

Contamination

North Penrith – Stage 2A

Assessment Report

Summary

Objectives

The objectives of this assessment are to determine the suitability of the site for the proposed land uses and to recommend any further assessment and/or courses of action to be taken during the design and construction phases.

Method

The method of assessment involved a review of:

- the Site Audit Reports and Site Audit Statements issued by the Site Auditor commissioned by the Department of Defence to certify that the site is suitable for residential use.
- the other reports listed in Section 6.

Conclusions

- o The Site Auditor has certified that the North Penrith site is suitable for the intended land uses, subject only to one comment relating to the flaking paint at “Thornton Hall”. It is noted that works to Thornton Hall do not form part of this current application for Stage 2A.

Recommendations

Notwithstanding this certification, it is appropriate that further assessment be undertaken and measures put in place to guide ongoing contamination assessments and any remediation during the design and construction phases.

Stage 2A

1. **Continuation of Site Auditor involvement.** Recognising there will be further assessment, importation of fill and the possibility of unexpected finds, Landcom will retain the services of the Site Auditor (Mr Graeme Nyland of Environ), the objective being to provide a series of Site Audit Statements for the proposed precincts/super lots.

- 2. Unexploded Ordnance Protocol.** The Construction Environmental Management Plan (CEMP) is to include a site-specific Unexploded Ordnance Protocol (UOP).

The UOP is to be implemented throughout the construction works under the responsibility of the Principal Contractor.

- 3. Unexpected Finds Protocol.** The CEMP is to include a site-specific Unexpected Finds Protocol (UFP).

The UFP is to be implemented throughout the construction works under the responsibility of the Principal Contractor.

- 4. Contamination assessment after removal of the existing roadway.** After removal of the existing roadway, a suitably qualified environmental engineer/scientist will inspect the exposed ground for indicators of contamination. Sampling and testing might be required.

- 5. Remediation and validation pursuant to an unexpected find or contamination found after removal of roadway.** If remediation is required, a specific Remediation Action Plan (RAP) will be prepared. The remediation works will be carried out in accordance with the RAP. Validation of the remediated area by the environmental engineer/scientist will be carried out after completion of remediation works.

- 6. Any ash/coal materials.** Any identified ash/coal materials will be tested to confirm the contamination status. The ash/coal materials with concentrations of analytes within the assessment criteria can be re-used on-site. To mitigate the potential for site occupiers to have aesthetic-based concerns and/ or because the materials may be unsuitable as a planting medium, ash/coal materials will not be placed near-surface in any location in the site.

- 7. Beneficial re-use of crushed asphalt.** The crushed asphalt will be assessed according to "The Recovered aggregate exemption 2010" under the "Protection of the Environment Operation (Waste) Regulations 2005", prior to re-use.

- 8. Potential lead paint at Thornton Hall.** With reference to a comment by the Site Auditor in the Site Audit Statement, the design specification and construction approach for the refurbishment of Thornton Hall is to recognise the potential presence of lead paint attention. The CEMP is to describe the measures to be taken when carrying out work in and around Thornton Hall to safeguard construction workers and the environment. It is noted that works to Thornton Hall do not form part of this application.

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1. Objectives of assessment

The Director-General Requirements for Stage 2A development contain specific key requirements relating to geotechnical matters.

The Stage 2A development will comprise solely residential development.

The primary objectives of the assessment are to determine the suitability of the site for the proposed land uses and to recommend any further assessments and investigations, and/ or courses of action to be taken during construction.

Director-General's Requirements

This report was prepared to respond to the Director-General Requirements (DGRs) regarding geotechnical matters for the Stage 2A (SSO 5243) at the North Penrith site.

Assessment for Stage 2A requires identification and detailing of any measures to be undertaken to appropriately remediate the site in accordance with State Environmental Planning Policy No 55 (SEPP 55).

This report addresses the contamination issues for both DGRs.

Proposed development

The Stage 2A development will comprise solely residential development, excluding the existing heritage-significant former dwelling (Thornton Hall).

The development incorporates site preparation, roads and utilities infrastructure and lot forming works. It does not extend to the construction of the built form on the individual lots.

Objectives

The objectives of this contamination assessment are to:

- assess the suitability of the site for the proposed land uses;
- recommend any further assessment and/or courses of action to be taken during the design and construction phases.

2. Site Analysis

Stage 2A comprises about 5 hectares (ha) of vacant land, located in the far east section of the 40ha previously identified as a Defence Facility at North Penrith.

Stage 2A is generally underlain by heavy clays derived from weathering of the underlying shale bedrock, with very low potential for groundwater movement.

North Penrith, including the Stage 2A site, is located in a 'Moderate Salinity Potential' area.

The development has no requirement for extraction of groundwater.

Summary Site Description

The site comprises about 5 ha of vacant land and is located between:

- Coreen Avenue to the north;
- The Crescent & Great Western Railway line to the south;
- Stage 1 development to the west;
- Existing residential developments fronting Lemongrove Road to the east.

Stage 2A is shown in the attached Staging Plan. The site was previously part of a large Defence facility. On deeming the facility surplus to requirements, the Department of Defence demolished all but the heritage-significant former dwelling (Thornton Hall) within Stage 2A area. Some of the internal road network remains.

3. Regulatory context

Office of the Environment and Heritage or the NSW Environment Protection Authority.

Contaminated Land Management Act 1997 (CLM Act).

Managing Land Contamination – Planning Guidelines.

State Environmental Protection Policy No 55 (SEPP 55) – Remediation of Land.

Site Auditor.

In broad terms, the management framework for contaminated land in NSW consists of two tiers:

- Office of the Environment and Heritage or the NSW Environment Protection Authority, which uses its powers under the Contaminated Land Management Act 1997 (CLM Act) to deal with site contamination that is significant enough to warrant regulation under the CLM Act given a site's current or approved use;
- State government and local councils deal with other contamination under the planning and development framework, including SEPP55 - Remediation of Land and the Managing Land Contamination - Planning Guidelines (the Guidelines).

SEPP 55 and the Guidelines aim to establish 'best practice' for managing land contamination through the planning and development control process.

The Guidelines provide advice to planning authorities on the early identification of contaminated sites, consideration of contamination in rezoning and development applications, recording and use of information and ways to prevent contamination and reduce the environmental impact of remediation activities.

Site auditors are highly experienced contaminated land consultants accredited by the NSW EPA under the *Contaminated Land Management Act 1997*, in order to improve access to competent technical advice and increase certainty in the 'sign-off' of contaminated site assessments and remediation.

4. Methods & Results

Review of the site audit statements and reports.

Stage 2A is suitable for the proposed land uses subject to comments relating to the use of groundwater and flaking paint at Thornton Hall.

The method of assessment was a review of the Site Audit Reports and Site Audit Statements issued by the Site Auditor commissioned by the Department of Defence to certify that the site is suitable for residential use, and the other reports listed in Section 6.

The same Site Auditor has issued two Site Audit Reports with accompanying Site Audit Statements that together cover the entire site at North Penrith.

The Site Audit Statements can be pertinently summarised as:

- purpose of the audit: to determine land use suitability for commercial/ residential mixed use;
- suitability of the site: the Site Auditor certifies the site is suitable for identified uses:
 - o Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry.
 - o Day care centre, preschool, primary school and secondary school.
 - o Residential with minimal opportunity for soil access, including units.
 - o Park, recreational open space and playing field.
 - o Commercial/industrial.
- accompanying 'overall comments': the Site Auditor provides two comments that might be related to Stage 2A, as follows:
 - o If groundwater is to be extracted for use in the future, further assessment of the water quality is required to verify that the groundwater is suitable for the purposes being considered. However, it is understood that there no current plans for groundwater extraction from Stage 2A.
 - o Flaking paint in Thornton Hall, that could contain lead, should be considered when the fate of Thornton Hall is determined. It is noted that works to Thornton Hall do not form part of this current application for Stage 2A.

5. Assessment

The Site Auditor has certified that Stage 2A is suitable for the proposed land uses.

Notwithstanding this certification, it is appropriate to conduct further assessments during site works. These are reflected in the Recommendations in the Summary.

Contamination assessment and remediation to date

Numerous stages of contamination assessments were conducted for the North Penrith site between 1992 and 2000, followed by remediation and validation between 1998 and 2002. The Site Auditor's risk assessment indicates the likelihood of sufficient remnant contamination present, that could significantly impact site development or use, is 'considered very low because of the comprehensive investigations conducted'.

The Unexpected Finds Protocol described below will detail the procedures for dealing with any potential waste and fill materials discovered in the course of construction.

Ash materials

Ash materials were found within parts of the North Penrith site during previous assessments. The materials were sampled and analysed. The contaminated materials were classified and removed from site. It is understood that the ash materials remaining on the site are essentially uncontaminated.

Screening testing is recommended to confirm the contamination status of the ash. The ash with concentrations of analytes within the assessment criteria can be re-used on-site. The ash materials could be of concern to future site occupiers because of aesthetic reasons, or they may be unsuitable as a planting medium.

Soils beneath existing roadways

There is a possibility of contaminated fill materials being present beneath the existing concrete slabs.

Therefore, it is recommended to inspect the exposed ground for indicators of contamination after removal of the existing roadways. The inspection should be carried out by a suitably qualified environmental engineer/scientist. Sampling and testing might be required. Remediation will be required for any identified contamination.

Groundwater

Investigation for groundwater in the proximity of the existing Mobil Site has been during site works for Stage 1. Groundwater was not encountered during the site works for Stage 1. Site works for Stage 2A are not expected to encounter any groundwater due to the residual nature of the clays encountered in this stage.

Thornton Hall and potential lead paint

The heritage-significant building known as “Thornton Hall” is currently within a fenced and locked area and is in a state of disrepair, with flaking paint. It is noted that Thornton Hall is not considered part of the current Stage 2A works.

Unexploded ordnance

The Department of Defence considers there to be a low possibility of unexploded ordnance (UXO) on the North Penrith site. Site works on Stage 1 did not encounter any UXO. Therefore, it may be considered that the possibility of the presence of UXO on Stage 2A is very low.

Unexpected finds

There is the possibility of encountering an unexpected find in the course of construction on any part of the site. By way of examples, a find could be:

- underground storage tanks;
- filled pits or gullies;
- rubbish pits or buried building rubble;
- unusual soil staining or discolouration;
- odour emanating from the ground during excavation;
- fragments of asbestos-cement products on the surface or unearthed during excavation. There is potential for asbestos cement conduits and pits throughout the site;
- ash, coal and coal dust.

An Unexpected Finds Protocol (UFP) is to be part of the Construction Environmental Management Plan (CEMP). Typically, the UFP will direct that when there is an unexpected find:

- work immediately ceases in the area;
- the area is cordoned off;
- a suitably qualified environmental engineer/scientist undertakes sampling and testing, undertakes a detailed assessment and prepares a Remediation Action Plan (RAP) to direct the remediation works;
- the report of the assessment and the RAP is reviewed and endorsed by the Site Auditor;
- the remediation works are undertaken and the environmental engineer/scientist validates the area(s) on completion of remediation to the satisfaction of the Site Auditor.

Responsibility for implementing and managing the UFP is primarily with the Principal Contractor, however, Landcom, the environmental engineer/scientist and the Site Auditor also have key roles.

Construction workers are informed of the UFP and trained in identification of unexpected finds as part of site induction and the likes of regular 'tool box' refresher sessions.

6. References

Site Audit Reports and Site Audit Statements:

- Site Audit Report and Site Audit Statement (GN-5), Lot 1 DP532379, Lot 1 DP33753 and Part Lot 1 DP33754, Thornton Park, North Penrith, prepared for Department of Defence by Graeme Nyland of Environ, May 2009.
- Summary Site Audit Report and Site Audit Statement (GN-22), Lot 11 in DP862420 plus Lots 1 to 4 in DP1017480, Castlereagh Site, Thornton Park, prepared for Department of Defence by Graeme Nyland of URS, 2 February 2001.
- Draft summary Site Audit Report and Site Audit Statement (GN-5-B), Lot 11 in DP862420 plus Lots 1 to 4 in Draft Proposed Commonwealth Plan of Acquisition, Thornton Park prepared for Department of Defence, Sydney Property Disposal Unit, by Graeme Nyland of Dames & Moore, 5 July 2000.

Associated reports:

- Geotechnical & Contamination Advice, Report 11984/1-AA, prepared for Landcom by Geotechnique Pty Ltd, 15 April 2009.
- Classification of Stockpiled Soils, Ref. 4027/3-AA, 2231 Castlereagh Road, Penrith, prepared for Total Construction Pty Ltd by Geotechnique Pty Ltd, 26 November 2007.
- Contamination Assessment, Lot 1, 2, 3 & 4 DP1017480, Castlereagh Road, Penrith, prepared for Department of Defence by Fitzwalter Group, June 2003.

Report for the adjoining commuter car park

- David Lane Associates, Addendum Phase 2 Detailed Environmental Site Assessment, Coreen Avenue Commuter Car Park, Coreen Avenue Penrith, Lot 1 DP 1095946, May 2010.

Appendix 1: Staging Plan

