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cc.

30 March 2021

Opal Aged Care (C/ Pact PM)
Level 27 / 135 King Street
Sydney NSW 2000

**RE: PRELIMINARY SITE INVESTIGATION ADDENDUM LETTER: 100 EXPLORERS WAY, ST CLAIR, NSW**

## 1. OVERVIEW

This letter report, prepared by Martens and Associates (MA), is an addendum that reviews and updates a previous Preliminary Site Investigation (PSI) report written in 2015 by Alliance Geotechnical (AG) for a property located at 100 Explorers Way, St Clair, NSW (the site). This report documents potentially contaminating activities at the site, to support a development application (DA) to Penrith City Council (Council) for construction of an aged care facility at the site.

The investigation area (IA) for this PSI is the entire site, as shown in Attachment B.

The following previous reports have been provided to Martens for review:

- Alliance Geotechnical (2015a) Preliminary Site Investigation: 94-100 Explorers Way, St Clair, NSW (Ref: 1842/ER-1-1) (AG, 2015a).
- Alliance Geotechnical (2015b) Salinity Assessment Report: 94-100 Explorers Way, St. Clair, NSW (AG, 2015b)

## 2. PROPOSED DEVELOPMENT

The proposed site development involves the construction of a two storey aged care facility containing 123 beds. The development will consist a dementia wing, private rooms, a café, kitchen, laundry and serveries. The external area will consist of new landscaping, on-grade parking, service entry, outdoor resident areas, shaded areas, dementia specific courtyard and stormwater infrastructure. Some minor regrading works are expected to be required, however detailed cut / fill earthworks plans were not available at the time of preparing this assessment.

The proposed development plans are provided in Attachment C.



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## 3. PROJECT SCOPE

The scope of work for this PSI addendum included:

- Walkover inspection to review current land use, potential contaminating activities and neighbouring land use.
- Review of recent available aerial photographs (i.e. photos taken after 2015).
- Review of AG (2015a) and AG (2015b).
- Review of NSW EPA notices under the Contaminated Land Management Act (1997).
- Preparation of a letter report in general accordance with the relevant sections of ASC NEPM (2013), EPA (2017) and NSW EPA (2020) to support the DA.

## 4. REFERENCE DOCUMENTS

The following reference documents apply to this report:

- NEPC (1999, amended 2013) National Environmental Protection (Assessment of Site Contamination) Measure. Referred to as ASC NEPM (2013).
- NSW EPA (2017) 3rd Ed. Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme.
- NSW EPA (2020) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.

## 5. SITE DESCRIPTION

Site information is summarised in Table 1, and site location and general surrounds shown in Attachment B.

**Table 1:** Site background information.

| Item | Description / Detail |
|---|---|
| Site address | 100 Explorers Way, St Clair, NSW |
| Legal Identifier | Lot 36 DP 239502 |
| Approximate area | 1.05 ha (SixMaps) |
| Local Government Area | Penrith City Council |
| Current zoning and land use | Zoned R2 – Low density residential (source).<br>Site is currently used for residential purposes. |
| Proposed land use | Construction of a new two storey aged care facility. |
| Current land use | Predominantly vacant following recent demolition works. A residential dwelling was located in the southeast corner of the site. The remainder of the site was grassed covered open space. A detailed description of the current site state is provided in Section 8. |
| Surrounding land uses | Low density residential dwellings to the west, east and south; public recreation area to the northeast; and the M4 highway corridor to the north. |

| Item | Description / Detail |
|---|---|
| Topography | The site is relatively flat with grades < 5%.<br>Site elevation ranges between approximately 58.6 mAHD in the southwest corner and 52.6 mAHD in the northeast corner (Site Survey). |
| Expected geology | The *Penrith 1:100,000 Geological Sheet 9030* describes site geology as Bringelly Shale Formation within the Wianamatta Group, containing shale, carbenaceous claystone, claystone, laminite, fine to medium grainedlithic sandstone, rare coal and tuff.<br>The NSW Environment and Heritage eSPADE website identifies the site as having soils of the Blacktown landscape having soils that are shallow to moderately deep hard setting mottled texture contrast soils, red and brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and in drainage lines |
| Surface hydrology | The nearest surface water receptor was the unnamed drainage depression in the northern part of the site. The drainage depression extends from the centre of the western boundary of the site, through the centre of the site and exits at the north-eastern boundary of the site<br>Overland flow generated in the site drains to the drainage depression and eventually discharges to the M4 Motorway Stormwater system which is likely to drain into Ropes Creek (approximately 900m to the east). |

## 6. SUMMARY OF ALLIANCE GEOTECHNICAL (2015) 'PRELIMINARY SITE INVESTIGATION'

AG completed a site inspection on 13 April 2015 and observed eight buildings /structures, a gravel driveway and a large open space /backyard. All vegetated areas appeared to be in good condition with no observed signs of vegetation stress or dieback. Observed buildings consisted of a residential dwelling with multiple sheds.

No visible signs of contamination were observed at the site by AG, such as asbestos containing materials (ACM), hydrocarbon odours or staining. AG noted fill material may be present in the following locations at the site:

- The gravel driveway.
- Areas of building footprints.
- The raised area north of the small dwellings and gazebo.
- Either side of the drainage channel.
- A stockpile/mound on the northern boundary of the site.

Three test pits were advanced during a separate salinity assessment (AG, 2015b) undertaken at the site. Fill material was confirmed in the raised area north of the small dwellings and gazebo (TP1) and the raised area to the south of the drainage channel (TP2). Fill material was observed up to a maximum depth of 0.6 m BGL and was described as silty clay, brown, with moderate plasticity and minor inclusions of bricks, concrete fragments, rubber, PVC pipe, glass, plastic and charcoal. No ACM fragments or hydrocarbon odours were observed in excavated materials. Map EN05 in the mapset (Attachment B) provides the location of AG test pits.

Aerial photographs and land title information indicated that the site appeared to have been used for rural residential purposes with a small wooden dwelling in the south-western portion of the site was constructed prior to 1947 (being earliest available photo). The land

use appeared unchanged from 1947 until 1986, when the other site buildings (sheds and garage) were constructed.

The AG (2015a) report concluded that:

- The site had been used for rural residential purposes since it was established in 1916 (being the earliest title record). All site buildings were either constructed of wood or constructed after 1986 and therefore were expected to not contain asbestos and/or lead paint.
- The only AEC at the site was the potential for fill material of unknown origin.
- The site and surrounding areas were free of statutory notices issued by the EPA under the Contaminated Land Management Act 1997and the Protection of the Environment Operations Act 1997.
- No fuel underground storage tanks (UST) or above ground storage tanks (AST) were observed in the accessible areas of the site.
- No ACM fragments, hydrocarbon odours or staining were observed on the ground surface of the site.
- The three salinity assessment test pits identified fill material in two of three locations to a maximum depth of 0.6m bgs. The material excavated was not observed to contain ACM, hydrocarbon odours or staining.
- The overall risk of contamination at the site was low.

The report recommended that:

- Following demolition of site buildings, soil samples are required to classify material designated for offsite disposal. Soils should be sampled in accordance with NSW EPA Waste Classification Guidelines (DECCW 2009).
- During subdivision earthworks, a standard unexpected finds protocol should be implemented to adequately manage any identified contamination.

## 7. ADDITIONAL AERIAL PHOTOGRAPH REVIEW

Recent aerial photographs taken of the site during between 2015 - 2020, were reviewed to investigate any recent change in land use such as filling (Table 2). Copies of aerial photographs (for years 2017 and 2020) are provided in Attachment B.

**Table 2:** Aerial photograph observations from 1947 to 2020.

| Year (Source) | Site Activity | Surrounding Land Use |
|---|---|---|
| 2017<br>(Nearmap) | Little to no change from previous. | Dwellings are located west and east of the site. A roadway is located south of the site with dwellings south of the roadway. A vegetated road corridor is located north of the site and a park is located northeast of the site. |
| 2020<br>(Nearmap) | There was one dwelling located near the southeast portion of the site. All the remaining structures had been demolished and the debris had been removed. | Little to no change from previous. |

## 8. SITE WALKOVER INSPECTION

Martens completed a site walkover inspection on 6 October 2020, and recorded the following observations:

- A two storey brick dwelling was located near the southeast portion of the site. The remainder of the site consisted of a grass covered open area with scattered trees and stands of trees located in the northwest and northeast corners of the site. At the time of inspection, temporary fencing was in place around the dwelling limiting access.
- A 2 cm x 2 cm fragment of bonded PACM was identified lying on the ground surface northwest of the dwelling within the footprint of a recently demolished structure.
- An approximately 2 m x 1 m x 0.5 m stockpile of roofing tiles was located near the southwest portion of the site near the entrance.
- The closest road was Explorers Way which formed the southern boundary of the site. The M4 road corridor is located north of the site.
- A drainage depression extended from the centre of the western boundary of the site, through the centre of the site and exited at the north-eastern boundary of the site.
- Visual observations suggest potential cut/fill activities have occurred, adjacent to drainage depression.
- Residential dwellings were located west and east of the site and to the south, across Explorers Way. A vegetated road corridor for the M4 motorway is located north of the site and a park is located northeast of the site.

## 9. FILL MATERIAL

On 6 October 2020, Martens (2020) advanced seven boreholes (BH101 - BH107) during a geotechnical investigation at the site. Fill material was observed in five of the seven boreholes with depths ranging between 0.2 to 0.8 metres below ground level (mbgl). The fill material was variable and contained materials such as dark brown to red brown, silty clay, road base and gravels.

As previously noted, AG (2015b) advanced three test pits (TP1 to TP3) across the site as part of a salinity investigation. Fill material was observed in two of three test pits. The fill material was described as silty clay, brown, with foreign materials including bricks, tile concrete, rubber, glass, plastic, PVC pipe and charcoal.

Map EN05 displaying the thickness of fill material at the test pit and borehole locations across the site is presented in the mapset in Attachment B.

## 10. UPDATED AREAS OF ENVIRONMENTAL CONCERN / CONTAMINANTS OF POTENTIAL CONCERN

Our assessment of site AEC and COPC (Table 3) for the IA was made based on a review of AG (2015a), as well as other available information including recent aerial photograph

interpretation, site walkover and geotechnical drilling (MA, 2020). A figure showing locations of identified AEC, is provided in Attachment B.

**Table 3:** Areas of environmental concern and contaminants of potential concern.

| AEC | Potential for Contamination | COPC |
|---|---|---|
| AEC A<br>Dwellings including 2 - 5 m curtilage | Pesticides and heavy metals may have been used underneath the dwellings for pest control. Building construction may include potential asbestos containing material (PACM), zinc treated (galvanised) metals, and lead based paints. | HM, OCP / OPP and asbestos |
| AEC B<br>Garages / sheds including 2 - 5 m curtilage | Pesticides and heavy metals may have been used underneath existing and past garage / sheds for pest control. Building construction may include PACM, zinc treated (galvanised) metals, and lead based paints. Garage / sheds may have previously stored fuels, oils and chemicals. | HM, TRH, BTEXN, PAH, OCP / OPP and asbestos |
| AEC C<br>Fill (dam and general) | Fill from unknown sources has the potential to add contamination including hydrocarbons, heavy metals, pesticides and asbestos. | HM, TRH, BTEXN, PAH, OCP / OPP, PCB and asbestos |

## 11. CONCEPTUAL SITE MODEL

A conceptual site model based on the COPC identified in this PSI, and the associated exposure pathways to potential receptors, is summarised in Table 4.

**Table 4:** Conceptual site model.

| COPC | Pathway | Exposure Route | Receptor |
|---|---|---|---|
| HM<br>PAH<br>OCP / OPP<br>PCB | Leaching of contaminants through the soil profile.<br>Transport of contaminants via air (dust).<br>Transport of contaminants by mechanical disturbance (e.g. earthworks).<br>Transport of contaminants via surface water (runoff).<br>Biomagnification and / or bioaccumulation along food chains. | Direct contact with contaminants.<br>Ingestion of contaminants.<br>Ingestion of food grown or reared in contaminated areas.<br>Inhalation of contaminated media (e.g. vapour, dust). | <u>Possible Human Receptors</u><br>Current or future site users such as residents, visitors and workers.<br>On and offsite construction or maintenance workers.<br>Current or future users of surrounding residences or reserves,<br><u>Possible Environmental Receptors</u><br>Flora and fauna that may inhabit or migrate through the site. |
| TRH / BTEXN | As above plus:<br>Volatilisation to air (vapour). | | |
| Asbestos | Transport of contaminants via air and inhalation of particles.<br>Transport of contaminants by mechanical disturbance (e.g. earthworks).<br>Transport of particles on clothing. | Inhalation of contaminated media (e.g. dust). | <u>Possible Human Receptors</u><br>Current or future site users.<br>On and offsite construction or maintenance workers.<br>Current or future users of surrounding residences or reserves. |

## 12. DISCUSSION

Based on our review of the AG (2015a) report and the additional observations and findings of the supplementary works, we make the following comments regarding the conclusions in the AG (2015a) report and the current status of the site in regards to potential contamination:

- AG (2015a) states that "*All site buildings were either constructed of wood or constructed after 1986 and therefore are expected to not contain asbestos and / or lead paint*."

- Martens understands that the dwelling located near the southwest portion of the site was covered with flaking white paint. Given the age of this building, it is possible that the paint may have been lead based. Further, while the predominant building material observed by AG may have been wood, it is likely that asbestos containing material (ACM) may have been used in construction of the eves or in the interior and fragments of ACM could have potentially been deposited on the ground surface during demolition. This assumption is further supported by the observation of a small cement fibre sheeting fragments with in a former building footprint during Martens site walkover.

- AG (2015a) reports "*No ACM fragments, hydrocarbon odours or staining were observed on the ground surface at the site*." As noted above, Martens identified a small 2 cm x 2 cm cement fibre sheeting fragment which, based on a visual assessment, is likely to be asbestos containing material (ACM). The fragment was located within the footprint of a former building and is likely associated with the demolition of the former structure.

- AG (2015a) confirmed the presence of fill material through site observations and subsurface investigation as part of a separate salinity assessment. Martens have also confirmed the presence of fill which appears to be present across a significant portion of the site and at variable depths.

## 13. CONCLUSION AND RECOMMENDATIONS

On the basis of our review of AG (2015a), AG (2015b) and additional findings in Martens recent site walkover and geotechnical investigation, there is a potential risk for contamination to be present on site. The primary risk areas (AECs) are considered to be areas of the site where fill material has been imported and within the footprints of the former site structures.

To address potential contamination risks, intrusive soil sampling works and laboratory analysis will be required. The findings of these works will confirm suitability of the site for the proposed development, or inform any required remediation work to make the site suitable for the proposed development.

Future investigation works should be developed in general accordance with NSW EPA endorsed guidelines.

Please call our offices if you have any further queries regarding this matter.

**For and on behalf of**

**MARTENS & ASSOCIATES PTY LTD**

**MARK LAIDLAW**
Environmental Scientist

**ATTACHED:**

A. Alliance Geotechnical PSI (2015)
B. Mapset
C. Proposed Development Plans

**Attachment A – Alliance Geotechnical PSI**

Alliance Geotechnical
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*Your On-Site Geotechnical & Environmental Specialists*

**Report Type:** Preliminary Site Investigation
**Site Address:** 94 – 100 Explorers Way, St Clair, NSW
**Report Number:** 1842/ER-1-1
**Report Date:** 28th April 2015

**Prepared for**

Silky Property Group
c/o Diversi Consulting
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Baulkham Hills, NSW, 2153

**Prepared by**

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28th April 2015

Silky Property Group
c/o Diversi Consulting
PO Box 6662
Baulkham Hills, NSW, 2153

RE: PRELIMINARY SITE INVESTIGATION – 94 – 100 EXPLORERS WAY, ST CLAIR, NSW

Alliance Geotechnical Pty Ltd (AG) hereby submits this Preliminary Site Investigation (PSI) of the above site.

This report documents the findings of all completed environmental tasks, including reviews of historical information, statutory notices and a site inspection to assess areas of environmental concern. Based on desktop study findings and field observations, conclusions are drawn regarding the potential for site contamination, with recommendations for additional action, if necessary.

Should you require further information or clarification regarding any aspect of this report, please call the undersigned on 9675 1777.

For and on behalf of,
Alliance Geotechnical Pty Ltd

Benjamin Regan
B. Eng. (Environmental)
Senior Environmental Consultant
Alliance Geotechnical Pty Ltd

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**FIGURES**

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## EXECUTIVE SUMMARY

Alliance Geotechnical Pty Ltd (AG) was engaged by Diversi Consulting on behalf of Silky Property Group (the client), to conduct a preliminary site investigation (PSI) (contamination assessment) at 94 – 100 Explorers Way, St Clair, NSW (herein referred to as 'the site'), refer to **Figure 1**. The site is legally identified as Lot 36 in Deposited Plan (DP) 239502 and covered an area of approximately 1.07 hectares (10,700 $m^2$). The site is currently used for residential and open space land uses and it is understood that the client is planning to redevelop for residential (with accessible soils) land use. A PSI is required to support the development application.

The main objective of this investigation was to assess the potential for soil and groundwater contamination on the site, based on a review of site setting and past land uses (i.e. site history). The scope of works comprised reviews of regional topographic, geological and soil landscape maps, assessment of local hydrogeological conditions, beneficial uses and flow direction, including a search for groundwater data from registered water supply bores within a 1 km radius of the site, a site history review including collation of land titles information, historical aerial photographs, council documents and NSW EPA public registers and a site walkover inspection, designed to observe landscape characteristics and check for indicators of actual/potential contamination and preparation of a final report, including a statement regarding the potential for contamination to exist at the site.

A site inspection was complete on 13th April 2015 by one of AG's trained and experienced environmental consultants. During the site inspection the site was observed to comprise eight (8) buildings / structures, a gravel driveway and a large open space / backyard. All vegetated areas appeared to be in good condition with no observed signs of vegetation stress or dieback. No visible signs of contamination were observed at the site, including asbestos containing materials (ACM), hydrocarbon odours or staining.

Potential fill material was observed in the following locations at the site:

- The gravel driveway;
- Areas of building footprints;
- The raised area north of the small dwellings and gazebo;
- Either side of the drainage channel; and
- The stockpile / mound on the northern boundary of the site.

Three (3) test pits were excavated during a salinity investigation which was completed concurrently with this assessment. The salinity assessment was presented as a separate report. However, during test pit excavation, fill material was confirmed in the raised area north of the small dwellings and gazebo (TP1) and the raised area to the south of the drainage channel (TP2). Fill material was observed to range in depth from the surface (0.0 m below ground surface (bgs)) to 0.5 – 0.6 m bgs and was described as silty clay, brown, dry to damp, soft to firm with moderate plasticity and minor inclusions of bricks, concrete fragments, rubber, PVC pipe, glass, plastic and charcoal. No ACM fragments or hydrocarbon odours were observed in excavated materials.

Based on the aerial photographs and land title information, the site appeared to have been used for rural residential purposes since the site was established in 1916. The small wooden dwelling in the south-western portion of the site was constructed prior to 1947. The land use appeared unchanged until 1986, when the other site buildings were constructed. Based on the years of construction and site observations, no site buildings are expected to contain asbestos and/or lead paint.

The site and surrounding areas were free of statutory notices issued by the EPA under the Contaminated Land Management Act 1997 and the Protection of the Environment Operations Act 1997. No fuel UST or AGST was expected to have been installed on the land.

Based on the findings of this environmental investigation, it was concluded that:

- The site had been used for rural residential purposes since it was established in 1916. All site buildings were either constructed of wood or constructed after 1986 and therefore are expected to not contain asbestos and/or lead paint;
- The only AEC at the site was the potential for fill material of unknown origin;
- The site and surrounding areas were free of statutory notices issued by the EPA under the Contaminated Land Management Act 1997 and the Protection of the Environment Operations Act 1997;
- No fuel underground storage tanks (UST) or above ground storage tanks (AST) were observed in the accessible areas of the site; and
- No ACM fragments, hydrocarbon odours or staining were observed on the ground surface of the site. Three test pits excavated during a salinity assessment identified fill material at depths of 0.5 m bgs and 0.6 m bgs in two areas. The material excavated was not observed to contain any ACM, hydrocarbon odours or staining. The overall risk of contamination at the site was low.

AG hereby makes the following recommendations in relation to any future site development:

- Following demolition of site buildings, soil samples are required to classify material designated for off-site disposal. Soils should be sampled in accordance with NSW EPA Waste Classification Guidelines (DECCW 2009); and
- During sub-division earthworks, a standard unexpected finds protocol should be implemented to adequately manage any identified contamination.

# 1.0 INTRODUCTION

## 1.1 Background

Alliance Geotechnical Pty Ltd (AG) was engaged by Diversi Consulting on behalf of Silky Property Group (the client), to conduct a preliminary site investigation (PSI) (contamination assessment) at 94 – 100 Explorers Way, St Clair, NSW (herein referred to as 'the site'), refer to **Figure 1**. The site is legally identified as Lot 36 in Deposited Plan (DP) 239502 and covered an area of approximately 1.07 hectares (10,700 $m^2$).

The site is currently used for residential and open space land uses and it is understood that the client is planning to redevelop for residential (with accessible soils) land use. A PSI is required to support the development application.

This report documents the findings of all environmental tasks completed by AG, including reviews of historical information, statutory notices and field observations. Based on the investigation, conclusions are drawn regarding the potential for site contamination, with recommendations for additional action, if necessary.

The investigation has been developed in general accordance with relevant guidelines made or approved by the NSW Environment Protection Authority (EPA).

## 1.2 Objective

The main objective of this investigation was to assess the potential for soil and groundwater contamination on the site, based on a review of site setting and past land uses (i.e. site history).

## 1.3 Scope of Work

The scope of works comprised:

- Reviews of regional topographic, geological and soil landscape maps;
- assessment of local hydrogeological conditions, beneficial uses and flow direction, including a search for groundwater data from registered water supply bores within a 1 km radius of the site;
- A site history review including collation of land titles information, supplied by Advance Legal Searchers Pty Ltd (Title Searchers);
- a search of historical aerial photographs archived by the NSW Land and Property Information (LPI);
- a review of the NSW Environment Protection Authority (EPA) public registers to confirm that there were no statutory notices on any parts of the site under the Contaminated Land Management Act 1997 and the Protection of the Environment Operations Act 1997 (POEO Act 1997);
- a site walkover inspection, designed to observe landscape characteristics and check for indicators of actual/potential contamination; and
- Interpretation of the available site history/site setting information and field observations and compilation of a final report, including a statement regarding the potential for contamination to exist at the site.

## 2.0 SITE CHARACTERISTICS

### 2.1 Site Location and Identification

The site was located at 94 – 100 Explorers Way, St Clair, NSW (Ref. **Figure 1**). It was further identified as comprising Lot 36 in Deposited Plan (DP) 239502. The site was an approximately rectangular shaped parcel of land, covering an area of approximately 1.07 hectares (refer to **Figure 2**). The approximate geographic coordinates of the centre of the site were -33.791522 E, 150.801251 N.

### 2.2 Site Inspection

A site inspection was complete on 13th April 2015 by one of AG's trained and experienced environmental consultants. During the site inspection the site was observed to comprise eight (8) buildings / structures, a gravel driveway and a large open space / backyard. For site photographs, refer to **Appendix A**.

The buildings / structures at the site included:

- A large two-storey, residential dwelling, located in the south-eastern corner of the site, constructed of concrete and roof tiles;
- An outdoor dining area / gazebo, located approximately 20 m north of the large dwelling, constructed of metal;
- A small hut, located in between the gazebo and large dwelling, constructed of wood, glass and roof tiles. The ground surface in the area between the large dwelling, gazebo and hut was covered with a concrete slab;
- Two small, single-storey dwellings, in the southern portion of the site, constructed of fibreboard, brick, wood and sheet metal;
- A chicken coop, located approximately 10 m to the north of the small dwellings, constructed of wood, sheet metal and chicken wire; and
- Two small sheds, located on the eastern boundary of the site, constructed of wood and sheet metal. Evidence of minor storage of chemicals was observed including empty tins of paint, oil and fuel containers.

In addition, a concrete slab elevated on cobbles and small boulders was observed in the north-western corner of the site. Anecdotal evidence (provided by the site owner of over 30 years) indicated that this slab was constructed for a children's cubby house which was never completed.

The remainder of the site was vegetated open space with the exception of the gravel driveway. A man-made drainage channel with stormwater pits was observed to run through the centre of the site. A mound / grassed stockpile was observed at the northern boundary of the site. A stockpile of wood and plant matter was observed to the north of the small dwellings. All vegetated areas appeared to be in good condition with no observed signs of vegetation stress or dieback. No visible signs of contamination were observed at the site, including asbestos containing materials (ACM), hydrocarbon odours or staining.

Potential fill material was observed in the following locations at the site:

- The gravel driveway;
- Areas of building footprints;
- The raised area north of the small dwellings and gazebo;
- Either side of the drainage channel; and
- The stockpile / mound on the northern boundary of the site.

Three (3) test pits were excavated during a salinity investigation which was completed concurrently with this assessment. The salinity assessment was presented as a separate report. However, during test pit excavation, fill material was confirmed in the raised area north of the small dwellings and gazebo (TP1) and the raised area to the south of the drainage channel (TP2). Fill material was observed to range in depth from the surface (0.0 m below ground surface (bgs)) to 0.5 – 0.6 m bgs and was described as silty clay, brown, dry to damp, soft to firm with moderate plasticity and minor inclusions of bricks, concrete fragments, rubber, PVC pipe, glass, plastic and charcoal. No ACM fragments or hydrocarbon odours were observed in excavated materials. Refer to **Appendix B** for lithological logs.

Inaccessible areas at the time of inspection included within the site buildings, the soils in the areas of building footprints and soils in other sealed areas of the site.

### 2.3 Surrounding Areas

The site was bound by:

- A vegetated area / riparian zone to the north, beyond which was the M4 Motorway;
- Low density residential land use to the east;
- Explorers Way to the south, beyond which was low density residential land use; and
- Low density residential land use and open space / parkland to the west.

### 2.4 Topography and Site Drainage

The site was located on a relatively flat gradient (< 5%) in a north-easterly direction. Information on regional topographic conditions, referenced from the Central Mapping Authority of NSW Penrith 9130 Topographic Map 1:25,000 (CMA, 1986), was consistent with this description and indicated that the property's elevation was approximately 50 – 60 m above sea level (i.e. 50 – 60 m Australian Height Datum (AHD)).

Due to the majority of the site being unsealed, precipitation is anticipated to infiltrate the ground surface until it reaches saturation point and then flow along the surface towards the drainage channel and corresponding stormwater pits in the centre of the site. The stormwater channel is grassed, however during periods of heavy rainfall, precipitation is anticipated to flow through the channel to the north-east. In sealed areas of the site, precipitation is anticipated to be captured by the building gutters and site stormwater drainage system.

The nearest surface water receptor was the unnamed stormwater channel in the centre of the site. The channel extends from the centre of the western boundary of the site, through the centre of the site and exits at the north-eastern boundary of the site. Any stormwater from the site is anticipated to enter the M4 Motorway Stormwater system which is likely to drain into Ropes Creek, approximately 900 m to the east. Runoff and groundwater at the site is likely to find its way to this system.

### 2.5 Regional Geology and Soil Landscape

Information on regional sub-surface conditions, referenced from the Geological Survey of NSW / Department of Mineral Resources Penrith 1:100,000 Geological Series Sheet 9130 (GS NSW / DMR, 1983), indicated that the site overlies Wianamatta Group Bringelly Shale (Rwb). These soils are anticipated to comprise shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff.

Review of the NSW National Resource Atlas Acid Sulfate Soil Risk Maps indicated that the site overlies an area of "no known occurrence of acid sulphate soils". There is not anticipated to be a risk to current or future site buildings from acid sulphate soils.

## 2.6 Hydrogeology

A review of the NSW Office of Water groundwater database indicated that no registered groundwater bores were located within a 1.5 km radius of the site. Groundwater bore information was supplied by the NSW Office of Water and is attached in **Appendix C**. No conclusions were able to be made regarding groundwater at the site.

## 3.0 SITE HISTORY

### 3.1 Land Titles Information

A search of historical land title ownership records search was conducted through Advanced Legal Searchers Pty Ltd (Legal Searchers). Relevant documents resulting from this search are presented in **Appendix D**. A review of these records provided a source of information which may relate to potential or likely historical land use on the site. A summary of the ownership record is presented below:

| | |
|---|---|
| 1916 – 1917 | NSW Realty Company Limited |
| 1917 – 1927 | William Elson, member of Australian Imperial Forces |
| 1927 – 1933 | Charles Wackett, greengrocer |
| 1933 – 1935 | Ernest Virgin, motor bus driver |
| 1935 – 1936 | Stanley Kindred, grocer |
| 1936 – 1944 | Samuel Virgin, storekeeper |
| 1944 – 1949 | Marie Richards, married woman |
| 1949 – 1977 | Clive and Stanley Michael, manufacturers |
| 1977 – 1987 | Roger Franks, model shop craftsman |
| 1987 – to date | Diab and Sayde Finianos, current owners. |

### 3.2 Historical Aerial Photography

The site history review included a search of LPI historical aerial photographs, as shown in **Appendix E**. A summary of the photographs is shown below:

- **1947**: The site appeared to comprise a rural residential property with a dwelling and a number of sheds in the southern portion of the site. The dwelling was consistent with the location of the present day, small wooden dwelling at the site. A drainage channel was located in the centre of the site, consistent with the location of the present day drainage channel. The adjacent area to the north appeared to comprise natural, heavily vegetated bushland. The adjacent areas to the east, south and west appeared to comprise rural residential land uses with cleared areas and small dwellings observed.
- **1955**: A small man-made dam appeared to have been constructed at the centre of the western site boundary. The remainder of the site and surrounding areas appeared similar to the previous aerial photograph.
- **1970**: A small dwelling had been constructed in the south-eastern corner of the site. Evidence of vegetation growth at the site was observed. A number of dwellings were constructed in surrounding areas and a number of industrial buildings were constructed to the east. All other areas appeared similar to the previous aerial photograph.
- **1986:** The small dwelling that appeared in the south-eastern corner of the site in the previous aerial had been removed and a large dwelling was constructed in the location of the present day two storey dwelling. A small dwelling was constructed in the location of the middle dwelling and a shed was constructed in the location of the current day shed, on the eastern site boundary. The small man made dam had been filled. The bushland to the north of the site had been cleared and the M4 Motorway had commenced construction. Evidence of earthworks was observed at the adjacent property to the west.

- **1999**: The chicken coop had been constructed to the north of the small dwellings. The other site buildings had been constructed i.e. the gazebo. The other areas of the site and surrounding areas appeared similar to the previous aerial photograph.
- **2015**: The site and surrounding areas appeared similar to the previous aerial photograph.

### 3.3 Regulatory Compliance

On 27th April, 2015, an on-line search of the NSW EPA Contaminated Land Management Act 1997 (CLM Act) Record of Notices was conducted. This search confirmed that the EPA had no involvement, or regulation, under Section 58 or Section 60 of the Contaminated Land Management Act 1997 for the site. Search results are attached in **Appendix F**.

On 27th April 2015, an on-line search of the public register for licences, applications, notices, audits, pollution studies and reduction programs under the Protection of the Environment Operations Act 1997 (POEO Act 1997) was conducted, this being another database that is maintained by the EPA. This search confirmed that the EPA had no current involvement, or regulation, under the POEO Act 1997 for the site and surrounding areas. Search results are attached in **Appendix F.**

### 3.4 Site History Summary

Based on the aerial photographs and land title information, the site appeared to have been used for rural residential purposes since the site was established in 1916. The small wooden dwelling in the south-western portion of the site was constructed prior to 1947. The land use appeared unchanged until 1986, when the other site buildings were constructed. Based on the years of construction and site observations, no site buildings are expected to contain asbestos and/or lead paint.

Evidence of fill was observed in the area of a former man-made dam at the western boundary of the site. Based on aerial imagery, the fill material is expected to have been sourced from the site or the adjacent property to the west.

### 3.5 Integrity Assessment

The information obtained from the historical sources reviewed have been found to be in general agreement. It is therefore considered that the information provided in this historical assessment has an acceptable level of accuracy.

## 4.0 CONCEPTUAL SITE MODEL

### 4.1 Areas and Contaminants of Environmental Concern

Based on the review of historical information and observations from the site inspection, the only potential area of environmental concern (AEC) identified at the site was fill material of unknown origin.

No information in relation to historical occurrences of product spills/losses, discharges to the land, water or air associated with chemical storage at the site has been identified as part of this assessment.

### 4.2 Contaminants of Potential Concern

The following contaminants were therefore deemed to be of potential concern in the soils at this site:

- heavy metals;
- total petroleum hydrocarbons (TPH);
- polycyclic aromatic hydrocarbons (PAH);
- polychlorinated biphenyls (PCBs); and
- Asbestos.

### 4.3 Potentially Contaminated Media

Fill material is considered to be a potentially contaminated media based on the unidentified sources of the fill material potentially imported to the site historically to backfill/raise topographic features. However, based on aerial photography, fill material is expected to have been sourced from the site or the adjacent property to the west.

Based on the potential leachability of COPCs that may be in the fill, vertical migration COPCs through the soil profile may occur. Consequently, natural soils underlying fill are considered to be a potentially contaminated media.

There potential for groundwater to be a contaminated media due is low due to the low permeability of the underlying clay material. As with natural soils, the potential for contamination of groundwater will depend upon the actual nature, occurrence and characteristics of contamination within the overlying stratigraphy.

### 4.4 Potential for Migration

Contaminants generally migrate from the site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The potential contaminants identified as part of the site history review are generally in a solid form (e.g. heavy metals, asbestos etc.) or liquid form (e.g. fuel, lubricants etc.).

As the majority of the site is unsealed and grassed, the potential for windblown dust migration is considered to be low. The potential for contamination via surface water movement and infiltration of water and subsequent migration through the soil profile is also considered to be low. Given the low permeability of the underlying soils, migration via groundwater movement is not considered to be a potential migration pathway.

### 4.5 Potential Exposure Pathways

Based on the COPCs identified, potential exposure pathways at the site include:

- Potential dermal and oral contact to impacted soils and/or groundwater as present at shallow depths and/or accessible by future excavations; and/or
- Potential contaminant uptake by vegetation.

### 4.6 Receptors

Potential receptors of environmental impact present within the site which will require to be addressed with respect to suitability of the site for its proposed residential use include:

- Future users/occupants of the site may potentially be exposed to COPCs through direct contact with impacted soils/groundwater and/or ingestion of impacted soils/groundwater and/or ingestion of impacted soils/groundwater and/or inhalation of dusts/fibres associated with impacted soils/groundwater; and/or
- Excavation/construction/maintenance workers conducting activities at the site, who may potentially be exposed to COPCs through direct contact with impacted soils/groundwater present within excavations and/or inhalation of dusts/fibres associated with impacted soils/groundwater; and/or
- Flora species to be established on the vegetated areas of the site.

### 4.7 Discussion

Based on the review of historical information and observations from the site inspection, the only potential AEC identified at the site was fill material of unknown origin. The areas of suspected fill included:

- The gravel driveway;
- Areas of building footprints;
- The raised area north of the small dwellings and gazebo (TP1);
- Either side of the drainage channel (TP2); and
- The stockpile / mound on the northern boundary of the site.

Three (3) test pits were excavated during a salinity investigation which was completed concurrently with this assessment. The salinity assessment was presented as a separate report. However, during test pit excavation, fill material was confirmed in the raised area north of the small dwellings and gazebo (TP1) and the raised area to the south of the drainage channel (TP2). Fill material was observed to range in depth from the surface (0.0 m below ground surface (bgs)) to 0.5 – 0.6 m bgs and was described as silty clay, brown, dry to damp, soft to firm with moderate plasticity and minor inclusions of bricks, concrete fragments, rubber, PVC pipe, glass, plastic and charcoal. No ACM fragments or hydrocarbon odours were observed in excavated materials.

Based on discussions with the client, a large volume of soil at the site is proposed to be excavated for off-site disposal during sub-division earthworks. Due to natural soils being observed at a maximum depth of 0.6 m bgs, it is anticipated that the risk of contamination in residual soils at the site is low. It is recommended that prior to off-site disposal, the soil is tested in accordance with NSW EPA Waste Classification Guidelines (DECCW 2009). In addition, during earthworks, a standard unexpected finds protocol should be implemented.

# 5.0 CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Conclusions

Based on the findings of this environmental investigation, it was concluded that:

- The site had been used for rural residential purposes since it was established in 1916. All site buildings were either constructed of wood or constructed after 1986 and therefore are expected to not contain asbestos and/or lead paint;
- The only AEC at the site was the potential for fill material of unknown origin;
- The site and surrounding areas were free of statutory notices issued by the EPA under the Contaminated Land Management Act 1997 and the Protection of the Environment Operations Act 1997;
- No fuel underground storage tanks (UST) or above ground storage tanks (AST) were observed in the accessible areas of the site; and
- No ACM fragments, hydrocarbon odours or staining were observed on the ground surface of the site. Three test pits excavated during a salinity assessment identified fill material at depths of 0.5 m bgs and 0.6 m bgs in two areas. The material excavated was not observed to contain any ACM, hydrocarbon odours or staining. The overall risk of contamination at the site was low.

## 5.2 Recommendations

AG hereby makes the following recommendations in relation to any future site development:

- Following demolition of site buildings, soil samples are required to classify material designated for off-site disposal. Soils should be sampled in accordance with NSW EPA Waste Classification Guidelines (DECCW 2009); and
- During sub-division earthworks, a standard unexpected finds protocol should be implemented to adequately manage any identified contamination.

## 6.0 STATEMENT OF LIMITATIONS

This Preliminary Site Investigation evaluated the likelihood of the site contamination resulting from previous uses of the site. The appraisal was limited to visual inspection of ground level conditions and a review of anecdotal and historical information that was available from local and state government authorities. It is assumed that this information was accurate and complete.

Sampling and laboratory analysis of the site materials were not conducted as part of this assessment. Although this methodology is consistent with current industry practice for such appraisal assessments, no warranty or guarantee of site conditions is given or intended.

This report has been prepared by Alliance Geotechnical for the sole use of Silky Property Group. No responsibility is accepted for the use of any part of this report in any other context or for any other purpose or by other third parties. This report does not purport to provide legal advice.

This report remains the property of Alliance Geotechnical subject to payment of all fees due for the assessment. The report shall not be reproduced except in full and with prior written permission by Alliance Geotechnical Pty Ltd.

Should you require additional information or clarification regarding any aspect of this report, please call the undersigned on (02) 9675 1777.

For and on behalf of,
Alliance Geotechnical Pty Ltd

Benjamin Regan
B. Eng. (Environmental)
Senior Environmental Consultant
Alliance Geotechnical Pty Ltd

## 7.0 REFERENCES

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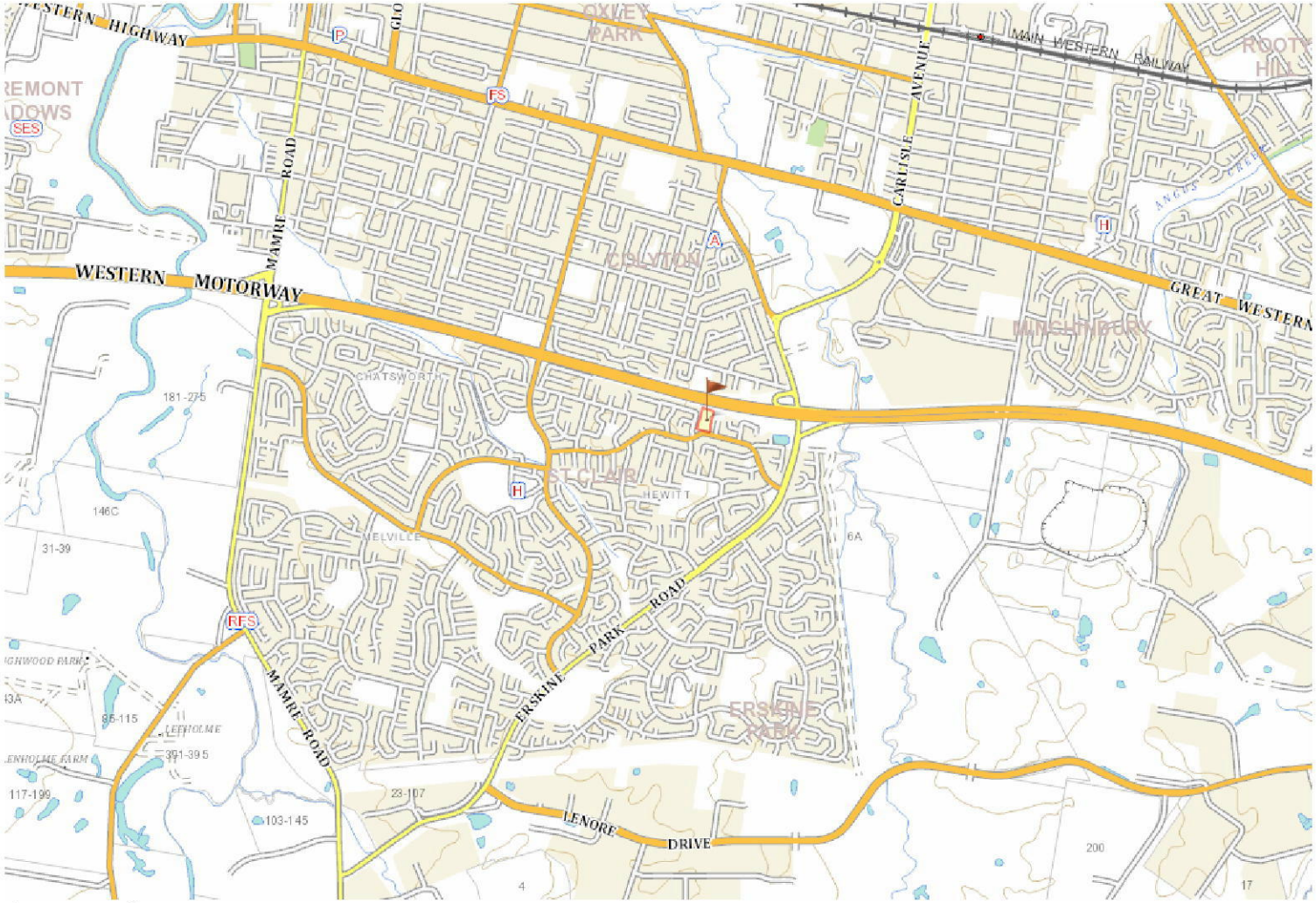
FIGURES

# Alliance Geotechnical Pty Ltd

ENGINEERING | ENVIRONMENTAL | TESTING

## Site Location - Drawing Number: 1842-ER-1-A

Not To Scale




Source: SIX Maps (www.maps.six.nsw.gov.au)

**Your On-Site Geotechnical Specialists**

**Phone Us Today - 02 9675 1777**

**Client:** Silky Property Group
**Project:** 94-100 Explorers Way, St Clair, NSW
**Location:** 94-100 Explorers Way, St Clair, NSW

**Job Number:** 1842
**Report Number:** 1842-ER-1-1
**Report Date:** 28/04/2015

# Site Location - Drawing Number: 1842-ER-1-B

Not To Scale

N


Source: SIX Maps

# Alliance Geotechnical Pty Ltd

ENGINEERING | ENVIRONMENTAL | TESTING

## Site Location - Drawing Number: 1842-ER-1-C

Not To Scale

N


Key

TP1 Sample Locations

Site Boundary

Source: SIX Maps

**Your On-Site Geotechnical Specialists**

**Phone Us Today - 02 9675 1777**

**Client: Silky Property Group**
**Project: 94-100 Explorers Way, St Clair, NSW**
**Location: 94-100 Explorers Way, St Clair, NSW**

**Job Number: 1842**
**Report Number: 1842-ER-1-1**
**Report Date: 28/04/2015**

APPENDIX A

SITE PHOTOGRAPHS

**Photo 1**: Front of small, wooden dwelling, looking north.

**Photo 2**: Front of garage with wooden dwelling to the left and the gazebo in the background to the right. Looking north-east.

**Photo 3**: Gazebo, wooden hut and large two-storey dwelling with driveway in foreground. Looking east.

**Photo 4**: Chicken coop, looking north.

**Photo 5**: Wood stockpiles and rear of site dwellings, looking south.

**Photo 6**: Sheds on eastern boundary of the site, looking north-east.

**Photo 7**: Drainage channel in centre of site with embankments either side of it, looking west.

**Photo 8**: Slab of former cubby house on western site boundary, looking north.

**Photo 9**: Suspected soil stockpile on western boundary of site, looking north-east.

APPENDIX B

TEST PIT LOGS

# Alliance Geotechnical

ENGINEERING | ENVIRONMENTAL | TESTING

Your On-Site Geotechnical & Environmental Specialists

| | |
|---|---|
| Job No: | 1829 |
| Hole No: | **TP1** |
| Date: | 13/04/2015 |
| Logged: | BR |

| | | | |
|---|---|---|---|
| Client: | Ground Engineering Design Pty Ltd | Surface RL: | - |
| Location: | 94 - 100 Explorers Way, St Clair, NSW, 2759 | Test Method: | Test Pit |

| Depth (m) | Graphic Log | Description | PID | Samples | Additional Comments |
|---|---|---|---|---|---|
| 0.00 | | Silty clay, brown, dry to damp, firm, moderate plasticity, with foreign materials including brick, glass, tile and concrete. | - | TP1 - 0.0 - 0.2 | |
| 0.60 | | Clay, yellow to brown, damp, high plasticity, soft to firm and no foreign materials. | | TP1 - 0.7 - 0.8 | |

*Borehole terminated at 1.0m*

Strength
s - Soft
f - Firm
st - Stiff
vst - Very Stiff
h - Hard

Relative Density
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Moisture
D - Dry
SM - Slightly Moist
M - Moist
VM - Very Moist
W - Wet

Weathering
CW - Completely Weathered
EW - Extremely Weathered
HW - Highly Weathered
MW - Moderately Weathered
SW - Slightly Weathered
F - Fresh

# Alliance Geotechnical

ENGINEERING | ENVIRONMENTAL | TESTING

Your On-Site Geotechnical & Environmental Specialists

| | |
|---|---|
| Job No: | 1829 |
| Hole No: | **TP2** |
| Date: | 13/04/2015 |
| Logged: | BR |

| | | | |
|---|---|---|---|
| Client: | Ground Engineering Design Pty Ltd | Surface RL: | - |
| Location: | 94 - 100 Explorers Way, St Clair, NSW, 2759 | Test Method: | Test Pit |

| Depth (m) | Graphic Log | Description | PID | Samples | Additional Comments |
|---|---|---|---|---|---|
| 0.00 | | Silty clay, brown, dry to damp, soft to firm, moderate plasticity, with foreign materials including full bricks, rubber, glass, plastic, PVC pipe and charcoal. | - | TP2 - 0.0 - 0.3 | |
| 0.50 | | Clay, yellow to brown, dry, moderate plasticity, firm, no foreign materials | | TP2 - 0.5 - 0.7 | |

*Borehole terminated at 0.9m*

Strength
s - Soft
f - Firm
st - Stiff
vst - Very Stiff
h - Hard

Relative Density
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Moisture
D - Dry
SM - Slightly Moist
M - Moist
VM - Very Moist
W - Wet

Weathering
CW - Completely Weathered
EW - Extremely Weathered
HW - Highly Weathered
MW - Moderately Weathered
SW - Slightly Weathered
F - Fresh

# Alliance Geotechnical

ENGINEERING | ENVIRONMENTAL | TESTING

Your On-Site Geotechnical & Environmental Specialists

| | |
|---|---|
| Job No: | 1829 |
| Hole No: | **TP3** |
| Date: | 13/04/2015 |
| Logged: | BR |

| | | | |
|---|---|---|---|
| Client: | Ground Engineering Design Pty Ltd | Surface RL: | - |
| Location: | 94 - 100 Explorers Way, St Clair, NSW, 2759 | Test Method: | Test Pit |

| Depth (m) | Graphic Log | Description | PID | Samples | Additional Comments |
|---|---|---|---|---|---|
| 0.00 | | Silty clay, brown, dry, firm, low plasticity, igneous gravels and no foreign materials. | - | TP3 - 0.0 - 0.2 | |
| 0.30 | | Clay, red to brown, dry, high plasticity, firm and no foreign materials. | | TP3 - 0.4 - 0.5 | |

*Borehole terminated at 0.6m*

Strength
s - Soft
f - Firm
st - Stiff
vst - Very Stiff
h - Hard

Relative Density
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

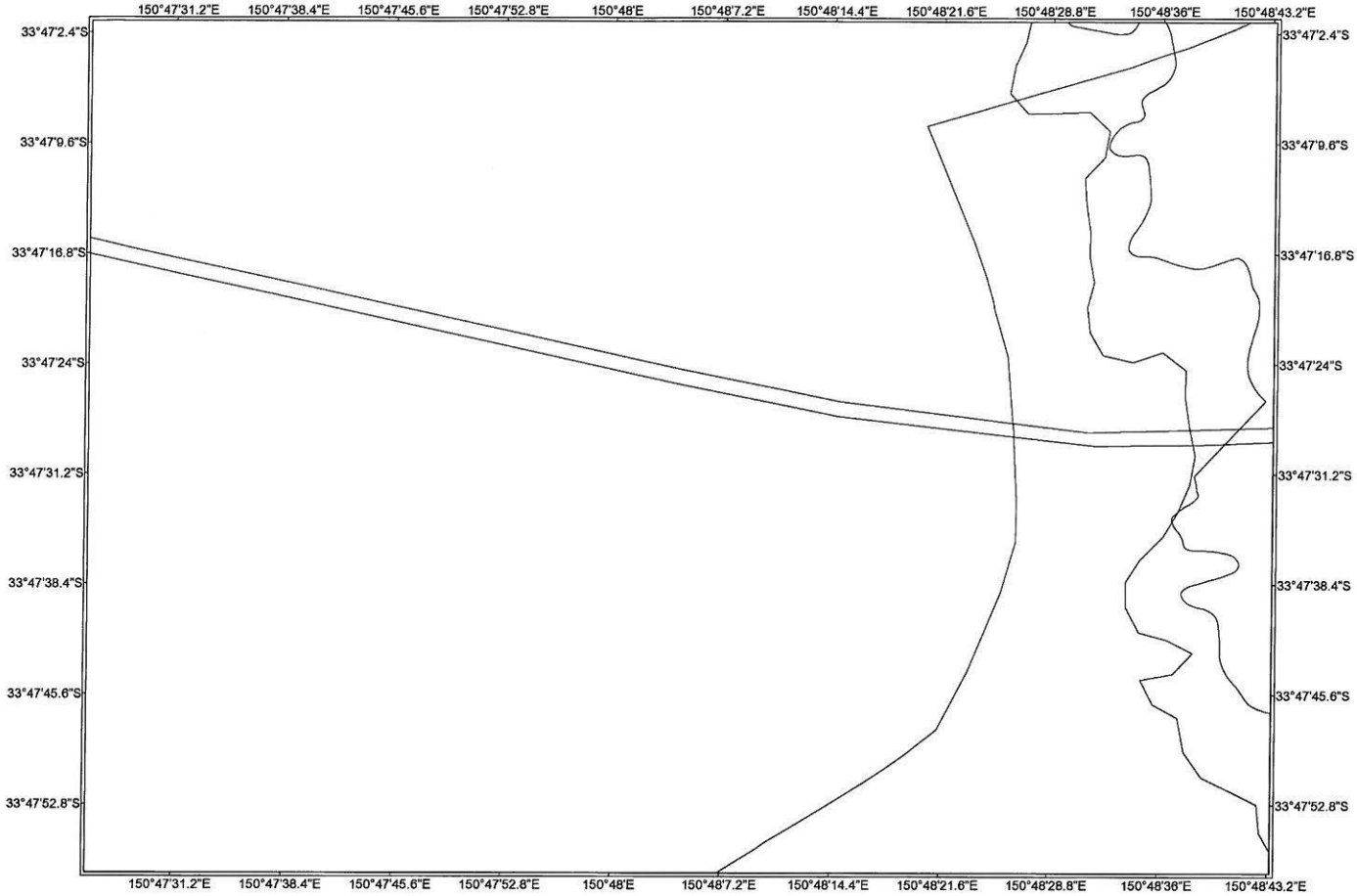
Moisture
D - Dry
SM - Slightly Moist
M - Moist
VM - Very Moist
W - Wet

Weathering
CW - Completely Weathered
EW - Extremely Weathered
HW - Highly Weathered
MW - Moderately Weathered
SW - Slightly Weathered
F - Fresh

APPENDIX C

REGISTERED GROUNDWATER BORES
WITHIN 1 KM OF THE SITE

# NSW GW Map




Scale : Kilometres

0 0.1 0.2 0.3 0.4 0.5

Projection : Latitude/Longitude

Key

- ..... SMALLTWN
- ..... MEDTOWNS
- ..... ALLBORES
- ..... NSW Major Rivers
- ..... Nsw Rivers
- ..... NSW Railway Lines
- ..... NSW Main Roads
- ..... Irrigation Dams
- ..... Local Government Areas
- ..... Ground Water Management Areas

APPENDIX D

LAND TITLES INFORMATION
(SUPPLIED BY ADVANCED LEGAL SEARCHERS PTY LTD)

# ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

P.O. Box 149
Yagoona NSW 2199

Telephone: +612 9644 1679
Mobile: 0412 169 809
Facsimile: +612 8076 3026
Email: alsearch@optusnet.com.au

23rd April, 2015

**ALLIANCE GEOTECHNICAL**
PO Box 1028,
**ST. MARYS NSW 1790**

**Attention: Benjamin Regan**

**RE:** **94 – 100 Explorers Way**
**St Clair**

## Current Search

Folio Identifier 36/239502 (title attached)
DP 239502 (plan attached)
Dated 21st April, 2015
Registered Proprietor:
**DIAB FINIANOS**
**SAYDE FINIANOS**

# Title Tree
# Lot 36 DP 239502

Folio Identifier 36/239502

Certificate of Title Volume 11529 Folio 140

Certificate of Title Volume 4584 Folio 140

Certificate of Title Volume 4522 Folio 162

Certificate of Title Volume 4014 Folio 219

Certificate of Title Volume 2752 Folio 85

Certificate of Title Volume 2687 Folio 228

*****

# Summary of proprietor(s)
# Lot 36 DP 239502

| Year | Proprietor |
|---|---|
| | **(Lot 36 DP 239502)** |
| 1987 – todate | Diab Finianos<br>Sayde Finianos |
| | **(Lot 36 DP 239502 – CTVol 11529 Fol 140)** |
| 1983 – 1987 | Diab Finianos<br>Sayde Finianos |
| 1977 – 1983 | Roger Terence Franks, model shop craftsman<br>Janet Jenner, tea lady |
| 1971 – 1977 | Clive Hedley Michael, manufacturer<br>Stanley Phillip Michael, manufacturer |
| | **(Part Lot 64 DP 2054 – Area 3 Acres 2 Roods 15 Perches – CTVol 4584 Fol 97)** |
| 1949 – 1971 | Clive Hedley Michael, manufacturer<br>Stanley Phillip Michael, manufacturer |
| 1944 – 1949 | Marie Richards, married woman |
| 1936 – 1944 | Samuel Ernest Virgin, storekeeper |
| 1935 – 1936 | Stanley Charles Kindred, grocer |
| 1933 – 1935 | Ernest Nickering Virgin, motor bus driver |
| | **(Lots 62 & 64 DP 2054 – Area 13 Acres 1 Rood 29 Perches – CTVol 4522 Fol 162)** |
| 1932 – 1933 | Charles William Wackett, greengrocer |
| | **(Lots 62 to 64 DP 2054 – Area 20 Acres 2 Rood 9 ¾ Perches – CTVol 4014 Fol 219)** |
| 1927 – 1932 | Charles William Wackett, greengrocer |
| 1927 – 1927 | Albert Edward Rogan, investor |
| | **(Lots 62 to 64 DP 2054 – Area 20 Acres 2 Rood 9 ¾ Perches – CTVol 2752 Fol 85)** |
| 1927 – 1927 | Pubic Trustee<br>*(vide local government Act, 1919)* |
| 1917 – 1927 | William John Elson, member of Australian Imperial forces |
| | **(Lots 62 to 64 DP 2054 and other lands – Area 103 Acres 1 Rood 37 ¾ Perches – CTVol 2687 Fol 228)** |
| 1916 – 1917 | N.S.W. Realty Company Limited |

****

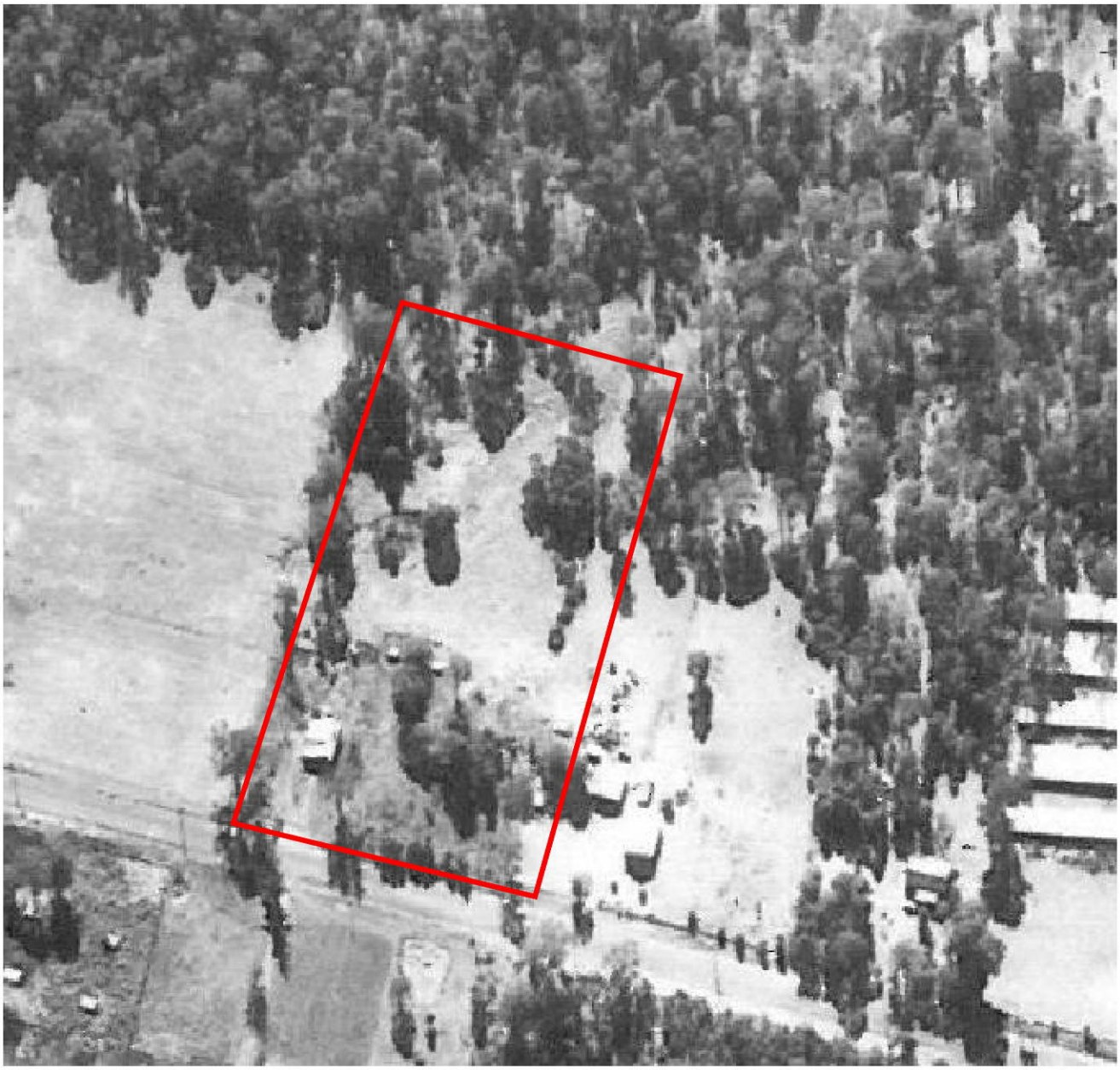
APPENDIX E

HISTORICAL AERIAL PHOTOGRAPHS

1947

1955

1970



1986

1998

2015

APPENDIX F

NSW EPA SEARCH RESULTS

List of NSW Contaminated Sites under Section 60 of the CLM Act 1997

| | | | |
|---|---|---|---|
| Springvale | Springvale Colliery<br>Castlereagh Highway | Unclassified | Under assessment |
| St Clair | Mobil Service Station<br>4 Endeavour Avenue | Service Station | Under assessment |
| St Ives | Mobil Service Station<br>157 Mona Vale Road | Service Station | Under assessment |

Record of Notices under Section 58 of the CLM Act 1997

## Search results

Your search for: LGA: Penrith City Council

Matched 29 notices relating to 8 sites.

Search Again Refine Search

| Suburb | Address | Site Name | Notices related to this site |
|---|---|---|---|
| Berkshire Park | Northern end of Compartment 5 | Castlereagh State Forest | 6 former |
| Colyton | 86-88 Great Western Highway | Ampol Service Station | 1 current |
| Jamisontown | 92 Mulgoa Road | 7-Eleven Service Station | 2 current |
| Luddenham | Lot 4 The Northern Road | Elura Liquid Waste Disposal Site | 1 current |
| Mulgoa | Mulgoa Road | Penrith Waste Services | 2 former |
| Penrith | 2115 Castlereagh Road | Crane Enfield Metals and Adjacent Land | 2 current and 3 former |
| St Marys | Vallance Street | Drum Recycler | 5 former |
| St Marys | 38 Links Road | Solvent Recycler | 7 former |

Page 1 of 1

27 April 2015

Search of the POEO Public Register

## Search results

Your search for: **General Search** with the following criteria

**Suburb** - ST CLAIR

returned 0 result

Search Again

**Attachment B – Mapset**


| Map | Title |
|---|---|
| EN01 | Site Location Map |
| EN02 | Aerial Photo - 2017 |
| EN03 | Aerial Photo - 2020 |
| EN04 | Areas of Environmental Concern (AECs) |
| EN05 | Fill Thickness Map |

0 10 20 30 40 50 m

1:1000 @ A3

Aerial photo source: Nearmap

Map Title / Figure:

# Site Location Map

| | |
|---|---|
| EN01 | Map |
| 100 Explorers Way, St Clair, NSW | Site |
| Engineering services: Opal Aged Care - St Clair | Project |
| Preliminary Site Investigation Review | Sub-Project |
| Opal Aged Care | Client |
| 30/03/2020 | Date |



Project No: P2007910 Map Set: MS01-R01 EPSG: 28356

martens
Environment | Water | Geotechnics | Civil | Projects

Legend

- Site Boundary
- Cadastre

0 10 20 30 40 50 m

1:1000 @ A3

Aerial photo source: Nearmap



Project No: P2007910 Map Set: MS01-R01 EPSG: 28356

Map Title / Figure:

# Aerial Photo - 2017

| | |
|---|---|
| EN02 | Map |
| 100 Explorers Way, St Clair, NSW | Site |
| Engineering services: Opal Aged Care - St Clair | Project |
| Preliminary Site Investigation Review | Sub-Project |
| Opal Aged Care | Client |
| 30/03/2020 | Date |

martens
Environment | Water | Geotechnics | Civil | Projects




Project No: P2007910 Map Set: MS01-R01 EPSG: 28356

0 10 20 30 40 50 m

1:1000 @ A3

Aerial photo source: Nearmap

Map Title / Figure:

# Aerial Photo - 2020

| | |
|---|---|
| EN03 | Map |
| 100 Explorers Way, St Clair, NSW | Site |
| Engineering services: Opal Aged Care - St Clair | Project |
| Preliminary Site Investigation Review | Sub-Project |
| Opal Aged Care | Client |
| 30/03/2020 | Date |

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Environment | Water | Geotechnics | Civil | Projects


0 10 20 30 40 50 m

1:1000 @ A3

Aerial photo source: Nearmap

Map Title / Figure:

# Areas of Environmental Concern (AECs)

| | |
|---|---|
| EN04 | Map |
| 100 Explorers Way, St Clair, NSW | Site |
| Engineering services: Opal Aged Care - St Clair | Project |
| Preliminary Site Investigation Review | Sub-Project |
| Opal Aged Care | Client |
| 30/03/2020 | Date |

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Project No: P2007910 Map Set: MS01-R01 EPSG: 28356

Legend

- Site Boundary
- Cadastre
- Martens Geotechnical Boreholes (Sampling Point (metres))
- Alliance Geotechnical Test Pits (Sampling Point (metres))

TP3 (0 m)
TP2 (0.5 m)
BH107 (0.3 m)
BH106 (0 m)
BH104 (0 m)
BH103 (0.8 m)
TP1 (0.6m)
BH105 (0 m)
BH102 (0.2 m)
BH101 (0.3 m)

N

0 10 20 30 40 50 m

1:1000 @ A3

Aerial photo source: Nearmap



Project No: P2007910 Map Set: MS01-R01 EPSG: 28356

Map Title / Figure:

# Fill Thickness Map

| | |
|---|---|
| EN05 | Map |
| 100 Explorers Way, St Clair, NSW | Site |
| Engineering services: Opal Aged Care - St Clair | Project |
| Preliminary Site Investigation Review | Sub-Project |
| Opal Aged Care | Client |
| 30/03/2020 | Date |

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**Attachment C – Proposed Development Plans**


| Revision | Description | Date |
|---|---|---|
| A | FOR CLIENT REVIEW | 19.08.2020 |

NOTE:
CIVIL ENGINEER TO CONFIRM LOCATION OF EXISTING OVERLAND FLOW PIPE TO PROPOSED BUILDING.
**DESIGN COULD CHANGE BASED ON THIS CLARIFICATION**

PRELIMINARY
WORK-IN-PROGRESS

**REFER TO GENERAL NOTES AND SCHEDULES ON A00.XX SERIES DRAWINGS**

DEVELOPMENT STATISTICS SUMMARY

**PARKING**

35 SPACES
1 BUS PARKING BAY
1 AMBULANCE PARKING BAY

**BEDROOMS**

GROUND FLOOR = 43 BEDROOMS (1x16 MSU+1x18+1x9)
LEVEL 1 = 80 BEDROOMS (1x41 + 1x39)
TOTAL = 123 BEDROOMS

**AREA**

GROUND FLOOR FECA = 3,420 SQM
GROUND FLOOR UCA = 275 SQM
LEVEL 1 FECA = 3,360 SQM
LEVEL 1 UCA = 395 SQM

TOTAL FECA = 6,870 SQM
TOTAL UCA = 670 SQM
TOTAL GFA (FECA + UCA) = 7,450 SQM

THIS DRAWING IS TO BE PRINTED IN COLOUR

Consultants

Client

CUSTANCE
Strategy
Urban Design
Architecture
Interior Design


**SYDNEY**
L2, 228 Pitt Street,
Sydney, NSW 2000
Australia
PH (02) 9051 0177
www.custance.com.au


Project
ST. CLAIR RACF
LOT 36 DP 239502, 100 EXPLORERS WAY, ST CLAIR, NSW

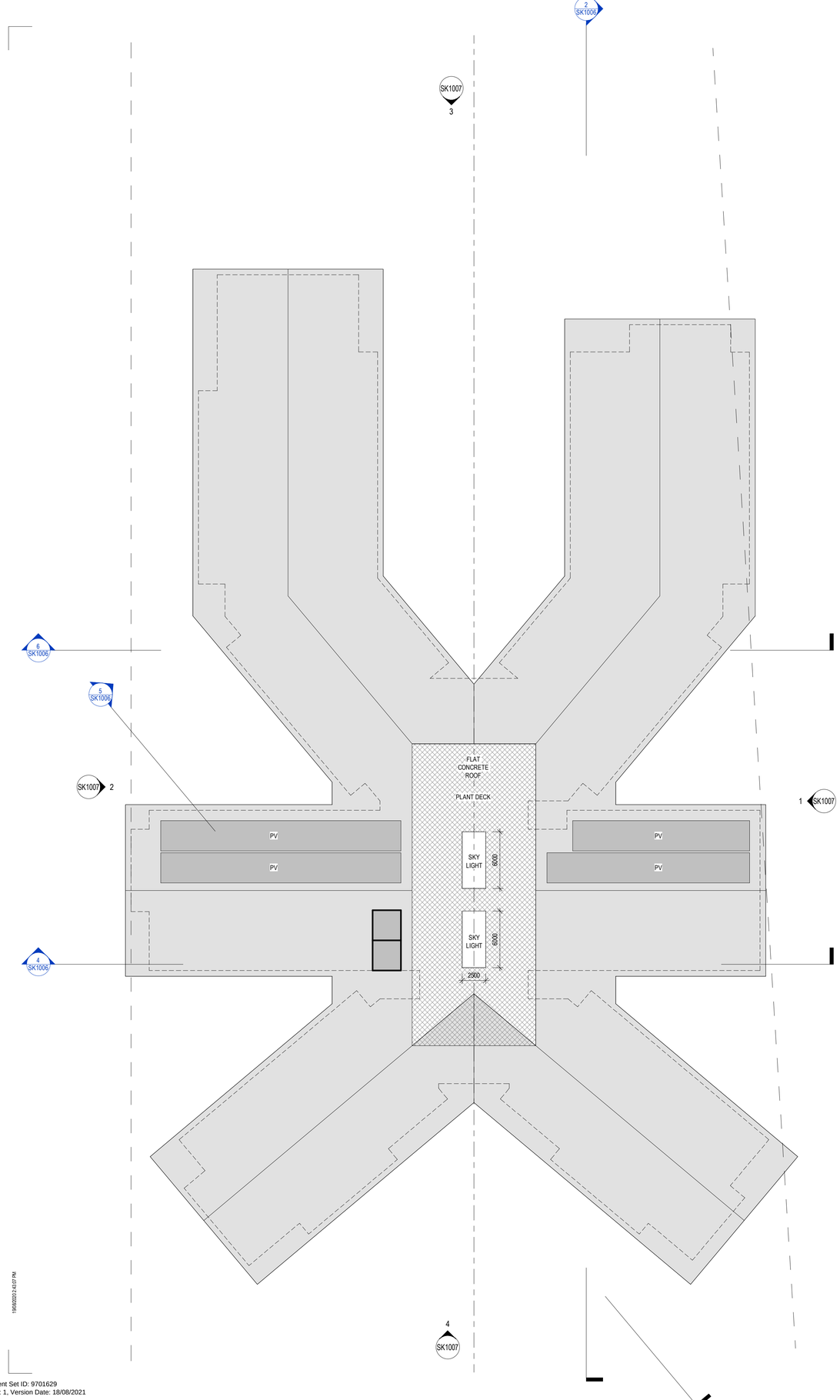
Sheet Title
SK000
CONCEPT PLANS - GF & L1

NORTH
SCALE @ A1
1:250
0 6.25 12.5M

| Drawn | Checked | Scale |
|---|---|---|
| Author | Checker | As indicated @ A1 |


Nominated Architects: Greg Prerau 5065, Craig Sheisher 8259

| Project No. | Sheet No. | Revision |
|---|---|---|
| 3362 | SK1003 | A |




| Revision | Description | Date |
|---|---|---|
| A | FOR CLIENT REVIEW | 19.08.2020 |

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CIVIL ENGINEER TO CONFIRM LOCATION OF EXISTING OVERLAND FLOW PIPE TO PROPOSED BUILDING.
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WORK-IN-PROGRESS

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Client

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Project
ST. CLAIR RACF
LOT 36 DP 239502, 100 EXPLORERS WAY, ST CLAIR, NSW

Sheet Title
SK000
CONCEPT PLANS - ROOF

NORTH

SCALE @ A1
1:250
0 6.25 12.5M

| Drawn | Checked | Scale |
|---|---|---|
| Author | Checker | As indicated @ A1 |



| Project No. | Sheet No. | Revision |
|---|---|---|
| 3362 | SK1004 | A |

19/08/2020 2:43:07 PM