APP Corporation Pty Ltd

Preliminary Site Investigation
South Dural Precinct, NSW

13 July 2016

51286/103593 (Rev 0)

JBS&G

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Abbreviations

A list of the common abbreviations used throughout this report is provided below.

Term	Definition
ACM	Asbestos Containing Material
AEC	Area of Environmental Concern
AHD	Australian Height Datum
ASS	Acid Sulfate Soil
AST	Above Ground Storage Tank
BA	Building Application
bgs	Below ground surface
BTEX	Benzene, toluene, ethyl benzene and xylenes
COC	Chain of custody
COPC	Contaminants of potential concern
Council	Hornsby Shire Council
CSM	Conceptual Site Model
DA	Development Application
DCP	Development Control Plan
DEC	NSW Department of Environment and Conservation
DECCW	NSW Department of Environment, Climate Change and Water
DSI	Detailed Site Investigation
EPA	NSW Environment Protection Authority
ha	Hectares
HBMS	Hazardous Building Material Inspection
JBS&G	JBS&G Australia Pty Ltd
m bgs	Metres Below Ground Surface
OEH	NSW Office of Environment and Heritage
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PSI	Preliminary Site Investigation
TRH	Total Recoverable Hydrocarbons
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

Executive Summary

JBS&G Australia Pty Ltd (JBS&G) was engaged by APP Corporation Pty Ltd (APP, the client) to undertake a Preliminary Site Investigation within an area referred to as South Dural, NSW (the site), covering an area approximately 240 hectares within the Hornsby Shire Local Government Area (LGA). The site is bound by Old Northern Road to the north and west and by Hastings and New Line Roads to the south and east. There are over 120 separate properties making up the site.

It is understood that Hornsby Shire Council (Council) has submitted documentation to the Department of Planning & Environment (DP&E) seeking a 'Gateway Determination' in respect of a planning proposal to rezone land in South Dural for urban development. DP&E determined the planning proposal should proceed subject to a number of conditions in the Gateway Determination. One of these conditions requires the completion of a Preliminary (Site) Investigation (PSI) in accordance with State Environmental Planning Policy 55 – Remediation (SEPP 55) requirements.

APP has requested a proposal to complete a PSI in accordance with SEPP 55, to support a planning proposal for rezoning of land within South Dural.

The investigation has been developed in accordance with guidelines made or approved by the NSW Environment Protection Authority (EPA) including the EPA/DUAP (1998) SEPP 55 Planning Guidelines.

The objectives of the PSI are to assess the potential for contamination based on current and historical land use activities, and provide advice on potential resulting development constraints and preliminary recommendations for any further investigations that may be required prior to rezoning and/or future planning decisions for redevelopment.

It is noted that the objective of the investigation was not to determine site suitability, rather to assess potential contamination issues that may preclude the rezoning of the site, specifically, contamination issues that cannot be readily addressed during later Development Application (DA) stages for redevelopment.

The agreed scope of works completed for this assessment comprised:

- A review of available site history and background information to identify potential areas of environmental concern (AECs) and associated contaminants of potential concern (COC), including:
- Review of Section 149 planning certificates provided by Council for a selection of representative properties (5);
- Review of selected historical aerial photographs obtained from the Department of Lands;
- Publicly available heritage records held by the Department of Planning and Council, where readily available;
- Current and historical land title records for a selection of representative properties (10) to gain an understanding of potential land use prior to historical aerial photographic records;
- Records of environmental incidents or former environmental licences as held by the EPA;
- Licensed bores present within a 1.5 km radius of the site available on the online NSW Natural Resources Atlas;
- Review of the environmental setting including a review of the topography, geology and hydrogeology of the site and surrounding areas;
- Inspection of the site, from public pedestrian areas only, to identify potential AECs and confirm desktop findings;

- Development and documentation of a preliminary conceptual site model (CSM) based on the available information;
- Development and documentation of a qualitative risk rating, from a contamination perspective, for each of the AECs identified; and
- Preparation of a PSI report in general accordance with relevant EPA Guidelines to assess the potential for contamination based on current and historical site activities and draw preliminary conclusions regarding the potential contamination status of the site to support the rezoning application.

The site was generally comprised of large rural-residential allotments, with heavily vegetated undeveloped areas along Georges Creek and associated tributaries running south-east through the central and southeast portions toward the junction of Hastings and New Line Roads. Commercial land use was present in the south-western portion, north-western portion, and in areas along the north-eastern boundary.

Based on the findings of this investigation, and subject to the limitations in **Section 7**, the following conclusions are made:

- The site has a long history of agricultural history including orchards, market gardens and general farming.
- Based on information provided by the client, it is understood that the site (which contains 124 plus separate allotments) is proposed to be rezoned to allow more sensitive land uses, including standard residential, high density residential and commercial uses as well as new parks to service the future residents/workforce in the area.
- A site history review and a limited site inspection of accessible areas identified potential for contamination to exist at the site. Qualitative risk assessment resulted in risk levels for the identified AECs and associated COC, as shown in **Table 5.1**. The majority of the site was assessed as being of low to moderate risk of potential contamination.
- Whilst the investigation identified the potential for soil, soil vapour, surface water and groundwater impacts to be present at the site, the investigation did not identify the potential for gross or widespread contamination which may preclude rezoning of the site. Identified potential soil and groundwater impacts are considered representative of common contaminants and potentially contaminating land use activities which can be readily dealt with during the DA stage (i.e. including completion of preliminary and detailed site investigations consistent with relevant Council DCPs and SEPP 55 requirements) for redevelopment and assessment for site suitability.
- In the absence of evidence of gross or widespread contamination that would prevent rezoning, the requirements of the DUAP/EPA (1998) *Managing Land Contamination: Planning Guidelines* for this type of rezoning are considered to have been satisfied, namely that the rezoning can proceed, "provided that measures are in place to the ensure that the potential for contamination and the suitability of the land for any proposed use are assessed once detailed proposals are made" (s.4.1.2 DUAP 1998).

It is recommended that upon submission of development applications (DAs) for redevelopment of any land within the site, preliminary and detailed site investigation be undertaken consistent with the applicable DCP[1], which incorporates SEPP 55 provisions.

[1] Hornsby Development Control Plan 2013

It is also recommended that Hazardous Building Material Surveys (HBMS) be undertaken prior to any demolition and redevelopment works on individual land parcels.

1. Introduction

JBS&G Australia Pty Ltd (JBS&G) was engaged by APP Corporation Pty Ltd (APP, the client) to undertake a Preliminary Site Investigation within an area referred to as South Dural, NSW (the site), covering an area approximately 240 hectares within the Hornsby Local Government Area (LGA).

It is understood that Hornsby Council has submitted documentation to the Department of Planning & Environment (DP&E) seeking a 'Gateway Determination' in respect of a planning proposal to rezone land in South Dural for urban development. DP&E determined the planning proposal should proceed subject to a number of conditions in the Gateway Determination. One of these conditions requires the completion of a Preliminary (Site) Investigation (PSI) in accordance with SEPP 55 requirements.

APP has requested a proposal to complete a PSI in accordance with SEPP 55, to support a planning proposal for rezoning of land within South Dural.

The investigation has been developed in accordance with guidelines made or approved by the NSW Environment Protection Authority (EPA) including the EPA/DUAP (1998) Planning Guidelines for SEPP 55.

1.1 Objectives

The objectives of the PSI are to assess the potential for contamination based on current and historical land use activities, and provide advice on potential resulting development constraints and preliminary recommendations for any further investigations that may be required prior to rezoning and/or future planning decisions for redevelopment.

It is noted that the objective of the investigation was not to determine site suitability, rather to assess potential contamination issues that may preclude the rezoning of the site, specifically, contamination issues that cannot be readily addressed during the DA stages for redevelopment and assessment of site suitability.

1.2 Scope of Work

The agreed scope of works completed for this assessment comprised:

- A review of available site history and background information to identify potential areas of environmental concern (AECs) and associated contaminants of potential concern (COC), including:
- Extracts of Section 149 certificates and building application/development applications (DA/BA) for a selection of representative properties (5) provided by Council;
- Review of selected historical aerial photographs obtained from the Department of Lands;
- Publicly available heritage records held by the Department of Planning and Council, where readily available;
- Current and historical land title records for a selection of representative properties (10) to gain an understanding of potential land use prior to historical aerial photographic records;
- Records of environmental incidents or former environmental licenses as held by the EPA; and
- Licensed bores present within a 1.5 km radius of the site available on the online NSW Natural Resources Atlas.
- Review of the environmental setting including a review of the topography, geology and hydrogeology of the site and surrounding areas;

- Inspection of the site, from public pedestrian pavements only, to identify potential AECs and confirm desktop findings;
- Development and documentation of a conceptual site model (CSM) based on the available information;
- Development and documentation of a qualitative risk rating, from a contamination perspective, for each of the land ownerships properties within the site;
- Preparation of a PSI report in general accordance with relevant EPA Guidelines; and
- To assess the potential for contamination based on current and historical site activities and to draw preliminary conclusions regarding the potential contamination status of the site to support the rezoning application, as per SEPP 55 and where the contamination may be present, the investigation is required to provide a basis for a more detailed investigation.

Given the current project objectives, to support rezoning application, it is not proposed to collect or review the following:

- Records of stored Dangerous Goods held by SafeWork NSW (WorkCover), as written landowner consent is required to obtain such records and it is assumed such consent is not possible for the current investigation; and
- Historical building/development approvals for individual properties, given the preliminary nature of this area-wide investigation.

2. Site Condition and Surrounding Environment

2.1 Site Identification

The site is located south of Dural and is bound by Old Northern Road to the north, west and south, and New Line Road and Hastings Road to the east, as shown on **Figures 1** and **2**. The site occupies an area of approximately 240 ha and comprises 124 allotments.

The location of the site is shown in **Figure 1**, the current site and lot layout is shown in **Figure 2** and individual ownership parcels are shown on **Figure 3** and **4**. The site details are summarised in **Table 2.1** below.

Table 2.1 Summary Site Details

Lot/DP	Provided in **Appendix A** with corresponding locations shown on **Figure 3**
Address	South Dural, NSW, as shown on **Figures 1**, **2** and **3**.
Local Government Authority	Hornsby Shire Council
Approximate MGA Coordinates (MGA 56)	E: 316543.204 N: 6268933.25
Site Zoning	The majority of the site is currently rural residential and zoned as either
Current Use	RU2 Rural Landscape SP2 Infrastructure, or just RU2 Rural Landscape
Previous Use	Agricultural
Proposed Use	Mixed land Uses (infrastructure, retail, commercial, residential and recreational land uses)
Site Area	Approximately 240 ha

2.2 Site Condition

A limited site inspection from publically accessible areas was conducted by Tyler Creese, one of JBS&G's trained and experienced environmental consultants, on 29 February 2016.

The site was generally large rural-residential allotments, with Georges Creek running south-west through central-western portions. Commercial land use was present in the south-western portion, north-western portion, and in areas along the north-eastern boundary.

For the purposes of this assessment, the below site description refers to general portions of the site (i.e. north-western portion etc.). Areas of Environmental Concern (AECs) associated within general site portions are discussed below.

It is noted that two service stations are within close proximity to the site, across Old Northern Road to the north in both the north-western and north eastern corners of the site (**Photograph 1** and **15,** provided in the Photo-log in **Appendix B**).

2.2.1 Northern-Western Portion

The north-western portion of the site primarily comprised rural-residential land, with the exception of commercial land use within the north-western corner.

Market gardens were observed on properties # 1, 2, 8, 9, 28 and 57 (as shown on **Figure 3**), as were uneven ground surfaces, likely indicative of historical market garden presence (**Photograph 22** and **25**).

Several old, large steel sheds were observed on properties along the northern boundary #9, 5, 3, 2) (**Photograph 5** and **13**), and stockpiled soils were observed on properties #9 and 5 (**Photograph 6**). Stored items were noted on ground surfaces, including wooden crates, household materials, vegetation cuttings (property #9), and pallets of bricks (property #5) (**Photograph 6** and **10**).

Apparent filling was observed on property #3, which was used to elevate a parking space (**Photograph 12**).

A grassed stockpile was observed on the northern boundary of property #2, which contained broken materials containing suspected asbestos containing material (ACM) fragments (**Photograph 14**).

Stored wooden telegraph poles were observed on a residential property to the south of Franlee Road (#36).

In addition to market gardens, property #57 contained a large steel shed and areas of suspected filling/stockpiles (**Photograph 23** and **24**).

A small, potentially asbestos, shed was observed on the roadside boundary of property #59 (**Photograph 28**).

A nursery was present on the central-northern boundary (property #4) which contained pebbled surfaces, a wooden house and potted plants (**Photograph 11**).

The north-western boundary primarily comprised commercial land use, although residential blocks were also present. Commercial land use in the portion included a real estate, veterinary clinic, pool store and bed and breakfast (**Photograph 16**). Buildings in the portions appeared to comprise wood and/or brick.

Aside from the potential ACM identified on property #2, no additional suspected ACM was observed on accessible ground surfaces within the north-western portion during the site inspection. Additionally, no surface stains or odours were noted.

The north-western site portion sloped to the general south-east, and was bound by Old Northern Road to the north and west.

2.2.2 North-Eastern Portion

The eastern portion of the site primarily comprised rural-residential land use, although commercial land use was apparent along the north-eastern boundary. Open space land use was also present in the north-eastern corner of the site.

Inconsistent ground surfaces, potentially associated with historical agriculture and/or market garden presence, were observed on several properties within the eastern portion of the site (#47, 48, 49, 51, 66, 67, 54).

A large steel shed, steel storage containers, trucks and trailers were observed on property #46 (**Photograph 49**).

Grassed stockpiles were observed on #52 and #54 (**Photograph 45**).

Sheds suspected of containing ACM were observed on properties #48 and #46 (**Photograph 43**).

Stored items were observed on the ground surface on property #69, including pallets of bricks, plastic tubing, wooden crates and household materials (**Photograph 40**).

Steel storage containers were observed on property #70, as were dumped materials, including bricks, timber and plastic materials (**Photograph 41**).

Although closer inspection was not possible, a shade cloth was observed within vegetation (from the road) on property #68 (**Photograph 42**).

Commercial landuse included two nurseries (#45, 49), a Thai restaurant (#66), two hotels/function centres (#44, 52), and a Holiday Park (#10). Steel storage containers were observed in the western portion of property #52 (**Photograph 46**).

The Holiday Park contained cabins, caravans and vehicles, along with asphalt, gravel and grassed surfaces (**Photograph 51** and **52**). General household items and rubbish bins were noted in areas.

Both nurseries contained pebbled surfaces and rows of potted plants (**Photograph 47**). The southern nursery (#49) contained mulch stockpiles in the central portion of the block (**Photograph 48**).

The north-eastern corner of the site comprised grassed recreational open space (#41), with a childrens play area, asphalt parking areas, a brick Salvation Army building, a wooden building, a steel

shed, skip bins and a caravan (**Photograph 2** to **4**). Areas of suspected filling were evident within this area.

No surface stains, odours or suspected ACM were observed on accessible ground surfaces during the site inspection.

The north-eastern portion sloped to the general west and south-west, although the north-western boundary sloped gently down towards the north.

The north-eastern portion was bound by Old Northern Road to the north and New Line Road to the east.

It is noted that water tanks were present to the south and west of the open space area (#37, 38, 39, 40), as was a hotel/motel (#42), although these were not within the assessment area.

2.2.3 Southern Portion

The southern portion of the site primarily comprised rural-residential land use, although a commercial area was present in the south-western corner of the site.

Steel storage containers, skip bins and soil filled hessian bags were observed on the western boundary of property #75 (**Photograph 29**).

Dumped household items were observed on ground surfaces along south-eastern boundary (properties #103 and105) (**Photograph 37**).

Dumped materials including wooden crates and cardboard were observed on property #87, as were steel storage containers (**Photograph 38** and **39**)

A grassed stockpile was observed on property #100.

The commercial area in the south-western corner (#107) included a large nursery (**Photograph 32**), a spa supplies store (**Photograph 33**) and a car park area. Stored materials were observed in the western portion of #107, including spa materials, steel frames, skip bins and timber. Minor surface stains were visible on an unsealed roadway.

A tree cutting services company was present on property #122 (**Photograph 34**) and a childcare was located on #106 (**Photograph 35**).

An area containing high density residential housing and apparent development was present to the immediate west of the commercial area, although was not part of the investigation area.

No odours or suspected ACM were observed on accessible ground surfaces during the site inspection.

The southern portion of the site slope to the general east and north-east, and was bound by Old Northern Road to the west and south, and Hastings Road to the east.

2.3 Surrounding Land use

The current land use of adjacent properties or properties across adjacent roads at the time of assessment is summarised below.

- North – Residential and commercial land use, including service stations, with rural-residential, agriculture and areas of bushland beyond;
- East – Commercial space, development and residential land use, with areas of bushland and rural-residential beyond;
- South – Residential, commercial open space and areas of bushland; and
- West – Residential, rural-residential and areas of bushland.

The services stations to the north of the site is considered to represent a potential off-site AEC, being hydrogeology up gradient of the site (**Section 2.9**).

2.4 Topography

Review of topographic information obtained from the Spatial Information Exchange Viewer (LPI 2015[2]) regional topographic map indicated that site has a range of elevation from 180m to 200 m Australian Height Datum (AHD), falling/ undulating gently towards the Georges Creek, where the highest point is located at the north and southwest of the site.

2.5 Geology

Reference to the 1:100 000 Geological Series Sheet for Sydney (DMR 1983[3]) indicates that the site is underlain by / in proximity to three geological landscape groups comprising the Bringelly Shale, Ashfield Shale and Hawkesbury Sandstone, all from the Wianamatta Group.

Bringelly Shale, which was formed as an alluvial and estuarine coastal plan (saline) deposit, generally forms the slopes and upper landscape within the site and surrounds and comprises essentially shale, carbonaceous claystone, laminite, fine to medium grained quartz-lithic sandstone, with rare coal and tuff.

Ashfield Shale was sandy and fine grained silty sediment, generally comprises black to dark-grey shale and laminate, and weathering if the shale units would cause poor drainage and considered as less stable and laminated than Hawkesbury Sandstone.

Hawkesbury Sandstone, was also known as Sydney sandstone, comprises of medium to coarse-grained quartz sandstone, very minor shale and laminate lenses, with durable quality and formed as braided alluvial channel fill and bedrock for much of Sydney region.

Reference to the 1:100 000 Soil Landscape Map for Sydney (DMR 1983[4]) indicates that the site is underlain by / in proximity to two soil landscape groups comprising the Lucas Heights Group and the Glenorie Landscape Group.

The Lucas Heights Group deposits (sands, silts and clays) are gently undulating crests and ridge on plateau surfaces of the Mittagong Formation shales and fine-grained sandstones, with moderately deep (50-150cm) hard setting yellow podzolic soils and soloths, yellow earths on outer edges of crests.

Limitations associated with the Lucas Heights Group include stony soil, low soil fertility and low available water capacity.

The Glenorie Landscape Group is generally located on undulating rises on Wianamatta Group Shales with shallow to moderately deep (<100 cm) hard setting mottled texture contrast soils, red and brown podzolic soils on crest and upper slopes, and with yellow podzolic soils on lower slopes and gleyed podzolic soils in drainage lines.

Limitations of the Gelnorie Landscape Group include high soil erosion hazard, localised impermeable highly plastic subsoil and moderately reactive.

As discussed in **Section 2.2**, the site appears to have been subject to cut and fill activities to facilitate the installation of site structures and create existing ground surface levels.

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2 *Spatial Information Exchange Viewer*, NSW Land and Property Information, accessed 08 February 2016, https://maps.six.nsw.gov.au/

3 *Sdyney 1:100 000 Geological Series Sheet 9130 (Edition 1).* Department of Mineral Resources, 1983 (DMR 1983)

4 *Sydney 1:100 000 Soil Landscape Series Sheet 9130.Department of Land and Water Conservation*, 1983

2.6 Acid Sulfate Soils

Review of the Acid sulfate soils database from the Australian Soil Resource Information System[5] indicates that the subject site is located within an area of 'low probability of Acid Sulfate Soils'. Acid sulfate soils (ASS) are expected to occur in low probability in the area having this classification.

2.7 Hydrology

As discussed in **Section 2.2**, the site is largely surfaced with grass cover. As such, surface water generated during periods of rainfall is likely to result in infiltration into surface soils at a rate reflective to the site's geology / lithology (**Section 2.5**). The closest water ways are the onsite Georges Creek, with the Pyes Creek located approximately 3.5 km to the east of the site boundary (New Line Road). In periods of heavy or prolonged rainfall, surface water flows would be anticipated to follow the topographic gradient, generally towards Georges Creek line and its tributaries running north to south through the central portion of the site. For areas closer to the internal or surrounding roadways, water may also flow into the stormwater infrastructure.

2.8 Hydrogeology

Registered groundwater bore information was obtained from the NSW Department of Primary Industries groundwater mapping tools (NSW DPI 2016[6]) (**Appendix C**). A review of the registered bore information indicated that there were four bores within a 1.5 km radius of the site. The registered bore searches are summarised in **Table 2.2**.

Table 2.2 Registered Groundwater Bore Search

Bore ID	Use	Property	Standing Water Level (m bgs)	Well Depth (m)	Distance from Site Boundary
GW105449	Domestic	627 Old Northern Rd, Dural 2158	38.000	202.00	Within site boundary
GW105456	Domestic	19 Wayfield Rd, Glenhaven 2156	56.000	168.50	
GW105602	Domestic	21 Wayfield Rd, Glenhaven 2156	38.000	150.50	
GW104516	Domestic	N/A	34.000	92.00	
GW108519	Domestic	27 Wayfield Rd, Glenhaven 2156	42.000	144.00	
GW106390	Domestic	1 Gilmour Close, Glenhaven 2156	15.500	174.40	0.9km southwest
GW101553	Domestic	5 Gilmour Close, Glenhaven 2156	-	88.50	0.8km west
GW110568	Monitoring Bore	Woolworths Petrol Division, 532 Old Northern Road, Dural 2158	-	6.50	Northwest site boundary
GW110567			-	8.00	
GW108742	Domestic	8 Yuruga Rd, Dural 2158	81.000	186.00	0.7km northwest
GW110307	Monitoring Bore	Shell Company Coles Express, 592-596 Old Northern Road, Dural 2158	4.200	8.00	0.3km northeast
GW110308			2.800	7.00	
GW110309			3.100	10.00	
GW110310			3.200	8.50	
GW106027	Domestic	372 Old Northern Road, Castle Hill	60.000	253.00	0.8km south

[5] Australian Soil Resource Information System, http://www.asris.csiro.au/, Accessed 10 February 2016.

[6] NSW Department of Primary Industries, 2015. Groundwater Monitoring Overview Map. http://allwaterdata.water.nsw.gov.au/water.stm. Accessed 10 February 2016.

Based on the reported geology, topography and depth to groundwater, groundwater migration is expected to towards the Georges Creek Groundwater, which flows across the centre of the site in a north to south direction.

2.9 Meteorology

A review of average climatic data for the nearest Bureau of Meteorology monitoring location (Dural[7]) indicates the site is located within the following meteorological setting:

- Average minimum temperatures vary from 15.8 in July to 27.6 in January;
- Average maximum temperatures vary from 16.9 in July to 30.9 in January;
- The average annual rainfall is approximately 1084 mm; and
- Monthly rainfall varies from 49.4 mm in July to 138.2 mm in February with the wettest periods occurring on average in February, March and April.

[7] http://www.bom.gov.au/climate/averages/tables/cw_066037.shtml. Commonwealth of Australia, 2013 Bureau of Meteorology, Product IDCJCM0028 prepared on 04 February 2016 and accessed by JBS&G on 09 February 2016

3. Site History

3.1 Aerial Photographs

Copies of aerial photographs obtained from NSW Land and Property Information are included in **Appendix D**. Relevant information from the aerial photograph review is summarised below based on a general overview of the site.

- **1955**: The site appeared to primarily comprise agriculture/farming and rural-residential land use. What appeared to be market gardens and orchards were visible in many areas across the site, as were small buildings and structures. Several dams were visible in the southern portion of the site.

  Land use surrounding the site appeared similar to that of the site (i.e. rural/agricultural).

- **1965**: Ground surfaces across many northern site areas appeared to have been altered, with additional market gardens visible. Additional houses/small structures were visible in many areas, generally towards outer perimeters of the site. A dam had been constructed in the north-eastern corner. A building had been built in the current commercial area in the south-western portion. An additional water tank had been built in the north-eastern portion.

  Additional market gardens and buildings/structures were visible in areas surrounding the site. Residential development was visible to the north of site.

- **1975**: Additional residential buildings were visible, primarily across southern site portions. Development had been undertaken in the south-western commercial area.

  The service stations to the north of site appeared to have been constructed. Increased rural-residential development was visible in areas surrounding the site. Vegetated land to the east of site had been cleared in areas, with apparent commercial development undertaken.

- **1982**: Part of the Holiday Park had been developed in the north-eastern portion of the site, and what appeared to be commercial properties had been constructed in the north-western corner. The hotel/motel had been constructed to the immediate north of the Holiday Park, and an additional water tank had been constructed on the northern boundary.

  Areas surrounding the site appeared generally similar to the previous aerial photograph.

- **1991**: Additional commercial development was visible in the south-western corner of the site. The Holiday Park in the north-eastern corner had been expanded. Additional market gardens were visible along the northern boundary of the site.

  Increased commercial development was apparent to the north-east of site. Residential development was visible to the west, south and east of the site.

- **1998**: Several market gardens in the northern portion appeared to have been removed. The northern-most nursery on the eastern boundary was visible.

  Increased residential development was visible to the east and north-west of the site. Commercial development was visible to the north-east of the site.

- **2005**: The site appeared generally similar to the previous aerial photograph, although some vegetation clearing was visible in the central-eastern portion. The southern-most nursery on the eastern boundary was visible.

  Additional commercial development was visible to the east and north-east of the site.

- **2015:** High density residential and development had been constructed in the in south-western portion of the site. Additional buildings were visible in the eastern, southern and western site portions.

Additional development was visible to the east and north-east of the site.

Historical site uses (orchards and market gardens) are summarised on **Figure 4** attached.

3.1.1 Historical Title Review

Historical title documentation was obtained for a selection of properties (10) within the site, as provided in **Appendix E**. Properties were selected based on historical site use and to gain a representative spread of properties across the site. Potentially notable land owners, from a contamination perspective, are summarised below:

Lot Y DP403409 (#2)- 719 to 729 Old Northern Road

Formerly owned by an orchardist, a farmer/grazier, a nurseryman and a market gardener.

Lot 2 DP576771 (#10) – 269 New Line Road

Formerly owned by a pharmacist, a hotel keeper, a market gardener, a farmer, Lachlan Scott Pty Ltd, and a development company. Currently owned by Ina Operations Pty Ltd.

Lot 41 DP711366 (#13) – 7 Franlee Road

Formerly owned by an orchardist, a farmer, a company director and Golden Hope Estate Pty Ltd.

Lot 6 DP231126 (#36) – 4 Franlee Road

Formerly owned by an orchardist, a farmer and a company director. Currently owned by an "Iron Foundry Owner".

Lot B DP411777 (#49) – 249 New Line Road

Formerly owned by an orchardist, a building contractor, a market gardener, a farmer, a railway employee, a green grocer, and Stonelea Enterprises Pty Ltd. Currently owned by Funeth Pty Ltd.

Lot 101 DP105574 (#57) – 647 Old Northern Road

Formerly owned by an orchardist, a company director, Pascal Investments Pty Ltd, Cloudgard No. 135 Pty Ltd, and Australand Holdings Limited.

Lot X DP 394850 (#68) – 237-239 New Line Road

Formerly owned by an orchardist, a carpenter, a farmer and then an orchardist. Currently owned by private title holders.

Lot 2 DP513369 (#70) – 225 to 227 New Line Road

Formerly owned by an orchardist, an electrical engineer, a hire car operator, a taxi propertior, a company director, Cloudgard No. 135 Pty Ltd, and Capcount Development Pty Ltd. Currently owned by Culars No. 201 Pty Ltd.

Lot 23 DP536080 (#92) – 617 Old Northern Road

Formerly owned by Scientific Fur Breeders Pty, a company director, an orchardist, a wool buyer, and a pharmacist.

Lot 14 DP2835 (#122)- 569 Old Northern Road

Formerly owned by an engineer, a medical practitioner, a taxi driver, a dairy farmer, and a company director.

Based on the occupations of the past owners, selected historical land title records indicate that the site has primarily been used for agricultural and rural-residential purposes including orchards and market gardens. More recently, the site inspection identified primary rural-residential use across the site, with market gardens present in areas. Commercial land use was also present at the site, as discussed in **Section 2.2**.

3.2 EPA Records

As the site cut across three suburbs, Dural, Glenhaven and Castle Hill, a search of the NSW EPA's public register maintained under the *Protection of the Environment Operations Act 1997* (POEO Act) for three suburbs was undertaken for the site and surrounding properties. The results of the search are presented in **Appendix F**. The search identified that there were former POEO licenses and clean-up notices at Castle Hill and Dural, yet approximately 5.3km southwest and north respectively to the site. The search also identified a number of POEO licenses which were either active, no longer in force or surrendered and a number of licence variations, while all of them were approximately 5km away from the site. The licences, variation etc. appeared related to the storage of petroleum and / or petroleum products and hazardous industrial or Group A waste generation materials.

A search was also undertaken through the EPAs public contaminated land register (**Appendix F**). The search identified that there have been no notices issued under the *Contaminated Land Management Act 1997* for the site and immediate surrounds.

In addition, a review of the EPA's list of NSW Contaminated Sites Notified to Office of Environment and heritage (OEH) (**Appendix F**) identified that four service stations around the site have been notified to EPA under Section 60 of the *Contaminated Land Management Act 1997* (CLM Act), while three of them were under assessment and one of them did not require any regulations under CLM Act.

3.3 Australian and NSW Heritage Register

A search of the Australian Heritage Trust database and the NSW Heritage Inventory did not reveal any heritage listed items at the site. Heritage information covers Aboriginal as well as European heritage and is included in **Appendix G**.

3.4 Council Records

3.4.1 Section 149 Planning Certificates

Copies of the s149 Planning Certificates were received for a selection (5) of the sites and are included in **Appendix H**. Properties were selected based on historical site use and to gain a representative spread of properties across the site. Relevant information for each of the site is summarised below:

<u>Lot Y DP403409 (#2) - 719 to 729 Old Northern Road</u>

- The Site is Zoned RU2 Rural Landscape SP2 Infrastructure;
- The site does not identify the land as including or comprising critical habitat;
- The land is not within a conservation area;
- No items of environmental heritage are situated on the land;
- The site has not been proclaimed to be a mine subsidence district; and

The site is not affected by land contamination in accordance with section 59(2) of the *Contaminated Land Management Act 1997*.

<u>Lot 5 DP231126 (#11) – 669 Old Northern Road</u>

- The Site is Zoned RU2 Rural Landscape;
- The site does not identify the land as including or comprising critical habitat;
- The land is not within a conservation area;
- No items of environmental heritage are situated on the land;
- The site has not been proclaimed to be a mine subsidence district; and

- The site is not affected by land contamination in accordance with section 59(2) of the *Contaminated Land Management Act 1997*.

Lot X DP394850 (#68) – 237-239 New Line Road

- The Site is Zoned RU2 Rural Landscape SP2 Infrastructure;
- The site does not identify the land as including or comprising critical habitat;
- The land is not within a conservation area;
- No items of environmental heritage are situated on the land;
- The site has not been proclaimed to be a mine subsidence district; and
- The site is not affected by land contamination in accordance with section 59(2) of the *Contaminated Land Management Act 1997*.

Lot 23 DP536080 (#92) – 617 Old Northern Road

- The Site is Zoned RU2 Rural Landscape;
- The site does not identify the land as including or comprising critical habitat;
- The land is not within a conservation area;
- No items of environmental heritage are situated on the land;
- The site has not been proclaimed to be a mine subsidence district; and
- The site is not affected by land contamination in accordance with section 59(2) of the *Contaminated Land Management Act 1997*.

CP SP 53966 (#123) – 691-693 Old Northern Road

- The Site is Zones RU2 Rural Landscape;
- The site does not identify the land as including or comprising critical habitat;
- The land is not within a conservation area;
- No items of environmental heritage are situated on the land;
- The site has not been proclaimed to be a mine subsidence district; and
- The site is not affected by land contamination in accordance with section 59(2) of the *Contaminated Land Management Act 1997*.

3.5 Integrity Assessment and Summary of Site History

It is considered that the site has been used for a range of rural residential, industrial and agricultural land uses. Based on the range of sources and the general consistency of the historical information, it is considered that the historical assessment has an acceptable level of accuracy with respect to the potentially contaminating activities historically occurring at the site.

4. Conceptual Site Model

4.1 Potential Areas of Environmental Concern and Data Gaps

Based on the site history review and observations of site conditions during the detailed site inspection, AECs and associated COPC have been identified and are presented in **Table 4.1**.

Table 4.1: Areas of Environmental Concern and Contaminants of Potential Concern

Area of Environmental Concern (AEC)	Contaminants of Concern (COC)
1. Fill materials/stockpiles of unknown origin within the majority of properties across the site	Heavy metals, polycyclic aromatic hydrocarbons (PAHs), total recoverable hydrocarbons (TRH) / benzene, toluene, ethylbenzene and xylenes (BTEX), organochlorine pesticides (OCPs) / polychlorinated biphenyls (PCB) and asbestos
2. Areas of historical agricultural activities and market gardens	OCP, OPP (organophosphate pesticides)
3. Historical site buildings/structures	Asbestos and lead
4. Storage sheds and yards with potential for leaks and spills from vehicles and machinery	Heavy metals, TRH/BTEX, PAH
5. Stored/dumped items and materials	Heavy metals, TRH/BTEX, PAH, OCP, PCB, asbestos.
6. Offsite service stations (upgradient)	TRH/BTEX, PAH, lead, phenols
7. Commercial nurseries	Heavy metals, TRH/BTEX, PAH, OCP, PCB, asbestos.

4.2 Potentially Contaminated Media

Each of the AECs and corresponding COPCs identified in **Table 4.1** have the potential to impact soil (fill and natural), groundwater and soil/or soil vapour underlying the site.

With the exception of potential impacts from the offsite service stations, the greatest potential for impact within the site is anticipated to be in surface or shallow soils as a consequence of the primarily surficial historical activities/uses. If impact is found in surface soils, there is the potential for some COPC to have leached / migrated deeper into the soil profile. It is noted that the relatively impermeable nature of the clay soils at the site may limit vertical contaminant migration.

Where fill materials are present to depth, or soils have been disturbed, there is a likelihood that environmental impact may be present at depth in the soil profile, consistent with the depth of the disturbance. Anthropogenic materials are commonly present in impacted fill materials and can be used as an indication of the depth of disturbance.

Soil vapours are only associated with volatile COPC such as hydrocarbons from underground storage tanks (USTs) or the up gradient Service Stations. In the vicinity of any potential USTs the potential for soil vapour impact must therefore be considered.

Based on the suspected depth of groundwater at > 4 mbgs, and the relatively impermeable nature of the natural silty clay across the area, the likelihood of groundwater contamination on site is considered to be relativity low. However, in the vicinity of any potential USTs the potential for groundwater impact must be considered.

The potential for surface water on the site to be an impacted media must be considered due to the location of onsite creeks and potential dams. As the main contaminants of concern are generally low in solubility (asbestos and heavy metals), and the distance of site structures and historical market gardens and orchards were not located directly adjacent the creek line, the likely impact of surface waters is low.

4.3 Potential for Migration from Site

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

- The nature of the contaminants (solid/liquid and mobility characteristics);

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

The potential contaminants of concern identified as part of the site history review and site inspection are in solid (e.g. asbestos, metals) and liquid (e.g. TRH, PAH).

The ground surface of the site is predominantly vegetated or covered with site structures. As such, there is a low potential for windblown contaminants to migrate from the site.

Where fill materials impacted with chemical based contaminants are identified, there is the potential for the impact to migrate laterally and vertically below the fill material. As noted for surface sources, migration of impact would be anticipated to be restricted by the clayey nature of natural soils on the site.

As the site is primarily unsealed with only minor hardstand areas, the potential for contaminants to migrate via surface water runoff from the site is likely restricted to immediate boundary areas, or portions surrounding Georges Creek.

There is the potential for migration of contamination via groundwater movement, should contamination extend to the depth of the groundwater

4.4 Potential Human and Ecological Receptors

Potential human receptors of environmental impact include development workers engaged to work at the site, and future site occupants, who may potentially be exposed to COPCs in contaminated media.

On-site ecological receptors include flora and fauna present at the site, and Georges Creek. Potential off-site ecological receptors include waters down-gradient of Georges Creek, and down-gradient receptors of site groundwater.

4.5 Potential and Complete Exposure Pathways

Future human receptors on the site could be potentially exposed to soil contaminants by oral, dermal and inhalation pathways. Direct contact pathways (oral and dermal) will only be relevant for near surface soils in unpaved areas of the site for most site users. However, potential construction and future intrusive / excavation worker exposures could occur for deeper soils. Inhalation pathways will only be relevant where asbestos, volatile or semi-volatile COPC are present.

5. Preliminary Assessment of Risk

This section provides a preliminary assessment of the potential for contamination at the site to pose a risk of harm to human health and/or the environment, with respect to current and future land uses and the project objectives. The qualitative risk assessment provided in **Table 5.1** below has been based on the findings of the current preliminary investigation and guidance presented in enHealth (2012) *Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards* and AS/NZS ISO 3100: *2009 Risk Management Principles and Guidelines* (AS/NZS 2009).

To assess potential risk levels, consideration has also been given to the following:

- Potential land uses activities which may result in land contamination, as outlined in SEPP 55; and
- The proposed rezoning land uses.

Table 5.1 below presents a preliminary assessment of risk and qualitative risk ranking based on the findings of the PSI using the aforementioned methodology.

Table 5.1 Summary of Potential Contamination Risk Rating

Area of Environmental Concern (AEC)	Risk Level	Basis for Risk Level
1. Fill materials/stockpiles of unknown origin	Low to Moderate Risk	A Low to Moderate Risk rating has been applied to possible fill material at the site based on common contaminant issues associated with the importation of fill materials, although noting that preliminary investigation did not identify evidence of widespread filling.
2. Areas of historical intensive agricultural activities and market gardens- pesticides and herbicides	Moderate risk	A Moderate risk rating has been assigned due to the historical review identifying the potential for historical application of pesticides associated with widespread intensive agricultural land use (orchards and market gardens) across the site.
3. Historical site buildings/structures	Low to moderate risk	A Low to Moderate risk rating has been applied to surface soils in the vicinity of former building structures based on the potential for hazardous materials to be located within the existing and former building structures which may have impacted surface soils at the site.
4. Storage sheds and yards with potential for leaks and spills from vehicles and machinery	Moderate risk	A Moderate Risk rating has been applied to fill material and shallow natural materials in the vicinity of existing or former structures used for storage of materials including chemicals/fuels and potentially for maintenance of equipment or vehicles. This is based on the potential leakage/and or spillage or contaminating products from storage drums or vehicles.
5. Stored/dumped items and materials	Moderate risk	A Moderate Risk rating has been applied to burial pits, mounds and potential stockpiles of dumped materials. This is based on common contaminant issues associated with dumped/buried materials, including asbestos, animal carcasses and other wastes.
6. Offsite service stations (upgradient)	Low risk	A low risk rating has been applied to the soil and groundwater downgradient to the service stations located to the north of the site. This is based on the distance (across the road) and the low permeability of the clay soils underlying the site.
7. Commercial nurseries	Moderate Risk	A Moderate Risk rating has been applied to the current and former commercial nursery areas around the site. This is based on the common use of herbicides and pesticides on nursery sites.

Whilst the desktop review (**Table 5.1**) and subsequent qualitative risk assessment (**Table 5.1**) identified potential for soil and groundwater impacts to be present at and underlying the site, the assessment did not identify evidence of gross or widespread contamination which may preclude rezoning of the site.

Identified potential soil and groundwater impacts are considered representative of common contaminants and contaminating land use activities which can be readily addressed during the DA stages (i.e. including completion of preliminary and detailed site investigations consistent with relevant Council Development Control Plans (DCPs) and SEPP 55 requirements) for redevelopment within the site.

6. Conclusions and Recommendations

6.1 Conclusions

Based on the findings of this investigation, and subject to the limitations in **Section 7**, the following conclusions are made:

- The site has a long history of agricultural history including orchards, market gardens and general farming.
- Based on information provided by the client, it is understood that the site (which contains 124 plus separate allotments) is proposed to be rezoned to allow more sensitive land uses, including standard residential, high density residential and commercial uses as well as new parks to service the future residents/workforce in the area.
- A site history review and a limited site inspection of accessible areas identified potential for contamination to exist at the site. Qualitative risk assessment resulted in risk levels for the identified AECs and associated COC, as shown in **Table 5.1**. The majority of the site was assessed as being of low to moderate risk of potential contamination.
- Whilst the investigation identified the potential for soil, soil vapour, surface water and groundwater impacts to be present at the site, the investigation did not identify the potential for gross or widespread contamination which may preclude rezoning of the site. Identified potential soil and groundwater impacts are considered representative of common contaminants and potentially contaminating land use activities which can be readily dealt with during the DA stage (i.e. including completion of preliminary and detailed site investigations consistent with relevant Council DCPs and SEPP 55 requirements) for redevelopment and assessment for site suitability.
- In the absence of evidence of gross or widespread contamination that would prevent rezoning, the requirements of the DUAP/EPA (1998) *Managing Land Contamination: Planning Guidelines* for this type of rezoning are considered to have been satisfied, namely that the rezoning can proceed, "provided that measures are in place to the ensure that the potential for contamination and the suitability of the land for any proposed use are assessed once detailed proposals are made" (s.4.1.2 DUAP 1998).

6.2 Recommendations

It is recommended that upon submission of development applications (DAs) for redevelopment of any land within the site, preliminary and detailed site investigation be undertaken consistent with the applicable DCP[8], which incorporates SEPP 55 provisions.

It is also recommended that Hazardous Building Material Surveys (HBMS) be undertaken prior to any demolition and redevelopment works on individual land parcels.

[8] Hornsby Development Control Plan 2013

7. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

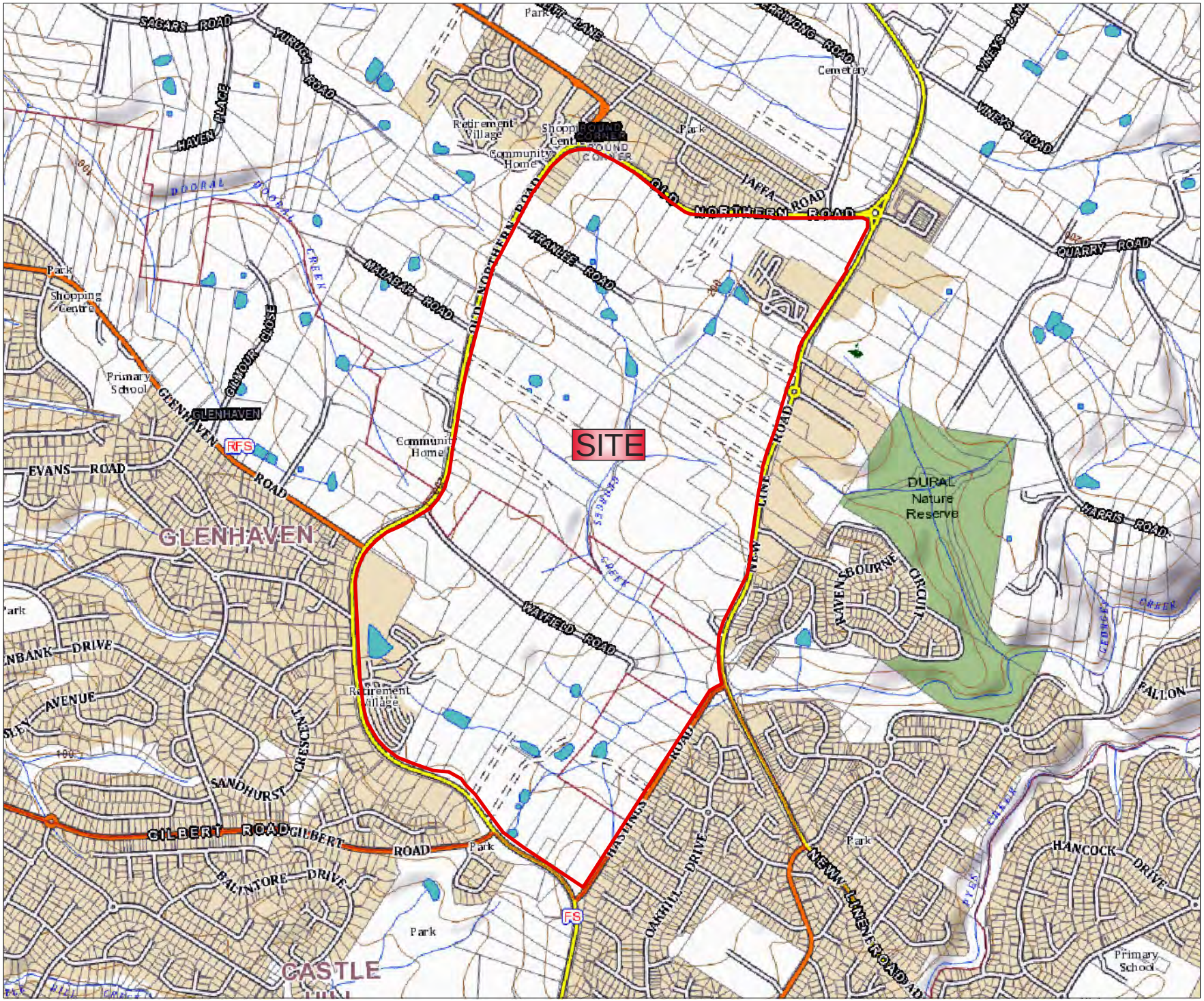
Assessment of potential environmental issues reported herein is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are considered appropriate based on the regulatory requirements.

No sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Further AECs and COPCs may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the site conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

Figures



Legend:

Approximate Site Boundary

JBS&G

Job No: 51286

Client: APP Corporation

Version: R01 Rev A	Date: 12-Feb-2016
Drawn By: SE	Checked By: KY

Scale 1:17,500

0 200 400

metres

Coor. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

SITE LOCATION

FIGURE 1

File Name: 51286_01
Reference: SIX Maps www.maps.six.nsw.gov.au, accessed 12-02-2016

Legend:

Approximate Site Boundary

JBS&G

Job No: 51286

Client: APP Corporation

Version: R01 Rev A	Date: 12-Feb-2016
Drawn By: SE	Checked By: KY

Scale 1:14,000

0 200 400

metres

Coor. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

SITE LAYOUT

FIGURE 2

File Name: 51286_02
Reference: Near Map www.nearmap.com, imagery date 06-12-2015, accessed 12-02-2016

File Name: 51286_03
Reference: Client Supplied

JBS&G

Job No: 51286

Client: APP Corporation

Version: R01 Rev A	Date: 12-Apr-2016
Drawn By: SE	Checked By: KL

Scale Approximate

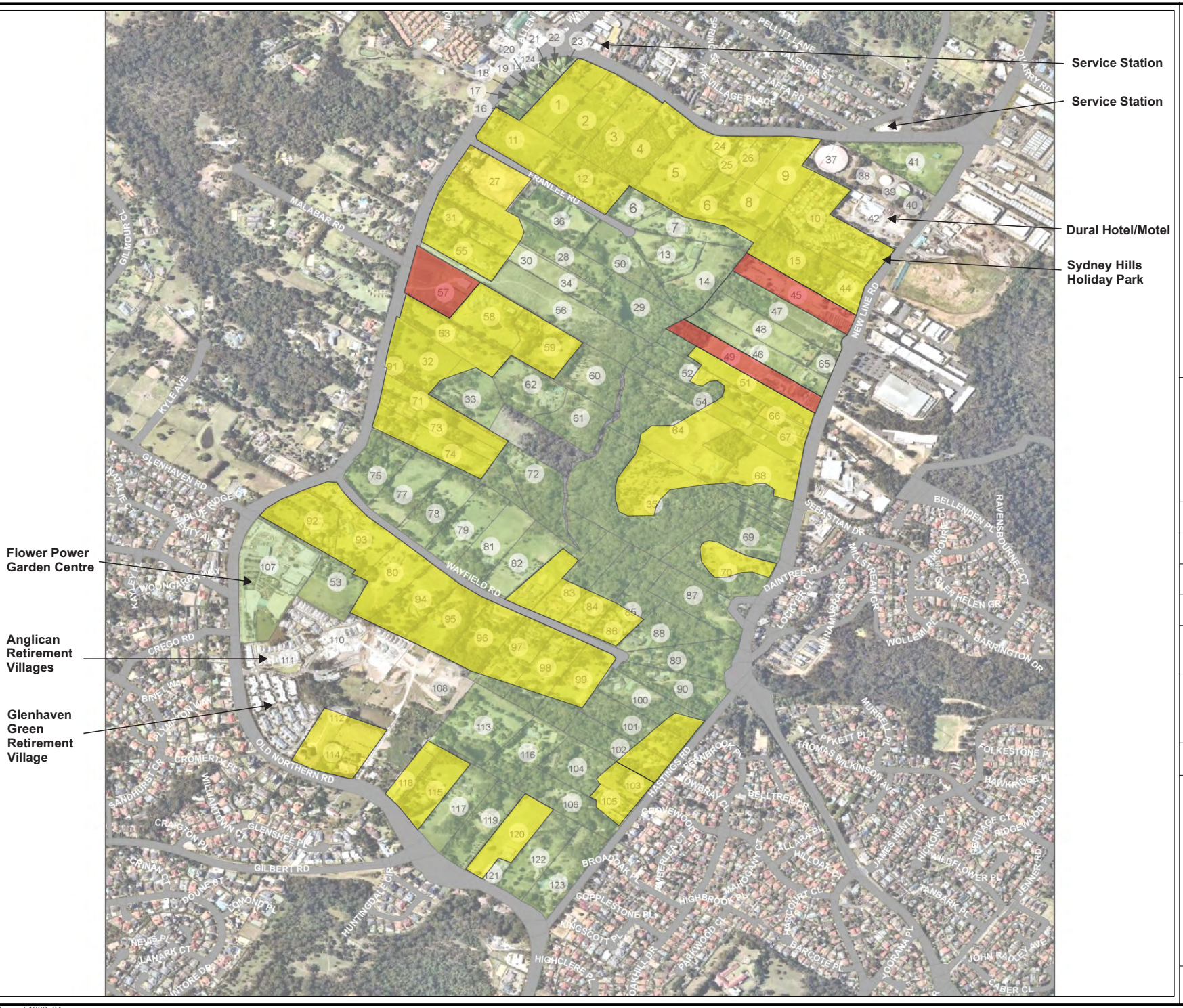
0 200 400
metres

Coord. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

SITE LAYOUT AND CURRENT OWNERSHIP PARCELS

FIGURE 3



Legend:

- Former Market Gardens / Orchards
- Existing Market Gardens

JBS&G

Job No: 51286	
Client: APP Corporation	
Version: R01 Rev A	Date: 14-Apr-2016
Drawn By: SE	Checked By: KL

Scale Approximate

0 200 400

metres

Coord. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

SITE LAYOUT AND AREAS OF ENVIRONMENTAL CONCERN

FIGURE 4

File Name: 51286_04
Reference: Client Supplied

Appendix A South Dural Land Register

Appendix A: South Dural Land Register

Property #	Address	Lot/DP	Area (ha)	Comment
1	705-717 OLD NORTHERN RD, DURAL 2158	X/403409	2.025	-
2	719-729 OLD NORTHERN RD, DURAL 2158	Y/403409	2.216	-
3	731-743 OLD NORTHERN ROAD, DURAL 2158	E/388489	2.025	-
4	745-757 OLD NORTHERN ROAD, DURAL 2158	D/388489	2.024	-
5	759-773 OLD NORTHERN RD, DURAL 2158	2/233902	2.897	-
6	787 OLD NORTHERN RD, DURAL 2158	101/739676	2.101	-
7	5A FRANLEE RD, DURAL 2158	102/739676	2.005	-
8	795-803 OLD NORTHERN RD, DURAL 2158	X/399017	2.023	-
9	805-821 OLD NORTHERN RD, DURAL 2158	3/576771	1.613	-
10	269 NEW LINE ROAD, DURAL 2158	2/576771	4.23	Sydney Hills Holiday Park
11	669 OLD NORTHERN RD, DURAL 2158	1/231126	2.02	-
12	3 FRANLEE ROAD, DURAL 2158	2/231126	2.023	-
13	7 FRANLEE RD, DURAL 2158	41/711366	1.707	-
14	8 FRANLEE RD, DURAL 2158	42/711366	2.005	-
15	263 NEW LINE ROAD, DURAL 2158	2/213675	2.028	-
16	671-673 OLD NORTHERN RD, DURAL 2158	1/393694	0.2107	-
17	675-677 OLD NORTHERN RD, DURAL 2158	2/393694	0.1752	-
18	679-681 OLD NORTHERN RD, DURAL 2158	3/395437	0.1715	-
19	683-685 OLD NORTHERN RD, DURAL 2158	1/120004	0.1704	-
20	687-689 OLD NORTHERN RD, DURAL 2158	6/404204	0.0898	-
21	695 OLD NORTHERN RD, DURAL 2158	3/210442	0.1151	Century 21 Real Estate Agency
22	697 OLD NORTHERN RD, DURAL 2158	2/210442	0.076	-
23	699-703 OLD NORTHERN RD, DURAL 2158	1/210442	0.16	-
24	775 OLD NORTHERN RD, DURAL 2158	1/233902	0.3699	-
25	777-783 OLD NORTHERN RD, DURAL 2158	1/506677	0.4055	-
26	785 OLD NORTHERN RD, DURAL 2158	2/561213	0.3134	-
27	667 OLD NORTHERN RD, DURAL 2158	1/231126	2.02	-
28	665 OLD NORTHERN RD, DURAL 2158	B/158479	2.95	-
29	663A OLD NORTHERN RD, DURAL 2158	3/550819	2.55	-
30	661 OLD NORTHERN RD, DURAL 2158	1/550819	0.54	-
31	639 OLD NORTHERN RD, DURAL 2158	11/243960	1.96	-
32	637 OLD NORTHERN RD, DURAL 2158	10/243960	0.1856	-
33	635 OLD NORTHERN RD, DURAL 2158	12/243960	2.02	-
34	633 OLD NORTHERN RD, DURAL 2158	13/243960	2	-
35	231-233 NEW LINE ROAD, DURAL 2158	B/389094	8.8	-
36	4 FRANLEE ROAD, DURAL 2158	6/231126	2.023	-
37	275 NEW LINE ROAD, DURAL 2158	1/1031660	0.139	Sydney Water site not inspected
38	275 NEW LINE ROAD, DURAL 2158	1/576771	0	The Metropilitan Water Sewerage and Drainage Board site not inspected
39	275 NEW LINE ROAD, DURAL 2158	1/337892	2.63	
40	275 NEW LINE ROAD, DURAL 2158	A/419727	0	
41	277 NEW LINE ROAD, DURAL 2158	1/714036	2.43	Salvation Army site
42	271 NEW LINE ROAD, DURAL 2158	2/576771	1.96	Dural Hotel
43	267 NEW LINE RD, DURAL 2158	11/559333	0.267	-
44	265 NEW LINE RD, DURAL 2158	1/213675	0.8049	-
45	261 NEW LINE ROAD, DURAL 2158	B/386942	1.99	-
46	251 NEW LINE ROAD, DURAL 215	A/411777	2.02	-
47	257-259 NEW LINE ROAD, DURAL 2158	10/1049241	2.35	-
48	255 NEW LINE ROAD, DURAL 2158	2/583870	2.023	-
49	249 NEW LINE ROAD, DURAL 2158	B/411777	2.028	-
50	6 FRANLEE ROAD, DURAL 2158	5/231126	2.023	-
51	247 NEW LINE ROAD, DURAL 2158	C/411777	2.034	-
52	245 NEW LINE RD, DURAL 2158	3/533955	2.181	-
53	613 OLD NORTHERN ROAD, GLENHAVEN 2156	1/581218	2.089	-
54	241 NEW LINE ROAD, DURAL 2158	1/654921	2.018	-
55	659 OLD NORTHERN RD, DURAL 2158	659/1128268	1.66	-
56	655-657 OLD NORTHERN RD, DURAL 2158	655/574277	4.08	-
57	647 OLD NORTHERN ROAD, DURAL 2158	101/1055742	2.075	-
58	649 OLD NORTHERN RD, DURAL 2158	102/1055742	2	-
59	651 OLD NORTHERN RD, DURAL 2158	103/1055742	2	-
60	653 OLD NORTHERN RD, DURAL 2158	104/1055742	1.722	-
61	645 OLD NORTHERN RD, DURAL 2158	116/1057373	1.835	-
62	643 OLD NORTHERN RD DURAL 2158	115/1057373	2.075	-
63	641 OLD NORTHERN RD, DURAL 2158	14/243960	2.0235	-
64	235 NEW LINE ROAD, DURAL 2158	1/650455	5.42	-
65	253 NEW LINE ROAD, DURAL 2158	1/583870	0.4029	-
66	243 NEW LINE RD, DURAL 2158	1/553955	0.4047	-
67	243A NEW LINE RD, DURAL 2158	2/553955	0.4048	-

Appendix A: South Dural Land Register

Property #	Address	Lot/DP	Area (ha)	Comment
68	237-239 NEW LINE RD, DURAL 2158	X/394850	3.13	-
69	229 NEW LINE RD, DURAL 2158	1/513369	1.756	-
70	225-227 NEW LINE RD,DURAL NSW 2158	2/513369	3.153	-
71	629 OLD NORTHERN RD, DURAL 2158	1/525426	1.218	-
72	631 OLD NORTHERN RD, DURAL 2158	2/525426	2.448	-
73	627 OLD NORTHERN ROAD, DURAL 2158	1/131330	2.01	-
74	623-625 OLD NORTHERN RD,DURAL 21	2/382020	2.193	-
75	1 WAYFIELD RD, GLENHAVEN 2156	18/234146	1.777	-
76	619-621 OLD NORTHERN RD, DURAL 2158	1/391073	0.1435	-
77	3 WAYFIELD RD, GLENHAVEN 2156	1/234146	2.02	-
78	5 WAYFIELD RD, GLENHAVEN 2156	2/234146	2.02	-
79	7 WAYFIELD RD, GLENHAVEN 2156	3/234146	2.02	-
80	6 WAYFIELD RD, GLENHAVEN 2156	19/234147	2.02	-
81	9 WAYFIELD RD, GLENHAVEN 2156	4/234146	2.02	-
82	11 WAYFIELD RD, GLENHAVEN 2156	5/234146	2.02	-
83	15 WAYFIELD RD, GLENHAVEN 2156	6/234146	2.05	-
84	17 WAYFIELD RD, GLENHAVEN 2156	7/234146	2.02	-
85	19 WAYFIELD RD, GLENHAVEN 2156	8/234146	2.02	-
86	21 WAYFIELD RD, GLENHAVEN 2156	9/234146	2.02	-
87	223 NEW LINE RD, DURAL 2158	10/234146	2.02	-
88	23 WAYFIELD RD, GLENHAVEN 2156	11/234146	2.02	-
89	25 WAYFIELD RD, GLENHAVEN 2156	12/234146	2.02	-
90	27 WAYFIELD RD, GLENHAVEN 2156	13/234146	2.02	-
91	615 OLD NORTHERN RD, GLENHAVEN 2156	22/234147	2.03	-
92	617 OLD NORTHERN ROAD, GLENHAVEN 2156	23/536080	2.434	-
93	16 WAYFIELD RD, GLENHAVEN 2156	20/234147	2.02	-
94	8 WAYFIELD RD, GLENHAVEN 2156	18/234147	2.02	-
95	10 WAYFIELD RD, GLENHAVEN 2156	17/234147	2.02	-
96	12 WAYFIELD RD, GLENHAVEN 2156	16/234146	2.02	-
97	14 WAYFIELD RD, GLENHAVEN 2156	15/234146	2.02	-
98	16 WAYFIELD RD, GLENHAVEN 2156	14/234146	2.02	-
99	67-73 HASTINGS RD, CASTLE HILL 2154	C/402602	2.02	-
100	59-65 HASTINGS RD, CASTLE HILL 2154	B/402602	2.02	-
101	51-57 HASTINGS RD, CASTLE HILL 2154	A/402602	1.94	-
102	45-49 HASTINGS RD, CASTLE HILL 2154	3/504894	0.4047	-
103	43 HASTINGS RD, CASTLE HILL 2154	2/584233	0.1686	-
104	39-41 HASTINGS RD, CASTLE HILL 2154	1/584233	0.4766	-
105	33-37 HASTINGS RD, CASTLE HILL 2154	B/349972	2.13	-
106	609 OLD NORTHERN RD, GLENHAVEN 2156	476/752053	4.6	-
107	599-607 OLD NORTHERN RD, GLENHAVEN 2156	2/1123753	2.1	Flower Power Garden Centre/Anglican Retirement Village site not inspected
108	593 OLD NORTHERN RD, GLENHAVEN 2156	1/135398	3.57	Anglican Retirement Village site not inspected
109	589-591 OLD NORTHERN RD, GLENHAVEN 2156	2/225754	4.1	
110	589-591 OLD NORTHERN RD, GLENHAVEN 2156	3/225754	0	
111	597 OLD NORTHERN RD, GLENHAVEN 2156	1/135398	1.99	-
112	583 OLD NORTHERN RD, GLENHAVEN 2156	3/568710	3.36	-
113	595 OLD NORTHERN RD, GLENHAVEN 2156	5/135397	0.3672	-
114	579 OLD NORTHERN RD, GLENHAVEN 2156	4/568710	2.18	-
115	581 OLD NORTHERN RD, GLENHAVEN 2156	9/654810	1.74	-
116	577 OLD NORTHERN RD, GLENHAVEN 2156	10/654920	1.98	-
117	585-587 OLD NORTHERN RD, GLENHAVEN 2156	1/129790	0.5975	-
118	575 OLD NORTHERN RD, GLENHAVEN 2156	103/558539	2.07	-
119	573A OLD NORTHERN RD, GLENHAVEN 2156	102/558539	2.02	-
120	573 OLD NORTHERN RD, GLENHAVEN 2156	101/558539	0.2631	-
121	571 OLD NORTHERN RD, GLENHAVEN 2156	1/1093241	2.11	-
122	569 OLD NORTHERN RD, GLENHAVEN 2156	14/2835	2.14	-
123	691-693 OLD NORTHERN ROAD, DURAL 2158	Strata Plan 53	0.3132	-
124	663 OLD NORTHERN RD, DURAL 2158	2/550819	2.06	-

Appendix B Photographic Log

PHOTOGRAPH 1 – SERVICE STATION ADJACENT TO #41

PHOTOGRAPH 2 – FILL MATERIAL AT #41

PHOTOGRAPH 3 – STEEL SHED AT #41

PHOTOGRAPH – FILL MATERIAL AT #41

JBS&G

Job No: 51286	
Client: APP Corporation	
Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB
Not to Scale	
Coord. Sys n/a	

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 5 – STEEL SHED AT #9

PHOTOGRAPH 6 – STORED ITEMS/STOCKPILE AT #9

PHOTOGRAPH 7 - #9 LOOKING SOUTH-WEST

PHOTOGRAPH 8 - #5 LOOKING SOUTH-WEST

JBS&G

Job No: 51286

Client: APP Corporation

Version: Rev A | Date: 03/03/2016

Drawn By: TC | Checked By: MB

Not to Scale

Coord. Sys n/a

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 9 – STOCKPILE ON #5

PHOTOGRAPH 10 - BRICKS ON #5

PHOTOGRAPH 11 – NURSERY ON #3

PHOTOGRAPH 12 – FILL AND SHED ON #2

JBS&G

Job No: 51286	
Client: APP Corporation	
Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB
Not to Scale	
Coord. Sys n/a	

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 13 - STEEL SHED ON #2

PHOTOGRAPH 14 – MATERIALS INCLUDING SUSPECTED ACM ON #2

PHOTOGRAPH 15 – SERVICE STATION ADJACENT TO #1

PHOTOGRAPH 16 – NORTH-WESTERN CORNER OF SITE

JBS&G

Job No: 51286

Client: APP Corporation

Version: Rev A | Date: 03/03/2016

Drawn By: TC | Checked By: MB

Not to Scale

Coord. Sys n/a

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 17 - WESTERN END OF FRANLEE RD

PHOTOGRAPH 18 – VEGETATION ON #50

PHOTOGRAPH 19 – GATED PROPERTY ON #13

PHOTOGRAPH 20 - #36 LOOKING SOUTH-WEST

JBS&G

Job No: 51286

Client: APP Corporation

Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB

Not to Scale

Coord. Sys n/a

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 21 – WESTERN BOUNDARY OF #31 LOOKING SOUTH

PHOTOGRAPH 22 – MARKET GARDENS ON #57

PHOTOGRAPH 23 – SHED ON #57

PHOTOGRAPH 24 – STOCKPILE ON #57

JBS&G

Job No: 51286

Client: APP Corporation

Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB

Not to Scale

Coord. Sys n/a

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 25 – MARKET GARDENS ON #57

PHOTOGRAPH 26 – SHEDS ON #58

PHOTOGRAPH 27 – DAM ON #62

PHOTOGRAPH 28 – SHED ON #59

JBS&G

Job No: 51286

Client: APP Corporation

Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB

Not to Scale

Coord. Sys n/a

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 29 – CONTAINERS ON #75

PHOTOGRAPH 30 – EASTERN END OF WAYFIELD RD

PHOTOGRAPH 31 - #80 LOOKING SOUTH

PHOTOGRAPH 32 – LANDSCAPE SUPPLIES STORE ON #107

JBS&G

Job No: 51286	
Client: APP Corporation	
Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB
Not to Scale	
Coord. Sys n/a	

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 33 – STORED SPA SUPPLIES ON #107

PHOTOGRAPH 34 – TREE CUTTING SERVICES ON #122

PHOTOGRAPH 35 – RETAINING WALL AT #106

PHOTOGRAPH 36 – HOUSE ON #105

JBS&G

Job No: 51286	
Client: APP Corporation	
Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB
Not to Scale	
Coord. Sys n/a	

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 37 – ITEMS OUT THE FRONT OF #105

PHOTOGRAPH 38 – STORED ITEMS ON #87

PHOTOGRAPH 39 – CONTAINER ON #87

PHOTOGRAPH 40 – ITEMS ON #69

JBS&G

Job No: 51286	
Client: APP Corporation	
Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB
Not to Scale	
Coord. Sys n/a	

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 41 – MATERIALS AND CONTAINERS ON #70

PHOTOGRAPH 42 – SHADE CLOTH ON #68

PHOTOGRAPH 43 – SHED AND HOUSE ON #67

PHOTOGRAPH 44 - #66 LOOKING WEST

JBS&G

Job No: 51286	
Client: APP Corporation	
Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB
Not to Scale	
Coord. Sys n/a	

South Dural Rezoning

APPENDIX A - PHOTOLOG

PHOTOGRAPH 45 - STOCKPILE ON #52

PHOTOGRAPH 46 – CONTAINER ON #52

PHOTOGRAPH 47 – NURSERY ON #49

PHOTOGRAPH 48 – NURSERY ON #49

JBS&G

Job No: 51286	
Client: APP Corporation	
Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB
Not to Scale	
Coord. Sys n/a	
South Dural Rezoning	
APPENDIX A - PHOTOLOG	

PHOTOGRAPH 49 - SHEDS ON #46

PHOTOGRAPH 50 – NURSERY ON #45

PHOTOGRAPH 51 – HOLIDAY PARK ON #10

PHOTOGRAPH 52 – HOLIDAY PARK ON #10

JBS&G

Job No: 51286	
Client: APP Corporation	
Version: Rev A	Date: 03/03/2016
Drawn By: TC	Checked By: MB
Not to Scale	
Coord. Sys n/a	

South Dural Rezoning

APPENDIX A - PHOTOLOG

Appendix C Bore Search

data

allwaterdata.water.nsw.gov.au/water.stm

epartment of
rimary Industries
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About us | Water Management | Water Licensing | Urban Water | Real-time data

· login

water

site ID

orthern road, Dural

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ndwater Map

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d metadata

All Groundwater

All Groundwater Map

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go back to referring pag

All data times are Eastern Standard Time

Map | Info

Groundwater Bores
- Groundwater works
- Telemetered bores
- Logged bores
- Manual bores

Monitoring Bore Types
- Alluvial
- Coastal Sands
- Fractured Rock
- Porous Rock
- Great Artesian Basin
- Discontinued

choose a location

Satellite | Terrain | Map | Hybrid

Groundwater Works | Monitoring Bores | Telemetered Bores | Coal Basin Bores | Discontinued Bores

Dural | Glenhaven | Cherrybrook | Westleigh | Dural Nature Reserve | Fullers Road Reserve

Scale = 1 : 27K

Map data ©2016 Google Terms of Use Report a map erro

NSW Office of Water
Work Summary

GW067388

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore open thru rock
Work Status:
Construct.Method: Rotary Air
Owner Type: Private

Commenced Date:
Completion Date: 19/12/1991
Final Depth: 84.00 m
Drilled Depth: 84.00 m

Contractor Name:
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description: 0-500 ppm
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.010	L10 DP626406
Licensed:			

Region: 10 - Sydney South Coast
River Basin: 212 - HAWKESBURY RIVER
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6269504.0
Easting: 315319.0
Latitude: 33°41'54.2"S
Longitude: 151°00'26.4"E

GS Map: -
MGA Zone: 0
Coordinate Source: GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Galvinised Steel	0.00	4.30	200			Seated

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
41.00	61.00	20.00	Unknown			0.20			
61.00	61.20	0.20	Consolidated			0.20			
61.20	84.00	22.80	Consolidated	51.00		2.13			

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.50	0.50	Residual Clay	Clay	
0.50	18.00	17.50	Medium Coarse Grain Sandstone	Sandstone	
18.00	48.00	30.00	Interbedded Medium Coarse Grain Sandstone, Minor Shale Banding	Sandstone	
48.00	84.00	36.00	Medium Coarse Grained Sandstone	Sandstone	

Remarks

19/12/1991: 123 mg/L.

*** End of GW067388 ***

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NSW Office of Water
Work Summary

GW101553

Licence: 10BL143354
Licence Status: CONVERTED

Authorised Purpose(s): STOCK,DOMESTIC
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Rotary Air
Owner Type:

Commenced Date:
Completion Date: 07/06/1991
Final Depth: 88.50 m
Drilled Depth: 88.50 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Bart R. Forsyth
Assistant Driller:

Property: DREAM MOUNTAIN 5 GILMOUR CLOSE GLENHAVEN 2156 NSW
GWMA: -
GW Zone: -
Standing Water Level:
Salinity: Good
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	2//261810
Licensed:	CUMBERLAND	CASTLE HILL	Whole Lot 2//261810

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6269482.0
Easting: 315523.0
Latitude: 33°41'55.0"S
Longitude: 151°00'34.3"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	12.50	200			Rotary
1		Hole	Hole	12.50	88.50	150			Rotary
1	1	Casing	Steel	-0.50	12.50	168	158		Seated on Bottom, Welded

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
64.00	84.50	20.50	Unknown			0.10			
84.50	85.00	0.50	Unknown	36.50		6.00	88.50	02:00:00	

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	8.50	8.50	Weathered Sandstone - Multicoloured	Sandstone	
8.50	16.00	7.50	White Sandstone	Sandstone	
16.00	66.00	50.00	Grey Sandstone, fine, very clayey	Sandstone	
66.00	70.50	4.50	Shale	Shale	
70.50	88.50	18.00	White/Grey Sandstone WB	Sandstone	

Remarks

*** End of GW101553 ***

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NSW Office of Water
Work Summary

GW104365

Licence: 10BL160714
Licence Status: CANCELLED

Authorised Purpose(s): TEST BORE
Intended Purpose(s): TEST BORE

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Rotary
Owner Type: Private

Commenced Date:
Completion Date: 17/07/2002
Final Depth: 198.00 m
Drilled Depth: 198.00 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: William Crump
Assistant Driller:

Property: N/A
GWMA: -
GW Zone: -
Standing Water Level: 70.000
Salinity:
Yield: 1.500

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.010	LT 1 DP 195838
Licensed:	CUMBERLAND	CASTLE HILL	Whole Lot 1//195838

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6270398.0
Easting: 316103.0
Latitude: 33°41'25.7"S
Longitude: 151°00'57.5"E

GS Map: -
MGA Zone: 0
Coordinate Source: Map Interpretation

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	4.00	210			Rotary Air
1		Hole	Hole	4.00	5.50	210			Down Hole Hammer
1		Hole	Hole	5.50	198.00	157			Down Hole Hammer
1	1	Casing	Pvc Class 9	-0.50	50.50	140	130		Suspended in Clamps, Screwed and Glued
1	1	Casing	Steel	-0.50	5.50	168	158		Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
53.50	54.00	0.50	Unknown			0.50	60.00		1260.00
123.00	124.50	1.50	Unknown			0.10	126.00		1070.00
152.00	154.00	2.00	Unknown			0.10	156.00		1070.00
191.50	192.00	0.50	Unknown	70.00		1.50	198.00		1060.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	4.00	4.00	BROWN CLAY	Clay	
4.00	48.00	44.00	SANDSTONE GREY	Sandstone	
48.00	48.50	0.50	CLAY GREY	Clay	
48.50	53.50	5.00	SANDSTONE GREY	Sandstone	
53.50	54.00	0.50	SANDSTONE FRACTURED	Sandstone	
54.00	57.00	3.00	SANDSTONE GREY	Sandstone	
57.00	57.50	0.50	SHALE HARD	Shale	
57.50	59.50	2.00	SANDSTONE GREY	Sandstone	
59.50	60.00	0.50	SHALE HARD	Shale	
60.00	116.50	56.50	SANDSTONE GREY	Sandstone	
116.50	118.00	1.50	SANDSTONE DARK GREY	Sandstone	
118.00	124.50	6.50	SANDSTONE QUARTZ	Sandstone	
124.50	152.00	27.50	SANDSTONE GREY	Sandstone	
152.00	154.00	2.00	SANDSTONE QUARTZ	Sandstone	
154.00	172.00	18.00	SANDSTONE GREY	Sandstone	
172.00	174.00	2.00	SANDSTONE QUARTZ	Sandstone	
174.00	191.50	17.50	SANDSTONE GREY	Sandstone	
191.50	192.00	0.50	SANDSTONE FRACTURED	Sandstone	
192.00	198.00	6.00	SANDSTONE GREY	Sandstone	

Remarks

*** End of GW104365 ***

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NSW Office of Water
Work Summary

GW104516

Licence: 10BL161044
Licence Status: CONVERTED

Authorised Purpose(s): STOCK,DOMESTIC
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Rotary
Owner Type: Private

Commenced Date:
Completion Date: 15/11/2002
Final Depth: 92.00 m
Drilled Depth: 92.00 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: William Crump
Assistant Driller:

Property: N/A
GWMA: -
GW Zone: -
Standing Water Level: 34.000
Salinity:
Yield: 0.800

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.043	LT 16 DP234146
Licensed:	CUMBERLAND	SOUTH COLAH	Whole Lot 16//234146

Region: 10 - Sydney South Coast
CMA Map: 9130-4S
River Basin: 212 - HAWKESBURY RIVER
Grid Zone:
Scale:
Area/District:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6268314.0
Easting: 316438.0
Latitude: 33°42'33.5"S
Longitude: 151°01'08.9"E

GS Map: -
MGA Zone: 0
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.50	210			Down Hole Hammer
1		Hole	Hole	5.50	92.00	159			Down Hole Hammer
1	1	Casing	Pvc Class 9	-0.50	34.50	140			
1	1	Casing	Steel	-0.50	5.50	168	158		Driven into Hole
1	1	Opening	Slots - Diagonal	34.50	35.80	140		1	Sawn, PVC Class 9, SL: 0.1mm, A: 3.00mm
1	1	Casing	Pvc Class 9	35.80	48.00				Suspended in Clamps, Screwed and Glued
1	1	Opening	Slots - Diagonal	48.00	48.50			1	Sawn, SL: 0.1mm, A: 3.00mm
1	1	Casing		48.50	52.50				

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
9.00	9.50	0.50	Unknown			0.50	12.00		1920.00
34.50	35.00	0.50	Unknown			0.50	36.00		1130.00
48.00	48.30	0.30	Unknown			0.30	54.00		621.00
81.50	84.00	2.50	Unknown	34.00		0.80	92.00		586.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	3.50	3.50	CLAY BROWN	Clay	
3.50	6.00	2.50	SHALE	Shale	
6.00	9.00	3.00	SANDSTONE L/B	Sandstone	
9.00	9.50	0.50	SANDSTONE FRACTURED	Sandstone	
9.50	13.00	3.50	SANDSTONE/IRONSTONE/QUARTZ	Sandstone	
13.00	34.50	21.50	SANDSTONE GREY	Sandstone	
34.50	35.00	0.50	SANDSTONE FRACTURED	Sandstone	
35.00	37.50	2.50	SANDSTONE GREY	Sandstone	
37.50	38.00	0.50	SANDSTONE FRACTURED	Sandstone	
38.00	48.30	10.30	SANDSTONE VERY FRACTURED	Sandstone	
48.30	57.00	8.70	SANDSTONE GREY	Sandstone	
57.00	57.30	0.30	SHALE	Shale	
57.30	81.50	24.20	SANDSTONE GREY	Sandstone	
81.50	84.00	2.50	SANDSTONE QUARTZ VERY FRACTURED	Sandstone	
84.00	87.00	3.00	SANDSTONE GREY	Sandstone	
87.00	87.30	0.30	CLAY WHITE	Clay	
87.30	88.00	0.70	SANDSTONE GREY	Sandstone	

88.00	92.00	4.00	SANDSTONE WHITE/ VERY FRACT./SOFT	Sandstone	

Remarks

*** End of GW104516 ***

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NSW Office of Water
Work Summary

GW105449

Licence: 10BL162319
Licence Status: CONVERTED

Authorised Purpose(s): STOCK,DOMESTIC
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Rotary Air
Owner Type:

Commenced Date:
Completion Date: 29/10/2003
Final Depth: 202.00 m
Drilled Depth: 202.00 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Damian Paranihi
Assistant Driller:

Property: CICCHINI 627 OLD NORTHERN RD DURAL 2158
GWMA: -
GW Zone: -
Standing Water Level: 38.000
Salinity:
Yield: 0.050

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.43	1 131330
Licensed:	CUMBERLAND	SOUTH COLAH	Whole Lot 1//131330

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6268870.0
Easting: 316319.0
Latitude: 33°42'15.4"S
Longitude: 151°01'04.8"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	11.50	205			Down Hole Hammer
1		Hole	Hole	11.50	198.50	158			Down Hole Hammer
1		Hole	Hole	198.50	202.00	154			Down Hole Hammer
1	1	Casing	Steel	-0.50	11.50	168	158		Driven into Hole
1	1	Casing	Pvc Class 9	0.50	23.50	140			Suspended in Clamps, Screwed and Glued

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
48.00	50.50	2.50	Unknown			0.10	54.00		490.00
82.50	90.50	8.00	Unknown			0.10	90.00		450.00
108.50	113.50	5.00	Unknown			0.10	114.00		540.00
186.00	190.50	4.50	Unknown	38.00		0.05	192.00		484.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	TOPSOIL	Topsoil	
0.20	6.80	6.60	CLAY BROWN TO WHITE	Clay	
6.80	7.40	0.60	SHALE	Shale	
7.40	21.50	14.10	FRACT.SANDSTONE GREY/BROWN	Invalid Code	
21.50	54.50	33.00	SANDSTONE LT/GREY MG	Sandstone	
54.50	55.60	1.10	SILTSTONE	Siltstone	
55.60	82.50	26.90	SANDSTONE LT/GREY	Sandstone	
82.50	90.50	8.00	QUARTZ	Invalid Code	
90.50	103.50	13.00	SANDSTONE GREY/QUARTZ	Sandstone	
103.50	113.00	9.50	QUARTZ	Invalid Code	
113.00	132.00	19.00	SANDSTONE GREY/QUARTZ	Sandstone	
132.00	139.00	7.00	SANDSTONE GREY MG	Sandstone	
139.00	169.00	30.00	SANDSTONE GREY/QUARTZ	Sandstone	
169.00	183.50	14.50	SANDSTONE LT BROWN/LT GREY	Sandstone	
183.50	186.00	2.50	SILTSTONE	Siltstone	
186.00	190.00	4.00	QUARTZ	Invalid Code	
190.00	199.50	9.50	SANDSTONE LT GREY/QUARTZ	Sandstone	
199.50	202.00	2.50	SANDSTONE LT GREY	Sandstone	

Remarks

*** End of GW105449 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water
Work Summary

GW105456

Licence: 10BL162168
Licence Status: CONVERTED

Authorised Purpose(s): STOCK,DOMESTIC
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Rotary Air
Owner Type:

Commenced Date:
Completion Date: 07/11/2003
Final Depth: 168.50 m
Drilled Depth: 168.50 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Damian Paranihi
Assistant Driller:

Property: JAMIESON 19 WAYFIELD RD GLENHAVEN 2156
GWMA: -
GW Zone: -
Standing Water Level: 56.000
Salinity:
Yield: 0.600

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.43	8 234146
Licensed:	CUMBERLAND	SOUTH COLAH	Whole Lot 8//234146

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6268496.0
Easting: 316647.0
Latitude: 33°42'27.7"S
Longitude: 151°01'17.2"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	11.60	205			Down Hole Hammer
1		Hole	Hole	11.60	168.50	157			Down Hole Hammer
1	1	Casing	Pvc Class 9	-0.40	35.60	140			Suspended in Clamps, Screwed and Glued
1	1	Casing	Steel	-0.40	11.60	168	158		Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
36.00	39.00	3.00	Unknown			0.20	42.00		327.00
60.50	68.50	8.00	Unknown			0.20	72.00		628.00
114.00	128.50	14.50	Unknown			0.20	132.00		700.00
140.00	161.10	21.10	Unknown	56.00		0.60	162.00		870.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	7.80	7.80	FRACTURED SANDSTONE BROWN MG	Invalid Code	
7.80	12.50	4.70	SANDSTONE GREY BROWN	Sandstone	
12.50	33.50	21.00	SANDSTONE GREY	Sandstone	
33.50	33.70	0.20	SANDSTONE GREY W. 0.1 (F)	Sandstone	
33.70	36.00	2.30	SANDSTONE GREY	Sandstone	
36.00	39.00	3.00	SANDSTONE GREY W. 0.1	Sandstone	
39.00	54.70	15.70	SANDSTONE GREY L/GREY	Sandstone	
54.70	75.00	20.30	SANDSTONE GREY /QUARTZ	Sandstone	
75.00	81.00	6.00	SANDSTONE GREY L/GREY	Sandstone	
81.00	96.50	15.50	SANDSTONE GREY M/G	Sandstone	
96.50	114.00	17.50	SANDSTONE GREY L/GREY/QUARTZ	Sandstone	
114.00	116.00	2.00	QUARTZ	Invalid Code	
116.00	123.50	7.50	SANDSTONE L/GREY	Sandstone	
123.50	140.00	16.50	SANDSTONE GREY/QUARTZ	Sandstone	
140.00	140.50	0.50	SANDSTONE GREY	Sandstone	
140.50	151.00	10.50	SANDSTONE GREY L/GREY	Sandstone	
151.00	151.50	0.50	SANDSTONE GREY	Sandstone	
151.50	160.00	8.50	SANDSTONE GREY/BROWN	Sandstone	
160.00	161.00	1.00	SANDSTONE GREY FRACTURED	Sandstone	
161.00	166.00	5.00	SANDSTONE GREY	Sandstone	

166.00	166.10	0.10	SANDSTONE GREY FRACTURED	Sandstone	
166.10	168.50	2.40	SANDSTONE GREY	Sandstone	

Remarks

*** End of GW105456 ***

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NSW Office of Water
Work Summary

GW105602

Licence: 10BL162413
Licence Status: CONVERTED

Authorised Purpose(s): STOCK,DOMESTIC
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hammer
Owner Type: Private

Commenced Date:
Completion Date: 11/11/2003
Final Depth: 150.50 m
Drilled Depth: 150.50 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Damian Paranihi
Assistant Driller:

Property: FLYNN 21 WAYFIELD RD GLEN HAVEN 2156
GWMA: -
GW Zone: -
Standing Water Level: 38.000
Salinity:
Yield: 1.100

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.43	9//234146
Licensed:	CUMBERLAND	SOUTH COLAH	Whole Lot 9//234146

Region: 10 - Sydney South Coast
River Basin: 212 - HAWKESBURY RIVER
Area/District:
CMA Map: 9130-4S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6268440.0
Easting: 316630.0
Latitude: 33°42'29.5"S
Longitude: 151°01'16.5"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.60	205			Down Hole Hammer
1		Hole	Hole	5.60	150.50	159			Down Hole Hammer
1		Annulus	Concrete	0.00	5.60	205	168		
1	1	Casing	Pvc Class 9	-0.40	29.60	140			Held in Clamp, Screwed and Glued
1	1	Casing	Steel	-0.40	5.60	168	158		Driven into Hole, Suspended in Clamps, Screwed and Glued

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
12.05	133.50	121.45	Unknown	38.00		0.30		00:01:00	668.00
63.00	63.50	0.50	Unknown	38.00		0.20		00:01:00	520.00
74.50	81.00	6.50	Unknown	38.00		0.35		00:01:00	575.00
139.50	140.70	1.20	Unknown	38.00		0.25		00:01:00	670.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	24.00	24.00	sandstone, brown, frey	Sandstone	
24.00	32.00	8.00	sandstone, grey	Sandstone	
32.00	32.50	0.50	sandstone, lt grey & quartz	Sandstone	
32.50	47.00	14.50	sandstone, lt grey	Sandstone	
47.00	60.50	13.50	sandstone, grey & brown	Sandstone	
60.50	62.00	1.50	quatz	Quartz	
62.00	64.50	2.50	sandstone, grey	Sandstone	
64.50	74.50	10.00	sandstone, lt grey & quartz	Sandstone	
74.50	76.00	1.50	quartz	Quartz	
76.00	80.50	4.50	sandstone, lt grety & quatz	Sandstone	
80.50	81.00	0.50	quartz	Quartz	
81.00	120.50	39.50	sandstone, lt grey & quartz	Sandstone	
120.50	126.50	6.00	sandstone, grey & quartz	Sandstone	
126.50	132.50	6.00	sandstone, grey & lt grey	Sandstone	
132.50	133.50	1.00	quartz	Quartz	
133.50	139.50	6.00	sandstone, lt grety & quartz	Sandstone	
139.50	140.70	1.20	quartz	Quartz	
140.70	150.50	9.80	sandstone, lt grey	Sandstone	

Remarks

03/11/2009: updated from original form A

*** End of GW105602 ***

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NSW Office of Water
Work Summary

GW105759

Licence: 10BL162250
Licence Status: CONVERTED

Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hammer
Owner Type: Private

Commenced Date:
Completion Date: 25/10/2003
Final Depth: 298.00 m
Drilled Depth: 298.00 m

Contractor Name: Ultra Drilling
Driller: Alan Marcus Dodd
Assistant Driller:

Property: COLLINS 12 YURUNGA RD DURAL 2158
GWMA: -
GW Zone: -
Standing Water Level: 62.000
Salinity:
Yield: 0.560

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	8//735652
Licensed:	CUMBERLAND	CASTLE HILL	Whole Lot 8//735652

Region: 10 - Sydney South Coast
River Basin: 212 - HAWKESBURY RIVER
Area/District:
CMA Map: 9130-4S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6269945.0
Easting: 315700.0
Latitude: 33°41'40.1"S
Longitude: 151°00'41.5"E

GS Map: - MGA Zone: 0 Coordinate Source: GIS - Geographic Information System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	24.00	171			Down Hole Hammer
1		Hole	Hole	24.00	298.00	140			Down Hole Hammer
1	1	Casing	Pvc Class 9	0.00	24.00	140			Driven into Hole, Glued

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
22.00	23.00	1.00	Unknown			0.06		01:00:00	
158.00	159.00	1.00	Unknown			0.02		01:00:00	200.00
177.00	178.00	1.00	Unknown	62.00		0.30		02:00:00	200.00

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	sand, clay	Sand	
1.00	18.00	17.00	sandstone, yelllow	Sandstone	
18.00	19.00	1.00	shale	Shale	
19.00	116.00	97.00	sandstone, white	Sandstone	
116.00	119.00	3.00	shale	Shale	
119.00	130.00	11.00	sandstone, shale	Sandstone	
130.00	132.00	2.00	shale	Shale	
132.00	135.00	3.00	sandstone, shale	Sandstone	
135.00	136.00	1.00	shale	Shale	
136.00	202.00	66.00	sandstone, quartz	Sandstone	
202.00	205.00	3.00	sandstone, shale	Sandstone	
205.00	219.00	14.00	sandstone, quartz	Sandstone	
219.00	229.00	10.00	shale	Shale	
229.00	247.00	18.00	sandstone, quartz	Sandstone	
247.00	260.00	13.00	sandstone, black	Sandstone	
260.00	295.00	35.00	shale	Shale	
295.00	298.00	3.00	clay, red stone bald hill clay stone	Clay	

Remarks

12/11/2009: updated from original form A

*** End of GW105759 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water
Work Summary

GW106027

Licence: 10BL162948
Licence Status: CONVERTED

Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hammer
Owner Type: Private

Commenced Date:
Completion Date: 01/01/2004
Final Depth: 253.00 m
Drilled Depth: 253.00 m

Contractor Name: HIGHLAND DRILLING PTY LTD
Driller: Brett Delamont
Assistant Driller:

Property: REID 372 OLD NORTHERN RD CASTLE HILL 2154
GWMA: -
GW Zone: -
Standing Water Level: 60.000
Salinity:
Yield: 0.747

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	2//135804
Licensed:	CUMBERLAND	CASTLE HILL	Whole Lot A//400639

Region: 10 - Sydney South Coast
River Basin: 212 - HAWKESBURY RIVER
Area/District:
CMA Map: 9130-4S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6267095.0
Easting: 316140.0
Latitude: 33°43'12.9"S
Longitude: 151°00'56.5"E

GS Map: - MGA Zone: 0 Coordinate Source: GIS - Geographic Information System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	37.00	200			Down Hole Hammer
1		Hole	Hole	37.00	253.00	165			Down Hole Hammer
1	1	Casing	Pvc Class 9	0.00	37.00	160			Driven into Hole, Screwed and Glued
1	1	Opening	Slots - Diagonal	30.00	31.00	160		1	Sawn, PVC Class 9, Screwed and Glued, SL: 1.0mm, A: 2.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
60.00	61.00	1.00	Unknown	60.00		0.18		00:05:00	
84.00	85.00	1.00	Unknown			0.18		00:05:00	
150.00	151.00	1.00	Unknown			0.09		00:05:00	
166.00	168.00	2.00	Unknown			0.20		00:05:00	
223.00	224.00	1.00	Unknown			0.10		00:05:00	

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	clay	Clay	
3.00	25.00	22.00	shale	Shale	
25.00	54.00	29.00	sandstone, white	Sandstone	
54.00	112.00	58.00	sandstone, grey	Sandstone	
112.00	121.00	9.00	shale	Shale	
121.00	247.00	126.00	sandstone	Sandstone	
247.00	253.00	6.00	shale	Shale	

Remarks

24/11/2009: updated from original form A

*** End of GW106027 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water
Work Summary

GW106380

Licence: 10BL163844
Licence Status: CONVERTED

Authorised Purpose(s): STOCK,DOMESTIC
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hammer
Owner Type: Private

Commenced Date:
Completion Date: 02/09/2004
Final Depth: 102.60 m
Drilled Depth: 102.60 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: William Crump
Assistant Driller:

Property: DI RE 7 GILMOUR CL GLENHAVEN 2156 NSW
GWMA: -
GW Zone: -
Standing Water Level: 63.000
Salinity:
Yield: 1.100

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	3//261810
Licensed:	CUMBERLAND	CASTLE HILL	Whole Lot 3//261810

Region: 10 - Sydney South Coast
River Basin: 212 - HAWKESBURY RIVER
Area/District:
CMA Map: 9130-4S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6269479.0
Easting: 315438.0
Latitude: 33°41'55.1"S
Longitude: 151°00'31.0"E

GS Map: - MGA Zone: 0 Coordinate Source: GIS - Geographic Information System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.60	205			Down Hole Hammer
1		Hole	Hole	5.60	102.60	157			Down Hole Hammer
1		Annulus	Concrete	4.50	5.60	205	157		
1	1	Casing	Pvc Class 9	-0.40	77.60	140			Suspended in Clamps, Screwed and Glued
1	1	Casing	Steel	-0.40	5.60	168			Driven into Hole
1	1	Opening	Slots - Diagonal	71.60	77.60	140		1	Sawn, PVC Class 9, Screwed and Glued, SL: 100.0mm, A: 3.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
74.40	74.70	0.30	Unknown	63.00		1.10		00:05:00	1550.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.50	0.50	topsoil	Topsoil	
0.50	2.70	2.20	sandstone, grey	Sandstone	
2.70	2.80	0.10	clay, light brown	Clay	
2.80	13.10	10.30	sandstone, grey brown	Sandstone	
13.10	13.20	0.10	shale, grey	Shale	
13.20	19.50	6.30	sandstone, grey brown	Sandstone	
19.50	19.60	0.10	shale, grey	Shale	
19.60	27.70	8.10	sandstone, grey	Sandstone	
27.70	28.50	0.80	shale, grey	Shale	
28.50	42.50	14.00	sandstone, grey	Sandstone	
42.50	42.70	0.20	siltstone, dark brown	Siltstone	
42.70	50.10	7.40	sandstone, light grey	Sandstone	
50.10	50.80	0.70	sandstone, mineralised	Sandstone	
50.80	69.70	18.90	sandstone, light grey light brown	Sandstone	
69.70	71.00	1.30	shale, silty grey	Shale	
71.00	74.40	3.40	sandstone, light grey dark grey	Sandstone	
74.40	74.70	0.30	siltstone, grey sandstone, grey fractured	Siltstone	
74.70	102.60	27.90	sandstone, light grey light brown	Sandstone	

Remarks

17/12/2009: updated from original form A

*** End of GW106380 ***

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NSW Office of Water
Work Summary

GW106390

Licence: 10BL163753
Licence Status: CONVERTED

Authorised Purpose(s): STOCK,DOMESTIC
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hammer
Owner Type: Private

Commenced Date:
Completion Date: 31/08/2004
Final Depth: 174.40 m
Drilled Depth: 174.40 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Colin Leslie Barden
Assistant Driller:

Property: GOODEN 1 GILMOUR CLOSE GLENHAVEN 2156 NSW
GWMA: -
GW Zone: -
Standing Water Level: 15.500
Salinity:
Yield: 0.300

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	1//524622
Licensed:	CUMBERLAND	CASTLE HILL	Whole Lot 1//524622

Region: 10 - Sydney South Coast
River Basin: 212 - HAWKESBURY RIVER
Area/District:
CMA Map: 9130-4S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6269119.0
Easting: 315373.0
Latitude: 33°42'06.7"S
Longitude: 151°00'28.2"E

GS Map: - MGA Zone: 0 Coordinate Source: GIS - Geographic Information System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.60	205			Down Hole Hammer
1		Hole	Hole	5.60	72.70	159			Down Hole Hammer
1		Hole	Hole	72.70	174.40	155			Down Hole Hammer
1		Annulus	Concrete	4.60	5.70	159	155		
1	1	Casing	Pvc Class 9	-0.30	60.80	140			Suspended in Clamps, Screwed and Glued
1	1	Casing	Steel	-0.30	5.70	159	149		Driven into Hole
1	1	Opening	Slots - Diagonal	12.00	18.00	140		1	PVC Class 9, Screwed and Glued, SL: 100.0mm, A: 3.00mm
1	1	Opening	Slots - Diagonal	24.00	30.00	140		1	PVC Class 9, Screwed and Glued, SL: 100.0mm, A: 3.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
15.20	15.30	0.10	Unknown			0.10		00:50:00	1090.00
25.80	26.60	0.80	Unknown	15.50		0.05		00:50:00	648.00
139.90	141.20	1.30	Unknown			0.15		01:15:00	840.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.60	1.60	clay, brown	Clay	
1.60	15.20	13.60	sandstone, brown and grey	Sandstone	
15.20	15.30	0.10	sandstone, grey fractured	Sandstone	
15.30	19.70	4.40	sandstone, grey brown	Sandstone	
19.70	19.90	0.20	clay, white brown	Clay	
19.90	25.60	5.70	sandstone, light brown	Sandstone	
25.60	25.80	0.20	sandstone, light brown & quartz	Sandstone	
25.80	35.20	9.40	sandstone, light grey	Sandstone	
35.20	35.50	0.30	shale, silty grey	Shale	
35.50	43.60	8.10	sandstone, grey	Sandstone	
43.60	49.80	6.20	shale grey	Shale	
49.80	59.00	9.20	sandstone, grey	Sandstone	
59.00	60.00	1.00	silty shale grey	Shale	
60.00	139.90	79.90	sandstone, grey brown	Sandstone	
139.90	141.20	1.30	sandstone, grey fractured	Sandstone	
141.20	151.40	10.20	sandstone, grey	Sandstone	
151.40	155.60	4.20	shale sitly dark grey fracttured	Shale	

155.60	174.40	18.80	sandstone, grey	Sandstone	

Remarks

18/12/2009: updated from original from A

*** End of GW106390 ***

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NSW Office of Water
Work Summary

GW107368

Licence: 10BL165550
Licence Status: CONVERTED

Authorised Purpose(s): DOMESTIC,STOCK
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hammer
Owner Type: Private

Commenced Date:
Completion Date: 24/09/2005
Final Depth: 192.20 m
Drilled Depth: 192.20 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Brett Roy Wyatt
Assistant Driller:

Property: UNG 52 KENTHURST RD DURAL 2158 NSW
GWMA: -
GW Zone: -
Standing Water Level: 96.000
Salinity:
Yield: 4.500

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	2//1132643
Licensed:	CUMBERLAND	CASTLE HILL	Whole Lot 2//155711

Region: 10 - Sydney South Coast
CMA Map: 9130-4S
River Basin: 212 - HAWKESBURY RIVER
Area/District:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6270171.0
Easting: 315889.0
Latitude: 33°41'32.9"S
Longitude: 151°00'49.0"E

GS Map: - MGA Zone: 0 Coordinate Source: GIS - Geographic Information System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	2.60	202			Down Hole Hammer
1		Hole	Hole	2.60	108.20	163			Down Hole Hammer
1		Hole	Hole	108.20	192.20	161			Down Hole Hammer
1		Annulus	Concrete	0.00	2.70	163			
1	1	Casing	Pvc Class 9	-0.30	77.70	140			Suspended in Clamps, Screwed and Glued
1	1	Casing	Steel	-0.30	2.70	163	153		Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
18.60	20.00	1.40	Unknown	16.50		0.30		00:25:00	3790.00
114.00	114.80	0.80	Unknown			0.10		00:25:00	2500.00
188.35	189.50	1.15	Unknown	96.00		4.10		00:25:00	1250.00

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.80	0.80	clay, dark brown	Clay	
0.80	2.40	1.60	sandstone, brown weathered	Sandstone	
2.40	18.60	16.20	sandstone, grey brown	Sandstone	
18.60	20.00	1.40	sandstone, grey fractured, water bearing	Sandstone	
20.00	71.00	51.00	sandstone, grey brown	Sandstone	
71.00	71.70	0.70	shale, grey	Shale	
71.70	84.80	13.10	sandstone, grey	Sandstone	
84.80	87.10	2.30	sandstone, grey and black shale bands	Sandstone	
87.10	114.00	26.90	sandstone, grey	Sandstone	
114.00	114.80	0.80	sandstone, grey fracuted & highly mineralised, water bearing	Sandstone	
114.80	183.50	68.70	sandstone, grey with some black shale bands	Sandstone	
183.50	184.50	1.00	sandstone, grey and white clay	Sandstone	
184.50	188.50	4.00	sandstone, grey	Sandstone	
188.50	189.50	1.00	sandstone, grey fractured, water bearing	Sandstone	
189.50	192.20	2.70	sandstone, grey	Sandstone	

Remarks

24/09/2005: Form A Remarks:
bore cap pop riveited on
30/03/2010: updated from original form A

*** End of GW107368 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water
Work Summary

GW108519

Licence:	10BL600800	Licence Status:	CONVERTED
		Authorised Purpose(s):	DOMESTIC,STOCK
		Intended Purpose(s):	STOCK, DOMESTIC
Work Type:	Bore		
Work Status:	Supply Obtained		
Construct.Method:	Down Hole Hammer		
Owner Type:	Private		
Commenced Date:		Final Depth:	144.00 m
Completion Date:	29/11/2006	Drilled Depth:	144.00 m
Contractor Name:	INTERTEC DRILLING SERVICES		
Driller:	William Crump		
Assistant Driller:			
Property:	PINEVALE 27 WAYFIELD ROAD GLENHAVEN 2156 NSW	Standing Water Level:	42.000
GWMA:		Salinity:	
GW Zone:		Yield:	1.800

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.43	13//234146
Licensed:			

Region:	10 - Sydney South Coast	CMA Map:	9130-4S		
River Basin:	212 - HAWKESBURY RIVER	Grid Zone:		Scale:	
Area/District:					
Elevation:	0.00 m (A.H.D.)	Northing:	6268184.0	Latitude:	33°42'38.0"S
Elevation Source:	Unknown	Easting:	316880.0	Longitude:	151°01'26.0"E

GS Map: -

MGA Zone: 0

Coordinate Source: GIS - Geographic Information System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	2.50	204			Down Hole Hammer
1		Hole	Hole	2.50	144.00	163			Down Hole Hammer
1		Annulus	Concrete	-0.10	2.20	204			
1	1	Casing	Pvc Class 9	-0.30	57.70	140			Suspended in Clamps, Screwed and Glued
1	1	Casing	Steel	-0.30	2.20	168	159		Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
28.00	29.00	1.00	Unknown			0.10		00:25:00	140.00
90.10	90.20	0.10	Unknown			1.00		00:25:00	390.00
128.00	128.50	0.50	Unknown	42.00		0.30		00:25:00	370.00
137.50	138.30	0.80	Unknown			0.50		00:25:00	357.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.50	0.50	Clay	Clay	
0.50	22.00	21.50	Sandstone, light brown	Sandstone	
22.00	28.00	6.00	Sandstone, Shale bedding	Sandstone	
28.00	29.00	1.00	Sandstone, fine Quartz	Sandstone	
29.00	31.00	2.00	Sandstone, grey	Sandstone	
31.00	40.00	9.00	Sandstone, Shale bedding, soft in places	Sandstone	
40.00	57.50	17.50	Sandstone, grey	Sandstone	
57.50	58.00	0.50	Clay & Shale	Clay	
58.00	73.00	15.00	Sandstone, grey	Sandstone	
73.00	76.00	3.00	Sandstone, Shale bedding	Sandstone	
76.00	90.10	14.10	Sandstone, grey	Sandstone	
90.10	90.20	0.10	Sandstone, fracture	Sandstone	
90.20	115.00	24.80	Sandstone, grey	Sandstone	
115.00	128.00	13.00	Sandstone, with small bands fine Quartz	Sandstone	
128.00	128.50	0.50	Sandstone, soft	Sandstone	
128.50	135.20	6.70	Sandstone, grey	Sandstone	
135.20	135.30	0.10	Sandstone-Quartz	Sandstone	
135.30	137.50	2.20	Sandstone, grey	Sandstone	
137.50	138.30	0.80	Sandstone, very soft	Sandstone	

138.30	144.00	5.70	Sandstone, grey	Sandstone	

Remarks

01/03/2010: do not set pump below 25m updated from original form A

*** End of GW108519 ***

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NSW Office of Water
Work Summary

GW108562

Licence: 10BL601295
Licence Status: CONVERTED

Authorised Purpose(s): DOMESTIC,STOCK
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status:
Construct.Method:
Owner Type: Private

Commenced Date:
Completion Date: 30/01/2008
Final Depth:
Drilled Depth:

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Colin Leslie Barden
Assistant Driller:

Property: FORMOSA 1 MALABAR ROAD DURAL 2158 NSW
GWMA:
GW Zone:
Standing Water Level:
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	8//621998
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6269618.0
Easting: 315910.0
Latitude: 33°41'50.8"S
Longitude: 151°00'49.4"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

*** End of GW108562 ***

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NSW Office of Water
Work Summary

GW108742

Licence: 10BL600576
Licence Status: CONVERTED

Authorised Purpose(s): DOMESTIC,STOCK
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hammer
Owner Type: Private

Commenced Date:
Completion Date: 08/12/2006
Final Depth: 186.00 m
Drilled Depth: 192.00 m

Contractor Name: Ultra Drilling
Driller: Peter Edward Davidson
Assistant Driller:

Property: BENNETT 8 YURUGA ROAD DURAL 2158 NSW
GWMA:
GW Zone:
Standing Water Level: 81.000
Salinity:
Yield: 0.825

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	7//734807
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6270113.0
Easting: 315833.0
Latitude: 33°41'34.7"S
Longitude: 151°00'46.8"E

GS Map: - MGA Zone: 0 Coordinate Source: GIS - Geographic Information System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	3.00	240			Down Hole Hammer
1		Hole	Hole	3.00	192.00	172			Down Hole Hammer
1		Annulus	Concrete	0.00	3.00	240			
1	1	Casing	Pvc Class 9	0.00	186.00	152			Seated on Bottom
1	1	Casing	Steel	0.00	3.00	219	209		Seated on Bottom, Driven into Hole
1	1	Opening	Slots - Horizontal	111.00	114.00	152		1	PVC Class 9, SL: 0.1mm, A: 1.00mm
1	1	Opening	Slots - Horizontal	153.00	174.00	152		1	PVC Class 9, SL: 0.1mm, A: 1.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
106.00	108.00	2.00	Unknown			0.10		01:00:00	450.00
112.00	114.00	2.00	Unknown			0.13		01:00:00	470.00
153.00	156.00	3.00	Unknown			0.15		01:00:00	550.00
165.00	168.00	3.00	Unknown	81.00		0.45		01:00:00	1200.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	sand, clay	Sand	
1.00	17.00	16.00	sandstone, yellow	Sandstone	
17.00	104.00	87.00	sandstone, shale	Sandstone	
107.00	119.00	12.00	sandstone, white	Sandstone	
119.00	124.00	5.00	shale	Shale	
124.00	133.00	9.00	sandstone, quartz	Sandstone	
133.00	144.00	11.00	sandstone, white	Sandstone	
144.00	165.00	21.00	sandstone, quartz	Sandstone	
165.00	171.00	6.00	sandstone, shale	Sandstone	
171.00	174.00	3.00	sandstone, quartz	Sandstone	
174.00	185.00	11.00	sandstone, shale	Sandstone	
185.00	191.00	6.00	sandstone, quartz	Sandstone	
191.00	192.00	1.00	sandstone, shale	Sandstone	

Remarks

08/12/2006: Form A Remarks:
Please note that there is two defferent depths, Final depth 186m, Drilling Strata 192m

15/03/2010: updated from original form A

*** End of GW108742 ***

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NSW Office of Water
Work Summary

GW110307

Licence: 10BL603071
Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Well
Work Status:
Construct.Method: Rotary Air
Owner Type: Private

Commenced Date:
Completion Date: 26/05/2009
Final Depth: 8.00 m
Drilled Depth: 8.00 m

Contractor Name: Macquarie Drilling
Driller: Douglas Stephen Miller
Assistant Driller:

Property: SHELL COMPANY OF AUST LTD
COLES EXPRESS DURAL 592 - 596
OLD NORTHERN ROAD DURAL 2158
NSW
Standing Water Level: 4.200

GWMA:
GW Zone:
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.43	11//825077
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6269999.0
Easting: 317513.0
Latitude: 33°41'39.5"S
Longitude: 151°01'51.9"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	1.22	50			Rotary Air
1		Hole	Hole	1.22	8.00	50			Auger - Solid Flight
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded, Q:6500.000m3
1	1	Casing		0.00	2.00	50			
1	1	Casing		2.00	8.00	50			Seated on Bottom
1	1	Opening	Screen - Gauze/Mesh	2.00	8.00	50		1	PVC Class 18, Screwed, A: 0.40mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
6.00	8.00	2.00	Unknown	4.20					

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	2.80	2.80	FILL,BROWN CLAYEY SAND	Fill	
2.80	4.00	1.20	CLAY SANDY BLACK TO GREY,FINE TO COARSE	Clay Loam	
4.00	8.00	4.00	SANDSTONE GREY AND BROWN	Sandstone	

Remarks

*** End of GW110307 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your

own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water
Work Summary

GW110308

Licence: 10BL603071
Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Well
Work Status:
Construct.Method: Rotary Air
Owner Type: Private

Commenced Date:
Completion Date: 22/06/2009
Final Depth: 7.00 m
Drilled Depth: 7.00 m

Contractor Name: Macquarie Drilling
Driller: Douglas Stephen Miller
Assistant Driller:

Property: SHELL COMPANY OF AUST LTD
COLES EXPRESS DURAL 592 - 596
OLD NORTHERN ROAD DURAL 2158
NSW
Standing Water Level: 2.800

GWMA:
GW Zone:
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.43	11//825077
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6269988.0
Easting: 317544.0
Latitude: 33°41'39.8"S
Longitude: 151°01'53.1"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	1.20	150			Rotary Air
1		Hole	Hole	1.20	7.00	125			Auger - Solid Flight
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded
1	1	Casing		0.00	3.00	65			
1	1	Casing		3.00	7.00	65			Seated on Bottom
1	1	Opening	Screen	3.00	7.00	65		1	PVC Class 18, Screwed, A: 0.40mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
5.00	7.00	2.00	Unknown	2.80					

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.50	1.50	FILL,GREY AND BROWN SANDY GRAVEL AND SANDSTONE	Fill	
1.50	2.20	0.70	CLAY,SANDY,BROWN AND GREY	Clay	
2.20	7.00	4.80	SANDSTONE,BROWN,FINE TO MED GRAINED	Sandstone	

Remarks

*** End of GW110308 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your

own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water
Work Summary

GW110309

Licence: 10BL603071
Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Well
Work Status:
Construct.Method: Rotary Air
Owner Type: Private

Commenced Date:
Completion Date: 22/05/2009
Final Depth: 10.00 m
Drilled Depth: 10.00 m

Contractor Name: Macquarie Drilling
Driller: Douglas Stephen Miller
Assistant Driller:

Property: SHELL COMPANY OF AUST LTD
COLES EXPRESS DURAL 592 - 596
OLD NORTHERN ROAD DURAL 2158
NSW
Standing Water Level: 3.100

GWMA:
GW Zone:
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.43	11//825077
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6269974.0
Easting: 317530.0
Latitude: 33°41'40.3"S
Longitude: 151°01'52.6"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	1.20	50			Rotary Air
1		Hole	Hole	1.20	3.20	50			Auger - Solid Flight
1		Hole	Hole	3.20	10.00	50			Down Hole Hammer
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded
1	1	Casing		0.00	4.00	50			
1	1	Casing		4.00	10.00	50			Seated on Bottom, Screwed
1	1	Opening	Screen	4.00	10.00	50		1	PVC Class 18, Screwed, A: 0.40mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
5.20	8.50	3.30	Unknown	3.10					

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	2.90	2.90	FILL,GREY AND BROWN CLAYEY SAND AND SANDSTONE FRAGS.	Fill	
2.90	10.00	7.10	SANDSTONE GREY,FINE TO MED. GRAINED	Sandstone	

Remarks

*** End of GW110309 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your

own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water
Work Summary

GW110310

Licence: 10BL603071
Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Well
Work Status:
Construct.Method: Rotary Air
Owner Type: Private

Commenced Date:
Completion Date: 22/05/2009
Final Depth: 8.50 m
Drilled Depth: 8.50 m

Contractor Name: Macquarie Drilling
Driller: Douglas Stephen Miller
Assistant Driller:

Property: SHELL COMPANY OF AUST LTD
COLES EXPRESS DURAL 592 - 596
OLD NORTHERN ROAD DURAL 2158
NSW
Standing Water Level: 3.200

GWMA:
GW Zone:
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.43	11//825077
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6269975.0
Easting: 317540.0
Latitude: 33°41'40.3"S
Longitude: 151°01'53.0"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	1.20	150			Rotary Air
1		Hole	Hole	1.20	3.10	125			Auger - Solid Flight
1		Hole	Hole	3.10	8.50	100			Down Hole Hammer
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded, Q:6500.000m3
1	1	Casing		0.00	2.50	65			
1	1	Casing		2.50	8.50	65			Seated on Bottom, Screwed
1	1	Opening	Screen	2.50	8.50	65		1	PVC Class 18, Screwed, A: 0.40mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
6.50	8.50	2.00	Unknown	3.20					

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	2.80	2.80	FILL, BROWN AND GREY,SAND AND GRAVEL	Fill	
2.80	8.50	5.70	SANDSTONE RED BROWN,FINE TO MED GRAINED AND WEATHERED	Sandstone	

Remarks

*** End of GW110310 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your

own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water
Work Summary

GW110567

Licence: 10BL603221
Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Well
Work Status:
Construct.Method: Auger - Solid Flight
Owner Type: Private

Commenced Date:
Completion Date: 01/09/2009
Final Depth: 8.00 m
Drilled Depth: 8.00 m

Contractor Name: Numac Drilling Services Pty Ltd
Driller: Jason Denis Boyd
Assistant Driller:

Property: WOOLWORTHS PETROL DIVISION 532 OLD NORTHERN ROAD DURAL 2158 NSW
Standing Water Level:
GWMA:
GW Zone:
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	1//1116029
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6270066.0
Easting: 316487.0
Latitude: 33°41'36.7"S
Longitude: 151°01'12.1"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	8.00	150			Auger - Solid Flight
1		Annulus	Waterworn/Rounded	3.50	8.00				Ungraded
1	1	Casing	P.V.C.	0.00	4.00	60			Seated on Bottom, Screwed
1	1	Opening	Screen	4.00	8.00	60		1	PVC, Screwed, A: 0.40mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
6.00	8.00	2.00	Unknown						

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	CLAY	Clay	
2.00	8.00	6.00	SHALE GREY	Shale	

Remarks

*** End of GW110567 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water
Work Summary

GW110568

Licence: 10BL603221
Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Well
Work Status:
Construct.Method: Auger - Solid Flight
Owner Type: Private

Commenced Date:
Completion Date: 01/09/2009
Final Depth: 6.50 m
Drilled Depth: 7.00 m

Contractor Name: Numac Drilling Services Pty Ltd
Driller: Jason Denis Boyd
Assistant Driller:

Property: WOOLWORTHS PETROL DIVISION 532 OLD NORTHERN ROAD DURAL 2158 NSW
Standing Water Level:
GWMA:
GW Zone:
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	1//1116029
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6270087.0
Easting: 316504.0
Latitude: 33°41'36.0"S
Longitude: 151°01'12.8"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.50	150			Auger - Solid Flight
1		Annulus	Waterworn/Rounded	3.00	3.50				Ungraded
1	1	Casing	P.V.C.	0.00	3.50	60			Seated on Bottom, Screwed
1	1	Opening	Screen	3.50	6.50	60		1	PVC, Screwed, A: 0.40mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
5.00	6.50	1.50	Unknown						

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	CLAY	Clay	
2.00	7.00	5.00	SHALE GREY	Shale	

Remarks

*** End of GW110568 ***

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NSW Office of Water
Work Summary

GW111302

Licence: 10BL604311
Licence Status: CONVERTED

Authorised Purpose(s): DOMESTIC,STOCK
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Down Hole Hammer
Owner Type: Private

Commenced Date:
Completion Date: 10/12/2010
Final Depth: 162.00 m
Drilled Depth: 162.00 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Paul Sheehy
Assistant Driller:

Property: MC KINNON 13 YURUGA ROAD DURAL 2158 NSW
GWMA:
GW Zone:
Standing Water Level: 74.000
Salinity:
Yield: 5.000

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	4//734807
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6270095.0
Easting: 315753.0
Latitude: 33°41'35.3"S
Longitude: 151°00'43.7"E

GS Map: - MGA Zone: 0 Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.40	203			Down Hole Hammer
1		Hole	Hole	5.40	8.40	158			Down Hole Hammer
1		Hole	Hole	8.40	162.00	156			Down Hole Hammer
1	1	Casing	Pvc Class 9	-0.60	77.40	140			Suspended in Clamps, Screwed and Glued
1	1	Casing	Steel	-0.60	5.40	168			Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
37.00	57.00	20.00	Unknown			0.02			300.00
102.00	113.00	11.00	Unknown			0.10			570.00
155.00	155.50	0.50	Unknown	74.00		5.00			810.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.20	1.20	SANDY CLAY	Sandy Clay	
1.20	5.00	3.80	SANDSTONE YELLOW	Sandstone	
5.00	7.00	2.00	SANDSTONE GREY	Sandstone	
7.00	14.00	7.00	SANDSTONE YELLOW	Sandstone	
14.00	25.00	11.00	SANDSTONE GREY	Sandstone	
25.00	33.00	8.00	SANDSTONE YELLOW	Sandstone	
33.00	37.00	4.00	SANDSTONE GREY	Sandstone	
37.00	57.00	20.00	SANDSTONE QUARTZ	Sandstone	
57.00	62.00	5.00	SANDSTONE GREY	Sandstone	
62.00	64.00	2.00	SILTSTONE	Siltstone	
64.00	76.00	12.00	SANDSTONE GREY	Sandstone	
76.00	86.00	10.00	SANDSTONE QUARTZ	Sandstone	
86.00	102.00	16.00	SANDSTONE GREY	Sandstone	
102.00	113.00	11.00	SANDSTONE QUARTZ	Sandstone	
113.00	116.00	3.00	SILTSTONE	Siltstone	
116.00	122.00	6.00	SANDSTONE GREY	Sandstone	
122.00	127.00	5.00	SANDSTONE QUARTZ	Sandstone	
127.00	137.00	10.00	SANDSTONE GREY	Sandstone	
137.00	144.00	7.00	SANDSTONE QUARTZ	Sandstone	
144.00	153.00	9.00	SANDSTONE GREY	Sandstone	

153.00	155.00	2.00	SANDSTONE QUARTZ	Sandstone	
155.00	155.50	0.50	SANDSTONE FRACTURED (W)	Sandstone	
155.50	162.00	6.50	SANDSTONE GREY	Sandstone	

Remarks

10/12/2010: Form A Remarks:
Some Iron in water at 37 to 57 m.

*** End of GW111302 ***

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Appendix D Historical Aerial Photographs

Legend:

Approximate Site Boundary

JBS&G

Job No: 51286

Client: APP Corporation

Version: Aerials	Date: 15-Feb-2016
Drawn By: SE	Checked By: KY

Scale 1:15,000

0 200 400

metres

Coor. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

AERIAL PHOTOGRAPH 1955

AERIAL PHOTOGRAPH 1955

File Name: 51286_1955
Reference: Department of Lands

Legend:

Approximate Site Boundary

JBS&G

Job No: 51286

Client: APP Corporation

Version: Aerials	Date: 15-Feb-2016
Drawn By: SE	Checked By: KY

Scale 1:15,000

0 200 400

metres

Coor. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

AERIAL PHOTOGRAPH 1965

AERIAL PHOTOGRAPH 1965

File Name: 51286_1965
Reference: Department of Lands

Legend:

Approximate Site Boundary

JBS&G

Job No: 51286

Client: APP Corporation

Version: Aerials	Date: 15-Feb-2016
Drawn By: SE	Checked By: KY

Scale 1:15,000

0 200 400

metres

Coor. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

AERIAL PHOTOGRAPH 1975

AERIAL PHOTOGRAPH 1975

File Name: 51286_1975
Reference: Department of Lands

Legend:

Approximate Site Boundary

JBS&G

Job No: 51286

Client: APP Corporation

Version: Aerials	Date: 15-Feb-2016
Drawn By: SE	Checked By: KY

Scale 1:15,000

0 200 400

metres

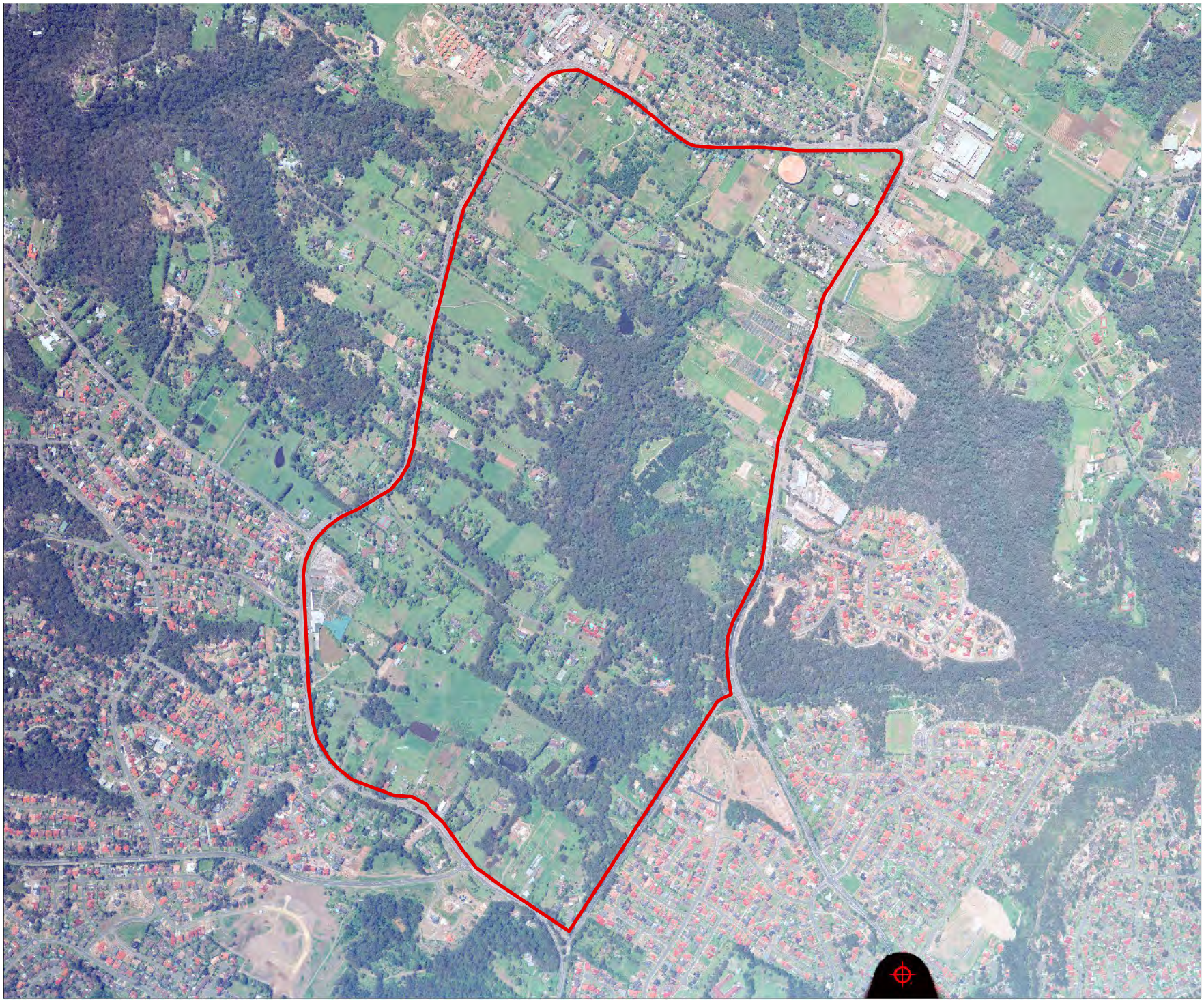
Coor. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

AERIAL PHOTOGRAPH 1991

AERIAL PHOTOGRAPH 1991

File Name: 51286_1991
Reference: Department of Lands



Legend:

Approximate Site Boundary

JBS&G

Job No: 51286

Client: APP Corporation

Version: Aerials	Date: 15-Feb-2016
Drawn By: SE	Checked By: KY

Scale 1:15,000

0 200 400

metres

Coor. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

AERIAL PHOTOGRAPH 1998

AERIAL PHOTOGRAPH 1998

File Name: 51286_1998
Reference: Department of Lands

Legend:

Approximate Site Boundary

JBS&G

Job No: 51286

Client: APP Corporation

Version: Aerials	Date: 15-Feb-2016
Drawn By: SE	Checked By: KY

Scale 1:15,000

0 200 400

metres

Coor. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

AERIAL PHOTOGRAPH 2005

AERIAL PHOTOGRAPH 2005

File Name: 51286_2005
Reference: Department of Lands

Legend:

Approximate Site Boundary

JBS&G

Job No: 51286

Client: APP Corporation

Version: Aerials	Date: 15-Feb-2016
Drawn By: SE	Checked By: KY

Scale 1:15,000

0 200 400

metres

Coor. Sys. GDA 1994 MGA Zone 56

South Dural Rezoning PSI

AERIAL PHOTOGRAPH 2015

AERIAL PHOTOGRAPH 2015

File Name: 51286_2015

Reference: Near Map www.nearmap.com, imagery date 06-12-2015, accessed 12-02-2016