

**ATTACHMENT D:
PILE CAP EXPOSURES,
REPORT**



22 December 2020

20144725-003-L-Rev0

Austin Giordano
CostaFox Developments Pty Ltd
Suite 102, 54 Davis Avenue
South Yarra VIC 3141

28 CLARENDON STREET, SOUTHBANK – PILE CAP EXPOSURES

Dear Austin,

Engagement

CostaFox has engaged Golder Associates Pty Ltd (Golder) to undertake a geotechnical investigation for the proposed redevelopment of the site at 28 to 34 Clarendon Street, Southbank.

Golder has completed the geotechnical investigation, with the results and findings of the investigation presented in our report dated 15 July 2020 (20144725-001-R-Rev0).

CostaFox has subsequently engaged Golder to undertake pile cap exposures and if possible pile integrity testing on timber piles beneath the existing heritage Tea House Building and excavate a test pit along the western boundary of the site to expose the footings of the perimeter retaining wall.

This letter summarises the finding of the pile cap exposures and our assessment into the feasibility of undertaking pile integrity testing.

Site conditions and proposed development

The site is located on the north west corner of the intersection of Clarendon Street and Normanby Road, Southbank. The site has plan dimensions of about 55 m (east west) by about 60 m (north south). The Robur Tea building, (a six level brick building) is located near the centre of the site with asphalt surfaced car parking and pavements to the north, west and south of the existing building.

Based on preliminary drawings and information provided by CostaFox we understand that the proposed redevelopment of the site will include the following key elements:

- Refurbishment of the existing heritage listed Tea House building for use as commercial offices;
- Podium structure (anticipated to be up to six levels) and mixed hotel and residential tower (approximately 20 levels) – the locations of the podium structure and tower are yet to be confirmed but are likely to extend across the majority of the site to the north, west and south of the existing Tea House building; and
- A half level basement car park is also possible with car stacker pits across part of the site.

Aims

The aims of the supplementary geotechnical investigation were as follows:

- Undertake footing exposures to assess the nature of the footings for the building currently occupying and adjacent to the site as directed by CostaFox and the structural engineer (Robert Bird Group Pty Ltd - RBG).
- Assess the condition of the exposed pile caps and document any deterioration and defects observed.
- Undertake pile integrity testing on a typical pile to assess its approximate length (if feasible).

Results of Geotechnical investigation (footing exposures)

A geotechnical engineer from Golder attended the site on 7, 16 and 18 December 2020 to undertake three footing exposures of pile caps and one footing exposure underneath the western perimeter wall of the site as directed by CostaFox with input from RBG. The location of pile cap/footing exposures are shown on Figure 1. Prior to undertaking excavation works a service locator was engaged to undertaken service clearance on 7 and 16 December 2020 to identify the location of underground services. The following information is relevant to the footing exposures:

- To minimise disturbance and reduce the risk of potentially undermining the existing pile caps and perimeter wall footing, excavation works were undertaken using non-destructive digging (NDD) techniques (high pressure water lance and vacuum) and hand methods (using a spade and crow bar) rather than mechanical excavation (an excavator).
- A geotechnical engineer from Golder described the materials encountered, and the depth and dimensions of the exposed pile caps and footings which are presented in Figures 2 to 6 along with photos of the footing exposures.
- There was variable inferred uncontrolled fill with bricks/concrete rubble observed from the surface of Footing Exposures 1 to 4 (refer Figure 2 to 6) to the base of pile caps/footings. There was a noticeable change in excavation resistance beneath the base of the pile caps which is inferred to be due to the presence of Coode Island Silt (soft clay). Similarly, there was a soft material inferred to be Coode Island Silt encountered below a depth of about 1.6 m at Footing Exposure 3.
- Elevations of the base of pile caps are approximated by measuring the depths relative to the asphalt carpark levels shown on a feature survey plan provided to Golder by CostaFox. Approximate depths and elevations of the base of piles/footings are provided below:
 - Footing Exposure 1 (western side of building): Base of pile cap 2.7 m below ground level (approximate RL = -1.3 m AHD) – refer to Figure 2
 - Concrete exposed in pile cap appears to be in reasonable condition with no obvious cracking/defects
 - Footing Exposure 2 (northern side of building): Base of pile cap 2.2 m below ground level (approximate RL = -0.9 m AHD) – refer to Figure 3
 - Concrete exposed in pile cap appears to be in reasonable condition with no obvious cracking/defects
 - Footing Exposure 3, western perimeter wall (refer Figure 4):

- Base of inferred concrete strip footing at 0.9 m below ground level (approximate RL = 0.4 m AHD)
- Inferred cement treated gravel/sand beneath the inferred concrete strip footing from 0.9 -1.6 m.
- Aggregate exposed in concrete side of strip footing exposed but no major defects/cracking observed in concrete.
- Footing Exposure 4 (from the basement of building):
 - Base of pile cap 1.4 m below ground level (approximate RL = -0.25 m AHD)
 - Groundwater inflow to a depth of 0.8 m below ground level (approximate elevation RL = 0.35 m AHD)
 - Concrete exposed in pile cap appears to be in reasonable condition with no obvious cracking/defects
- Groundwater levels were previously measured in three standpipes installed as part of the geotechnical investigation for the proposed development. Groundwater levels were measured to range between about RL 0.2 m AHD to RL 0.3 m AHD.
- It was assessed that pile integrity testing was not feasible at the location of Footing Exposures 1 to 3 due to pile caps extending below the groundwater table and to significant depth making it not practical to safely expose the piles so to instrument them.
- Upon completion of the excavation works test pits were backfilled with crushed rock/gravel.



Figure 1: Investigation location plan

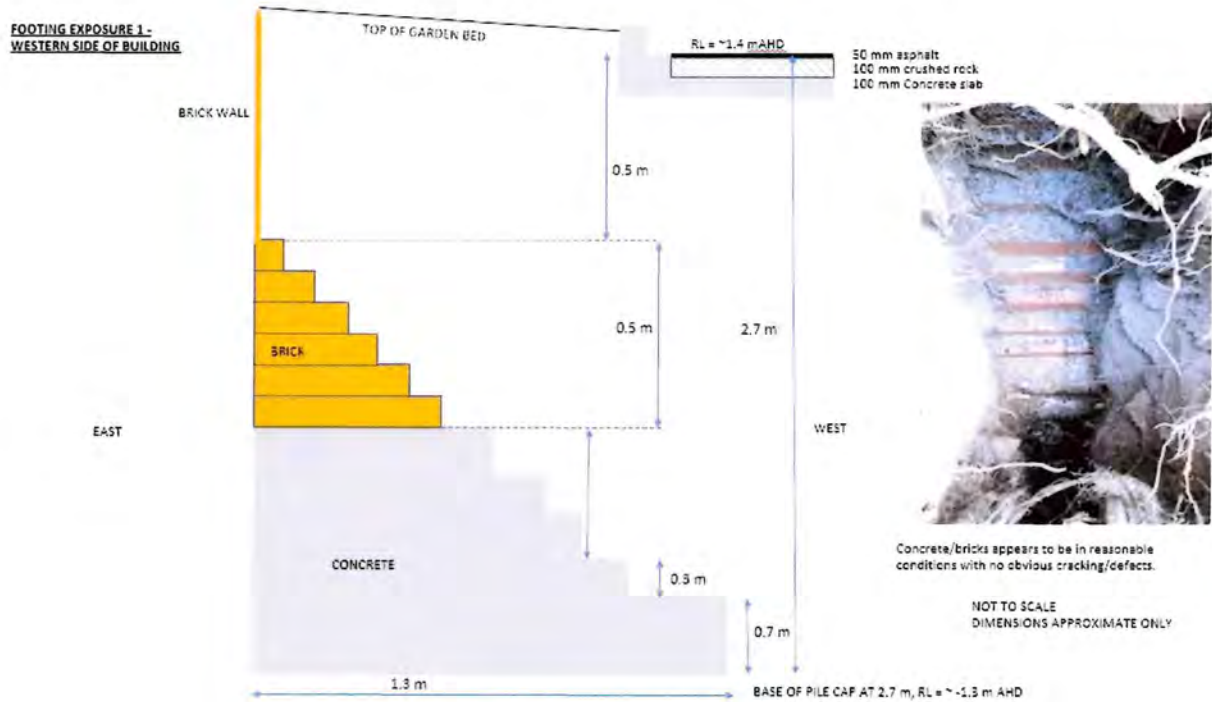


Figure 2: Footing Exposure 1 Sketch and Photo

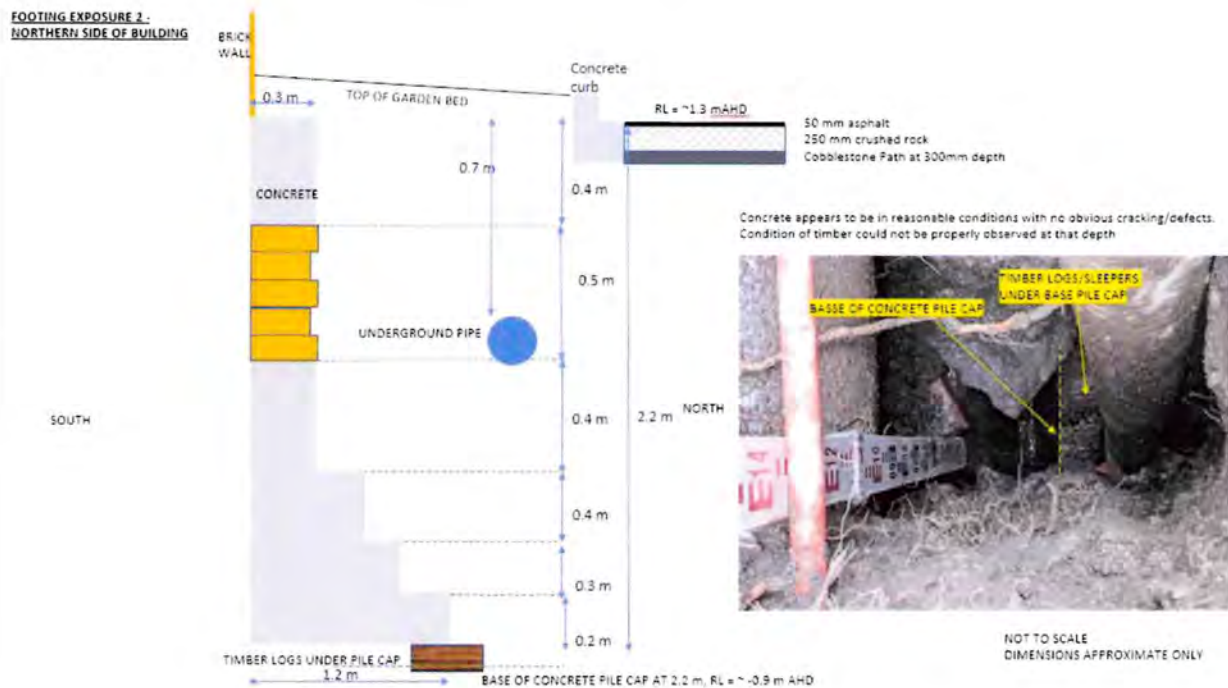


Figure 3: Footing Exposure 2 Sketch and Photo

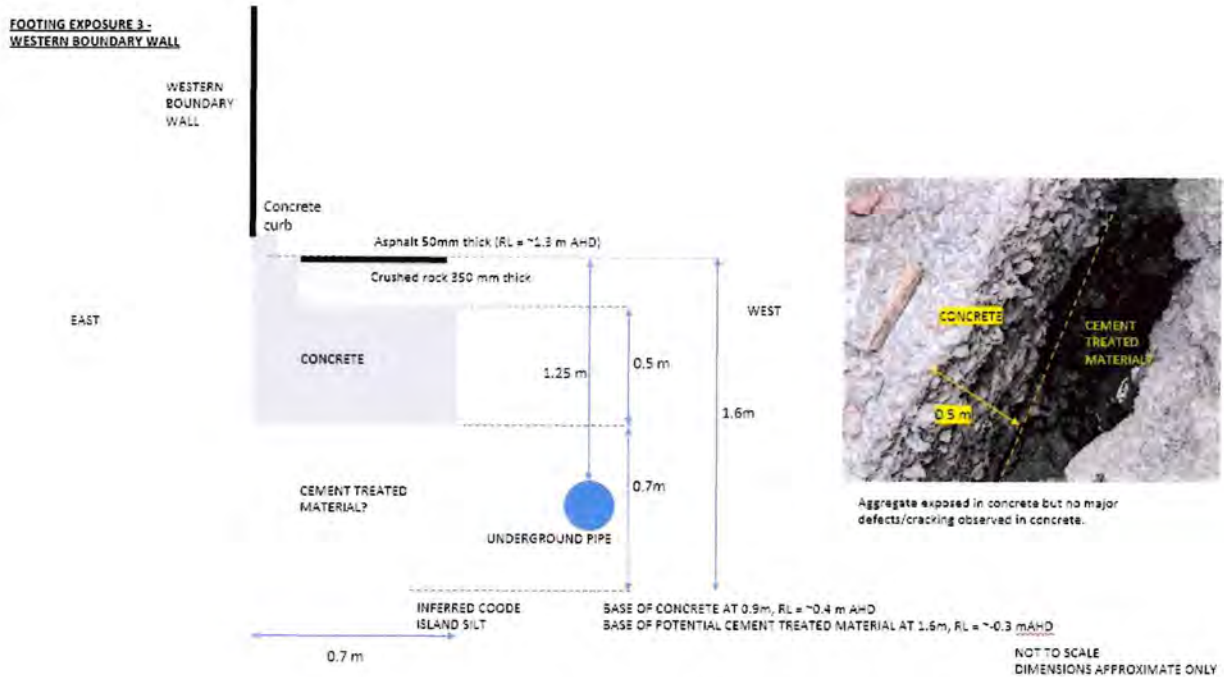


Figure 4: Footing Exposure 3 Sketch and Photo

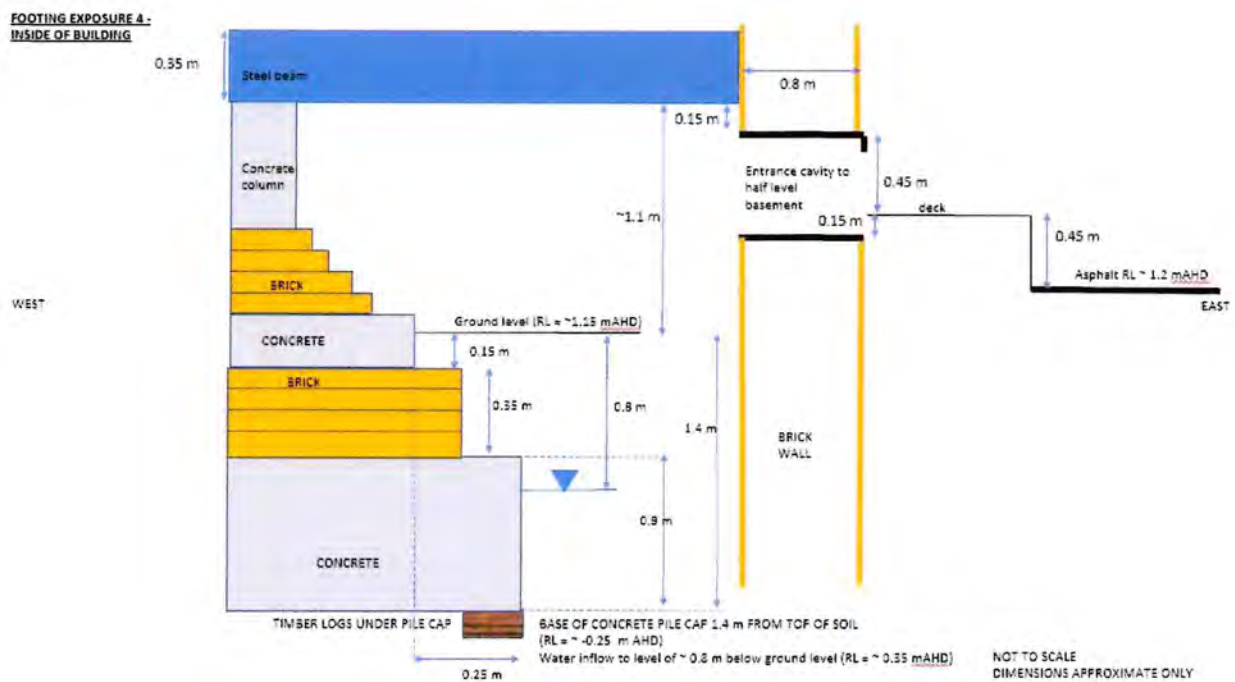
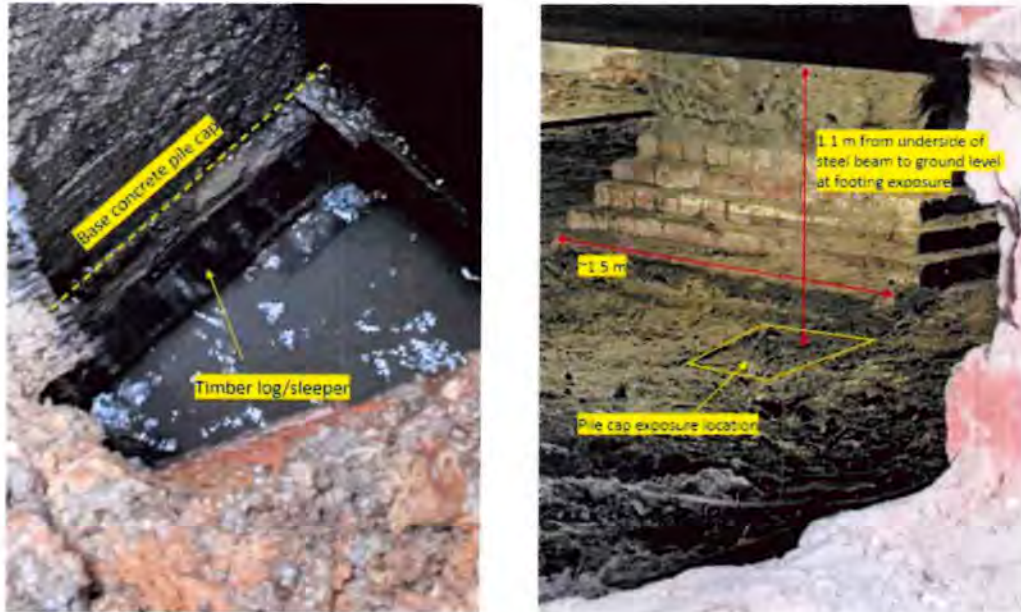


Figure 5: Footing Exposure 4 Sketch

**FOOTING EXPOSURE 4 -
INSIDE BASEMENT OF BUILDING**



Concrete in pile cap appears to be in good conditions with no obvious cracking/defects.
Difficult to assess condition of timber but looks to be relatively well preserved

Figure 6: Footing Exposure 4 Photos

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We would be pleased to answer any questions the reader may have regarding these limitations.

Should you have any questions regarding this letter report please contact the undersigned.

Golder Associates Pty Ltd

Paul Strasser
Geotechnical Engineer

PGS/DLG-EH/pgs

Doug Goad
Principal Geotechnical Engineer

Attachments: Important Information

[https://golderassociates.sharepoint.com/sites/127943/project files/6 deliverables/20144725-003-l-rev0.docx](https://golderassociates.sharepoint.com/sites/127943/project%20files/6%20deliverables/20144725-003-l-rev0.docx)

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