94-100 Explorers Way, St. Clair

Statement of Environmental Effects

Prepared for Silky Property Group

June 2015

Revision A

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Prepared for Building Services Engineers Pty Ltd

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LIST OF APPENDICIES

1 INTRODUCTION

1.1 General

Diversi Consulting have been engaged by Silky Property Group to prepare a Development Application submission for the proposed 14 lot subdivision located at 94-100 Explorers Way, St Clair (see **Figure 1**).

1.2 Purpose of this report

This Statement of Environmental Effects (SEE) forms part of the Development Application submission for the subdivision of the existing property known as Lot 36 of DP 239502. The development application comprises the demolition of existing buildings and the construction of roads, stormwater drainage and utilities to service 14 new residential lots.

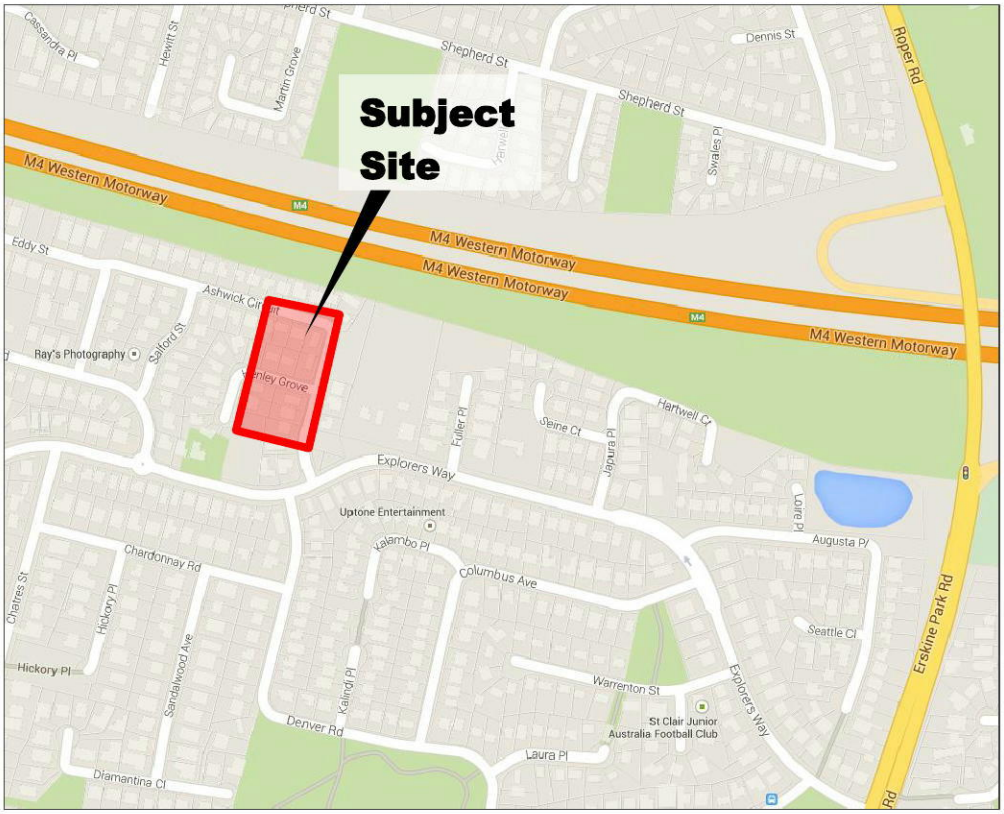

Figure 1: Locality Plan

2 SITE DESCRIPTION

The proposed development site located at 94-100 Explorers Way, St Clair, within the Penrith City Council (PCC) local government area. The study area shown in **Figure 2** is approximately 1.06 ha in size and is generally bound by Explorers Way to the south, the M4 Motorway to the north and existing residential areas and open space to the east and west. The site currently comprises a two-storey residential dwelling, a number of buildings and sparse vegetation. The site is zoned R2 Low Density Residential.

Figure 2 : Site Plan

The site is traversed by an existing overland flow path which conveys flows from Ashwick Circuit to the west of the site to the existing open space and M4 Motorway land to the east and north.

3 DEVELOPMENT PROPOSAL

The proposed development consists of the demolition of existing buildings and the construction of roads, stormwater drainage and utilities to service 14 new residential lots. Access to the lots will be provided by constructing a cul-de-sac roadway approximately through the centre of the site connecting to Explorers Way. A copy of the Plan of Subdivision is included in **Appendix B**.

The upstream catchment runoff is currently collected by a piped system draining to Ashwick Circuit through to sag pits located adjacent to the western boundary of the site. This piped drainage system then continues through the site to a headwall located in the M4 Motorway land.

A pre-lodgement meeting was conducted on 10 March 2015, the mintues and advice of which are included in **Appendix E**.

4 PLANNING CONTROL COMPLIANCE

4.1 Relevant Planning Controls

The following section of this report provides the relevant planning controls for the proposed development, demonstrating how the proposal complies with the relevant planning controls.

4.1.1 Environmental Planning and Assessment Act 1979 (EP&A Act)

The objects of this Act as listed in Section 5 are:

(a) *to encourage:*

(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,

(ii) the promotion and co-ordination of the orderly and economic use and development of land,

(iii) the protection, provision and co-ordination of communication and utility services,

(iv) the provision of land for public purposes,

(v) the provision and co-ordination of community services and facilities, and

(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and

(vii) ecologically sustainable development, and

(viii) the provision and maintenance of affordable housing, and

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

The proposed subdivision is an efficient and appropriate use of the land (zoned for residential development), providing new lots with access to utility services and assisting the wider community by providing housing opportunities. As per Section 79C (1) of the EP&A Act a consent authority (Council) is to take into consideration the provision of any environmental planning instruments, development control plans and regulations of relevance in determining a development application. The following sub sections within Section 4.1 specify the relevant planning controls to be taken into consideration.

4.1.2 Penrith Local Environmental Plan 2010

The Penrith Local Environmental Plan 2010 replaces the Penrith LEP 1998 (Urban Land). The site is zoned R2 Low Density Residential. Under part 2, Land Use Table the zone objectives for zone 2R Low Density Residential are;

- *To provide for the housing needs of the community within a low density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To promote the desired future character by ensuring that development reflects features or qualities of traditional detached dwelling houses that are surrounded by private gardens.*

- *To enhance the essential character and identity of established residential areas.*
- *To ensure a high level of residential amenity is achieved and maintained.*

The proposed development complies with these objectives as it is a standard subdivision that fits into the existing urban nature of the surrounding properties maintaining the existing landscaped character of the area.

The required area and width of each lot is in accordance with clause 4.1 – Minimum Subdivision lot size for Zone R2, with a minimum standard lot size of 550m^2 (Zone K1 in the lot size map) and a minimum width of 15m. Battle-axe lots require a minimum width of 15m with a minimum lot size of 650m^2, exclusive of the access handle.

Future dwellings constructed on the lots will be required to meet the requirements of the Penrith Local Environmental Plan 2010 including building envelopes, heights, landscaped areas and rear boundary setbacks.

4.1.3 Penrith Development Control Plan 2014

The following table outlines the relevant controls of the Penrith City Council Development Control Plan 2014 that are applicable to the site and how the site complies with these requirements.

Clause	Objectives and Controls	Response	Compliance
Part C1 - Site Planning and Design Principles			
1.1	To ensure that the site's context has been analysed and considered to ensure that development is designed on a 'whole of building' approach	The development is a standard subdivision that fits into the existing urban nature of the surrounding properties and complies with the zoning.	Complies.
1.2	Ensure the development responds to the natural topography and landform of the site, provides opportunities for effective surveillance and provides adequate lighting.	The site grading has been designed to match the existing topography of the site. The development provides clear sightlines between the roadway and lots, there are not blind corners, pathways or laneways. Appropriate lighting/illuminating scheme for the roadway will be provided at CC stage.	Complies.
Part C2 - Vegetation and Bushfire Management			
2.1	Protect and enhance Penrith's native vegetation and landscape character, preserving trees where possible. The proposed development is in a residential area therefore a Tree survey and assessment report is required for any works to a tree or other prescribed vegetation.	Site survey and landscape plan is attached in Appendices A and C respectively.	Complies.
2.3	Minimise risk to life, property and the environment, ensure adequate provision for access is provided in bushfire prone areas, balance this risk against principles of Council's DCP	A Bushfire Assessment Report has been undertaken and has been included in the DA submission	Complies

Clause	Objectives and Controls	Response	Compliance
C3 – Water Management			
3.2	Adopt a total catchment management approach to water quality and protection of water quality systems.	Refer to Appendix B for engineering plans. A GPT has been provided in the roadway prior to waters discharging to the M4 Motorway land.	Complies.
3.5	Overland flow is to be maintained for the 1% AEP, providing piped trunk drainage and an overland flow path.	Refer to Appendix B showing the Overland flow path modelling and report.	Complies.
3.6	Provide appropriate stormwater drainage to prevent damage to the built and natural environment and ensure that the new development does not generate stormwater discharges that exceed the capacity of the existing drainage network.	Refer to Appendix B for engineering plans. The street drainage system has been designed to pipe the 5yr ARI flows with overland capacity provided for the 100yr ARI.	Complies.
C4 – Land Management			
4.1	Promote sustainable land use taking into account topography, geology and soils and minimise the extent of earth works.	Refer to Appendix B for engineering plans. The roadway and lot grading has been designed to match as close as possible the existing topography of the site.	Complies.
4.3	Minimise site disturbance during construction and protect the natural environment, particularly water bodies from erosion and sedimentation.	Refer to Appendix B for engineering plans showing details of the proposed erosion and sediment control plan.	Complies.
4.4	Prevent or minimise risk of contamination on the land, enable Council to identify and record and inform the community of existing or potential contamination and ensure stakeholders are aware of management responsibilities.	A Preliminary Site Assessment Report has been undertaken and has been included in the DA submission	
4.5	Avoid or mitigate impacts of the development on salinity processes and potential impacts on buildings and infrastructure and ensure works do not increase the salt load of watercourses.	A Salinity Assessment Report has been undertaken and has been included in the DA submission	
C5 - Waste Management			
5.1/5.2	A Waste Management Plan is required for the demolition of the existing dwellings onsite detailing on-site source separation and appropriate collection of waste.	Refer to Appendix D for the Waste Management Plan.	Complies.

Clause	Objectives and Controls	Response	Compliance
C6 - Landscape Design			
6.1	Ensure the development integrates into and enhances the existing streetscape character.	Refer to Appendix C for the landscaping plan. Existing vegetation will be retained where possible onsite and along the road frontage. Street tree planting will be of the same species as the adjoining streets.	Complies.
C11 - Subdivision			
11.1	Subdivision design is to demonstrate that it has taken into account design principles including social impact, economic and environmental factors, allotment shape and size and alignment of roads with natural topography.	This subdivision has been designed in accordance with Penrith Councils requirements taking into consideration the natural topography of the site and the surrounding community. Lots are sized in accordance with Councils requirements and the lot/road layout designed to optimise land use and the comfort of future residents.	Complies.
11.3	Residential subdivision is to provide greater diversity of housing choice, enhance and protect the amenity of new and existing residential areas and provide adequate environmental controls to protect the environment and established systems.	The proposed residential subdivision is a standard layout with opportunities for dual-occupancy dwellings, which matches the existing character of the wider community and provides adequate drainage infrastructure to ensure there is a neutral or positive impact.	Complies.
11.3.1	Allotment orientation to achieve comfort for future users and encourage energy efficient subdivision design.	The proposed access road runs North-South, with a majority of the lots having direct access/road frontage. The lots have been designed to maximise the lot width to assist in the provision of solar access for future dwellings, encouraging energy efficient design.	Complies.
11.3.2	Site frontage shall be sufficient to permit vehicular and pedestrian access to the site.	A majority of the lots have direct access/road frontage with two of the lots having battle-axe handles to provide road and pedestrian access to the roadway. Direct access to Explorers Way has been restricted.	Complies.

Clause	Objectives and Controls	Response	Compliance
11.3.3	Allotment size for residential lots greater than 500m^2 shall be capable of containing a rectangular building envelope measuring 10m x 12m or 8m x 15m behind the building line. Battle-axe lots must be greater than 650m^2 in size.	Refer to subdivision plans contained within Appendix B. These plans show suitable building envelopes within the lot layout are possible and that the battle-axe lots are larger than 650m^2.	Complies.
11.3.5	To provide roads having regard to their safety and drainage systems and ensure the minimum distance from an access place or road to a collector road is 60m if the junction is on the same side of the road or 40m if the junction is staggered on opposite sides of the road.	The proposed access place is 60m from the nearest access road.	Complies.
11.3.6	To maintain and enhance the existing streetscape, preserve mature trees where possible and provide one (1) super advanced tree per 10m road frontage.	Refer to Appendix C for the landscaping plan. Street tree planting will be of the same species as the adjoining streets at a rate of 1 per 10m road frontage.	Complies.
11.3.7	To provide for the location of public utilities to each allotment and within road reserves in an efficient and cost-effective manner.	The subdivision has been designed to include the provision of utility services.	Complies.
11.3.8	The piped drainage system shall be designed for the 5yr ARI, the drainage system shall be designed for the 100yr ARI.	Refer to Appendix B for engineering plans detailing the proposed street drainage system.	Complies.
11.3.10	A site management plan shall be prepared and submitted with the development application showing arrangements for the control of stormwater runoff and erosion control, during and after completion of the development, site restoration and other mitigation measures required prior to the development being undertaken, stockpile position and all vegetation/trees to be removed and/or retained.	Refer to Appendix B for the site management plan.	Complies.

5 DEVELOPMENT CONTEXT

The following sections expand on matters of relevance to the site, listing the considerations taken into account in the design process for the development application pursuant to the provisions of Section 79C of the Environmental Planning & Assessment Act.

5.1 Stormwater Drainage and Flooding

The stormwater drainage plan included in **Appendix B** shows the proposed drainage system for the site, including street drainage for the road way and the overland flow path through the site. The overland flow path through the site is a combination of piped flows and overland flows as detailed in the Stormwater Management and WSUD Strategy report dated June 2015, however the majority of the flow from upstream catchments that reach the site via Ashwick Circuit will be managed and conveyed through the site via a combined piped and overland flow trunk drainage system. The street drainage system has been designed in accordance with Councils requirements, with the system safely conveying up to the 1% AEP event and the piped drainage system conveying the 20% AEP event. All lots will drain to an inter-allotment drainage line.

5.2 Services

The access road has been designed to permit sufficient space to incorporate services for each lot. A services plan will be designed and detailed at construction certificate stage. The existing sewer through the site will be re-configured to provide access to each lot and ensure there is no clash with the stormwater piped drainage. A concept services coordination plan is included in **Appendix B**.

5.3 Erosion and Sediment Control

Erosion and Sediment control plan is as detailed in plans contained within **Appendix B**. Erosion, sediment and pollution control measures will be implemented during the course of the construction works in accordance Penrith City Council's DCP and Engineering Guide and NSW Office of Environment and Heritage Managing Urban Stormwater guide (Blue Book). The impacts of soil erosion and sedimentation on adjacent roadways, properties and waterways will be minimised through a series of devices including;

- Stabilised site access and truck cleaning facilities (such as a shaker pad).
- Silt fences and inlet sediment barriers.

5.4 Landscape and Vegetation Management

The landscape design for the site has been prepared by Site Image who are registered Landscape consultants with Penrith City Council. The landscape design plan is attached in **Appendix C**.

The proposed landscape plan incorporates the preservation of trees and vegetation where possible (particularly along the road frontage of Explorers Way) and street tree planting at a rate of one (1) per lot frontage with species matching the adjoining community.

As part of this DA submission, a Tree Assessment Report has been prepared by Abel Ecology, which states the following findings:

- The majority of trees on the site occur in stands on the north side of the site. These trees are predominantly Melaleuca decora. The overall condition and vitality of these close-growing trees is adversely affected by the canopy competition that occurs

between them. Little or no recruitment of new trees within the Melaluca stands has occurred due to understory clearing.

- The trees that were not originally cleared along with the shrub layer have grown tall and thin, typically without branches in the lower canopy.
- Solitary trees including natives and exotics occur across the property. These trees are not subjected to competition, and are typically in good condition.
- Several large trees have recently been cleared from the site. These trees occur near to the southeast residential dwelling: near to trees 23, 24, and 26, and near to trees 17 and 18. These trees have been removed prior to this tree survey.
- There is no impediment to the removal of all assessed trees for the proposal.

5.5 Bushfire

As part of this DA submission, a Bushfire Assessment Report has been prepared by Abel Ecology for the proposed development.

The aim of the assessment was to ascertain the potential fire hazard and establish the site capability for an Asset Protection Zone while complying with Council's requirements.

Based on the Bushfire Assessment stated above, we note the following findings:

The proposed development site is not sterilised by the bushfire threat. Therefore the following measures are required to enable development:

- Building construction for dwellings on Lots 6, 7 and 8 along the north boundary will need to comply with the Australian Standard 3959-2009, BAL-12.5.
- Provide a Colorbond metal fence/masonry wall/radiant heat barrier on the north boundary of the site on Lots 6, 7 and 8.

5.6 Flora and Fauna

As part of this DA submission, a Flora and Fauna Assessment Report was prepared by Abel Ecology for the proposed development.

The aim of this assessment was to determine whether the present proposal is likely to cause a significant effect on any endangered ecological community, endangered population, threatened species or their habitats.

Based on the Flora and Fauna Assessment stated above, we note the following recommendations:

- There is no impediment to the proposal in the scope of this report.
- There are no trees of particular ecological value that need to be retained.
- All storm water that leaves the site is to be treated by a gross pollutant trap or better to meet water discharge standards.

5.7 Traffic, Transport and Access

The site is located in St. Clair, an established urban residential area, with access to the site directly from Explorers Way. The M4 Western Motorway is located at the rear of the site, with access from the site to the motorway provided from Erskine Park Drive at the eastern end of Explorers Way. Public transport buses are available from Colorado Drive (route 776) and Erskine Park Road (route 775) approximately 8-10 minutes' walk from the site that travelling to Mount Druitt Interchange, St Marys and Penrith Interchange.

As part of this DA submission, a Traffic Impact Assessment Report has been prepared by GTK Consulting, the findings of which include the following:

- The proposed new intersection exceeds the sight distance requirements of AUSTROADS Guide to Road Design – Part 4A.
- The proposed new intersection will not create any adverse impacts on pedestrian movements which are negligible on the northern side of Explorers Way.
- The traffic generated by the proposed subdivision will not present any unsatisfactory traffic safety or capacity issues on the existing road network.

5.7.1 Road Safety Audit

As part of this DA submission, Winning Traffic Solutions Pty. Ltd. (WTS) undertook an independent Road Safety Audit of the Preliminary Road Design for the road connections of the subject proposed subdivision.

Based on the above mentioned report, we note the following design requirements:

- The radius of western kerb return to Explorers Way may need to be increased to reduce the risk of left turning vehicles (specifically SRV service vehicles) crossing the centreline into the opposing carriageway; We note that turning movement analysis demonstrating compliance has been included in **Appendix B**.
- Existing pavement markings are not shown in Explorers Way and to this end the centerline markings will need to be removed opposite the proposed junction to legally permit turning movements to and from the subdivision road of the eastbound carriageway in Explorers Way: We note that this work will be addressed in the Construction Certificate phase of the works.
- Lighting of the proposed subdivision road will need to be considered and ideally a lamp should be considered at the junction of Explorers Way to highlight the road junction for drivers in Explorers Way: We note that this work will be addressed in the Construction Certificate phase of the works.
- It is considered that the feasibility of the proposed design is consistent with Council and RMS standards in terms of alignment and required mutual sight lines of both vehicles and pedestrians commensurate with the regulated speed of the road and width of roads to accommodate all road users subject to consideration of the points raised above.
- It is considered that the risk of an incident occurring within the proposed road environment is low and should an incident occur that could be directly attributable to the constructed works the resulting severity is considered would be “limited”.

5.8 Noise Impact

As part of this DA submission, an Acoustic Assessment Report was prepared by Acoustic Logic for the proposed development.

The purpose of this report was to determine the following:

- Conduct an external noise intrusion assessment from traffic to determine the acoustic treatments required to achieve a reasonable level of amenity for future occupants.
- Conduct background noise monitoring to determine noise emission goals for future use of the development to meet the requirements of NSW EPA Industrial Noise Policy.

Based on the Acoustic Assessment stated above, we note the following recommendations:

- Noise intrusion from traffic onto the future occupants of the development has been assessed in accordance with the Penrith City Council DCP, Australian Standard AS2107-2000 and SEPP (Infrastructure) 2007. Provided the acoustic treatments in Section 4 of the Acoustic Assessment Report are adhered to, the internal noise levels will satisfy the requirements of the criteria.
- Noise emission criteria for the development site have been determined based on background noise logging data, the NSW EPA Industrial Noise Policy and the Protection of the Environment Operations Act Regulation 2000. The resultant criteria are presented in Section 5.2 of the Acoustic Assessment Report. Noise from mechanical plant items associated with the proposed development should comply with these criteria. Detailed design of mechanical plant items should be carried out during the CC stage.

5.9 Ground Conditions

5.9.1.1 Geotechnical

As part of this DA submission, a Geotechnical Investigation Report prepared by Ground Engineering Design Pty Ltd for the proposed development.

The report presents the results of the Geotechnical Investigation for the proposed development.

In particular, we note the following Geotechnical findings:

5.9.1.1.1 Earthworks

- Existing vegetation is to be stripped
- Existing topsoil to be stripped and stockpiled for use in landscaping. Excess to be removed off site.
- 10 tonne roller to be used in proof roll of exposed subgrade. If soft, weak or otherwise unsuitable soil is detected, remove and replace with approved granular material, compact to min 95% SMDD
- Where structural fill is required, place approved material in max 250mm layers and compact to min 98% and max 102% SMDD at -1% to +2% of optimum moisture content
- The site clay is considered suitable for re-use as fill provided that the compaction and moisture content limits stated above are adhered to
- Maximum batter slopes are to be 1:1.15 for temporary batters in compacted fill, 1:1 for temporary batters in stiff to hard residual clay. Permanent batters are to be 1:2.5 in compacted fill and 1:2 in stiff to hard residual clay
- Erosion protection is to be provided fo batter surfaces

5.9.1.1.2 Foundations

- Lot classification should be carried out upon completion of site preparation works
- The footings may be sized to comply with the requirements for medium to highly reactive sites as per AS2870-2011 – “Residential Slabs and Footings”
- Foundation design parameters as stated in Table 5 of the Geotechnical Investigation report shall be adhered to.

5.9.1.1.3 Pavements

- Pavements should be designed for CBR value of 1.5%. Confirmation shall be obtained upon exposing to the existing subgrade.
- Subgrade shall be compacted using a 10 ton roller and compacted between 100% to 102% of SMDD within the top 300mm below the subgrade surface
- Roadbase and sub base material shall be compacted to not less than 98% MMDD
- The following shall be used for pavement construction:
    - Wearing Course AS(10), binder class 170 – typically 40mm thick
    - Base course DGB20 – typically 100mm thick
    - Sub-base course DGS40 of recycled DGS40 or crushed sandstone minimum CBR value of 35%
- In order to improve the pavement subgrade and reduce thickness of the pavement, the top 300mm surface layer may be lime stabilised

5.9.1.2 Contamination

As part of this DA submission, a Contamination Assessment was undertaken and Report prepared by Alliance Geotechnical for the proposed development.

The report documents the findings of all completed environmental tasks, including reviews of historical information, statutory notices and a site inspection to assess areas of environmental concern.

Based on the findings of this Contamination Assessment, it was concluded that:

- The site had been used for rural residential purposes since it was established in 1916. All site buildings were either constructed of wood or constructed after 1986 and therefore are expected to not contain asbestos and/or lead paint;
- The only AEC at the site was the potential for fill material of unknown origin;
- The site and surrounding areas were free of statutory notices issued by the EPA under the Contaminated Land Management Act 1997 and the Protection of the Environment Operations Act 1997;
- No fuel underground storage tanks (UST) or above ground storage tanks (AST) were observed in the accessible areas of the site; and
- No ACM fragments, hydrocarbon odours or staining were observed on the ground surface of the site.
- Three test pits excavated during a salinity assessment identified fill material at depths of 0.5 m bgs and 0.6 m bgs in two areas. The material excavated was not observed to contain any ACM, hydrocarbon odours or staining. The overall risk of contamination at the site was low.
- Following demolition of site buildings, soil samples are required to classify material designated for offsite disposal. Soils should be sampled in accordance with NSW EPA Waste Classification Guidelines (DECCW 2009); and
- During sub-division earthworks, a standard unexpected finds protocol should be implemented to adequately manage any identified contamination.

5.9.1.3 Salinity

As part of this DA submission, a Salinity Assessment Report prepared by Alliance Geotechnical for the proposed development.

This report documents the findings of all completed environmental tasks, including reviews of site setting information, site works and soil sample collection to assess salinity, aggressivity and sodicity.

Based on the above mentioned Salinity Assessment, we note the following findings:

- It is considered that site soils are not characterised as having an elevated risk with respect to soil salinity and as such, specific management of the site during and/or following development works is not required with respect to soil salinity conditions.
- The assessment also identified that site soils are considered to be non-aggressive with respect to future steel or concrete foundations and infrastructure.
- The assessment also identified that soils at the site were non-sodic, hence there was a low risk of erosion hazards.

5.10 Safety, Security and Crime Prevention

The proposed subdivision has been designed to comply Councils requirements and in accordance with the design principles and guidelines of Crime Prevention Through Environmental Design (CPTED).

5.11 Social and Economic Impact

The proposed subdivision creates jobs through the construction, planning, design and assessment stages of the development. The product (subdivision and creation of lots) provides housing opportunities to help aid the current housing market.

6 CONCLUSION AND RECOMMENDATIONS

The proposed development is a suitable development of the site, matching into the existing use of the neighbouring residential streets with lots of a similar size and nature. In summary the proposed development;

- Provides a roadway and lot grading matching the existing topography of the site,
- Provides appropriate drainage infrastructure to cater for stormwater drainage and access,
- Provides a trunk drainage pipeline and overland flow path through the site sized appropriately for the 100yr ARI event, and
- Compiles with all the relevant Planning Controls and Penrith Councils design requirements.

The development is a benefit to the community, utilising the site to provide additional housing while maintaining the existing character and aesthetic of the greater area.

7 REFERENCE LIST

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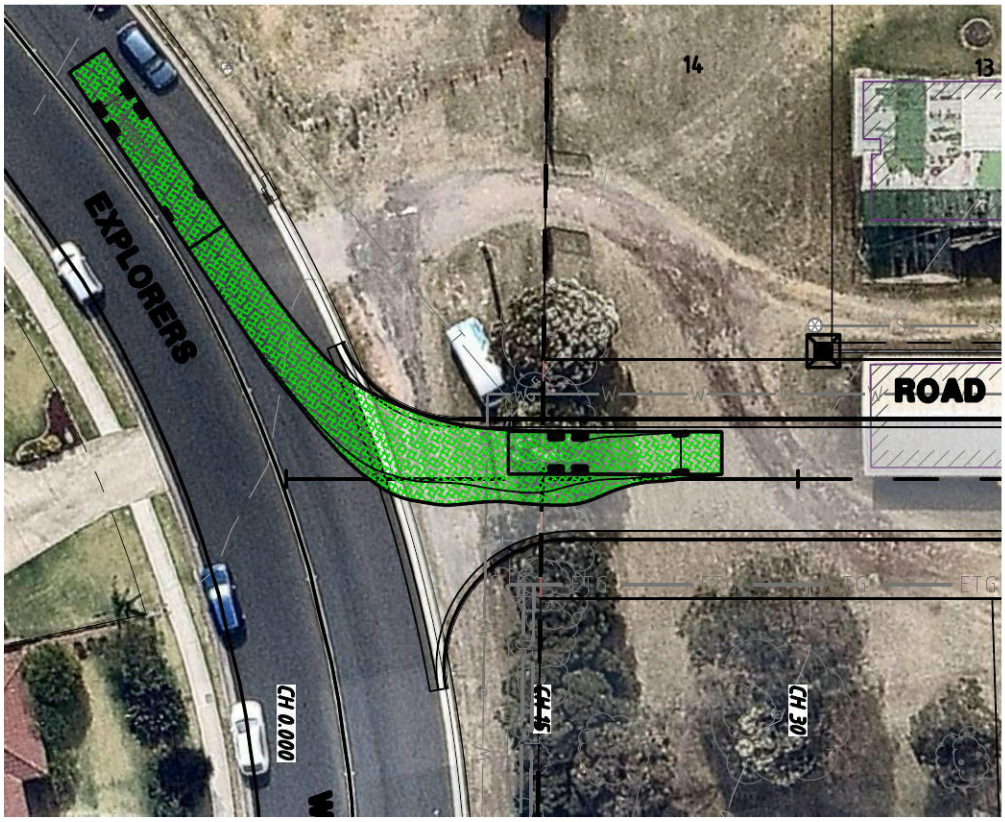

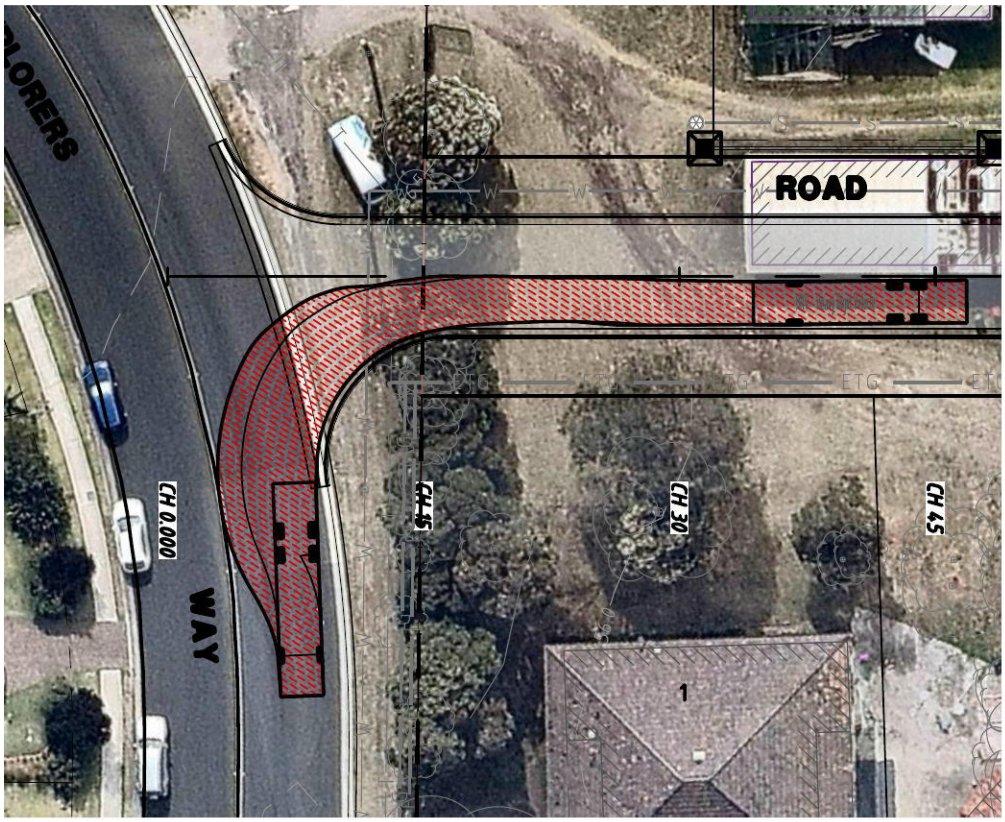

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FIGURE A
SWEPT PATHS

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