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LendLease Building Pty Limited
Level 14, Tower Three, International Towers Sydney
Exchange Place
BARANGAROO NSW 2000
Attention: Melissa Gaspari

Email: Melissa.gaspari@lendlease.com.au

Project 86457.02
14 March 2019
86457.02.R.001.Rev0
KDP:mm

Dear Melissa

Response to EPA Comments
UNSW D14 Building
High Street, Kensington

1. Introduction

Douglas Partners Pty Ltd (DP) have prepared this letter at the request of LendLease Building Pty Ltd (LendLease) to provide a response to the letter prepared by the NSW EPA dated 22 February 2019 entitled SSD 9606 – UNSW D14 Academic Building – Environmental Impact Statement (EIS). The works were undertaken in general accordance with the PSA017 dated 25.01.2018.

DP has previously prepared the following reports which were submitted by LendLease to the NSW EPA with other documents for comment:

- Report on Contamination Assessment for SSD, Proposed UNSW D14 Building, High Street, Kensington Prepared for The University of New South Wales (Developer and Applicant) & Lendlease (Design and Construct Partner). DP Project 86457.01.R.03 dated 28 November 2018 (the CA); and
- Remediation Action Plan for SSD, Proposed UNSW D14 Building, High Street, Kensington Prepared for The University of New South Wales (Developer and Applicant) & Lendlease (Design and Construct Partner). DP Project 86457.01.R.03 dated 22 November 2018 (the RAP).

2. Comments

The following comments were made by the EPA relating to site contamination followed by DP's response.

The EPA has identified the following site specific concerns based on the project information available on the Department of Planning and Environment major projects web site:

(a) the need for a detailed assessment of potential site contamination, including information about groundwater and a detailed assessment of the footprint and surrounds of existing buildings following their demolition;

The RAP provides details of a proposed data gap assessment including 5 test pits and four additional test bores at the site focusing on the building footprint that is inaccessible until the demolition works are completed. During the early stages of redevelopment following demolition these additional test locations will be undertaken.

The RAP provides provisions for groundwater assessment, if deemed necessary, based on the findings of the data gap assessment (i.e. if significant soil contamination that may result in groundwater contamination) or in the event of unexpected finds that may result in groundwater contamination (e.g. underground fuel tanks).

Section 13.1 to EIS Appendix U states "No asbestos was observed during drilling or detected in laboratory analysis". The EPA notes section 14 to EIS Appendix U recommends development of an unexpected finds procedure and '... that following demolition of the existing structures, further (data gap) investigation ..." should be undertaken. Section 14 to EIS Appendix U also proposes that "[b]ased on the results of the investigation it is considered the risk of contamination at the site is low ...".

However, the EPA notes:

(a) Appendix U of the EIS refers to previous investigations close to the development site but those reports are not included with the EIS;

The investigations previously undertaken by DP in other parts of the university provide information on the broad site conditions but are not directly relevant to the contamination assessment of the D14 site. Notwithstanding, DP has considered the relevant information in determining the likely geological and hydrogeological conditions and the likely potential contaminants at the site sourced from adjacent/nearby sites. The information from these reports was summarised in CA.

It is also noted that the RAP includes an unexpected finds protocol.

(b) only two groundwater monitoring wells were installed preventing determination of the direction of groundwater flow;

Noted, however based on observations from other reports at the UNSW site and site topography and the water levels measured in the two groundwater wells, DP is reasonably confident that the direction of local (as well as regional) groundwater flow at (and near) the site is north to north west as stated in the CA.

(c) despite a site area more than 5,000 square metres, soil samples were collected from only six boreholes whereas the EPA Sampling Design Guidelines anticipate sampling would have been undertaken from at least 13 boreholes.

Accordingly, the EPA considers that as the contamination assessment report does not satisfy minimum sampling requirements, and the proponent recommends further (data gap) investigation, it is inappropriate to conclude at this time that the risk of contamination at the site is low. The EPA considers that the unexpected finds protocol outlined in EIS Appendix V (RAP)

should be updated to consider any additional contamination uncovered during further investigation, including post-demolition (data gap) investigation. The EPA further considers that validation of the removal of any hazardous building materials encountered during demolition should be undertaken prior to commencement of any construction.

Noted, the data gap assessment will include a further 9 test locations such that the eventual sampling plan will exceed the minimum recommended in the Sampling Design Guidelines. It is noted that the CA was a preliminary site investigation with limited sampling as dictated by the limited site access conditions pre-demolition.

EPA Recommendations

1. The proponent be required to ensure that following demolition of any existing structures, infrastructure and in ground utilities further investigation be undertaken of soil contamination within the footprint of those structures and utilities prior to undertaking any construction.

The proposed data gap assessment within the building footprint is (to be conducted post demolition) is detailed in the RAP. The data gap assessment will include 5 test pits and 4 additional test bores.

2. The proponent be required prior to commencing work to –

(a) prepare and implement an appropriate procedure for identifying and dealing with unexpected finds of site contamination, including asbestos containing materials and lead-based paint, and

The RAP provides an unexpected finds protocol. It is noted that at this stage asbestos has not been detected in the soil at the site.

(b) include in the aforementioned procedure, details of who will be responsible for implementing the unexpected finds procedure and the roles and responsibilities of all parties involved.

The primary contractor would be responsible for implementing the unexpected finds protocol. Prior to commencement of works a start up meeting would be held with the relevant parties to discuss roles and responsibilities and determine the operational procedures.

3. The proponent be required (to) consider the guidance material provided in the National Environment Protection (Assessment of Site Contamination) Measure as well as the following EPA documents when undertaking further site assessment (including post-demolition investigation) and validation -

- ***Technical Note: Investigation of Service Station Sites, 2014;***
- ***NSW EPA Sampling Design Guidelines,***
- ***Guidelines for the NSW Site Auditor Scheme (3rd edition) 2017, and***
- ***Guidelines for Consultants Reporting on Contaminated Sites, 2011.***

4. The proponent be required to ensure that the processes outlined in State Environmental Planning Policy 55 - Remediation of Land (SEPP 55) are followed in assessing the suitability of the land and any remediation required in relation to the proposed use.

Noted. All relevant guidance material will be considered in the data gap assessment and implementation of the RAP.

5. The proponent be required to ensure that the proposed development does not result in a change of risk in relation to any pre-existing contamination on the site to result in significant contamination.

Noted.

6. The proponent be required to notify the EPA should any contamination of the development site be identified which meets the triggers in the Guidelines for the Duty to Report Contamination.

Noted. In the event that contamination is identified that triggers the Guidelines for the Duty to Report the NSW EPA would be duly notified by the normal process.

7. The proponent be required to satisfy the requirements of the Protection of the Environment Operations (Waste) Regulation 2014 with particular reference to Part 7 'asbestos wastes'. Note: The EPA provides additional guidance material at its web-site. http://www.environment.nsw.gov.au/waste/asbestos/index.htm.

Noted. If asbestos is identified the appropriate procedures will be followed as outlined in the RAP

8. The proponent be required to consult with Safework NSW concerning the handling of any asbestos waste that may be encountered during the course of the project.

Noted. Safework NSW will be consulted as required and noted in the RAP.

3. Conclusion

We trust the above comments provide further clarity and appropriate feedback to the NSW comments. Please contact the undersigned if you have any questions on this matter.

4. Limitations

Douglas Partners (DP) has prepared this report for this project at D14 UNSW in accordance with DP's proposal dated 31 July 2018 and acceptance received from Lendlease Building Pty Ltd. The work was carried out under PSA017 dated 25.01.2018. This report is provided for the exclusive use of Lendlease Building Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss

or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the (geotechnical / environmental / groundwater) components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Yours faithfully
Douglas Partners Pty Ltd

Reviewed by

Kurt Plambeck
Senior Associate

J.M. Nash
Principal

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Yours faithfully
Douglas Partners Pty Ltd

Kurt Plambeck
Senior Associate

Reviewed by

J.M. Nash
Principal

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Project 86457.02
9 April 2019
86457.02.R.002.Rev1
KDP:jlb

Attention: Melissa Gaspari

Email: Melissa.gaspari@lendlease.com.au

Addendum to Remediation Action Plan
UNSW D14 Building
High Street, Kensington

1. Introduction

Douglas Partners Pty Ltd (DP) have prepared this letter at the request of LendLease Building Pty Ltd (LendLease) following the revision of the site boundary for the project works.

DP has previously prepared the following reports:

- Report on Contamination Assessment for SSD, Proposed UNSW D14 Building, High Street, Kensington Prepared for The University of New South Wales (Developer and Applicant) & Lendlease (Design and Construct Partner). DP Project 86457.01.R.03 dated 28 November 2018 (the CA); and
- Remediation Action Plan for SSD, Proposed UNSW D14 Building, High Street, Kensington Prepared for The University of New South Wales (Developer and Applicant) & Lendlease (Design and Construct Partner). DP Project 86457.01.R.03 dated 22 November 2018 (the RAP).

2. Background

It is understood that the project boundary has been expanded (from the blue hatched, 'Project Boundary' line shown on the attached drawing), primarily to the east to include the Fig Tree Heritage Conservation Area (HCA) (the red hatched boundary, i.e. the 'Make Good Boundary', also shown on the attached drawing). The expanded area increases the site area in the order of 1200 m^2.

The CA included limited sampling and did not include testing into the expanded area east of the original project boundary (the HCA). It is noted however, that, as the HCA falls within the broader university grounds similar site history and ground conditions would be expected within HCA and therefore the broad contaminant risks and conceptual site model would be similar to those identified in the CA for the original project boundary. As such the conclusion of the CA that the risk of contamination would be low

would also generally apply to the HCA. However, due the limited intrusive investigations, it is considered appropriate to expand the data gap assessment specified in Section 9.3.1 of the RAP to include the portion of the HCA that falls within the expanded project boundary.

3. Additional Data Gap Assessment

Accordingly, the revised data gap assessment in the HCA shall (in addition to the data gap assessment detailed in the RAP) include:

- A review of the site history information in the CA including a review of the aerial photographs to identify potential contaminant risk;
- A site walkover to identify current site features and visually apparent areas of environmental concern. This will be conducted prior to drilling / test pitting to identify areas of environmental concern (AECs) to be targeted during sampling;
- Excavation of five test pits to a depth of 1.5 m to 3.0 m or prior refusal using an excavator. Test bores may be drilled in lieu of test pits near tree roots to prevent damage to the trees. Collection of soil samples at regular intervals;
- Screening of soil samples for volatile organic compounds (VOC) using a photo-ionisation detection (PID) instrument;
- Laboratory analysis selected soil samples for analysis by a NATA accredited laboratory for the contaminants of concern including Heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) (HM);,total petroleum hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), monocyclic aromatic hydrocarbons (benzene, toluene, ethyl benzene and xylenes – BTEX), organochloride pesticides (OCP), organophosphate pesticides (OPP), polychlorinated biphynels (PCB), volatile organic compounds (VOC), cation exchange capacity (CEC), pH and asbestos; and
- QA/ QC analysis in accordance Section 3.2 below.

In addition to the above testing requirements one sample of fill per metre or strata of fill (whichever is greater) in the test pits/ bores will be tested for the following:

- One, 500 ml sample to be tested for asbestos fines / asbestos fibres (AF / FA) as defined in NEPC (2013); and
- One, 10L sample to be sieved on site through a 7 mm sieve to determine the ACM content.

In the event that the data gap assessment does not identify any contaminated soils and no unexpected finds are encountered then no soil remediation and/or validation works would be required to confirm the site suitability for the proposed development. The results of the testing shall be provided in the data gap assessment report.

3.1 Remediation of Unexpected Finds

In the event that contaminated soil is identified during the data gap assessment the unexpected finds protocol outlined in Section 10 of the RAP would be enacted.

3.2 QA / QC Analysis

QA/QC testing in conjunction with must also be undertaken including:

- Inter-laboratory duplicate samples for the full analytical suite of the primary sample at a rate of 5% of the primary sampling or a minimum of one sample per sampling day / source material;
- Intra-laboratory duplicate samples for the full analytical suite of the primary sample at a rate of 5% of the primary sampling or a minimum of one sample per sampling day / source material;
- One trip spike (BTEX) and trip blank (BTEX) per sampling day; and
- One rinsate sample per sampling day (PAH and heavy metals), if non-disposable sampling equipment is used.

4. Conclusion

It is considered that the site can be made suitable for the proposed development subject to the implementation of the RAP and this addendum to the RAP.

5. Limitations

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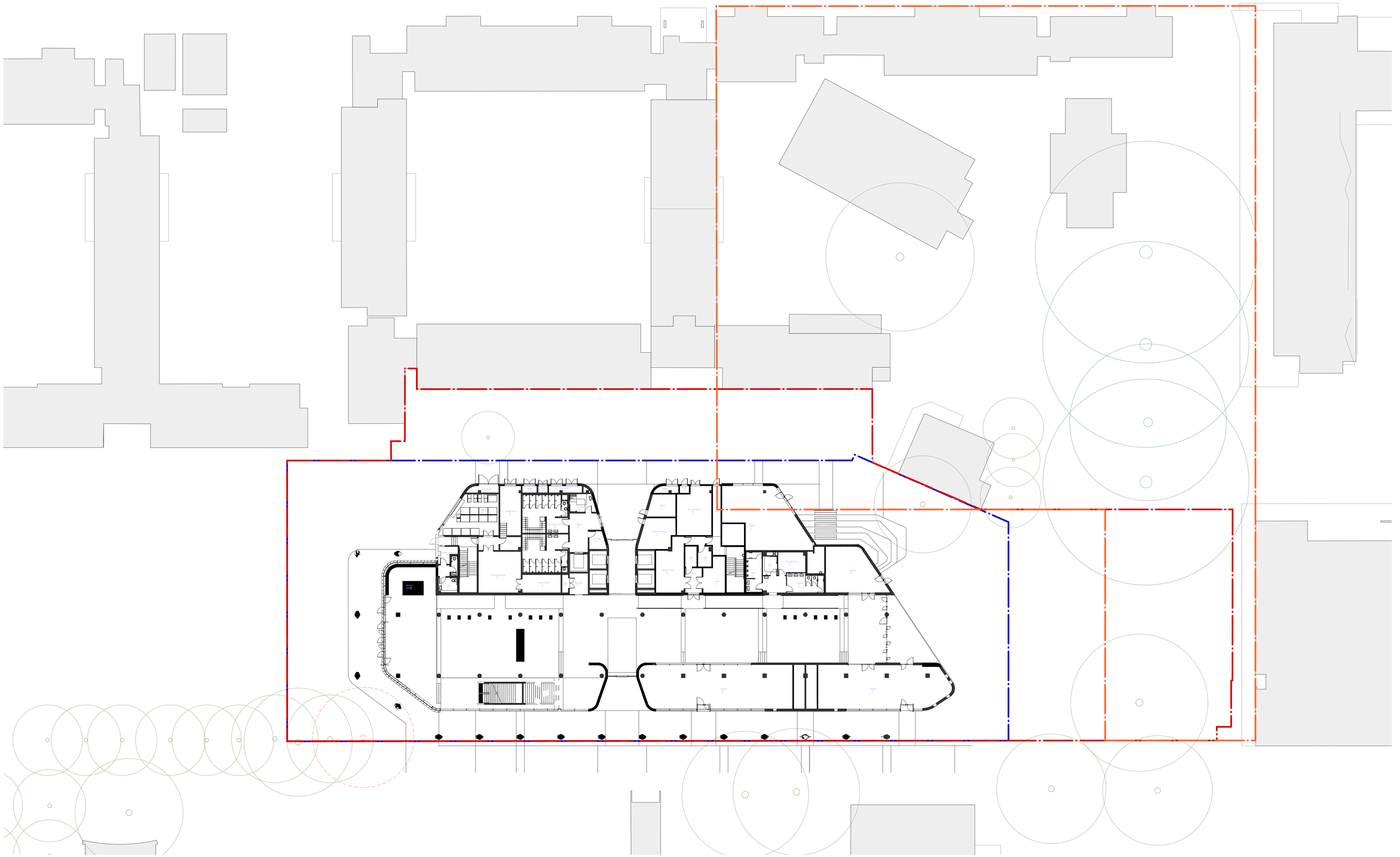
Yours faithfully
Douglas Partners Pty Ltd

Kurt Plambeck
Senior Associate

Reviewed by

pp. **J M Nash**
Principal

Attachments: Drawing
Notes About this Report



UNSW SYDNEY

Owner and Applicant

lendlease

D+C Partner

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Tzannes Architects

Warren Smith & Partners

- - - FORMER SITE SCOPE
- - - PROPOSED PROJECT SCOPE
- - - HERITAGE CONSERVATION AREA

PROJECT
UNSW D14

DRAWN: KEL | CHECKED: JH | SCALE @ A1: 1:250 | REVISION: A

DRAWING
SITE BOUNDARIES
Sheet 1 of 1

DRAWING NO.
N/A

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.