to modify the approval issued in respect of MP10_0023 for Bulk Excavation and Basement Car Parking. The Section 75W application sought the Minister's approval for construction of above ground building elements associated with the basement within the footprint of buildings C1, C2, C6, R1 and R7 including egress stairs, carpark entries/exits, service risers, etc such that the basement can be completed and commissioned.

The above works were considered in the letter *Barangaroo South. Section 75W – Bulk Excavation and Basement Car Parking - Modification 6, Amended Remedial Action Plan - Other Remediation Works (South) Area* (AECOM, 11 July 2013).

Of note, the scope of works proposed by MP10_0023 (MOD 6) include a proposed temporary public domain for the Basement Risers extending outside of the ORWS basement area at (refer to **Figure 1**):

- the south side of C6 (here-in referred to as the C6 Area); and
- the west side of R1 (here-in referred to as the R1 Area).

If required, these temporary public domain works will include some minor excavation and slab construction within areas outside the approved ORWS basement area. The new concrete slab will be finished with paint and furnished with planter boxes, umbrellas and similar street furniture.

It should be noted that if the works are not completed as part of the temporary public domain works contemplated by MP10_0023 (MOD 6), they will be included and completed as part of the Stage 1a Public Domain application (SSD 6303).

It is considered that the works proposed by MP10_0023 (MOD 6) are within the scope of the *Amended RAP* (AECOM, 2011). The following points are noted in support of this statement:

- the temporary landuse proposed by MP10_0023 (MOD 6) is consistent with Scenario 4 (Paved Recreation) considered by the *Amended RAP* (AECOM, 2011);
- C6 area:
 - The C6 area is located within the area referred to as Area D by the *Amended RAP* (AECOM, 2011). The future landuse considered by the *Amended RAP* (AECOM, 2011) in relation to Area D includes Scenario 4 (Paved Recreation). Therefore, the remediation and validation strategy described by the *Amended RAP* (AECOM, 2011) is consistent with the temporary landuse proposed by the proposed Section 75W Application; and
 - It is noted that, as described by Section 16.3.4 of the *Amended RAP* (AECOM, 2011), additional soil sampling works are required to validate that the area is suitable for the proposed future landuse;
- R1 area:
 - The R1 area is located within the area referred to as Area A by the *Amended RAP* (AECOM, 2011). The future landuse considered by the *Amended RAP* (AECOM, 2011) in relation to Area A includes Scenario 4 (Paved Recreation). Therefore, the remediation and validation strategy described by the *Amended RAP* (AECOM, 2011) is consistent with the temporary landuse proposed by the proposed Section 75W Application; and
 - It is noted that, as described by Section 16.3.1 of the *Amended RAP* (AECOM, 2011), if small scale excavation works are to be conducted in this area, additional soil validation works may be required to validate that the area is suitable for the proposed landuse.

6.0 Compliance with SEPP 55

The presence, or otherwise, of contamination within the ORWS Public Domain and ORWS Development Areas (collectively referred to as the ORWS Area) was considered by the soil and groundwater analytical data obtained by the environmental site investigations listed in Section 3.4 of the *ORWS Amended RAP* (AECOM, 2011). The *ORWS Amended RAP* (AECOM, 2011) concluded that the concentrations of contamination reported within the ORWS Area (which largely includes the footprint of the proposed Stage 1a Public Domain) did not require remediation to render the Site suitable for the proposed land uses.

As described by **Section 4.2** and **4.3**, it is the opinion of AECOM that minor differences between the boundary of the ORWS Area and that of the Stage 1a Public Domain can be managed in accordance with the *ORWS Amended RAP* (AECOM, 2011).

7.0 Conclusions

In conclusion, it is AECOM's opinion that the proposed development of the Stage 1a Public Domain (which may include the works contemplated by MP10_0023 MOD 6 [as described by **Section 0**]) as described by the Drawings summarised in **Table 1**:

- Is generally consistent with what was contemplated with the *ORWS Amended RAP* (AECOM, 2011) and the *Addendum to the Amended ORWS RAP* (AECOM, 2012) and can be appropriately managed by those documents;
- Will not require amendment of the *ORWS Amended RAP* (AECOM, 2011) and *Addendum to the Amended ORWS RAP* (AECOM, 2012); and
- Will enable the relevant consent authority to comply with Clause 7(1) of *SEPP 55 - Remediation of Land*.

Yours faithfully



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Attached:

- Figure 1 - Lend Lease Grading Plan
- Figure 2 - Lend Lease RAP Boundary
- Figure 3 - Sample Locations
- Figure 4 - Section Through High Voltage Electrical Conduits Combined Plant
- Table T1 - Soil Analytical Results, North West ORWS Site Boundary, ORWS Barangaroo

Figure 1



- KEY**
- SITE BOUNDARY
 - TEMPORARY LANDSCAPE FOR FUTURE DEVELOPMENT
 - (+0.00) SPOT HEIGHT
 - 1:20 GRADE

NOTES:

Buildings C1, C2, C6, R1 and R7 are shown as indicative only.

Buildings A and B are subject to further design development and form part of future planning applications.

Building A sits within the existing building envelope for C6.

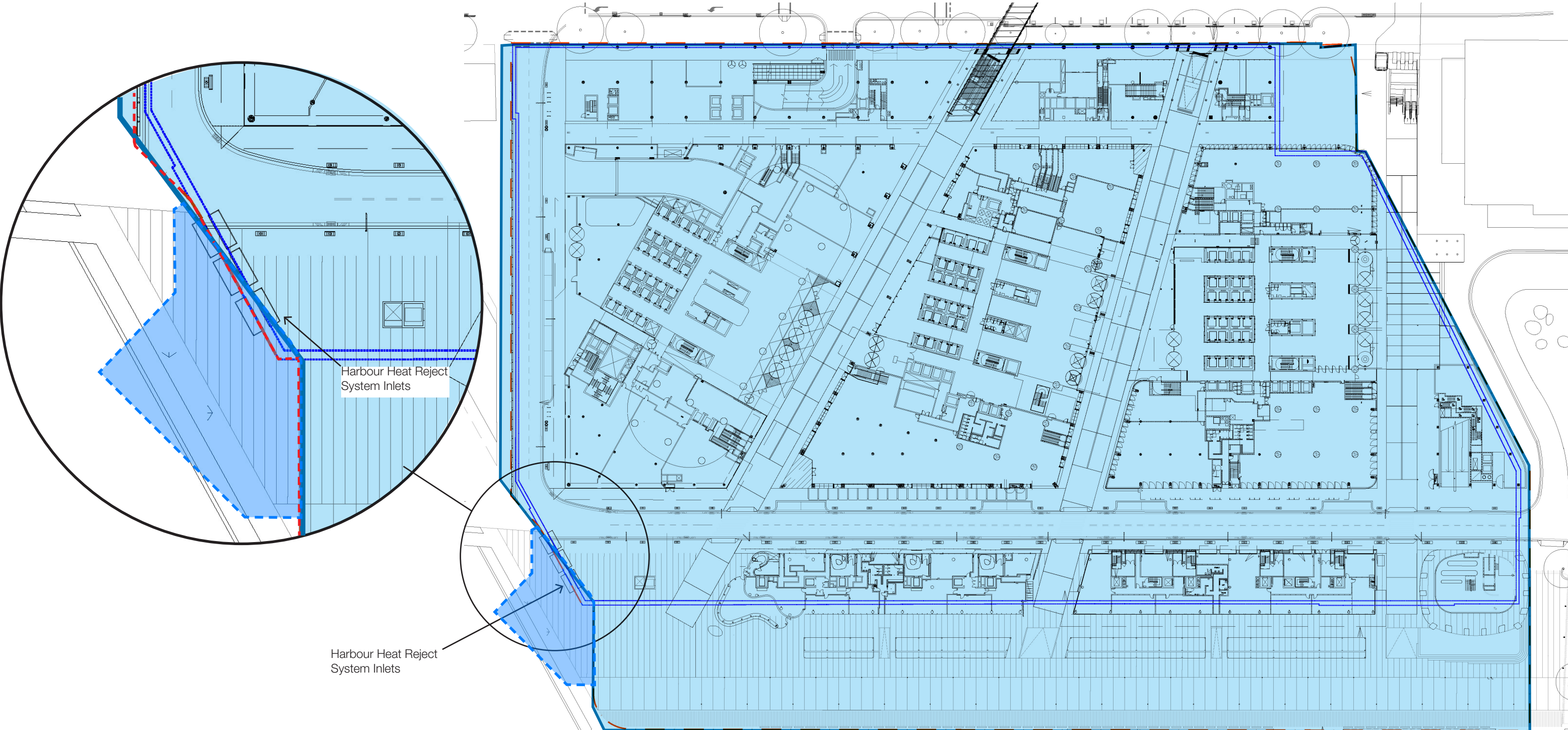
Proposed works shown outside the Stage 1a boundary are shown as indicative only for information. These works will form part of a future planning application.

Future levels of Hickson Road are yet to be confirmed. As such access arrangements to Hickson Road are indicative and will be subject to detailed design in accordance with the BCA and relevant Australian Standards, and consistent with DDA and CPTED principles.

Wharf Delivery By Others. Shown indicative only



Figure 2



KEY

- Stage 1A Site Boundary
- ==== D Wall Extent
- ORWS Amended RAP (AECOM, 2011) boundary
- Addendum to the Amended ORWS RAP (AECOM, 2012) boundary

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RAP BOUNDARY
SCALE
1:500@A1 1:1000@A3

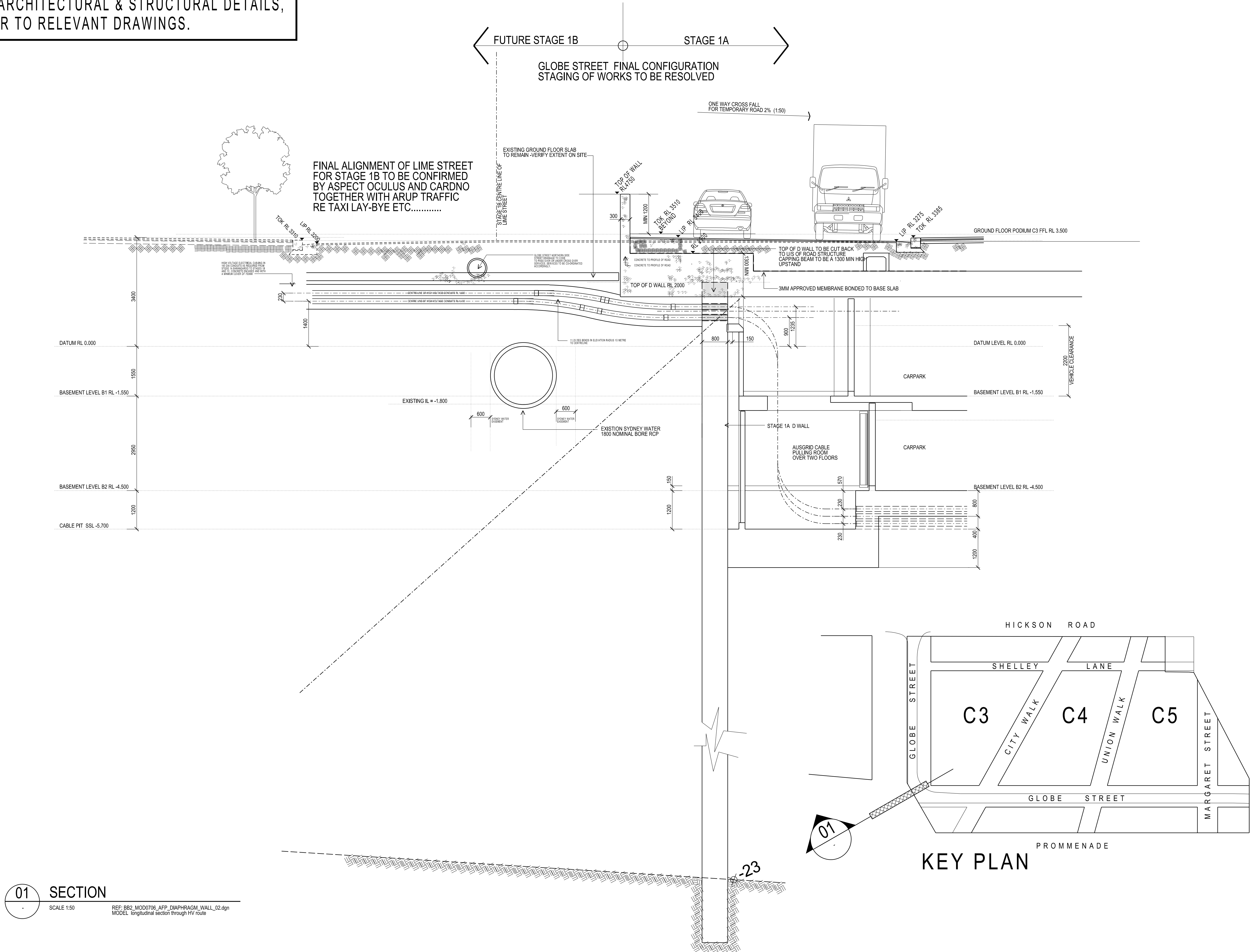


REV
F
DRAWING DATE
01/05/2014

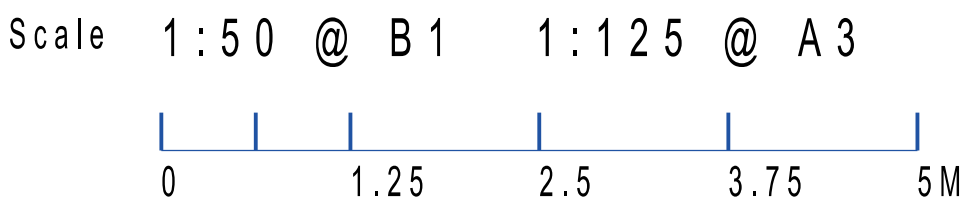
Figure 3



ISSUED FOR CO-ORDINATION PURPOSES ONLY.
FOR ARCHITECTURAL & STRUCTURAL DETAILS,
REFER TO RELEVANT DRAWINGS.



SECTION THROUGH HIGH VOLTAGE ELECTRICAL
CONDUITS COMBINED PLANT



| Rev | Description | Date |
|-----|-----------------------------|----------|
| 01 | Road edge condition revised | 17/01/14 |

Dwg. No. BB1_ASK_SC_0594
Date 07 January 2014 Revision 01



Table T1 - Soil Analytical Results, North West ORWS Site Boundary,
ORWS Barangaroo

Lend Lease
ORWS Barangaroo

| | | | | | | | | | | | |
|--------------------|--------------|--------------|------------|------------|--------------|--------------|--------------|--------------|----------------|------------|----------------|
| Field_ID | BH01_0.3-0.4 | BH01_1.0-1.2 | QC01 | QC02 | BH01_2.0-2.2 | BH01_4.0-4.1 | BH01_7.0-7.1 | BH01_9.0-9.1 | BH01_10.0-10.2 | QC03 | BH01_12.0-12.1 |
| Sample_Type | Normal | Normal | Field_D | Interlab_D | Normal | Normal | Normal | Normal | Normal | Field_D | Normal |
| Lab_Report_Number | ES0918573 | ES1001619 | ES0918573 | 45989 | ES0918573 | ES0918573 | ES0918573 | ES0918573 | ES0918573 | ES0918573 | ES0918573 |
| Sample_Depth_Range | 0.3-0.4 | 1-1.2 | 1-1.2 | 1-1.2 | 2-2.2 | 4-4.1 | 7-7.1 | 9-9.1 | 10-10.2 | 10-10.2 | 12-12.1 |
| Sampled_Date_Time | 12/02/2009 | 12/02/2009 | 12/02/2009 | 12/02/2009 | 12/02/2009 | 12/02/2009 | 12/02/2009 | 12/02/2009 | 12/02/2009 | 12/02/2009 | 12/02/2009 |

| Chem_Group | ChemName | output unit | EQL | SSTC-A | SSESC-A ^{Unsat} | | | | | | | | | | | |
|------------------|------------------------|-------------|-----|---------|--------------------------|-----|----|-------|-------|------|------|-------|----|-----|----|----|
| PAHs | CPAH (TEF) | mg/kg | | 67 | | - | - | <1.21 | <1.11 | - | 1.65 | 1.641 | - | - | - | - |
| | 2-methylnaphthalene | mg/kg | 0.5 | 1100 | | - | - | - | - | - | - | - | - | - | - | - |
| | Naphthalene | mg/kg | 0.5 | 41 | | - | - | <0.5 | <0.5 | - | <0.5 | <0.5 | - | - | - | - |
| Phenols | 3-&4-methylphenol | mg/kg | 0.5 | 5400 | | - | - | - | - | - | - | - | - | - | - | - |
| TRH (NEPM, 1999) | TPH C6 - C9 | mg/kg | 2 | 3400 | 40 | - | - | <10 | <10 | - | <10 | <10 | - | - | - | - |
| | TPH C10 - C14 | mg/kg | 50 | 13,000 | 50 | - | - | <50 | <50 | - | <50 | <50 | - | - | - | - |
| BTEX | Benzene | mg/kg | 0.2 | 15 | | - | - | <0.2 | <0.2 | - | <0.2 | <0.2 | - | - | - | - |
| | Ethylbenzene | mg/kg | 0.2 | 600 | | - | - | <0.5 | <0.5 | - | <0.5 | <0.5 | - | - | - | - |
| Metals | Arsenic | mg/kg | 1 | | 20 | <5 | <5 | <5 | <1 | <5 | <5 | 12 | 14 | 6 | <5 | <5 |
| | Chromium | mg/kg | 1 | 180,000 | | 2 | 7 | 6 | 6 | 18 | 10 | 7 | 5 | 7 | 13 | 7 |
| | Chromium (hexavalent) | mg/kg | 0.5 | 950 | | - | - | - | - | - | - | - | - | - | - | - |
| | Copper | mg/kg | 2 | | 170 | 331 | 17 | 11 | 6 | 44 | 92 | 44 | 21 | 13 | 16 | 30 |
| | Lead | mg/kg | 2 | 15,000 | 1800 | 6 | 19 | 14 | 11 | 30 | 16 | 132 | 74 | 104 | 59 | 47 |
| | Vanadium | mg/kg | 5 | 22,000 | | 106 | 16 | 16 | 11 | 32 | 51 | 8 | 13 | 14 | 15 | 19 |
| VOCs | Zinc | mg/kg | 5 | | 220 | 46 | 38 | 26 | 16 | 2070 | 42 | 115 | 47 | 47 | 57 | 96 |
| | 1,2,4-trimethylbenzene | mg/kg | 0.5 | 14 | | - | - | - | - | - | - | - | - | - | - | - |

NOTES: Soil samples collected from natural marine sediments.



Table T1 - Soil Analytical Results, North West ORWS Site Boundary,
ORWS Barangaroo

Lend Lease
ORWS Barangaroo

| | | | | | | | | | | | |
|--------------------|------------------|------------------|----------------|----------------|---------------|----------------|------------|---------------|------------|--------------|--------------|
| Field_ID | BH01_17.65-17.75 | BH01_17.65-17.75 | BH01_20.5-20.6 | BH01_25.0-25.1 | BH035_0.3-0.5 | BH035_1.5-1.95 | D1805-1 | BH035_4.0-4.5 | D1805-2 | BH04_1.0-1.1 | BH04_8.0-8.1 |
| Sample_Type | Normal | Normal | Normal | Normal | Normal | Normal | Field_D | Normal | Field_D | Normal | Normal |
| Lab_Report_Number | ES0918573 | ES0918575 | ES0918573 | ES0918573 | ES0606393 | ES0606393 | ES0606393 | ES0606393 | ES0606393 | ES0919030 | ES0919030 |
| Sample_Depth_Range | 17.65-17.75 | 17.65-17.75 | 20.5-20.6 | 25-25.1 | 0.3-0.5 | 1.5-1.95 | 1.5-1.95 | 4-4.5 | 4-4.5 | 1-1.1 | 8-8.1 |
| Sampled_Date_Time | 12/03/2009 | 12/02/2009 | 12/03/2009 | 12/10/2009 | 18/05/2006 | 18/05/2006 | 18/05/2006 | 18/05/2006 | 18/05/2006 | 12/09/2009 | 12/09/2009 |

| Chem_Group | ChemName | output unit | EQL | SSTC-A | SSESC-A ^{Unsat} | | | | | | | | | | | |
|------------------|------------------------|-------------|-----|---------|--------------------------|-------|---|----|-------|------|----|------|------|----|----|----|
| PAHs | CPAH (TEF) | mg/kg | | 67 | | <1.21 | - | - | <1.21 | - | - | - | - | - | - | - |
| | 2-methylnaphthalene | mg/kg | 0.5 | 1100 | | - | - | - | - | - | - | - | - | - | - | - |
| | Naphthalene | mg/kg | 0.5 | 41 | | <0.5 | - | - | <0.5 | - | - | - | - | - | - | - |
| Phenols | 3-&4-methylphenol | mg/kg | 0.5 | 5400 | | - | - | - | - | - | - | - | - | - | - | - |
| TRH (NEPM, 1999) | TPH C6 - C9 | mg/kg | 2 | 3400 | 40 | <10 | - | - | <10 | <2 | - | <2 | <2 | - | - | - |
| | TPH C10 - C14 | mg/kg | 50 | 13,000 | 50 | <50 | - | - | <50 | <50 | - | <50 | <50 | - | - | - |
| BTEX | Benzene | mg/kg | 0.2 | 15 | | <0.2 | - | - | <0.2 | <0.2 | - | <0.2 | <0.2 | - | - | - |
| | Ethylbenzene | mg/kg | 0.2 | 600 | | <0.5 | - | - | <0.5 | <0.2 | - | <0.2 | <0.2 | - | - | - |
| Metals | Arsenic | mg/kg | 1 | | 20 | <5 | - | <5 | 27 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| | Chromium | mg/kg | 1 | 180,000 | | 31 | - | 3 | 37 | 2 | 11 | 12 | 16 | 15 | 8 | 6 |
| | Chromium (hexavalent) | mg/kg | 0.5 | 950 | | - | - | - | - | - | - | - | - | - | - | - |
| | Copper | mg/kg | 2 | | 170 | <5 | - | <5 | 8 | 212 | 9 | 19 | 10 | 10 | <5 | <5 |
| | Lead | mg/kg | 2 | 15,000 | 1800 | 28 | - | <5 | 13 | 7 | 20 | 27 | 18 | 18 | 13 | 10 |
| | Vanadium | mg/kg | 5 | 22,000 | | 118 | - | 6 | 57 | - | - | - | - | - | 14 | 11 |
| VOCs | Zinc | mg/kg | 5 | | 220 | <5 | - | <5 | 10 | 48 | 31 | 38 | 38 | 34 | 24 | 14 |
| | 1,2,4-trimethylbenzene | mg/kg | 0.5 | 14 | | - | - | - | - | - | - | - | - | - | - | - |

NOTES: Soil samples collected from natural marine sediments.



Table T1 - Soil Analytical Results, North West ORWS Site Boundary,
ORWS Barangaroo

Lend Lease
ORWS Barangaroo

| | | | | | | | | | | |
|--------------------|----------------|----------------|----------------|----------------|---------------|----------------|---------------|----------------|---------------|--------------|
| Field_ID | BH04_16.0-16.2 | BH04_20.0-20.2 | BH04_21.0-21.2 | BH04_22.0-22.2 | BH047_0.3-0.5 | BH047_1.5-1.95 | BH049_0.3-0.5 | BH049_3.0-3.45 | BH37_0.06-0.1 | BH37_2.5-2.7 |
| Sample_Type | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal |
| Lab_Report_Number | ES0919030 | ES0919030 | ES0919030 | ES0919030 | ES0606484 | ES0606484 | ES0606484 | ES0606484 | ES1003391 | ES1003391 |
| Sample_Depth_Range | 16-16.2 | 20-20.2 | 21-21.2 | 22-22.2 | 0.3-0.5 | 1.5-1.95 | 0.3-0.5 | 3-3.45 | 0.06-0.1 | 2.5-2.7 |
| Sampled_Date_Time | 12/09/2009 | 12/09/2009 | 12/10/2009 | 12/10/2009 | 24/05/2006 | 24/05/2006 | 25/05/2006 | 25/05/2006 | 17/02/2010 | 17/02/2010 |

| Chem_Group | ChemName | output unit | EQL | SSTC-A | SSESC-A ^{Unsat} | | | | | | | | | | |
|------------------|------------------------|-------------|-----|---------|--------------------------|----|-----|-------|-------|------|----|------|----|-----|----|
| PAHs | CPAH (TEF) | mg/kg | | 67 | | - | - | 3.369 | 0.085 | - | - | - | - | - | - |
| | 2-methylnaphthalene | mg/kg | 0.5 | 1100 | | - | - | 37.5 | - | - | - | - | - | - | - |
| | Naphthalene | mg/kg | 0.5 | 41 | | - | - | 80.8 | 14.3 | - | - | - | - | - | - |
| Phenols | 3-&4-methylphenol | mg/kg | 0.5 | 5400 | | - | - | <0.5 | <1 | - | - | - | - | - | - |
| TRH (NEPM, 1999) | TPH C6 - C9 | mg/kg | 2 | 3400 | 40 | - | 79 | 121 | 51 | <2 | - | <2 | - | - | - |
| | TPH C10 - C14 | mg/kg | 50 | 13,000 | 50 | - | <50 | <50 | <50 | <50 | - | <50 | - | - | - |
| BTEX | Benzene | mg/kg | 0.2 | 15 | | - | 5.6 | 9.7 | 8 | <0.2 | - | <0.2 | - | - | - |
| | Ethylbenzene | mg/kg | 0.2 | 600 | | - | 2.9 | 4.1 | 1.3 | <0.2 | - | <0.2 | - | - | - |
| Metals | Arsenic | mg/kg | 1 | | 20 | <5 | <5 | <5 | <5 | 6 | <5 | <5 | <5 | <5 | <5 |
| | Chromium | mg/kg | 1 | 180,000 | | 8 | 4 | 4 | 2 | 7 | 10 | 3 | 3 | 2 | 5 |
| | Chromium (hexavalent) | mg/kg | 0.5 | 950 | | - | - | - | - | - | - | - | - | - | - |
| | Copper | mg/kg | 2 | | 170 | <5 | <5 | <5 | <5 | 127 | 15 | 262 | <5 | 225 | 23 |
| | Lead | mg/kg | 2 | 15,000 | 1800 | 6 | 6 | 9 | <5 | 15 | 23 | 6 | 8 | 6 | 9 |
| | Vanadium | mg/kg | 5 | 22,000 | | 8 | <5 | 7 | 7 | - | - | - | - | 125 | 8 |
| VOCs | Zinc | mg/kg | 5 | | 220 | <5 | <5 | <5 | <5 | 53 | 47 | 54 | 10 | 47 | 11 |
| | 1,2,4-trimethylbenzene | mg/kg | 0.5 | 14 | | - | - | 12.7 | - | - | - | - | - | - | - |

NOTES: Soil samples collected from natural marine sediments.

| | | | | | | | | | |
|--------------------|--------------|--------------|--------------|------------|------------|----------------|------------|----------------|-----------------|
| Field_ID | BH37_5.5-5.7 | BH37_5.5-5.7 | BH37_8.3-8.5 | QC67 | QC68 | BH37_15.8-16.0 | QC69 | BH37_20.4-20.5 | BH37_22.2-AUGER |
| Sample_Type | Normal | Normal | Normal | Field_D | Interlab_D | Normal | Field_D | Normal | Normal |
| Lab_Report_Number | ES1003391 | ES1003432 | ES1003391 | ES1003391 | 47060 | ES1003391 | ES1003391 | ES1003391 | ES1003391 |
| Sample_Depth_Range | 5.5-5.7 | 5.5-5.7 | 8.3-8.5 | 8.3-8.5 | 8.3-8.5 | 15.8-16 | 15.8-16 | 20.4-20.5 | 22.2 |
| Sampled_Date_Time | 18/02/2010 | 18/02/2010 | 18/02/2010 | 18/02/2010 | 18/02/2010 | 18/02/2010 | 18/02/2010 | 18/02/2010 | 18/02/2010 |

| Chem_Group | ChemName | output unit | EQL | SSTC-A | SSESC-A ^{Unsat} | | | | | | | | | |
|------------------|------------------------|-------------|-----|---------|--------------------------|-------|---|-------|-------|-------|------|-------|-------|--------|
| PAHs | CPAH (TEF) | mg/kg | | 67 | | <1.21 | - | <1.21 | <1.21 | <1.11 | 0.05 | <1.21 | 0.929 | 29.156 |
| | 2-methylnaphthalene | mg/kg | 0.5 | 1100 | | - | - | - | - | - | - | - | 14.4 | 396 |
| | Naphthalene | mg/kg | 0.5 | 41 | | <0.5 | - | <0.5 | <0.5 | <0.5 | 3.3 | 1 | 31.1 | 948 |
| Phenols | 3-&4-methylphenol | mg/kg | 0.5 | 5400 | | <1 | - | <1 | <1 | <1 | <1 | <1 | <0.5 | <1.2 |
| TRH (NEPM, 1999) | TPH C6 - C9 | mg/kg | 2 | 3400 | 40 | <10 | - | <10 | <10 | <10 | 53 | <10 | - | - |
| | TPH C10 - C14 | mg/kg | 50 | 13,000 | 50 | <50 | - | <50 | <50 | <50 | <50 | <50 | - | - |
| BTEX | Benzene | mg/kg | 0.2 | 15 | | <0.2 | - | <0.2 | <0.2 | <0.2 | 0.6 | 0.4 | 3.1 | - |
| | Ethylbenzene | mg/kg | 0.2 | 600 | | <0.5 | - | <0.5 | <0.5 | <0.5 | 2.6 | <0.5 | 2.9 | - |
| Metals | Arsenic | mg/kg | 1 | | 20 | <5 | - | <5 | <5 | 3 | <5 | <5 | <5 | <5 |
| | Chromium | mg/kg | 1 | 180,000 | | 8 | - | 10 | 9 | 8 | 11 | 12 | 2 | 7 |
| | Chromium (hexavalent) | mg/kg | 0.5 | 950 | | <0.5 | - | - | <0.5 | <1 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Copper | mg/kg | 2 | | 170 | <5 | - | <5 | 6 | 4 | <5 | <5 | <5 | <5 |
| | Lead | mg/kg | 2 | 15,000 | 1800 | 20 | - | 11 | 15 | 14 | 10 | 9 | 6 | 10 |
| | Vanadium | mg/kg | 5 | 22,000 | | 15 | - | 16 | 17 | 13 | 9 | 9 | 10 | 15 |
| VOCs | Zinc | mg/kg | 5 | | 220 | 28 | - | 46 | 46 | 41 | <5 | <5 | <5 | 6 |
| | 1,2,4-trimethylbenzene | mg/kg | 0.5 | 14 | | - | - | - | - | - | - | - | 6.8 | - |

NOTES: Soil samples collected from natural marine sediments.