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c/o  
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Dear Mr Wood,

## **Update to the Excavation Methodology at the Liverpool Health and Academic Precinct (LHAP) (SSD 10389)**

RPS Australia East Pty Ltd (RPS) have been engaged by Lendlease on behalf of NSW Health Infrastructure to manage the historical archaeology program for the State Significant Development (SSD) *Liverpool Hospital – Integrated Services Building and Refurbishment Works Corner Elizabeth Street and Goulburn Street, Liverpool* (SSD 10389). Our recommended programme was for monitoring works but Heritage NSW (17<sup>th</sup> June 2020) required a programme of test excavation and the preparation of an Archaeological Research Design and Excavation Methodology (ARDEM) for the site.

Construction works have commenced, and soil testing for hazardous materials was undertaken. Under the direction of Ms Wendy Thorp, Dr Gary Marriner attended the site to monitor this testing. Based on the results of the archaeological monitoring, RPS (on behalf of Ms Wendy Thorp, nominated excavation director) seeks to make the following changes to the approved ARD:

Existing ARD	Proposed Change
<b>Phase 1 Archaeological Test Excavation</b>  <p>The three areas identified in this report (Areas, 1, 2 and 3) (Figure 6.1) are locations identified as areas of archaeological potential where truncated and/or intact archaeological profiles may survive. The purpose of the testing programme is to investigate three key locations across the Main Works project area with each of the three locations addressing aspects of the research design.</p> <p><b>Area 1:</b> <i>test over the sites of Moore's large out-building, the theological college buildings and the yard spaces between to determine the scope and integrity of the potential resource.</i></p>	<b>Phase 1 Archaeological Test Excavation</b>  <p>The three areas identified in this report (Areas, 1, 2 and 3) (Figure 6.1) were locations identified as areas of archaeological potential. The results of monitoring in Area 1 for hazardous materials has demonstrated that the impact of construction for the hospital is likely to have removed all elements of the archaeological profile. Therefore, we would recommend reverting to the original strategy of monitoring excavation to identify and document any elements that might have survived from this substantial impact.</p> <p><b>Area 1:</b> <i>All excavation to be subject to archaeological monitoring. If archaeological features and or relics are identified during the Phase 1 works, mechanical</i></p>

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Existing ARD	Proposed Change
	<i>excavations would cease, and detailed archaeological investigations would be undertaken in accordance with Phase 2.</i>

## 1.1 Background

In 2021 RPS prepared ARDEM for the site in response to specific Conditions of Consent for the development being the implementation of a testing programme<sup>1</sup> This research design identified three areas for archaeological investigation on the basis that these were the only places that relics of local significance as assessed under the OEH legislative guidelines might survive within the site<sup>2</sup>.

Under the current construction program, it is planned that Area 1 will be excavated in February 2022, with Area 2 and Area 3, to completed at a later date (currently scheduled during 2024). This letter concerns Area 1 only which is identified in Section 6.1.1 of the ARDEM as *South-west corner: Moore Hall and Theological College*. This a 25 x 50m area in the southwest corner of the site. The ARDEM included a comprehensive Excavation Methodology for works on the site.

Under the ARDEM, Phase 1 archaeological testing would be undertaken to investigate the key locations across the area addressing aspects of the research design. In Area 1 it was proposed to *test over the sites or Moore's large out-building, the theological college buildings and the yard spaces between to determine the scope and integrity of the potential resource*.

The three trench locations were specified in the ARD at this time. If archaeological features or relics were identified during testing, then archaeological works would be progressed to archaeological salvage excavation (Phase 2). As part of the assessment of the site's potential, the excavations undertaken on the adjacent site by Edward Higginbotham and Associates in 1994 were consulted. The results of this excavation indicate that the construction of a tennis court in the 1930s and later car-park removed most historic topsoil at the site. During the preparation of the ARD only limited information about the works to be undertaken in this area was available. There had been no environmental investigation at that time.

## 1.2 Changes to Construction Scope

In January 2022, RPS was engaged to undertake archaeological works in accordance with the ARDEM. As part of this engagement, plans have since been provided by Lendlease (site contractor) that show the maximum excavation depth across almost all of Area 1 is limited to 0.5m below the current surface.

Further, since the submission of the ARD a large (~21 x 21m) part of Area 1 has been designated as a tree protection zone (TPZ) and will not be subject to any major excavation works. This means archaeological excavation is no longer required in this area as there will be no impacts to any potential archaeological resource. The exclusion of the TPZ decreases the size of Area 1 by 35% (Appendix 02). Testing or monitoring was limited to the remaining area.

## 1.3 Results of Archaeological Monitoring (January 2022)

As part of the preliminary works prior to any archaeological excavation, Lendlease required test pits to be excavated across the entire site including within Area 1 for the recovery of samples for geotechnical soil classification. Dr Gary Marriner, Senior Heritage Consultant RPS, attended the site on 24<sup>th</sup> January 2021 to monitor the excavation of two test pits (TP05 and TP08) that were located within Area 1. TP05 was initially to

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<sup>1</sup> W. Thorp & J. Madden for RPS, 2021, *LIVERPOOL HEALTH AND ACADEMIC PRECINCT – MAIN WORKS, Archaeological Research Design and Excavation Methodology*, report to Johnstaff

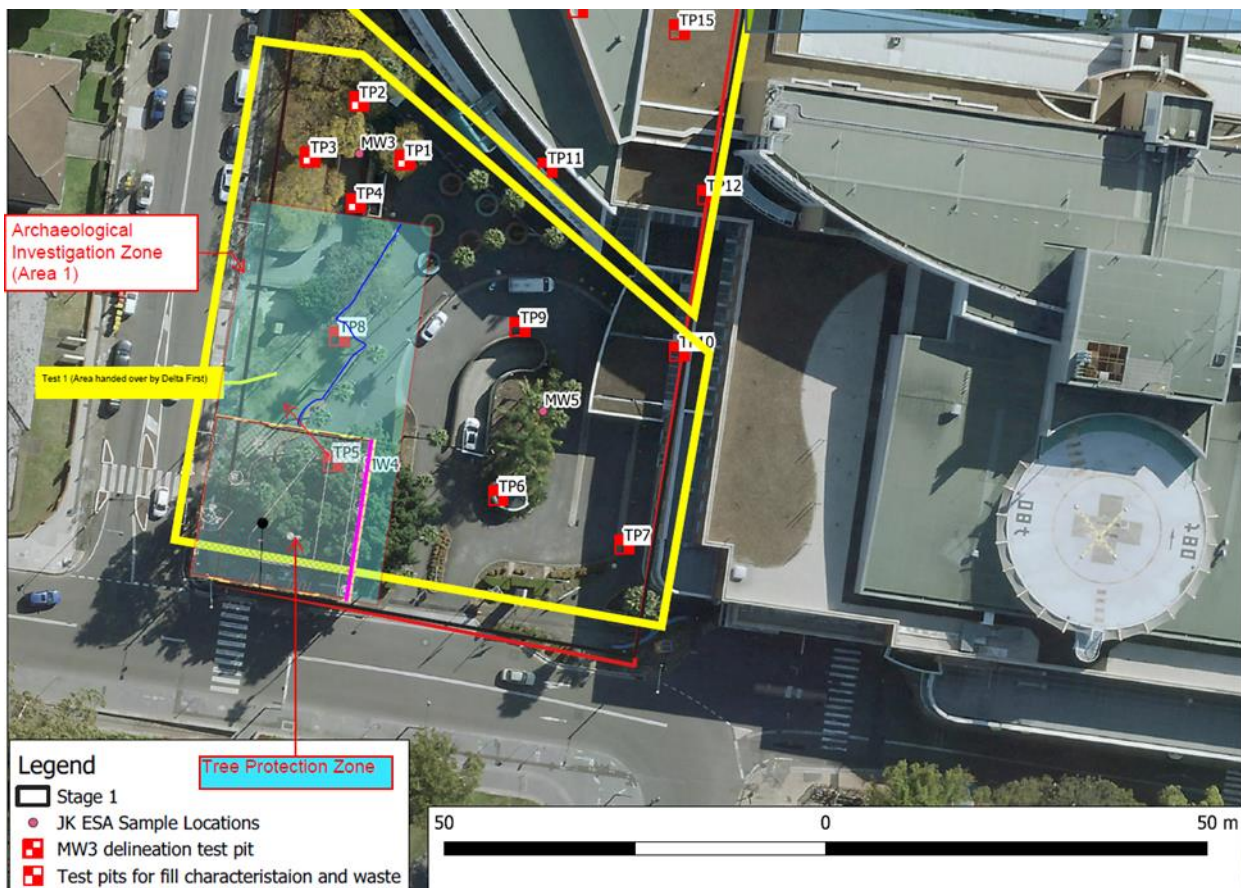
<sup>2</sup> Assessing Significance for Historical Archaeological Sites and 'Relics' (OEH 2009) OEH

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be dug within the TPZ but was relocated to the northwest as no excavation was allowed with the zone. The approximate locations of these test pits are in **Error! Reference source not found.** This work also enabled a sample to be documented on the soil profile of relevance to the archaeological assessment of Area 1.

Based on the results of these two test pits, re-examination of the area, and the maximum depth of excavation being 0.5m below the surface RPS no longer recommends a program of archaeological testing and instead suggests that monitoring is an appropriate methodology for Area 1 of the site.

**Figure 1 - Location of the TPZ and TP locations within Area 1. Note, TP5 was relocated to be outside the TPZ. The blue line is the approximate edge of the concrete roadway.**



### 1.3.1 Test Pit 05

Test pit 05 was excavated 5.5m north of the TPZ in the approximate centre of Area 1. It was moved to the northwest so as not to impact the trees. The pit measured 3.2 x 1.3m and was excavated to a maximum depth of 1.15m. A 20<sup>th</sup> century building foundation consisting of a portland cement concrete with dry-pressed bricks was located at the southern end of this trench running east to west. Around 300mm north of this on the same alignment was a ceramic service pipe which had portland cement mortar joints and a metal water pipe. A further 1m north was a larger concrete stormwater pipe, again on the same alignment. No cuts for these services were visible within the upper 0.5m of the profile and all appeared to have been cut through to the underlying B horizon clay. This clearly indicates that the upper 0.5m of the profile which will be disturbed by future works has been deposited after these services were laid during the mid-later twentieth century. The section profile consisted of:

Depth	Thickness	Description
0 – 0.25m	250mm	Medium compacted dark brown sandy silt topsoil with frequent rooting and rare rounded gravel
		Current topsoil

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Depth	Thickness	Description
0.25 – 0.50m	250mm	Mixed lenses of 3-8mm subrounded dark greyish green gravel, mottled grey/yellow/pink clay with rare broken and crushed sandstone and dry-pressed brick and crushed sandstone Imported 20 <sup>th</sup> century fill
0.50 – 0.80m	350mm	Medium compacted dark blackish brown silty sand with fine rooting. Services visible in this layer. 19 <sup>th</sup> century lower A horizon
0.80m+	>350mm	Moderately compacted brownish yellow sandy clay B horizon

**1.3.2 Test Pit 08**

Test pit 08 was located around 8m north of TP05 adjacent to the edge of the extant concrete road surface. It measured 2.5 x 2m and was excavated to a maximum depth of 0.8m. As with TP05 numerous services were located within the TP; they were closer to the present surface. The concrete footing of the extant road surface was exposed at the northern end. It consisted of a substantial >400mm thick reinforced concrete slab with services laid immediately adjacent to it. This concrete slab is large and covers around a third of the remaining excavation area. It was not possible to directly examine the depth of the slab as an electrical cable was found adjacent to it however as it did not easily move when pulled by a 5tn excavator it is likely to be thicker than the 400mm examined. These features indicate that this portion of the proposed test area has also been extensively removed and disturbed at depth by the mid-later twentieth century works. The section profile consisted of:

Depth	Thickness	Description
0 – 0.3m	300mm	Mixed loose dark brown sandy silt, with 20 <sup>th</sup> century building rubble and rooting Recently truncated current topsoil
0.3 – 0.7m	400mm	Slightly compacted mixed brown sandy silt with patches of 3-7mm rounded gravel, rare dry-pressed brick fragments and wood fragments Imported 20 <sup>th</sup> century fill
0.7 – 0.8m	100mm	Light greyish brown clayey sand with rooting 19 <sup>th</sup> century lower A horizon
0.80m+	-	Moderately compacted brownish yellow sandy clay B horizon

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### 1.3.3 Northern end of Area A

Whilst attending site to monitor the two geotechnical trenches it was also possible to examine the rest of Area 1 which highlighted other areas that have less archaeological potential than initially assessed.

During the creation of the ARD, the c.1960s rampway in the northwest corner of Area 1 was initially included within the excavation area. At the time of the inspection, part of the rampway had already been removed and the ground level here already was excavated to well below the remainder of the area. This indicates that any archaeological resource in this area had already been removed during the construction of the rampway, and therefore there is no potential in this part of the site. The rampway, and a small area to the north of it at the same level, accounts for approximately 14.5% of the total excavation area.

As noted, the concrete slab that was exposed in TP08 was at least 400mm thick and included multiple layers of reinforcing bar. It is unusual for a road surface to be so substantial, however given that it was likely built-in conjunction with the basements, it may have been constructed to a more robust standard than usual. This would have had a significant impact on the archaeological resource. Standard construction methods for concrete roadways such as this can include excavation of existing material and replacement with imported fill which could have further truncated the underlying historic fills. The extant concrete road covers around 32.5% of Area 1.

### 1.3.4 Summary

Of the 1250m<sup>2</sup> identified in the ARD as Area 1 only 18% still retains its initially assessed and reported potential. This corresponds to approximately 220m<sup>2</sup> (Table 1) along the eastern part of the area.

**Table 1 - Summary of the impacts on Area 1**

Initial size	1250	100
TPZ	441	35
Down ramp	182	14.5
Concrete area	407	32.5
Remainder	220	18

The ARD provided an overlay of the locations of known historical buildings within Area 1 (Appendix 1). Only one building dating to the theological college was identified to be wholly within the Area. It was located in the NW corner beneath the rampway and would have already been entirely removed. Another building from this period was partially within the Area along the northern boundary but this also would have been removed by the rampway. All other identified buildings within the Area date to the 20<sup>th</sup> century.

## 1.4 Conclusions

Excavations across Area 1 will almost entirely be to a maximum depth of 0.5m below the present surface. In both geotechnical test trenches the upper 700-450mm of the profile consisted of imported 20<sup>th</sup> century fills and the current surface material. This indicates that the area was stripped down in the recent past, most likely during construction works for the adjacent basement and then backfilled to the present surface height. Beneath this only a 100-350mm thick partial lower A horizon was seen atop an intact B horizon.

The only part of Area 1 that is marked for deeper excavation is the space around the rampway in north of the area. The has already been stripped down, demonstrated by the profile on site, and has no archaeological potential. The extant concrete roadway will be removed during the landscaping works. This roadway appears to be at least 400mm thick and its construction will likely have disturbed the surface it sits on. The evidence from the rampway, extant concrete road and TPZ collectively means that only 18% of the initially assessed area has any remaining archaeological potential. Both geotechnical test trenches were located within this 18% and both demonstrate that the upper ~500mm of this area has been replaced in the recent past and hence has no archaeological potential.

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Given the evidence seen in these two test pits RPS does not plan to undertake any other excavations or testing in the area. Machine excavation and the removal of the concrete slab will be monitored by a suitably qualified and experienced historical archaeologist.

Yours sincerely,  
for CRM



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Test Pit 05 Plan view

View to the north



Our ref:

Test Pit 05 Section

East facing section



**Our ref:**

Test Pit 08 Plan View

View to the east



Test Pit 08 Section

East facing section

