

18 September 2018

Lend Lease (Millers Point) Pty Ltd  
Attn: Mark Burns  
Level 14, Tower Three, International Towers Sydney  
Exchange Place, 300 Barangaroo Avenue  
Barangaroo NSW 2000

**By email: Mark.Burns@lendlease.com**

Dear Mark,

**RE: BARANGAROO, STAGE 1B PERIMETER RETENTION WALL, HICKSON ROAD, MILLERS POINT - MODIFICATION OF STAGE 1B/ 1C CROWN SECTION**

## 1. INTRODUCTION

As a NSW-EPA accredited Contaminated Sites Auditor, I am conducting a contamination audit in relation to the southern portion of the site known as "Barangaroo", at Millers Point, NSW on behalf of Lend Lease (Millers Point) Pty Ltd (Lend Lease). As of June 2018 I have taken over the role of Site Auditor for this project, including for other portions on behalf of Crown Sydney Property Pty Ltd (Crown).

A Site Audit Report dated 31 July 2013 regarding a Remediation Action Plan (the RAP), prepared by AECOM Australia Pty Ltd (AECOM), dated 24 July 2013, was previously prepared by Graeme Nyland of Ramboll Australia Pty Ltd (previously ENVIRON Australia Pty Ltd). Two Site Audit Statements (SASs) were prepared to accompany the SAR: SAS GN447A relating to revocation of the EPA declaration from EPA declaration site number 21122 (including Block 4, Block 5 and Hickson Road); and SAS GN439B-3 relating to development of Block 4.

Graeme Nyland also prepared a Site Audit Report dated 20 January 2015 regarding a RAP (the Crown Hotel Development RAP, by AECOM, dated 13 January 2015) and an accompanying Site Audit Statement (SAS) GN439B-6 relating to the Crown Sydney Hotel Resort Development, adjoining to the west the above site. This development is known as the Stage 1C development of Barangaroo South.

The two adjoining developments (Block 4/ Stage 1B and the Crown Sydney Hotel Resort Development/ Stage 1C) include basement groundwater retention wall systems, also known as Perimeter Retention Walls (PRWs). The PRWs serve the purpose of retaining the basement excavations and allowing for dewatering of the excavations. The PRWs also minimise the potential for migration of groundwater towards Darling Harbour, which is a requirement for Block 4/ Stage 1B in the VMP/ Block 4 RAP due to the previous gasworks infrastructure located within that site.

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## 2. BACKGROUND

AECOM previously prepared the following letter that was reviewed by the Auditor in 2015:

- "Barangaroo, Stage 1B Perimeter Retention Wall, Hickson Road, Millers Point – potential deletion of Stage 1B / 1C Crown Section" dated 28 July 2015, prepared by AECOM (the Crown Interface letter).

The following letter was previously prepared by the Auditor for Lend Lease:

- "Re: Barangaroo, Stage 1B Perimeter Retention Wall, Hickson Road, Millers Point – potential amendments re Crown Interface Wall" dated 15 October 2015 which stated:

*"The Auditor agrees that the development staging options under consideration for Stage 1B and 1C are adequately consistent with the VMP/Block 4 RAP and that an Addendum to the RAP is not required on the basis that confirmed validation requirements will be documented in the VSAQP [Validation Sampling Analysis and Quality Plan] and there is an ongoing Site Audit which will review the validation performed and conclude as to the suitability of the site for its intended use, and that these processes can consider the specific comments made above."*

Key to that advice was the following requirements:

- *"Demonstration that the relevant length/ height of the internal wall will be sufficiently free of SPGWT will be required prior to construction."*
- *"Validation of the Crown 1B basement will require demonstration that the Crown 1C air exchange rate (and any other more conservative operational assumptions) has been applied across the entirety of the Crown basement. Confirmation of the appropriate ventilation assumptions and validation requirements is required prior to construction."*

## 3. SCOPE OF WORK AND OBJECTIVE

AECOM have prepared the following letter that I have been provided for review:

- "Barangaroo, Stage 1B Perimeter Retention Wall, Hickson Road, Millers Point – modification of Stage 1B / 1C Crown Section" dated 14 September 2018, prepared by AECOM (the Redundant Section letter).

This letter follows on from and supersedes their 2015 Crown Interface letter. It indicates that the Stage 1B PRWs and the Crown Stage 1C PRWs have been completed with the exception of the "Redundant Section", being the Stage 1B Cut Off Wall 1 (COW1). Instead temporary sheet piles were installed along this alignment to enable excavation support and dewatering for the Stage 1B excavation.

AECOM's stated objectives for the Redundant Section letter *"are to confirm whether not constructing the Redundant Section of the Stage 1B PRW:*

- *is consistent with the VMP / Block 4 RAP (AECOM, 2013);*
- *would require preparation of an Addendum to the VMP / Block 4 RAP (AECOM, 2013); and*
- *will have implications on validation of the Block 4 Development Remediation Works."*

The objective of this review letter is to provide comment on the Redundant Section letter findings.

## 4. DISCUSSION

The Crown Interface letter considered the following potential staging scenarios:

1. **Scenario 1** – remediation and validation of the Block 4 Development Remediation Works (within Stage 1B) including construction of the Stage 1B PRW is undertaken prior to the proposed Stage 1C PRW. The Stage 1B PRW would be constructed to meet the requirements of the VMP/Block 4 RAP (AECOM, 2013) including construction of a permanent PRW within the 'Redundant Section'.
2. **Scenario 2** – remediation and validation of the Block 4 Development Remediation Works (within Stage 1B) and Stage 1C remediation works including construction of the Stage 1B and Stage 1C PRWs concurrently. Potential options under Scenario 2 are:
  - (a) Option A – both the Stage 1B and 1C PRWs are constructed as per the requirements of the applicable RAPs including construction of a permanent PRW within the Redundant Section; or
  - (b) Option B – the Stage 1B and 1C PRWs are constructed as per the requirements of the applicable RAPs with the exception of the Redundant Section within which no wall is constructed.

The Redundant Section letter considers Scenario 2, Option B, since the Stage 1B and 1C PRW construction works have subsequently been completed concurrently.

The Auditor's review of the Crown Interface letter considered the three stated objectives. This consideration has not changed following the selection of one of the staging scenarios previously considered, although it is noted that the proposed VSAQP was not prepared, with the Validation and Sampling management Plan for Block 4 (Stage 1B) prepared instead (ERM, March 2017) and reviewed by the Auditor. On this basis, the Auditor is satisfied that adequate consideration of this issue has been given previously and the conclusions of the Auditor's review (15 October 2015) of the Crown Interface letter are still valid.

## 5. CONCLUSION

AECOM concluded in the Redundant Section letter that *"...the completed Stage 1B and 1C PRW construction works (excluding the Redundant Section...) will:*

- *minimise groundwater migration from Stage 1B to the nearest sensitive receptor Darling Harbour and, therefore, comply with the requirements of the VMP / Block 4 RAP (AECOM, 2013);*
- *not require preparation of an Addendum to the VMP / Block 4 RAP (AECOM, 2013); and*
- *not impact on the validation of the Block 4 (Stage 1B) Development Remediation Works which will be managed by implementation of the Block 4 (Stage 1B) VSMP (ERM, 2017).*

*Consequently, it is considered that the Redundant Section of the PRW does not need to be installed to meet the requirements of the VMP / Block 4 RAP (AECOM, 2013)".*

The Auditor agrees with the above conclusions noting:

- The adopted approach has been Scenario 2, Option B (concurrent Stage 1B and 1C construction with no wall within the Redundant Section).
- There is an ongoing Site Audit which will review the validation performed and conclude as to the suitability of the site for its intended use.

\* \* \*

Consistent with the NSW EPA requirement for staged 'signoff' of sites that are the subject of progressive assessment, remediation and validation, I advise that:

- This advice letter does not constitute a Site Audit Report or Site Audit Statement.
- At the completion of remediation and validation of the site I will provide a Site Audit Statement and supporting documentation.
- This interim advice will be documented in the Site Audit Report.

Yours faithfully  
Ramboll Australia Pty Ltd



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