Development Plan Amendment

By the Council

Charles Sturt Council

Draft Grange Road, Findon Development Plan Amendment (Privately Funded)

Explanatory Statement and Analysis

DRAFT

For Consultation

October 2018

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Have Your Say

This Development Plan Amendment (DPA) will be available for inspection by the public at the Civic Centre, 72 Woodville Road, Woodville from Thursday 4 October 2018 until Friday 30 November 2018.

During this time anyone may make a written submission about any of the changes the DPA is proposing.

Submissions should be sent to:

Post
The Chief Executive Officer
City of Charles Sturt
PO Box 1
Woodville SA 5011

Email
council@charlessturt.sa.gov.au (pleasure ensure subject line referenced Grange Road, Findon DPA)

Online Survey
www.yoursaycharlessturt.com.au

Submissions should indicate whether the author wishes to speak at a public meeting about the DPA. If no-one requests to be heard, no public meeting will be held.

If requested, a meeting will be held on Monday 18 February 2019 at the Civic Centre, 72 Woodville Road, Woodville at 6pm.

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Explanatory Statement

Introduction

The *Development Act 1993* provides the legislative framework for undertaking amendments to a Development Plan. The *Development Act 1993* allows either the relevant council or, under prescribed circumstances, the Minister responsible for the administration of the *Development Act 1993 (*the Minister*),* to amend a Development Plan.

Before amending a Development Plan, a council must first reach agreement with the Minister regarding the range of issues the amendment will address. This is called a Statement of Intent. Once the Statement of Intent is agreed to, a Development Plan Amendment (DPA) (this document) is written, which explains what policy changes are being proposed and why, and how the amendment process will be conducted.

A DPA may include:

- An Explanatory Statement (this section)
- Analysis, which may include:
  - Background information
  - Investigations
  - Recommended policy changes
  - Statement of statutory compliance
- References/Bibliography
- Certification by Council's Chief Executive Officer
- Appendices
- The Amendment.

Need for the amendment

ALDI is seeking to establish a store in the Findon area, the ideal location of which is on Grange Road given its strategic location in the inner western suburbs adjacent an arterial road corridor and residential area. The proponent has identified a site within the Affected Area as its preferred location. As justification, the proponent has undertaken investigations to examine a range of potential sites within the inner western suburbs of Adelaide to construct new stores. Their investigations focussed on existing Centre Zones which provide a flexible policy framework to accommodate their minimum site requirements. The proponent has indicated that the existing Centre Zones in the surrounding areas to the Affected Area were either already fully established or were limited in their size and/or depth to accommodate a new supermarket development.

Following the receipt of a Statement of Justification from the proponent, Council agreed to undertake a **privately funded DPA**, following assessment against the 'Privately Funded Development Plan Amendments Policy'.

Currently, the Mixed-Use Zone contains policy which limits certain types of developments along main road corridors. As an example, there are non-complying forms of development listed in the Zone which would generally be considered suitable along an arterial road. These uses include shops or group of shops (including any expansion or addition) where the floor area is 250m2 or greater.

Council wishes to initiate a DPA to review the existing Mixed-Use Zone over land identified as the Affected Area on Grange Road, Findon with a view to facilitate the establishment of a supermarket and broader retail development, including bulky goods, consistent with other arterial roads in the Western region of Adelaide and address the direction of the 30-Year Plan for Greater Adelaide.

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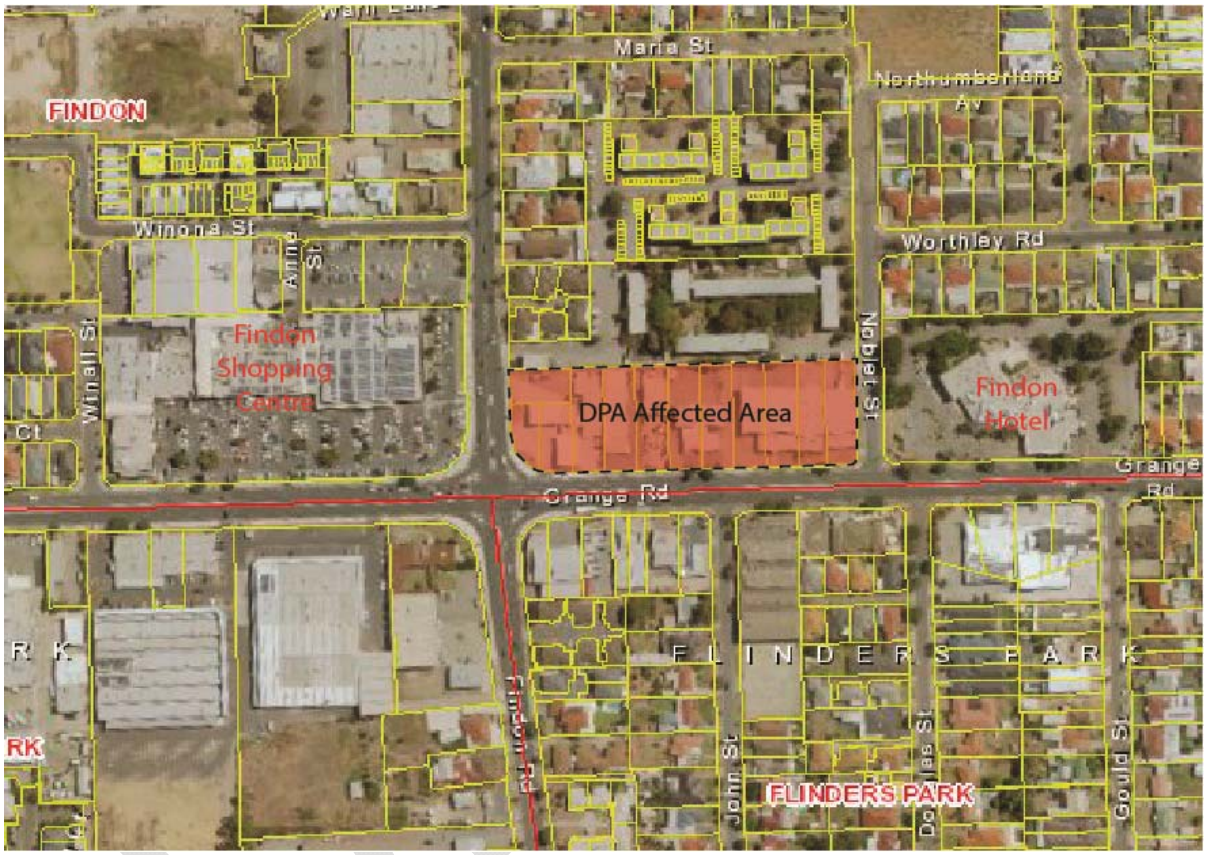
Statement of Intent

The Statement of Intent relating to this DPA was agreed to by the Minister on 5 February 2018. The issues and investigations agreed to in the Statement of Intent have been undertaken or addressed.

Affected area

The Affected Area by the proposed DPA is documented within the diagram below (as identified in the Statement of Intent):



Summary of proposed policy changes

The DPA proposes the following changes:

- Rezone the Affected Area from the current Mixed Use Zone to the Neighbourhood Centre Zone
- Creation of a new Precinct 84 Findon Centre East for the Affected Area within Policy Area 10 and include policies covering:
  - the intended use for supermarket, bulky good and residential uses
  - active facades and avoidance of blank walls to the Grange Road and Findon Road frontages
  - management of the interface with residential properties to the rear.
- Updating of Concept Plan Map ChSt/7 to include the Affected Area and provide guidance on preferred vehicle access movements, pedestrian connections and landscape buffers.
- Applying the Noise and Air Emissions Overlay to the Affected Area (introduction of map).
- Subsequent amendments to mapping to reflect the above zone and precinct changes.

Legal requirements

Prior to the preparation of this DPA, council received advice from a person or persons holding prescribed qualifications pursuant to section 25(4) of the *Development Act 1993*.

The DPA has assessed the extent to which the proposed amendment:

- accords with the Planning Strategy
- accords with the Statement of Intent
- accords with other parts of council's Development Plan
- complements the policies in Development Plans for adjoining areas
- accords with relevant infrastructure planning
- satisfies the requirements prescribed by the *Development Regulations 2008*.

Consultation

This DPA is now released for formal agency and public consultation. The following government agencies and organisations are to be formally consulted:

- Department of Planning, Transport and Infrastructure - Planning and Transport Services
- Department of Planning, Transport and Infrastructure – Public Transport Division
- Department of Environment and Water
- Department of Trade, Tourism and Investment
- Environment Protection Authority
- Department for Communities and Social Inclusion (Housing SA)
- Department of Justice – State Emergency Services
- Department of Justice – SA MFS
- SA Power Networks
- Electranet Ply Ltd
- SA Water
- Epic Energy
- APA Group

The following members of Parliament will be consulted:

- Member for Cheltenham – Hon Jay Weatherill
- Member for West Torrens – Hon Tom Koutsantonis
- Member for Colton – Hon Matt Cowdrey OAM
- Federal Member for Adelaide – Kate Ellis MP
- Federal Member for Hindmarsh – Steve Georganas MP

The following adjoining Councils:

- City of Port Adelaide Enfield
- City of West Torrens
- City of Adelaide
- City of Prospect

All written and verbal, agency and public submissions made during the consultation phase will be recorded, considered, summarised and responses provided. Subsequent changes to the DPA may occur as a result of this consultation process.

Important Note for Agencies: This DPA includes modules from the State Planning Policy Library. As the policy library was subject to agency consultation during its development, agencies are requested to comment only on the range and application of the modules selected and not on the actual policy content, except where that policy has been included as a local addition. Agencies are invited to comment on any additional issues (if relevant).

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The final stage

When the council has considered the comments received and made any appropriate changes, a report on this (the *Summary of consultations and proposed amendments* report) will be sent to the Minister. The Minister will then either approve (with or without changes) or refuse the DPA.

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Analysis

1. Background

Council was formally approached by Ekistics on behalf of ALDI to consider a privately funded DPA process over land located at 263A – 275 Grange Road, Findon via Council's Privately Funded DPA Policy. The intent of the DPA will be to facilitate retail development in the form of an ALDI store (eastern portion of the subject site). A standard ALDI store gross leasable area is approximately 1600m2 – 1700m2, with a retail floor area of approximately 1100m2 and an area of approximately 500m2 for allied facilities such as storage areas and offices. An ALDI store generally requires a total site area of approximately 5000m2 to accommodate carpark requirements and commercial on-site vehicle manoeuvring.

Currently, the Mixed-Use Zone contains policy which limits certain types of developments along main road corridors. As an example, there are non-complying forms of development listed in the Zone which would generally be considered suitable along an arterial road. These uses include shops or group of shops (including any expansion or addition) where the floor area is 250m2 or greater.

The Affected Area in total is approximately 11,380m2. The proponent indicated to Council that the balance of the land could potentially be considered for a bulky goods outlet at ground floor and residential living above (aside from the extent of the existing petrol station which is not controlled by the proponent).

The focus of this DPA is to review the existing Mixed-Use Zone over land identified as the Affected Area on Grange Road, Findon with a view to facilitate a supermarket and broader retail development (including bulky goods) consistent with other arterial roads in the Western region of Adelaide and address the direction of the 30-Year Plan for Greater Adelaide.

On 23 October 2017, Council resolved that the request from the proponent is consistent with council's Privately Funded DPA Policy and endorsed a Statement of Intent (SOI) to seek agreement from the Minister for Planning to investigate and prepare the Grange Road, Findon DPA as a privately funded DPA. The SOI was agreed by the Minister for Planning on 5 February 2018.

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2. The strategic context and policy directions

2.1 Consistency with South Australia's Strategic Plan

South Australia's Strategic Plan outlines a medium to long-term vision for the whole of South Australia. It has two important, complementary roles. Firstly, it provides a framework for the activities of the South Australian Government, business and the entire South Australian community. Secondly, it is a means for tracking progress state-wide, with the targets acting as points of reference that can be assessed periodically.

The DPA supports the following targets of South Australia's Strategic Plan:

South Australia's Strategic Plan (2011)	
Strategic Plan Objective/Targets	**Comment/Response**
Community: Target 7 – 10. Provide a diverse range of housing that is affordable and caters to special needs	The DPA seeks more flexible policies within this site primarily to accommodate retail of a more significant scale, however the amended zoning will continue to accommodate diverse higher density housing types.
Prosperity: Target 35: Economic Growth – exceed the national economic growth rate to 2020	The DPA aims to provide increased floor area and flexibility for commercial retail development within the Affected Area. These should cater for a growth in employment options in this location and a general increase in economic activity.
Target 38: Business investment - Exceed Australia's ratio of business investment as a percentage of the economy by 2014 and maintain thereafter	The DPA will provide greater opportunity for significant business investment in the form of a large scale commercial retail development on the Affected Area.
Target 47: Jobs - Increase employment by 2% each year from 2010 to 2016 Target 49: Unemployment - Maintain equal or lower than the Australian average through to 2020	The DPA will provide flexible policy which will allow greater commercial opportunity on this site, potentially resulting in the establishment of a large-scale business with subsequent increased employment opportunities.
Environment: Target 63: Use of public transport - Increase the use of public transport to 10% of metropolitan weekday passenger vehicle kilometres travelled	The Affected Area and its locality is well serviced by bus routes. By providing for greater development opportunity at this site the DPA may increase usage of these local bus services.
Target 68: Urban development - By 2036, 70% of all new housing in metropolitan Adelaide will be being built in established areas	The DPA will maintain existing policy conditions which allow for higher density housing development in this established inner-metropolitan location.

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2.2 Consistency with the Planning Strategy

The Planning Strategy presents current State Government planning policy for development in South Australia. In particular, it seeks to guide and coordinate State Government activity in the construction and provision of services and infrastructure that influence the development of South Australia. It also indicates directions for future development to the community, the private sector and local government.
The 30 Year Plan for Greater Adelaide is the relevant volume of the Planning Strategy applicable to this DPA.

Targets and policies of the Planning Strategy, the 30 Year Plan for Greater Adelaide (30YPGA) which the DPA supports are identified below.

2.2.1 Targets

30YPGA Target	How the target will be implemented:
85% of all new housing in metropolitan Adelaide will be built in established urban areas by 2045	The DPA will assist to meet this target by maintaining opportunities for mixed use development with residential uses above or behind commercial development.
Increase the percentage of residents living in walkable neighbourhoods in Inner, Middle and Outer Metropolitan Adelaide by 25% by 2045	The DPA will provide an opportunity for retail development in close proximity to existing residential areas which will assist to create a walkable neighbourhood in Findon. The DPA will also maintain opportunities for additional residential development in close proximity to services.
Increase housing choice by 25% to meet changing household needs in Greater Adelaide by 2045	The DPA will assist to provide greater housing diversity by maintaining opportunities for mixed use development such as retail, offices and residential.
Increase the share of work trips made by active transport modes by residents of Inner; Middle and Outer Adelaide by 30%	The DPA will assist to provide greater retail employment opportunities near existing residential development, thereby providing opportunities for active transport to work for residents of inner/middle Adelaide. The Affected Area will support reduced reliance on private vehicles through inclusion as a designated area, further reducing required parking ratios and encouraging public and active transport modes.

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2.2.2 Policies

The 30 Year Plan for Greater Adelaide	
Plan Actions/Policies	**How the action/policy will be implemented**
Transit Corridors, growth areas and activity centres	
P1. Deliver a more compact urban form by locating the majority of Greater Adelaide's urban growth within existing built-up areas by increasing density at strategic locations close to public transport. P5. Encourage medium rise development along key transport corridors, within activity centres and in urban renewal areas that support public transport use A4. Rezone strategic sites to unlock infill growth opportunities that directly support public transport infrastructure investment	The DPA seeks to introduce a centre type zone to the strategically located Affected Area, which is within an existing built-up area and in proximity to public transport services. The envisaged centre type zoning will continue to support mixed use development and facilitate an intensification of density and more compact urban form within the Affected Area. The DPA will continue to support a flexible development framework for the Affected Area and accommodate infill growth opportunities attracting a greater number of people to the area that would support increasing use of the local public transport network.
Design Quality	
P29. Encourage development that positively contributes to the public realm by ensuring compatibility with its surrounding context and provides active interfaces with streets and public open spaces.	By encouraging a wider range of development including retail, the DPA will encourage greater activation of the streetscape. The DPA will consider whether stronger policy support is required to support active public realm in this location.
A16. Ensure that the local area planning process adequately addresses interface issues in the local context and identify appropriate locations for: ▪ Medium and high-rise buildings ▪ Sensitive infill in areas of protection and areas of heritage value ▪ Where there should be minimum and maximum height limits	The DPA will consider the specific local context of the Affected Area and the related interface implications. The policy outcome will include provisions which seek to address the siting and height, and general interface issues between new and existing development, noting that policy exists for neighbouring locations. The DPA examines the appropriateness of these policies and considers whether additional or alternative responses are appropriate.
Health, wellbeing and inclusion	
P47. Plan future suburbs and regenerate and renew existing ones to be healthy neighbourhoods that include: ▪ diverse housing options that support affordability ▪ access to local shops, community services and facilities ▪ access to fresh food and a range of food services ▪ safe cycling and pedestrian friendly streets that are tree-lined for comfort and amenity ▪ diverse areas of quality public open space (including local parks, community gardens and playgrounds) ▪ sporting and recreation facilities ▪ walkable connections to public transport and community infrastructure.	The DPA will assist to regenerate and renew the Findon neighbourhood by encouraging additional shopping opportunities within walking distance of existing residential and commercial development, public transport and public open space. The policy changes proposed within the DPA seek to the support redevelopment of what is otherwise an underutilised portion of the Grange Road corridor.

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The 30 Year Plan for Greater Adelaide	
The Economy and Jobs	
P55. Promote certainty to undertake development while at the same time providing scope for innovation. P56. Ensure there are suitable land supplies for the retail, commercial and industrial sectors.	The DPA is in direct response to a limited policy regime for the site and therefore seeks to provide greater flexibility and certainty in facilitating future investment. The DPA also considered existing investment within the existing Findon Centre through the assessment of economic impacts, in order to ensure future viability is maintained for those who have already invested in this location.
Transport	
P74. Ensure development does not adversely impact the transport function of freight and/or major traffic routes and maintains access to markets.	The DPA will not result in development that will adversely impact the transport function of freight and/or major traffic routes. Specific investigations have been undertaken to assess the likely impacts on the adjacent road network with recommendations where improvements and limitations to access and movements are required to manage impacts on traffic flows and road and intersection functions.
P75. Increase the number of neighbourhoods, main streets and activity centres where place is given greater priority than vehicle movement by adopting a 'link and place' approach.	The DPA will facilitate a better integrated development in the Affected Area that is linked to the existing Activity Centre. This will include reducing pedestrian conflicts between pedestrians and vehicles, improving pedestrian amenity as well as activating facades to street frontages.
Water	
P115. Incorporate water-sensitive urban design in new developments to manage water quality, water quantity and water use efficiency and to support public stormwater systems.	The DPA will encourage the incorporation of water sensitive urban design principles for new developments within the Affected Area. The DPA examines how existing policy controls address this issue to determine whether site/zone specific responses are necessary.
Emergency Management and Hazard Avoidance	
P121. Ensure risk posed by known or potential contamination of sites is adequately managed to enable appropriate development and safe use of land.	The DPA investigations have examined the existing contamination of the land within the Affected Area and its appropriateness for intended use, including sensitive uses. This is notwithstanding that sensitive uses are already envisaged within the existing zoning policies in place.

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2.3 Consistency with other key strategic policy documents

This DPA accords with other key policy documents, as follows:

2.3.1 Council's Strategic Directions Report

Council's Strategic Directions Report (SDR) (2014) outlines recommended planning policy actions and a five-year DPA implementation program which, importantly, included a 'Commercial and Mixed Use DPA' proposed to be undertaken in 2015/2016 and a 'Centres and Retail DPA' proposed to be undertaken in 2016/2017. These DPAs have not progressed due to the Ministerial Existing Activity Centre DPA which has since examined similar issues. Notwithstanding this, the proposed DPA investigations at Findon are directly relevant to the intent of the policy reviews intended by the above proposed Council DPAs.

This DPA is consistent with Council's SDR (as agreed by the Minister on April 2014) and helps deliver on the following aspects of this report:

- The SDR highlights the importance that the Council recognise the need to provide services and daily needs providers (e.g. food shopping retail) and employment opportunities within close proximity to people's homes, so as to reduce dependency on cars (p.74). The anticipated policy changes will allow for larger scale retail operations to be established on this site which will be in close proximity to the adjacent higher density residential areas.

- Additionally, the SDR recognises that there is a need to assess and understand the impacts of major development sites on local and higher order road networks/key intersections (p.77). This has been adopted in the DPA through the investigations of traffic impacts and the traffic survey investigations at the nearby Findon Road and Grange Road intersections.

- The SDR acknowledges that retail needs should be a key consideration in planning for TODs and growth nodes in transit corridors / around activity centres. This includes identifying potential impacts of infill and more flexible, mixed use outcomes on existing activity centres and retail employment areas (p.103). The anticipated policy changes will facilitate this outcome by facilitating greater development opportunities in this location, including the establishment of large scale retail outlets.

2.3.2 Infrastructure planning

Where relevant, a DPA must take into account relevant infrastructure planning (both physical and social infrastructure) as identified by Council (usually through the Strategic Directions Report), the Minister and/or other government agencies.

The following infrastructure planning is of relevance to this DPA:

Council Infrastructure Planning	Response/Comment
The SDR reinforces that rezoning through DPAs should not be decoupled from infrastructure planning, including road network constraints (p.103)	Analysis of existing Infrastructure services at the site has been undertaken as a part of the DPA. In addition, investigation on the adjacent road network implications has also been included. Council has no specific identified road infrastructure upgrades proposed in proximity of the Affected Area.
The SDR states the planning policy changes for secondary corridors such as Grange Road, should not be pursued until further investment into mass transit along these corridors is secured (p.104).	The DPA is principally intended to accommodate greater scale retail development at this site. Existing zoning allows for medium density development currently, and as such this is not considered policy change which is inconsistent with this SDR direction. No specific public transport planning is proposed for Grange Road.

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Government Agency Infrastructure Planning	Response/Comment
Integrated Transport and Land Use Plan	No transport network or mass transit upgrades presently proposed for Grange Road, although it is identified within the 30 Year Plan for Greater Adelaide as a High frequency bus corridor. Any specific road infrastructure upgrades required in response to the future development of the site will be sought as part of a deed between Council and / or DPTI and the proponent prior to the finalisation of a future proposed development application.

2.3.3 Current Ministerial and Council DPAs

This DPA has taken into account the following Ministerial and Council DPAs which are currently being processed:

Council DPAs	Response/Comment
Bowden Mixed Use (Residential and Commercial) DPA	This DPA is specific to an area north-east of the existing Bowden Precinct, and seeks to rezone the existing Urban Employment Zone to an Urban Core zone facilitating higher density residential and mixed-use development, as an extension to the Bowden Urban Renewal Precinct. This DPA is currently released for public and agency consultation until late September 2018. The recommendations arising from this DPA, being specific to this location and covering alternatives forms of development and land uses, are not likely to conflict or impact on the subject DPA.
Woodville Road and Environs Revitalisation DPA	This DPA seeks to transform Woodville Road into a vibrant and functional main street by proposing to review the policies of the District Centre Zone and its immediate surrounds to guide the development in the context of the Woodville Village Master Plan. This DPA is still under preparation and yet to be released for public and agency consultation. This DPA is specific to the Woodville Road location and will not be impacted, nor impact on the issues and policy coverage for the subject DPA, as they are seeking to amend different zones.
Heritage Places DPA	This DPA seeks to list an additional 44 local heritage places as heritage places as well as remove a number of contributory items listed within the Development Plan. The DPA has gone through consultation and has since been submitted to the Minister for approval on 24 April 2018. None of the heritage places proposed are situated in or within proximity of the Affected Area of the subject DPA and as such, the Heritage DPA will not impact on the proposals within the subject DPA.

Ministerial DPAs	Response/Comment
There are no Ministerial DPAs that impact directly or indirectly on the Affected Area or the Charles Sturt Development Plan.	

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2.3.4 Existing Ministerial Policy

This DPA does not propose any changes to existing Ministerial policy.

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3. Investigations

3.1 Investigations undertaken prior to the SOI

Preliminary investigations were undertaken by Ekistics acting on behalf of the proponent, ALDI Stores Pty Ltd. These investigations comprised of a Statement of Justification and a background information report. The statement of justification confirmed that ALDI is seeking to initiate a DPA to rezone the land at 263A-275 Grange Road, Findon to establish policy which will facilitate the construction of an ALDI Store on the land and potentially a bulky goods outlet and residential use. This is a part of their wider roll out of ALDI stores across South Australia.

The report indicated that the ALDI store will unlock potential for employment generating development and retail facilities and will also assist the Council in achieving certain targets of the 30YPGA and the Councils SDR. It is suggested that the proposed store will likely create approximately 25 full time equivalent positions as well and an additional 48 full time equivalent positions during the construction phase.

This site was chosen due to its strategic location in the inner western suburbs adjacent an arterial road corridor and residential neighbourhood. It is understood that prior to confirming this location as the preferred site an investigation of alternative sites was undertaken within the inner western suburbs. ALDI has specific requirements which precluded a number of the potential sites such as a minimum site area of 5000m^2, which would include area for adequate car parking, safe and efficient loading and servicing arrangements. Ekistics investigated sites on Sir Donald Bradman Drive, Henley Beach Road, and Grange Road using spatial mapping and site inspections. The allotments fronting these roads tended to be narrow in width and shallow in depth limiting their suitability. Furthermore, it is understood that many of the potential sites located within more supportive zones for this form of development such as centre zones, were tightly held by existing businesses. Sites outside of centre zones were constrained due to restrictive policies which would result in a retail outlet of this nature being non-complying.

The Statement of Justification also outlines how the proposed DPA aligns with the intention behind the recent ministerial DPA's including the Existing Activity Centres DPA, the Activity Centres and Shopping Growth DPA (did not proceed), the inner metropolitan Growth DPA, The Inner and Middle Metropolitan Corridor Design Review DPA, and the Inner and Middle Metropolitan Corridor Strategic Sites DPA.

The background information document provided by Ekistics gave greater detail around how the ALDI store, and wider redevelopment of the land, is intended to be undertaken and its operational aspects.

The ALDI store will likely comprise 5714m^2 of the 8344m^2 site. The remainder of the land will be utilised by complementary land uses such as retail in the form of a shop or bulky goods outlet. It is also noted in the Statement of Justification that the opportunity for residential use above could be explored. The ALDI store will have a net floor area of 1722m^2 of which the majority will be retail floor space and a smaller proportion will be utilised for 'back of house' functions and staff amenities. It is indicated that 94 car parks are intended to be provided with an additional 44 spaces for the associated development.

Retail activity at the store will generally be limited to the hours of 7:00AM to 9:00PM daily. Deliveries will be undertaken twice daily and will occur across a 24-hour period. Deliveries will be made by a 20-metre-long semi-trailer. There will also be a third delivery of bakery goods once daily by a small rigid vehicle. All deliveries will occur within the loading dock and will take approximately 30 minutes from entry to exit. The loading dock is intended to be located on the western side of the building. Waste will be stored within a compactor and screened bin enclosure within the loading dock area and will be emptied regularly.

This information provided by the proponent has been used to guide the investigations informing this DPA, particularly as they relate to traffic, retail impact analysis and assessment of interface issues.

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3.2 Investigations undertaken to inform this DPA

3.2.1 Retail Assessment

The key driver of the DPA is to facilitate the establishment of an additional supermarket and bulky goods facilities within the Affected Area. This will occur within close proximity to an established centre accommodating two supermarkets and speciality retailing. It is therefore important to understand the potential impacts of additional retail floorspace on the existing centres adjacent to and surrounding the Affected Area.

An economic impact assessment was undertaken by Jones Lang LaSalle (JLL) to determine what impacts, if any, the proposed additional retail floorspace would have on surrounding centres and retail development. A complete copy of the assessment is contained within Appendix A.

The assessment analysis and economic impact statement are derived from the key data on anticipated floor areas from the proponent, but otherwise independently considered separate to the analysis provided by the proponent (undertaken by Deep End). The assessment considered the retail trade area (comprising primary and secondary trade catchments), competition (based on retail floorspace and mix of those centres within the catchment), available spending (including considering trends in both population and spending growth within the main trade area), and makes determinations of the anticipated economic impact to turn-over for the surrounding centres.

The following key findings about the catchment area were derived from the analysis:

- The large distance from existing ALDI supermarkets suggests that the proposed supermarket will draw customers from a larger trade area than is typical of other small supermarkets.
- Due to the proximity of the Affected Area to the existing Findon shopping centre, the two locations will have a similar sized catchment and will likely ‘feed’ off one and other.
- It is expected that 80 percent of the anticipated trade for the store will be derived from within the identified retail trade area (primary and secondary trade catchments) shown below.
- It is anticipated that the addition of the ALDI supermarket will result in less leakage of supermarket spending within the retail trade area.
- Growth in supermarket spending in the retail trade area (primary and secondary trade catchments) over three years to 2021 is $18.8 million, increasing to $31.5 million by June 2023. This is in excess of the estimated turnover for an Aldi supermarket and supports an additional supermarket within the retail trade area.

The analysis identified a number of established shopping centres which are anticipated to be in competition with a supermarket and retail facilities within the Affected Area, with three key competitors being the Coles and Foodland at Findon Park Shopping Centre, Woolworths at Westside Findon (to the north), and Foodland at Fulham Gardens (to the south).

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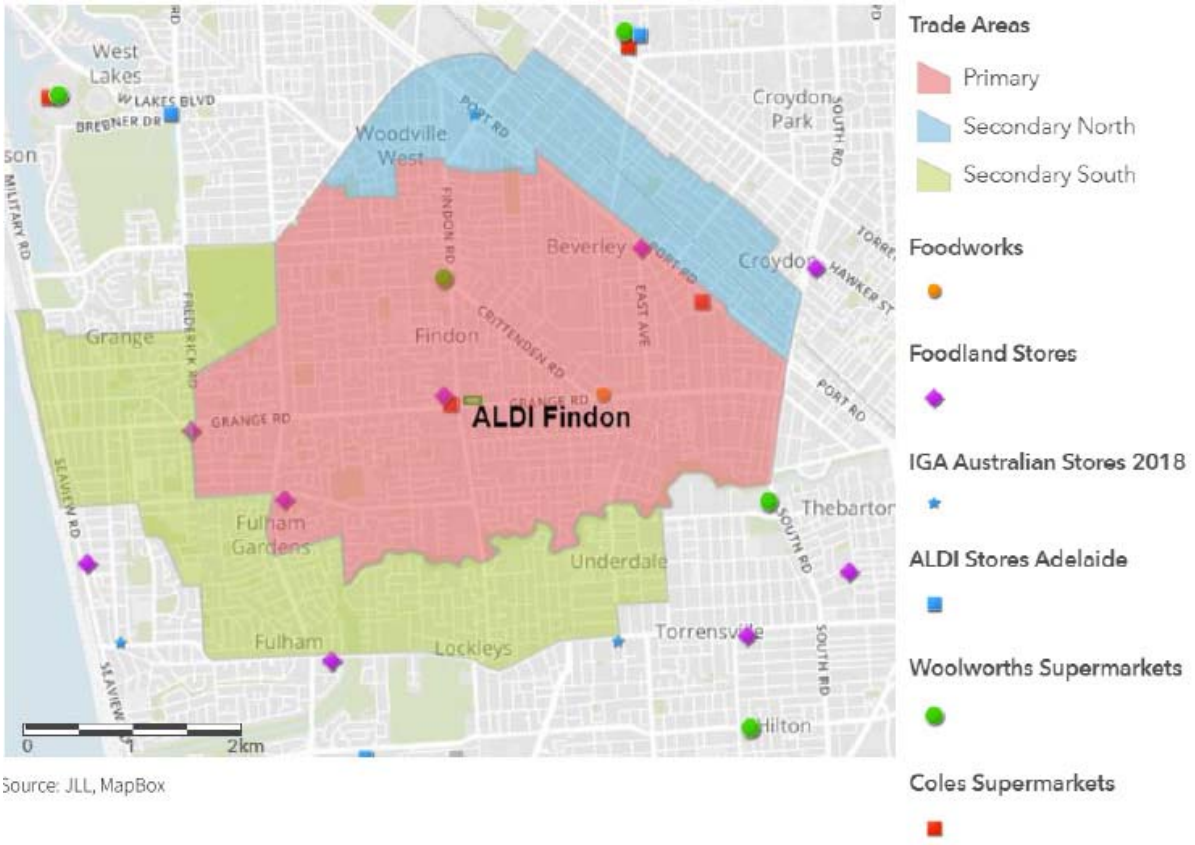

Figure 1: Main Trade Area and Existing Supermarkets

The analysis for the economic impact of retail turnover for the surrounding stores determined that no competing supermarket is expected to experience a loss of more than 5 per cent in turnover as a result of the establishment of the additional ALDI supermarket within the catchment. The largest impact is understandably to be felt at the adjacent Findon Shopping Centre, with a loss of turnover in the order of $2.84 million (5%). This is within an impact range considered acceptable for retail centres and will be recouped within a two-year period or less through spending growth, which is considered a short period of time

In addition, the analysis suggests, based on previous understanding of ALDI trade within Australia and South Australia, ALDI supermarkets derive the larger portion of their turnover from 'special buys', and not grocery items, and in doing so may not directly compete with the traditional supermarkets in the Findon Shopping Centre. This, and their proximity to each other, implies these uses could operate as a larger shopping precinct and in this manner the ALDI supermarket could attract new customers to the precinct who may also utilise the Findon Shopping Centre.

The analysis also examined the potential impacts of bulky goods retailing within the Affected Area. It determined that the bulky good retail space proposed within the Affected Area (only to accommodate the remainder of the Affected Area not required by the ALDI store (about 3,000m²) will account for a small proportion of the total demand for bulky good retail space within the retail trade area (consistent with that for the ALDI supermarket as identified in Figure 1 above) which can accommodate an additional 45,000m² of additional bulky goods floor space until 2021. There is limited existing bulky good retailers within the trade area and as such it is not anticipated that a bulky goods outlet of the nature described within the DPA supporting material will have a noticeable impact on existing retailers, primarily due to its small scale.

Implications for Policy Amendment

Given that the two adjacent locations would for intents and purposes function economically as a single centre, it seems appropriate that they have a consistent policy framework guiding their development. This

would support the rezoning of the Affected Area to a Centre Zone rather than amendments to the existing Mixed Use Zone.

This suggests extending the Neighbourhood Centre Zone to encapsulate the Affected Area, however requires further consideration of the role of the Affected Area within the Neighbourhood Centre Zone in the context of the Precincts established for this location.

3.2.2 Traffic Impact Assessment

A traffic impact assessment was undertaken by qualified traffic consultants at InfraPlan. This assessment analysed the traffic impacts of the site as it presently exists and as it would under the conditions proposed by the DPA, based on floor areas and other information provided by the proponent. The report assesses and investigates pedestrian access and safety, traffic implications, car parking, access arrangement, servicing, and waste storage and generation.

A copy of the Traffic Impact Assessment is contained within Appendix B.

The Affected Area is noted to have good accessibility via alternative transport methods via cycling and bus services. Grange Road is identified by DPTI's Bikedirect network as a main cycling route and is serviced by bike lanes in both directions. In order to keep the bike lanes clear during peak periods there is no parking on the northern alignment in the AM peak period, as is the case on the southern alignment in the PM peak period. There are a number of Go Zone bus stops on Grange Road in proximity to the Affected Area (less than 200 metres) that are serviced by high frequency bus routes. Bus routes in this location provide access to the CBD, West Lakes Activity Centre, Arndale Activity Centre, Adelaide Airport and the Coast.

The DPA could result in increased attraction of pedestrians to the Affected Area through the establishment of the additional retail uses. The Affected Area is currently serviced by a large number of vehicle crossovers, reflective of the many separate land uses operating across the site. A majority of the crossovers are located along the Grange Road frontage and have significant negative implications of pedestrian safety and increase the likelihood of vehicle conflicts on Grange Road as a result of entry and exit movements. Consolidation of these access points will aid in improving and better managing the pedestrian environment in this location.

Existing pedestrian accessibility conditions could also be improved through the provision of pedestrian refuges or other alternative crossing mechanisms on Grange Road and Findon Road. This should principally be focused at the Grange Road / Findon Road junction to encourage any movement between the existing centre, adjacent mixed-use precinct and the Affected Area by foot rather than vehicle. Other pedestrian refuges could also readily be accommodated within the existing median strips on these roads, provided they achieve relevant safety and standards.

InfraPlan modelled potential traffic issues for redevelopment of the site for any special retail tenancies based on information provided by the proponent. InfraPlan applied and assessed the scenarios provided by the proponent, in that the site will be developed for a large-scale retail use. While the InfraPlan study doesn't analyse the traffic implications for all the land uses which the DPA could facilitate on this site, it does focus on the land use which can be reasonably considered to have the most significant implications of all uses which could be predicted for the site. This therefore provides a good reference point for what this site is capable of tolerating.

The existing and potential traffic flows were modelled using the SIDRA Intersection tool in order to understand the impacts, if any, development of the Affected Area would have on the function of the Grange Road and Findon Road intersection. The model was built utilising DPTI's signal operation and turning detector data, in addition to a survey and on-site observations.

The model identifies that the intersection is already near capacity both in the AM and PM peaks, with key movements requiring additional capacity being the through movements to Grange Road heading west, the left turn movement from Grange Road (heading west and turning south), along with the right turn northbound from Findon Road into Grange Road. Notwithstanding these results, the model is considered to be conservative due to its limitations in modelling the variable phase timing, gap acceptance and unregulated wide lane approaches along Findon Road, along with the fact that these conditions did not match on-site observations made both during the survey and at other times.

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The development of the Affected Area would marginally increase flows and queue times at the intersection, however these are considered to be relatively marginal compared to the current operation of the intersection. The model has been reviewed by DPTI (including base data and assumptions) and InfraPlan's findings and determination of traffic impacts have been accepted as appropriate.

The assessment also considers the access conditions and requirements for any future development on the land. It is assumed that the future development of the Affected Area will consolidate all access points from Grange Road into a single vehicle access point, with a secondary access point retained from Noblet Street. The assessment considered the most appropriate location for the Grange Road access point and noted the existing right turn access point from Grange Road into the Affected Area does not comply with current Australian Standards as it is positioned directly opposite the John Street junction. Any future development of the Affected Area should rectify this situation, particularly as the anticipated traffic flows from future development are likely to be higher than the current uses.

Three options were identified in addressing the access requirements for development within the Affected Area. Of these, InfraPlan, following feedback from DPTI and Council staff recommends the following arrangement:

- left in, left out access only from Grange Road with right turn movements into and out of the Affected Area from Noblet Street only. Existing right turn lane conflicting with John Street will need to be removed.

The other options considered are not favourable to DPTI or Council as:

- they would maintain a potential conflict and queuing into Grange Road in this location which is not supported by DPTI
- they would unreasonably impact and limit access for existing commercial and residential development to the south.

InfraPlan notes that the ALDI development scenario would likely result in a large degree of waste, which could be reduced through appropriate servicing techniques and use of a compactor. Generally, it was noted that waste generation will largely depend on use, it will need to be assessed against the existing waste management policies and transportation and access policies at the development application stage. These existing policies are considered appropriate to address the issue of servicing for the site and no additional policy is required to address this issue within this DPA.

However, servicing of the development should ideally be separated from vehicle traffic. In the absence of any specific scheme prepared for the site, recent examples of ALDI developments within the Charles Sturt Council area would indicate that servicing of any future supermarket is likely to occur to the western side of the Affected Area. It would therefore be appropriate to allocate a left-in, left-out arrangement west of the John Street junction (where a concrete median exists in Grange Road).

An assessment of likely parking demand by InfraPlan indicates that, based on the proponent's development scenario, the Affected Area is of an adequate size and arrangement to realistically achieve the on-site parking provision in accordance with the requirements of ChSt/2 Off Street Vehicle Parking Requirements with Councils Development Plan. The assessment notes that should the Affected Area be rezoned to a centre zone, it would likely meet the criteria of a designated area and as such be subject to a reduced rate identified within Table ChSt/2A – Off Street Vehicle Parking Requirements for Designated Areas. Importantly, this would result in a consistent approach to parking to that of the adjacent Findon Shopping Centre.

Should the Affected Area remain within a Mixed Use Zone (or indeed any other non-centre zone), then the Development Plan would suggest a high parking ratio. InfraPlan has had regard to contemporary parking studies and in particular the Parking Spaces for Urban Places: Car Parking Study – Guidelines for greater Adelaide prepared in 2013 and commonly referenced to guide the assessment of parking demand for development. Within this guide, the Affected Area would require a parking ratio in the order of 5.25 spaces per 100 m² of retail floor space (after application of relevant active and public access transport discounts), potentially suggesting the accommodation of up to 138 parking spaces. Having regard to areas required to comply with Australian Standard, and those identified for the anticipated retail floorspace, it is considered that the Affected Area is capable of accommodating the required parking, even without the introduction of basement parking.

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Implications for Policy Amendment

The policy coverage of design issues associated with the location and design of access, parking and movement networks is contained within the Transportation and Access module within the General Section of the Development Plan. The policies within this section include coverage of the following issues of relevance to the Affected Area's future development:

- minimising access to an arterial road through consolidation of access points
- safety in the location of access points in accordance with Australian Standards
- the design of off-street car parking in accordance with Australian Standards
- the provision of adequate parking (referencing the ratios identified within Tables ChSt/2 and 2a)
- minimising pedestrian and vehicle conflicts
- providing suitable pedestrian and cycling connectivity and access
- provision of suitable servicing of development by accommodating larger vehicles.

However, there remain some site-specific aspects to the future development of the site that require additional guidance and support to the above policies. This is best achieved through recognition at zone / precinct level, but also through a Concept Plan Map. Concept Plan Map ChSt/7 already exists for the Findon Centre and can easily be adapted to include the Affected Area and in particular emphasise:

- the key pedestrian connections across the major roads which will link the Affected Area to the existing centre and other development within the Mixed Use Zone
- existing and preferred future vehicle access points onto Findon and Grange Roads, particularly the left in, left out only access from the Affected Area to Grange Road.

It is likely that works associated with the future development of the Affected Area will require alterations to the DPTI controlled roads and as such, will likely require a deed to facilitate the development of these alterations. These however can be suitably addressed as part of the development application process for any future development on the site.

3.3.3 Preliminary Environmental Site Investigation

A preliminary site investigation (PSI) was undertaken in order to determine if any previous activities undertaken on the Affected Area of the DPA had resulted in contamination. The PSI was undertaken by LBW and included a site history investigation in addition to a soil vapour assessment. A copy of the PSI is included within Appendix C.

The objective of the site history investigation was to identify any current or historical land uses and activities undertaken at the site which may have resulted in contamination and to provide an assessment of the risk this presents for the future uses, including sensitive uses such as residential development.

The soil vapour assessment was intended to assess whether site contamination of soil vapour is present and to what extent, whether the concentration of soil vapour indicates that ground water contamination may be present, and to advise on whether remediation or management is necessary to make the site suitable for the intended use.

This site history investigation identified five activities which have occurred (or continue to) within the Affected Area which are listed as potentially contaminating activities in the Environment Protection Regulations 2009. These are:

- motor vehicle repair or maintenance
- fill or soil importation
- pest management including application of herbicides/pesticides
- storage of listed substance (>500L) including an underground storage tank (which may still be located within the Affected Area)
- service station.

Soil vapour sampling was undertaken at four locations on the site having regard to the location and format of known previous uses. This sampling tested for concentrations of volatile hydrocarbons in the soil. None of the samples exhibited concentrations that would pose an unacceptable risk to future residential or commercial users via vapour intrusion into buildings. These findings suggest that a significant source of volatile hydrocarbons was unlikely to be present in soils or groundwater at the site.

The findings of these studies indicated that the potentially contaminating activities identified to have occurred on site posed a low risk and did not preclude future commercial and/or residential use of the land.

The LBW report acknowledged that their investigation was limited in some respects and noted that they were unable to gain access to the buildings present on the site, and as such, there is potential that features may be present which could have caused contamination. Although, the absence of hydrocarbon vapours indicates this is a low probability.

LBW also note that direct assessment of soil was not undertaken and as such the nature of site soils is not understood. If shallow soil contamination is present it can easily be assessed and managed during the redevelopment stages of future projects on the land to ensure the site condition is suitable for the intended use, as is common practice with construction environmental management.

Implications for Policy Amendment

The analysis confirms that potential future use of the Affected Area for sensitive uses, such as residential development can occur with reasonable management of contamination able to be mitigated during future construction activities. There is no need to limit sensitive land uses through a specific policy response at this location. Further consideration of site contamination during the assessment of future proposals can be suitably undertaken using the existing policy (Principle of Development Control 12) within the Hazards section of the General Section of the Development Plan.

3.3.3 Flooding and Stormwater Assessment

Kellogg Brown and Root Pty Ltd (KBR) has undertaken a preliminary infrastructure investigation to determine the capacity of existing stormwater systems and flood susceptibility of the subject land. A copy of the assessment report can be found within Appendix D.

Preliminary hydrological calculations were undertaken to determine whether or not onsite detention is likely to be required for future development of the site for a supermarket and bulky goods retail facilities. The extent of roof area and impervious parking areas have been determined based on the information provided by the proponent in the justification. Council prescribes that the pre-development flows for the 1 in 5-year event cannot be exceeded by the post-development flows for the 1 in 100-year event for any new development site.

The results of the calculations indicated that onsite detention of approximately 153m^3 is likely to be required to limit post development flows to 105L/s in accordance with Council's criteria. Assuming that the site drains to the south-western corner it is anticipated that this will be achieved via a new connection at this point from the 600 mm pipe in Grange Road. Additionally, a new connection from a 1.3 m deep junction box in front of 265 Grange Road may also be required.

Management of water quality is also required to ensure that runoff generated by the development is treated within the site in order to ensure that a specific percentage of certain chemicals and solids are filtered before being discharged from the site in accordance with the quantitative criteria set out by the Environmental Protection Authority (EPA). This should ideally be achieved through an approach that adopts Water Sensitive Urban Design (WSUD) measures for the Affected Area. It is calculated that 60m^2 of bioretention is required to achieve this but this could be reduced via the use of an oil and sediment trap.

The bioretention system in this scenario would also account for 15m^3 of the required 153m^3 overall detention. The remaining 138m^3 of detention could be achieved by the installation of concrete box culverts along the Grange Road frontage or other design solutions. There is scope for the bioretention system to contribute to the amenity and landscaping of the affected area along Grange Road, given this location is also likely to be the low point for any future development.

Council has prepared floodplain mapping for its Council area for the 1 in 100 Year ARI event.
A significant proportion of the affected area is subject to inundation from stormwater run-off from this rainfall event, particularly 265 to 269-271 Grange Road properties which lie within the middle of the Affected Area (as shown below). The extent of inundation ranges up to 300mm for small pockets within the Affected Area, but principally either 100-200mm or below 100mm in depth across the Affected portions of the site.

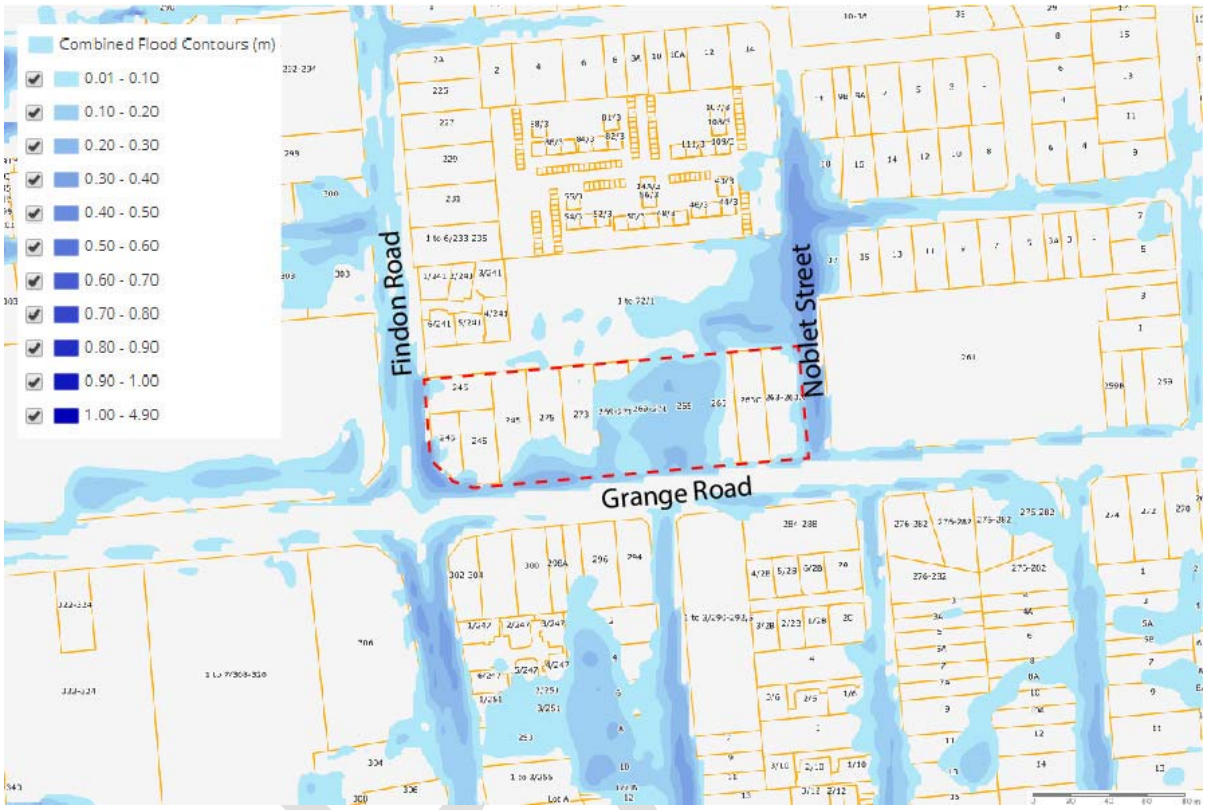

Figure 2: Extent of inundation across the Affected Area from the 1 in 100 Year ARI event. Source: City of Charles Sturt Floodplain Mapping (https://www.charlesturt.sa.gov.au/FloodplainMapping)

In order to address flooding if 100mm to 200mm across the site KBR has recommended that the finished floor level of buildings within the development be lifted 400 mm to 500 mm above existing site levels (subject to site survey confirmation) in order to be 200 mm clear of flood inundation levels. The inundation of car parking area for any future development is likely to be acceptable (and is no different to the current situation across the site and adjacent Findon Shopping Centre). Should any future proposal include basement parking, then there will be a need to ensure that the car park entry is similarly at 200mm above the inundation levels to prevent the flooding of the basement.

Implications for Policy Amendment

Established policy within the Natural Resource module of the General section of the Development Plan provide adequate policy guidance to steer future development of this land towards the achievement of the on-site detention and water quality requirements recommended by KBR. In particular PDCs 5 to 17 address the issue of water retention, detention, re-use and water quality such that it is not considered necessary for additional policy to be included to this effect.

The management of floodwaters and ensuring that future development responds to the inundation of the site by floodwaters through appropriate levels and design techniques (for basement car parks for example) can be suitably addressed through the policies contained within the Hazards module of the General section of the Development Plan. Principles of Development Control 5 and 6 in particular provide sufficient policy support for the assessment of future development on the land addressing this issue.

3.3.3 Utilities and Infrastructure Assessment

An assessment of the existing infrastructure capacities, along with anticipated future demand on infrastructure from the development of the Affected Area for a supermarket and bulky goods retail facilities has been undertaken by KBR and can be found within Appendix D. The assessment included engagement with the relevant utility and confirms the following:

Potable Water:
- The site abuts four water mains on Grange Road and one on Noblet Street.
- Connections for the development would be established from a 150mm or 375mm main on Grange Road, depending on demand.

Sewer:
- A 225 mm main is present on Grange Road and a 150 mm main on Noblet Street.
- The sizing of the main on Grange Road should be sufficient to service the development but will require confirmation at the time of the proposed development.

Electricity:
- No particular network constraints would impact on the development of the land.

Gas:
- A 200 mm low pressure main is present on the south side of Grange Road. It is anticipated that this main will be sufficient to supply connections to the development, but trenching will be required across Grange Road (DPTI maintained).

Communications:
- A NBN Co. service is present on the north side of Grange Road. NBN Co. will likely be able to service the proposed development from this infrastructure.

Implications for Policy Amendment

There appears to be capacity in the existing infrastructure in place and all required infrastructure is available for the forms of development envisaged for the Affected Area. No expected augmentation or upgrades are anticipated, although this would be able to be confirmed upon specific understanding of demands with a development proposal and can be negotiated with the proponent at this point in time. No specific policy response is required to address this matter (suitably covered by Infrastructure module in General Section) and no infrastructure agreements of this nature are required prior to the completion of this DPA.

3.3.3 Residential Interface Assessment

The key interface for the Affected Area is along its northern boundary which abuts the Residential Zone, Mid Suburban Policy Area 16. The Affected Area is bounded at all other interfaces by roads, Noblet Street to the east, Grange Road to the south, and Findon Road to the west all of which accommodate a range of commercial and retail land uses. The adjoining allotment to the north contains a medium to high density residential development comprising of three-storey residential flat buildings and associated common property and parking areas.

The closest building is sited some 8 metres from the common boundary with a number of windows with a southern outlook across the Affected Area. Some landscaping is present along this shared boundary and is located entirely on the residential side of the boundary (although there is no vegetation along the eastern portion of the interface where parking for the residential facility exists). Its quality and consistency vary along the length of the common boundary, however its value as a buffer is questionable. Existing fencing is in the form of metal fence approximately 1.8 metres in height along the length of the common boundary.

The key nuisances likely to be generated from the Affected Area under the outlined development scenario by the proponent will be noise, odour, and visual impacts. It is anticipated that these nuisances will be generated by activities on the subject site such as truck and heavy vehicle movements associated with

servicing the development; waste collection, storage and potentially compaction; rooftop plant, and potentially fencing and the building itself (particularly if it incorporated advertisements in its colours scheme). A discussion of the management of each of these impacts is detailed further below.

Management of Potential Noise Impacts

It is anticipated that noise will likely be the most prevalent nuisance generated from the subject site likely to compromise the amenity of nearby and adjacent residents. Deliveries and servicing is often regarded as one of the main contributors to noise from supermarket developments, principally due to the hours in which these activities occur.

The hours of operation for the retail activities on the land will be from 7:00 am and 9:00 pm daily, however it is understood that deliveries will be undertaken on a 24-hour basis. There will be two deliveries every 24 hours by a 20-metre truck and one delivery of bakery goods by a small rigid vehicle. It is understood that the trucks used utilise low swept exhaust vehicles, with the exhaust discharge at wheel level.

It is understood that the proponent intends to have delivery vehicles enter and exit from Grange Road and that deliveries will be at a dedicated loading bay situated on the western side of the building. It is understood standard delivery practices involve delivery to the dock, with all loading undertaken internally within the building from this point.

The information provided indicates that recycling and rubbish will be stored within a compactor and screened bin enclosure located at the loading dock on the western side of the building, although it is unclear if this will be internal or external of the building. A commercial waste compactor will be utilised to increase storage capabilities which has the potential to contribute to noise levels in this location.

Notwithstanding this, noise impacts associated with the development scenario should also be considered in the context of the existing situation on the ground. It is noted that a number of the businesses presently operating at the site include service and loading areas at the rear directly adjacent the residential development. In this respect, while the frequency of service deliveries may increase it is not an uncommon feature for the locality and forms part of the established amenity.

It is considered that noise impacts will be considered more closely during the development assessment stage and will require the preparation of an acoustics assessment by a suitably qualified acoustic engineer.

How development on the site responds to the management of noise within acceptable standards will be largely dependent on the existing background noise in this location and the design of the development, however a more comprehensive approach is likely to be required given the height of the residential building adjacent the site (ie placement of an acoustic fence may not sufficiently address the relevant noise criteria).

The management of noise can be addressed through:

- the placement of the noise generating activities away from the residential interface
- the design the facilities likely to generate noise – such as within enclosures and acoustic baffles (at least where they face north), in addition to acoustic fencing
- acoustic screens to rooftop plant
- operational limitations, such as procedures for the loading and unloading of service vehicles, as well as on hours of deliveries and servicing of the development.

The Interface between land use module within the General Section contains a number of policies which provide the level of coverage required to adequately address these issues to ensure that any future development on the site achieves the Environment Protection (Noise) Policy 2007. It is not considered necessary to provide additional policies specific to this location which address noise mitigation, other than recognition of the interface of this location within the zone itself.

There is scope for the Affected Area to accommodate residential development either above or behind non-residential development. As such there is also a need to address noise impacts of both the surrounding activities and those activities on the same site. These activities would relate to adjacent commercial land uses, as well as traffic noise associated with both Grange Road and Findon Road.

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The interface between land uses policies within the general section of the Development Plan does provide some coverage of this, however, additional coverage is provided by Noise and Air Emissions Overlay, which also triggers the Minister's Specification SA 78B for building construction requirements.

The Department of Planning, Transport and Infrastructure (DPTI) suggests the application of the Noise and Air Emissions Overlay to those locations that can accommodate both mixed use development (comprising medium and high density residential development), or adjacent to freight routes and arterial roads with more than 25,000 vehicles per day.

The Affected Area is adjacent to Grange Road which contains over 50,000 vehicles per day (Type A road). It also has the potential to facilitate medium and high density residential development within it (either as stand-alone or part of mixed use development) and therefore has the characteristics appropriate for the application of the overlay.

Management of Potential Odour Impacts

Given the proximity to Grange Road and Findon Road and the existing service station, the level of amenity in this location is already compromised to a certain extent in relation to air quality. Potential odour impacts associated with future development scenarios will likely be the result of waste odour, and exhaust fumes associated with heavy vehicle movements. As described above waste will be stored at the vehicle loading area on the western side of the store, the precise location of which is unclear. It is indicated that this will be stored within a compactor, and screened enclosure, and regularly emptied. It is anticipated that waste can be effectively managed to control odour impacts to an appropriate degree. Further detail will be required in this respect but this can be addressed at the development assessment stage.

The Interface between land use module within the General Section contains a number of policies which provide the level of coverage required to adequately address these issues to ensure that any future development on the site achieves the Environment Protection (Air Quality) Policy 2016. It is not considered necessary to provide additional policies specific to this location which address management of air quality.

Similar to noise impacts above, sensitive uses being established within the Affected Area (such as residential development) should be appropriately designed to manage air quality impacts arising from surrounding non-residential uses and the adjacent arterial roads (Grange Road and Findon Road). The application of the Noise and Air Emissions Overlay also has merit for air quality purposes.

Management of Potential Visual Impacts

The visual impacts of development within the Affected Area have the potential to decrease the amenity of the adjacent residential property to the north, principally through:

- buildings being positioned closer to the common boundary than existing development
- buildings being taller and significant larger and bulkier than those established on the land (particularly if they are required to be established up to 500mm above the current ground levels to avoid flooding)
- views into servicing and storage areas of the site activities
- views to plant either on the roof or to the rear of buildings.

Typically, the majority of views at the residential interface to development within the Affected Area can be managed through a tall acoustic fence. However, for this location, this will not adequately address the views from the dwellings on the upper levels of the adjacent building, and as such requires a considered design response on the site.

The existing Neighbourhood Centre Zone provides for buildings of up to 12 metres in height, allowing for potentially 3 or four storey buildings. While it is unlikely that is what will be established in this location, there is scope for at least a portion of the Affected Area to accommodate a taller building form. Given the presence of three storey buildings on the residential land to the north, the heights identified within the Findon Road Policy Area 10 are considered appropriate for the Affected Area.

The management of the interface of the built form of development within the Affected Area is important to prevent overbearing structures close to the boundary (shadowing itself is not of concern given that the Affected Area is to the south of the Residential Zone). Interface between land uses PDC 7 (b) provides guidance for establishing a building envelope at the boundary that seeks to maintain a 45 degree angle

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measured 3 metres above the ground level. The intent of this is to ensure taller building forms are either staggered back from the boundary, or positioned further from the boundary to avoid having an overbearing appearance. This is a useful and appropriate policy to apply for the Affected Area and as such additional policies addressing this aspect of development are not considered necessary at the zone / policy area level.

Further to this, there will be a benefit to the appearance of the site both from the Residential Zone, views from Noblet Street and vistas between buildings from Grange Road if a landscaped buffer is established along the northern boundary of the Affected Area, at the zone interface. This would require appropriate representation within the policies covering the Affected Area, and potentially also within a concept plan.

There is sufficient coverage of policies within the General section of the Development Plan to address:

- location and management of external storage areas and loading areas
- integration of rooftop plant into the architectural language of the building and from views from surrounding areas (although likely to be addressed by acoustic requirements in any event).

Implications for Policy Amendment

The Interface between land uses policies adequately cater for the majority of the noise and air quality issues, as well as the building envelope for any development on the Affected Area and its interface with the adjacent Residential Zone. However, there is value in the following additional policy amendments:

- introduction of the Noise and Air Emissions Overlay for the Affected Area
- introduction of a landscape buffer along the northern boundary of the Affected Area for the planting of a dense row of trees which will assist in screening and softening the appearance of buildings when viewed from the north, which most likely requires coverage in the policy area / precinct and within a Concept Plan.

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4. Recommended Policy Changes

4.1 Review of Zone Options

In determining the preferred policy changes for the Affected Area, a number of zones within the current Development Plan and the South Australian Planning Policy Library (SAPPL) have been considered. This includes the following:

- Mixed Use Zone (existing in Development Plan);
- Local Centre Zone (from SAPPL);
- Urban Corridor Zone (SAPPL);
- Neighbourhood Centre Zone (existing in Development Plan).

Mixed Use Zone (Existing Zone)

As previously discussed the present Mixed Use Zone is focused towards smaller scale retail options and present controls would mean a retail outlet with a gross leasable floor area greater than 250m^2 is a non-complying form of development. In order to accommodate the ALDI development scenario, it would be necessary to introduce a new policy layer (policy area or precinct) for the Affected Area which provides for larger scale retail uses, such as a supermarket, and to amend the non-complying table to provide an exception to the non-complying listing for retail greater than 250m^2 within the proposed precinct. While this option is a reasonable solution, it is considered that the policy intent of the Affected Area would not align well with the overarching objectives of the Mixed Use Zone which specifically seek 'small-scale shop land uses'. Therefore, this option was not considered the most appropriate policy outcome given the principle focus for the Affected Area is most likely a retail only development.

It is noted that the Mixed Use Zone is generally sited along road corridors with residential behind and therefore appropriately responds to residential amenity issues. There are a number of specific statements within the desired character statement of the Mixed Use Zone which appropriately address interface buffering and adjacent residential amenity and coverage of these issues will also need to be addressed within the Affected Area.

Local Centre Zone

The Local Centre Zone was identified as unsuitable for the subject site. Policies of the Local Centre Zone are tailored towards small-scale convenience shopping and corner stores as opposed to large scale supermarket outlets. Specific policies seek that retail uses are below 250m^2 in gross retail floor area and limited activities that are of a high traffic generating nature. Whilst the ALDI development scenario would not be non-complying within the Local Centre Zone it is considered that it would prejudice the intention of the policies applying to the zone.

Furthermore, the creation of a Local Centre Zone directly adjacent a Neighbourhood Centre Zone would be an illogical policy outcome and would create an inconsistency in scale with the adjacent Neighbourhood Centre Zone.

Urban Corridor Zone

As the site is located on the alignment of two major traffic corridors, Findon Road and Grange Road, the adoption of Urban Corridor zoning is one potential option. If adopted this would be the first introduction of Urban Corridor Zone within the Charles Sturt Development Plan. The policies of the Urban Corridor Zone would not preclude the development of the ALDI store as outlined.

The policies of the Urban Corridor Zone are generally orientated towards medium to high density residential development with supporting commercial or retail options, with the focus being on the residential component. The ALDI development scenario does discuss the potential inclusion of residential development, but the majority of the site is intended to be utilised for retail only use.

Additionally, as identified in the retail assessment, it is desirable for the ALDI site and the Findon Shopping Centre to operate as one retail precinct so as to facilitate cross-customer linkage between the established

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and proposed sites. The introduction of Urban Corridor zoning to the subject site would not facilitate this as it would limit the opportunity for coordination of policy between the two sites due to their different zoning.

Neighbourhood Centre Zone

The policies of the Neighbourhood Centre Zone are conducive to the ALDI development scenario and supporting uses. The proximity of the Affected Area to the existing Findon centre means it can be easily accommodated within the existing Findon Centre and would not require the establishment of a new centre.

The specific policies of the Findon Policy Area 10 align with the intended development, and, as previously discussed, contemplate the expansion of the policy area in order to increased range of supermarket choice. They also speak to the management of noisy or night time activities especially where they adjoin residential areas and indicate that where these activities do occur they need to be appropriately managed to protect residential amenity. Should the Affected Area be applied to a Neighbourhood Centre Zone, recognition of the need to integrate the entire centre across Findon Road would be required.

The Findon Policy Area 10 is broken down into two precincts, Precinct 54 Winona Street, and Precinct 53 Retail Core Findon. It remains suitable to maintain the principal Findon Shopping Centre site as the retail core for the policy area and zone in this location, reflective of its scale and range of retail facilities at this location. There is a need to differentiate the Affected Area, but also recognise the desire to establish a supermarket, specialty retail and bulky goods facilities, along with potential residential development.

4.2 Recommended Zone and Policy Changes

The recommended policy outcome which best facilitates the intended development scenario within the Affected Area is the expansion of the Neighbourhood Centre Zone. The zone currently terminates at Findon Road and should be expanded along Grange Road to include the Affected Area. This should also apply to the Findon Policy Area 10.

Following is a list of the recommended policy changes within the Findon Policy Area 10 based on the investigations of this DPA:

- Creation of a new Precinct 84 Findon Centre East for the Affected Area within Policy Area 10 and include policies covering:
  - the intended use for supermarket, bulky good and residential uses
  - active facades and avoidance of blank walls to the Grange Road and Findon Road frontages
  - management of the interface with residential properties to the rear.
- Updating of Concept Plan Map ChSt/7 to include the Affected Area and provide guidance on preferred vehicle access movements, pedestrian connections, landscape buffers.
- Applying the Noise and Air Emissions Overlay to the Affected Area (introduction of map).
- Subsequent amendments to mapping to reflect the above zone and precinct changes.

A comprehensive summary, including a summary of the conclusions drawn from the investigations, is contained in the **Appendices**.

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6. Statement of statutory compliance

Section 25 of the *Development Act 1993* prescribes that the DPA must assess the extent to which the proposed amendment:

- accords with the Planning Strategy
- accords with the Statement of Intent
- accords with other parts of council's Development Plan
- complements the policies in Development Plans for adjoining areas
- accords with relevant infrastructure planning
- satisfies the requirements prescribed by the Development Regulations 2008.

6.1 Accords with the Planning Strategy

Relevant strategies from the Planning Strategy are summarised in the Appendices of this document. This DPA is consistent with the direction of the Planning Strategy.

6.2 Accords with the Statement of Intent

The DPA has been prepared in accordance with the Statement of Intent agreed to on 5 February 2018. In particular, the proposed investigations outlined in the Statement of Intent have been have been addressed in section 3.2 of this document.

6.3 Accords with other parts of the Development Plan

The policies proposed in this DPA are consistent with the format, content and structure of the Charles Sturt Council Development Plan.

6.4 Complements the policies in the Development Plans for adjoining areas

The DPA is focussed within a specific location central to the Charles Sturt Council area with no direct affect on a neighbouring Council area or Development Plan. The proposed policy changes are directed at the zone level and relate specifically to guiding development at this location as part of the broader Neighbourhood Centre at Findon. No specific changes to the General section modules are anticipated in the DPA.

Accordingly, the policies proposed in this DPA will not affect and will complement the policies of Development Plans for adjoining areas.

6.5 Accords with relevant infrastructure planning

This DPA complements current infrastructure planning for the Council area, as discussed in section 2.3.2 of this document.

6.6 Satisfies the requirements prescribed by the Regulations

The requirements for public consultation (Regulation 11) and the public meeting (Regulation 12) associated with this DPA will be met.

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- City of Charles Sturt, 2014 Strategic Directions Report
- Department for Planning, Transport and Infrastructure, 2017, Planning Strategy: 30 Year Plan for Greater Adelaide Volume – 2017 update
- Department for Planning, Transport and Infrastructure, 2016, Technical Information Sheet 8 – Noise and Air Emissions Overlay
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- Jones Lang LaSalle, 2018, Economic Impact Assessment
- KBR, 20 June 2018, Grange Road Findon Development Plan Amendment – Flooding, Stormwater and Infrastructure Assessment
- LBW co, 2018, Preliminary Site Investigation 263A – 275 Grange Road, Findon SA

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Schedule 4a Certificate

CERTIFICATION BY COUNCIL'S CHIEF EXECUTIVE OFFICER

DEVELOPMENT REGULATIONS 2008

SCHEDULE 4A

Development Act 1993 – Section 25 (10) – Certificate - Public Consultation

CERTIFICATE OF CHIEF EXECUTIVE OFFICER THAT A DEVELOPMENT PLAN AMENDMENT (DPA) IS SUITABLE FOR THE PURPOSES OF PUBLIC CONSULTATION

I Paul Sutton, as Chief Executive Officer of the City of Charles Sturt, certify that the Statement of Investigations, accompanying this DPA, sets out the extent to which the proposed amendment or amendments-

(a) accord with the Statement of Intent (as agreed between the City of Charles Sturt and the Minister under section 25(1) of the Act) and, in particular, all of the items set out in Regulation 9 of the *Development Regulations 2008*; and

(b) accord with the Planning Strategy, on the basis that each relevant provision of the Planning Strategy that related to the amendment or amendment has been specifically identified and addressed, including by an assessment of the impacts of each policy reflected in the amendment or amendments against the Planning Strategy, and on the basis that any policy which does not fully or in part accord with the Planning Strategy has been specifically identified and an explanation setting out the reason or reasons for the departure from the Planning Strategy has been included in the Statement of Investigation; and

(c) accord with the other parts of the Development Plan (being those parts not affected by the amendment or amendments); and

(d) complement the policies in the Development Plans for adjoining areas; and

(e) satisfy the other matters (if any) prescribed under section 25(10)(e) of the *Development Act 1993*.

The following person or persons have provided advice to the council for the purposes of section 25(4) of the Act:

David Barone MPIA
Jim Gronthos

DATED this ..... 25 ..... day of ..... September. 2018

.....
Chief Executive Officer

Appendices

Appendix A – Economic Impact Assessment, Jones Lang LaSalle

Appendix B – Traffic Impact Assessment, InfraPlan

Appendix C – Preliminary Site Investigation, LBWco

Appendix D – Flooding, Stormwater and Infrastructure Analysis, KBR

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Appendix A – Economic Impact Assessment
Jones Lang LaSalle

DRAFT

Proposed Retail Development
263A-275 Grange Road, Findon

Prepared for City of Charles Sturt

May 2018

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Executive Summary

This Economic Impact Assessment on the proposed retail development at 263A-275 Grange Road, Findon has separately assessment the impact of the proposed ALDI supermarket and proposed bulky goods tenancy(s).

We have concluded that the impact of the proposed ALDI supermarket is not considered to be significant:

- No supermarket or centre expected to experience a loss of more than 5%. An impact of less than 5% is not considered to be significant;
- Supermarket turnover at each supermarket / centre is expected to be greater in 2021 than turnover in 2018, despite the additional competition from the ALDI supermarket;
- The lost turnover as a result of the introduction of the new competing supermarket will be recouped in two years or less, a relatively short period of time;
- Growth in supermarket spending across the Main Trade Area (MTA) over the three years to June 2021 is $18.8 million, increasing to $31.5 million by June 2023. This is in excess of the estimated turnover for ALDI ($14.4 million in financial year 2021);
- The additional of the proposed ALDI supermarket will also result in less leakage of supermarket spending within the MTA of the proposed supermarket;
- While Findon Shopping Centre is identified as the centre likely to see the largest impact in terms of lost supermarket turnover ($2.84 million), the proposed ALDI is expected to bring new customers to the broader Findon Road / Grange Road shopping precinct, which could operate as one larger shopping precinct. This may result in new customers for Findon Shopping Centre. Should this occur, some of the forecast lost trade at Findon Shopping Centre may be recouped.
- ALDI supermarkets are expected to derive a larger portion of their turnover from its “Special Buys”, and these items tend not to be grocery items and therefore do not directly compete with traditional supermarkets.

In terms of the proposed inclusion of bulky goods retailing on the subject site, we make the following comments:

- The subject site is expected to provide less than 2,000sqm of potential bulky goods retail space. This is a small proportion of the total demand for bulky goods retail space within the MTA, estimated at approx. 45,000sqm in 2021;
- There is limited existing bulky goods retailers currently in the MTA, with the few identified retailers being located along Grange Road taking advantage of the relatively high traffic volumes and central location;
- Trends in bulky goods retailing have favoured large centres / precincts over small stand-alone sites, with the Mile End Homemaker Centre and adjoining Bunnings Warehouse being one example;
- We do not consider the potential scale of bulky goods at the subject site is cause for concern in terms of impact on existing bulky goods retailers. It is too small to have a noticeable impact on overall supply-demand balance.

1 Introduction

This report provides a retail analysis, including an economic impact assessment of the proposed retail development at 263A-275 Grange Road, Findon (subject site). The proposed retail development comprised an ALDI supermarket and bulky goods tenancy(s). This report forms part of the investigations for a privately funded Development Plan Amendment (DPA) for the subject site.

This report covers the following for supermarket retailing and bulky goods retailing:

1. Consideration / determinations of trade area(s), including existing and forecast population;
2. A review of major competition within the trade area;
3. Available spending within the trade area for respective retail land uses, both existing and future;
4. Economic impact assessment of the proposed retail development on existing / proposed retail;
5. Conclusions based on the outcome of the economic impact assessment.

The subject site is located at 263A-275 Grange Road, Findon and has a total site area of approximately 8,344m. The proposed use of the site is for an ALDI supermarket on around two thirds of the site area, and an additional retail tenancy or tenancies on the remainder, with the retail uses sharing car parking. We understand that the proponent has identified residential uses as a potential use on upper levels. This report only provides an assessment of the proposed retail uses.

The subject site is shown in Figure 1 below. We note that the existing Findon Shopping Centre is located 150m to the west of the subject site on the corner of Findon Road and Grange Road.

Figure 1: Subject Site

2 Economic Impact Assessment – Supermarkets

2.1 Retail Trade Area

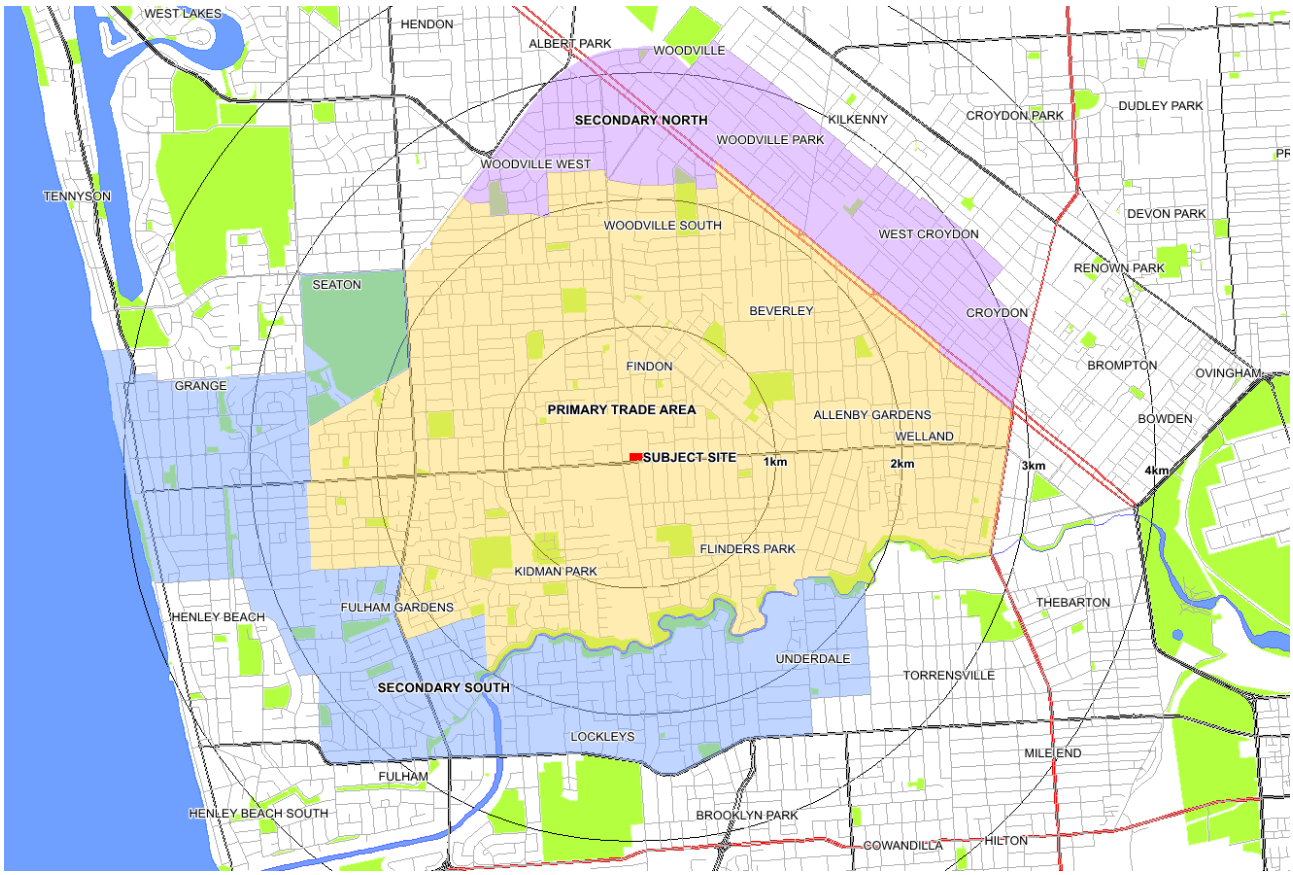
Given that ALDI will be the dominant retailer at the subject site, and is the only retailer identified at this stage, we have determined the trade area based on the expected attraction of the ALDI supermarket to residents within metropolitan Adelaide.

In considering the trade area for the proposed retail development, we have had regard to the location of the existing Findon Shopping Centre as well as the location of existing ALDI supermarkets in Adelaide, most notably ALDI supermarkets at Adelaide Airport, West Lakes and Kilkenny. The close proximity of Findon Shopping Centre to the proposed development suggests that the subject site may have a similar sized catchment to the larger neighbouring shopping centre, with the two locations feeding off each other. Furthermore, the relatively large distance from existing ALDI supermarkets suggests that the store will draw customers from a larger trade area than is typical of other small supermarkets.

Figure 2 identifies the notional trade area of the proposed retail development. The trade area is split into a Primary Trade Area (PTA), Secondary Trade Area North (STA North), and Secondary Trade Area South (STA South). Combined these make up the Main Trade Area (MTA). Customers from outside of this trade area may also be attracted to the subject site. However, these customers have alternative options that are considered more convenient or closer to them, including alternative ALDI supermarkets. The chosen trade areas reflect where the majority of trade (say 80%) is expected to be derived.

We note the trade area is slightly larger than that identified by Deep End Services. This was determined independently of Deep End Services, which is appropriate in these circumstances. As mentioned above, the trade area partly reflects the location of existing ALDI supermarkets and our view that customers may need to travel further to access an ALDI supermarket.

Figure 2: Trade Areas for 263A-275 Grange Road, Findon



Source: JLL

2.2 Competition

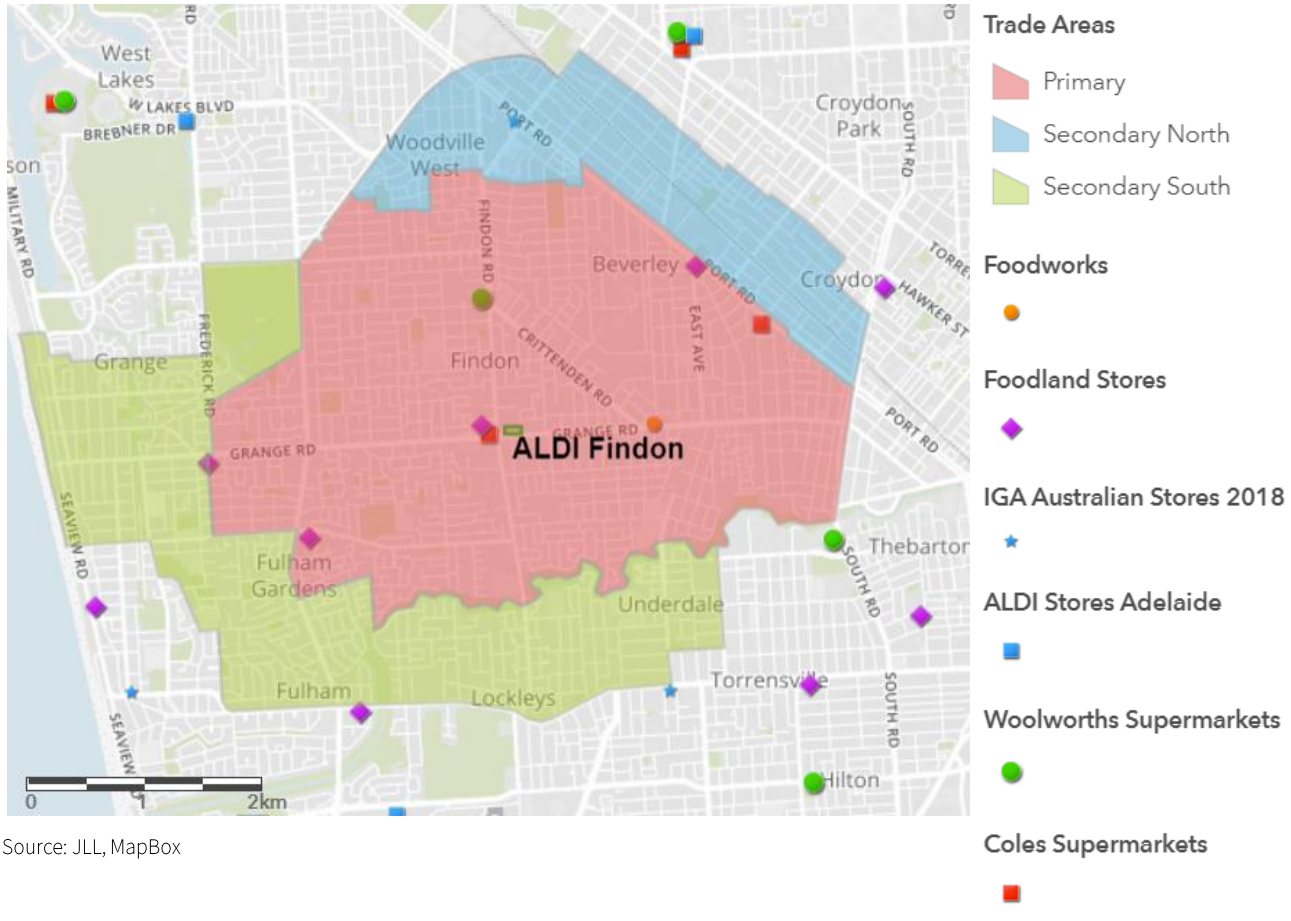
We have identified those supermarkets and shopping centres that are expected to compete with the proposed ALDI on the subject site. The supermarkets are shown in Table 2 below and on the following map (Figure 3). This includes some supermarkets that are outside the MTA but are expected to have overlapping trade areas, and therefore may be impacted by an additional supermarket.

There are no major supermarket projects in the pipeline within the MTA. However, we note that it is proposed to develop a supermarket on the corner of Turner Drive and West Lakes Boulevard, West Lakes as part of "The West" development, which is outside the MTA. This is not expected to be significantly impacted by an ALDI at the subject site and has not been included in the impact analysis.

The main competition are the major supermarkets that are closest to the subject site, namely:

- Coles and Foodland at Findon Shopping Centre;
- Woolworths at Westside Findon; and
- Foodland at Fulham Gardens.

Figure 3: Competing Supermarkets for 263A-275 Grange Road, Findon



Source: JLL, MapBox

Table 1: Competing supermarkets / shopping centres, 263A-275 Grange Road, Findon

Centre	Address	Supermarket GLA	Status	Supermarket(s)	Distance from Site (km)
ALDI Findon	**263A-275 Grange Road, Findon**	**1,700**	**Subject**	**ALDI**	**n.a.**
Findon Shopping Centre	303 Grange Road, Findon	5,205	Existing	Coles; Drake Foodland	0.15km W
Foodworks Findon	173-175 Grange Road, Findon	470	Existing	Foodworks	1.1km E
Westside Findon	186-200 Findon Road, Findon	3,850	Existing	Woolworths	1.9km N
Fulham Gardens Shopping Centre	445-457 Tapleys Hill Road, Fulham Gardens	4,205	Existing	Drake Foodland	2km SW
Drake Foodland, Allenby Gardens	612 Port Road, Allenby Gardens	1,200	Existing	Drake Foodland	2.1km NE
Welland Plaza	522 Port Road, Welland	2,919	Existing	Coles	2.3km NE
Drake Foodland, Grange	538 Grange Road, Grange	650	Existing	Drake Foodland	2.6km W
Romeo's IGA Brooklyn Park	239 Henley Beach Road, Brooklyn Park	750	Existing	Romeo's IGA	2.6km S
Romeo's Foodland Lockleys	491 Henley Beach Road, Lockleys	930	Existing	Romeo's Foodland	2.7km SW
IGA Woodville South	868 Port Road, Woodville South	580	Existing	IGA	2.7km N
Brickworks Market Place	38 South Road, Torrensville	4,021	Existing	Woolworths	2.9km SE
Torrensville Plaza	159 Henley Beach Road, Mile End	2,298	Existing	Drake Foodland	3.3km SE
ALDI Adelaide Airport	2 Butler Boulevard, Adelaide Airport	1,700	Existing	ALDI	3.4km S
Armada Arndale Shopping Centre	470 Torrens Road, Kilkenny	7,010	Existing	Coles; ALDI; Woolworths	3.6km NE
ALDI West Lakes	34-38 Frederick Road, West Lakes	1,700	Existing	ALDI	3.9km NW
St Clair Shopping Centre	Cheltenham Parade, Cheltenham	3,500	Existing	Coles	3.9km N
Westfield West Lakes	111 West Lakes Boulevard, West Lakes	8,086	Existing	Coles; Woolworths	5km NW
ALDI Kilburn	400 Churchill Road, Kilburn	1,700	Existing	ALDI	6.1km NE

Source: JLL, PCA

2.3 Demographic Analysis of Trade Areas

The key demographic characteristics of the MTA are summarised below:

- A balanced age profile in line with the Greater Adelaide region. Slightly higher proportion of 45-54 year olds and slightly lower proportions of children;
- Relatively strong ethnic groups from European countries, with 10.1% of the PTA and 8.7% of the MTA being born in Europe;
- Balanced home ownership. Higher than average proportion of households that own their home outright (35.5% compared to the Greater Adelaide average of 31.4%;
- Dominated by detached dwellings, which make up 72.5% of all private dwellings;
- Lower levels of high income earners, with only 5.7% of residents aged 15 and over earning $2,000 and over per week in 2016 (Greater Adelaide average is 11.1%);
- However, Household incomes are in line with the Greater Adelaide average and actually higher than the average across South Australia;
- Comparing the three trade areas, STA South is typically more affluent, primarily due to the inclusion of seaside areas in this trade area.

Table 2 provides a summary of the demographic profile of the three trade areas determined for ALDI Findon together with a comparison against the Greater Adelaide metropolitan area. This profile is as at the 2016 Census.

Table 2: Demographic Profile of ALDI Findon Trade Areas, 2016

					Benchmark to:
Selected Characteristic	PTA	STA South	STA North	MTA	Greater Adelaide
Population	33,700	16,900	8,800	59,400	1,326,400
Age Distribution					
0-4 years	5.4%	6.0%	6.0%	5.7%	5.9%
5-14 years	10.5%	10.9%	12.0%	10.8%	11.6%
15-19 years	5.8%	5.6%	5.6%	5.7%	6.1%
20-24 years	6.3%	6.3%	6.6%	6.4%	6.9%
25-34 years	14.2%	13.4%	15.2%	14.1%	13.8%
35-44 years	12.9%	13.2%	14.1%	13.2%	12.9%
45-54 years	14.4%	15.1%	15.1%	14.7%	13.4%
55-64 years	11.3%	12.7%	12.1%	11.8%	12.2%
65 years & over	19.1%	16.7%	13.3%	17.6%	17.2%
Birthplace – Major Regions					
Australia	68.0%	71.3%	68.3%	69.0%	68.2%
UK & Ireland	3.3%	4.9%	3.2%	3.7%	7.5%
Europe	10.1%	6.3%	7.7%	8.7%	4.0%
Asia	8.9%	6.9%	9.0%	8.3%	9.8%
Housing Status					
Owner	37.6%	33.8%	30.7%	35.5%	31.4%
Purchaser	31.3%	33.4%	36.0%	32.6%	37.4%
Renter	30.8%	31.1%	32.1%	31.0%	29.6%
Other	0.3%	1.7%	1.3%	0.8%	1.6%
Dwelling Structure					
Separate house	75.0%	67.1%	72.8%	72.5%	75.0%
Semi-det, row, townhouse	16.4%	20.1%	16.7%	17.5%	16.9%
Flat, unit, apt	8.6%	12.6%	10.4%	10.0%	7.8%
Other dwelling	0.0%	0.1%	0.2%	0.1%	0.3%
Personal Income (weekly)					
Negative, Nil income	8.7%	8.5%	8.7%	8.7%	9.2%
$1-$399	25.2%	22.3%	23.6%	24.1%	22.5%
$400-$649	20.0%	17.7%	17.4%	19.0%	17.6%
$650-$999	18.0%	17.0%	18.1%	17.7%	17.1%
$1,000-$1,499	15.7%	16.5%	17.1%	16.1%	14.6%
$1,500-$1,999	7.7%	10.2%	9.8%	8.7%	7.9%
$2,000 and over	4.6%	7.9%	5.4%	5.7%	11.1%
Household Income (weekly)					
Negative, Nil income	1.3%	1.3%	1.5%	1.3%	1.6%
$1-$499	16.5%	15.2%	14.9%	15.9%	15.4%
$500-$999	23.3%	19.9%	20.8%	21.9%	22.7%
$1,000-$1,499	18.8%	17.4%	18.7%	18.4%	18.2%
$1,500-$1,999	11.9%	13.4%	14.0%	12.7%	12.9%
$2,000-$2,999	18.9%	17.8%	18.1%	18.5%	17.3%
$3,000 and over	9.2%	15.1%	11.9%	11.3%	11.9%

Source: Australian Bureau of Statistics, JLL

2.4 Retail Spending

Total retail spending in the MTA has been estimated by analysing retail trade data provided by the Australian Bureau of Statistics. This data provides turnover data (GST inclusive) by type of retailing, including for supermarkets and grocery stores. We have compared the total retail trade for South Australia to the state's population to estimate the average spending at supermarkets per person across the state. Adjustments have been made to the average spend taking into account the median income levels of residents in each trade area compared to South Australia. The results are summarised in Table 3.

Estimated spending at supermarkets assumes real growth of 1% per annum over the forecast period. This is in line with recent trends in supermarket turnover.

Table 3: Forecast Supermarket Spending per Person, 2018-2026

Supermarket Per Capita Spending ($)	2018	2019	2020	2021	2022	2023	2024	2025	2026
PTA	4,579	4,624	4,671	4,717	4,765	4,812	4,860	4,909	4,958
STA North	4,716	4,763	4,811	4,859	4,908	4,957	5,006	5,056	5,107
STA South	4,615	4,661	4,708	4,755	4,803	4,851	4,899	4,948	4,998
South Australia	*4,579*	*4,624*	*4,671*	*4,717*	*4,765*	*4,812*	*4,860*	*4,909*	*4,958*

Note: Based on 2018 prices
Source: Australian Bureau of Statistics, JLL

Total available spending is then estimated over the forecast period by simply multiplying the average spend per person by the population in each trade area.

Table 4: Forecast Available Supermarket Spending by Trade Area, 2018-2026

Total Supermarket Spending ($M)	2018	2019	2020	2021	2022	2023	2024	2025	2026
PTA	157.33	160.46	163.65	167.47	170.91	174.43	178.01	181.68	184.94
STA North	42.69	43.73	44.80	45.89	47.06	48.26	49.50	50.77	52.06
STA South	79.93	81.72	83.55	85.42	87.07	88.76	90.48	92.23	94.02
MTA	279.95	285.91	291.99	298.77	305.05	311.45	317.99	324.68	331.02

Note: Based on 2018 prices
Source: Australian Bureau of Statistics, JLL

2.5 Population and Population Forecasts

Table 5 identifies the estimated residential population together with forecast population growth in the trade areas. Estimated population in the MTA as at June 30 2016 was 59,400, comprising 33,700 in the PTA. The MTA is forecast to grow by 1.1% per annum between 2016 and 2021, and 1.0% between 2021 and 2026 reaching 66,000 by June 2026.

We note the forecasts are derived from state government forecasts, which are higher than recent population growth across metropolitan Adelaide. Furthermore, some of the key growth opportunities are outside the MTA and are most likely strong contributors to future growth expectations in western Adelaide, including The West development at West Lakes, St Clair, and urban renewal at Seaton.

However, there are a number of projects that have driven recent growth in the MTA and will contribute to future population growth, including:

- The Square at Woodville West, located in STA North (approx. 425 dwellings);
- The Gateway at Findon project (former Ray Street dump), adjacent to Findon Shopping Centre;
- Infill development at McKell Street and Morton Street, Kidman Park (Renewal SA affordable housing);
- Corner of Bridgman Road and Hammond Road, Findon.

A key future opportunity for residential growth is the 12 hectare Metcash site at Findon Road at Kidman Park. This site is located approximately 1.1km to the south of the subject site. We understand that the owners have expressed an intention to initiate a developer funded DPA to develop the site for residential use. Assuming a medium density outcome with a gross yield of 50 dwellings per hectare, this site may yield around 600 dwellings.

There is also expected to be continued small scale infill development with larger allotments being subdivided to build new homes on small lots. This has been a trend throughout Adelaide's middle ring suburbs, and much of the MTA provides such opportunities.

Based on the above opportunities for residential growth across the MTA, it is reasonable to assume that the MTA will continue to experience modest population growth over the forecast period.

Table 5: Population Forecasts for Findon Main Trade Area, 2016 - 2031

Geography	2016	2021	2026	2031
PTA	33,700	35,500	37,300	39,000
STA South	16,900	17,700	18,600	19,400
STA North	8,800	9,500	10,100	10,600
MTA	59,400	62,700	66,000	69,000
Greater Adelaide	1,326,400	1,390,700	1,454,100	1,513,500
Annual % growth		**2016-21**	**2021-26**	**2026-31**
PTA		1.0%	1.0%	0.9%
STA South		0.9%	1.0%	0.8%
STA North		1.5%	1.2%	1.0%
MTA		1.1%	1.0%	0.9%
Greater Adelaide		1.0%	0.9%	0.8%

Source: Australian Bureau of Statistics, DPTI, JLL

2.6 Economic impact assessment

In order to assess the economic impact on surrounding supermarkets and centres, we have considered the market share that the proposed ALDI supermarket is likely to achieve across the catchment.

The impact of the proposed development on surrounding centres has been calculated taking into account the following:

- The proposed development is estimated to trade at $14.4 million in its first full year of trade (assumed to be the 2020-21 financial year). We note that Deep End Services estimated sales turnover of $14.5 million in the first full year of trading;
- For each supermarket or shopping centre with supermarkets, turnover has been forecast using a market share approach. The greater the competing supermarkets rely on the proposed ALDI supermarket's trade areas for its turnover, the greater the forecast impact;
- Turnover levels are forecast both with and without the proposed ALDI at Grange Road, Findon;
- The turnover levels are then compared to what the existing supermarkets would have achieved assuming the proposed ALDI at Grange Road, Findon were not developed.

The results of this analysis are summarised in Table 6.

The proposed ALDI supermarket is forecast to impact in dollar terms greatest on Findon Shopping Centre followed by Westside Findon. No centre or supermarket is forecast to be negatively impacted by more than 5%. In each case, the lost trade as a result of the introduction of the new competing supermarket will be recouped in two years or less.

We note that in the three years to June 2021, total available spending in supermarkets across the defined MTA is forecast to grow in real terms by $18.8 million, which is greater than the estimated turnover of the proposed ALDI supermarket. This suggests that the growth in supermarket demand through population growth can support an additional supermarket in the trade area.

While we note the potential for new supermarkets at Bowden and West Lakes over the forecast period, these are located outside the MTA. We are not aware of any existing supermarket projects in the pipeline within the MTA with approvals in place that are likely to proceed over the next few years.

Table 6: Impact Assessment on ALDI Findon on Existing Supermarkets, 2021

	2021 ($m)	2021 ($m)		
Supermarket / Centre	Without ALDI Findon	With ALDI Findon	Impact ($m)	% Impact
ALDI Findon (proposed)	14.4	n.a.		
Main Competition - Supermarket Turnover				
Findon Shopping Centre	61.0	58.2	-2.84	-4.7%
Westside Findon	45.1	43.2	-1.98	-4.4%
Fulham Gardens Shopping Centre	44.8	43.5	-1.33	-3.0%
Welland Plaza	31.2	30.4	-0.77	-2.5%
Brickworks Market Place	42.9	42.0	-0.89	-2.1%
Torrensville Plaza	22.1	22.0	-0.11	-0.5%
Drake Foodland, Grange	5.5	5.4	-0.10	-1.7%
Drake Foodland, Allenby Gardens	11.5	11.2	-0.33	-2.9%
Romeo's IGA Brooklyn Park	6.4	6.4	-0.04	-0.7%
Romeo's Foodland Lockleys	7.9	7.9	-0.09	-1.1%
ALDI Adelaide Airport	14.5	14.2	-0.26	-1.8%
ALDI West Lakes	14.5	14.4	-0.09	-0.6%
ALDI Kilburn	14.6	14.6	-0.01	-0.1%
Foodworks Findon	3.5	3.3	-0.17	-4.7%
Westfield West Lakes	95.0	94.6	-0.46	-0.5%
Armada Arndale Shopping Centre	82.7	82.5	-0.24	-0.3%
St Clair Shopping Centre	41.3	41.2	-0.15	-0.4%
IGA Woodville South	5.0	4.9	-0.05	-1.0%
Total	549.8	539.9	-9.92	

Note: Based on 2018 prices, Source: JLL

The impact of the proposed ALDI supermarket is not considered to be significant, with no supermarket or centre expected to experience a loss of more than 5%. Defining what is considered significant is a subjective matter. However, in retail analysis, an impact of less than 5% is generally not considered to be significant. Relevant case law includes WATPAT 15, Appeal Number 22 and 23. We also make the following comments in relation to the estimated turnover trends for supermarkets in the MTA:

- Supermarket turnover at each supermarket / centre is expected to be greater in 2021 than current turnover, despite the additional competition from the ALDI supermarket;
- The lost turnover as a result of the introduction of the new competing supermarket will be recouped in two years or less, a relatively short period of time;
- Growth in supermarket spending across the MTA over the three years to June 2021 is $18.8 million, increasing to $31.5 million by June 2023. This is in excess of the estimated turnover for ALDI and supports an additional supermarket.

We note that not all the turnover that ALDI is estimated to achieve in its first full year of trading comes from the supermarkets included in this Economic Impact Assessment. Some turnover comes from other sources. The supermarkets included in the above table account for an estimated $9.9 million of the total turnover of the proposed ALDI (69% of the $14.4 million). The remaining turnover is a combination of the following:

- Less leakage of supermarket spending within the MTA;
- Turnover captured by other supermarkets / grocery stores not included in this analysis;
- Turnover coming from residents that live outside of the MTA. E.g. customers that work nearby; passing trade etc.

2.7 Conclusions and further comments

The above analysis suggests that while an ALDI supermarket will take some trade from existing competing supermarkets, no single supermarket is expected to be impacted by more than 5%. This is at the low end of significance.

All supermarkets should recoup any lost turnover by 2023, or no more than two years. This is considered to be a relatively minor economic impact.

As noted above, total available spending in supermarkets across the defined MTA is forecast to grow in real terms by $18.8 million between June 2018 and June 2021, which is greater than the estimated turnover of the proposed ALDI supermarket.

Findon Shopping Centre is identified as the centre likely to see the largest impact in terms of lost supermarket turnover ($2.84 million), and this amounts to 4.7% in total supermarket turnover. However, the proposed ALDI is expected to bring new customers to the broader Findon Road / Grange Road shopping precinct (including ALDI), which effectively could operate as one larger shopping precinct. This may result in new customers for Findon Shopping Centre. Should this occur, some of the forecast lost trade at Findon Shopping Centre may be recouped.

This view is supported by observations from JLL's shopping centre managers, who have noted that the inclusion of an ALDI supermarket has brought new customers to the centre and increased overall spending.

We also note that ALDI supermarkets are expected to derive a larger portion of their turnover from its "Special Buys", and these items tend not to be grocery items and therefore do not directly compete with traditional supermarkets.

3 Economic Impact Assessment – Bulky Goods

3.1 Background

This section considers the potential impact on surrounding bulky goods retailers and precincts of a proposed bulky goods tenancy(s) at the subject site.

Bulky goods retailing, or large format retailing, has experienced very strong growth over the past two decades, driven by a range of factors, including:

- Growth in household formation;
- The emergence of large format retailers across an increasingly broad range of retail categories. These retailers typically focus on a relative small sector of the market but aim to dominate their respective category;
- Expansion of major large format retailers such as Bunnings, Harvey Norman, JB Hi Fi, BCF, Officeworks etc.; and
- The emergence of large homemaker precincts / centres, which has seen retailers within the bulky goods sector gravitate towards these precincts.

In response to this demand from both retailers and developers, new policy areas and land use zones have been created to accommodate the trends.

The location characteristics of bulky goods retailers include the following:

- Prominent main road frontage with high volumes of passing traffic;
- For multi-tenanted centres, a quality anchor tenant that other tenants can feed off;
- Proximity to like-minded retailers;
- Availability of large level sites;
- Relatively low cost land;
- Good access for easy loading / receiving of goods;
- Ample car parking;
- A large residential catchment, preferably with strong demographics (residents with disposable income); and
- A location that is undergoing strong urban growth / household formation.

3.2 Trade Area

While bulky goods outlets can be a destination in their own right, we have assumed that the proposed ALDI will be the main tenant at the subject site. Therefore, for this analysis, we have assumed the trade area to be the same as identified in Figure 2.

3.3 Bulky Goods Definition

The bulky goods sector is a very diverse sector of the retail market but is dominated by retailers selling a range of household and home improvement goods.

On 1 June 2010, a new definition came into operation under Schedule 1 of the Development Regulations in South Australia for "bulky goods outlet or retail showroom". This definition is provided below"

Bulky goods outlet or retail showroom means premises used primarily for the sale, rental, display or offer by retail of goods, other than foodstuffs, clothing, footwear or personal effects goods, unless the sale, rental, display or offer by retail of the foodstuffs, clothing, footwear or personal effects goods is incidental to the sale, rental, display or offer by retail of other goods;

Examples—

The following are examples of goods that may be available or on display at bulky goods outlets or retail showrooms:

(a) automotive parts and accessories;

(b) furniture;

(c) floor coverings;

(d) window coverings;

(e) appliances or electronic equipment;

(f) home entertainment goods;

(g) lighting and electric light fittings;

(h) curtains and fabric;

(i) bedding and manchester;

(j) party supplies;

(k) animal and pet supplies;

(l) camping and outdoor recreation supplies;

(m) hardware;

(n) garden plants (primarily in an indoor setting);

(o) office equipment and stationery supplies;

(p) baby equipment and accessories;

(q) sporting, fitness and recreational equipment and accessories;

(r) homewares;

(s) children's play equipment.

3.4 Competition

While there are some small retailers that fit into the above definition throughout the MTA, the major bulky goods precincts across metropolitan Adelaide are outside the defined MTA. We note the following bulky goods tenancies located on Grange Road and in close proximity to the subject site:

- Findon Mitre 10 at 374 Grange Road;
- Julan Curtains & Blinds at 206A Grange Road; and
- Repco, Solomons Flooring, and Solver at 322 Grange Road

Other significant bulky goods within the MTA include the following:

- Officeworks, Godfreys and other tenancies at 449-459 Port Road, Croydon –;
- Haggle Huge at 647 Port Road, Woodville Park

3.5 Bulky Goods Retail Spending

Retail spending in the bulky goods sectors covers a range of categories so is difficult to estimate. It is generally regarded that the bulky goods sector accounts for around 20% of the retail market and comprises the following categories:

- Household goods retailing
- A proportion of recreational goods retailing
- Motor vehicle parts and accessories retailers

Assuming bulky goods retailing represents 20% of available retail spending in the MTA, then there is expected to be approx. $157.4 million of available bulky goods spending from residents in the MTA.

Bulky goods retailing tends to have relatively low turnover per square metre of floor space, although we note there is significant variation between retailer categories (e.g. electrical retailers will have significantly higher turnovers that say furniture retailing).

Based on sales turnover per square metre of $3,500 per square metre, the population in the MTA could support approx. 45,000sqm of bulky goods floor space by 2021. This is clearly more floor space than has been identified above, suggesting that residents in the MTA rely heavily on bulky goods precincts outside the MTA, such as:

- Ikea at Adelaide Airport;
- Mile End Homemaker Centre;
- Bulky goods retailers along Anzac Highway;
- Officeworks at Croydon; and
- Bunnings / Harvey Norman at Port Road, Woodville.

Table 7: Bulky Goods Spending Analysis in MTA, 2018-2026

Bulky Goods Spending per Person	2018	2019	2020	2021	2022	2023	2024	2025	2026
PTA	2,397	2,421	2,445	2,470	2,495	2,520	2,545	2,570	2,596
STA North	2,517	2,542	2,568	2,593	2,619	2,646	2,672	2,699	2,726
STA South	2,445	2,470	2,494	2,519	2,545	2,570	2,596	2,622	2,648
Population									
PTA	34,362	34,698	35,037	35,500	35,871	36,247	36,626	37,009	37,300
STA North	9,052	9,181	9,311	9,444	9,590	9,738	9,888	10,040	10,195
STA South	17,317	17,530	17,745	17,963	18,130	18,298	18,468	18,640	18,813
Available Spending ($m)									
PTA	82.4	84.0	85.7	87.7	89.5	91.3	93.2	95.1	96.8
STA North	22.8	23.3	23.9	24.5	25.1	25.8	26.4	27.1	27.8
STA South	42.3	43.3	44.3	45.3	46.1	47.0	47.9	48.9	49.8
MTA ($m)	147.5	150.6	153.9	157.4	160.7	164.1	167.6	171.1	174.4
Supportable Floor Area									
Sales per SQM	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Supportable Floor Area	42,144	43,042	43,958	44,979	45,924	46,889	47,875	48,881	49,837

Source: Australian Bureau of Statistics, DPTI, JLL
Note: Based on 2018 dollars

3.6 Conclusions and Further Comments

The subject site is expected to provide less than 2,000sqm of potential bulky goods retail space. This is considered a small proportion of the total demand for bulky goods retail space within the MTA.

There is limited existing bulky goods retailers currently in the MTA, with the few identified retailers being located along Grange Road, taking advantage of the relatively high traffic volumes and central location.

Trends in bulky goods retailing have favoured large centres / precincts over small stand-alone sites. However, some bulky goods retailers have strong destination appeal and are less reliant on being part of a large "homemaker" precinct. Hardware stores and Officeworks are examples, while some camping stores (e.g. BCF and Rays Outdoors) have often located outside of integrated precincts.

We do not consider the potential scale of bulky goods at the subject site is cause for concern in terms of impact on existing bulky goods retailers. It is too small to have a noticeable impact on overall supply-demand balance.

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Appendix B – Traffic Impact Assessment, InfraPlan

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infraPlan

Traffic Impact Report

Grange Road, Findon DPA

August 2018

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1. Introduction

InfraPlan has been engaged to undertake a preliminary assessment of vehicle trip generation, parking requirements, pedestrian movements and the likely impacts that may arise from the proposed development plan amendment (DPA) at 263A – 275 Grange Road, Findon.

The subject site is within the City of Charles Sturt and currently houses various retail and commercial businesses. The proposal is for 5,714 m^2 of the site (8,344m^2 in total) to be utilised for an Aldi supermarket, small speciality stores and associated car parking. The balance of the site is intended for retail or bulky goods outlet.

In assessing this proposal, we have referred to the following documents:

- *Statement of justification for a privately funded DPA – Grange Road, Findon* – Ekistics (10 October 2017)
- *Findon Development Plan Amendment – Background Information* – Ekistics (8 May 2018)
- *ALDI Catchment & Sales analysis for Findon DPA* – Deep End Services (8 May 2018)
- *ALDI South Australia Delivery & Loading Procedures* – ALDI

Subsequently, we have undertaken investigations to understand the suitability of the proposal for the site from a traffic perspective as well as likelihood of impacts on the surrounding road network.

2. Existing Site

The current site houses a number of small commercial and retail businesses that each have their own associated car parking, servicing and driveway accessways. This includes:

- #275 Grange Road, safe supplies retail store – approx. 645m^2 Gross Leasable Floor Area (GLFA)
- #273 Grange Road, second hand car dealer & mechanic– approx. 850 m^2 site area
- #269 Grange Road, canoe & kayak retail store – approx. 545 m^2 GLFA
- #265-267 Grange Road, former hardware & plumbing retail store – approx. 1,075 m^2 GLFA
- #263 Grange Road, haircare warehouse – approx. 1,180 m^2 GLFA

It is noted that a number of these businesses are currently vacant. However, based on these floor areas a likely trip generation can be calculated for when the site is fully leased and trading for a fair comparison to the proposal.

2.1 Trip Generation calculations

To estimate the vehicle trip generation of the site with the existing land uses if all were occupied and trading, we have utilised guidance from, 'DPTI, *Trip Generation Rates for Assessment of Development Proposals', (*Parsons Brinckerhoff, 2014).
The relevant trip generation rates are listed in Table 1 and calculated for the existing site in Table 2.

Table 1: DPTI Trip Generation Rates

Land Use	Daily Trips	Peak Hour Trips
Office & commercial premises (per 100m^2)	15.9	2.02
Warehouses (per100m^2)	3.1	0.49
Motor Showroom (per 100 m^2)	4.0 (est.)	0.7

Table 2: Trip Generation existing land-uses (if all occupied)

Street No. (Grange Road)	Land use	GLFA (approx. m^2)	Trip Generation	
			Daily	Peak hour
275	Retail/Commercial	645	103	14
273	Motor Showroom	850	34	6
269	Retail/Commercial	545	87	12
265-267	Retail/Commercial	1075	171	22
263	Warehouse	1180	188	24
		Total	**583**	**78**

Therefore, using the DPTI trip generation rates, the existing fully occupied site would have in the order of 583 vehicles trips per day, including 78 trips in the peak hour.

2.2 Site Access

The existing developments on the subject site provide a total of 10 separate vehicle crossovers as illustrated in Figure 1. This represents 34% of the site's Grange Road frontage and creates a number of potential conflict points, for example:

- Pedestrians on the footpath with vehicles entering or exiting the driveways, and
- Vehicles slowing down to enter the numerous driveways with through vehicles on Grange Road.

One of these crossovers is 18 metres long (shared #265-267) which is a considerable crossing distance for pedestrians to negotiate traffic, particularly as this also facilitates heavy vehicle access.

There is a right turn bay provided from Grange Road into #265-267 with an approximate 20 metre storage length.

Figure 1: Location of accessways for the subject site

2.3 Active Transport

There is a bicycle lane along Grange Road. The Department of Planning, Transport & Infrastructure's Bike*direct* network identifies Grange Road as a main cycling route. This can be seen in Figure 2

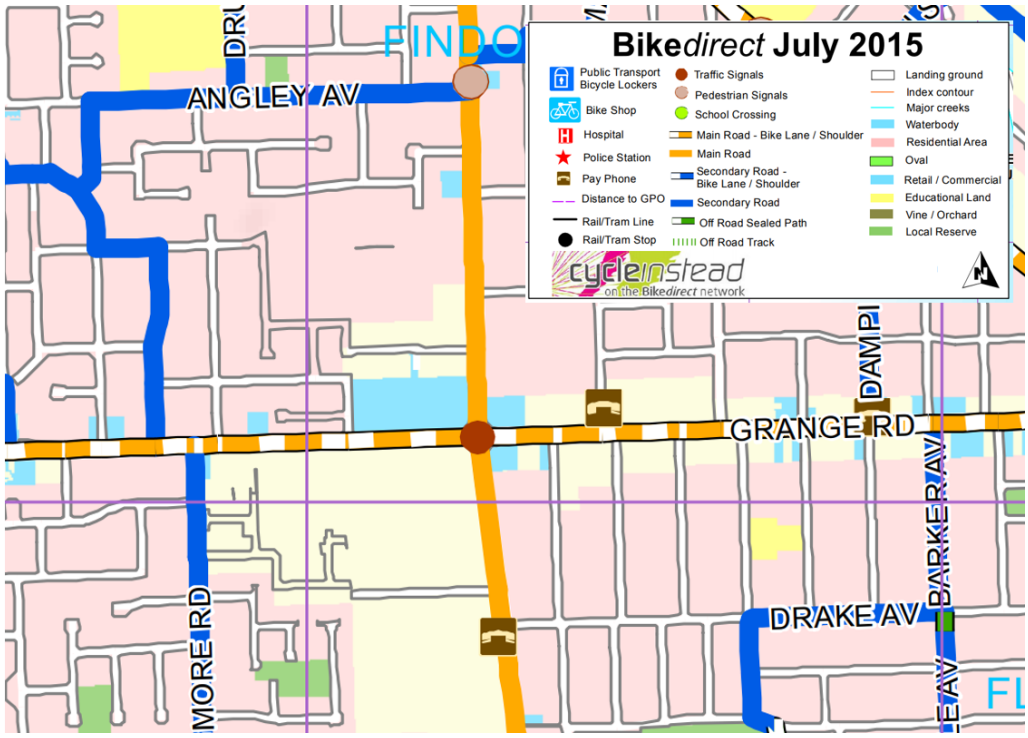


Figure 2: Bikedirect network map of Grange & Findon Road

Grange Road is a Go Zone for bus services and there are a number of bus stops within 200 metres of the subject site.

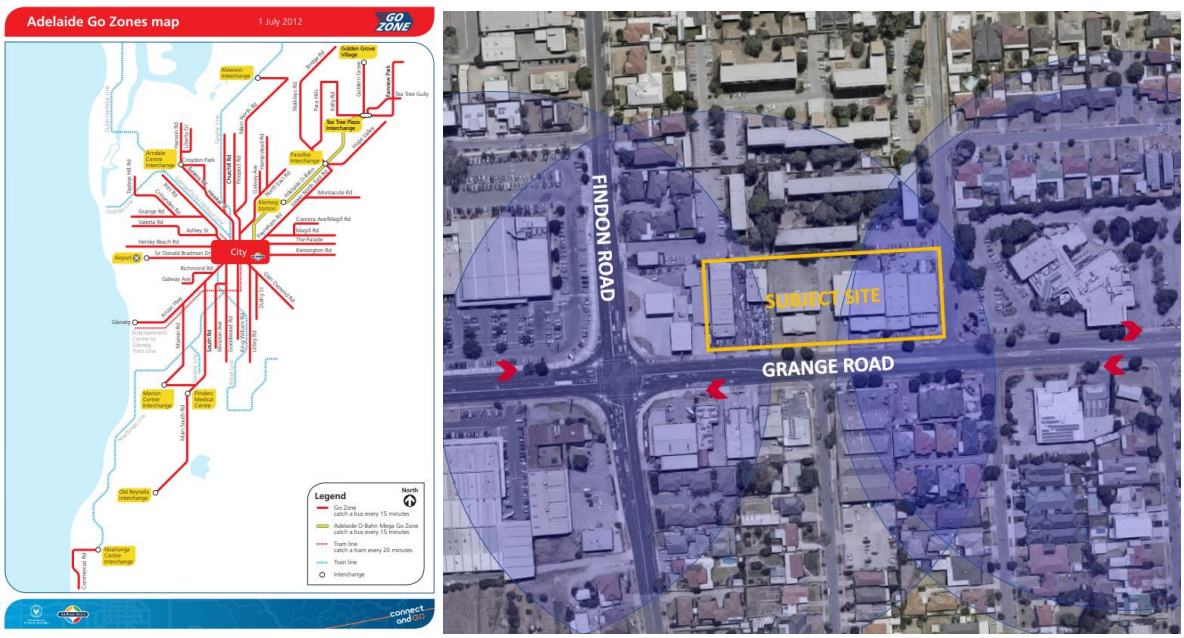


Figure 3: Go Zone map & bus stop locations with a 200m radius overlayed

3. The Proposal

The proposal primarily comprises an ALDI supermarket that is likely to have a GLFA of approximately 1,722 m^2. The ALDI store is to be supported by 94 car parking spaces while a further 44 spaces are mentioned for the remaining portion of the site.

There have been no plans provided as part of the documentation received although there are a number of key descriptions that frame the intent and layout of the site as well as the surrounding road network. These are explored in each of the following topics of assessment.

3.1 Active Transport

The intersection of Grange and Findon Roads is signalised with crosswalks on each leg, facilitating safe pedestrian accessibility at this location. However, if the proposed development proceeds, there is likely to be an increase in attraction for pedestrian traffic than when compared to the existing uses.

In addition to this, there is potential for trip chaining where visitors parking at the existing neighbourhood centre may wish to cross to the new development on foot or vice-versa.

Looking at the desire lines, pedestrians approaching the subject site from the south east side of Grange Road, and the north west side of Findon Road may prefer to cross Grange Road in a more direct line, prior to the intersection. These desire lines could be better facilitated by installing median refuges as described below and presented in Figure 4:

- The Findon Road flush median (just south of the Findon Shopping Centre entry/exit) is approximately 3.2 metres wide. This flush median could be replaced by a kerbed median and pedestrian refuge to facilitate a two-stage crossing of Findon Road (with prior confirmation that large vehicle turning movements are not impeded)
- The Grange Road median island between John Street and Noblet Street is approximately 2.5 metres wide, therefore suitable for a median refuge to facilitate a two-stage road crossing. Given that there are two lanes in each direction along Grange Road, we verified the safety and feasibility of installing a median refuge by using the 'Australasian Pedestrian Facility Selection Tool'.

A number of vehicle access options are considered later in section 3.4 that may impact on a Grange Road pedestrian crossing. With further detailing, a refuge (or appropriate alternative) may be able to be incorporated in all options explored and if not, the refuge may be able to be incorporated to the east of Douglas Street.

Figure 4: Potential new pedestrian refuge locations to cater for new pedestrian desire lines

3.2 Car Parking

Framework

The *Charles Sturt Council Development Plan consolidated 30 January 2018* provides a number of parking rate provisions based on the zoning or location of the land. Under current conditions, the site is outside of a designated area which requires a rate of 7 car parking spaces per 100 m^2 of total floor area of a shop.

The DPA proposes two scenarios, which are:

1. Extend the Neighbourhood Centre Zone to incorporate the subject site, or;
2. Amend the Mixed-Use Zone to allow for larger GLFA.

In scenario one, the subject site would be subject to a minimum rate of 3 spaces per 100 m^2 and a maximum car parking provision rate or 6 spaces per 100 m^2. In scenario two, the subject site would require 7 spaces per 100 m^2.

Beside planning policy, there are relevant and tested traffic engineering documents that provide guidance on provision of parking rates.

The *Parking Spaces for Urban Places: Car Parking Study – Guideline for Greater Adelaide* document, (2013) lists a rate of 7 spaces to be provided per 100 m^2 of GLFA for a shop not within a shopping centre. However, this document introduces a number of allowable discounts to this rate (up to a maximum of 55%) based on the surrounding road network. In this specific instance, this site triggers the following discount provisions:

- Located within 200m of a bus stop within a 'Go Zone' – 20% discount

- Located within 200m of a dedicated on-road bicycle lane – 5% discount

As such, a 25% discount to this rate is applicable which equates to a rate of 5.25 spaces per 100 m^2 of GLFA. This rate falls within the Neighbourhood Centre Zone requirements, although falls short of the existing Mixed-Use Zone requirements of the Development Plan. However, in the context of the site and accepted principles of traffic engineering, a rate of 5.25 spaces per 100 m^2 is considered appropriate.

ALDI Site

The ALDI component of the subject site comprises 94 car parking spaces servicing a 1,722 m^2 supermarket. This equates to a provision of approximately 5.45 parking bays per 100 m^2 of GLFA and exceeds the requirement of 5.25 spaces per 100m^2. Therefore, 94 spaces is considered appropriate under accepted traffic engineering practises as well as the Neighbourhood Centre Zone provisions in the Charles Sturt Development Plan.

In terms of ground truthing this provision, a typical car park designed to Australian Standards requires an average of 40 m^2 for accessways, aisles and the bay itself. For a total of 94 parking bays, this equates to an area of 3,760 m^2. This would be in addition to the 1,722 m^2 of the supermarket which totals 5,482 m^2. This is less than the 5,714 m^2 allocated for the ALDI site and as such, seems to be a realistically achievable number of spaces on the site.

Remaining Site

There are 44 spaces allocated for the remaining site area which, using the same formula as earlier, equates to approximately 1,760 m^2 of space required for car parking. With 2,630 m^2 of the site remaining, this allows for a potential 870 m^2 of developable land. Applying a rate of 5.25 spaces per 100 m^2, the 44 parking spaces could potentially service a similar shop development of up to around 840 m^2 which again, fits with this site.

3.3 Vehicle Traffic

As described in the proposal, there are two proposed traffic generating aspects to this proposal:

- ALDI Supermarket – 1,722 m^2
- Retail (shopping centre) – 840 m^2

The Department of Planning, Transport & Infrastructure's *Trip Generation Rates for Assessment of Development Proposals* provides local context of trip generation rates in Adelaide. Based on these proposed rates, the number of trips likely to be generated are calculated in Table 3.

It is noted that this publication has very recently been removed from use by DPTI. However, these rates are used on the basis that when compared to the RTA *Guide to Traffic Generating Developments*, the rates are relatively low and while it is common practice to apply a discount to the rates based on passing traffic in an inner metropolitan site, in this instance the low rates are considered to incorporate these discounts.

Additionally, it is noted that the peak period described for both supermarkets and shopping centres are typically the PM peak for the roadway and for this reason, the PM peak will be used as the representative hour, although the AM peak will still be considered.

Table 3: Trip generation rates – DPTI Trip Generation Rates for Assessment of Development Proposals

Land Use	Size (m2)	Trip generation rate (per 100m2)		Estimate trip generation	
		Daily	Peak	Daily	Peak
Supermarket	1,722	134	13.65	2,307	235
Shopping centre	840	55.7	6.74	959	116
			Total	3,266	351

This results in a total of 3,266 trips throughout the day and 351 in the peak hour. Subtracting the 538 daily and 78 PM peak hour trip of the existing site equates to:

- 2,728 additional daily trips, and
- 273 additional PM peak hour trips.

Understanding the number of trips estimated, a breakdown of estimated vehicle trips to and from the proposed site can be assumed based on the ALDI catchment report undertaken by Deep End. This estimated trip distribution is illustrated in Figure 5.

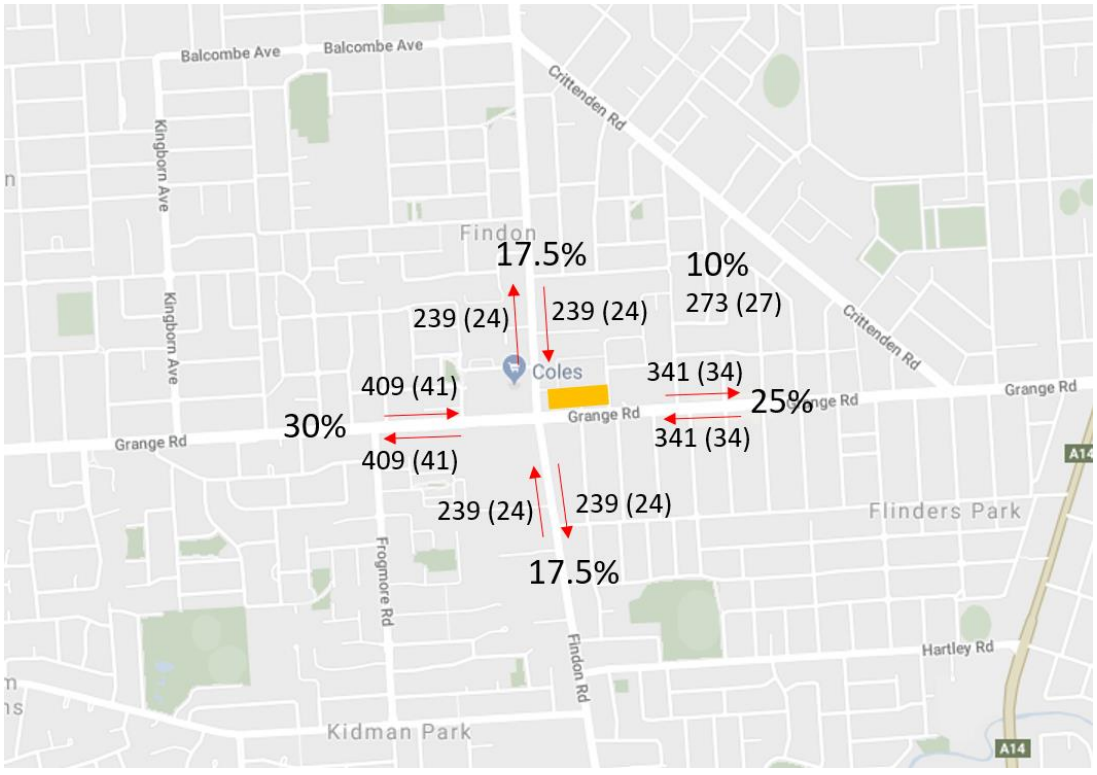


Figure 5: Estimated additional trip-distribution for proposed DPA site - daily volume (PM peak volume)

Being adjacent the signalised intersection of Grange Road and Findon Road, it is important to understand the impact, if any that this additional road traffic may have. The intersection was analysed using SIDRA Intersection that is a tool that provides a number of key measures based on the intersection layout and volume. The model was developed in accordance with DPTI's *SIDRA MODELLING GUIDELINES Nov 2017*.

Signal operation for the intersection as well as turning movements based on installed detectors were sourced from DPTI. An independent vehicle turning count was also collected that corroborated the DPTI turning volumes. SIDRA produces a number of measures of the intersection performance. Measures considered useful in this analysis include:

- Control Delay – A measure of delay to traffic at the intersection in the number of vehicle hours per hour. This is the product of the average delay per vehicle and the number of vehicles that pass through the intersection.
- Level of Service – Ranges from A to F. "A" denotes good operation with free-flowing traffic whereas "F" denotes forced flow of traffic. Typically, a "C" and above level of service is desired.
- Saturation – A ratio between demand traffic flow and capacity of an intersection. A number above 1.0 is considered saturated and less than 1.0 is unsaturated. A range of 0.9 to 1.0 is considered poor.
- 95th Queue – The longest queue of traffic on approach to the intersection measured in metres.

Table 4: SIDRA model outputs

Scenario	Control Delay (veh-h/h)	Intersection LOS	Saturation	95% queue (m) (longest Lane)
AM Peak	51.5	D	0.914	203
AM Peak with ALDI + shops	**62.1**	**D**	**1.002**	**245**
PM Peak	68.2	E	0.988	333
PM Peak with ALDI + shops	**84.9**	**E**	**1.064**	**443**

Table 4 shows that the model considers that the intersection is already near capacity with a saturation ratio approaching 1.0 in both the AM and PM peak. A diagrammatic output of the degree of saturation for each movement in the PM peak (the critical time) is shown below in Figure 6. This indicates that key movements requiring additional capacity are the through and left turn movements from Grange Road east as well as the right movement from Findon Road south.

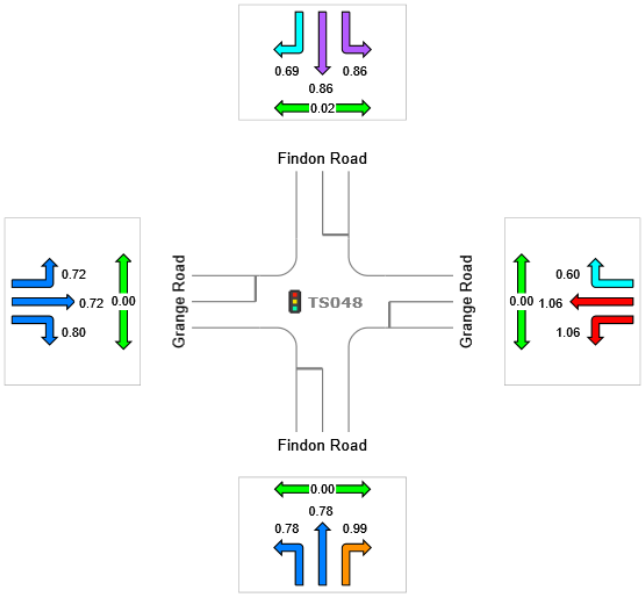


Figure 6: Degree of saturation for each movement through the signalised intersection of Findon Road and Grange Road

Onsite observations during calibration of the model showed the intersection operating comparatively well compared to the outputs of the SIDRA model.

This is likely due to variable phase timing, gap acceptance and other factors that the model cannot accurately reflect. Additionally, the flexibility and relatively unregulated approaches along Findon Road with wide lanes that allow two vehicles to queue side by side cannot be accurately captured within the model. However, some concessions were made in the model such as describing right turn lanes as full-length lanes to remove the short lane effect.

Naturally, there is an increase in modelled delay associated with the new development although this is relatively marginal compared to current operation of the intersection. For this reason, as well as the observed operation of the intersection, it is considered that the impact of the proposed development on the signalised intersection is not significant however, the exercise should be undertaken should the development be further detailed.

3.4 Access Locations

While no detail has been provided around access driveway locations, the background information provided by ekistics mentions:

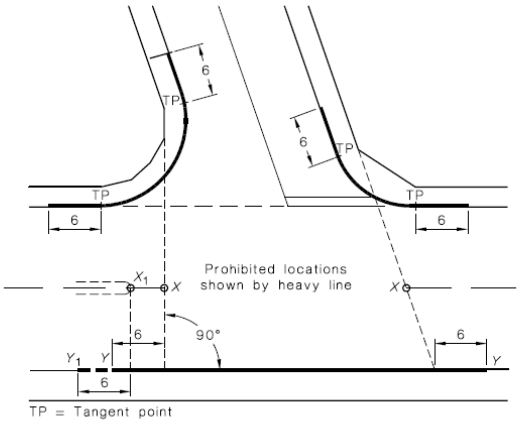
A shared parking area will be created with primary vehicular access provided off Grange Road and secondary access off Noblet Road (sic). *Preliminary advice has been provided by GTA traffic consultants to confirm that appropriate distances and sightlines are maintained between the proposed access points and existing intersections within the locality.*

We therefore assume that only two crossing locations would be required, with the primary access off Grange Road and a secondary access off Noblet Street. This is an improved outcome for pedestrian safety and amenity as it removes eight existing crossovers along the site frontages.

AS2890.1 provides guidance for access driveway widths based on the number of car parking spaces serviced and the frontage road type. It is envisaged that approximately 70% of traffic would access the parking spaces off of Grange Road (to 96 spaces), and 30% from Noblet Street (42 spaces). Therefore, the Grange Road access point would be a Category 2 (combined entry/exit between 6-9 metres wide), and the Noblet Street entry/exit would be Category 1 (combined entry/exit, 5.5 metres wide).

Further detail would be required as to whether any additional crossovers are required to facilitate loading or servicing movements. A potential location off of Grange Road has been earmarked for service access.

It is assumed that the right turn provision from Grange Road would align with the existing primary access and therefore, the right-turn slot in the median, to enable easy access to the site for traffic from the east. It is noted however, that given this accessway location is opposite John Street, it falls within a prohibited zone (as per Australian Standard 2890.1 ,refer Figure 7).



NOTES:

1 Accesses to domestic driveways are excluded from the prohibition in respect of the kerb section marked *Y-Y* (see Clause 3.2.3(a)).

2 The points marked X_1 and *X* are respectively at the median end on a divided road and at the intersection of the main road centre-line and the extensions of the side road property lines shown as dotted lines, on an undivided road. On a divided road, dimension *Y-Y* extends to Point Y_1.

DIMENSIONS IN METRES

Figure 7: Prohibited Access Driveway Location (from AS2890.1, Figure 3.1)

A high-level assessment has been undertaken of the potential traffic impact at each of these vehicular crossovers. Traffic volumes were commissioned by the City of Charles Sturt during the PM peak at the intersection of Douglas Street, Noblet Street and Grange Road as illustrated in Figure 8.

Figure 8: PM peak traffic movements captured by CCS

Possible traffic movements to and from the site have been considered across three options as seen in Figure 9, Figure 10 and Figure 11. While these options are not comprehensive, it demonstrates fundamental access issues for further consideration. In these options, it is assumed that 70% of vehicles accessing from Grange Road would be attracted to the primary accessway where possible and 30% to Noblet Street.

Based on this assessment, three possible outcomes were explored. Options 1 does not explicitly comply with the Australian Standard but has been undertaken to demonstrate an option that may mitigate risk or impact on surrounding streets.

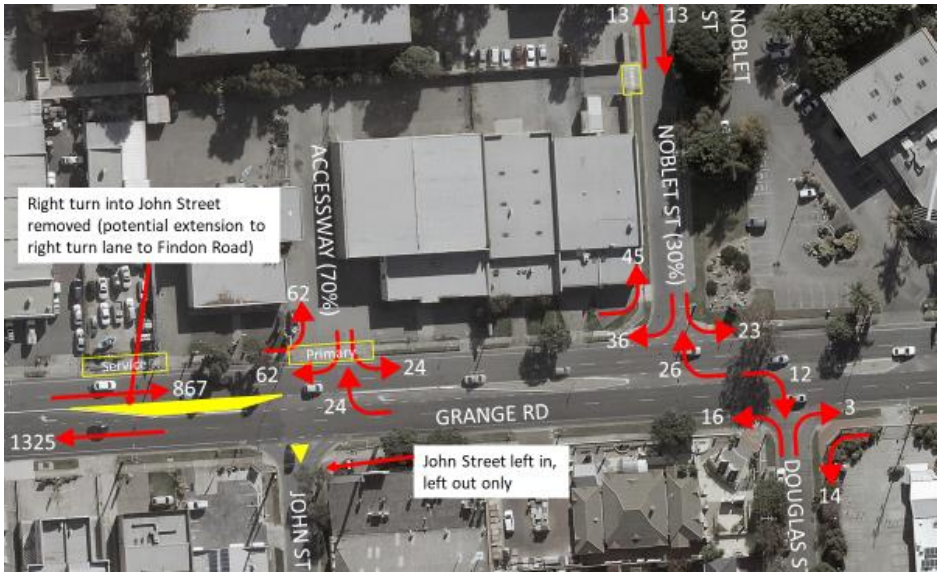


Figure 9: Option 1 - existing accessway remains, John Street left in – left out only

Figure 10: Option 2 – relocated accessway, all movements retained

Figure 11: Option 3 – existing accessway left in & left out only (signal warrant at Noblet St)

If right turns in and out of the Grange Road primary access were prohibited, the turns would likely to be shifted to Noblet Street. Critically, this is likely to generate a peak PM volume of 98 vehicles turning right onto Grange Road, which in conjunction with the PM peak traffic along Grange Road, is approaching the warrant for installation of traffic signals at this junction (refer Figure 12). However, this would require further detailing and assessment to understand the impacts and viability of right turns at this junction.

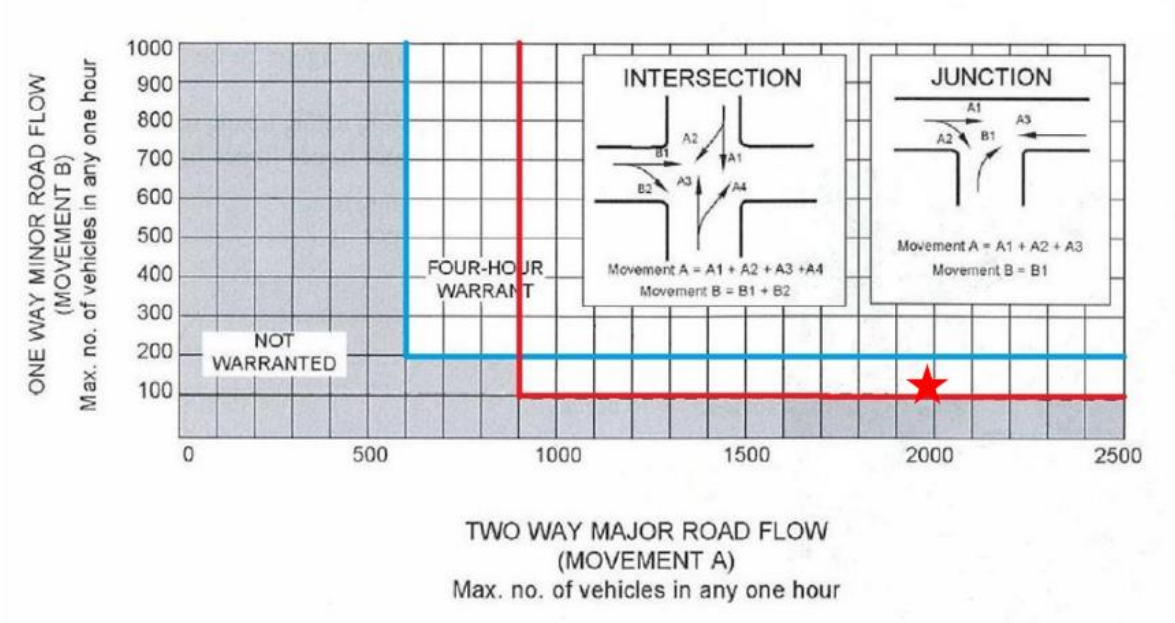


Figure 12: Warrant for traffic signals based on volumes

This results in three potential scenarios for the site:

1. John Street is modified as a left -in and left-out street only, reducing the risk of conflict with the existing accessway. This would need to include an assessment of traffic redistribution and a Road Safety Audit,
2. The primary access on Grange Road is relocated outside of the prohibited zone (as per Figure 7), and incorporates right turns out as per Figure 10. This would need to be supported by a Road Safety Audit, or
3. The primary access on Grange Road is relocated and designed as left in & left out only with a potential requirement for traffic signals at the intersection of Noblet Street and Grange Road (requiring further investigation and design in consultation with DPTI). It is noted that this arrangement is favoured by DPTI and Council although the installation of traffic signals is not.

Movements identified in Option 3 are recommended for inclusion in the concept plan for the district centre to minimise conflict and align with Council and DPTI policy. The remaining potential options may be further explored in detailing of the site should issues arise with Option 3.

3.5 Service Vehicles

The background letter from ekistics provides some descriptive framework as to how the ALDI site will be serviced:

A loading area is proposed to be located at the western end of the ALDI building. The ALDI loading dock will be provided in accordance with ALDI's standard detail and seeks 24-hour delivery access with two main deliveries made per day by 20 metre long semi-trailers. These trucks will enter the site in a forward direction from Grange Road, reverse into the loading dock and exit in a forward direction. A third delivery, via a small rigid vehicle, will deliver bakery products once a day, entering and exiting the site in a forward direction.

While it is unclear where exactly the loading accessway is to be located, it is clear that intent for loading and access is from Grange Road. Whether this is incorporated with the primary accessway is unknown so a separate accessway has been potentially located at the western edge of the site and this would be left-in left-out only.

It is important to note that nearby centres such as Coles and Foodland in Findon, Drakes Foodland in Grange, Woolworth in Findon and Coles in Welland have servicing and loading from secondary access roads rather than primary access roads such as Grange Road.

If the primary vehicle access is to be from Grange Road, further detail would be required to understand the delay that the entry or exit movement may have on arterial road traffic and would need to be approved in by the Department of Planning, Transport and Infrastructure.

3.6 Waste Generation, Storage & Servicing

Framework

The Charles Sturt Council Development Plan – consolidated 30 January 2018 lists a number of principles of development control in relation to waste management:

Development that involves the production and/or collection of waste and/or recyclable material should include designated collection and storage area(s) that are:

a) screened and separated from adjoining areas
b) located to avoid impacting on adjoining sensitive environments or land uses
c) designed to ensure that wastes do not contaminate stormwater or enter the stormwater collection system
d) located on an impervious sealed area graded to a collection point in order to minimise the movement of any solids or contamination of water
e) protected from wind and stormwater and sealed to prevent leakage and minimise the emission of odours
f) stored in such a manner that ensures that all waste is contained within the boundaries of the site until disposed of in an appropriate manner.

Many of these points can only be addressed with detail of the site, however some preliminary investigations were undertaken as to the likely scale of waste generation and how servicing could work.

Proposal

The following assessment is based on limited information, with an indicative building footprint and site location and dimension being the only supplied detail. No design drawings or layout plans have been provided and as such no access or movement assessment can be undertaken at this stage.

Zero Waste SA Better Practice Guide provides the following rates for Supermarket developments:

Supermarket	General Waste	Recycling	Organics
L/10m^2/day	18	20	18

At 1,722m^2 total floor area and assuming 7-days per week operations (as per existing ALDI supermarkets in the Adelaide metropolitan area), the following daily waste generation volumes are calculated:

Supermarket	General Waste	Recycling	Organics
L/day	3,100	3,444	3,100

The above volumes do not take into account compaction. According to the *ALDI Findon DPA Information* letter prepared by ekistics and dated 8 May 2018, "*Recycling and rubbish will be stored within a compactor and bin enclosure located in the loading dock which will be screened from view.*" Accordingly, storage volumes may be lower than that calculated by the ZWSA method.

Using the ZWSA (uncompacted) values, the supermarket would require 3x 1,100L bins for general waste, 3x 1,100L bins for recycling and 5x 660L bins for green organic waste. It is common practice for large retail operations to separate, compact and bind all cardboard waste independent of other recyclable waste. If this applies to this development, the required storage for recyclables would fall significantly. Details of ALDI's standard operating procedures, as applied to other similar sized operations in the Adelaide metropolitan area, will assist in determining the likely waste streams and volumes, including on-site storage requirements. It is recommended that bins of 660L for organic waste and 1,100L be used for general and recyclable waste.

If the proposal is to be further detailed, the waste storage area will need to be accessible from the street such that the collection vehicle can safely and efficiently enter and exit the site in the forward direction. The collection area shall be screened and secure, and collection vehicles shall be able to stop as close as possible to the storage area to minimise bin movement. Ground surfaces shall be hardstand and flat with self-contained drainage to prevent waste flowing into car park and street areas.

Waste servicing should utilise the same accessway as other servicing and loading required for the site.

No specific land use has been specified for the remainder of the site which could heavily influence the amount of waste produced. A café for example would generate around 6 times the general waste and 160 times the organic waste that a retail store might. For this reason, no specific calculations have been undertaken for the balance of the site but rates for likely land uses can be seen in Figure 13 below.

	Land Use Type	Waste Resource Generation Rate				
		General Waste	Recycling	Organics	Metric	Other
Commercial	Licenced Entertainment Premises or Community Club (combined bar and dining area)	30	15	40	L/10m² combined bar and dining floor area/day	
	Offices or Consulting Rooms	15	15	2.5	L/10m²/week	
	Showrooms	4	1	0.25	L/10m²/day	
	Butcher[4]	30	7	50	L/10m²/day	
	Delicatessen	5		5	L/10m²/day	
	Seafood Retailer[4]	30	7	50	L/10m²/day	
	Fruit and Vegetable Retailer	15	12	16	L/10m²/day	
	Hairdresser	3.5	3	1	L/10m²/day	
	Café/Restaurant	30	20	40	L/10m²/day	
	Supermarket	18	20	18	L/10m²/day	
	Takeaway	3	3	3.5	L/10m²/day	
	Retail (less than 100m²)	5	2.5	0.25	L/10m²/day	
	Retail (greater than 100m²)	6	6	0.3	L/10m²/day	

Figure 13: Waste Generation Rates - ZWSA Better Practice Guide

4. Summary

Based on our traffic and parking investigations for the proposed Grange Road Findon DPA, we offer the following comments:

1. The proposed development will increase pedestrian movements around the site and create new desire lines. For this reason, additional pedestrian refuges or other crossing options for Grange Road and Findon Road should be explored to improve pedestrian safety.
2. The proposed number of car parks is appropriate based on accepted traffic engineering practice and meets the Scenario 1 proposal to extend the Neighbourhood Centre Zone.
3. The proposed number of car parks does not strictly meet the existing Mixed-Use zoning or the Scenario 2 proposal to change the existing Mixed-Use Zone to allow for a greater GFLA.
4. The signalised intersection of Grange Road and Findon Road is modelled as approaching saturation. The proposal will increase the number of trips through this intersection and will increase delay at the intersection and cause oversaturation. However, the modelled performance was not observed to accurately reflect real world conditions and therefore the proposal is not likely to significantly affect delay at the intersection. This would need to be reinvestigated should the site be further detailed.
5. The proposal would reduce the number of vehicle crossovers significantly and reduce the likelihood of conflict between vehicles and pedestrians.
6. Left in and left out access only to primary accessways off of Grange Road is recommended for inclusion in the concept plan for the district centre.
7. While a large amount of waste is anticipated to be generated by the site, provision of an on-site compactor and appropriate servicing techniques (requiring further detail) is likely appropriate and consistent with Development Plan requirements.

5. Appendix A: SIDRA Outputs

Site: TS048 [AM Grange Road, Findon - R2]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site User-Given Phase Times)

Intersection Performance - Hourly Values						
Performance Measure	Vehicles		Pedestrians		Persons	
Travel Speed (Average)	33.6	km/h	1.6	km/h	33.5	km/h
Travel Distance (Total)	3971.9	veh-km/h	0.2	ped-km/h	4766.5	pers-km/h
Travel Time (Total)	118.3	veh-h/h	0.1	ped-h/h	142.1	pers-h/h
Demand Flows (Total)	3897	veh/h	5	ped/h	4681	pers/h
Percent Heavy Vehicles (Demand)	3.8	%				
Degree of Saturation	0.914		0.004			
Practical Spare Capacity	-1.6	%				
Effective Intersection Capacity	4261	veh/h				
Control Delay (Total)	51.52	veh-h/h	0.08	ped-h/h	61.90	pers-h/h
Control Delay (Average)	47.6	sec	54.2	sec	47.6	sec
Control Delay (Worst Lane)	76.2	sec				
Control Delay (Worst Movement)	76.2	sec	54.2	sec	76.2	sec
Geometric Delay (Average)	2.2	sec				
Stop-Line Delay (Average)	45.4	sec				
Idling Time (Average)	40.0	sec				
Intersection Level of Service (LOS)	LOS D		LOS E			
95% Back of Queue - Vehicles (Worst Lane)	28.4	veh				
95% Back of Queue - Distance (Worst Lane)	202.8	m				
Queue Storage Ratio (Worst Lane)	0.34					
Total Effective Stops	3313	veh/h	5	ped/h	3981	pers/h
Effective Stop Rate	0.85		0.95		0.85	
Proportion Queued	0.98		0.95		0.98	
Performance Index	393.5		0.1		393.7	

Site: TS048 [AM Grange Road, Findon - R2 with ALDI]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site User-Given Phase Times)

Intersection Performance - Hourly Values						
Performance Measure	Vehicles		Pedestrians		Persons	
Travel Speed (Average)	31.6	km/h	1.6	km/h	31.6	km/h
Travel Distance (Total)	4184.4	veh-km/h	0.2	ped-km/h	5021.5	pers-km/h
Travel Time (Total)	132.5	veh-h/h	0.1	ped-h/h	159.1	pers-h/h
Demand Flows (Total)	4105	veh/h	5	ped/h	4932	pers/h
Percent Heavy Vehicles (Demand)	3.6	%				
Degree of Saturation	1.002		0.004			
Practical Spare Capacity	-10.2	%				
Effective Intersection Capacity	4098	veh/h				
Control Delay (Total)	62.08	veh-h/h	0.08	ped-h/h	74.58	pers-h/h
Control Delay (Average)	54.4	sec	54.2	sec	54.4	sec
Control Delay (Worst Lane)	108.0	sec				
Control Delay (Worst Movement)	108.0	sec	54.2	sec	108.0	sec
Geometric Delay (Average)	2.2	sec				
Stop-Line Delay (Average)	52.2	sec				
Idling Time (Average)	46.3	sec				
Intersection Level of Service (LOS)	LOS D		LOS E			
95% Back of Queue - Vehicles (Worst Lane)	34.2	veh				
95% Back of Queue - Distance (Worst Lane)	245.0	m				
Queue Storage Ratio (Worst Lane)	0.45					
Total Effective Stops	3693	veh/h	5	ped/h	4436	pers/h
Effective Stop Rate	0.90		0.95		0.90	
Proportion Queued	0.99		0.95		0.99	
Performance Index	447.9		0.1		448.0	

Site: TS048 [PM Grange Road, Findon - R2]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site User-Given Phase Times)

Intersection Performance - Hourly Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	30.4	km/h	1.6	km/h	30.3	km/h
Travel Distance (Total)	4237.4	veh-km/h	0.7	ped-km/h	5085.6	pers-km/h
Travel Time (Total)	139.3	veh-h/h	0.4	ped-h/h	167.6	pers-h/h
Demand Flows (Total)	4157	veh/h	18	ped/h	5006	pers/h
Percent Heavy Vehicles (Demand)	1.0	%				
Degree of Saturation	0.988		0.023			
Practical Spare Capacity	-8.9	%				
Effective Intersection Capacity	4206	veh/h				
Control Delay (Total)	68.16	veh-h/h	0.27	ped-h/h	82.06	pers-h/h
Control Delay (Average)	59.0	sec	54.2	sec	59.0	sec
Control Delay (Worst Lane)	93.7	sec				
Control Delay (Worst Movement)	97.4	sec	54.2	sec	97.4	sec
Geometric Delay (Average)	2.1	sec				
Stop-Line Delay (Average)	56.9	sec				
Idling Time (Average)	50.6	sec				
Intersection Level of Service (LOS)	LOS E		LOS E			
95% Back of Queue - Vehicles (Worst Lane)	47.1	veh				
95% Back of Queue - Distance (Worst Lane)	333.1	m				
Queue Storage Ratio (Worst Lane)	0.41					
Total Effective Stops	4184	veh/h	17	ped/h	5038	pers/h
Effective Stop Rate	1.01		0.95		1.01	
Proportion Queued	0.97		0.95		0.97	
Performance Index	459.9		0.5		460.4	

Site: TS048 [PM Grange Road, Findon - R2 with ALDI]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site User-Given Phase Times)

Intersection Performance - Hourly Values						
Performance Measure	**Vehicles**		**Pedestrians**		**Persons**	
Travel Speed (Average)	26.8	km/h	1.6	km/h	26.8	km/h
Travel Distance (Total)	4428.5	veh-km/h	0.7	ped-km/h	5314.9	pers-km/h
Travel Time (Total)	165.1	veh-h/h	0.4	ped-h/h	198.5	pers-h/h
Demand Flows (Total)	4344	veh/h	18	ped/h	5231	pers/h
Percent Heavy Vehicles (Demand)	1.0	%				
Degree of Saturation	1.064		0.023			
Practical Spare Capacity	-15.4	%				
Effective Intersection Capacity	4085	veh/h				
Control Delay (Total)	84.85	veh-h/h	0.27	ped-h/h	102.08	pers-h/h
Control Delay (Average)	70.3	sec	54.2	sec	70.3	sec
Control Delay (Worst Lane)	133.9	sec				
Control Delay (Worst Movement)	124.7	sec	54.2	sec	124.7	sec
Geometric Delay (Average)	2.2	sec				
Stop-Line Delay (Average)	68.2	sec				
Idling Time (Average)	66.1	sec				
Intersection Level of Service (LOS)	LOS E		LOS E			
95% Back of Queue - Vehicles (Worst Lane)	62.6	veh				
95% Back of Queue - Distance (Worst Lane)	442.8	m				
Queue Storage Ratio (Worst Lane)	0.54					
Total Effective Stops	4602	veh/h	17	ped/h	5539	pers/h
Effective Stop Rate	1.06		0.95		1.06	
Proportion Queued	0.98		0.95		0.98	
Performance Index	509.7		0.5		510.2	

Appendix C – Preliminary Site Investigation, LBWco

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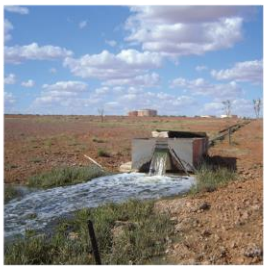

Preliminary Site Investigation

263A – 275 Grange Road, Findon SA

Report for City of Charles Sturt

DELIVERING
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Preliminary Site Investigation
263A – 275 Grange Road, Findon SA

Report for City of Charles Sturt

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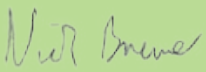
Approved for issue	

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F Soil Vapour Chemical Summary Tables

G Laboratory Certificates and COC Documentation

List of Acronyms

ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013)
ACM	Asbestos Containing Material
B(a)P	Benzo(a)pyrene
BTEXN	Benzene, toluene, ethylbenzene, xylenes, naphthalene
COC	Chain of Custody
CSM	Conceptual Site Model
CT	Certificate of Title
DEWNR	Department for Environment, Water and Natural Resources, Government of South Australia
EPA	Environment Protection Authority, Government of South Australia
EP Act	*Environment Protection Act 1993*, Government of South Australia
HLCW	High-level Contaminated Waste
HIL/HSL	Health investigation/screening level
IWS	Intermediate Waste Soil
LBWco	LBW co Pty Ltd
LLCW	Low-level Contaminated Waste
mAHD	metres Australian Height Datum
mBGL	metres below ground level
NATA	National Association of Testing Authorities
OCP	Organochlorine pesticides
OPP	Organophosphorus pesticides
PAH	Polycyclic aromatic hydrocarbons
PCA	Potentially contaminating activity
PCB	Polychlorinated biphenyls
PID	Photoionisation detector
ppm	Parts per million
PSI	Preliminary Site Investigation
QA/QC	Quality assurance / quality control
RPD	Relative percentage difference
RSL	Regional Screening Level
SA	South Australia
SVOC	Semi volatile organic compound
TDS	Total dissolved solids
TRH	Total recoverable hydrocarbons
VOC	Volatile organic compound
WF	Waste Fill

Executive Summary

LBW co Pty Ltd (LBWco) was commissioned by City of Charles Stuart (CCS) to prepare a Preliminary Site Investigation (PSI) comprising a site history investigation and soil vapour assessment across eight adjacent allotments referred to as 263A-275 Grange Road, Findon SA (the site). A site location plan is presented as Figure 1 in Appendix A.

The PSI was required by CCS as part of the consideration a privately funded Development Plan Amendment (DPA) for the site. The DPA was being undertaken to assess the suitability of the site for a proposed retail development and mixed use zone change.

The objectives of the site history component of the PSI were to:

- Research current and historical land uses and associated activities undertaken at or adjacent to the site to identify whether Potentially Contaminating Activities (PCAs) may have occurred on or near the subject site;
- Provide a desktop assessment of risk with respect to the likelihood that PCAs could have caused site contamination, with respect to future commercial and residential land use.

The objectives of the preliminary soil vapour assessment component of the PSI were to:

- Assess whether site contamination of soil vapour is present that could preclude the proposed commercial and/or residential land uses;
- Assess whether soil vapour concentrations indicate the potential for groundwater contamination that may warrant further investigation.
- Advise on whether remediation or management is needed to make the site suitable for the proposed commercial and/or residential land use.

Based on the information collected for the site history assessment, and sampling of soil vapour, the following key findings were made:

- Four onsite PCAs (as per *Environment Protection Regulations 2009)* or other relevant activities were identified to have likely occurred at the site:
  - Motor Vehicle Repair or Maintenance.
  - Fill or soil importation.
  - Pest Management including application of herbicides/pesticides
  - Storage of listed substance (>500L)
- One off-site PCA was identified:
  - Service station
- Soil vapour sampling at four locations at the site did not identify any concentrations of volatile hydrocarbons that would pose an unacceptable risk to future residential or commercial users via vapour intrusion into buildings. These findings suggested it was unlikely that a significant source of volatile hydrocarbons was present in soils or groundwater at the site.
- Site history evidence and soil vapour sampling results indicated each of the identified PCAs listed above posed low risk with respect to the either residential or commercial use of the site.
- The following data gaps were acknowledged:

- LBWco was unable to gain access to the buildings present onsite. There is potential for features to be present that could have caused contamination. However, the absence of unacceptable hydrocarbon vapours indicates a low probability of a significant contamination source not yet identified.

- The nature of site soils was not known as a direct assessment of soil was not undertaken within this PSI. Shallow soil contamination, if present, can be readily assessed and managed during future redevelopment to ensure that the final site condition is suitable for commercial land use, consistent with routine construction environmental management.

The information provided in this report is subject to the limitations expressed in Section 10. The reader should make themselves aware of the limitations and how they relate to the conclusions provided.

1 Introduction

LBW co Pty Ltd (LBWco) was asked by City of Charles Stuart (CCS) to prepare a Preliminary Site Investigation (PSI) comprising a site history investigation and soil vapour assessment across eight adjacent allotments referred to as 263A-275 Grange Road, Findon SA (the site). A site location plan is presented as Figure 1 in Appendix A. Each allotment and

The PSI was required by CCS as part of the consideration a privately funded Development Plan Amendment (DPA) for the site. The DPA was necessary to facilitate a proposed retail development and rezoning for mixed residential/commercial use.

1.1 Objectives

The objectives of the site history component of the PSI were to:

- Research current and historical land uses and associated activities undertaken at or adjacent to the site to identify whether Potentially Contaminating Activities (PCAs) may have occurred on or near the subject site;
- Provide a desktop assessment of risk with respect to the likelihood that PCAs could have caused site contamination, with respect to future commercial and residential land use.

The objectives of the preliminary soil vapour assessment component of the PSI were to:

- Assess whether site contamination of soil vapour is present that could preclude the proposed commercial and/or residential land uses;
- Assess whether soil vapour concentrations indicate the potential for groundwater contamination that may warrant further investigation.
- Advise on whether remediation or management is needed to make the site suitable for the proposed commercial and/or residential land use.

2 Regulatory Framework

In South Australia, the assessment, management and remediation of site contamination is regulated by the *Environment Protection Act 1993* (EP Act). The EP Act defines site contamination in section 5B as follows:

(1) For the purposes of this Act, site contamination exists at a site if—

(a) chemical substances are present on or below the surface of the site in concentrations above the background concentrations (if any); and

(b) the chemical substances have, at least in part, come to be present there as a result of an activity at the site or elsewhere; and

(c) the presence of the chemical substances in those concentrations has resulted in—

(i) actual or potential harm to the health or safety of human beings that is not trivial, taking into account current or proposed land uses; or

(ii) actual or potential harm to water that is not trivial; or

(iii) other actual or potential environmental harm that is not trivial, taking into account current or proposed land uses.

(2) For the purposes of this Act, environmental harm is caused by the presence of chemical substances—

(a) whether the harm is a direct or indirect result of the presence of the chemical substances; and

(b) whether the harm results from the presence of the chemical substances alone or the combined effects of the presence of the chemical substances and other factors.

(3) For the purposes of this Act, site contamination does not exist at a site if circumstances of a kind prescribed by regulation apply to the site.

The first stage in determining whether site contamination exists is to assess whether chemical substances have been added to the site through an activity and whether these substances are above background concentrations. The second stage is to assess whether the chemical substances have resulted in actual or potential harm to the health or safety of human beings or the environment (including water) that is not trivial.

If site contamination is determined to be present at a site, the EP Act provides mechanisms to assign responsibility for the contamination and appropriate assessment and/or remediation of the contamination.

The professional assessment of site contamination and consequential risk to human health and the environment is guided by NEPC 1999, *National Environment Protection (Assessment of Site Contamination) Measure,* National Environment Protection Council (the ASC NEPM, as amended 2013), Australian Standards and numerous other guidelines and technical publications prepared by the EPA and other scientific organisations.

3 Site History Review Methodology

3.1 Site History Review Guidance

The site history investigation works were undertaken with reference to the guidance provided in the following documents:

- Edwards J. W., Van Alphen M and Langley A., Identification and Assessment of Contaminated Land: Improving Site History Appraisal. Contaminated Sites Monograph Series No 3, SA Health Commission, Adelaide (1994) and;
- National Environmental Protection Council 1999, National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM) as amended 2013.

Assessment of PCAs was made with reference to Section 50 and Schedule 3 Part 1 of the *Environment Protection Regulations 2009*.

3.2 Site History Review Methodology

The history of activities undertaken on and adjacent to the site was researched using the following sources of information:

- Aerial photographic records provided by Mapland and other aerial image resources;
- Certificate of Title information obtained from the Lands Titles Office;
- Published geology and topography maps of the region;
- Water Connect database of groundwater records, maintained by the Department for Environment, Water and Natural Resources (DEWNR);
- Local planning authority records;
- Environment Protection Authority (EPA) Public Register search under Section 7, Land and Business (Sales & Conveyancing) Act 1994 and interrogation of the Public Register Directory Site Contamination Index for the local area;
- Observations and information gathered during a site inspection and interview with site owner.

4 Site Information

4.1 Site Details and Identification

Site identification details are provided in Table 1 below. A copy of the current Certificates of Title (CT) for the site is provided in Appendix B.

Table 1 Property Details

Street Address	Allotment No.	Plan Ref.	Certificate of Title	Current land use
263-263A Grange Road	36	F117548A36	CT6080/458	Unoccupied (recently commercial)
263B-263C Grange Road	35	F117547A35	CT5301/952	Unoccupied (recently commercial)
265 Grange Road	10	D5549A9	CT5366/314	Unoccupied (recently commercial)
267 Grange Road	9	D5549A9	CT5366/397	Unoccupied (recently commercial)
269-271 Grange Road	7 and 8	D5549A7	CT5284/711	Commercial
273 Grange Road	6	D5549A6	CT5204/348	Commercial
275 Grange Road	5	D5549A5	CT5476/751	Commercial

4.2 Topography

According to the topographic map of the Mount Lofty Ranges (Dept. of Lands 1990), the site has an elevation of approximately 10 m Australian Height Datum (AHD) and is relatively flat over the entire site.

4.3 Geology

Local geology was reviewed via the 1:250,000 *Adelaide* geology map Sheet SI 54-09 (Geological Survey of SA, Dept of Mines 1962) and indicated that the surficial geology of the site is dominated by the Pooraka Formation, characterised as predominantly pale red-brown sandy clay, containing carbonate of the Loveday Soil.

4.4 Hydrogeology

As published in the South Australian Department of Mines and Energy Information Sheet 21, *Groundwater in the Adelaide Metropolitan Area,* there are three major groups of aquifers that occur beneath the metropolitan area:

- Shallow Aquifers – consisting of sand and gravel layers within alluvial silt and clay, at depths between 3 and 10 m below ground level (BGL). Water salinity in the shallow aquifer is highly variable;
- Deep Aquifers – formed by porous layers which occur within marine sediments which underlie the shallow aquifers. Deep tertiary aquifers include T1, T2, T3 and T4. Water from these aquifers is generally suitable for industrial and irrigation uses; and

- Fractured Bedrock- underlies the deep tertiary aquifers and is generally of good quality.

Shallow perched water can also occur, particularly in areas where more permeable soils overly tight clay formations. Surface water and stormwater inflows, as well as leaky water infrastructure, can create a shallow perched water system that is strongly influenced by variability in the source water flows. Flows of shallow perched water are highly localised and typically influenced by the geological bedding planes. Regional groundwater beneath the site is anticipated to flow in a westerly direction.

On 22 June 2018, a search of the South Australian Government *Water Connect* database identified 40 groundwater wells within a 0.5 km radius of the site. A copy of the search results is provided in Appendix C.

The following key information was identified from the database results:

- One registered bore was located on-site, noted to have been drilled in 2015 to a depth of 5 mBGL;
- All 40 registered bores were classified as water wells;
- Of the 40 wells drilled within the 0.5 km radius, 28 wells were recorded to have been drilled to a depth <20 m BGL and therefore likely accessing the shallow aquifer;
- The recorded standing water levels (SWL) in the inferred shallow wells (<20 mBGL) ranged from 0.5 m below ground level (mBGL) to 11 mBGL.
- Total dissolved solids (TDS, salinity) concentrations in inferred shallow wells (<20 mBGL) range from 1,429 mg/L to 3,298 mg/L. According to the Environment Protection (Water Quality) Policy (2015), groundwater with TDS concentrations greater than 1,200 mg/L is deemed unsuitable for drinking water purposes.

4.5 Sensitive Receiving Environments

The closest sensitive receiving environment was the Torrens River, located approximately 1.3 km south of the site.

4.6 Site Inspection

On 2 June 2018, an experienced Environmental Consultant conducted a limited inspection of the site and surrounding area. Access was limited to the some yards and external areas and did not include the interior of buildings. Where access was possible, important features pertaining to the potential for site contamination were noted and a photographic record was made. A site features plan is presented in Figure 2 (Appendix A) and selected site photographs are presented in Appendix C.

At the time of the inspection the following key observations were made with regards to the site and adjacent land:

- Onsite
  - 263, 263A, 265 and 267 Grange Road: contained unoccupied commercial buildings. Recent signage suggested the premises had been used as a wholesaler for distribution of hair salon products.
  - 271 Grange Road: Adelaide Canoe Works, supplier of canoes and accessories.
  - 273 Grange Road: Grange Road Motors, a vehicle repair, maintenance, and small used-car sale yard.
  - 275 Grange Road: Safe Supplies, a provider of safes and vaults.

- Offsite
  - Shell Service Station located adjacent to the western boundary of the subject site. A groundwater monitoring well was visible in the eastern portion of the service station site.

4.7 Site Interview

Due to the nature of the site history investigation, no persons were available to conduct relevant interviews in relation to the historical use of the subject site.

4.8 Adjacent Land Uses

Based upon the site inspection and review of current aerial photography, the land immediately surrounding the site is described below:

- North: Residential apartment blocks,
- East: Nobel St, with the Findon Hotel beyond.
- South: Grange Road, with commercial and residential premises beyond.
- West: Shell service station, with Findon Road and further commercial premises beyond.

5 Site History

5.1 Certificate of Title

On 22 June 2018, LBWco conducted a search on the Property Assist website of the current and historical CTs for the site.

Available records date back to 1911 when the entirety of the site was part of a larger property including land to the west.

Key notes of the ownership details identified in the historical CT search were as follows:

- The Smith Motor Company Pty Ltd purchased the land encompassing Lots 5 and 6 in 1966. Subsequent subdivision of this land into the two existing allotments occurred in 1983.
- Roger Young, a motor mechanic, purchased Lot 6 in 1989 and retained ownership of the property until 2015.
- Rover Mowers leased Lot 36 in 1978. Subsequent leasees included Steel Importers (SA) in 1979, and Salon Hair Care Supplies in 1981.
- Bush Boake Allen Australia Ltd (manufacturer of flavours, fragrances and aromas for food, beverage and household products) operated at 269-271 Grange Road from 1967 to the 2000's.
- ARB Corporation (4wd accessories) leased Lots 9 and 10 from 1996 to 2012, before Crane Distribution Ltd (commercial plumbing materials supplier) took over lease of the premises

For a more detailed site ownership history, refer to the summary of current and historical information presented as a title tree in Appendix B.

5.2 Aerial Photographs

Selected aerial photographs of the site and surrounding area, covering a period from 1949 to 1994 inclusive, were acquired from DEWNR. Satellite images taken in 2009 and 2017 were obtained from the Nearmap website. Copies of the images are provided in Appendix E.

A summary of the features and apparent land use(s) observed in the historical aerial photography is provided in Table 2.

Table 2 Aerial Photography Review

Year	Description
1949	On-site: • The site was predominantly used as agricultural land, with two residential dwellings apparent within the eastern portion of the site (Lot 9, 10, 35 and 36). • Possible greenhouses in the western portion. Off-site: • Generally, surrounding land was predominantly agricultural with occasional residential dwellings present. • What appeared to be a possible commercial premises was visible to the south of the site.
1959	On-site: • The site remained largely unchanged from the 1949 aerial image. Off-site:

Year	Description
	• Generally, surrounding land was a combination of agricultural land and residential development. • A commercial premises had been constructed adjacent to the southern boundary of the site, across Grange Road. This included one large structure that appeared to be an associated sealed area at the rear.
1969	On-site: • The south western corner of the site was in use as a car yard, consistent with the ownership of the land parcel by Smith Motor Company Pty Ltd (Lots 5 and 6). • The central portion of the site had been redeveloped and now included to commercial structures (Lots 7 and 8). • The residential dwellings in the eastern portion remain. Off-site: • The property adjacent to the west of the site had been developed and appeared to be used as a service station based on the appearance and orientation of the structure and site features. • To the east, across Noble St, the Findon Hotel had been constructed along with further residential development. • Land to the immediate north of the site remained largely vacant.
1979	On-site: • The residential dwellings on Lots 9, 10, 35 and 36 had been replaced with new commercial structures. • The remainder of the site appeared largely unchanged from the previous aerial image. Off-site: • Multi-story residential unit complexes had been constructed on the land adjacent to the north of the site. • An additional building had been constructed on the service station property adjacent to the western boundary of the site. • Additional commercial premises had been constructed to the south, across Grange Road.
1989	On-site: • The car yard previously located on the southern portion of Lots 5 and 6 had been redeveloped for apparent commercial use. • A single commercial structure had been constructed on Lot 5 which encompassed the majority of this allotment, with a small rear storage area. • Lot 6 appeared to be used as a storage/car yard. • The remainder of the site was largely unchanged from the 1979 aerial image. Off-site: • The surrounding land was largely unchanged from the previous aerial image.
1999	On-site: • A commercial structure had been constructed on Lot 6, likely for use as the motor vehicle service centre, with associated car yard at front of allotment. • Remainder of the site remained largely unchanged. Off-site: • An AST was visible adjacent to the western boundary of the site, on the service station property. • The surrounding land was largely unchanged from the 1989 aerial image.
2015	On-site: • The site appears unchanged from the 1999 aerial image. Off-site: • The surrounding land appears largely unchanged from the previous image.

Year	Description
2017	On-site: • Largely unchanged from the previous image. Off-site: • Largely unchanged from the previous image.

5.3 EPA Public Register Searches

5.3.1 Section 7

A Section 7 Search under the Land and Business (Sales and Conveyancing) Act 1994 was conducted by the Environmental Protection Authority for the site. A copy of the search result and licence is provided in Appendix F. The search results indicated the following, as of 21 May 2018:

- There were no mortgages, charges or prescribed encumbrances affecting the site under the relevant sections of the *Environment Protection Act 1993.*
- No license or environmental authorisation was ever issued to operate a waste depot on the land under the *South Australia Waste Management Commission Act 1979*, the *Waste Management Act 1987* or the *Environment Protection Act 1993.*
- In relation to the subject site, the EPA Register did not hold any information relating to:
  - Site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993.*
- In relation to the subject site, the EPA Register does not hold information relating to:
  - Material or serious environmental harm cause or threatened in the course of an activity;
  - Environmental assessment report(s);
  - The termination before completion of a pre-1 July 2009 site audit.
- In relation to the subject site, the EPA Register does not hold information relating to:
  - A Health Commission Report prepared by or on behalf of the *South Australian Health Commission* under the repealed *South Australian Health Commission Act 1976*; and

No information was held on the EPA Register.

5.3.2 Site Contamination Index

The EPA maintains a searchable database on its website of key notifications made to the EPA in regard to site contamination. The database is called the Site Contamination Index (http://www.epa.sa.gov.au/data_and_publications/site_contamination_index/).

On 31 May 2018, LBWco conducted a search of the database for the suburbs encompassing the site. A number of Audit Notifications, Audit Reports, and Section 83A notifications were listed within Findon, however, a number of which were within 500 m of the subject site.

The search identified two sites within 500m of the site with Section 83A notifications of actual or threatened harm to groundwater. These notifications warranted further investigation to consider potential risks to site users. The documentation available from the Public Register was reviewed and is summarised below.

245 Findon Road, Findon – Listed Substances (storage); service station (adjacent to west of site):

- Environmental Resource Management (ERM) submitted the S83A notification in 2017 due to elevated TRH C6-C10 less BTEX concentrations identified within two of the three monitoring wells installed on the service station property (MW02 and MW03).
- ERM indicated that the groundwater flow direction was in a north-westerly direction, away from the subject site.

Lot 31 Ray Street, Findon - Landfill sites (approx. 230 m north east of site)

- GHD submitted the S83A notification in 2014 due to elevated concentrations of chloroform identified in a groundwater well offsite to the east of their investigation area.
- The extent of the impacts was unknown, as the elevated concentrations were only identified in the one offsite and up-gradient well, likely associated with historical landfill operation in the area.

5.4 Dangerous Substances Register

In June 2018, a request for a search of the site on the Dangerous Substances Register was lodged with SafeWork SA. A response from SafeworkSA on 5 July 2018 indicated there were records held on the register in relation to a Class 3 10 kL underground liquid tank at 265 Grange Road, Findon. The letter from SafeworkSA is included in Appendix E.

5.5 Sands and McDougall Register

On 22 June 2018, LBwco conducted a search of the Sands and McDougall director (accessed via the State Library of South Australia website) for businesses listed historically at the site, and nearby businesses in consideration of PCAs. These records were available until 1973. Findings are described below in Table 3, and search results are provided in Appendix B.

Table 3 Aerial Photography Review

Year	Description
1950	On-site: • No record. Off-site: • Carbone, G. Gardener (239 Findon Road; ~100m north-west of site)
1960	On-site: • Mackrill, Rev M D. • Jones, Mrs E Off-site: • Carbone, G. Gardener (239 Findon Road; ~100m north-west of site) • Findon Poultry Farm (~100m west of site)
1970	On-site: • 263 Grange Road: Fedele, D • 265 Grange Road: Nabisco Pty Ltd – Office and Warehouse • 269-271 Grange Road: Albright & Wilson (Aust) Ltd – Chemical Manufactures • 269-271 Grange Road: Bush Boake Allen Aust Ltd – Manufacturing Chemists Off-site: • Shell Service Station (241 Findon Road; adjacent to west of site) • Nylex Corporation Ltd – Plastics (290 Grange Road; ~50m south of site)
1973	On-site:

Year	Description
	• 263 Grange Road: Fedele, D • 265 Grange Road: Nabisco Pty Ltd – Office and Warehouse • 269-271 Grange Road: Albright & Wilson (Aust) Ltd – Chemical Manufactures • 269-271 Grange Road: Bush Boake Allen Aust Ltd – Manufacturing Chemists Off-site: • Shell Service Station (241 Findon Road; adjacent to west of site) • Nylex Corporation Ltd - Plastics (290 Grange Road; ~50m south of site) • Klinger Richard P/L – Manufacturing Engineer (298 Grange Road; ~50m south of site)

5.6 Historical Overview

Based on the desktop site history research conducted by LBWco, it was inferred that the site was predominantly as commercial land since the 1960s. Operation of a various small-scale car yards and associated vehicle maintenance workshops had been undertaken on Lots 5 and 6 since the 1960s to 2018. The remainder of the site had numerous businesses operate within the commercial premises since this time, including a hair and beauty wholesaler, food and beverage flavour and aroma manufacturer, commercial plumbing materials wholesaler, a glass window retailer, a kayak retailer, and a safe/vault retailer.

SafeworkSA's Dangerous Goods register had records of a 10kL underground liquid storage tank at 265 Grange Road. This tank was not identified during the site inspection and possibly resides within the existing building.

Immediately surrounding areas were historically commercial use along Grange Road, with residential properties to the north of the site. A service station has been in operation adjacent to the west of the site (245 Findon Road) since its inception in the 1960s. In 2017, a Section 83A notification was lodged with the EPA in relation to elevated concentration of hydrocarbon compounds identified in groundwater monitoring wells on this property. Review of the S83A documentation indicated groundwater flow was in a north westerly direction, away from the subject site.

6 Soil Vapour Assessment Methodology

6.1 Guidance Documents

The soil vapour assessment methodology was based on guidance provided in the following documents:

- ASTM Guide D5314-92 (2001) Standard Guide for Soil Gas Monitoring in the Vadose Zone.
- CRC Care Technical Report 23: Petroleum Hydrocarbon Vapour Intrusion Assessment: Australian Guidance.
- Davis, GB, Wright, J and Patterson, BM 2009. Field assessment of vapours, CRC CARE technical report no. 13, CRC for Contamination Assessment and Remediation of the Environment, Adelaide.

6.2 Sampling and Analysis Rationale

An assessment of the presence of vapours within site soils was undertaken to address the potential for unacceptable risk from hydrocarbon vapour intrusion into future buildings from potential onsite or offsite sources. This was considered particularly relevant given the service station activities immediately adjacent to the site with known petroleum hydrocarbon contamination in underlying groundwater.

The sampling strategy included the installation of four sub-slab passive soil vapour samplers (Waterloo Membrane Samplers WMS) within holes drilled through the exterior concrete slabs or asphalt surfacees (SV1 to SV4). A plan displaying the sample locations is provided as Figure 2 in Appendix A.

Soil vapour samples were tested for a broad suite of volatile chemicals, including petroleum hydrocarbons and chlorinated solvents.

6.3 Fieldwork Methodology

The soil vapour assessment fieldwork methodology, including field quality assurance/quality control (QA/QC) measures implemented during the investigation, is summarised in Table 4 below.

Table 4 Soil Vapour Investigation Methodology

Activity	Details
Soil boring and sampling	On 2 June 2018, passive soil vapour samplers (WMS) were installed at four locations (SV1 to SV4). The four samplers were installed directly below the concrete/bitumen slab, with the WMS installed at a total depth of 0.1 – 0.25 mBGL. A foam plug was used to seal the hole from surface ambient air. A duplicate sample (QC1) was installed 1 m adjacent the parent sample (SV1) to provide quality control assessment of the soil vapour results. On 9 June 2018 (following one week after installation), the soil vapour probes were retrieved and placed into laboratory-supplied container.
Sample handling	Sampling equipment was handled exclusively by an LBWco consultant, and samples were stored in fit for purpose containers supplied by the primary contract laboratory (SGS). Disposable nitrile gloves were worn by the field representative during sampling.
Decontamination of sampling equipment	The hammer drill bit and was cleaned between sampling locations by scrubbing with phosphate free detergent solution, followed by a potable water rinse.

Activity	Details
Sample preservation	Sample transport was performed in accordance with LBWco's chain of custody (COC) procedures.
Soil bore abandonment	Soil vapour bores were reinstated with concrete subsequent to WMS retrieval.
Laboratory Analysis	Selected samples were submitted for chemical analysis of potential contaminants of concern, including: • VOCs (by GC/MS) • NEPM 1999 TRH fractions Analytical testing was undertaken by SGS. The laboratory is accredited by the National Association of Testing Authorities (NATA) for the analyses performed.

6.4 Screening Criteria

The ASC NEPM provides a nationally consistent framework for assessing the presence and significance of site contamination in soil and groundwater. The NEPM methodology is based on assessing the potential for an unacceptable risk to human health or the environment by comparing concentrations of chemical substances to conservative, generic investigation levels for various environmental settings and land use scenarios.

Investigation levels are defined in the ASC NEPM as… *concentrations of a contaminant above which further appropriate investigation and evaluation will be required*. They are not clean up or response levels. A response level is defined as… the *concentration of a contaminant at a specific site based on a site assessment for which some form of response is required to provide an adequate margin of safety to protect public health and/or the environment.*

The NEPM health investigation and screening levels (HILs/HSLs) are based on conservative assumptions around providing protection to a young child living or playing on the site and subjected to exposure to contaminated soils. The most stringent HILs/HSLs are assigned to sensitive land uses such as residential, child care centres and primary schools. Where the land use provides for reduced access to soils, or reduced time in the setting for a child (e.g. high density residential apartments or an industrial site), higher HILs are set respectively in the NEPM.

If an investigation level is exceeded at a site, the nature of the appropriate response is typically determined by site-specific environmental or human health risk assessment.

The subject site was proposed to be rezoned for mixed residential/commercial landuse. Therefore LBWco assessed site contamination risk with respect to both commercial and residential land use scenarios.

The following generic land use human health soil vapour screening levels were adopted:

- HSL 'A&B' (residential) and HSL 'D' (commercial/industrial) as presented in the ASC NEPM 1999 (Schedule B1, Table 1A), for consideration of vapour intrusion exposure to volatile petroleum hydrocarbons; and

- Interim HIL 'A&B' (residential) and Interim HIL 'D' (commercial/industrial) as presented in the ASC NEPM 1999 (Schedule B1, Table 1A), for consideration of vapour intrusion exposure to volatile chlorinated hydrocarbons.

Given the soil lithology encountered at the site, the 'sand' soil type was adopted as the predominant overlying soil type for selection of the appropriate HSLs.

7 Results

The following section summarises the field observations and results of the laboratory soil vapour testing. Soil vapour sampling locations are presented on Figure 2 in Appendix A. Tabulated results of chemical testing are presented in Appendix F. Laboratory certificates and chain of custody documentation is presented in Appendix G.

7.1 Soil Vapour Laboratory Results

All concentrations of volatile petroleum and chlorinated hydrocarbons in all four soil vapour samples were below the laboratory's detection limit and/or the adopted screening criteria.

It was noted that trace concentrations of BTEX compounds were detected in one soil vapour sampler (SV1), however all were well below the corresponding screening criterion for both residential and commercial / industrial land use scenarios.

7.2 Data Validation

A quality control / quality assurance (QC/QA) validation assessment was completed to assess the suitability of the soil data for use as part of this PSI. As part of this, the relative percentage difference (RPD) for a pair of duplicate concentrations was calculated using the formula:

$$RPD\ (\%) = \quad 100(x_1 - x_2) / \overline{x}$$

where x_1, x_2 = duplicate results and $\overline{x}$ = mean of duplicate results.

According to the ASC NEPM,

- typical RPD values for soil vapour are in the range of ±20%;
- a RPD within the range was considered to show acceptable agreement and, conversely, data was considered to have relatively poor agreement where a RPD was outside this range.

Generally higher RPD values occur for organic compounds than for metals and where low concentrations of an analyte are recorded.

The results of internal laboratory quality control procedures are provided within the laboratory certificates (Appendix J). The acceptance criterion for internal laboratory replicates was set at an RPD of 30%. Laboratory recoveries should be in the range 50% to 150%.

Tables 5 indicate conformance to specific QA/QC requirements for laboratory analysis.

Table 5 Soil Vapour Data Validation

QA/QC Requirement	Compliant	Comment	Acceptable
Chain of custody documentation completed	Yes	All samples were transported under strict LBWco chain of custody procedures and signed chain of custody documentation is included in Appendix J.	Yes
Samples delivered to laboratory within sample holding times and with correct preservative	Yes	All samples were delivered to the laboratories within the sample holding times and in laboratory-supplied containers.	Yes
All analyses NATA accredited	Yes	SGS was NATA accredited for all the analyses performed.	Yes

QA/QC Requirement	Compliant	Comment	Acceptable
Required number of sample duplicates analysed	Yes	One intra-laboratory duplicate was collected and tested for various analytes.	Yes
Soil vapour QA/QC samples reported RPDs within limits recommended by the ASC NEPM	Mostly	The majority of RPD values could not be calculated due to both the primary and secondary concentrations being below the laboratory's limit of reporting, indicating good data repeatability. Three RPD values relating to BTEX compounds exceeded the acceptable +/- 20%. This was considered to be due to the inherent trace variability in the nature of soils at the primary and duplicate soil bore locations. The variability did not change the conclusions drawn from the data as both the primary and duplicate sample results were well below the adopted screening criteria. There was no evidence in the data for a systematic laboratory or sampling error. Duplicate results did not alter the findings of the primary data.	Yes
Acceptable laboratory QC results	Yes	The vast majority of internal laboratory duplicates, matrix spikes, and method blanks were within limits. The laboratory considered the results as acceptable.	Yes

Quality control data collected during this investigation indicated that the majority of QA/QC results were within acceptable limits. Accordingly, LBWco considered that the data quality was adequate for the purpose of this preliminary investigation.

8 Discussion

8.1 Preliminary Conceptual Site Model and Potential Human Health Risk

Based upon the site history research and preliminary soil vapour assessment works, a preliminary conceptual site model (CSM) has been formulated to identify PCAs that likely occurred at and near the site and provide consideration of potential contaminated media and possible exposure pathways and risks to receptors. Relevant receptors include future site users and the environment associated with the proposed rezoning.

A desktop assessment of PCAs (as defined in the *Environment Protection Regulations* 2009), as well as other activities of environmental significance, that were likely to have been undertaken at or near the site and their likely significance with respect to site contamination for the proposed rezoning is presented in Tables 3 and 4.

Results from the preliminary soil vapour assessment were also considered in determination of potential risk to the proposed future site use.

8.2 Potentially Contaminating Activities

Based upon the site history research and limited site inspection, the following PCAs and other activities were identified to likely have occurred at and near the site.

- Onsite
  - Fill or soil importation
  - Motor vehicle repair or maintenance
  - Pest management including herbicides and termiticides
- Offsite
  - Service station

8.3 Consideration of Potential Risk

To assess potential risks to future site users, it is appropriate to consider the inter-relationship of the following three components:

1. Contaminant source
2. Receptor
3. Pathway from source to receptor

For an unacceptable risk to exist, all three components must be present. Should one of the three components be absent, there would be no, or at least a reduced risk of exposure. Therefore, removing a contaminant source would mitigate risk to a future site user. Removing the pathway between the source and receptor would also be an effective way to mitigate the risk to a site user, provide the mechanism for pathway disruption was robust and would endure the period of site use.

To qualify as a contaminant source for this scenario, the source must be of sufficient concentration that toxicity to a receptor would occur via exposure. Toxicity may be realised via acute (short-term) or chronic (long-term) exposure.

Potential future onsite receptors identified were:

- Future site users in a commercial land use setting
- Future site users in a residential land use setting
- Construction workers (acute, short-term exposure during construction phase)
- Ecological receptors (plants, animals, etc.)

Within a preliminary site investigation such as this, where detailed intrusive investigations have not been undertaken (e.g. soil sampling), the nature of potential sources has not been understood and evidenced. However a preliminary assessment of risks posed by PCAs may be undertaken by considering the likelihood of PCAs to have caused contamination (source), and the potential pathways from that source to the site users.

Sampling of hydrocarbon vapours in soil pore space at the site provided an assessment of the pathway by which volatile hydrocarbon contamination in soils or groundwater, at or near the site, can pose a risk to site users, namely the migration of vapour through the soil pore space and into occupied buildings.

Table 6 below provides a summary of the preliminary conceptual site model relative to identified PCAs and with consideration of the soil vapour sampling results.

Table 6 Preliminary CSM - Desktop Assessment of Site Contamination Risk from PCAs

Potentially contaminating activity or other significant activity	Contaminants of potential concern	Likely location	Relevant Onsite Media			Potential Onsite Receptors			Potential risk and/or liability for future land use
			Soil	Soil Vapour	Groundwater	Humans	Ecosystems	Built Environment	
On-site									
Motor vehicle repair or maintenance	Various, typically including: Hydrocarbons, BTEXN, oil and grease, heavy metals, solvents.	Shallow and deep soils, and groundwater within Lots 5 and 6,	Y	Y	Y	Y	Y	Y	**Commerical: Low** **Residential: Low** Smith Motor Company Pty Ltd owned and operated on Lots 5 and 6 from the 1960s to the 1980s based on aerial photography and land ownership history. In the 1980s this land was redeveloped, although operation of a car sale yard and associated vehicle maintenance facilities continued within Lot 6, recently associated with Grange Road Motors. The nature of operations within the buildings on this allotment, including potential features that could be a source of contamination, was unknown. The extended historical use of this portion of the site as a motor vehicle repair or maintenance facility presents potential for contamination associated with various actions, including the storage and leaks of fuels and oils, and incorrect disposal of waste fluids. Such actions have the potential to cause contamination of site soils and groundwater. However given the likely sealed surface preventing direct access to site soils, and that groundwater is highly unlikely to be extracted for use at the site given reticulated supply in the area, the primary pathway to site users was considered to be via vapour migration through the soil pore space. A soil vapour sampler (SV1) was installed within the northern portion of Lot 5. All concentrations of volatile petroleum, chlorinated hydrocarbons, and other analytes in the soil vapour sample were below the laboratory's detection limit and/or the adopted screening criteria. Based on this preliminary investigation, risk within the proposed commercial redevelopment was considered low.
Fill or soil importation	Various, typically including: Heavy metals, polycyclic aromatic hydrocarbons, and petroleum hydrocarbons.	Beneath structures and sealed surfaces	Y	Y	Y	Y	Y	Y	**Commerical: Low** **Residential: Low** Although there was no documentation of fill importation occurring at the site, it is possible that fill materials may have been used to fill or level the site prior to the construction of buildings. Historic filling activities commonly include using materials with minor to major levels of contamination. In the event that contamination is present in uncontrolled fill, exposure to humans can via dermal contact, dust inhalation and incidental ingestion. However these exposure pathways require exposed soils and therefore areas of sealed asphalt or building slab typically provide a barrier between the source and receptors. Furthermore the commercial land use suggests site

Potentially contaminating activity or	Contaminants of potential concern	Likely location	Relevant Onsite Media			Potential Onsite Receptors			Potential risk and/or liability for future land use
									users are to be limited to adult humans present for typical working hours, which is a less sensitive receptor when compared to residential where children may be occupants. Should extensive areas of exposed soils (e.g. garden beds) be proposed as part of future development plans, intrusive soil investigation works may be necessary to confirm the presence or absence of contamination that may pose a risk to site users. Based on the results of the preliminary soil vapour assessment, no soil vapour risk was identified.
Pest management including herbicides and termiticides	Heavy metals, arsenic, organochlorine pesticides	Shallow soils within existing building footprints	Y	N	Y	Y	N	N	**Commercial: Low** **Residential: Low** The extent of pesticide application to current and former building footprints was unknown, but was likely to be limited to shallow soils. In the event that pesticide contamination is present in soils, risks for future site users are likely to be low due to the predominantly sealed nature of the future commercial site. Should extensive areas of exposed soils (e.g. garden beds) be proposed as part of future development plans, intrusive soil investigation works may be necessary to confirm the presence or absence of contamination that may pose a risk to site users.
Storage of listed substance (>500 L)	Various, possibly fuel	265 Grange Road	Y	Y	Y	Y	Y	Y	**Commercial: Low** **Residential: Low** Safework SA dangerous goods register has a record of a class 3 10 kL underground tank at 265 Grange Road. This tank was not identified during the site inspection, however may have been inside the building which was not accessible at the time of the inspection. Underground tanks have potential to leak and cause contamination of underlying soils and groundwater, which can pose a risk to site users via vapour intrusion into buildings. Vapour samples on the northern side of this building (SV3) did not identify unacceptable soil vapour concentrations. The absence of unacceptable hydrocarbon vapours indicated a low probability of a significant contamination source not yet identified. Nonetheless, this tank should be appropriately decommissioned and the tank pit validated as part of the demolition and redevelopment works.
Off-site									
Service station	Hydrocarbons in groundwater and soil vapour	Adjacent to the western boundary of the site (275 Grange Road)	N	Y	Y	Y	Y	Y	**Commercial: Low** **Residential: Low** The service station located adjacent to the western boundary of the site at 245 Findon Road, Findon. Service stations require the storage of large quantities of fuel in underground storage

Potentially contaminating activity or	Contaminants of potential concern	Likely location	Relevant Onsite Media	Potential Onsite Receptors	Potential risk and/or liability for future land use
					tanks that are known to have leaked. Based on information available on the EPA Public Register, the adjacent service station has an associated Section 83A notification relating to the presence of petroleum hydrocarbon contamination in shallow groundwater. Exposure to potential groundwater contamination at the site could occur via extraction of groundwater, however this is considered unlikely given the reticulated water supply likely to be implemented as part of future redevelopment plans. Exposure could also occur via the migration of volatile hydrocarbons via the soil vapour and accumulation in future buildings. Findings of the preliminary soil vapour assessment undertaken by LBWco indicated soil vapour concentrations were below the commercial land use guidance criteria, and therefore posed no unacceptable vapour risk to users within the future commercial redevelopment.

9 Conclusions

LBWco was asked by CCS to prepare a Preliminary Site Investigation (PSI) comprising a site history investigation and soil vapour assessment across eight adjacent allotments referred to as 263A-275 Grange Road, Findon SA (the site). A site location plan is presented as Figure 1 in Appendix A.

The PSI was required by CCS as part of the consideration a privately funded Development Plan Amendment (DPA) for the site. The DPA was necessary to facilitate a proposed retail development.

The objectives of the site history component of the PSI were to:

- Research current and historical land uses and associated activities undertaken at or adjacent to the site to identify whether Potentially Contaminating Activities (PCAs) may have occurred on or near the subject site;
- Provide a desktop assessment of risk with respect to the likelihood that PCAs could have caused site contamination, with respect to future commercial and residential land use.

The objectives of the preliminary soil vapour assessment component of the PSI were to:

- Assess whether site contamination of soil vapour is present that could preclude the proposed commercial and/or residential land uses;
- Assess whether soil vapour concentrations indicate the potential for groundwater contamination that may warrant further investigation.
- Advise on whether remediation or management is needed to make the site suitable for the proposed commercial and/or residential land use.

Based on the information collected for the site history assessment, and sampling of soil vapour, the following key findings were made:

- Four onsite PCAs (as per *Environment Protection Regulations 2009)* or other relevant activities were identified to have likely occurred at the site:
  - Motor Vehicle Repair or Maintenance.
  - Fill or soil importation.
  - Pest Management including application of herbicides/pesticides
  - Storage of listed substance (>500L)
- One off-site PCA was identified:
  - Service station
- Soil vapour sampling at four locations at the site did not identify any concentrations of volatile hydrocarbons that would pose an unacceptable risk to future residential or commercial users via vapour intrusion into buildings. These findings suggested it was unlikely that a significant source of volatile hydrocarbons was present in soils or groundwater at the site.
- Site history evidence and soil vapour sampling results indicated each of the identified PCAs listed above posed low risk with respect to the either residential or commercial use of the site.
- The following data gaps were acknowledged:

- LBWco was unable to gain access to the buildings present onsite. There is potential for features to be present that could have caused contamination. However, the absence of unacceptable hydrocarbon vapours indicates a low probability of a significant contamination source not yet identified.

- The nature of site soils was not known as a direct assessment of soil was not undertaken within this PSI. Shallow soil contamination, if present, can be readily assessed and managed during future redevelopment to ensure that the final site condition is suitable for commercial land use, consistent with routine construction environmental management.

The information provided in this report is subject to the limitations expressed in Section 10. The reader should make themselves aware of the limitations and how they relate to the conclusions provided.

10 Limitations

Scope of Services

This environmental site assessment report ("the report") has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the City of Charles Sturt and LBW co (LBWco) ("scope of services"). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

Reliance on Data

In preparing the report, LBWco has relied upon data, surveys, analyses, designs, plans and other information provided by City of Charles Sturt and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise stated in the report, LBWco has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. LBWco will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to LBWco.

Environmental Conclusions

In accordance with the scope of services, LBWco has relied upon the information gathered in the desktop study and site inspection in the preparation of the report.

On all sites, varying degrees of non-uniformity of the vertical and horizontal soil or groundwater conditions are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of soil and/or groundwater conditions encountered. The conclusions are based upon the data and the environmental field monitoring and/or testing and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions.

Also, it should be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

Report for Benefit of City of Charles Sturt

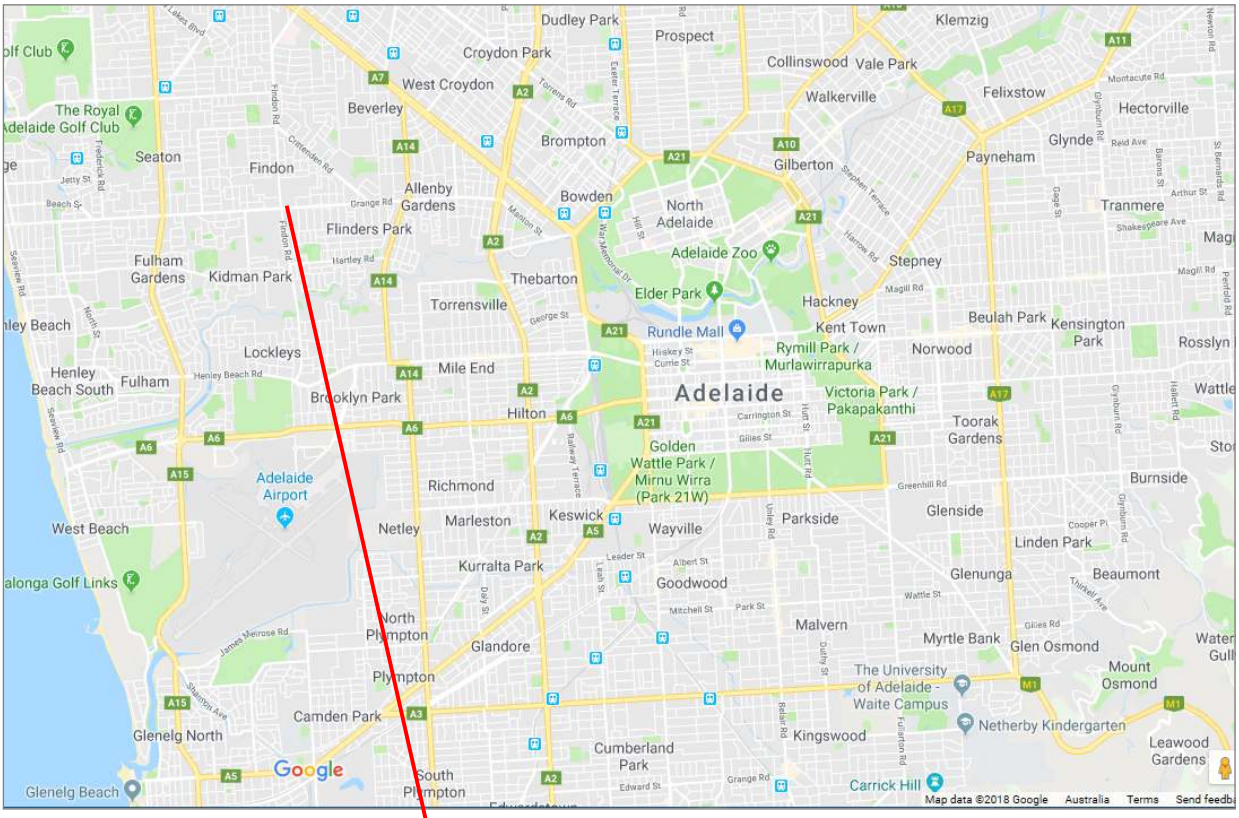
The report has been prepared for the benefit of City of Charles Sturt and no other party. LBWco assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of LBWco or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

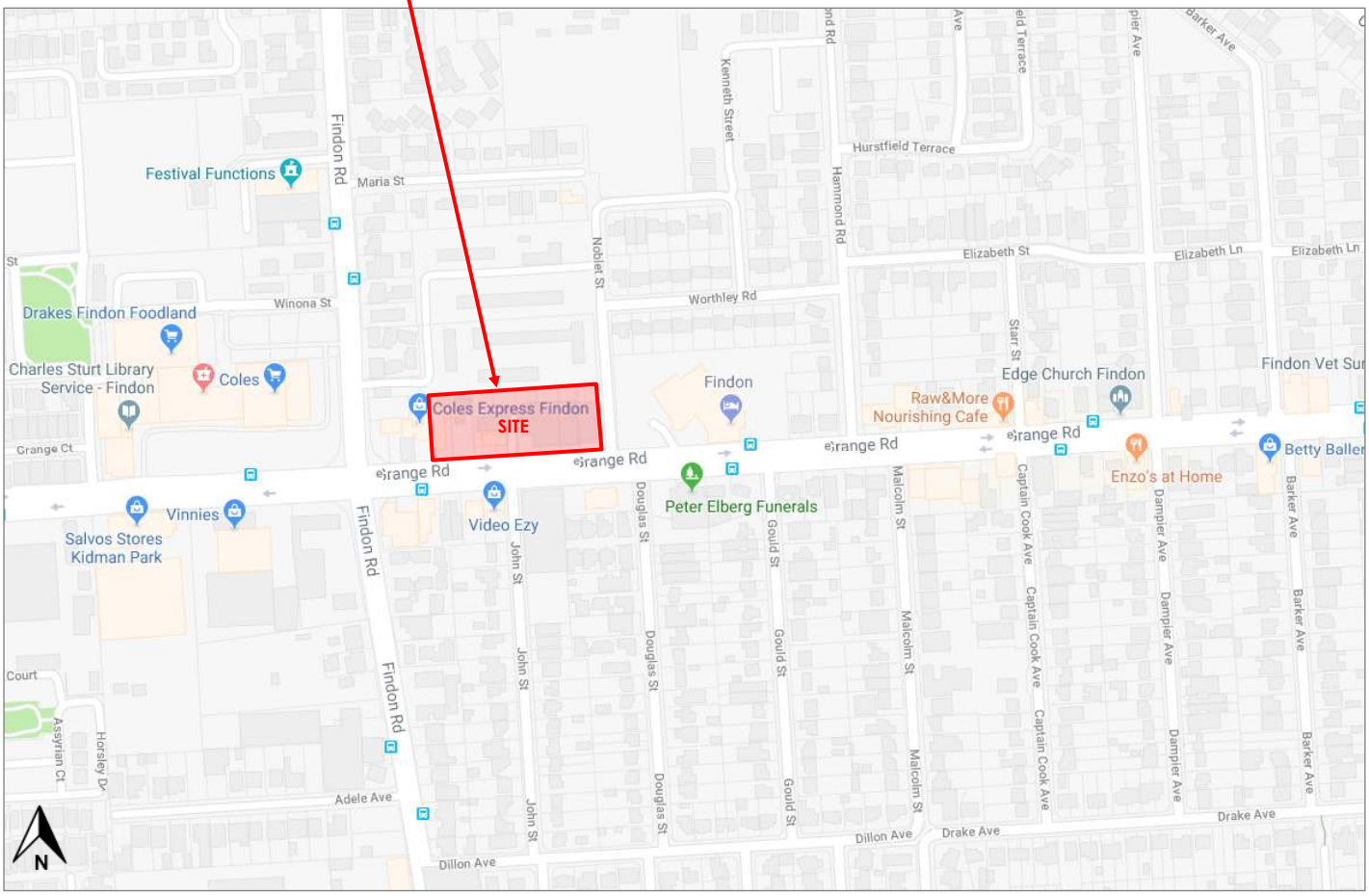
Other Limitations

LBWco will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.

Appendix A

Figures





Source: www.google.com.au/maps

DELIVERING ENVIRONMENTAL SOLUTIONS

Job No: 181015
Drawn: MF
Checked: SB

263A-275 Grange Rd, Findon SA

Preliminary Site Investigation

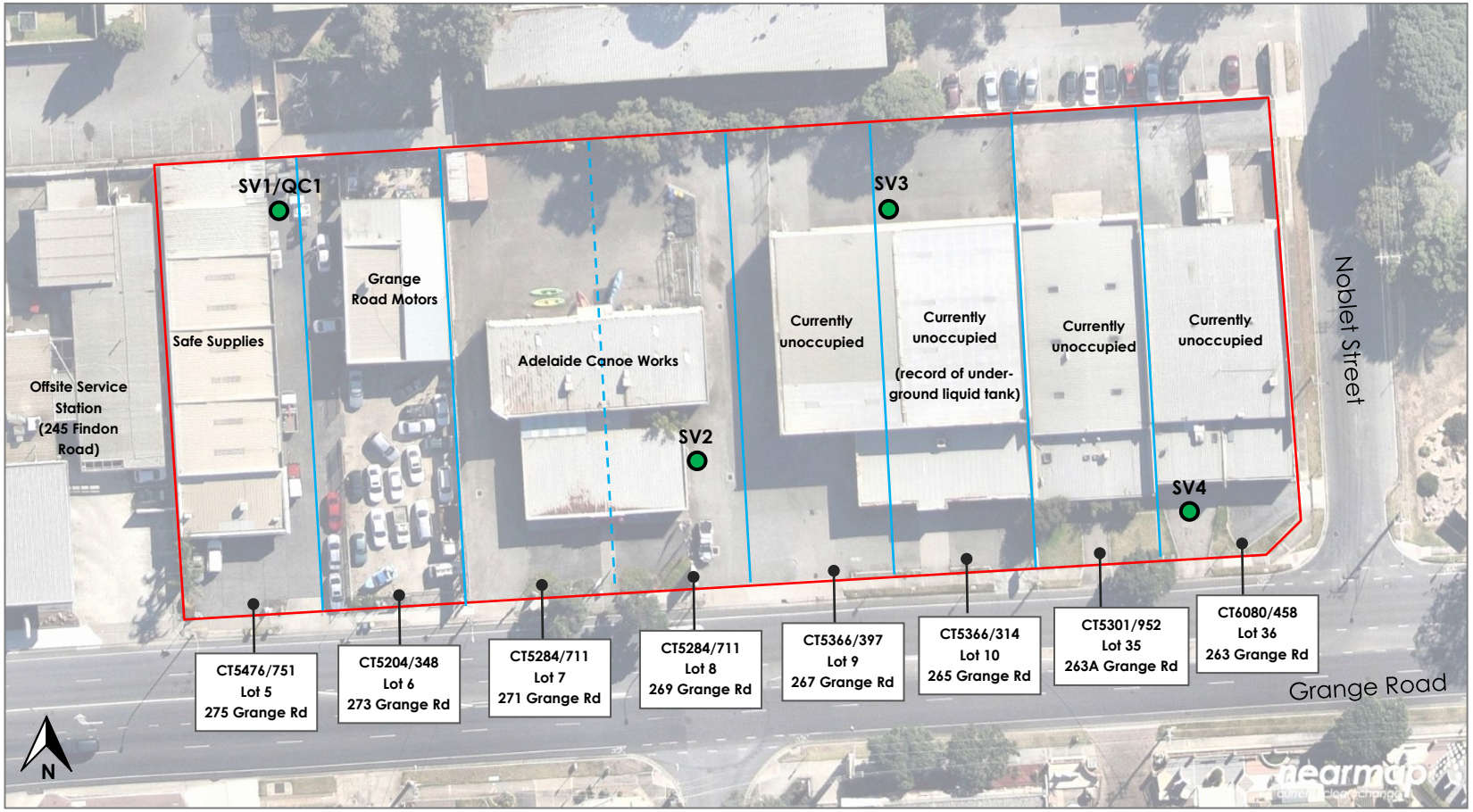
For

City of Charles Sturt

Figure 1
Site Location Plan

FIGURE 2

Site Layout Plan



267A-275 Grange Road, Findon

Preliminary Site Investigation

For

City of Charles Sturt

LEGEND

- Approximate site boundary
- Approximate CT boundary
- Soil Vapour Sample Location

SCALE

0 10 20 m

DELIVERING ENVIRONMENTAL SOLUTIONS

LBW co Details			
Job No.	181015		
Drawn	MF	**Rev.**	0
Checked	SB	**Date**	22.06.18

Appendix B

Site Photographs and Certificates of Title

Photograph 1: View north of 263 Grange Road. 2/6/2018

Photograph 2: View north of 265 Grange Road. 2/6/2018

Photograph 3: View north of 271 Grange Road. 2/6/2018

Photograph 4: View north of 273 Grange Road. 2/6/2018

Photograph 5: View north-west of 275 Grange Road. 2/6/2018

Photograph 6: View north-west on corner of Grange Road and Findon Road. Shell service station located adjacent to 275 Grange Road. 2/6/2018

Photograph 7: View south of storage shed at rear of 263 Grange Road. 2/6/2018

Photograph 8: View south-east of rear yard at 263 Grange Road. 2/6/2018

Photograph 9: View south-east of rear yard at 271 Grange Road.

Photograph 10: View north of stormwater drain and bitumen cracks. 265 Grange Road.

Photograph 11: View north of rear of driveway between 263-265 Grange Road.

Photograph 12: View south-east of vehicle storage at 273 Grange Road.

Project Number 181015
Report Title Preliminary Site Investigation
Site Address 263A-275 Grange Rd, Findon

Land Ownership Tree

DELIVERING ENVIRONMENTAL SOLUTIONS

CT 5476/751

Allotment 5 Deposited Plan 5549 in the area named Findon, Hundred of Yatala

20.01.2017 New title to Olympic Developments PTY. LTD.

18.03.2014 Transfer to Mark John Roberts

Current CT

CT 4210/568

Allotment 5 Deposited Plan 5549 in the area named Findon, Hundred of Yatala

21.07.1983 New title to Felix Bernard Schokman

30.5.1984 Lease to Gresham Corporation PTY.LTD.

2.10.1987 Transfer to Grace Elizabeth Leslie

11.10.1987 Lease to Lin Andrews PTY.LTD.

9.1.1989 Transfer to Graham Gordon Roberts

Cancelled to 5476/751

CT 3377/157

Allotments 5 and 6 of the subdivision of portions of section 393 and other land laid out as Findon, Hundred of Yatala

28.1.1966 New title to Smith Motor Company PTY.LTD.

24.12.1969 Transfer to Leasehold Securities PTY.LTD.

31.10.1972 Transfer to Lensworth Finance PTY.LTD.

22.8.1973 Transfer to Felix Bernard Schokman

26.10.1973 Transfer to Ashbrook PTY.LTD.

7.6.1983 Transfer to Salvatore Attana

Cancelled to 4210/568

CT 3106/40

Allotments 5,6,7,8,9 and 10 of the subdivision of portions of section 393 and other land laid out as Findon, Hundred of Yatala

17.9.1962 New title to Watch Tower Bible and Tract Society of Pennsylvania

19.9.1962 Transfer to Peter Alexander Forde

15.12.1965 Transfer to Robert Arthur Lee

7.1.1966 Transfer to Smith Motor Company PTY.LTD.

Cancelled to 3377/158

CT 2515/54

Allotments 5,6,7,8,9 and 10 of the subdivision of portions of section 393 and 410 laid out as Findon. Hundred of Yatala

7.5.1957 New title to Ella Mary Jones

3.12.1958 Transfer to The Shell Company of Australia PTY.LTD. (offsite)

6.9.1962 Transfer to Elders Trustee and Executor PTY.LTD.

6.9.1962 Transfer to Watch Tower Bible and Tract Society of Pennsylvania

Cancelled to 3106/40

CT 1065/140

Allotments 5,6,7,8,9,10,35 and 36 of the subdivision of portions of section 393 and 410 laid out as Findon, Hundred of Yatala

13.1.1911 New Title to Mary Ploenges

14.7.1916 Transfer to Maud Lilian Bell

4.8.1916 Transfer to William Britten Jones

Cancelled to 2515/54, 2501/175

CT 5204/348

Allotment 6 deposited plan 5549 in the area named Findon, Hundred of Yatala

15.9.2015 New title to Olympic Batteries PTY.LTD.

Current CT

CT 4210/567

Allotment 6 deposited plan 5549 in the area named Findon, Hundred of Yatala

21.7.1983 New title to Salvatore Attana and Giulia Attana

16.10.1987 Lease to Roger Mervyn Young

20.1.1989 Transfer to Roger Mervyn Young, Motor Mechanic

Cancelled to 5204/348

CT 5284/711

Allotments 7 and 8 deposited plan 5549 in the area named Findon, Hundred of Yatala

12.8.2015 New title to Auscell PTY.LTD. And Olympic Developments PTY.LTD.

10.12.2014 Transfer to Bella Buiild& Design PTY.LTD. And Condessa Group PTY.LTD.

11.05.1999 Transfer to Warren Francis Rogers

12.09.1995 Transfer to Showmore PTY.LTD.

Current CT

CT 3502/166

Allotments 7 and 8 of the subdivision 393 and other land laid out as Findon, Hundred of Yatala

20.7.1967 New title to Bush Boake Allen Australia LTD.

Cancelled to 5284/711

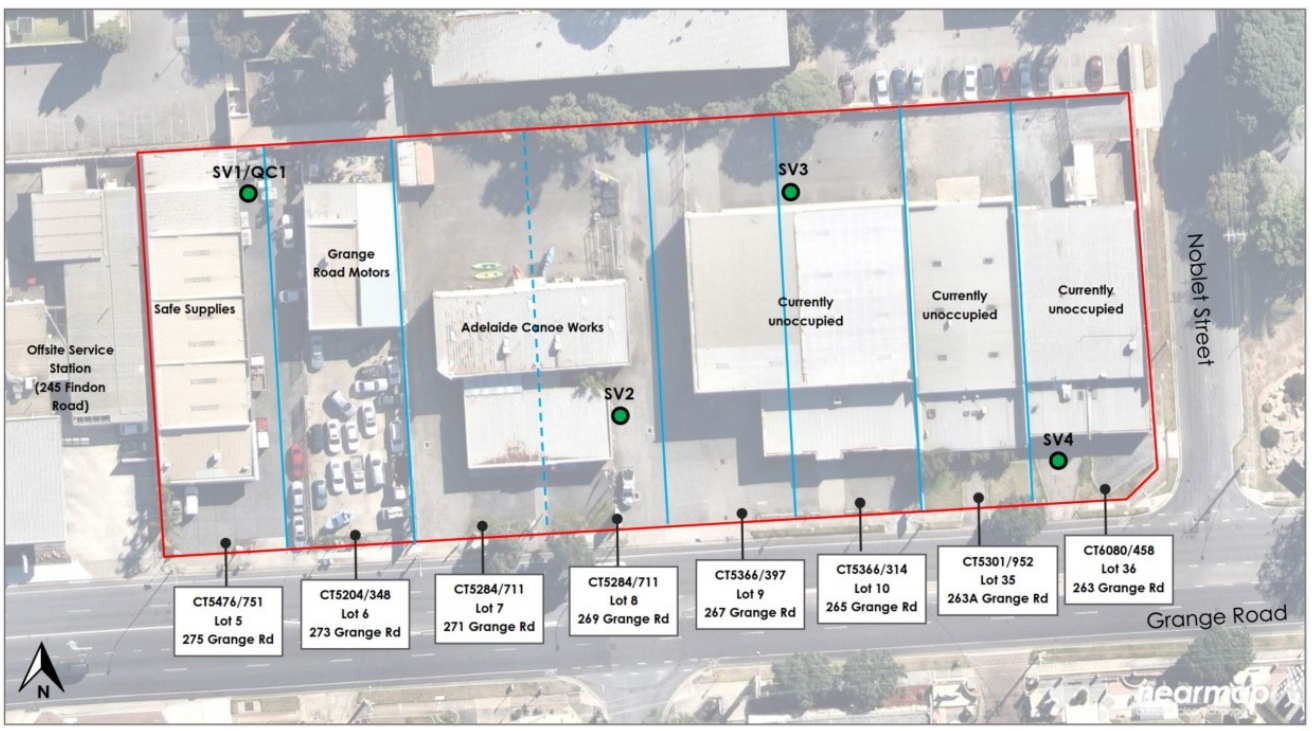
CT 3377/158

Allotments 7, 8, 9, 10 of portions of the subdivision 393 and other land laid out as Findon, Hundred of Yatala

28.1.1966 New title to Robert Arthur Lee, John Douglas Lee and Arthur James Lee.

7.7.1967 Transfer to Bush Boake Allen Australia LTD.

Cancelled to 3502/167 and 3502/168



Project Number 181015
Report Title Preliminary Site Investigation
Site Address 263A-275 Grange Rd, Findon

Land Ownership Tree

DELIVERING ENVIRONMENTAL SOLUTIONS

CT 5366/314

Allotment 10 deposited plan 5549 in the area named Findon, Hundred of Yatala

7.6.2012 New lease to Crane Distribution LTD.

7.8.2007 Transfer to Auscell PTY.LTD.

11.11.1996 Lease to ARB Corporation LTD.

Current CT

CT 3502/168

Allotment 10 of the subdivision of portions of section 393 and other land laid out as Findon, Hundred of Yatala

20.7.1967 New title to Robert Arthur Lee, John Douglas Lee and Arthur James Lee

15.2.1968 Transfer to The Mutual Life Association of Australia LTD.

14.2.1968 Lease to Nabisco PTY.LTD.

15.11.1982 Transfer to Nabisco Superannuation LTD.

9.3.1992 Transfer to Traviler PTY.LTD.

1.3.1993 Lease to The Uncle Tobys Company LTD.

31.5.1993 Transfer to Cassant PTY.LTD.

Cancelled to 5366/31

CT 3377/158

Allotments 7, 8, 9, 10 of portions of the subdivision 393 and other land laid out as Findon, Hundred of Yatala

28.1.1966 New title to Robert Arthur Lee, John Douglas Lee and Arthur James Lee.

7.7.1967 Transfer to Bush Boake Allen Australia LTD.

Cancelled to 3502/167 and 3502/168

CT 3502/167

Allotment 10 of the subdivision of portions of section 393 and other land laid out as Findon, Hundred of Yatala

20.7.1967 New title to Robert Arthur Lee, John Douglas Lee and Arthur James Lee

15.2.1968 Transfer to The Mutual Life Association of Australia LTD.

14.2.1968 Lease to Nabisco PTY.LTD.

15.11.1982 Transfer to Nabisco Superannuation LTD.

9.3.1992 Transfer to Traviler PTY.LTD.

1.3.1993 Lease to The Uncle Tobys Company LTD.

31.5.1993 Transfer to Cassant PTY.LTD.

Cancelled to 5366/397

CT 5301/952

Allotment 35 filed plan 117547 in the area named Findon, Hundred of Yatala

6.10.2015 New title to Olympic Restaurants PTY.LTD.

29.7.2011 Transfer to Michael Paul Harris and Alexandra Kate Harris

10.11.1995 Transfer to Paul Paterson Harris

Current CT

CT 3920/169

Portion of allotment 19 of the subdivision of section 393 and other land laid out as Findon, Hundred of Yatala

10.4.1973 New title to Liberty Mortgage Underwriters PTY.LTD.

17.5.1973 Transfer to William Royston Griffiths

27.5.1985 Transfer to Paul Patterson Harris

1.12.1985 Lease to Lenson Engineering Australia PTY.LTD.

Cancelled to 5301/952

CT 5366/397

Allotment 9 deposited plan 5549 in the area named Findon, Hundred of Yatala

7.6.2012 New lease to Crane Distribution LTD.

7.8.2007 Transfer to Volta Batteries PTY.LTD

11.11.1996 Lease to ARB Corporation LTD.

Current CT

CT 6080/458

Allotment 36 filed plan 117548 in the area names Findon, Hundred of Yatala

15.9.2015 New title to Olympic Solar Energy PTY.LTD.

12.9.2011 Transfer to Michael Harris Super PTY.LTD.

Current CT

CT 5301/943

Allotment 36 filed plan 117548 in the area names Findon, Hundred of Yatala

25.7.2007 New title to Michael Paul Harris

10.11.1995 Transfer to Michael Paul Harris

Cancelled to 6080/458

CT 3920/168

A portion of allotment 19 of the subdivision of section 393 and other land laid out as Findon, Hundred of Yatala

10.4.1973 New title to Robert Henry Wreford and Elain Wreford

29.10.1975 Lease to Western Car Radio

30.11.1978 Lease to Rover Mowers PTY.LTD.

4.10.1979 Lease to Steel Importers (SA) PTY.LTD.

12.5.1981 Lease to Salon Hair Care Supplies PTY.LTD.

13.1.1983 Lease to Yarash PTY.LTD.

11.11.1985 Transfer to Paul Patterson Harris

2.6.1986 Transfer to Paul Patterson Harris and Michael Paul Harris

CT 3910/186

A portion of allotment 19 of the subdivision of section 393 and other land laid out as Findon, Hundred of Yatala

5.3.1970 New title to Leasehold Securities PTY.LTD.

20.11.1972 Transfer to Robert Henry Wreford and Elaine Wreford

27.11.1972 Transfer to Liberty Mortgage Underwriters PTY.LTD.

CT 2501/175

A portion of allotment 19 of the subdivision of section 393 and 410 laid out as Findon, Hundred of Yatala

18.2.1957 New title to Ella Mary Jones

18.2.1964 Transfer to Watch Tower Bible and Tract Society of Pennsylvania

18.2.1964 Transfer to Stefano Fedele

15.8.1969 Transfer to Leasehold Securities PTY.LTD.

CT 1065/140

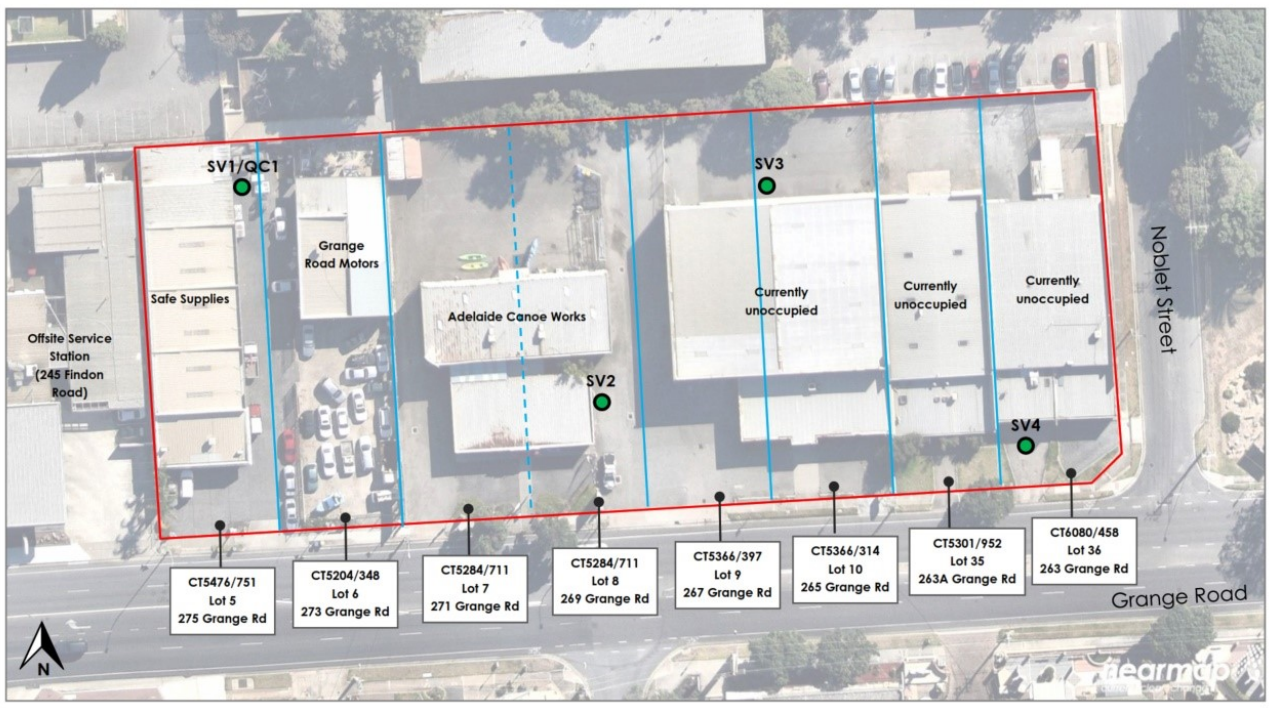
Allotments 5,6,7,8,9,10,35 and 36 of the subdivision of portions of section 393 and 410 laid out as Findon, Hundred of Yatala

13.1.1911 New Title to Mary Ploenges

14.7.1916 Transfer to Maud Lilian Bell

4.8.1916 Transfer to William Britten Jones

Cancelled to 2515/54, 2501/175



REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 5204 Folio 348

Parent Title(s) CT 4210/567

Creating Dealing(s) CONVERTED TITLE

Title Issued 29/07/1994 **Edition** 4 **Edition Issued** 04/11/2015

Estate Type

FEE SIMPLE

Registered Proprietor

OLYMPIC BATTERIES PTY. LTD. (ACN: 069 942 025)
OF 84 RIVERSIDE DRIVE FULHAM SA 5024

Description of Land

ALLOTMENT 6 DEPOSITED PLAN 5549
IN THE AREA NAMED FINDON
HUNDRED OF YATALA

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED B (T 5056912)

SUBJECT TO FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED B

TOGETHER WITH EASEMENT(S) OVER THE LAND MARKED A (T 5056912)

TOGETHER WITH FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED A

Schedule of Dealings

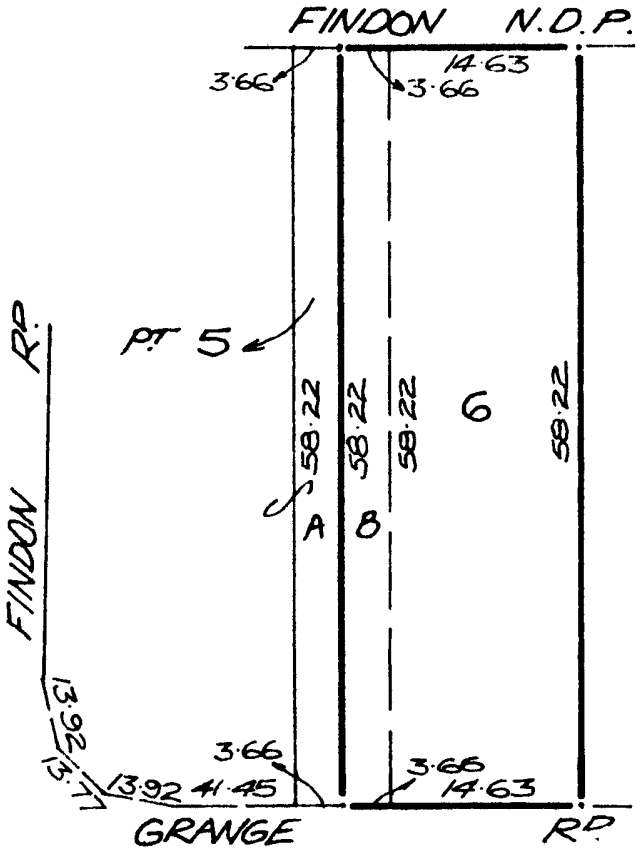
NIL

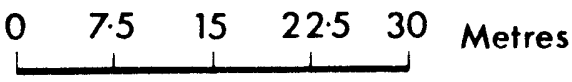
Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

Copyright Privacy Disclaimer: www.sailis.sa.gov.au/home/showCopyright www.sailis.sa.gov.au/home/showPrivacyStatement www.sailis.sa.gov.au/home/showDisclaimer

Product	Register Search (CT 5204/348)
Date/Time	15/05/2018 02:44PM
Customer Reference	181015
Order ID	20180515009132
Cost	$28.25





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Government of South Australia
Department of Planning, Transport and Infrastructure

Product	Register Search (CT 5284/711)
Date/Time	15/05/2018 02:45PM
Customer Reference	181015
Order ID	20180515009187
Cost	$28.25

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 5284 Folio 711

Parent Title(s) CT 3502/166

Creating Dealing(s) SC 7925587

Title Issued 08/08/1995 **Edition** 6 **Edition Issued** 12/08/2015

Estate Type

FEE SIMPLE

Registered Proprietor

AUSCELL PTY. LTD. (ACN: 007 762 987)
OF 13 STREIFF ROAD WINGFIELD SA 5013
1 / 2 SHARE

OLYMPIC DEVELOPMENTS PTY. LTD. (ACN: 008 140 289)
OF CORNER GRAND JUNCTION AND SOUTH ROAD WINGFIELD SA 5013
1 / 2 SHARE

Description of Land

ALLOTMENTS 7 AND 8 DEPOSITED PLAN 5549
IN THE AREA NAMED FINDON
HUNDRED OF YATALA

Easements

NIL

Schedule of Dealings

Dealing Number	Description
12418652	MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA (ACN: 123 123 124)

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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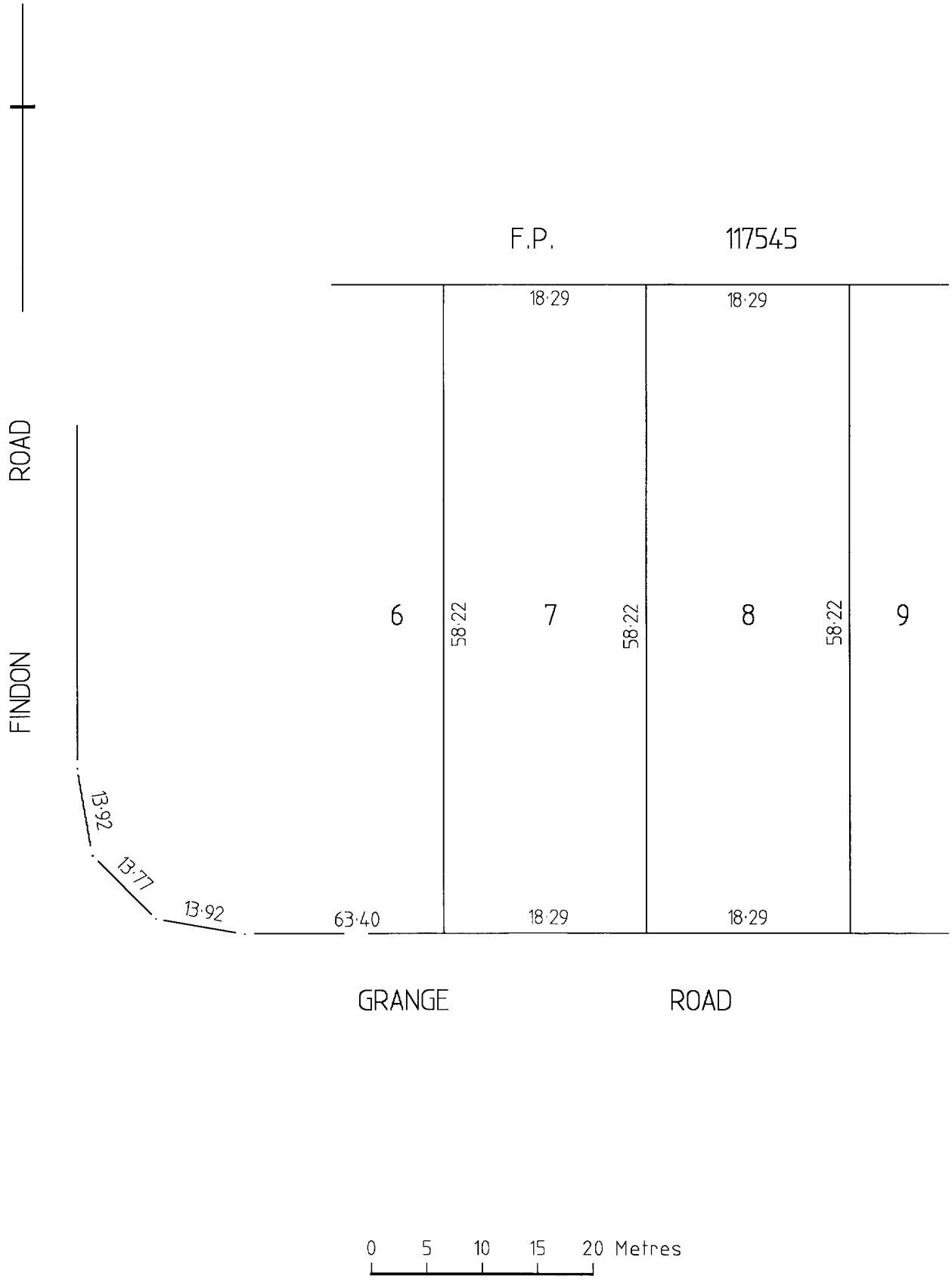
Product	Register Search (CT 5284/711)
Date/Time	15/05/2018 02:45PM
Customer Reference	181015
Order ID	20180515009187
Cost	$28.25



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Product	Register Search (CT 5301/952)
Date/Time	15/05/2018 02:50PM
Customer Reference	181015
Order ID	20180515009356
Cost	$28.25

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 5301 Folio 952

Parent Title(s) CT 3920/169

Creating Dealing(s) CONVERTED TITLE

Title Issued 24/10/1995 **Edition** 4 **Edition Issued** 06/10/2015

Estate Type

FEE SIMPLE

Registered Proprietor

OLYMPIC RESTAURANTS PTY. LTD. (ACN: 606 177 315)
OF 84 RIVERSIDE DRIVE FULHAM SA 5024

Description of Land

ALLOTMENT 35 FILED PLAN 117547
IN THE AREA NAMED FINDON
HUNDRED OF YATALA

Easements

TOGETHER WITH FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED A

Schedule of Dealings

NIL

Notations

Dealings Affecting Title NIL

Priority Notices NIL

Notations on Plan NIL

Registrar-General's Notes

PLAN FOR LEASE PURPOSES VIDE G426/1985

Administrative Interests NIL

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Government of South Australia
Department of Planning, Transport and Infrastructure

Product	Register Search (CT 5366/314)
Date/Time	15/05/2018 02:48PM
Customer Reference	181015
Order ID	20180515009315
Cost	$28.25

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 5366 Folio 314

Parent Title(s) CT 3502/168

Creating Dealing(s) CONVERTED TITLE

Title Issued 03/10/1996 **Edition** 6 **Edition Issued** 29/01/2017

Estate Type

FEE SIMPLE

Registered Proprietor

AUSCELL PTY. LTD. (ACN: 007 762 987)
OF 11-13 STREIFF ROAD WINGFIELD SA 5013

Description of Land

ALLOTMENT 10 DEPOSITED PLAN 5549
IN THE AREA NAMED FINDON
HUNDRED OF YATALA

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11157291	MORTGAGE TO WESTPAC BANKING CORPORATION

Notations

Dealings Affecting Title NIL

Priority Notices NIL

Notations on Plan NIL

Registrar-General's Notes

NEW EDITION CREATED DUE TO EXPIRATION OF LEASE

Administrative Interests NIL

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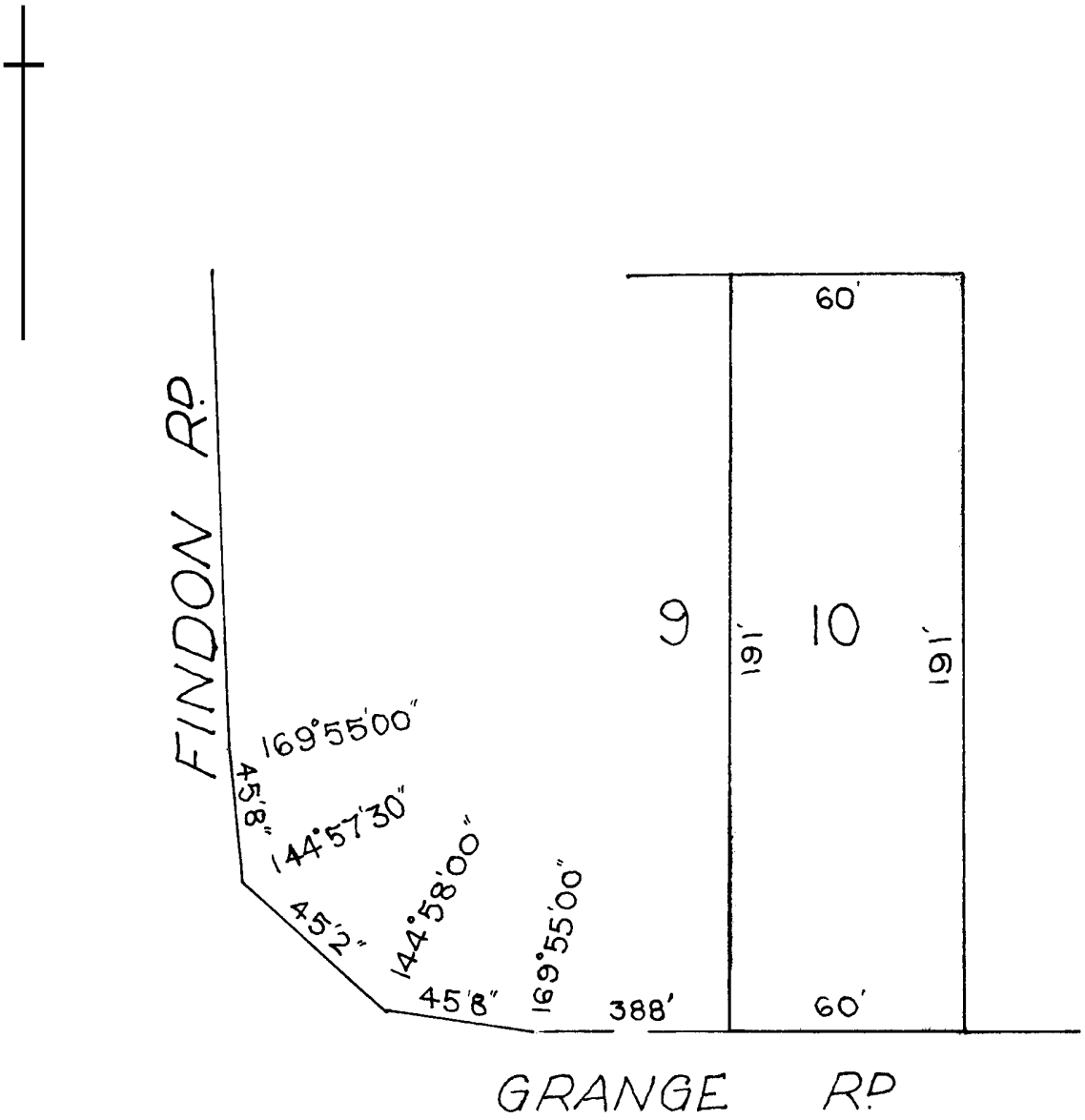
Product	Register Search (CT 5366/314)
Date/Time	15/05/2018 02:48PM
Customer Reference	181015
Order ID	20180515009315
Cost	$28.25



DISTANCES ARE IN FEET AND INCHES
FOR METRIC CONVERSION

1 FOOT = 0·3048 METRES
1 INCH = 0·0254 METRES

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Government of South Australia
Department of Planning, Transport and Infrastructure

Product	Register Search (CT 5366/397)
Date/Time	15/05/2018 02:47PM
Customer Reference	181015
Order ID	20180515009271
Cost	$28.25

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 5366 Folio 397

Parent Title(s) CT 3502/167

Creating Dealing(s) CONVERTED TITLE

Title Issued 03/10/1996 **Edition** 6 **Edition Issued** 29/01/2017

Estate Type

FEE SIMPLE

Registered Proprietor

VOLTA BATTERIES PTY. LTD. (ACN: 093 184 251)
OF 11-13 STREIFF ROAD WINGFIELD SA 5013

Description of Land

ALLOTMENT 9 DEPOSITED PLAN 5549
IN THE AREA NAMED FINDON
HUNDRED OF YATALA

Easements

NIL

Schedule of Dealings

Dealing Number	Description
11157290	MORTGAGE TO WESTPAC BANKING CORPORATION

Notations

Dealings Affecting Title NIL

Priority Notices NIL

Notations on Plan NIL

Registrar-General's Notes

NEW EDITION CREATED DUE TO EXPIRATION OF LEASE

Administrative Interests NIL

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Government of South Australia
Department of Planning, Transport and Infrastructure

Product	Register Search (CT 5476/751)
Date/Time	15/05/2018 02:42PM
Customer Reference	181015
Order ID	20180515009091
Cost	$28.25

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 5476 Folio 751

Parent Title(s) CT 4210/568

Creating Dealing(s) CONVERTED TITLE

Title Issued 28/11/1997 **Edition** 5 **Edition Issued** 09/02/2017

Estate Type

FEE SIMPLE

Registered Proprietor

OLYMPIC DEVELOPMENTS PTY. LTD. (ACN: 008 140 289)
OLYMPIC RESTAURANTS PTY. LTD. (ACN: 606 177 315)
OF CARE 84 RIVERSIDE DRIVE FULHAM SA 5024
AS JOINT TENANTS

Description of Land

ALLOTMENT 5 DEPOSITED PLAN 5549
IN THE AREA NAMED FINDON
HUNDRED OF YATALA

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A (T 5056912)

SUBJECT TO FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED A

TOGETHER WITH EASEMENT(S) OVER THE LAND MARKED B (T 5056912)

TOGETHER WITH FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED B

Schedule of Dealings

NIL

Notations

Dealings Affecting Title NIL

Priority Notices NIL

Notations on Plan NIL

Registrar-General's Notes

PLAN FOR LEASE PURPOSES VIDE G193/1985

Administrative Interests NIL

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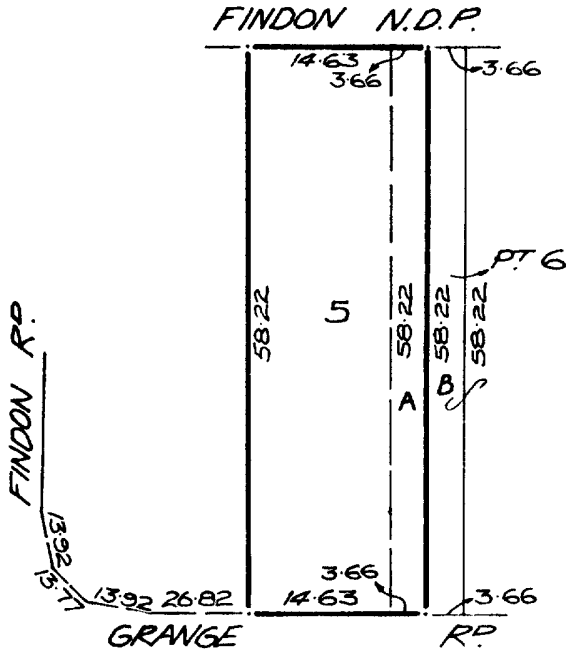
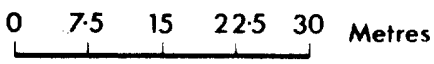
Product	Register Search (CT 5476/751)
Date/Time	15/05/2018 02:42PM
Customer Reference	181015
Order ID	20180515009091
Cost	$28.25





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Government of South Australia
Department of Planning, Transport and Infrastructure

Product	Register Search (CT 6080/458)
Date/Time	15/05/2018 02:52PM
Customer Reference	181015
Order ID	20180515009391
Cost	$28.25

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 6080 Folio 458

Parent Title(s) CT 5301/943

Creating Dealing(s) SC 11597674

Title Issued 19/07/2011 **Edition** 3 **Edition Issued** 12/10/2015

Estate Type

FEE SIMPLE

Registered Proprietor

OLYMPIC SOLAR ENERGY PTY. LTD. (ACN: 126 384 110)
OF 84 RIVERSIDE DRIVE FULHAM SA 5024
1 / 2 SHARE

OLYMPIC RESTAURANTS PTY. LTD. (ACN: 606 177 315)
OF 84 RIVERSIDE DRIVE FULHAM SA 5024
1 / 2 SHARE

Description of Land

ALLOTMENT 36 FILED PLAN 117548
IN THE AREA NAMED FINDON
HUNDRED OF YATALA

Easements

SUBJECT TO FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED A

Schedule of Dealings

NIL

Notations

Dealings Affecting Title NIL

Priority Notices NIL

Notations on Plan NIL

Registrar-General's Notes

APPROVED G783/1970

Administrative Interests NIL

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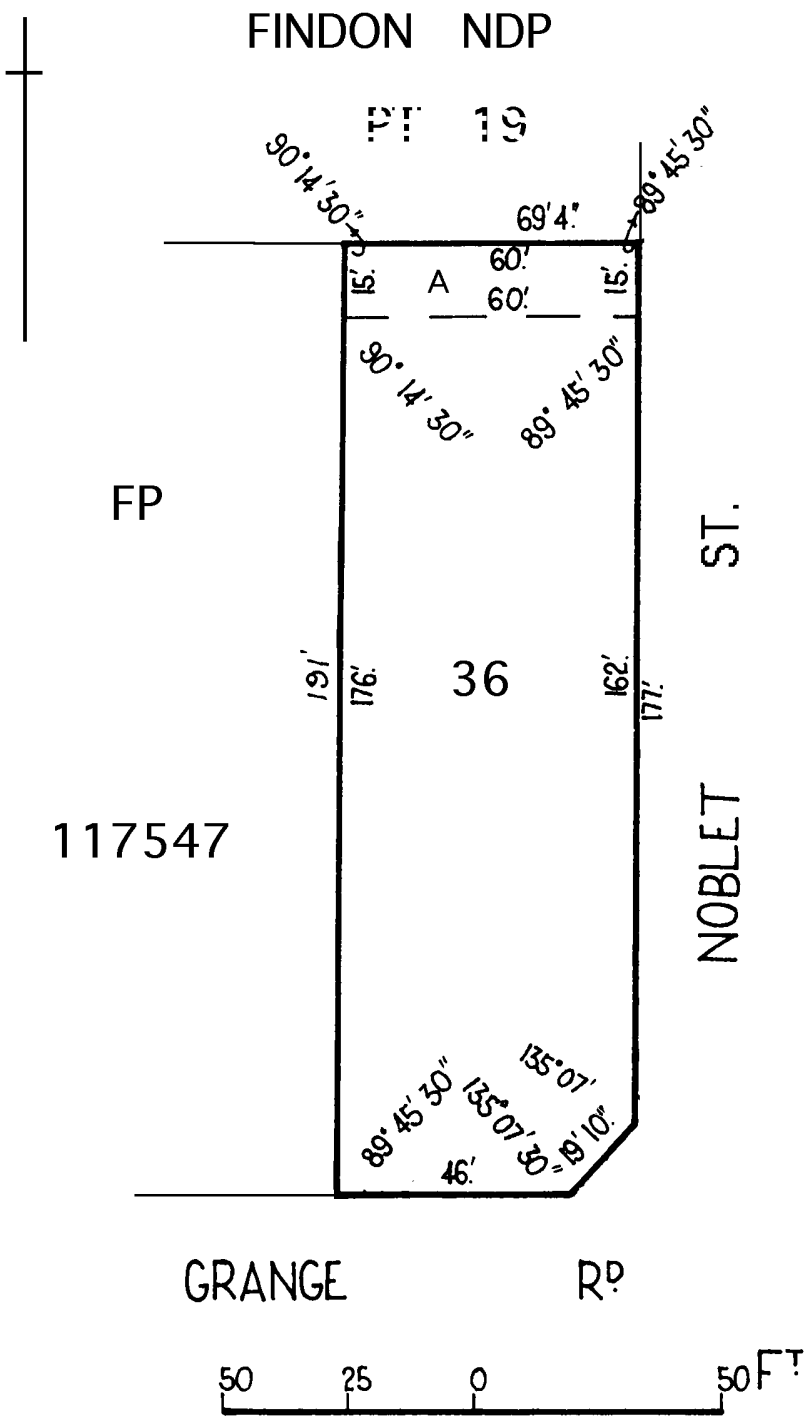
Product	Register Search (CT 6080/458)
Date/Time	15/05/2018 02:52PM
Customer Reference	181015
Order ID	20180515009391
Cost	$28.25

This plan is scanned for Certificate of Title 3920 / 168
See title text for easement details.



DISTANCES ARE IN FEET AND INCHES FOR METRIC CONVERSION		
1 FOOT	=	0·3048 metres
1 INCH	=	0·0254 metres

Note : Subject to all lawfully existing plans of division

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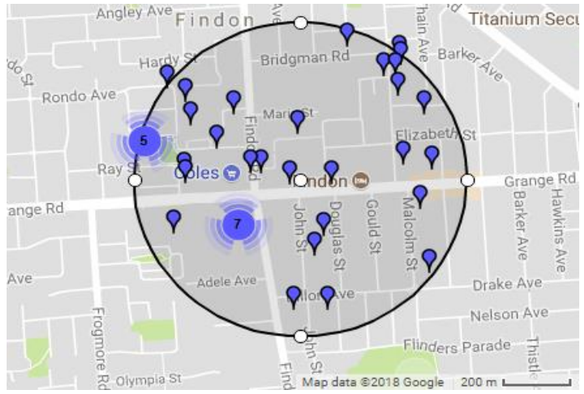
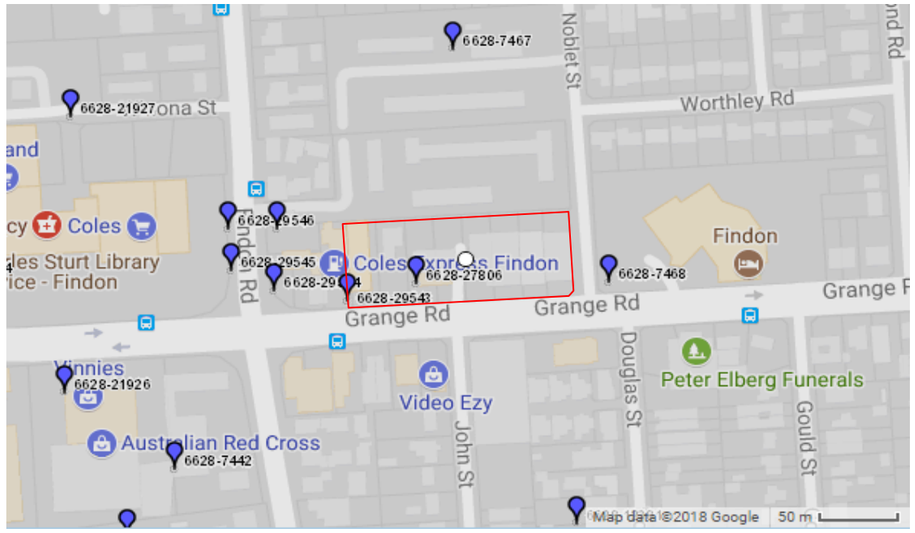
Appendix C

WaterConnect Groundwater Database Search

WaterConnect Groundwater Database Records

Project Number	181015
Report Title	Findon DPA Site Assessment
Site Address	263A-275 Grange Rd, Findon
Search Date	22-Jun-18





Headings
EC: Electrical conductivity
TDS: Total dissolved solids
SWL: Standing water level
RSWL: Relative standing water level

Class
WW: Water wells
WP: Waterpoint well
MW: Monitoring Well
ENG: Engineering Well
Strat: Stratigraphic Well

Purpose		
APN: Anode Protection	FND: Foundations	REC: Recharge
APP: Appraisal	GEN: General Usage	RHL: Rock Hole
ASR: Aquifer Storage and Recovery	GTH: Geothermal Energy	RIV: River
CMT: Construction Materials	HOL: Water Hole	SCI: Scientific
COA: Coal	IND: Industrial	SEA: Sea Water
DAM: Dam	INV: Investigation	SEI: Seismic
DEP: Deepening	IRR: Irrigation	SOK: Soak
DEV: Development	LAK: Lake	SPR: Spring
DOM: Domestic	LWD: Liquid Waste Disposal	STK: Stock
DRN: Drainage	MON: Monitoring	TNK: Tank
DWT: Dewatering	MWS: Mine Water Supply	TWS: Town Water Supply (Public/Muncip
ENV: Environmental	OBS: Observation	UKN: Unknown
ETH: Earthing	PRO: Production	WAS: Waste Disposal
EXP: Exploration	RCL: Recreational	
FIR: Fire Fighting	RDC: Road Construction / Maintenance	

Status
ABD: Abandoned
BKF: Backfilled
CFL: Controlled flowing
NL: Not located
OPR: Operational
NOP: Not Operational
UFL: Uncontrolled flowing
UKN: Unknown
RHB: Rehabilitated

Single wells by class:
- Water Well
- Mineral Well
- Stratigraphic Well
- Water Point
- Engineering Well
- Seismic Point Well
- Petroleum Well

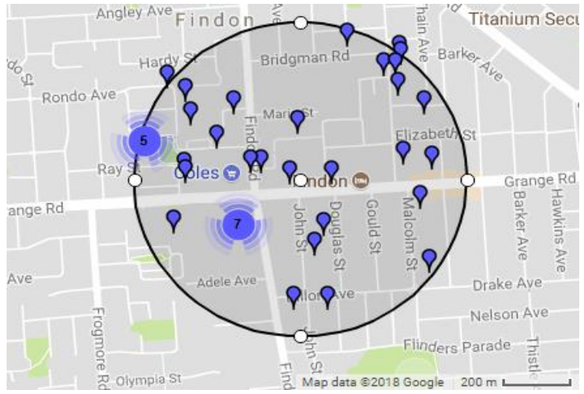
Multiple wells: Shows number of wells in cluster. Colours correspond to classes (above).

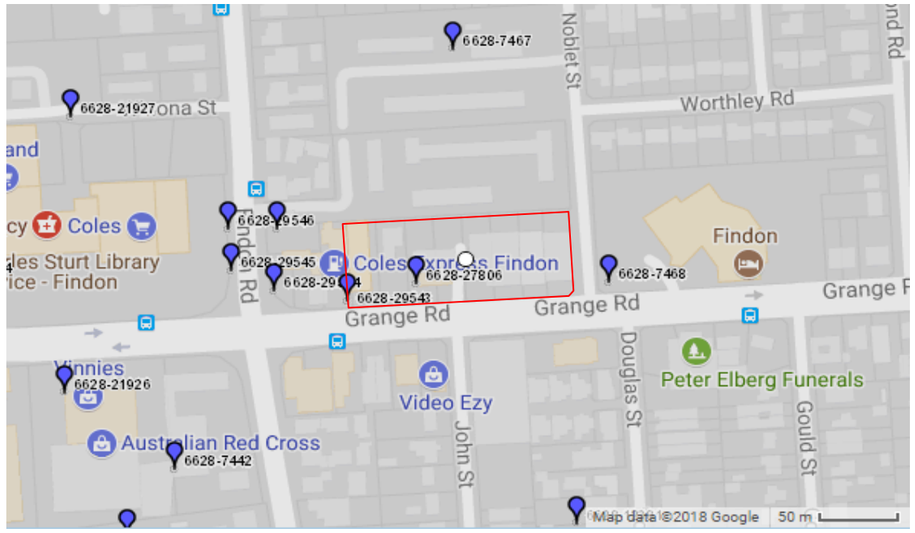
Well Search Summary		
Search Radius:		0.5 km
Total number of wells:		40
Onsite wells:		1
Shallow wells (<20m):		28
Salinity in shallow wells (TDS mg/L)	Min:	1429
	Max:	3298

Unit No.	Class	Purpose	Status	Status Date	Original Drilled Depth	Original Drilled Date	SWL	RSWL	Water Level Date	TDS	EC	EC Date	pH	pH date	Yield	Yield date	mga easting	mga northing	mga zone
6628-7442	WW					1/01/1951	9.14	-0.41	17/08/1961	1773	3196	17/08/1961					274510.75	6134564.27	54
6628-7443	WW					1/01/1914				7297	12686	20/02/1950					274446.72	6134454.24	54
6628-7467	WW						6.71	3.04	13/02/1940	2199	3950	13/02/1940					274682.73	6134854.22	54
6628-7468	WW	OBS	RHB	14/09/1992	142.65	6/11/1934	17.08	-8.19	6/03/2018	1149	2080	15/09/1992	7.4	15/09/1992	3	14/09/1992	274786	6134698	54
6628-7469	WW						6.1	3.9	30/11/1967	2685	4807	30/11/1967	6.7	30/11/1967	0.88	30/11/1967	274985.71	6135083.24	54
6628-7470	WW		BKF	28/07/2017						1627	2934	25/03/1936			5.05	1/01/1936	274936	6135045	54
6628-7471	WW					1/01/1934	5.94	4.65	12/09/1934	1601	2888	12/09/1934					275002.71	6134764.32	54
6628-12381	WW				20	18/07/1982	4.5	4.5	18/07/1982						1	18/07/1982	274769.72	6134534.25	54
6628-13805	WW				9	1/01/1986	0	10.26	23/10/1986								274981.77	6135102.23	54
6628-13821	WW				12.2	19/11/1986	3.6	6.4	2/12/1986	2807	5020	2/12/1986	7.2	19/11/1986	1	19/11/1986	274824.69	6135138.32	54
6628-15942	WW	DOM	OPR		10.5	6/03/1992	7	3.77	6/03/1992	1738	3131	6/03/1992	7.1	6/03/1992	0.6	6/03/1992	275060.74	6134929.25	54
6628-16878	WW	DOM			20	11/02/1995				2932	5240	11/02/1995	6.7	11/02/1995	2	11/02/1995	274786.6	6134298.35	54
6628-17619	WW	DOM			18	16/01/1996				1625	2930	16/01/1996	7.4	16/01/1996	1	16/01/1996	274981.86	6134983.36	54
6628-17914	WW	OBS			9	6/03/1996	5.3	3.02	6/03/1996	2239	4020	6/03/1996	7.6	6/03/1996			274486.97	6134913.11	54
6628-18745	WW	DOM			16	20/12/1997	7.8	2.56	20/12/1997	2154	3870	20/12/1997			0.3	20/12/1997	274971.85	6135048.27	54
6628-18956	WW	DOM			22.5	6/04/1998	6.5	2.11	6/04/1998	2047	3680	7/04/1998			1	6/04/1998	274481.9	6134518.27	54
6628-19426	WW	DOM			14	10/03/1999	6	4.83	10/03/1999	1429	2580	10/03/1999			1.5	10/03/1999	275086.83	6134753.29	54
6628-20577	WW	DOM			11	21/03/2001	11	-0.31	21/03/2001	1452	2620	21/03/2001					275087.16	6134425.04	54
6628-21232	WW	MON			4	11/04/2003	1.5	7.43	11/04/2003								274220.76	6134822.81	54
6628-21573	WW	DOM			18	21/01/2004	9	0.34	21/01/2004	1845	3320	21/01/2004			1	21/01/2004	274682.22	6134297.48	54
6628-21921	WW	MON			3	5/02/2004	1.5	7.32	5/02/2004								274268.63	6134816.26	54
6628-21923	WW	MON			7	7/09/2004	5.5	2.57	7/09/2004						0.01	38237	274315.96	6134531.34	54
6628-21924	WW				7	20/08/2004											274348	6134692	54
6628-21925	WW				7	20/08/2004											274344	6134714	54
6628-21926	WW				7	20/08/2004											274439	6134615	54
6628-21927	WW				7	20/08/2004											274438	6134802	54
6628-22312	WW				16	25/10/2005	6	4.7	38650	1872	3370	38650			2	38650	275056.69	6134627.19	54

WaterConnect Groundwater Database Records

Project Number	181015
Report Title	Findon DPA Site Assessment
Site Address	263A-275 Grange Rd, Findon
Search Date	22-Jun-18





Headings
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SWL: Standing water level
RSWL: Relative standing water level

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WP: Waterpoint well
MW: Monitoring Well
ENG: Engineering Well
Strat: Stratigraphic Well

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APP: Appraisal	GEN: General Usage	RHL: Rock Hole
ASR: Aquifer Storage and Recovery	GTH: Geothermal Energy	RIV: River
CMT: Construction Materials	HOL: Water Hole	SCI: Scientific
COA: Coal	IND: Industrial	SEA: Sea Water
DAM: Dam	INV: Investigation	SEI: Seismic
DEP: Deepening	IRR: Irrigation	SOK: Soak
DEV: Development	LAK: Lake	SPR: Spring
DOM: Domestic	LWD: Liquid Waste Disposal	STK: Stock
DRN: Drainage	MON: Monitoring	TNK: Tank
DWT: Dewatering	MWS: Mine Water Supply	TWS: Town Water Supply (Public/Muncip
ENV: Environmental	OBS: Observation	UKN: Unknown
ETH: Earthing	PRO: Production	WAS: Waste Disposal
EXP: Exploration	RCL: Recreational	
FIR: Fire Fighting	RDC: Road Construction / Maintenance	

Status
ABD: Abandoned
BKF: Backfilled
CFL: Controlled flowing
NL: Not located
OPR: Operational
NOP: Not Operational
UFL: Uncontrolled flowing
UKN: Unknown
RHB: Rehabilitated

Single wells by class:
- Water Well
- Mineral Well
- Stratigraphic Well
- Water Point
- Engineering Well
- Seismic Point Well
- Petroleum Well

Multiple wells: Shows number of wells in cluster. Colours correspond to classes (above).

Well Search Summary		
Search Radius:		0.5 km
Total number of wells:		40
Onsite wells:		1
Shallow wells (<20m):		28
Salinity in shallow wells (TDS mg/L)	Min:	1429
	Max:	3298

Unit No.	Class	Purpose	Status	Status Date	Original Drilled Depth	Original Drilled Date	SWL	RSWL	Water Level Date	TDS	EC	EC Date	pH	pH date	Yield	Yield date	mga easting	mga northing	mga zone
6628-24555	WW	MON			8	22/01/2009	5.6	3.31	22/01/2009	1845	3320	22/01/2009					274275.69	6134765.21	54
6628-24556	WW	MON			8	22/01/2009	5.6	2.5	22/01/2009	2182	3920	22/01/2009					274286.7	6134835.32	54
6628-24557	WW	MON			3.8	9/12/2008	2.4	2.72	9/12/2008	1743	3140	9/12/2008					274315.67	6134918.76	54
6628-25190	WW	MON			9.5	11/02/2010	7		11/02/2010	3298	5880	15/02/2010					274285.85	6134989.58	54
6628-25776	WW	INV			3.9	21/04/2011	1.2		21/04/2011	1850	3330	21/04/2011					274358.91	6134875.47	54
6628-25777	WW	INV			3.1	21/04/2011	0.5		21/04/2011	2340	4200	21/04/2011					274339.9	6134949.77	54
6628-26423	WW		EQP	26573													274742	6134471	54
6628-27806	WW				9	26/02/2015	5		26/02/2015								274662.86	6134694.48	54
6628-29543	WW	ENV			7	1/03/2018											274618.65	6134681.38	54
6628-29544	WW	ENV			7	27/02/2018											274572.03	6134686.92	54
6628-29545	WW	ENV			7	27/02/2018											274543.59	6134700.3	54
6628-29546	WW	ENV			7	27/02/2018											274541.51	6134728.29	54
6628-29547	WW	ENV			7	1/03/2018											274572.6	6134729.22	54

Appendix D

Aerial Photographs

1949 Aerial Photograph

263A-275 Grange Road, Findon

Preliminary Site Investigation

For

City of Charles Sturt

LEGEND

Approximate site boundary

SCALE

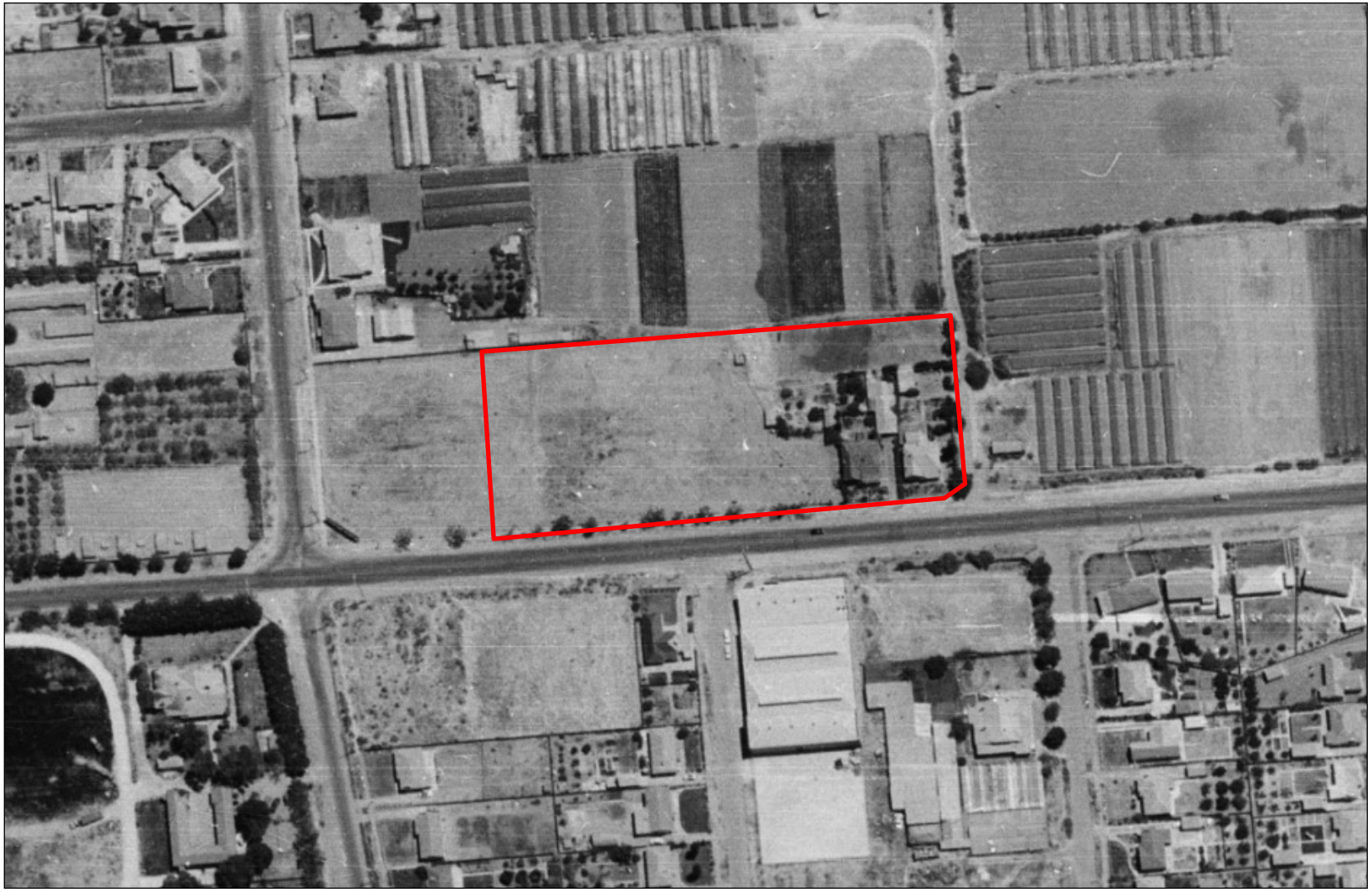
0 25 50 m

DELIVERING ENVIRONMENTAL SOLUTIONS

Aerial Image Details			
Date	23.01.1949		
Survey	17		
Photo	45		
Source	Mapland, Dept for Environment and Natural Resources		
LBW co Details			
Job No.	181015		
Drawn	MF	**Rev.**	0
Checked	SB	**Date**	22.06.18

N

1959 Aerial Photograph



263A-275 Grange Road, Findon

Preliminary Site Investigation

For

City of Charles Sturt

LEGEND

Approximate site boundary

SCALE

0 25 50m

DELIVERING ENVIRONMENTAL SOLUTIONS

Aerial Image Details			
Date	3.01.1959		
Survey	325		
Photo	9302		
Source	Mapland, Dept for Environment and Natural Resources		
LBW co Details			
Job No.	181015		
Drawn	MF	**Rev.**	0
Checked	SB	**Date**	22.06.18

N

1969 Aerial Photograph

263A-275 Grange Road, Findon

Preliminary Site Investigation

For

City of Charles Sturt

LEGEND

Approximate site boundary

SCALE

0 25 50 m

DELIVERING ENVIRONMENTAL SOLUTIONS

Aerial Image Details			
Date	9.01.1969		
Survey	1133A		
Photo	637		
Source	Mapland, Dept for Environment and Natural Resources		
LBW co Details			
Job No.	181015		
Drawn	MF	**Rev.**	0
Checked	SB	**Date**	22.06.18

N

1979 Aerial Photograph

263A-275 Grange Road, Findon

Preliminary Site Investigation

For

City of Charles Sturt

LEGEND

Approximate site boundary

SCALE

0 25 50 m

DELIVERING ENVIRONMENTAL SOLUTIONS

Aerial Image Details			
Date	19.03.1979		
Survey	2406		
Photo	110		
Source	Mapland, Dept for Environment and Natural Resources		
LBW co Details			
Job No.	181015		
Drawn	MF	**Rev.**	0
Checked	SB	**Date**	22.06.18

N

1989 Aerial Photograph

263A-275 Grange Road, Findon

Preliminary Site Investigation

For

City of Charles Sturt

LEGEND

Approximate site boundary

SCALE

0 25 50 m

DELIVERING ENVIRONMENTAL SOLUTIONS

Aerial Image Details			
Date	28.09.1989		
Survey	4108		
Photo	167		
Source	Mapland, Dept for Environment and Natural Resources		
LBW co Details			
Job No.	181015		
Drawn	MF	**Rev.**	0
Checked	SB	**Date**	22.06.18

N

1999 Aerial Photograph

263A-275 Grange Road, Findon

Preliminary Site Investigation

For

City of Charles Sturt

LEGEND

Approximate site boundary

SCALE

0 25 50 m

DELIVERING ENVIRONMENTAL SOLUTIONS

Aerial Image Details			
Date	26.09.1999		
Survey	5717		
Photo	534		
Source	Mapland, Dept for Environment and Natural Resources		
LBW co Details			
Job No.	181015		
Drawn	MF	**Rev.**	0
Checked	SB	**Date**	22.06.18

N

2009 Aerial Photograph

263A-275 Grange Road, Findon

Preliminary Site Investigation

For

City of Charles Sturt

LEGEND

Approximate site boundary

SCALE

0 25 50 m

DELIVERING ENVIRONMENTAL SOLUTIONS

Aerial Image Details			
Date	29.10.2009		
Survey	-		
Photo	-		
Source	Nearmap		
LBW co Details			
Job No.	181015		
Drawn	MF	**Rev.**	0
Checked	SB	**Date**	22.06.18

N

2018 Aerial Photograph

263A-275 Grange Road, Findon

Preliminary Site Investigation

For

City of Charles Sturt

LEGEND

Approximate site boundary

SCALE

0 25 50 m

lbw co
DELIVERING ENVIRONMENTAL SOLUTIONS

Aerial Image Details			
Date	19.04.2018		
Survey	-		
Photo	-		
Source	Nearmap		
LBW co Details			
Job No.	181015		
Drawn	MF	**Rev.**	0
Checked	SB	**Date**	22.06.18

N

Appendix E

EPA Public Register Searches and SA Dangerous Substances Licensing Database Search

Sands and McDougall Search

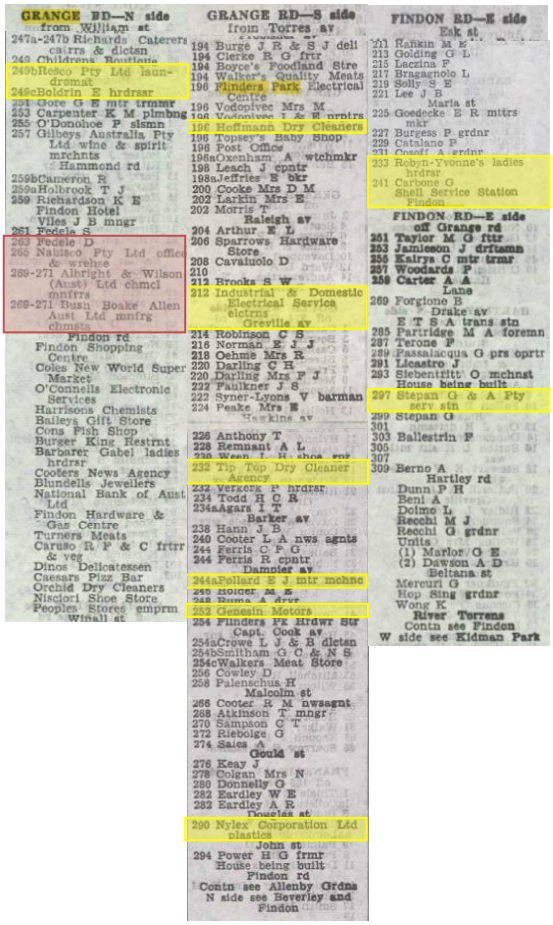
Project Number	181015
Report Title	Preliminary Site Investigation
Site Address	263A-275 Grange Rd, Findon

On-site

Nearby off-site activities of significance

1970

Page 318, 319, 694



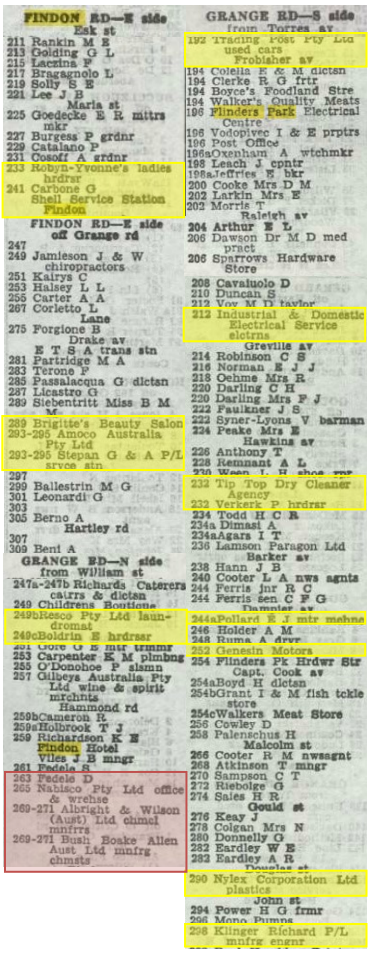
GRANGE RD—N side
from William st
247a-247b Richards Caterers cairrs & dictsn
249 Childrens Boutique
249bResco Pty Ltd launderomat
249cBoldrin E hrdrssr
253 Gore G E mtr trnmr
253 Carpenter K M plmbng
255 O'Donohoe P slsmn
257 Gilbeys Australia Pty Ltd wine & spirit mrchnts
Hammond rd
259bCameron R
259sHolbrook T J
259 Richardson K E
Findon Hotel
Viles J B mngr
261 Fedele S
263 Fedele D
265 Nabisco Pty Ltd office & wrehse
269-271 Albright & Wilson (Aust) Ltd chmcl mnfrrs
269-271 Bush Boake Allen Aust Ltd mnfrg chmsts
Findon rd
Findon Shopping Centre
Coles New World Super Market
O'Connells Electronic Services
Harrisons Chemists
Baileys Gift Store
Cons Fish Shop
Burger King Restrnt
Barbarer Gabel ladies hrdrsr
Coopers News Agency
Blundells Jewellers
National Bank of Aust Ltd
Findon Hardware & Gas Centre
Turners Meats
Caruso R F & C frtrr & veg
Dinos Delicatessen
Caesars Pizz Bar
Orchid Dry Cleaners
Nisclori Shoe Store
Peoples Stores emprm
Wingfield st

GRANGE RD—S side
from Torres av
194 Burge J R & S J deli
194 Clerke R G frtr
194 Boyce's Foodland Stre
194 Walker's Quality Meats
196 Flinders Park Electrical Centre
196 Vodopivec Mrs M
196 Vodopivec I & E prptrs
196 Hoffmann Dry Cleaners
196 Topsey's Baby Shop
196 Post Office
196aOxenham A wtchmkr
198 Leach J cpntr
198aJeffries E bkr
200 Cooke Mrs D M
202 Larkin Mrs E
202 Morris T
Raleigh av
204 Arthur E L
206 Sparrows Hardware Store
208 Cavaiuolo D
210
212 Brooks S W
212 Industrial & Domestic Electrical Service elctrns
Greville av
214 Robinson C S
216 Norman E J J
218 Oehme Mrs R
220 Darling C H
220 Darling Mrs F J
222 Faulkner J S
222 Syner-Lyons V barman
224 Peake Mrs E
Hawkins av
226 Anthony T
228 Remnant A L
230 Wash-L-R shop rpr
232 Tip Top Dry Cleaner Agency
232 Verkerk P hrdrsr
234 Todd H C R
234aAgars I T
Barker av
238 Hann J B
240 Cooter L A nws agnts
244 Ferris C F G
244 Ferris R cpntr
Dammler av
244aPollard E J mtr mchnc
246 Holder A M
248 Kuma A dvsr
252 Genesin Motors
254 Flinders Pk Hrdwr Str Capt. Cook av
254aCrowe L J & B dictsn
254bSmitham G C & N S
254cWalkers Meat Store
256 Cowley D
258 Palenschus H
Malcolm st
266 Cooter R M nwsagnt
268 Atkinson T mngr
270 Sampson C T
272 Riebolge G
274 Sales A
Gould st
276 Keay J
278 Colgan Mrs N
280 Donnelly G
282 Eardley W E
282 Eardley A R
Douglas st
290 Nylex Corporation Ltd plastics
John st
294 Power H G frmr
House being built
Findon rd
Contn see Allenby Grdns N side see Beverley and Findon

FINDON RD—E side
Esk st
211 Rankin M E
213 Golding G L
215 Laczina F
217 Bragagnolo L
219 Solly S E
221 Lee J B
Maria st
225 Goedecke E R mttrs mkr
227 Burgess P grdnr
229 Catalano P
231 Cosoff A grdnr
233 Robyn-Yvonne's ladies hrdrsr
241 Carbone G
Shell Service Station
Findon
FINDON RD—E side
off Grange rd
251 Taylor M G fttr
253 Jamieson J drftsmn
255 Kairys C mtr trnr
257 Woodards P
259 Carter A A
Lane
269 Forgione B
Drake av
E T S A trans stn
285 Partridge M A foremn
287 Terone F
289 Passalacqua G prs oprtr
291 Licastro J
293 Siebentritt O mchnst
House being built
297 Stepan G & A Pty serv stn
299 Stepan G
301
303 Ballestrin F
305
307
309 Berno A
Hartley rd
Dunn P H
Beni A
Dolmo L
Recchi M J
Recchi G grdnr
Units
(1) Marlor G E
(2) Dawson A D
Beltana st
Mereuri G
Hop Sing grdnr
Wong K
River Torrens
Contn see Findon W side see Kidman Park

1973

345, 346, 742



FINDON RD—E side
Esk st
211 Rankin M E
213 Golding G L
215 Laczina F
217 Bragagnolo L
219 Solly S E
221 Lee J B
Maria st
225 Goedecke E R mttrs mkr
227 Burgess P grdnr
229 Catalano P
231 Cosoff A grdnr
233 Robyn-Yvonne's ladies hrdrsr
241 Carbone G
Shell Service Station
Findon
FINDON RD—E side
off Grange rd
247
249 Jamieson J & W chiropractors
251 Kairys C
253 Halsey L L
255 Carter A A
267 Corletto L
Lane
275 Forgione B
Drake av
E T S A trans stn
281 Partridge M A
283 Terone F
285 Passalacqua G dictsn
287 Licastro G
289 Siebentritt Miss B M
289 Brigitte's Beauty Salon
293-295 Amoco Australia Pty Ltd
293-295 Stepan G & A P/L srvce stn
297
299 Ballestrin M G
301 Leonardi G
303
305 Berno A
Hartley rd
307
309 Beni A
GRANGE RD—N side
from William st
247a-247b Richards Caterers cairrs & dictsn
249 Childrens Boutique
249bResco Pty Ltd launderomat
249cBoldrin E hrdrsr
253 Carpenter K M plmbng
255 O'Donohoe P slsmn
257 Gilbeys Australia Pty Ltd wine & spirit mrchnts
Hammond rd
259bCameron R
259sHolbrook T J
259 Richardson K E
Findon Hotel
Viles J B mngr
261 Fedele S
263 Fedele D
265 Nabisco Pty Ltd office & wrehse
269-271 Albright & Wilson (Aust) Ltd chmcl mnfrrs
269-271 Bush Boake Allen Aust Ltd mnfrg chmsts

GRANGE RD—S side
from Torres av
192 Tracing Post Pty Ltd used cars
Frobisher av
194 Colella E & M dictsn
194 Clerke R G frtr
194 Boyce's Foodland Stre
194 Walker's Quality Meats
196 Flinders Park Electrical Centre
196 Vodopivec I & E prptrs
196 Post Office
196aOxenham A wtchmkr
198 Leach J cpntr
198aJeffries E bkr
200 Cooke Mrs D M
202 Larkin Mrs E
202 Morris T
Raleigh av
204 Arthur E L
206 Dawson Dr M D med pract
206 Sparrows Hardware Store
208 Cavaiuolo D
210 Duncan S
212 Vow M D taylor
212 Industrial & Domestic Electrical Service elctrns
Greville av
214 Robinson C S
216 Norman E J J
218 Oehme Mrs R
220 Darling C H
220 Darling Mrs F J
222 Faulkner J S
222 Syner-Lyons V barman
224 Peake Mrs E
Hawkins av
226 Anthony T
228 Remnant A L
230 Wash-L-R shop rpr
232 Tip Top Dry Cleaner Agency
232 Verkerk P hrdrsr
234 Todd H C R
234a Dimasi A
234aAgars I T
236 Lamson Paragon Ltd
Barker av
238 Hann J B
240 Cooter L A nws agnts
244 Ferris jnr R C
244 Ferris sen C F G
Dammler av
244aPollard E J mtr mchnc
246 Holder A M
248 Kuma A dvsr
252 Genesin Motors
254 Flinders Pk Hrdwr Str Capt. Cook av
254aBoyd H dictsn
254bGrant I & M fish tckle store
254cWalkers Meat Store
256 Cowley D
258 Palenschus H
Malcolm st
266 Cooter R M nwsagnt
268 Atkinson T mngr
270 Sampson C T
272 Riebolge G
274 Sales H R
Gould st
276 Keay J
278 Colgan Mrs N
280 Donnelly G
282 Eardley W E
282 Eardley A R
Douglas st
290 Nylex Corporation Ltd plastics
John st
294 Power H G frmr
296 Mono Pumps
298 Klinger Richard P/L mnfrg engnr

Sands and McDougall Search

Project Number 181015

Report Title Preliminary Site Investigation

Site Address 263A-275 Grange Rd, Findon

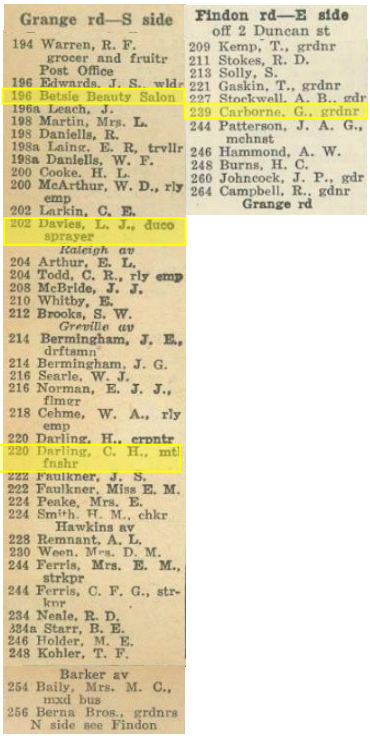
DELIVERING ENVIRONMENTAL SOLUTIONS

On-site

Nearby off-site activities of significance

1950

Page 130, 458



Grange rd—S side

194 Warren, R. F. grocer and fruitr Post Office
196 Edwards, J. S. wldr
196 Betsie Beauty Salon
196a Leach, J.
198 Martin, Mrs. L.
198 Daniells, R.
198a Laing, E. R, trvllr
198a Daniells, W. F.
200 Cooke, H. L.
200 McArthur, W. D., rly emp
202 Larkin, C. E.
202 Davies, L. J., duco sprayer
Raleigh av
204 Arthur, E. L.
204 Todd, C. R., rly emp
208 McBride, J. J.
210 Whitby, E.
212 Brooks, S. W.
Greville av
214 Bermingham, J. E., drftsmn
214 Bermingham, J. G.
216 Searle, W. J.
216 Norman, E. J., fitmer
218 Cehme, W. A., rly emp
220 Darling, H., cpntr
220 Darling, C. H., mtl fnshr
222 Faulkner, J. S.
222 Faulkner, Miss E. M.
224 Peake, Mrs. E.
224 Smith, H. M., chkr Hawkins av
228 Remnant, A. L.
230 Ween, Mrs. D. M.
244 Ferris, Mrs. E. M., strkpr
244 Ferris, C. F. G., strknr
234 Neale, R. D.
234a Starr, B. E.
246 Holder, M. E.
248 Kohler, T. F.
Barker av
254 Baily, Mrs. M. C., mxd bus
256 Berna Bros., grdnrs N side see Findon

Findon rd—E side
off 2 Duncan st

209 Kemp, T., grdnr
211 Stokes, R. D.
213 Solly, S.
221 Gaskin, T., grdnr
227 Stockwell, A. B., gdr
239 Carborne, G., grdnr
244 Patterson, J. A. G., mchnst
246 Hammond, A. W.
248 Burns, H. C.
260 Johncock, J. P., gdr
264 Campbell, R., gdnr
Grange rd

1960

156, 157

FINDON RD—E side
off Pine st

207 Golding G L strmn
209 Farkas L
209 Zidloch E
16 Houses being built
211 Bragagnolo L
213 Solly S
227 James G S tlr
227a Burgess P grdnr
House being built
239 Carbone J grdnr
239 Carbone G grdnr
239 Carbone R grdnr
239 Carbone P grdnr

FINDON RD—E side
off Grange rd

251 Taylor M G fttr
253 Jamieson J drftsmn
255 Kairys C mtr trnsr
257 Woodards P
259 Carter A A
Drake av
E T S A trans stn
285 Armstrong B T
291 Licastro J
293 Wittern W electrn
295 Caruso G bldr
297 Stepan G serv stn

GRANGE RD—N side
from William st

247 Sales D chmst
249a Rogers D H & R M drprs
249b Mardaw Soft Furnishers Ltd
249c Annettes Frock Shop
249 Taggett L S & Son btchrs
House being built
251 Gore G E carr
Starr st
253 Carpenter K M plmbr
259 Richardson K E grdnr
261 Hughes W E
263 Jones Mrs E
263 Mackrill Rev M D
Findon Poultry Farm
303 Cole Mrs E L
Wignell st

GRANGE RD—S side
from Torres av

194 Walker's Meat Store
196 Dansie K B
196a Schebella H foremn
198 Leach J cpntr
198a Jeffries E bkr
200 Cooke J E clrk
202 Larkin C E
Raleigh av
204 Arthur E L
206 Mueller H E electrn
208 McBride J J
208 Pugh J H
208 Wales Mrs J A
210 Whitby E
212 Brooks S W
Greville av
214 Bermingham J E foreman
216 Searle Mrs E A
216 Norman E J J
218 Cehme W
220 Darling H cpntr
220 Darling C H
222 Faulkner J S
222 Faulkner Miss E M
224 Peake Mrs E
Hawkins av
226 Antonion T
228 Remnant A L
230 Ween L H shoe rpr
232 Portoleal R tlr
234 Todd H C R
234a Dunn H M
Barker av
238 Wann J wldr
240 Watson E clrk
244 Ferris C F G
Dampier av
244a Pollard E J mtr mchnc
248 Ruma A drvr
252 Flinders Pk Serv Stn
254 Flinders Pk Hrdwr Str
Capt. Cook av
254a Stanton B R dietsn
254b Brenford L O & E M grcr

EPA Site Contamination Index Search

Project Number	181015
Report Title	Preliminary Site Investigation
Site Address	263A-275 Grange Rd, Findon

Pertaining to the subject site =

Within 0.5 km of subject site =

Findon

Notification no	Type	Address	Potentially contaminating activity
12450	109 Notification	Ray Street FINDON SA 5023	Not recorded
60060	Audit Notification	Ray Street FINDON SA 5023	Not recorded
61474	Audit Notification	127 Findon Road FINDON SA 5023	Not recorded
60060 - 001	Audit Report	Ray Street FINDON SA 5023	Landfill sites
60060 - 002	Audit Report	Ray Street FINDON SA 5023	Landfill sites
60060 - 003	Audit Report	Ray Street FINDON SA 5023	Landfill sites
60060 - 004	Audit Report	Ray Street FINDON SA 5023	Landfill sites
61474 - 001	Audit Report	127 Findon Road FINDON SA 5023	Fill or soil importation; Motor vehicle repair or maintenance
10065	Pre 1 July 2009 Audit Notification	Ray Street FINDON SA 5023	Not recorded
18935	Pre 1 July 2009 Audit Notification	Stage E2, Part Lot 301 Ray Street FINDON SA 5023	Not recorded
12051	Pre 1 July 2009 Audit Notification	6 Sando Street FINDON SA 5023	Not recorded
12447	Pre 1 July 2009 Audit Notification	Lot 620 Ray Street FINDON SA 5023	Not recorded
12557	Pre 1 July 2009 Audit Notification	Part Lot 621 Stage C and D1 Ray Street FINDON SA 5023	Not recorded
12727	Pre 1 July 2009 Audit Notification	Part Lot 621 Stage B Ray Street FINDON SA 5023	Not recorded
13157	Pre 1 July 2009 Audit Notification	Stages D2 & E1 Ray Street FINDON SA 5023	Not recorded
12489	Pre 1 July 2009 Audit Notification	369 - 371 Grange Road FINDON SA 5023	Not recorded
16595	Pre 1 July 2009 Audit Notification	Lot 117 Ray Street FINDON SA 5023	Not recorded

EPA Site Contamination Index Search

Project Number	181015
Report Title	Preliminary Site Investigation
Site Address	263A-275 Grange Rd, Findon

Pertaining to the subject site =

Within 0.5 km of subject site =

Findon

12051 - 001	Pre 1 July 2009 Audit Report	6 Sando Street FINDON SA 5023	Not recorded
12447 - 001	Pre 1 July 2009 Audit Report	Lot 620 Ray Street FINDON SA 5023	Not recorded
12557 - 001	Pre 1 July 2009 Audit Report	Part Lot 621 Stage C and D1 Ray Street FINDON SA 5023	Not recorded
12489 - 001	Pre 1 July 2009 Audit Report	369 - 371 Grange Road FINDON SA 5023	Not recorded
12727 - 001	Pre 1 July 2009 Audit Report	Part Lot 621 Stage B Ray Street FINDON SA 5023	Not recorded
13157 - 001	Pre 1 July 2009 Audit Report	Stages D2 & E1 Ray Street FINDON SA 5023	Not recorded
18935 - 001	Pre 1 July 2009 Audit Report	Stage E2, Part Lot 301 Ray Street FINDON SA 5023	Landfill sites
10065	Pre 1 July 2009 Audit Termination	Ray Street FINDON SA 5023	Not recorded
16595	Pre 1 July 2009 Audit Termination	Lot 117 Ray Street FINDON SA 5023	Not recorded
12468	S83 Notification	95 Findon Road FINDON SA 5023	Not recorded
61048 - 01	S83A Notification	Lot 51 Crittenden Road FINDON SA 5023	Listed Substances (storage)
61319 - 01	S83A Notification	Allotment Piece 2 DP 64354 Findon Road FINDON SA 5023	Landfill sites
61476 - 01	S83A Notification	127 Findon Road FINDON SA 5023	Metal forging
61818 - 01	S83A Notification	174-176 Crittenden Road FINDON SA 5023	Not recorded
61842 - 01	S83A Notification	245 Findon Road FINDON SA 5023	Listed Substances (storage); Service stations
61836 - 01	S83A Notification	145 Crittenden Road FINDON SA 5023	Service stations

Government of South Australia
SafeWork SA

Licensing, Customer Services Team

Level 4 World Park A
33 Richmond Road
Keswick SA 5035

GPO Box 465
Adelaide SA 5001

DX 715 Adelaide

Phone 1300 365 255
Fax 08 8303 9903
Email licensing.safework@sa.gov.au

ABN 50-560-588-327

www.safework.sa.gov.au

27 June 2018

Mr James Coley
Principal Environmental Consultant
LBW Co
184 Magill Road
NORWOOD SA 5067

Dear James

RE: DANGEROUS SUBSTANCES LICENCE SEARCH

PROPERTY DETAILS: 275, 273, 269-271, 267, 265, 263, 263A, Grange Road, Findon SA 5023.

Further to your dangerous substance licence search application dated 18 June 2018 for the abovementioned site, SafeWork SA's records show the following current and/or historical storage:

Class	Quantity	Storage Type
Class 3	10 KL	Liquid Tank underground External

Yours sincerely

MANAGER
LICENSING, CUSTOMER SERVICES TEAM
SAFEWORK SA

Environment Protection Authority
GPO Box 2607 Adelaide SA 5001
211 Victoria Square Adelaide SA 5000
T (08) 8204 2004
Country areas 1800 623 445

LBW Co
184 Magill Road
NORWOOD SA 5067

hannah.custance@lbwco.com.au

Contact: Section 7
Telephone: (08) 8204 2026
Email: epasection7@sa.gov.au

Contact: Public Register
Telephone: (08) 8204 9128
Email: epa.publicregister@sa.gov.au

21 May, 2018

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the *Land and Business (Sale and Conveyancing) Act 1994*. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the *Land and Business (Sale and Conveyancing) Act 1994* is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference	CT Volume 5476 Folio 751
Address	Allotment 5 (DP 5549), 275 Grange Road, FINDON SA 5023

Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

7. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the *Environment Protection Act 1993*:

7.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
7.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
7.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
7.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
7.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
7.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO
7.7	Section 103J - Site remediation order that is registered in relation to the land.	NO

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21 May, 2018

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the *Land and Business (Sale and Conveyancing) Act 1994*. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the *Land and Business (Sale and Conveyancing) Act 1994* is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference	CT Volume 5204 Folio 348
Address	Allotment 6 (DP 5549), 273 Grange Road, FINDON SA 5023

Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

7. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the *Environment Protection Act 1993*:

7.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
7.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
7.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
7.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
7.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
7.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO
7.7	Section 103J - Site remediation order that is registered in relation to the land.	NO

7.8	Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).	NO
7.9	Section 103P - Notation of site contamination audit report in relation to the land.	NO
7.10	Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.	NO

Schedule – Division 2 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a)	details of a current licence issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
b)	details of a licence no longer in force issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
c)	details of a current exemption issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land?	NO
f)	details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land?	NO
g)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land?	NO

h)	details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land?	NO

4-Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)?	NO
b)	details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993?*	NO
h)	details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO

5-Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)?	NO
b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*?	NO

d)	a copy of a pre-1 July 2009 site audit report?	NO
e)	details relating to the termination before completion of a pre-1 July 2009 site audit?	NO

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

7.8	Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).	NO
7.9	Section 103P - Notation of site contamination audit report in relation to the land.	NO
7.10	Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.	NO

Schedule – Division 2 – ***Land and Business (Sale and Conveyancing) Regulations 2010***

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a)	details of a current licence issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
b)	details of a licence no longer in force issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
c)	details of a current exemption issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land?	NO
f)	details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land?	NO
g)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land?	NO

h)	details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land?	NO

4-Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)?	NO
b)	details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993?*	NO
h)	details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO

5-Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)?	NO
b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*?	NO

d)	a copy of a pre-1 July 2009 site audit report?	NO
e)	details relating to the termination before completion of a pre-1 July 2009 site audit?	NO

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

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21 May, 2018

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the *Land and Business (Sale and Conveyancing) Act 1994*. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the *Land and Business (Sale and Conveyancing) Act 1994* is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference	CT Volume 5284 Folio 711
Address	Allotments 7 & 8 (DP 5549), 269-271 Grange Road, FINDON SA 5023

Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

7. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the *Environment Protection Act 1993*:

7.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
7.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
7.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
7.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
7.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
7.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO
7.7	Section 103J - Site remediation order that is registered in relation to the land.	NO

7.8	Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).	NO
7.9	Section 103P - Notation of site contamination audit report in relation to the land.	NO
7.10	Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.	NO

Schedule – Division 2 – ***Land and Business (Sale and Conveyancing) Regulations 2010***

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a)	details of a current licence issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
b)	details of a licence no longer in force issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
c)	details of a current exemption issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land?	NO
f)	details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land?	NO
g)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land?	NO

h)	details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land?	NO

4-Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)?	NO
b)	details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993?*	NO
h)	details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO

5-Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)?	NO
b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*?	NO

d)	a copy of a pre-1 July 2009 site audit report?	NO
e)	details relating to the termination before completion of a pre-1 July 2009 site audit?	NO

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

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21 May, 2018

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the *Land and Business (Sale and Conveyancing) Act 1994*. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the *Land and Business (Sale and Conveyancing) Act 1994* is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference	CT Volume 5366 Folio 397
Address	Allotment 9 (DP 5549), 265-267 Grange Road, FINDON SA 5023

Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

7. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the *Environment Protection Act 1993*:

7.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
7.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
7.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
7.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
7.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
7.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO
7.7	Section 103J - Site remediation order that is registered in relation to the land.	NO

7.8	Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).	NO
7.9	Section 103P - Notation of site contamination audit report in relation to the land.	NO
7.10	Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.	NO

Schedule – Division 2 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a)	details of a current licence issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
b)	details of a licence no longer in force issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
c)	details of a current exemption issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land?	NO
f)	details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land?	NO
g)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land?	NO

h)	details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land?	NO

4-Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)?	NO
b)	details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993?*	NO
h)	details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO

5-Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)?	NO
b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*?	NO

d)	a copy of a pre-1 July 2009 site audit report?	NO
e)	details relating to the termination before completion of a pre-1 July 2009 site audit?	NO

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

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21 May, 2018

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the *Land and Business (Sale and Conveyancing) Act 1994*. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the *Land and Business (Sale and Conveyancing) Act 1994* is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference	CT Volume 5366 Folio 314
Address	Allotment 10 (DP 5549), 265-267 Grange Road, FINDON SA 5023

Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

7. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the *Environment Protection Act 1993*:

7.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
7.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
7.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
7.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
7.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
7.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO
7.7	Section 103J - Site remediation order that is registered in relation to the land.	NO

7.8	Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).	NO
7.9	Section 103P - Notation of site contamination audit report in relation to the land.	NO
7.10	Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.	NO

Schedule – Division 2 – ***Land and Business (Sale and Conveyancing) Regulations 2010***

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a)	details of a current licence issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
b)	details of a licence no longer in force issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
c)	details of a current exemption issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land?	NO
f)	details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land?	NO
g)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land?	NO

h)	details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land?	NO

4-Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)?	NO
b)	details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993?*	NO
h)	details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO

5-Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)?	NO
b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*?	NO

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21 May, 2018

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the *Land and Business (Sale and Conveyancing) Act 1994*. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the *Land and Business (Sale and Conveyancing) Act 1994* is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference	CT Volume 5301 Folio 952
Address	Allotment 35 (FP 117547), 263B-263C Grange Road, FINDON SA 5023

Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

7. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the *Environment Protection Act 1993*:

7.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
7.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
7.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
7.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
7.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
7.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO
7.7	Section 103J - Site remediation order that is registered in relation to the land.	NO

7.8	Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).	NO
7.9	Section 103P - Notation of site contamination audit report in relation to the land.	NO
7.10	Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.	NO

Schedule – Division 2 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a)	details of a current licence issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
b)	details of a licence no longer in force issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
c)	details of a current exemption issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land?	NO
f)	details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land?	NO
g)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land?	NO

h)	details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land?	NO

4-Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)?	NO
b)	details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993?*	NO
h)	details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO

5-Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)?	NO
b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*?	NO

d)	a copy of a pre-1 July 2009 site audit report?	NO
e)	details relating to the termination before completion of a pre-1 July 2009 site audit?	NO

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

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21 May, 2018

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the *Land and Business (Sale and Conveyancing) Act 1994*. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the *Land and Business (Sale and Conveyancing) Act 1994* is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference	CT Volume 6080 Folio 458
Address	Allotment 36 (FP 117548), 263-263A Grange Road, FINDON SA 5023

Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

7. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the *Environment Protection Act 1993*:

7.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
7.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
7.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
7.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
7.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
7.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO
7.7	Section 103J - Site remediation order that is registered in relation to the land.	NO

7.8	Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).	NO
7.9	Section 103P - Notation of site contamination audit report in relation to the land.	NO
7.10	Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.	NO

Schedule – Division 2 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a)	details of a current licence issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
b)	details of a licence no longer in force issued under Part 6 of the *Environment Protection Act 1993* to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
c)	details of a current exemption issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land?	NO
f)	details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land?	NO
g)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land?	NO

h)	details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land?	NO

4-Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)?	NO
b)	details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993?*	NO
h)	details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO

5-Pollution and site contamination on the land - other details held by EPA

Does the EPA hold any of the following details in relation to the land or part of the land:

a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)?	NO
b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*?	NO

d)	a copy of a pre-1 July 2009 site audit report?	NO
e)	details relating to the termination before completion of a pre-1 July 2009 site audit?	NO

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

Appendix F

Soil Vapour Chemical Summary Tables

Chemical Summary Table
Soil Vapour Results

	TRH			BTEX					PAH
	>C10-C16	>C10-C16 (less Naphthalene)	TRH C6-C10	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Naphthalene
	mg/m³	mg/m³	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3
EQL	0.407	0.407	0.965	0	0	0	0.0041	0	0.0049
NEPM 1999 Soil Vapour HSL D for Vapour Intrusion - Comm./Indust. (Sand, 0-1mBGL)				4	4,800	1,300			3
NEPM 1999 Soil Vapour Chlorinated HIL D - Commercial/Industrial									

Location Code	Field ID	Depth (mBGL)	Date	Sample Type									
SV1	SV1 1811-AN-LU-057	0.25	9/06/2018	Normal	<0.407	<0.407	<0.965	0.0075	0.022	0.006	<0.0041	0.0073	<0.0049
	QC1 1811-AN-LU-058	0.25	9/06/2018	Field_D	<0.407	<0.407	<0.965	<0.0073	0.0086	<0.0039	<0.0041	<0.0041	<0.0049
SV2	SV2 1811-AN-LU-056	0.22	9/06/2018	Normal	<0.407	<0.407	<0.965	<0.0074	<0.005	<0.004	<0.0041	<0.0041	<0.005
SV3	SV3 1811-AN-LU-059	0.21	9/06/2018	Normal	<0.407	<0.407	<0.965	<0.0074	<0.005	<0.004	<0.0041	<0.0041	<0.0049
SV4	SV4 1811-AN-LU-055	0.11	9/06/2018	Normal	<0.407	<0.407	<0.965	<0.0074	<0.005	<0.004	<0.0041	<0.0041	<0.0049

Chemical Summary Table
Soil Vapour Results

					Chlorinated Hydrocarbons											
					1,1,1-trichloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2-dichloroethane	Carbon tetrachloride	Chloroform	cis-1,2-dichloroethene	Trichloroethene (TCE)	Tetrachloroethene (PCE)	trans-1,2-dichloroethene	Vinyl chloride
					mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3
EQL					0.014	0.0055	0.018	0.021	0.0073	0.011	0.0091	0.0093	0.0056	0.0044	0.0096	0.035
NEPM 1999 Soil Vapour HSL D for Vapour Intrusion - Comm./Indust. (Sand, 0-1mBGL)																
NEPM 1999 Soil Vapour Chlorinated HIL D - Commercial/Industrial					230							0.3	0.08	8		0.1
Location Code	**Field ID**	**Depth (mBGL)**	**Date**	**Sample Type**												
SV1	SV1 1811-AN-LU-057	0.25	9/06/2018	Normal	<0.014	<0.0055	<0.018	<0.021	<0.0073	<0.011	<0.0091	<0.0093	<0.0056	<0.0044	<0.0096	<0.035
	QC1 1811-AN-LU-058	0.25	9/06/2018	Field_D	<0.014	<0.0055	<0.018	<0.021	<0.0073	<0.011	<0.0091	<0.0093	<0.0056	<0.0044	<0.0096	<0.035
SV2	SV2 1811-AN-LU-056	0.22	9/06/2018	Normal	<0.014	<0.0056	<0.018	<0.022	<0.0074	<0.012	<0.0092	<0.0093	<0.0056	<0.0044	<0.0097	<0.035
SV3	SV3 1811-AN-LU-059	0.21	9/06/2018	Normal	<0.014	<0.0056	<0.018	<0.022	<0.0074	<0.012	<0.0092	<0.0093	<0.0056	<0.0044	<0.0097	<0.035
SV4	SV4 1811-AN-LU-055	0.11	9/06/2018	Normal	<0.014	<0.0056	<0.018	<0.021	<0.0074	<0.011	<0.0091	<0.0093	<0.0056	<0.0044	<0.0097	<0.035

Chemical Summary Table
Soil Vapour Results

					Halogenated Benzenes						Halogenated		NA	MAH		Solvents	
					1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	Dichlorodifluoromethane	Trichlorofluoromethane	Halothane	1,2,4-trimethylbenzene	Isopropylbenzene	Methyl Ethyl Ketone	Hexane
					mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m³	mg/m3	mg/m3	mg/m3	mg/m3
EQL					0.0023	0.0039	0.0023	0.0026	0.0026	0.0044	0.096	0.035	0.033	0.0027	0.0019	0	0.0096
NEPM 1999 Soil Vapour HSL D for Vapour Intrusion - Comm./Indust. (Sand, 0-1mBGL)																	
NEPM 1999 Soil Vapour Chlorinated HIL D - Commercial/Industrial																	
Location Code	**Field ID**	**Depth (mBGL)**	**Date**	**Sample Type**													
SV1	SV1 1811-AN-LU-057	0.25	9/06/2018	Normal	<0.0023	<0.0039	<0.0023	<0.0026	<0.0026	<0.0044	<0.096	<0.035	<0.033	<0.0027	<0.0019	0.026	<0.0096
	QC1 1811-AN-LU-058	0.25	9/06/2018	Field_D	<0.0023	<0.0039	<0.0023	<0.0026	<0.0026	<0.0044	<0.096	<0.035	<0.033	<0.0027	<0.0019	0.03	<0.0096
SV2	SV2 1811-AN-LU-056	0.22	9/06/2018	Normal	<0.0023	<0.0039	<0.0023	<0.0027	<0.0026	<0.0044	<0.097	<0.035	<0.033	<0.0027	<0.0019	<0.014	<0.0097
SV3	SV3 1811-AN-LU-059	0.21	9/06/2018	Normal	<0.0023	<0.0039	<0.0023	<0.0027	<0.0026	<0.0044	<0.097	<0.035	<0.033	<0.0027	<0.0019	<0.014	<0.0097
SV4	SV4 1811-AN-LU-055	0.11	9/06/2018	Normal	<0.0023	<0.0039	<0.0023	<0.0027	<0.0026	<0.0044	<0.097	<0.035	<0.033	<0.0027	<0.0019	<0.014	<0.0097

Chemical Summary Table

				NA	PAH	TRH			BTEX				
				Halothane	Naphthalene	>C10-C16	>C10-C16 (less Naphthalene)	TRH C6-C10	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)
				mg/m³	mg/m3	mg/m³	mg/m³	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3
EQL				0.033	0.0049	0.407	0.407	0.965	0	0	0	0.0041	0
NEPM 1999 Soil Vapour HSL A/B for Vapour Intrusion - Residential (Sand, 0-1mBGL)					0.8				1	1,300	330		
NEPM 1999 Soil Vapour HSL A/B for Vapour Intrusion - Residential (Silt, 0-1mBGL)					0.9				1	1,400	380		
NEPM 1999 Soil Vapour HSL A/B for Vapour Intrusion - Residential (Clay, 0-1mBGL)					1				1	1,600	420		
USEPA Regional Screening Level													
NEPM 1999 Soil Vapour Chlorinated HIL A - Residential													
Location Code	**Field ID**	**Date**	**Sample Type**										
SV1	QC1 1811-AN-LU-058	9/06/2018	Field_D	<0.033	<0.0049	<0.407	<0.407	<0.965	<0.0073	0.0086	<0.0039	<0.0041	<0.0041
SV1	SV1 1811-AN-LU-057	9/06/2018	Normal	<0.033	<0.0049	<0.407	<0.407	<0.965	0.0075	0.022	0.006	<0.0041	0.0073
SV2	SV2 1811-AN-LU-056	9/06/2018	Normal	<0.033	<0.005	<0.407	<0.407	<0.965	<0.0074	<0.005	<0.004	<0.0041	<0.0041
SV3	SV3 1811-AN-LU-059	9/06/2018	Normal	<0.033	<0.0049	<0.407	<0.407	<0.965	<0.0074	<0.005	<0.004	<0.0041	<0.0041
SV4	SV4 1811-AN-LU-055	9/06/2018	Normal	<0.033	<0.0049	<0.407	<0.407	<0.965	<0.0074	<0.005	<0.004	<0.0041	<0.0041

Chemical Summary Table

				Chlorinated Hydrocarbons										
				1,1,1-trichloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2-dichloroethane	Carbon tetrachloride	Chloroform	cis-1,2-dichloroethene	Trichloroethene (TCE)	trans-1,2-dichloroethene	Vinyl chloride
				mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3
EQL				0.014	0.0055	0.018	0.021	0.0073	0.011	0.0091	0.0093	0.0056	0.0096	0.035
NEPM 1999 Soil Vapour HSL A/B for Vapour Intrusion - Residential (Sand, 0-1mBGL)														
NEPM 1999 Soil Vapour HSL A/B for Vapour Intrusion - Residential (Silt, 0-1mBGL)														
NEPM 1999 Soil Vapour HSL A/B for Vapour Intrusion - Residential (Clay, 0-1mBGL)														
USEPA Regional Screening Level														
NEPM 1999 Soil Vapour Chlorinated HIL A - Residential				60							0.08	0.02		0.03
Location Code	**Field ID**	**Date**	**Sample Type**											
SV1	QC1 1811-AN-LU-058	9/06/2018	Field_D	<0.014	<0.0055	<0.018	<0.021	<0.0073	<0.011	<0.0091	<0.0093	<0.0056	<0.0096	<0.035
SV1	SV1 1811-AN-LU-057	9/06/2018	Normal	<0.014	<0.0055	<0.018	<0.021	<0.0073	<0.011	<0.0091	<0.0093	<0.0056	<0.0096	<0.035
SV2	SV2 1811-AN-LU-056	9/06/2018	Normal	<0.014	<0.0056	<0.018	<0.022	<0.0074	<0.012	<0.0092	<0.0093	<0.0056	<0.0097	<0.035
SV3	SV3 1811-AN-LU-059	9/06/2018	Normal	<0.014	<0.0056	<0.018	<0.022	<0.0074	<0.012	<0.0092	<0.0093	<0.0056	<0.0097	<0.035
SV4	SV4 1811-AN-LU-055	9/06/2018	Normal	<0.014	<0.0056	<0.018	<0.021	<0.0074	<0.011	<0.0091	<0.0093	<0.0056	<0.0097	<0.035

Chemical Summary Table

				Halogenated Benzenes						Halogenated		MAH		Solvents	
				1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	Dichlorodifluoromethane	Trichlorofluoromethane	1,2,4-trimethylbenzene	Isopropylbenzene	Methyl Ethyl Ketone	Hexane
				mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3
EQL				0.0023	0.0039	0.0023	0.0026	0.0026	0.0044	0.096	0.035	0.0027	0.0019	0.014	0.0096
NEPM 1999 Soil Vapour HSL A/B for Vapour Intrusion - Residential (Sand, 0-1mBGL)															
NEPM 1999 Soil Vapour HSL A/B for Vapour Intrusion - Residential (Silt, 0-1mBGL)															
NEPM 1999 Soil Vapour HSL A/B for Vapour Intrusion - Residential (Clay, 0-1mBGL)															
USEPA Regional Screening Level														5,200	
NEPM 1999 Soil Vapour Chlorinated HIL A - Residential															
Location Code	**Field ID**	**Date**	**Sample Type**												
SV1	QC1 1811-AN-LU-058	9/06/2018	Field_D	<0.0023	<0.0039	<0.0023	<0.0026	<0.0026	<0.0044	<0.096	<0.035	<0.0027	<0.0019	0.03	<0.0096
SV1	SV1 1811-AN-LU-057	9/06/2018	Normal	<0.0023	<0.0039	<0.0023	<0.0026	<0.0026	<0.0044	<0.096	<0.035	<0.0027	<0.0019	0.026	<0.0096
SV2	SV2 1811-AN-LU-056	9/06/2018	Normal	<0.0023	<0.0039	<0.0023	<0.0027	<0.0026	<0.0044	<0.097	<0.035	<0.0027	<0.0019	<0.014	<0.0097
SV3	SV3 1811-AN-LU-059	9/06/2018	Normal	<0.0023	<0.0039	<0.0023	<0.0027	<0.0026	<0.0044	<0.097	<0.035	<0.0027	<0.0019	<0.014	<0.0097
SV4	SV4 1811-AN-LU-055	9/06/2018	Normal	<0.0023	<0.0039	<0.0023	<0.0027	<0.0026	<0.0044	<0.097	<0.035	<0.0027	<0.0019	<0.014	<0.0097

Appendix G

Laboratory Certificates and COC Documentation

Passive Sample Collection

Unit 10 /585 Blackburn Road,
Notting Hill VIC 3168
Ph: (03) 9574 3311
au.samplereceipt.melbourne@sgs.com

SGS

Project Manager: James Coley
Sampled by: (Print and Sign) T. Gray
Company LBWCO
Address 184 Magill Road
City Norwood State SA Post Code 5067
Phone: 0433 336 006
ABN:

Email address: james.coley@lbwco.com.au.

Project Info
Purchase Order Number:
Suburb & State: Findon, S.A.
Project Number: 18015
Project Name: Findon DPA.

Turn Around Time
Normal:
Rapid:
(surcharges apply)
Specify: (days)

Lab ID	Field Sample I.D. (Location)	Sampler I.D (WMS Code)	Date of Deployment	Time of Deployment	Date of Retrieval	Time of Retrieval	Analysis Required	Indoor Air	Outdoor Air	Workplace Monitoring	Other (Soil - Subslab)
	SV1		2/6/18	8:30 am	9/6/18	9:50 am	VOC + TRH				
	SV2			9:25 am		9:45 am	VOC + TRH				
	SV3			9:10 am		9:40 am	VOC + TRH				
	SV4			8:50 am		9:30 am	VOC + TRH				
	QC1	058		8:30 am		9:50 am	VOC + TRH				

Relinquished By: Name, Signature, Date/Time
T. Gray 12/6/18 @ 9:00am

Received by: Name, Signature, Date/Time
Benedict Robinson 13/6/18 10:00am

Air Temp and Weather Description:

Relinquished By: Name, Signature, Date/Time

Received by: Name, Signature, Date/Time

Notes:

Relinquished By: Name, Signature, Date/Time

Received by: Name, Signature, Date/Time

A.B.N. 44 000 964 278
10 / 585 Blackburn Road
Notting Hill, Vic, 3168
Telephone: (03) 9574 3200

A.B.N. 44 000 964 278

Sample Receipt Acknowledgement

To:	James Coley	From:	Sample Reception
Fax:	08 8331 2415	Pages:	(1) including this page
Co:	LBW Co	Date:	13/06/2018
Email	James.coley@lbwenvironment.com.au	Ref:	M180406

SGS has received your samples from the project listed below. If you have any enquiries please contact us quoting our reference number.

Project/Reference No.:	181015
Our Reference Number:	**M180406**
Date Received:	13-Jun-2018
Estimated date of report:	20-Jun-2018

Additional Information:

Samples received after 4 pm are considered as received on the next working day for turnaround purposes.
Samples with a 24hr or 48hr TAT are considered as received on the next working day if received after 2:30pm.
Surcharges for urgent turnaround requests may apply.
All analytical work is conducted at our Melbourne office.
Sample Storage - All aqueous samples are stored for **two weeks** after reporting.
- All soils and other samples are stored for **one month** after reporting.
Please direct any technical or turnaround queries to Adam Atkinson at our Melbourne office.

NATA
WORLD RECOGNISED ACCREDITATION

SGS

Specialist Laboratory Services

To the extent not inconsistent with the other provisions of this document and unless spedifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx as at the date of this document.

Attention is drawn to the limitations of liability and to the clauses of indemnification .

Website: www.sgs.com.au
Email: AU.SampleReceipt.Melbourne@sgs.com

A.B.N. 44 000 964 278
10 / 585 Blackburn Road
Notting Hill, Vic, 3168
Telephone: (03) 9574 3200

Chartered Chemists

19-Jun-2018

REPORT NUMBER: M180406

Site/Client Ref: 181015

Order No: 181015

LBW Co

184 Magill Road
Norwood

South Australia 5067
Attention: James Coley

CERTIFICATE OF ANALYSIS

SAMPLES:	Five samples were received for analysis
DATE RECEIVED:	**13-Jun-2018**
DATE COMMENCED:	**13-Jun-2018**
METHODS:	See Attached Results
RESULTS:	Please refer to attached pages for results.

Note: Results are based on samples as received at SGS laboratories
Results in airbourne concentrations are calculated using data provided by the client

REPORTED BY:

PDembalas

Popy Dembalas
Senior Chemist

NATA Accredited Laboratory Number: 2562
Corporate Site Number: 14420
Accredited for compliance
with ISO/IEC 17025 - Testing.

ANALYTICAL RESULTS

Matrix: Passive Sampler
Method: MA-5.WL.04 Volatile Organics
Sample units are expressed in µg/m³

Test Started: 14-Jun-18

Analyte Name	Sampled Date / PQL	Leeder ID: 2018005616 Client ID: SV1 1811-AN-LU-057 09-Jun-18	Leeder ID: 2018005617 Client ID: SV2 1811-AN-LU-056 09-Jun-18	Leeder ID: 2018005618 Client ID: SV3 1811-AN-LU-059 09-Jun-18	Leeder ID: 2018005619 Client ID: SV4 1811-AN-LU-055 09-Jun-18	Leeder ID: 2018005620 Client ID: QC1 1811-AN-LU-058 09-Jun-18
Benzene		7.5	<7.4	<7.4	<7.4	<7.3
2-butanone(MEK)		26	<14	<14	<14	30
Carbon tetrachloride		<11	<12	<12	<11	<11
Chlorobenzene		<4.4	<4.4	<4.4	<4.4	<4.4
Chloroform		<9.1	<9.2	<9.2	<9.1	<9.1
12-Dichlorobenzene		<2.3	<2.3	<2.3	<2.3	<2.3
13-Dichlorobenzene		<2.6	<2.7	<2.7	<2.7	<2.6
14-Dichlorobenzene		<2.6	<2.6	<2.6	<2.6	<2.6
1,1-Dichloroethane		<18	<18	<18	<18	<18
12-Dichloroethane		<7.3	<7.4	<7.4	<7.4	<7.3
1,1-Dichloroethene		<21	<22	<22	<21	<21
cis-1,2-Dichloroethene		<9.3	<9.3	<9.3	<9.3	<9.3
trans-1,2-Dichloroethene		<9.6	<9.7	<9.7	<9.7	<9.6
Ethylbenzene		6.0	<4	<4	<4	<3.9
Hexane		<9.6	<9.7	<9.7	<9.7	<9.6
Isopropylbenzene		<1.9	<1.9	<1.9	<1.9	<1.9
Naphthalene		<4.9	<5	<4.9	<4.9	<4.9
Tetrachloroethene		<4.4	<4.4	<4.4	<4.4	<4.4
Toluene		22	<5	<5	<5	8.6
111-Trichloroethane		<14	<14	<14	<14	<14
112-Trichloroethane		<5.5	<5.6	<5.6	<5.6	<5.5
Trichloroethene		<5.6	<5.6	<5.6	<5.6	<5.6
124-Trimethylbenzene		<2.7	<2.7	<2.7	<2.7	<2.7
Vinyl Chloride		<35	<35	<35	<35	<35
o-Xylene		<4.1	<4.1	<4.1	<4.1	<4.1
m&p-Xylenes		7.3	<4.1	<4.1	<4.1	<4.1
Dichlorodifluoromethane		<96	<97	<97	<97	<96
Trichlorofluoromethane		<35	<35	<35	<35	<35
124-Trichlorobenzene		<3.9	<3.9	<3.9	<3.9	<3.9
123-Trichlorobenzene		<2.3	<2.3	<2.3	<2.3	<2.3
Halothane		<33	<33	<33	<33	<33

ANALYTICAL RESULTS

Matrix: Passive Sampler
Method: MA-5.WL.03 Volatile Organics
Sample units are expressed in µg total

Test Started: 14-Jun-18

Analyte Name	PQL	Leeder ID: 2018005621 Client ID: Method Sampled Date: Blank
Benzene	0.05	nd
2-butanone(MEK)	0.05	nd
Carbon tetrachloride	0.05	nd
Chlorobenzene	0.05	nd
Chloroform	0.05	nd
12-Dichlorobenzene	0.05	nd
13-Dichlorobenzene	0.05	nd
14-Dichlorobenzene	0.05	nd
1,1-Dichloroethane	0.05	nd
12-Dichloroethane	0.05	nd
1,1-Dichloroethene	0.05	nd
cis-1,2-Dichloroethene	0.05	nd
trans-1,2-Dichloroethene	0.05	nd
Ethylbenzene	0.05	nd
Hexane	0.05	nd
Isopropylbenzene	0.05	nd
Naphthalene	0.05	nd
Tetrachloroethene	0.05	nd
Toluene	0.05	nd
111-Trichloroethane	0.05	nd
112-Trichloroethane	0.05	nd
Trichloroethene	0.05	nd
124-Trimethylbenzene	0.05	nd
Vinyl Chloride	0.05	nd
o-Xylene	0.05	nd
m&p-Xylenes	0.05	nd
Dichlorodifluoromethane	0.05	nd
Trichlorofluoromethane	0.05	nd
124-Trichlorobenzene	0.05	nd
123-Trichlorobenzene	0.05	nd
Halothane	0.05	nd

ANALYTICAL RESULTS

Matrix: Passive Sampler
Method: MA-30.AIR.04 Total Recoverable Hydrocarbons
Sample units are expressed in mg/m³ Test Started: 14-Jun-18

Analyte Name	Sampled Date / PQL	Leeder ID: 2018005616 Client ID: SV1 1811-AN-LU-057 09-Jun-18	Leeder ID: 2018005617 Client ID: SV2 1811-AN-LU-056 09-Jun-18	Leeder ID: 2018005618 Client ID: SV3 1811-AN-LU-059 09-Jun-18	Leeder ID: 2018005619 Client ID: SV4 1811-AN-LU-055 09-Jun-18	Leeder ID: 2018005620 Client ID: QC1 1811-AN-LU-058 09-Jun-18
C6-C10		<0.965	<0.965	<0.965	<0.965	<0.965
C6-C10 (ex BTEX)		<0.965	<0.965	<0.965	<0.965	<0.965
>C10-C16		<0.407	<0.407	<0.407	<0.407	<0.407
>C10-C16 (less Naphthalene)		<0.407	<0.407	<0.407	<0.407	<0.407

Matrix: Passive Sampler
Method: MA-30.AIR.03 Total Recoverable Hydrocarbons
Sample units are expressed in µg total Test Started: 14-Jun-18

Analyte Name	Sampled Date / PQL	Leeder ID: 2018005621 Client ID: Method Blank
C6-C10	5	nd
C6-C10 (ex BTEX)	5	nd
>C10-C16	5	nd
>C10-C16 (less Naphthalene)	5	nd

QA/QC RESULTS

Matrix: Passive Sampler
Method: MA-5.WL.03 Volatile Organics
Quality Control Results are expressed in Percent Recovery of expected result

Test Started: 14-Jun-18

Analyte Name	Leeder ID / Client ID / Sampled Date / PQL	2018005622 Method Spike	2018005623 Method Spike Dup
Benzene		105	103
Chlorobenzene		92	92
12-Dichlorobenzene		97	98
13-Dichlorobenzene		97	95
14-Dichlorobenzene		99	99
Ethylbenzene		96	95
Toluene		101	100
o-Xylene		94	93
m&p-Xylenes		98	95

QUALIFIERS / NOTES FOR REPORTED RESULTS

PQL	Practical Quantitation Limit
nd	Not Detected – The analyte was not detected above the reported PQL.
is	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
NC	Not calculated and/or Results below PQL
NV	No Vacuum, Canister received above standard atmospheric pressure
nr	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
--	Parameter Not Determined
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile

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APPENDIX ONE.

CHAIN OF CUSTODY DOCUMENT

Passive Sample Collection

Unit 10 /585 Blackburn Road,
Notting Hill VIC 3168
Ph: (03) 9574 3311
au.samplereceipt.melbourne@sgs.com

SGS

Project Manager: James Coley
Sampled by: (Print and Sign) T. Gray
Company LBWCO
Address 184 Magill Road
City Norwood State SA Post Code 5067
Phone: 0433 336 006
ABN:

Email address: james.coley@lbwco.com.au.

Project Info
Purchase Order Number:
Suburb & State: Findon, S.A.
Project Number: 18015
Project Name: Findon DPA.

Turn Around Time
Normal:
Rapid:
(surcharges apply)
Specify: (days)

Lab ID	Field Sample I.D. (Location)	Sampler I.D (WMS Code)	Date of Deployment	Time of Deployment	Date of Retrieval	Time of Retrieval	Analysis Required	Indoor Air	Outdoor Air	Workplace Monitoring	Other (Soil - Subslab)
	SV1		2/6/18	8:30 am	9/6/18	9:50 am	VOC + TRH				
	SV2			9:25 am		9:45 am	VOC + TRH				
	SV3			9:10 am		9:40 am	VOC + TRH				
	SV4			8:50 am		9:30 am	VOC + TRH				
	QC1	058		8:30 am		9:50 am	VOC + TRH				

Relinquished By: Name, Signature, Date/Time
T. Gray 12/6/18 @ 9:00am

Received by: Name, Signature, Date/Time
Benedict Robinson 13/6/18 10:00am

Air Temp and Weather Description:

Relinquished By: Name, Signature, Date/Time

Received by: Name, Signature, Date/Time

Notes:

Relinquished By: Name, Signature, Date/Time

Received by: Name, Signature, Date/Time

Appendix D – Stormwater, Flooding and Infrastructure Analysis, KBR

DRAFT

KBR
We Deliver

186 Greenhill Road | Parkside SA 5063 | Australia
GPO Box 2702 | Adelaide SA 5001 | Australia
Phone: +61 8 8301 1234 | Fax: +61 8 8301 1301

AEG857-C1 -S00002
JG: jm

20 June 2018

Mr David Barone
Jensen PLUS
6/259 Glen Osmond Road
FREWVILLE SA 5063
AUSTRALIA

Dear David

GRANGE ROAD, FINDON
DEVELOPMENT PLAN AMENDMENT

Kellogg Brown and Root Pty Ltd (KBR) has been engaged by Jensen PLUS to undertake preliminary infrastructure investigations to aid in the preparation of a draft Development Plan Amendment (DPA) for the proposed development located at 263A – 275 Grange Road, Findon on behalf of the City of Charles Sturt (Council).

The capacity of the existing stormwater system and flood susceptibility of the subject and surrounding land has been investigated based on criteria set by Council.

KBR have approached service authorities for feedback and advice on the capacity of utility infrastructure and to identify any need for upgrades to accommodate the proposed development. The advice should be considered high level and should be confirmed when specifics of the proposal can confirm actual demands.

FLOODING AND STORMWATER MANAGEMENT

Preliminary hydrological calculations were undertaken using the Rational Method to determine whether or not onsite detention is required for the post-development scenario. Council has prescribed that the pre-development flows for the 0.2 EY (1 in 5 Year ARI) cannot be exceeded by the post-development flows for the 1% AEP event (1 in 100 Year ARI).

The results of these hydrological calculations indicate that onsite detention of approximately 153 m^3 is required to limit post-development flow to 105 L/s to meet Council's criteria.

Council have advised that the existing grated inlet pit located in from of 265 Grange Road is approximately 600 mm deep which connects to a junction box in Grange Road which is approximately 1.3 m deep, however depths of the existing infrastructure will require confirmation. Assuming the site drains towards the south-western corner of the development, a new connection from the 600 mm pipe in Grange Road will be required at the south-western end of the site. In addition a new connection from the existing 1.3 m deep junction box in front of 265 Grange Road may also be considered. Hydraulics of one or both of these connections needs to be investigated and confirmed during detailed design. The attached sketch summarises how KBR envisage the proposed development draining.

The principal of Water Sensitive Urban Design (WSUD) is to be utilised to ensure that runoff generated by the proposed development is treated within the site before being discharged into the existing Council drainage network. Assuming a filter depth of 0.5 m, approximately 60 m^2 of bioretention is required to meet the following criteria; 80% reduction of total suspended solids, 60% reduction of total phosphorous and 45% reduction of total nitrogen. The bioretention area could be reduced with an oil and sediment trap.

The bioretention system, assuming a 0.15 m extended detention depth, could account for approximately 15 m^3 of the required detention. The remaining 138 m^3 of detention required could be attained by installing approximately 130 m of 900 mm x 1200 mm reinforced concrete box culverts along the Grange Road frontage, similar underground tank and/or surface storage within car park areas.

Flood map information provided by Council indicate that there is approximately 100 mm to 200 mm flooding over the site. KBR recommend that the finished floor level of the proposed buildings within the development be lifted 400 mm to 500 mm above the existing site levels, this is to be confirmed following site survey.

INFRASTRUCTURE ANALYSIS

Service authorities have been consulted regarding infrastructure capacity in the vicinity of the site. Correspondence is attached for reference and summarised below.

Potable Water

SA Water have advised that the site abuts four water mains on Grange Road and one on Noblet Street. Dependent on demands, SA Water would investigate connections for the proposed development from either the 150 mm main or the 375 mm main on Grange Road.

It is noted that as Grange Road is a DPTI Road, all connections would be classed as non-standard and works would need to be quoted by SA Water.

Sewer

SA Water have advised that the site abuts a 225 mm main on Grange Road and a 150 mm main on Noblet Street. As the proposed development is commercial in nature and greater than 300 m^2 it should be serviced from a 225 mm main (or greater). SA Water have advised that the sizing of the existing main seems sufficient but will require confirmation when details of exact demands are known.

It is noted that as Grange Road is a DPTI Road, all connections would be classed as non-standard and works would need to be quoted by SA Water.

Electricity

SA Power Networks have reviewed the site and confirm that there are no particular network constraints that would affect a commercial development.

Gas

Information received following a Dial Before You Dig enquiry indicates that there is an existing 200 mm low pressure main on the southern side of Grange Road. It is envisaged that the existing gas main will be able to supply connections to the proposed development, but trenching will be required across Grange Road which is a DPTI road.

Communications

Information received following a Dial Before You Dig enquiry indicates that there is a NBN Co. service on the northern side of Grange Road that services the existing properties. It is envisaged that NBN Co. will be able to supply connections to the proposed development from this existing infrastructure.

KBR

On the basis of enquiries to date and advice offered by the relevant service authorities, the proposed development can be serviced by potable water, sewer, electricity, gas and telecommunications.

If you have any queries regarding the above, please do not hesitate to contact me on 8301 1274.

Yours sincerely

J. Grosser

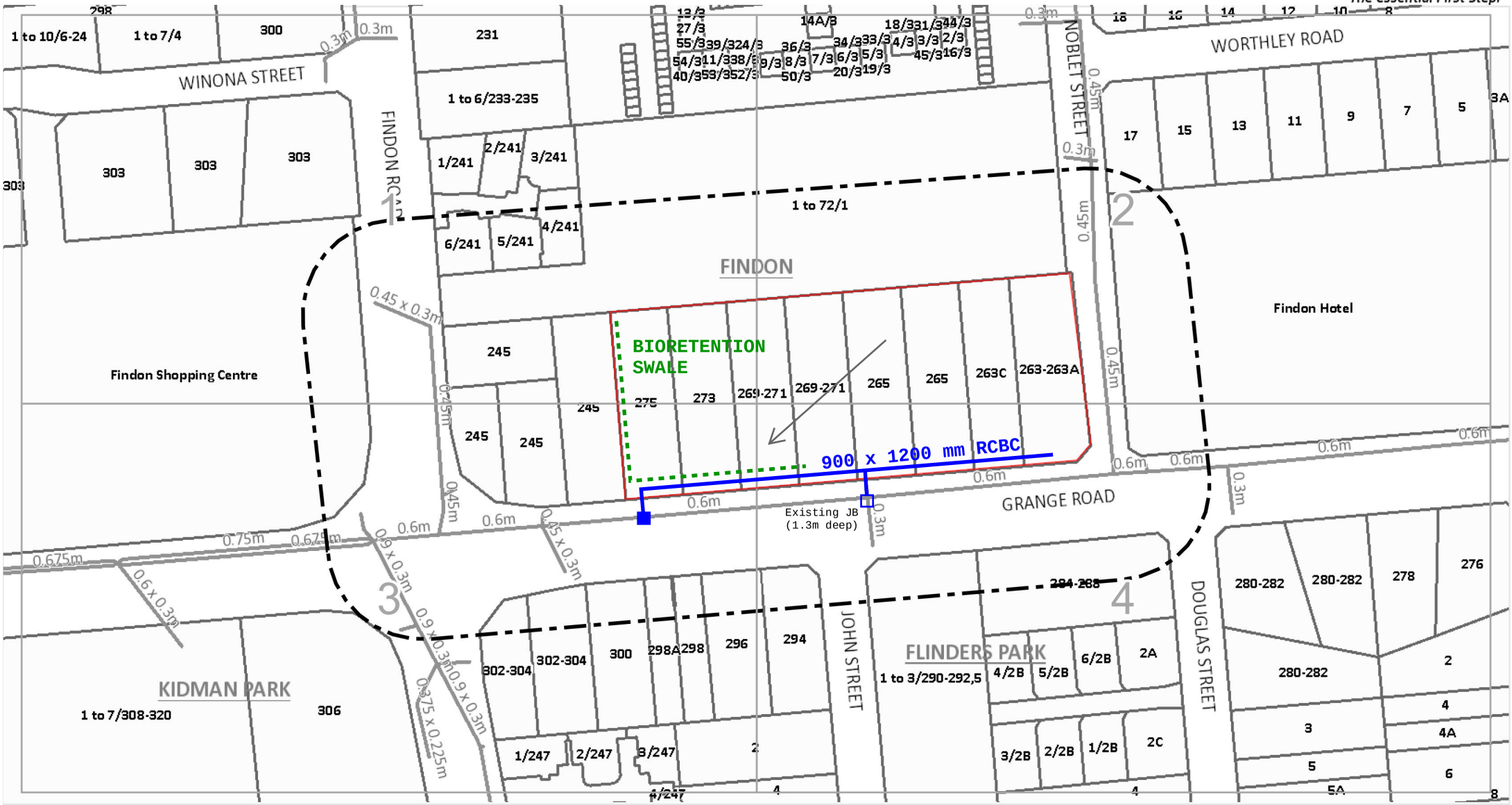
Jenna Grosser
Civil Engineer

Enclosure

Sequence No: 71505506
Job No: 14225170
Location: Findon Road, Kidman Park, SA 5025

PROPOSED SITE DRAINAGE

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.



Legend | Scale: 1:1640 | Overview

City of Charles Sturt

- DBYD Enquiry Area
- Stormwater Pits
- Unconfirmed Pits
- Stormwater Drains
- Gross Pollutant Trap
- Valve
- Water Meter
- RW Supply Main
- RW Supply Connection
- Communications & Electrical
- Cadastre
- Council Boundary
- State Council Boundaries

N

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Grange Road, Findon

Rational Method Peak Flow Calculations

City of Charles Sturt:
$Pre_{0.2EY} \geq Post_{1\%\ AEP}$

Pre-Development
Paved 97 %
Grassed 3 %

Post-Development
Paved 95 %
Grassed 5 %

Runoff Coefficients

	10yr	5yr	100yr
DCP	0.90	0.86	1.00
Grassed	0.20	0.19	0.24

Description	Area			Weighted Runoff Coefficient		Time of Concentration	Intensity	Flow
	Total (m^2)	Paved (m^2)	Grassed (m^2)	$C_{5,W}$	$C_{100,W}$	t_c (min)	I (mm/hr)	Q (L/s)
Pre 0.2EY	8590	8332.3	257.7	0.84	-	13	52.50	105
Post 1% AEP	8590	8160.5	429.5	-	0.96	13	112.00	257

Design Rainfall Intensity (mm/h)

Duration in min	0.2EY*	1%
10	60.2	129
11	57.3	122
12	54.8	117
13	52.5	112
14	50.4	108
15	48.5	104
16	46.8	99.9
17	45.2	96.6
18	43.7	93.5
19	42.4	90.6
20	41.1	88
21	40	85.5
22	38.9	83.3
23	37.9	81.1
24	36.9	79.1
25	36	77.2
26	35.2	75.4
27	34.4	73.7
28	33.6	72.1
29	32.9	70.6
30	32.2	69.2

Grange Road, Findon

Storage Calculations

City of Charles Sturt:
$Pre_{0.2EY} \geq Post_{1\%\ AEP}$

Q_{out} (L/s)	105	*pre-development flow (i.e. limit)*
A_{DCP} (m^2)	8160.5	*post-development*
A_{GRASS} (m^2)	429.5	*post-development*
A (m^2)	8590	*post-development*
$C_{100,DCP}$	1.00	*runoff coefficient for DCP*
$C_{100,GRASS}$	0.24	*runoff coefficient for GRASS*
$C_{100,W}$	0.96	*weighted runoff coefficient*
t_c (min)	13	*post-development time of concentration*

D* (min)	I (mm/hr)	Q_{in} (L/s)	Vol_{in} (m^3)	Vol_{out} (m^3)	S_{max} (m^3)
13	112	257	201	82	119
14	108	248	208	85	124
15	104	239	215	88	127
16	99.9	229	220	91	129
17	96.6	222	226	94	132
18	93.5	215	232	97	135
19	90.6	208	237	100	137
20	88	202	242	104	139
21	85.5	196	247	107	141
22	83.3	191	252	110	143
23	81.1	186	257	113	144
24	79.1	182	261	116	145
25	77.2	177	266	119	147
26	75.4	173	270	122	148
27	73.7	169	274	126	149
28	72.1	166	278	129	149
29	70.6	162	282	132	150
30	69.2	159	286	135	151
35	62.9	144	303	151	153
40	57.9	133	319	166	153
45	53.7	123	333	182	151
50	50.2	115	346	198	148
55	47.2	108	358	213	144
60	44.6	102	369	229	139
65	42.4	97	380	245	135
70	40.3	93	389	260	128
75	38.5	88	398	276	122
80	36.9	85	407	292	115
85	35.4	81	414	308	107
90	34.1	78	423	323	99
120	28	64	463	417	45
180	21.1	48	523	606	-83
360	12.7	29	630	1171	-541

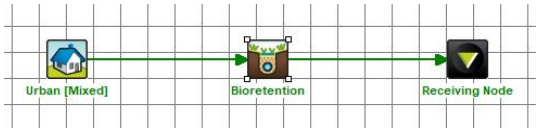
* Where D = storm duration

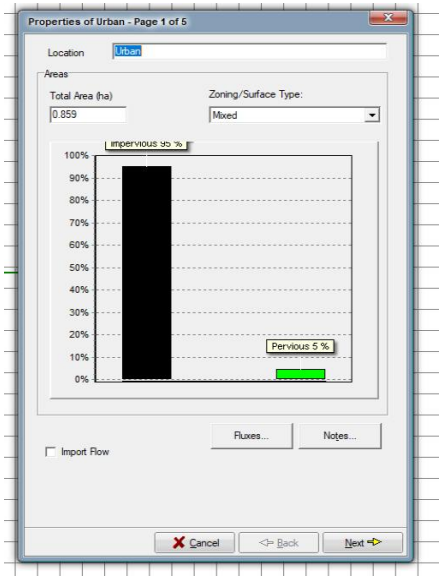
Assuming 100 m long x 600 mm wide x 0.15 m deep swale with 1:3 batter slope:
Volume (m^3) 15.8

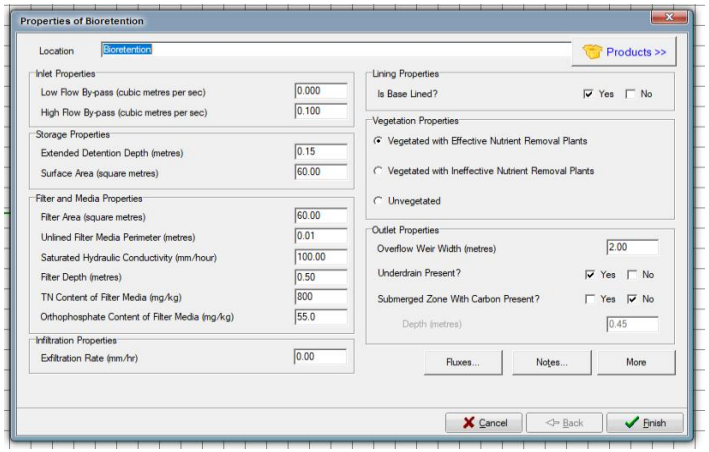
Assuming 130 m of 900 mm x 1200 mm RCBC
Volume (m^3) 140.4

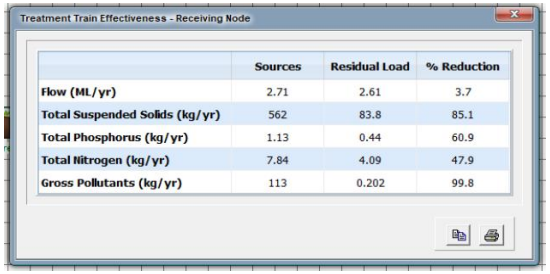
Grange Road, Findon

MUSIC Modelling



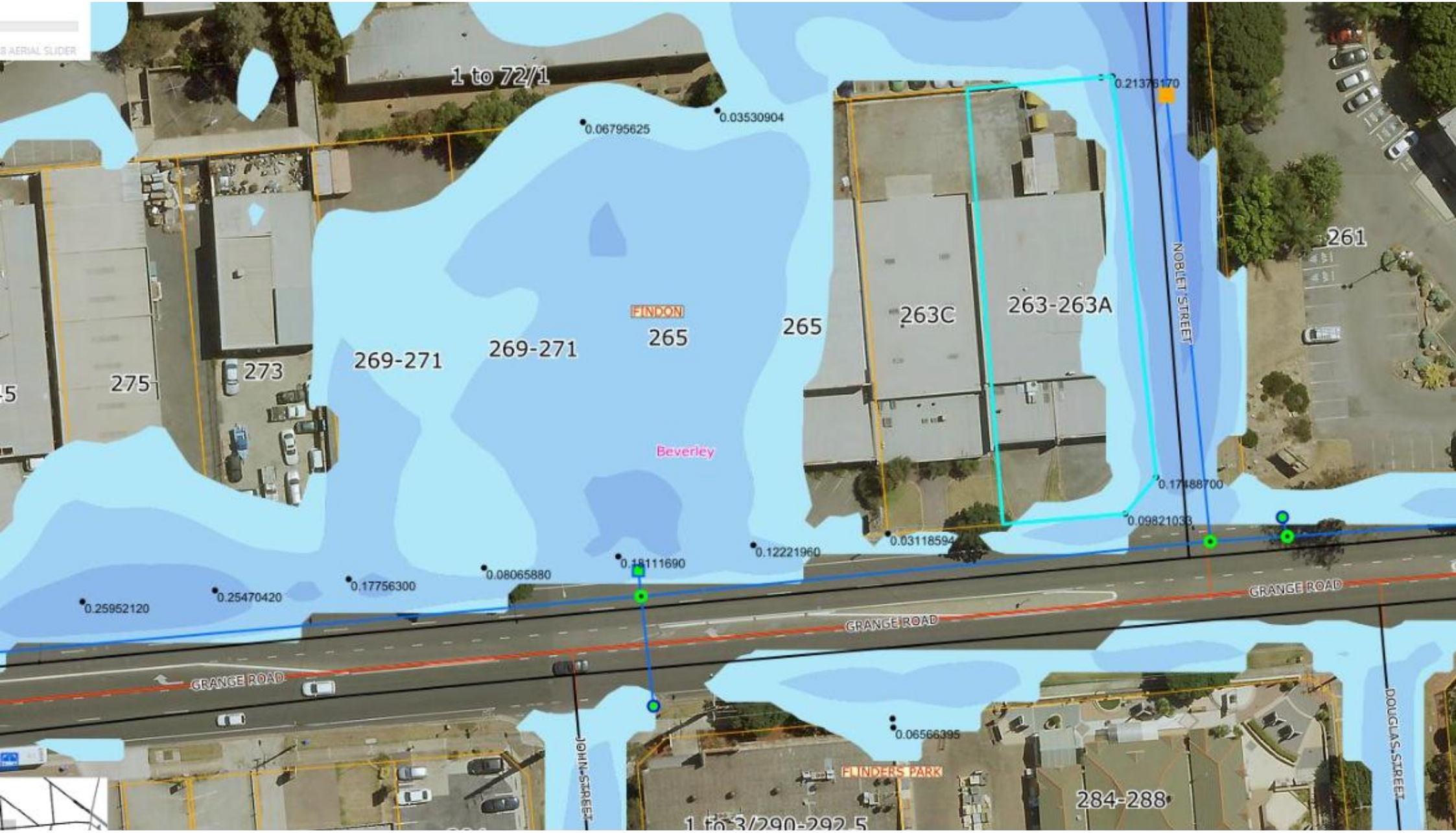






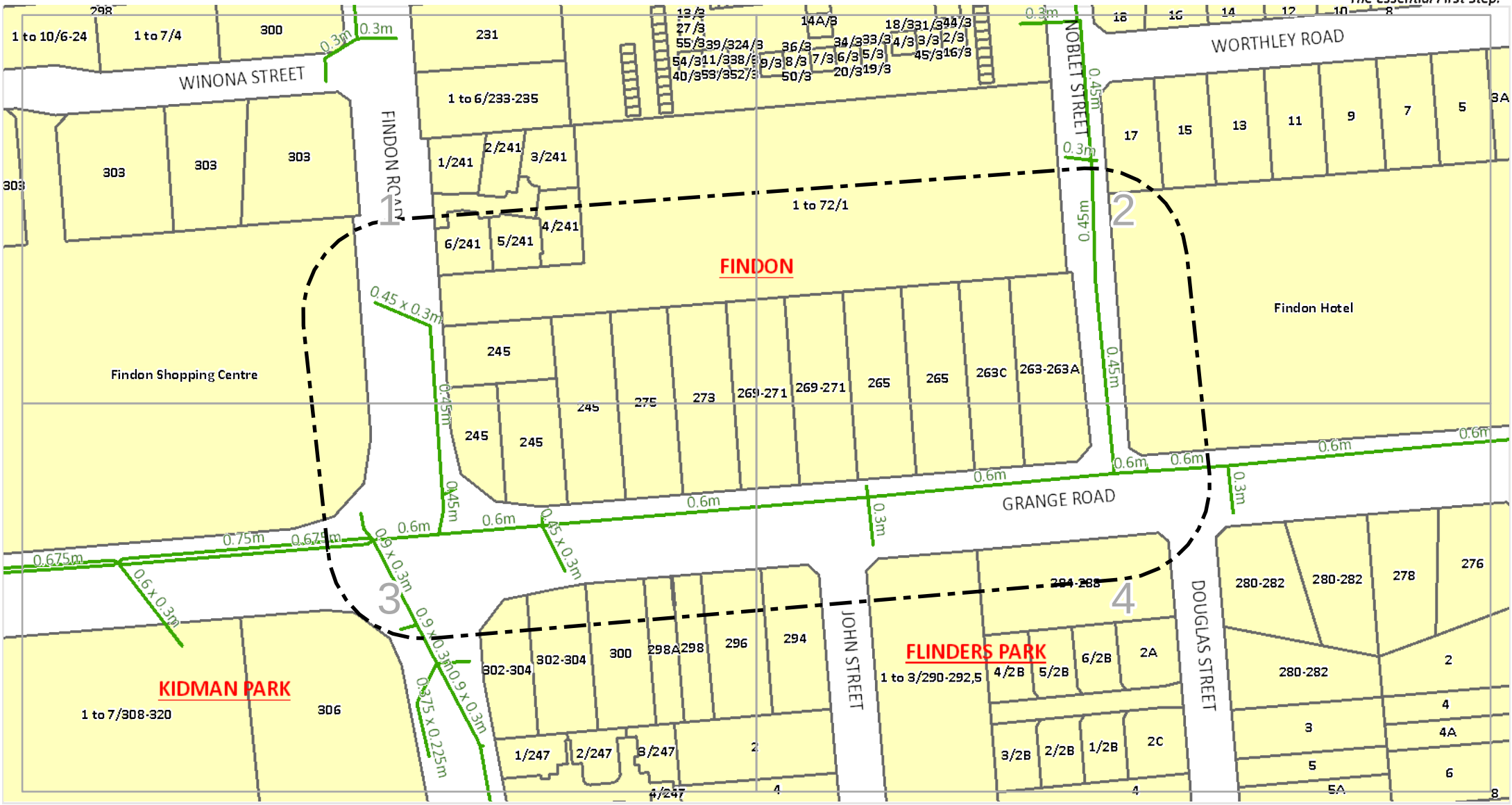
	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.71	2.61	3.7
Total Suspended Solids (kg/yr)	562	83.8	85.1
Total Phosphorus (kg/yr)	1.13	0.44	60.9
Total Nitrogen (kg/yr)	7.84	4.09	47.9
Gross Pollutants (kg/yr)	113	0.202	99.8

CITY OF CHARLES STURT - FLOODING AND PIPE LOCATIONS



Sequence No: 71505506
Job No: 14225170
Location: Findon Road, Kidman Park, SA 5025

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.



Legend | Scale: 1:1640 | Overview

- DBYD Enquiry Area
- Stormwater Pits
- Unconfirmed Pits
- Stormwater Drains
- Gross Pollutant Trap
- Valve
- Water Meter
- RW Supply Main
- RW Supply Connection
- Communications & Electrical
- Cadastre
- Council Boundary
- State Council Boundaries

N

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Sequence No: 71505506
Job No: 14225170
Location: Findon Road, Kidman Park, SA 5025

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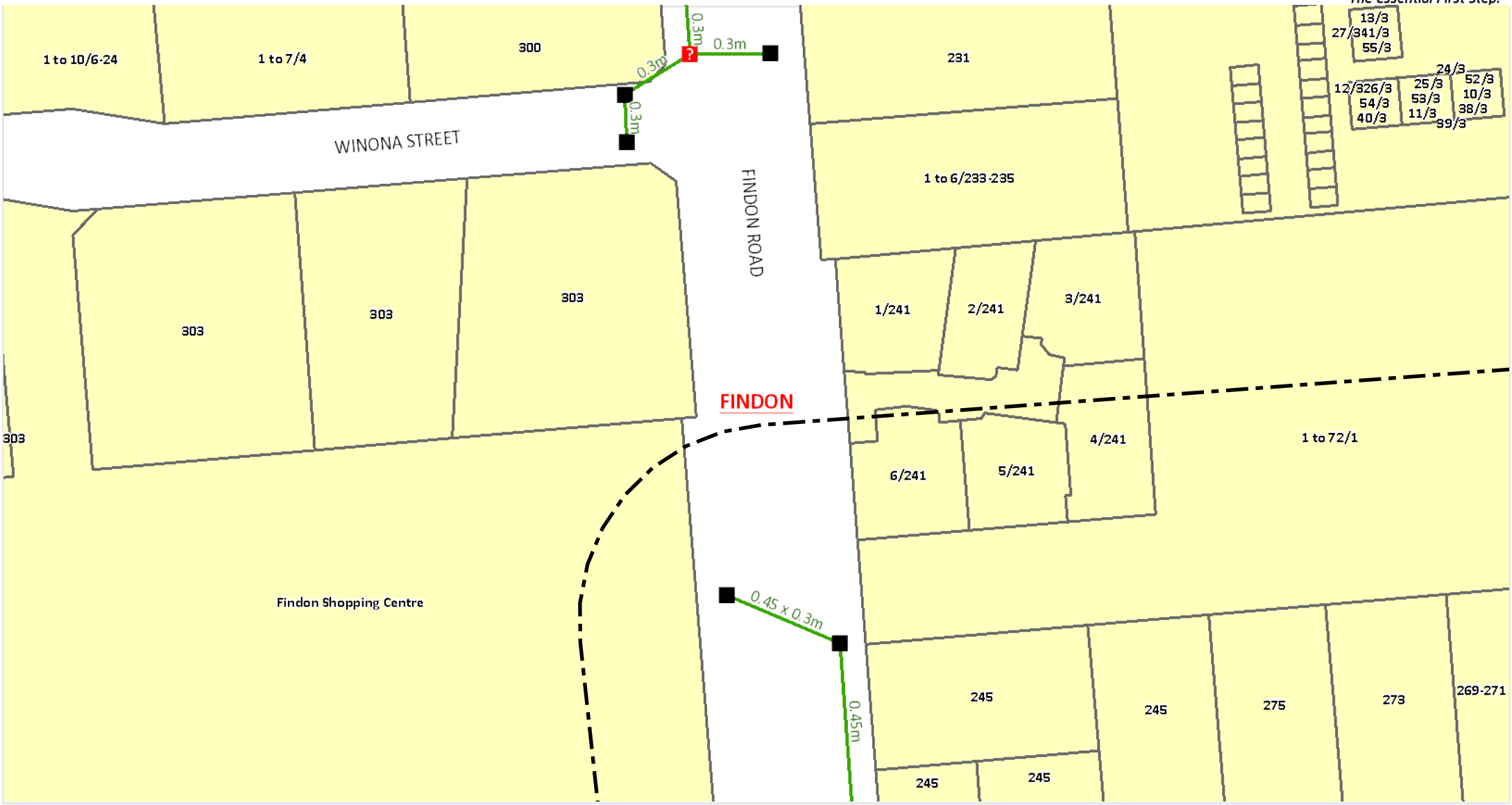
The Essential First Step.



Legend | Scale: 1:800 | Tile No: 1

- DBYD Enquiry Area
- Stormwater Pits
- Unconfirmed Pits
- Stormwater Drains
- Gross Pollutant Trap
- Valve
- Water Meter
- RW Supply Main
- RW Supply Connection
- Communications & Electrical
- Cadastre
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Sequence No: 71505506
Job No: 14225170
Location: Findon Road, Kidman Park, SA 5025

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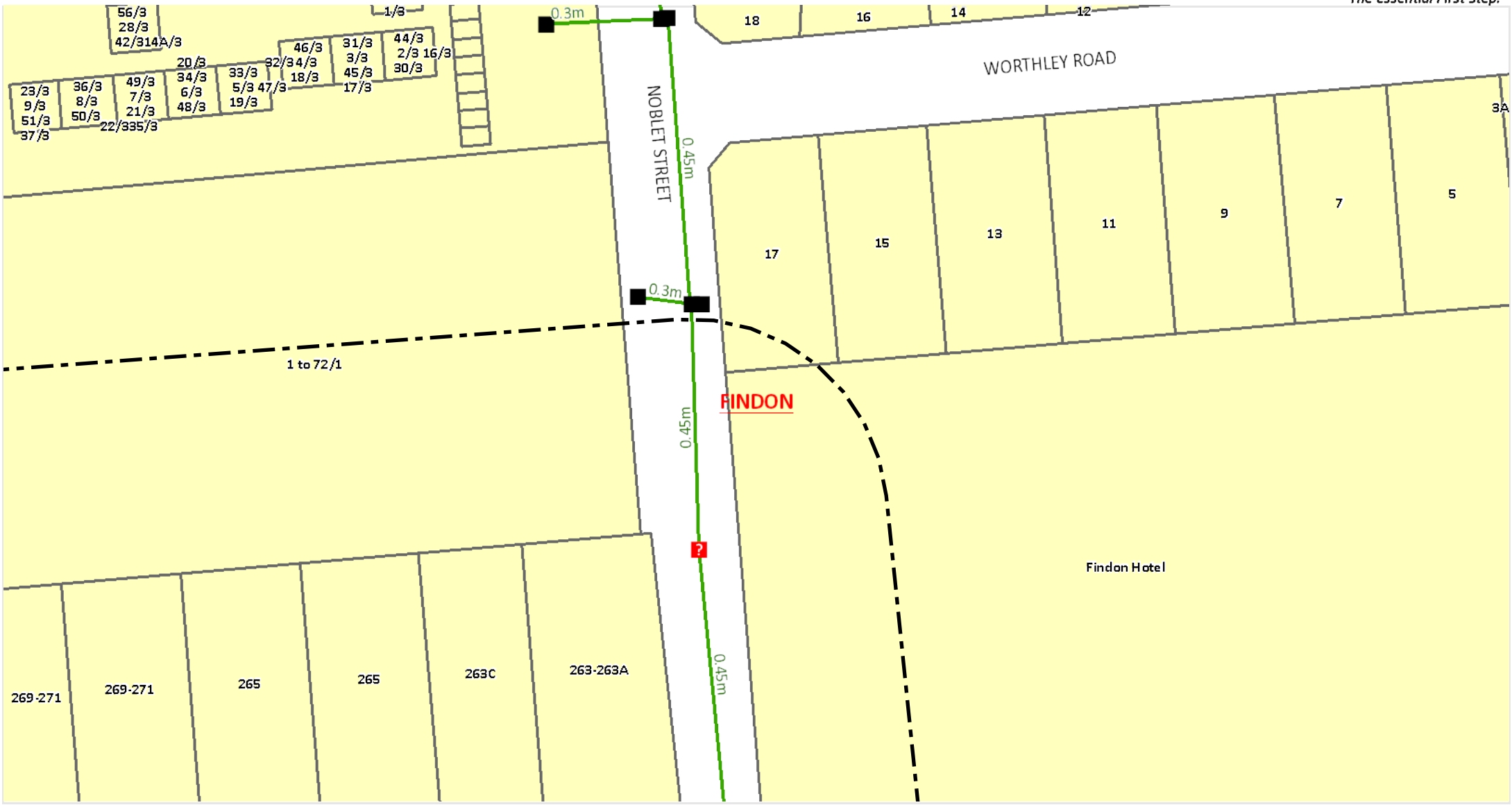

Legend | Scale: 1:800 | Tile No: 2

City of Charles Sturt

- DBYD Enquiry Area
- Stormwater Pits
- Unconfirmed Pits
- Stormwater Drains
- Gross Pollutant Trap
- Valve
- Water Meter
- RW Supply Main
- RW Supply Connection
- Communications & Electrical
- Cadastre
- Council Boundary
- State Council Boundaries

N

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Sequence No: 71505506
Job No: 14225170
Location: Findon Road, Kidman Park, SA 5025

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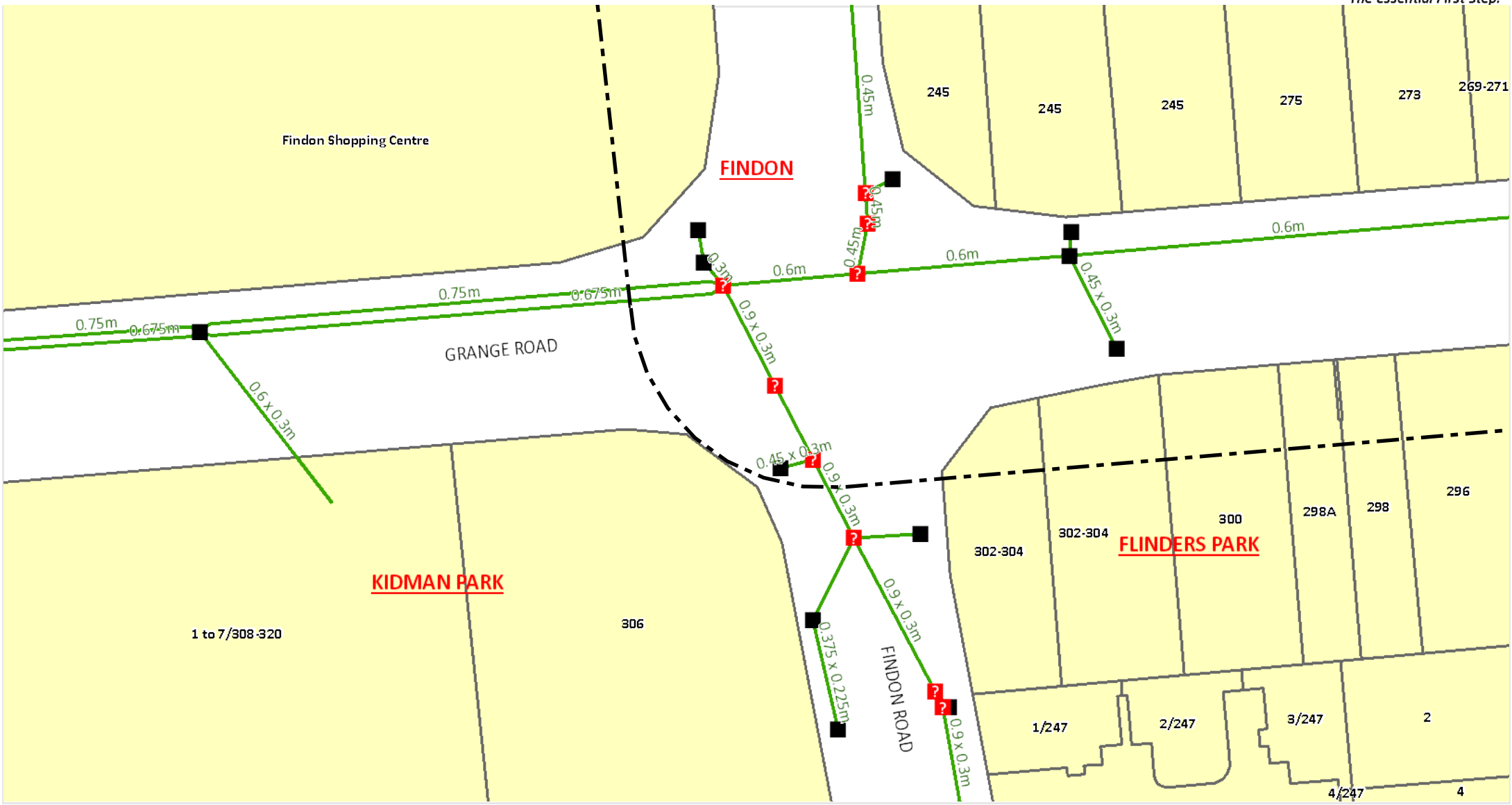
The Essential First Step.



Legend | Scale: 1:800 | Tile No: 3

- DBYD Enquiry Area
- Stormwater Pits
- Unconfirmed Pits
- Stormwater Drains
- Gross Pollutant Trap
- Valve
- Water Meter
- RW Supply Main
- RW Supply Connection
- Communications & Electrical
- Cadastre
- Council Boundary
- State Council Boundaries

N

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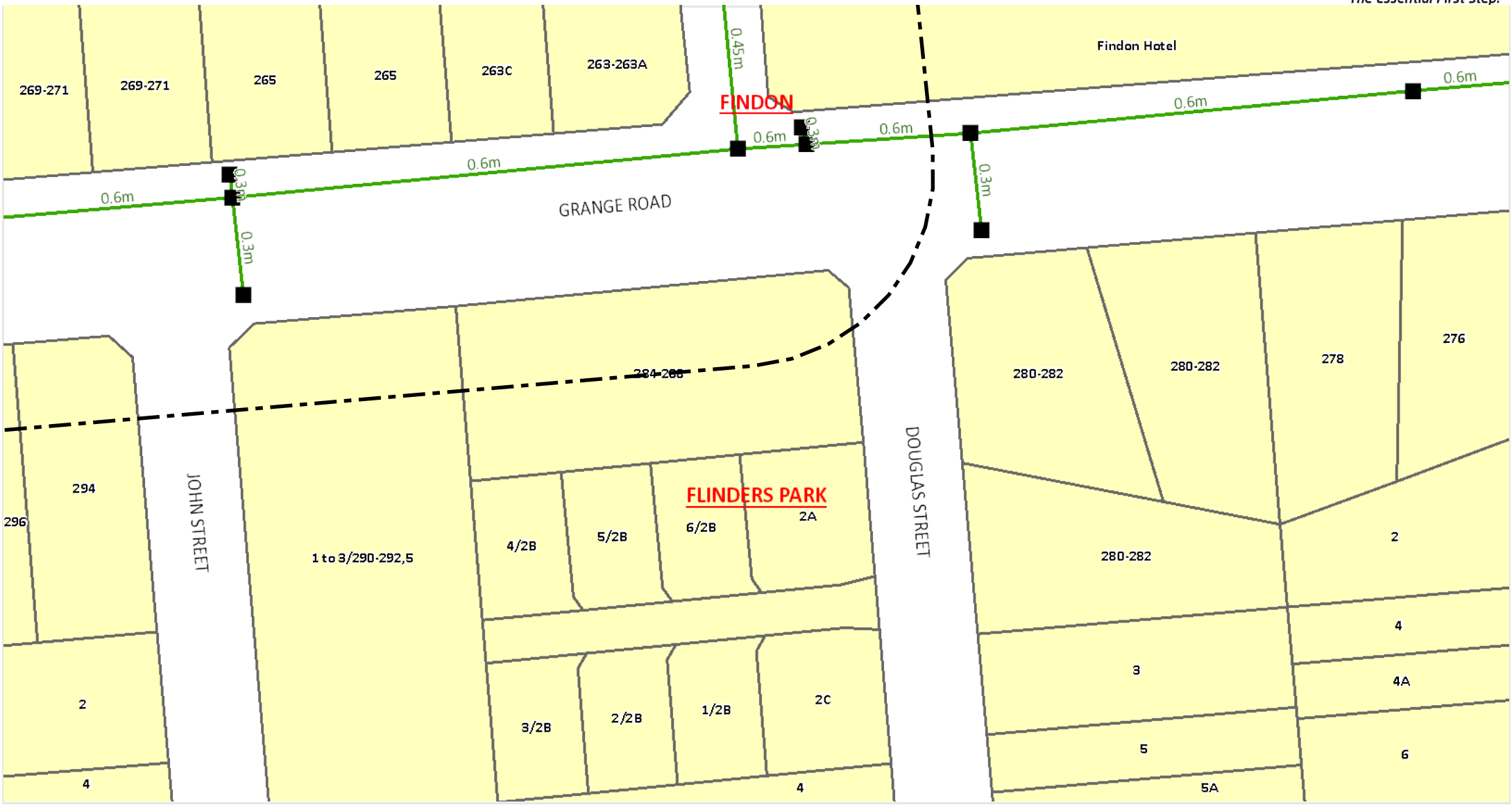
Sequence No: 71505506
Job No: 14225170
Location: Findon Road, Kidman Park, SA 5025

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.



Legend | Scale: 1:800 | Tile No: 4

- DBYD Enquiry Area
- Stormwater Pits
- Unconfirmed Pits
- Stormwater Drains
- Gross Pollutant Trap
- Valve
- Water Meter
- RW Supply Main
- RW Supply Connection
- Communications & Electrical
- Cadastre
- Council Boundary
- State Council Boundaries

N

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Jenna Grosser

From: Cleere, Kylie <Kylie.Cleere@sawater.com.au>
Sent: Wednesday, May 16, 2018 4:27 PM
To: Jenna Grosser
Subject: [External] RE: Grange Road, Findon DPA - SA Water

Hi Jenna,

Without full details of the development, flow rates, water demands etc, I can only provide a high level response but I trust the information is useful.

Water
The site abuts 4 water mains on Grange Rd and 1 on Noble St.

Dependent on demands, we would investigate providing connections for the site from either the 150mm mains or the 375mm main on Grange Rd.

Please note: as Grange Rd is a DPTI Road, all connections would be classed as non-standard and works would be quoted.

The existing water services are 2 x 32mm, 1 x 25mm and 3 x 20mm.

Sewer

The site abuts a 225mm sewer main on Grange Rd and a 150mm sewer main on Noble St.

Commercial sites >300m² should be serviced off a 225mm (or greater) main.

Please note: as Grange Rd is a DPTI Road, all connections would be classed as non-standard and works would be quoted.

The existing connections are 3 x 150mm and 3 x 100mm.

The sizing of the mains look sufficient for servicing but we will confirm capacity and works required when a formal application is made.

Please let me know if you have any further questions.

Thanks
Kylie

Kylie Cleere
Senior Land Development Officer
SA Water
T 08 7424 1218
E kylie.cleere@sawater.com.au

www.sawater.com.au
Follow us on Twitter, YouTube and Flickr

250 Victoria Square/Tarntanyangga, Adelaide SA 5000
GPO Box 1751, Adelaide SA 5001

please consider the environment before printing this email.

All enquiries regarding Major land Divisions should be directed to majorld@sawater.com.au

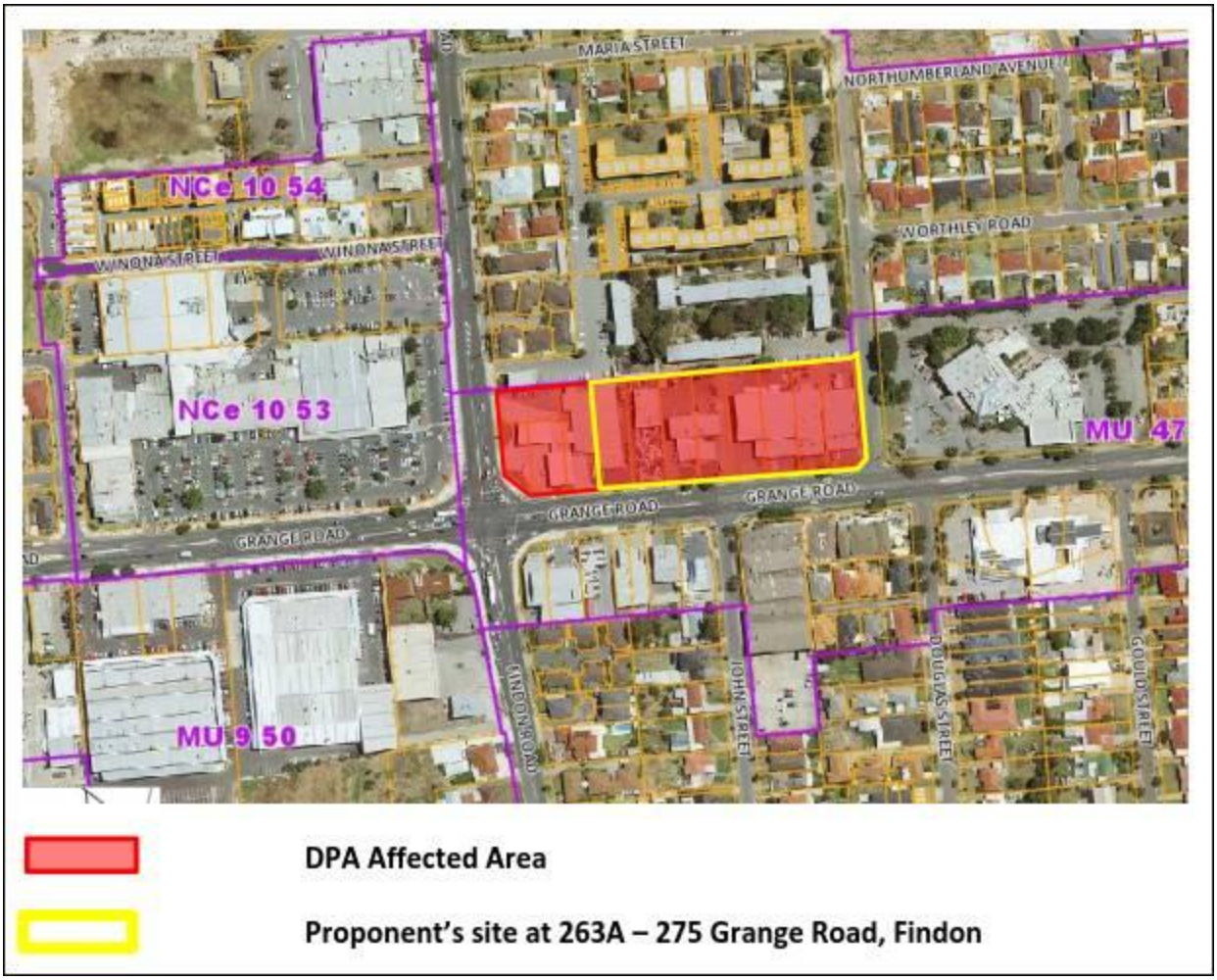
From: Majorld
Sent: Wednesday, 16 May 2018 2:15 PM
To: Cleere, Kylie
Subject: FW: Grange Road, Findon DPA - SA Water

From: Jenna Grosser [mailto:Jenna.Grosser@kbr.com]
Sent: Tuesday, 15 May 2018 5:42 PM
To: Majorld
Cc: Mark Page
Subject: Grange Road, Findon DPA - SA Water

Good afternoon,

KBR are completing some early engineering investigations on behalf of Jensen PLUS for a proposed DPA to 263A – 275 Grange Road, Findon.

As per the below, the area is bounded by Grange Road and Findon Road, Findon. The land is currently zoned as Mixed Use and is under multiple-ownership.



I am writing to request that SA Water please provide some early advice as to the capacity of the existing infrastructure (water supply and sewer) to service this proposed development from existing mains. The proposed development would be commercial in nature.

Please call should you have any queries.

Thanks and regards,

Jenna Grosser

KBR

KBR | Civil Engineer
186 Greenhill Road | Parkside, SA 5063 | Australia
Office: +61 8 8301 1274 | jenna.grosser@kbr.com

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Be green - read on the screen

South Australian Water Corporation disclaimer

Jenna Grosser

From: Mark Pynn <Mark.Pynn@sapowernetworks.com.au>
Sent: Monday, June 4, 2018 1:52 PM
To: Jenna Grosser
Subject: [External] RE: Grange Road, Findon DPA - SA Power Networks

Hi Jenna,

We've reviewed the below site and confirm there are no particular network constraints that would affect a commercial development in that area.

Any development on the site requiring power would be required to go through our connection process (including paying an augmentation fee) – details are outlined in the attached:
https://www.sapowernetworks.com.au/public/download.jsp?id=8598

Kind regards,

Mark Pynn
Distribution Planning Manager

Mobile: 0428 294 373
mark.pynn@sapowernetworks.com.au
---
1 Anzac Highway, Keswick SA 5035
www.sapowernetworks.com.au

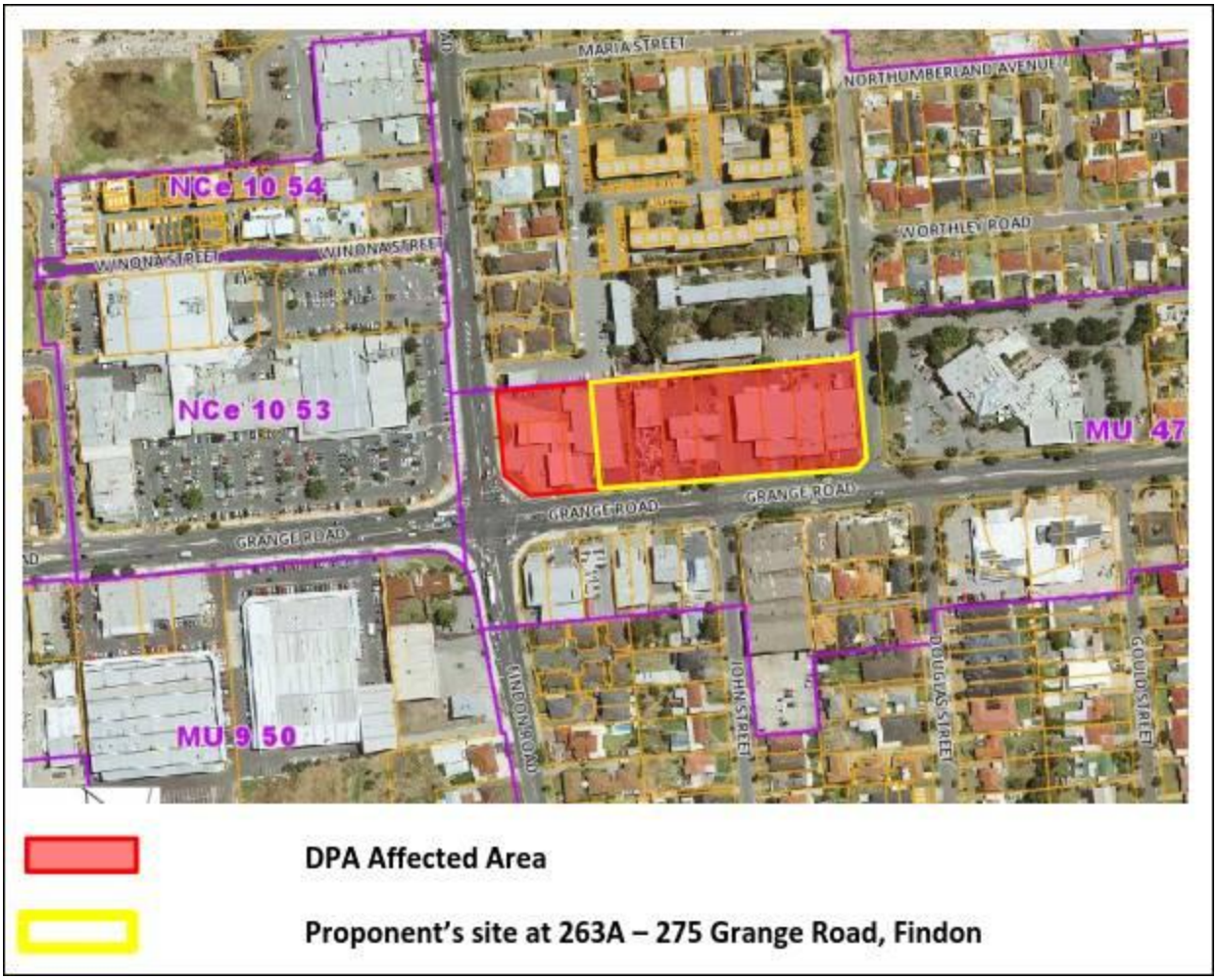
SA Power Networks

From: Jenna Grosser [mailto:Jenna.Grosser@kbr.com]
Sent: Friday, 18 May 2018 9:55 AM
To: Mark Pynn <Mark.Pynn@sapowernetworks.com.au>
Cc: Mark Page <mark.page@kbr.com>
Subject: Grange Road, Findon DPA - SA Power Networks

Hi Mark,

KBR are completing some early engineering investigations on behalf of Jensen PLUS for a proposed DPA to 263 – 275 Grange Road, Findon.

As per the below, the area is bounded by Grange Road and Findon Road, Findon. The land is currently zoned as Mixed Use and is under multiple-ownership.



I am writing to request that SA Power Networks please provide some early advice as to the capacity of the existing infrastructure to service this proposed development. The proposed development would be commercial in nature.

Please call should you have any queries.

Thanks and regards,

Jenna Grosser

KBR

KBR | Civil Engineer
186 Greenhill Road | Parkside, SA 5063 | Australia
Office: +61 8 8301 1274 | jenna.grosser@kbr.com

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Site Address	Findon Road Kidman Park 5025	**Sequence No**	71505509
Email	jenna.grosser@kbr.com	**Map Reference**	UbdAde 116L2,116L3,116M2,116M3

Before you commence any works you are required to complete the attached 'Work In The Vicinity Of Critical Gas Assets' request form and forward this to APA asap

ITEM	SYMBOL	TERMS	ITEM	SYMBOL
LOW PRESSURE 1.2 - 1.7kPa		B = BOUNDARY	DIAL BEFORE YOU DIG REQUESTED AREA	
MEDIUM PRESSURE 35 - 100kPa		D = DEPTH	PRIORITY MAIN COVERAGE	
HIGH PRESSURE 70 - 350kPa		Bok = BACK OF KERB		
TRANSMISSION PRESSURE 900 - 15000kPa		Fok = FRONT OF KERB		
PROPOSED MAIN (COLOUR BY PRESSURE)				
ABANDONED MAIN				

Map Key

1

Scale 1:1000

0 0.01km

NORTH

Indicative Plans

Issue Date:	16/05/2018
Location:	Findon Road,Kidman Park,SA-5025

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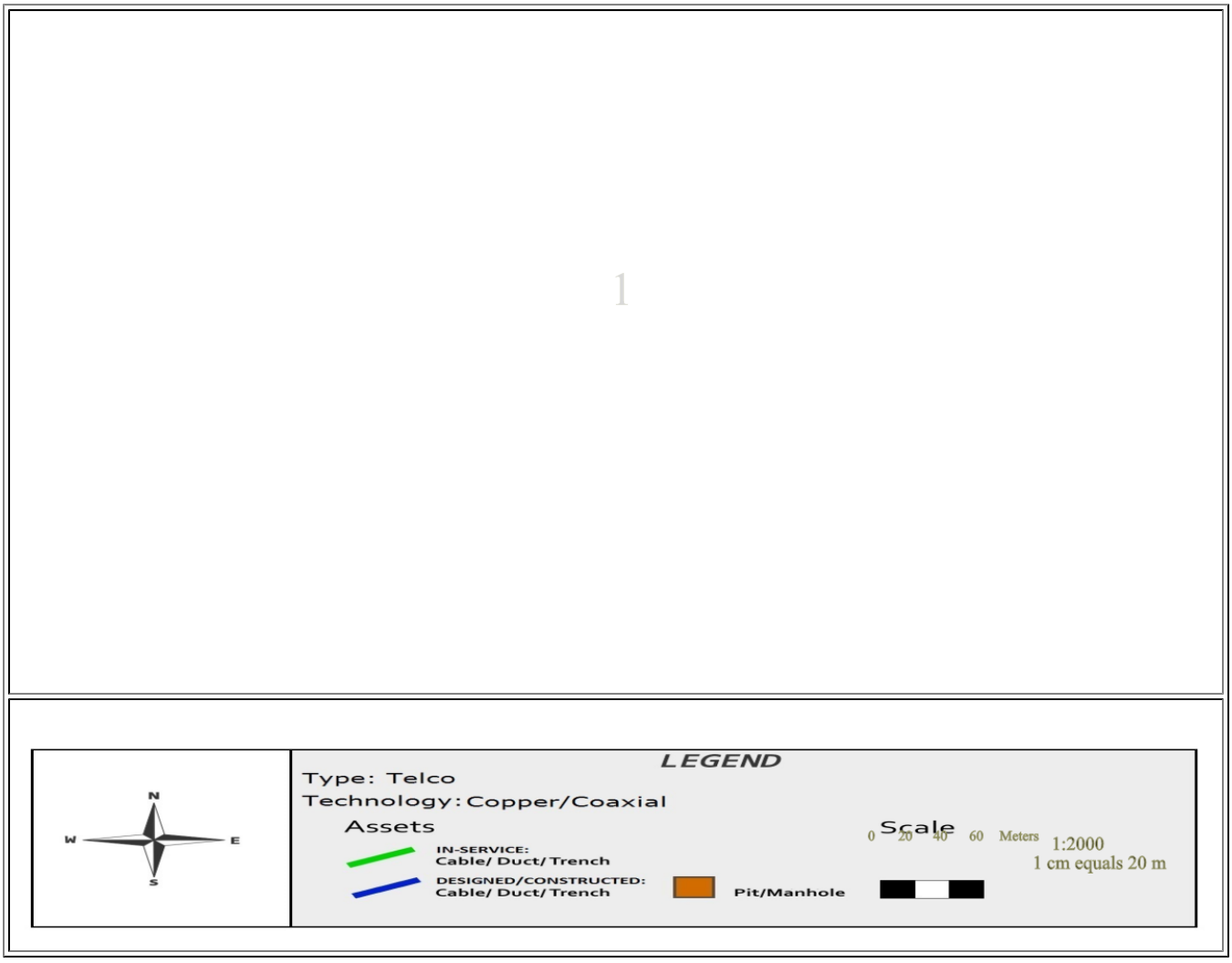

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Email info@nbn.com.au Web nbn.com.au

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Development Plan Amendment

By the Council

Charles Sturt Council

Draft Grange Road, Findon Development Plan Amendment (Privately Funded)

The Amendment

For Consultation

October 2018

DRAFT

Amendment Instructions Table

Name of Local Government Area:
City of Charles Sturt

Name of Development Plan
Charles Sturt Council

Name of DPA:
Grange Road Findon DPA

The following amendment instructions (at the time of drafting) relate to the Council Development Plan consolidated on 13 September 2018.

Where amendments to this Development Plan have been authorised after the aforementioned consolidation date, consequential changes to the following amendment instructions will be made as necessary to give effect to this amendment.

Amendment Instruction Number	Method of Change • Amend • Replace • Delete • Insert	Detail what in the Development Plan is to be amended, replaced, deleted or inserted. If applicable, detail what material is to be inserted and where. Use attachments for large bodies of material.	Is Renumbering required (Y/N)	Subsequent Policy cross-references requiring update (Y/N) if yes please specify.
GENERAL SECTION PROVISIONS (including figures and illustrations contained in the text)				
Amendments required (Yes/No): **No**				
ZONE AND/OR POLICY AREA AND/OR PRECINCT PROVISIONS (including figures and illustrations contained in the text)				
Amendments required (Yes/No): **Yes**				
Findon Policy Area 10				
1.	Replace	Desired Character Statement with the contents of **Attachment A**	N	N
2.	Insert	Immediately after Principle of Development Control 8 the contents of **Attachment B**	N	N
TABLES				
Amendments required (Yes/No): **No**				
MAPPING (Structure Plans, Overlays, Enlargements, Zone Maps, Policy Area & Precinct Maps)				
Amendments required (Yes/No): **Yes**				
Map Reference Table				
3.	Insert	For Noise and Air Emissions Overlay listing - ChSt/19	N	N
4.	Insert	Precinct Listing for Precinct 84 Findon Centre East and relevant Map references of ChSt/13, ChSt/19	N	N
Map(s)				
5.	Replace	Zone, Policy Area and Precinct Overlay Maps ChSt/13 and ChSt/19 with the contents of **Attachment C**	N	N
6.	Insert	Noise and Air Emissions Overlay Maps ChSt/13 and ChSt/19 – the contents of **Attachment D**	N	Y see instruction 3 above
7.	Replace	Concept Plan Map ChSt/7 with the contents of **Attachment E**	N	N

Attachment A

DRAFT

Note the below text is as follows:

Green text = Existing local content from Development Plan
Red Text = Local content proposed within this DPA
~~Strikethrough Text~~ =Text proposed to be removed by this DPA

DESIRED CHARACTER

The policy area will serve as the centre for the daily to weekly shopping and business needs for the surrounding areas. It is envisaged that the Findon Centre will accommodate an enlarged and upgraded supermarkets and a greater range of specialty shops, office, commercial, leisure, entertainment, recreation and community facilities. It ~~will be~~ is important ~~to upgrade the existing~~ that development within the ~~Centre and facilities and integrate centre expansion to form an enlarged~~ centre results in better integration~~ed~~ between the centre facilities within and across all of the precincts and ~~Centre with~~ a high standard of design providing a wide range of tenancies, facilities and activities.

The improvement of the appearance of the Centre from adjacent residential areas is supported.

Noisy or night time activities are unsuitable close to Findon Road, Winona Street, Ray Street or adjoining residential zones. Where such activities are undertaken, they need to be designed and managed to minimise any impact on residential amenity.

Precinct 53 Retail Core Findon

This precinct provides the focus for shopping, business and community activities. Medium and high density residential development may be appropriate. It is envisaged that the precinct will be developed by enlarging and upgrading supermarket choice and through a greater range of specialty shops, office, commercial, leisure and community facilities. It will be important to integrate the expanded centre with the existing centre and development to the north and east and for development to be of a high standard of design.

It is desirable that development by way of extension to the existing centre complex will have a built form and character based upon a pedestrian mall on a north south axis with supporting pedestrian access ways which are free of vehicular traffic. It will also be important for development to create a human, village like scale form and character, and incorporate places and spaces suitable for undertaking social and cultural activities.

Precinct 54 Winona Street

It is envisaged that this precinct will accommodate medium density, small scale residential, offices, leisure and restaurant uses provided they are compatible with a residential environment. It will be important for an integrated basis to take advantage of shared parking and open space arrangements with the land to the west.

Precinct 84 Findon Centre East

This precinct will accommodate a supermarket, along with limited specialty retail and bulky goods facilities. Residential development is encouraged above non-residential uses.

It is important that development is located and designed to provide active facades and avoids blank walls to the Grange Road and Findon Road frontages to integrate the precinct with the retail core to the west.

Pedestrian environments will be improved through consolidation of access points and facilitate connections with the retail core through safe crossing points to Findon Road, with amenity improved through tree planting and landscaping. Similarly, existing non-conforming vehicle access arrangements will be rectified through relocation and improvements to road infrastructure.

It is important that development is located and designed to minimise impacts on the amenity of residential properties abutting the precinct, particularly with regard to building bulk and scale, as well as noise and odour from servicing arrangements and plant. This will be assisted with the development of an intensely planted landscaped buffer along the interface of the precinct with the Residential Zone.

DRAFT

Attachment B

DRAFT

Precinct 84 Findon Centre East

9 Development should not be undertaken unless it is consistent with the desired character for the following precinct.

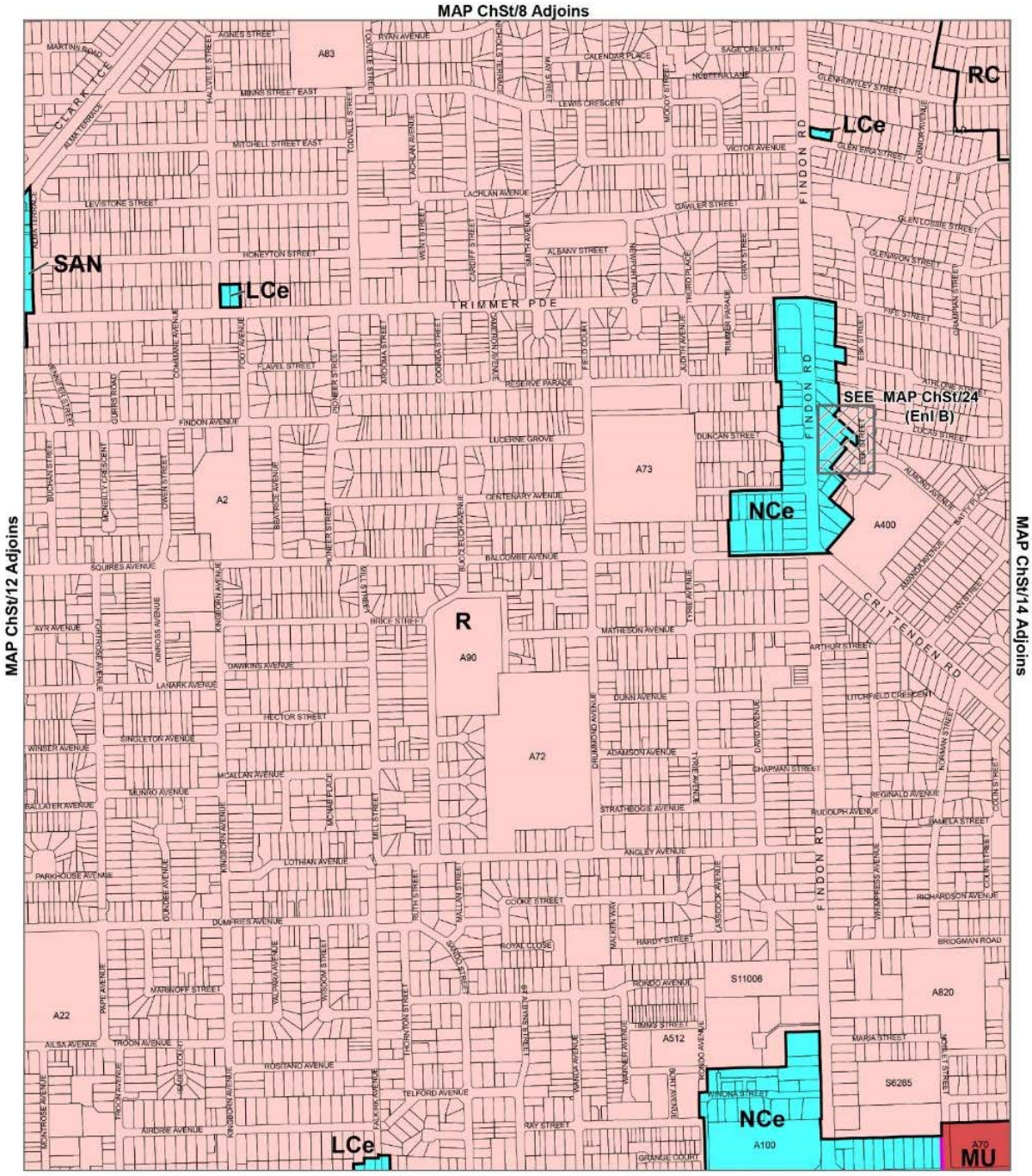
10 A landscape screen of at least 3 metres in width should be planted along the boundary with the Residential Zone and should comprise a densely planted row of trees which will achieve a mature height of at least 6 metres.

11 Development should result in the rationalisation of access points onto Grange Road and Findon Road.

DRAFT

Attachment C

DRAFT



See enlargement map for accurate representation.
Lamberts Conformal Conic Projection, GDA94

N

0 500m

Zones

LCe	Local Centre
MU	Mixed Use
NCe	Neighbourhood Centre
R	Residential
RC	Residential Character
SAN	Suburban Activity Node
	Zone Boundary

Zone Map ChSt/13

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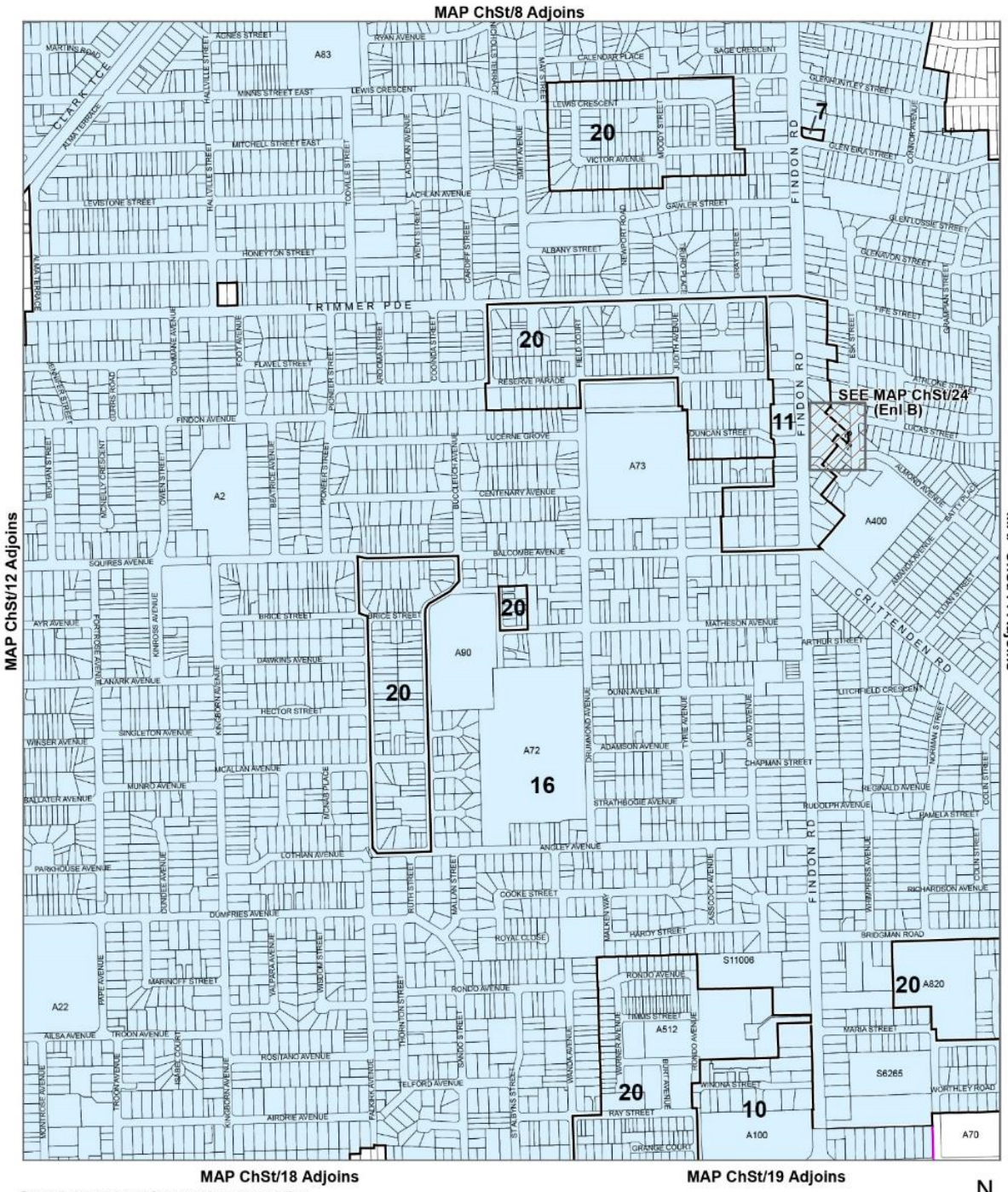

See enlargement map for accurate representation.

Lamberts Conformal Conic Projection, GDA94

Policy Area

- **7** Local Shopping
- **10** Findon
- **11** Findon Road
- **16** Mid Suburban
- **20** Integrated Medium Density

Policy Area Map ChSt/13

Policy Area Boundary

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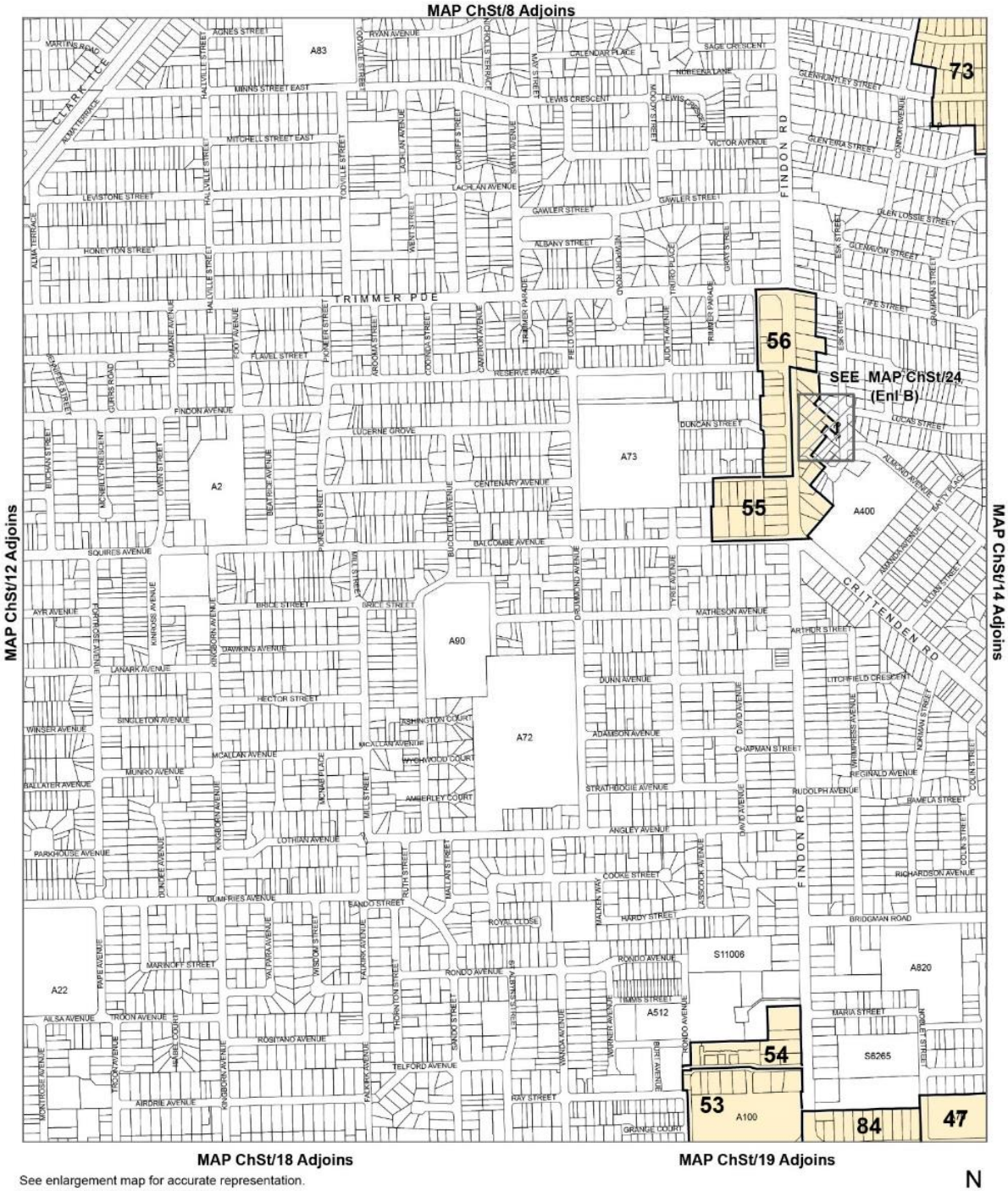

See enlargement map for accurate representation.
Lamberts Conformal Conic Projection, GDA94

Precinct

47 Mixed Use
53 Retail Core Findon
54 Winona Street
55 Retail Core Findon Road
56 Commercial Fringe Findon Road
73 Woodville South Character
84 Findon Centre East

N

0 500m

Precinct Map ChSt/13

Precinct Boundary

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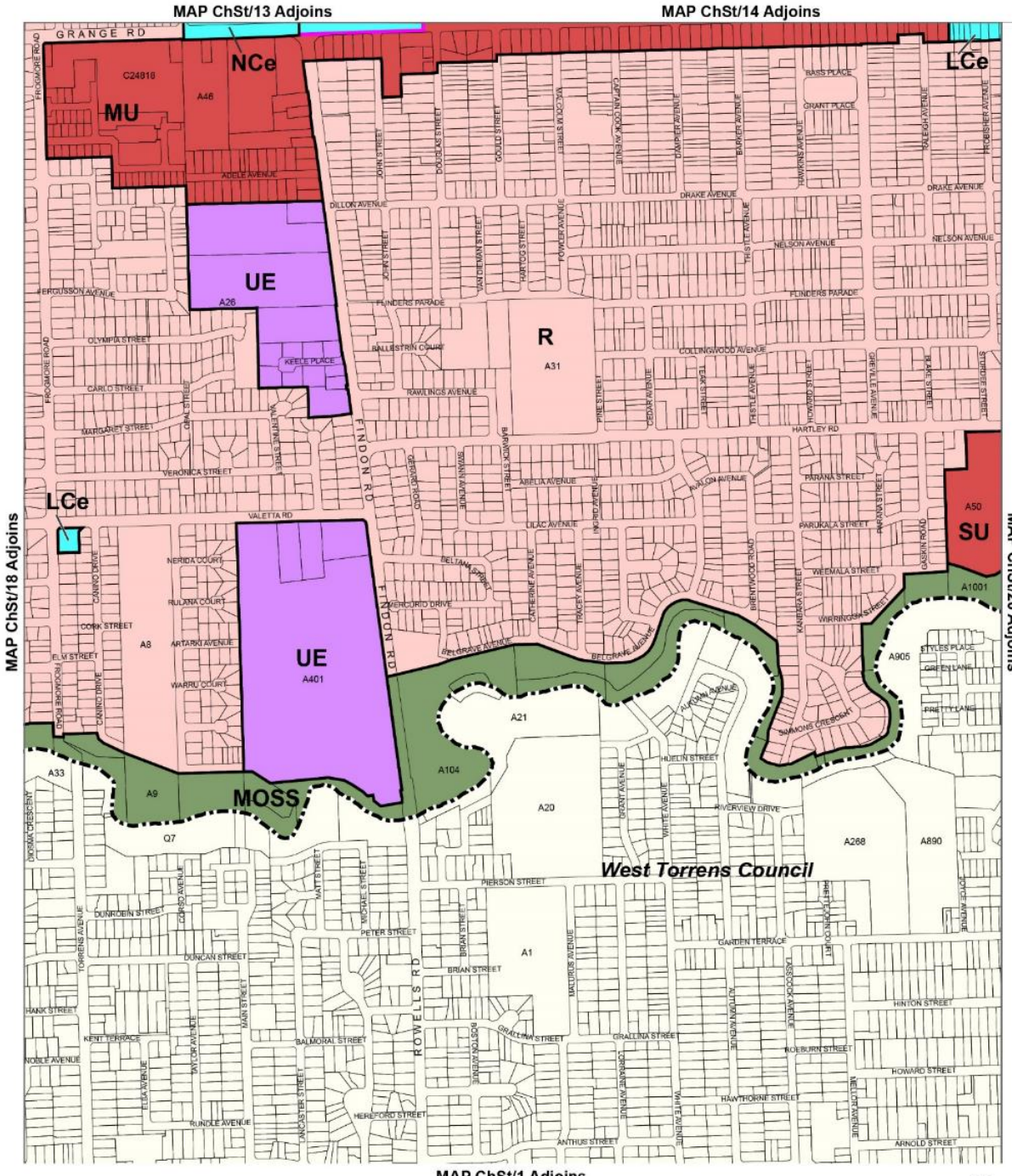

Zone Map ChSt/19

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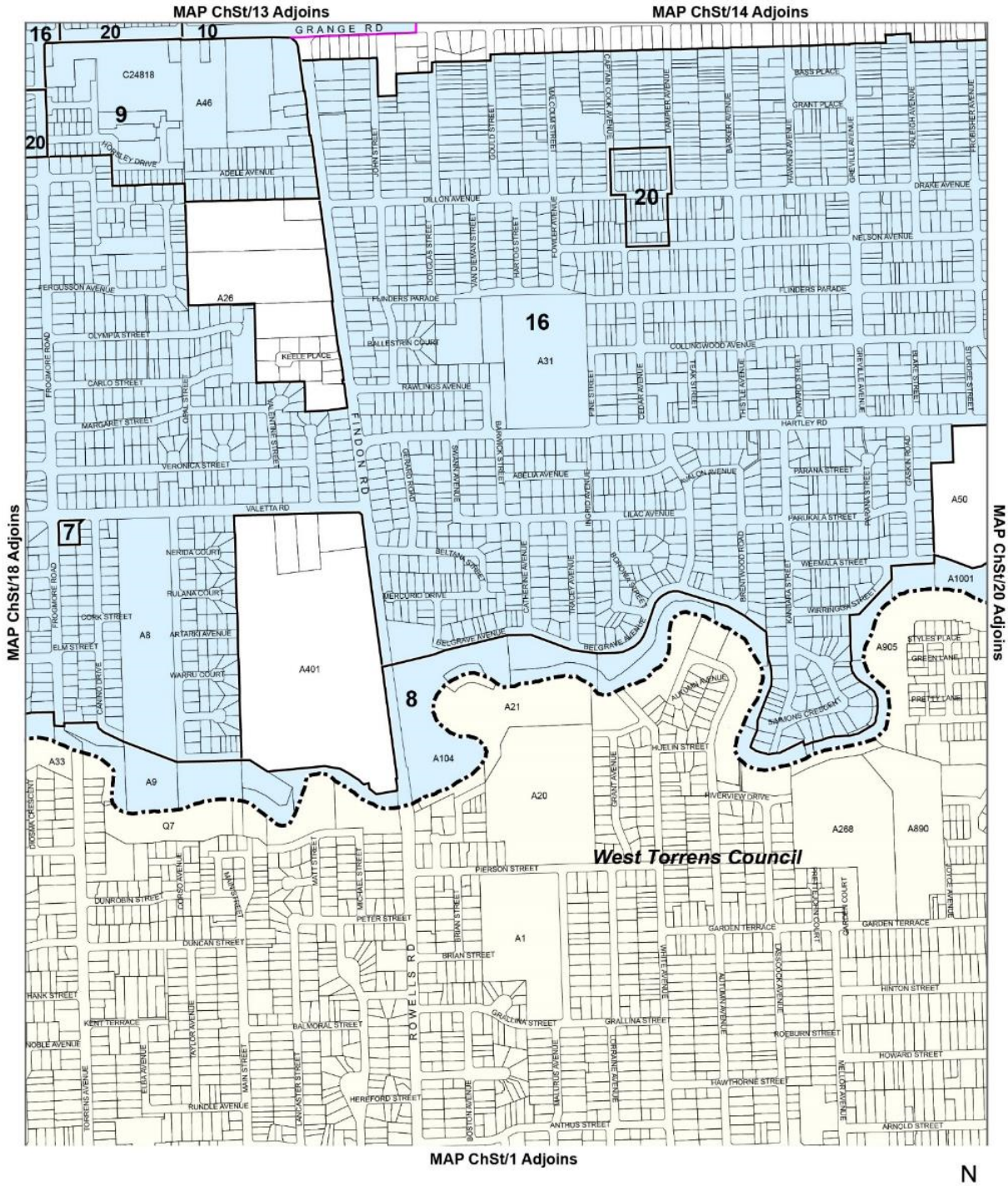

Policy Area

7	Local Shopping
8	Linear Park(River Torrens/Karrawirra Parri)
9	Urban Village Findon
10	Findon
16	Mid Suburban
20	Integrated Medium Density

Policy Area Map ChSt/19

Policy Area Boundary
Development Plan Boundary

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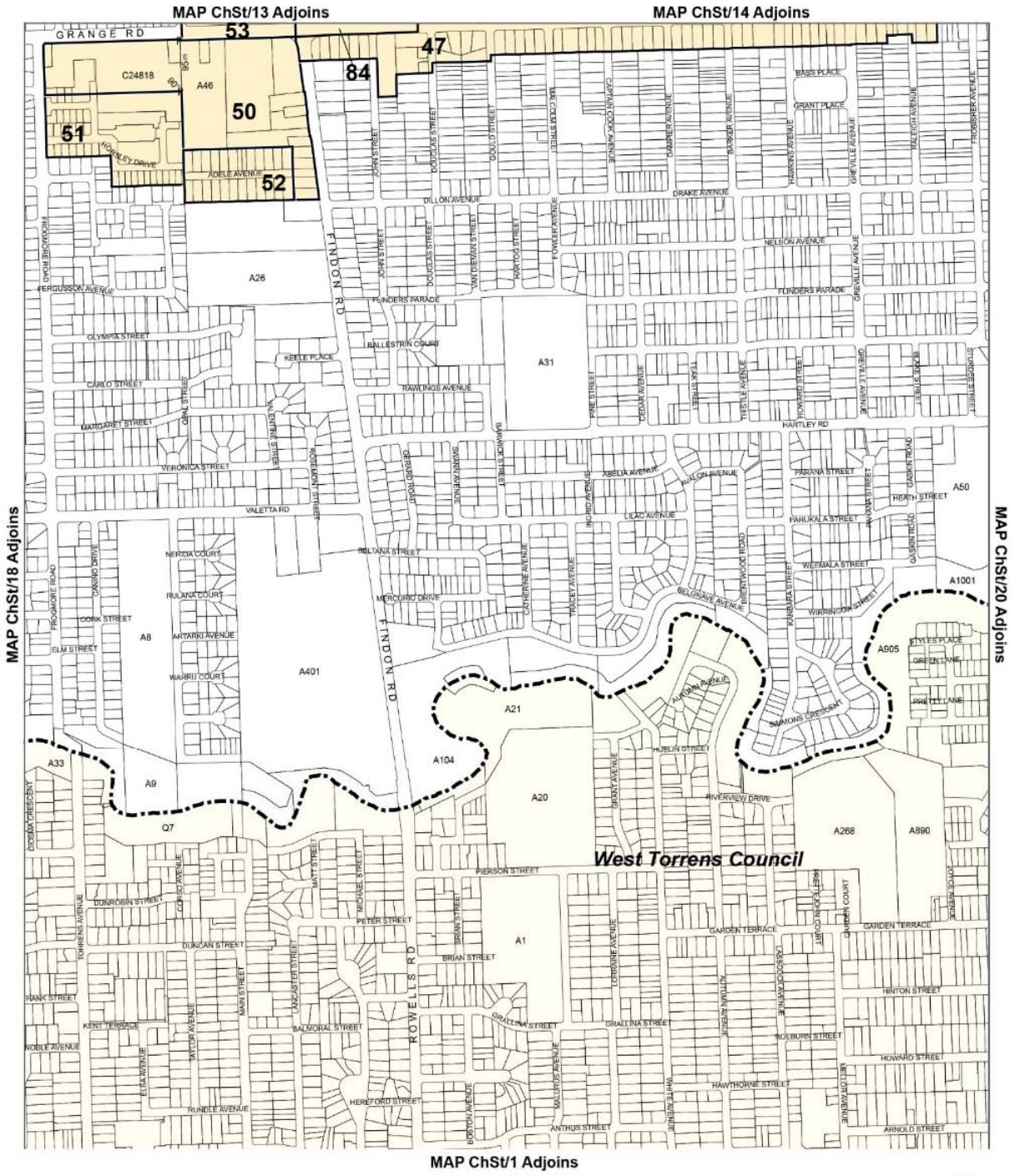

Precinct Map ChSt/19

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Attachment D

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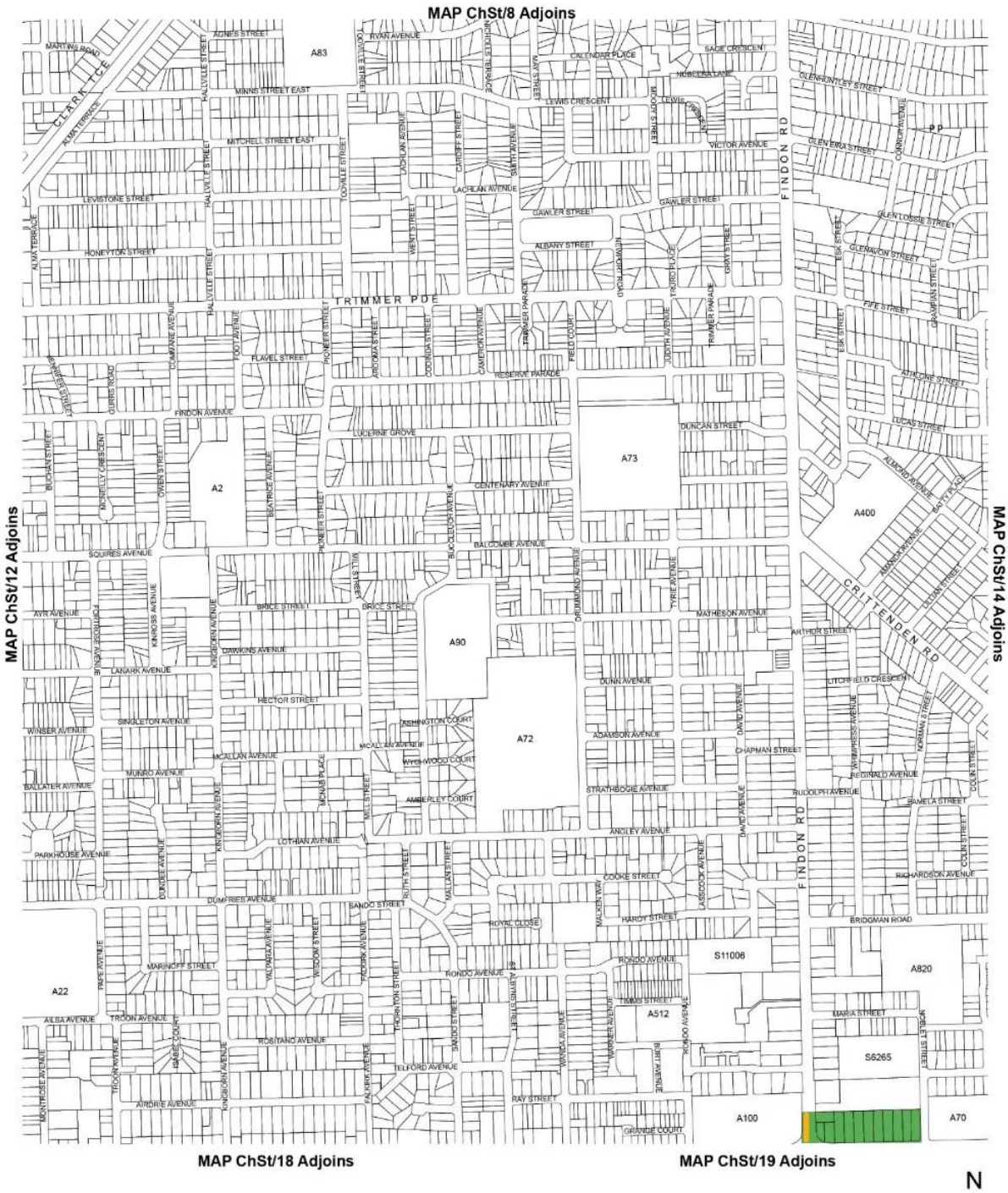

Noise and Air Emissions Designated Area

Type A Road

Type B Road

Overlay Map ChSt/13

NOISE AND AIR EMISSIONS

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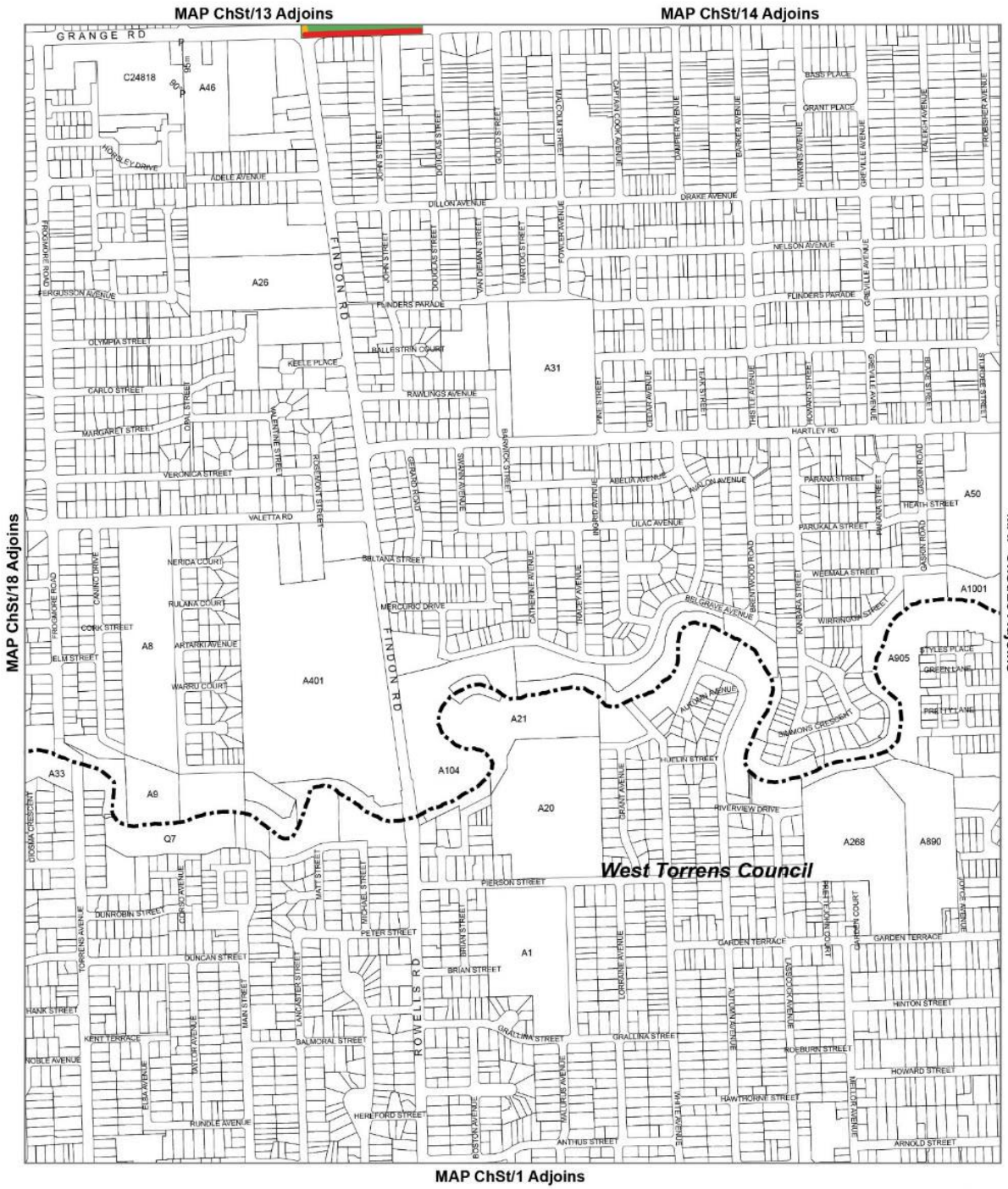

Overlay Map ChSt/19

NOISE AND AIR EMISSIONS

CHARLES STURT COUNCIL
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Attachment E

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FINDON

Concept Plan Map ChSt/7

FINDON POLICY AREA 10

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