

17 May 2019

Carlo Castello
Lendlease
Level 14, Tower Three, International Towers Sydney
Exchange Place, 300 Barangaroo Avenue
Barangaroo, NSW, 2000

Dear Carlo,

Re: Sydney Football Stadium Redevelopment, Moore Park IAA #1: Review of Detailed Site Investigation

1. Introduction and Background

Jason Clay (the auditor) of Senversa Pty Ltd has been engaged by Lendlease Building Pty Ltd as a NSW Environment Protection Authority (EPA) accredited site auditor for the redevelopment of the Sydney Football Stadium, located on Diver Avenue Moore Park, NSW. The site is legally defined as Lot 1 on Deposited Plan 205794 and part Lot 1528 on Deposited Plan 752011 and part Lot 1530 on Deposited Plan 752011.

The site was recently occupied by the Allianz Football Stadium and associated infrastructure and it is understood that the site, as well as parts of the surrounding sporting precinct, will be demolished and replaced by newer facilities. As part of the proposed development, it is understood that audit services are required under two different planning approvals as follows:

- **Concept Development Application** (referenced SSD 9249 and dated 6 December 2018): Condition C24 requires, "*The Phase 2 Environmental Site Assessment report is to be reviewed by an EPA accredited Site Auditor to confirm the adequacy of the investigations to date, the required unexpected finds protocol, the proposed approach to managing or resolving potential contamination risks and/or to confirm the suitability of the proposed land use.*" Condition C25 requires review of a remedial action plan, should one be recommended and required.
- **Section 96 Modification for the existing demolition:** the DSI was also in part prepared to support a modification of the above consent, which includes the removal and disposal of the ground slabs, pavements, footings and piles from the former football stadium.

Douglas Partners Pty Ltd (Douglas Partners) has been engaged as the environmental consultant for the site.

2. Documents Reviewed

In its capacity as environmental consultant, Douglas Partners produced the following documents, which are the subject of this letter review:

- DP (2018) *Report on Preliminary Site Investigation (Contamination), Sydney Football Stadium Redevelopment, Moore Park, NSW*, dated 18 May 2019 and referenced 86276.00.R.001.Rev0.Stage 1 ESA. This is hereafter referred to as 'the PSI'.



- DP (2019a) *Report on Detailed Site Investigation (Contamination), Sydney Football Stadium Redevelopment, Moore Park, NSW*, dated 15 May 2019 and referenced 86529.00.R.006A.Rev0.DSI S96 Application. This is hereafter referred to as 'the S96 DSI'.
- DP (2019b) *Report on Detailed Site Investigation (Contamination), Sydney Football Stadium Redevelopment, Moore Park, NSW*, dated 15 May 2019 and referenced 86529.00.R.006A.Rev0.DSI. This is hereafter referred to as 'the DSI'.

The auditor notes that there is no technical difference in the S96 DSI or the DSI.

3. Consultant's Conclusions

Both the S96 DSI and the DSI concluded the following with regards to site suitability:

On the basis of the results outlined in this report, the site is considered suitable for its proposed continued use as a sporting stadium without the requirement for remediation, provided that unexpected finds are managed appropriately during the construction phase of the project. The USTs present in the eastern portion of the site will continue to be used post-development and therefore it is recommended that they are managed in accordance with the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2014.

The S96 DSI and the DSI also concluded:

- Fill material on-site could be classified as General Solid Waste (Non-Putrescible) in accordance with the *Waste Classification Guidelines, Part 1: Classifying Waste* (NSW EPA, 2014).
- The underlying natural soil and rock is classified as Virgin Excavated Natural Material (VENM) under the *Protection of the Environment Operations Act, 1997*.

4. Auditor's Review

The auditor has undertaken a review of the PSI, the S96 DSI and the DSI against the requirements specified in the *Guidelines for the NSW Site Auditor Scheme (3rd edition)* (NSW EPA, 2017) and the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW Office of Environment and Heritage, 2011).

The auditor notes the following deficiencies in the report:

- Details on the underground petroleum storage system infrastructure are scant and the investigation would have benefitted from a Dangerous Goods search to provide additional information.
- The PSI indicated that at the turn of the 1900s, the site was used for "military purposes", although no additional details of this were provided.
- The selection of groundwater criteria was not discussed within the body of the report and there was no discussion on the rationale for the selection of it.
- Groundwater monitoring wells appear to have been installed over the fill and natural material in several wells, and the screen on at least one well was in excess of 13.5 metres in length. This could potentially create a pathway and/ or dilute the water column, affecting the integrity of any sample collected.
- Only the final groundwater parameters were recorded, so it cannot be determined if the samples were collected post stabilisation.
- The strike depth to groundwater during drilling was not obvious on most of the logs and the depth to groundwater was not recorded on the field sheets. This was also not discussed in the body of the DSIs.



- The source of hydrocarbon odours in three wells in the east of the site was not discussed in either DSI.
- Polycyclic aromatic hydrocarbons were detected above the screening criteria in natural soil samples BH202/5.6-5.7 and C5/2.9-3.0, meaning some of the natural material may have been impacted by the historical activities at the site at some locations, which may affect the classification of VENM in these areas.

5. Auditor's Conclusions

5.1 Assessment of Report Deficiencies

Noting the deficiencies in **Section 4**, the auditor concludes:

- Adequate sampling locations have been investigated at the site to make up for the lack of information on some of the potential areas of concern/information on historical activities (including the petroleum infrastructure and the potential military past). In addition, based on the inferred groundwater flow direction (southwest), any significant impacts from the underground petroleum storage infrastructure would likely have been captured during the groundwater sampling at downgradient monitoring well C36W.
- Concentrations of contaminants in the groundwater were low, meaning that although key information was missing regarding the sampling undertaken and the rationale behind the screening criteria selected to compare the laboratory results against, it is considered that there would be low and acceptable risk to both human health and ecological receptors from historical site activities.
- The DSIs did not consider the potential historical use of per- and polyfluoroalkyl substances (PFAS). However, based on the site history and dates of development at the site, it is unlikely that significant quantities of PFAS would be present on-site from historical on-site activities.
- While the source of the hydrocarbon odours in the three locations in the east of the site was not discussed, based on the laboratory results for soil and groundwater, it is unlikely to be a significant hydrocarbon source.
- Although asbestos has not been identified above the screening criteria to date, it is noted that the investigation has consisted mostly of boreholes which do not allow for a detailed inspection of the sub-surface. Douglas Partners also noted that there was insufficient sample to complete sieving on the samples. However, given the proposed development, which is likely to include removal and replacement of fill material around the pitch, this is not considered to be significant from a site suitability perspective.

In addition, the auditor understands:

- 1 metre of topsoil is proposed to be imported to site to form the playing pitch and as such, the minor exceedances of recreational open space criteria noted in some samples collected in this area are not considered to be significant and will likely be removed during the construction of the new stadium.
- A construction environmental management plan (CEMP) will be developed for the site to manage any environmental risks during the construction of the new stadium and to manage any unexpected finds.



5.2 Conclusion on Adequacy of Reports

Based on the information presented in the reports presented in **Section 2** and noting the conclusions in **Section 5.1**, the auditor considers that the reports have sufficiently characterised the potential contamination status of the site and that a remedial action plan does not need to be developed at this stage for the proposed development. The auditor also recommends:

- Imported topsoil meeting the Recreational/ Recreational Open Space criteria defined in Schedule B1 of the *National Environmental Protection Measure, As Amended* (NEPC, 2013).
- Any VENM classification should take into account historic and any additional results.
- A CEMP is developed for the construction phase of the development and must set out clear protocols for unexpected finds encountered.
- The preliminary waste classifications outlined in **Section 2** above is amended based on any 'unexpected finds', where appropriate.
- Any waste transported off-site is waste classified in line with EPA guidelines and taken to an appropriately licensed facility.

6. Close

We trust this meets your requirements. Should you have any queries or require further information, please do not hesitate to contact the undersigned.

Yours sincerely,

On behalf of **Senversa Pty Ltd**

Jason Clay

NSW EPA Accredited Contaminated Sites Auditor (0801)

Technical Limitations and Uncertainty – This Interim Advice is not a Site Audit Report or a Site Audit Statement, as defined in the Contaminated Land Management Act 1997

Douglas Partners Pty Ltd included limitations in its reports, and therefore this review will also be subject to those limitations. The auditor has prepared this document in good faith but is unable to provide certification outside of areas over which the auditor had some control or is reasonably able to check. The auditor has relied on the documents referenced in Section 2 in preparing the auditor's opinion in Sections 4 and 5. If the auditor is unable to rely on any of those documents, the conclusions of the audit could change.

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