



PLANNING AND DEVELOPMENT COMMITTEE

AGENDA

2 JUNE 2020

Notice is hereby given, in accordance with the provisions of the Local Government Act 1993 that a **PLANNING AND DEVELOPMENT COMMITTEE MEETING of ORANGE CITY COUNCIL** will be held **VIA ONLINE VIDEO CONFERENCING PLATFORM ZOOM** on **Tuesday, 2 June 2020**.

David Waddell

CHIEF EXECUTIVE OFFICER

For apologies please contact Administration on 6393 8218.

AGENDA

1	INTRODUCTION.....	3
1.1	Declaration of pecuniary interests, significant non-pecuniary interests and less than significant non-pecuniary interests.....	3
2	GENERAL REPORTS.....	5
2.1	Items Approved Under the Delegated Authority of Council	5
2.2	Planning Proposal to amend Orange Local Environmental Plan 2011 - rezoning of 185 Leeds Parade	9
2.3	Development Application DA 54/2020(1) - 153-157 Peisley Street, Orange	417
2.4	Heritage Study Review	443

1 INTRODUCTION

1.1 DECLARATION OF PECUNIARY INTERESTS, SIGNIFICANT NON-PECUNIARY INTERESTS AND LESS THAN SIGNIFICANT NON-PECUNIARY INTERESTS

The provisions of Chapter 14 of the Local Government Act, 1993 (the Act) regulate the way in which Councillors and designated staff of Council conduct themselves to ensure that there is no conflict between their private interests and their public role.

The Act prescribes that where a member of Council (or a Committee of Council) has a direct or indirect financial (pecuniary) interest in a matter to be considered at a meeting of the Council (or Committee), that interest must be disclosed as soon as practicable after the start of the meeting and the reasons given for declaring such interest.

As members are aware, the provisions of the Local Government Act restrict any member who has declared a pecuniary interest in any matter from participating in the discussion or voting on that matter, and requires that member to vacate the Chamber.

Council's Code of Conduct provides that if members have a non-pecuniary conflict of interest, the nature of the conflict must be disclosed. The Code of Conduct also provides for a number of ways in which a member may manage non pecuniary conflicts of interest.

RECOMMENDATION

It is recommended that Committee Members now disclose any conflicts of interest in matters under consideration by the Planning and Development Committee at this meeting.

2 GENERAL REPORTS

2.1 ITEMS APPROVED UNDER THE DELEGATED AUTHORITY OF COUNCIL

RECORD NUMBER: 2020/728

AUTHOR: Paul Johnston, Manager Development Assessments

EXECUTIVE SUMMARY

Following is a list of development applications approved under the delegated authority of Council.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy “7.1 Preserve - Engage with the community to develop plans for growth and development that value the local environment”.

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

That Council resolves to acknowledge the information provided in the report by the Manager Development Assessments on Items Approved Under the Delegated Authority of Council.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation’s impact on Council’s service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

Reference:	DA 340/2012(3)	Determination Date	30 April 2020
PR Number	PR4927		
Applicant/s:	Mr RA Cummins		
Owner/s:	Tipperary Investment Holdings Pty Ltd		
Location:	Lot 1 DP 770447 and Lot 1 DP 1146318 – 1 Hampden Avenue, and Lot 70 DP 873566 – 3 Hampden Avenue, Orange		
Proposal:	Modification of development consent - office premises (change of use, car parking and fencing). The modified proposal involves two additional parking spaces in the existing car park at the rear of 3 Hampden Avenue. As such, the land to be developed will now include Lot 70 DP 873566 – 3 Hampden Avenue. The proposed new car spaces will service the office premises at 1 Hampden Avenue, and easements in favour will be created.		
Value:	Not Applicable		

2.1 Items Approved Under the Delegated Authority of Council

Reference: DA 55/2015(2) **Determination Date** 14 May 2020
PR Number PR12527
Applicant/s: Mr SF Cheng
Owner/s: Mr SF Cheng
Location: Lot 1 DP 562838, and Lots 19 and 20 DP 22785 – 22 and 24 Wentworth Lane, Orange
Proposal: Modification of development consent – subdivision (three lot residential boundary adjustment), demolition (ancillary structures) and two carports (one single, one double). The proposed amendment seeks to modify Condition (14) and delete Conditions (4) and (22). The amendment to Condition (14) seeks to remove the requirement to construct the battleaxe concrete driveway.
Value: Not Applicable

Reference: DA 16/2018(2) **Determination Date** 12 May 2020
PR Number PR17008
Applicant/s: Mr RM Pitt
Owner/s: Ms JO Pitt
Location: Lot 100 DP 857135 – 38-40 Rosemary Lane, Orange
Proposal: Modification of development consent – subdivision (two lot residential), demolition (tree removal), dwelling and attached garage and subdivision (two lot residential). The modification involves the adjustment of the boundaries between approved Lots 200 and 202 by straightening the dog-legged boundary line; revision of design and layout of the approved new dwelling house on the rear lot; and associated changes to conditions of consent.
Value: Not Applicable

Reference: DA 372/2019(1) **Determination Date** 24 April 2020
PR Number PR2785
Applicant/s: Mr RA and Mrs J Cutler
Owner/s: Mr RA and Mrs J Cutler
Location: Lot B DP 377280, Lot 1 DP 158411, Lot 2 DP 514361 - 40 Clinton Street, Orange
Proposal: Demolition, subdivision, dwelling (alterations and additions)
Value: \$1,000,000

Reference: DA 80/2020(1) **Determination Date** 13 May 2020
PR Number PR8704
Applicant/s: Mr DS Tom
Owner/s: Mr DS Tom
Location: Lot 45 DP 702121 – 55 Moulder Street, Orange
Proposal: Demolition (existing garage), dwelling alterations and additions (second storey addition and rear ground floor addition), and garage (new construction).
Value: \$400,000

2.1 Items Approved Under the Delegated Authority of Council

Reference: DA 104/2020(1) **Determination Date** 30 April 2020
PR Number PR17251
Applicant/s: Godolphin Resources
Owner/s: Dino and Michael Cunial
Location: Lot 156 DP703305 - 11-19 William Street, Orange
Proposal: Light industry (mining research and development) and alterations and additions to existing building
Value: \$50,000

Reference: DA 115/2020(1) **Determination Date** 18 May 2020
PR Number PR18303
Applicant/s: Sainsmac Pty Ltd
Owner/s: Mr RL and Mrs LD Sainsbury
Location: Lot 100 DP 1035381 – 1A Cameron Place, Orange
Proposal: Mixed Use Development (vehicle sales or hire premises and vehicle repair station)
Value: \$165,000

Reference: DA 128/2020(1) **Determination Date** 6 May 2020
PR Number PR3626
Applicant/s: Mr S P Arantz
Owner/s: Mr S P Arantz
Location: Lot 1 DP 799845 - 155 Edward Street, Orange
Proposal: Subdivision (two lot residential)
Value: Not Applicable

TOTAL NET* VALUE OF ALL DEVELOPMENTS APPROVED UNDER DELEGATED AUTHORITY IN THIS PERIOD:	\$1,615,000
--	--------------------

** Net value relates to the value of modifications. If modifications are the same value as the original DA, then nil is added. If there is a plus/minus difference, this difference is added or taken out.*

2.2 PLANNING PROPOSAL TO AMEND ORANGE LOCAL ENVIRONMENTAL PLAN 2011 - REZONING OF 185 LEEDS PARADE

RECORD NUMBER: 2020/750

AUTHOR: Craig Mortell, Senior Planner

EXECUTIVE SUMMARY

Council has received a proposal to rezone part of Lot 4 DP 1185665, known as 185 Leeds Parade, situated on the intersection with the Northern Distributor Road. The site is currently a combination of IN2 Light Industrial and SP3 Tourist zones, and the proposal seeks to increase the extent of SP3 Tourist zone.



Figure 1 – locality plan

Development for a highway service centre (truckstop) has recently been approved (DA 332/2019(1)) within the existing SP3 Tourist zone, and the proponents are seeking to collocate similar and complementary forms of development over more of the site. This would consist of four fast food outlets along the NDR frontage with other forms of highway related development to occur into the future.

The nominated SP3 zone allows only limited forms of commercial development and is therefore not likely to impact upon the trading performance of the main CBD, but instead provides opportunity to recapture trade from passing through traffic while also extending the range of services available to North Orange residents.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy “7.1 Preserve - Engage with the community to develop plans for growth and development that value the local environment”.

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

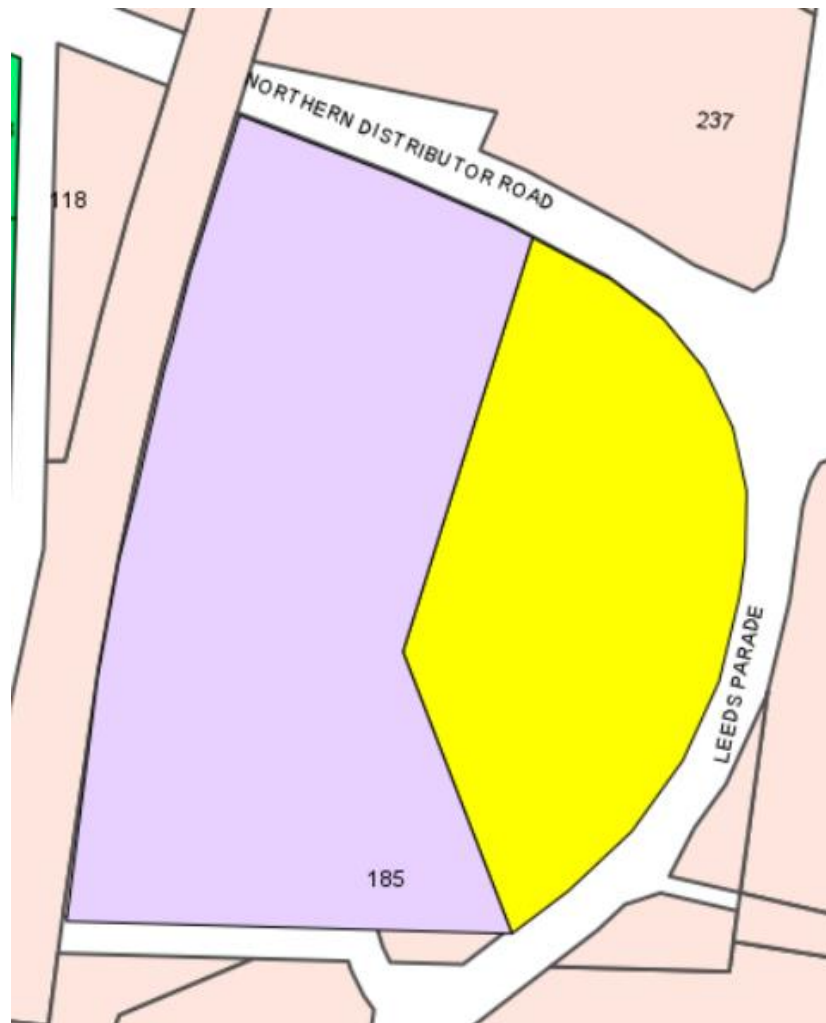
Nil

RECOMMENDATION

- 1 That Council resolve to support the planning proposal, enabling the matter to be progressed through to the Gateway process; with staff to forward the matter to the Department of Planning, Industry and Environment for assessment.**
- 2 That the matter then proceed in accordance with any requirements or conditions of a Gateway Determination before being returned to Council once the public and agency consultations have been concluded.**
- 3 That Council require the site to be subject to a Development Control Plan in the form of a masterplan that addresses:**
 - Urban design outcomes with respect to the presentation of the site to the frontages of Leeds Parade and the Northern Distributor Road.**
 - Measures to address potential acoustic impacts emanating from the site.**
 - Pedestrian and cyclist linkages and permeation of and through the site.**
 - Size, height and number limits on the extent of pylon signs, as well as appropriate and preferred locations for such signs.**
- 4 That the proponent be advised of the need to prepare a masterplan addressing the above matters, to enable future development of the site to proceed in an orderly manner.**

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation’s impact on Council’s service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION**Site Description and Context**

**Figure 2 – current extent of zones on the subject land
(purple is zone IN2 Light Industrial – yellow is zone SP3 Tourist)**

The subject land is 12.2ha on the corner of the Northern Distributor Road and Leeds Parade. The western boundary is formed by the Great Western Railway corridor and the southern boundary adjoins the former alignment of Leeds Parade. The terrain is gently undulating with a fall towards to the south-western corner.

To the north, across the NDR, is the Bunnings Warehouse site. Northeast of the site is Hanrahan Place, which connects directly to the roundabout via a fifth leg exit, contains two existing highway service centres and leads to a logistics facility at the end of Hanrahan Place. Undeveloped residential land is to the east, across Leeds Parade. South of the site is undeveloped B6 Enterprise Corridor land and northwest of the site, across the railway corridor, is an industrial zoned site that contains an existing dwelling, beyond which are more residences.

STRATEGIC PLANNING CONTEXT

Consistency with the Blayney Cabonne Orange Sub-Regional Rural and Industrial Strategy is considered to be satisfactory. While the site is identified in that strategy as industrial rather than highway services, the overall intent is employment generation. In that sense this site has potential to recapture trade from highway travellers due to its exposure to the Northern Distributor Road, a factor that other industrial/employment lands cannot match. Therefore the opportunity for highway service related employment is not able to be pursued at other locations, whereas generic industrial employment can be attained at alternative sites.

Objectives of the Zone(s)

The objectives of the SP3 Tourist zone are:

- *To provide for a variety of tourist-oriented development and related uses.*
- *To cater for the needs of the travelling public.*

In the Orange context the SP3 zone has been deployed at limited sites along the Northern Distributor Road specifically to enable proposals that service the highway/through traffic. Such traffic uses the NDR to avoid navigating the central areas of Orange, which is of benefit to local traffic conditions, but also reduces the economic benefits to the local economy from these travellers. By enabling specific sites along the NDR to cater to the needs of travellers this economic potential can be recaptured without undermining the performance of the CBD.

- *The objectives of the IN2 Light Industrial zone are:*
- *To provide a wide range of light industrial, warehouse and related land uses.*
- *To encourage employment opportunities and to support the viability of centres.*
- *To minimise any adverse effect of industry on other land uses.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.*
- *To support and protect industrial land for industrial uses.*

The IN2 zone on the site is derived from the historical industrial zoning of the entire zone under the former LEP 2000. This was selected over the IN1 zone when LEP 2011 was drafted in recognition that general industry would not be well suited adjacent to a successful development in the SP3 zone.

The current split of IN2 and SP3 was created without the benefit of a specific concept plan in place, and both the configuration and ratio were therefore always subject to adjustment.

Fundamentally the strategic intent for this site has always been for employment generating purposes. The nature of the jobs to be created at the site (industrial versus service oriented) is not considered to be a significant factor in this case as there is a clear need to recapture trade from through traffic, and such facilities are also able to expand the range of services to the local North Orange/Waratah population.

TRANSPORT AND TRAFFIC**Northern Distributor Road**

Council's Technical Services Division have reviewed the planning proposal and raised no objections. The internal road linking the site from Leeds Parade to the Northern Distributor Road has also been considered during assessment of the truckstop (DA 332/2019(1)). The approved internal road through the site from Leeds Parade would include a left-in left-out connection to the NDR, reducing the extent of traffic turning at the roundabout. The traffic impact assessment states that the cumulative development of the site is anticipated to generate 544 and 798 vehicle trips per hour in the morning and evening peak periods respectively, with an estimate of 50% being passer-by trips; and modelling indicates that the proposed access points will operate well.

Local Traffic

While the proposal is fundamentally aimed at servicing through traffic, local traffic flows past and around the site are a significant factor. This consists of traffic between the city centre and Charles Sturt University Campus, as well as traffic drawn to the Bunnings site on the other side of the NDR. East-west local traffic flows are related to the North Orange Shopping centre and Waratahs sporting complex, both accessed via Telopea Way.

The majority of vehicle movements into and out of this site are likely to be derived from existing traffic flows rather than the site becoming an attractor in its own right. To the extent that the development does attract new traffic, a substantial amount would come from the south along Leeds Parade and therefore have limited impact on the operation of the NDR. North Orange residents would be the exception, and this may result in an increase in the number of east-bound NDR vehicles opting to turn right at the NDR/Leeds Parade roundabout. Such vehicles leaving the site would use the internal road connection with the NDR and thus not impact on the roundabout.

Public Transport

The internal road connecting Leeds Parade to the NDR provides a suitable option for bus and taxi operators that removes them from the broader traffic flows along the NDR/Leeds Parade. As such, it is considered that the site can be readily served by public transport options.

Cycle and Pedestrian Movement

A public footpath exists along the entire frontage of the property, both the NDR and Leeds Parade. The slope of Leeds Parade in this area is likely to discourage pedestrian usage. However, the permeability of the site, due to the approved internal road between Leeds Parade and the NDR, would provide an improved connection for pedestrians and cyclists between the city and North Orange.

ENVIRONMENTAL CONSIDERATIONS**General**

The site is not considered to be at risk of bushfire, landslip or erosion. The site is not known to be contaminated from past uses and there is no significant flora or fauna on the site due to its history of grazing.

Noise Impacts

The site is located alongside and to the east of the rail corridor. While the proposal itself relates to non-residential development, building forms will need to be set back from the corridor to reduce any potential for rail vibrations to impact on the structures. Beyond this there are residences further to the west of the rail corridor, as well as undeveloped residential land to the east of the site across Leeds Parade.

The setbacks from the rail corridor can also serve to protect residents to the west, and future development of the site could include screen landscaping to assist in this regard. Residential land to the east is buffered by the width of Leeds Parade itself, as well as the front setbacks that would be anticipated. The generous size of the site enables a wide range of design responses.

It should be noted that the employment land status of the site is long established, and both current and future residents would have anticipated that some industrial or highway type of development would eventuate. The proposal, in seeking to increase the tourism zone, is reducing the potential industrial developments that could otherwise have occurred, and this may lead to a modest reduction in potential noise generated.

The likely hours of operation of the takeaway food and drink premises mean that the timing of noise emissions, rather than the absolute volume, could be a concern for residents. Preliminary site designs have sought to respond to this concern by facing activity inwards towards the internal road corridor (approved under the truck stop application). This would allow the building forms to act as sound barriers and can be supplemented by perimeter sound mounds and landscaping as needed.

A more detailed assessment of, and response to acoustic impacts would be expected during the subsequent DA, but it is evident that there is scope within the site to respond well to this constraint.

Stormwater Management

The planning proposal has reserved the south-western corner of the site for a potential detention basin. This would be scaled to suit the development as required during a DA process. The presence of the NDR to the north acts to limit the catchment effectively to the site itself. This enables the future development to be designed with confidence as to the extent of runoff and detention required.

Land or Site Contamination

The historic use of the site and a site inspection have not revealed any potential for land contamination. The zone being sought is not of a residential nature and is likely to have extensive sealing. Accordingly, contamination is not considered to be a concern for this proposal. More investigation can be required at the DA stage to confirm this view.

Flooding

Council conducted the Blackmans Swamp Creek and Ploughmans Creek Flood Study in 2019 to inform its planning and land management obligations. The study introduced and mapped overland flow flooding, in addition to riverine flooding, to the areas mapped for flood planning controls.

As indicated in the aerial image below, a modest dam exists in the north-western corner of the site, overflow from which feeds into a drainage path extending north-south toward the western third of the site, which in turn leads to a larger depression in the south-western corner of the site. From there water flows into drainage lines alongside the rail corridor.

The concept plan submitted in support of the proposal has allowed space for a detention basin in the southwest corner of the site which can be scaled to suit the extent of potential development.



Figure 3 – flood status of the subject land as per the Blackmans Swamp Creek and Ploughmans Creek Flood Study

URBAN DESIGN CONSIDERATIONS

The concept plan layout is preliminary and indicative only. It shows the likely pattern of creating clustered buildings either side of the internal access road. This suggests that the built form will be oriented to face inward, which will reduce potential noise impacts to surrounding areas but risks presenting extensive amounts of back-of-house building bulk to the NDR/Leeds Parade frontages.

The commercial nature of the site and its exposure to the NDR is likely to see additional advertising and signage form part of the development. Given the difference in elevations between the NDR and the subject land, this could result in pylon signs of significant height in order to appear at an appropriate level when viewed from the NDR. The visibility of such signage would extend well beyond the immediate area and potentially impact on the views of residents even some distance from the site.

Accordingly, a Site specific Development Control Plan should be considered prior to any additional development applications on the site. Such a DCP would enable the visual bulk and presentation of the site, and the advertising and signage requirements to be properly integrated into the development. The DCP would also be able to ensure that pedestrian and cyclist permeability is catered for up front as the internal access road is likely to be regarded as a short cut to North Orange by many people.

ECONOMIC CONSIDERATIONS**Potential to Conflict with the CBD**

Council has a long standing position of seeking to protect and enhance the trading performance of the CBD. Avoiding fragmentation, particularly of retail premises, helps to consolidate trade in the CBD, which draws more shoppers from further afield than would otherwise be the case. This approach keeps our CBD as an important regional centre and a greater range and number of businesses to be viable than would normally be supportable by just the local population.

Employment Land

The site has long been identified for employment generating uses; prior to Orange LEP 2011 the site was industrially zoned. When LEP 2011 was prepared the NDR was nearing completion and the site was identified as a suitable location to serve highway and through traffic. Consequently the SP3 Tourist zone was adopted for a portion of the site in anticipation of demand for highway service centre style development.

SOCIAL AND CULTURAL CONSIDERATIONS

The site is not known to contain any Aboriginal or European archaeological or heritage values.

While not zoned for or including any specific public open space, it is likely that in the near to mid term much of the site will remain undeveloped. In the longer term the south-western corner of the site will in all likelihood be retained as a stormwater detention basin, and could therefore be designed to serve a dual purpose of drainage and open space.

2.2 Planning Proposal to amend Orange Local Environmental Plan 2011 - rezoning of 185 Leeds Parade

Social and cultural impacts are considered to be negligible as there are no existing residences on the site. The vacant nature of the site and the absence of significant flora and fauna mean that the site is not likely to have become highly valued by the broader community.

Stakeholder engagement will be undertaken in accordance with Gateway requirements and is likely to include consultation with John Holland Rail and Transport for NSW. General public engagement will include the public exhibition process in due course.

INFRASTRUCTURE CONSIDERATIONS

Council's engineering section have raised no objection to the planning proposal.

CONSISTENCY WITH STATE PLANS AND POLICIES

Section 9.1 Ministerial Directions

1.1 Business and Industrial Zones

This direction applies when a planning proposal will affect land within an existing or proposed business or industrial zone.

The intent is to encourage employment growth in suitable locations, protect employment land and support the viability of identified centres.

When the direction applies a planning proposal must:

- (a) give effect to the objectives of this direction;
- (b) retain the areas and locations of existing business and industrial zones;
- (c) not reduce the total potential floor space area for employment uses and related public services in business zones;
- (d) not reduce the total potential floor space area for industrial uses in industrial zones; and
- (e) ensure that proposed new employment areas are in accordance with a strategy that is approved by the Secretary of the Department of Planning, Industry Environment.

However, a planning proposal may be inconsistent with the direction where justified by a relevant strategy, study, Regional or Sub-regional plan, or if the inconsistency is demonstrated to be of minor significance.

Comment: The proposal retains the land for employment generation. The nature of the employment to be generated may be different, but this is due to the site specific potential to serve the tourist, passing highway traffic which is not attainable at other sites. It should be noted that the Blayney, Cabonne Orange Sub-regional Strategy is currently being reviewed and has not indicated that Orange is lacking in industrial land supply.

Therefore to the extent that this proposal will remove a portion of an industrial zone it is considered to be of minor consequence as it will be replaced by another employment generating zone.

3.4 Integrating Land Use and Transport

This direction applies when a planning proposal will create, alter or remove a zone or provision related to urban land for residential, business, industrial, village or tourist purposes.

The intent is to improve access to housing, jobs and services by walking, cycling and public transport; increase the choice of available transport and reduce dependency on cars; reduce travel demand; support efficient and viable public transport services; and provide for the efficient movement of freight.

When the direction applies a planning proposal must locate zones for urban purposes and include provisions that give effect to the aims, objectives and principles of:

- (a) Improving Transport Choice – Guidelines for planning and development (DUAP 2001); and
- (b) The Right Place for Business and Services – Planning Policy (DUAP 2001).

However, a planning proposal may be inconsistent with the direction where justified by a relevant strategy, study, Regional or Sub-regional plan or if the inconsistency is demonstrated to be of minor significance.

Comment: The planning proposal is considered to be consistent with this direction

4.3 Flood Prone Land

This direction applies when a planning proposal will create, remove or alter a zone or provision that affects flood prone land.

The intent is to ensure that development of flood prone land is consistent with the NSW Government's Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005, and ensure that the provisions of an LEP on flood prone land is commensurate with the flood hazard both on and off the subject land.

When the direction applies a planning proposal must

- (a) include provisions that give effect to the Flood Prone Land Policy and associated Floodplain Development Manual;
- (b) not rezone land from special use, special purpose, recreation, rural or environmental protection zones to residential, business, industrial or special use/special purpose zones;
- (c) permit development in floodway areas, or that will result in significant flood impacts to other properties, or permit a significant increase in the development of that land, or be likely to result in a substantially increased requirement for government spending on flood mitigation, or permit development without consent except for agriculture, roads or other exempt development;
- (d) not impose flood related controls on residential development without adequate justification; and
- (e) not set or determine a flood planning level inconsistent with the Floodplain Development Manual 2005 without adequate justification.

2.2 Planning Proposal to amend Orange Local Environmental Plan 2011 - rezoning of 185 Leeds Parade

However, a planning proposal may be inconsistent with the direction where the proposal is shown to be in accordance with a floodplain risk management plan or otherwise justified by a relevant strategy, study, Regional or Sub-regional plan or if the inconsistency is demonstrated to be of minor significance.

Comment: The extent of flooding identified in the recent flood study is minor and reflects the topography of the site from an overland flow perspective. The concept plan reflects the pattern of overland flow occurring on the site, and has provided space for a detention basin in the south-western corner of the site consistent with the anticipated flooding behaviour. Additionally, the proposal is not seeking to establish new or additional employment lands, but rather to adjust the nature of already zoned land.

5.10 Implementation of Regional Plans

This direction applies to all planning proposals. The intent is to give legal effect to the vision, land use strategy, goals, directions and actions contained in Regional Plans.

When the direction applies a planning proposal must be consistent with the relevant Regional Plan.

However, a planning proposal may be inconsistent with the direction where justified by a relevant strategy, study, Regional or Sub-regional plan or if the inconsistency is demonstrated to be of minor significance.

Comment: The planning proposal is consistent with the Central West and Orana Regional Plan.

6.3 Site Specific Provisions

This direction applies when a planning proposal will allow a particular development to be carried out. The intent is to discourage unnecessarily restrictive site specific planning controls.

When the direction applies a planning proposal must allow the intended use to be carried out in the zone the land is situated on, or rezone the site, or allow the land use on the relevant land without imposing any development standards or requirements other than those already applying to the land or zone concerned. Additionally, a planning proposal must not contain or refer to drawings that show details of the development proposal.

However, a planning proposal may be inconsistent with the direction where justified by a relevant strategy, study, Regional or Sub-regional plan or if the inconsistency is demonstrated to be of minor significance.

Comment: The planning proposal is consistent with this direction. A site specific Development Control Plan is considered appropriate to allow for urban design outcomes to be clearly articulated and expressed to help inform the design of built form across the site. Such a DCP should not be viewed as adding site specific provision in this sense, but rather serve to clarify the expectations of the community that are already required under DCP 2004.

SEPP 64 Advertising and Signage

Subsequent development of the site for commercial land uses, allowed under the SP3 Tourist zone, is likely to include prominent advertising and signage. Because the NDR is not a classified road, consultation with Transport for NSW (formerly RMS) would not be triggered. However, as traffic volumes on the NDR continue to rise it is likely that the NDR may become a classified road at some future point. Therefore the provisions of schedule 1 of the SEPP, which provide a useful set of criteria to evaluate signs, should be considered during subsequent DAs.

SEPP (Infrastructure) 2007

The SEPP contains requirements to consult with the rail authority where certain development is to occur within or adjacent to a rail corridor. While it is unlikely that the subsequent DA would trigger these requirements, the rezoning would have that potential. Therefore it is anticipated that a Gateway Determination would include a requirement to consult with the rail authority.

The SEPP also contains provisions relating to Traffic Generating Development. Essentially this consists of a set of trigger points, such as traffic volumes or parking spaces for different forms of development. If triggered by a DA the matter needs to be referred to Transport for NSW (formerly RMS) for consideration. While it cannot be determined during the planning proposal stage, there is a distinct potential for the site to reach those thresholds. Consequently it is anticipated that a Gateway Determination would include a requirement to consult with Transport for NSW.

ANTICIPATED PROJECT TIMELINE**Gateway Process**

Should Council resolve to proceed, the planning proposal and associated documents will be supplied to the Department of Planning, Industry and Environment for evaluation under the Gateway process. This typically takes 4–8 weeks, but can vary considerably in both direction. Once issued the Gateway Determination will outline the remainder of the process. This typically includes:

- Whether the Minister will delegate the power to make the plan to Council or withhold such delegation (typically in cases where the Council has a direct interest in the site or matter concerned).
- Any additional information or changes to the planning proposal required before consultation and exhibition can proceed.
- A list of government departments and agencies that are to be consulted.
- The public consultation and exhibition periods (typically 28 days).
- Whether a public hearing is required (typically only applies to reclassification of Council owned or controlled land under the *Local Government Act 1993*).
- Formal drafting of the amendment through Parliamentary Counsel.
- Finalisation of the amendment by publishing the change on the legislation website.

2.2 Planning Proposal to amend Orange Local Environmental Plan 2011 - rezoning of 185 Leeds Parade

Agency Consultation

Given the site location and nature of the planning proposal, it is anticipated that the Gateway Determination may require consultation with Transport for NSW (formerly RMS) and John Holland Rail.

Community Consultation

Typically a 28 day public exhibition period is required. All materials will be made available on Council's website and at the Civic centre for inspection during the required period.

Post Exhibition Evaluation

Once the exhibition period has concluded, all submissions received (from both the community and agencies) will be collated and reviewed. Issues identified in the submissions are then evaluated for significance, and where appropriate the proponent will be invited to respond, which may include relevant changes.

Report and Finalisation

Once all submissions have been reviewed, a further report to Council will be prepared to outline the response of agencies and the community, as well as any suggested adjustments. Council retains the option to reject a planning proposal at any time up to and including the final report. However, if endorsed the matter is then finalised, either by the CEO under delegation from Council or by the Department of Planning, Industry and Environment in cases where the Gateway Determination withheld delegations from Council.

ATTACHMENTS

- 1 Planning Proposal - 185 Leeds Parade - December 2019, D20/27717 [↓](#)
- 2 Planning Proposal - Site and Context Plans, D20/27718 [↓](#)
- 3 Planning Proposal - Concept and Zone Plan, D20/27719 [↓](#)
- 4 Planning Proposal - Traffic Impact Assessment, D20/27720 [↓](#)
- 5 Planning Proposal - Acoustic Assessment, D20/27721 [↓](#)
- 6 Planning Proposal - Environmental Site Assessment, D20/27722 [↓](#)



PLANNING PROPOSAL

Rezone 185 Leeds Parade, Orange
(Lot 4 DP 1185665) from
IN2 Light Industrial to SP3 Tourist

Prepared for
JASBE Petroleum
December 2019

Ref: PP – PJB19068

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	OVERVIEW	1
1.2	SUBJECT LAND.....	2
2.0	OBJECTIVES OR INTENDED OUTCOMES	6
3.0	EXPLANATION OF PROVISIONS	8
4.0	JUSTIFICATION	8
4.1	NEED FOR THE PLANNING PROPOSAL.....	8
4.2	RELATIONSHIP TO STRATEGIC PLANNING FRAMEWORK	12
4.3	ENVIRONMENTAL, SOCIAL AND ECONOMIC IMPACT	27
4.4	STATE AND COMMONWEALTH INTERESTS	39
5.0	COMMUNITY CONSULTATION.....	39
6.0	CONCLUSION	41
Annexure A		
Land Plans and Draft LEP Map		
Annexure B		
Concept Plan		
Annexure C		
Traffic Impact Assessment by TTPP		
Annexure D		
Planning Noise Assessment by Atkins Acoustics		
Annexure E		
Environmental Site Assessment by Resolve Environmental		

1.0 INTRODUCTION

1.1 OVERVIEW

This Planning Proposal describes a proposed amendment to Orange Local Environmental Plan 2011 (the LEP).

The subject land is located at 185 Leeds Parade, Orange. The Real Property description is Lot 4 DP 1185665, Parish of Orange, County of Wellington.

The subject land is zoned SP3 Tourist and IN2 Light Industrial. This Planning Proposal seeks to extend the SP3 Zone to facilitate certain development within the subject land.

The proposed extension of the SP3 Zone is requested due to the following:

- Due to its frontage, exposure and accessibility to the Northern Distributor Road (being one of the City's major transport routes) the subject land represents a suitable site for the range of uses that are permitted in the SP3 Tourist Zone. By their very nature, many of these uses rely on direct frontage, exposure and access to a major transport route. Therefore, it is a reasonable proposition to amend the SP3 Zone so that it at least extends along the entire frontage to Northern Distributor Road.
- Planning for recent projects within the subject land has demonstrated that the extent of the current SP3 Zone is insufficient to accommodate specific developments that are proposed. In this regard, the proposed rezoning will facilitate development of the land as outlined below and in the attached concept plan (refer *Annexure B*):
 - The north eastern section of the site is the subject of a current development application (DA 332/2019(1)) which seeks approval for a *highway service centre*. This part of the subject land is already zoned SP3 and a *highway service centre* is permissible development. This application is currently being assessed by Orange City Council.
 - The same proponent also proposes to establish 4 fast food outlets (*food and drink premises*) to the west of the proposed *highway service centre*. This part of the subject land is zoned IN2 Light Industrial and prohibits *food and drink premises*. The intention is for the fast food outlets to complement the proposed highway service centre. The extension of the SP3 Zone onto this part of the land is necessary to facilitate this aspect of the development.

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 2

- An interest has been expressed in the south eastern section of the site by another fast food operator seeking to become accessible to northbound traffic along Leeds Parade.
- The extended SP3 Zone will encompass the highway service centre and fast food outlet proposals to form a cohesive tourism/service/convenience precinct that will firstly be of benefit for travellers along the Northern Distributor Road, Leeds Parade and also for the expanding North Orange area which includes existing and proposed residential areas; the Narrambla industrial estate; and Charles Sturt University.

The Planning Proposal has been prepared in accordance with Section 3.33 of the Environmental Planning & Assessment Act 1979 (the Act) and the Department of Planning's advisory document *A Guide to Preparing Planning Proposals*. It represents the first step in the process of amending the LEP and the intent is to provide enough information to determine whether there is merit in the proposed amendment proceeding to the next stage of the plan-making process.

A Gateway determination under Section 3.34 of the Act is requested. It is acknowledged that the Gateway determination will confirm the information (which may include studies) and consultation required before the LEP can be finalised.

This Planning Proposal is supported by the following documentation:

Annexure A: Land Plans and Draft LEP Map

Annexure B: Concept Plan

Annexure C: Traffic Impact Assessment

Annexure D: Planning Noise Assessment

Annexure E: Environmental Site Assessment

1.2 SUBJECT LAND

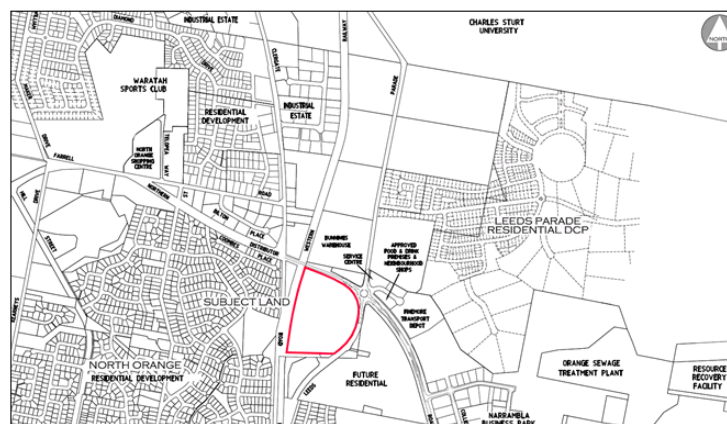
a) Location

The subject land is located on the south western corner of the Leeds Parade and Northern Distributor Road. The street address is 185 Leeds Parade, Orange.

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 3



b) Site Description

The Real Property description of the land is Lot 4 DP 1185665, Parish of Orange, County of Wellington (land plans are provided in *Annexure A*).

The subject land is vacant with an area of 12.2 hectares. It is a corner allotment with curved road frontages to Northern Distributor Road, (which forms the northern boundary) and Leeds Parade (which forms the eastern boundary). The western boundary is formed by the Great Western Railway corridor. The southern boundary adjoins the former alignment of Leeds Parade.

The terrain is gently undulating with a gradual fall towards the south western corner. The predominant surface cover is grass. Except for a lone eucalypt in the north eastern section, the land is clear of native vegetation.

Drainage occurs via the natural surface. The land is not affected by any defined watercourses. A small dam is located in the north western corner.

The site of the proposed highway service centre development (DA332/2019(1)) is located in the north eastern section of the subject land, with the intention to achieve reasonable exposure to traffic along Northern Distributor Road.

The surrounding development and zoning pattern is depicted below and includes:

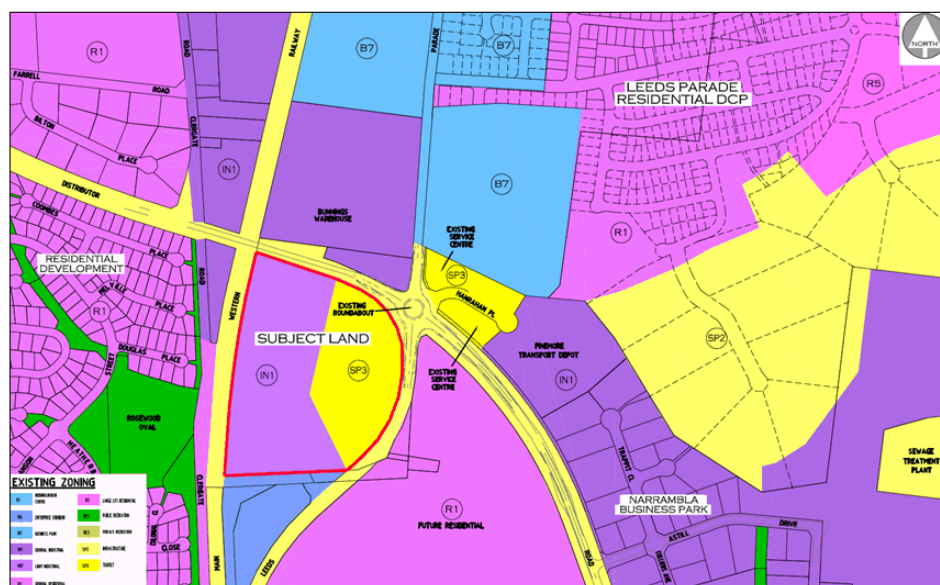
- The Bunnings Warehouse site to the north on the opposite side of Northern Distributor Road.
- The Hanrahan Place precinct to the north east on the opposite side of Northern Distributor Road. This precinct comprises two existing highway service centres

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 4

- Zoned but undeveloped residential land to the east on the opposite side of Leeds Parade.
- Zoned but undeveloped land zoned B6 Enterprise Corridor to the south.
- The Great Western Railway corridor along the western boundary with residential neighbourhoods commencing on the western side of the railway corridor.
- An existing industrial site to the north west on the opposite side of the railway corridor and Northern Distributor Road.



c) Current LEP Provisions

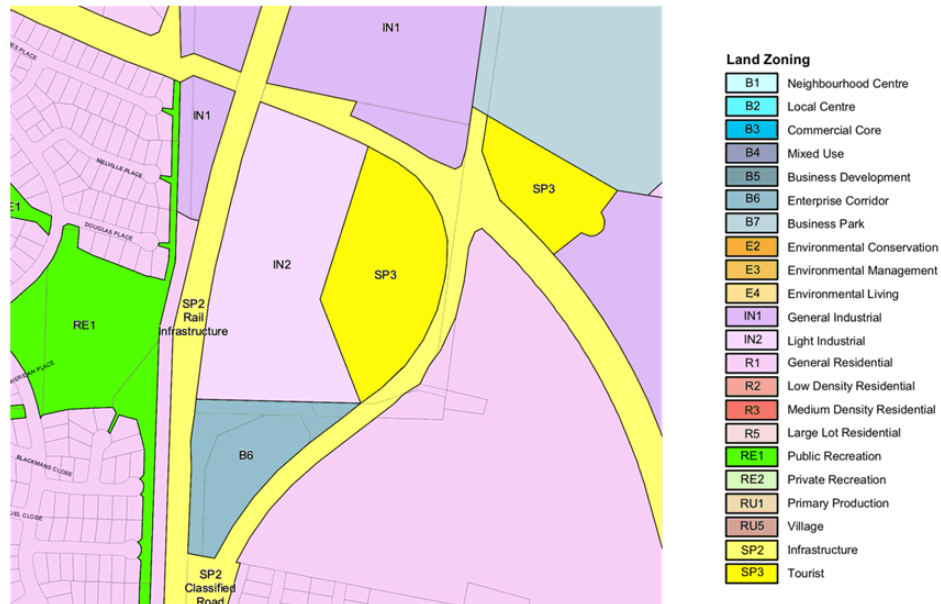
The site is subject to certain provisions of Orange Local Environmental Plan 2011 which are relevant to this Planning Proposal and outlined below.

The land (outlined in red in the LEP map extract below) is zoned SP3 Tourist and IN2 Light Industry. Leeds Parade and Northern Distributor Road along the site frontages are zoned SP2 (Classified Road).

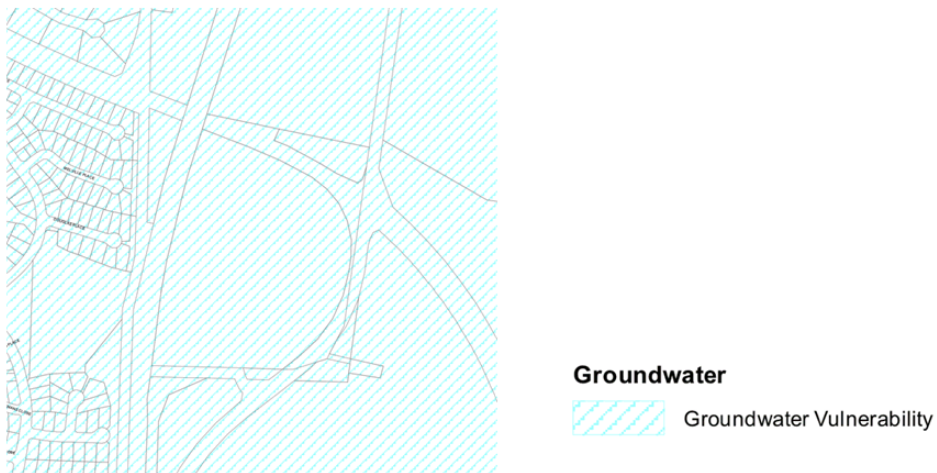
Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 5



The subject land (indicated approximately in the LEP map extract below) is defined as having groundwater vulnerability, as is the majority of the Orange urban area and its surrounds.



Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 6

2.0 OBJECTIVES OR INTENDED OUTCOMES

2.1 PLANNING PROPOSAL OBJECTIVES

The objectives of this Planning Proposal are:

- To rezone part of the subject land from IN2 Light Industrial to SP3 Tourist.
- To satisfy the relevant aims and objectives of Orange LEP 2011.
- To demonstrate that the proposal would not generate unacceptable impacts in the locality.
- To ensure that the proposal would not have an unreasonable impact on the primacy of the Orange CBD or the hierarchy of existing business zones in Orange.

2.2 PLANNING PROPOSAL OUTCOMES

The intended outcome of the Planning Proposal is to enable development of the site as a cohesive and interrelated tourism/service/convenience precinct that will be of benefit for travellers along the Northern Distributor Road and also for the expanding North Orange area which includes existing and proposed residential areas; the Narrambla industrial estate; and Charles Sturt University.

To this end, and with reference to the development concept plan in *Annexure B*:

- The north eastern section of the site is the subject of a current development application (DA 332/2019(1)) which seeks approval for a *highway service centre*. That development proposes the following:
 - A main building which will comprise a service station; convenience store; takeaway food and drink tenancies (including drive-through); in-house dining/seating; public toilets and amenities; and dedicated areas for truck drivers.
 - On-site parking including a dedicated area for trucks.
 - Construction of a new access point onto Northern Distributor Road and a new road through the site that links to Leeds Parade.

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 7

- The same proponent also seeks to establish 4 fast food outlets (*food and drink premises*) to the west of the proposed *highway service centre*. With reference to the development concept plan:
 - Access would be provided via the new road and intersections proposed as part of the current DA for the *highway service centre*.
 - Each fast food outlet will provide a drive-through as well in-house dining.
 - The outlets are focussed around a central car parking area.
- Another fast food operator has expressed an interest to become established in the south eastern corner of the site to become accessible to northbound traffic along Leeds Parade. Typical of fast food operations of this type, it would provide a drive-through as well in-house dining and be provided with on-site car parking.

The concept plan shows that the subject land would be suitable for the proposal, particularly in regard to the following:

- The frontage, access and exposure to Northern Distributor Road and Leeds Parade, as well as the proximity to expanding residential and industrial areas represent logical and important attributes that underpin the overall concept for this site.
- The site is not constrained in terms of vehicle manoeuvring and parking. In this regard the concept shows that:
 - Future entrance and exit points can be established to integrate with the planned road and intersections.
 - The site has ample capacity to address off-street parking requirements.
 - The site can accommodate the turn path of vehicles likely to be associated with the development.
- The site provides reasonable opportunity for landscaping to be provided around buildings; vehicle areas; and road frontages.
- The intervening rail corridor provides reasonable separation between the subject site and the residential area that commences to the west. This physical separation in conjunction with sensible development design and management may assist to minimise potential impacts in terms of noise and residential amenity.

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 8

Notwithstanding the fact that fast food operators have expressed a firm commitment to the site, it is important to note that:

- The concept plan is indicative only at this stage for the high-level purpose of a Planning Proposal.
- The final development option will be subject to analysis, design, assessment, and the approvals process.
- Should the rezoning be successful, the SP3 Zone would also permit a range of other uses that are not necessarily depicted in the concept plan.

3.0 EXPLANATION OF PROVISIONS

The objectives or intended outcomes of this Planning Proposal would be achieved by amending the *Orange Local Environmental Plan 2011 Land Zoning Map (Sheet LZN_007D)* so that the relevant section of the subject land is zoned SP3 Tourist.

4.0 JUSTIFICATION

4.1 NEED FOR THE PLANNING PROPOSAL

a) Is the planning proposal a result of any strategic study or report?

The Planning Proposal is not the result of any strategic study or report. It represents a submission by the proponent to have the subject land rezoned to facilitate a specific development concept.

b) Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

An amendment to the Orange LEP 2011 Land Zoning Map as it applies to the subject land is the best means of achieving the objectives or intended outcomes.

The Planning Proposal is a response to a shortcoming in the current zoning pattern. The extent of the current SP3 Zone within the subject land appears somewhat arbitrary. It does not fully capture the generous exposure and frontage to the

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 9

Northern Distributor Road, which are recognised as important and logical attributes that underpin the SP3 Tourist Zone. Also, the adjustment of the zone that would occur in the south eastern corner would relate to the proposed new road alignment and tie the zoning pattern to a cadastral boundary.

An amendment to enable the proposal via the Additional Permitted Use schedule of Orange LEP 2011 is not preferred. The nomination of specific uses may prove too narrow for the development potential of this site.

c) Is there a net community benefit?

The following information is provided to assist with the assessment of net community benefit. The information is based on the Evaluation Criteria (p.25) provided in the NSW Department of Planning *Draft Centres Policy, Planning for Retail and Commercial Development*.

Will the LEP be compatible with agreed State and regional strategic direction for development in the area (e.g. land release, strategic corridors, development within 800 metres of a transport node)?

There are no State or regional strategies of this type applicable to the proposal.

Is the LEP located in a global/regional city, strategic centre or corridor nominated within the Metropolitan Strategy or other regional/sub-regional strategy?

No.

Is the LEP likely to create a precedent or change expectations of the landowner or other landholders?

The Planning Proposal is unlikely to create a precedent or change expectations due to the following:

- Part of the subject land is already identified within the SP3 Tourist Zone.
- The proposal does not introduce a new land use zone to the area. It simply seeks to expand the existing SP3 Zone across land in the IN2 Light Industrial Zone. An area of IN2 Zone land will be retained.
- The expanded SP3 zone would more appropriately capture the generous exposure and frontage of the site to the Northern Distributor Road, which are recognised as important and logical attributes that underpin the SP3 Tourist Zone.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 10

- It is submitted that the potential impacts that may be associated with the uses that are currently permitted in the IN2 Zone would not be unlike the potential impacts associated with the likely uses that may be permitted in the SP3 Zone.

Have the cumulative effects of other spot rezoning proposals in the locality been considered? What was the outcome of these considerations?

There are no known spot rezoning proposals in the locality.

Will the LEP facilitate permanent employment generating activity or result in a loss of employment lands?

Yes. The Planning Proposal is to facilitate a specific development for the site which will generate an increase in employment opportunities.

Whilst the Planning Proposal would reduce the amount of IN2 Zone land, it does not reduce the current amount of employment lands within the Orange LGA.

Will the LEP impact upon the supply of residential land and therefore housing supply and affordability?

The Planning Proposal does not reduce the supply of residential land.

Under the present zoning, the subject land does not permit residential accommodation. This situation remains unchanged by the Planning Proposal.

Is the existing public infrastructure (roads, rail, utilities) capable of serving the proposed site? Is there good pedestrian and cycling access? Is public transport available or is there infrastructure capacity to support future public transport?

The site integrates with public infrastructure. In this regard:

- It is adjacent to the Northern Distributor Road and Leeds Parade which form part of the City's distributor road network.
- It is within reasonable cycling distance of existing residential neighbourhoods.
- Pedestrian access is not ideal but this is largely due to the primary focus as a service and convenience precinct for the travelling public and local traffic. Notwithstanding, the site is served by pedestrian pathways that link it to residential areas to the south and west.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 11

Will the proposal result in changes to the car distances travelled by customers, employees and suppliers? If so what are the likely impacts in terms of greenhouse gas emissions, operating costs and road safety?

Due to its location and integration with the local road network, the proposal is unlikely to result in changes to the car distances travelled by customers, employees and suppliers.

By facilitating an interrelated tourism/service/convenience, the proposal may shorten travel distances for the local residential and employment population.

Are there significant Government investments in infrastructure or services in the area whose patronage would be affected by the proposal? If so what is the expected impact.

Generally, there are no significant Government investments of infrastructure or services in the area whose patronage would be affected by this proposal.

However, the proposal may be of convenience to the existing Charles Sturt University Campus which lies north of the site.

Will the proposal impact on land that the Government has identified a need to protect (e.g. land with high biodiversity values) or have other environmental impacts? Is the land constrained by factors such as flooding?

The proposal will not impact on land that the Government has identified a need to protect.

The land is not constrained by flooding or other factors.

Will the LEP be compatible/complementary with surrounding land uses? What is the impact on amenity in the location and wider community? Will the public domain improve?

Yes. The intent is to facilitate land uses that are complementary to the uses that exist or are permissible in this area.

In terms of amenity, Section 4.3 of the Planning Proposal considers the key relevant issues, including:

- Visual impacts
- Traffic generation and car parking

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 12

- Noise, dust, light and odour generation
- Privacy and overshadowing
- Proximity to residential development

There are no aspects of the Proposal that would detract from the public domain.

Will the proposal increase choice and competition by increasing the number of retail and commercial premises operating in the area?

Yes, the broadening of the range of uses on the subject land has the potential to increase choice and competition.

If a stand-alone proposal and not a centre, does the proposal have the potential to develop into a centre in the future?

The proposal is regarded as stand-alone and does not have the potential to develop into a centre in the future.

What are the public interest reasons for preparing the draft plan? What are the implications of not proceeding at that time?

In terms of the public interest, the proposal would:

- Facilitate a cohesive and interrelated tourism/service/convenience precinct that will be of benefit for travellers along the Northern Distributor Road and also for the expanding North Orange area which includes existing and proposed residential areas; the Narrambla industrial estate; and Charles Sturt University.
- Increase employment opportunities.
- Reduce travel times and fuel consumption.

To not proceed would result in a lost opportunity and perhaps a loss of potential social and economic benefits.

4.2 RELATIONSHIP TO STRATEGIC PLANNING FRAMEWORK

- a) **Is the planning proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy?**

There is no Regional Strategy that is relevant to the subject land or proposal.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 13

b) Is the planning proposal consistent with the local Council's Community Strategic Plan or other local strategic plan?

The subject land was broadly identified in the *Orange Business Centre Strategy Review (2005)* as Site D.

The *Orange Business Centre Strategy Review (2005)* by Leyshon Consulting made the following comments/assessment of the site:

- The site would cater for the identified long-term retail needs of North Orange.
- The site is considered less suitable than other sites given it is less central to the initial stages of the residential release in North Orange and is not as proximate to existing and proposed community and recreational facilities.
- The site would reduce the amount of zoned industrial land in Orange but this may not be a significant consideration as the area can be made up elsewhere.

Having regard to the above comments, the proposal is not considered to be adverse to the Strategy due to the following:

- The proposal does not seek to establish the site for the type of retailing that can be accommodated in other centres around the City, especially the CBD. Instead, the proposal seeks to facilitate a suite of complementary uses to create a tourism/service/convenience precinct that will be of benefit for travellers along the Northern Distributor Road and also for the expanding North Orange area which includes existing and proposed residential areas; the Narrambla industrial estate; and Charles Sturt University.
- Whilst the proposal would reduce the amount of industrial zoned land, the perceived loss would be acceptable from a planning point of view due to the following:
 - The site (or part thereof) has been zoned SP3 Tourist under Orange LEP 2011. Therefore the site does not fully represent the industrial land supply that was mentioned in the Strategy.
 - Further, there remains a considerable supply of zoned and currently undeveloped industrial land further to the north along Clergate Road. The take up rate of this supply remains slow.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 14

- If employment generation is a goal of having industrial zoned land, then it is a reasonable suggestion that the range of uses permitted in the SP3 Zone are themselves employment generating (particularly food and drink premises, and tourist and visitor accommodation) and would bring similar benefits.

The *Orange Business Centre Strategy Review (2005)* was most recently updated in the *Business Centres Review Study* by Leyshon Consulting in 2010. It is our submission that the Proposal remains consistent with the Strategy to the following extent:

- The Strategy review estimates that the Orange trade area could support up to 25,490m² of additional retail floorspace between 2009-21 under a low population growth scenario; and up to 40,974m² of additional floorspace under a high population growth scenario. This Proposal represents only a modest addition to the retail floor space supply for the City and would be limited to only the types of retail allowed under the SP3 Zone. Given the projected floor space requirements provided in the Strategy, it is submitted that the impact of this Proposal would be negligible.
- The Proposal would not conflict with the long held strategic objective that seeks to consolidate the City Centre as the dominant retail centre. In this regard:
 - As indicated above, it is recognised at a strategic level that the site has some role to play in serving the retail needs of North Orange. As a result of the SP3 Zone and recently approved development it also has a role to serve the retail needs of the travelling public.
 - The site requirements/arrangements for this Proposal (drive-through facilities; expansive off-street parking areas; large vehicle manoeuvring areas; and the like) cannot be met in the CBD. In any case, a CBD site, if it could be found, is of no use given that the intent of this proposal is to serve the travelling public along Northern Distributor Road, as well as the expanding residential and workforce populations in North Orange.
- The Proposal would not conflict with the strategic objective that seeks to maintain the viability of other centres. In this regard, the North Orange Shopping Centre is the nearest to the subject land but would be unable to accommodate the proposed development partly due to zoning constraints but mainly due to the lack of sufficient site area.

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 15

c) Is the planning proposal consistent with applicable State Environmental Planning Policies?

The consistency of the proposal in relation to the applicable State Environmental Planning Policies is indicated in the schedule below.

State Environmental Planning Policies – Schedule of Consideration	
SEPP	Relevance/Comment
SEPP No. 1 - Development Standards	Not applicable
SEPP No. 19 - Bushland in Urban Areas	Not applicable
SEPP No. 21 – Caravan Parks	Not applicable
SEPP No. 33 - Hazardous and Offensive Development	Not applicable
SEPP No. 36 - Manufactured Home Estates	Not applicable
SEPP No. 44 - Koala Habitat Protection	Not applicable
SEPP No. 50 - Canal Estates	Not applicable
SEPP No. 55 - Remediation of Land	Applicable. Addressed in Planning Proposal at Section 4.3 subheading <i>Land/Site Contamination</i>
SEPP No. 64 - Advertising and Signage	Not applicable
SEPP No. 65 - Design Quality of Residential Flat Development	Not applicable

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 16

State Environmental Planning Policies – Schedule of Consideration	
SEPP	Relevance/Comment
SEPP 70 - Affordable Housing (Revised Schemes)	Not applicable
SEPP (Aboriginal Land) 2019	Not applicable
SEPP (Affordable Rental Housing) 2009	Not applicable
SEPP (Building Sustainability Index: BASIX) 2004	Not applicable
SEPP (Coastal Management) 2018	Not applicable
SEPP (Concurrences) 2018	Not applicable
SEPP (Educational Establishments and Child Care Facilities) 2017	Not applicable
SEPP (Exempt and Complying Development Codes) 2008	Not applicable
SEPP (Gosford City Centre) 2018	Not applicable
SEPP (Housing for Seniors or People with a Disability) 2004	Not applicable
SEPP (Infrastructure) 2007	Consistent
SEPP (Kosciuszko National Park – Alpine Resorts) 2007	Not applicable

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 17

State Environmental Planning Policies – Schedule of Consideration	
SEPP	Relevance/Comment
SEPP (Kurnell Peninsula) 1989	Not applicable
SEPP (Mining, Petroleum Production & Extractive Industries) 2007	Not applicable
SEPP (Miscellaneous Consent Provisions) 2007	Not applicable
SEPP (Penrith Lakes Scheme) 1989	Not applicable
SEPP (Primary Production and Rural Development) 2019	Not applicable
SEPP (State and Regional Development) 2011	Not applicable
SEPP (State Significant Precincts) 2005	Not applicable
SEPP (Sydney Drinking Water Catchment) 2011	Not applicable
SEPP (Sydney Region Growth Centres) 2006	Not applicable
SEPP (Three Ports) 2013	Not applicable
SEPP (Urban Renewal) 2013	Not applicable
SEPP (Vegetation in Non-Rural Areas) 2017	Not applicable

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 18

State Environmental Planning Policies – Schedule of Consideration	
SEPP	Relevance/Comment
SEPP (Western Sydney Employment Area) 2009	Not applicable
SEPP (Western Sydney Parklands) 2009	Not applicable

d) Is the planning proposal consistent with applicable Ministerial Directions?

Section 9.1 of the Environmental Planning and Assessment Act, 1979 allows the Minister to give directions to Councils regarding the principles, aims, objectives or policies to be achieved or given effect to in the preparation of draft Local Environmental Plans.

A Planning Proposal needs to be consistent with the requirements of the Direction but can be inconsistent if justified using the criteria stipulated.

The consistency or otherwise of the planning proposal with the Ministerial Directions is indicated below.

1. EMPLOYMENT AND RESOURCES

1.1 Business and Industrial Zones

This Direction is applicable to the Planning Proposal because the Planning Proposal affects land within an existing or proposed business or industrial zone (including the alteration of any existing business or industrial zone boundary).

The objectives of this Direction are to:

- a) encourage employment growth in suitable locations,
- b) protect employment land in business and industrial zones, and
- c) support the viability of identified centres.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 19

According to this Direction, a planning proposal must

- a) give effect to the objectives of this direction,
- b) retain the areas and locations of existing business and industrial zones,
- c) not reduce the total potential floor space area for employment uses and related public services in business zones,
- d) not reduce the total potential floor space area for industrial uses in industrial zones, and
- e) ensure that proposed new employment areas are in accordance with a strategy that is approved by the Secretary of the Department of Planning and Environment.

The Planning Proposal is consistent with this Direction due to the following:

- It upholds the objectives of the Direction as follows:
 - The proposal will encourage employment growth in a location that is already established for employment purposes.
 - The proposal would assist to increase employment opportunities.
 - For the reasons outlined in this report the proposed expansion of the SP3 Zone does not threaten the viability and function of the City's existing business centres (particularly the Orange CBD).
- It does not reduce the total potential floor space area for employment uses and related public services in business zones.
- The expansion of the SP3 Zone would reduce the IN2 Zone. As such, the proposal would reduce floor space area for industrial uses in industrial zones. However, the loss of industrial zoned land has been justified for the following reasons:
 - The site (or part thereof) is already zoned SP3 Tourist under Orange LEP 2011.
 - There remains a considerable supply of zoned and currently undeveloped industrial land further to the north along Clergate Road. The take up rate of this supply remains slow.

*Peter Basha
Planning & Development*

- If employment generation is a goal of having industrial zoned land, then it is a reasonable suggestion that the range of uses permitted in the SP3 Zone are themselves employment generating (particularly food and drink premises, and tourist and visitor accommodation) and would bring similar benefits.
- It does not involve new employment areas in any strategy that is approved by the Director-General of the Department of Planning.

1.2 Rural Zones

This Direction is not relevant to this Planning Proposal.

1.3 Mining, Petroleum and Extractive Industries

This Direction is not relevant to this Planning Proposal.

1.4 Oyster Aquaculture

This Direction is not relevant to this Planning Proposal.

1.5 Rural Lands

This Direction is not relevant to this Planning Proposal.

2. ENVIRONMENT AND HERITAGE

2.1 Environment Protection Zones

This Direction is not relevant to this Planning Proposal.

2.2 Coastal Management

This Direction is not relevant to this Planning Proposal.

2.3 Heritage Conservation

This Direction is not relevant to this Planning Proposal.

2.4 Recreation Vehicle Areas

This Direction is not relevant to this Planning Proposal.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 21

2.5 Application of E2 and E3 Zones and Environmental Overlays in Far North Coast LEPs

This Direction is not relevant to this Planning Proposal.

3. HOUSING, INFRASTRUCTURE AND URBAN DEVELOPMENT***3.1 Residential Zones***

This Direction is not applicable to the Planning Proposal.

3.2 Caravan Parks and Manufactured Home Estates

This Direction is not relevant to this Planning Proposal.

3.3 Home Occupations

This Direction is not relevant to this Planning Proposal.

3.4 Integrating Land Use and Transport

This Direction applies to the Planning Proposal.

There are no aspects of the proposal that are inconsistent with the objectives of this Direction, particularly as:

- The existing road system would be of an adequate standard to cater for the additional traffic that would be generated by this proposal.
- The proposal will contribute to the “one-stop shop” aim of the precinct and should therefore facilitate multi-purpose trips at a single location.
- As such it is expected to reduce travel distances for the travelling public; residents of North Orange; students/staff/residents at Charles Sturt University; and employees engaged at the nearby industrial estates.
- Traffic associated with the future likely uses of the site is expected to integrate with the existing local traffic regime.

3.5 Development near Regulated Airports and Defence Airfields

This Direction is not relevant to this Planning Proposal.

*Peter Basha
Planning & Development*

Rezoning 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 22

3.6 Shooting Ranges

This Direction is not relevant to this Planning Proposal.

3.7 Reduction in non-hosted short term rental accommodation period

This Direction is not relevant to this Planning Proposal.

4. HAZARD AND RISK***4.1 Acid Sulphate Soils***

This Direction is not relevant to this Planning Proposal.

4.2 Mine Subsidence and Unstable Land

This Direction is not relevant to this Planning Proposal.

4.3 Flood Prone Land

This Direction is not relevant to this Planning Proposal.

4.4 Planning for Bushfire Protection

This Direction is not relevant to this Planning Proposal.

5. REGIONAL PLANNING***5.1 Implementation of Regional Strategies***

This Direction is not relevant to this Planning Proposal.

5.2 Sydney Drinking Water Catchments

This Direction is not relevant to this Planning Proposal.

5.3 Farmland of State and Regional Significance on the NSW Far North Coast

This Direction is not relevant to this Planning Proposal.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 23

5.4 Commercial and Retail Development along the Pacific Highway, North Coast

This Direction is not relevant to this Planning Proposal.

5.5 Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA)

Revoked

5.6 Sydney to Canberra Corridor

Revoked

5.7 Central Coast

Revoked

5.8 Second Sydney Airport: Badgery's Creek

Revoked

5.9 North West Rail Link Corridor Strategy

This Direction is not relevant to this Planning Proposal

5.10 Implementation of Regional Plans

This Direction requires the Planning Proposal to be consistent with the *Central West and Orana Regional Plan 2036*. Consideration of the proposal against the Directions in the Regional Plan is provided below.

Central West and Orana Regional Plan 2036	
Direction	Comment
1. Protect the region's diverse and productive agricultural land	Not relevant to this PP
2. Grow the agribusiness sector and supply chains	Not relevant to this PP

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 24

Central West and Orana Regional Plan 2036	
Direction	Comment
3. Develop advanced manufacturing and food processing sectors	Not relevant to this PP
4. Promote and diversify regional tourism markets	Consistent. The proposal will contribute to an improvement in tourism related services
5. Improve access to health and aged care services	Not relevant to this PP
6. Expand education and training opportunities	Not relevant to this PP
7. Enhance the economic self-determination of Aboriginal communities	Not relevant to this PP
8. Sustainably manage mineral resources	Not relevant to this PP
9. Increase renewable energy generation	Not relevant to this PP
10. Promote business and industrial activities in employment lands	Consistent with this Direction. The PP facilitates development of a type that will increase the potential for the subject land to be used for employment generating activities.
11. Sustainably manage water resources for economic opportunities	The subject land is identified as having ground water vulnerability (as is much of the Orange urban area). Appropriate measure can be considered at the DA stage to ensure future development does not generate additional impacts in this regard.

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 25

Central West and Orana Regional Plan 2036	
Direction	Comment
12. Plan for greater land use compatibility	Consistent. The SP3 Zone is not a new zone in this area. In effect the Proposal would see the expansion of the existing SP3 Zone, essentially to replace the existing IN2 Zone. The uses that are permitted under the SP3 Zone are considered to be no less compatible with the surrounding development pattern than the uses that are permitted under the IN2 Zone.
13. Protect and manage environmental assets	Not relevant to this PP
14. Manage and conserve water resources for the environment	Not adverse to this Direction
15. Increase resilience to natural hazards and climate change	Not adverse to this Direction
16. Respect and protect Aboriginal heritage assets	Not relevant to this PP
17. Conserve and adaptively re-use heritage assets	Not relevant to this PP
18. Improve freight connections to markets and global gateways	The Proposal facilitates appropriate development adjacent to a transport corridor.
19. Enhance road and rail freight links	The Proposal facilitates appropriate development adjacent to a transport corridor.

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 26

Central West and Orana Regional Plan 2036	
Direction	Comment
20. Enhance access to air travel and public transport	Not relevant to this PP
21. Coordinate utility infrastructure investment	Not relevant to this PP
22. Manage growth and change in regional cities and strategic and local centres	Not adverse to this Direction
23. Build the resilience of towns and villages	Not adverse to this Direction
24. Collaborate and partner with Aboriginal communities	Not relevant
25. Increase housing diversity and choice	Not relevant
26. Increase housing choice for seniors	Not relevant
27. Deliver a range of accommodation options for seasonal, itinerant and mining workforces	Not relevant
28. Manage rural residential development	Not relevant
29. Deliver healthy built environments and better urban design	Not adverse to this Direction

Peter Basha
Planning & Development

4.3 ENVIRONMENTAL, SOCIAL AND ECONOMIC IMPACT

- a) Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

No. The subject land is within the urbanised fringe with no ecological value.

- b) Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

The potential impacts of the Planning Proposal are considered below.

Visual Impact

Due to it being adjacent to the City's distributor road network, the site is considered relatively prominent. It is important for any development to make a positive contribution to the visual amenity of this area.

Whilst the potential visual impacts are a matter for detailed assessment at the DA stage, the following principles should apply:

- Maintain appropriate building height and scale.
- Building bulk and mass should be addressed by a well-articulated facades and architectural detailing that includes commercial glazing; mixed wall finishes; awnings; and parapet treatments.
- Use high quality materials and finishes commensurate with modern commercial architecture.
- Signage zones should be defined and incorporated in the building design.
- Mechanical plant and equipment should be sensitively located.
- Site design should be such that "back-of-house" elements are not easily viewed from the streets or public area.
- Maintain an open and spacious visual environment along the site frontages.
- A reasonable level of landscaping should be provided so as to provide appropriate softening of buildings and vehicle areas.

Peter Basha
Planning & Development

Traffic Impact

Consultants TTPP have prepared a Traffic Impact Assessment (TIA) in respect of this Planning Proposal (refer *Annexure C*).

The TIA takes into account the development depicted in the submitted concept plan (refer *Annexure B*) which comprises:

- The proposed *highway service centre* which is the subject of development application DA 332/2019(1) which is currently being assessed by Council.
- The proposed 4 fast food outlets (*food and drink premises*) to the west of the proposed *highway service centre*.
- The proposed fast food outlet (*food and drink premises*) to the south of the proposed *highway service centre*.

The findings of the TIA are summarised below.

Traffic Assessment

Traffic Generation

Table 5.3 of the TIA (see extract below) indicates that the proposed development is expected to generate a total of 544 – 798 vehicles per hour during the road network peak periods. This would include a net increase of 272 – 399 vehicle trips per hour to the road network with consideration for passer-by traffic.

Table 5.3: Traffic Generation Summary

Land Use	Trips		Passing Trade	Additional Vehicle Trips	
	AM	PM		AM Peak	PM Peak
Fast Food (x5)	440	673	50%	220	337
Service Station	104	125		52	62
Total	544	798		272	399

Traffic Growth

The TIA provides forecasted traffic volumes for the year 2028 to inform the assessment of the access points (intersections) onto Northern Distributor Road and Leeds Parade.

Traffic Distribution

The TIA has distributed the proposed development traffic based on the following assumptions:

- A 50% inbound/ 50% outbound split has been assumed to enter and exit the site.
- Traffic has been distributed to/from Northern Distributor Road and Leeds Parade based on existing flows (i.e. Northern Distributor Road carries more traffic than Leeds Parade). On the basis of the existing traffic flows, 65% of development traffic has been assumed to arrive and depart to Northern Distributor Road.
- Similarly, 65% of the estimated pass-by traffic is assumed to access the site via Northern Distributor Road
- Traffic at Leeds Parade has been distributed based on existing flows, with 60% travelling northbound and 40% travelling southbound in the AM peak and vice versa in the PM peak.

Intersection Analysis

SIDRA Intersection 8.0 was used to assess the future performance of the Leeds Parade and Northern Distributor Road intersections as a result of the proposed development. The SIDRA analysis indicates that both intersections will perform mostly at an A Level of Service (*good operation*) for the future scenario.

Internal Layout and Servicing

The accommodation of service vehicles and loading areas for the proposed fast food outlets will be the subject of detailed design and consideration at the DA stage. There are no aspects of the subject land that would pose a constraint in this regard. The servicing and loading arrangements for the proposed highway service centre have already been addressed in the TIA provided in support of the DA for that development already lodged with Council.

The car park is required to be in accordance with the requirements of AS2890:2004 in regard to the access arrangements; car park circulation; and parking spaces and aisle dimensions. This will be the subject of detailed design and consideration at the DA stage. There are no aspects of the subject land that would pose a constraint in this regard.

*Peter Basha
Planning & Development*

Parking Assessment

The TIA provides a parking assessment for the fast food outlets pursuant to the parking rates provided in *Orange Development Control Plan 2004 – 15 Car Parking*. The assessment is based on the concept plan that accompanies this planning proposal only to indicate the capacity of the subject land to accommodate future parking needs. A more formal assessment would be provided at the DA stage, once the final development design is confirmed.

For the purpose of this assessment, the TIA assumes that:

- Each of the four fast food outlets in the north west sector of the site (referred to as Area 1 in the TIA) will comprise 60 internal seats; 18 external seats; and a drive-through facility.
- The single fast food outlets in the south east sector of the site (referred to as Area 1a in the TIA) will comprise 88 internal seats; and a drive-through facility.

On this basis, the parking need would be as follows:

- *Orange Development Control Plan 2004 – 15 Car Parking* requires parking for such development to be provided at the rate of 1 space per 2 seats (internal seating) or 1 space per 3 seats (internal and external seating), whichever is the greater. Therefore:
 - A total of 120 spaces would be required for Area 1.
 - A total of 44 spaces would be required for Area 1a.

The submitted concept demonstrates that the subject land has capacity for on-site parking in excess of the above minimum requirements.

- *Orange Development Control Plan 2004 – 15 Car Parking* requires drive-through facilities to provide a queuing area for 5 to 12 cars measured from the pick-up point and a minimum of 4 spaces queued from the ordering point. There is ample capacity within the site to enable future development to be designed to comply with this requirement.

The parking requirements for the proposed highway service centre have already been addressed in the TIA provided in support of the DA for that development already lodged with Council.

Noise Impact

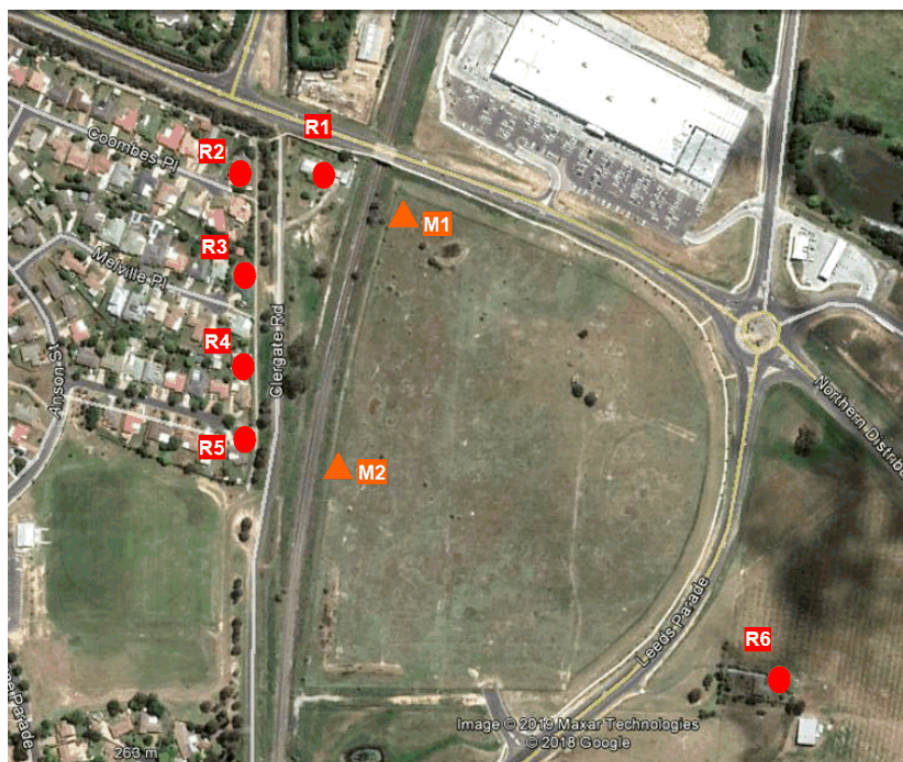
Consultants, Atkins Acoustics have prepared a Planning Noise Assessment (PNA) in respect of this Planning Proposal (refer *Annexure D*). The PNA relates only to the proposed 4 fast food outlets (*food and drink premises*) to the west of the proposed *highway service centre*; and the single fast food outlet to the south of the proposed *highway service centre*.

A separate noise assessment has already been prepared by Atkins Acoustics for the proposed highway service centre itself and forms part of the documentation that has already been lodged with Council in support of that DA. That assessment concludes that the highway service centre will be satisfactory in terms of potential noise impacts.

A summary of the PNA for the 5 fast food outlets is provided below.

Sensitive Receivers

The assessment identified the nearest noise sensitive development. The sensitive receivers are indicated below in the aerial plan extract from the Atkins Acoustics report. The measurement locations are identified as M1 and M2.



Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 32

- R1 – single storey residence – 118 Clergate Road
- R2 – single storey residence – 27 Coombes Place
- R3 – single storey residence – 11 Melville Place
- R4 – single storey residence – 13 Melville Place
- R5 – single storey residence – 8 Douglas Place
- R6 – single storey residence – Leeds Parade

Noise Sources

The PNA identified the following noise sources:

- The main mechanical plant of acoustical significance includes air-conditioning, refrigeration condensers and exhaust fans. For modelling and evaluating mechanical plant noise, sound power levels from typical plant presented in Table 6 of the PNA have been established from generic plant selections, manufacturer data and field measurements. It has been assumed that the air conditioning condensers are selected with soft start variable speed motors and a night mode operating controllers.
- For transient onsite activities including the drive-through, noise measurements undertaken by Atkins Acoustics established that noise levels are dependent on the activity. Audit measurements for car doors closing, vehicles starting, manoeuvring, accelerating have been utilised to determine source levels for assessing noise from typical onsite activities. The sound power levels summarised in Table 7 of the PNA represent a typical range and maximum levels for speech and onsite vehicles.

Noise Modelling

Mechanical plant noise has been modelled and the predicted noise levels at the most potentially affected receivers are presented in Table 8 of the PNA (see extract below).

The results in Table 8 indicate that noise from plant and equipment, with appropriate selection, design and installation, satisfies the recommended assessment goals at the identified receivers.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 33

Table 8. Summary of Predicted Noise Levels (Mechanical Plant) $L_{Aeq,15min}$ dBA re: 20×10^{-6} Pa

Description	Assessment Noise Goals dBA			Predicted Sound Pressure Levels dBA			Compliance		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Reference Assessment Location R1 – 118 Clergate Road									
Mechanical Plant	52	43	37	38	38	37	√	√	√
Reference Assessment Location R2 - 27 Coombes Place									
Mechanical Plant	52	43	37	35	35	34	√	√	√
Reference Assessment Location R3 – 11 Melville Place									
Mechanical Plant	44	43	35	36	36	35	√	√	√
Reference Assessment Location R4 - 13 Melville Place									
Mechanical Plant	44	43	35	36	36	35	√	√	√
Reference Assessment Location R5 – 8 Douglas Place									
Mechanical Plant	44	43	35	34	34	33	√	√	√
Reference Assessment Location R6 – Leed Parade									
Mechanical Plant	44	43	35	36	36	35	√	√	√

NOTES: 1. Day: 7.00am to 6.00pm Monday to Saturday, 8.00am to 6.00pm Sunday and public holidays
 2. Evening: 6.00pm to 10.00pm
 3. Night: 10.00pm to 7.00am Monday to Saturday, 10.00pm to 8.00am Sunday and public holidays

Noise contributions from on-site vehicles and customer activities have been modelled and the predicted noise levels at the most potentially affected receivers are presented in Table 10 of the PNA (refer extract below).

Table 10. Summary of Noise Levels (Night-time Transient Activities) $L_{A1,1min}$ dBA re: 20×10^{-6} Pa

Description	Assessment Noise Goals dBA			Calculated Sound Pressure Levels dBA	Compliance
	Day	Evening	Night		
Reference Assessment Location R1 – 118 Clergate Road					
Transient (L _{A1,1min})	n/a		52* 60/65^	9 - 48	√
Reference Assessment Location R2 - 27 Coombes Place					
Transient (L _{A1,1min})	n/a		52* 60/65^	8 – 43	√
Reference Assessment Location R3 - 11 Melville Place					
Transient (L _{A1,1min})	n/a		52* 60/65^	10 – 44	√
Reference Assessment Location R4 - 13 Melville Place					
Transient (L _{A1,1min})	n/a		52* 60/65^	11 – 44	√
Reference Assessment Location R5 - 8 Douglas Place					
Transient (L _{A1,1min})	n/a		52* 60/65^	11 –43	√
Reference Assessment Location R6 – Leed Parade					
Transient (L _{A1,1min})	n/a		52* 60/65^	9 -43	√

NOTES: 1. * EPA screening test (Section 4.1.3)
 2. ^ RNP recommended external $L_{A1,1min}$ level

The results in Table 9 demonstrate that noise from transient onsite activities is predicted to satisfy the EPA screening test for assessing sleep awakening reactions.

Peter Basha
 Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 34

Assessment

The modelling demonstrates:

- Noise from the plant and equipment with appropriate selection, design and installation can be controlled and satisfy assessment goals established from *Noise Policy for Industry* (NPfI) procedures; and
- Noise from transient onsite vehicle and customer activities satisfies the NPfI recommended screening test (52dBA) for assessing sleep awakening reactions.

Recommendations

The PNA makes the following recommendations:

- Assessment goals established from NPfI procedures developed for controlling intrusive noise impacts and managing ambient noise creep;
- Mechanical plant selections, design and installation to satisfy the acoustic performance referenced in Chapter 5;
- Air-conditioning condensers selected with soft start variable speed motors and night mode operating controllers;
- If required, roof mounted air-conditioning and refrigeration condensers and exhaust fans installed with acoustic rated screens; and
- When individual operators are confirmed, detailed acoustic assessments of potential noise impacts are undertaken for each operator and the findings/recommendations submitted with pending Development Applications for Council approval.

Conclusion

The PNA concludes as follows:

Jasbe Petroleum has requested acoustic investigations be undertaken to assess possible acoustic planning issues associated with the development of five (5) conceptual Fast Food facilities on the site (Attachment 1).

The conceptual layout for the Precinct (Attachment 2) provides for five (5) Fast Food operators with associated drive-thru facilities and onsite parking.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 35

The proposed operating hours for the Proposal are twenty four (24) hours, seven (7) days a week.

The results of modelling show that noise from the indicative plant and equipment can be controlled through selection, design, installation and satisfy the recommended noise goals.

Noise from transient onsite activities have been addressed in accordance with the NPfI procedures for assessing sleep awakening reactions. Modelling has shown that noise from onsite customer and vehicle activities satisfy the NPfI screening test assessment level of 52dBA.

Acoustic design requirements for operators would be subject to Council requirements and individual Development Applications. The DA documentation for each operator would address acoustic requirement, mechanical plant, transient onsite activities, site management requirements and noise mitigation required to address and satisfy any pending noise conditions imposed by Council

Lighting

A lighting assessment will be required to accompany a future development application, to ensure that lighting for future development does not cause adverse impacts upon surrounding development or the road network.

Water Quality

Orange LEP 2011 identifies the subject land as having groundwater vulnerability. Potential impacts on water quality relate to the following:

- Erosion and sedimentation as a result of earthworks during the construction phase of development.
- A likely increase in impervious surfaces as a result of buildings and vehicle areas which will increase the volume and velocity of run-off from the site.
- Management of effluent and wastewater generated by future development.

Whilst the potential impacts on water quality would become more apparent at the DA stage, the following principles should apply:

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 36

- Erosion and sediment controls are to be implemented and maintained as required to ensure that water quality is not affected as a result of construction or operational activities.
- Water quality measures will be required to ensure that post-development water quality is at least equivalent to pre-development water quality. The management of stormwater from buildings and vehicle areas will be subject to Council's normal requirements for development in urban areas.
- Liquid trade waste that may be generated by any future uses will be subject to a trade waste agreement between the relevant operator and Council.

Air Quality

Whilst the potential impacts on air quality would become more apparent at the DA stage, the following principles should apply:

- All vehicle areas are to be sealed so as to minimise the potential for raised dust.
- Food businesses will require appropriate kitchen exhaust equipment.

Air Quality

Future development can be designed to minimise overshadowing of adjoining properties.

Heritage

The subject land is not identified as having heritage value. There are no heritage items in the vicinity of the subject land.

Archaeology

The potential for Aboriginal archaeology to occur within the site is considered minimal. However, should any Aboriginal or European Relics be unexpectedly discovered during works associated with the concept plan, all excavations or disturbances in the area will stop immediately and the NSW Heritage Office and NSW National Parks and Wildlife Service shall be informed immediately.

*Peter Basha
Planning & Development*

Biodiversity

The proposal is not likely to have an adverse effect on biodiversity due to the following:

- The subject land does not contain native vegetation, having been highly disturbed from its natural state due to a long history of agricultural use.
- The subject land is not identified on the *Orange Local Environmental Plan 2011 – Terrestrial Biodiversity Map* as having biodiversity value.
- According to the OEH Biodiversity Values Map, there are no areas within the subject land that are identified as having high biodiversity value.
- The proposed development does not represent a key threatening process as there are no threatened species or ecological communities identified within or around the subject land, and none within the vicinity of the proposed development.
- The subject land is not a declared area of outstanding biodiversity value.

Land/Site Contamination

An environmental site assessment (ESA) has been undertaken by Resolve Environmental (refer *Annexure E*). The ESA was prepared in respect of the DA for the proposed highway service centre but sampling was undertaken across the whole of the subject land (i.e. Lot 4 DP 1185665). The ESA found as follows:

Conclusion

The objective of this assessment was to support a development application by assessing the suitability of the site soil quality for the proposed development. This objective has been met with the completion of the works described herein.

Resolve conducted a desktop assessment to assess the potential for the site to be contaminated, and subsequently assessed the soil contamination status of the site. The relative level and significance of the contaminants reported in soil at the site have been compared to established Australian and NSW environmental and/or human health -based investigation levels.

The desktop review and walkover did not indicate any publicly available evidence of gross contamination of the subject land that would constrain future development and use of the land.

One soil analytical exceedance of criteria protective of terrestrial ecosystems was noted for sample TP12_1.0 for zinc (6,270 mg/kg). This sample was collected from burnt fill materials of the burn pit and determined to be limited in extent as was delineated by the underlying validation sample TP12_1.5. Under a commercial/industrial setting with limited access to soils, this would likely not pose an environmental liability.

Asbestos in ACM as cement sheeting was confirmed by the laboratory to be present at sample locations TP16 (driveway, within construction/demolition waste); TP20 (driveway, within construction/demolition waste); and TP21 (stockpile (cattle ramp), within construction/demolition waste). Any potential risk to construction workers of the proposed development and future site users of the proposed development posed by the presence of ACM in limited areas of the site is expected to be adequately managed with onsite treatment of the asbestos contaminated soil and implementation of standard health and safety protocols and documentation at the time of site development.

Based on the findings of this assessment and subject to the limitations in Section 11, the site considered to be suitable for future ongoing use as a petroleum service station.

c) How has the planning proposal adequately addressed any social and economic effects?

The social and economic benefits of the Planning Proposal are considered to be positive due to the following:

- Provides services and facilities that benefit the travelling public.
- Provides services and facilities that benefit local residents.
- Increases expenditure in Orange due to operational spending.
- Increases expenditure in Orange due to construction spending.
- Creates additional employment, both during the construction period and, more importantly, once the development is operational.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 39

- Complements and enhance the role of Orange as a major regional business centre.
- Would not threaten the viability of other centres.

4.4 STATE AND COMMONWEALTH INTERESTS

a) Is there adequate public infrastructure for the Planning Proposal?

Yes. The Planning Proposal applies to existing and developed urban zones. All urban utilities and relevant infrastructure are available.

b) What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

The view of State and Commonwealth public authorities are not required on the Planning Proposal until after the Gateway determination.

5.0 COMMUNITY CONSULTATION

The Planning Proposal will be subject to public exhibition and agency consultation as part of the Gateway process. The Gateway determination will specify the community consultation that must be undertaken on the Planning Proposal.

This Planning Proposal is considered to be a minor proposal for the following reasons:

- This Planning Proposal provides information to demonstrate that it is not adverse to the relevant strategic planning framework and that the potential impacts are not unreasonable.
- Issues pertaining to infrastructure servicing are not significant and can be adequately addressed.
- The Planning Proposal is not for a principal LEP.
- The Planning Proposal does not seek to reclassify public land.

*Peter Basha
Planning & Development*

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 40

Community consultation would involve:

- An exhibition period of 28 days.
- The community is to be notified of the commencement of the exhibition period via a notice in the local newspaper and on Council's website. The notice will:
 - Give a brief description of the objectives or intended outcomes of the planning proposal;
 - Indicate the land affected by the planning proposal;
 - State where and when the planning proposal can be inspected;
 - Provide the name and address for the receipt of submissions; and
 - Indicate the closing date for submissions.
- Written notification to adjoining and surrounding land owners.

During the exhibition period, it is expected that Council would make the following material available for inspection:

- The Planning Proposal in the form approved for community consultation by the Director General of Planning;
- Any studies (if required) relied upon by the planning proposal.

Electronic copies of relevant exhibition documentation to be made available to the community free of charge.

At the conclusion of the notification and public exhibition period Council staff will consider submissions made in respect of the Planning Proposal and prepare a report to Council.

Peter Basha
Planning & Development

Rezone 185 Leeds Parade, Orange (Lot 4 DP 1185665) from IN2 Light Industrial to SP3 Tourist

Page 41

6.0 CONCLUSION

This Planning Proposal warrants support due to the following:

- It is not adverse to the relevant strategic planning framework.
- It is reasonable to suggest that the required extent for the SP3 Zone was not foreseen when the current zoning provisions were developed. The Planning Proposal is a response to a shortcoming in the current zoning pattern. The extent of the current SP3 Zone within the subject land appears somewhat arbitrary. It does not fully capture the generous exposure and frontage to the Northern Distributor Road, which are recognised as important and logical attributes that underpin the SP3 Tourist Zone.
- The extended SP3 Zone will facilitate a specific development of the subject land encompassing a proposed highway service centre and fast food outlets to form a cohesive tourism/service/convenience precinct that will serve the needs of the travelling public and the surrounding residential and workforce population.
- It encourages economic development and therefore would assist to increase employment and retain spending within Orange and create a stronger business destination.
- For the reasons outlined in this report, the Proposal would not threaten the viability and function of the City's existing business centres.

Yours faithfully

Peter Basha Planning & Development



Per:

PETER BASHA

*Peter Basha
Planning & Development*

Annexure A

Land Plans and Draft LEP Map

Annexure B
Concept Plan

Annexure C

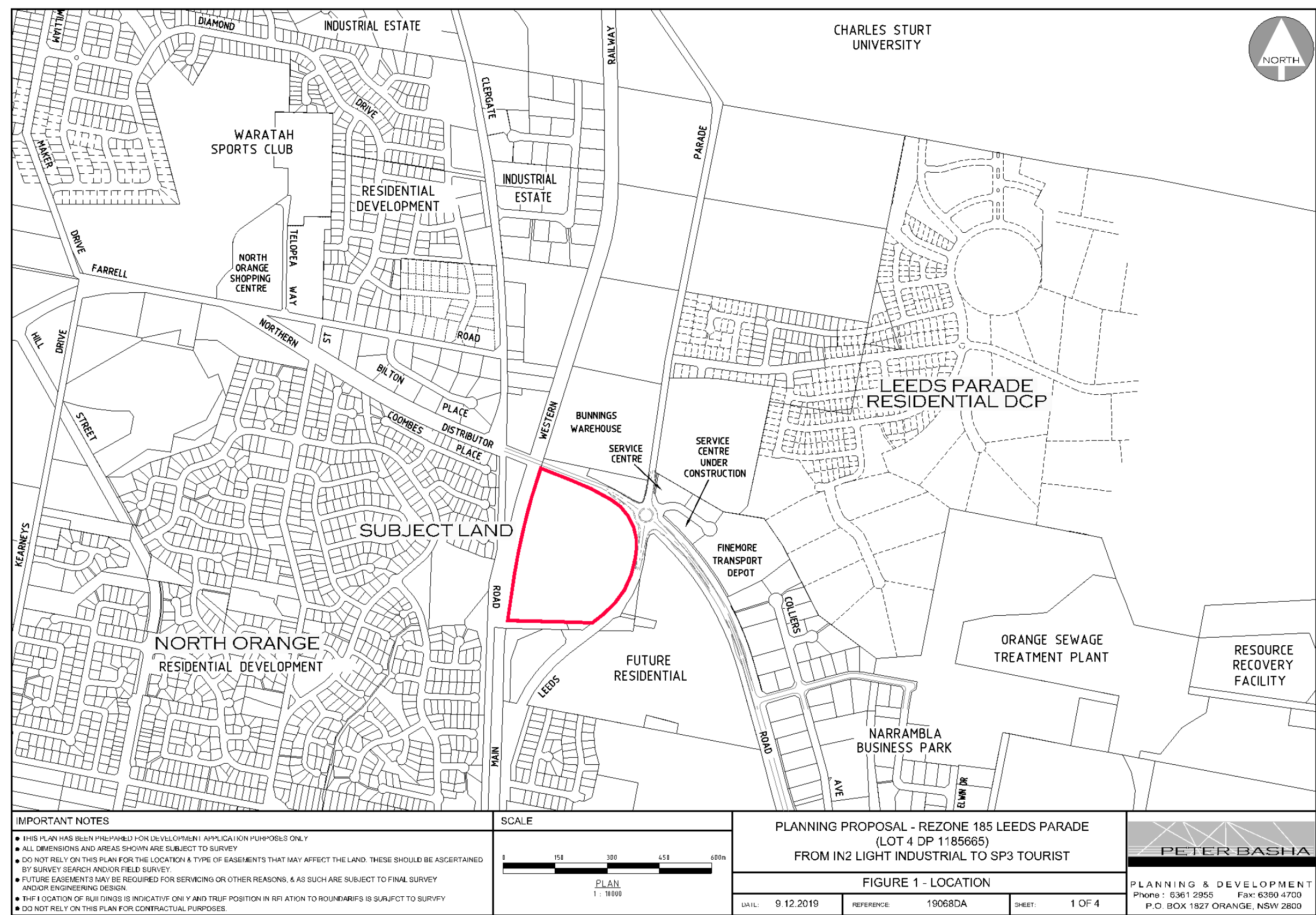
Traffic Impact Assessment by TTPP

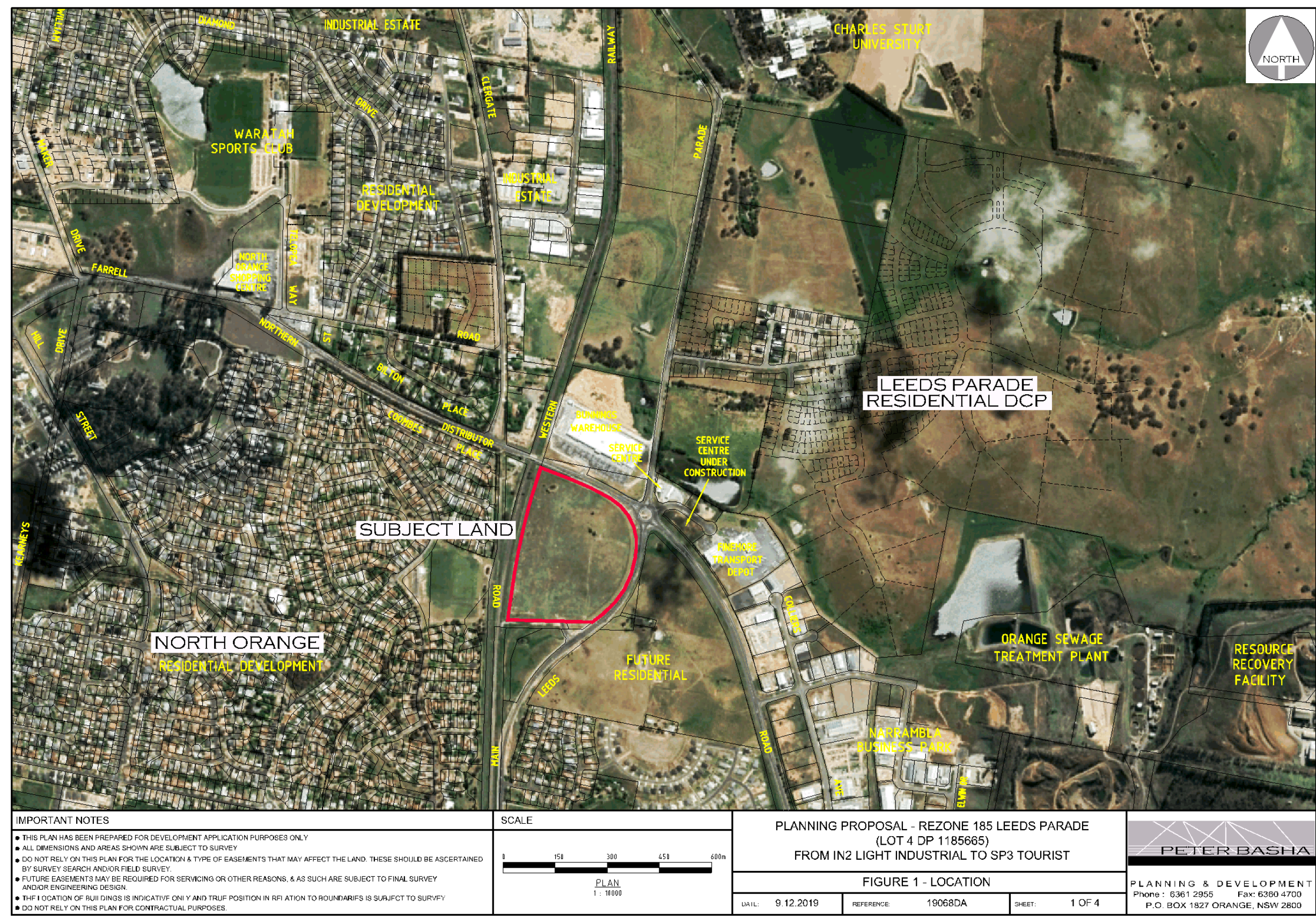
Annexure D

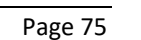
Planning Noise Assessment by Atkins Acoustics

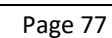
Annexure E

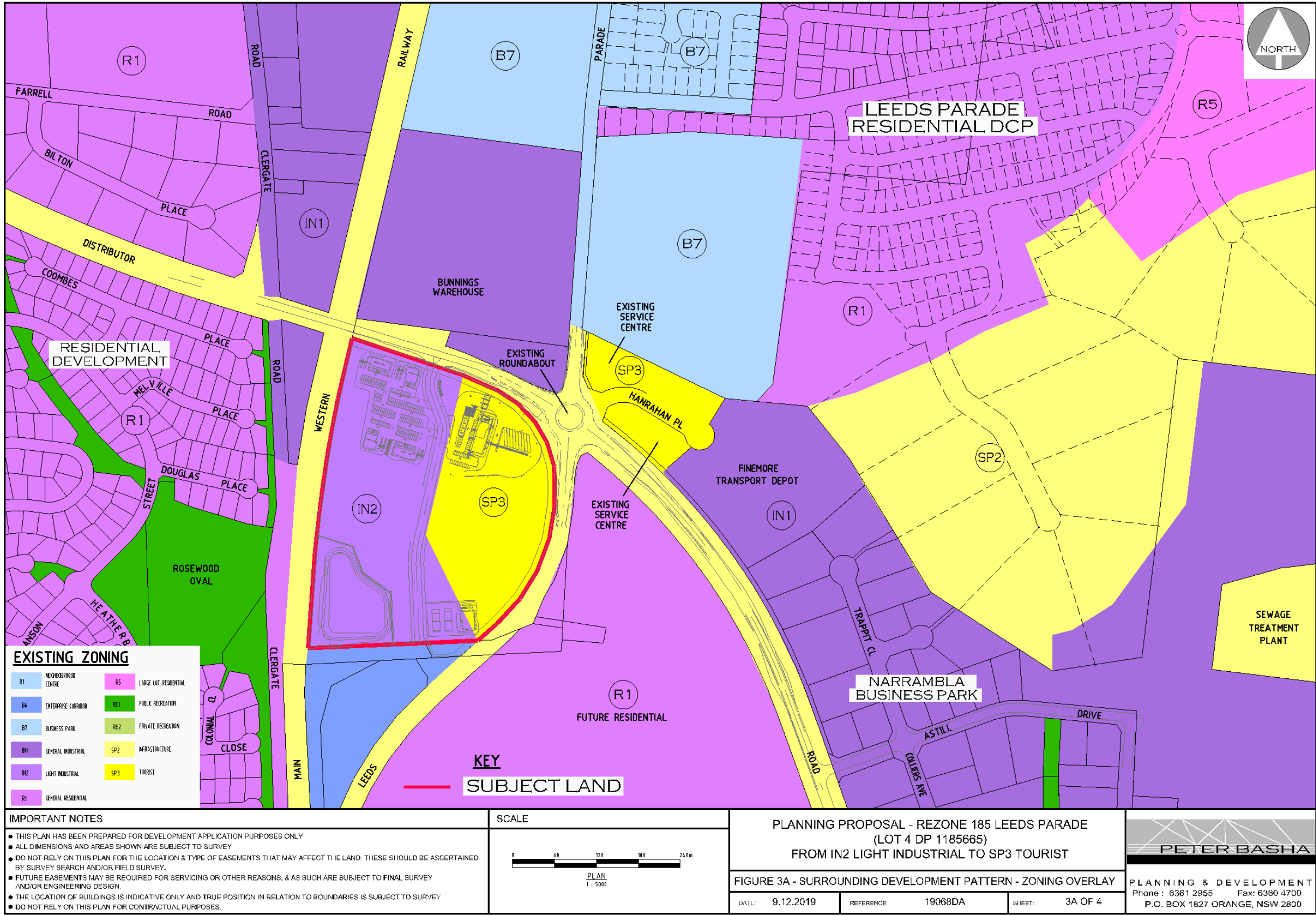
Environmental Site Assessment by Resolve Environmental

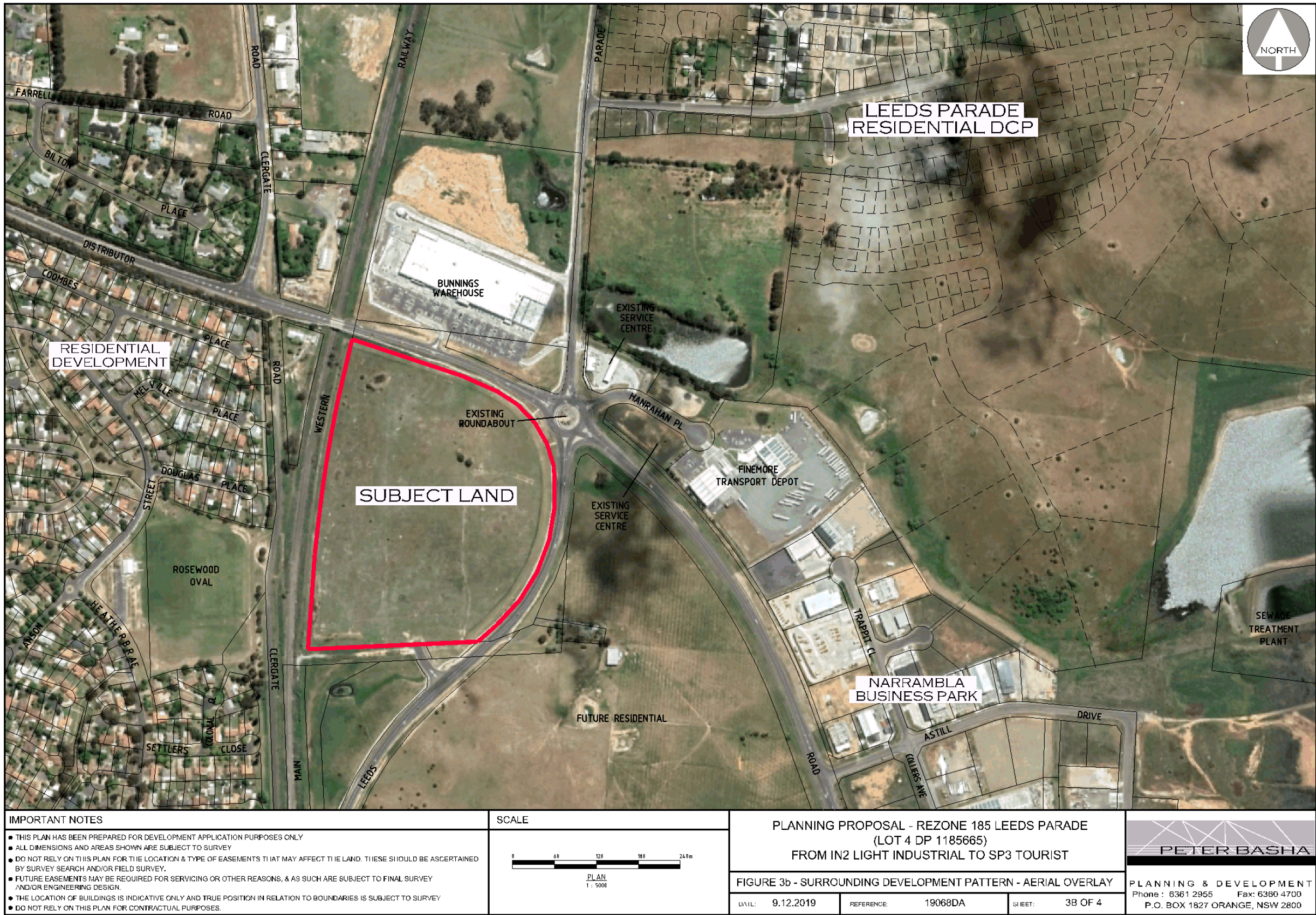


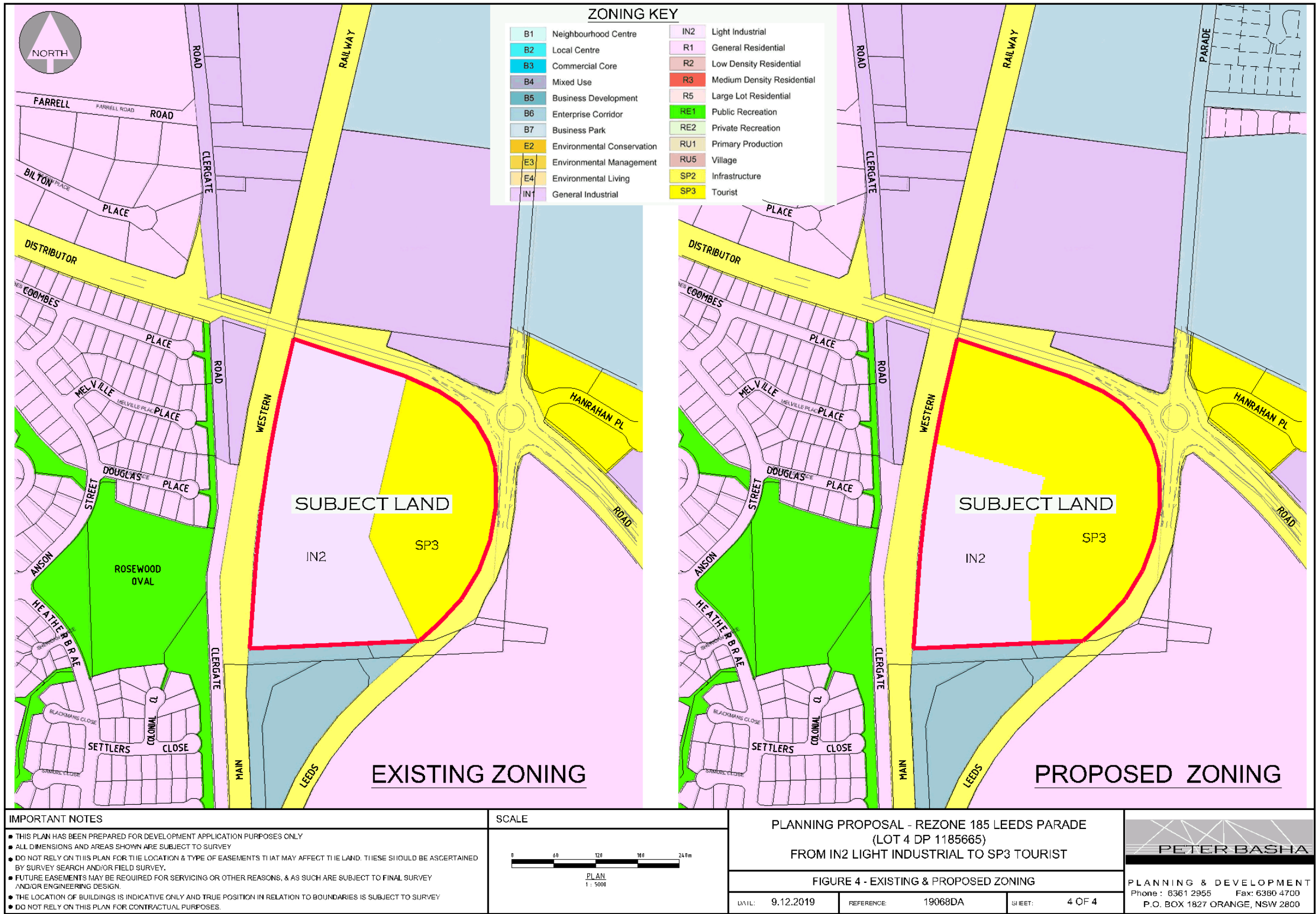


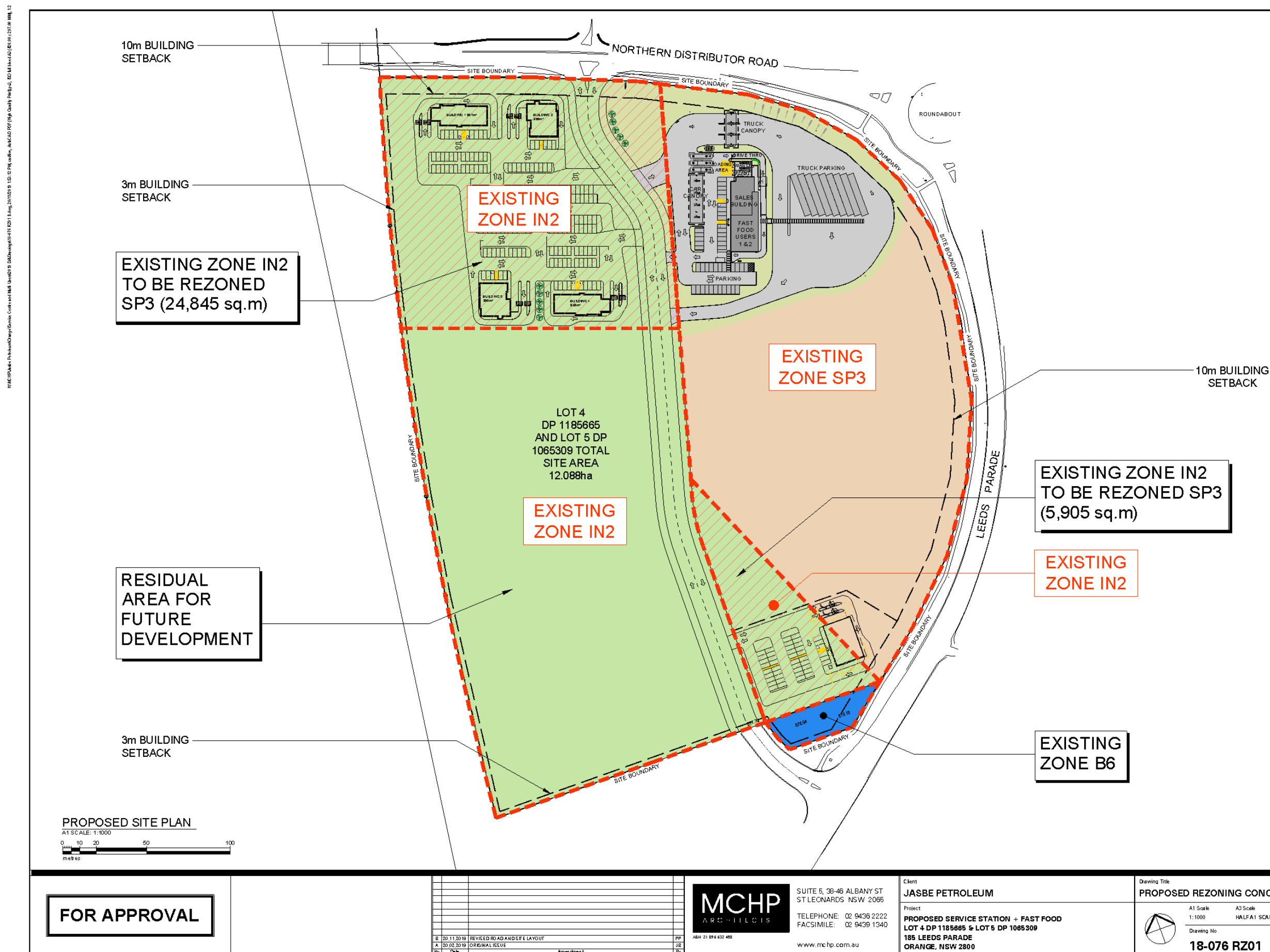


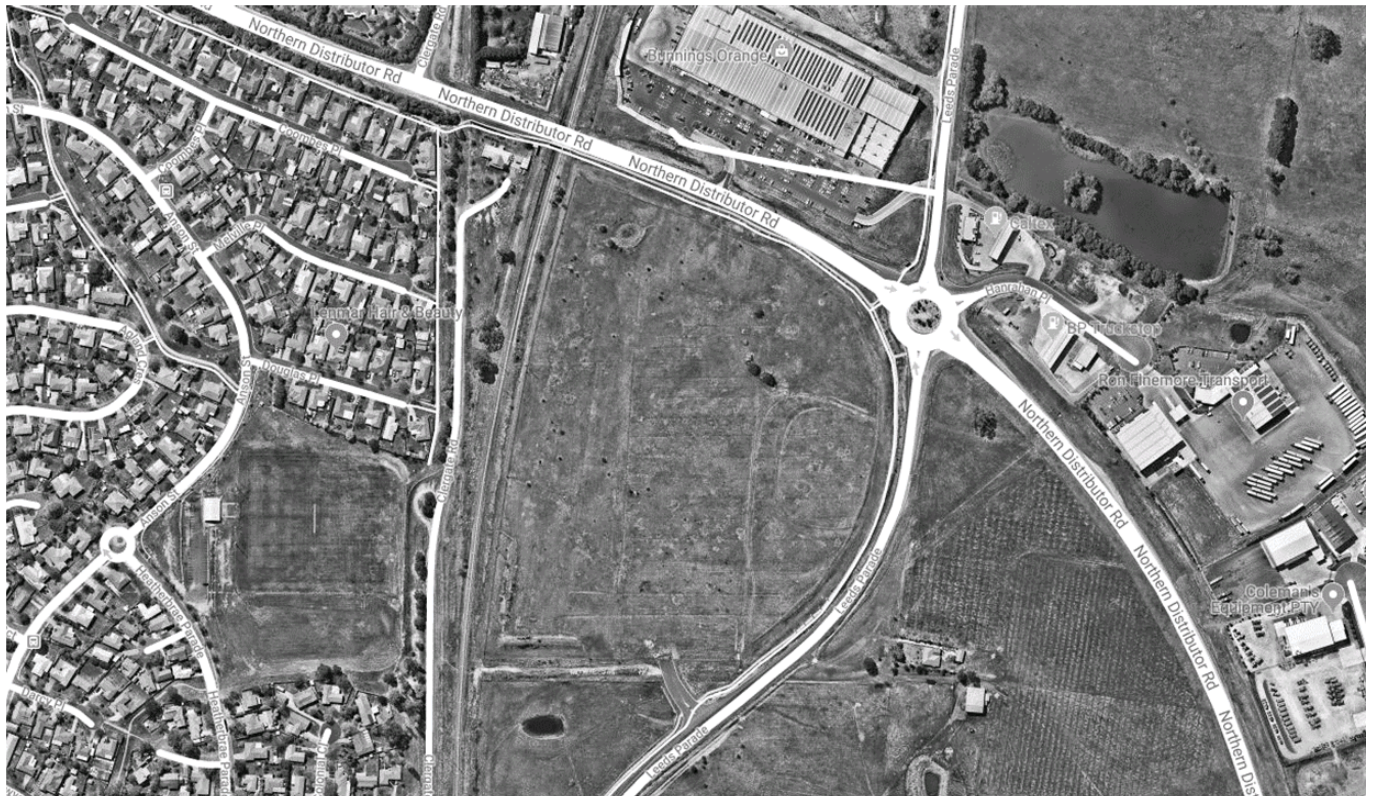












185 Leeds Parade, Orange - Planning Proposal Traffic Impact Assessment

Prepared for:

Jasbe Petroleum Group

20 November 2019

The Transport Planning Partnership



185 Leeds Parade, Orange - Planning Proposal Traffic Impact Assessment

Client: Jasbe Petroleum Group

Version: V03

Date: 20 November 2019

TPPP Reference:18161

Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
V01	21/10/2019	Oasika Faiz	Oasika Faiz	Ken Hollyoak	-
V02	01/11/2019	Oasika Faiz	Oasika Faiz	Ken Hollyoak	Ken Hollyoak
V03	20/11/2019	Oasika Faiz	Oasika Faiz	Ken Hollyoak	



Table of Contents

1	Introduction	1
2	Existing Conditions	2
2.1	Site Description	2
2.2	Abutting Road Network	3
2.2.1	Leeds Parade	3
2.2.2	Northern Distributor Road	4
2.3	Pedestrian and Cyclist Infrastructure	4
2.4	Public Transport Facilities	5
3	Planning Proposal	6
3.1	Proposal Description	6
3.2	Vehicle Access	7
4	Parking Assessment	9
4.1	Car Parking	9
4.2	Drive-way Queueing Area	9
4.3	Accessible Parking Requirements	9
4.4	Delivery and Servicing	10
4.5	Car Parking Layout	10
5	Traffic Assessment	11
5.1	Traffic Generation	11
5.1.1	Fast Food Services	11
5.1.2	Service Station	12
5.1.3	Summary	14
5.2	Background Traffic Growth	14
5.3	Traffic Impact	14
5.3.1	Traffic Distribution	15
5.3.2	Intersection Modelling Criteria	16
5.3.3	Modelling Results	16
6	Conclusion	18

Tables

Table 4.1: Car Parking Assessment	9
Table 5.1: Fast Food Traffic Generation	11



Table 5.2: Service Station Traffic Generation.....	13
Table 5.3: Traffic Generation Summary	14
Table 5.4: Traffic Volumes per Hour.....	14
Table 5.5: Level of Service Criteria for Intersection Operation	16
Table 5.6: Intersection Operation – Year 2028 with Development	17

Figures

Figure 2.1: Site Location.....	2
Figure 2.2: Indicative Site Boundary	3
Figure 2.3: Cycleway Map	4
Figure 3.1: Proposed Site Layout	6
Figure 3.2: New Access Road Connection.....	7
Figure 3.3: Leeds Parade Access Linemarking Plan.....	8
Figure 5.1: Morning Peak Hour Trips vs Number of Pumps.....	12
Figure 5.2: Evening Peak Hour Trips vs Number Pumps.....	13
Figure 5.3: Northern Distributor Road – Site Access Volumes.....	15
Figure 5.4: Leeds Parade – Site Access Volumes	15

APPENDICES

- A. SITE LAYOUT PLAN
- B. SIDRA OUTPUTS



1 Introduction

This traffic impact assessment report relates to a Planning Proposal to rezone an existing IN2 (Light Industrial) land to SP3 (Tourist) at 185 Leeds Parade, Orange. The proposed rezoning will enable the provision of five fast food restaurants with drive-through facilities. In addition, the rezoned site forms part of a larger proposed development including a mix of land uses that is subject to separate development applications.

The Transport Planning Partnership (TPPP) Pty Ltd has prepared this report on behalf of Jasbe Petroleum Group to accompany the Planning Proposal to Orange City Council.

This report assesses the traffic and parking implications of the proposed development and is set out as follows:

- Chapter 2 discusses the existing conditions including a description of the subject site
- Chapter 3 provides a brief description of the proposed development
- Chapter 4 assesses the proposed on-site parking provision and internal layout
- Chapter 5 examines the traffic generation and its impact, and
- Chapter 6 presents the conclusions of the assessment.

2 Existing Conditions

2.1 Site Description

The subject site is located at 185 Leeds Parade, Orange and is currently a greenfield site. The existing site is zoned as IN2 (Light Industrial) and has a frontage to Northern Distributor Road along its northern boundary and an existing SP3 zoned land along its eastern boundary.

A locality map of the subject site is provided in Figure 2.1 and the indicative rezoning site boundary is shown in Figure 2.2.

Figure 2.1: Site Location

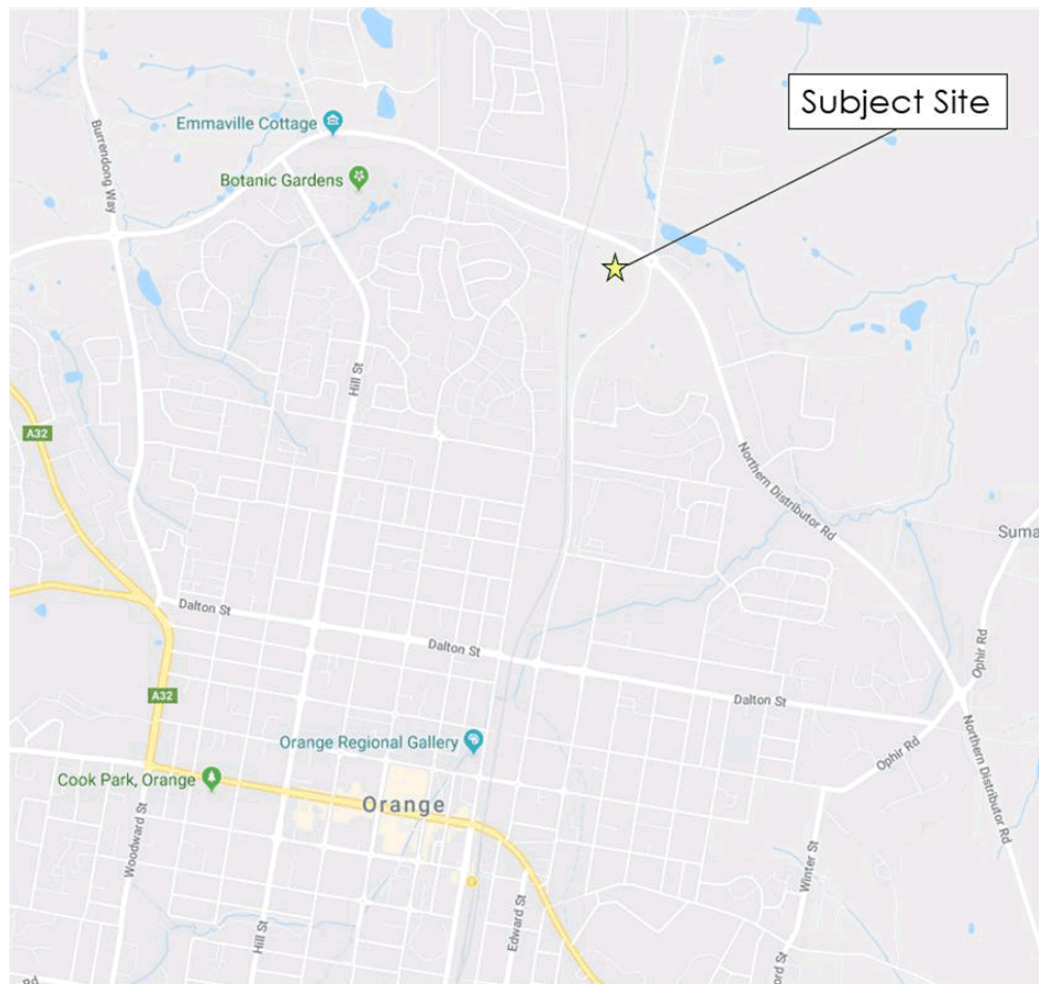
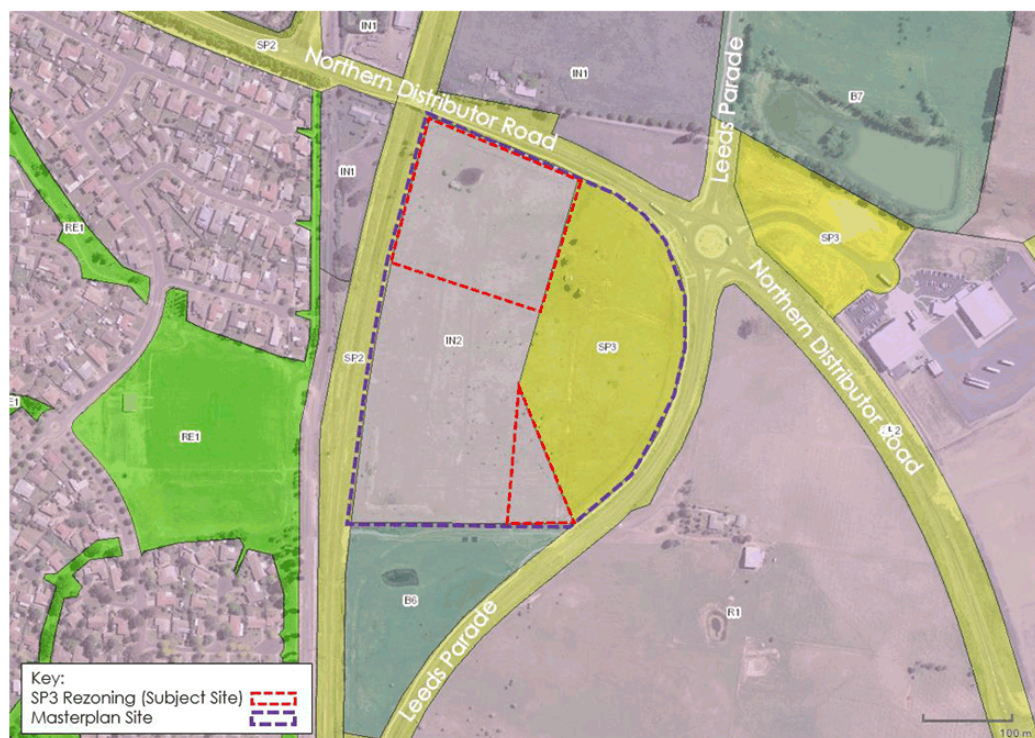


Figure 2.2: Indicative Site Boundary



Base map source: planningportal.nsw.gov.au
 Note: Site boundary is not to scale

It is noted that the site is part of a wider development encompassing several development stages (shown as 'Masterplan Site' in Figure 2.2), with only the subject site being rezoned from IN2 (Light Industrial) to SP3 (Tourist). The property to the east, zoned currently as SP3, and the property to the south-west, zoned as IN2, are subject to separate DAs.

Land uses surrounding the subject site are comprised of industrial/ commercial uses to the east along Northern Distributor Road, while the surrounding areas are generally low density residential.

2.2 Abutting Road Network

The subject site is bounded by Leeds Parade to the east and Northern Distributor Road to the north. A brief description of these roads is provided below.

2.2.1 Leeds Parade

Leeds Parade is a two-way road supporting a carriageway of approximately 7.5m wide, with one lane in either direction. Leeds Parade is generally aligned in a north south direction and provides connectivity to Northern Distributor Road via a roundabout intersection at the north-

east corner of the site. The posted speed limit is 50km/h. No kerbside parking is permitted on either side of the road.

2.2.2 Northern Distributor Road

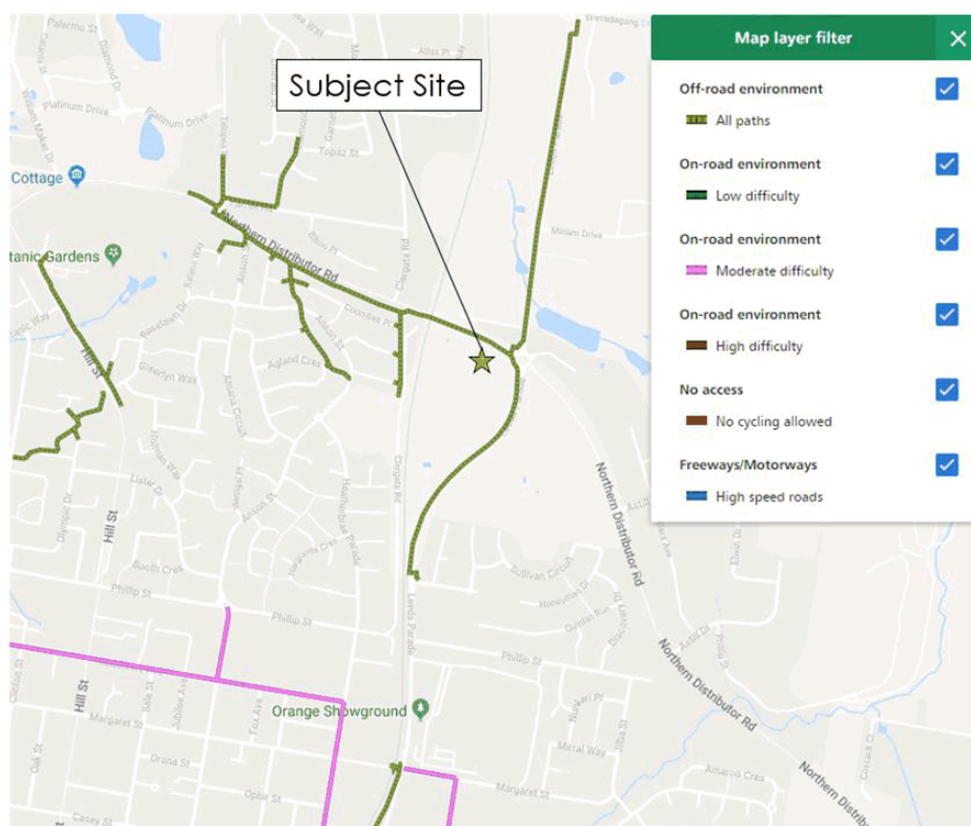
Along the northern frontage of the subject site, Northern Distributor Road is generally aligned in an east-west direction supporting a carriageway of approximately 7.5m wide with one lane in either direction. The posted speed limit is 80km/h. No kerbside parking is permitted on either side of the road.

2.3 Pedestrian and Cyclist Infrastructure

Pedestrian facilities are provided surrounding the land boundary along the eastern and northern frontages providing good connectivity to the residential areas situated to the west and south of the site.

Off-road cycle facilities are provided surrounding the subject site. The local cycle network map is displayed in Figure 2.3.

Figure 2.3: Cycleway Map





2.4 Public Transport Facilities

Public transport facilities in Orange are limited with regional train services provided at Orange Railway Station, approximately 3km south of the site, and private bus services including route 532 and 538 which have stops within 1 km from the site.

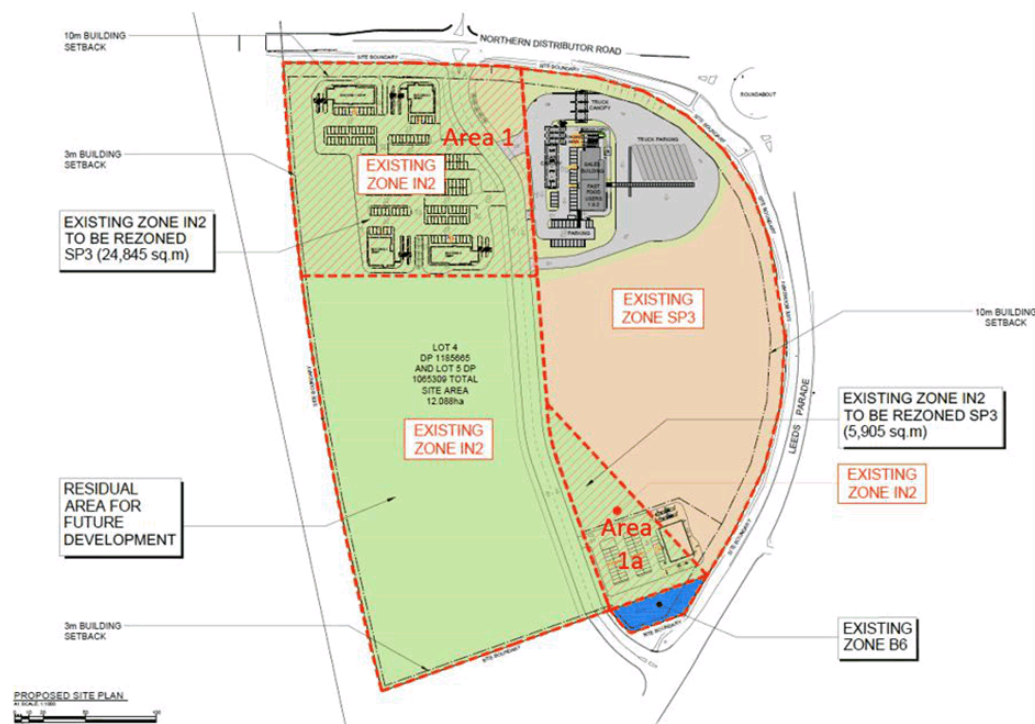
3 Planning Proposal

3.1 Proposal Description

The development site is located at 185 Leeds Parade, Orange. The planning proposal involves rezoning a portion of the existing IN2 (Light Industrial) zoned land into SP3 (Tourist). The site to be rezoned includes two lots including Area 1 with an area of 24,845m² and Area 1A with an area of 5,905m².

Following rezoning, Area 1 is to include four fast food restaurants with drive-through facilities and capacity for 78 seats per restaurant and Area 1A is planned for one fast food restaurant with a drive-through facility and capacity for 88 seats. The proposed SP3 zone area in context of the wider site at 185 Leeds Parade, is shown in Figure 3.1.

Figure 3.1: Proposed Site Layout



The existing SP3 zoned land, located along the eastern boundary of the subject planning proposal site, is to include a new service station with capacity for light and heavy vehicle fuel dispensers, two fast food restaurants with shared seating and amenities and an ancillary convenience store. The proposed service station and fast food restaurants are subject to a separate development application and comprise Stage 1 of the development.

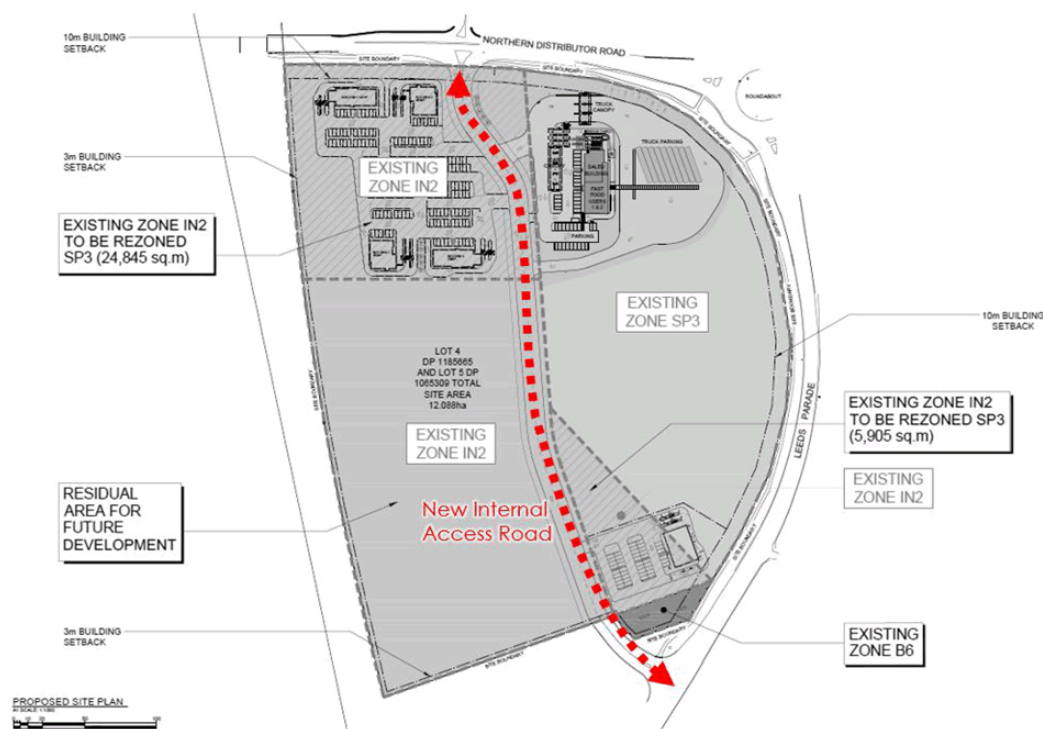
The remaining IN2 land is likely to be a combination of retail, hotel and commercial development and would be developed at a later stage.

As such, the assessment presented in this report considers the cumulative impact of the Stage 1 development (service station plus fast food) and the subject site (five fast food restaurants). It is anticipated that the traffic impact of the wider site would be considered as part of a separate application following development of the wider site.

3.2 Vehicle Access

The site is part of a wider development encompassing several stages and subject to separate development applications. Stage 1 is understood to include the proposed service station and fast food restaurants at the existing SP3 zoned land. Stage 2 includes the subject rezoned site with five fast food restaurants. Access into the development will be provided via a new internal access road which will run between Northern Distributor Road and Leeds Parade as indicatively shown in Figure 3.2.

Figure 3.2: New Access Road Connection



The internal access road is to be developed as part of the early stages of the development of the site and would include a:

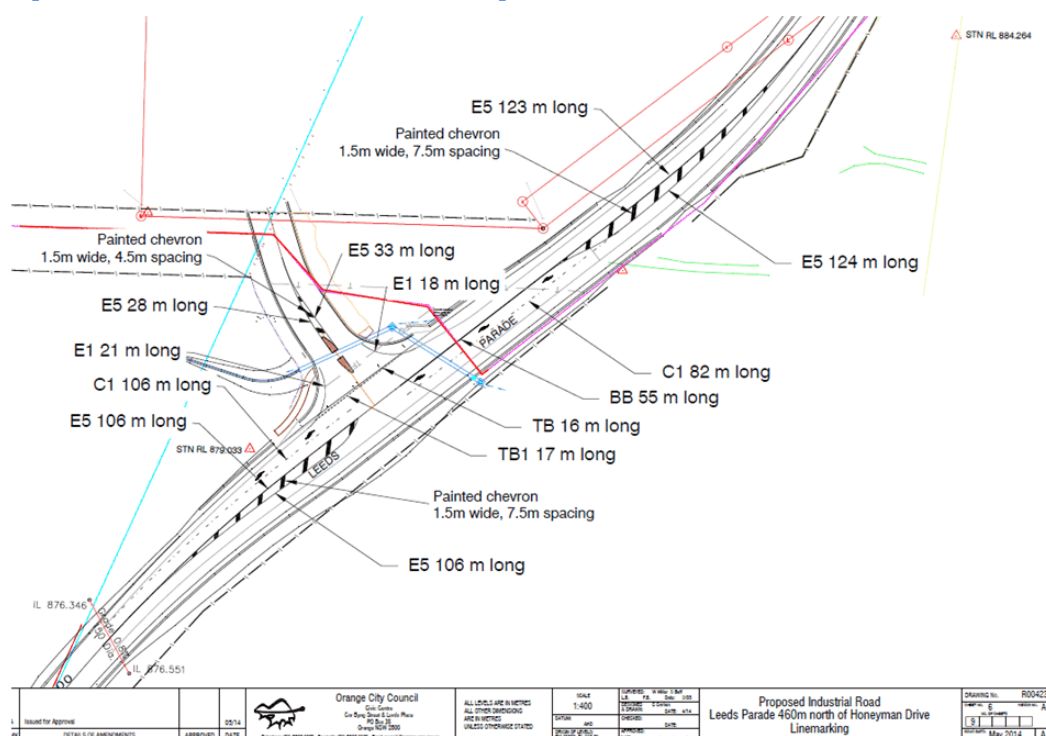


- left-in/left-out intersection at the Northern Distributor Road, with a deceleration lane provided for vehicles turning left into the site and acceleration lane for vehicles turning left out of the site
- a give-way intersection at Leeds Parade with a right turn lane into the site.

The access road itself will have one lane in each direction.

It is noted that the intersection of the site access and Leeds Parade has existing development approval. The approved layout is shown in Figure 3.3. TPP's modelling in Section 5 of this report assumes this approved layout.

Figure 3.3: Leeds Parade Access Linemarking Plan



Source: Orange City Council



4 Parking Assessment

4.1 Car Parking

The parking requirements for the proposed development has been assessed against the Orange City Council (Council) DCP 2004. Car parking requirements are set out within *Part 15 Car Parking* in the Orange City Council DCP 2004 and is based on seating for fast food restaurants with drive-through facilities. The proposed restaurants are assumed to contain:

- Area 1 (four restaurants): 60 internal seats and 18 external seats each
- Area 1A (one restaurant): 88 internal seats.

Car parking requirements for the proposed development are summarised in Table 4.1.

Table 4.1: Car Parking Assessment

Area	Seats	Minimum DCP Rate	Parking Requirement
Area 1	240 internal seats 72 external seats	The greater of 1 space per 2 seats (internal seating) or 1 space per 3 seats (internal and external seating)	120
Area 1A	88 internal seats	The greater of 1 space per 2 seats (internal seating) or 1 space per 3 seats (internal and external seating)	44

Table 4.1 indicates that the proposed development is required to provide a minimum of 120 car parking spaces within Area 1 and 44 spaces in Area 1A.

The proposed development will comply with this requirement.

4.2 Drive-way Queueing Area

The DCP stipulates that for fast food outlets with drive-through facilities are to provide a queueing area for 5 to 12 cars measured from the pick-up point and minimum of 4 car spaces for cars queued from the ordering point.

It is proposed to comply with this requirement for vehicle queueing storage area.

4.3 Accessible Parking Requirements

Council's DCP does not stipulate specific parking rates for accessible parking spaces. The Building Code of Australia (BCA) recommends accessible parking spaces to be provided at a rate of 1 space for every 50 car parking spaces or part thereof. Therefore, for a required provision of 120 car spaces, the Area 1 is required three accessible spaces inclusive and Area 1A, with 44 spaces is required one accessible space inclusive. The development is to provide



at least one accessible space per restaurant which is compliant with the BCA recommendation.

4.4 Delivery and Servicing

Council's DCP does not stipulate specific parking rates for delivery and service vehicles, however states that "provision is to be made on-site or at a convenient location for the type of delivery or service vehicle appropriate to the type of development".

The loading bay provision is to be further detailed in the development application stage.

4.5 Car Parking Layout

The car park and associated access arrangements are to be designed in accordance with Australian Standard requirements, namely AS2890:2004.

All parking spaces are to be designed as Australian Standard Class 3A car parking spaces (which have minimum dimensions of 2.6m wide by 5.4m long with aisle width of 6.6m).

The accessible parking spaces are to be designed as per AS2890.6:2009 (with dimensions of 2.4m wide by 5.4m long and an adjacent shared space of equal dimensions with bollard).

All service vehicles are to enter and exit the site in a forward direction.



5 Traffic Assessment

5.1 Traffic Generation

5.1.1 Fast Food Services

The site will provide five fast food restaurants with a drive-through facilities.

In addition, the adjoining site (Stage 1 of the development) provides a service station with two fast food restaurants. These two restaurants include shared seating and amenities and therefore has been considered as one fast food facility.

Traffic generation estimates for the proposed fast food premises have been assessed using Transport for NSW' *Draft Guide to Transport Impact Assessments (March 2018)* (herein, draft TfNSW Guide). This includes information from updated studies from those contained in the *Roads and Maritime Services' Guide to Traffic Generating Developments 2002* on service stations across New South Wales.

For fast food restaurants, the draft TfNSW Guide provides sample survey data for three fast food chains; McDonalds, KFC and Hungry Jacks. As such, for the purpose of this analysis, the traffic generation of one McDonalds, two KFCs and three Hungry Jacks restaurants has been adopted. The traffic generation assessment is summarised in Table 5.1.

Table 5.1: Fast Food Traffic Generation

Land Use	Sample Count	Trips	
		AM	PM
Subject Site			
Fast Food 1	KFC (see note 1)	66	135
Fast Food 2	KFC (see note 1)	66	135
Fast Food 3	Hungry Jacks	66	113
Fast Food 4	Hungry Jacks	66	113
Fast Food 5	Hungry Jacks	66	113
Stage 1 Development	McDonalds	188	183
Total		518	792
15% discount to account for linked/ multi-purpose trips associated with the wider centre		440	673

[1] KFC is not open during the morning road network peak period. As such, Hungry Jacks trip generation has been adopted for the AM.

However, as discussed in Section 3.1, the subject site is part of a wider development containing a mix of uses. On this basis, there is anticipated to be a level of linked/ multi-purpose trips associated with the wider centre. On this note, a discount of 15% in the trip generation has been assumed to account for linked trips. Therefore, the traffic generation of



the fast food components of the development is estimated to be 440 two-way vehicles per hour (vph) in the morning peak and 673vph in the evening peak period.

The draft TfNSW Guide indicates that 43-54% of the above fast food traffic generation is passing trade. An average of 50% passing trade has been adopted for the purposes of this assessment.

5.1.2 Service Station

Traffic generation estimates for service stations have been referenced from *Roads and Maritime Services Trip Generation Surveys, Service Stations, Analysis Report* (2013) by TEF Consulting.

The Service Station Analysis Report has been produced for the draft TfNSW guide however, the TEF report provides greater detail than the draft TfNSW guide. This study undertaken for Roads and Maritime Services (Roads and Maritime) includes survey data for a number of service stations, with varying services. For recent Land & Environment Court cases, TPPP has undertaken a detailed analysis of the survey sites that include a service station plus convenience store and have excluded any that include additional provisions such as fast food restaurants, to obtain an understanding of the traffic generation of service stations only.

Based on this data, the relationship between the number of peak hour vehicle trips and the number of fuel pumps was determined as shown in Figure 5.1 and Figure 5.2.

Figure 5.1: Morning Peak Hour Trips vs Number of Pumps

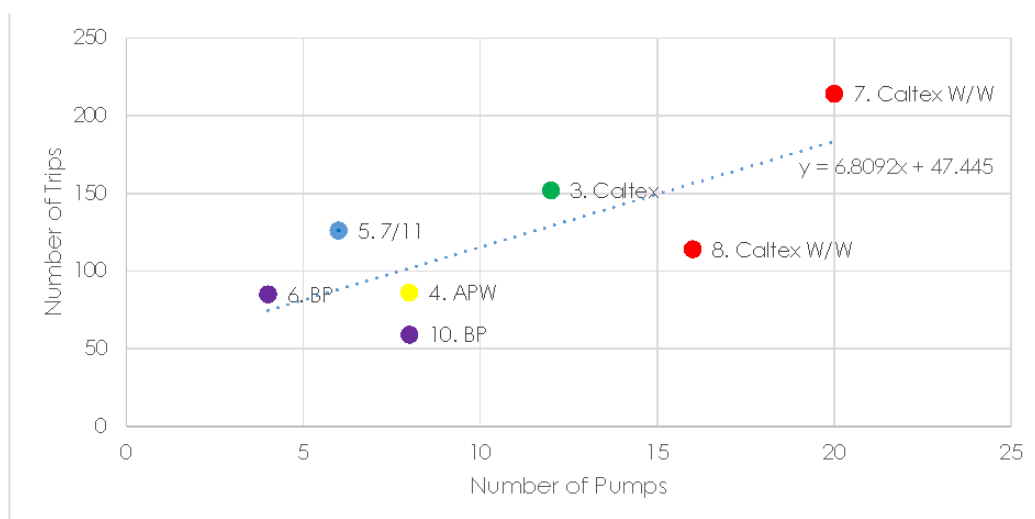
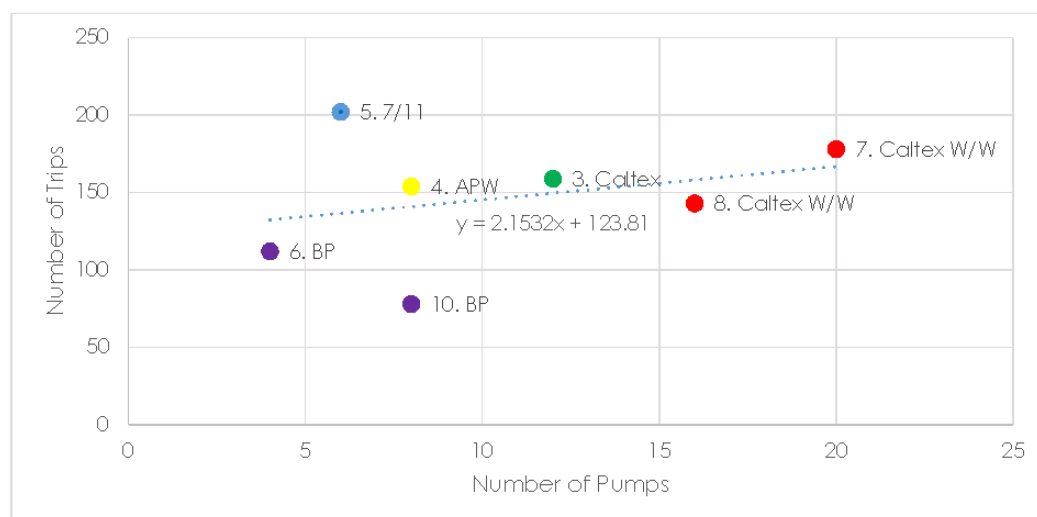


Figure 5.2: Evening Peak Hour Trips vs Number Pumps



Based on the regression equations obtained from the graphs in Figure 5.1 and Figure 5.2, the estimated number of trips generated by the proposed development has been assessed.

Based on a capacity of 11 pumps (for eight light vehicles and three heavy vehicles), the trip generation of the service station is summarised in Table 5.2.

Table 5.2: Service Station Traffic Generation

Land Use	Size	Trip Rate		Traffic Generation	
		AM Peak	PM Peak	AM Peak	PM Peak
Service Station	11 Pumps (P)	$6.8092 P + 47.445$	$2.1532 P + 123.81$	122	147
15% discount to account for linked/ multi-purpose trips associated with the wider centre				104	125

Based on the regression formulas as calculated in Figure 5.1 and Figure 5.2, it is estimated that the proposed development could generate up to 147vph during the busiest peak period.

Similarly, to the fast food restaurants, trips to the service station are anticipated to attract multi-purpose visits to other facilities on the wider site. On this basis, a 15% reduction in the overall trip generation has been adopted. Therefore, the service station is anticipated to generate up to 125vph during the busiest peak period.

Further to this, the site is located on a classified road and is therefore expected to attract a significant proportion of passing trade i.e. traffic already on the road network passing the site. The Roads and Maritime Guide indicates that passing trade for service stations would typically be at least 50% although surveys undertaken by TTPP at other service stations suggest that this can be in the order of 59-71 %. However, as a conservative analysis, a 50% passing trade has been adopted for the purposes of this assessment.



5.1.3 Summary

A summary of the estimated traffic generation arising from the proposed development is provided in Table 5.3.

Table 5.3: Traffic Generation Summary

Land Use	Trips		Passing Trade	Additional Vehicle Trips	
	AM	PM		AM Peak	PM Peak
Fast Food (x5)	440	673	50%	220	337
Service Station	104	125		52	62
Total	544	798		272	399

Table 5.3 indicates that the proposed development is expected to generate a total of 544-798vph during the road network peak periods. This would include a net increase of 272-399vph to the road network with consideration for passer-by traffic.

5.2 Background Traffic Growth

On the above basis, Orange City Council has provided traffic counts for the year 2018 and forecasted traffic volumes for the year 2028, from their Strategic Traffic Model for Orange. These volumes are summarised in Table 5.4.

Table 5.4: Traffic Volumes per Hour

Road	Peak	Year 2018 Traffic Counts			Year 2028 Forecast Volumes		
		Northbound/ Westbound	Southbound/ Eastbound	Total	Northbound/ Westbound	Southbound/ Eastbound	Total
Leeds Parade	AM Peak	322	254	576	450	313	763
	PM Peak	271	361	632	274	471	745
Northern Distributor Road	AM Peak	694	436	1130	579	780	1359
	PM Peak	766	528	1294	746	691	1437

5.3 Traffic Impact

The development traffic is to access the site from Northern Distributor Road via the proposed left-in/left-out access and from Leeds Parade via the proposed priority intersection. Preliminary discussions with Council have resolved that a left-in/left-out access is most appropriate for access to the Northern Distributor Road.



5.3.1 Traffic Distribution

The proposed development traffic has been distributed based on the following assumptions:

- a 50% inbound/ 50% outbound split has assumed to enter and exit the site
- traffic has been distributed to/ from Northern Distributor Road and Leeds Parade based on existing flows, that is, Northern Distributor Road carries on more traffic than Leeds Parade. On the basis of the existing traffic flows, 65% of development traffic has been assumed to arrive and depart to Northern Distributor Road.
- similarly, 65% of the estimated pass-by traffic is assumed to access the site via Northern Distributor Road
- traffic at Leeds Parade has been distributed based on existing flows, with 60% travelling northbound and 40% travelling southbound in the AM peak and vice versa in the PM peak.

A comparison of the forecasted volumes on Northern Distributor Road and Leeds Parade site access points, for the Year 2028 Base (without development) and Year 2028 plus Development is shown in Figure 5.3 and Figure 5.4 respectively.

Figure 5.3: Northern Distributor Road – Site Access Volumes

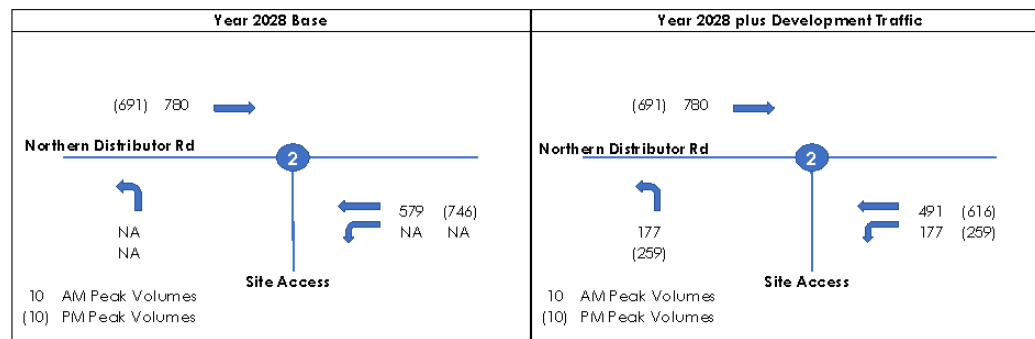
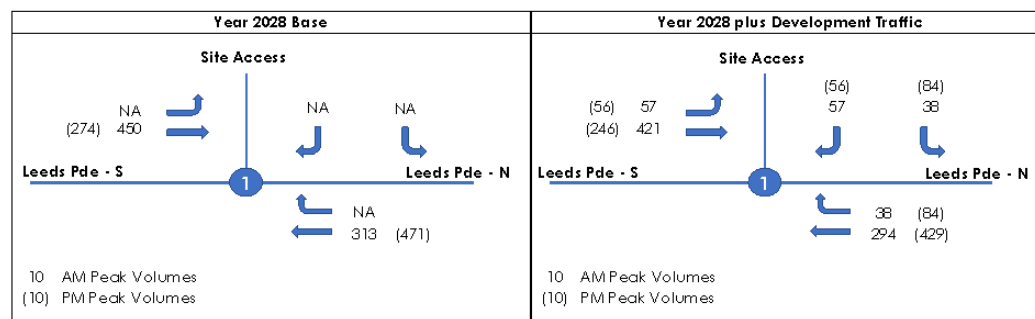


Figure 5.4: Leeds Parade – Site Access Volumes





5.3.2 Intersection Modelling Criteria

The site access has been assessed using SIDRA Intersection 8, a computer-based modelling package which assesses intersection performance under prevailing traffic conditions.

SIDRA calculates intersection performance measures such as 'average delay' that vehicles encounter and the level of service (LoS). SIDRA provides analysis of the operating conditions which can be compared to the performance criteria set out in Table 5.5.

Table 5.5: Level of Service Criteria for Intersection Operation

Level of Service	Average Delay (seconds per vehicle)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	Less than 14	good operation	good operation
B	15 to 28	good with acceptable delays and spare capacity	acceptable delays and spare capacity
C	29 to 42	satisfactory	satisfactory, but accident study required
D	43 to 56	operating near capacity	near capacity and accident study required
E	57 to 70	at capacity At signals, incidents will cause excessive delays.	at capacity, requires other control mode
F	Greater than 71	unsatisfactory with excessive queuing	unsatisfactory with excessive queuing; requires other control mode

Source: Roads and Maritime Guide to Traffic Generating Developments, 2002

5.3.3 Modelling Results

The result of the SIDRA analysis of the Year 2028 with development is presented in Table 5.6 with detailed results provided in Appendix B.

**Table 5.6: Intersection Operation – Year 2028 with Development**

Intersection	Intersection Approach	AM Peak		PM Peak	
		Delay (sec/veh)	Level of Service	Delay (sec/veh)	Level of Service
Northern Distributor Site Access	Northern Distributor - East	6	A	6	A
	Site Access	6	A	6	A
	Northern Distributor - West	0	A	0	A
Leeds Parade Site Access	Leeds Parade – North	9	A	8	A
	Site Access	16	B	16	A
	Leeds Parade – South	7	A	7	A

Based on Table 5.6, the proposed site access points at Northern Distributor Road and Leeds Parade would operate well with the proposed development traffic.



6 Conclusion

This traffic impact assessment report relates to a Planning Proposal to rezone an existing IN2 (Light Industrial) land to SP3 (Tourist) at 185 Leeds Parade, Orange. The proposed rezoning will enable the provision of five fast food restaurants with drive-through facilities. In addition, the rezoned site forms part of a larger proposed development including a mix of land uses that is subject to a separate proposal. The key findings of the report are presented below.

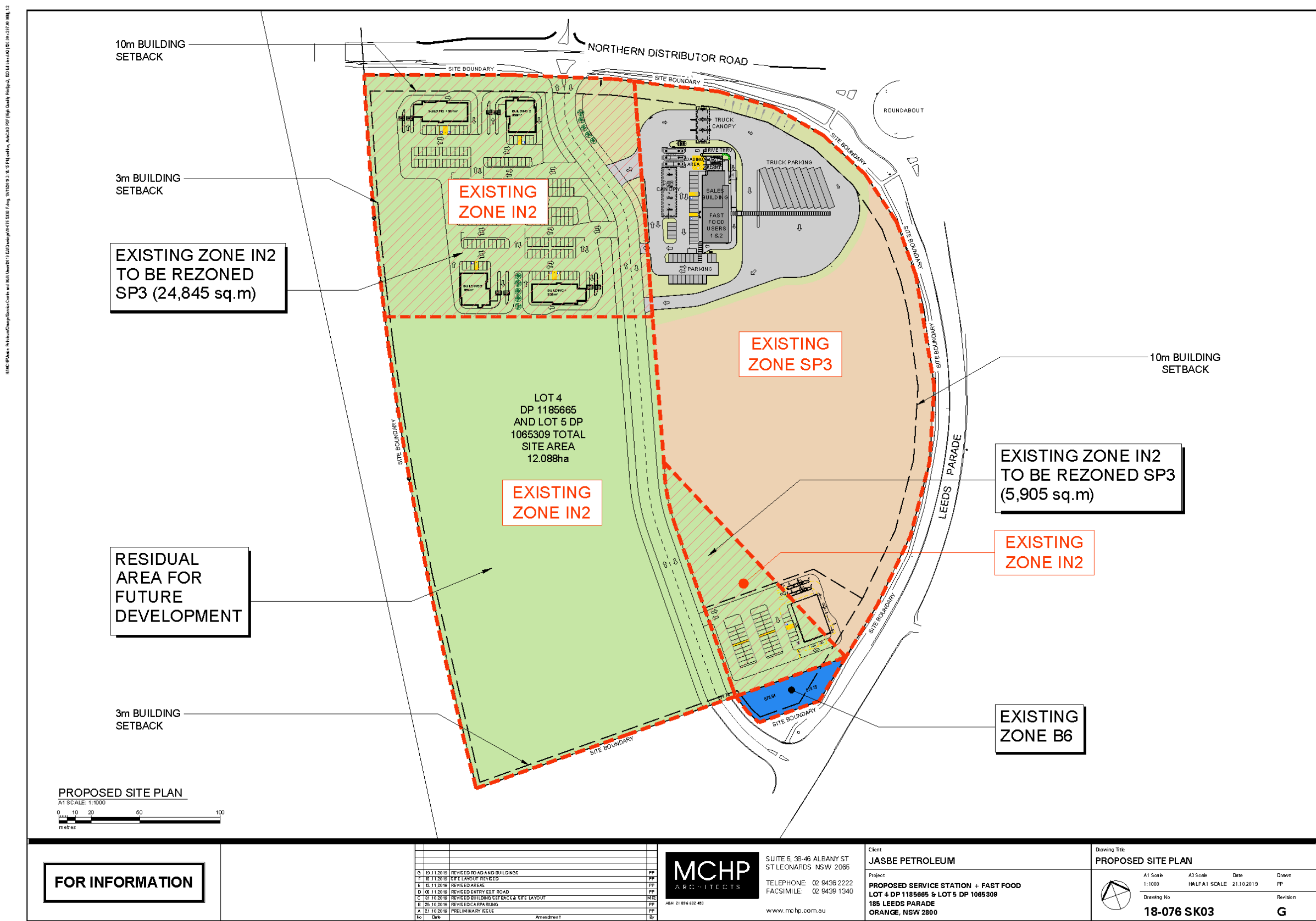
- The rezoned site includes two lots referred to as Area 1 and Area 1A. Following rezoning, Area 1 is to include four fast food restaurants with drive-through facilities and capacity for 78 seats per restaurant and Area 1A is to include one fast food restaurant with a drive-through facility and capacity for 88 seats.
- The proposed site is part of a wider development that includes a service station with a fast food outlet located at the existing SP3 land on the 185 Leeds Parade property (Stage 1) and a mix of land uses at the remaining IN2 and SP3 zoned land. The remaining site is subject to separate development applications.
- The DCP requires the proposed development to provide 120 car parking spaces in Area 1 and 44 spaces in Area 1A. In addition, the driveway through fast food restaurant provides queuing room for 13-14 vehicles per drive-through. It is proposed to comply with this requirement. The proposed parking facilities will be designed in accordance with design requirements as set out in AS2890:2004.
- Vehicle access to the development is off a new internal access road that would provide access to a new retail and commercial precinct that includes the proposed rezoned site and adjoining Stage 1 development. The internal access road is to be developed as part of the early stages of the development and would include a;
 - left-in/left-out intersection at the Northern Distributor Road, with a deceleration lane provided for vehicles turning left into the site and acceleration lane for vehicles turning left out of the site
 - a give-way intersection at Leeds Parade with left-in and right-in deceleration lanes into the site.
- The cumulative development (including the subject rezoned site and Stage 1 development) is estimated to generate 544 and 798 vehicle trips per hour in the morning and evening peak periods respectively, with a conservative volume of 50% anticipated to be passer-by trips.
- SIDRA Intersection modelling has been undertaken to assess the capacity of the site access points at the Northern Distributor Road and Leeds Parade, with consideration of background traffic growth to the year 2028. The modelling indicates that the proposed site access points would operate well.

Overall, the traffic and parking aspects of the proposed development is considered to be satisfactory.



Appendix A

Site Layout Plan





Appendix B

SIDRA Outputs

MOVEMENT SUMMARY

▽ Site: 101 [2028 AM Leeds Parade]

Site Category: -
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Leeds Parade												
8	T1	312	8.0	0.169	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	36	1.0	0.044	9.4	LOS A	0.2	1.2	0.50	0.72	0.50	50.5
Approach		347	7.3	0.169	1.0	NA	0.2	1.2	0.05	0.07	0.05	75.2
NorthWest: Proposed Road												
10	L2	36	1.0	0.045	6.9	LOS A	0.2	1.1	0.46	0.65	0.46	50.3
12	R2	54	1.0	0.171	15.3	LOS B	0.6	4.2	0.75	0.88	0.75	45.5
Approach		89	1.0	0.171	11.9	LOS A	0.6	4.2	0.63	0.79	0.63	47.3
SouthWest: Leeds Parade												
1	L2	54	1.0	0.029	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	64.4
2	T1	446	8.0	0.241	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
Approach		500	7.2	0.241	0.8	NA	0.0	0.0	0.00	0.07	0.00	77.7
All Vehicles		937	6.7	0.241	1.9	NA	0.6	4.2	0.08	0.14	0.08	72.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: TTPP - THE TRANSPORT PLANNING PARTNERSHIP | Processed: Wednesday, 20 November 2019 1:48:03 PM

Project: X\18161 185 Leeds Road, Orange NSW Jasbe Petroleum\07 Modelling Files\191021 Planning Proposal\18161-2028 PD-191021.sip8

MOVEMENT SUMMARY

▽ Site: 101 [2028 PM Leeds Parade]

Site Category: -
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Leeds Parade												
8	T1	457	8.0	0.248	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.9
9	R2	78	1.0	0.075	8.3	LOS A	0.3	2.1	0.40	0.66	0.40	51.3
Approach		535	7.0	0.248	1.2	NA	0.3	2.1	0.06	0.10	0.06	73.6
NorthWest: Proposed Road												
10	L2	78	1.0	0.077	5.8	LOS A	0.3	1.9	0.35	0.58	0.35	51.0
12	R2	52	1.0	0.164	15.2	LOS B	0.6	4.1	0.75	0.88	0.75	45.5
Approach		129	1.0	0.164	9.5	LOS A	0.6	4.1	0.51	0.70	0.51	48.6
SouthWest: Leeds Parade												
1	L2	52	1.0	0.028	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	64.4
2	T1	262	8.0	0.141	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.0
Approach		314	6.8	0.141	1.2	NA	0.0	0.0	0.00	0.10	0.00	76.6
All Vehicles		978	6.1	0.248	2.3	NA	0.6	4.1	0.10	0.18	0.10	69.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: TTPP - THE TRANSPORT PLANNING PARTNERSHIP | Processed: Wednesday, 20 November 2019 1:48:03 PM

Project: X\18161 185 Leeds Road, Orange NSW Jasbe Petroleum\07 Modelling Files\191021 Planning Proposal\18161-2028 PD-191021.sip8

MOVEMENT SUMMARY

▽ Site: 101 [2028 AM Peak - Northern Distributor Rd-Site Access]

Year 2028 plus Development Traffic

AM Peak

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Site Access												
1	L2	167	1.0	0.091	5.6	LOS A	0.0	0.0	0.00	0.53	0.00	54.9
Approach		167	1.0	0.091	5.6	NA	0.0	0.0	0.00	0.53	0.00	54.9
East: Northern Distributor Rd - E												
4	L2	167	1.0	0.091	5.6	LOS A	0.0	0.0	0.00	0.53	0.00	54.9
5	T1	526	8.0	0.284	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		694	6.3	0.284	1.4	NA	0.0	0.0	0.00	0.13	0.00	58.6
West: Northern Distributor Rd - W												
11	T1	821	8.0	0.443	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		821	8.0	0.443	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		1682	6.6	0.443	1.2	NA	0.0	0.0	0.00	0.11	0.00	58.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: TTPP - THE TRANSPORT PLANNING PARTNERSHIP | Processed: Wednesday, 20 November 2019 1:48:02 PM

Project: X\18161 185 Leeds Road, Orange NSW Jasbe Petroleum\07 Modelling Files\191021 Planning Proposal\18161-2028 PD-191021.sip8

MOVEMENT SUMMARY

▽ Site: 101 [2028 PM Peak - Northern Distributor Rd-Site Access]

Year 2028 plus Development Traffic

PM Peak

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Site Access												
1	L2	240	1.0	0.130	5.6	LOS A	0.0	0.0	0.00	0.53	0.00	54.9
Approach		240	1.0	0.130	5.6	NA	0.0	0.0	0.00	0.53	0.00	54.9
East: Northern Distributor Rd - E												
4	L2	240	1.0	0.130	5.6	LOS A	0.0	0.0	0.00	0.53	0.00	54.9
5	T1	665	8.0	0.359	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		905	6.1	0.359	1.5	NA	0.0	0.0	0.00	0.14	0.00	58.5
West: Northern Distributor Rd - W												
11	T1	727	8.0	0.392	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		727	8.0	0.392	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		1873	6.2	0.392	1.5	NA	0.0	0.0	0.00	0.14	0.00	58.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: TTPP - THE TRANSPORT PLANNING PARTNERSHIP | Processed: Wednesday, 20 November 2019 1:48:03 PM

Project: X\18161 185 Leeds Road, Orange NSW Jasbe Petroleum\07 Modelling Files\191021 Planning Proposal\18161-2028 PD-191021.sip8

The Transport Planning Partnership
Suite 402 Level 4, 22 Atchison Street
St Leonards NSW 2065

P.O. Box 237
St Leonards NSW 1590

02 8437 7800

info@tpp.net.au

www.tpp.net.au



Postal Address
P.O. Box 432
Gladesville
N.S.W. 1675
AUSTRALIA
A.C.N. 068 727 195
A.B.N. 19 068 727 195
Telephone: 02 9879 4544
Fax: 02 9879 4810
Email: AtkinsAcoustics@bigpond.com.au

Atkins Acoustics and Associates Pty Ltd.

Consulting Acoustical & Vibration Engineers

**STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE**

49.7185.R1:GA/DT/2019

Rev 01

Prepared for: Jasbe Petroleum
C/- MCHP Architects
Suite 5, 38-46 Albany Street
ST LEONARDS NSW 2065

Prepared by: Atkins Acoustics and Associates Pty Ltd.
P.O. Box 432
GLADESVILLE NSW 2111

November 2019



STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

CONTENTS

49.7185.R1.GA/DT/2019
Rev 01
November 2019

CONTENTS

	Page No
1.0 INTRODUCTION.....	1
2.0 DESCRIPTION OF SITE AND PROPOSAL	2
2.1 Overview	2
2.2 Noise Sensitive Development.....	2
2.3 Conceptual Proposal	3
2.3.1 Plant and Equipment	3
2.3.2 Operating Hours	3
3.0 EXISTING AMBIENT NOISE LEVELS.....	4
4.0 NOISE ASSESSMENT TRIGGER LEVELS	6
4.1 NPfl Intrusive Noise Level.....	6
4.2 NPfl Amenity Noise Levels	6
4.2.1 Amenity Noise Levels in Areas for Cluster of Developments	7
4.3 Maximum Noise Level Events.....	8
4.4 Project Noise Assessment Levels	8
5.0 SITE NOISE SOURCES	10
5.1 Mechanical Plant	10
5.2 Customer and Vehicle Noise	10
6.0 NOISE MODELLING.....	12
6.1 Mechanical Plant	12
6.2 Onsite Customer and Vehicle Noise	13
7.0 ASSESSMENT.....	14
7.1 Recommendations.....	14
8.0 CONCLUSION	15

TABLES

Table 1. Measured RBL and L_{Aeq} Noise Levels.....	5
Table 2. Intrusive noise assessment criteria	6
Table 3. Amenity noise levels	7
Table 4. Amenity noise levels	7
Table 5. Project specific assessment noise levels.....	9
Table 6. Mechanical Plant Noise.....	10
Table 7. Vehicle and COD Noise Levels (L_{Amax}).....	11
Table 8. Summary of Predicted Noise Levels (Mechanical Plant)	12
Table 9. Summary of Noise Levels (Night-time Transient Activities)	13

ATTACHMENTS

ATTACHMENT 1: SITE LOCATION
ATTACHMENT 2: CONCEPTUAL SITE LAYOUT
ATTACHMENT 3: AMBIENT NOISE MONITORING RESULTS
ATTACHMENT 4: NOISE PREDICTIONS MECHANICAL PLANT
ATTACHMENT 5: NOISE PREDICTIONS SITE ACTIVITIES

ATKINS ACOUSTICS

STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

CONTENTS

49.7185.R1.GA/DT/2019
Rev 01
November 2019

The information presented in this report should not be reproduced, presented or reviewed except in full and in context with the assumptions adopted. The report and findings are based on the specific assumptions reported. Atkins Acoustics makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document. It is the responsibility of any third party to confirm if the information presented in the report is suitable for their specific requirements. No parties other than the Client should use or rely on the reported information without written authority from Atkins Acoustics. Advice has been provided for acoustic reasons only and it is recommended expert advice be sought on all ramification, e.g. health, safety, fire, structural, etc associated with any proposals contained herein.

ATKINS ACOUSTICS

1.0 INTRODUCTION

Atkins Acoustics was retained by *Jasbe Petroleum* to investigate potential acoustic planning issues for the staged development of land (*the Site*) located on the south-west corner of Leeds Parade and Northern Distributor Road, Orange intersection (*Attachment 1*). The findings and recommendations of those investigations are reported in the Staged Planning Noise Assessment report prepared by *Atkins Acoustics*, dated August 2019.

Jasbe Petroleum has requested investigations be undertaken to assess possible acoustic planning issues associated with five (5) conceptual fast food developments (*the Proposal*) on the north-western and south-eastern portions of *the site*. A conceptual layout for *the Proposal* is shown on *Attachment 2*

The assessment was based on:

- site inspections;
- ambient background noise measurements;
- noise assessment procedures recommended in the EPA Noise Policy for Industry (*NPI*) and Road Noise Policy (*RNP*);
- conceptual plans for *the Proposal*;
- conceptual plant and equipment selections;
- plant and equipment manufacturer's noise data; and
- noise modelling.

The report presents the results, findings and recommendations of the assessment and was prepared for the particular investigation described. No part of the report should be used in any other context or for any other purpose without the approval of *Atkins Acoustics*. The recommendations presented in the report are for acoustic purpose only and support a Planning Application for *the Proposal*. Advice with respect to all other requirements should be reviewed and confirmed by others.

2.0 DESCRIPTION OF SITE AND PROPOSAL

2.1 Overview

The conceptual site layout for *the Proposal* is shown in *Attachment 2*. Access to *the Site* is provided by a centre road accessed from Leeds Parade and Northern Distributor Road. At this early planning phase for *the Proposal* potential operators are preliminary and conceptual. When individual land uses are confirmed, it is recommended that detailed acoustic assessments of potential noise impacts be undertaken for each operator and the findings reported with pending Development Applications for Council approval.

2.2 Noise Sensitive Development

Residential development (*Attachment 1*) in the vicinity of *the Proposal* is located to the west and east. Reference locations selected to assess noise from *the Proposal* include;

- R1 - single storey residences – 118 Clergate Road;*
- R2 – single storey residence – 27 Coombes Place;*
- R3 - single storey residence – 11 Melville Place;*
- R4 - single storey residence – 13 Melville Place;*
- R5 - single storey residence – 8 Douglas Place; and*
- R6 – single storey residence – Leeds Parade*

Site investigations confirmed that the Western Rail Line and Clergate Road separate the site from residential land to the west. At the southern end of the residential land (Douglas Place and Melville Place) earth embankments supporting Clergate Road provide acoustic screening for *the Proposal*. Land to the south of the residential area is developed with playing fields. A single storey residence is located to the south-east across Leeds Parade.

STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

Page 3

49.7185.R1:GA/DT/2019
Rev 01
November 2019

2.3 Conceptual Proposal

A conceptual layout for *the Proposal (Attachment 2)* provides for a five (5) Fast Food operators, drive-thru facilities and onsite parking. *Attachment 2* identifies entry/exit driveways on the main internal road accessed from Leeds Parade and Northern Distributor Road.

2.3.1 Plant and Equipment

At the present time plant and equipment selections for assessing noise are preliminary but realistic. Final plant selections would depend on individual operators and confirmed during the detailed design development phase to satisfy pending Council DA Consent Conditions. Details will be submitted for approval with DA documentation.

The main envisaged plant and equipment required to support *the Proposal* include air conditioning and refrigeration condensers and exhaust fans. At this early development phase it was assumed the plant and equipment would be located on building roofs (*Attachment 2*). Modelling has identified that acoustic screens may be required around selected items of the roof plant and equipment. Details for the acoustic screens, if required, would depend on individual operators, final plant selections and documented with pending Development Applications.

2.3.2 Operating Hours

The assessment for *the Proposal* has assumed twenty-four (24) hours, seven (7) days a week trading hours.

STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

Page 4

49.7185.R1:GA/DT/2019
Rev 01
November 2019

3.0 EXISTING AMBIENT NOISE LEVELS

For the purpose of developing project noise assessment goals ambient background noise measurements were conducted from Friday 26 July to 1 August 2019. Meteorological conditions during the audit period were acceptable for noise monitoring.

Two (2) reference measurement locations (*Attachment 1*) were selected to represent residential properties in the vicinity of *the Site*.

The measurement instrumentation comprised two (2) Svan 957 Sound and Vibration Meters. The reference level of each instrument was checked prior to and after the measurements with a Bruel & Kjaer Sound Level Calibrator Type 4230, with no significant drift recorded. The meters were set to A-weighting, fast response and fifteen (15) minute sampling periods.

The ambient noise levels were measured and assessed as percentile A-weighted sound levels. The parameters regarded as being the most important amongst these, are the “ L_{A90} ”, the level exceeded for 90% of the sample period and referenced as the “background or average minimum noise level”, and the “ L_{Aeq} ”, which is the A-weighted energy equivalent continuous (constant) sound level.

From assessment procedures recommended in the *NPfI* the Rating Background Level (*RBL*) and ambient L_{Aeq} levels were established to determine noise assessment goals. The *RBL* is the median of the tenth percentile background level for each assessment period over the measurement period. The L_{Aeq} level represents the energy averaged level for each assessment period. *Table 1* presents a summary of the measurement results for the daytime, evening and night-time hours. *Attachment 3* presents the measurement results in graphical form.

ATKINS ACOUSTICS

STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

Page 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

Table 1. Measured RBL and L_{Aeq} Noise Levels
dB(A) re: 20×10^{-6} Pa

Date	Rated Background Level RBL			Ambient Noise Level L_{Aeq} , Period		
	Day	Evening	Night	Day	Evening	Night
Reference Measurement Location M1 (30 m from Northern Distributor Road)						
	47	41	32	59	57	55
Reference Measurement Location M2 (270 m from Northern Distributor Road)						
	39	39	30	51	54	53

NOTES: 1. Day: 7.00am to 6.00pm Monday to Saturday, 8.00am to 6.00pm Sunday and public holidays
2. Evening: 6.00pm to 10.00pm
3. Night: 10.00pm to 7.00am Monday to Saturday, 10.00pm to 8.00am Sunday and public holidays

Observations during site visits confirmed that Northern Distributor Road and Leeds Parade road traffic, intermittent train movements and local environs control the ambient background noise.

4.0 NOISE ASSESSMENT TRIGGER LEVELS

The *NPfI* sets out procedures to determine project levels for accessing noise from industrial/commercial developments. Whilst there is no industrial noise associated with the proposal, for consistency assessment procedures from the *NPfI* have been considered and adopted.

4.1 NPfI Intrusive Noise Level

For the purpose of noise assessment the *NPfI* states that the intrusiveness of a noise source is considered to be acceptable if the $L_{Aeq,15min}$ level does not exceed the rated background level (*RBL*) level by more than 5dB. *Table 2* sets out a summary of the intrusive assessment criteria for the referenced assessment locations (Section 2.2)

Table 2. Intrusive noise assessment criteria

$L_{Aeq,15min}$ re: 20×10^{-6} Pa

Description	Intrusive Noise Levels		
	$L_{Aeq,15min}$ re: 20×10^{-6} Pa		
	Day	Evening	Night
Reference Assessment Locations R1, R2			
	52 (47+5)	46 (41+5)	37 (32+5)
Reference Assessment Location R3, R4, R5, R6			
	44 (39+5)	44 (39+5)	35 (30+5)

NOTES:

1. Day: 7.00am to 6.00pm Monday to Saturday, 8.00am to 6.00pm Sunday and public holidays
2. Evening: 6.00pm to 10.00pm
3. Night: 10.00pm to 7.00am Monday to Saturday, 10.00pm to 8.00am Sunday and public holidays

4.2 NPfI Amenity Noise Levels

The *NPfI* amenity requirements are intended to manage noise from 'industrial/commercial' type sources to a level that is considered acceptable and consistent for the area. Referring to the *NPfI*, residential receiver categories residential areas exposed to the site would be classified as 'suburban'. *Table 3* sets out the *NPfI* assessment amenity levels for 'suburban' residential areas. To convert the period amenity noise level (*ANL*) to a Project Amenity 15 minute level, the *NPfI* recommends 3dBA be added to the ANL.

STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

Page 7

49.7185.R1:GA/DT/2019
Rev 01
November 2019

Table 3. Amenity noise levels
L_{Aeq} re: 20 x 10⁻⁶ Pa

Amenity Noise Levels <i>dBA re: 20 x 10⁻⁶ Pa</i>			
Indicative Noise Amenity Area	Assessment Period	Amenity Noise Level <i>L_{Aeq} period</i>	Amenity Noise Level <i>L_{Aeq} 15min</i>
Suburban	Day ⁽¹⁾	55	58
	Evening ⁽²⁾	45	48
	Night ⁽³⁾	40	43

NOTES: 1. Day: 7.00am to 6.00pm Monday to Saturday, 8.00am to 6.00pm Sunday and public holidays
2. Evening: 6.00pm to 10.00pm
3. Night: 10.00pm to 7.00am Monday to Saturday, 10.00pm to 8.00am Sunday and public holidays

4.2.1 Amenity Noise Levels in Areas for Cluster of Developments

The amenity noise levels recommended in *Table 3* represent the total noise level from all sources that is sought to be achieved using feasible and reasonable controls. The *NPfI* approach of deriving project amenity noise levels for new development on a 'greenfield' site supporting a cluster of developments, is on the basis of the recommended amenity level (*Table 3*) minus 5dB, and is based on a receiver not being impacted by cumulative noise from more than three to four developments. *Table 4* sets out a summary of the modified *NPfI* project amenity noise levels for *the Proposal*.

Table 4. Amenity noise levels
L_{Aeq} re: 20 x 10⁻⁶ Pa

Amenity Noise Levels <i>dBA re: 20 x 10⁻⁶ Pa</i>			
Indicative Noise Amenity Area	Assessment Period	Amenity Noise Level <i>L_{Aeq} 15min</i>	Modified Amenity Assessment Noise Level <i>L_{Aeq} 15min</i>
Suburban	Day ⁽¹⁾	58	53
	Evening ⁽²⁾	48	43
	Night ⁽³⁾	43	38

NOTES: 1. Day: 7.00am to 6.00pm Monday to Saturday, 8.00am to 6.00pm Sunday and public holidays
2. Evening: 6.00pm to 10.00pm
3. Night: 10.00pm to 7.00am Monday to Saturday, 10.00pm to 8.00am Sunday and public holidays

4.3 Maximum Noise Level Events

Noise from short duration events may cause disturbance to sleep during nighttime hours (10.00pm to 7.00am), if not managed. The *NPfI* screening test for assessing intermittent noise outside bedroom windows during nighttime hours, include;

- $L_{Aeq\ 15\ min}$ 40dBA or the prevailing RBL + 5dBA, whichever is the greater; and/or
- $L_{A_{Fmax}}$ 52dBA or prevailing RBL + 15dBA, which ever is the greater

Where the screening test cannot be met, the *NPfI* recommends that a detailed assessment should be undertaken. Other guidelines that address sleep disturbance include the *EPA Road Noise Policy (RNP)*. Based on currently available research, the *RNP* reports:

- *"Maximum internal noise levels below 50dBA to 55dBA are unlikely to cause awakening reactions"*
- *"One or two noise events per night, with maximum internal noise levels of 65dBA to 70dBA, are not likely to affect health and wellbeing significantly"*

Considering a nominal noise reduction of 10dB across a residential building façade with windows open, the *RNP* equivalent external levels unlikely to cause awakening reactions are "in the order of $L_{A1,1min}$ or L_{Amax} 60-65dBA.

4.4 Project Noise Assessment Levels

For assessment of noise from mechanical plant, project noise trigger levels developed from *NPfI* procedures represent the level that, if exceeded, may indicated a potential noise impact upon a community. The project noise trigger level is set as a benchmark or objective and is not intended for use as mandatory requirements. Considering the *NPfI* procedures, *Table 5* sets out the *RBL* 's and recommended project specific noise levels for the assessment of the cumulative noise from *the Proposal*.

STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

Page 9

49.7185.R1:GA/DT/2019
Rev 01
November 2019

Table 5. Project specific assessment noise levels
dBA re: 20×10^{-6} Pa

Period	Rating Background Level RBL	Intrusive Noise Levels $L_{Aeq, 15min}$	Amenity Noise Levels $L_{Aeq, 15min}$	Project Noise Assessment Levels $L_{Aeq, 15min}$	Sleep Arousal Assessment Levels $L_{A1, 1min}$
Reference Assessment Locations R1, R2					
Day	47	52	53	52	N.A.
Evening	41	46	43	43	N.A.
Night	32	37	38	37	52* 60/65^
Reference Assessment Locations R3, R4, R5, R6					
Day	39	44	53	44	N.A.
Evening	39	44	43	43	N.A.
Night	30	35	38	35	52* 60/65^

NOTES: 1. * EPA screening test (Section 4.1.3)
2. ^ RNP recommended external $L_{A1, 1min}$ level

5.0 SITE NOISE SOURCES

The primary conceptual noise sources associated with *the Proposal* include mechanical plant, vehicles and customers.

5.1 Mechanical Plant

The main mechanical plant of acoustical significance includes air-conditioning, refrigeration condensers and exhaust fans. For modeling and evaluating mechanical plant noise, sound power levels from typical plant presented in *Table 6* have been established from generic plant selections, manufacturer data and field measurements. It was assumed that the air-conditioning condensers are selected with soft start variable speed motors and a night mode operating controllers.

Table 6. Mechanical Plant Noise
dBA re: 10^{-12} Watts

Item	Mechanical Plant	Sound Power Level dBA	Type
1	AC1 – Actron SCA340C	82	Roof Mounted
2	AC2 – Actron CAY504T	83	Roof Mounted
3	Refrigeration (Channon MAC95)	85	Roof Mounted
4	KEF-1 (Fantech AP0564/10/15)	87	Roof Mounted
5	KEF-2 (Fantech CHD406)	87	Roof Mounted
6	TEF-3 (Fantech CE284D)	65	Roof Mounted
7	COD (x2)	78	-

* *Manufacturer data +3dBA for installed location*

5.2 Customer and Vehicle Noise

For transient onsite activities including the drive-through, measurements undertaken by Atkins Acoustics established that noise levels are dependent on the activity. Audit measurements for car doors closing, vehicles starting, manoeuvring, accelerating have been utilised to determine source levels for assessing noise from typical onsite activities. The sound power levels summarised in *Table 7* represent a typical range and maximum levels for speech and onsite vehicles.

STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

Page 11

49.7185.R1:GA/DT/2019
Rev 01
November 2019

Table 7. Vehicle and COD Noise Levels (L_{Amax})

dBA re: 10^{-12} Watts

Noise Source	Sound Power Level dBA
Speech	70 – 85 (80)
Car Moving	80 – 90 (88)
Car Door Closing	80 – 100 (90)
Car Starting	80 – 105 (95)
Car Accelerating	80 – 105 (95)
COD System	78 – 86 (85)

Numbers in brackets represent the 90 percentile levels of the L_{Amax} noise levels

6.0 NOISE MODELLING

For modelling and assessing noise from onsite plant and associated activities, sources identified in Section 5 have been assessed to the referenced residential locations (*Attachment 1*).

6.1 Mechanical Plant

Considering distance separation, noise controls and site shielding *Table 8* presents a summary of predicted noise level contributions from mechanical plant. *Attachment 4* presents a summary of the calculations for the referenced assessment locations. The predicted sound pressure levels in *Table 8* demonstrate that noise from plant and equipment with appropriate selection, design and installation can be controlled and satisfy the recommended assessment goals.

Table 8. Summary of Predicted Noise Levels (Mechanical Plant)

L_{Aeq,15min} dBA re: 20 x 10⁻⁶ Pa

Description	Assessment Noise Goals dBA			Predicted Sound Pressure Levels dBA			Compliance		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Reference Assessment Location R1 – 118 Clergate Road									
Mechanical Plant	52	43	37	38	38	37	√	√	√
Reference Assessment Location R2 - 27 Coombes Place									
Mechanical Plant	52	43	37	35	35	34	√	√	√
Reference Assessment Location R3 – 11 Melville Place									
Mechanical Plant	44	43	35	36	36	35	√	√	√
Reference Assessment Location R4 - 13 Melville Place									
Mechanical Plant	44	43	35	36	36	35	√	√	√
Reference Assessment Location R5 – 8 Douglas Place									
Mechanical Plant	44	43	35	34	34	33	√	√	√
Reference Assessment Location R6 – Leed Parade									
Mechanical Plant	44	43	35	36	36	35	√	√	√

NOTES:

1. Day: 7.00am to 6.00pm Monday to Saturday, 8.00am to 6.00pm Sunday and public holidays
2. Evening: 6.00pm to 10.00pm
3. Night: 10.00pm to 7.00am Monday to Saturday, 10.00pm to 8.00am Sunday and public holidays

6.2 Onsite Customer and Vehicle Noise

A summary of the predicted noise contributions from onsite vehicle and customer activities and compliance status is presented in *Table 10. Attachment 5* present a summary of the calculations referenced to exposed building facades.

Table 10. Summary of Noise Levels (Night-time Transient Activities)

$L_{A1,1min}$ dBA re: 20×10^{-6} Pa

Description	Assessment Noise Goals dBA			Calculated Sound Pressure Levels dBA	Compliance
	Day	Evening	Night		
Reference Assessment Location R1 – 118 Clergate Road					
Transient ($L_{A1,1min}$)	n/a	52* 60/65^	9 - 48	√	
Reference Assessment Location R2 - 27 Coombes Place					
Transient ($L_{A1,1min}$)	n/a	52* 60/65^	8 – 43	√	
Reference Assessment Location R3 - 11 Melville Place					
Transient ($L_{A1,1min}$)	n/a	52* 60/65^	10 – 44	√	
Reference Assessment Location R4 - 13 Melville Place					
Transient ($L_{A1,1min}$)	n/a	52* 60/65^	11 – 44	√	
Reference Assessment Location R5 - 8 Douglas Place					
Transient ($L_{A1,1min}$)	n/a	52* 60/65^	11 –43	√	
Reference Assessment Location R6 – Leed Parade					
Transient ($L_{A1,1min}$)	n/a	52* 60/65^	9 -43	√	

- NOTES:**
- * EPA screening test (Section 4.1.3)
 - ^ RNP recommended external $L_{A1,1min}$ level

The results in *Table 10.* demonstrate that noise from transient onsite activities is predicted to satisfy the *EPA* screening test for assessing sleep awakening reactions.

7.0 ASSESSMENT

Modelling for *the Proposal* has demonstrated;

- noise from the plant and equipment with appropriate selection, design and installation can be controlled and satisfy assessment goals established from *NPfI* procedures; and
- noise from transient onsite vehicle and customer activities satisfies the *NPfI* recommended screening test (52dBA) for assessing sleep awakening reactions.

7.1 Recommendations

The results and findings of the assessment and noise modelling are based on the following:

- assessment goals established from *NPfI* procedures developed for controlling intrusive noise impacts and managing ambient noise creep;
- mechanical plant selections, design and installation to satisfy the acoustic performance referenced in *Chapter 5*;
- air-conditioning condensers selected with soft start variable speed motors and a night mode operating controllers;
- if required, roof mounted air-conditioning and refrigeration condensers and exhaust fans installed with acoustic rated screens; and
- when individual operators are confirmed, detailed acoustic assessments of potential noise impacts are undertaken for each operator and the findings/recommendations submitted with pending Development Applications for Council approval.

8.0 CONCLUSION

Jasbe Petroleum has requested acoustic investigations be undertaken to assess possible acoustic planning issues associated with the development of five (5) conceptual Fast Food facilities on *the Site (Attachment 1)*.

The conceptual layout for *the Proposal (Attachment 2)* provides for five (5) Fast Food developments with associated drive-thru facilities and onsite parking.

The proposed operating hours for *the Proposal* are twenty-four (24) hours, seven (7) days a week.

The results of modelling show that noise from the indicative plant and equipment can be controlled through selection, design, installation and satisfy the recommended noise goals.

Noise from transient onsite activities have been addressed in accordance with the *NPfI* procedures for assessing sleep awakening reactions. Modelling has shown that noise from onsite customer and vehicle activities satisfy the *NPfI* screening test assessment level of 52dBA.

Acoustic design requirements for individual operators would be subject to Council requirements and Development Applications. The DA documentation for each operator would address acoustic requirement for mechanical plant, transient onsite activities, site management requirements and noise mitigation required to address and satisfy any pending noise conditions imposed by Council

STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 1

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 1: SITE and ASSESSMENT LOCATIONS

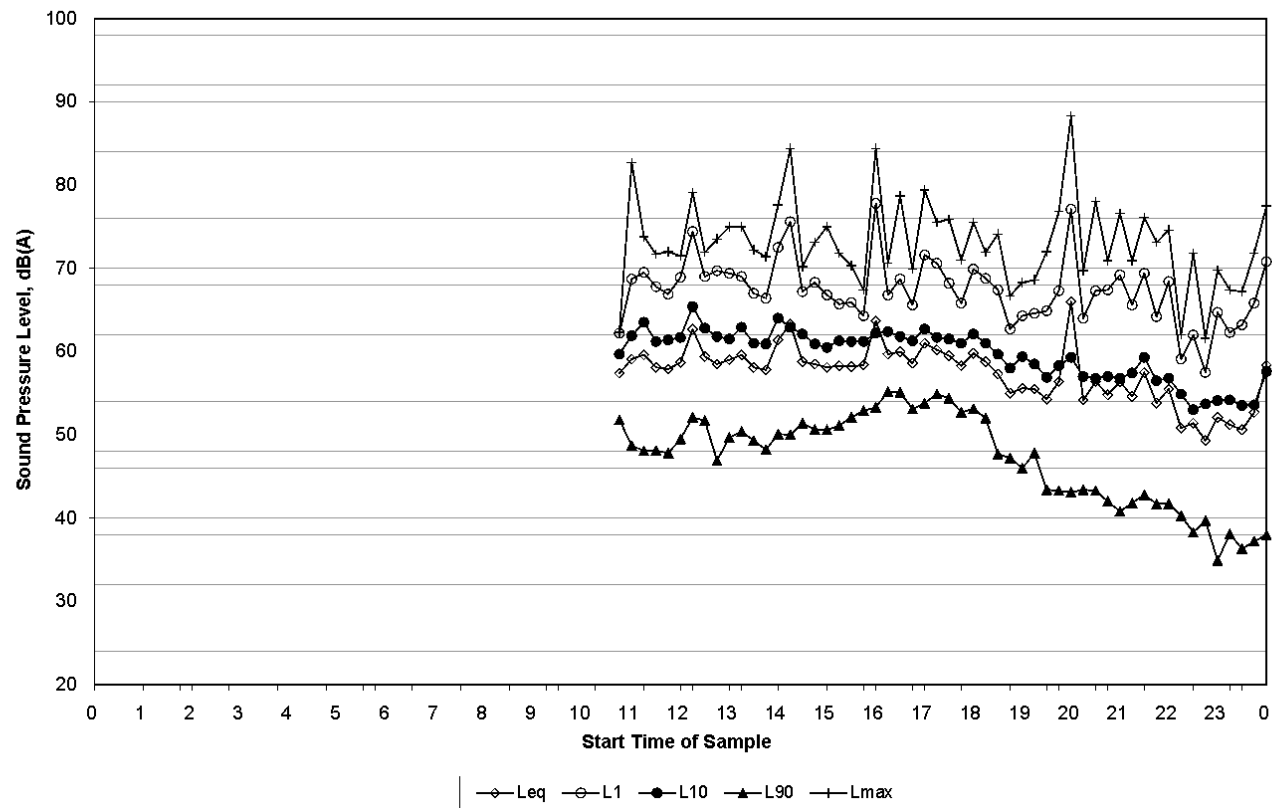
(Source: Google Maps)



ATKINS ACOUSTICS

Ambient Sound Pressure Levels

Friday, 26 July 2019

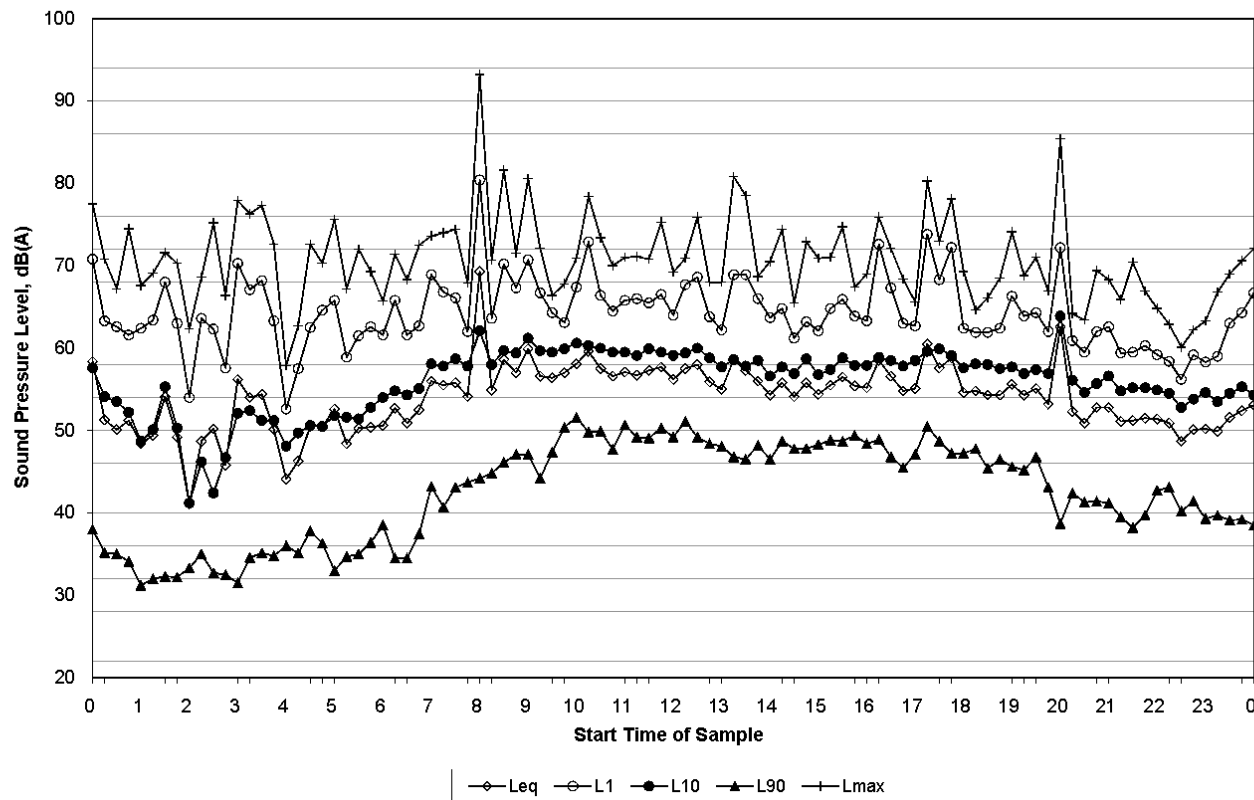


Measurement Location M1
Northern Distributor Road Orange

7174.M1.xls

Ambient Sound Pressure Levels

Saturday, 27 July 2019

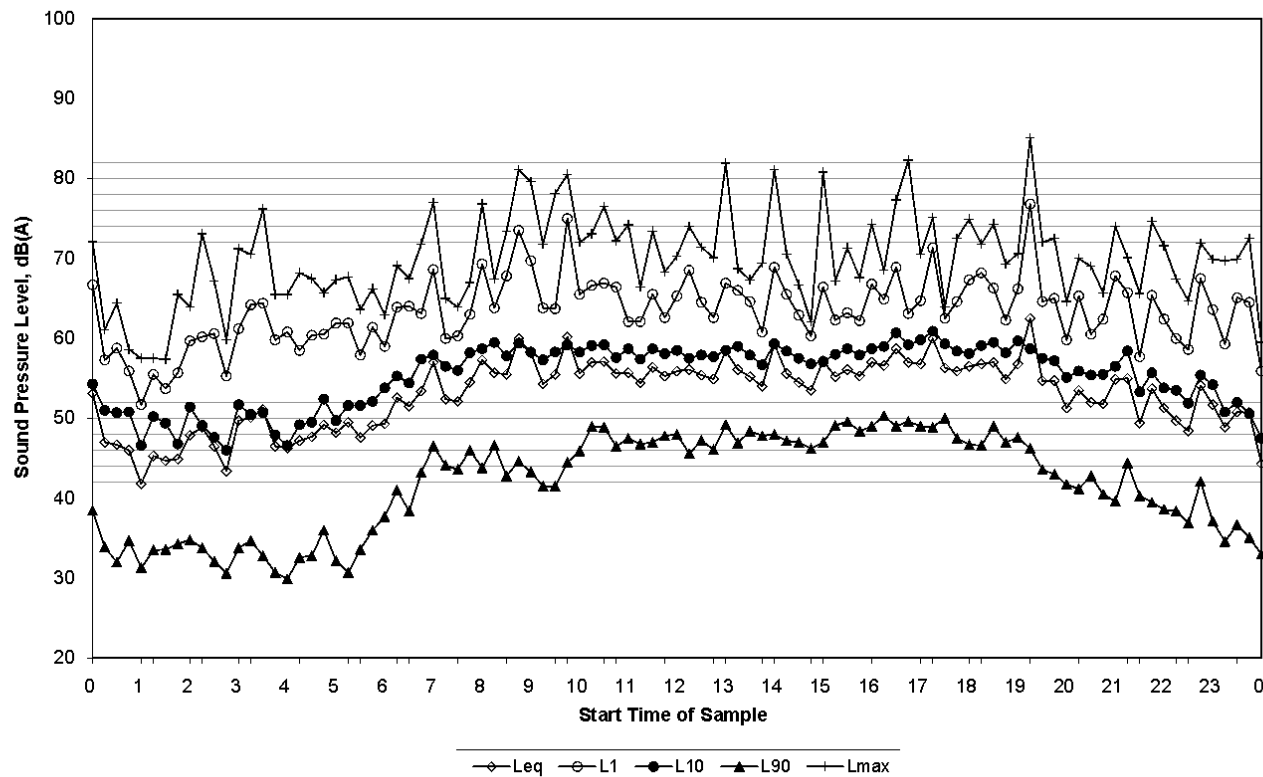


Measurement Location M1
Northern Distributor Road Orange

7174.M1.xls

Ambient Sound Pressure Levels

Sunday, 28 July 2019

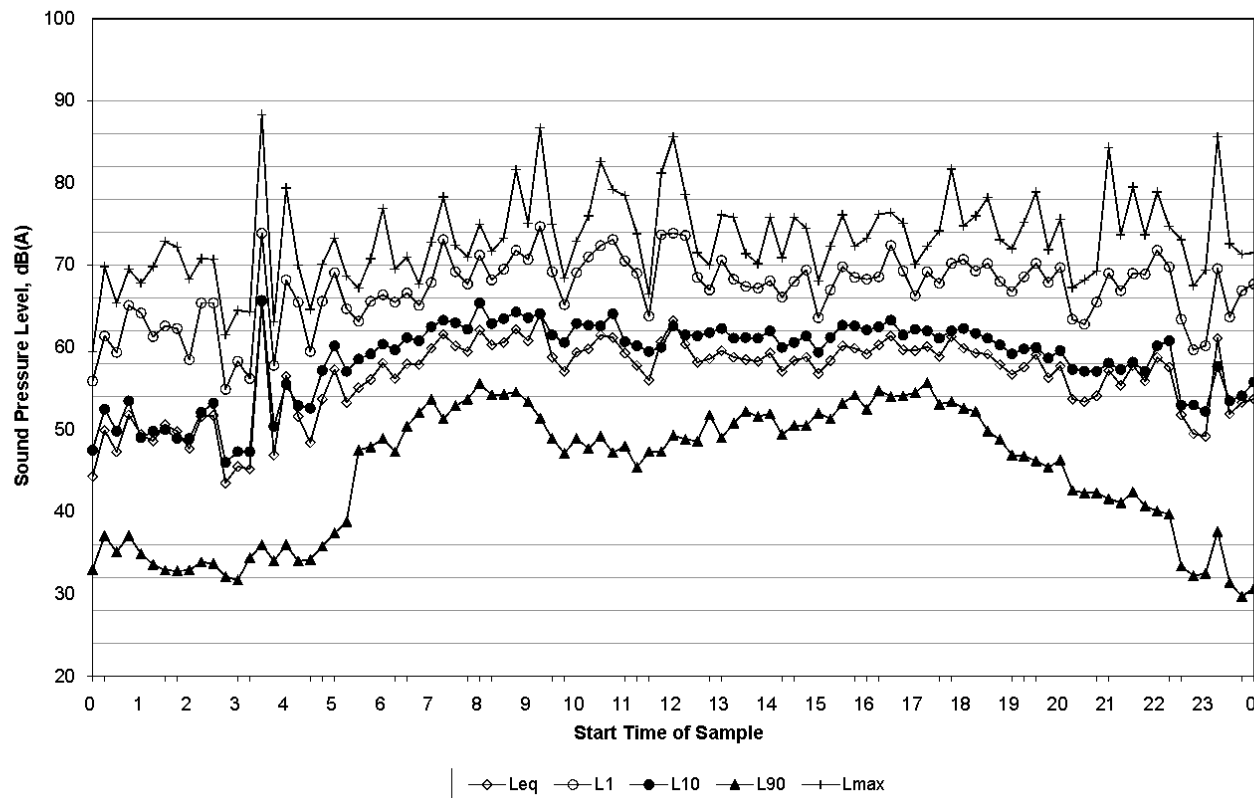


Measurement Location M1
Northern Distributor Road Orange

7174.M1.xls

Ambient Sound Pressure Levels

Monday, 29 July 2019

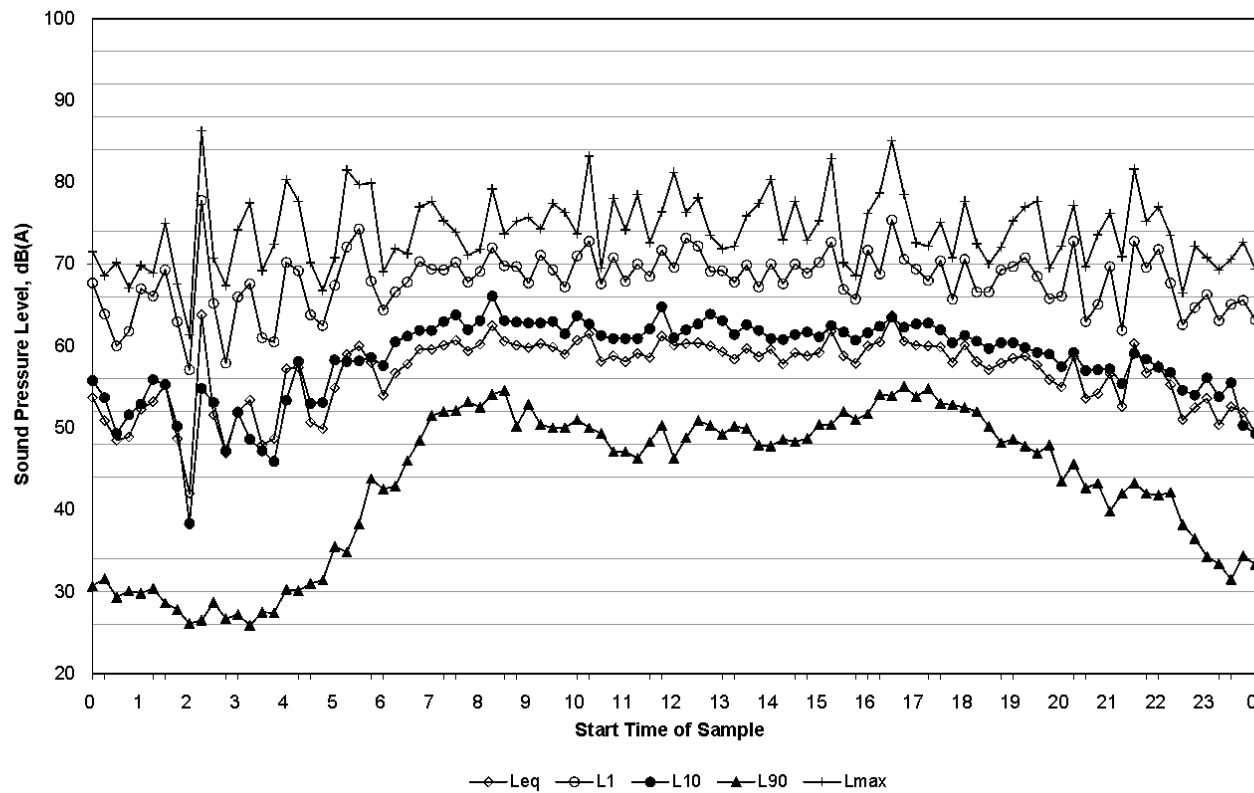


Measurement Location M1
Northern Distributor Road Orange

7174.M1.xls

Ambient Sound Pressure Levels

Tuesday, 30 July 2019

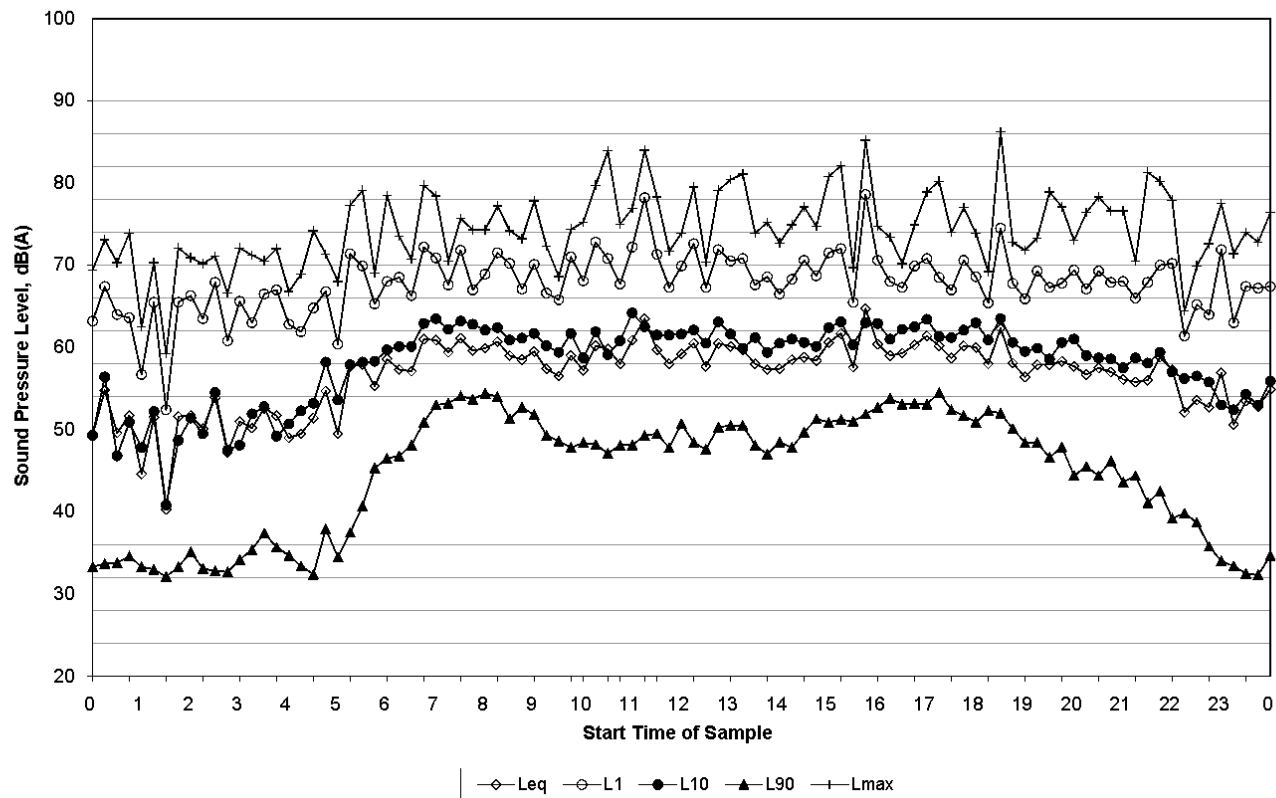


Measurement Location M1
Northern Distributor Road Orange

7174.M1.xls

Ambient Sound Pressure Levels

Wednesday, 31 July 2019

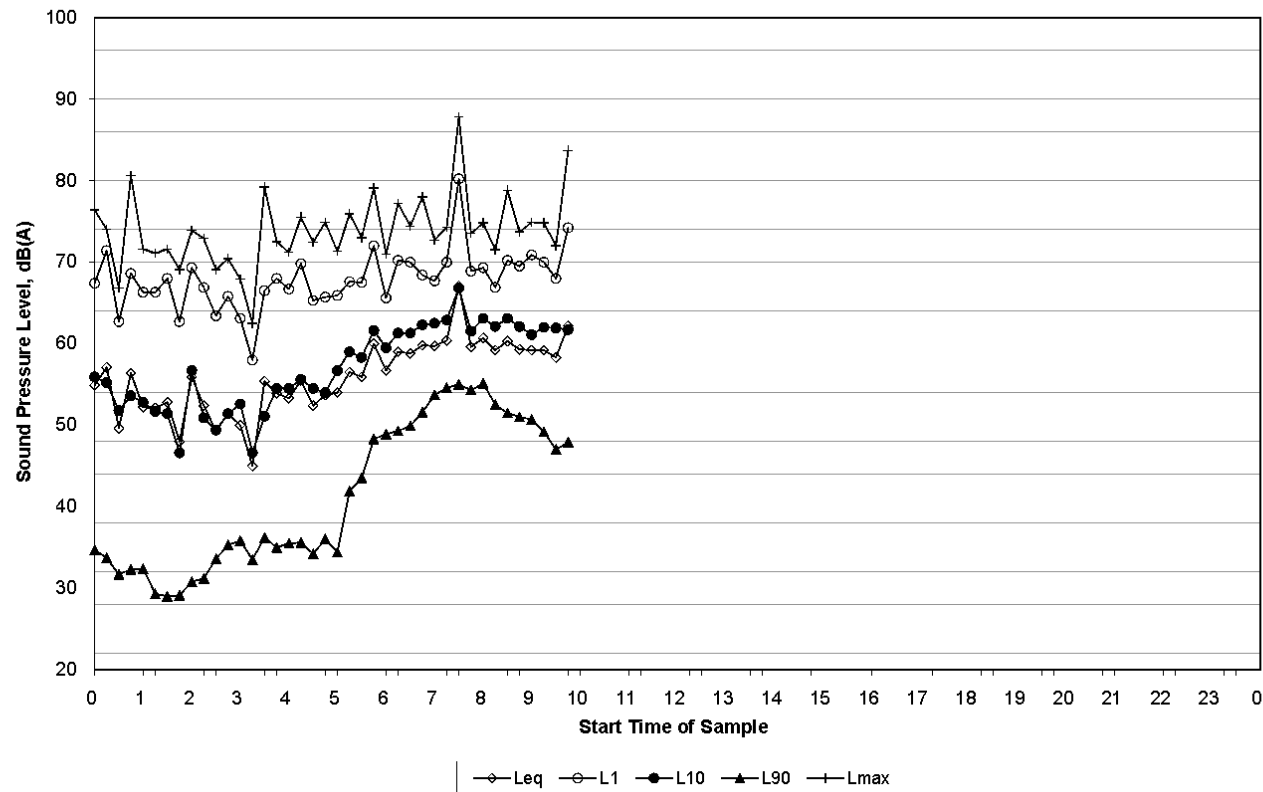


Measurement Location M1
Northern Distributor Road Orange

7174.M1.xls

Ambient Sound Pressure Levels

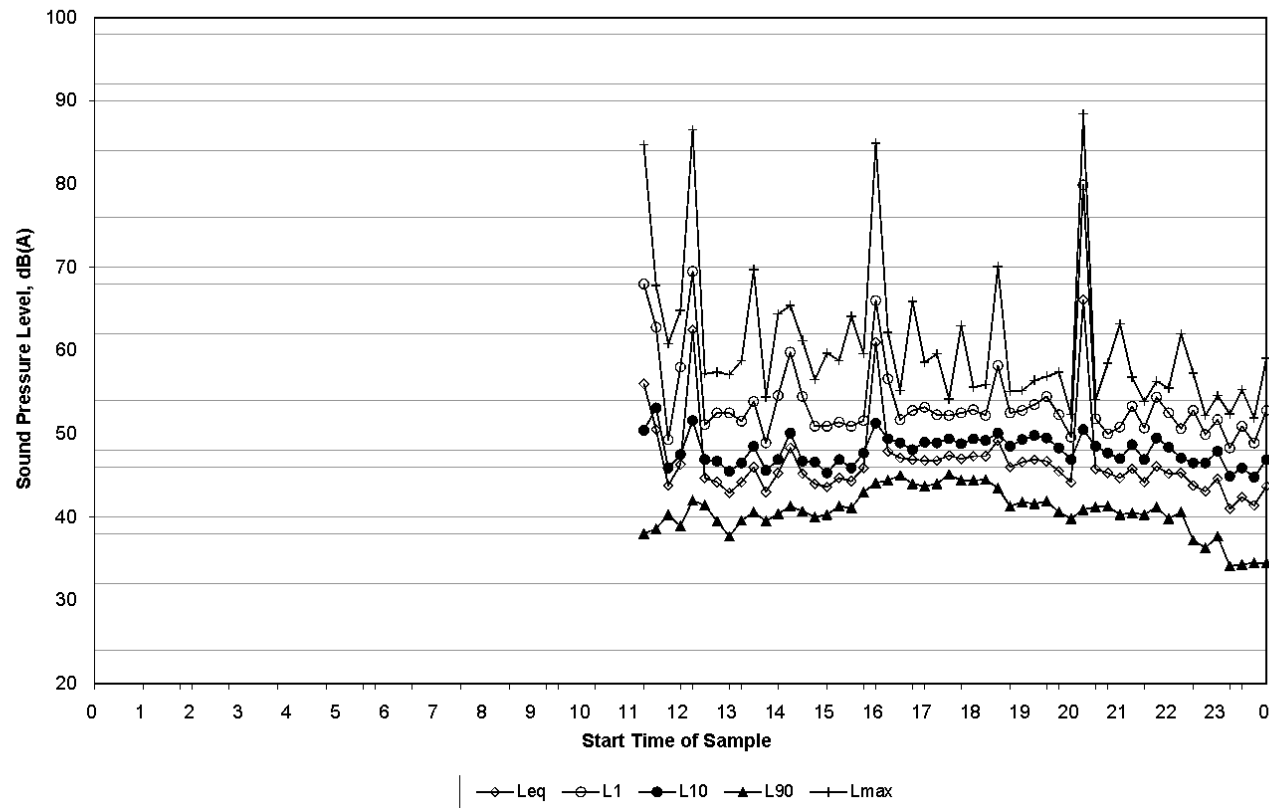
Thursday, 1 August 2019



Measurement Location M1
Northern Distributor Road Orange

Ambient Sound Pressure Levels

Thursday, 27 June 2019

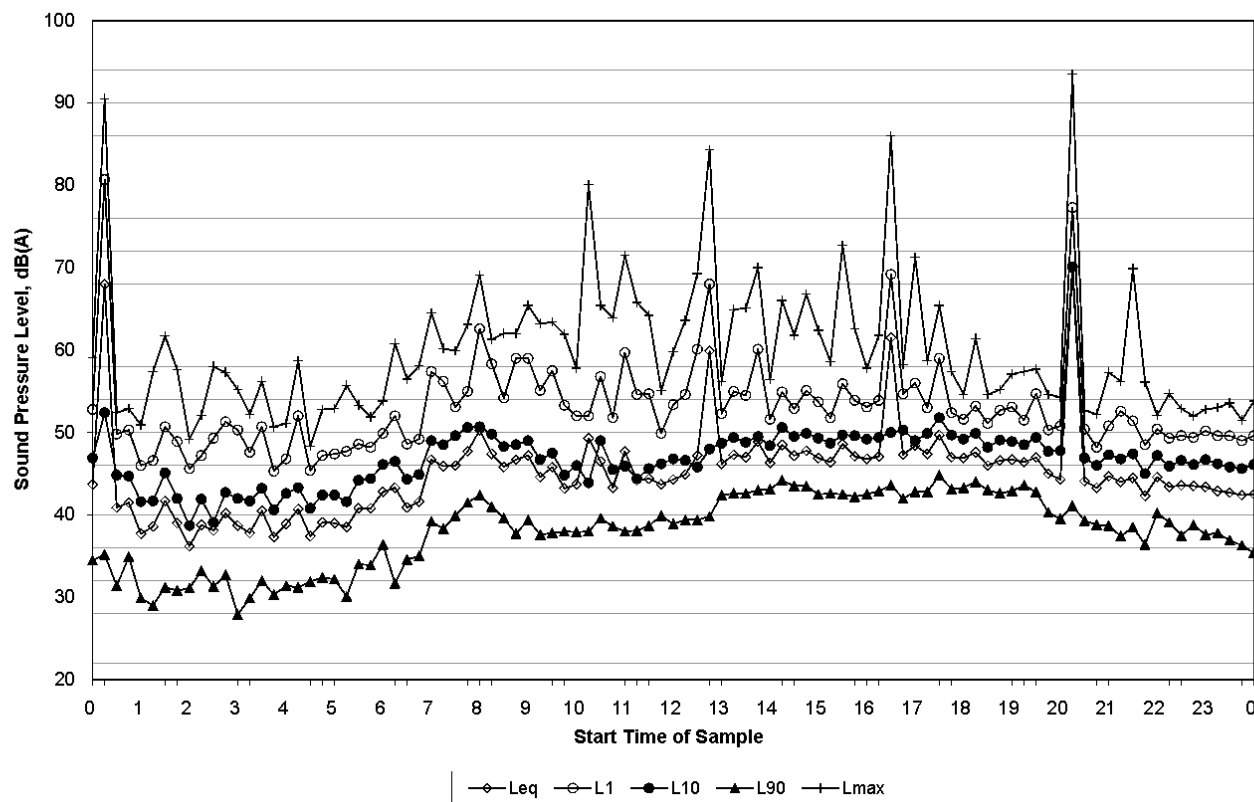


Measurement Location M2
Northern Distributor Road

7174.M2.xls

Ambient Sound Pressure Levels

Friday, 28 June 2019

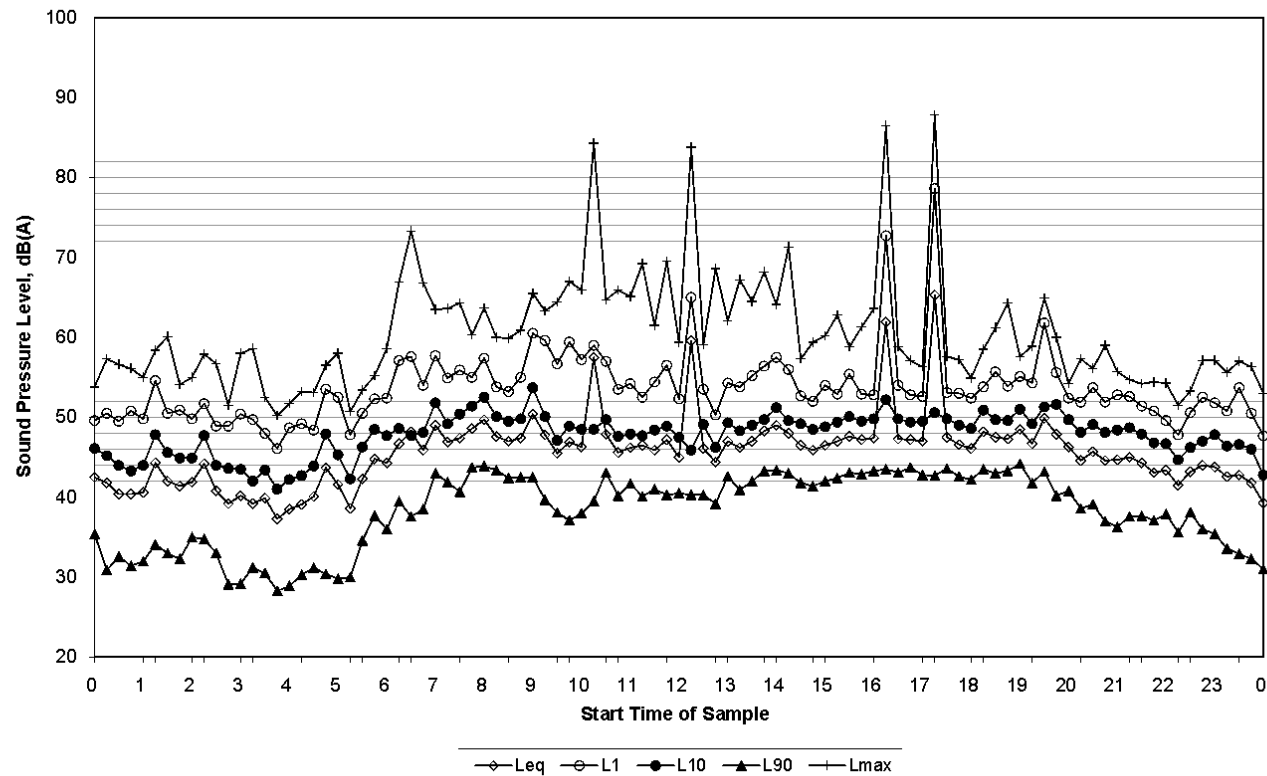


Measurement Location M2
Northern Distributor Road

7174.M2.xls

Ambient Sound Pressure Levels

Saturday, 29 June 2019

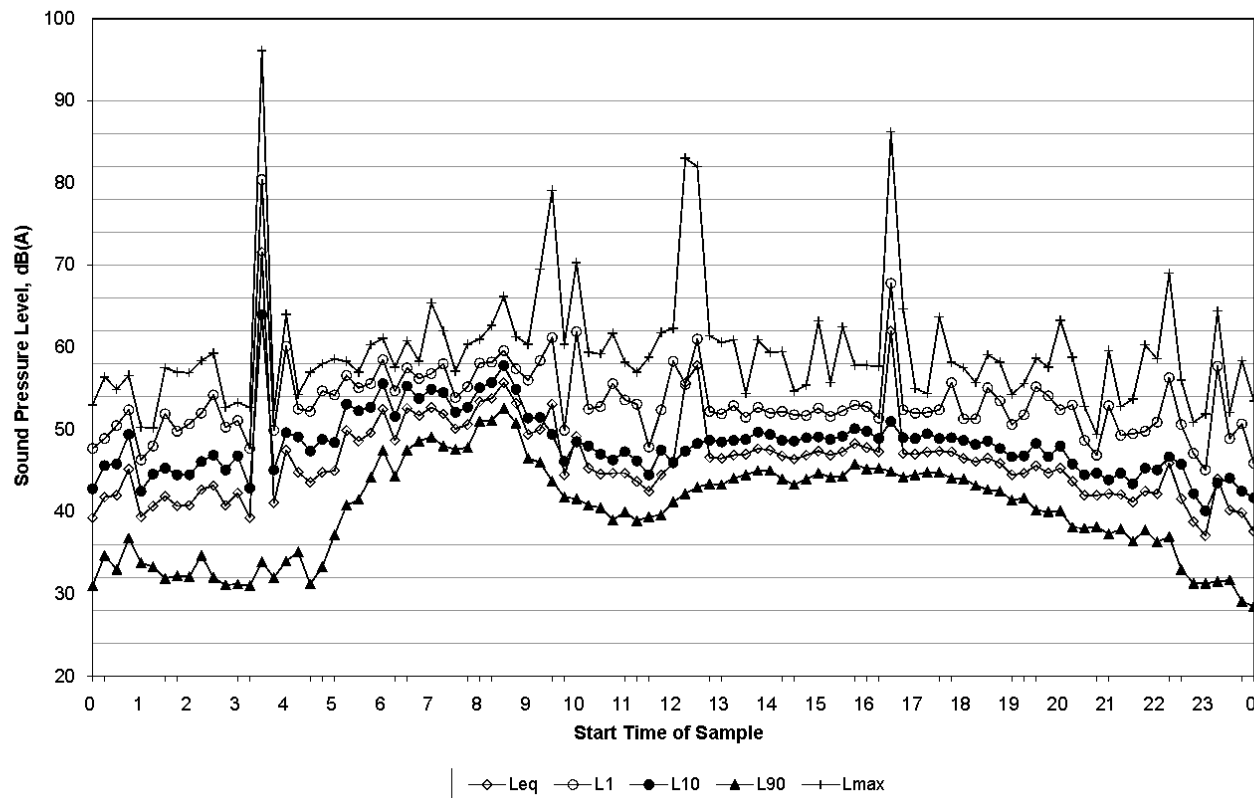


Measurement Location M2
Northern Distributor Road

7174.M2.xls

Ambient Sound Pressure Levels

Sunday, 30 June 2019

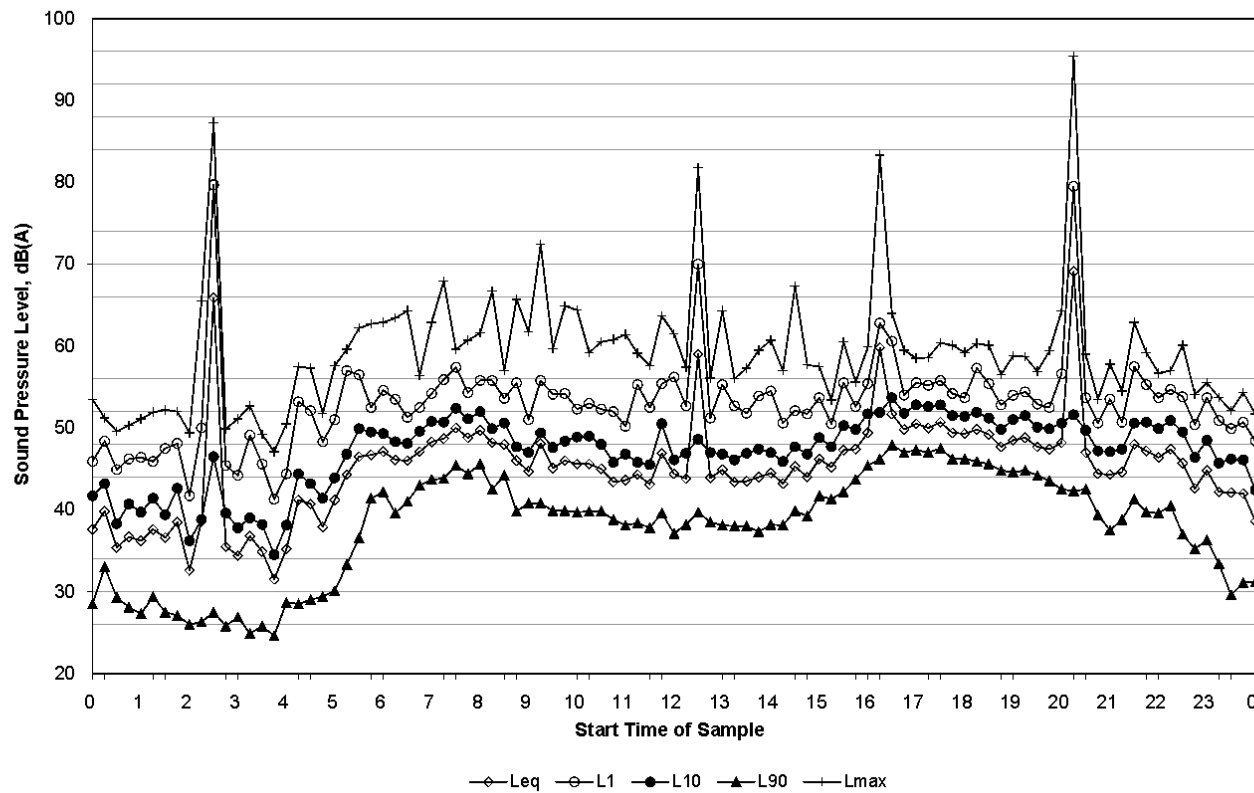


Measurement Location M2
Northern Distributor Road

7174.M2.xls

Ambient Sound Pressure Levels

Monday, 1 July 2019

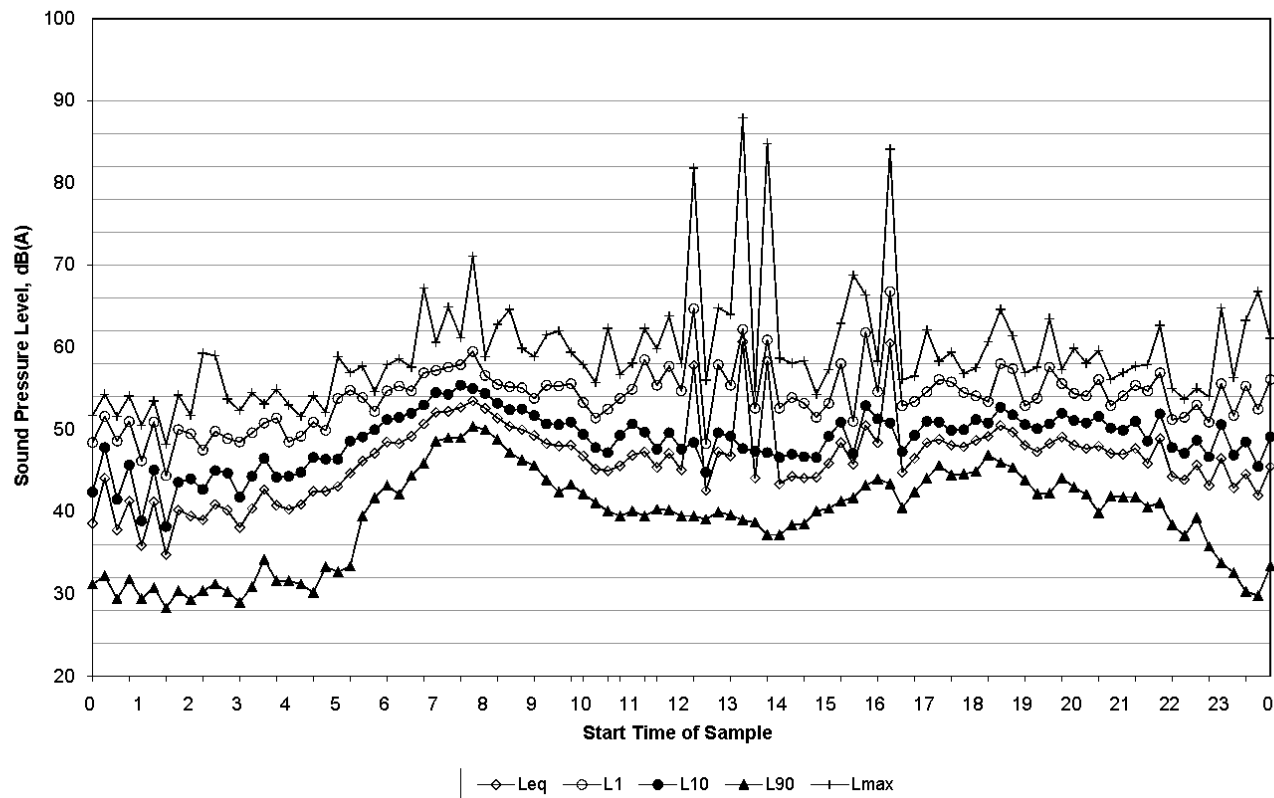


Measurement Location M2
Northern Distributor Road

7174.M2.xls

Ambient Sound Pressure Levels

Tuesday, 2 July 2019

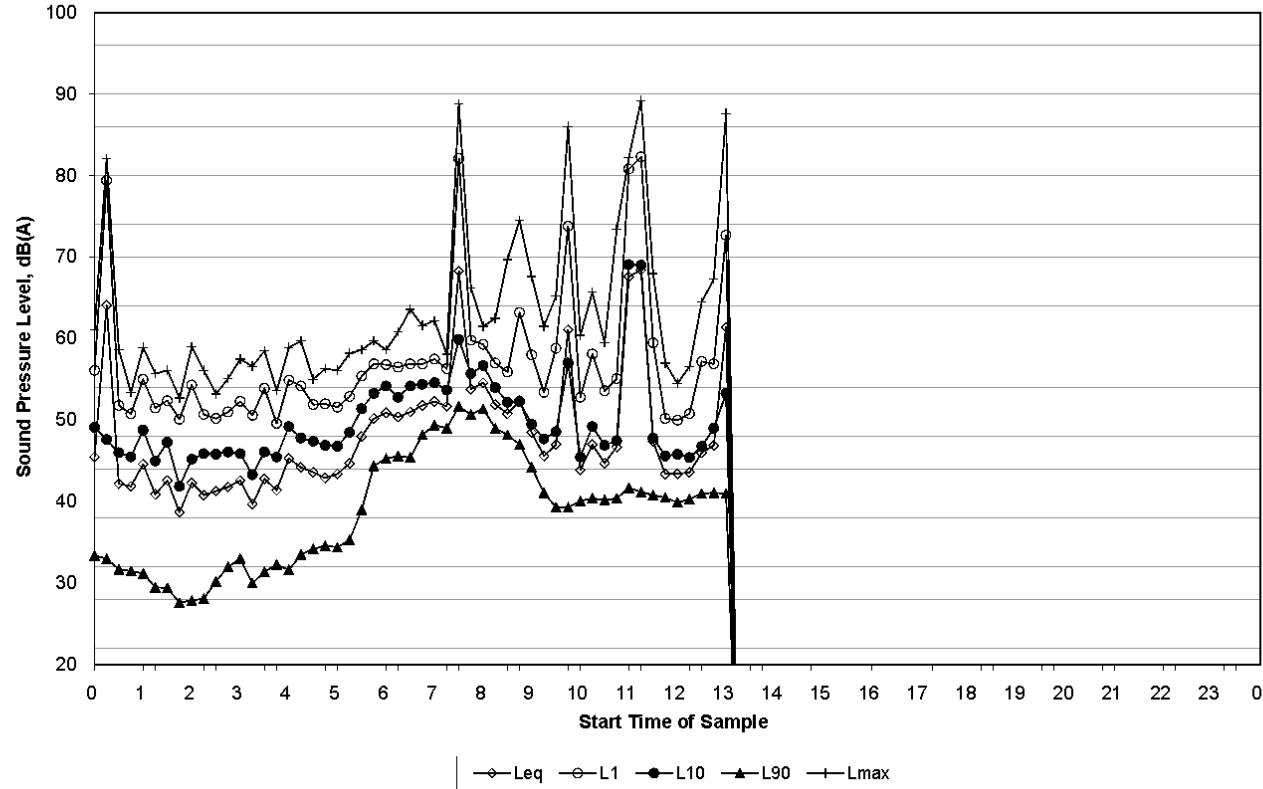


Measurement Location M2
Northern Distributor Road

7174.M2.xls

Ambient Sound Pressure Levels

Wednesday, 3 July 2019



Measurement Location M2
Northern Distributor Road

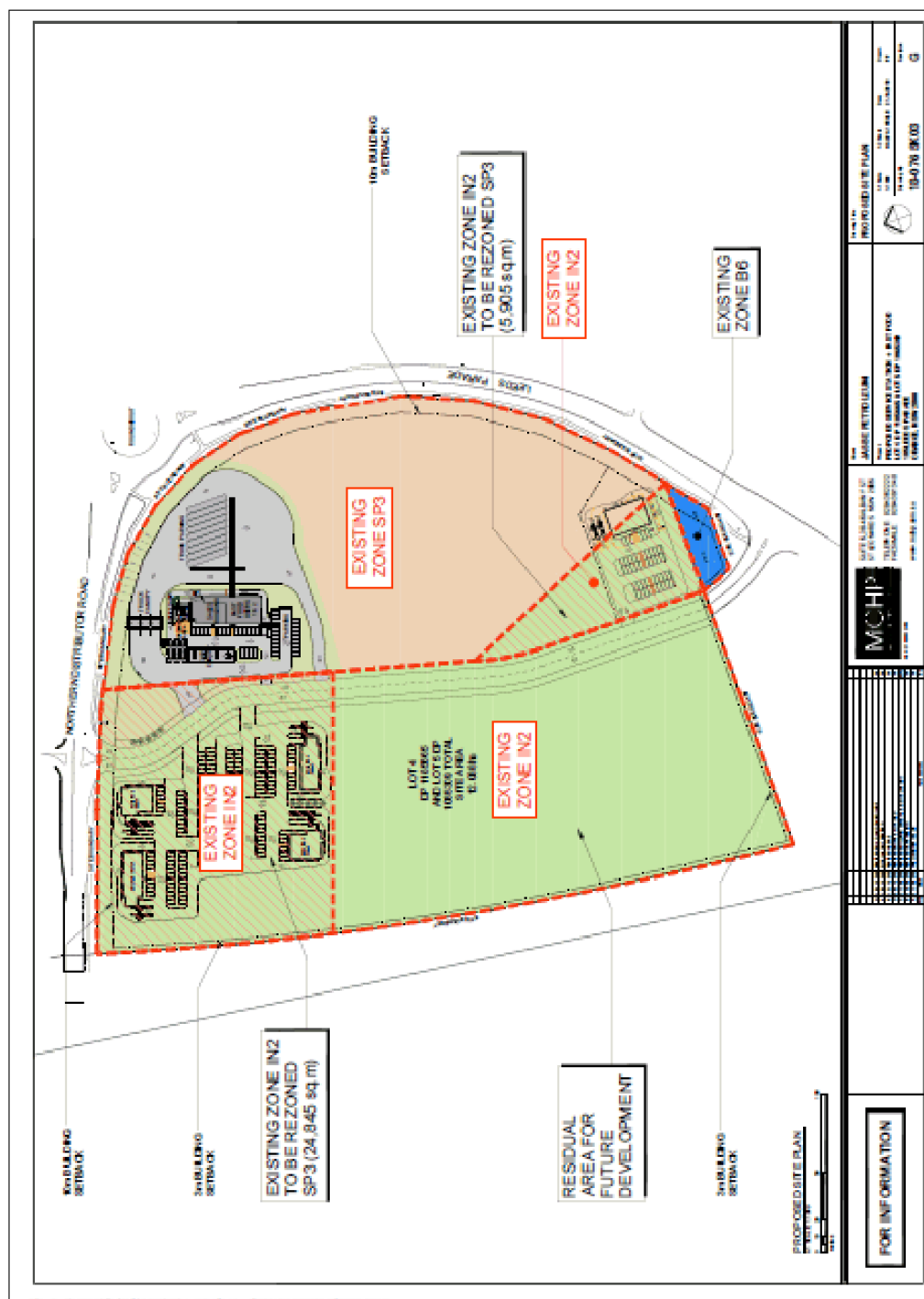
7174.M2.xls

STAGED PLANNING NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 2

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 2: CONCEPTUAL FAST FOOD PRECINCT



ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 3

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 3: AMBIENT NOISE MONITORING RESULTS

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 4. NOISE PREDICTIONS MECHANICAL PLANT

($L_{Aeq,15 Min} 20 \times 10^{-6} Pa$).

Source	Description	Sound Power Level dBA	Distance m	Dist Atten dBA	Noise Control dBA	Speed Control dBA	Contribution dBA
R1 - 118 Clergate Road							
1	AC1 – Actron SCA340C	82	107	49	8	3	25
2	AC2 – Actron CAY504T	83	107	49	8	3	26
3	Refrigeration (Channon MAC95)	85	107	49	10	0	26
4	EF-1 (Fantech CGE404M-MM)	77	107	49	8	0	20
5	EF-2 (Fantech CGD504M-MM)	82	107	49	8	0	25
6	TEF-3 (Fantech CE284D)	65	107	49	0	0	16
7	COD (x2)	78	87	47	0	0	31
1	AC1 – Actron SCA340C	82	156	52	8	3	22
2	AC2 – Actron CAY504T	83	156	52	8	3	23
3	Refrigeration (Channon MAC95)	85	156	52	10	0	23
4	EF-1 (Fantech CGE404M-MM)	77	156	52	8	0	17
5	EF-2 (Fantech CGD504M-MM)	82	156	52	8	0	22
6	TEF-3 (Fantech CE284D)	65	156	52	0	0	13
7	COD (x2)	78	138	51	10	0	17
1	AC1 – Actron SCA340C	82	170	53	8	3	21
2	AC2 – Actron CAY504T	83	170	53	8	3	22
3	Refrigeration (Channon MAC95)	85	170	53	10	0	22
4	EF-1 (Fantech CGE404M-MM)	77	170	53	8	0	16
5	EF-2 (Fantech CGD504M-MM)	82	170	53	8	0	21
6	TEF-3 (Fantech CE284D)	65	170	53	0	0	12
7	COD (x2)	78	178	53	10	0	15
1	AC1 – Actron SCA340C	82	210	54	8	3	20
2	AC2 – Actron CAY504T	83	210	54	8	3	21
3	Refrigeration (Channon MAC95)	85	210	54	10	0	21
4	EF-1 (Fantech CGE404M-MM)	77	210	54	8	0	15
5	EF-2 (Fantech CGD504M-MM)	82	210	54	8	0	20
6	TEF-3 (Fantech CE284D)	65	210	54	0	0	11
7	COD (x2)	78	228	55	10		13
1	AC1 – Actron SCA340C	82	460	61	0	3	21
2	AC2 – Actron CAY504T	83	460	61	0	3	22
3	Refrigeration (Channon MAC95)	85	460	61	0	0	24
4	EF-1 (Fantech CGE404M-MM)	77	460	61	0	0	16
5	EF-2 (Fantech CGD504M-MM)	82	460	61	0	0	21
6	TEF-3 (Fantech CE284D)	65	460	61	0	0	4
7	COD (x2)	78	440	61	0		17
						Total	Day
						Total	Eve
						Total	Night

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 4. NOISE PREDICTIONS MECHANICAL PLANT

($L_{Aeq,15 Min} 20 \times 10^{-6} Pa$).

Source	Description	Sound Power Level dBA	Distance m	Dist Atten dBA	Noise Control dBA	Speed Control dBA	Contribution dBA
R2 - 27 Coombes Place							
1	AC1 – Actron SCA340C	82	170	53	8	3	21
2	AC2 – Actron CAY504T	83	170	53	8	3	22
3	Refrigeration (Channon MAC95)	85	170	53	10	8	14
4	EF-1 (Fantech CGE404M-MM)	77	170	53	8	0	16
5	EF-2 (Fantech CGD504M-MM)	82	170	53	8	0	21
6	TEF-3 (Fantech CE284D)	65	170	53	0	0	12
7	COD (x2)	78	150	52	0	0	26
1	AC1 – Actron SCA340C	82	218	55	8	3	19
2	AC2 – Actron CAY504T	83	218	55	8	3	20
3	Refrigeration (Channon MAC95)	85	218	55	10	0	20
4	EF-1 (Fantech CGE404M-MM)	77	218	55	8	0	14
5	EF-2 (Fantech CGD504M-MM)	82	218	55	8	0	19
6	TEF-3 (Fantech CE284D)	65	218	55	0	0	10
7	COD (x2)	78	200	54	10		14
1	AC1 – Actron SCA340C	82	210	54	8	3	20
2	AC2 – Actron CAY504T	83	210	54	8	3	21
3	Refrigeration (Channon MAC95)	85	210	54	10	0	21
4	EF-1 (Fantech CGE404M-MM)	77	210	54	8	0	15
5	EF-2 (Fantech CGD504M-MM)	82	210	54	8	0	20
6	TEF-3 (Fantech CE284D)	65	210	54	0	0	11
7	COD (x2)	78	230	55	10		13
1	AC1 – Actron SCA340C	82	255	56	8	3	18
2	AC2 – Actron CAY504T	83	255	56	8	3	19
3	Refrigeration (Channon MAC95)	85	255	56	10	0	19
4	EF-1 (Fantech CGE404M-MM)	77	255	56	8	0	13
5	EF-2 (Fantech CGD504M-MM)	82	255	56	8	0	18
6	TEF-3 (Fantech CE284D)	65	255	56	0	0	9
7	COD (x2)	78	280	57	10	0	11
1	AC1 – Actron SCA340C	82	490	62	0	3	20
2	AC2 – Actron CAY504T	83	490	62	0	3	21
3	Refrigeration (Channon MAC95)	85	490	62	0	0	23
4	EF-1 (Fantech CGE404M-MM)	77	490	62	0	0	15
5	EF-2 (Fantech CGD504M-MM)	82	490	62	0	0	20
6	TEF-3 (Fantech CE284D)	65	490	62	0	0	3
7	COD (x2)	78	480	62	0		16
					Total	Day	35
					Total	Eve	35
					Total	Night	34

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 4. NOISE PREDICTIONS MECHANICAL PLANT

($L_{Aeq,15 Min} 20 \times 10^{-6} Pa$).

Source	Description	Sound Power Level dBA	Distance m	Dist Atten dBA	Noise Control dBA	Speed Control dBA	Contribution dBA
R3 – 11 Melville Place							
1	AC1 – Actron SCA340C	82	173	53	8	3	21
2	AC2 – Actron CAY504T	83	173	53	8	3	22
3	Refrigeration (Channon MAC95)	85	173	53	10	8	14
4	EF-1 (Fantech CGE404M-MM)	77	173	53	8	0	16
5	EF-2 (Fantech CGD504M-MM)	82	173	53	8	0	21
6	TEF-3 (Fantech CE284D)	65	173	53	0	0	12
7	COD (x2)	78	154	52	0	0	26
1	AC1 – Actron SCA340C	82	215	55	8	3	19
2	AC2 – Actron CAY504T	83	215	55	8	3	20
3	Refrigeration (Channon MAC95)	85	215	55	10	0	20
4	EF-1 (Fantech CGE404M-MM)	77	215	55	8	0	14
5	EF-2 (Fantech CGD504M-MM)	82	215	55	8	0	19
6	TEF-3 (Fantech CE284D)	65	215	55	0	0	10
7	COD (x2)	78	198	54	10		14
1	AC1 – Actron SCA340C	82	155	52	8	3	22
2	AC2 – Actron CAY504T	83	155	52	8	3	23
3	Refrigeration (Channon MAC95)	85	155	52	10	0	23
4	EF-1 (Fantech CGE404M-MM)	77	155	52	8	0	17
5	EF-2 (Fantech CGD504M-MM)	82	155	52	8	0	22
6	TEF-3 (Fantech CE284D)	65	155	52	0	0	13
7	COD (x2)	78	175	53	10		15
1	AC1 – Actron SCA340C	82	210	54	8	3	20
2	AC2 – Actron CAY504T	83	210	54	8	3	21
3	Refrigeration (Channon MAC95)	85	210	54	10	0	21
4	EF-1 (Fantech CGE404M-MM)	77	210	54	8	0	15
5	EF-2 (Fantech CGD504M-MM)	82	210	54	8	0	20
6	TEF-3 (Fantech CE284D)	65	210	54	0	0	11
7	COD (x2)	78	230	55	10	0	13
1	AC1 – Actron SCA340C	82	420	60	0	3	22
2	AC2 – Actron CAY504T	83	420	60	0	3	23
3	Refrigeration (Channon MAC95)	85	420	60	0	0	25
4	EF-1 (Fantech CGE404M-MM)	77	420	60	0	0	17
5	EF-2 (Fantech CGD504M-MM)	82	420	60	0	0	22
6	TEF-3 (Fantech CE284D)	65	420	60	0	0	5
7	COD (x2)	78	405	60	0		18
						Total Day	36
						Total Eve	36
						Total Night	35

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 4. NOISE PREDICTIONS MECHANICAL PLANT

($L_{Aeq,15 Min} 20 \times 10^{-6} Pa$).

Source	Description	Sound Power Level dBA	Distance m	Dist Atten dBA	Noise Control dBA	Speed Control dBA	Contribution dBA
R4 – 13 Melville Place							
1	AC1 – Actron SCA340C	82	183	53	8	3	21
2	AC2 – Actron CAY504T	83	183	53	8	3	22
3	Refrigeration (Channon MAC95)	85	183	53	10	8	14
4	EF-1 (Fantech CGE404M-MM)	77	183	53	8	0	16
5	EF-2 (Fantech CGD504M-MM)	82	183	53	8	0	21
6	TEF-3 (Fantech CE284D)	65	183	53	0	0	12
7	COD (x2)	78	170	53	0	0	25
1	AC1 – Actron SCA340C	82	220	55	8	3	19
2	AC2 – Actron CAY504T	83	220	55	8	3	20
3	Refrigeration (Channon MAC95)	85	220	55	10	0	20
4	EF-1 (Fantech CGE404M-MM)	77	220	55	8	0	14
5	EF-2 (Fantech CGD504M-MM)	82	220	55	8	0	19
6	TEF-3 (Fantech CE284D)	65	220	55	0	0	10
7	COD (x2)	78	211	54	10		14
1	AC1 – Actron SCA340C	82	148	51	8	3	23
2	AC2 – Actron CAY504T	83	148	51	8	3	24
3	Refrigeration (Channon MAC95)	85	148	51	10	0	24
4	EF-1 (Fantech CGE404M-MM)	77	148	51	8	0	18
5	EF-2 (Fantech CGD504M-MM)	82	148	51	8	0	23
6	TEF-3 (Fantech CE284D)	65	148	51	0	0	14
7	COD (x2)	78	165	52	10		16
1	AC1 – Actron SCA340C	82	199	54	8	3	20
2	AC2 – Actron CAY504T	83	199	54	8	3	21
3	Refrigeration (Channon MAC95)	85	199	54	10	0	21
4	EF-1 (Fantech CGE404M-MM)	77	199	54	8	0	15
5	EF-2 (Fantech CGD504M-MM)	82	199	54	8	0	20
6	TEF-3 (Fantech CE284D)	65	199	54	0	0	11
7	COD (x2)	78	225	55	10	0	13
1	AC1 – Actron SCA340C	82	402	60	0	3	22
2	AC2 – Actron CAY504T	83	402	60	0	3	23
3	Refrigeration (Channon MAC95)	85	402	60	0	0	25
4	EF-1 (Fantech CGE404M-MM)	77	402	60	0	0	17
5	EF-2 (Fantech CGD504M-MM)	82	402	60	0	0	22
6	TEF-3 (Fantech CE284D)	65	402	60	0	0	5
7	COD (x2)	78	385	60	0		18
						Total	Day
						Total	Eve
						Total	Night

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 4. NOISE PREDICTIONS MECHANICAL PLANT

($L_{Aeq,15 Min} 20 \times 10^{-6} Pa$).

Source	Description	Sound Power Level dBA	Distance m	Dist Atten dBA	Noise Control dBA	Speed Control dBA	Contribution dBA
R5 – 8 Douglas Place							
1	AC1 – Actron SCA340C	82	220	55	8	3	19
2	AC2 – Actron CAY504T	83	220	55	8	3	20
3	Refrigeration (Channon MAC95)	85	220	55	10	8	12
4	EF-1 (Fantech CGE404M-MM)	77	220	55	8	0	14
5	EF-2 (Fantech CGD504M-MM)	82	220	55	8	0	19
6	TEF-3 (Fantech CE284D)	65	220	55	0	0	10
7	COD (x2)	78	208	54	0	0	24
1	AC1 – Actron SCA340C	82	248	56	8	3	18
2	AC2 – Actron CAY504T	83	248	56	8	3	19
3	Refrigeration (Channon MAC95)	85	248	56	10	0	19
4	EF-1 (Fantech CGE404M-MM)	77	248	56	8	0	13
5	EF-2 (Fantech CGD504M-MM)	82	248	56	8	0	18
6	TEF-3 (Fantech CE284D)	65	248	56	0	0	9
7	COD (x2)	78	236	55	10		13
1	AC1 – Actron SCA340C	82	145	51	8	3	23
2	AC2 – Actron CAY504T	83	145	51	8	3	24
3	Refrigeration (Channon MAC95)	85	145	51	10	0	24
4	EF-1 (Fantech CGE404M-MM)	77	145	51	8	0	18
5	EF-2 (Fantech CGD504M-MM)	82	145	51	8	0	23
6	TEF-3 (Fantech CE284D)	65	145	51	0	0	14
7	COD (x2)	78	165	52	10		16
1	AC1 – Actron SCA340C	82	190	54	8	3	20
2	AC2 – Actron CAY504T	83	190	54	8	3	21
3	Refrigeration (Channon MAC95)	85	190	54	10	0	21
4	EF-1 (Fantech CGE404M-MM)	77	190	54	8	0	15
5	EF-2 (Fantech CGD504M-MM)	82	190	54	8	0	20
6	TEF-3 (Fantech CE284D)	65	190	54	0	0	11
7	COD (x2)	78	220	55	10	0	13
1	AC1 – Actron SCA340C	82	363	59	8	3	15
2	AC2 – Actron CAY504T	83	363	59	8	3	16
3	Refrigeration (Channon MAC95)	85	363	59	10	0	16
4	EF-1 (Fantech CGE404M-MM)	77	363	59	8	0	10
5	EF-2 (Fantech CGD504M-MM)	82	363	59	8	0	15
6	TEF-3 (Fantech CE284D)	65	363	59	0	0	6
7	COD (x2)	78	346	59	10		9
					Total	Day	34
					Total	Eve	34
					Total	Night	33

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 4. NOISE PREDICTIONS MECHANICAL PLANT

($L_{Aeq,15 Min} 20 \times 10^{-6} Pa$).

Source	Description	Sound Power Level dBA	Distance m	Dist Atten dBA	Noise Control dBA	Speed Control dBA	Contribution dBA
R6 – Leeds Avenue							
1	AC1 – Actron SCA340C	82	480	62	0	3	20
2	AC2 – Actron CAY504T	83	480	62	0	3	21
3	Refrigeration (Channon MAC95)	85	480	62	0	8	15
4	EF-1 (Fantech CGE404M-MM)	77	480	62	0	0	15
5	EF-2 (Fantech CGD504M-MM)	82	480	62	0	0	20
6	TEF-3 (Fantech CE284D)	65	480	62	0	0	3
7	COD (x2)	78	500	62	10	0	6
1	AC1 – Actron SCA340C	82	441	61	0	3	21
2	AC2 – Actron CAY504T	83	441	61	0	3	22
3	Refrigeration (Channon MAC95)	85	441	61	0	0	24
4	EF-1 (Fantech CGE404M-MM)	77	441	61	0	0	16
5	EF-2 (Fantech CGD504M-MM)	82	441	61	0	0	21
6	TEF-3 (Fantech CE284D)	65	441	61	0	0	4
7	COD (x2)	78	455	61	5		12
1	AC1 – Actron SCA340C	82	415	60	0	3	22
2	AC2 – Actron CAY504T	83	415	60	0	3	23
3	Refrigeration (Channon MAC95)	85	415	60	0	0	25
4	EF-1 (Fantech CGE404M-MM)	77	415	60	0	0	17
5	EF-2 (Fantech CGD504M-MM)	82	415	60	0	0	22
6	TEF-3 (Fantech CE284D)	65	415	60	0	0	5
7	COD (x2)	78	395	60	5		13
1	AC1 – Actron SCA340C	82	375	59	0	3	23
2	AC2 – Actron CAY504T	83	375	59	0	3	24
3	Refrigeration (Channon MAC95)	85	375	59	0	0	26
4	EF-1 (Fantech CGE404M-MM)	77	375	59	0	0	18
5	EF-2 (Fantech CGD504M-MM)	82	375	59	0	0	23
6	TEF-3 (Fantech CE284D)	65	375	59	0	0	6
7	COD (x2)	78	350	59	0	0	19
1	AC1 – Actron SCA340C	82	175	53	8	3	21
2	AC2 – Actron CAY504T	83	175	53	8	3	22
3	Refrigeration (Channon MAC95)	85	175	53	10	0	22
4	EF-1 (Fantech CGE404M-MM)	77	175	53	8	0	16
5	EF-2 (Fantech CGD504M-MM)	82	175	53	8	0	21
6	TEF-3 (Fantech CE284D)	65	175	53	0	0	12
7	COD (x2)	78	175	53	0		25
					Total	Day	36
					Total	Eve	36
					Total	Night	35

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R1 -118 Clergate Road						
Site Entry/Exit						
Car moving	88	107	49	5		34
Carpark (1)						
Speech	80	98	48	0		32
Car door closing	90	98	48	0		42
Car starting	95	98	48	0		47
Car accelerating	95	98	48	0		47
Carpark (2)						
Speech	80	166	52	0		28
Car door closing	90	166	52	0		38
Car starting	95	166	52	0		43
Car accelerating	95	166	52	0		43
Carpark (3)						
Speech	80	150	52	0		28
Car door closing	90	150	52	0		38
Car starting	95	150	52	0		43
Car accelerating	95	150	52	0		43
Carpark (4)						
Speech	80	190	54	0		26
Car door closing	90	190	54	0		36
Car starting	95	190	54	0		41
Car accelerating	95	190	54	0		41
Carpark (5)						
Speech	80	440	61	5		14
Car door closing	90	440	61	5		24
Car starting	95	440	61	5		29
Car accelerating						
Drive-through Order FF1						
COD	85	89	47	0		38
Car moving	88	89	47	0		41
Car accelerating						
Drive-through Cashier						
Speech	80	127	50	10		20
Car moving	88	127	50	10		28
Car accelerating						
Drive-through Order FF2						
COD	85	138	51	5		29
Car moving	88	138	51	5		32
Car accelerating	95	138	51	5		39
Drive-through Cashier						
Speech	80	167	52	10		18
Car moving	88	167	52	10		26
Car accelerating	95	167	52	10		33

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R1 -118 Clergate Road						
Drive-through Order FF3						
COD	85	178	53	0		32
Car moving	88	178	53	0		35
Car accelerating	95	178	53	0		42
Drive-through Cashier						
Speech	80	160	52	0		28
Car moving	88	160	52	0		36
Car accelerating	95	160	52	0		43
Drive-through Order FF4						
COD	85	228	55	5		25
Car moving	88	228	55	5		28
Car accelerating	95	228	55	5		35
Drive-through Cashier						
Speech	80	190	54	0		26
Car moving	88	190	54	0		34
Car accelerating	95	190	54	0		41
Drive-through Order FF5						
COD	85	440	61	0		24
Car moving	88	440	61	0		27
Car accelerating	95	440	61	0		34
Drive-through Cashier						
Speech	80	470	61	10		9
Car moving	88	470	61	10		17
Car accelerating	95	470	61	10		24

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R2 – 27 Coombes Place						
Site Entry/Exit						
Car moving	88	170	53	0		35
Carpark (1)						
Speech	80	160	52	0		28
Car door closing	90	160	52	0		38
Car starting	95	160	52	0		43
Car accelerating	95	160	52	0		43
Carpark (2)						
Speech	80	225	55	0		25
Car door closing	90	225	55	0		35
Car starting	95	225	55	0		40
Car accelerating	95	225	55	0		40
Carpark (3)						
Speech	80	189	54	0		26
Car door closing	90	189	54	0		36
Car starting	95	189	54	0		41
Car accelerating	95	189	54	0		41
Carpark (4)						
Speech	80	230	55	0		25
Car door closing	90	230	55	0		35
Car starting	95	230	55	0		40
Car accelerating	95	230	55	0		40
Carpark (5)						
Speech	80	470	61	5		14
Car door closing	90	470	61	5		24
Car starting	95	470	61	5		29
Car accelerating	95	470	61	5		29
Drive-through Order FF1						
COD	85	150	52	0		33
Car moving	88	150	52	0		36
Car accelerating	95	150	52	0		43
Drive-through Cashier						
Speech	80	190	54	10		16
Car moving	88	190	54	10		24
Car accelerating	95	190	54	10		31
Drive-through Order FF2						
COD	85	200	54	10		21
Car moving	88	200	54	10		24
Car accelerating	95	200	54	10		31
Drive-through Cashier						
Speech	80	229	55	10		15
Car moving	88	229	55	10		23
Car accelerating	95	229	55	10		30

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R2 – 27 Coombes Place						
Drive-through Order FF3						
COD	85	230	55	5		25
Car moving	88	230	55	5		28
Car accelerating	95	230	55	5		35
Drive-through Cashier						
Speech	80	198	54	0		26
Car moving	88	198	54	0		34
Car accelerating	95	198	54	0		41
Drive-through Order FF4						
COD	85	280	57	5		23
Car moving	88	280	57	5		26
Car accelerating	95	280	57	5		33
Drive-through Cashier						
Speech	80	230	55	0		25
Car moving	88	230	55	0		33
Car accelerating	95	230	55	0		40
Drive-through Order FF5						
COD	85	480	62	0		23
Car moving	88	480	62	0		26
Car accelerating	95	480	62	0		33
Drive-through Cashier						
Speech	80	510	62	10		8
Car moving	88	510	62	10		16
Car accelerating	95	510	62	10		23

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R3 – 11 Melville Place						
Site Entry/Exit						
Car moving	88	251	56	0		32
Carpark (1)						
Speech	80	149	51	0		29
Car door closing	90	149	51	0		39
Car starting	95	149	51	0		44
Car accelerating	95	149	51	0		44
Carpark (2)						
Speech	80	206	54	0		26
Car door closing	90	206	54	0		36
Car starting	95	206	54	0		41
Car accelerating	95	206	54	0		41
Carpark (3)						
Speech	80	150	52	0		28
Car door closing	90	150	52	0		38
Car starting	95	150	52	0		43
Car accelerating	95	150	52	0		43
Carpark (4)						
Speech	80	195	54	0		26
Car door closing	90	195	54	0		36
Car starting	95	195	54	0		41
Car accelerating	95	195	54	0		41
Carpark (5)						
Speech	80	385	60	5		15
Car door closing	90	385	60	5		25
Car starting	95	385	60	5		30
Car accelerating	95	385	60	5		30
Drive-through Order FF1						
COD	85	154	52	0		33
Car moving	88	154	52	0		36
Car accelerating	95	154	52	0		43
Drive-through Cashier						
Speech	80	188	53	0		27
Car moving	88	188	53	0		35
Car accelerating	95	188	53	0		42
Drive-through Order FF2						
COD	85	198	54	0		31
Car moving	88	198	54	0		34
Car accelerating	95	198	54	0		41
Drive-through Cashier						
Speech	80	223	55	5		20
Car moving	88	223	55	5		28
Car accelerating	95	223	55	5		35

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R3 – 11 Melville Place						
Drive-through Order FF3						
COD	85	175	53	10		22
Car moving	88	175	53	10		25
Car accelerating	95	175	53	10		32
Drive-through Cashier						
Speech	80	150	52	0		28
Car moving	88	150	52	0		36
Car accelerating	95	150	52	0		43
Drive-through Order FF4						
COD	85	230	55	10		20
Car moving	88	230	55	10		23
Car accelerating	95	230	55	10		30
Drive-through Cashier						
Speech	80	195	54	10		16
Car moving	88	195	54	10		24
Car accelerating	95	195	54	10		31
Drive-through Order FF5						
COD	85	405	60	0		25
Car moving	88	405	60	0		28
Car accelerating	95	405	60	0		35
Drive-through Cashier						
Speech	80	385	60	10		10
Car moving	88	385	60	10		18
Car accelerating	95	385	60	10		25

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R4 – 13 Melville Place						
Site Entry/Exit						
Car moving	88	251	56	0		32
Carpark (1)						
Speech	80	149	51	0		29
Car door closing	90	149	51	0		39
Car starting	95	149	51	0		44
Car accelerating	95	149	51	0		44
Carpark (2)						
Speech	80	206	54	0		26
Car door closing	90	206	54	0		36
Car starting	95	206	54	0		41
Car accelerating	95	206	54	0		41
Carpark (3)						
Speech	80	150	52	0		28
Car door closing	90	150	52	0		38
Car starting	95	150	52	0		43
Car accelerating	95	150	52	0		43
Carpark (4)						
Speech	80	195	54	0		26
Car door closing	90	195	54	0		36
Car starting	95	195	54	0		41
Car accelerating	95	195	54	0		41
Carpark (5)						
Speech	80	385	60	5		15
Car door closing	90	385	60	5		25
Car starting	95	385	60	5		30
Car accelerating	95	385	60	5		30
Drive-through Order FF1						
COD	85	154	52	0		33
Car moving	88	154	52	0		36
Car accelerating	95	154	52	0		43
Drive-through Cashier						
Speech	80	188	53	0		27
Car moving	88	188	53	0		35
Car accelerating	95	188	53	0		42
Drive-through Order FF2						
COD	85	198	54	0		31
Car moving	88	198	54	0		34
Car accelerating	95	198	54	0		41
Drive-through Cashier						
Speech	80	223	55	5		20
Car moving	88	223	55	5		28
Car accelerating	95	223	55	5		35

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R4 – 13 Melville Place						
Drive-through Order FF3						
COD	85	165	52	10		23
Car moving	88	165	52	10		26
Car accelerating	95	165	52	10		33
Drive-through Cashier						
Speech	80	140	51	0		29
Car moving	88	140	51	0		37
Car accelerating	95	140	51	0		44
Drive-through Order FF4						
COD	85	225	55	10		20
Car moving	88	225	55	10		23
Car accelerating	95	225	55	10		30
Drive-through Cashier						
Speech	80	185	53	5		22
Car moving	88	185	53	5		30
Car accelerating	95	185	53	5		37
Drive-through Order FF5						
COD	85	385	60	0		25
Car moving	88	385	60	0		28
Car accelerating	95	385	60	0		35
Drive-through Cashier						
Speech	80	355	59	10		11
Car moving	88	355	59	10		19
Car accelerating	95	355	59	10		26

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R5 – 8 Douglas Place						
Site Entry/Exit						
Car moving	88	250	56	5		27
Carpark (1)						
Speech	80	196	54	0		26
Car door closing	90	196	54	0		36
Car starting	95	196	54	0		41
Car accelerating	95	196	54	0		41
Carpark (2)						
Speech	80	232	55	0		25
Car door closing	90	232	55	0		35
Car starting	95	232	55	0		40
Car accelerating	95	232	55	0		40
Carpark (3)						
Speech	80	155	52	0		28
Car door closing	90	155	52	0		38
Car starting	95	155	52	0		43
Car accelerating	95	155	52	0		43
Carpark (4)						
Speech	80	187	53	0		27
Car door closing	90	187	53	0		37
Car starting	95	187	53	0		42
Car accelerating	95	187	53	0		42
Carpark (5)						
Speech	80	320	58	0		22
Car door closing	90	320	58	0		32
Car starting	95	320	58	0		37
Car accelerating	95	320	58	0		37
Drive-through Order FF1						
COD	85	208	54	0		31
Car moving	88	208	54	0		34
Car accelerating	95	208	54	0		41
Drive-through Cashier						
Speech	80	230	55	0		25
Car moving	88	230	55	0		33
Car accelerating	95	230	55	0		40
Drive-through Order FF2						
COD	85	236	55	0		30
Car moving	88	236	55	0		33
Car accelerating	95	236	55	0		40
Drive-through Cashier						
Speech	80	255	56	5		19
Car moving	88	255	56	5		27
Car accelerating	95	255	56	5		34

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R5 – 8 Douglas Place						
Drive-through Order FF3						
COD	85	165	52	0		33
Car moving	88	165	52	0		36
Car accelerating	95	165	52	0		43
Drive-through Cashier						
Speech	80	155	52	0		28
Car moving	88	155	52	0		36
Car accelerating	95	155	52	0		43
Drive-through Order FF4						
COD	85	220	55	5		25
Car moving	88	220	55	5		28
Car accelerating	95	220	55	5		35
Drive-through Cashier						
Speech	80	169	53	0		27
Car moving	88	169	53	0		35
Car accelerating	95	169	53	0		42
Drive-through Order FF5						
COD	85	346	59	0		26
Car moving	88	346	59	0		29
Car accelerating	95	346	59	0		36
Drive-through Cashier						
Speech	80	365	59	10		11
Car moving	88	365	59	10		19
Car accelerating	95	365	59	10		26

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R6 – Leeds Avenue						
Site Entry/Exit						
Car moving	88	240	56	5		27
Carpark (1)						
Speech	80	460	61	5		14
Car door closing	90	460	61	5		24
Car starting	95	460	61	5		29
Car accelerating	95	460	61	5		29
Carpark (2)						
Speech	80	390	60	0		20
Car door closing	90	390	60	0		30
Car starting	95	390	60	0		35
Car accelerating	95	390	60	0		35
Carpark (3)						
Speech	80	410	60	5		15
Car door closing	90	410	60	5		25
Car starting	95	410	60	5		30
Car accelerating	95	410	60	5		30
Carpark (4)						
Speech	80	360	59	0		21
Car door closing	90	360	59	0		31
Car starting	95	360	59	0		36
Car accelerating	95	360	59	0		36
Carpark (5)						
Speech	80	200	54	0		26
Car door closing	90	200	54	0		36
Car starting	95	200	54	0		41
Car accelerating	95	200	54	0		41
Drive-through Order FF1						
COD	85	500	62	5		18
Car moving	88	500	62	5		21
Car accelerating	95	500	62	5		28
Drive-through Cashier						
Speech	80	460	61	5		14
Car moving	88	460	61	5		22
Car accelerating	95	460	61	5		29
Drive-through Order FF2						
COD	85	455	61	5		19
Car moving	88	455	61	5		22
Car accelerating	95	455	61	5		29
Drive-through Cashier						
Speech	80	430	61	5		14
Car moving	88	430	61	5		22
Car accelerating	95	430	61	5		29

ATKINS ACOUSTICS

NOISE ASSESSMENT
CONCEPTUAL FAST FOOD DEVELOPMENT
ORANGE

ATTACHMENT 5

49.7185.R1:GA/DT/2019
Rev 01
November 2019

ATTACHMENT 5. NOISE PREDICTIONS SITE ACTIVITIES

($L_{A1,1 \text{ Min } 20 \times 10^{-6} \text{ Pa}}$).

	Sound Power Level dBA	Distance m	Dist Att dBA	NR dBA	Shield dBA	Predicted Sound Pressure Level dBA
R6 – Leeds Avenue						
Drive-through Order FF3						
COD	85	395	60	0		25
Car moving	88	395	60	0		28
Car accelerating	95	395	60	0		35
Drive-through Cashier						
Speech	80	430	61	10		9
Car moving	88	430	61	10		17
Car accelerating	95	430	61	10		24
Drive-through Order FF4						
COD	85	350	59	0		26
Car moving	88	350	59	0		29
Car accelerating	95	350	59	0		36
Drive-through Cashier						
Speech	80	380	60	10		10
Car moving	88	380	60	10		18
Car accelerating	95	380	60	10		25
Drive-through Order FF5						
COD	85	175	53	0		32
Car moving	88	175	53	0		35
Car accelerating	95	175	53	0		42
Drive-through Cashier						
Speech	80	160	52	0		28
Car moving	88	160	52	0		36
Car accelerating	95	160	52	0		43

ATKINS ACOUSTICS



Environmental Site Assessment

Jasbe Supremacy Pty Ltd
185 Leeds Parade, Orange, NSW 2800



Client: Jasbe Supremacy Pty Ltd

Project Number: P001097-002

**Environmental Site Assessment**

185 Leeds Parade, Orange, NSW 2800

Prepared for:

Jasbe Supremacy Pty Ltd
1400 Dandenong Road
Oakleigh, VIC 3166

Prepared by:

Resolve Environmental Pty Ltd
144 Church Street,
Brighton, Victoria 3186
Ph: (03) 9595 3530
ABN: 42 609 904 056

Document Control:

Version	Description	Issue Date
1.0	FINAL	20 August 2019
Author	Reviewer	Approver
Christian Andrianopolous	Mitchell Knox	Andrew Johnston



Table of Contents

1. Introduction	5
1.1. Objective.....	5
1.2. Guidance Documents	5
1.3. Scope of Works.....	5
2. Site Details	7
2.1. Site Location	7
2.2. Zoning and Planning Information	7
2.3. Current Land Use	7
2.4. Surrounding Land Use	7
2.5. Topography, Elevation and Drainage	9
2.6. Regional Geology	9
2.7. Site Geology.....	9
2.8. Regional Hydrogeology.....	10
2.9. Registered Groundwater Use	10
2.10. Historical Site Activities	11
2.10.1. Current and Historical Certificates of Title.....	11
2.10.2. Historical Aerial Photographs	11
2.10.3. Historical Business Directories Extracts	13
2.10.4. Site History Summary.....	13
3. Data Quality Objectives	14
3.1. State the Problem.....	14
3.2. Identify the Decision.....	14
3.3. Identify Inputs to the Decision	14
3.4. Define the Boundaries of the Study	15
3.5. Develop a Decision Rule to Identify the Decision.....	15
3.6. Specify Limits of Decision Error	16
3.6.1. Data Representativeness.....	16
3.6.2. Completeness.....	16
3.6.3. Comparability	16
3.6.4. Precision	17
3.6.5. Accuracy	17
3.7. Optimise the Design for Obtaining Data	17
3.7.1. Soil Sampling Procedure.....	17
3.7.2. Quality Assurance / Quality Control DQIs	17
4. Analytical Data Validation	19
5. Assessment Criteria	21



5.1. Soil Assessment Criteria	21
6. Results	22
6.1. Site Geology	22
6.2. Sampling and Analysis Plan	22
6.3. Soil Analytical Results	23
7. Discussion	25
7.1. Soil	25
7.1.1. Maintenance of Ecosystems	25
7.1.2. Human Health	25
7.1.3. Aesthetics	25
8. Site Characterisation and Conceptual Site Model	26
8.1. Has soil been assessed against relevant health-based investigation levels?	26
8.2. Is there any potential risk of harm to proposed or potential human-health receptors? ...	26
8.3. Is there potential risk of harm to proposed or potential ecological-health receptors?	26
8.4. Is the site suitable for the proposed development?	27
9. Conclusion	28
10. References	29
11. Limitations	30



Tables (in body of report)

Table 2.1	Surrounding Land Use	8
Table 2.2	Summary of Closest Registered Groundwater Bores	10
Table 2.3	Summary of Historical Aerial Photographs	12
Table 3.4	Summary of Decision Rules	15
Table 3.5	Quality Assurance / Quality Control DQIs	18
Table 4.6	Reported Quality Control Outliers	19
Table 6.7	Sampling and Analysis Plan	22

Figures (Attached)

Figure 1 – Site Location Plan

Figure 2 – Site Features Plan

Figure 3 – Soil Analytical Results

Appendices

Appendix A – Figures

Appendix B – Soil Analytical Results

Appendix C – Borehole Logs

Appendix D – Lotsearch Report and Certificates of Title

Appendix E – Laboratory Certificates



ABBREVIATIONS

ACM	Asbestos Containing Material
AHD	Australian Height Datum
BGL	Below Ground Level
BTEXN	Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene
CBD	Central Business District
CoC	Chain of Custody
COPC	Contaminants of Potential Concern
EPA	Environment Protection Authority
EIL	Environmental Investigation Level
ESL	Environment Screening Level
HIL	Health Investigation Level
HSL	Health Screening Level
JASBE	Jasbe Supremacy Pty Ltd
NATA	National Association of Testing Authorities
NEPM	National Environment Protection Measure
NSW	New South Wales
PAH	Polycyclic Aromatic Hydrocarbons
PFAS	Per- and Poly-FluoroAlkyl Substances
POEO	Protection of the Environment Operations
PSI	Preliminary Site Investigation
Resolve	Resolve Environmental Pty Ltd
TDS	Total Dissolved Solids
TRH	Total Recoverable Hydrocarbons
UBD	Universal Business Directory

UNITS

km	kilometres
m	metres
m²	square metres
mg/kg	milligrams per kilogram
mg/L	milligrams per litre



1. Introduction

Resolve Environmental (Resolve) was engaged by Jasbe Supremacy Pty Ltd (Jasbe) to complete an Environmental Site Assessment (ESA) of the property located at 185 Leeds Parade, Orange, New South Wales 2800 (the site). The site location is presented as **Figure 1, Appendix A**.

It is understood that Jasbe plan to develop the approximately 127,000 m² site to comprise:

- The north-eastern portion (the subject of the Development Application (DA), approximately 21,746 m²) to comprise a commercial development including a service station, restaurants and truck parking. It is understood there will be limited access to soil in landscaped / garden beds included in the final development; and
- Proposed development of the remaining site portion is yet to be determined.

1.1. Objective

The objective of the ESA is to support the development application for the proposed development by assessing the suitability of the site for the proposed development.

1.2. Guidance Documents

In developing the scope of works undertaken and in preparing this report, the following guidelines, standards and codes of practice have been considered:

- National Environment Protection Council, *National Environment Protection (Assessment of Site Contamination) Amendment Measure (NEPM)*, August 2013;
- NSW Environmental Protection Authority (EPA), *Guidelines for Consultants Reporting on Contaminated Sites*, 2011;
- Standards Australia. *Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds*, AS4482.1 (2005) and *Part 2: Volatile substances*, AS4482.2 (1999).

1.3. Scope of Works

An environmental site assessment of the level and extent of contamination in soil (if present) on the premises was conducted in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).

Based on Resolve's experience in environmental site assessments and understanding of the client's objectives, and in accordance with standard industry practice, Resolve undertook the following on-site assessment work tasks:



- A desktop assessment including a review of publicly available information to assess the potential for the site to be contaminated. Data for review was collated through the data gathering system Lotsearch and included:
 - Documentation held by the New South Wales (NSW) Environment Protection Authority (EPA), including the List of NSW Contaminated sites notified to EPA, Contaminated Land Records of Notice, Former Gasworks sites, Per- and Poly-Fluorinated Alkyl Substances (PFAS) Investigation Program, Licenced/Delicensed/Licences Surrendered for activities under the POEO Act 1997¹, completed within the vicinity of the site;
 - Historical aerial photos;
 - Historical certificates of Title;
 - Current service plans to the site; and
 - Published information related to regional geology and hydrogeology (including review of locally registered groundwater well information).
- An inspection of the site (conducted on 24 September 2018);
- A soils assessment including 25 test pits gridded across the site (conducted on 24 September 2018) to characterise soil condition on site; and
- Preparation of this report.

¹ Protection of the Environment Operations Act 1997 (POEO Act).



2. Site Details

2.1. Site Location

The site is located at 185 Leeds Parade, Orange, New South Wales, approximately 205 kilometres (km) north-west of the Sydney Central Business District (CBD). The site is bound by roadways to the north (Northern Distributor Road) and east (Leeds parade), a railway to the west and a vacant property to the south, as presented in **Figures 1 and 2, Appendix A**.

2.2. Zoning and Planning Information

The site resides within the Orange City Council (Council) and is currently zoned as a Light Industrial Zone (IN2) and Tourist Zone (SP3).

2.3. Current Land Use

During the site inspection, the site was vacant and being used for stock grazing. Evidence of historical primary production activities included dilapidated structures (sheds), fencing and a cattle ramp located in the central north-eastern portion of the site.

Notable site features identified during the site inspection included the following:

- A driveway consisting of imported fill material including construction/demolition wastes and crushed rock along the eastern site portion;
- Dilapidated shed structures, and a cattle ramp (constructed of fill soils) at the north-eastern site portion;
- A refuse burn pit and suspected filled pit, each located in the central northern portion;
- A stockpile of broken concrete, crushed rock and construction/demolition wastes; and
- Soil bunding/windrows located in the south-western site portion.

A site features plan is presented as **Figure 2, Appendix A**.

2.4. Surrounding Land Use

A walk over of surrounding properties within a 100 m radius of site was completed with the following notable land uses identified.

- A commercial retailer (50 m), service station (100 m), and trucking company depots (200 m) located north of the site on Northern Distributor Road;
- Farming properties with residential dwellings (50 m) east of the site over Leeds Parade; and
- Low density residential properties (60 m) to the west beyond the railway.



The land use surrounding the site and respective planning zones are summarised in **Table 2.1** as follows:

Table 2.1 Surrounding Land Use

Direction	Adjacent to Site	Within 500 m of Site
North	<p>Adjacent: Infrastructure Zone – Classified Road (SP2)</p> <p>Beyond: General Industrial Zone (IN1), Business Park Zone (B7)</p>	<p>Immediately north of the site is Northern Distributor Road, with a Bunnings commercial retail property and a Caltex service station to the north-east. A combination of commercial/ industrial and residential properties extends to the north-west beyond the roadway.</p> <p>Further north, beyond the Bunnings commercial property is a combination of vacant land and commercial industrial properties. A university campus (Charles Sturt University) is approximately 1.3 km north of the site.</p>
East	<p>Adjacent: Infrastructure Zone – Classified Road (SP2)</p> <p>Beyond: General Residential (R1), Infrastructure Zone – Classified Road (SP2), General Industrial Zone (IN1)</p>	<p>The site is bound to the east by Leeds Parade, a farming property with residential dwellings, and the Northern Distributor Road.</p> <p>Further east are commercial industrial properties (including a freight company, truck dealer, construction equipment supplier, steel distributor, tank manufacturer, electrical/plumbing services and building consultancy), a wastewater treatment plant and a waste management facility.</p>
South	<p>Adjacent: Enterprise Corridor (B6)</p> <p>Beyond: Infrastructure Zone – Classified Road (SP2), Infrastructure Zone – Rail Infrastructure (SP2), General Residential (R1), General Industrial (IN1), Private Recreation (RE2), Public Recreation (RE1), Low Density Residential (R2)</p>	<p>Immediately south of the site is a vacant property with a small dam. Beyond this property is Leeds Parade.</p> <p>Approximately 250 m south of the site are residential properties which extend to the south east. South of this is a roadway (Phillip St) and beyond this is the Orange Showground, ELF Community Garden and Colour City Caravan Park.</p>
West	<p>Adjacent: Infrastructure Zone – Rail Infrastructure (SP2)</p> <p>Beyond: General Residential (R1), General Industrial (IN1), Private Recreation (RE2), Public Recreation (RE1)</p>	<p>The site is bound to the west by a railway that runs in a north-south alignment. Beyond the railway (to the north west, west and south west) are residential properties and public recreational areas including a sporting oval.</p> <p>Botanical Gardens and Orange Adventure Playground are located approximately 900 m west of the site.</p>



2.5. Topography, Elevation and Drainage

The site is sited at approximately 874 – 884 m Australian Height Datum (m AHD) and gently slopes to the south west. Surface drainage is likely to be collected at the south-west corner (at/within) the soil bunding/windrows. It is assumed collected surface water would soak away at this point.

The nearest flowing surface water feature is Blackmans Swamp Creek, approximately 1.3 km south of the site. Blackmans Swamp Creek flows in a north-east direction to its junction with Summer Hill Creek, located approximately 2.4 km north-east of the site. Summer Hill Creek discharges to Lewis Ponds Creek, which ultimately discharges to Macquarie River, approximately 28 km north-east of the site.

2.6. Regional Geology

The Geological Survey of New South Wales: Orange 1:100,000 Map Sheet (8731, 1997) indicates that the site is underlain by Ordovician aged Oakdale Formation. This geological unit is dominantly comprised of mafic volcanic sandstone, basalt, siltstone, black shale, chert, breccia and conglomerate. Oakdale Formation is described as having a low potential for containing naturally occurring asbestos (NSW Department of Industry, Resource and Energy).

It should be noted that a geological unit comprising ultramafic cumulates and lava, is shown to be present approximately 1.8 km east of the site. This unit is known to include naturally occurring asbestos and is described as having a high potential for asbestos (NSW Department of Industry, Resource and Energy).

2.7. Site Geology

The soil profile encountered during test pitting typically comprised natural silty clay to the maximum depth of investigation of approximately 2.0 mBGL. Imported fill and stockpiles of disturbed soils were located beneath the driveway, around agricultural related infrastructure in the north-eastern portion of the site, and adjacent to site drainage features in the south-western portion of the site. Fill comprised angular sands and gravels, scoria and construction/demolition wastes including concrete and brick fragments and broken tiles. Suspected asbestos containing material was identified at the driveway and within fill soils of the cattle ramp.

No odours or staining were noted in test pits, with the exception of TP12, whereby stained soils and refuse litter were present to a depth of 1.5 mBGL.

The field screening results, including visual and olfactory observations of the soil matrix are included in the soil borehole logs presented in **Appendix C**.



2.8. Regional Hydrogeology

The hydrogeology onsite is understood to be fractured or fissured with extensive aquifers of low to moderate productivity. As indicated by the NSW Department of Environment, Climate Change and Water (DECCW) (2015), groundwater quality of the Orange Basalts is estimated to be of potable quality (i.e. <500 mg/L Total Dissolved Solids (TDS)). Surrounding registered groundwater bores indicate a depth to groundwater to be 12 – 24 m below ground level (BGL).

Though the site slopes to the south-west, regional groundwater is anticipated to flow in a north-easterly direction, towards Blackmans Swamp Creek.

2.9. Registered Groundwater Use

A search of registered groundwater bores was completed for a 2 km radius of the site as presented within **Appendix D**. The search identified 78 registered groundwater bores. **Table 2.2** summarises the registered bores located within 500 m from the site.

Table 2.2 Summary of Closest Registered Groundwater Bores

Bore ID	Distance from Site Range (m)	Direction from Site	Total Depth (mBGL)	Purpose	
				Authorised	Intended
GW016015	75	South-west	16.20	Domestic	Irrigation
GW031666	180	South-east	82.30	Stock	Irrigation
GW801931	233	North-west	68.00	Domestic, stock	Domestic, stock
GW802346	273	North-west	54.50	Domestic	Domestic
GW016019	306	West	24.40	Domestic, Irrigation, Orchards (groundwater), Stock	General Use
GW805793	318	South-west	60.00	Domestic	Domestic
GW805009	359	North-west	40.00	Domestic	Domestic

The geological logs of the bores GW031666 and GW801931 were reported where available to confirm the anticipated geological profile, and were logged as follows:

- Bore GW031666 was reported to have been constructed within a geology of interbedded shale, basalt decomposed clay, serpentine and basalt to the termination depth; and



- Bore GW801931 was reported to have been constructed within a geology of interbedded clay, shale and basalt.

No groundwater wells were observed within the site or neighbouring sites during the site inspection.

2.10. Historical Site Activities

Site historical information was reviewed to ascertain potentially contaminating activities, uses and/or sources at the site. The desktop review has been based on information collated by Lotsearch, provided in **Appendix D**. Details of the review are presented in the following sections.

2.10.1. Current and Historical Certificates of Title

Review of the historical titles indicated that the land was originally granted to a private owner in 1914 and underwent a number of ownership transfers and subdivisions between various private owners (whose occupations included dairy farmer, solicitor, butcher, brickmaker, farmer, grazier and jockey) until 1992, when it was acquired by Benjamin Brown, Kenneth Brown, Margaret Brown and Garth Brown. Kenneth Brown and Margaret Brown acquired full ownership of the site in 2013. The current Certificates of Title are held by Kenneth & Margaret Brown. Information regarding the historical and current Certificates of Title for the site are presented in **Appendix D**.

The title review indicates the site has predominantly been used for agricultural (pastoral) and/or residential use since 1914.

2.10.2. Historical Aerial Photographs

Historical aerial photographs are presented in **Appendix D**.

A summary of the aerial photographs reviewed is presented in **Table 2.3** as follows.

**Table 2.3 Summary of Historical Aerial Photographs**

Date	Observations
1964	<p>On-site: The site appears to be part of a larger parcel of land bound by road / accessways to the east, south and west and farmland to the north. The site appears to be used for agricultural activities with a cluster of structures (potentially sheds) towards the north east of the site and un-identified 'pockmarks' across the majority of the site. The site appears to have a small dam in the north-west corner of the site.</p> <p>Off-site: Vacant blocks of land to the north, south, east and west surround the site, and appear to be used for agricultural purposes. The site appears to be bound to the east and south by unsealed roads. A railway line borders the site to the west in a north-south alignment.</p>
1973	<p>On-site: Remains largely unchanged from the 1964 image however the un-identified 'pockmarks' are no longer visible.</p> <p>Off-site: Remains largely unchanged from the 1964 image. The unsealed roads to the east and south appear to have been widened.</p>
2003	<p>On-site: Evidence of a remnant driveway accessible from the southern boundary. Soil constructed bunding or windrows appear to be present in the south-western corner potentially to direct/capture overland water flow.</p> <p>Off-site: Remains largely unchanged to the north, east and south with the neighbouring properties still appearing to be used for agricultural purposes. Widespread residential development has occurred beyond the railway line to the west of the site and includes a small parkland. All visible roadways have been redeveloped.</p>
2012	<p>On-site: Remains largely unchanged from the 2012 image.</p> <p>Off-site: The site shape and size has been altered to reflect that of the present-day. The site is bound by the newly constructed Northern Distributor Road and Leeds Parade. Further residential development has occurred to the north-west of the site, beyond Northern Distributor Road. The neighbouring agricultural properties to the north, east and south of the site in previous aerial photographs remain.</p>

The historical aerial images support the findings from the title searches that the site has historically been utilised for agricultural purposes only.



2.10.3. Historical Business Directories Extracts

A search of on-site and neighbouring business activities extracted from historical Universal Business Directories (UBD) was conducted and provided in **Appendix D**. There were no records of any business found on-site as part of this search.

2.10.4. Site History Summary

Based on the results of the desktop site review (as presented above), the site history comprises potentially contaminating activities including:

- On-site: Use of the site for agricultural (pastoral) activities; and
- Off-site: Industrial uses (including a petrol station, manufacturing, wastewater treatment and waste management) to the north east and east of the site.

The historical aerial images support the findings from the title searches that the site has historically been utilised for agricultural purposes only. Based on these historic uses and site observations during the inspection, the identified Contaminants of Potential Concern (CoPC) comprise predominantly:

- Asbestos as Asbestos Containing Material (ACM);
- Total Recoverable Hydrocarbons (TRH);
- Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene (collectively BTEXN);
- Heavy metals; and
- Polycyclic Aromatic Hydrocarbons (PAHs).



3. Data Quality Objectives

Data Quality Objectives (DQOs) are statements which define the confidence required in conclusions drawn for data produced for a project, and which must be set to realistically define and measure the quality of data needed.

To assess whether an appropriate sampling strategy was adopted for the groundwater assessment, the adopted DQO planning process was as conducted in line with:

- National Environment Protection (Assessment of Site Contamination) Measure (NEPM) (2013);
- NSW EPA (2017), *Guidelines for the NSW Site Auditors Scheme (3rd edition)*; and
- US EPA (2006) *Guidance on Systematic Planning Using the Data Quality Objectives Process* and AS 4482.1-2005 *Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds*.

3.1.State the Problem

This investigation is required to confirm the suitability of the current soil quality conditions of the site in light of the proposed redevelopment by assessing risks to future human health and ecological receptors.

3.2.Identify the Decision

The following decisions must be made:

- Has soil been assessed against relevant health-based investigation levels?
- Is there any potential risk of harm to proposed or potential human-health receptors?
- Is there any potential risk of harm to proposed or potential ecological receptors?
- Is the site suitable for the proposed development?

3.3.Identify Inputs to the Decision

The inputs required to make the decision include the following:

- Environmental data as collected by desktop assessment, sampling and analysis and site observations made during this and previous assessments;
- Assessment criteria to be protected on the site as based on the proposed land use and project objectives, as defined by the Tier 1 assessment criteria;
- Confirmation that data generated by sampling and analysis are of an acceptable quality to allow reliable comparison to adopted assessment criteria as undertaken by assessment



of Quality Assurance / Quality Control (QA/QC) as per the Data Quality Indicators (DQIs) established in **Section 3.7.3**.

3.4. Define the Boundaries of the Study

The study area is defined by the property boundary of 185 Leeds Parade, Orange, New South Wales. The maximum proposed depth for the assessment was set at 2 m Below Ground Level (BGL), through fill and natural soils until soil/groundwater interface.

3.5. Develop a Decision Rule to Identify the Decision

Laboratory analytical data will be assessed against NSW EPA endorsed criteria as identified in **Section 5**. The decision rules adopted to answer the decisions are summarised in **Table 3.4** as follows:

Table 3.4 Summary of Decision Rules

Decision	Rule
1. Has soil been assessed against relevant health-based investigation levels?	The nature and extent of soil impact will be assessed, and analytical data will be compared against the adopted human health and ecological site criteria (Section 5).
2. Is there any potential risk of harm to proposed or potential human-health receptors?	The nature and extent of soil impacts will be assessed, and soil analytical data will be compared against the adopted human- health criteria. If an assessment of risk indicates no unacceptable risks, the decision is No. Otherwise, the decision is Yes.
3. Is there any potential risk of harm to proposed or potential ecological receptors?	The nature and extent of soil impacts will be assessed, and soil analytical data will be compared against the adopted site ecological criteria. If the reported concentrations are below the adopted site criteria and an assessment of risk indicates no unacceptable risks, the decision is No. Otherwise, the decision is Yes.



Decision	Rule
4. Is the site suitable for the proposed development?	<p>If the reported concentrations are above the adopted site criteria and a qualitative assessment of risk indicates unacceptable risks, the decision is No.</p> <p>Otherwise, the decision is Yes.</p>

3.6. Specify Limits of Decision Error

Environmental data generated for the site needs to be sufficiently reliable to support decision making in relation to the environmental condition of the site and suitability for its proposed use. Data reliability has been determined by an assessment of QA/QC for the purposes of determining DQI's.

The acceptable limits will be as follows:

- 95% of the data will satisfy the DQIs which were determined for completeness, representativeness, precision and accuracy of both field and laboratory data. Therefore, the limit on the decision error will be 5% that a conclusive statement may be incorrect.
- A comprehensive QA/QC program will be undertaken including representative sampling and sampling at an appropriate density for the purpose of the investigation.

The acceptable limit of error for sampling techniques and laboratory analysis is defined by the DQIs as follows:

3.6.1. Data Representativeness

Expresses the accuracy and precision with which sample data represents an environmental condition. Data representativeness is achieved by the collection of samples at an appropriate pattern and density as well as consistent and repeatable sampling techniques and procedures.

3.6.2. Completeness

Refers to the percentage of data that can be considered valid data. Sufficient data is required to enable an assessment of the Decision Rules.

3.6.3. Comparability

A qualitative comparison of the confidence with which one data set can be compared to another. This is achieved through consistent sampling and analytical testing and reporting techniques.



3.6.4. Precision

A measure of the reproducibility of measurements under a given set of conditions. The Relative Percent Difference (RPD) has been adopted to assess the precision of data between duplicate sample pairs according to the following equation:

$$RPD = \frac{(C_o - C_s)}{\left(\frac{C_o + C_s}{2}\right)} \times 100$$

where: C_o = concentration of the original sample

C_s = concentration of the duplicate sample

An acceptance criterion of $\pm 50\%$ had been adopted organic field duplicates and triplicates. However, it should be noted that exceedances of these criteria are common for heterogeneous soil or fill or for low analyte concentrations.

3.6.5. Accuracy

Is a measure of the bias in the analytical results and can often be attributed to field contamination; insufficient preservation or sample preparation; or inappropriate analytical techniques. Accuracy of the analytical data is assessed by consideration of laboratory control samples, laboratory spikes and analytical techniques in accordance with appropriate standards.

3.7. Optimise the Design for Obtaining Data

The following **Sections 3.7.1 - 3.7.2** detail the optimised assessment design to meet project acceptance criteria.

3.7.1. Soil Sampling Procedure

All soil samples were screened for the presence of volatile organic compounds (VOCs) using a PID with visual indications of impact (i.e. staining) noted. Soil samples were collected in glass jars with Teflon lined lids, appropriately preserved in ice-chilled eskies, and forwarded to National Association of Testing Authorities (NATA) accredited analysing laboratory using chain (CoC) of custody protocols.

3.7.2. Quality Assurance / Quality Control DQIs

The data quality indicators and assessment criteria for the assessment are presented in **Table 3.5**. The DQIs are adopted in accordance with relevant guidance documents and industry standards and form an essential part of determining the precision, accuracy, representativeness, comparability and completeness of data for the sampling program.

**Table 3.5 Quality Assurance / Quality Control DQIs**

Data Quality Indicator	Frequency	Criteria
Precision		
Blind Duplicates (intra laboratory)	1 / 20 Samples	<50% RPD ¹
Blind Triplicates (inter laboratory)	1 / 20 Samples	<50% RPD
Laboratory Duplicates	1 / 20 Samples	<50% RPD
Accuracy		
Laboratory Surrogate Spike	Organic samples	% Recovery (Laboratory Specified)
Laboratory Control Samples	1 per laboratory batch	
Field Equipment Calibrated/Bump Tested	Each Use	Meets Manufacturer Specification
Representativeness		
Sampling appropriate media and analytes	All Samples	As per procedure
Samples extracted and analysed within holding times	All Samples	As per laboratory specification
Re-useable equipment decontaminated according to procedure	All Samples	As per procedure
Comparability		
Standard procedures for sample collection and handling	All Samples	All Samples
Standard (NATA approved) analytical methods used for all analyses	All Samples	All Samples
Limits of reporting appropriate and consistent	All Samples	All Samples
Completeness		
Sample Description and COC completed and appropriate	All Samples	All Samples
Satisfactory frequency and results of QC samples	All Samples	All Samples

Notes:

1. RPD (Relative Percent Difference): where greater than the criteria the highest value will be conservatively adopted.



4. Analytical Data Validation

Following receipt of laboratory analytical data, Resolve conducted a data validation review to assess if project DQI's as specified in **Section 3.7.2** were met.

Table 4.6 below details the quality control outliers reported during the assessment.

Table 4.6 Reported Quality Control Outliers

Laboratory Report	Outlier	Comment
Soil		
ES1829155	Laboratory duplicate RPD for Chromium in TP14_0.2 (31.5%) exceeded LOR based limit (20%).	See Note 1
	Matrix Spike recovery for Zinc in QC1 not determined, background level greater than or equal to 4x spike level.	See Note 2
	Matrix Spike recovery for Hexavalent Chromium in an anonymous sample (1.12%) less than lower data quality objective (130%).	See Note 3
	Analysis Holding Time breaches were noted for pH in TP01_0.5, TP21_0.8, TP22_0.2, TP23_0.2 and TP25_0.3; and MAH, Oxygenated Compounds, Halogenated Aliphatic Compounds, Halogenated Aromatic Compounds and Trihalomethanes in TP05_2.0, TP06_1.0 and TP12_1.0.	See Note 4

Notes:

1. Concentrations of the reported analytes were noted to be close to the LOR and as such interfere with the calculation of RPDs. Therefore, these outliers are not considered to affect the interpretation of the data as the results are representative of soil.
2. Sample concentration greater than or equal to 4X spike concentration.
3. Reported for anonymous sample, not considered to impact primary results.
4. the reported analytes MAHs, Oxygenated Compounds, Halogenated Aliphatic Compounds, Halogenated Aromatic Compounds and Trihalomethanes were analysed for the purposes of understanding soil management options (i.e. soil classification for offsite disposal) and do not represent Contaminants of Potential Concern. Therefore, these outliers are not considered to affect the interpretation of the data as the results are representative of soil.

Review of that noted in **Table 4.6** and the total assessment quality control and compliance data, the following conclusions are made:

- A review of the analytical results relative to observations made during the fieldwork program did not identify any anomalous data.
- A sufficient number of samples were collected to address decision error and samples were collected and managed in accordance with project specifications and procedures.
- Laboratory limits of reporting (LORs) were sufficiently low to enable assessment between results and adopted investigation levels (where applicable).



- A sufficient frequency of field duplicates, field triplicates and laboratory duplicates, were collected, analysed, and reported to assess the precision of the sampling methodology, and analytical reproducibility within and between laboratories.
- RPD's were within specified criteria for all analytes, with the exception of two duplicate pairs relating to arsenic. These RPDs are the result of the reporting of low concentrations of analytes resulting in a variability in analytical findings.
- A review of the data precision was undertaken, and the outliers observed did not suggest that sample collection techniques were not reproducible. Resolve has adopted the analysis results for the primary samples assessment with the adopted screening criteria within this report. It is the opinion of Resolve that this does not affect the overall outcome of reporting. RPD results are presented in **Table 2, Appendix B**.
- A sufficient frequency of laboratory matrix and surrogate spikes were reported to assess the accuracy of the laboratory methods and potential bias due to matrix effects and extraction efficiency.
- There were no outliers for laboratory QC samples including matrix spikes, method blanks, duplicates, control and sample frequency except for that listed in **Table 4.6**. These are not considered to impact data validity for interpretive use.
- A review of trip blank and rinsate blanks laboratory results indicated that all analytes for all samples were below the laboratory LOR and therefore cross contamination did not occur during sampling or transport.

Overall, the data validation process indicated that analytical data used are suitable for interpretive purposes.

Quality control sample and RPD analysis results are provided in **Table 2, Appendix B**. Laboratory analytical certificates and control of custody documents are provided in **Appendix E**.



5. Assessment Criteria

To assess the relative level and significance of the contaminants reported in soil and groundwater at the site, reference is made to established Australian and NSW environmental and/or human health -based investigation levels. These investigation levels are dependant mainly on the current use of the site; and the associated environmental and human health risk, either on-site or off-site, in both the long and short term. The following standards, guidance and technical notes form the primary source of site assessment criteria for this assessment:

- National Environment Protection (Assessment of Site Contamination) Measure (NEPC, 2013) ('the NEPM').
- NSW Department of Environment and Conservation (DEC), Guidelines for the Assessment and Management of Groundwater Contamination, 2007 (DEC 2007).
- NSW EPA Auditor Guidelines (2017).

The adopted investigation levels for the site are specified as follows.

5.1. Soil Assessment Criteria

Resolve have adopted the NEPM (2013) Tier 1 Guidelines in accordance with NSW EPA (2017).

Soil concentrations were compared against the following soil investigation levels:

- **Maintenance of Ecosystems:** NEPM 2013 Ecological Investigation Levels (EILs) and Screening Levels (ESLs) (Commercial/Industrial).
- **Human Health:**
 - NEPM 2013 Health Investigation Levels (HILs) and Screening Levels (HSLs) (Commercial / Industrial); and
 - CRC CARE (2011) Intrusive Maintenance Worker Soil HSL for Vapour Intrusion and Direct Contact.

The derivation of HSLs for vapour intrusion include consideration for soil type, as this directly relates to the ability of vapours to migrate through the profile to a potential point of exposure (site surface / indoor air etc.). Given the predominant encountered soil across the site was sand, values for 'Sand' have been adopted.

- **Aesthetics:** The Aesthetics beneficial use will be assessed qualitatively based on field olfactory and visual observations, with the assessment works undertaken in general accordance with Section 3.6, Schedule B(1) NEPM 2013.



6. Results

6.1. Site Geology

The soil profile encountered during test pitting typically comprised natural silty clay to the maximum depth of investigation of approximately 2.0 mBGL. Imported fill and stockpiles of disturbed soils were located beneath the driveway, around agricultural related infrastructure in the north-eastern portion of the site, and adjacent to site drainage features in the south-western portion of the site. Fill comprised angular sands and gravels, scoria and construction/demolition wastes including concrete and brick fragments and broken tiles. Suspected asbestos containing material was identified at the driveway and within fill soils of the cattle ramp.

No odours or staining were noted in test pits, with the exception of TP12, whereby stained soils and refuse litter were present to a depth of 1.5 mBGL.

The field screening results, including visual and olfactory observations of the soil matrix are included in the soil borehole logs presented in **Appendix C**.

6.2. Sampling and Analysis Plan

Test pits were located to target site features including stockpiles, filled areas and fire pits, and provide site coverage. Samples were analysed for CoPC as summarised in **Table 6.7**:

Table 6.7 Sampling and Analysis Plan

Test Pit ID	Purpose	Termination Depth	Soil Sample Analysed	Analytes
TP01	Driveway – construction debris	0.5 m	TP01_0.5	Asbestos Identification
TP02	Site coverage	0.2 m	TP02_0.2	TRH, BTEXN, Metals (8), PAHs
TP03	Site drainage outflow	0.3 m	TP03_0.3	TRH, BTEXN, Metals (8), PAHs
TP04	Stockpile – surface water containment	1.0 m	TP04_1.0	TRH, BTEXN, Metals (8), PAHs
TP05	Suspected cattle dip/ water drainage pit	2.0 m	TP05_2.0	NSW EPA Screen
TP06	Stockpile – surface water containment	1.0 m	TP06_1.0	NSW EPA Screen
TP07	Site coverage	0.2 m	TP07_0.2	TRH, BTEXN, Metals (8), PAHs
TP08	Site coverage	0.2 m	TP08_0.2	TRH, BTEXN, Metals (8), PAHs
TP09	Site coverage	0.2 m	TP09_0.2	TRH, BTEXN, Metals (8), PAHs



Test Pit ID	Purpose	Termination Depth	Soil Sample Analysed	Analytes
TP10	Site coverage	0.2 m	TP10_0.2	TRH, BTEXN, Metals (8), PAHs
TP11	On-flow from Northern Distributor Rd	0.2 m	TP11_0.2	TRH, BTEXN, Metals (8), PAHs
TP12	Burn Pit	1.0 m	TP12_1.0	NSW EPA Screen
		1.5 m	TP12_1.5	TRH, BTEXN, Metals (8), PAHs
TP13	Filled pit (construction debris)	0.5 m	TP13_0.5	TRH, BTEXN, Metals (8), PAHs
TP14	Site coverage	0.2 m	TP14_0.2	TRH, BTEXN, Metals (8), PAHs
TP15	Site coverage	0.2 m	TP15_0.2	TRH, BTEXN, Metals (8), PAHs
TP16	Driveway – construction debris	0.2 m	TP16_0.2	Asbestos Identification
TP17	Site coverage	0.2 m	TP17_0.2	TRH, BTEXN, Metals (8), PAHs
TP18	Suspected filled land	0.2 m	TP18_0.2	TRH, BTEXN, Metals (8), PAHs
TP19	Site coverage	0.2 m	TP19_0.2	TRH, BTEXN, Metals (8), PAHs
TP20	Filled land (scoria, bricks)	0.1 m	TP20_0.1	Asbestos Identification
TP21	Stockpile – cattle ramp	0.4 m	TP21_0.4	Asbestos Identification
		0.8 m	TP21_0.8	TRH, BTEXN, Metals (8), PAHs
TP22	Driveway – construction debris	0.2 m	TP22_0.2	Asbestos Identification, TRH, BTEXN, Metals (8), PAHs
TP23	Construction debris	0.2 m	TP23_0.2	Asbestos Identification, TRH, BTEXN, Metals (8), PAHs
TP24	Site coverage	0.2 m	TP24_0.2	TRH, BTEXN, Metals (8), PAHs
TP25	Construction debris stockpile	0.3 m	TP25_0.3	Asbestos Identification, TRH, BTEXN, Metals (8), PAHs

6.3. Soil Analytical Results

Soil analytical results are presented in **Table 1, Appendix B**, and graphically presented on **Figure 3, Appendix A**. The NATA certified laboratory reports and accompanying Chain of Custody (CoC) documentation are included with the laboratory reports included within **Appendix E**.

Laboratory analytical results for soil samples reported all concentrations at levels below the adopted assessment criteria, with the exception of sample TP12_1.0 for zinc (6,270 mg/kg) exceeding the ESL for commercial/industrial site use (320 mg/kg). This sample was collected



from burnt fill materials of the burn pit and determined to be limited in extent by the underlying validation sample TP12_1.5.

Asbestos in the forms of Chrysotile, Amosite and Crocidolite in ACM as cement sheeting was confirmed by the laboratory to be present at the following sample locations:

- TP16 - driveway, within construction/demolition waste;
- TP20 - driveway, within construction/demolition waste; and
- TP21 – stockpile (cattle ramp), within construction/demolition waste.



7. Discussion

7.1. Soil

7.1.1. Maintenance of Ecosystems

Laboratory analytical results for soil samples reported all concentrations at levels below the adopted assessment criteria, with the exception of sample TP12_1.0 for zinc (6,270 mg/kg) exceeding the ESL for commercial/industrial site use (320 mg/kg). This sample was collected from burnt fill materials of the burn pit and determined to be limited in extent by the underlying validation sample TP12_1.5.

Potential risk to future onsite terrestrial ecosystems under the proposed development is unlikely to be realised given:

- The proposed development on this site will have a boundary-to-boundary paving and limited landscaped areas (i.e. limited future access to deep soils for vegetation growth); and
- A limited likelihood that any significant soil-dwelling organisms would be present beneath fuel storage/dispensing infrastructure and site surface covering.

7.1.2. Human Health

No samples collected exceeded the soil beneficial use criteria for human health.

Asbestos in the forms of Chrysotile, Amosite and Crocidolite in ACM as cement sheeting was confirmed by the laboratory to be present at the following sample locations:

- TP16 - driveway, within construction/demolition waste;
- TP20 - driveway, within construction/demolition waste; and
- TP21 – stockpile (cattle ramp), within construction/demolition waste.

Any potential risk to construction workers of the proposed development and future site users of the proposed development posed by the presence of ACM in limited areas of the site is expected to be adequately managed with onsite treatment of the asbestos contaminated soil and implementation of standard health and safety protocols and documentation at the time of site development.

7.1.3. Aesthetics

Soils across the site did not contain anthropogenic inclusions (with the exception of the limited burnt refuse in TP12), staining or were malodorous. As such, this beneficial use is not considered to be exceeded.



8. Site Characterisation and Conceptual Site Model

Based on the decision-making process discussed in **Section 3**, the decisions required to be made are detailed as follows:

8.1. Has soil been assessed against relevant health-based investigation levels?

The relative level and significance of the contaminants reported in soil and groundwater at the site have been appropriately compared to established Australian and NSW environmental and/or human health-based investigation levels.

8.2. Is there any potential risk of harm to proposed or potential human-health receptors?

No samples collected exceeded the soil beneficial use criteria for human health.

Asbestos in the forms of Chrysotile, Amosite and Crocidolite in ACM as cement sheeting was confirmed by the laboratory to be present at sample locations TP16 (driveway, within construction/demolition waste); TP20 (driveway, within construction/demolition waste); and TP21 (stockpile (cattle ramp), within construction/demolition waste).

Any potential risk to construction workers of the proposed development and future site users of the proposed development posed by the presence of ACM in limited areas of the site is expected to be adequately managed with onsite treatment of the asbestos contaminated soil and implementation of standard health and safety protocols and documentation at the time of site development.

Therefore potential risks to future users of the site for the proposed use as a service station facility are considered to be low and acceptable.

8.3. Is there potential risk of harm to proposed or potential ecological-health receptors?

Laboratory analytical results for soil samples reported all concentrations at levels below the adopted assessment criteria, with the exception of sample TP12_1.0 for zinc (6,270 mg/kg) exceeding the ESL for commercial/industrial site use (320 mg/kg). This sample was collected from burnt fill materials of the burn pit and determined to be limited in extent by the underlying validation sample TP12_1.5.

Potential risk to future onsite terrestrial ecosystems is unlikely to be realised given:

- The proposed development on this site will have a boundary-to-boundary paving and limited landscaped areas (i.e. no future access by to soils for vegetation growth); and



- A limited likelihood that any significant soil-dwelling organisms are present beneath fuel storage/dispensing infrastructure.

Therefore potential risks to future ecosystems of the site for the proposed use as a service station facility are considered to be low and acceptable.

8.4. Is the site suitable for the proposed development?

Based on the findings of this assessment and subject to the limitations in **Section 11**, the site is considered to be suitable for the proposed development.



9. Conclusion

The objective of this assessment was to support a development application by assessing the suitability of the site soil quality for the proposed development. This objective has been met with the completion of the works described herein.

Resolve conducted a desktop assessment to assess the potential for the site to be contaminated, and subsequently assessed the soil contamination status of the site. The relative level and significance of the contaminants reported in soil at the site have been compared to established Australian and NSW environmental and/or human health -based investigation levels.

The desktop review and walkover did not indicate any publicly available evidence of gross contamination of the subject land that would constrain future development and use of the land.

One soil analytical exceedance of criteria protective of terrestrial ecosystems was noted for sample TP12_1.0 for zinc (6,270 mg/kg). This sample was collected from burnt fill materials of the burn pit and determined to be limited in extent as was delineated by the underlying validation sample TP12_1.5. Under a commercial/industrial setting with limited access to soils, this would likely not pose an environmental liability.

Asbestos in ACM as cement sheeting was confirmed by the laboratory to be present at sample locations TP16 (driveway, within construction/demolition waste); TP20 (driveway, within construction/demolition waste); and TP21 (stockpile (cattle ramp), within construction/demolition waste). Any potential risk to construction workers of the proposed development and future site users of the proposed development posed by the presence of ACM in limited areas of the site is expected to be adequately managed with onsite treatment of the asbestos contaminated soil and implementation of standard health and safety protocols and documentation at the time of site development.

Based on the findings of this assessment and subject to the limitations in **Section 11**, the site considered to be suitable for future ongoing use as a petroleum service station.



10. References

CRC CARE (2011), Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater, CRC for Contamination Assessment and Remediation of the Environment, 2011.

National Environment Protection Council (2013), National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1), April 2013;

NSW Department of Environment and Conservation (DEC) (2007) Guidelines for the Assessment and Management of Groundwater Contamination, March 2007.

NSW EPA, Guidelines for Consultants Reporting on Contaminated Sites, 2011.

NSW EPA, Technical Note: Investigation of Service Station Sites, 2014.

NSW EPA Guidelines for the NSW Site Auditors Scheme (3rd edition) 2017.

Standards Australia. Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds, AS4482.1 (2005) and Part 2: Volatile substances, AS4482.2 (1999).

US EPA, Guidance on Systematic Planning Using the Data Quality Objectives Process, 2006



11. Limitations

Resolve Environmental Pty Ltd (Resolve) has prepared this Environmental Site Assessment Report (report) in accordance with generally accepted industry practices and standards prevailing at the time this report was prepared. In preparing this report, Resolve has applied the level of care and degree of skill ordinarily exercised by reputable members of the Environmental Consulting Profession in the preparation of environmental assessment and remediation reports.

This Report has been prepared for the exclusive use by Jasbe Supremacy Pty Ltd.

The Report is made without any warranty by Resolve either express or implied.

Findings, statements and conclusions provided in this report are based on the limited assessment of geological and chemical conditions encountered at the site at the time of investigation.

Subsurface conditions including contaminant concentrations can vary significantly across a site and over time and as such, results, findings and proposed works expressed in this Report may not represent the extremes of conditions at the site. Site conditions (including subsurface) may change over time and the conclusions in this Report, while accurate at the time of writing, may or may not be affected by such changes. Resolve confirms that Resolve takes no responsibility or liability for the accuracy or validity of third-party information, reports, correspondence and/or data referred to in this Report. This Report does not purport to provide legal advice.

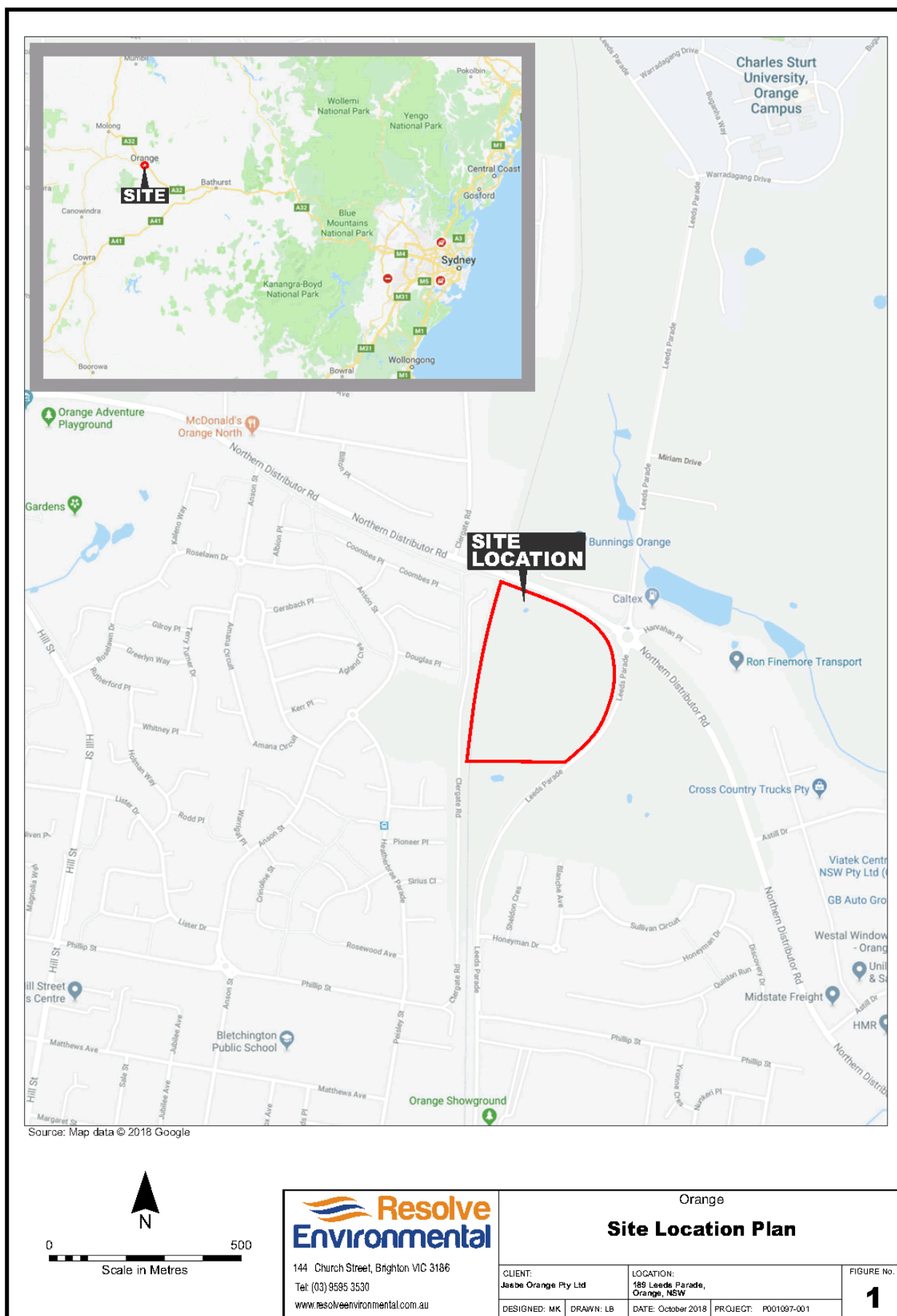


Appendix A – Figures

Figure 1 – Site Location Plan

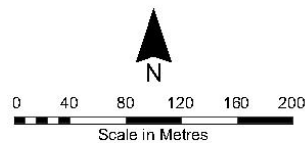
Figure 2 – Site Features Plan

Figure 3 – Soil Analytical Results



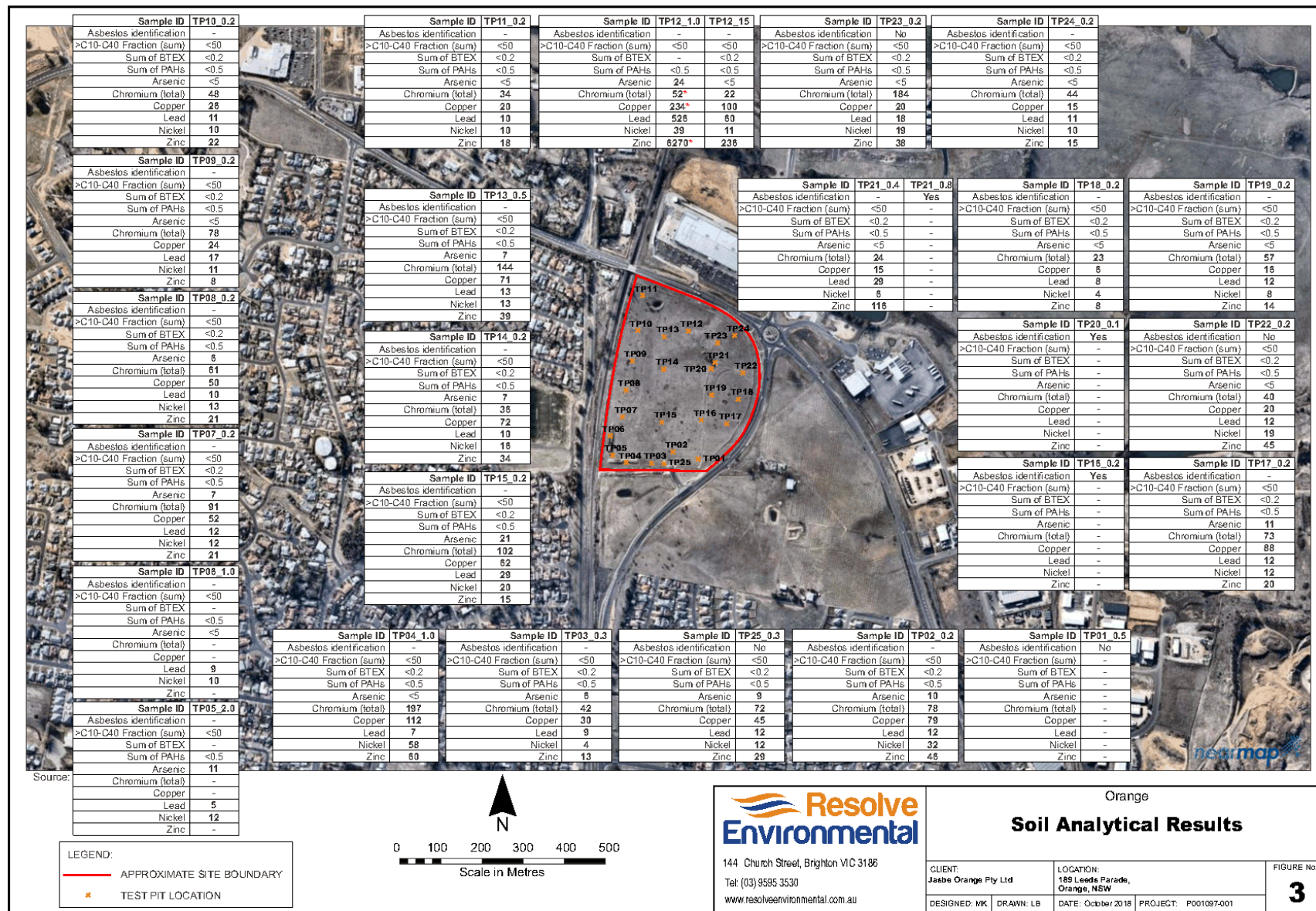


LEGEND:	
—	APPROXIMATE SITE BOUNDARY
X	TEST PIT LOCATION



Resolve Environmental
 144 Church Street, Brighton VIC 3186
 Tel: (03) 9595 3530
www.resolveenvironmental.com.au

Orange Site Features Plan			
CLIENT: Jaabe Orange Pty Ltd	LOCATION: 169 Leeds Parade, Orange, NSW	FIGURE No. 2	
DESIGNED: NIK	DRAWN: LB	DATE: October 2018	PROJECT: P001087-001





Appendix B – Soil Analytical Results

Table 1 - Soil Analytical Results
185 Leeds Parade, Orange NSW
Environmental Site Assessment



Analyte					Asbestos		TRH (NEPM 2013)							BTEXN							
					Asbestos Identification		C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	>C10 - C16 Fraction	>C10 - C16 Fraction minus Naphthalene (F2)	>C16 - C34 Fraction	>C34 - C40 Fraction	>C10 - C40 Fraction (sum)	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Sum of BTEX	Naphthalene
LOR					--		10	10	50	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.2	1
Units					--		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs - Comm/Ind D Soil					--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 0-1m					--		--	260	--	NL	--	--	--	3	NL	NL	--	--	230	--	NL
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 1-2m					--		--	370	--	NL	--	--	--	3	NL	NL	--	--	NL	--	NL
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 2-4m					--		--	630	--	NL	--	--	--	3	NL	NL	--	--	NL	--	NL
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - >4m					--		--	NL	--	NL	--	--	--	3	NL	NL	--	--	NL	--	NL
CRC CARE 2011 Table B3 Intrusive Maintenance Worker Soil HSL for Vapour Intrusion, Sand - 0-2m					--		--	NL	--	NL	--	--	--	77	NL	NL	--	--	NL	--	NL
CRC CARE 2011 Table B3 Intrusive Maintenance Worker Soil HSL for Vapour Intrusion, Sand - 2-4m					--		--	NL	--	NL	--	--	--	160	NL	NL	--	--	NL	--	NL
NEPM 2013 Table 1B(6) ESLs - Comm/Ind, Coarse Soil, 0-2m					--		215	--	170	--	1,700	3,300	--	75	135	165	--	--	180	--	--
NEPM 2013 Table 1B(5) Generic EILs					--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	370
Sample ID	Date Sampled	Sample Depth (m)	Origin	PID Result																	
TP01_0.5	24-Sep-18	0.5	Fill	0	No	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP02_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP03_0.3	24-Sep-18	0.3	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP04_1.0	24-Sep-18	1.0	Fill	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP05_2.0	24-Sep-18	2.0	Natural	0	--	<10	--	<50	--	<100	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	--	--	--
TP06_1.0	24-Sep-18	1.0	Fill	0	--	<10	--	<50	--	<100	<100	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	--	--	--
TP07_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP08_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP09_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP10_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP11_0.2	24-Sep-18	0.2	Fill	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP12_1.0	24-Sep-18	1.0	Natural	0	--	<10	--	<50	--	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	--	--	--
TP12_1.5	24-Sep-18	1.5	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP13_0.5	24-Sep-18	0.5	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP14_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP15_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP16_0.2	24-Sep-18	0.2	Fill	0	Yes	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP17_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP18_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP19_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP20_0.1	24-Sep-18	0.1	Fill	0	Yes	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP21_0.4	24-Sep-18	0.4	Fill	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP21_0.8	24-Sep-18	0.8	Fill	0	Yes	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP22_0.2	24-Sep-18	0.2	Fill	0	No	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP23_0.2	24-Sep-18	0.2	Fill	0	No	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP24_0.2	24-Sep-18	0.2	Natural	0	--	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
TP25_0.3	24-Sep-18	0.3	Fill	0	No	<10	<10	<50	<100	<100	<50	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1

Notes:
< - less than laboratory limit of reporting
mg/kg - microgram s per kilogram
Bold indicates a detection above the laboratory LOR.
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline).
NC = Not Calculated - existing groundwater impact likely to require vapour mitigation regardless of soil concentration
"--" Denotes no assessment criteria or sample not analysed for this analyte
"" Denotes duplicate or triplicate value adopted

Table 1 - Soil Analytical Results
185 Leeds Parade, Orange NSW
Environmental Site Assessment



Analyte					Polycyclic Aromatic Hydrocarbons															
					Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo[a]anthracene	Chrysene	Benzo[b+g]fluoranthene	Benzo[k]fluoranthene	Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	Dibenz[a,h]anthracene	Benzo[g,h,i]perylene	Sum of polycyclic aromatic hydrocarbons
LOR	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) Hills - Comm/Ind D Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4000	40	40	40
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 0-1m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 1-2m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 2-4m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - > 4m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC CARE 2011 Table B3 Intrusive Maintenance Worker Soil HSL for Vapour Intrusion, Sand - 0-2m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC CARE 2011 Table B3 Intrusive Maintenance Worker Soil HSL for Vapour Intrusion, Sand - 2-4m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1B(6) ESLs - Comm/Ind, Coarse Soil, 0-2m	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-
NEPM 2013 Table 1B(5) Generic EILs					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	Date Sampled	Sample Depth (m)	Origin	PID Result																
TP01_0.5	24-Sep-18	0.5	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP02_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP03_0.3	24-Sep-18	0.3	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP04_1.0	24-Sep-18	1.0	Fill	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP05_2.0	24-Sep-18	2.0	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP06_1.0	24-Sep-18	1.0	Fill	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP07_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP08_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP09_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP10_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP11_0.2	24-Sep-18	0.2	Fill	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP12_1.0	24-Sep-18	1.0	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP12_1.5	24-Sep-18	1.5	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP13_0.5	24-Sep-18	0.5	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP14_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP15_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP16_0.2	24-Sep-18	0.2	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP17_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP18_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP19_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP20_0.1	24-Sep-18	0.1	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP21_0.4	24-Sep-18	0.4	Fill	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP21_0.8	24-Sep-18	0.8	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP22_0.2	24-Sep-18	0.2	Fill	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP23_0.2	24-Sep-18	0.2	Fill	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP24_0.2	24-Sep-18	0.2	Natural	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2
TP25_0.3	24-Sep-18	0.3	Fill	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6 1.2

Notes:
< - less than laboratory limit of reporting
mg/kg - microgram : per kilogram
Bold indicates a detection above the laboratory LOR.
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the hig
NC = Not Calculated - existing groundwater impact likely to require vapour mitigation regardless of soil concentration
“-” Denotes no assessment criteria or sample not analysed for this analyte
“~” Denotes duplicate or triplicate value adopted

Table 1 - Soil Analytical Results
185 Leeds Parade, Orange NSW
Environmental Site Assessment



Analyte					Metals													Cyanide (total)	Fluoride
					Arsenic	Beryllium	Cadmium	Chromium (total)	Chromium (VI)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	Cyanide (total)	Fluoride
LOR					5	1	1	2	2	5	5	0.1	2	2	5	2	5	1	40
Units					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs - Comm/Ind D Soil					3,000	500	900	-	3600	240,000	1,500	730	-	6,000	10,000	-	400,000	1500	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 0-1m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 1-2m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 2-4m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - >4m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC CARE 2011 Table B3 Intrusive Maintenance Worker Soil HSL for Vapour Intrusion, Sand - 0-2m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC CARE 2011 Table B3 Intrusive Maintenance Worker Soil HSL for Vapour Intrusion, Sand - 2-4m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1B(6) ESLs - Comm/Ind, Coarse Soil, 0-2m					-	610	-	-	-	-	-	-	-	1,800	1,800	-	320	-	-
NEPM 2013 Table 1B(5) Generic EILs					160	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	Date Sampled	Sample Depth (m)	Origin	PID Result															
TP01_Q5	24-Sep-18	0.5	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP02_Q2	24-Sep-18	0.2	Natural	0	10	--	<1	78	--	79	12	<0.1	--	32	--	--	46	--	--
TP03_Q3	24-Sep-18	0.3	Natural	0	6	--	<1	42	--	30	9	<0.1	--	4	--	--	13	--	--
TP04_I10	24-Sep-18	1.0	Fill	0	<5	--	<1	197	--	112	7	<0.1	--	58	--	--	60	--	--
TP05_I20	24-Sep-18	2.0	Natural	0	11	<1	<1	--	<0.5	--	5	<0.1	<2	12	<5	<2	--	<1	110
TP06_I10	24-Sep-18	1.0	Fill	0	<5	<1	<1	--	<0.5	--	9	<0.1	<2	10	<5	<2	--	<1	90
TP07_Q2	24-Sep-18	0.2	Natural	0	7	--	<1	91	--	52	12	<0.1	--	12	--	--	21	--	--
TP08_Q2	24-Sep-18	0.2	Natural	0	6	--	<1	61	--	50	10	0.2	--	13	--	--	21	--	--
TP09_Q2	24-Sep-18	0.2	Natural	0	<5	--	<1	78	--	24	17	<0.1	--	11	--	--	8	--	--
TP10_Q2	24-Sep-18	0.2	Natural	0	<5	--	<1	48	--	26	11	<0.1	--	10	--	--	22	--	--
TP11_Q2	24-Sep-18	0.2	Fill	0	<5	--	<1	34	--	20	10	<0.1	--	10	--	--	18	--	--
TP12_I10	24-Sep-18	1.0	Natural	0	50 *	<1	5	52 *	6.8	234 *	526	<0.1	<2	39	<5	<2	62.70 *	3	70
TP12_I15	24-Sep-18	1.5	Natural	0	<5	--	<1	22	--	100	60	<0.1	--	11	--	--	236	--	--
TP13_Q5	24-Sep-18	0.5	Natural	0	7	--	<1	144	--	71	13	<0.1	--	13	--	--	39	--	--
TP14_Q2	24-Sep-18	0.2	Natural	0	7	--	<1	36	--	72	10	<0.1	--	16	--	--	34	--	--
TP15_Q2	24-Sep-18	0.2	Natural	0	21	--	<1	102	--	62	29	<0.1	--	20	--	--	15	--	--
TP16_Q2	24-Sep-18	0.2	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP17_Q2	24-Sep-18	0.2	Natural	0	11	--	<1	73	--	88	12	<0.1	--	12	--	--	20	--	--
TP18_Q2	24-Sep-18	0.2	Natural	0	<5	--	<1	23	--	6	8	<0.1	--	4	--	--	8	--	--
TP19_Q2	24-Sep-18	0.2	Natural	0	<5	--	<1	57	--	16	12	<0.1	--	8	--	--	14	--	--
TP20_Q1	24-Sep-18	0.1	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP21_Q4	24-Sep-18	0.4	Fill	0	<5	--	<1	24	--	15	29	<0.1	--	6	--	--	116	--	--
TP21_Q8	24-Sep-18	0.8	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP22_Q2	24-Sep-18	0.2	Fill	0	<5	--	<1	40	--	20	12	0.1	--	19	--	--	45	--	--
TP23_Q2	24-Sep-18	0.2	Fill	0	<5	--	<1	184	--	20	18	<0.1	--	19	--	--	38	--	--
TP24_Q2	24-Sep-18	0.2	Natural	0	5 *	--	<1	44	--	15	11	<0.1	--	10	--	--	15	--	--
TP25_Q3	24-Sep-18	0.3	Fill	0	9	--	<1	72	--	45	12	<0.1	--	12	--	--	29	--	--

Notes:
< - less than laboratory limit of reporting
mg/kg - micrograms per kilogram
Bold indicates a detection above the laboratory LOR.
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the hig
NC = Not Calculated - existing groundwater impact likely to require vapour mitigation regardless of soil concentration
"- " Denotes no assessment criteria or sample not analysed for this analyte
"*" Denotes duplicate or triplicate value adopted

Table 1 - Soil Analytical Results
185 Leeds Parade, Orange NSW
Environmental Site Assessment



Analyte					Polychlorinated Biphenyls	Organochlorine Pesticides (OC)																			
						Polychlorinated Biphenyls	alpha-BHC	Hexachloroben zene (HCB)	beta-BHC	gam.ma-BHC	delta-BHC	Heptachlor	Aldrin	Heptachlor epoxide	Total Chlordane (sum)	trans-Chlordane	alpha-Endosulfan	cis-Chlordane	Dieldrin	4,4'-DDE	Endrin	beta-Endosulfan	4,4'-DDD	Endrin aldehyde	Endosulfan sulfate
LOR					0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	--	
Units					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs - Comm/Ind D Soil					7	-	80	-	-	-	50	-	-	530	530	2000	530	-	-	100	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand- 0-1m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand- 1-2m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand- 2-4m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - >4m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC CARE 2011 Table B3 Intrusive Maintenance Worker Soil HSL for Vapour Intrusion, Sand - 0-2m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC CARE 2011 Table B3 Intrusive Maintenance Worker Soil HSL for Vapour Intrusion, Sand - 2-4m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1B(6) ESLs - Comm/Ind, Coarse Soil, 0-2m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1B(5) Generic EILs					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	640	3600
Sample ID	Date Sampled	Sample Depth (m)	Origin	PID Result	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP01_0,5	24-Sep-18	0.5	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP02_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP03_0,3	24-Sep-18	0.3	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP04_1,0	24-Sep-18	1.0	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP05_2,0	24-Sep-18	2.0	Natural	0	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	
TP06_1,0	24-Sep-18	1.0	Fill	0	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
TP07_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP08_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP09_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP10_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP11_0,2	24-Sep-18	0.2	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP12_1,0	24-Sep-18	1.0	Natural	0	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
TP12_1,5	24-Sep-18	1.5	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP13_0,5	24-Sep-18	0.5	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP14_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP15_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP16_0,2	24-Sep-18	0.2	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP17_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP18_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP19_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP20_0,1	24-Sep-18	0.1	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP21_0,4	24-Sep-18	0.4	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP21_0,8	24-Sep-18	0.8	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP22_0,2	24-Sep-18	0.2	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP23_0,2	24-Sep-18	0.2	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP24_0,2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP25_0,3	24-Sep-18	0.3	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Notes:
< - less than laboratory limit of reporting
mg/kg - micrograms per kilogram
Bold indicates a detection above the laboratory LOR.
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the hlg
NC = Not Calculated - existing groundwater impact likely to require vapour mitigation regardless of soil concentration
"--" Denotes no assessment criteria or sample not analysed for this analyte
"" Denotes duplicate or triplicate value adopted

Table 1 - Soil Analytical Results
185 Leeds Parade, Orange NSW
Environmental Site Assessment



Analyte					Organophosphorus Pesticides (OP)	Oxygenated Compounds	Halogenated Aliphatic Compounds										Halogenated Aromatic Compounds	Trihalomethanes	Phenolic Compounds							
					Chlorpyrifos	2-Butanone (MEK)	Vinyl chloride	1,1-Dichloroethene	Methylene chloride	1,1,1-Trichloroethane	Carbon Tetrachloride	1,2-Dichloroethane	Trichloroethene	1,1,2-Trichloroethane	Tetrachloroethene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Chlorobenzene	Chloroform	Phenol	2-Methylphenol	3- & 4-Methylphenol	4-Chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	Pentachlorophenol
LOR					0.05	5	4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	2
Units					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(1) HILs - Comm/Ind D Soil					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240,000	-	-	-	-	-	660
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 0-1m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 1-2m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - 2-4m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand - >4m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC CARE 2011 Table B3 Intrusive Maintenance Worker Soil HSL for Vapour Intrusion, Sand - 0-2m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC CARE 2011 Table B3 Intrusive Maintenance Worker Soil HSL for Vapour Intrusion, Sand - 2-4m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1B(6) ESLs - Comm/Ind, Coarse Soil, 0-2m					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM 2013 Table 1B(5) Generic EILs					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	Date Sampled	Sample Depth (m)	Origin	PID Result																						
TP01_0.5	24-Sep-18	0.5	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP02_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP03_0.3	24-Sep-18	0.3	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP04_1.0	24-Sep-18	1.0	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP05_2.0	24-Sep-18	2.0	Natural	0	<0.05	<5	<4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2
TP06_1.0	24-Sep-18	1.0	Fill	0	<0.05	<5	<4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2
TP07_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP08_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP09_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP10_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP11_0.2	24-Sep-18	0.2	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP12_1.0	24-Sep-18	1.0	Natural	0	<0.05	<5	<4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<2
TP12_1.5	24-Sep-18	1.5	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP13_0.5	24-Sep-18	0.5	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP14_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP15_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP16_0.2	24-Sep-18	0.2	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP17_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP18_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP19_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP20_0.1	24-Sep-18	0.1	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP21_0.4	24-Sep-18	0.4	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP21_0.8	24-Sep-18	0.8	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP22_0.2	24-Sep-18	0.2	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP23_0.2	24-Sep-18	0.2	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP24_0.2	24-Sep-18	0.2	Natural	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP25_0.3	24-Sep-18	0.3	Fill	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
< - less than laboratory limit of reporting
mg/kg - micrograms per kilogram
Bold indicates a detection above the laboratory LOR.
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the hlg
NC = Not Calculated - existing groundwater impact likely to require vapour mitigation regardless of soil concentration
“-” Denotes no assessment criteria or sample not analysed for this analyte
“~” Denotes duplicate or triplicate value adopted

Table 1 - Soil Analytical Results
185 Leeds Parade, Orange NSW
Environmental Site Assessment



Analyte			TRH (HEM 2018)							Polycyclic Aromatic Hydrocarbons																					Metals																			
			G6 - C10 Fraction minus BFDX (F1)	<C10 - C16 Fraction minus Napthalene (F2)	>C16 - C24 Fraction	>C24 - C40 Fraction	>C10 - C40 Fraction (Sum)	Benzene	Toluene	Ethylbenzene	meta- & para-xylene	ortho-xylene	Total Xylenes	Sum of BFDX Napthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz[a]anthracene	Chrysene	Benz[a]fluoranthene	Benz[k]fluoranthene	Benzo[e]p[1,2,3-cd]pyrene	Dibenz[a,h]anthracene	Benz[a]pyrene	Sum of polycyclic aromatic hydrocarbons (F3)	Benz[a]pyrene TEQ (part)	Benz[a]pyrene TEQ (half LOQ)	Benz[a]pyrene TEQ (LOQ)	Arsenic	Beryllium	Cadmium	Chromium (total)	Chromium (V)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc					
LOP			10	50	100	100	50	0.2	0.5	0.5	0.5	0.5	0.5	0.2	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	1	1	2	2	5	5	0.1	2	2	5	2	5				
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
Sample ID	Date Sampled	QC Sample Type	<10	--	<50	--	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	--	--	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	24	<1	5	--	68	--	526	<0.1	<2	39	<5	<2	--				
QC1	24-Sep-18	Primary	<10	--	<50	--	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	--	--	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	26	--	5	52	--	234	560	<0.1	--	58	--	--	6270			
	24-Sep-18	Duplicate	<10	<10	<50	<50	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	26	<1	5	--	68	--	526	<0.1	<2	39	<5	<2	--				
	Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
QC2	24-Sep-18	Primary	<10	--	<50	--	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	--	--	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	24	<1	5	--	68	--	526	<0.1	<2	39	<5	<2	--			
	24-Sep-18	Duplicate	<20	<20	<50	<50	<100	<50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	30	--	5	36	--	240	690	<0.1	--	12	--	--	4600				
	Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
QC3	24-Sep-18	Primary	<10	<10	<50	<50	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<5	--	<1	44	--	15	11	<0.1	--	30	--	--	15			
	24-Sep-18	Duplicate	<10	<10	<50	<50	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<5	--	<1	40	--	16	13	<0.1	--	30	--	--	16			
	Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
QC4	24-Sep-18	Primary	<10	<10	<50	<50	<100	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<5	--	<1	44	--	15	11	<0.1	--	30	--	--	15		
	24-Sep-18	Duplicate	<20	<20	<50	<50	<100	<50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	5	--	<0.4	43	--	17	12	<0.1	--	11	--	--	16			
	Relative Percentage Difference			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC



Appendix C – Borehole Logs

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP01

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.5 Meters

DRILLER: Stephen Arnot

BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP01_0.5	0.0			FILL - Concrete, brick and tile fragments, suspected ACM, angular sands and gravels, pale brown, dry, loose, poor sorting.	
					Silty CLAY - pale brown, dry, friable, homogenous.	
					Borehole terminated at 0.5 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP0

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot



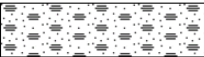
BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP02_0.2	0.0			Silty CLAY - pale brown, dry, friable, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP0

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.3 Meters

DRILLER: Stephen Arnot



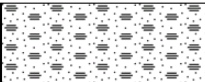
BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP03_0.3	0.0			Silty CLAY - pale brown, dry, friable, homogenous. Grassed surface. Borehole terminated at 0.3 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001

PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP0

LOGGED BY: M Knox

TOTAL BORE DEPTH 1.0 Meters

DRILLER: Stephen Arnot

BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
					FILL - gravelly sandy clay, light red, dry, friable, angular gravels, heterogeneous.	
					FILL - sandy silty clay, pale brown, dry, friable, homogenous.	
	TP04_1.0	0.0	1		Borehole terminated at 1.0 mBGL.	
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP0

LOGGED BY: M Knox

TOTAL BORE DEPTH 2.0 Meters

DRILLER: Stephen Arnot

BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
			1		Silty CLAY - pale yellowy brown, dry, friable, homogenous. Grassed surface.	
	TP05_2.0	0.0	2		Borehole terminated at 2.0 mBGL.	
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP0

LOGGED BY: M Knox

TOTAL BORE DEPTH 1.0 Meters

DRILLER: Stephen Arnot

BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
					FILL - gravelly sandy clay, light red, dry, friable, angular gravels, heterogeneous.	
					FILL - sandy silty clay, pale brown, dry, friable, homogenous.	
	TP06_1.0	0.0	1		Borehole terminated at 1.0 mBGL.	
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1



BOREHOLE LOG

DATE: 24 Sept 2018

BOREHOLE ID: TP0

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot




BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP07_0.2	0.0			Silty CLAY - pale brown, dry, friable, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1



BOREHOLE LOG

DATE: 24 Sept 2018

BOREHOLE ID: TP0

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot




BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP08_0.2	0.0			Silty CLAY - yellow, dry, friable, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP0

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot




BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP09_0.2	0.0			Silty CLAY - yellow, dry, friable, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP10

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot




BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP10_0.2	0.0			Silty CLAY - yellow, dry, friable, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP11

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot




BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP11_0.2	0.0			Silty CLAY - yellow, dry, friable, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP1

LOGGED BY: M Knox

TOTAL BORE DEPTH 1.5 Meters

DRILLER: Stephen Arnot

BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
					FILL - ash, trace fine sands, clays, dry, dark reddish brown with some black ash, soft, non-plastic, heterogeneous, some litter waste (bottles, plastic)	
	TP12_1.0	0.6	1			
	TP12_1.5	0.0			Silty CLAY - yellow, dry, friable, non-plastic, homogenous. Borehole terminated at 1.5 mBGL.	
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP1

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.5 Meters

DRILLER: Stephen Arnot

BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
					FILL - Concrete, brick and tile fragments, angular sands and gravels, pale brown, dry, loose, poor sorting.	
	TP13_0.5	0.0			Silty CLAY - yellow, dry, friable, homogenous. Borehole terminated at 0.5 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP1

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot




BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP14_0.2	0.0			Silty CLAY - yellow, dry, friable, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP1

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot




BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP15_0.2	0.0			Silty CLAY - yellow, dry, friable, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP1

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot



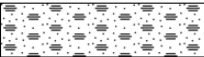
BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP16_0.2	0.0			FILL - Concrete, brick and tile fragments, suspected ACM, angular sands and gravels, pale brown, dry, loose, poor sorting. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP1

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot



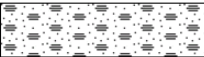
BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP17_0.2	0.0			Silty CLAY - yellow, dry, friable, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1



BOREHOLE LOG

DATE: 24 Sept 2018

BOREHOLE ID: TP1

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot



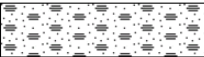
BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP18_0.2	0.0			Silty CLAY - light red, dry, friable, non-plastic, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP1

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot




BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP19_0.2	0.0			Silty CLAY - light red, dry, friable, non-plastic, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP 0

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.6 Meters

DRILLER: Stephen Arnot



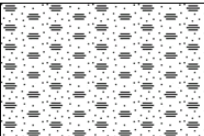


BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP19_0.2	0.0			FILL - brick fragments, scoria gravels, light red, dry, loose, poor sorting.	
			1		Silty CLAY - red, dry, friable, non-plastic, homogenous. Borehole terminated at 0.6 mBGL.	
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP 1

LOGGED BY: M Knox

TOTAL BORE DEPTH 1.0 Meters

DRILLER: Stephen Arnot



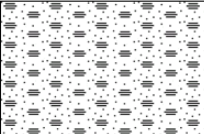


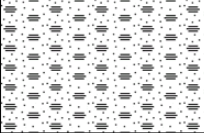
BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP21_0.4	0.0			FILL - sandy silty clay, construction debris, brick fragments, suspected ACM, carpet fragments, pale grey, dry, non-plastic, heterogeneous.	
	TP21_0.8	0.0			FILL - sandy silty clay, pale grey, dry, friable, non-plastic, homogenous.	
			1		Borehole terminated at 1.0 mBGL.	
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1



BOREHOLE LOG

DATE: 24 Sept 2018

BOREHOLE ID: TP

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.3 Meters

DRILLER: Stephen Arnot

BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP22_0.2	0.0			<p>FILL - Concrete, brick and tile fragments, suspected ACM, angular sands and gravels, pale brown, dry, loose, poor sorting.</p> <p>Silty CLAY - pale brown, dry, friable, homogenous.</p> <p>Borehole terminated at 0.3 mBGL.</p>	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1



BOREHOLE LOG

DATE: 24 Sept 2018

BOREHOLE ID: TP

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.3 Meters

DRILLER: Stephen Arnot



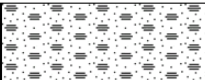
BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP23_0.2	0.0			FILL - Concrete, brick and tile fragments, angular sands and gravels, pale brown, dry, loose, poor sorting. Silty CLAY - yellow, dry, friable, homogenous. Borehole terminated at 0.3 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.2 Meters

DRILLER: Stephen Arnot

BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP24_0.2	0.0			Silty CLAY - red, dry, friable, non-plastic, homogenous. Grassed surface. Borehole terminated at 0.2 mBGL.	
			1			
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1

BOREHOLE LOG



DATE: 24 Sept 2018

BOREHOLE ID: TP

LOGGED BY: M Knox

TOTAL BORE DEPTH 0.3 Meters

DRILLER: Stephen Arnot

BORE DIAMETER: 60 Centimeters

DRILL RIG: Excavator

GROUNDWATER ENCOUNTERED: N/A Meters

DRILLING METHOD: Excavator

STABILISED GROUNDWATER: N/A Meters

Sample	Sample ID	PID (ppm)	Depth (meters)	Lithology	Description	Completion
	TP25_0.3	0.0			FILL - concrete blocks, gravelly sand matrix, pale grey, dry, heterogeneous.	
			1		Borehole terminated at 0.3mBGL.	
			2			
			3			
			4			

SITE ADDRESS: 185 Leeds Parade
Orange, NSW,

PROJECT NUMBER: P001097-001
PROJECT NAME: Due Diligence PSI

PAGE: 1



[Appendix D – Lotsearch Report and Certificates of Title](#)



Date: 19 Sep 2018 13:17:20

Reference: LS004183

Address: 118 Clergate Road, Orange, NSW 2800

Disclaimer:

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features. You should obtain independent advice before you make any decision based on the information within the report. The detailed terms applicable to use of this report are set out at the end of this report.

Table of Contents

Location Confidences.....	2
Dataset Listings.....	3
Site Location Aerial	5
Contaminated Land & Waste Management Facilities.....	6
EPA PFAS Investigation Program	8
EPA Other Sites with Contamination Issues	9
EPA Current Licensed Activities.....	10
EPA Delicensed & Former Licensed Activities.....	12
UPSS Sensitive Zones.....	15
Historical Business Activities.....	16
Historical Aerial Imagery & Maps	22
Topographic Features	29
Elevation Contours.....	33
Hydrogeology & Groundwater	34
Geology.....	46
Naturally Occurring Asbestos Potential.....	48
Soils	50
Acid Sulfate Soils	54
Dryland Salinity	57
Mining Subsidence Districts	58
State Environmental Planning.....	59
Local Environmental Planning.....	60
Heritage	64
Natural Hazards	66
Ecological Constraints.....	67
Terms & Conditions.....	72

Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a confidence is given under the field heading "LocConf" or "Location Confidence".

Location Confidence	Description
Premise Match	Georeferenced to the site location / premise or part of site
Area Match	Georeferenced with the confidence of the general/approximate area
Road Match	Georeferenced to the road or rail
Road Intersection	Georeferenced to the road intersection
Buffered Point	Feature is a buffered point
Network of Features	Georeferenced to a network of features

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	Dept. Finance, Services & Innovation	19/09/2018	19/09/2018	Daily	-	-	-	-
Topographic Data	Dept. Finance, Services & Innovation	17/07/2018	17/07/2018	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	12/09/2018	05/09/2018	Monthly	1000	0	0	1
Contaminated Land Records of Notice	Environment Protection Authority	04/09/2018	04/09/2018	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	30/08/2018	11/10/2017	Monthly	1000	0	0	0
National Waste Management Site Database	Geoscience Australia	07/08/2018	07/03/2017	Quarterly	1000	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	27/08/2018	27/08/2018	Monthly	2000	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	11/01/2018	11/01/2018	As required	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	31/08/2018	31/08/2018	Monthly	1000	0	2	3
Delicensed POEO Activities still Regulated by the EPA	Environment Protection Authority	31/08/2018	31/08/2018	Monthly	1000	0	0	1
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	31/08/2018	31/08/2018	Monthly	1000	0	0	3
UPSS Environmentally Sensitive Zones	Environment Protection Authority	14/04/2015	12/01/2010	As required	1000	1	1	1
UBD Business Directory 1982 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1982 (Road & Area Matches)	Hardie Grant			Not required	150	-	10	10
UBD Business Directory 1970 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1970 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1961 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1961 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1950 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1950 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	0	9
Points of Interest	Dept. Finance, Services & Innovation	17/07/2018	17/07/2018	Quarterly	1000	1	2	11
Tanks (Areas)	Dept. Finance, Services & Innovation	17/07/2018	17/07/2018	Quarterly	1000	0	0	0
Tanks (Points)	Dept. Finance, Services & Innovation	17/07/2018	17/07/2018	Quarterly	1000	0	0	2
Major Easements	Dept. Finance, Services & Innovation	17/07/2018	17/07/2018	As required	1000	0	0	9
State Forest	Dept. Finance, Services & Innovation	18/01/2018	18/01/2018	As required	1000	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	18/01/2018	30/09/2017	Annually	1000	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	1	1	1

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Botany Groundwater Management Zones	NSW Department of Primary Industries	15/03/2018	01/10/2005	As required	1000	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000	0	1	78
Geological Units 1:250,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	1	-	3
Geological Structures 1:250,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	1	-	7
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000	1	1	2
Soil Landscapes	NSW Office of Environment & Heritage	12/08/2014		None planned	1000	1	-	2
Atlas of Australian Soils	CSIRO	19/05/2017	17/02/2011	As required	1000	1	1	1
Standard Local Environmental Plan Acid Sulfate Soils	NSW Planning and Environment	07/10/2016	07/10/2016	As required	500	0	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	1
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Office of Environment & Heritage	12/05/2017	01/01/2002	None planned	1000	-	-	-
Mining Subsidence Districts	Dept. Finance, Services & Innovation	13/07/2017	01/07/2017	As required	1000	0	0	0
SEPP 14 - Coastal Wetlands	NSW Planning and Environment	17/12/2015	24/10/2008	Annually	1000	0	0	0
SEPP 26 - Littoral Rainforest	NSW Planning and Environment	17/12/2015	05/02/1988	Annually	1000	0	0	0
SEPP 71 - Coastal Protection	NSW Planning and Environment	17/12/2015	01/08/2003	Annually	1000	0	0	0
SEPP Major Developments 2005	NSW Planning and Environment	09/03/2013	25/05/2005	Under Review	1000	0	0	0
SEPP Strategic Land Use Areas	NSW Planning and Environment	01/08/2017	28/01/2014	Annually	1000	0	0	0
LEP - Land Zoning	NSW Planning and Environment	23/07/2018	29/06/2018	Quarterly	1000	2	13	47
LEP - Minimum Subdivision Lot Size	NSW Planning and Environment	23/07/2018	13/07/2018	Quarterly	0	0	-	-
LEP - Height of Building	NSW Planning and Environment	09/08/2018	22/06/2018	Quarterly	0	0	-	-
LEP - Floor Space Ratio	NSW Planning and Environment	23/07/2018	06/07/2018	Quarterly	0	0	-	-
LEP - Land Application	NSW Planning and Environment	23/07/2018	29/06/2018	Quarterly	0	1	-	-
LEP - Land Reservation Acquisition	NSW Planning and Environment	23/07/2018	13/07/2018	Quarterly	0	0	-	-
State Heritage Items	NSW Office of Environment & Heritage	04/04/2018	30/09/2016	Quarterly	1000	0	0	0
Local Heritage Items	NSW Planning and Environment	04/04/2018	23/03/2018	Quarterly	1000	0	0	3
Bush Fire Prone Land	NSW Rural Fire Service	08/08/2018	31/07/2018	Quarterly	1000	0	0	0
Central Tablelands Vegetation	NSW Office of Environment & Heritage	21/11/2015	31/10/2010	Unknown	1000	0	0	3
RAMSAR Wetlands	Commonwealth of Australia Department of the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	0
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	0
NSWBioNet Species Sightings	NSW Office of Environment & Heritage	17/09/2018	17/09/2018	Daily	10000	-	-	-

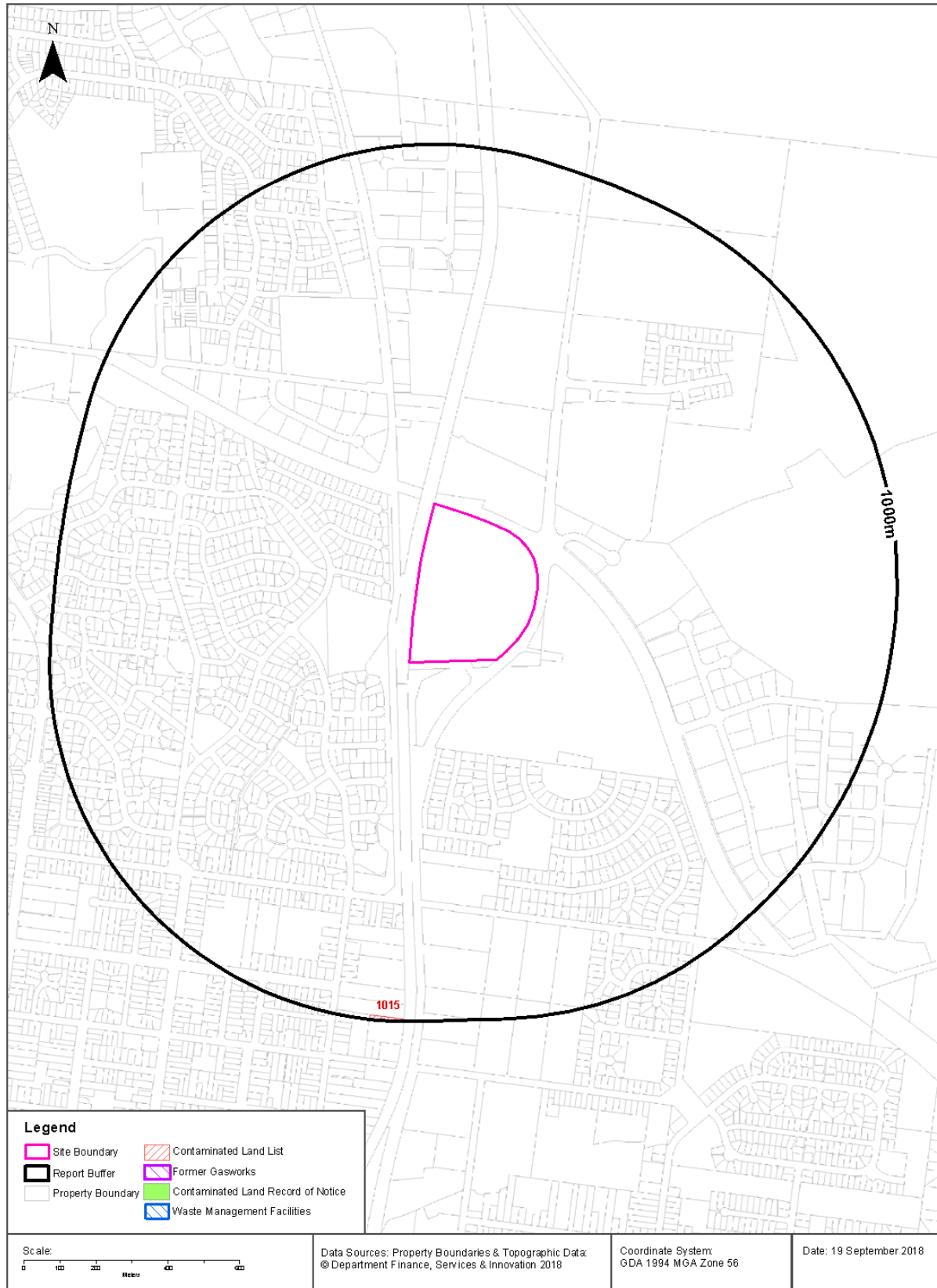
Aerial Imagery 2017

118 Clergate Road, Orange, NSW 2800



Contaminated Land & Waste Management Facilities

118 Clergate Road, Orange, NSW 2800



Contaminated Land & Waste Management Facilities

118 Clergate Road, Orange, NSW 2800

List of NSW contaminated sites notified to EPA

Records from the NSW EPA Contaminated Land list within the dataset buffer:

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist (m)	Direction
1015	BP-Branded Lowes Petroleum Depot	197 - 201 Margaret STREET	Orange	Other Petroleum	Regulation under CLM Act not required	Current EPA List	Premise Match	986m	South

The values within the EPA site management class in the table above, are given more detailed explanations in the table below:

EPA site management class	Explanation
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record of Notices.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the Protection of the Environment Operations Act 1997 (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record of Notices.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.

NSW EPA Contaminated Land List Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Contaminated Land & Waste Management Facilities

118 Clergate Road, Orange, NSW 2800

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
N/A	No records in buffer							

Contaminated Land Records of Notice Data Source: Environment Protection Authority
 © State of New South Wales through the Environment Protection Authority
 Terms of use and disclaimer for Contaminated Land: Record of Notices, please visit
<http://www.epa.nsw.gov.au/clm/dm/disclaimer.htm>

Former Gasworks

Former Gasworks within the dataset buffer:

Map Id	Location	Council	Further Info	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority
 © State of New South Wales through the Environment Protection Authority

National Waste Management Site Database

Sites on the National Waste Management Site Database within the dataset buffer:

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist (m)	Direction
N/A	No records in buffer											

Waste Management Facilities Data Source: Geoscience Australia
 Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

EPA PFAS Investigation Program

118 Clergate Road, Orange, NSW 2800

EPA PFAS Investigation Program

Sites that are part of the EPA PFAS investigation program, within the dataset buffer:

Id	Site	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

EPA PFAS Investigation Program: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

EPA Other Sites with Contamination Issues

118 Clergate Road, Orange, NSW 2800

EPA Other Sites with Contamination Issues

This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill

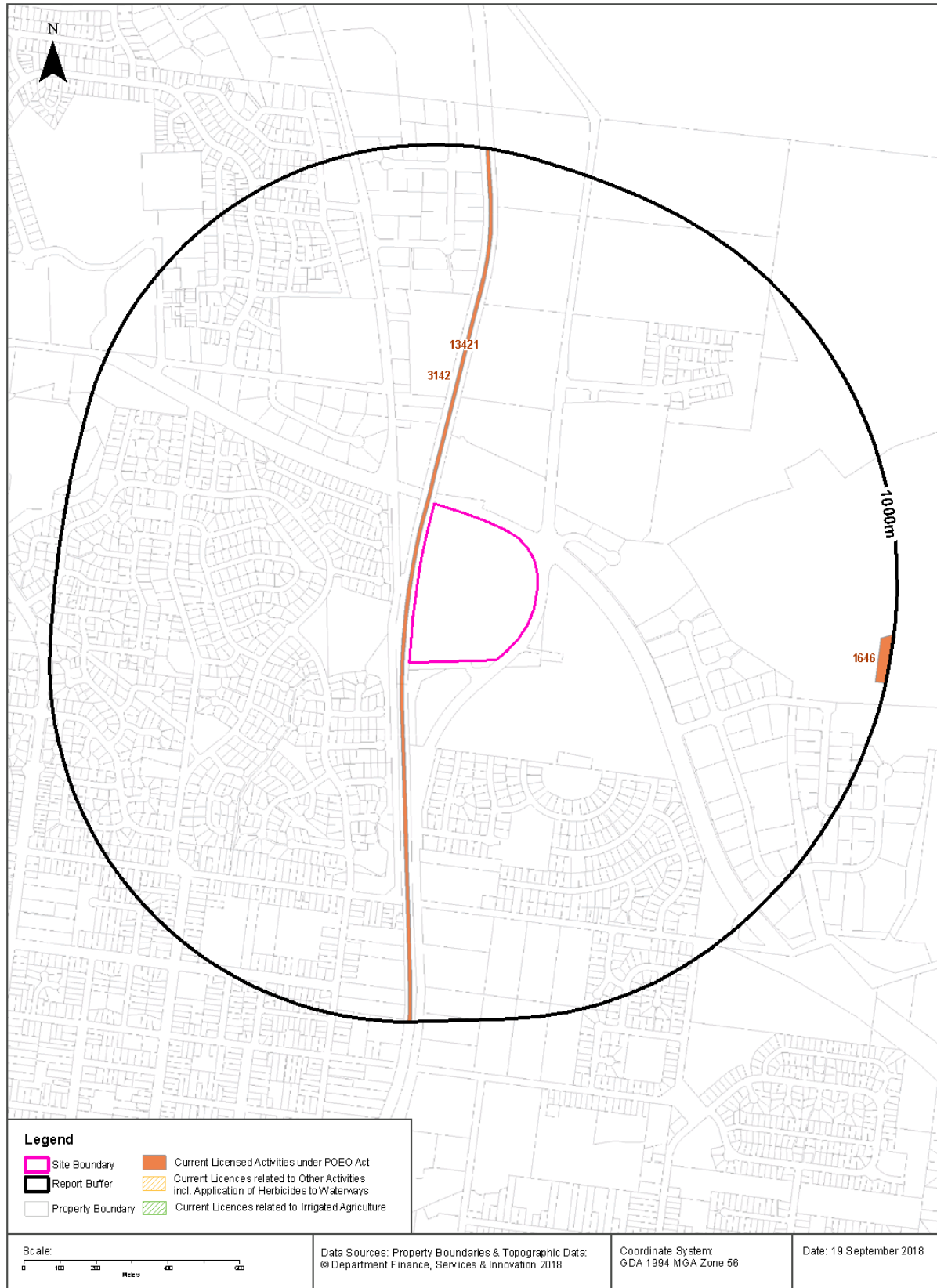
Sites within the dataset buffer:

Site Id	Site Name	Site Address	Dataset	Comments	Location Confidence	Distance	Direction
N/A	No records in buffer						

EPA Other Sites with Contamination Issues: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Current EPA Licensed Activities

118 Clergate Road, Orange, NSW 2800



EPA Activities

118 Clergate Road, Orange, NSW 2800

Licensed Activities under the POEO Act 1997

Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

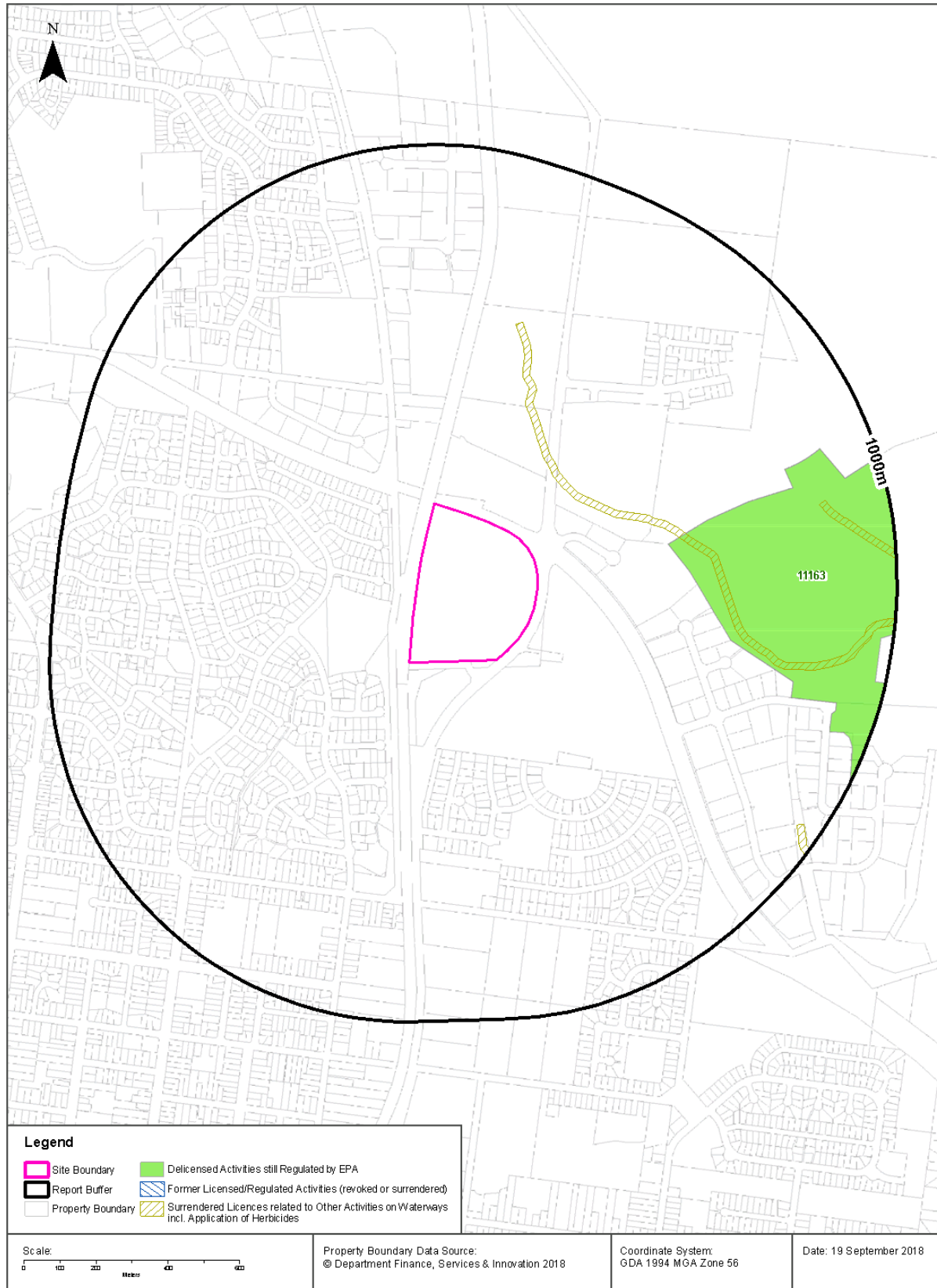
EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
3142	AUSTRALIAN RAIL TRACK CORPORATION LIMITED		GPO BOX 14, SYDNEY, NSW 2001		Railway systems activities	Network of Features	14m	West
13421	JOHN HOLLAND RAIL PTY LTD		PO Box 215 , PARRAMATTA, NSW 2124		Railway systems activities	Network of Features	14m	West
1646	ORANGE CITY COUNCIL	ORANGE SEWAGE TREATMENT SYSTEM	PHILLIP STREET	ORANGE	Sewage treatment processing by small plants	Premise Match	964m	East

POEO Licence Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Delicensed & Former Licensed EPA Activities

118 Clergate Road, Orange, NSW 2800



EPA Activities

118 Clergate Road, Orange, NSW 2800

Delicensed Activities still regulated by the EPA

Delicensed activities still regulated by the EPA, within the dataset buffer:

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
11163	J R RICHARDS WASTE MANAGEMENT SERVICES PTY LTD	COLOUR CITY WASTE SOLUTIONS	LOT 101 OPHIR ROAD	ORANGE	Hazardous, Industrial or Group A Waste Generation or Storage	Premise Match	373m	East

Delicensed Activities Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	186m	-
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	186m	-
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	186m	-

Former Licensed Activities Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

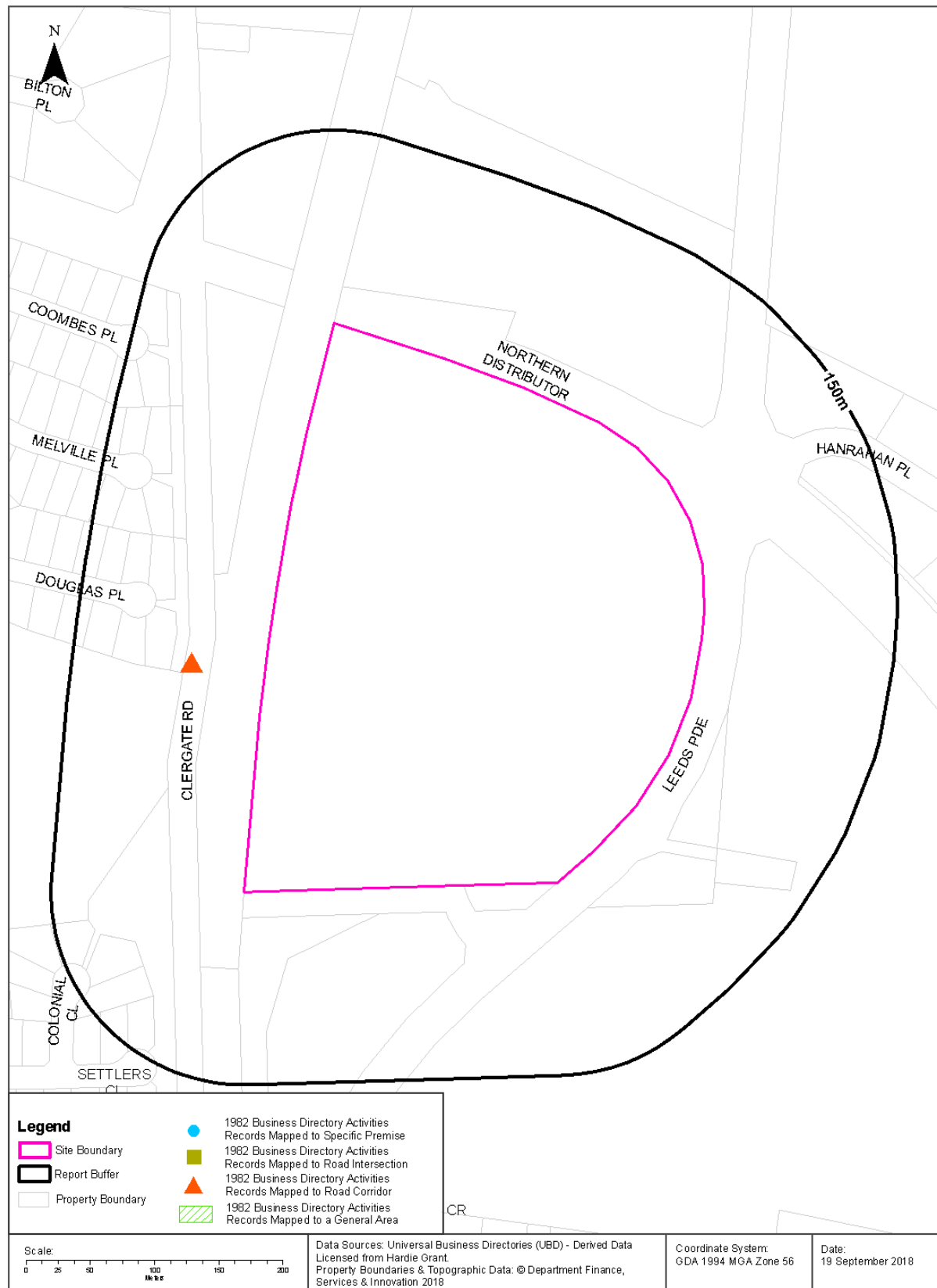
UPSS Sensitive Zones

118 Clergate Road, Orange, NSW 2800



1982 Historical Business Directory Records

118 Clergate Road, Orange, NSW 2800



Historical Business Directories

118 Clergate Road, Orange, NSW 2800

1982 Business Directory Records Premise or Road Intersection Matches

Records from the 1982 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1982 Business Directory Records Road or Area Matches

Records from the 1982 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
STEEL ERECTORS	Orange City Welding Works Pty. Ltd., Clergate Rd., Orange	133532	Road Match	35m
CRANES - MOBILE & TRAVEL TOWER - PROPRIETORS &/OR HIRERS	Orange City Welding Works Pty. Ltd., Clergate Rd., Orange	132470	Road Match	35m
ENGINEERS - CONSTRUCTIONAL.	Orange City Welding Works Pty. Ltd., Clergate Rd., Orange	132593	Road Match	35m
ENGINEERS - FABRICATING	Orange City Welding Works Pty. Ltd., Clergate Rd., Orange	132607	Road Match	35m
ENGINEERS - GENERAL &/OR MANUFACTURING &/OR MECHANICAL.	Orange City Welding Works Pty. Ltd., Clergate Rd., Orange	132615	Road Match	35m
ENGINEERS - STRUCTURAL.	Orange City Welding Works Pty. Ltd., Clergate Rd., Orange	132629	Road Match	35m
GATE &/OR FENCE MFRS. &/OR DIST.	Orange City Welding Works Pty. Ltd., Clergate Rd., Orange	132714	Road Match	35m
SHEET METAL WORKERS	Orange City Welding Works Pty. Ltd., Clergate Rd., Orange	133489	Road Match	35m
STEEL FABRICATORS	Orange City Welding Works Pty. Ltd., Clergate Rd., Orange	133535	Road Match	35m
WELDERS - ELECTRIC &/OR OXY	Orange City Welding Works Pty. Ltd., Clergate Rd., Orange	133678	Road Match	35m

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

118 Clergate Road, Orange, NSW 2800

1970 Business Directory Records Premise or Road Intersection Matches

Records from the 1970 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1970 Business Directory Records Road or Area Matches

Records from the 1970 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

118 Clergate Road, Orange, NSW 2800

1961 Business Directory Records Premise or Road Intersection Matches

Records from the 1961 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1961 Business Directory Records Road or Area Matches

Records from the 1961 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

118 Clergate Road, Orange, NSW 2800

1950 Business Directory Records Premise or Road Intersection Matches

Records from the 1950 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Records Road or Area Matches

Records from the 1950 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

118 Clergate Road, Orange, NSW 2800

Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
MOTOR SERVICE STATIONS- PETROL, OIL, ETC.,	Advanx Orange Tyre Repair Co., 206-208 Anson St., Orange	220457	1961	Road Match	233m
MOTOR GARAGES & ENGINEERS	Ampol District Service Station, 214 Anson St. Orange	548535	1970	Road Match	233m
MOTOR SERVICE STATIONS- PETROL, OIL, ETC.,	Ampol District Service Station, 214 Anson St. Orange	548585	1970	Road Match	233m
MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS	Ampol District Service Station. 214 Anson St., Orange	133134	1982	Road Match	233m
MOTOR SERVICE STATIONS	Lapham, H. and Son, 61 Anson St. Orange	148066	1950	Road Match	233m
MOTOR GARAGES & ENGINEERS	Lapham, H. and Son, Anson St. Orange	148000	1950	Road Match	233m
MOTOR GARAGES & ENGINEERS	Newhams Garage, Anson St. Orange	548551	1970	Road Match	233m
MOTOR GARAGES & ENGINEERS	Tucker, A. E. Pty. Ltd., 229 Anson St. Orange	548560	1970	Road Match	233m
MOTOR GARAGE AND ENGINEERS	Tucker, A. E. Pty. Ltd., 229 Anson St., Orange	220431	1961	Road Match	233m

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Aerial Imagery 2012

118 Clergate Road, Orange, NSW 2800



Aerial Imagery 2003

118 Clergate Road, Orange, NSW 2800



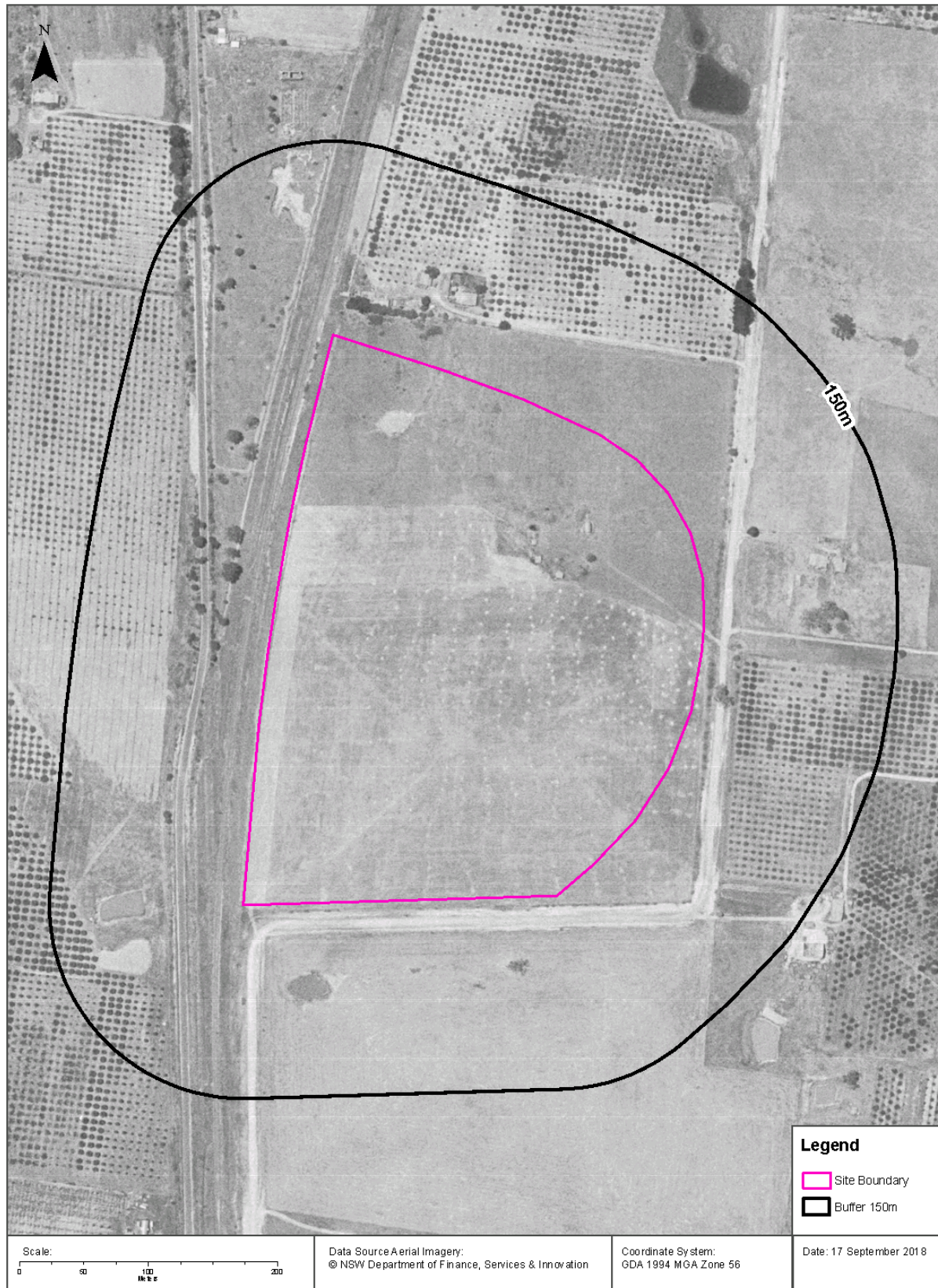
Aerial Imagery 1973

118 Clergate Road, Orange, NSW 2800



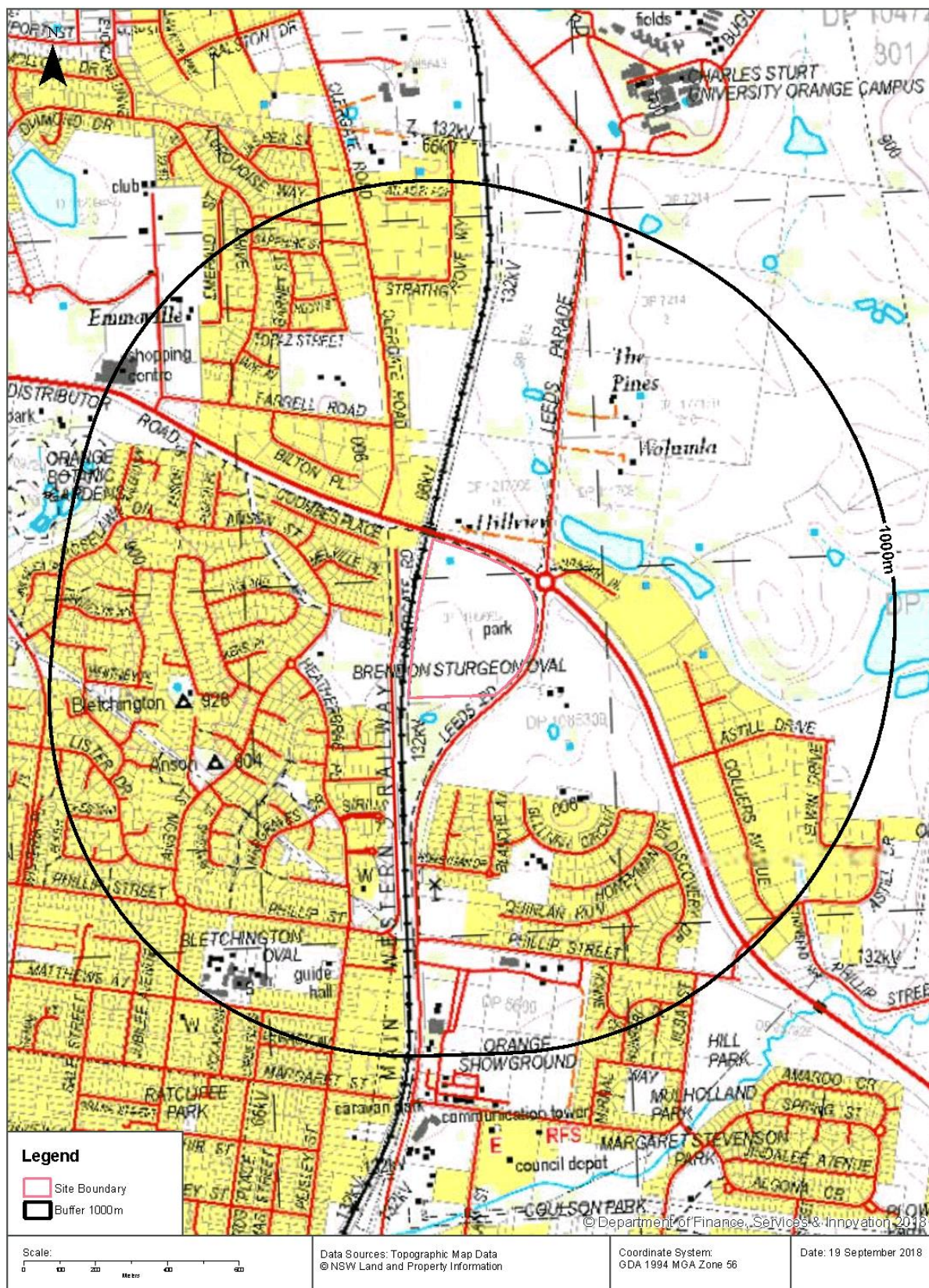
Aerial Imagery 1964

118 Clergate Road, Orange, NSW 2800



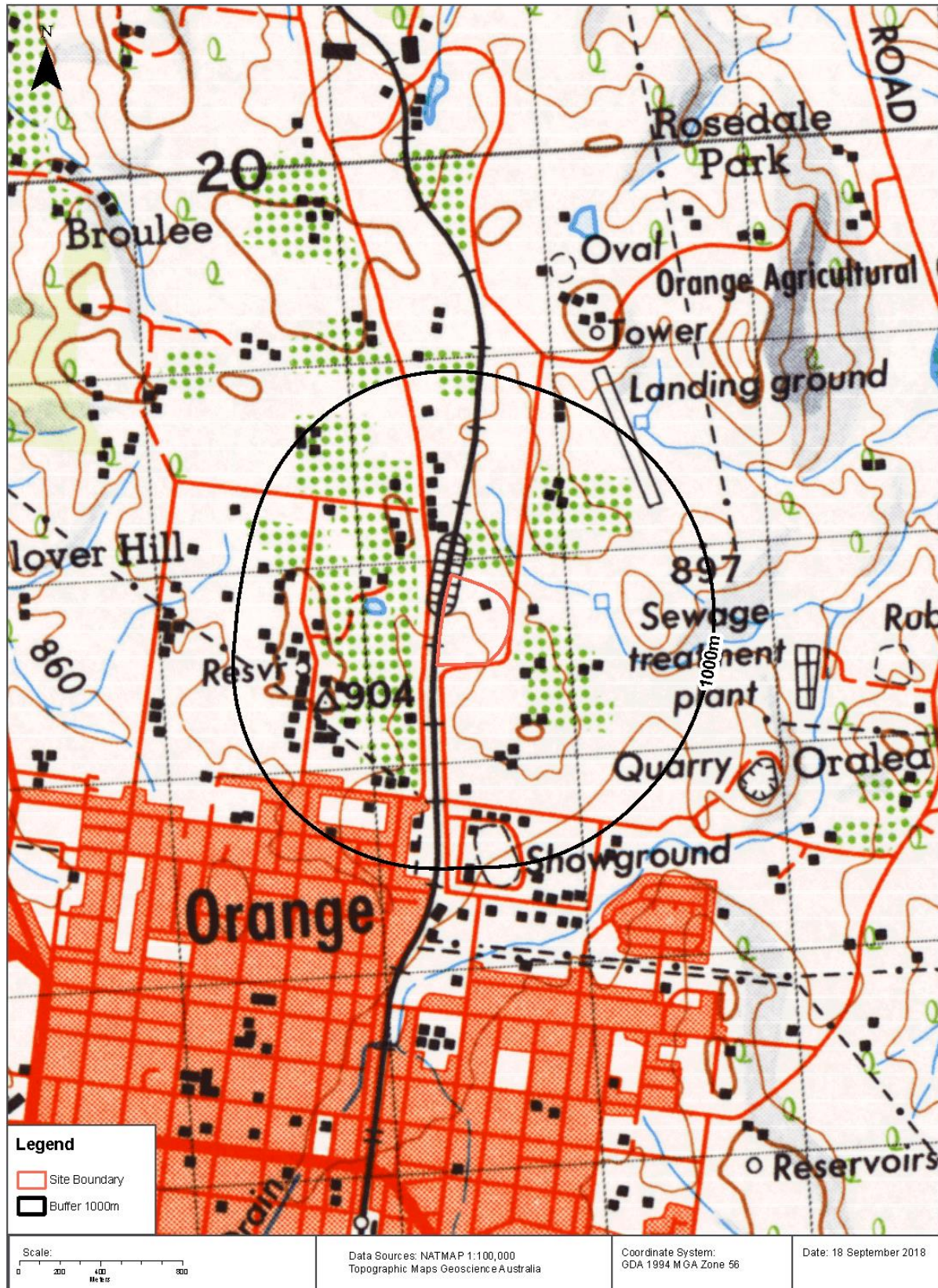
Topographic Map 2015

118 Clergate Road, Orange, NSW 2800



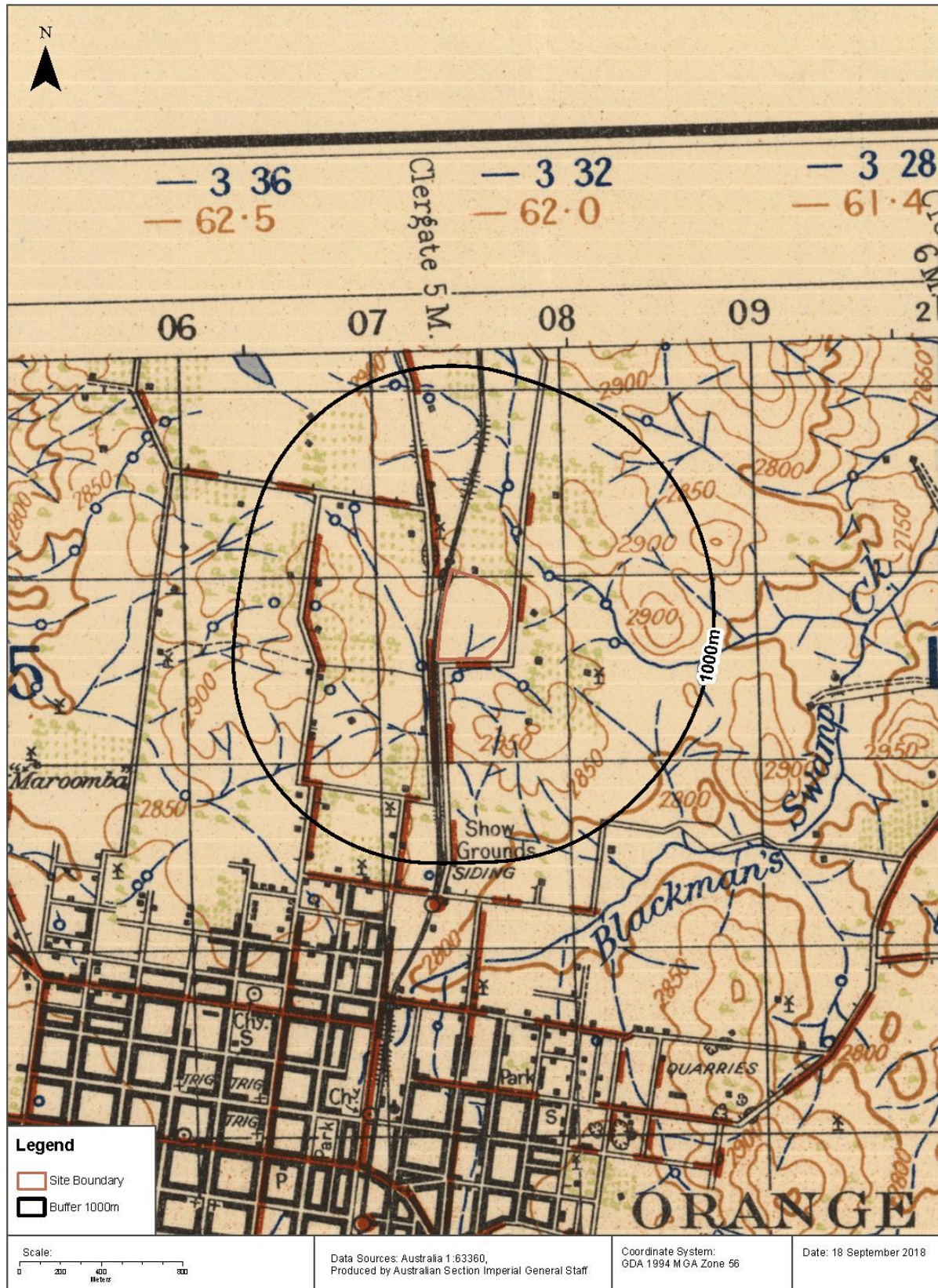
Historical Map 1975

118 Clergate Road, Orange, NSW 2800



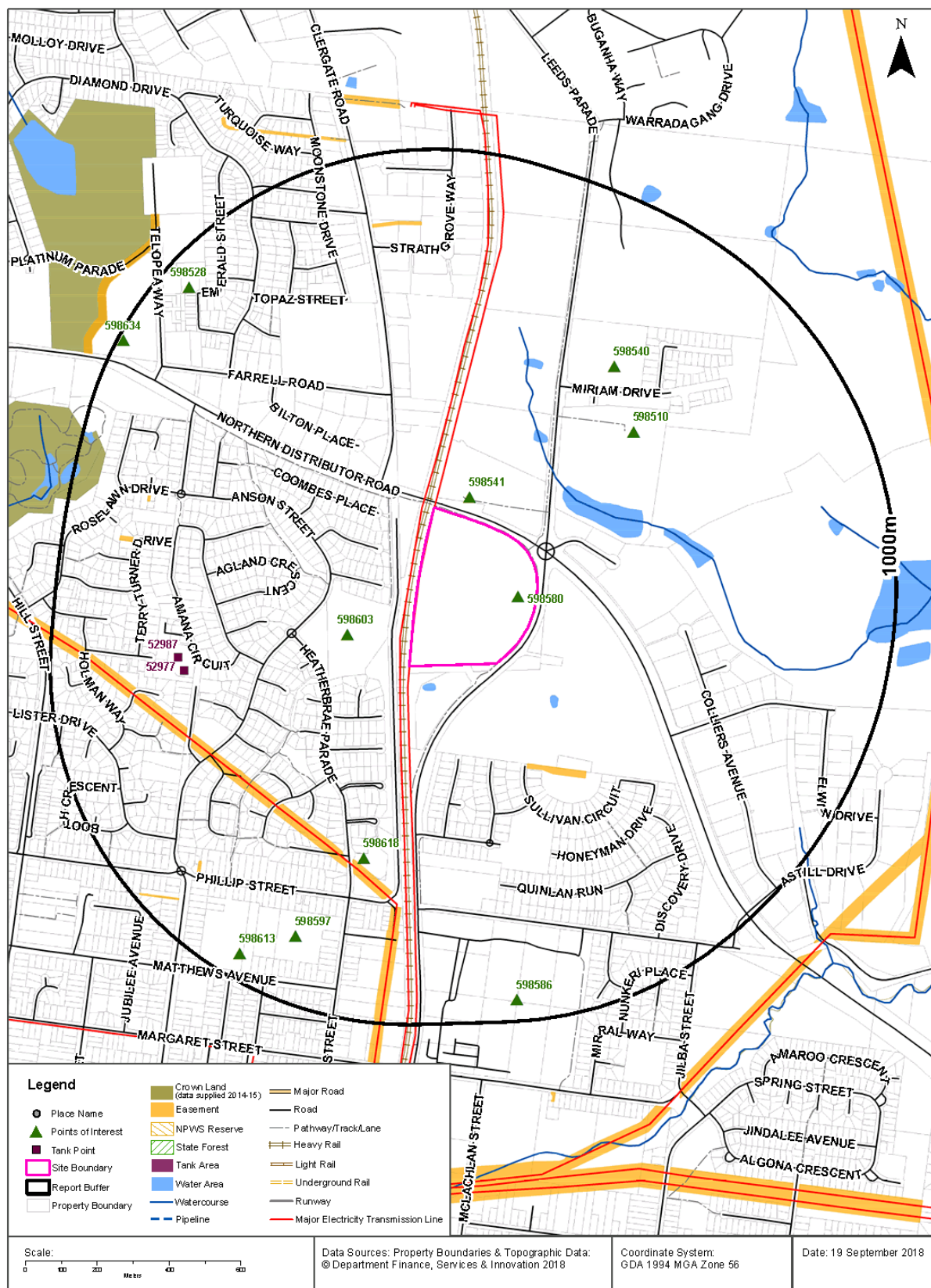
Historical Map 1938

118 Clergate Road, Orange, NSW 2800



Topographic Features

118 Clergate Road, Orange, NSW 2800



Topographic Features

118 Clergate Road, Orange, NSW 2800

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
598580	Park	Park	0m	Onsite
598541	Homestead	HILLVIEW	59m	North
598603	Sports Field	BRENDON STURGEON OVAL	179m	West
598510	Homestead	WOLUMLA	444m	North East
598618	Place Of Worship	LUTHERAN CHURCH	550m	South
598540	Homestead	THE PINES	557m	North East
598597	Sports Field	BLETCHINGTON OVAL	816m	South West
598528	Homestead	EMMAVILLE	919m	North West
598613	Primary School	BLETCHINGTON PUBLIC SCHOOL	930m	South West
598586	Showground	ORANGE SHOWGROUND	938m	South
598634	Shopping Centre	NORTH ORANGE SHOPPING CENTRE	984m	North West

Topographic Data Source: © Land and Property Information (2015)

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Topographic Features

118 Clergate Road, Orange, NSW 2800

Tanks (Areas)

What are the Tank Areas located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
	No records in buffer					

Tanks (Points)

What are the Tank Points located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
52977	Water	Operational		24/10/2012	627m	West
52987	Water	Operational		24/10/2012	644m	West

Tanks Data Source: © Land and Property Information (2015)

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Major Easements

What Major Easements exist within the dataset buffer?

Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
170272364	Primary	Right of way	Variable	293m	South East
120119077	Primary	Undefined		521m	West
120122372	Primary	Undefined		765m	West
156470221	Primary	Right of way	4.5m	776m	West
151491655	Primary	Right of way	6m	791m	North
159156361	Secondary	Easement for Access	4.9m and Var	795m	South West
120114483	Primary	Undefined		805m	West
120119870	Primary	Undefined		913m	South West
120107395	Primary	Undefined		987m	South

Easements Data Source: © Land and Property Information (2015)

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Topographic Features

118 Clergate Road, Orange, NSW 2800

State Forest

What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

State Forest Data Source: © Land and Property Information (2015)

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

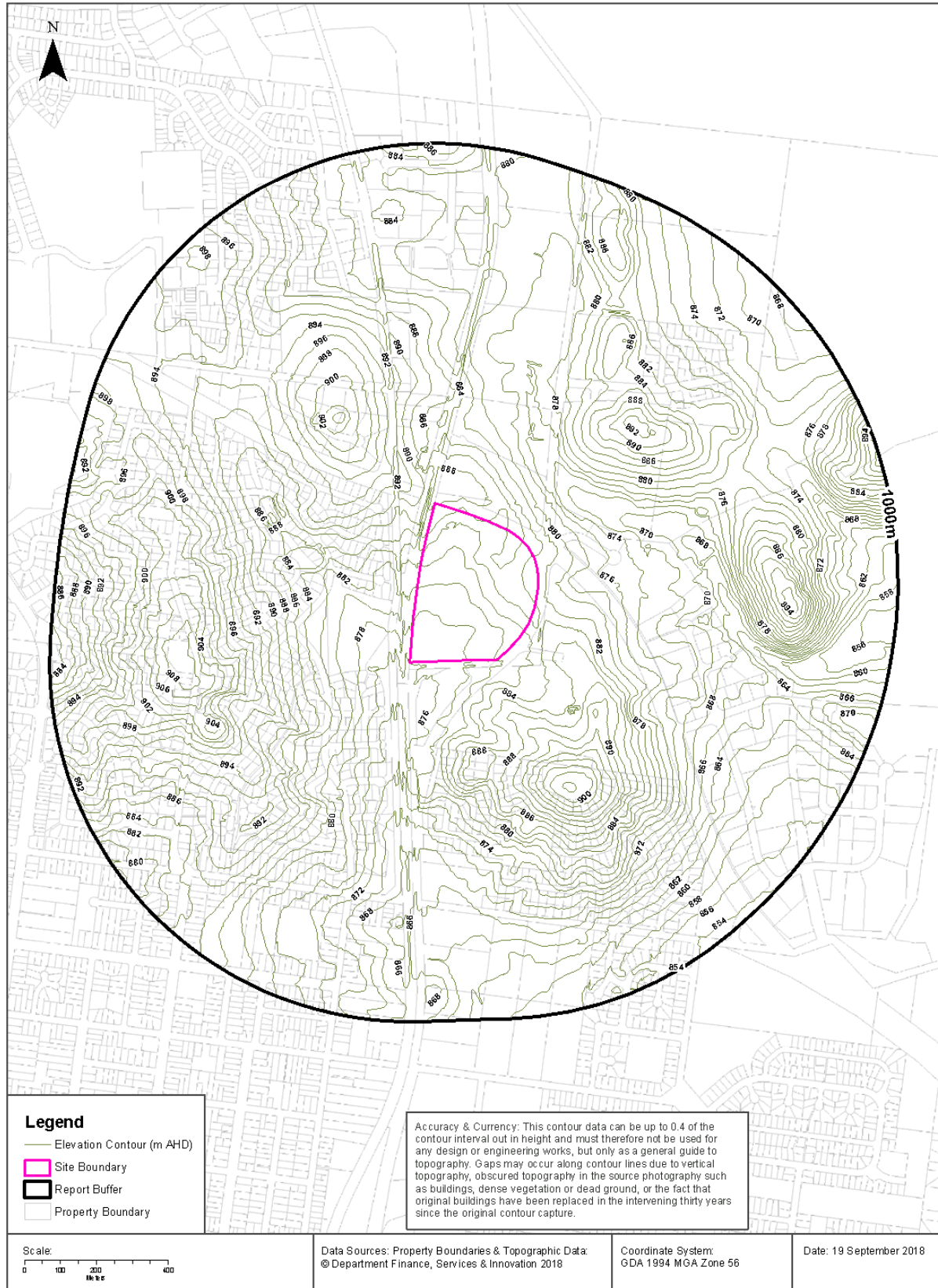
Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N/A	No records in buffer				

NPWS Data Source: © Land and Property Information (2015)

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Elevation Contours (m AHD)

118 Clergate Road, Orange, NSW 2800



Hydrogeology & Groundwater

118 Clergate Road, Orange, NSW 2800

Hydrogeology

Description of aquifers on-site:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity

Description of aquifers within the dataset buffer:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Botany Groundwater Management Zones

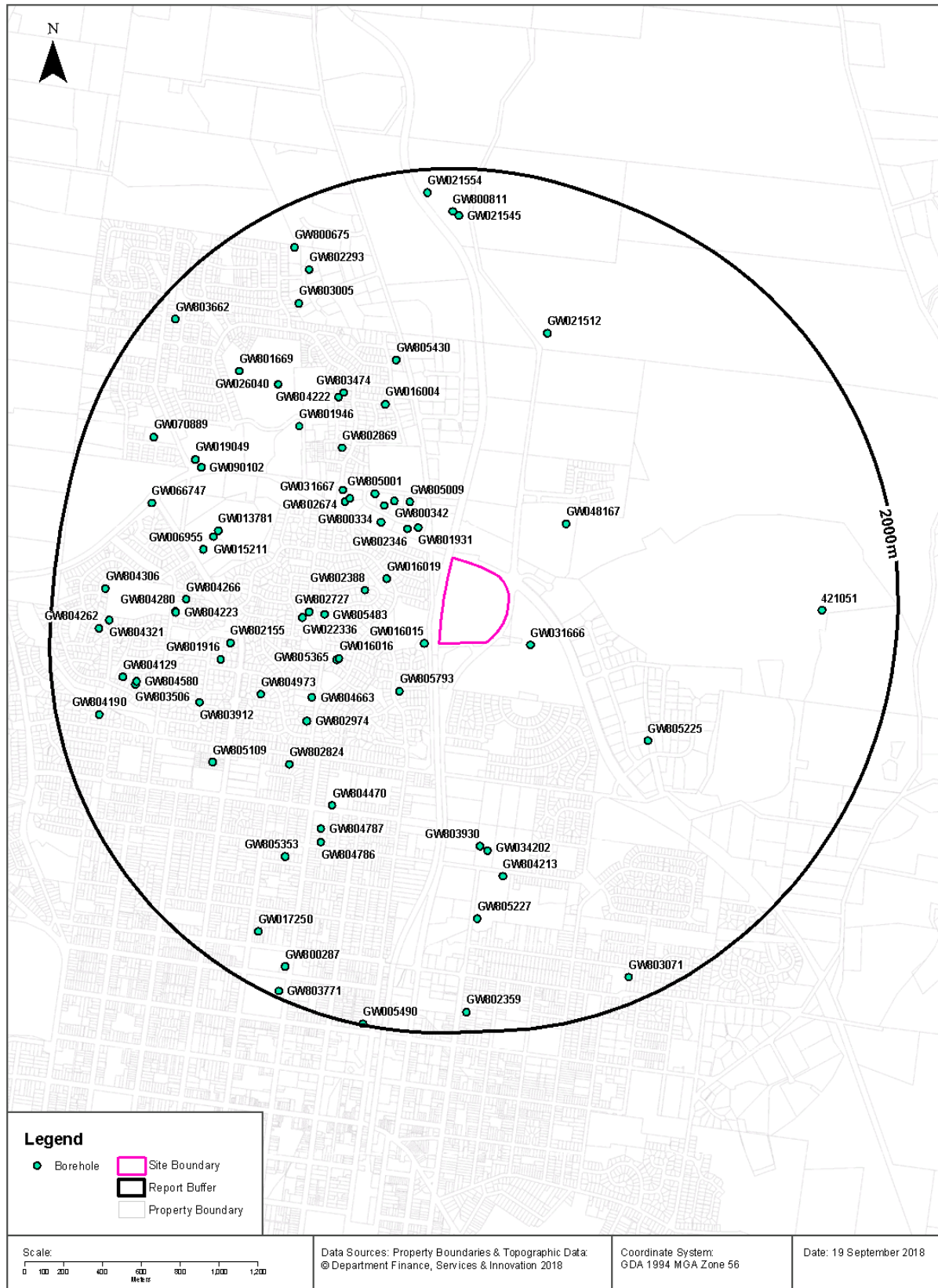
Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

Management Zone No.	Restriction	Distance	Direction
N/A	No records in buffer		

Botany Groundwater Management Zones Data Source : NSW Department of Primary Industries

Groundwater Boreholes

118 Clergate Road, Orange, NSW 2800



Hydrogeology & Groundwater

118 Clergate Road, Orange, NSW 2800

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW016 015	80BL007 350, 80WA70 9038	Bore	Private	Domestic	Irrigation		01/01/1940	16.20						75m	South West
GW031 666	80BL022 583, 80WA70 9731	Bore open thru rock	Private	Stock	Irrigation		01/06/1968	82.30	82.30					180m	South East
GW801 931	80BL241 207, 80WA71 3081	Bore	Private	Domestic, Stock	Domestic, Stock		26/08/2003	68.00	68.00			1.011		233m	North West
GW802 346	80BL242 574, 80WA71 3596	Bore	Private	Domestic	Domestic		13/12/2004	54.50	54.50		24.00	0.750		273m	North West
GW016 019	80BL006 926	Bore	Private	Domestic, Irrigation, Orchards (groundwater), Stock	General Use		01/01/1957	24.40						306m	West
GW805 793					Domestic		18/03/2017	60.00			0.00			318m	South West
GW805 009	80WA71 9542	Bore	Private	Domestic	Domestic		06/11/2012	40.00	40.00			1.000		359m	North West
GW802 388	80BL242 723, 80WA71 3651	Bore	Private	Domestic, Stock	Domestic, Stock		11/04/2005	30.00	30.00		12.00	1.800		405m	West
GW800 334	80BL237 264, 80WA71 2354	Bore	Private	Domestic, Stock	Domestic, Stock		26/03/1997	40.00	40.00	Good	17.00	0.370		409m	North West
GW800 342	80BL237 263, 80WA71 2353	Bore	Private	Domestic, Stock	Domestic, Stock		24/04/1997	48.00	48.00					415m	North West
GW804 940	80BL242 527, 80WA71 3584	Bore	Private	Domestic	Domestic		15/11/2004	36.00	36.00		12.00	1.000		439m	North West
GW048 167	80BL107 215, 80WA71 0319	Bore	Private	Domestic, Farming, Stock	Domestic, Stock		01/01/1978	90.60	90.60	0-500 ppm				440m	North East
GW805 001	80BL245 853	Bore	Private	Domestic, Stock	Domestic, Stock		07/11/2012	40.00	40.00			0.200		515m	North West
GW016 016	80BL007 351, 80WA70 9039	Well	Private	Domestic	Irrigation		01/01/1920	25.30		Good				518m	West
GW805 365	80WA71 5936	Bore	Private	Domestic	Domestic		03/03/2013	58.00	58.00			0.500		531m	West
GW805 483	80WA72 3572	Bore	Private	Domestic	Domestic		15/12/2014	150.00	150.00			0.018		598m	West
GW802 140	80BL241 244, 80WA71 3103	Bore	Private	Domestic	Domestic		20/01/2003	39.00	39.00		14.00	1.011		607m	North West

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW802 674	80BL241 486, 80WA71 3208	Bore	Private	Domestic	Domestic		25/03/2003	48.00	48.00			0.821		621m	North West
GW031 667	80BL022 486, 80WA70 9729	Bore	Private	Farming	Farming		01/02/1968	21.50	21.50	Hard	17.70	0.380		660m	North West
GW802 727	80BL241 898, 80WA71 3344	Bore	Private	Domestic	Domestic		15/12/2003	114.00	114.00					680m	West
GW804 663	80BL245 590	Bore	Private	Domestic, Stock	Domestic, Stock		10/02/2010	57.00	57.00		9.00	0.450		707m	South West
GW022 336	80BL014 280, 80WA70 9312	Bore	Private	Domestic, Stock	Domestic, Stock		01/04/1964	21.30	21.30					711m	West
GW802 974	80BL242 735	Bore	Private	Domestic, Stock	Domestic, Stock		11/04/2005	18.00	18.00		5.00	2.000		787m	South West
GW802 869	80BL242 306, 80WA71 3502	Bore	Private	Domestic, Stock	Domestic, Stock		31/05/2004	28.00	28.00		22.00	0.800		798m	North West
GW016 004	80BL117 718	Bore open thru rock	Private	Domestic, Irrigation, Stock	Domestic, Farming, Stock		01/10/1960	24.10	24.10		7.30	1.140		859m	North West
GW804 973	80BL245 746, 80WA71 4819	Bore	Private	Domestic	Domestic		15/12/2012	54.00	54.00		10.00	0.600		949m	South West
GW805 225	80BL620 355	Bore	Private	Test Bore	Test Bore		16/07/2013	42.00	42.00		6.00	1.000		956m	South East
GW802 824	80BL242 152, 80WA71 3435	Bore	Private	Domestic, Stock	Domestic, Stock		26/05/2004	42.00	42.00		15.00	0.250		989m	South West
GW804 470	80BL245 950	Bore	School	Test Bore	Domestic, Stock		05/07/2010	30.00	30.00		12.00	1.900		997m	South West
GW804 222	80BL245 582	Bore	Private	Domestic	Domestic		19/01/2010	38.00	38.00	Good	15.00	1.260		1010m	North West
GW803 474	80BL244 689	Bore	Private	Domestic	Domestic		15/12/2007	38.00	38.00		15.00	0.834		1014m	North West
GW801 946	80BL241 241, 80WA71 3100	Bore	Private	Domestic	Domestic		04/09/2003	38.00	38.00		14.00	0.563		1033m	North West
GW803 930	80BL245 059, 80BL245 074	Bore	Local Govt	Recreation (groundwater), Test Bore, Town Water Supply	Town Water Supply		23/09/2008	65.00	65.00		6.00	12.300		1047m	South
GW805 430	80WA72 3298	Bore	Private	Domestic	Domestic		12/08/2014	24.00	24.00		4.00	3.000		1055m	North
GW802 155	80BL242 133, 80WA71 3432	Bore	Private	Domestic	Domestic, Stock		30/01/2004	36.00	36.00		4.00	0.688		1070m	West
GW034 202	80BL152 491	Bore open thru rock	Private	Recreation (groundwater)	G/water Xplore		01/05/1968	45.70	45.70	Fresh				1074m	South
GW801 916	80BL241 726, 80WA71 3291	Bore	Private	Domestic	Domestic		01/08/2003	31.00	31.00		10.00	2.000		1123m	West
GW804 787	80BL245 875	Bore	Private	Domestic	Domestic		20/06/2011	55.00	55.00			0.050		1129m	South West
GW804 786	80BL245 874	Bore	Private	Domestic	Domestic		24/06/2011	42.00	42.00		8.40	0.450		1188m	South West

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW013781	80BL009306, 80WA709101	Bore open thru rock	Private	Irrigation, Stock	Irrigation		01/10/1958	28.30	28.40					1202m	West
GW04213	80BL245780	Bore	Local Govt	Test Bore	Domestic, Stock		17/12/2009	76.00	76.00		10.00	14.00		1207m	South
GW015211	80BL006122, 80WA708973	Bore	Private	Irrigation	Irrigation		01/04/1957	17.40						1220m	West
GW021512	80BL013806, 80WA709291	Battery Spears	Private	Domestic, Stock	Domestic, Stock		01/01/1964	21.90	22.00		4.90	1.010		1246m	North
GW006955	80BL007154	Bore	Private	Irrigation, Stock	Irrigation		01/08/1958	36.60	36.60					1257m	West
GW026040	80BL018650, 80WA709573	Bore open thru rock	Private	Farming	Farming		01/04/1966	39.60	39.60		12.20	0.380		1261m	North West
GW003912	80BL243074	Bore	Private	Domestic, Stock	Domestic, Stock		26/10/2005	54.00	54.00			0.758		1266m	West
GW004266	80BL244423	Bore	Private	Domestic	Domestic		22/05/2009	46.00	46.00		10.00	1.263		1312m	West
GW005109	80WA715002	Bore	Private	Domestic	Domestic		01/11/2013	54.00	54.00	200	3.00	3.500		1313m	South West
GW005353	80BL245777	Bore	Private	Domestic	Domestic		26/10/2010	30.00	30.00		10.00	0.400		1351m	South West
GW004223	80BL242319	Bore	Private	Domestic	Domestic		26/04/2010	50.00	50.00	Good	7.00	1.220		1360m	West
GW004280	80BL244426	Bore	Private	Domestic	Domestic		12/05/2010	38.50	38.50		7.00	12.20		1362m	West
GW090102		Bore	NSW Office of Water		Monitoring Bore		17/05/2011	54.00	54.00		18.37		894.18	1369m	North West
GW019049	80BL011808, 80WA709210	Bore	Private	Stock	Stock		01/02/1961	18.60	18.60	Soft				1413m	North West
GW005227	80BL620393	Bore	Local Govt	Monitoring Bore	Monitoring Bore	Orange CC - Margaret St Depot	29/04/2014	38.20	41.50	340	1.73	0.200		1420m	South
GW001669	80BL241216, 80BL241856, 80WA715578	Bore	Private	Recreation (groundwater), Test Bore	Recreation (groundwater)		06/12/2002	81.00	81.00			0.820		1454m	North West
GW003005	80BL242815	Bore	Private	Domestic	Domestic		17/08/2005	40.00	40.00	Fresh	24.00	1.500		1524m	North West
GW004580	80BL244268	Bore	Private	Domestic	Domestic		30/12/2006	23.00	23.00			0.500		1565m	West
GW066747	80BL142288	Bore	Local Govt	Stock	Stock		04/01/1991	39.08	39.08	fresh	14.15	1.125	883.50	1567m	West
GW003506	80BL244319	Bore	Private	Domestic	Domestic		21/08/2007	31.50	31.50			2.780		1573m	West
421051					UNK								840.85	1611m	East
GW004129	80BL243816	Bore	Private	Domestic	Domestic		12/01/2007	19.00	19.00			0.505		1632m	West
GW002293	80BL242251, 80WA713475	Bore	Private	Domestic	Domestic		14/04/2004	61.00	61.00		35.00	1.375		1651m	North West
GW070889	80BL151092, 80WA711956	Bore	Private	Domestic, Stock	Domestic, Stock		30/11/1992	40.00	40.00		10.00	2.530	885.00	1652m	North West
GW004321	80BL245715	Bore	Private	Domestic	Domestic		18/02/2010	51.00	51.00		5.00	0.065		1696m	West

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW804 306	80BL245 843	Bore	Private	Domestic	Domestic		07/05/2010	30.00	30.00		3.00	1.260		1730m	West
GW017 250	80BL007 864, 80WA70 9064	Bore	Private	Domestic	General Use		01/06/1958	24.40	24.40	Good				1747m	South West
GW804 262	80BL245 816	Bore	Private	Domestic	Domestic		24/03/2010	48.00	48.00		8.00	0.094		1748m	West
GW021 545	80BL013 804	Bore	Private	Domestic, Irrigation, Stock, Waste Disposal	Irrigation		01/12/1963	19.70	19.70					1757m	North
GW800 811	80BL236 215, 80WA71 2114	Bore	Private	Domestic, Stock	Domestic, Stock		10/10/1994	64.00	64.00	Good		0.880		1777m	North
GW804 190	80BL245 547	Bore	Private	Domestic	Domestic		01/12/2009	30.00	30.00	Good	8.00	7.560		1780m	West
GW800 675	80BL238 520, 80WA71 2602	Bore	Private	Domestic, Stock	Domestic, Stock		25/03/1999	65.00	65.00		32.00	1.800		1788m	North West
GW800 287	80BL236 922	Bore	Other Govt	Industrial	Domestic		22/05/1995	83.56						1840m	South West
GW803 071	80BL243 286	Bore	Private	Domestic	Domestic		11/04/2006	25.00	25.00		7.60	0.500		1872m	South East
GW803 662	80BL244 874	Bore	Private	Domestic	Domestic		09/05/2008	48.00	48.00			0.631		1878m	North West
GW021 554	80BL013 897, 80WA70 9296	Bore	Private	Domestic, Stock	Irrigation		01/03/1964	20.70	20.70					1879m	North
GW802 359	80BL242 603, 80WA71 3604	Bore	Private	Domestic, Stock	Domestic, Stock		05/01/2005	36.00	36.00		4.00	0.625		1899m	South
GW803 771	80BL243 306, 80BL243 326	Bore	School	Recreation (groundwater), Test Bore	Recreation (groundwater)		11/07/2006	39.00	39.00		10.00	2.530		1966m	South West
GW005 490	80BL009 247	Bore	Private	Not Known	Domestic		01/06/1959	13.40	14.02	Soft				1993m	South

Borehole Data Source : NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation for all bores prefixed with GW. All other bores © Commonwealth of Australia (Bureau of Meteorology) 2015. Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Hydrogeology & Groundwater

118 Clergate Road, Orange, NSW 2800

Driller's Logs

Drill log data relevant to the boreholes within the dataset buffer:

Groundwater No	Drillers Log	Distance	Direction
GW031666	0.00m-1.83m Topsoil 1.83m-6.10m Shale 6.10m-13.11m Shale Green 13.11m-18.29m Basalt Decomposed Clay 18.29m-43.59m Basalt Water Supply 43.59m-56.39m Serpentine 56.39m-82.30m Basalt Green	180m	South East
GW01931	0.00m-0.50m Topsoil 0.50m-7.00m Clay Brown 7.00m-27.00m Shale Coloured 27.00m-32.00m Shale Brown 32.00m-68.00m Basalt	233m	North West
GW02346	0.00m-2.00m Topsoil, red 2.00m-12.00m Shale, yellow 12.00m-12.50m Basalt 12.50m-20.00m Shale, yellow & Broken Basalt 20.00m-54.20m Basalt	273m	North West
GW05009	0.00m-0.30m Topsoil 0.30m-3.00m Clay 3.00m-27.00m Shale 27.00m-40.00m Basalt	359m	North West
GW02388	0.00m-3.00m Clay, dark brown, puggy 3.00m-6.00m Clay, light brown 6.00m-12.00m Clay, light brown & Decomposed Basalt 12.00m-14.00m Decomposed basalt 14.00m-30.00m Basalt, blue & Quartz layers	405m	West
GW00334	0.00m-1.00m Red Clay 1.00m-4.00m Shale With Red Clay 4.00m-8.00m Basalt With Red Clay 8.00m-40.00m Basalt Blue	409m	North West
GW00342	0.00m-1.00m Red Clay 1.00m-17.00m Orange Clay with Quartz Bands 17.00m-21.00m Blue Basalt 21.00m-24.50m Orange Clay 24.50m-48.00m Blue Basalt	415m	North West
GW04940	0.00m-0.30m Topsoil 0.30m-6.00m Sandy Clay, tight, brown 6.00m-13.00m Basalt, decomposed 13.00m-27.00m Basalt, hard, blue 27.00m-36.00m Shale, fractured & quartz	439m	North West
GW048167	0.00m-0.30m Topsoil 0.30m-2.40m Clay Coloured 2.40m-9.80m Rock Grey Soft Water Supply 9.80m-36.60m Serpentine Green 36.60m-80.60m Granite Coarse	440m	North East
GW05001	0.00m-0.30m Topsoil 0.30m-2.00m Clay 2.00m-23.00m Shale 23.00m-40.00m Basalt	515m	North West

Groundwater No	Drillers Log	Distance	Direction
GW805365	0.00m-1.00m Topsoil 1.00m-3.00m Clay 3.00m-25.00m Shale 25.00m-28.20m Basalt; water bearing 28.20m-37.00m Basalt 37.00m-37.10m Basalt; water bearing 37.10m-53.00m Basalt 53.00m-53.20m Basalt; water bearing 53.20m-58.00m Basalt	531m	West
GW805483	0.00m-2.00m Topsoil 2.00m-35.00m Shale; brown 35.00m-150.00m Shale; blue	588m	West
GW802140	0.00m-0.50m Topsoil 0.50m-1.00m Clay 1.00m-15.00m Shale 15.00m-20.00m Basalt, soft 20.00m-39.00m Basalt, hard	607m	North West
GW802674	0.00m-1.00m Topsoil 1.00m-10.00m Shale, brown 10.00m-26.00m Shale, grey 26.00m-48.00m Basalt	621m	North West
GW031867	0.00m-7.62m Clay 7.62m-18.29m Shale 18.29m-21.49m Gravel Hard Formation/strata Water Supply	660m	North West
GW802727	0.00m-3.00m Clay 3.00m-16.00m Weathered Basalt 16.00m-20.00m Basalt, grey 20.00m-21.00m Broken Basalt 21.00m-42.00m Basalt, black 42.00m-50.00m Basalt, grey 50.00m-102.00m Andesite, white & grey seams 102.00m-114.00m Shale, grey	680m	West
GW804663	0.00m-1.00m Topsoil 1.00m-5.00m Clay, brown 5.00m-8.50m Shale, grey 8.50m-9.00m Shale, broken 9.00m-54.00m Shale, fractured, grey 54.00m-57.00m Shale, green	707m	South West
GW022336	0.00m-1.22m Driller 1.22m-7.62m Shale Soft 7.62m-17.68m Shale Medium Soft 17.68m-21.34m Basalt Soak	711m	West
GW802974	0.00m-0.50m Topsoil 0.50m-18.00m Shale	787m	South West
GW802869	0.00m-0.50m Topsoil, red 0.50m-20.00m Clay, yellow 20.00m-22.00m Weathered Volcanic, grey 22.00m-28.00m Andesite, fresh, fine, grey	798m	North West
GW016004	0.00m-0.30m Driller 0.30m-15.24m Clay 15.24m-23.47m Slate Water Supply 23.47m-24.08m Basalt	859m	North West
GW804973	0.00m-1.00m Topsoil 1.00m-3.00m Shale, decomposed 3.00m-54.00m Shale, dark grey	949m	South West
GW805225	0.00m-2.30m Fill 2.30m-5.00m Shale; weathered 5.00m-42.00m Limestone	956m	South East
GW802824	0.00m-0.50m Topsoil 0.50m-6.00m Sandy Clay & Oxides 6.00m-7.00m Weathered Basalt 7.00m-12.00m Weathered Basalt & Clay 12.00m-42.00m Basalt, blue with Quartz	989m	South West
GW804470	0.00m-0.10m Topsoil 0.10m-3.00m Clay 3.00m-20.00m Shale, yellow 20.00m-30.00m Basalt	997m	South West
GW804222	0.00m-0.20m Topsoil 0.20m-3.00m Clay 3.00m-18.00m Shale 18.00m-38.00m Basalt	1010m	North West

Groundwater No	Drillers Log	Distance	Direction
GW803474	0.00m-3.00m Topsoil 3.00m-17.00m Clay 17.00m-24.00m Shale 24.00m-38.00m Basalt	1014m	North West
GW801948	0.00m-0.50m Top Soil 0.50m-4.00m Clay 4.00m-14.00m Shale - soft yellow 14.00m-24.00m Basalt - frac 24.00m-38.00m Basalt	1033m	North West
GW803930	0.00m-1.00m Topsoil 1.00m-5.50m Clay 5.50m-11.00m Basalt, decomposed 11.00m-19.00m Basalt 19.00m-43.00m Basalt, fractured 43.00m-65.00m Basalt, hard	1047m	South
GW805430	0.00m-2.00m Fill; & clay, brown 2.00m-5.00m Clay, yellow 5.00m-16.00m Shale, sandy 16.00m-24.00m Basalt	1055m	North
GW802155	0.00m-0.20m Topsoil 0.20m-1.00m Sandy Clay 1.00m-2.00m Clay, puggy 2.00m-8.00m Shale, soft, yellow 8.00m-17.00m Basalt, decomposed 17.00m-25.00m Decomposed Basalt & Clay 25.00m-31.00m Basalt, hard, grey 31.00m-36.00m Shale, grey	1070m	West
GW034202	0.00m-0.91m Topsoil 0.91m-5.48m Clay Yellow 5.48m-10.66m Basalt Decomposed 10.66m-25.29m Basalt Broken Clay Seams 25.29m-28.95m Basalt Black 28.95m-33.52m Basalt Grey Water Supply 33.52m-45.72m Basalt Black Water Supply	1074m	South
GW801916	0.00m-0.70m Topsoil 0.70m-15.00m Sandy Clay, coloured with hard broken Clay 15.00m-24.00m Broken Basalt 24.00m-31.00m Basalt, hard	1123m	West
GW804787	0.00m-1.00m Topsoil 1.00m-3.00m Clay 3.00m-6.00m Clay, & Shale 6.00m-9.00m Shale, yellow, hard bands 9.00m-12.00m Shale, yellow & grey 12.00m-28.00m Shale, black 28.00m-33.00m Shale & Andesite, with Quartz 33.00m-34.00m Shale, black 34.00m-37.00m Sandstone, Clay banded 37.00m-40.50m Sandstone, soft 40.50m-50.00m Shale, hard, grey & Calcite 50.00m-55.00m Shale, hard, grey with Calcite bands	1129m	South West
GW804786	0.00m-1.00m Topsoil 1.00m-3.00m Clay, yellow & Shale 3.00m-13.00m Shale, yellow 13.00m-42.00m Shale, black	1188m	South West
GW013781	0.00m-14.33m Earth Geologist 14.33m-25.30m Chert Geologist 25.30m-26.82m Basalt Decomposed Water Supply Geologist 26.82m-28.35m Chert Geologist	1202m	West
GW804213	0.00m-0.30m Topsoil 0.30m-3.00m Clay 3.00m-9.00m Shale, yellow 9.00m-20.00m Basalt, weathered 20.00m-35.00m Basalt, brown 35.00m-56.00m Basalt, blue 56.00m-76.00m Basalt, grey	1207m	South
GW021512	0.00m-6.71m Earth 6.71m-21.95m Quartz Seams Rock Soft Water Supply	1246m	North
GW006955	0.00m-2.44m Earth Geologist 2.44m-17.98m Slate Chert Geologist 17.98m-36.58m Chert Very Hard Geologist	1257m	West
GW026040	0.00m-18.29m Clay Soak 18.29m-29.26m Shale 29.26m-34.44m Gravel Formation/strata 34.44m-39.62m Seams Gravel Water Supply	1261m	North West

Groundwater No	Drillers Log	Distance	Direction
GW803912	0.00m-1.00m Topsoil 1.00m-18.00m Clay, red 18.00m-27.00m Clay, soft with quartz 27.00m-54.00m Andesite	1268m	West
GW804266	0.00m-13.00m Shale 13.00m-46.00m Basalt, with quartz bands	1312m	West
GW805109	0.00m-14.00m Clay, with floating rock 14.00m-17.00m Shale; black, soft 17.00m-54.00m Shale; blue, hard	1313m	South West
GW805353	0.00m-0.40m Topsoil 0.40m-9.00m Clay, brown, shale bands 9.00m-12.00m Basalt, decomposed 12.00m-30.00m Basalt	1351m	South West
GW804223	0.00m-3.00m Rock, weathered, brown grey 3.00m-6.00m Rock, weathered, brown yellow 6.00m-12.00m Rock, broken, yellow brown 12.00m-20.00m Rhyolite, light grey, fine grained, hard 20.00m-23.00m Rhyolite, grey, fine grained, hard 23.00m-50.00m Rhyolite, grey, fine grained, hard	1360m	West
GW804280	0.00m-3.00m Rock, weathered, brown/grey 3.00m-6.00m Rock, weathered, brown/yellow 6.00m-12.00m Rock, broken, yellow/brown 12.00m-20.00m Rhyolite, light grey, fine grained, hard 20.00m-23.00m Rhyolite, grey, fine grained, hard 23.00m-38.50m Rhyolite, grey, fine grained	1362m	West
GW090102	0.00m-12.00m silty, orange 12.00m-23.00m clay, orange with some siltstone 23.00m-39.00m siltstone, weathered 39.00m-40.00m quartzite 40.00m-43.00m siltstone 43.00m-54.00m basalt	1369m	North West
GW019049	0.00m-6.10m Soft 6.10m-18.59m Shale Water Supply	1413m	North West
GW805227	0.00m-4.00m Clay, brown 4.00m-41.50m Claystone; yellow/brown, weathered (refusal at 41.5m)	1420m	South
GW801669	0.00m-10.00m Clay 10.00m-33.00m Rock, soft broken 33.00m-45.00m Broken Basalt 45.00m-81.00m Basalt	1454m	North West
GW803005	0.00m-0.30m Topsoil 0.30m-8.00m Sandy Clay, brown 8.00m-28.00m Weathered Shale, brown 28.00m-36.00m Shale, brown 36.00m-38.00m Slate, blue 38.00m-40.00m Slate, black	1524m	North West
GW804580	0.00m-2.60m Clay, brown 2.60m-18.50m Shale, yellow, soft 18.50m-23.00m Sandstone, hard	1585m	West
GW066747	0.00m-0.30m Topsoil 0.30m-5.50m Clay 5.50m-16.60m Shale, weathered 16.60m-39.08m Slate	1587m	West
GW803506	0.00m-2.00m Clay 2.00m-12.00m Shale, fractured 12.00m-24.50m Sandstone, fractured 24.50m-31.50m Basalt/Serpentine	1573m	West
GW804129	0.00m-3.00m Clay, brown 3.00m-12.00m Shale, hard & soft, yellow/brown 12.00m-19.00m Shale, harder	1632m	West
GW802293	0.00m-0.50m Topsoil 0.50m-3.00m Sandy Clay, red 3.00m-20.00m Sandy Clay 20.00m-23.00m Sandy Clay with Basalt 23.00m-31.00m Sandy Clay 31.00m-54.00m Basalt 54.00m-61.00m Basalt, hard	1651m	North West
GW070889	0.00m-1.00m Topsoil 1.00m-13.00m Clay, and shale 13.00m-40.00m Basalt	1652m	North West

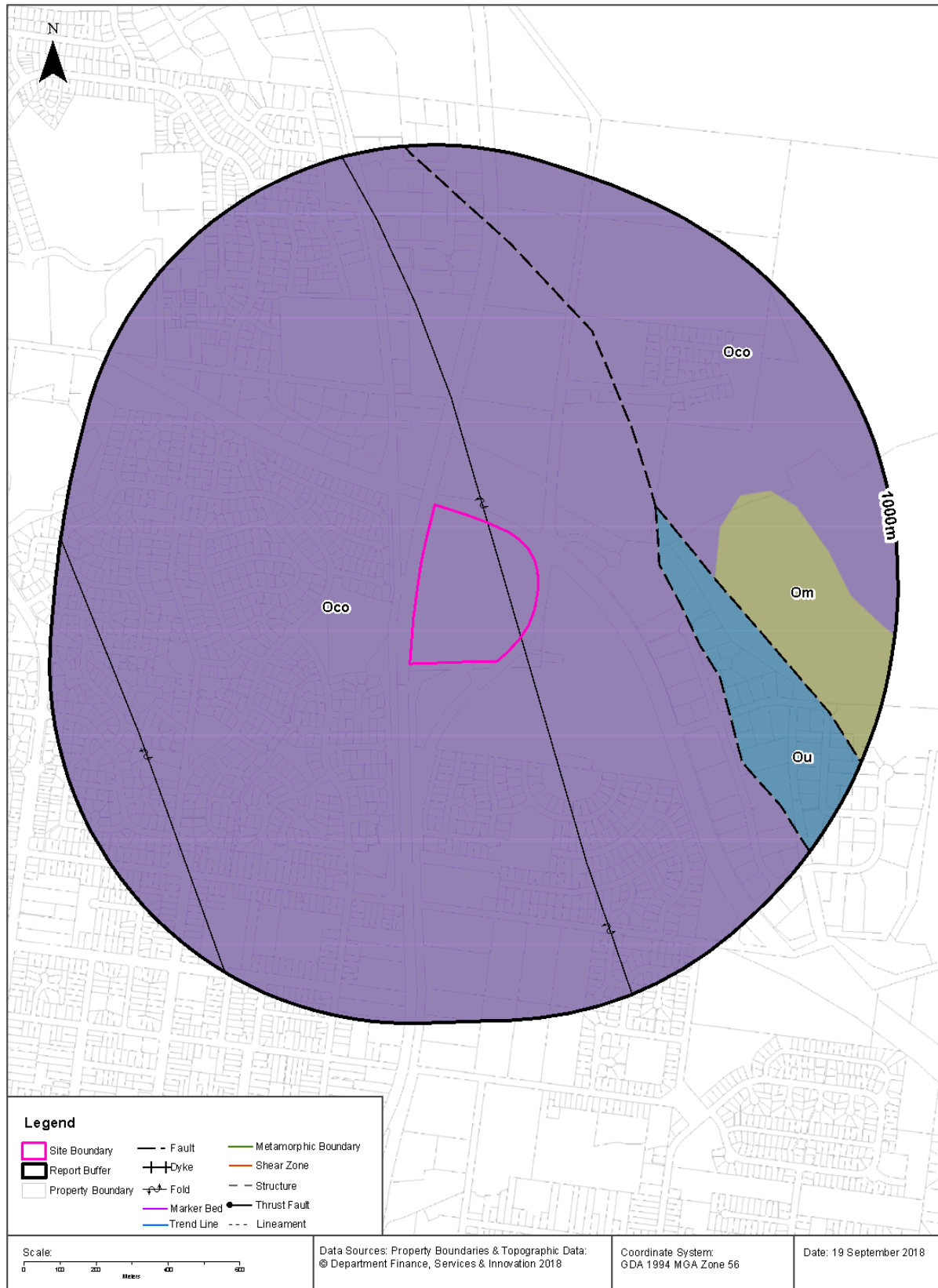
Groundwater No	Drillers Log	Distance	Direction
GW804321	0.00m-1.00m Topsoil & Clay 1.00m-16.40m Shale, yellow, soft 16.40m-18.00m Shale, light brown, harder, refusal at 18m 18.00m-20.00m Shale, dark brown 20.00m-51.00m Shale, black, some Serpentine bands	1696m	West
GW804306	0.00m-11.00m Clay 11.00m-15.00m Shale, soft 15.00m-17.00m Shale, broken 17.00m-30.00m Shale, hard	1730m	West
GW017250	0.00m-18.29m Soil Loam 18.29m-24.38m Basalt Water Supply	1747m	South West
GW804262	0.00m-0.60m Clay 0.60m-2.40m Rock, broken - refusal 2.40m-3.60m Shale, dark, hard 3.60m-7.60m Shale, brown, soft 7.60m-13.00m Shale, yellow 13.00m-17.00m Shale, dark brown 17.00m-48.00m Shale, grey	1748m	West
GW021545	0.00m-4.57m Clay 4.57m-7.62m Rock Soft 7.62m-16.15m Rock Medium Hard 16.15m-19.51m Basalt Hard Water Supply 19.51m-19.66m Driller	1757m	North
GW800811	0.00m-1.00m Topsoil 1.00m-4.00m Clay 4.00m-10.00m Shale 10.00m-64.00m Basalt	1777m	North
GW804190	0.00m-0.10m Topsoil 0.10m-3.00m Clay 3.00m-10.00m Shale 10.00m-30.00m Basalt	1780m	West
GW800675	0.00m-0.50m Topsoil 0.50m-13.00m Clay, red 13.00m-22.00m Clay, red and quartz bands 22.00m-39.50m Shale, soft 39.50m-42.00m Shale, black 42.00m-65.00m Basalt, black	1788m	North West
GW800287	0.00m-1.00m Top soil 1.00m-2.00m Loam brown & sandy 2.00m-11.00m Decomp basalt ochre 11.00m-17.00m Shale 17.00m-28.00m Basalt blue grey 28.00m-36.00m Andesite greenish 36.00m-83.56m Basalt blue grey	1840m	South West
GW803071	0.00m-0.30m Topsoil, Loam, light grey, dry 0.30m-2.30m Clay, gnye brown, moist, firm 2.30m-3.00m Silty Clay, orange, brown, yellow, moist 3.00m-10.20m Silty Clay, yellow, some moist 10.20m-19.00m Siltstone, grey 19.00m-25.00m Basalt, dark grey	1872m	South East
GW803662	0.00m-1.00m Topsoil 1.00m-3.00m Clay, brown 3.00m-8.00m Shale 8.00m-31.00m Shale with hard bands 31.00m-33.00m Shale, very hard, brown 33.00m-48.00m Basalt & Quartz	1878m	North West
GW021554	0.00m-7.62m Clay 7.62m-20.73m Rock Yellow Soft Gravel Water Supply 7.62m-20.73m Granite Seams	1879m	North
GW802359	0.00m-1.00m Topsoil 1.00m-4.00m Sandy Clay, light brown 4.00m-6.00m Decomposed Basalt 6.00m-12.00m Sandy Clay, light brown 12.00m-28.00m Slate, light brown & Clay 28.00m-30.00m Broken Basalt, decomposed 30.00m-36.00m Basalt, with Quartz Layers	1899m	South

Groundwater No	Drillers Log	Distance	Direction
GW803771	0.00m-0.30m Topsoil 0.30m-0.50m Basalt 0.50m-2.50m Clay, puggy 2.50m-2.70m Basalt, weathered 2.70m-17.00m Sandy Clay 17.00m-30.00m Shale, grey 30.00m-39.00m Basalt, green	1988m	South West
GW005490	0.00m-6.10m Shale Soft 6.10m-14.02m Shale Slightly Hard Water Supply	1993m	South

Drill Log Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corp
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Geology 1:250,000

118 Clergate Road, Orange, NSW 2800



Geology

118 Clergate Road, Orange, NSW 2800

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Oco	Mafic volcanic sandstone, basalt, siltstone, black shale, chert, breccia, conglomerate	Oakdale Formation	Cabonne Group		Palaeozoic			1:250,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Oco	Mafic volcanic sandstone, basalt, siltstone, black shale, chert, breccia, conglomerate	Oakdale Formation	Cabonne Group		Palaeozoic			1:250,000
Om	Monzonite, monzogabbro, quartz monzonite	undifferentiated			Palaeozoic			1:250,000
Ou	Ultramafic cumulates and lava	undifferentiated			Palaeozoic			1:250,000

Geological Structures

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
Fold		anticline, Accurate	Bathurst	1:250,000

What are the Geological Structures within the dataset buffer?

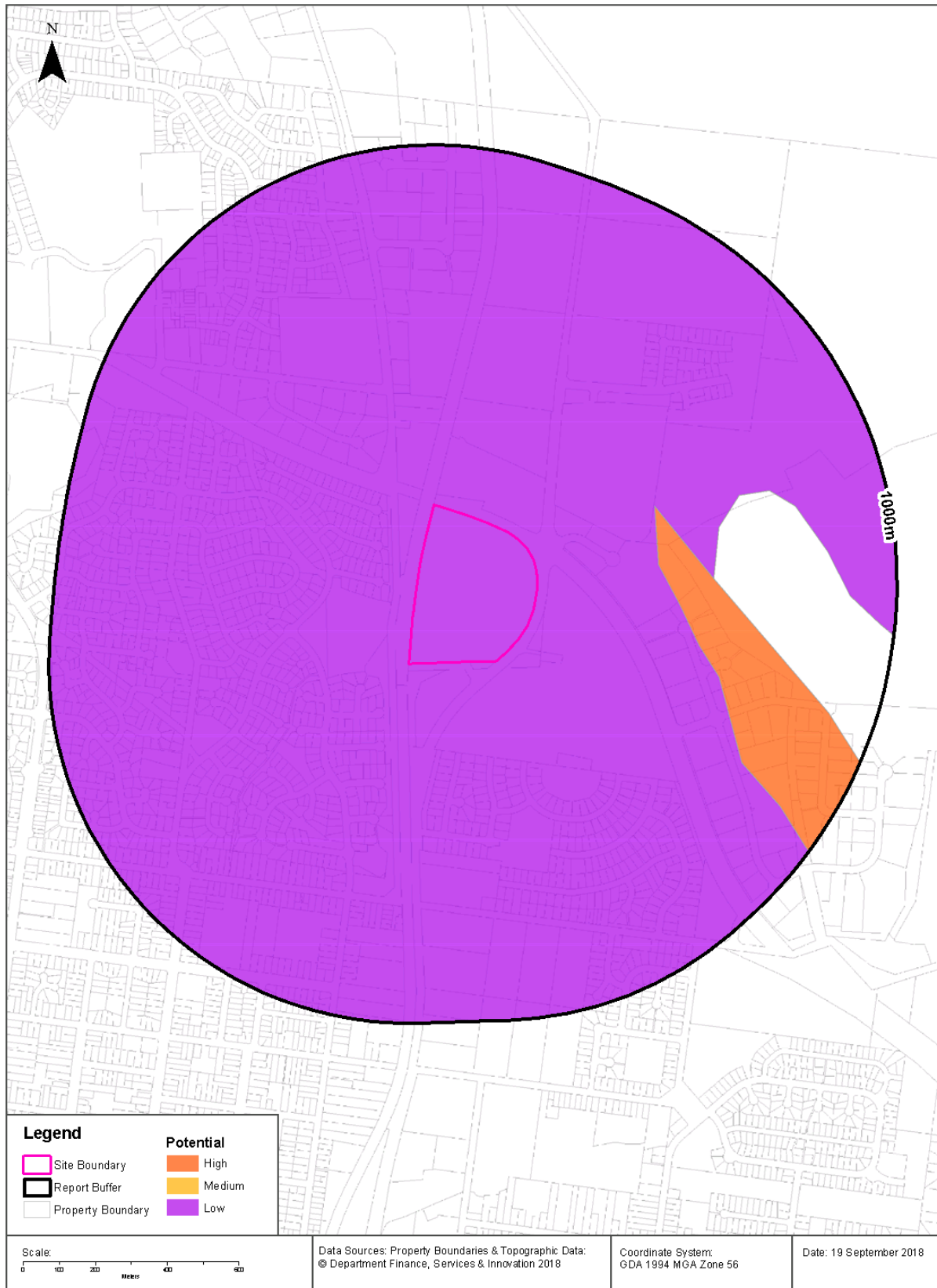
Feature	Name	Description	Map Sheet	Dataset
Fold		syncline, Accurate	Bathurst	1:250,000
Fault		Thrust, Accurate	Bathurst	1:250,000
Fault		Thrust, Accurate	Bathurst	1:250,000
Fold		anticline, Accurate	Bathurst	1:250,000
Fault		Thrust, Approximate	Bathurst	1:250,000
Fold		anticline, Accurate	Bathurst	1:250,000
Fault		Thrust, Accurate	Bathurst	1:250,000

Geological Data Source : NSW Department of Industry, Resources & Energy

© State of New South Wales through the NSW Department of Industry, Resources & Energy

Naturally Occurring Asbestos Potential

118 Clergate Road, Orange, NSW 2800



Naturally Occurring Asbestos Potential

118 Clergate Road, Orange, NSW 2800

Naturally Occurring Asbestos Potential

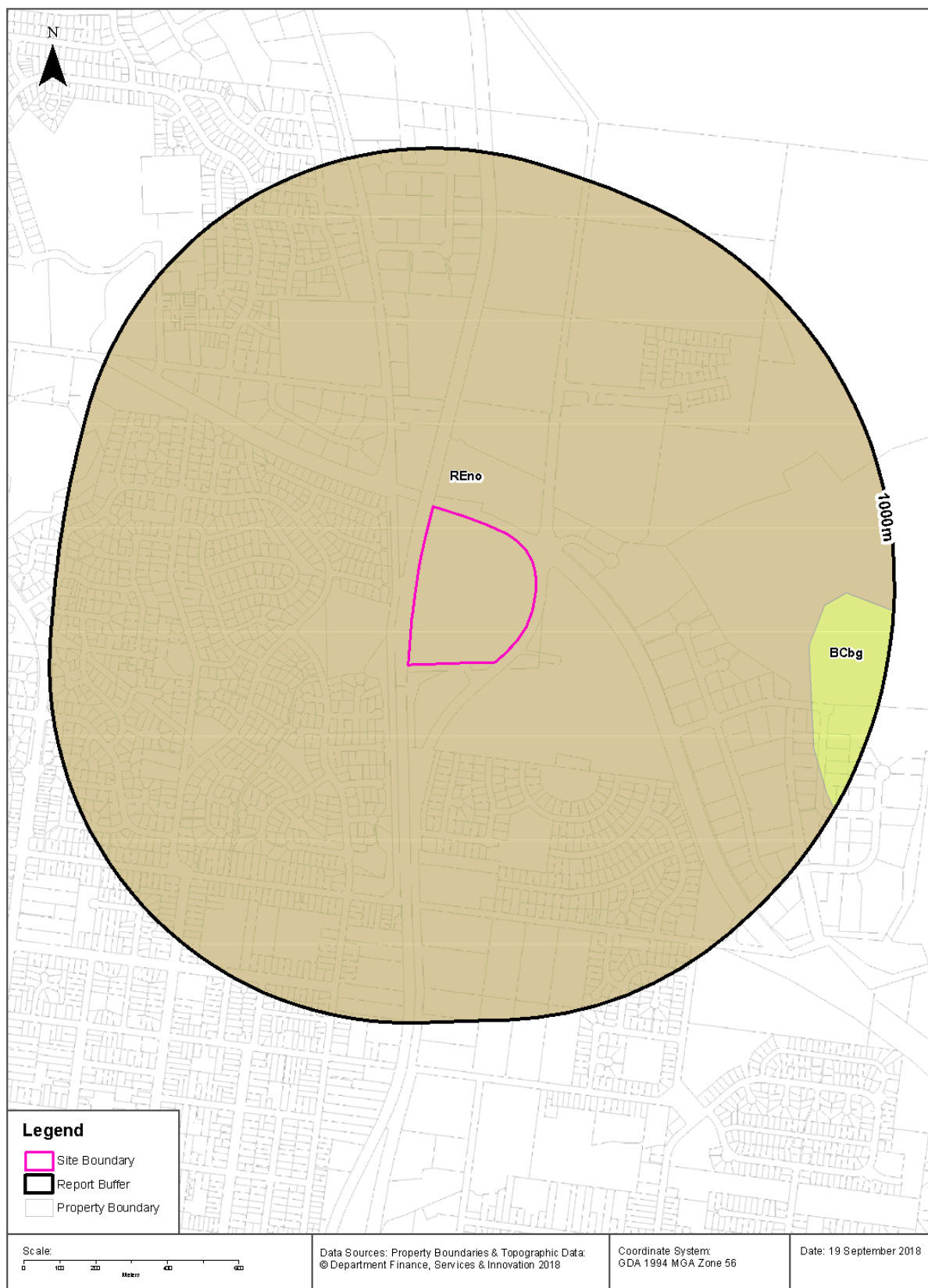
Naturally Occurring Asbestos Potential within the dataset buffer:

Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
Low	Oco	Oakdale Formation	Cabonne Group	Oakdale Formation	250000	Early Silurian	Late Ordovician	clastic sediment	sandstone, basalt, siltstone, shale, chert, breccia, conglomerate	Mafic volcanic sandstone, basalt, siltstone, black shale, chert, breccia, conglomerate	0m	Onsite
High	Ou	undifferentiated	unknown		250000	Early Silurian	Late Ordovician	volcaniclastic	ultramafic	Ultramafic cumulates and lava	339 m	South East

Mining Subsidence District Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy

Soil Landscapes

118 Clergate Road, Orange, NSW 2800



Soils

118 Clergate Road, Orange, NSW 2800

Soil Landscapes

What are the onsite Soil Landscapes?

Soil Code	Name	Group	Process	Map Sheet	Scale
REno	NORTH ORANGE	RED EARTHS		Bathurst	1:250,000

What are the Soil Landscapes within the dataset buffer?

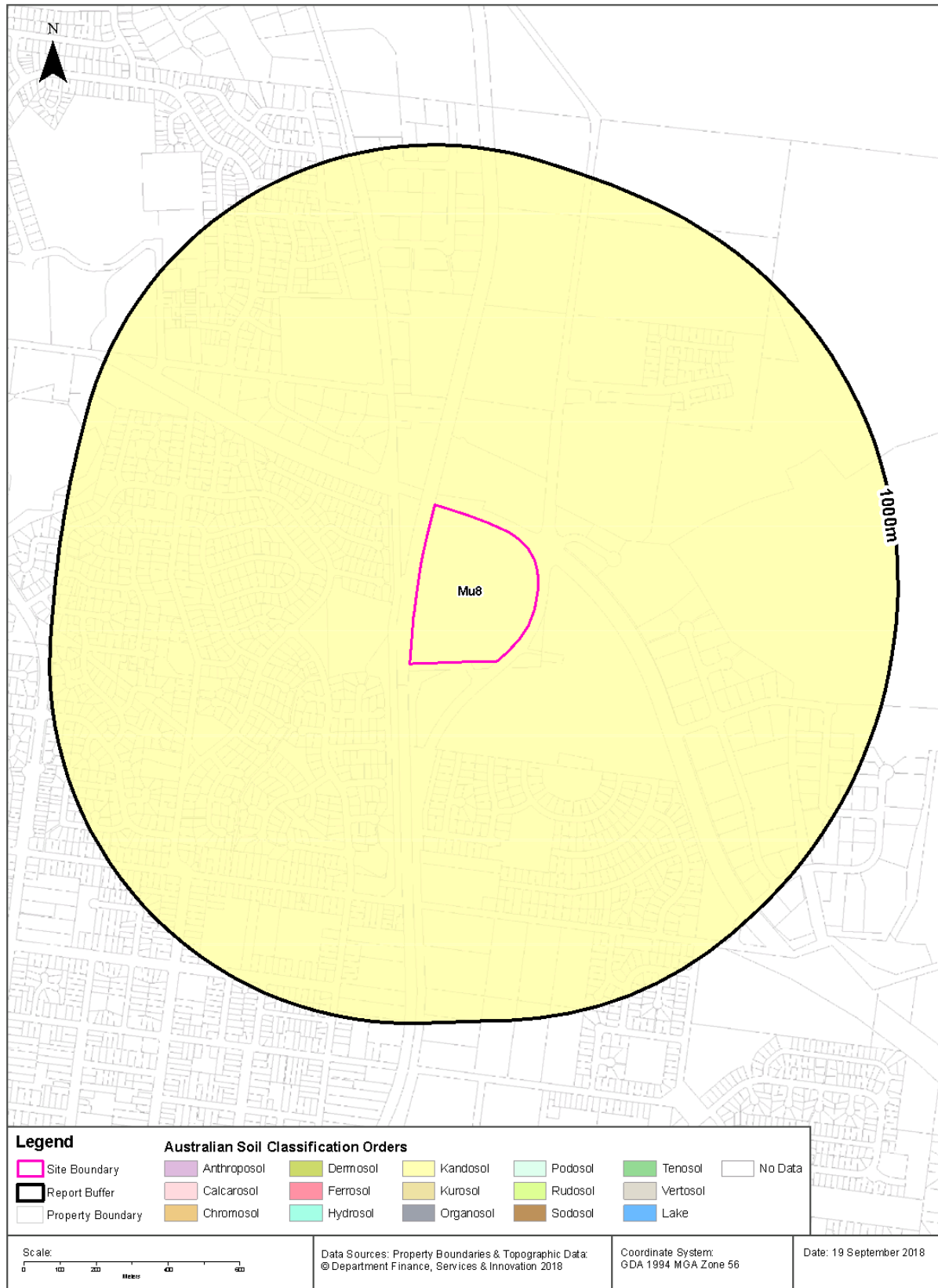
Soil Code	Name	Group	Process	Map Sheet	Scale
BCbg	BYNG	BROWN CLAYS		Bathurst	1:250,000
REno	NORTH ORANGE	RED EARTHS		Bathurst	1:250,000

Soils Landscapes Data Source : NSW Office of Environment and Heritage

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Atlas of Australian Soils

118 Clergate Road, Orange, NSW 2800



Soils

118 Clergate Road, Orange, NSW 2800

Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance
Mu8	Kandosol	Dissected and stepped plateau generally of a rolling to rounded hilly terrain with some ranges and steep valley side slopes: chief soils are neutral and acid leached red earths (Gn2.15 and Gn2.14) on the rolling to rounded hilly areas with yellow earths, such as (Gn2.25, Gn2.35, Gn2.34), some containing ironstone gravels, on rolling areas and benched slopes, and hard neutral yellow mottled soils (Dy3.42) and sometimes other (D) soils, such as (Dd1.43), in the flatter, often seasonally wet, areas. Associated are: narrow ranges, also steep side slopes flanking some transit streams (compare unit Tb31), of various (D) soils, including (Dr2.41) and (Dy3.41), and (Um4.1) soils and rock outcrops; some flat hill tops; some terrace-like remnants of (Dr2.42) soils in the broader flatter valleys (?remnants of unit Qd1), and areas of other soils, such as (Dr4.13) and (Um6.43). The area is complex and data are limited.	0m

Atlas of Australian Soils Data Source: CSIRO

Creative Commons 4.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/4.0/au/deed.en>

Acid Sulfate Soils

118 Clergate Road, Orange, NSW 2800

Standard Local Environmental Plan Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

Soil Class	Description	LEP
N/A		

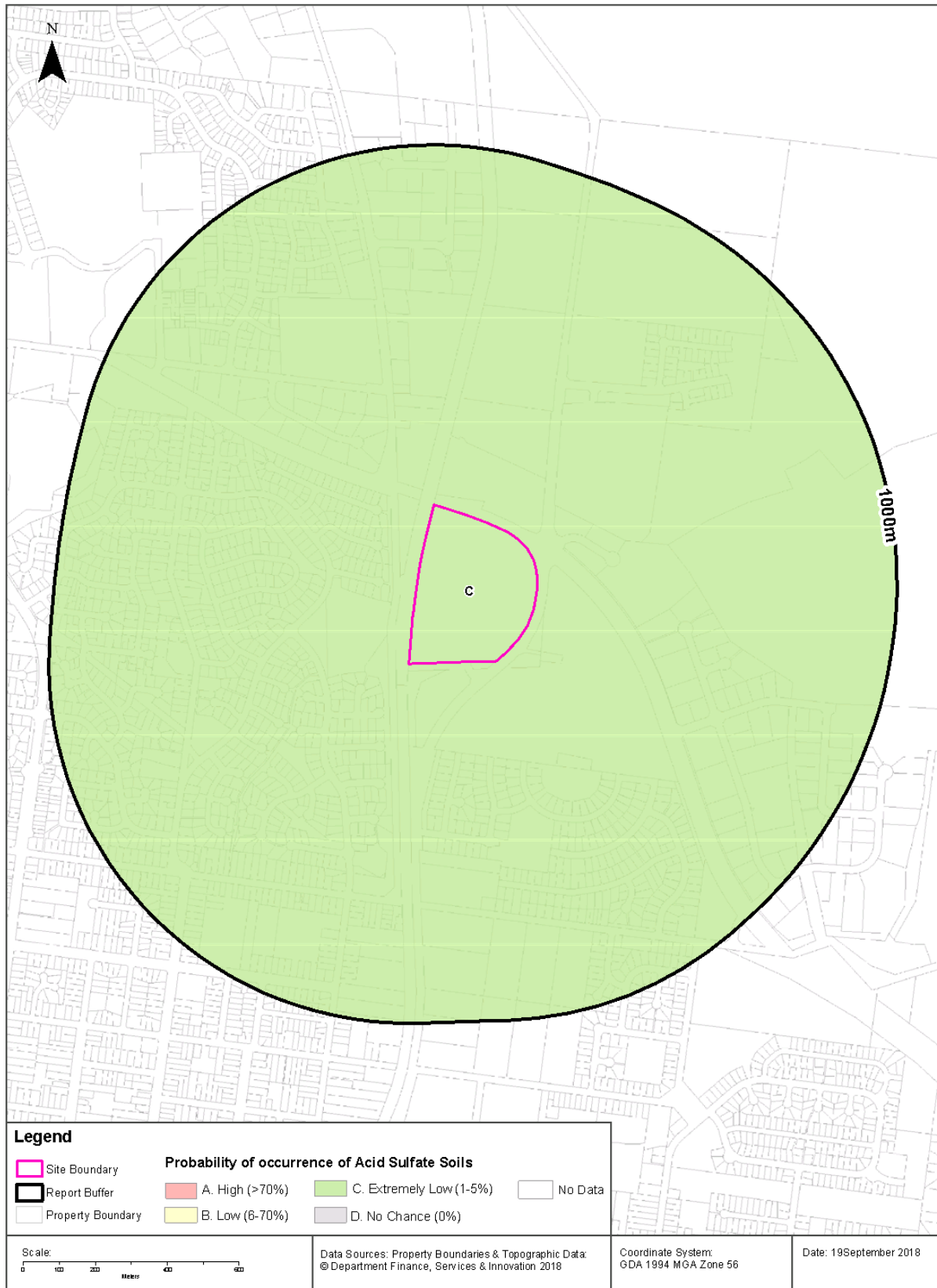
If the on-site Soil Class is 5, what other soil classes exist within 500m?

Soil Class	Description	LEP	Distance	Direction
N/A				

Acid Sulfate Data Source Accessed 07/10/2016: NSW Crown Copyright - Planning and Environment
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Atlas of Australian Acid Sulfate Soils

118 Clergate Road, Orange, NSW 2800



Acid Sulfate Soils

118 Clergate Road, Orange, NSW 2800

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Dryland Salinity

118 Clergate Road, Orange, NSW 2800

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

Is there Dryland Salinity - National Assessment data within the dataset buffer?

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A	N/A	N/A

Dryland Salinity Data Source : National Land and Water Resources Audit

The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.

In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Dryland Salinity Potential of Western Sydney

Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
N/A	Outside Data Coverage			

Dryland Salinity Potential of Western Sydney Data Source : NSW Office of Environment and Heritage

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Mining Subsidence Districts

118 Clergate Road, Orange, NSW 2800

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

Mining Subsidence District Data Source: © Land and Property Information (2016)

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Environmental Zoning

118 Clergate Road, Orange, NSW 2800

State Environmental Planning Policy Protected Areas

Are there any State Environmental Planning Policy Protected Areas onsite or within the dataset buffer?

Dataset	Onsite	Within Site Buffer	Distance
SEPP14 - Coastal Wetlands	No	No	N/A
SEPP26 - Littoral Rainforests	No	No	N/A
SEPP71 - Coastal Protection Zone	No	No	N/A

SEPP Protected Areas Data Source: NSW Department of Planning & Environment
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

State Environmental Planning Policy Major Developments (2005)

State Environmental Planning Policy Major Developments within the dataset buffer:

Map Id	Feature	Effective Date	Distance	Direction
N/A	No records within buffer			

SEPP Major Development Data Source: NSW Department of Planning & Environment
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

State Environmental Planning Policy Strategic Land Use Areas

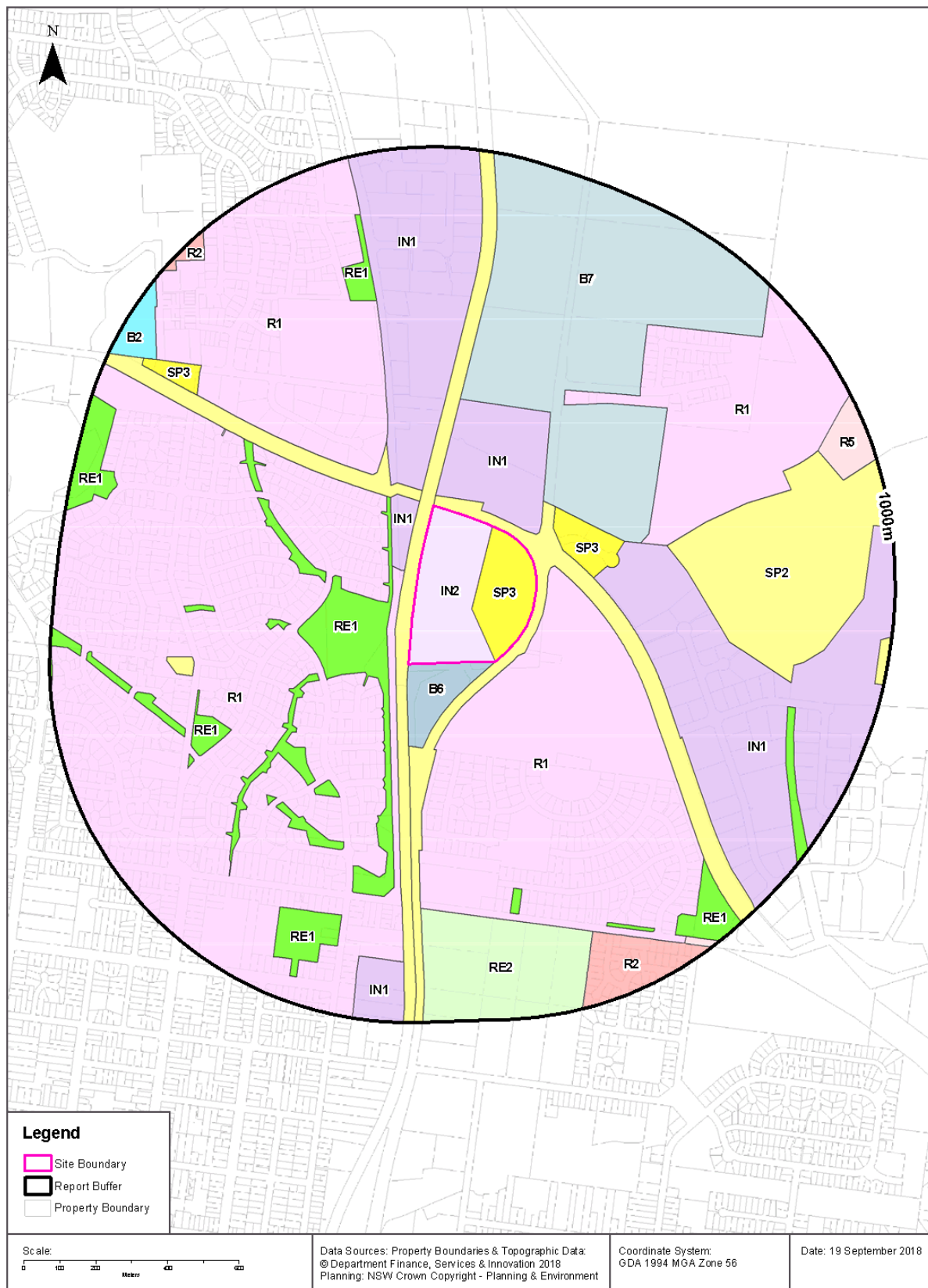
State Environmental Planning Policy Strategic Land Use Areas onsite or within the dataset buffer:

Strategic Land Use	SEPPNo	Effective Date	Amendment	Amendment Year	Distance	Direction
No records within buffer						

SEPP Strategic Land Use Data Source: NSW Department of Planning & Environment
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

LEP Planning Zones

118 Clergate Road, Orange, NSW 2800



Local Environmental Plan

118 Clergate Road, Orange, NSW 2800

Land Zoning

What Local Environmental Plan Land Zones exist within the dataset buffer?

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
IN2	Light Industrial		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		0m	Onsite
SP3	Tourist		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		0m	Onsite
B6	Enterprise Corridor		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		0m	South
SP2	Infrastructure	Classified Road	Orange Local Environmental Plan 2011	22/06/2018	22/06/2018	22/06/2018	Amendment No 8	0m	South East
SP2	Infrastructure	Rail Infrastructure	Orange Local Environmental Plan 2011	22/06/2018	22/06/2018	22/06/2018	Amendment No 8	0m	South
IN1	General Industrial		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		29m	North
R1	General Residential		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		30m	South East
R1	General Residential		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		35m	South West
IN1	General Industrial		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		39m	North West
SP2	Infrastructure	Classified Road	Orange Local Environmental Plan 2011	22/06/2018	22/06/2018	22/06/2018	Amendment No 8	40m	West
IN1	General Industrial		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		52m	North
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		56m	South West
SP3	Tourist		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		89m	North East
B7	Business Park		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		131m	North
IN1	General Industrial		Orange Local Environmental Plan 2011	14/03/2014	14/03/2014	22/06/2018	Amendment No 1	160m	South East
R1	General Residential		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		181m	North West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		252m	South West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		253m	West
R1	General Residential		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		303m	North East
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		335m	West
SP2	Infrastructure	Sewage Treatment Plant	Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		373m	East
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		391m	South West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		471m	North West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		515m	South West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		523m	South West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		526m	South West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		549m	West

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		592m	North
SP2	Infrastructure	Water Storage Facility	Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		596m	West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		634m	South
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		646m	West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		653m	South West
RE2	Private Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		682m	South
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		724m	South West
SP3	Tourist		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		727m	North West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		759m	South East
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		772m	West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		791m	South East
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		795m	South East
R2	Low Density Residential		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		800m	South
IN1	General Industrial		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		825m	South
R5	Large Lot Residential		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		852m	East
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		871m	West
B2	Local Centre		Orange Local Environmental Plan 2011	22/06/2018	22/06/2018	22/06/2018	Amendment No 8	872m	North West
RE1	Public Recreation		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		912m	West
R5	Large Lot Residential		Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	22/06/2018		932m	South East
R2	Low Density Residential		Orange Local Environmental Plan 2011	14/03/2014	14/03/2014	22/06/2018	Amendment No 1	936m	North West

Local Environment Plan Data Source: NSW Crown Copyright - Planning & Environment

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Local Environmental Plan

118 Clergate Road, Orange, NSW 2800

Minimum Subdivision Lot Size

What are the onsite Local Environmental Plan Minimum Subdivision Lot Sizes?

Symbol	Minimum Lot Size	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
No Data							

Maximum Height of Building

What are the onsite Local Environmental Plan Maximum Height of Buildings?

Symbol	Maximum Height of Building	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
No Data							

Floor Space Ratio

What are the onsite Local Environmental Plan Floor Space Ratios?

Symbol	Floor Space Ratio	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
No Data							

Land Application

What are the onsite Local Environmental Plan Land Applications?

Application Type	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
Included	Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	24/02/2012		100

Land Reservation Acquisition

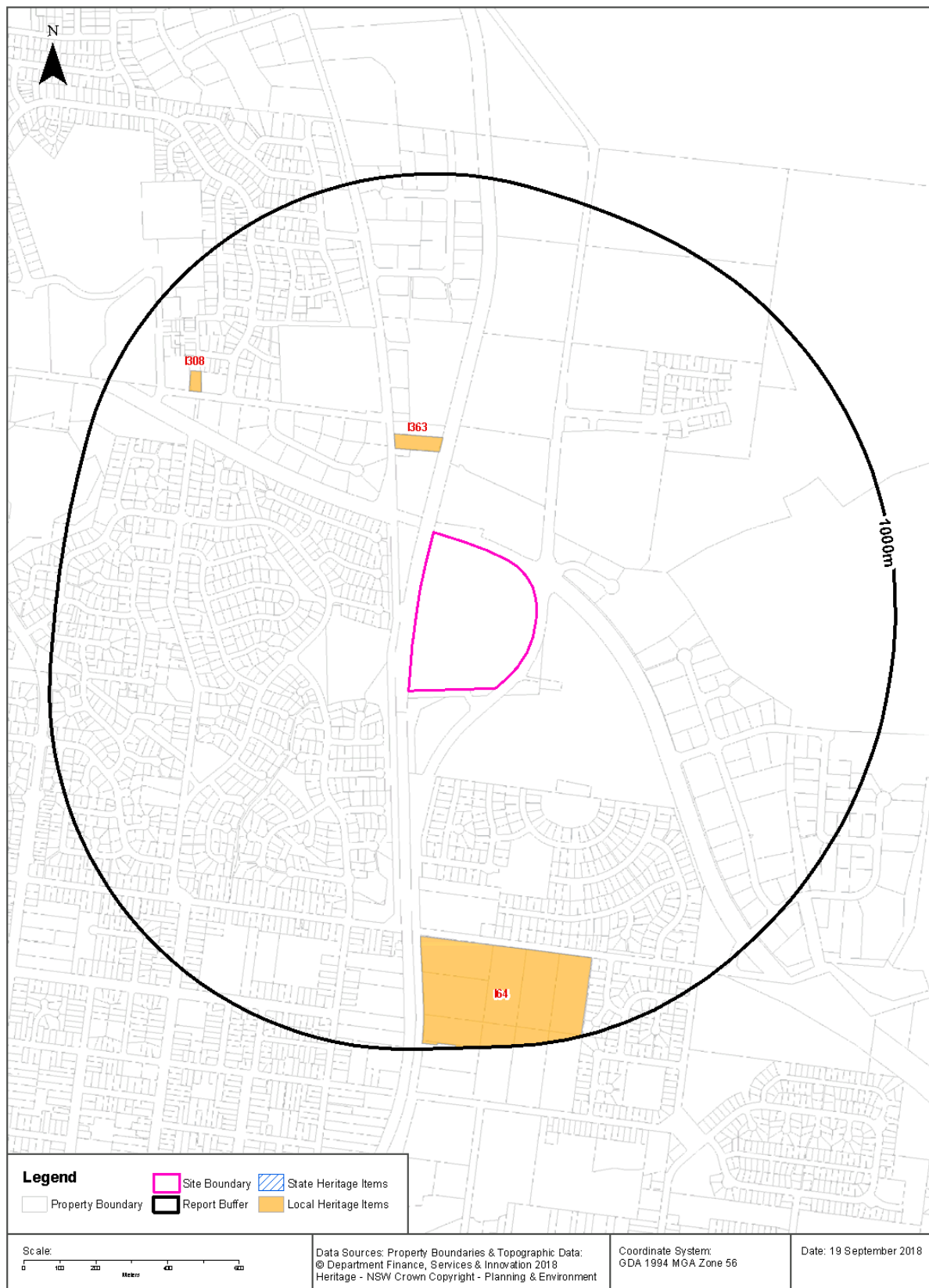
What are the onsite Local Environmental Plan Land Reservation Acquisitions?

Reservation	LEP	Published Date	Commenced Date	Currency Date	Amendment	Comments	Percentage of Site Area
No Data							

Local Environment Plan Data Source: NSW Crown Copyright - Planning & Environment
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Heritage Items

118 Clergate Road, Orange, NSW 2800



Heritage

118 Clergate Road, Orange, NSW 2800

State Heritage Items

What are the State Heritage Items located within the dataset buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: NSW Crown Copyright - Planning & Environment

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Local Heritage Items

What are the Local Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	LEP or Act	Published Date	Commenced Date	Currency Date	Distance	Direction
I363	Cottage and Brickwork	Item - General	Local	Orange Local Environmental Plan 2011	14/03/2014	14/03/2014	14/03/2014	225m	North
I64	Orange Showground (Dalton's Pavilion Agricultural Pavilion)	Item - General	Local	Orange Local Environmental Plan 2011	24/02/2012	24/02/2012	14/03/2014	685m	South
I308	"Emmaville" - Driveway, Shed Etc	Item - General	Local	Orange Local Environmental Plan 2011	14/03/2014	14/03/2014	14/03/2014	755m	North West

Heritage Data Source: NSW Crown Copyright - Planning & Environment

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Natural Hazards

118 Clergate Road, Orange, NSW 2800

Bush Fire Prone Land

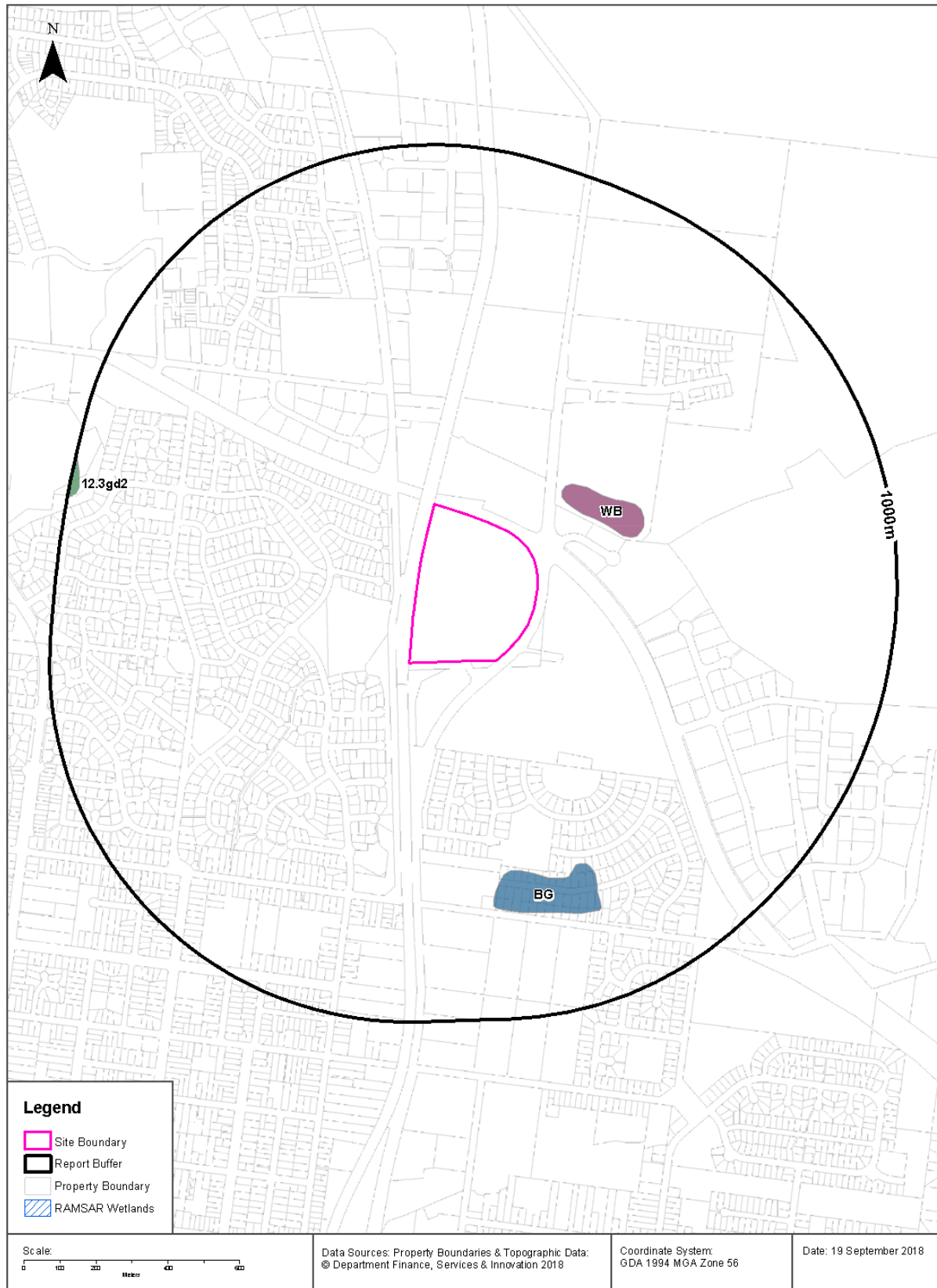
What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
No records within buffer		

NSW Bush Fire Prone Land - © NSW Rural Fire Service under Creative Commons 4.0 International Licence

Ecological Constraints - Vegetation & RAMSAR Wetlands

118 Clergate Road, Orange, NSW 2800



Ecological Constraints

118 Clergate Road, Orange, NSW 2800

Vegetation of the Central Tablelands

What Vegetation of the Central Tablelands exists within the dataset buffer?

Vegetation Code	Vegetation Type	Description	Class	Formation	Crown Cover	Disturbance	Confidence	Distance	Direction
WB	Water	Water Bodies						164m	North East
BG	Cleared	Bare ground						586m	South
12.3gd2	Apple Box - Yellow Box - Mountain Gum open-woodland on flats and low hills of the central tablelands	Eucalyptus bridgesiana, E. melliodora, E. rubida/E. viminalis, E. dalrympleana; grassy/herb understorey; alluvial or basalt creek flats & slopes; well drained deep soil; Tablelands	Southern Tableland Grassy Woodlands	Grassy woodlands	20-50%	Disturbed	Relatively confident on typing	972m	West

Vegetation of the Central Tablelands Data Source: NSW Office of Environment and Heritage
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

RAMSAR Wetlands

What RAMSAR Wetland areas exist within the dataset buffer?

Map Id	RAMSAR Name	Wetland Name	Designation Date	Source	Distance	Direction
N/A	No records in buffer					

RAMSAR Wetlands Data Source: © Commonwealth of Australia - Department of Environment

Ecological Constraints

118 Clergate Road, Orange, NSW 2800

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
N/A	No records within buffer				

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Ecological Constraints

118 Clergate Road, Orange, NSW 2800

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
N/A	No records within buffer				

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Ecological Constraints

118 Clergate Road, Orange, NSW 2800

NSW BioNet Atlas

Species on the NSW BioNet Atlas that have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the site?

Data does not include NSW category 1 sensitive species.

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA; CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Certhionyx variegatus	Pied Honeyeater	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA; CAMBA; JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Merops ornatus	Rainbow Bee-eater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Oxyura australis	Blue-billed Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica phoenicea	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Polytelis swainsonii	Superb Parrot	Vulnerable	Category 3	Vulnerable	
Animalia	Aves	Stagonopleura guttata	Diamond Firetail	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petauroides volans	Greater Glider	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus aggregata	Black Gum	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus canobolensis	Silver-Leaf Candlebark	Vulnerable	Not Sensitive	Endangered	
Plantae	Flora	Swainsona sericea	Silky Swainson-pea	Vulnerable	Not Sensitive	Not Listed	

USE OF REPORT - APPLICABLE TERMS

The following terms apply to any person (End User) who is given the Report by the person who purchased the Report from Lotsearch Pty Ltd (ABN: 89 600 168 018) (Lotsearch) or who otherwise has access to the Report (Terms). The contract terms that apply between Lotsearch and the purchaser of the Report are specified in the order form pursuant to which the Report was ordered and the terms set out below are of no effect as between Lotsearch and the purchaser of the Report.

1. End User acknowledges and agrees that:
 - (a) the Report is compiled from or using content (**Third Party Content**) which is comprised of:
 - (i) content provided to Lotsearch by third party content suppliers with whom Lotsearch has contractual arrangements or content which is freely available or methodologies licensed to Lotsearch by third parties with whom Lotsearch has contractual arrangements (**Third Party Content Suppliers**); and
 - (ii) content which is derived from content described in paragraph (i);
 - (b) Neither Lotsearch nor Third Party Content Suppliers takes any responsibility for or give any warranty in relation to the accuracy or completeness of any Third Party Content included in the Report including any contaminated land assessment or other assessment included as part of a Report;
 - (c) the Third Party Content Suppliers do not constitute an exhaustive set of all repositories or sources of information available in relation to the property which is the subject of the Report (**Property**) and accordingly neither Lotsearch nor Third Party Content Suppliers gives any warranty in relation to the accuracy or completeness of the Third Party Content incorporated into the report including any contaminated land assessment or other assessment included as part of a Report;
 - (d) Reports are generated at a point in time (as specified by the date/time stamp appearing on the Report) and accordingly the Report is based on the information available at that point in time and Lotsearch is not obliged to undertake any additional reporting to take into consideration any information that may become available between the point in time specified by the date/time stamp and the date on which the Report was provided by Lotsearch to the purchaser of the Report;
 - (e) Reports must be used or reproduced in their entirety and End User must not reproduce or make available to other persons only parts of the Report;
 - (f) Lotsearch has not undertaken any physical inspection of the property;
 - (g) neither Lotsearch nor Third Party Content Suppliers warrants that all land uses or features whether past or current are identified in the Report;
 - (h) the Report does not include any information relating to the actual state or condition of the Property;
 - (i) the Report should not be used or taken to indicate or exclude actual fitness or unfitness of Land or Property for any particular purpose
 - (j) the Report should not be relied upon for determining saleability or value or making any other decisions in relation to the Property and in particular should not be taken to be a rating or assessment of the desirability or market value of the property or its features; and
 - (k) the End User should undertake its own inspections of the Land or Property to satisfy itself that there are no defects or failures
2. The End User may not make the Report or any copies or extracts of the report or any part of it available to any other person. If End User wishes to provide the Report to any other person or make extracts or copies of the Report, it must contact the purchaser of the Report before doing so to ensure the proposed use is consistent with the contract terms between Lotsearch and the purchaser.
3. Neither Lotsearch (nor any of its officers, employees or agents) nor any of its Third Party Content Suppliers will have any liability to End User or any person to whom End User provides the Report and End User must not represent that Lotsearch or any of its Third Party Content Suppliers accepts liability to any such person or make any other representation to any such person on behalf of Lotsearch or any Third Party Content Supplier.
4. The End User hereby to the maximum extent permitted by law:
 - (a) acknowledges that the Lotsearch (nor any of its officers, employees or agents), nor any of its Third Party Content Supplier have any liability to it under or in connection with the

- Report or these Terms;
- (b) waives any right it may have to claim against Third Party Content Supplier in connection with the Report, or the negotiation of, entry into, performance of, or termination of these Terms; and
 - (c) releases each Third Party Content Supplier from any claim it may have otherwise had in connection with the Report, or the negotiation of, entry into, performance of, or termination of these Terms.
5. The End User acknowledges that any Third Party Supplier shall be entitled to plead the benefits conferred on it under clause 4, despite not being a party to these terms.
 6. End User must not remove any copyright notices, trade marks, digital rights management information, other embedded information, disclaimers or limitations from the Report or authorise any person to do so.
 7. End User acknowledges and agrees that Lotsearch and Third Party Content Suppliers retain ownership of all copyright, patent, design right (registered or unregistered), trade marks (registered or unregistered), database right or other data right, moral right or know how or any other intellectual property right in any Report or any other item, information or data included in or provided as part of a Report.
 8. To the extent permitted by law and subject to paragraph 9, all implied terms, representations and warranties whether statutory or otherwise relating to the subject matter of these Terms other than as expressly set out in these Terms are excluded.
 9. Subject to paragraph 6, Lotsearch excludes liability to End User for loss or damage of any kind, however caused, due to Lotsearch's negligence, breach of contract, breach of any law, in equity, under indemnities or otherwise, arising out of all acts, omissions and events whenever occurring.
 10. Lotsearch acknowledges that if, under applicable State, Territory or Commonwealth law, End User is a consumer certain rights may be conferred on End User which cannot be excluded, restricted or modified. If so, and if that law applies to Lotsearch, then, Lotsearch's liability is limited to the greater of an amount equal to the cost of resupplying the Report and the maximum extent permitted under applicable laws.
 11. Subject to paragraph 9, neither Lotsearch nor the End User is liable to the other for:
 - (a) any indirect, incidental, consequential, special or exemplary damages arising out of or in relation to the Report or these Terms; or
 - (b) any loss of profit, loss of revenue, loss of interest, loss of data, loss of goodwill or loss of business opportunities, business interruption arising directly or indirectly out of or in relation to the Report or these Terms,irrespective of how that liability arises including in contract or tort, liability under indemnity or for any other common law, equitable or statutory cause of action or otherwise.
 12. These Terms are subject to New South Wales law.

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)

ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Telephone: +612 9977 6713

Mobile: 0412 169 809

Email: search@alsearchers.com.au

21st September 2018

LOTSEARCH PTY LTD

**Level 3, 68 Alfred Street,
MILSONS POINT, NSW 2061**

Attention: Rosemary Hulak

RE:

**185 Leeds Parade,
Orange
Reference: LS004183_EP**

Current Search

Folio Identifier 4/1185665 (title attached)

DP 1185665 (plans attached)

Dated 20th September 2018

Registered Proprietor:

KENNETH WILLIAM BROWN

MARGARET ANN BROWN

-2-

Title Tree
Lot 4 DP 1185665

Folio Identifier 4/1185665

Folio Identifier 2/1061385

Folio Identifier 9/655813

Certificate of Title Volume 13728 Folio 78

Certificate of Title Volume 8274 Folio's 221 & 222

Certificate of Title Volume 2463 Folio 88

Subject land within Portion 55 **Parish Orange**
Granted to John Henry Black, David Ramsay, Prosper de Mestre, Francis Lord, Edward
Lord and Thomas Lord dated 19th June 1843

-3-

**Summary of proprietor(s)
Lot 4 DP 1185665**

Year	Proprietor(s)
	(Lot 4 DP 1185665)
2013 – todate	Kenneth William Brown Margaret Ann Brown
	(Lot 2 DP 1061385)
2006 – 2013	Kenneth William Brown Margaret Ann Brown
2004 – 2006	Kenneth William Brown Margaret Ann Brown Garth Sebastian Brown
	(Lot 9 DP 655813)
1999 – 2004	Kenneth William Brown Margaret Ann Brown Garth Sebastian Brown
1995 – 1999	Benjamin Harold Alfred Brown Kenneth William Brown Margaret Ann Brown Garth Sebastian Brown
	(Part Lot 9 DP 7214 – CTVol 13728 Fol 78)
1992 – 1995	Benjamin Harold Alfred Brown Kenneth William Brown Margaret Ann Brown Garth Sebastian Brown
1978 – 1992	Bathurst-Orange Development Corporation
	(Lot 9 DP 7214 – CTVol 8274 Fol's 221 & 222)
1976 – 1978	Stanislawa Kuca, widow Alexandria Kudrynski, married woman Kazimierz Kuca, retired dairy farmer
1961 – 1976	Tomasz Kuca, dairyman Kazimierz Kuca, dairyman
	(Lot 9 DP 7214 – Area 36 Acres 2 Roods 14 ¼ Perches – CTVol 2463 Fol 88)
1939 – 1961	William Herbert Walter Owens, brickmaker Julius Bernard Wilson, solicitor
<i>(1940 – 1961)</i>	<i>(lease to The Rogers Meat Company Pty Limited)</i>
1938 – 1939	John Owens, retired farmer and grazier
1932 – 1938	Public Trustee
<i>(1926 – 1938)</i>	<i>(lease to Lawrence Joseph Foley, butcher)</i>
1914 – 1932	Lily Eliza Rowe, wife of James Thomas Rowe, butcher
1914 – 1914	Albert Ernest Holtz, jockey

-4-



Cadastral Records Enquiry Report : Lot 4 DP 1185665

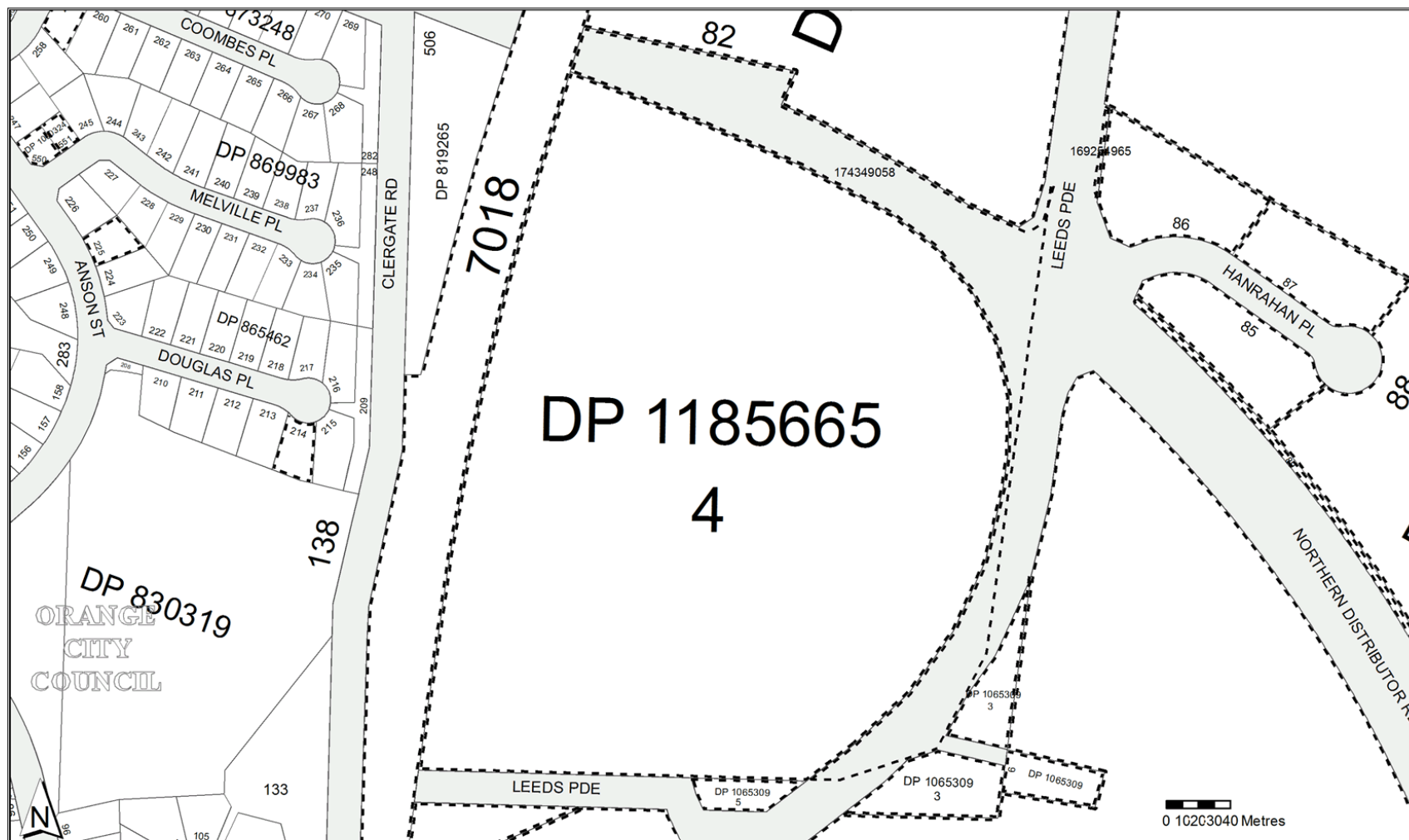
Ref : NOUSER

Locality : ORANGE

Parish : ORANGE

LGA : ORANGE

County : WELLINGTON



Report Generated 9:42:50 AM, 20 September, 2018
Copyright © Crown in right of New South Wales, 2017

This information is provided as a searching aid only. Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

Page 1 of 4

**Cadastral Records Enquiry Report : Lot 4 DP 1185665**

Ref : NOUSER

Locality : ORANGE

Parish : ORANGE

LGA : ORANGE

County : WELLINGTON

	Status	Surv/Comp	Purpose
DP865462 Lot(s): 225			
NSW GAZ. 16-08-2013 Folio : 3777 LOT 225 DP865462 VESTED BY THE NEW SOUTH WALES LAND AND HOUSING CORPORATION IN HOUSING PLUS AND ERRATUM GOV. GAZ. 30-8-2013 FOL. 3921			
Lot(s): 214			
NSW GAZ. 16-08-2013 Folio : 3777 LOT 214 DP865462 VESTED BY THE NEW SOUTH WALES LAND AND HOUSING CORPORATION IN HOUSING PLUS AND ERRATUM GOV. GAZ. 30-8-2013 FOL. 3921			
DP873248 Lot(s): 259			
NSW GAZ. 16-08-2013 Folio : 3777 LOT 259 DP873248 VESTED BY THE NEW SOUTH WALES LAND AND HOUSING CORPORATION IN HOUSING PLUS AND ERRATUM GOV. GAZ. 30-8-2013 FOL. 3921			
DP1000324 Lot(s): 550, 551			
DP869983	HISTORICAL	SURVEY	SUBDIVISION
DP1010630 Lot(s): 81			
DP873248	HISTORICAL	SURVEY	SUBDIVISION
DP1061385 Lot(s): 1			
DP655813	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1065309 Lot(s): 3, 7			
DP1186114	REGISTERED	SURVEY	EASEMENT
Lot(s): 1, 2, 6, 7			
DP801719	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 3, 4, 5			
NSW GAZ. 10-06-2005 Folio : 2226 CLOSED ROAD LOTS 3-5 DP1065309			
DP1117081 Lot(s): 20			
DP872593	HISTORICAL	SURVEY	SUBDIVISION
DP1167633 Lot(s): 85, 86, 87, 88, 89, 90			
DP833387	HISTORICAL	COMPILATION	SUBDIVISION
DP844802	HISTORICAL	SURVEY	SUBDIVISION
DP1012206	HISTORICAL	SURVEY	SUBDIVISION
DP1031646	HISTORICAL	SURVEY	SUBDIVISION
DP1035913	HISTORICAL	SURVEY	SUBDIVISION
DP1051911	HISTORICAL	SURVEY	SUBDIVISION
DP1063083	HISTORICAL	SURVEY	SUBDIVISION
DP1077737	HISTORICAL	SURVEY	SUBDIVISION
DP1185665 Lot(s): 4			
DP655813	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1061385	HISTORICAL	SURVEY	RESUMPTION OR ACQUISITION
DP1210837 Lot(s): 7018			
CA174573 - LOT 7018 DP1210837			
DP1217966 Lot(s): 82			
DP7214	HISTORICAL	SURVEY	UNRESEARCHED
DP655813	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1061385	HISTORICAL	SURVEY	RESUMPTION OR ACQUISITION
DP1185665	HISTORICAL	COMPILATION	SUBDIVISION
DP1217965	HISTORICAL	SURVEY	SUBDIVISION

Caution: This information is provided as a searching aid only. Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For **ALL** **ACTIVITY PRIOR TO SEPTEMBER 2002** you must refer to the RGs Charting and Reference Maps.

**Cadastral Records Enquiry Report : Lot 4 DP 1185665**

Ref : NOUSER

Locality : ORANGE

Parish : ORANGE

LGA : ORANGE

County : WELLINGTON

	Status	Surv/Comp	Purpose
Road			
Polygon Id(s): 174349058			
NSW GAZ.		12-08-2016	Folio : 2257
DEDICATED PUBLIC ROAD			
LOT 1 DP1061385			
Polygon Id(s): 153766679			
NSW GAZ.		10-06-2005	Folio : 2226
CLOSED ROAD			
LOTS 3-5 DP1065309			
Polygon Id(s): 169254965			
NSW GAZ.		05-04-2013	Folio : 884
DEDICATED PUBLIC ROAD			
LOT 90 DP1167633. ERRATUM GAZ. 23-08-2013 FOL. 3877			

Caution: This information is provided as a searching aid only. Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For **ALL** **ACTIVITY PRIOR TO SEPTEMBER 2002** you must refer to the RGs Charting and Reference Maps.

**Cadastral Records Enquiry Report : Lot 4 DP 1185665**

Ref : NOUSER

Locality : ORANGE

Parish : ORANGE

LGA : ORANGE

County : WELLINGTON

Plan	Surv/Comp	Purpose
DP263614	SURVEY	SUBDIVISION
DP819265	SURVEY	SUBDIVISION
DP830106	SURVEY	SUBDIVISION
DP830319	SURVEY	SUBDIVISION
DP861383	SURVEY	SUBDIVISION
DP865462	SURVEY	SUBDIVISION
DP869983	SURVEY	SUBDIVISION
DP873248	SURVEY	SUBDIVISION
DP1000324	SURVEY	SUBDIVISION
DP1010630	SURVEY	SUBDIVISION
DP1065309	SURVEY	ROADS ACT, 1993
DP1117081	SURVEY	SUBDIVISION
DP1117081	SURVEY	SUBDIVISION
DP1167633	SURVEY	SUBDIVISION
DP1185665	COMPILATION	SUBDIVISION
DP1210837	COMPILATION	LIMITED FOLIO CREATION
DP1217966	SURVEY	SUBDIVISION
DP1217966	UNRESEARCHED	SUBDIVISION

Caution: This information is provided as a searching aid only. Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For **ALL** **ACTIVITY PRIOR TO SEPTEMBER 2002** you must refer to the RGs Charting and Reference Maps.

Report Generated 9:42:50 AM, 20 September, 2018
Copyright © Crown in right of New South Wales, 2017

Page 4 of 4

Attachment 6 Planning Proposal - Environmental Site Assessment

1957275M R

SEE AUTO FOLIO

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Req:R299344 /Doc:DL 6017109 /Rev:28-Jul-1999 /Sts:NO.OK /Pgs:ALL /Prt:20-Sep-2018 10:09 /Seq:1 of 1

Ref:advlegs /Src:P
Form 97-01T

Licence: 10V/0096/96

Edition: 9804

TRANSFERNew South Wales
Real Property Act 1900

6017109F

**STAMP DUTY**

Office of State Revenue use only

NEW SOUTH WALES DUTY

07-07-1999

0000032740-001

TRANSFER- TRANSFER

DUTIABLE AMOUNT \$ *****35,000.00

DUTY \$ *****502.50

(A) TORRENS TITLE

If appropriate, specify the part or share transferred

Folio Identifier 9/655813

(B) LODGED BY

LTO Box

Name, Address or DX and Telephone

IH Alexander & Co
15 Castlereagh St.
Sydney 2000
Ph: 222 6763

Reference (optional): GB & Co Brown 71Y

CODES

T

TS (s713)

TW (Shriff)

(C) TRANSFEROR

BENJAMIN HAROLD ALFRED BROWN

(D)The transferor acknowledges receipt of the consideration of \$ 1.00 and as regards the land specified above transfers to the transferee ^{all such his right title and interest as joint tenant in} an estate in fee simple.**(E)**

Encumbrances (if applicable): 1. 2. 3.

(F) TRANSFEE

KENNETH WILLIAM BROWN, MARGARET ANN BROWN AND GARTH SEBASTIAN BROWN

(G)**TENANCY:** JOINT**(H) We certify this dealing correct for the purposes of the Real Property Act 1900.****DATE:** 12. 7. 99

Signed in my presence by the transferor who is personally known to me.

Signature of witness:

Signature of transferor:

Name of witness:

REUBEN BROWN

Address of witness:

8/102 WINDSOR RD RICHMOND.
N.S.W.

Signed in my presence by the transferee who is personally known to me.

Signature of witness:

Signature of transferee:

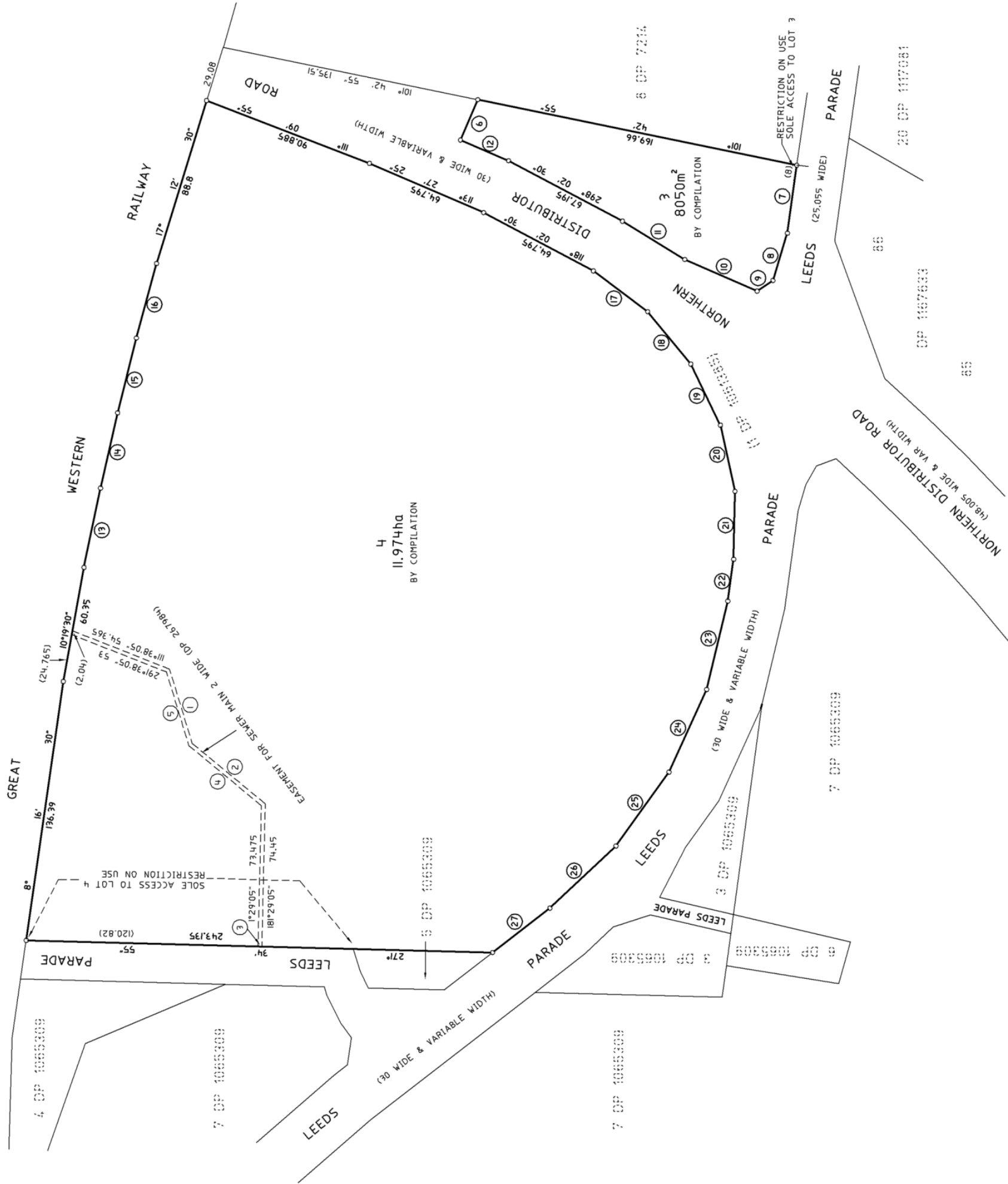
Name of witness:

Address of witness:

If signed on the transferee's behalf by a solicitor or licensed conveyancer, show the signatory's full name and capacity below:

Graham Brian Billing
Solicitor for the TransfereesAll handwriting must be in block capitals.
A set of notes on this form (97-01T-2)
is available from the Land Titles Office.Page 1 of _____
number additional pages sequentially

Checked by (LTO use):



SCHEDULE of SHORT BOUNDARIES

No.	BEARING	DISTANCE
1	163°06'10"	40.475
2	129°42'30"	49.36
3	271°34'50"	2
4	309°42'30"	48.99
5	343°06'10"	40.11
6	232°27'25"	22.875
7	187°57'25"	35.73
8	197°04'10"	25.79
9	236°21'25"	9.96
10	293°46'05"	41.1
11	301°38'05"	38.13
12	293°27'25"	27.3
13	11°50'30"	42.185
14	12°54'30"	40.235
15	14°12'30"	40.235
16	15°16'30"	40.235
17	127°06'10"	35.355
18	140°38'20"	35.355
19	154°10'35"	35.355
20	167°42'45"	35.355
21	181°15'00"	35.36
22	188°01'05"	22.075
23	193°33'35"	47.32
24	204°38'40"	47.32
25	215°43'40"	47.32
26	226°48'40"	47.32
27	232°21'10"	37.785

DP1185665

Registered
13.06.2013

LGA: ORANGE
Locality: ORANGE
Subdivision No: 4987
Lengths are in metres. Reduction Ratio 1 : 1500

Surveyor: GLYNDWR JOHN CARPENTER

Date of Survey: 26th JUNE 2010

Surveyor's Reference: 20896 2010M7100(968)COMP

PLAN OF SUBDIVISION OF LOT 2 DP 1061385

Table of mm

Req:R299043 /Doc:DP 1185665 P /Rev:13-Jun-2013 /Sts:SC.OK /Pgs:ALL /Prt:20-Sep-2018 09:44 /Seq:2 of 2
 Ref:advlegs /Src:P, **WARNING: Unrolling or folding will lead to rejection** ePlan

DEPOSITED PLAN ADMINISTRATION SHEET		Sheet 1 of 1 sheet(s)
<p>SIGNATURES, SEALS and STATEMENTS of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.</p> <p style="text-align: center; margin-top: 20px;">KENNETH WILLIAM BROWN</p> <p style="text-align: center; margin-top: 40px;">....</p> <p style="text-align: center; margin-top: 20px;">MARGARET ANN BROWN</p> <p style="text-align: center; margin-top: 40px;">....</p> <p style="margin-top: 20px;">Pursuant to Section 88B of the Conveyancing Act 1919 it is intended to create:</p> <ol style="list-style-type: none"> 1) Restriction on the use of the land 2) Restriction on the use of the land 3) Restriction on the use of the land 	<div style="text-align: center; font-size: 2em; font-weight: bold; margin-bottom: 10px;">DP1185665</div> <div style="display: flex; justify-content: space-between;"> <div> <p>Registered: 13.06.2013</p> <p>Title System: TORRENS</p> <p>Purpose: SUBDIVISION</p> </div> <div style="text-align: right;">*</div> </div> <p style="margin-top: 10px;">PLAN OF SUBDIVISION OF LOT 2 DP 1061385</p> <div style="margin-top: 10px;"> <p>LGA: ORANGE</p> <p>Locality: ORANGE</p> <p>Parish: ORANGE</p> <p>County: WELLINGTON</p> </div>	
<p style="text-align: center;">Use PLAN FORM 6A for additional certificates, signatures, seals and statements</p> <p style="margin-top: 10px;">Crown Lands NSW/Western Lands Office Approval</p> <p>I.....in approving this plan certify (Authorised Officer) that all necessary approvals in regard to the allocation of the land shown herein have been given</p> <p>Signature:.....</p> <p>Date:.....</p> <p>File Number:.....</p> <p>Office:.....</p>	<p style="text-align: center;">Surveying Regulation, 2006</p> <p>I, GLYNDWR JOHN CARPENTER of CARPENTER COLLINS & CRAIG PO BOX 685 ORANGE NSW 2800 a surveyor registered under the <i>Surveying Act, 2002</i>, certify that the survey represented in this plan is accurate, has been made in accordance with the <i>Surveying Regulation, 2006</i> and was completed on: 26th JUNE 2010 The survey relates to LOTS 3 & 4 THIS PLAN IS COMPILED</p> <p>(specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <p>Signature: </p> <p>Dated: 1-7-10</p> </div> <p style="text-align: center; font-size: 0.8em;">Surveyor registered under the Surveying Act, 2002</p> <p>Datum Line:</p> <p>Type: URBAN</p>	
<p style="text-align: center;">Subdivision Certificate</p> <p>I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to:</p> <p>the proposed SUBDIVISION set out herein (insert 'subdivision' or 'new road')</p> <p style="margin-top: 20px;">* Authorised Person/General Manager/Accredited Certifier</p> <p>Consent Authority: ORANGE CITY COUNCIL</p> <p>Date of Endorsement: 9 MAY 2013</p> <p>Accreditation no:</p> <p>Subdivision Certificate no: 4987</p> <p>File no: PR 19456</p> <p style="font-size: 0.8em; margin-top: 10px;">* Delete whichever is inapplicable.</p>	<p style="text-align: center;">Plans used in the preparation of survey/compilation DP1061385, DP1065309, DP1077737</p> <p style="text-align: center; font-size: 0.8em;">(if insufficient space use Plan Form 6A annexure sheet)</p> <p style="text-align: center;">SURVEYOR'S REFERENCE: 20896 2010M7100(968)COMP</p>	

* OFFICE USE ONLY

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

20/9/2018 9:46AM

FOLIO: 2/1061385

First Title(s): OLD SYSTEM
Prior Title(s): 9/655813

<u>Recorded</u>	<u>Number</u>	<u>Type of Instrument</u>	<u>C.T. Issue</u>
1/12/2003	DP1061385	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
26/10/2004	AB39928	TRANSFER	FOLIO CREATED EDITION 1
16/1/2006	AC51636	TRANSFER	EDITION 2
26/2/2013	AH431348	CAVEAT	
13/6/2013	DP1185665	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

advlegs

PRINTED ON 20/9/2018

Obtained from NSW LRS on 20 September 2018 09:46 AM AEST

© Office of the Registrar-General 2018

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

20/9/2018 10:06AM

FOLIO: 9/655813

First Title(s): OLD SYSTEM
Prior Title(s): VOL 13728 FOL 78

<u>Recorded</u>	<u>Number</u>	<u>Type of Instrument</u>	<u>C.T. Issue</u>
17/3/1995		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
15/8/1997	3326344	DISCHARGE OF MORTGAGE	
15/8/1997	3326345	DISCHARGE OF MORTGAGE	
28/8/1997	DP267984	DEPOSITED PLAN	EDITION 1
24/6/1999	5928014	DEPARTMENTAL DEALING	
23/7/1999	6017109	TRANSFER	EDITION 2
24/10/2002	DP1045904	DEPOSITED PLAN	
1/12/2003	DP1061385	DEPOSITED PLAN	
26/10/2004	AB39928	TRANSFER	FOLIO CANCELLED

*** END OF SEARCH ***

advlegs

PRINTED ON 20/9/2018

Obtained from NSW LRS on 20 September 2018 10:06 AM AEST

© Office of the Registrar-General 2018



NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 4/1185665

SEARCH DATE	TIME	EDITION NO	DATE
20/9/2018	9:44 AM	1	13/6/2013

LAND

LOT 4 IN DEPOSITED PLAN 1185665
AT ORANGE
LOCAL GOVERNMENT AREA ORANGE
PARISH OF ORANGE COUNTY OF WELLINGTON
TITLE DIAGRAM DP1185665

FIRST SCHEDULE

KENNETH WILLIAM BROWN
MARGARET ANN BROWN
AS JOINT TENANTS

SECOND SCHEDULE (4 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 DP267984 EASEMENT FOR SEWER MAIN 2 WIDE AFFECTING THE PART(S)
SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 3 DP1185665 RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND
NUMBERED (1) IN THE S.88B INSTRUMENT
- 4 DP1185665 RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND
NUMBERED (3) IN THE S.88B INSTRUMENT

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

advlegs

PRINTED ON 20/9/2018

Obtained from NSW LRS on 20 September 2018 09:44 AM AEST

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register.

© Office of the Registrar-General 2018



Appendix E – Laboratory Certificates

9/10/18

Resolve Environmental CHAIN OF CUSTODY
ALS Laboratory: please tick →

CLIENT: Resolve Environmental Pty Ltd		TURNAROUND REQUIREMENTS: 5 DAY STANDARD TAT (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)		FOR LABORATORY USE ONLY (Circle): SUBCON / Forward Lab / Split WO Lab / Analysis: NEWCASTLE / ASBESTOS Organised By / Date: #17 & #21 Relinquished By / Date: Connote / Courier: WO No: Attached By PO / Internal Sheet:	
OFFICE: Melbourne		ALS QUOTE NO.: EN/222/18			
PROJECT: Jasbe Orange PSI		COC SEQUENCE NUMBER (Circle) COC: 1 OF: 1			
ORDER NUMBER: P001097		PROJECT MANAGER: Mitchell Knox CONTACT PH: 0438 049 685			
SAMPLER: Mitchell Knox		SAMPLER MOBILE: 0438 049 685		RELINQUISHED BY: M Knox	
COC emailed to ALS? Yes		EDD FORMAT (or default):		RECEIVED BY: Rasika	
Email Reports to (will default to PM if no other addresses are listed): mknox@resolveenvironmental.com.au;		DATE/TIME: 24/9/18		DATE/TIME: 31/10/18 9:20	
Email Invoice to (will default to PM if no other addresses are listed): mknox@resolveenvironmental.com.au;				DATE/TIME:	
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:					

SAMPLE DETAILS MATRIX: SOLID / WATER / W				CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required)							
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes)	TOTAL CONTAINERS	P-7/4 Short	EA200	EA200B	S-26	TRH/TEX/PAH/8 METALS			
1	TP01_0.5	24/09/2018	S	1 x Bag	1		X						
2	TP02_0.2	24/09/2018	S	1 x Jar	1				X				
3	TP03_0.3	24/09/2018	S	1 x Jar	1				X				
4	TP04_1.0	24/09/2018	S	1 x Jar <i>Bag only</i>	1				X				
5	TP05_2.0	24/09/2018	S	1 x Jar	1	X							
6	TP06_1.0	24/09/2018	S	1 x Jar	1	X							
7	TP07_0.2	24/09/2018	S	1 x Jar	1				X				
8	TP08_0.2	24/09/2018	S	1 x Jar	1				X				
9	TP09_0.2	24/09/2018	S	1 x Jar	1				X				
10	TP10_0.2	24/09/2018	S	1 x Jar	1				X				
11	TP11_0.2	24/09/2018	S	1 x Jar	1				X				
12	TP12_1.0	24/09/2018	S	1 x Jar	1	X							
13	TP12_1.5	24/09/2018	S	1 x Jar	1				X				
14	TP13_0.5	24/09/2018	S	1 x Jar	1				X				
15	TP14_0.2	24/09/2018	S	1 x Jar	1				X				

Telephone: +61-2-9784 8556

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>(refer to codes)</small>	TOTAL CONTAINERS	P-7/4 Short	EA200	EA200B	S-26	TRIBTEX/PAH/8 METALS			HOLD	Comments on likely contaminant levels, diluents, or samples requiring specific QC analysis etc.
16	TP15_0.2	24/09/2018	S	1 x Jar	1				X					
17	TP16_0.2	24/09/2018	S	1 x Bag	1			X						
18	TP17_0.2	24/09/2018	S	1 x Jar	1				X					
19	TP18_0.2	24/09/2018	S	1 x Jar	1				X					
20	TP19_0.2	24/09/2018	S	1 x Jar	1				X					
21	TP20_0.1	24/09/2018	S	1 x Bag	1			X						
22	TP21_0.4	24/09/2018	S	1 x Jar	1				X					
23	TP21_0.8	24/09/2018	S	1 x Bag	1		X							
24	TP22_0.2	24/09/2018	S	1 X Bag, 1 x Jar	2		X		X					
25	TP23_0.2	24/09/2018	S	1 X Bag, 1 x Jar	2		X		X					
26	TP24_0.2	24/09/2018	S	1 x Jar	1				X					
27	TP25_0.3	24/09/2018	S	1 X Bag, 1 x Jar	2		X		X					
28	QC1	24/09/2018	S	1 x Jar	1				X					
—	QC1A	24/09/2018	S	1 x Jar	1					X				please send to Eurofins MGT for analysis
29	QC2	24/09/2018	S	1 x Jar	1				X					
—	QC2A	24/09/2018	S	1 x Jar	1					X				please send to Eurofins MGT for analysis
TOTAL					34	3	5	2	22	2				

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic;
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.



CERTIFICATE OF ANALYSIS

Work Order	: ES1829155	Page	: 1 of 28
Amendment	: 1		
Client	: RESOLVE ENVIRONMENTAL PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MITCHELL KNOX	Contact	: Shirley LeComu
Address	: 144 Church Street BRIGHTON VICTORIA 3186	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ---	Telephone	: +61-3-8549 9630
Project	: Jasbe Orange PSI	Date Samples Received	: 27-Sep-2018 11:20
Order number	: PO011097	Date Analysis Commenced	: 03-Oct-2018
C-O-C number	: ---	Issue Date	: 10-Oct-2018 15:32
Sampler	: MITCHELL KNOX		
Site	: ---		
Quote number	: EN/222		
No. of samples received	: 29		
No. of samples analysed	: 29		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Gerrad Morgan	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Merrin Avery	Supervisor - Inorganic	Newcastle - Inorganics, Mayfield West, NSW

Page : 2 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

- EG048G: Poor spike recovery for Hexavalent Chromium by Alkaline Digestion due to matrix interferences.
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EG005: Poor precision was obtained on sample ES1829155-15 for Chromium. Results have been confirmed by re-extraction and reanalysis.
- Amendment (09/10/2018): This workorder has been amended to add EA200 to samples 1,23,24,25,27
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1,2,3-cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR.
 Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Page : 3 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP01_0.5	TP02_0.2	TP03_0.3	TP04_1.0	TP05_2.0
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-001	ES1829155-002	ES1829155-003	ES1829155-004	ES1829155-005
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		8.8	---	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		---	25.1	18.2	49.6	28.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	---	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres		No	---	----	----	----
Asbestos Type	1332-21-4	-	--		-	---	----	----	----
Sample weight (dry)	----	0.01	g		434	---	----	----	----
APPROVED IDENTIFIER:	----	-	--		G.MORGAN	---	----	----	----
EG005T: Total Metals by ICP-AES									
Beryllium	7440-41-7	1	mg/kg		---	---	----	----	<1
Molybdenum	7439-98-7	2	mg/kg		---	---	----	----	<2
Selenium	7782-49-2	5	mg/kg		---	---	----	----	<5
Silver	7440-22-4	2	mg/kg		---	---	----	----	<2
Arsenic	7440-38-2	5	mg/kg		---	10	6	<5	11
Cadmium	7440-43-9	1	mg/kg		---	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		---	78	42	197	----
Copper	7440-50-8	5	mg/kg		---	79	30	112	----
Lead	7439-92-1	5	mg/kg		---	12	9	7	5
Nickel	7440-02-0	2	mg/kg		---	32	4	58	12
Zinc	7440-66-6	5	mg/kg		---	46	13	60	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		---	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		---	---	----	----	<0.5
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		---	---	----	----	<1
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		---	---	----	----	<1
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		---	---	----	----	110
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		---	---	----	----	<0.1

Page : 4 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP01_0.5	TP02_0.2	TP03_0.3	TP04_1.0	TP05_2.0
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-001	ES1829155-002	ES1829155-003	ES1829155-004	ES1829155-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		---	---	---	---	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		---	---	---	---	<0.05
beta-BHC	319-85-7	0.05	mg/kg		---	---	---	---	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		---	---	---	---	<0.05
delta-BHC	319-86-8	0.05	mg/kg		---	---	---	---	<0.05
Heptachlor	76-44-8	0.05	mg/kg		---	---	---	---	<0.05
Aldrin	309-00-2	0.05	mg/kg		---	---	---	---	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		---	---	---	---	<0.05
^A Total Chlordane (sum)	---	0.05	mg/kg		---	---	---	---	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		---	---	---	---	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		---	---	---	---	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		---	---	---	---	<0.05
Dieldrin	60-57-1	0.05	mg/kg		---	---	---	---	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		---	---	---	---	<0.05
Endrin	72-20-8	0.05	mg/kg		---	---	---	---	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		---	---	---	---	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		---	---	---	---	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		---	---	---	---	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		---	---	---	---	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg		---	---	---	---	<0.2
EP068B: Organophosphorus Pesticides (OP)									
Chlorpyrifos	2921-88-2	0.05	mg/kg		---	---	---	---	<0.05
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup									
>C10 - C16 Fraction	---	50	mg/kg		---	---	---	---	<50
>C16 - C34 Fraction	---	100	mg/kg		---	---	---	---	<100
>C34 - C40 Fraction	---	100	mg/kg		---	---	---	---	<100
^A >C10 - C40 Fraction (sum)	---	50	mg/kg		---	---	---	---	<50
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup									
C10 - C14 Fraction	---	50	mg/kg		---	---	---	---	<50
C15 - C28 Fraction	---	100	mg/kg		---	---	---	---	<100
C29 - C36 Fraction	---	100	mg/kg		---	---	---	---	<100
^A C10 - C36 Fraction (sum)	---	50	mg/kg		---	---	---	---	<50
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		---	---	---	---	<0.2

Page : 5 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP01_0.5	TP02_0.2	TP03_0.3	TP04_1.0	TP05_2.0
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-001	ES1829155-002	ES1829155-003	ES1829155-004	ES1829155-005
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Toluene	108-88-3	0.5	mg/kg		---	---	---	---	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		---	---	---	---	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		---	---	---	---	<0.5
Styrene	100-42-5	0.5	mg/kg		---	---	---	---	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		---	---	---	---	<0.5
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	5	mg/kg		---	---	---	---	<5
EP074E: Halogenated Aliphatic Compounds									
Vinyl chloride	75-01-4	4	mg/kg		---	---	---	---	<4
1,1-Dichloroethene	75-35-4	0.5	mg/kg		---	---	---	---	<0.5
Methylene chloride	75-09-2	0.5	mg/kg		---	---	---	---	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg		---	---	---	---	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		---	---	---	---	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg		---	---	---	---	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		---	---	---	---	<0.5
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg		---	---	---	---	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		---	---	---	---	<0.5
1,1,1,2-Tetrachloroethane	830-20-6	0.5	mg/kg		---	---	---	---	<0.5
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg		---	---	---	---	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		---	---	---	---	<0.5
EP074G: Trihalomethanes									
Chloroform	67-68-3	0.5	mg/kg		---	---	---	---	<0.5
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		---	---	---	---	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		---	---	---	---	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		---	---	---	---	<1
4-Chloro-3-methylphenol	58-50-7	0.5	mg/kg		---	---	---	---	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		---	---	---	---	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		---	---	---	---	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		---	---	---	---	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5

Page : 6 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP01_0.5	TP02_0.2	TP03_0.3	TP04_1.0	TP05_2.0
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-001	ES1829155-002	ES1829155-003	ES1829155-004	ES1829155-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Benzo(b,h)fluoranthene	205-99-2	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
^A Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
^A Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		---	<0.5	<0.5	<0.5	<0.5
^A Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		---	0.6	0.6	0.6	0.6
^A Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		---	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		---	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		---	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		---	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		---	<100	<100	<100	----
^A C10 - C36 Fraction (sum)	----	50	mg/kg		---	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		---	<10	<10	<10	<10
^A C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		---	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		---	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		---	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		---	<100	<100	<100	----
^A >C10 - C40 Fraction (sum)	----	50	mg/kg		---	<50	<50	<50	----
^A >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		---	<50	<50	<50	----
EP080: BTEXN									

Page : 7 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP01_0.5	TP02_0.2	TP03_0.3	TP04_1.0	TP05_2.0
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-001	ES1829155-002	ES1829155-003	ES1829155-004	ES1829155-005
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
Benzene	71-43-2	0.2	mg/kg		---	<0.2	<0.2	<0.2	---
Toluene	108-88-3	0.5	mg/kg		---	<0.5	<0.5	<0.5	---
Ethylbenzene	100-41-4	0.5	mg/kg		---	<0.5	<0.5	<0.5	---
meta- & para-Xylene	108-38-3	0.5	mg/kg		---	<0.5	<0.5	<0.5	---
ortho-Xylene	95-47-6	0.5	mg/kg		---	<0.5	<0.5	<0.5	---
^A Sum of BTEX	---	0.2	mg/kg		---	<0.2	<0.2	<0.2	---
^A Total Xylenes	---	0.5	mg/kg		---	<0.5	<0.5	<0.5	---
Naphthalene	91-20-3	1	mg/kg		---	<1	<1	<1	---
EP068S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		---	---	---	---	93.8
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		---	---	---	---	121
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		---	---	---	---	75.0
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.5	%		---	---	---	---	93.9
Toluene-D8	2037-26-5	0.5	%		---	---	---	---	95.7
4-Bromofluorobenzene	460-00-4	0.5	%		---	---	---	---	100
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		---	88.3	91.6	92.2	72.3
2-Chlorophenol-D4	93951-73-6	0.5	%		---	84.2	88.8	88.1	76.4
2,4,6-Tribromophenol	118-79-6	0.5	%		---	79.6	66.8	67.3	51.7
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		---	89.0	97.6	98.8	82.8
Anthracene-d10	1719-06-8	0.5	%		---	81.0	82.0	83.9	85.9
4-Terphenyl-d14	1718-51-0	0.5	%		---	81.8	82.4	84.0	79.1
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		---	121	108	117	97.0
Toluene-D8	2037-26-5	0.2	%		---	103	90.7	98.8	95.9
4-Bromofluorobenzene	460-00-4	0.2	%		---	92.6	81.0	90.1	102

Page : 8 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP06_1.0	TP07_0.2	TP08_0.2	TP09_0.2	TP10_0.2
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-006	ES1829155-007	ES1829155-008	ES1829155-009	ES1829155-010
				Result	Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		18.3	23.4	30.3	19.8	40.6
EG005T: Total Metals by ICP-AES									
Beryllium	7440-41-7	1	mg/kg		<1	---	----	----	----
Molybdenum	7439-98-7	2	mg/kg		<2	---	----	----	----
Selenium	7782-49-2	5	mg/kg		<5	---	----	----	----
Silver	7440-22-4	2	mg/kg		<2	---	----	----	----
Arsenic	7440-38-2	5	mg/kg		<5	7	6	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		---	91	61	78	48
Copper	7440-50-8	5	mg/kg		---	52	50	24	26
Lead	7439-92-1	5	mg/kg		9	12	10	17	11
Nickel	7440-02-0	2	mg/kg		10	12	13	11	10
Zinc	7440-66-6	5	mg/kg		---	21	21	8	22
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	0.2	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	---	----	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		<1	---	----	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		<1	---	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		90	---	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	---	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	---	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	---	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	---	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	---	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	---	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	---	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	---	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	---	----	----	----

Page : 9 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP06_1.0	TP07_0.2	TP08_0.2	TP09_0.2	TP10_0.2
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-006	ES1829155-007	ES1829155-008	ES1829155-009	ES1829155-010
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	---	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	---	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	---	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	---	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	---	----	----	----
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	---	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	---	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	---	----	----	----
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	---	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	---	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	---	----	----	----
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	---	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	---	----	----	----
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup									
>C10 - C16 Fraction	----	50	mg/kg		<50	---	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	---	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	---	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	---	----	----	----
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup									
C10 - C14 Fraction	----	50	mg/kg		<50	---	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	---	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	---	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	---	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		<0.2	---	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	---	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	---	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	---	----	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	---	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	---	----	----	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	---	----	----	----
EP074E: Halogenated Aliphatic Compounds									

Page : 10 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP06_1.0	TP07_0.2	TP08_0.2	TP09_0.2	TP10_0.2
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-006	ES1829155-007	ES1829155-008	ES1829155-009	ES1829155-010
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Vinyl chloride	75-01-4	4	mg/kg		<4	---	---	---	---
1,1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	---	---	---	---
Methylene chloride	75-08-2	0.5	mg/kg		<0.5	---	---	---	---
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	---	---	---	---
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	---	---	---	---
1,2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	---	---	---	---
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	---	---	---	---
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	---	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	---	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	---	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	---	---	---	---
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	---	---	---	---
EP074G: Trihalomethanes									
Chloroform	67-68-3	0.5	mg/kg		<0.5	---	---	---	---
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	---	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	---	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	---	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	---	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg		<2	---	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Page : 11 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP06_1.0	TP07_0.2	TP08_0.2	TP09_0.2	TP10_0.2
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit	ES1829155-006	ES1829155-007	ES1829155-008	ES1829155-009	ES1829155-010	
				Result	Result	Result	Result	Result	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+h)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
^A Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
^A Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	
^A Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6	
^A Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10	
C10 - C14 Fraction	----	50	mg/kg	---	<50	<50	<50	<50	
C15 - C28 Fraction	----	100	mg/kg	---	<100	<100	<100	<100	
C29 - C36 Fraction	----	100	mg/kg	---	<100	<100	<100	<100	
^A C10 - C36 Fraction (sum)	----	50	mg/kg	---	<50	<50	<50	<50	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10	
^A C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	---	<10	<10	<10	<10	
>C10 - C16 Fraction	----	50	mg/kg	---	<50	<50	<50	<50	
>C16 - C34 Fraction	----	100	mg/kg	---	<100	<100	<100	<100	
>C34 - C40 Fraction	----	100	mg/kg	---	<100	<100	<100	<100	
^A >C10 - C40 Fraction (sum)	----	50	mg/kg	---	<50	<50	<50	<50	
^A >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	---	<50	<50	<50	<50	
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	---	<0.2	<0.2	<0.2	<0.2	
Toluene	108-88-3	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	
ortho-Xylene	95-47-6	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	
^A Sum of BTEX	----	0.2	mg/kg	---	<0.2	<0.2	<0.2	<0.2	
^A Total Xylenes	----	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	
Naphthalene	91-20-3	1	mg/kg	---	<1	<1	<1	<1	

Page : 12 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP06_1.0	TP07_0.2	TP08_0.2	TP09_0.2	TP10_0.2
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-006	ES1829155-007	ES1829155-008	ES1829155-009	ES1829155-010
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		96.1	---	---	---	---
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		90.8	---	---	---	---
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		78.1	---	---	---	---
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.5	%		92.1	---	---	---	---
Toluene-D8	2037-26-5	0.5	%		97.2	---	---	---	---
4-Bromofluorobenzene	460-00-4	0.5	%		101	---	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		73.5	94.0	93.3	89.3	89.0
2-Chlorophenol-D4	93951-73-6	0.5	%		76.9	90.3	89.9	87.2	84.3
2,4,6-Tribromophenol	118-79-6	0.5	%		51.1	65.5	63.4	60.2	59.9
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		83.3	100	98.3	96.7	94.1
Anthracene-d10	1719-06-8	0.5	%		87.1	84.8	82.1	82.1	81.4
4-Terphenyl-d14	1718-51-0	0.5	%		80.5	84.7	82.7	81.6	82.6
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		95.1	125	121	121	123
Toluene-D8	2037-26-5	0.2	%		97.5	107	98.4	97.0	96.1
4-Bromofluorobenzene	460-00-4	0.2	%		102	97.2	90.8	87.4	89.4

Page : 13 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP11_0.2	TP12_1.0	TP12_1.5	TP13_0.5	TP14_0.2
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-011	ES1829155-012	ES1829155-013	ES1829155-014	ES1829155-015
				Result	Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		30.9	39.8	26.5	24.9	22.9
EG005T: Total Metals by ICP-AES									
Beryllium	7440-41-7	1	mg/kg	---	<1	----	----	----	----
Molybdenum	7439-98-7	2	mg/kg	---	<2	----	----	----	----
Selenium	7782-49-2	5	mg/kg	---	<5	----	----	----	----
Silver	7440-22-4	2	mg/kg	---	<2	----	----	----	----
Arsenic	7440-38-2	5	mg/kg	<5	24	<5	7	7	7
Cadmium	7440-43-9	1	mg/kg	<1	5	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	34	----	22	144	36	36
Copper	7440-50-8	5	mg/kg	20	----	100	71	72	72
Lead	7439-92-1	5	mg/kg	10	526	60	13	10	10
Nickel	7440-02-0	2	mg/kg	10	39	11	13	16	16
Zinc	7440-66-8	5	mg/kg	18	----	236	39	34	34
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg	---	6.8	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg	---	3	----	----	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg	---	2	----	----	----	----
EK040T: Fluoride Total									
Fluoride	18884-48-8	40	mg/kg	---	70	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg	---	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg	---	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	---	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	---	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	---	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	---	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	---	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	---	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	---	<0.05	----	----	----	----

Page : 14 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP11_0.2	TP12_1.0	TP12_1.5	TP13_0.5	TP14_0.2
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-011	ES1829155-012	ES1829155-013	ES1829155-014	ES1829155-015
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Total Chlordane (sum)	----	0.05	mg/kg		---	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		---	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		---	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		---	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		---	<0.05	----	----	----
4,4'-DDE	72-55-9	0.05	mg/kg		---	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		---	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		---	<0.05	----	----	----
4,4'-DDD	72-54-8	0.05	mg/kg		---	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		---	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		---	<0.05	----	----	----
4,4'-DDT	50-29-3	0.2	mg/kg		---	<0.2	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Chlorpyrifos	2921-88-2	0.05	mg/kg		---	<0.05	----	----	----
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup									
>C10 - C16 Fraction	----	50	mg/kg		---	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		---	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		---	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		---	<50	----	----	----
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup									
C10 - C14 Fraction	----	50	mg/kg		---	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		---	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		---	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		---	<50	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		---	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		---	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		---	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		---	<0.5	----	----	----
Styrene	100-42-5	0.5	mg/kg		---	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		---	<0.5	----	----	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	5	mg/kg		---	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds									

Page : 15 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP11_0.2	TP12_1.0	TP12_1.5	TP13_0.5	TP14_0.2
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-011	ES1829155-012	ES1829155-013	ES1829155-014	ES1829155-015
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Vinyl chloride	75-01-4	4	mg/kg		---	<4	---	---	---
1,1-Dichloroethene	75-35-4	0.5	mg/kg		---	<0.5	---	---	---
Methylene chloride	75-08-2	0.5	mg/kg		---	<0.5	---	---	---
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg		---	<0.5	---	---	---
Carbon Tetrachloride	56-23-5	0.5	mg/kg		---	<0.5	---	---	---
1,2-Dichloroethane	107-06-2	0.5	mg/kg		---	<0.5	---	---	---
Trichloroethene	79-01-6	0.5	mg/kg		---	<0.5	---	---	---
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg		---	<0.5	---	---	---
Tetrachloroethene	127-18-4	0.5	mg/kg		---	<0.5	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg		---	<0.5	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg		---	<0.5	---	---	---
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		---	<0.5	---	---	---
EP074G: Trihalomethanes									
Chloroform	67-68-3	0.5	mg/kg		---	<0.5	---	---	---
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		---	<0.5	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg		---	<0.5	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg		---	<1	---	---	---
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		---	<0.5	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg		---	<0.5	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg		---	<0.5	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg		---	<2	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Page : 16 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP11_0.2	TP12_1.0	TP12_1.5	TP13_0.5	TP14_0.2
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-011	ES1829155-012	ES1829155-013	ES1829155-014	ES1829155-015
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^A Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^A Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^A Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^A Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	----	<100	<100	<100
^A C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^A C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	----	<100	<100	<100
^A >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	<50	<50	<50
^A >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
^A Sum of BTEX	----	0.2	mg/kg		<0.2	----	<0.2	<0.2	<0.2
^A Total Xylenes	----	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	----	<1	<1	<1

Page : 17 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP11_0.2	TP12_1.0	TP12_1.5	TP13_0.5	TP14_0.2
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-011	ES1829155-012	ES1829155-013	ES1829155-014	ES1829155-015
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		---	118	---	---	---
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		---	99.0	---	---	---
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		---	115	---	---	---
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.5	%		---	88.4	---	---	---
Toluene-D8	2037-26-5	0.5	%		---	91.3	---	---	---
4-Bromofluorobenzene	460-00-4	0.5	%		---	91.9	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		94.4	74.0	97.6	90.3	96.2
2-Chlorophenol-D4	93951-73-6	0.5	%		91.5	77.2	94.8	87.9	92.9
2,4,6-Tribromophenol	118-79-6	0.5	%		62.2	58.8	63.8	58.7	60.2
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		100	83.8	102	97.5	100
Anthracene-d10	1719-06-8	0.5	%		85.5	87.7	87.1	82.7	84.3
4-Terphenyl-d14	1718-51-0	0.5	%		85.5	80.3	86.4	82.6	84.7
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		93.2	91.4	121	122	125
Toluene-D8	2037-26-5	0.2	%		80.6	91.5	98.6	99.5	99.6
4-Bromofluorobenzene	460-00-4	0.2	%		73.4	93.4	88.4	90.8	90.1

Page : 18 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP15_0.2	TP17_0.2	TP18_0.2	TP19_0.2	TP21_0.4
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-016	ES1829155-018	ES1829155-019	ES1829155-020	ES1829155-022
				Result	Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		21.3	23.6	22.1	29.0	20.8
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		21	11	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		102	73	23	57	24
Copper	7440-50-8	5	mg/kg		62	88	6	16	15
Lead	7439-92-1	5	mg/kg		29	12	8	12	29
Nickel	7440-02-0	2	mg/kg		20	12	4	8	6
Zinc	7440-66-6	5	mg/kg		15	20	8	14	116
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b,h)fluoranthene	205-99-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10

Page : 19 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP15_0.2	TP17_0.2	TP18_0.2	TP19_0.2	TP21_0.4
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-016	ES1829155-018	ES1829155-019	ES1829155-020	ES1829155-022
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^A C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^A C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^A >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^A >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^A Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^A Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		70.6	70.1	68.8	71.0	71.9
2-Chlorophenol-D4	93951-73-6	0.5	%		75.1	74.3	71.9	73.9	74.9
2,4,6-Tribromophenol	118-79-6	0.5	%		53.7	51.4	52.4	50.3	53.5
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		80.1	79.4	77.5	78.8	80.7
Anthracene-d10	1719-06-8	0.5	%		84.4	82.8	81.1	82.3	84.4
4-Terphenyl-d14	1718-51-0	0.5	%		75.9	75.0	73.4	74.3	76.5
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		123	119	120	123	109
Toluene-D8	2037-26-5	0.2	%		99.2	92.6	92.9	95.5	83.4

Page : 20 of 28
Work Order : ES1829155 Amendment 1
Client : RESOLVE ENVIRONMENTAL PTY LTD
Project : Jasbe Orange PSI

**Analytical Results**

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP15_0.2	TP17_0.2	TP18_0.2	TP19_0.2	TP21_0.4
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-016	ES1829155-018	ES1829155-019	ES1829155-020	ES1829155-022
				Result	Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		90.3	83.3	83.1	86.3	75.8

Page : 21 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP21_0.8	TP22_0.2	TP23_0.2	TP24_0.2	TP25_0.3
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-023	ES1829155-024	ES1829155-025	ES1829155-026	ES1829155-027
				Result	Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		9.3	8.4	7.9	----	8.9
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		---	22.4	42.9	23.0	18.5
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		Yes	No	No	----	No
Asbestos (Trace)	1332-21-4	5	Fibres		No	No	No	----	No
Asbestos Type	1332-21-4	-	--		Ch + Am	-	-	----	-
Sample weight (dry)	----	0.01	g		34.7	315	199	----	307
APPROVED IDENTIFIER:	----	-	--		G.MORGAN	G.MORGAN	G.MORGAN	----	G.MORGAN
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	<5	<5	<5	9
Cadmium	7440-43-9	1	mg/kg		----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		----	40	184	44	72
Copper	7440-50-8	5	mg/kg		----	20	20	15	45
Lead	7439-92-1	5	mg/kg		----	12	18	11	12
Nickel	7440-02-0	2	mg/kg		----	19	19	10	12
Zinc	7440-66-6	5	mg/kg		----	45	38	15	29
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Benz(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Benz(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Benz(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5

Page : 22 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP21_0.8	TP22_0.2	TP23_0.2	TP24_0.2	TP25_0.3
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-023	ES1829155-024	ES1829155-025	ES1829155-026	ES1829155-027
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	<0.5
^A Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	<0.5
^A Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	<0.5
^A Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	---	0.6	0.6	0.6	0.6	0.6
^A Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	---	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	---	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	---	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	---	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	---	<100	<100	<100	<100	<100
^A C10 - C36 Fraction (sum)	----	50	mg/kg	---	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	---	<10	<10	<10	<10	<10
^A C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	---	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	---	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	---	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	---	<100	<100	<100	<100	<100
^A >C10 - C40 Fraction (sum)	----	50	mg/kg	---	<50	<50	<50	<50	<50
^A >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	---	<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	---	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	<0.5
^A Sum of BTEX	----	0.2	mg/kg	---	<0.2	<0.2	<0.2	<0.2	<0.2
^A Total Xylenes	----	0.5	mg/kg	---	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	---	<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	---	73.0	70.9	69.2	68.6	68.6
2-Chlorophenol-D4	93951-73-6	0.5	%	---	76.7	73.9	72.6	69.1	69.1

Page : 23 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP21_0.8	TP22_0.2	TP23_0.2	TP24_0.2	TP25_0.3
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00	24-Sep-2018 00:00
Compound	CAS Number	LOR	Unit		ES1829155-023	ES1829155-024	ES1829155-025	ES1829155-026	ES1829155-027
				Result	Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2,4,6-Tribromophenol	118-79-6	0.5	%	---	51.8	51.1	47.8	44.7	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	---	82.6	79.9	78.1	74.7	
Anthracene-d10	1719-08-8	0.5	%	---	86.1	85.1	80.9	77.7	
4-Terphenyl-d14	1718-51-0	0.5	%	---	77.2	78.4	75.0	71.6	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	---	130	111	118	128	
Toluene-D8	2037-26-5	0.2	%	---	96.5	84.3	89.0	99.0	
4-Bromofluorobenzene	460-00-4	0.2	%	---	89.0	77.8	80.6	88.7	

Page : 24 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC1	QC2	---	---	---
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	---	---	---
Compound	CAS Number	LOR	Unit		ES1829155-028	ES1829155-029	-----	-----	-----
					Result	Result	---	---	---
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		34.2	20.3	----	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		26	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg		5	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		52	48	----	----	----
Copper	7440-50-8	5	mg/kg		234	16	----	----	----
Lead	7439-92-1	5	mg/kg		560	13	----	----	----
Nickel	7440-02-0	2	mg/kg		58	10	----	----	----
Zinc	7440-66-6	5	mg/kg		6270	16	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b,h)fluoranthene	205-99-2	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----

Page : 25 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC1	QC2	---	---	---
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	---	---	---
Compound	CAS Number	LOR	Unit		ES1829155-028	ES1829155-029	-----	-----	-----
					Result	Result	---	---	---
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^A C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^A C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^A >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
^A >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^A Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^A Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		70.5	70.0	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		74.3	74.1	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%		57.6	53.9	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		80.2	80.5	----	----	----
Anthracene-d10	1719-06-8	0.5	%		84.0	84.3	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		76.8	76.5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		85.5	92.5	----	----	----
Toluene-D8	2037-26-5	0.2	%		83.6	87.0	----	----	----

Page : 26 of 28
Work Order : ES1829155 Amendment 1
Client : RESOLVE ENVIRONMENTAL PTY LTD
Project : Jasbe Orange PSI

**Analytical Results**

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC1	QC2	---	---	---
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	---	---	---
Compound	CAS Number	LOR	Unit		ES1829155-028	ES1829155-029	-----	-----	-----
				Result	Result	---	---	---	---
EP080S: TPH(V)/BTEX Surrogates - C continued									
4-Bromofluorobenzene	460-00-4	0.2	%		90.8	95.3	---	---	---

Page : 27 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)				Client sample ID	TP16_0.2	TP20_0.1	----	----	----
Client sampling date / time					24-Sep-2018 00:00	24-Sep-2018 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1829155-017	ES1829155-021	-----	-----	-----
				Result	Result		----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg		Yes	Yes	----	----	----
Asbestos Type	1332-21-4	-	--		Ch	Ch + Am	----	----	----
Sample weight (dry)	----	0.01	g		127	303	----	----	----
APPROVED IDENTIFIER:	----	-	--		G.MORGAN	G.MORGAN	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: SOIL		
Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	TP01_0.5 - 24-Sep-2018 00:00	Mid brown clay soil.
EA200: Description	TP21_0.8 - 24-Sep-2018 00:00	A collection of cement sheeting debris plus one piece of asbestos cement sheeting approximately 50 x 35 x 5mm.
EA200: Description	TP22_0.2 - 24-Sep-2018 00:00	Mid brown clay soil.
EA200: Description	TP23_0.2 - 24-Sep-2018 00:00	Mid brown sandy soil.
EA200: Description	TP25_0.3 - 24-Sep-2018 00:00	Mid brown sandy soil.
Sub-Matrix: SOLID		
Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	TP16_0.2 - 24-Sep-2018 00:00	Three pieces of asbestos cement sheeting approximately 140 x 65 x 5mm.
EA200: Description	TP20_0.1 - 24-Sep-2018 00:00	Two pieces of asbestos cement sheeting approximately 120 x 80 x 5mm.

Page : 28 of 28
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130



Automated Guideline Comparison Report

Work Order	: ES1829155	Page	: 1 of 2
Amendment	: 1		
Client	: RESOLVE ENVIRONMENTAL PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MITCHELL KNOX		
Address	: 144 Church Street BRIGHTON VICTORIA 3186	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: mknox@resolveenvironmental.com.au	E-mail	: shirley.lecomu@alsglobal.com
Telephone	: ---	Telephone	: +61-3-8549 9630
Facsimile	: ---	Facsimile	: +61-2-8784 8500
Project	: Jasbe Orange PSI	Date Received	: 27-Sep-2018 11:20
Order number	: PO011097	Date Analysed	: 03-Oct-2018
C-Q-C number	: ---	Date Issued	: 10-Oct-2018 15:32
No. of samples received	: 29		
No. of samples analysed	: 29	Quote number	: EN/222

General Comments

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material' Category data where the EPA Guideline Comparison Report (GCR) is used. The GCR is used to determine the appropriate guideline values for the 'Fill Material' Category data.

This guideline comparison report is **NOT** a soil classification report. Classification of soils as 'Fill Material' Category data is based on the EPA Guideline Comparison Report (GCR) and the 'Standard for the Production and use of Waste Derived Fill'.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the EPA Guideline Comparison Report (GCR) are included. The GCR is used to determine the appropriate guideline values for the 'Fill Material' Category data.

Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit. Red shading is not applied to the 'Summary of Thresholds Reached or Exceeded'.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required IDs are listed and analysed.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Page : 2 of 2
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report are below the upper threshold limits for Fill Material.

Analytical Results

Sub-Matrix:				Client sample ID		Guideline Lower Limit	Guideline Upper Limit	----	----	----	----	----
				Sampling date/time				----	----	----	----	----
Compound	Method	LOR	Unit									
		-	-	----	----	----	----	----	----	----	----	

Note: Red shading is applied where the result is equal to or greater than the guideline upper limit and/or equal to or lower than the guideline lower limit.



QUALITY CONTROL REPORT

Work Order : ES1829155

Page : 1 of 20

Amendment : 1

Client : RESOLVE ENVIRONMENTAL PTY LTD

Laboratory : Environmental Division Sydney

Contact : MITCHELL KNOX

Contact : Shirley LeComu

Address : 144 Church Street
BRIGHTON VICTORIA 3186

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : ---

Telephone : +61-3-8549 9630

Project : Jasbe Orange PSI

Date Samples Received : 27-Sep-2018

Order number : PO011097

Date Analysis Commenced : 03-Oct-2018

C-O-C number : ---

Issue Date : 10-Oct-2018

Sampler : MITCHELL KNOX

Site : ---

Quote number : EN/222

No. of samples received : 29

No. of samples analysed : 29



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Gerrad Morgan	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Merrin Avery	Supervisor - Inorganic	Newcastle - Inorganics, Mayfield West, NSW

Page : 2 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QM-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002: pH 1:5 (Soils) (QC Lot: 1963567)									
ES1829082-010	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.6	8.6	0.00	0% - 20%
ES1829082-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.7	8.7	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1964330)									
ES1829155-004	TP04_1.0	EA055: Moisture Content	----	0.1	%	49.6	44.5	10.8	0% - 20%
ES1829155-015	TP14_0.2	EA055: Moisture Content	----	0.1	%	22.9	23.9	3.98	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1964331)									
ES1829155-027	TP25_0.3	EA055: Moisture Content	----	0.1	%	18.5	18.0	2.87	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1963283)									
ES1828922-005	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	2	2	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
ES1828922-014	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit

Page : 3 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 1963283) - continued									
ES1828922-014	Anonymous	EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1964596)									
ES1829095-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	27	31	13.9	0% - 50%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	8	17.6	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	8	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	10	21.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	7	17.8	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
ES1829155-015	TP14_0.2	EG005T: Zinc	7440-66-6	5	mg/kg	14	16	17.5	No Limit
		EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	36	# 50	31.5	0% - 20%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	16	13	21.2	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	5	30.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	72	58	20.6	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	10	7	32.1	No Limit
ES1829155-028	QC1	EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	34	35	5.36	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	52	54	2.14	0% - 20%
		EG005T: Copper	7440-50-8	5	mg/kg	234	210	10.7	0% - 20%
		EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	5	6	0.00	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	4	<2	55.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	58	68	16.4	0% - 20%
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	26	22	14.9	No Limit
ES1829155-028	QC1	EG005T: Lead	7439-92-1	5	mg/kg	560	578	3.26	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1964598)									

Page : 4 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 1964598) - continued									
ES1829155-028	QC1	EG005T: Zinc	7440-66-8	5	mg/kg	6270	7130	12.8	0% - 20%
EW1803919-018	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	1	1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	24	31.4	0% - 50%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	12	17.4	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	84	96	13.0	0% - 50%
		EG005T: Lead	7439-82-1	5	mg/kg	30	37	19.3	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-8	5	mg/kg	143	152	6.34	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1963284)									
ES1828922-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1828922-014	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1964597)									
ES1829095-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1829155-015	TP14_0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1964599)									
ES1829155-028	QC1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EW1803919-018	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 1966411)									
ES1828807-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
ES1829094-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 1962642)									
ES1829155-005	TP05_2.0	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.00	No Limit
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QC Lot: 1962641)									
ES1829155-005	TP05_2.0	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.00	No Limit
EK040T: Fluoride Total (QC Lot: 1967172)									
EB1822373-017	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	200	220	11.9	No Limit
EB1822373-026	Anonymous	EK040T: Fluoride	16984-48-8	40	mg/kg	570	470	19.7	0% - 50%
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1962972)									
ES1829155-005	TP05_2.0	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1962970)									
ES1829155-005	TP05_2.0	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Page : 5 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1962970) - continued									
ES1829155-005	TP05_2.0	EP068: delta-BHC	319-88-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1962970)									
ES1829155-005	TP05_2.0	EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QC Lot: 1962971)									
ES1829155-005	TP05_2.0	EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071SG-S: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QC Lot: 1962971)									
ES1829155-005	TP05_2.0	EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 1963324)									
ES1829094-001	Anonymous	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.6	0.00	No Limit
		EP074: meta- & para-Xylene	108-38-3	0.5	mg/kg	2.7	3.2	16.0	No Limit
			106-42-3						
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
	EP074: ortho-Xylene	95-47-6	0.5	mg/kg	5.5	6.6	17.4	0% - 50%	
EP074B: Oxygenated Compounds (QC Lot: 1963324)									
ES1829094-001	Anonymous	EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1963324)									
ES1829094-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Page : 6 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 1963324) - continued									
ES1829094-001	Anonymous	EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 1963324)									
ES1829094-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 1963324)									
ES1829094-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1962969)									
ES1829155-005	TP05_2.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1962973)									
ES1829155-002	TP02_0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES1829155-015	TP14_0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 1962975)									
ES1829109-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Page : 7 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 1962975) - continued									
ES1829109-001	Anonymous	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1962969)									
ES1829155-005	TP05_2.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1962973)									
ES1829155-002	TP02_0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Page : 8 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1962973) - continued									
ES1829155-002	TP02_0.2	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1829155-015	TP14_0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1962975)							
ES1829109-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						

Page : 9 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1962975) - continued									
ES1829109-001	Anonymous	EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1962974)									
ES1829155-002	TP02_0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1829155-015	TP14_0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1962976)									
ES1829109-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1962992)									
ES1829155-002	TP02_0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1829155-015	TP14_0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1963323)									
ES1829218-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1829094-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	16	19	16.1	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1962974)									
ES1829155-002	TP02_0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1829155-015	TP14_0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1962976)									
ES1829109-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1962992)									
ES1829155-002	TP02_0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1829155-015	TP14_0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit

Page : 10 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1963323)									
ES1829218-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1829094-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	51	62	19.1	No Limit
EP080: BTEXN (QC Lot: 1962992)									
ES1829155-002	TP02_0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1829155-015	TP14_0.2	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1963323)									
ES1829218-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1829094-001	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	2.6	3.0	16.7	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	5.3	6.3	17.4	0% - 50%
		EP080: Naphthalene	91-20-3	1	mg/kg	2	2	0.00	No Limit

Page : 11 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (ME) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1963283)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	103	86	126
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	110	90	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.4	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	91.8	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	97.9	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	97.8	80	114
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	87	123
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	94.8	75	131
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	102	77	117
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	117	80	122
EG005T: Total Metals by ICP-AES (QCLot: 1964596)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	86	126
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	110	90	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	108	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	106	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	103	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	109	80	114
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	113	87	123
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	106	75	131
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	97.8	77	117
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	120	80	122
EG005T: Total Metals by ICP-AES (QCLot: 1964598)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	86	126
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	110	90	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.8	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	103	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	98.4	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	102	80	114
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	106	87	123
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	97.2	75	131
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.1 mg/kg	96.1	77	117

Page : 12 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005T: Total Metals by ICP-AES (QCLot: 1964598) - continued								
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1963284)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	80.5	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1964597)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	81.1	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1964599)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	74.0	70	105
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1966411)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	92.4	68	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1962642)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	119	81	129
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 1962641)								
EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	20 mg/kg	117	70	130
EK040T: Fluoride Total (QCLot: 1967172)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	400 mg/kg	91.5	67	96
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1962972)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	78.0	62	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 1962970)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	94.9	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.8	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	96.5	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.9	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	106	66	116
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	107	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	69	115
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	105	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	62	124
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	99.3	66	120

Page : 13 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (ME) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1962970)								
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	99.8	76	118
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1962971)								
EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	92.9	80	116
EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	98.2	85	115
EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	94.4	75	123
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 1962971)								
EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	95.6	89	109
EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	97.4	84	112
EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	89.1	71	119
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1963324)								
EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.7	71	121
EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.8	85	131
EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.6	72	114
EP074: meta- & para-Xylene	108-38-3 108-42-3	0.5	mg/kg	<0.5	2 mg/kg	92.4	70	116
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	92.2	87	113
EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.4	75	115
EP074B: Oxygenated Compounds (QCLot: 1963324)								
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	118	58	136
EP074E: Halogenated Aliphatic Compounds (QCLot: 1963324)								
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	87.4	43	147
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	82.7	54	126
EP074: Methylene chloride	75-09-2	0.5	mg/kg	<0.5	1 mg/kg	100	58	148
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	84.8	65	117
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	82.1	59	125
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	91.4	65	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	86.5	70	118
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	92.5	64	126
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	90.3	67	143
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	89.3	62	122
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	93.5	65	121
EP074F: Halogenated Aromatic Compounds (QCLot: 1963324)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	91.7	68	116
EP074G: Trihalomethanes (QCLot: 1963324)								
EP074: Chloroform	67-68-3	0.5	mg/kg	<0.5	1 mg/kg	90.8	66	124
EP075(SIM)A: Phenolic Compounds (QCLot: 1962969)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	94.2	71	125
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	98.2	71	123

Page : 14 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
							Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 1962969) - continued								
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	101	67	127
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	93.6	70	116
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	84.3	54	114
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	90.3	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	14.3	10	57
EP075(SIM)A: Phenolic Compounds (QCLot: 1962973)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	96.1	71	125
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	90.7	71	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	98.7	67	127
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	97.5	70	116
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	91.4	54	114
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	90.6	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	44.4	10	57
EP075(SIM)A: Phenolic Compounds (QCLot: 1962975)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	92.9	71	125
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	97.6	71	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	101	67	127
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	93.6	70	116
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	84.6	54	114
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	90.3	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	12.9	10	57
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1962969)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	106	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	101	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	103	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	102	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	107	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	108	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	110	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	113	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.1	69	123
EP075(SIM): Chrysene	218-01-8	0.5	mg/kg	<0.5	6 mg/kg	98.0	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	87.9	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.1	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	94.0	70	126
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	88.4	61	121
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	69.2	62	118

Page : 15 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
CAS Number		LOR	Unit		Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound									
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1962969) - continued									
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	71.7	63	121	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1962973)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	96.2	77	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	91.4	72	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	89.8	73	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	96.8	72	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	90.8	75	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	89.1	77	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	97.3	73	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	99.7	74	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	95.3	69	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	92.8	75	127	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	87.7	68	116	
	205-82-3								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	93.5	74	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	90.5	70	126	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	86.8	61	121	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	84.4	62	118	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	86.0	63	121	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1962975)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	104	77	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	101	72	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	101	73	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	101	72	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	106	75	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	108	77	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	110	73	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	113	74	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.7	69	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	98.5	75	127	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	90.1	68	116	
	205-82-3								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.6	74	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	94.1	70	126	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	74.2	61	121	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	75.0	62	118	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	71.8	63	121	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1962974)									

Page : 16 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1962974) - continued								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	96.2	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	103	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	93.5	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1962976)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	102	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	106	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	101	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1962992)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	98.0	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1963323)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	87.0	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1962974)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	99.9	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	102	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	85.4	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1962976)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	105	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	106	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	104	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1962992)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	108	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1963323)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.4	68	128
EP080: BTEXN (QCLot: 1962992)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	107	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	100	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.0	65	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	98.1	66	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	97.1	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	107	63	119
EP080: BTEXN (QCLot: 1963323)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.7	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	96.6	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.6	65	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	90.8	66	118
	106-42-3							

Page : 17 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: SOIL				Method Blank (ME) Report Result	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS		Low	High
EP080: BTEXN (QCLot: 1963323) - continued									
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.7		68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	96.6		63	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1963283)							
ES1828922-005	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.2	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.2	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.7	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	97.9	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	98.3	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	99.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	105	70	130
EG005T: Total Metals by ICP-AES (QCLot: 1964596)							
ES1829095-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.8	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	92.1	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	104	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	107	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	102	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	110	70	130
EG005T: Total Metals by ICP-AES (QCLot: 1964598)							
ES1829155-028	QC1	EG005T: Arsenic	7440-38-2	50 mg/kg	99.5	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	103	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	117	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	128	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	# Not Determined	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1963284)							
ES1828922-005	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	90.9	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1964597)							

Page : 18 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	RecoveryLimits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1964597) - continued							
ES1829095-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	89.2	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1964599)							
ES1829155-028	QC1	EG035T: Mercury	7439-97-6	5 mg/kg	93.0	70	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 1966411)							
ES1828807-003	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	40 mg/kg	# 1.12	70	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 1962642)							
ES1829155-005	TP05_2.0	EK026SF: Total Cyanide	57-12-5	40 mg/kg	108	70	130
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 1962641)							
ES1829155-005	TP05_2.0	EK028SF: Weak Acid Dissociable Cyanide	----	40 mg/kg	95.0	70	130
EK040T: Fluoride Total (QCLot: 1967172)							
EB1822373-017	Anonymous	EK040T: Fluoride	16984-48-8	400 mg/kg	97.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1962972)							
ES1829155-005	TP05_2.0	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	90.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 1962970)							
ES1829155-005	TP05_2.0	EP068: gamma-BHC	58-89-9	0.5 mg/kg	90.9	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	105	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	109	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	101	70	130
		EP068: Endrin	72-20-8	2 mg/kg	83.0	70	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	92.8	70	130
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1962971)							
ES1829155-005	TP05_2.0	EP071SG-S: C10 - C14 Fraction	----	523 mg/kg	95.6	43	139
		EP071SG-S: C15 - C28 Fraction	----	2319 mg/kg	107	49	131
		EP071SG-S: C29 - C36 Fraction	----	1714 mg/kg	112	64	158
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 1962971)							
ES1829155-005	TP05_2.0	EP071SG-S: >C10 - C16 Fraction	----	860 mg/kg	93.9	33	137
		EP071SG-S: >C16 - C34 Fraction	----	3223 mg/kg	114	40	137
		EP071SG-S: >C34 - C40 Fraction	----	1058 mg/kg	106	30	190
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1963324)							
ES1829218-001	Anonymous	EP074: Benzene	71-43-2	2.5 mg/kg	86.2	70	130
		EP074: Toluene	108-88-3	2.5 mg/kg	89.3	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 1963324)							
ES1829218-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	84.0	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	84.2	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 1963324)							

Page : 19 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 1963324) - continued							
ES1829218-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	90.8	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 1962969)							
ES1829155-005	TP05_2.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	98.9	70	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	98.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	37.2	20	130
EP075(SIM)A: Phenolic Compounds (QCLot: 1962973)							
ES1829155-002	TP02_0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	96.5	70	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.1	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	66.5	20	130
EP075(SIM)A: Phenolic Compounds (QCLot: 1962975)							
ES1829109-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	93.5	70	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	93.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	44.6	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1962969)							
ES1829155-005	TP05_2.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	100	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	119	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1962973)							
ES1829155-002	TP02_0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	88.8	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	93.4	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1962975)							
ES1829109-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	95.6	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	113	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1962974)							
ES1829155-002	TP02_0.2	EP071: C10 - C14 Fraction	----	523 mg/kg	76.9	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	93.5	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	99.2	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1962976)							
ES1829109-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	91.5	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	109	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	119	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1962992)							
ES1829155-002	TP02_0.2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	109	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1963323)							
ES1829218-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	100	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1962974)							

Page : 20 of 20
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1962974) - continued							
ES1829155-002	TP02_0.2	EP071: >C10 - C16 Fraction	----	860 mg/kg	84.8	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	97.1	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	96.1	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1962976)							
ES1829109-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	98.8	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	114	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	115	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1962992)							
ES1829155-002	TP02_0.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	114	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1963323)							
ES1829218-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	102	70	130
EP080: BTEXN (QCLot: 1962992)							
ES1829155-002	TP02_0.2	EP080: Benzene	71-43-2	2.5 mg/kg	108	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	102	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	101	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	104	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	106	70	130
	EP080: Naphthalene	91-20-3	2.5 mg/kg	98.0	70	130	
EP080: BTEXN (QCLot: 1963323)							
ES1829218-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	94.0	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	93.0	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	90.2	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	93.2	70	130
	EP080: Naphthalene	91-20-3	2.5 mg/kg	88.3	70	130	



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES1829155	Page	: 1 of 12
Amendment	: 1		
Client	: RESOLVE ENVIRONMENTAL PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MITCHELL KNOX	Telephone	: +61-3-8549 9630
Project	: Jasbe Orange PSI	Date Samples Received	: 27-Sep-2018
Site	: ---	Issue Date	: 10-Oct-2018
Sampler	: MITCHELL KNOX	No. of samples received	: 29
Order number	: PO011097	No. of samples analysed	: 29

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Laboratory Control outliers occur.
- Duplicate outliers exist - please see following pages for full details.
- Matrix Spike outliers exist - please see following pages for full details.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- NO Quality Control Sample Frequency Outliers exist.

Page : 2 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI

**Outliers : Quality Control Samples***Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes*Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	ES1829155--015	TP14_0.2	Chromium	7440-47-3	31.5 %	0% - 20%	RPD exceeds LOR based limits
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	ES1829155--028	QC1	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG048: Hexavalent Chromium (Alkaline Digest)	ES1828807--003	Anonymous	Hexavalent Chromium	18540-29-9	1.12 %	70-130%	Recovery less than lower data quality objective

Outliers : Analysis Holding Time ComplianceMatrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils)						
Snap Lock Bag - Friable Asbestos/PSD Bag TP01_0.5,	TP21_0.8	04-Oct-2018	01-Oct-2018	3	----	----
Soil Glass Jar - Unpreserved TP22_0.2, TP25_0.3	TP23_0.2,	04-Oct-2018	01-Oct-2018	3	----	----
EP074A: Monocyclic Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved TP05_2.0, TP12_1.0	TP06_1.0,	04-Oct-2018	01-Oct-2018	3	04-Oct-2018	01-Oct-2018
EP074B: Oxygenated Compounds						
Soil Glass Jar - Unpreserved TP05_2.0, TP12_1.0	TP06_1.0,	04-Oct-2018	01-Oct-2018	3	04-Oct-2018	01-Oct-2018
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved TP05_2.0, TP12_1.0	TP06_1.0,	04-Oct-2018	01-Oct-2018	3	04-Oct-2018	01-Oct-2018
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved TP05_2.0, TP12_1.0	TP06_1.0,	04-Oct-2018	01-Oct-2018	3	04-Oct-2018	01-Oct-2018
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved TP05_2.0, TP12_1.0	TP06_1.0,	04-Oct-2018	01-Oct-2018	3	04-Oct-2018	01-Oct-2018

Page : 3 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA002) TP01_0.5, TP21_0.8	24-Sep-2018	04-Oct-2018	01-Oct-2018	✖	04-Oct-2018	04-Oct-2018	✔
Soil Glass Jar - Unpreserved (EA002) TP22_0.2, TP25_0.3	24-Sep-2018	04-Oct-2018	01-Oct-2018	✖	04-Oct-2018	04-Oct-2018	✔
EA055: Moisture Content (Dried @ 105-110°C)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA055) TP04_1.0	24-Sep-2018	----	----	----	04-Oct-2018	08-Oct-2018	✔
Soil Glass Jar - Unpreserved (EA055) TP02_0.2, TP03_0.3, TP05_2.0, TP06_1.0, TP07_0.2, TP08_0.2, TP09_0.2, TP10_0.2, TP11_0.2, TP12_1.0, TP12_1.5, TP13_0.5, TP14_0.2, TP15_0.2, TP17_0.2, TP18_0.2, TP19_0.2, TP21_0.4, TP22_0.2, TP23_0.2, TP24_0.2, TP25_0.3, QC1, QC2	24-Sep-2018	----	----	----	04-Oct-2018	08-Oct-2018	✔
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) TP01_0.5, TP21_0.8, TP22_0.2, TP23_0.2, TP25_0.3	24-Sep-2018	----	----	----	10-Oct-2018	23-Mar-2019	✔

Page : 4 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES							
Snap Lock Bag - Friable Asbestos/PSD Bag (EG005T) TP04_1.0	24-Sep-2018	04-Oct-2018	23-Mar-2019	✓	04-Oct-2018	23-Mar-2019	✓
Soil Glass Jar - Unpreserved (EG005T) TP02_0.2, TP03_0.3, TP05_2.0, TP06_1.0, TP07_0.2, TP08_0.2, TP09_0.2, TP10_0.2, TP11_0.2, TP12_1.0, TP12_1.5, TP13_0.5, TP14_0.2, TP15_0.2, TP17_0.2, TP18_0.2, TP19_0.2, TP21_0.4, TP22_0.2, TP23_0.2, TP24_0.2, TP25_0.3, QC1, QC2	24-Sep-2018	04-Oct-2018	23-Mar-2019	✓	04-Oct-2018	23-Mar-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Snap Lock Bag - Friable Asbestos/PSD Bag (EG035T) TP04_1.0	24-Sep-2018	04-Oct-2018	22-Oct-2018	✓	04-Oct-2018	22-Oct-2018	✓
Soil Glass Jar - Unpreserved (EG035T) TP02_0.2, TP03_0.3, TP05_2.0, TP06_1.0	24-Sep-2018	04-Oct-2018	22-Oct-2018	✓	04-Oct-2018	22-Oct-2018	✓
Soil Glass Jar - Unpreserved (EG035T) TP07_0.2, TP08_0.2, TP09_0.2, TP10_0.2, TP11_0.2, TP12_1.0, TP12_1.5, TP13_0.5, TP14_0.2, TP15_0.2, TP17_0.2, TP18_0.2, TP19_0.2, TP21_0.4, TP22_0.2, TP23_0.2, TP24_0.2, TP25_0.3, QC1, QC2	24-Sep-2018	04-Oct-2018	22-Oct-2018	✓	05-Oct-2018	22-Oct-2018	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G) TP05_2.0, TP06_1.0, TP12_1.0	24-Sep-2018	05-Oct-2018	22-Oct-2018	✓	05-Oct-2018	12-Oct-2018	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF) TP05_2.0, TP06_1.0, TP12_1.0	24-Sep-2018	03-Oct-2018	08-Oct-2018	✓	04-Oct-2018	17-Oct-2018	✓

Page : 5 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Matrix: SOIL

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK028SF) TP05_2.0, TP12_1.0 TP06_1.0	24-Sep-2018	03-Oct-2018	08-Oct-2018	✔	04-Oct-2018	17-Oct-2018	✔
EK040T: Fluoride Total							
Snap Lock Bag (EK040T) TP05_2.0, TP12_1.0 TP06_1.0	24-Sep-2018	04-Oct-2018	22-Oct-2018	✔	08-Oct-2018	22-Oct-2018	✔
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) TP05_2.0, TP12_1.0 TP06_1.0	24-Sep-2018	04-Oct-2018	08-Oct-2018	✔	04-Oct-2018	13-Nov-2018	✔
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) TP05_2.0, TP12_1.0 TP06_1.0	24-Sep-2018	04-Oct-2018	08-Oct-2018	✔	04-Oct-2018	13-Nov-2018	✔
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) TP05_2.0, TP12_1.0 TP06_1.0	24-Sep-2018	04-Oct-2018	08-Oct-2018	✔	04-Oct-2018	13-Nov-2018	✔
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S) TP05_2.0, TP12_1.0 TP06_1.0	24-Sep-2018	04-Oct-2018	08-Oct-2018	✔	05-Oct-2018	13-Nov-2018	✔
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S) TP05_2.0, TP12_1.0 TP06_1.0	24-Sep-2018	04-Oct-2018	08-Oct-2018	✔	05-Oct-2018	13-Nov-2018	✔
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) TP05_2.0, TP12_1.0 TP06_1.0	24-Sep-2018	04-Oct-2018	01-Oct-2018	✖	04-Oct-2018	01-Oct-2018	✖
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) TP05_2.0, TP12_1.0 TP06_1.0	24-Sep-2018	04-Oct-2018	01-Oct-2018	✖	04-Oct-2018	01-Oct-2018	✖
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) TP05_2.0, TP12_1.0 TP06_1.0	24-Sep-2018	04-Oct-2018	01-Oct-2018	✖	04-Oct-2018	01-Oct-2018	✖

Page : 6 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Matrix: SOIL

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
TP05_2.0, TP12_1.0	TP06_1.0,	24-Sep-2018	04-Oct-2018	01-Oct-2018	✖	04-Oct-2018	01-Oct-2018	✖
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074)								
TP05_2.0, TP12_1.0	TP06_1.0,	24-Sep-2018	04-Oct-2018	01-Oct-2018	✖	04-Oct-2018	01-Oct-2018	✖
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
TP05_2.0, TP12_1.0	TP06_1.0,	24-Sep-2018	04-Oct-2018	08-Oct-2018	✔	04-Oct-2018	13-Nov-2018	✔
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Snap Lock Bag - Friable Asbestos/PSD Bag (EP075(SIM))								
TP04_1.0		24-Sep-2018	04-Oct-2018	08-Oct-2018	✔	04-Oct-2018	13-Nov-2018	✔
Soil Glass Jar - Unpreserved (EP075(SIM))								
TP02_0.2, TP05_2.0, TP07_0.2, TP09_0.2, TP11_0.2, TP12_1.5, TP14_0.2, TP17_0.2, TP19_0.2, TP22_0.2, TP24_0.2, QC1,	TP03_0.3, TP06_1.0, TP08_0.2, TP10_0.2, TP12_1.0, TP13_0.5, TP15_0.2, TP18_0.2, TP21_0.4, TP23_0.2, TP25_0.3, QC2	24-Sep-2018	04-Oct-2018	08-Oct-2018	✔	04-Oct-2018	13-Nov-2018	✔

Page : 7 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Snap Lock Bag - Friable Asbestos/PSD Bag (EP080) TP04_1.0	24-Sep-2018	04-Oct-2018	08-Oct-2018	✓	04-Oct-2018	08-Oct-2018	✓
Soil Glass Jar - Unpreserved (EP080) TP02_0.2, TP03_0.3, TP05_2.0, TP06_1.0, TP07_0.2, TP08_0.2, TP09_0.2, TP10_0.2, TP11_0.2, TP12_1.0, TP12_1.5, TP13_0.5, TP14_0.2, TP15_0.2, TP17_0.2, TP18_0.2, TP19_0.2, TP21_0.4, TP22_0.2, TP23_0.2, TP24_0.2, TP25_0.3, QC1, QC2	24-Sep-2018	04-Oct-2018	08-Oct-2018	✓	04-Oct-2018	08-Oct-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Snap Lock Bag - Friable Asbestos/PSD Bag (EP080) TP04_1.0	24-Sep-2018	04-Oct-2018	08-Oct-2018	✓	04-Oct-2018	08-Oct-2018	✓
Soil Glass Jar - Unpreserved (EP080) TP02_0.2, TP03_0.3, TP05_2.0, TP06_1.0, TP07_0.2, TP08_0.2, TP09_0.2, TP10_0.2, TP11_0.2, TP12_1.0, TP12_1.5, TP13_0.5, TP14_0.2, TP15_0.2, TP17_0.2, TP18_0.2, TP19_0.2, TP21_0.4, TP22_0.2, TP23_0.2, TP24_0.2, TP25_0.3, QC1, QC2	24-Sep-2018	04-Oct-2018	08-Oct-2018	✓	04-Oct-2018	08-Oct-2018	✓

Page : 8 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI

Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Snap Lock Bag - Friable Asbestos/PSD Bag (EP080) TP04_1.0	24-Sep-2018	04-Oct-2018	08-Oct-2018	✓	04-Oct-2018	08-Oct-2018	✓
Soil Glass Jar - Unpreserved (EP080) TP02_0.2, TP03_0.3, TP07_0.2, TP08_0.2, TP09_0.2, TP10_0.2, TP11_0.2, TP12_1.5, TP13_0.5, TP14_0.2, TP15_0.2, TP17_0.2, TP18_0.2, TP19_0.2, TP21_0.4, TP22_0.2, TP23_0.2, TP24_0.2, TP25_0.3, QC1, QC2	24-Sep-2018	04-Oct-2018	08-Oct-2018	✓	04-Oct-2018	08-Oct-2018	✓

Matrix: **SOLID**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)		24-Sep-2018	----	----	----	05-Oct-2018	23-Mar-2019	✓
TP16_0.2,	TP20_0.1							

Page : 9 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Evaluation	Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected		
Laboratory Duplicates (DUP)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	3	25	12.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	27	14.81	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	18	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	6	53	11.32	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	7	59	11.86	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	23	13.04	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	31	12.90	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	27	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	3	66.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	53	5.66	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	59	5.08	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	27	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page : 10 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Evaluation	Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected		
Method Blanks (MB) - Continued							
Total Mercury by FIMS	EG035T	3	53	5.66	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	59	5.08	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	27	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK028SF	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	53	5.66	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	59	5.08	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page : 11 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)
WAD Cyanide by Segmented Flow Analyser	EK028SF	SOIL	In house: Referenced to APHA 4500-CN-O. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Hydrogen cyanide is liberated from a slightly acidified (pH 4.5) and is dialysed. Tight cyanide complexes that would not be amenable to oxidation by chlorine are not converted. Iron cyanide complexes are precipitated with zinc acetate. Liberated HCN diffuses through a membrane into a stream of sodium hydroxide where it is carried as CN-. The cyanide in caustic solution is buffered to pH 5.2 and further converted to cyanogen chloride by reaction with chloramine-T. Cyanogen chloride subsequently reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acids to give a red colour complex. This colour is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3)

Page : 12 of 12
 Work Order : ES1829155 Amendment 1
 Client : RESOLVE ENVIRONMENTAL PTY LTD
 Project : Jasbe Orange PSI



Analytical Methods	Method	Matrix	Method Descriptions
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Asbestos Identification in Bulk Solids	EA200	SOLID	In house: Referenced to AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

#620917

Resolve Environmental CHAIN OF CUSTODY
ALS Laboratory: please tick →

CLIENT: Resolve Environmental Pty Ltd		TURNAROUND REQUIREMENTS : 5 DAY STANDARD TAT (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)		FOR LABORATORY USE ONLY (Circle)	
OFFICE: Melbourne				Custody Seal Intact? Yes No N/A	
PROJECT: Jasbe Orange PSI		ALS QUOTE NO.: EN/222/18		Free ice / frozen ice bricks present upon receipt? Yes No N/A	
ORDER NUMBER: P001097				Random Sample Temperature on Receipt: 7.6°C	
PROJECT MANAGER: Mitchell Knox		CONTACT PH: 0438 049 685		Other comment:	
SAMPLER: Mitchell Knox		SAMPLER MOBILE: 0438 049 685		RECEIVED BY: Rasika	
COC emailed to ALS? Yes		EDD FORMAT (or default): M Knox		RELINQUISHED BY:	
Email Reports to (will default to PM if no other addresses are listed): mknox@resolveenvironmental.com.au;		DATE/TIME: 24/9/18		DATE/TIME: 21/10/18 9.00	
Email Invoice to (will default to PM if no other addresses are listed): mknox@resolveenvironmental.com.au;				DATE/TIME: 4/10/18 1:12PM	
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:					

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (N.B. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (acid filtered bottle required)										Additional Information	
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>(refer to codes below)</small>	TOTAL CONTAINERS	P-7/4 Short	EA200	EA200B	S-26	TRIBITEXNIPAHIS METALS							
1	TP01_0.5	24/09/2018	S	1 x Bag	1		X										
2	TP02_0.2	24/09/2018	S	1 x Jar	1				X								
3	TP03_0.3	24/09/2018	S	1 x Jar	1				X								
4	TP04_1.0	24/09/2018	S	1 x Jar	1				X								
5	TP05_2.0	24/09/2018	S	1 x Jar	1	X											
6	TP06_1.0	24/09/2018	S	1 x Jar	1	X											
7	TP07_0.2	24/09/2018	S	1 x Jar	1				X								
8	TP08_0.2	24/09/2018	S	1 x Jar	1				X								
9	TP09_0.2	24/09/2018	S	1 x Jar	1				X								
10	TP10_0.2	24/09/2018	S	1 x Jar	1				X								
11	TP11_0.2	24/09/2018	S	1 x Jar	1				X								
12	TP12_1.0	24/09/2018	S	1 x Jar	1	X											
13	TP12_1.5	24/09/2018	S	1 x Jar	1				X								
14	TP13_0.5	24/09/2018	S	1 x Jar	1				X								
15	TP14_0.2	24/09/2018	S	1 x Jar	1				X								

Environmental Division
Sydney
Work Order Reference
ES1829155

Telephone : + 61-2-8784 8555

Subcon / Forward Lab Split WO: _____
Lab / Analysis: EUROEALS DCIA#CC2A
Organised By / Date: _____
Relinquished By / Date: _____
Connote / Courier: _____
WO No: _____
Attached By PO / Internal Sheet: _____

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>(refer to codes)</small>	TOTAL CONTAINERS	P-7/4 Short	EA200	EA200B	S-26	TRHBTEXNIPAH8 METALS			HOLD	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
16	TP15_0.2	24/09/2018	S	1 x Jar	1				X					
17	TP16_0.2	24/09/2018	S	1 x Bag	1			X						
18	TP17_0.2	24/09/2018	S	1 x Jar	1				X					
19	TP18_0.2	24/09/2018	S	1 x Jar	1				X					
20	TP19_0.2	24/09/2018	S	1 x Jar	1				X					
21	TP20_0.1	24/09/2018	S	1 x Bag	1			X						
22	TP21_0.4	24/09/2018	S	1 x Jar	1				X					
23	TP21_0.8	24/09/2018	S	1 x Bag	1		X							
24	TP22_0.2	24/09/2018	S	1 X Bag, 1 x Jar	2		X		X					
25	TP23_0.2	24/09/2018	S	1 X Bag, 1 x Jar	2		X		X					
26	TP24_0.2	24/09/2018	S	1 x Jar	1				X					
27	TP25_0.3	24/09/2018	S	1 X Bag, 1 x Jar	2		X		X					
28	QC1	24/09/2018	S	1 x Jar	1				X					
—	QC1A	24/09/2018	S	1 x Jar	1					X				please send to Eurofins MGT for analysis
29	QC2	24/09/2018	S	1 x Jar	1				X					
—	QC2A	24/09/2018	S	1 x Jar	1					X				please send to Eurofins MGT for analysis
TOTAL:					34	3	5	2	22	2				

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Gd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.



Certificate of Analysis

Resolve Environmental Pty Ltd
144 Church St
Brighton
VIC 3186



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: Mitchell Knox

Report 620917-S

Project name JASBE ORANGE PSI

Project ID P001097

Received Date Oct 04, 2018

Client Sample ID			QC1A	QC2A
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			S18-Occ05109	S18-Occ05110
Date Sampled			Sep 24, 2018	Sep 24, 2018
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	52	51
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5



Client Sample ID			QC1A	QC2A
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			S18-Oc05109	S18-Oc05110
Date Sampled			Sep 24, 2018	Sep 24, 2018
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	63	63
p-Terphenyl-d14 (surr.)	1	%	65	65
Heavy Metals				
Arsenic	2	mg/kg	50	5.0
Cadmium	0.4	mg/kg	5.0	< 0.4
Chromium	5	mg/kg	36	43
Copper	5	mg/kg	240	17
Lead	5	mg/kg	690	12
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	52	11
Zinc	5	mg/kg	4600	16
% Moisture	1	%	33	27



Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins mgt Suite B7			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 08, 2018	14 Day
BTEX - Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices	Melbourne	Oct 08, 2018	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 08, 2018	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 08, 2018	14 Day
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Oct 08, 2018	14 Day
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Oct 08, 2018	28 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Melbourne	Oct 04, 2018	14 Day



ABN- 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA #1261
Site #1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA #1261 Site #18217

Brisbane
121 Smallwood Place
Murarie QLD 4172
Phone : +61 7 3902 4600
NATA #1261 Site #20794

Perth
281 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA #1261
Site #23736

Company Name: Resolve Environmental Pty Ltd
Address: 144 Church St
Brighton
VIC 3186
Project Name: JASBE ORANGE PSI
Project ID: P001097

Order No.: P001097
Report #: 620917
Phone: 0437 591 111
Fax:

Received: Oct 4, 2018 1:12 PM
Due: Oct 11, 2018
Priority: 5 Day
Contact Name: Mitchell Knox

Eurofins | mgt Analytical Services Manager : Michael Cassidy

Sample Detail						Moisture Set	Eurofins mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	QC1A	Sep 24, 2018		Soil	S18-Oc05109	X	X
2	QC2A	Sep 24, 2018		Soil	S18-Oc05110	X	X
Test Counts						2	2



Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biotafood results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SYOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150% Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.



Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	109			70-130	Pass	



Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14			%	86			70-130	Pass	
LCS - % Recovery									
BTEX									
Benzene			%	101			70-130	Pass	
Toluene			%	75			70-130	Pass	
Ethylbenzene			%	87			70-130	Pass	
m&p-Xylenes			%	85			70-130	Pass	
Xylenes - Total			%	86			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene			%	86			70-130	Pass	
TRH C6-C10			%	94			70-130	Pass	
TRH >C10-C16			%	82			70-130	Pass	
LCS - % Recovery									
Polycyclic Aromatic Hydrocarbons									
Acenaphthene			%	91			70-130	Pass	
Acenaphthylene			%	118			70-130	Pass	
Anthracene			%	113			70-130	Pass	
Benz(a)anthracene			%	88			70-130	Pass	
Benzo(a)pyrene			%	86			70-130	Pass	
Benzo(b&j)fluoranthene			%	79			70-130	Pass	
Benzo(g,h,i)perylene			%	100			70-130	Pass	
Benzo(k)fluoranthene			%	96			70-130	Pass	
Chrysene			%	101			70-130	Pass	
Dibenz(a,h)anthracene			%	97			70-130	Pass	
Fluoranthene			%	92			70-130	Pass	
Fluorene			%	105			70-130	Pass	
Indeno(1,2,3-cd)pyrene			%	101			70-130	Pass	
Naphthalene			%	94			70-130	Pass	
Phenanthrene			%	95			70-130	Pass	
Pyrene			%	91			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	98			80-120	Pass	
Cadmium			%	96			80-120	Pass	
Chromium			%	105			80-120	Pass	
Copper			%	106			80-120	Pass	
Lead			%	103			80-120	Pass	
Mercury			%	113			75-125	Pass	
Nickel			%	106			80-120	Pass	
Zinc			%	103			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-Oc05878	NCP	%	82			70-130	Pass	
TRH C10-C14	M18-Oc08523	NCP	%	74			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-Oc05878	NCP	%	88			70-130	Pass	
Toluene	S18-Oc05878	NCP	%	77			70-130	Pass	
Ethylbenzene	S18-Oc05878	NCP	%	79			70-130	Pass	
m&p-Xylenes	S18-Oc05878	NCP	%	79			70-130	Pass	
o-Xylene	S18-Oc05878	NCP	%	79			70-130	Pass	
Xylenes - Total	S18-Oc05878	NCP	%	79			70-130	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-Oc05878	NCP	%	77			70-130	Pass	
TRH C6-C10	S18-Oc05878	NCP	%	72			70-130	Pass	
TRH >C10-C16	M18-Oc08523	NCP	%	76			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Oc05323	NCP	%	81			70-130	Pass	
Acenaphthylene	M18-Oc05323	NCP	%	102			70-130	Pass	
Anthracene	M18-Oc05323	NCP	%	100			70-130	Pass	
Benz(a)anthracene	M18-Oc05323	NCP	%	78			70-130	Pass	
Benzo(a)pyrene	M18-Oc05323	NCP	%	96			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Oc05323	NCP	%	89			70-130	Pass	
Benzo(g,h,i)perylene	M18-Oc05323	NCP	%	115			70-130	Pass	
Benzo(k)fluoranthene	M18-Oc05323	NCP	%	99			70-130	Pass	
Chrysene	M18-Oc05323	NCP	%	88			70-130	Pass	
Dibenz(a,h)anthracene	M18-Oc05323	NCP	%	119			70-130	Pass	
Fluoranthene	M18-Oc05323	NCP	%	76			70-130	Pass	
Fluorene	M18-Oc05323	NCP	%	94			70-130	Pass	
Indeno(1,2,3-cd)pyrene	M18-Oc05323	NCP	%	117			70-130	Pass	
Naphthalene	M18-Oc05323	NCP	%	82			70-130	Pass	
Phenanthrene	M18-Oc05323	NCP	%	82			70-130	Pass	
Pyrene	M18-Oc05323	NCP	%	76			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Oc08423	NCP	%	105			75-125	Pass	
Cadmium	M18-Oc08423	NCP	%	98			75-125	Pass	
Chromium	M18-Oc08423	NCP	%	103			75-125	Pass	
Copper	M18-Oc08423	NCP	%	110			75-125	Pass	
Lead	M18-Oc06165	NCP	%	112			75-125	Pass	
Mercury	M18-Oc04269	NCP	%	118			70-130	Pass	
Nickel	M18-Oc08423	NCP	%	102			75-125	Pass	
Zinc	M18-Oc06153	NCP	%	83			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S18-Oc05876	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M18-Oc12106	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M18-Oc12106	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M18-Oc12106	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-Oc05876	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S18-Oc05876	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S18-Oc05876	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S18-Oc05876	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S18-Oc05876	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S18-Oc05876	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-Oc05876	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S18-Oc05876	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M18-Oc12106	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M18-Oc12106	NCP	mg/kg	< 100		<1	30%	Pass	
TRH >C34-C40	M18-Oc12106	NCP	mg/kg	< 100		<1	30%	Pass	



Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S18-Oc05880	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Oc06054	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M18-Oc06054	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M18-Oc06054	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M18-Oc06054	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M18-Oc06054	NCP	mg/kg	17	19	12	30%	Pass	
Mercury	M18-Oc04269	NCP	mg/kg	0.3	0.3	17	30%	Pass	
Nickel	M18-Oc06054	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	M18-Oc06054	NCP	mg/kg	66	62	6.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-Oc05710	NCP	%	15	16	2.0	30%	Pass	



Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QA/QC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Michael Cassidy	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (MC)
Harry Bacalis	Senior Analyst-Volatile (MC)
Joseph Edouard	Senior Analyst-Organic (MC)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

Eurolins International will not be liable for loss, cost, damages or expenses incurred by the client or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurolins International be liable for consequential damages including, but not limited to, lost profits, damages or failure to meet deadlines and lost productivity arising from this report. This document shall not be reproduced except in full and is intended only for the client's use. Unless indicated otherwise, the tests were performed on the samples as received.

2.3 DEVELOPMENT APPLICATION DA 54/2020(1) - 153-157 PEISLEY STREET, ORANGE

RECORD NUMBER: 2020/818

AUTHOR: Kelly Walker, Senior Planner

EXECUTIVE SUMMARY

Application lodged	14 February 2020
Applicant/s	Mr D Quarmby
Owner/s	Mr JH Swain
Land description	Lot 2 DP 535024 - 153-157 Peisley Street, Orange
Proposed land use	Recreation Facility (indoor) (change of use)
Value of proposed development	\$25,000

Council's consent is sought to change the use of an existing vacant commercial unit at tenancy 1, 153-157 Peisley Street, Orange (Lot 2 DP 53502 - see Figure 1) to a gym for martial arts and boxing classes (indoor recreation).

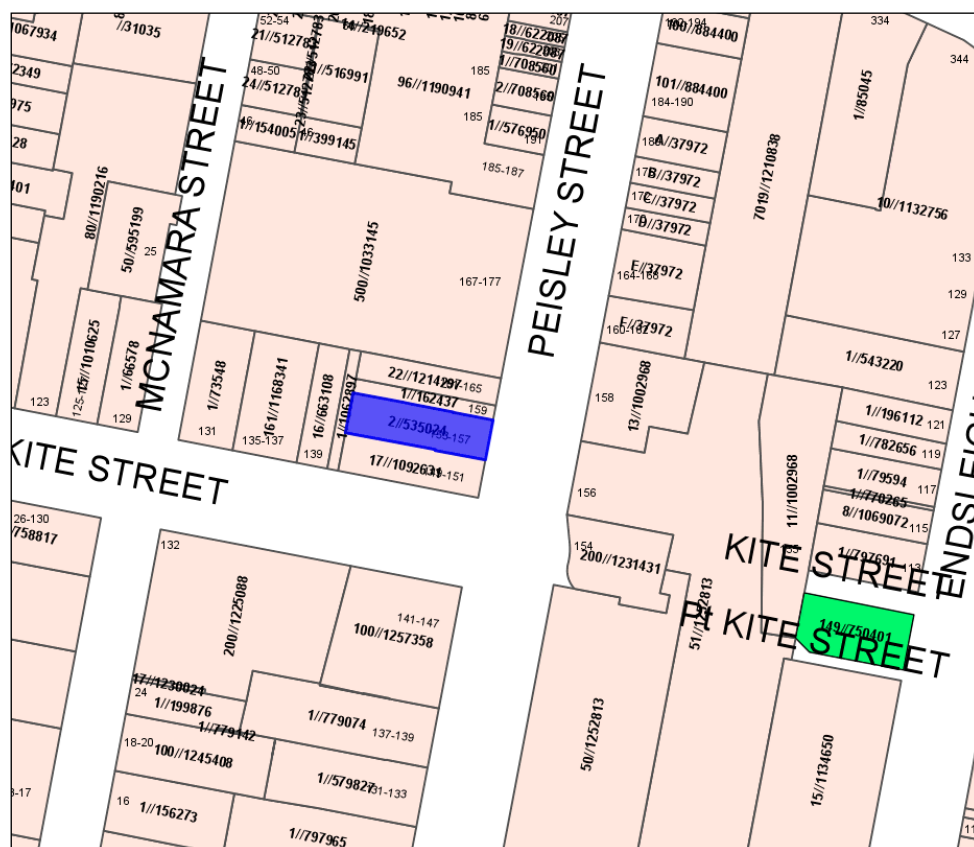


Figure 1 - locality plan

The proposal involves using part of the building for martial arts, boxing, and self-defence classes, from individual tuition to classes for 15-20 participants. Students may consist of children, students, adults, families and/or groups. No construction or building works are proposed. The applicant intends to replace existing business identification signage, which does not require consent if within the exempt provisions. It is noted that the other tenancy of the building is also currently vacant, and no works or change of use is proposed for that tenancy.

Proposed hours of operation are Monday to Friday 6am to 9am and 4pm to 9pm; and Saturdays 7am to 1pm. Proposed staff numbers include one (1) full time equivalent (ie the operator of the business). No parking is, or can be provided on the site, and the changed use of the building results in an increased demand in car parking from its previous/historical commercial use. The tenancy benefits from a car parking credit of 18 spaces, and the proposal results in a shortfall of 3.5 spaces, using the recommended RMS rate for gymnasiums. The site is within the *Orange Car Parking Contributions Plan 2015* mapped area, which allows for the payment of contributions in lieu of providing parking on site. Based on the parking contribution rates to 31 August 2020, this would result in a payable contribution of \$26,052.53.

The applicant requests a waiver for this contribution, as set out in the DCP assessment later in this report. The DCP assessment provides consideration to the issue of waiving development contributions in this case. It is recommended that the contribution be waived on the basis of a condition of consent that limits the intensity of the proposed class to be held at 4.00-4.30pm where car parking is considered to be at a premium at that time of day. The use of the building outside of these peak times is unlikely to adversely impact on car parking in the surrounding area as there is ample availability of spaces after hours and on the weekends.

Being an application with a request to waive contributions over \$20,000, delegation falls to the Planning and Development Committee.

Overall it is considered that the proposal meets the relevant planning provisions, and approval of the application is recommended.

DECISION FRAMEWORK

Development in Orange is governed by two key documents Orange Local Environment Plan 2011 and Orange Development Control Plan 2004. In addition the Infill Guidelines are used to guide development, particularly in the heritage conservation areas and around heritage items.

Orange Local Environment Plan 2011 – The provisions of the LEP must be considered by the Council in determining the application. LEPs govern the types of development that are permissible or prohibited in different parts of the City and also provide some assessment criteria in specific circumstances. Uses are either permissible or not. The objectives of each zoning and indeed the aims of the LEP itself are also to be considered and can be used to guide decision making around appropriateness of development.

Orange Development Control Plan 2004 – the DCP provides guidelines for development. In general it is a performance based document rather than prescriptive in nature. For each planning element there are often guidelines used. These guidelines indicate ways of achieving the planning outcomes. It is thus recognised that there may also be other solutions of merit. All design solutions are considered on merit by planning and building staff. Applications should clearly demonstrate how the planning outcomes are being met where alternative design solutions are proposed. The DCP enables developers and architects to use design to achieve the planning outcomes in alternative ways.

DIRECTOR'S COMMENT

Council's consent is sought to change the use of an existing vacant commercial unit at tenancy 1, 153-157 Peisley Street, Orange to a gymnasium. The main issue for consideration in this application relates to traffic and car parking demand.

The development has a shortfall of 3.5 spaces pursuant to Council's planning controls which would result in a payable contribution of \$26,052.53. The applicant has requested a waiver of this contribution. The financial impacts on a small start-up business is acknowledged. Consideration is to be given to the actual environmental impacts. Given there is no increase in floor area, waiver of the contribution is supported on the basis that a condition is attached that restricts numbers of occupants during the key afternoon period, this approach would assist a small business commence operations without adversely impacting on existing neighbouring businesses.

Approval of the application is recommended.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "10.1 Preserve - Engage with the community to ensure plans for growth and development are respectful of our heritage".

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

That Council consents to development application DA 54/2020(1) for *Recreation Facility (indoor) (change of use)* at Lot 2 DP 535024 - 153-157 Peisley Street, Orange pursuant to the conditions of consent in the attached Notice of Approval.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION**THE PROPOSAL**

The proposal involves using part of the building for martial arts, boxing, and self-defence classes. Two recreation areas are proposed, one at the front and one at the rear of the tenancy. Two storage areas are proposed, one downstairs and one on the mezzanine level. A reception area, retail area and staff room are also proposed on the mezzanine level.

The proposed use ranges from individual tuition to classes with between 15-20 participants. Students may consist of children, students, adults, families and/or groups. Proposed hours of operation are Monday to Friday 6am to 9am and 4pm to 9pm, and Saturdays 7am to 1pm. Proposed staff numbers include one (1) full time equivalent (ie the operator of the business).

No construction or building works are proposed. The applicant intends to replace existing business identification signage, which does not require consent if within the exempt provisions.

MATTERS FOR CONSIDERATION

Section 1.7 - Application of Part 7 of the *Biodiversity Conservation Act 2016* and Part 7A of the *Fisheries Management Act 1994*

Section 1.7 of the EP&A Act identifies that Part 7 of the Biodiversity Conservation Act 2016 (BC Act) and Part 7A of the Fisheries Management Act 1994 have effect in connection with terrestrial and aquatic environments.

There are four triggers known to insert a development into the Biodiversity Offset Scheme (ie the need for a BDAR to be submitted with a DA):

- Trigger 1: development occurs in land mapped on the Biodiversity Values Map (OEI) (clause 7.1 of BC Regulation 2017);
- Trigger 2: development involves clearing/disturbance of native vegetation above a certain area threshold (clauses 7.1 and 7.2 of BC Regulation 2017); or
- Trigger 3: development is otherwise likely to significantly affect threatened species (clauses 7.2 and 7.3 of BC Act 2016).
- Trigger 4: development proposed to occur in an Area of Outstanding Biodiversity Value (clause 7.2 of BC Act 2016). This is not applicable to Orange, as no such areas are known to occur in the area. As such, no further comments will be made against the fourth trigger.

In consideration of the above, the site is not within land mapped on the Biodiversity Values Map; is located in a highly disturbed area of the CBD; the proposal does not involve clearing or disturbance of vegetation; and is unlikely to significantly affect threatened species listed in the BC Act 2016. As such, a Biodiversity Development Assessment Report is not required in this instance.

Section 4.15

Section 4.15 of the *Environmental Planning and Assessment Act 1979* requires Council to consider various matters, of which those pertaining to the application are listed below.

PROVISIONS OF ANY ENVIRONMENTAL PLANNING INSTRUMENT s4.15(1)(a)(i)**Orange Local Environmental Plan 2011****Part 1 - Preliminary****Clause 1.2 - Aims of Plan**

The broad aims of the LEP are set out under subclause 2. Those relevant to the application are as follows:

- (a) *to encourage development which complements and enhances the unique character of Orange as a major regional centre boasting a diverse economy and offering an attractive regional lifestyle,*
- (b) *to provide for a range of development opportunities that contribute to the social, economic and environmental resources of Orange in a way that allows present and future generations to meet their needs by implementing the principles for ecologically sustainable development,*
- (f) *to recognise and manage valued environmental heritage, landscape and scenic features of Orange.*

The application is considered to be consistent with these objectives, as outlined in this report.

Clause 1.6 - Consent Authority

This clause establishes that, subject to the Act, Council is the consent authority for applications made under the LEP.

Clause 1.7 - Mapping

The subject site is identified on the LEP maps in the following manner:

Land Zoning Map:	Land zoned B3 Commercial Core
Lot Size Map:	No Minimum Lot Size
Heritage Map:	Adjacent to a heritage listed item and located in a heritage conservation area
Height of Buildings Map:	Building height limit 16m
Floor Space Ratio Map:	Floor space limit 2:1
Terrestrial Biodiversity Map:	No biodiversity sensitivity on the site
Groundwater Vulnerability Map:	Groundwater vulnerable
Drinking Water Catchment Map:	Not within the drinking water catchment
Watercourse Map:	Not within or affecting a defined watercourse
Urban Release Area Map:	Not within an urban release area
Obstacle Limitation Surface Map:	No restriction on building siting or construction
Additional Permitted Uses Map:	No additional permitted use applies
Flood Planning Map:	Not within a flood planning area

Those matters that are of relevance are addressed in detail in the body of this report.

Clause 1.9A - Suspension of Covenants, Agreements and Instruments

This clause provides that covenants, agreements and other instruments which seek to restrict the carrying out of development do not apply with the following exceptions.

- covenants imposed or required by Council
- prescribed instruments under Section 183A of the *Crown Lands Act 1989*
- any conservation agreement under the *National Parks and Wildlife Act 1974*
- any trust agreement under the *Nature Conservation Trust Act 2001*
- any property vegetation plan under the *Native Vegetation Act 2003*
- any biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995*
- any planning agreement under Division 6 of Part 4 of the *Environmental Planning and Assessment Act 1979*.

Council staff are not aware of the title of the subject property being affected by any of the above.

Part 2 - Permitted or Prohibited Development**Clause 2.1 - Land Use Zones**

The subject site is located within the B3 Commercial Core zone. The proposed gym use is defined as a “recreation facility (indoor)” under the LEP 2011, which means:

recreation facility (indoor) means a building or place used predominantly for indoor recreation, whether or not operated for the purposes of gain, including a squash court, indoor swimming pool, gymnasium, table tennis centre, health studio, bowling alley, ice rink or any other building or place of a like character used for indoor recreation, but does not include an entertainment facility, a recreation facility (major) or a registered club.

A recreation facility (indoor) is permitted with consent in this zone, and this application is seeking consent.

Clause 2.3 - Zone Objectives

Clause 2.3 of LEP 2011 references the Land Use Table and Objectives for each zone in LEP 2011. These objectives for land zoned B3 Commercial Core are as follows:

- *To provide a wide range of retail, business, office, entertainment, community and other suitable land uses that serve the needs of the local and wider community.*
- *To encourage appropriate employment opportunities in accessible locations.*
- *To maximise public transport patronage and encourage walking and cycling.*
- *To promote development that contributes to the role of the Orange CBD as the primary retail and business centre in the City and region.*

The proposed development is not inconsistent with the objects of the zone. Specifically, the development involves a permissible land use which will be complementary and supportive to the main role of the CBD for retail and business. The proposal will reuse an existing vacant commercial building and may provide opportunities for employment. It is considered that the subject land is in a location that promotes walking, cycling and public transport.

Part 3 - Exempt and Complying Development

The application is not exempt or complying development.

Part 4 - Principal Development Standards

Clause 4.3 - Height of Buildings

This clause limits the height of buildings (HoB) on land identified on the LEP Height of Buildings Map. The subject land is identified on the Map as having a HoB limit of 16m. The proposal does not seek to alter the existing dimensions or height of the building.

Clause 4.4 - Floor Space Ratio

This clause limits the floor space ratio (FSR) permitted on land identified on the LEP Floor Space Ratio Map. The subject land is identified on the Map as having an FSR of 2:1. The proposal does not seek to alter or increase the existing floor area of the building.

Part 5 - Miscellaneous Provisions

5.10 - Heritage Conservation

Cause 5.10 applies to the subject proposal as the land is located within a heritage conservation area, and is adjacent to and nearby to state and local heritage listed items. Clause 5.10 states in part:

(1) Objectives

The objectives of this clause are as follows:

- (a) to conserve the environmental heritage of Orange,*
- (b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,*
- (c) to conserve archaeological sites,*
- (d) to conserve Aboriginal objects and Aboriginal places of heritage significance.*

(4) Effect of Proposed Development on Heritage Significance

The consent authority must, before granting consent under this clause in respect of a heritage item or heritage conservation area, consider the effect of the proposed development on the heritage significance of the item or area concerned. This subclause applies regardless of whether a heritage management document is prepared under subclause (5) or a heritage conservation management plan is submitted under subclause (6).

The adjacent and nearby heritage listed items include the following:

- Second Chance Collectables and Canobolas Locksmiths (former) - 149-151 Peisley Street (corner of Kite Street) – an unusual Victorian commercial premises which retains a large portion of the original fabric, including the stepped rendered parapet and early shopfronts, which enhances the streetscape and contributes to the Conservation Area as a locally listed heritage item.
- Great Western Hotel - 145-147 Peisley Street – established in 1852 the Hotel is one of the earliest licensed premises, recorded in 1879, and associated with the completion of the Railway Station opposite, has retained the traditional built form, complements the streetscape and contributes to the Conservation Area as a locally listed heritage item.
- Orange Railway Precinct - Peisley Street - state significant heritage listed for its historic, aesthetic, and rarity values (listing includes station buildings, sheds, signal box, depot, Station Master's residence, footbridge, crane, and other structures and items).

The proposal does not involve any alterations to the exterior of the existing building or site, other than replacement signage (which is not part of this application). As there are no changes to the fabric of the building or the site, it is considered that the proposal will have negligible impact on the immediate or wider heritage conservation area, or adjacent and nearby heritage listed items. Furthermore, Council encourages the reuse of existing older buildings in the CBD and heritage conservation areas.

Part 6 - Urban Release Area

Not relevant to the application. The subject site is not located in an Urban Release Area.

Part 7 - Additional Local Provisions

7.3 - Stormwater Management

This clause applies to all industrial, commercial and residential zones and requires that Council be satisfied that the proposal:

- (a) *is designed to maximise the use of water permeable surfaces on the land having regard to the soil characteristics affecting onsite infiltration of water*
- (b) *includes, where practical, onsite stormwater retention for use as an alternative supply to mains water, groundwater or river water; and*
- (c) *avoids any significant impacts of stormwater runoff on adjoining downstream properties, native bushland and receiving waters, or if that impact cannot be reasonably avoided, minimises and mitigates the impact.*

The building is connected to the existing stormwater system and no changes are proposed to the building. Thus post-development runoff levels will not exceed the pre-development levels.

7.6 - Groundwater Vulnerability

This clause seeks to protect hydrological functions of groundwater systems and protect resources from both depletion and contamination. Orange has a high water table and large areas of the LGA, including the subject site, are identified with "Groundwater Vulnerability" on the Groundwater Vulnerability Map. This requires that Council consider:

- (a) whether or not the development (including any onsite storage or disposal of solid or liquid waste and chemicals) is likely to cause any groundwater contamination or have any adverse effect on groundwater dependent ecosystems, and*
- (b) the cumulative impact (including the impact on nearby groundwater extraction for potable water supply or stock water supply) of the development and any other existing development on groundwater.*

Furthermore consent may not be granted unless Council is satisfied that:

- (a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or*
- (b) if that impact cannot be reasonably avoided - the development is designed, sited and will be managed to minimise that impact,*
- (c) if that impact cannot be minimised - the development will be managed to mitigate that impact.*

The proposal is not anticipated to involve the discharge of toxic or noxious substances and is therefore unlikely to contaminate the groundwater or related ecosystems. The proposal does not involve extraction of groundwater and will therefore not contribute to groundwater depletion.

Clause 7.11 - Essential Services

Clause 7.11 applies and states:

Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the proposed development are available or that adequate arrangements have been made to make them available when required:

- (a) the supply of water,*
- (b) the supply of electricity,*
- (c) the disposal and management of sewage,*
- (d) storm water drainage or on-site conservation,*
- (e) suitable road access.*

In consideration of this clause, all utility services are available to the land and adequate for the proposal.

STATE ENVIRONMENTAL PLANNING POLICIES**State Environmental Planning Policy 55 - Remediation of Land**

State Environmental Planning Policy 55 - Remediation of Land (SEPP 55) is applicable. Pursuant to Clause 7 Contamination and remediation to be considered in determining development application:

- (1) A consent authority must not consent to the carrying out of any development on land unless:*
 - (a) it has considered whether the land is contaminated, and*
 - (b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
 - (c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

The land has been used for a variety of uses, including boarding house, warehouse, leisure centre, commercial/retail shops, residential flats, industrial premises, motorcycle show room, and light industry (assembly and manufacture of trailers). Although previous business uses could have involved the storing of chemicals, Council is not aware of any contamination on the land. Council's Environmental Health officer notes that given the building has a concrete slab floor the potential for contamination is low. Further contamination investigation is therefore considered unnecessary in this case.

PROVISIONS OF ANY DRAFT ENVIRONMENTAL PLANNING INSTRUMENT THAT HAS BEEN PLACED ON EXHIBITION 4.15(1)(a)(ii)

From 31 January to 13 April 2018 the Department of Planning and Environment publically exhibited an Explanation of Intended Effect (EIE) and Draft Planning Guidelines for the proposed Remediation of Land SEPP, which will repeal and replace State Environmental Planning Policy 55 – Remediation of Land (SEPP 55). Of particular note, the Draft Planning Guidelines state:

"In undertaking an initial evaluation, a planning authority should consider whether there is any known or potential contamination on nearby or neighbouring properties, or in nearby groundwater, and whether that contamination needs to be considered in the assessment and decision making process."

"If the planning authority knows that contamination of nearby land is present but has not yet been investigated, it may require further information from the applicant to demonstrate that the contamination on nearby land will not adversely affect the subject land having regard to the proposed use." (Proposed Remediation of Lands SEPP - Draft Planning Guidelines, Page 10).

Council is not aware of any contamination of adjoining or nearby land. As noted in the SEPP 55 assessment above, given the subject building has a concrete slab floor contamination on the site and from neighbouring properties is unlikely to be an issue, and further investigation is considered unnecessary in this case.

DESIGNATED DEVELOPMENT

The proposed development is not designated development.

INTEGRATED DEVELOPMENT

The proposed development is not integrated development.

PROVISIONS OF ANY DEVELOPMENT CONTROL PLAN s4.15(1)(a)(iii)**Development Control Plan 2004**

Development Control Plan 2004 ("the DCP") applies to the subject land. An assessment of the proposed development against the relevant Planning Outcomes will be undertaken below.

Chapter 8 – Development in Business Zones – PO 8.1-1 Central Business District

- *Buildings have a high level of urban design to contribute to the regional status of the City's Central Business District with attention given to façade features, external materials, colour and advertising.*
- *Urban design demonstrates a clear reference to the CBD Strategic Action Plan.*
- *Land use complements the role of the CBD as a regional centre for commerce and services.*
- *The reinstatement of verandahs on posts over footpaths is encouraged.*
- *Where possible, new buildings or external alterations in the CBD include an element of landscaping.*

The proposal does not make any changes to the external building or site, nor the existing awning over the footpath. Landscaping is not considered appropriate in this case as the existing building comes directly up to the public footpath. The proposed development would not detract from the role or viability of the Orange CBD as a regional centre, and would reuse a vacant commercial CBD building, thus supporting business.

- *Provision of adequate fire-safety measures and facilities for disabled persons (according to the BCA) are addressed at the application stage (relevant for all development but particularly important where converting residential buildings for business use).*

Fire safety, access, and the BCA are discussed in the Regulations section later in this report.

- *Car parking is provided to meet demand either as on-site parking areas or through contributions towards public parking in and adjacent to the CBD.*
- *Loading areas are provided for developments requiring access by large trucks in a manner that doesn't reduce active frontages for important pedestrian pathways.*

Car parking and servicing are discussed in the Chapter 15 assessment below.

- *Advertising comprise business identification signs in accordance with SEPP 64*

No new signage is proposed. Existing lawful signage can be replaced under the State exempt provisions.

Chapter 15 - Car Parking

Pursuant to the DCP, onsite parking is required for recreational 'gymnasiums/health and fitness centres' at a rate of 7.5 spaces per 100m² of GFA. The *RMS Guide to Traffic Generating Development* has the equivalent rate noted as the desirable provision, but also contains an alternative lower rate of 4.5 spaces per 100m².

Based on a GFA of 468m² (including the floor area of the ancillary reception/retail area on the mezzanine level, but excluding the storage areas and staff room), the proposed development will generate a demand for **35.1 spaces** based on the higher DCP rate (7.5 space per 100m²), or **21.0 spaces** based the lower RMS guide rate (4.5 spaces per 100m²).

It is noted that the applicant has incorrectly applied different parking demand rates for different parts of the building, such as the business premises rate to the reception area, and industrial storage rates to the storage rooms. It is considered that the reception area is ancillary to the main use, and is not a separate commercial use, therefore the same gym rate applies to this floor area, as calculated above. The area between the recreation areas (ie under the mezzanine) has also been counted as GFA as it is likely this will be used for circulation, access, waiting, spectating etc in conjunction with the main use and cannot be discounted as 'unused' space. The staff room and storage areas are also ancillary to the main use, but as they do not generate any demand for parking they have not been counted as GFA in this case. The applicant has also incorrectly applied the health and community services gym and health centre rate (ie gym attached to a hospital, medical centre etc) to the proposal, rather than the recreation gym rate, which applies in this case as a commercial recreational activity. As such, the parking demand calculated by Council staff is higher than that calculated by the applicant.

There is no car parking on the site, and parking cannot be provided given the building occupies the greater portion of the site. Previous uses of the site have relied on on-street parking and public car parks in the surrounding area; and the subject property benefits from a car parking credit from its former uses of 18 spaces. For a change of use, the DCP requires parking to be provided for the net increase in demand. In this case, the net increase is either 35.1 demand less 18 space credit = **17.1 spaces** (higher DCP rate), or 21.06 demand less 18 space credit = **3.6 spaces** (lower RMS rate). As this additional parking demand cannot be provided on the site, the proposed development would result in a shortfall of parking of 17.1 or 3.6 spaces. Given the nature of the use, it is considered that the lower parking rate of 4.5 spaces per 100m² is more appropriate in this circumstance, as this is not a full-scale gym where patrons are coming and going during opening hours, but rather implements structured timetabled and booked classes. As such, the proposal results in a theoretical shortfall of 3.6 spaces.

The site is located within the mapped car parking contributions area, and *Orange Car Parking Contributions Plan 2015* allows for the payment of contributions in lieu of providing parking onsite (ie to make up any shortfall on the site by financially contributing to the purchasing of land and ongoing maintenance for public car parking in the CBD). Based on the change of use car parking contribution rates to 31 August 2020 (quarterly indexing applies), this would result in a payable contribution of **\$26,052.53** (based on the lower RMS rate of 3.5 space shortfall).

The applicant seeks a waiver of this contribution, and provides the following request and justification:

"The Applicant requests consideration for the waiver of Development Contributions based on this proposal only. It is acknowledged that any waiver of contributions would apply only to this DA. Should the site be used by another party in the future, further consideration of development contributions for an intended future use could be applied by Council.

It is acknowledged that the DCP provisions for carparking are not specifically applicable based on the intended land use Recreation Facility (indoor) for martial arts classes. As such, the RMS rate tends to be applied. This is a consistent approach that has been applied by Council for a range of recreational type activities.

Based on the RMS rate of 4.5 spaces per 100m² of floor area, the proposed development has a short fall of 3.5 car spaces. The site has a credit of 18 car spaces.

The proposal is for the re-use of an existing commercial space within the commercial core of Orange.

Proposed hours of operation are Monday to Friday 6:00am to 9:00am and 4:00pm to 9:00pm and Saturdays 7:00am to 1:00pm. No opening hours on Sundays or Public Holidays.

After further discussions with the Applicant, intended hours of operation in the afternoon will not commence prior to 4:30pm.

Due to the site's location within the Orange CBD, patrons and staff have access to additional parking options in proximity to this site. This includes Council owned public car parking facilities in Peisley Street, corner Lords Place & Kite Street, McNamara Lane, Peisley Street at the Railway Station as well as availability of options for on-street parking in Kite Street (in proximity to Factory Espresso), Peisley Street between Kite Street and Summer Street, Peisley Street south of the Kite Street intersection. These Council car park areas are shown below in Figures 7, 8, and 9 of the submitted SoEE report.

Based on the Applicants intended hours of operation, the conflict for peaking parking demand relates to the proposed early morning classes between 6:00am and 9:00am and the afternoon class that commences at 4.30pm Monday to Friday. Whilst it is recognised that this afternoon class is within the core commercial hours, it is only one (1) of several classes that are to be offered by the Recreational Facility (for martial arts classes). It is considered that the one afternoon class proposed to operate within the core business hours will not have as adverse environmental impact due to the small shortfall of parking spaces and the option for alternate short term parking options in the locality for both drop off and pick up. The early morning class have parking availability with classes ceasing prior to 9:00am peak parking period. The remainder of the classes propose to operate outside peak operational hours in the late afternoon, evening and on Saturday morning. By operating outside of these peak operational hours, there is negligible environmental impact for either the site or the locality and ample availability and parking options for participants of the operation.

As the development and recreation use promotes families and sibling participation, many of the students and participants travel to and from the site together which allows for a reduction in the traffic movements generated to and from the site.

It is considered that any shortfall in onsite parking based on the RMS rate is not likely to have an unacceptable environmental impact in the locality due to proposed operational hours and significant availability of on street parking in the area (in close proximity to the subject site).

Consideration of the proposal in post COVID-19 times, with an emerging business trying to establish a recreation operation within Orange which allows for physical activity and participation for improved mental and physical wellbeing. The Applicants are not only providing a service for individual, families and children, the operation provides for diversity within the commercial, a new business, and the tenancy of another vacant building. The proposal supports the local community and furthermore offers future employment opportunities to the locality once the business is established. The encouragement of new businesses post COVID-19 should be encouraged and supported by the Council. The imposition of development contributions, is a large economic impost for an emerging business to absorb and it is requested that Council take these circumstances into consideration in their decision making.

In conclusion, there is no increase in footprint; the proposal relates to the re-use of an existing vacant building within the commercial core, there are alternate options for on street parking in both Peisley and Kite Streets; there are alternate parking options in nearby Council car parks; the sites physical limitation to provide onsite parking and consideration of the proposed hours of operation which limits conflict for parking during traditional core business hours between 8.30am and 5:00pm. By allowing this variation, it is considered that the site and locality would have negligible environmental impact by the shortfall of 3.5 car spaces.

As such, it is requested that Council consider varying the imposition of development contributions as required by the contributions plan in these circumstances. The Applicants would be very grateful for the cost to be varied which would allow them to commence operation post COVID-19”.

Council staff generally agree with these points. There is ample car parking availability in the surrounding streets and public car parks outside of peak CBD business hours (ie before 9am and after 5pm Monday to Friday), which is when the proposed activity intends to mostly operate. The ‘after-hours’ classes are considered to have little adverse impact on on-street and public car parking. The exception is the 4/4.30pm class, which is a time where the CBD is busy and car parking demand in the surrounding area is high. During this class time there is likely to be conflict between additional demand generated by this proposed activity and usual parking demand in the area, and car parking would become more difficult to come by.

Furthermore, future use of the building and site for this purpose by a different operator may result in hours of operation during core business times, which may also conflict with peak parking in the surrounds. Both scenarios would result in adverse car parking impacts on this area of the CBD. Public and on-street parking needs to be fairly accessed by all surrounding business, where most of the long-standing businesses and buildings in this area of the CBD have little or no parking, and have historical parking credits in a similar manner as the subject site.

It is considered that these impacts could be minimised by limiting the intensity of the use of the site only during peak/core CBD business hours (ie 9am to 5pm). A maximum of 18 at any one time (including staff and patrons) would be a reasonable limit in this case as this number matches the car parking credit that applies to the site, which takes into account the established parking demand the subject building has in the surrounds. The applicant states that these afternoon classes are usually for children, and thus parents and siblings could be in addition to the maximum number if they have travelled together in the same vehicle. That is, the class could contain 17 children, 1 trainer, and any number of siblings, with any number of parents/carers spectating, and still only generate a car parking demand of 18 spaces, for which there is a car parking credit for the site. A condition of consent is recommended to this effect, and could be used in lieu of charging a car parking contribution. Subject to this condition of consent, there would not be a need to limit the parking contribution waiver to just this applicant, and any future user of the site could also operate within the terms of the consent (ie maximum 18 during peak hours, no limit outside of these hours).

Loading and servicing currently uses the rear roller door accessed from a shared laneway off Kite Street, and it is proposed to retain this arrangement. It is considered that the proposed use will not require regular servicing or deliveries by vehicles other than minor amounts of waste collection, which can utilise the current arrangements.

INFILL GUIDELINES

Heritage impacts have been discussed in the LEP Clause 5.10 assessment earlier in this report, where it was concluded that impacts are likely to be negligible as the proposal does not involve any physical changes to the exterior of the existing building or site.

PROVISIONS PRESCRIBED BY THE REGULATIONS s4.15(1)(a)(iv)

Demolition of a Building (clause 92)

The proposal does not involve the demolition of a building.

Fire Safety Considerations (clause 93)

The proposal involves a change of building use for an existing building. Council is satisfied that the fire protection and structural capacity of the building are appropriate for the proposed new building use. Relevant conditions are attached.

Buildings to be Upgraded (clause 94)

Upgrading of the building will be required to ensure the existing building is brought into partial or total conformity with the Building Code of Australia. Conditions are attached in relation to the required upgrading works.

BASIX Commitments (clause 97A)

BASIX is not applicable to the proposed development. A Section J energy efficiency statement will be required with the Construction Certificate application.

THE LIKELY IMPACTS OF THE DEVELOPMENT s4.15(1)(b)**Neighbourhood Impacts**

The subject land is located near a busy roundabout among commercial businesses in Peisley Street, which mostly carry out retail, food, and office activities. The proposed development will occupy one tenancy of the existing building as an indoor 'recreation facility', which is permitted with consent in the zone and will be a compatible use that will provide convenient access to a fitness facility for people who live and work in the vicinity. The development can be managed in a way whereby any possible impacts arising will be within acceptable levels, as discussed in the main body of this report. As such, the development is generally consistent with the context and setting of the locality, and neighbourhood impacts are likely to be minor.

Visual and Heritage Impacts

The development is unlikely to result in any unacceptable visual or heritage impacts, as no changes are proposed to the exterior of the building or the site. As such, the existing heritage setting will remain unaffected.

Noise Impacts

Gymnasiums have the potential to cause unreasonable noise impacts in a locality when not properly managed or suitably mitigated. It is considered that there is reasonable separation between the site and existing residential dwellings, where the nearest residential neighbourhood is more than 250m to the east and 325m to the southwest of the site.

The intervening area comprises other commercial and industrial buildings, as well as the railway line. Activities will be confined entirely within the building, and will mostly be carried out during daytime hours when background noise levels are higher. It is noted that the proposed early opening between 6-7am is considered 'night time', and after 7pm is considered 'evening', where background noise levels are typically lower than during the day. Conditions of consent are recommended requiring that all doors remain in a closed position before 7am and after 7pm to mitigate early morning and evening noise impacts.

Traffic and Parking Impacts

Existing access, traffic, and servicing arrangements will be maintained and are considered acceptable. Providing the proposed development operates with a limited intensity during core CBD hours (as outlined in the DCP car parking assessment), adverse car parking impacts are unlikely. This limit will ensure that there will be no net increase in car parking demand during peak/core CBD hours as the subject site benefits from a historical car parking credit. Operation outside of core hours would not need to be limited, and although there is technically a shortfall of 3.5 car parking spaces, the existing and additional demand can utilise the ample car parking availability in the surrounding streets. Council staff support the applicant's request to waive car parking contributions for this shortfall, subject to conditions of consent limiting peak hour intensity.

Overall, subject to the recommended conditions of consent, traffic and parking impacts are likely to be minor.

Environmental Impacts

The development is not likely to give rise to any unsatisfactory impacts upon the built or natural environment as discussed in the main body of this report.

Cumulative Impacts

Cumulative impacts of a development can arise under four typical scenarios, namely:

- time crowded effects where individual impacts occur so close in time that the initial impact is not dispersed before the proceeding occurs;
- space crowded where impacts are felt because they occur so close in space they have a tendency to overlap;
- nibbling effects occur where small, often minor impacts act together to erode the environmental condition of a locality; and
- synergistic effects, where a mix of heterogeneous impacts interact such that the combined impacts are greater than the sum of the separate effects.

The likelihood of the development causing a cumulative impact under any of the above scenarios has been reduced to acceptable levels through the imposition of conditions controlling the operation of the development, such as the conditions limiting the maximum number of people during peak CBD hours, and a requirement to have all doors closed during early morning and evening classes.

Overall the development is considered acceptable in regards to cumulative impacts.

THE SUITABILITY OF THE SITE s4.15(1)(c)

The subject site is suitable for the proposed development due to the following:

- recreational facilities (indoor) are permitted in the B3 Commercial Core zone with consent, and complement the main use of the CBD for retail and business;
- the proposed gym can be operated in a way that will be compatible with surrounding uses, subject to intensity limitations discussed in this report;
- no external changes to the building or site are proposed; and
- utility services are available to the site

ANY SUBMISSIONS MADE IN ACCORDANCE WITH THE ACT s4.15(1)(d)

The proposed development is not defined as advertised development under the provisions of the Regulation or Council's Community Participation Plan, and as such no formal exhibition of the application was required. No submissions have been received in relation to this application.

PUBLIC INTEREST s4.15(1)(e)

The proposed development is considered to be of minor interest to the wider public due to the relatively localised nature of potential impacts. The proposal is not inconsistent with any relevant policy statements, planning studies, guidelines etc. that have not been considered in this assessment.

SUMMARY


The proposed development is permissible with the consent of Council. The proposed development complies with the relevant aims, objectives and provisions of Orange LEP 2011 (as amended) and DCP 2004. A Section 4.15 assessment of the development indicates that the development is acceptable in this instance. Attached is a draft Notice of Approval outlining a range of conditions considered appropriate to ensure that the development proceeds in an acceptable manner.

COMMENTS

The requirements of the Environmental Health and Building Surveyor and the Engineering Development Section are included in the attached Notice of Approval.

ATTACHMENTS

- 1 Notice of Approval, D20/29633 [↓](#)
- 2 Plans, D20/29618 [↓](#)
- 3 Fire Safety Schedule, D20/29593 [↓](#)

	ORANGE CITY COUNCIL Development Application No DA 54/2020(1) NA20/ Container PR9680
---	---

NOTICE OF DETERMINATION OF A DEVELOPMENT APPLICATION

issued under the *Environmental Planning and Assessment Act 1979*
Section 4.18

Development Application

Applicant Name:	Mr D Quarmby
Applicant Address:	C/- Planning Potential PO Box 2512 ORANGE NSW 2800
Owner's Name:	Mr JH Swain
Land to Be Developed:	Lot 2 DP 535024 - 153-157 Peisley Street, Orange
Proposed Development:	Recreation Facility (indoor) (change of use)

Building Code of Australia building classification:

Class 9

Determination made under Section 4.16

Made On:	2 June 2020
Determination:	CONSENT GRANTED SUBJECT TO CONDITIONS DESCRIBED BELOW:

Consent to Operate From:	3 June 2020
Consent to Lapse On:	3 June 2025

Terms of Approval

The reasons for the imposition of conditions are:

- (1) To maintain neighbourhood amenity and character.
- (2) To ensure compliance with relevant statutory requirements.
- (3) To provide adequate public health and safety measures.
- (4) To prevent the proposed development having a detrimental effect on adjoining land uses.

Conditions

- (1) The development must be carried out in accordance with:
 - (a) **Plan/s numbered Floor Plans by Sam Morgan Designs, unnumbered, and dated 29/1/2020 (2 sheets).**
Fire Safety Schedule by Orange City Council, ref: D20/29593, and dated 21 May 2020.
 - (b) statements of environmental effects or other similar associated documents that form part of the approval

as amended in accordance with any conditions of this consent.

PRESCRIBED CONDITIONS

- (2) All building work must be carried out in accordance with the provisions of the Building Code of Australia.

DURING CONSTRUCTION/SITEWORKS

- (3) The gas meter is to be relocated clear of the required rear exit in accordance with D2.7 *Installations in exits and paths of travel* - Building Code of Australia 2019.
- (4) The internal stair, balustrade and handrail to the mezzanine area is to be upgraded to ensure compliance with the requirements of the Building Code of Australia 2019:
- Stairs - risers are not have any openings that would allow a 125 mm sphere to pass through between the treads.
- (5) The rear door must swing in the direction of egress and be provided with an external bollard to ensure that the exit door cannot be blocked.
- The rear door forming part of a required exit must be readily openable without a key from the side that faces a person seeking egress, by a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor.
- The front doors may remain inward swinging and must be fitted with a device for holding it in the open position.
- (6) Directional illuminated exit signage is to be provided to indicate egress from the upper mezzanine level.
- (7) Any adjustments to existing utility services that are made necessary by this development proceeding are to be at the full cost of the developer.

PRIOR TO THE ISSUE OF AN OCCUPATION CERTIFICATE

- (8) No person is to use or occupy the building or alteration that is the subject of this approval without the prior issuing of an Occupation Certificate.
- (9) The owner of the building/s must cause the Council to be given a Final Fire Safety Certificate on completion of the building in relation to essential fire or other safety measures included in the schedule attached to this approval.
- (10) All of the foregoing conditions are to be at the full cost of the developer and to the requirements and standards of the Orange City Council Development and Subdivision Code, unless specifically stated otherwise. All work required by the foregoing conditions is to be completed prior to the issuing of an Occupation Certificate, unless stated otherwise.

MATTERS FOR THE ONGOING PERFORMANCE AND OPERATION OF THE DEVELOPMENT

- (11) The hours of operation of the premises shall **not exceed Monday to Friday 6:00am to 9:00pm and Saturday 7:00am to 5:00pm.**
- (12) During the hours of Monday to Friday 9:00am to 5:00pm, the use of the tenancy is limited to a **maximum intensity of 18 persons (including patrons, staff, trainers and the like) on-site at any one time.** Notwithstanding this, classes catering for children or persons with additional needs can have siblings, parents, carers, and the likes in addition to this number. The scheduling of classes during these hours shall have at least a 15 minute period between each class to allow for car parking turnover. Operation of the facility outside the period Monday to Friday 9:00am to 5:00pm shall be consistent with Condition (11) of this consent and the details submitted with the development application.

- (13) All doors are to be kept in the **closed position** during early morning classes before 7:00am and evening classes after 7:00pm, and at any time during classes and sessions where music is being played and/or an amplified microphone is being used.
- (14) The owner is required to provide to Council and to the NSW Fire Commissioner an Annual Fire Safety Statement in respect of the fire-safety measures, as required by Clause 177 of the *Environmental Planning and Assessment Regulation 2000*.
- (15) Emitted noise shall not exceed 5dB(A) above background sound level measured at the nearest affected residence.

Other Approvals

- (1) *Local Government Act 1993* approvals granted under section 68.
- Nil
- (2) General terms of other approvals integrated as part of this consent.
- Nil

Right of Appeal

If you are dissatisfied with this decision, Section 8.7 of the *Environmental Planning and Assessment Act 1979* gives you the right to appeal to the Land and Environment Court. Pursuant to Section 8.10, an applicant may only appeal within 6 months after the date the decision is notified.

Disability Discrimination Act 1992:

This application has been assessed in accordance with the *Environmental Planning and Assessment Act 1979*. No guarantee is given that the proposal complies with the *Disability Discrimination Act 1992*.

The applicant/owner is responsible to ensure compliance with this and other anti-discrimination legislation.

The *Disability Discrimination Act* covers disabilities not catered for in the minimum standards called up in the Building Code of Australia which references AS1428.1 - "Design for Access and Mobility". AS1428 Parts 2, 3 and 4 provides the most comprehensive technical guidance under the *Disability Discrimination Act* currently available in Australia.

Disclaimer - S88B of the Conveyancing Act 1919 - Restrictions on the Use of Land:

The applicant should note that there could be covenants in favour of persons other than Council restricting what may be built or done upon the subject land. The applicant is advised to check the position before commencing any work.

Signed:

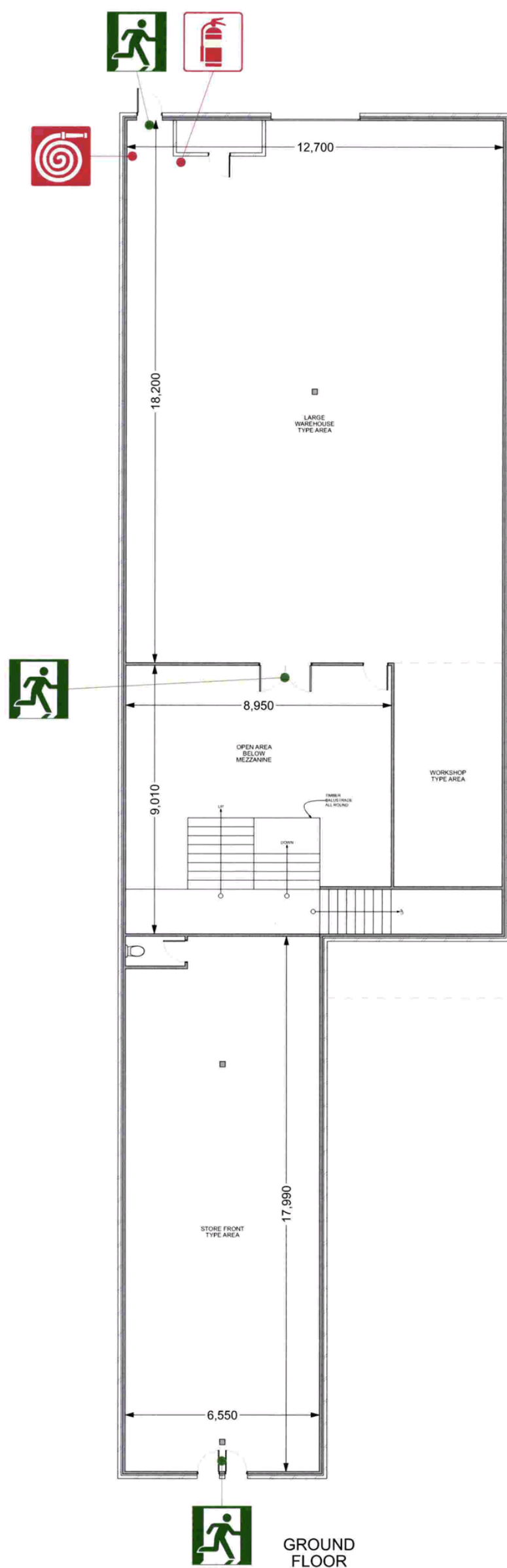
On behalf of the consent authority **ORANGE CITY COUNCIL**

Signature:**Name:**

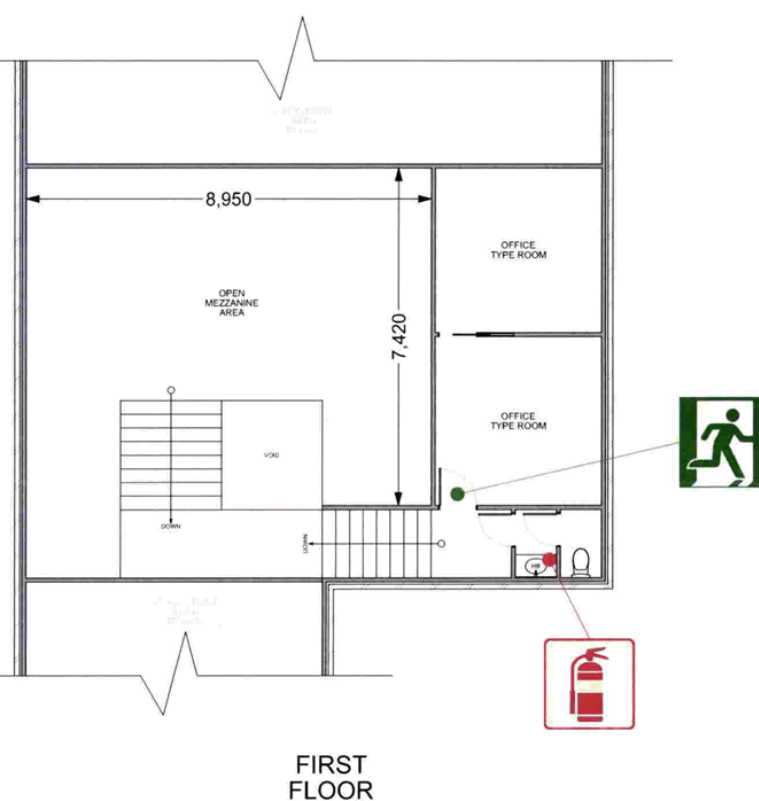
PAUL JOHNSTON - MANAGER DEVELOPMENT ASSESSMENTS

Date:

3 June 2020



NOTES - Dimensions are approximates only.
Unknown wall materials.



FIRST
FLOOR



FIRE EXIT

FIRE HOSE REEL

FIRE EXTINGUISHER

 Floor Plan
SCALE 1:150

EXISTING BUILDING LAYOUT FOR:

UNITED JIU JITSU ACADEMY
153-157 PEISLEY STREET
ORANGE, NSW, 2800

TITLE:
FLOOR PLAN

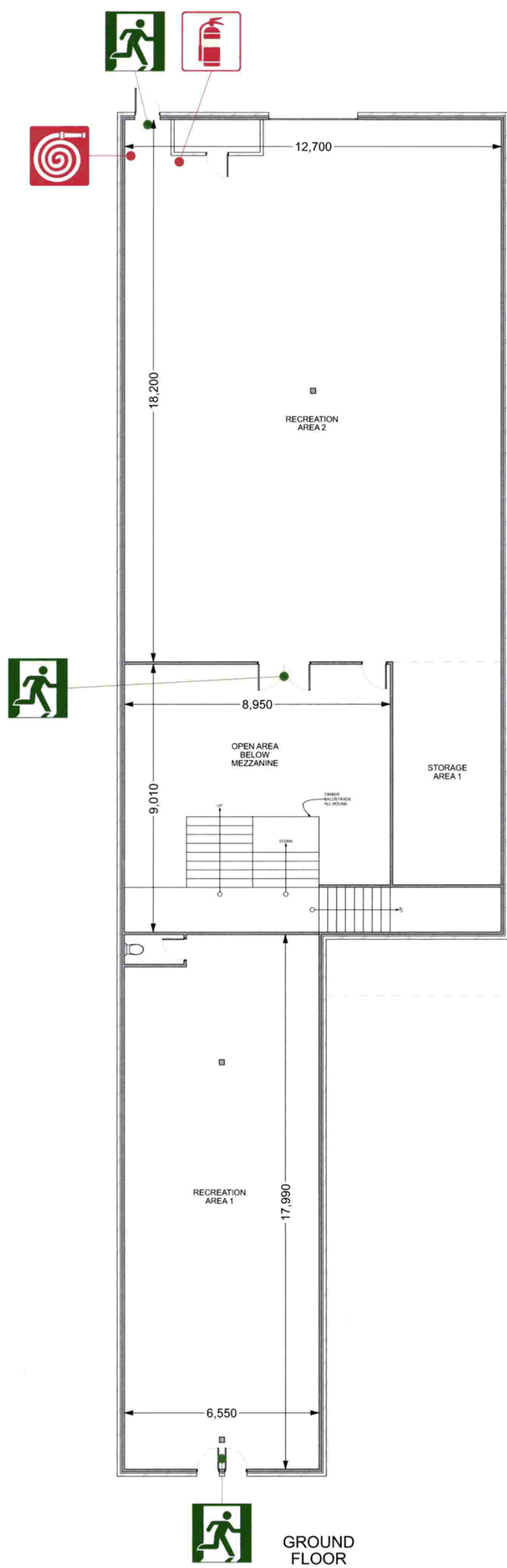
APPLICATION:
DEVELOPMENT APPLICATION

DATE:	29/1/2020
PAGE:	1 / 2
SCALE:	1 : 150 @ A3
DRAWN BY:	SAM MORGAN

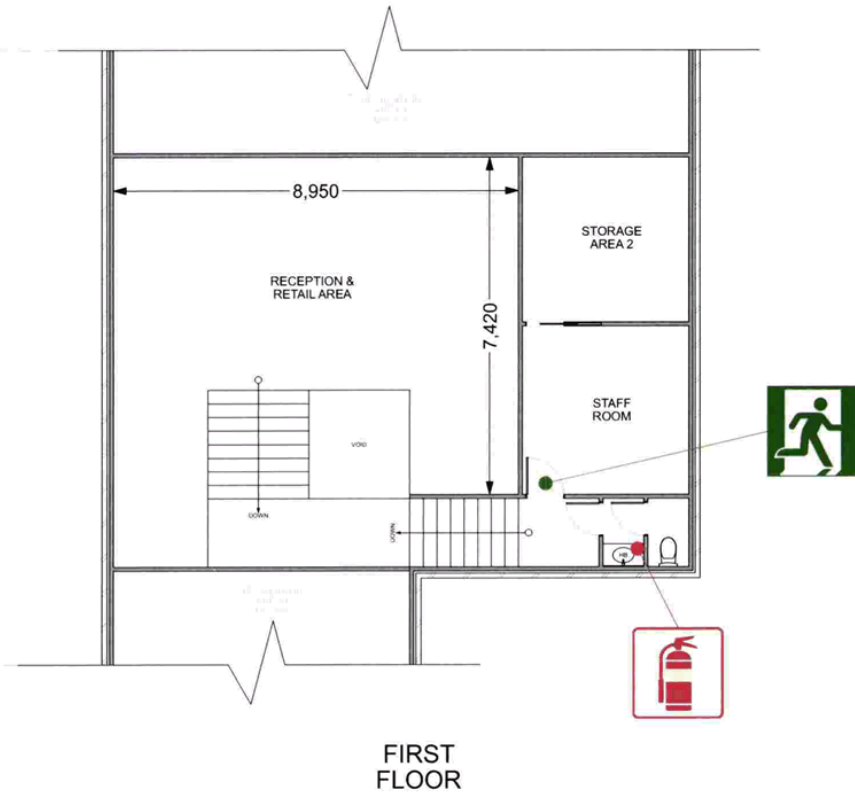
NOTES:

SAM MORGAN
DESIGNS
ARCHITECTURAL DRAFTING

0419 480 827
smdesigns2800@gmail.com




NOTES - Dimensions are approximates only.
Unknown wall materials.



FLOOR AREA	
RECREATION AREA 1	117m ²
RECREATION AREA 2	231m ²
OPEN AREA BELOW MEZZANINE	60m ²
RECEPTION & RETAIL AREA	60m ²
STORAGE AREA 1	27m ^m
STORAGE AREA 2	13m ²
STAFF ROOM	13m ²

-  FIRE EXIT
-  FIRE HOSE REEL
-  FIRE EXTINGUISHER

Floor Plan
SCALE 1:100

PROPOSED BUILDING LAYOUT FOR: UNITED JIU JITSU ACADEMY 153-157 PEISLEY STREET ORANGE, NSW, 2800	TITLE: FLOOR PLAN APPLICATION: DEVELOPMENT APPLICATION	DATE: 29/1/2020 PAGE: 2 / 2 SCALE: 1 : 150 @ A3 DRAWN BY: SAM MORGAN	NOTES: <div> 0419 480 827 smdesigns2800@gmail.com</div>
--	---	---	---

COPYRIGHT © THIS PLAN REMAINS THE PROPERTY OF SAM MORGAN DESIGNS AND MAY NOT BE REPRODUCED WITHOUT WRITTEN CONSENT

Fire Safety Schedule

(Clause 168 Environmental Planning and Assessment Regulation 2000)

Owner: Mr JH Swain

Address of Building: LOT: 2 DP: 535024 CA: M0035 – 153-157 Peisley Street ORANGE

Date: 21 May 2020

Development Approvals

- ☐ Development Application or Complying Development Consent Number: 54/2020

Schedule

Fire Safety Measure	Design/Installation Standard	Minimum Standard of Performance (To be specified in the fire safety statement)	Existing Installation	Proposed Installation
Emergency lighting	BCA Clauses E4.2 & E4.4	AS 2293.1 (2005)	X	<input type="checkbox"/>
Exit signs	BCA Clause E4.5, E4.6 & E4.8	AS 2293.1 (2005)	X	X
Hose reel systems	BCA Clause E1.4	AS 2441 (1988)	X	<input type="checkbox"/>
Portable fire extinguishers	BCA Clause E1.6	AS 2444 (2001)	X	<input type="checkbox"/>

Note: At least once in every twelve (12) month period, the owner of the building shall submit to Council and the NSW Fire Commissioner, a Fire Safety Certificate, in accordance with Clause 177 of the Environmental Planning and Assessment Regulations 2000.

2.4 HERITAGE STUDY REVIEW

RECORD NUMBER: 2020/819

AUTHOR: Andrew Crump, Senior Planner

EXECUTIVE SUMMARY

Council has a statutory responsibility to list and manage heritage items and areas within its local government area. The Community Based Heritage Study was adopted by Council in 2012, with 1,151 properties being identified as significant to Orange's heritage, and 355 of these items listed in Orange Local Environmental Plan 2011 (the 'LEP').

To ensure that the Heritage Study remains relevant and up to date, in 2019 Council engaged Heritage Consultants David Scobie Architects and local firm, Adaptive Architects (the consultants) to carry out a review of the existing Community Based Heritage Study.

Following two separate community workshops and an invitation to the community to share their views on the existing heritage items and areas within the city, a draft report has been prepared by the consultants (See attached).

The report recommends three new heritage conservation areas (Bletchington, Blackman's Swamp and Newman Park HCAs), expansions to the Central, Duration Cottages and Glenroi Heritage Conservation Areas (proposed to become the East Orange HCA) and a number of new heritage items. The report also recommends certain properties to be further investigated and a series of already listed items that could potentially be redescribed/remapped to allow other types of approvals on the less significant parts of the listed site (e.g. Kinross Wolaroi School – Former Wolaroi Mansion and landscaped entrance being the more significant elements than other parts of the site; or the former Myer site where the original portion in Summer Street is the main interest and not the internal shops in the City Centre). These areas will be further scoped and assessed during the exhibition phase and will form part of the formal recommendations and report to Council following the exhibition period.

Additionally, the consultants have recommended renaming the existing conservation areas to either better reflect their location within the LGA or to better describe the significance attached to the area.

The project is now at a point where the consultant's report and recommendations have been received by Council; and Council now needs to put the report on public exhibition to garner public comment.

As such, this report recommends progressing the project to the formal community consultation stage.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "10.1 Preserve - Engage with the community to ensure plans for growth and development are respectful of our heritage".

FINANCIAL IMPLICATIONS

The heritage study review is listed within Council's operational delivery plan. There is a financial implication with respect to the preparation of the required planning proposal that updates the Local Environmental Plan (LEP) to reflect any adopted heritage changes.

POLICY AND GOVERNANCE IMPLICATIONS

It will be necessary to amend Orange LEP 2011 following Council adoption of the Final Report from the consultants.

RECOMMENDATION

That the Draft Heritage Study Review May 2020 prepared by David Scobie Architects and Adaptive Architects be placed on public exhibition for a period of 40 days.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

DIRECTOR'S NOTE

Council is now receipt of a draft heritage study from Council's consultants. The draft study recommends the creation of three new heritage areas, an expansion of others together with the individual listing of an additional 36 properties. It is recommended that Council resolves to commence formal public exhibition of the draft Heritage Strategy in order to obtain the community's views on the Strategy. Following this, the Strategy would be reported back to Council for consideration and adoption.

SUPPORTING INFORMATION

Hughes Trueman Ludlow completed the City's first heritage study in 1986 which identified the majority of the conservation areas we have today along with approximately a third of the heritage items still listed today.

In 2010 David Scobie Architects were engaged to undertake a Community Based Heritage Study. The study was adopted in 2012 and was incorporated into the LEP as part of Amendment 1 in 2014.

In line with Council's obligations to carry out periodic reviews and updates of Council's Planning strategies and policies, in mid-2019 Council engaged David Scobie of David Scobie Architects and also James Nicholson of Adaptive Architects to carry out a periodic review of the study.

The purpose of the review is to determine if the existing mapped heritage areas and listed heritage items are adequate and capture everything that is deemed to carry heritage significance; or if not, identify the areas that should be expanded or recalibrated; or whether new areas need to be included along with whether or not additional items need to be included. Additionally, the review includes an exploration of existing heritage items where sites of certain items are typically quite large; the review is to explore if such sites could be re-defined / re-mapped to allow more generous approval pathways (i.e. complying development certificates) on the less significant parts of a site.

Council staff hosted two inception workshops which the public was invited to. In addition to the general public, Council staff invited the members of the Cultural Heritage Community Committee along with members of the community who have showed an interest in heritage conservation within the City.

2.4 Heritage Study Review

At the same time as the inception workshops, Council invited the community to send in their thoughts and views of the existing heritage conservation areas and items within the City.

The submissions received during this period formed the basis of the consultant's initial study areas.

Toward the end of last year, a workshop was held with the community members who attended the initial inception meetings and/or those who made submission. The purpose of the workshop was to gather more input from the community and to fine tune the study areas.

Following on from the last workshop, the consultants have carried out their detailed assessments of significance of the various areas in line with Heritage NSW Guidelines.

The conclusions of those various assessments underpin the recommendations in the attached draft report and mapping.

In summary, the report recommends the following:

- 1 Three new heritage conservation areas – Bletchington, Blackmans Swamp and Newman Park Conservation Areas.
- 2 Expansions to the Central, Duration Cottages and Glenroi Conservation Areas.
- 3 New Heritage items including:
 - (a) 117 Sampson Street
 - (b) 49 Prince Street
 - (c) 139 Margaret Street
 - (d) 171 Margaret Street
 - (e) 110 Matthews Avenue
 - (f) 125 Prince Street
 - (g) 112 Dalton Street
 - (h) 125 Dalton Street
 - (i) 121 Gardiner Road
 - (j) 123 Gardiner Road
 - (k) 102 Gardiner Road
 - (l) 104 Gardiner Road
 - (m) 106 Gardiner Road
 - (n) 108 Gardiner Road
 - (o) 21 Spring Street
 - (p) 23 Spring Street
 - (q) 25 Spring Street
 - (r) 105 Spring Street

2.4 Heritage Study Review

- (s) 5 Hawkins Lane
- (t) 7 Hawkins Lane
- (u) 9 Hawkins Lane
- (v) 11 Hawkins Lane
- (w) 3 Hawkins Lane
- (x) 6 Hawkins Lane
- (y) 4 Hawkins Lane
- (z) 2 Hawkins Lane
- (aa) 20 Nile Street
- (bb) 22 Nile Street
- (cc) 24 Nile Street
- (dd) 26 Nile Street
- (ee) 15 Capps Lane, Huntley*
- (ff) 1 Capps Lane, Huntley*
- (gg) 38 Kinghorn Lane, Huntley*
- (hh) 23 Blunt Road, Huntley*
- (ii) 'Waverton' 76 Blunt Road, Huntley*
- (jj) 'Homeleigh' 359 Phoenix Mine Road, Huntley*.

*subject to further detailed investigation and access to the site.

- 4 Rebranding of the existing heritage conservation areas to either better describe their location within the LGA, or to better describe the attributed significance. For example; it is recommended that the Central Heritage Conservation Area be renamed the "Dalton Heritage Conservation Area" as a reference to the importance the Dalton Family has had on the progression and prosperity of Orange during an important period of growth; particularly during the second half of the 19th century and the start of the 20th Century.

A summary of the proposed redescribed Heritage Conservation Areas is provided below:

<i>Current Name</i>	<i>Proposed Name</i>
Central HCA	Dalton HCA (recommended additional area shown in Red on the study map)
Duration Cottages HCA	Glenroi "Duration Cottages" HCA (recommended additional area shown Amber on the study map)
Glenroi HCA	East Orange HCA (recommended additional area shown purple on the study map)
East Orange HCA	Bowen HCA (no changes other than name)
**	Blackman's Swamp HCA (yellow study map)
**	Newman Park HCA (Orange study map)
**	Bletchington HCA (Blue study map)

2.4 Heritage Study Review

5. A shortlist of existing heritage items has been compiled where the consultants will explore the heritage significance of the respective sites with a view to investigate the possibility of re-defining / re-mapping the heritage curtilage for each site.

With Council now in receipt of the consultant's report and recommendations, the project has progressed where Council can place the report on public exhibition and garner the community's views on the recommended changes.

As such, this report recommends placing the attached report by the consultants on public exhibition for a period of 40 days (allowing for additional time under current circumstances relating to Covid-19).

In completing this process of community consultation, all owners effected by the recommended changes would be personally written to, as well as place advertisements in the local newspaper and on Council's website to advise the broader community. For the matters requiring further investigation, separate correspondence will be furnished to those owner's requesting an on-site meeting take place.

Following the conclusion of the impending exhibition period and the conclusion of the matters involving further investigation, the consultants will review all submissions received, make any necessary amendments to the draft report and provide that to Council as the Final Report for consideration. Following this, the process to planning proposal process to amend the Orange LEP to include the adopted recommendations would commence.

ATTACHMENTS

- 1 Draft Heritage Study Review, IC20/10873 [↓](#)

[Orange City Council: Heritage conservation area review 2019-20](#)

Orange City Council Heritage conservation area review

Report to Council: May 2020



Figure 1 Panoramic view of outskirts of Orange township, New South Wales [picture] / EB Studios, Trove image collection, NLA

Version C: 25th May, 2020

Contents

Contents.....	2
1. Executive Summary.....	4
2. Introduction	5
2.1. Background	5
2.2. Methodology.....	6
2.3. Submissions.....	6
2.4. Workshops	7
3. Historical Background to Heritage conservation areas	8
4. Heritage conservation areas	10
4.1. Dalton heritage conservation area	10
4.2. Bletchington Heritage conservation area	14
4.3. Blackman's Swamp Heritage conservation area	17
4.4. Newman Park Heritage conservation area	19
4.5. Bowen Heritage conservation area.....	23
4.6. East Orange Heritage conservation area	26
4.7. Glenroi Duration Cottages Heritage conservation area	29
5. Heritage Items.....	32
5.1. 117 Sampson Street	33
5.2. 49 Prince Street.....	34
5.3. 139 Margaret Street.....	35
5.4. 110 Matthews Avenue	38
5.5. 125 Prince Street.....	39
5.6. 125 Dalton Street	40
5.7. 112 Dalton Street	42
5.8. 121 Gardiner Road	43
5.9. 123 Gardiner Road	44
5.10. 102 Gardiner Road	45
5.11. 104 Gardiner Road	46
5.12. 106 Gardiner Road	47
5.13. 108 Gardiner Road	47
5.14. 21 Spring Street.....	48
5.15. 23 Spring Street.....	49
5.16. 25 Spring Street.....	49
5.17. 105 Spring Street.....	50
5.18. Hawkins Lane group	51
5.19. 5 Hawkins Lane	52
5.20. 7 Hawkins Lane	52
5.21. 9 Hawkins Lane	53
5.22. 11 Hawkins Lane	54
5.23. 3 Hawkins Lane	55
5.24. 6 Hawkins Lane	56
5.25. 4 Hawkins Lane	56
5.26. 2 Hawkins Lane	57

Orange City Council: Heritage conservation area review 2019-20

5.27.	20 Nile Street	57
5.28.	22 Nile Street	58
5.29.	24 Nile Street	59
5.30.	26 Nile Street	59
6.	Items for further investigation	61
6.1.	15 Capps Lane, Huntley.....	62
6.2.	1 Capps Lane, Huntley.....	63
6.3.	38 Kinghorn Lane, Huntley.....	64
6.4.	23 Blunt Road, Huntley	65
6.5.	'Waverton', 76 Blunt Road, Huntley	66
6.6.	'Homeleigh', 359 Phoenix Mine Road, Huntley	67
6.7.	Farm shed, 'Kymrock', 47 Cully Road	67
6.8.	'Yanina', 1050 Huntley Road, Huntley	67
7.	Complex site analysis	69
8.	The Next steps	70

1. Executive Summary

The Review has completed a heritage study in accordance with the Brief and during the process, considered a range of submissions from the community and from members of the Heritage Committee working party.

At the outset it had been made clear by Council, the community and the previous community based heritage study that the heritage conservation areas were worthy of review and expansion in particular areas.

The review has concluded with a range of recommendations for expanding the heritage conservation areas within Orange and for a number of additional heritage listings.

The proposal includes a change to the names of the heritage conservation areas in order that they are more clearly identified with their setting and local history. No changes are recommended to the Lucknow and Spring Hill heritage conservation areas.

In summary the proposed heritage conservation areas are Dalton – the former central conservation area, East Orange heritage conservation area, Bowen – the former southern portion of the East Orange Area, an expanded Glenroi Duration Cottages heritage conservation area, and new heritage conservation areas for Newman Park, Blackman's Swamp and Bletchington.

In addition to the discussion around the proposed boundaries of heritage conservation areas at the community workshops, the matter of guidelines and controls for development was covered. It is agreed that this matter requires updating in line with the general changes instituted by other Councils in NSW and that this should be a follow on study. A clear base for that review has been provided in this study with statements of heritage significance for each of the proposed heritage conservation areas.

A portion of the brief for the study related to a review of complex sites currently on the Orange LEP where the scale of the listed site is not well related to the elements of heritage significance. As no submissions were received from the public and owners during the advertised period and the matter was not raised or reviewed in detail at the workshops, the study has concentrated on the Heritage Conservation Areas and Listings. It is intended that this portion of the study will be undertaken during the forthcoming consultations and will include arranged meetings with owners and site visits to review the specific constraints and opportunities offered by each location.

2. Introduction

2.1. Background

The 1986 Orange Heritage Study identified five locations within Orange with the potential for being treated as Heritage conservation areas. These were adopted by Council, and gazetted, as follows:

- Central Orange Heritage conservation area
- East Orange Heritage conservation area
- The South East Heritage conservation area
- Lucknow Heritage conservation area
- Spring Hill Heritage conservation area

The Community based Heritage Study carried out in 2012 – 2013 was a review and adhered to the new guidelines provided by the NSW Heritage Office. These included a community reference committee, with Councillor Representation, and workshops. The study concluded with recommendations for the listing of an extended schedule of heritage items and following public consultation, a recommendation for the future review of the heritage conservation areas.

The Review identified an area which met the criteria for a Heritage conservation area and was recommended and adopted by Council. The Duration Cottages marked the historic post war period for the construction of houses based on a standard design on a small subdivision of land in the vicinity of the Small Arms Factory (later EMMCO, Email and Electrolux), which had attracted people to the region for the work opportunities.

The Review also considered several substantial public submissions relating to Spring Hill and recommended changes to the Spring Hill Heritage conservation area to more closely reflect the original subdivision with an associated number of additional listings.

During the final review and public consultation stage an area in the vicinity of Newman Park was identified as a potential Heritage conservation area. It had previously been identified by the National Trust as a possible Heritage conservation area.

Changes to Heritage conservation area boundaries are recommended where the preference is to include both streetscapes within an area and routing the boundary to rear property lines.

In May, 2019, Council instructed the consulting team of David Scobie Architects with James Nicholson – Adaptive Architects.

The brief provided a scope for a Heritage Study Review as follows:

- A review of the existing Heritage conservation areas, with a view to exploring the potential for:
 - Expanding the current areas
 - Establishing new separate areas;
 - Reduce existing areas.
- Identify new places worthy of listing as heritage items:
- Identify sites that could be refined to an area of significance with a curtilage.

Orange City Council: Heritage conservation area review 2019-20

2.2. Methodology

The following process has been utilised in accordance with Council and Heritage Office guidelines.

- Workshops were conducted at Council, and members of a reference committee and members of the public were invited to commence the review process. The project and the objectives were explained, and issues and commentary were offered from the attendees. It was clear that there was overwhelming support for an expansion of the heritage conservation areas to protect areas which were considered as having conservation qualities, but were currently external to the heritage conservation area boundaries. Three other issues also had support:
 - The listing of buildings and places not currently protected in the schedule;
 - Opportunities for interpretation;
 - Additional controls on development within the heritage conservation areas.

An additional suggestion for the listing of places with Aboriginal significance was considered. However, the expertise required was outside the scope of the current project. However, through the grants system, Council has been able to make considerable progress on a major interpretation programme with Aboriginal significance at The Springs. This project ensued from the Orange Aboriginal Heritage Report completed for Council in 2012.

- An exhibition period followed, and Council accepted a wide range of contributions from the community.
- The submissions were collated, analysed and the key issues studied by the Community Consultative Heritage Committee and consultant team.
- The team visited the sites and areas considered to have sufficient merit to warrant listing, or potential as heritage conservation areas.
- A further workshop was convened to review the potential heritage conservation areas and their boundaries.
- Additional site visits were carried out by the team to review the proposed heritage conservation area boundaries.
- Additional consultation was undertaken in the area of the contribution of post-war housing, and particular building types in Orange.
- Additional consultation was undertaken in seeking advice on the use of specific relevant names for the heritage conservation areas.

2.3. Submissions

The following submissions are nominated for their outstanding contribution towards the project. In addition to their commentary and recommendations, the contributors also attended one or more of the workshops to complement their fieldwork.

Alexandra Rezko

Charles Everett with the Orange Heritage Group

Margaret Deans and Cliff Hall

Euan Greer and Phillip Stevenson

Des Mulcahy

Alison Russell also made available the Archaeology and Heritage Study prepared by OzArk Environment & Heritage which further developed the work by NTS Corp on 'The Springs' Fringe Camp. The site has special significance for the Aboriginal community and was a place on Crown Lands occupied by Aboriginal and non-Aboriginal families during the early decades of the twentieth century. The study will assist Council in listing the site on the LEP as a heritage item.

[Orange City Council: Heritage conservation area review 2019-20](#)

A submission was also received on the use of Hawthorn, *crataegus monogyna* for hedgerow planting in the area. These were planted throughout the Orange and Blayney area and have historic quality as part of the cultural landscape. The submission also commented upon cypress and pine windbreak boundary plantings. Further fieldwork is required in combination with some expertise in the horticulture to identify these elements which would warrant nomination.

2.4. Workshops

The workshops were informal meetings held within the Orange Civic Centre foyer space.

The initial workshop discussed the background and objectives for the study.

The second workshop provided an opportunity following the public submissions to discuss the issues which community members had discovered about their own neighbourhoods and those places further afield which were of conservation interest.

The key issue was which areas to include within the extensions and new areas.

Here was some discussion on the development of additional controls to avoid problematic issues including the demolition of significant buildings, the erection of buildings and additions considered unsympathetic and the general character of works within the heritage conservation areas.

An additional workshop was conducted to review the draft boundaries for the extensions and new heritage conservation areas.

The team also met with Charlie Everett to obtain further information on the particular significance of post war public housing construction in Orange.

3. Historical Background to Heritage conservation areas

The city of Orange has been shaped by many different periods and styles of buildings. As we look at the character of the different Heritage conservation areas in the city, it is important to understand the broader picture and the stylistic features that make them.

The first European to travel through Wiradjuri territory was the surveyor Oxley in 1817, but the first occupation of land west of Bathurst did not occur until 1823. The "Orange" village first appears on maps from 1829 and land sold outside the village from 1836, but no buildings followed. The first building was in 1838 and by 1845 a village had developed at Summer Hill. Narrambla estate followed to the north in 1847. The town was proclaimed in 1846 but no land was sold until 1849. The first buildings were slab huts, and the first brick building was the Wesleyan Church completed in 1849.

So, while there were earlier buildings on the outskirts, the buildings in the town of Orange date from after 1850. There are a few remaining buildings in the Central Orange area from the 1850s and 1860s, but these are few, and are Georgian or Gothic in style. This period is known as Early Victorian. Buildings of this period are likely to feature bluestone, an early building material, and tend to have a primitive frontier construction. There were some local brickworks that developed over time and Sydney architects were visiting by the 1860s and the quality of buildings benefitted from this.

The 1870s and 1880s were a time of prosperity and ambitious expectations for Orange. Some had grown wealthy and showed it in large mansions and more ambitious public buildings supported by local and Sydney architects. This period is generally called Mid-Victorian and featured styles such as Classical, Academic and Rustic Gothic, Italianate, and Romanesque. By the end of the 1880s there was a flourishing town with Victorian features like terrace housing and shopfronts. Some of the city from this period has survived but it is only in pockets, and generally the larger more important public buildings and mansions have survived better than the individual housing. Most of the smaller terraces have gone. Some of the orchard and large farming housing in the outskirts of town are Victorian residences, leading to the odd early residence surrounded by later development.

The next fifteen years would be difficult for Orange. The 1890s started with a Depression that ran to the middle of the decade and was followed by the 1896 drought that only lifted around 1904. There are few buildings in Orange from this period. This was also an experimental period in architecture, where common styles such as Georgian, Italianate, Gothic and Romanesque were mixed together and used in unconventional ways leading to many references to "Free Style". This mixing of styles would lead to a shift in Federation styles in the new century. In terms of a period this can be called Transition, Early Federation, or Late Victorian.

The difficult times led to a pent-up need for more housing, and the flood gates burst when the drought ended. The central parts of Orange have a strong and harmonious character because of the busy program of subdivision and building from about 1904 till the First World War. The houses in this period started out as very formal versions of Victorian Italianate, but that stylistic mixing soon saw the Arts and Crafts and Queen Anne styles make their way into Orange. Some Art Nouveau can be seen in decorative elements in the early part of the decade. Victorian period detailing was very geometric, whereas Federation period detailing became florid, with nature references. This time is best labelled the Federation period, which some call the Edwardian, but with a new nation formed we might dispense with British monarchs as time markers. In this period development stretched out from the city central areas into large sections of Newman Park, Bowen, East Orange and parts of Glenroi.

Orange City Council: Heritage conservation area review 2019-20

After the War Australia's "British only" attitude shifted towards respect for the US. The Californian bungalow was a good basis for design for Australia due to the similar climate. This "Interwar" period was a time of expansion in the city, and much infill as well. Many streets have unbroken rows of Californian bungalow dwellings remaining from this period. The area of Bletchington opened as a subdivision during this period, and the city filled out towards the west and south.

In the 1920s, a simpler housing type clad in fibro without any conscious decoration, that might be termed Fibro Vernacular, began to spread in less affluent areas in the city. This type of housing design would remain largely unchanged through to the end of the 1970s. The social welfare housing of the Housing Commission in 1948 and following would be in this style.

The 1930s brought another Depression and this changed architecture as well. Housing became more simplified and a stripped back Georgian style became a low-cost refuge that was comfortably familiar for designers. Instead of six pane window sashes late 1920s will have three vertical panes, and 1930s will have two horizontal panes. Some Spanish Mission influences (derived in turn from Romanesque) can be found in this period and there was by this time a large range of styles available to a designer. Orange also has several P&O style houses scattered around. Many of these houses provided infill in otherwise well-developed areas of the city.

Orange has very few sandstone buildings for a town its size, and instead has a character established by the orange-brown or "oatmeal" coloured brickwork that was all sourced from the local manufacturers. This is true from the very early Victorian period through to the end of the Inter-war period. This gives these quite different periods a unifying character that would shift after the war. These earlier styles all consistently had smaller elements like verandahs that broke down their scale and once again gave them a consistency of character that would not continue beyond the war. Other materials like slate roofs, corrugated galvanised sheet roofs and timber windows also unite these earlier period buildings, and distinguish them from the post-war period. In many ways the Second World War drew a line in the sand between the architecture that came before and after it.

The late years of the Second World War and in the immediate "Post-war" period the level of austerity shaped architecture into a very stripped down and simplified box-like architecture. Most of the design elements were removed for a purely pragmatic approach. This period also features technological changes such as non-locally produced extruded bricks, aluminium windows, and concrete roof tiles. The 1950s brought the stylistic expression inside the house with pastel ironwork in the bathroom and ultra-moderne furniture elements. It also brought with it the rise in car ownership and need for garages in residences. This period saw the expansion of the city, and there are many areas where this period is the dominant type of development.

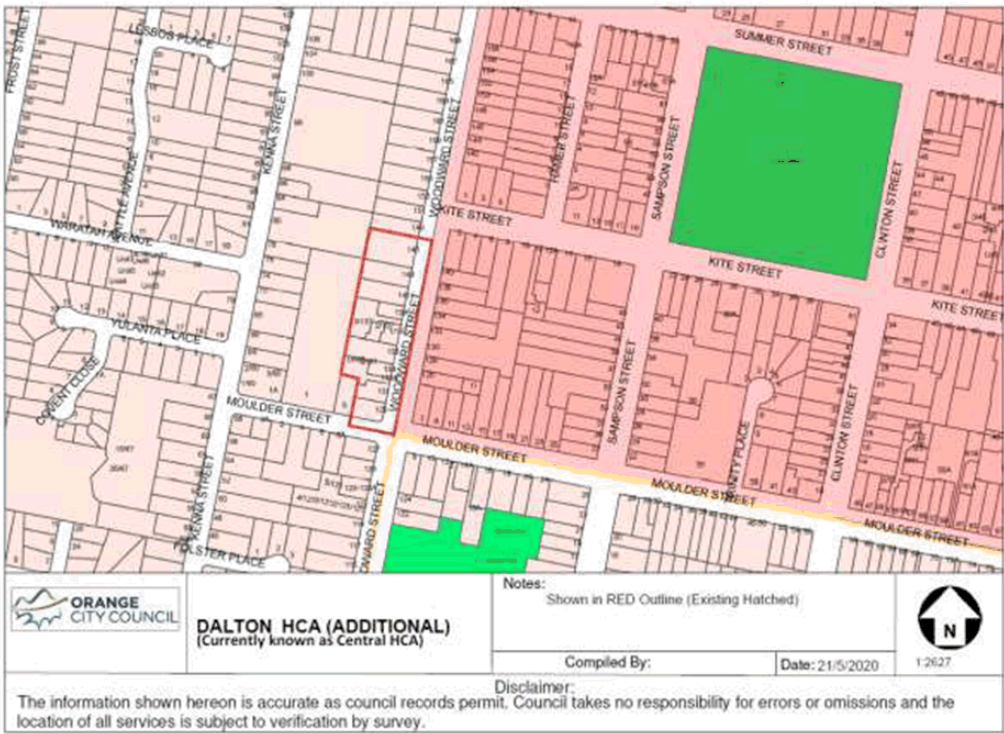
The 1960s and 1970s saw a period of experimentation with housing to break away from the pattern of development that had been entrenched by austerity. While cost remained a serious issue throughout this period there were several ideas such as A-frames and skillion forms designed to change the nature of housing. Brickwork trended towards the lighter blonde shades mixed with brown detailing and ceilings were lowered. This type of development tends to be in large discrete areas instead of individual infill buildings. The city expanded again with large zones of this period on the city's outskirts.

Orange City Council: Heritage conservation area review 2019-20

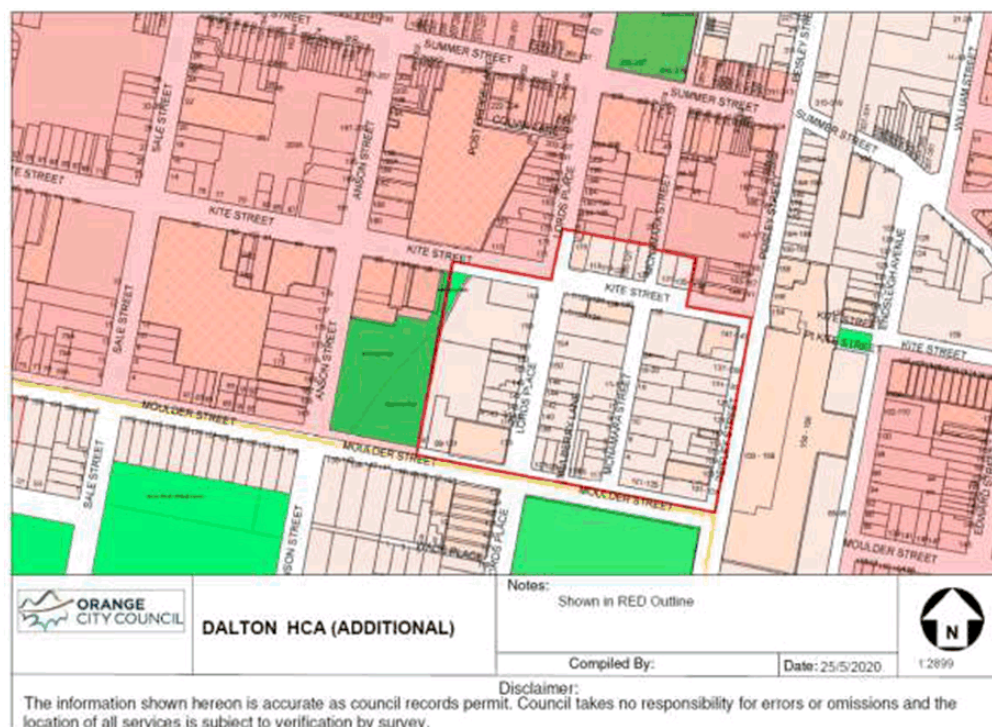
4. Heritage conservation areas

4.1. Dalton heritage conservation area

Dalton is the former Central Heritage conservation area, with two minor extensions. The first allows for an area to the south-east corner, formed by four blocks of properties fronting Moulder Street, Lords Place, McNamara Street, Kite Street and Peisley Street. The second extension is a series of properties on the western side of Woodward St, between Moulder and Kite Streets.



Orange City Council: Heritage conservation area review 2019-20



Description

The Dalton Heritage conservation area broadly corresponds with the original “square mile” town layout in a grid pattern. This area includes a high concentration of sites of heritage significance and includes successive periods of infill development.

The Heritage conservation area has different characteristics for residential areas and the commercial centre as follows:

Residential Areas

The central area of the city holds the highest number of the very earliest surviving buildings in the town. This includes churches, government buildings and large mansions from the Early and Mid-Victorian periods. Most of these buildings will be individually listed heritage items. Smaller homes from this period are less likely to be heritage items and will be tucked into later infill areas, often because their larger lots were subdivided later.

Much of the housing stock in the Central Orange HCA is from that burst of development just after the turn of the century. The Federation Italianate predominates along the streets, with fewer examples of the Arts and Crafts and the Queen Anne styles mainly occupying corners. The level of continuity of housing from this period is what gives Orange a strong sense of unity and heritage character. There are numerous areas where rows of Federation Italianate are unbroken.

There is also a fairly high level of Interwar period bungalow infill housing in the earlier areas of the Central Orange HCA, and they have a greater concentration as you move to the outer areas of the square mile, particularly towards the west where they are almost uninterrupted along the street.

Orange City Council: Heritage conservation area review 2019-20

With the combination of common elements from each of the building periods, and wide streets often complemented by large trees, this Central Orange HCA has been described as “having grace, consistency and highly urban character rarely found in the towns of New South Wales especially in the concentration that exists here”.

A surprising number of front fences and gardens retain their original style and reinforce the identity of the periods.

Central Business District

In the CBD the strong consistency of scale and harmony of styles evident in the early 20th century (from photographic records) has been progressively reduced. For example, ground floor shopfronts from the 1870s to 1920s have been replaced with post 1960s styles and some first storey façades have been covered with metal sheeting.

The Post Office precinct is the main commercial heritage group within the CBD. It includes the Post Office, the former Australian Joint Stock Bank, the Commonwealth Bank, Hotel Canobolas, the Royal Hotel and the former Dalton Bros stores. They provide a heritage focus for the CBD. This focus needs to be protected, but also to be supported by the rest of the CBD character.

Other scattered commercial and public heritage buildings that have been identified as having heritage significance contribute to the city’s heritage even though the commercial core has lost much character due to reconstruction in unrelated styles and materials and abrupt changes in scale over a number of years

Statement of Significance

Historic: The Dalton HCA is the earliest part of the town with the oldest remaining buildings, some of which date back to the foundation of the town in the 1850s and 1860s. The “square mile” reflects the colonial surveyed town layout from 1846. It reflects the primary colonial government focus on law and order, commerce, education, government services and religious institutions, all of which have a prominent role in the HCA. The phases of development, the earliest streets and how they changed is a physical record of the town’s history.

Associative: The Dalton HCA is named after one of the most prominent families in the development in Orange, and one that has shaped how the town developed. The Dalton Brothers establishment was the main reason the commercial district moved to Summer Street, and they were instrumental in developing the town into a substantial centre.

Aesthetic: The Dalton HCA has some of the most iconic buildings in Orange including the large public buildings like the court house and the post office; the large commercial buildings like the former Dalton Bros stores and the various hotels; the large churches like Holy Trinity and St Joseph’s; and the prominent older schools like Orange Public. Beyond that the peculiar history of Orange has developed a town with a remarkable level of unity in the residential character of this central area. With the bulk of the housing from the turn of the century and interwar periods the built fabric of the town centre has a defined character that is noticeable. Add in the cold climate and wide Victorian regional streets lined with European deciduous species and the town has a unique feel to it.

Social: The Dalton HCA is the heart of the community and has very strong social significance to the local community and the wider regional areas

[Orange City Council: Heritage conservation area review 2019-20](#)

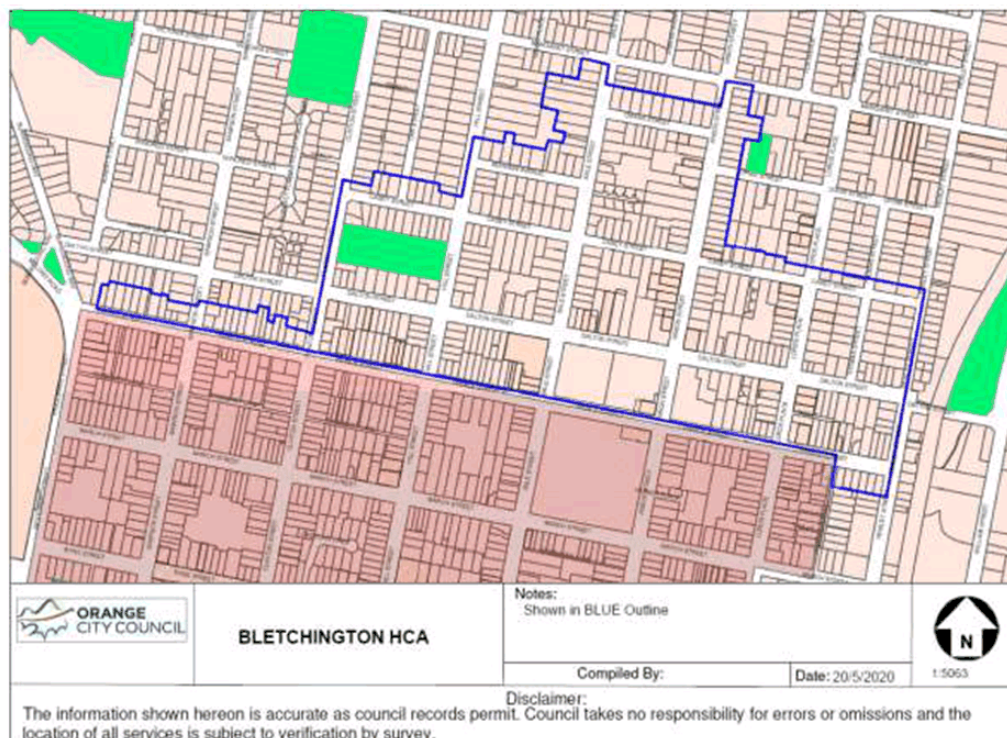
Research: The Dalton HCA has many layers of development and can provide a high level of research potential

Rarity: The Dalton HCA has a unique character unlike any other town centre in many ways. Its relatively narrow band of housing predominantly from the 1900-1930 period is unusual for a regional centre. Its elevation and climate has resulted in unique citywide plantings that were particularly suitable to early European settlers.

Representativeness: The Dalton HCA has many characteristics that are representative of planning styles for town layouts in the mid 19th C and can still demonstrate those principles. The building stock include good examples of architectural styles, with a particularly local character in housing styles. Orange shows the characteristics of a town that spent a significant period as a rail head.

4.2. Bletchington Heritage conservation area

Bletchington is a new heritage conservation area, consisting of properties north of Prince Street, up to Margaret Street, primarily between Clinton and Peisley Streets.



Description

The Bletchington Heritage conservation area is a new area that is an extension north from the Dalton HCA. This includes an area north of Prince Street and is predominantly a projection of the eastern half of the Dalton HCA towards the north focussed on the area between Hill and Peisley Streets.

Prince Street north has several excellent examples of important mid-Victorian Italianate residences, and some that need some work to bring out their best. There are also several excellent examples of Federation Italianate cottages, many Interwar bungalows and some late 20thC residences. It has very few post-war residences.

The entire area north of Dalton Street was granted to Simeon Lord, and this estate was not subdivided until the "Bletchington Estate" was released in a fairly consistent and slow release method spanning mainly from 1910 until the mid-1950s. Thomas Dalton sold less than 5 blocks in a small subdivision around Thomas Street in the 1890s, but it was his 2nd wife who established the major subdivision of the area in 1909. As such the Bletchington Estate started to develop in that boom time after 1905 and the area of the HCA had largely filled in by the end of the Interwar period in 1945.

There are a few Federation Italianate buildings spread out in the HCA. By far the most prominent period of buildings are from the Interwar period, as Californian Bungalows. Unlike the other HCAs, which have an irregular extent of infill across their areas, the Bletchington HCA is a bit like a patchwork quilt, reflecting the piece by piece way the land was purchased in a series of mini-estates.

Orange City Council: Heritage conservation area review 2019-20

This seems driven mainly by the desire to live in areas already settled by others. There are pockets with a run of Federation period houses in Anson Street, Lords Place and Dalton Street. This indicates that Anson Street and Lords Place must have been extended as the first roads through the new estate.

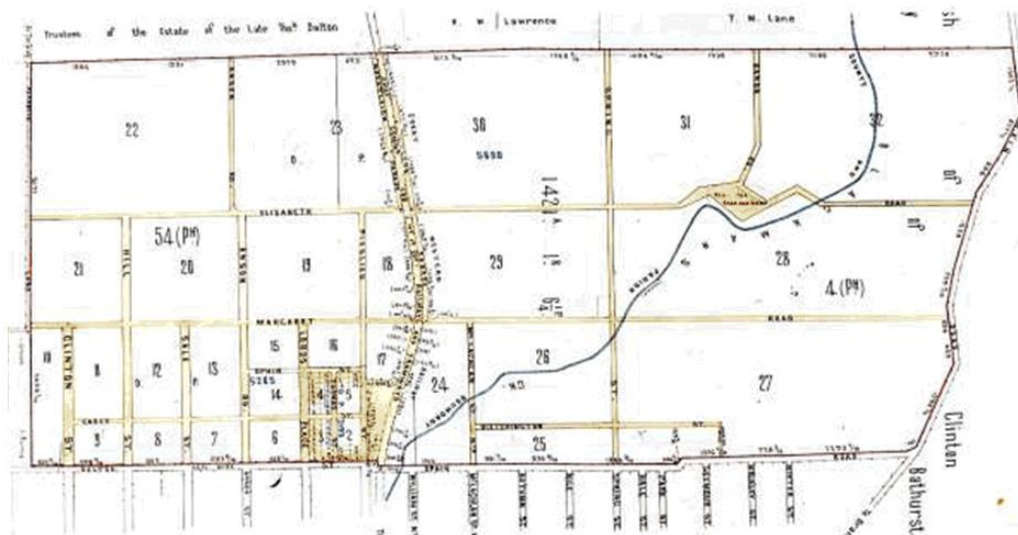


Figure 2 The early stages of the Bletchington Estate showing Thomas Dalton's small 1890 subdivision near Peisley Street. This largely stalled until the late Interwar period. – *Land Titles Office*



Figure 3 1938 Town Map showing the development of the Bletchington Estate to that date. Development has extended the full length of Prince St, up to Clinton St along Dalton, but only between Peisley and Hill to the north of Dalton. Some areas have been redeveloped since and lost their early character.

Orange City Council: Heritage conservation area review 2019-20

There are also large pockets with uninterrupted runs of Interwar bungalows, and other parts where there are uninterrupted runs of post-war houses. There are relatively few late 20thC houses in this area other than the south side of Dalton Street, which has several of them.

Together this gives this HCA a very individual character where there are consistent smaller areas of a single character, instead of a complete mix of styles and periods.

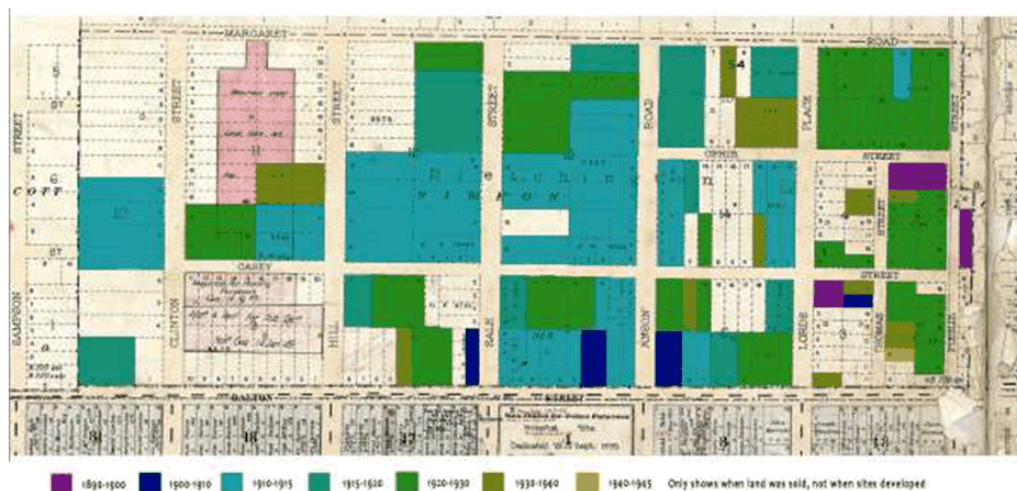


Figure 4 1929 parish map with colour coding to show how sites were sold. The patches of development seem to be primarily related to people's desire to buy in an area that is already occupied. – *Land Titles Office*

Statement of Significance

Historic: The Bletchington Estate represents one of the main areas of growth for the young city of Orange, predominantly in the Interwar period.

Associative: The Bletchington Estate was initiated by the second wife of Thomas Dalton, Mary Ann, who established the subdivision a year before her death. She was a prominent socialite and supporter of community in the Northern Sydney area.

Aesthetic: Released as a large estate, the Bletchington HCA has been left with a patchwork of early Federation and Interwar buildings that occur in significant groups within the broader residential character. This extends the city core's character north towards the hills.

Social: The Bletchington HCA is an early extension of the town and has developed a supporting character to the Orange community.

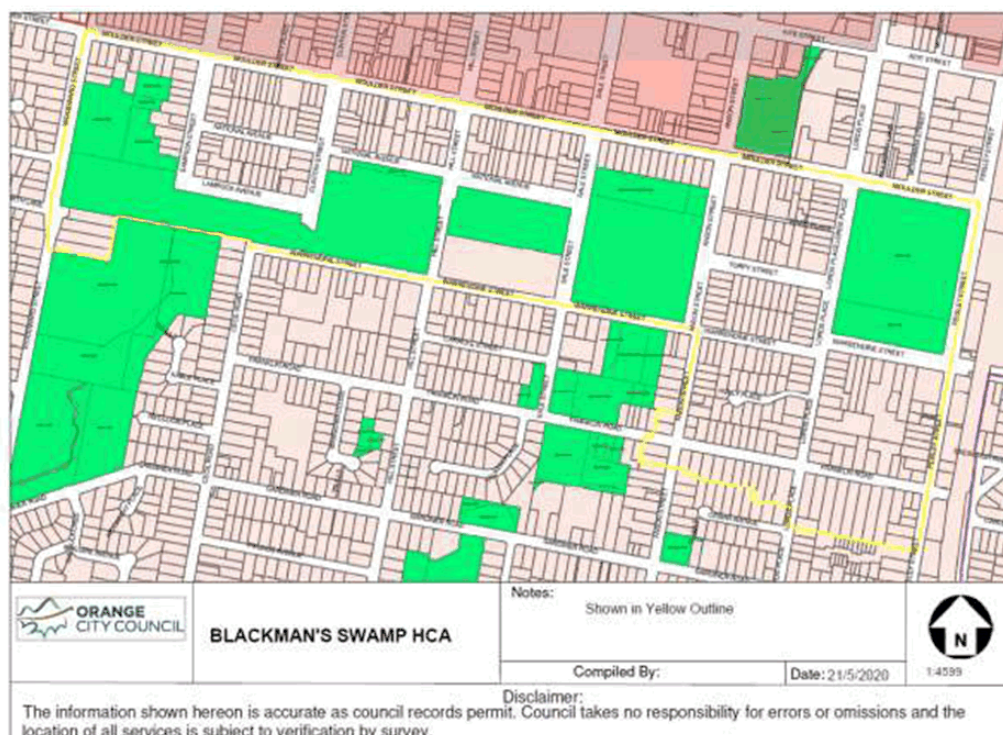
Research:

Rarity:

Representativeness: The Bletchington HCA has a building stock that include good examples of Federation Italianate and Interwar bugalow styles.

4.3. Blackman's Swamp Heritage conservation area

A new heritage conservation area. Centred upon the green reserves and park spaces in the vicinity of National Avenue and Warrendine Street, between Woodward Street and Peisley Street. In the south-east corner, it extends to the rear of properties located on the south side of Franklin Road.



Description:

The Blackman's Swamp Heritage conservation area is the southern extension from the Orange Central HCA. This area was not an estate that was released, but includes the areas south of Moulder Street that were included in the original square mile but have previously been excluded from the HCA. The new HCA will incorporate the southern side of Moulder St, and National Avenue, along with the numerous areas of public recreation to the south of the town. Moulder Street has numerous Interwar bungalows and develops to much earlier Federation Italianate and even late Victorian cottages around the crossing with Hill Street. It has some larger commercial buildings to the east end and becomes more modern at the far west end.

It also extends further south on the eastern end to pick up the surrounds of the numerous heritage items along Lords Place and Franklin Road. There are several impressive Federation Italianate residences on the way up the hill along with Interwar bungalows. There are more later houses, especially post-war in this HCA, but it is also an important historic area with many early residences.

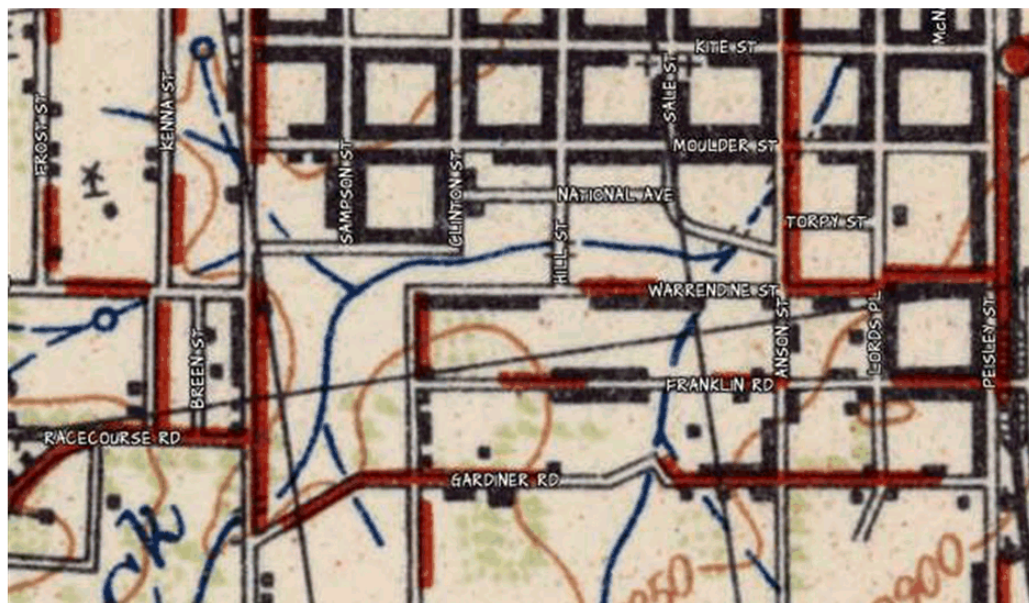


Figure 5 The Blackman's Swamp HCA area shown on the 1938 town map. Development extended beyond Moulder Street, especially on the east side where Anson Street, Lords Place and Peisley Street development extended to Franklin Road. The Anson Street / Gardiner Road corner is addressed in heritage items below.

Statement of Significance

Historic: The Blackman's Swamp HCA is part of the original city and has the range of development found in the Dalton HCA. It is strongest on the east end as the west ends were not connected to Woodward Street until later. The area also connects the city to the green spaces around the creeks that formed Blackman's Swamp, which defined the area to colonial explorers.

Associative:

Aesthetic: The area has numerous Interwar bungalows and features much earlier Federation Italianate and even some isolated late Victorian cottages, often setback from the street with dense gardens.

Social: The Blackman's Swamp HCA has connections to the earliest days of the town and connects the city to the recreational areas..

Research:

Rarity:

Representativeness: The Blackman's Swamp HCA has a building stock that include good examples of Late Victorian & Federation Italianate, and Interwar bugalow styles.

Orange City Council: Heritage conservation area review 2019-20

4.4. Newman Park Heritage conservation area

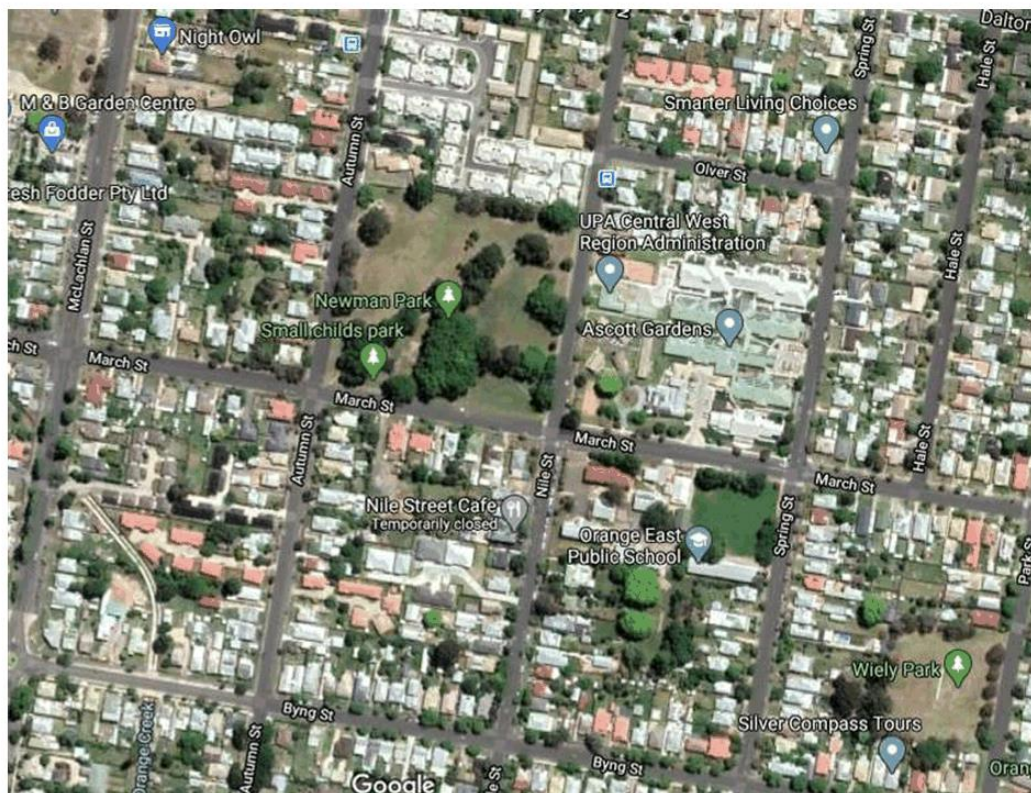
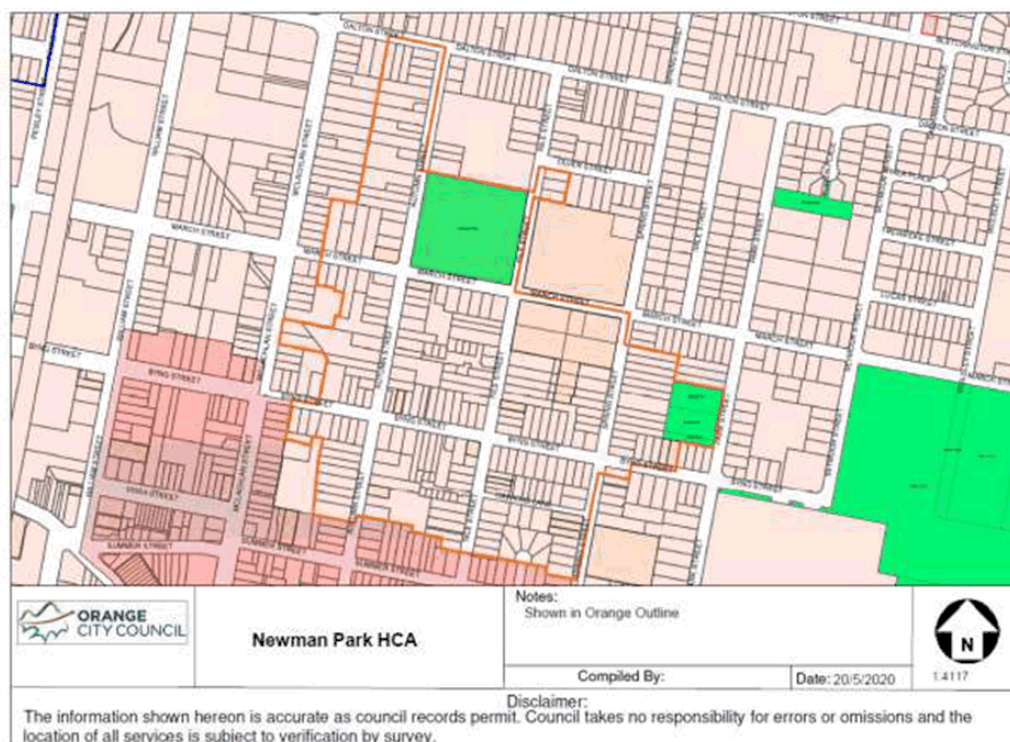


Figure 6 A new heritage conservation area north of East Orange, located between McLachlan Street, Dalton Street and Spring Street.

Orange City Council: Heritage conservation area review 2019-20



Description:

Newman Park was proclaimed in 1899 as part of the green space in the new East Orange municipality. Bylaws were gazetted in 1901. East Orange was proclaimed a town in 1885, and included the East Orange HCA, the Bowen HCA and the Newman Park HCA. The East Orange Municipality was merged with Orange in 1912. Newman Park is separated from Bowen by the East Orange Creek canal.

While the Newman Park HCA is not centred on Newman Park, it is an area that is within walking distance to the park. Being a little further away from the railway and the industrial areas of the Victorian period it is a more residential area with some substantial houses.

This area developed from the turn of the century and has good examples of Federation Italianate, and some Late Victorian Italianate and Rustic Gothic houses along with several small Victorian era vernacular cottages. It includes "Buena Vista", the local architect John Hale's private residence, which has lost some of its detailing. It also has the East Orange Public School with an 1889 building. There are numerous Interwar bungalows and a good mix of post-war and late 20thC. This HCA picks up the development of the east end of Byng and March Streets.

This side of the railway is generally more mixed, with numerous styles interwoven instead of runs of similar styles. There is also more of a mix between brick and weatherboard, and large and small houses.

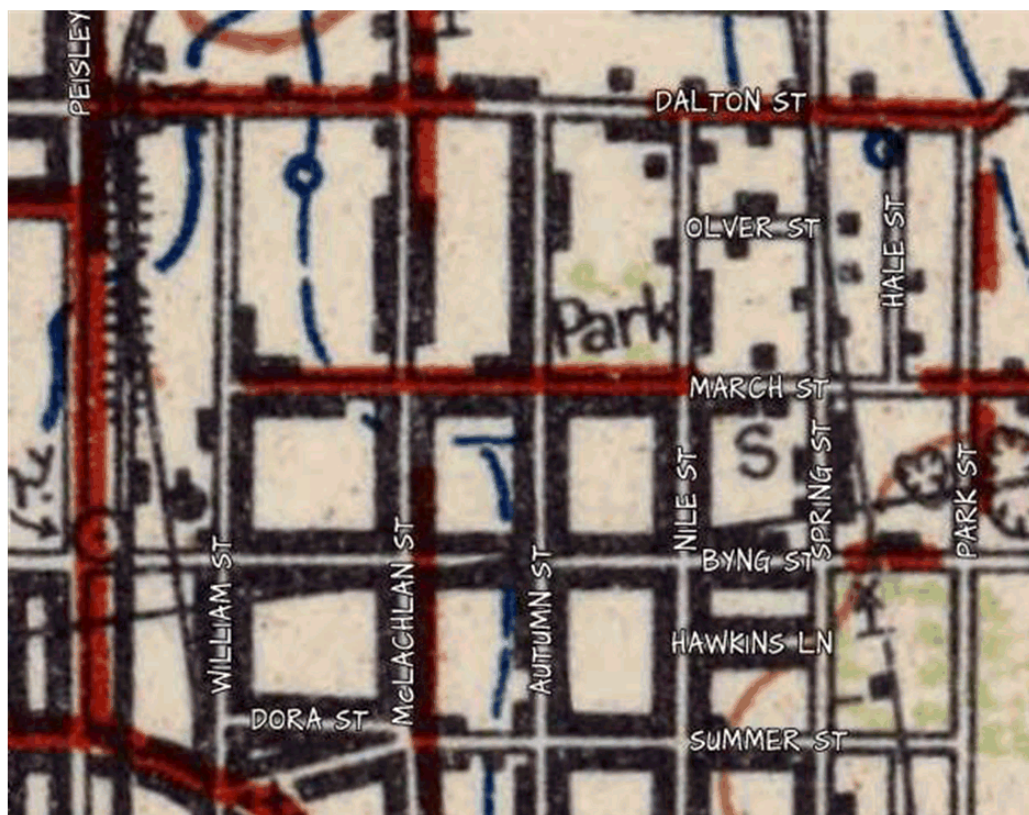


Figure 7 The Newman Park HCA from the 1938 town map. There is strong development along Byng and March Streets as well as McLachlan, Autumn and Nile Streets. There is sporadic but significant development to the north east.

Statement of Significance

Historic: The Newman Park HCA is part of the new private town of East Orange that subsequently became merged with Orange. It demonstrates that community-based government stretched beyond the Victorian era, but also that it had its limits. The Newman Park HCA developed more as a residential suburb rather than a support suburb to industry and as such has some stately homes.

Associative: The park was originally to be named “Harry Newman Park” after a local member’s seven-year fight with the Government to establish a park in the area¹. It is fitting to commemorate a local activist in a private town that demonstrates the role of the community in government at the time. The area is also the location that long-term local architect John Hale made his home Buena Vista, and after whom Hale Street is named. It indicates that Newman Park had a good reputation.

Aesthetic: This area developed from the turn of the century and has good examples of Federation Italianate, and some Late Victorian Italianate and Rustic Gothic houses along with several small Victorian era vernacular cottages.

Social: The Newman Park HCA is a well established area based around a large public park and has its own character.

¹ National Advocate 26.02.1898 p2

[Orange City Council: Heritage conservation area review 2019-20](#)

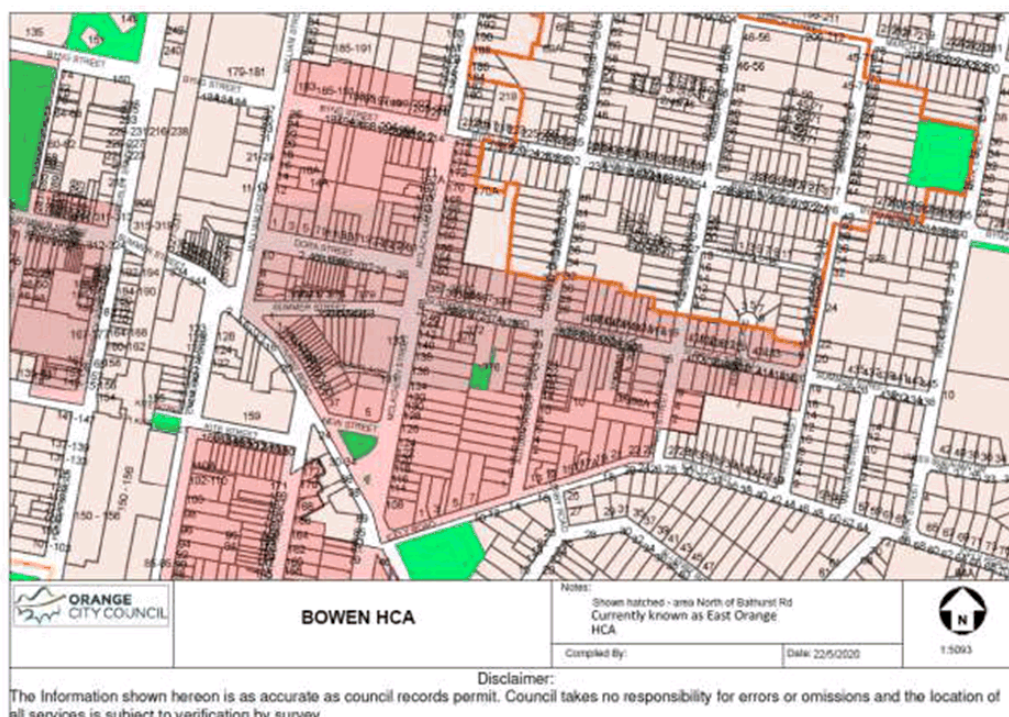
Research:

Rarity:.

Representativeness: This area has good examples of Federation Italianate, and some Late Victorian Italianate and Rustic Gothic houses along with several small Victorian era vernacular cottages. Many of them are largely intact.

4.5. Bowen Heritage conservation area

This heritage conservation area remains unchanged from the portion located north-east of Bathurst Road and centred on Dora and Summer Streets. The name changes from East Orange to Bowen in order to distinguish it from the area on the south side of Bathurst Road.



Description:

Previously known as the “East Orange Heritage conservation area”, we have renamed this area the “Bowen Heritage conservation area” after the suburb name and its famous forebear.

The Bowen HCA is centred around the small nucleus of the former Municipal Council Chambers, Post Office, former Band Hall, and shops of the Dora, Summer and McLachlan Street intersection. The area is predominantly residential with small corner shops, some of which remain in operation. The buildings in Bowen are a diverse mix of mainly modest brick and timber weatherboard houses, terraces and local shops from the Late Victorian and Federation period with Interwar and later housing interspersed.

A few fine Federation Italianate houses remain in McLachlan and William streets, especially to the south end while the north stretches to more Interwar and weatherboard housing. while a fine set of four Victorian single brick terraces exist in Autumn Street with houses from the same period opposite.

On the southern boundary of the Bowen HCA is the grand two storey Bowen Terrace of 1876, which provides an impressive entry to the town centre.

Some timber houses from the end of the 19th century with original details are still evident in Bowen. Since the 1986 heritage study was prepared several Victorian timber houses have been lost to new housing developments.

Orange City Council: Heritage conservation area review 2019-20

Corner shops are a characteristic of the East Orange area with Mackies Store a notable example.

With the diversity of brick, timber and corrugated iron clad buildings the area contrasts in character with the consistency of the period brick houses in the Central Orange HCA. This diversity provides the area's character and affords broader options for material selection in new development.

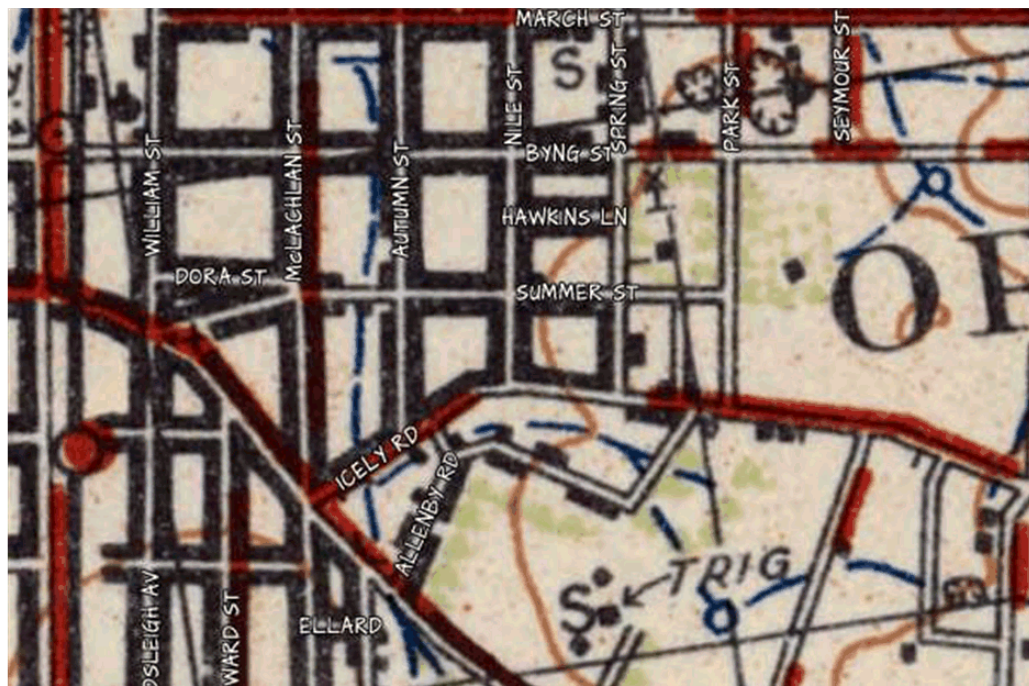


Figure 8 Alongside the CBD the area of Bowen HCA is some of the earliest and most dense development in the city. The whole area east of the railway to Spring Street had been developed by the time of this map drawn in 1938.

Statement of Significance

Historic: The Bowen HCA is a central part of the new private town of East Orange, proclaimed in 1888, that subsequently became merged with Orange in 1912. It demonstrates that community-based government stretched beyond the Victorian era, but also that it had its limits. The Bowen HCA also has its basis in housing for the industrial centre of the town in the railways, the gasworks, the woolen mills and the tannery and boot factory owned by Maurice Webb Bowen.

Associative: The Bowen HCA is named for Maurice Bowen, and his most prominent landmark, the Bowen Terraces, which is a mid-Victorian terrace to house his workers. It also was the site of "St Kilda (b.1878), 11 William St, the birthplace of Kenneth Slessor in 1901. The Bowen HCA was also home to the East Orange Council, along with all its Mayors.

Aesthetic: The area has some of the formal buildings associated with the former municipality such as the band Hall and the former Council Chambers. It also has a more commercial centre around the post office, along with a number of smaller local shops and cafes spread through the residential area. The residences in Bowen are a diverse mix of mainly modest brick and timber weatherboard houses, terraces and local shops from the Late Victorian and Federation period with Interwar and later housing interspersed. This gives more variety than the central housing area.

[Orange City Council: Heritage conservation area review 2019-20](#)

Social: The Bowen HCA still operates as a “second centre” in Orange and its more distributed small shops and cafes give it a different social sense to the main CBD. While much of the industrial support function is no longer current, the mix of weatherboard and smaller houses gives a different social mix to other areas of Orange.

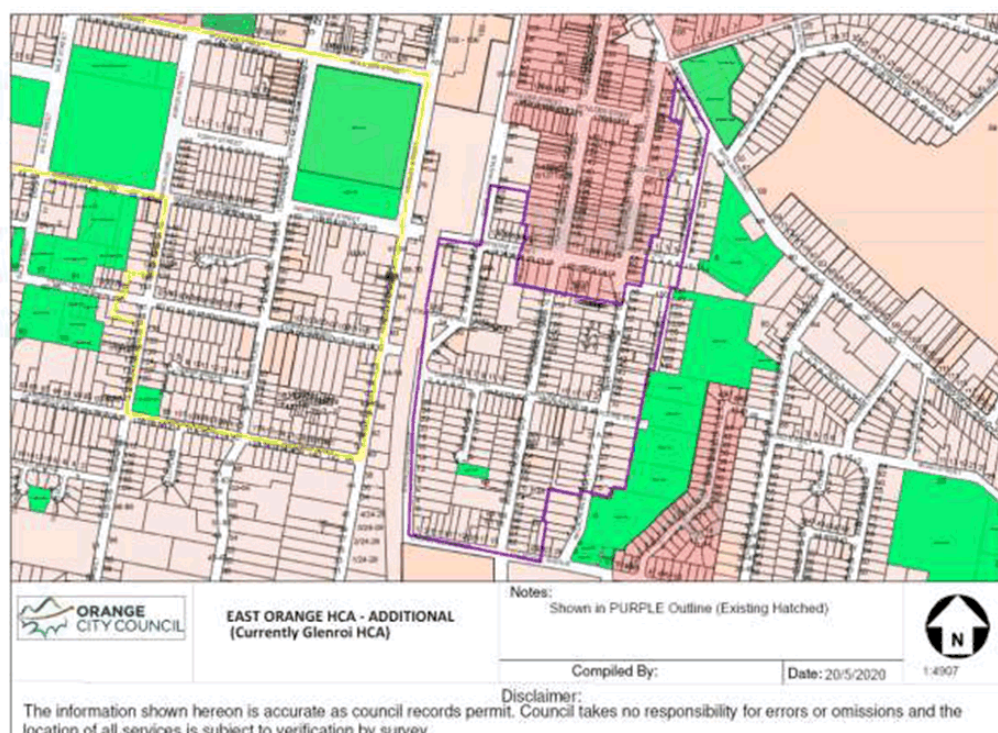
Research:

Rarity: The Bowen Terraces are a very early example of a run of terraces and are unique to the LGA.

Representativeness: This area has examples of Victorian Italianate commercial buildings as well as residential. It has a good share of early terrace housing. It has some good examples of Federation Italianate, along with several small Victorian era vernacular cottages and later Interwar bungalows. This HCA has a large number of weatherboard cottages.

4.6. East Orange Heritage conservation area

The northern portion of this existing heritage conservation area is bounded by Endsleigh Avenue, Kite Street and McLachlan Street, and is currently the Glenroi Heritage conservation area. The extension encompasses the southern portion of Endsleigh Avenue, Churchill Avenue and the properties on the eastern side of McLachlan Street.



Description:

This area was called the "South East Heritage conservation area" in 1986 Heritage Study, and the "Glenroi Heritage conservation area". We have now limited the Glenroi Duration Cottages HCA to the suburb of Glenroi to the east of East Orange Creek, as this area has a different history to the area of East Orange. The area to the west of East Orange Creek, east of the railway, north of the former Electrolux factory, and south of the highway is now called the "East Orange HCA". It is separated from Bowen HCA by the highway, but also because it hasn't the old civic function that Bowen has, and East Orange is far more associated with the industrial history of Orange.

This area, centred on Edward and McLachlan Streets, is predominantly residential, with many older buildings stretching back to mid-Victorian terraces such as Lamrock Terrace associated with the railway station and other various industries, impressive Victorian Italianate residences (both symmetrical and asymmetrical), turn-of-the-century Federation Italianate cottages mainly in the north but scattered also further south, along with a good representation of Interwar bungalows, cottages and later development.

While the railway line is now seen as a barrier between the east and west of the city, it was clearly seen as a connecting piece in the days before cars, and this side of the tracks developed alongside

Orange City Council: Heritage conservation area review 2019-20

the main city. Some industrial uses intermingle with the residential areas, and this has always been the case for this part of the city. The older, smaller houses and single storey terraces provide a good example of 'worker's housing' associated with industry. The housing is sited directly opposite former employment locations on the railway, wool stores and flour mill.

Highway development stretching south is a main threat to the area along with the replacement of older buildings with new housing.

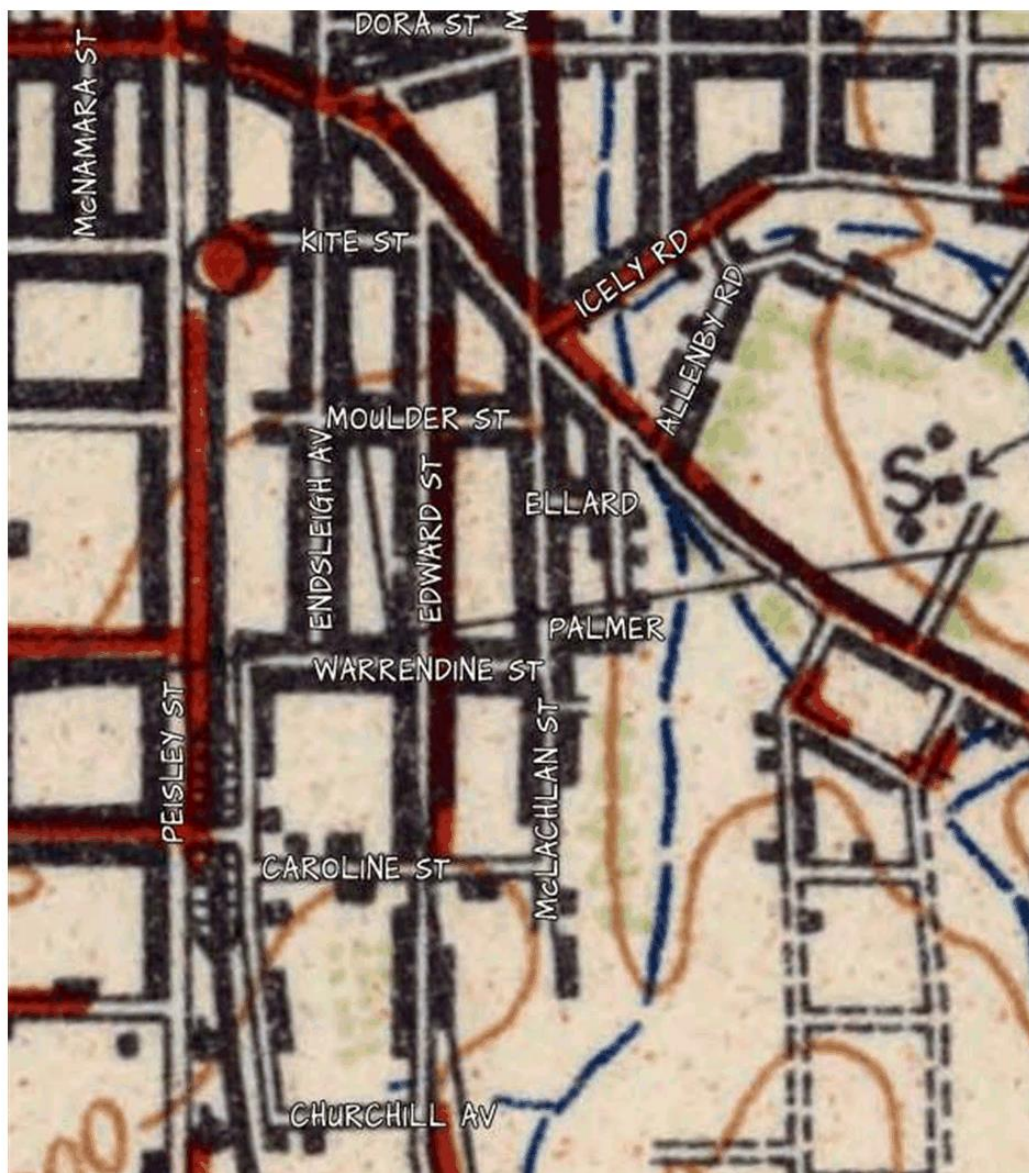


Figure 9 The East Orange HCA on the 1938 town map shows that development had stretched down Endsleigh Avenue, Edward and McLachlan Streets near completely to Caroline Street, and that there was significant development down to what would become Churchill Avenue after the war. – The duration cottages had not yet been built and the extensions to Glenroi would happen during WW2.

Orange City Council: Heritage conservation area review 2019-20



Figure 10 East Orange in 1954 with the railway at the top and the highway on the right. This shows the area of the HCA almost completely filled with buildings.

Statement of Significance

Historic: The East Orange HCA is a mix of very well established homes and Victorian terraces, such as Lamrock Terraces, associated with the industrial hub of Orange. It includes what is considered the oldest surviving residence in Orange, Endsleigh House (b.1856), and the location of the first building in the area, the now demolished Coach and Horses Inn (b.1844). It was part of the new private town of East Orange, proclaimed in 1888, that subsequently became merged with Orange in 1912. It was more fully associated with the nearby industries and railway yards. At one point Orange had a very substantial railway depot for steam trains.

Associative: McCausland Lamrock, a former Mayor of Orange, is a significant resident who had a big role in the development of East Orange.

Aesthetic: The area has a more extensive complement of Victorian buildings than the city centre, and has some very confident Victorian and Federation Italianate residences. It also has a number of very early Victorian terraces.

Social: While much less significant today, the East Orange HCA was the industrial hub of Orange through the Victorian and Federation periods. The HCA has been shaped by that history and the social contribution of that industry is important to recognise.

Research: Industrial sites will always have industrial archaeological potential.

Rarity:

Representativeness: This area has good examples of Victorian and Federation Italianate residences, as well as some good early terrace types.

4.7. Glenroi Duration Cottages Heritage conservation area

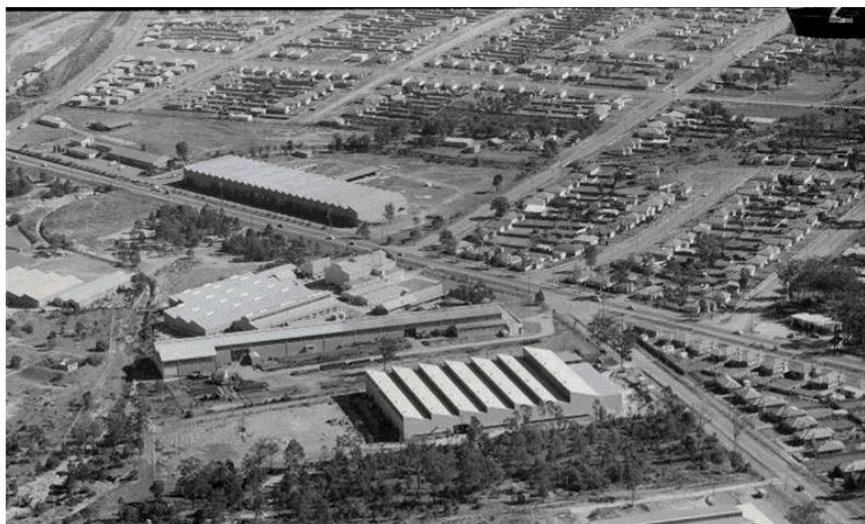
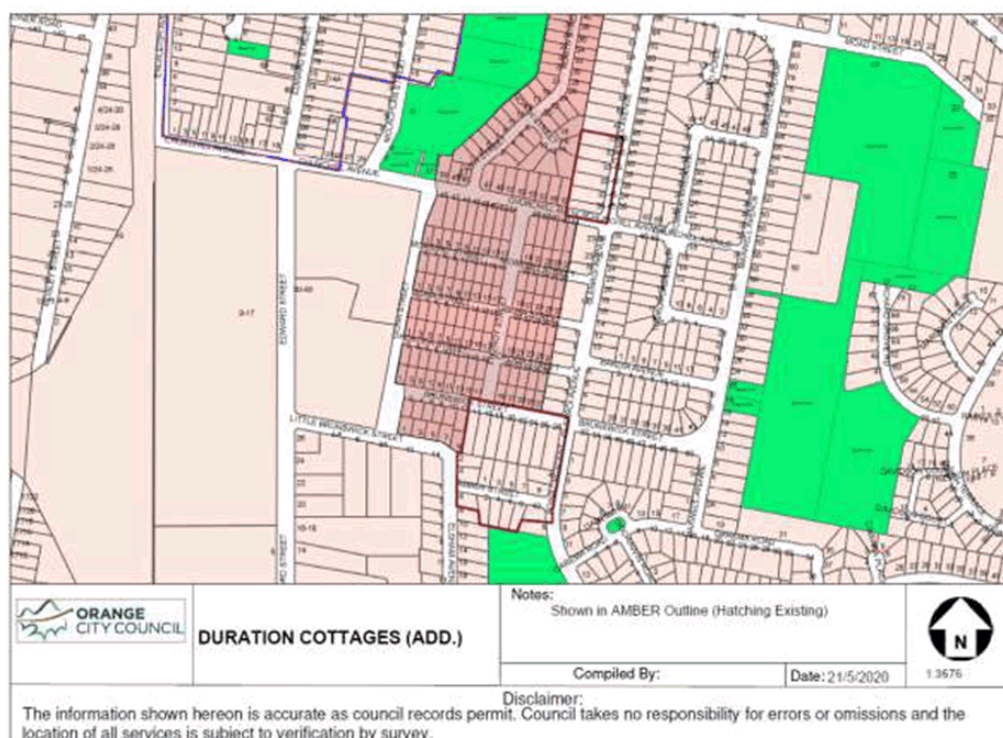


Figure 11 Trove library photograph – Opening the EMCO Factory



Figure 12 The area remains similar to the current listing, with two small extensions, to include Church property on Glenroi Avenue at the Churchill Avenue corner, and an extension south to include properties and the streetscape on Amber Street.



Description:

During the Second World War Orange was involved in the war effort through the production of munitions. The Small Arms Factory was built for this purpose, and would become the Emco factory after the war. Munitions workers were housed in what was called "Duration Cottages" throughout the war. After the war, these cottages remained in government ownership and were rented to workers. This association with the war effort, with industry, and the social element of government housing for its workers is what makes the area historically significant.

In 1953 the Glenroi Community Advancement Co-operative Society was formed and took ownership of all the cottages. The purpose of this society was to make the housing available for sale to the occupants. Unfortunately, by 1959 the Society went into liquidation.

The housing in this area remains close to the character of the original duration cottages, all of them are small fibro clad cottages with brick chimneys and little architectural styling. They are the forerunners of, but distinct from, the later Housing Commission residences both in east Glenroi and in north Orange.

Statement of Significance

Historic: The Glenroi Duration Cottages HCA is physical evidence of the war effort in Orange during WW2, and in the housing provided during the war.

Associative:

Aesthetic: The HCA has a distinct character of austerity and utility.

[Orange City Council: Heritage conservation area review 2019-20](#)

Social: As a result of the Glenroi Community Advancement Co-operative Society, the government owned buildings have been transferred to individuals. The Glenroi Duration Cottages have provided affordable housing in Orange since the war.

Research:.

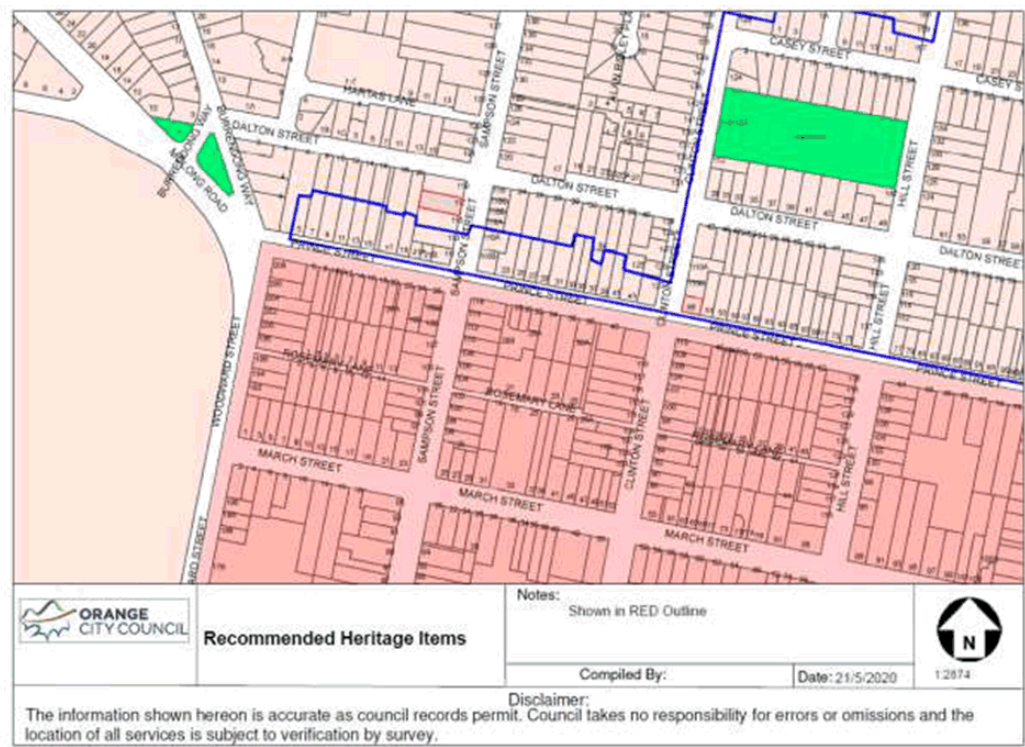
Rarity:

Representativeness:.

Orange City Council: Heritage conservation area review 2019-20

5. Heritage Items

The following places have been reviewed, assessed and nominated for listing on Schedule 5 of the Orange Local Environmental Plan (LEP). They have been either nominated during the study period, revealed in the period since the previous study and/or revealed during the fieldwork associated with the tasks. The sites are outlined in RED on the following plans and maps



5.1. 117 Sampson Street



Photograph



Photograph

Physical Description

The building is a timber framed residence in a villa plan form, with a protruding room to the north-east corner, and bullnosed verandah on timber posts to the returning room. The steeply pitched roof is clad in galvanised iron, and includes a hip to the south and a gable to the front wing. The gable unusually includes pressed metal sheeting to the infill, and a scalloped pair of bargeboards. The 2 verandah posts include carved perforated brackets, while the end of the verandah is clad in lining boards. The external walls are clad in sheeting. The windows have all been replaced with aluminium framed units, having colonial style glazing bars. The building includes a rear skillion and substantial rear additions exceeding the floor area of the original cottage, which is evident on the aerial plan.

Statement of Significance

The early timber framed cottage retains distinctive original features, such as the plan and roof form, and materials, such as the galvanised roof with important details, including the gable and verandah. Despite the rear extensions, which are not significant, and the windows, which are capable of restoration, the cottage remains intact and capable of interpretation.

Orange City Council: Heritage conservation area review 2019-20

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical and aesthetic significance.

5.2. 49 Prince Street



Photograph



Physical Description

The large cottage structure consists of a residence with enclosed corner verandah, an unclosed verandah to Prince Street. The roof is hipped at both ends, and the unusual verandah has a double curved profile, supported on timber posts. The corner location is prominent in the streetscape. The building includes a long skillion roofed extension on Clinton St, at the boundary. The Prince Street elevation presents as a double fronted cottage, with symmetrical DHSS windows. Despite the corner modifications, the original building is capable of interpretation, and with a similar detached cottage at 53 Prince Street, contributes to the streetscape.

Statement of Significance

The prominent cottage retains an original building form, and corner presentation to Prince and Clinton Streets, while retaining distinctive details, such as the double curved verandah and chamfered hipped roof form. The building is an important contributory element with others of the period in the vicinity.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical and aesthetic significance.

5.3. 139 Margaret Street



Photograph



Physical Description

This is a Van Dyke house, made in Villawood by the Van Dyke company and prefabricated and then assembled locally circa 1970.

The construction consisted of pre-manufactured panels which are evident in the elevations via the vertical cover battens. The panels were sealed on the inside and outside with sheeting

Corrugated galvanised iron sheet roofing. Only one type was produced and local building contractors who perected theme were Ristway, Bennett, Latke and Flowers

Statement of Significance

The residence is an outstanding and representative example of the Van Dyke pre-fabricated houses supplied from Sydney for local builders through the NSW Housing Commission for the public housing market.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, associative and aesthetic significance.

171 Margaret Street



Photograph



Physical Description

Substantial brick residence in villa plan form, with hipped iron roof, rendered chimneys, gable with rendered apex, window awnings and perimeter verandah within roof form. Verandah includes carved valence details, arranged post centres to the entrance and an infill to the east side. The main window includes a rendered sill and 3 part DHSS windows, while the front door includes decorative side lights. The front garden is bounded by an appropriate picket fence and mature plantings.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance.

Orange City Council: Heritage conservation area review 2019-20



5.4. 110 Matthews Avenue



Photograph



Aerial site plan

Physical Description

The system house was a complete package made in Germany and fully imported. The house also came with the German labour who assembled them. The local contractor did the subdivision and site drainage. This is the Type 7 which provided 4 bedrooms in a gable roof form while the Type 8 used hipped roofs. The exteriors were clad in 150mm Baltic pine weatherboards. The original roofing was a steel pan type sheet.

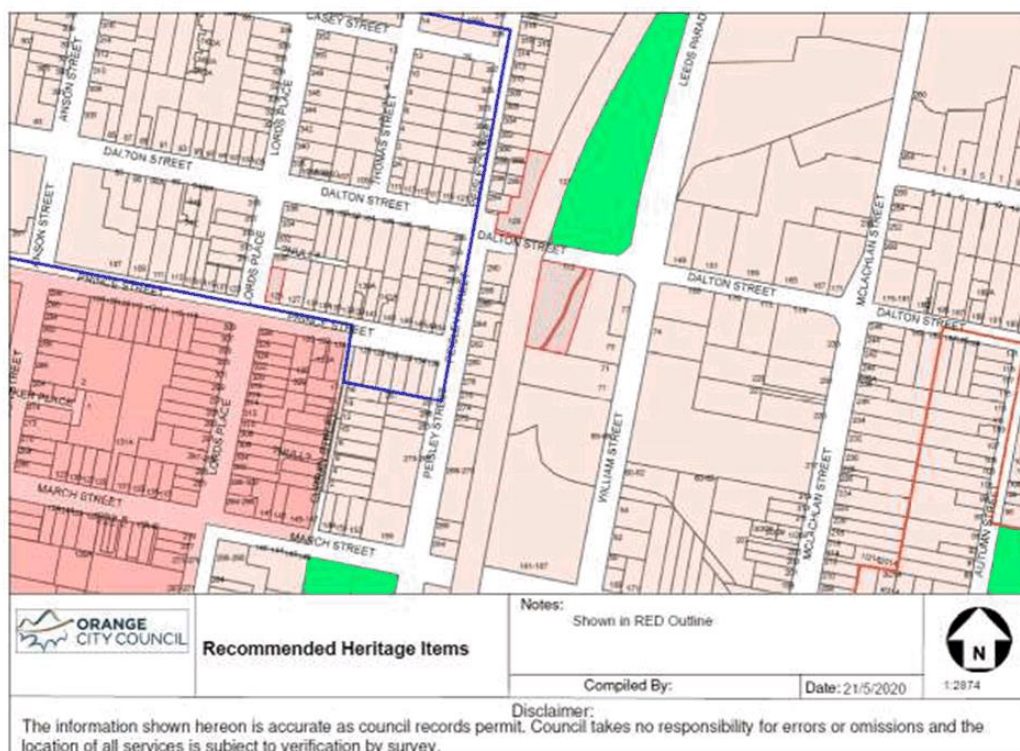
Statement of Significance

The residence is an outstanding and representative example of a 'Delf' house, sourced from Germany and supplied to the public housing market in Orange and erected by German labour to NSW Housing Commission requirements.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, associative, representative and aesthetic significance.

Orange City Council: Heritage conservation area review 2019-20

5.5. 125 Prince Street



Photograph

Physical Description

A large painted residence with triple fronted plan form, hipped tiled roof and distinctive inter-war Moderne features, including: enlarged chimney pier, enclosed entrance porch with parapet, decorative string courses, expressed building base and rare rear curved bay window and enlarged double fronted windows. The boundary is established by a traditional low masonry fence with shaped piers and steel gate.

Statement of Significance

The large triple fronted masonry residence is an outstanding example of restrained Moderne styling from the inter-war period, including striking materials, features and details, located on a prominent street corner.

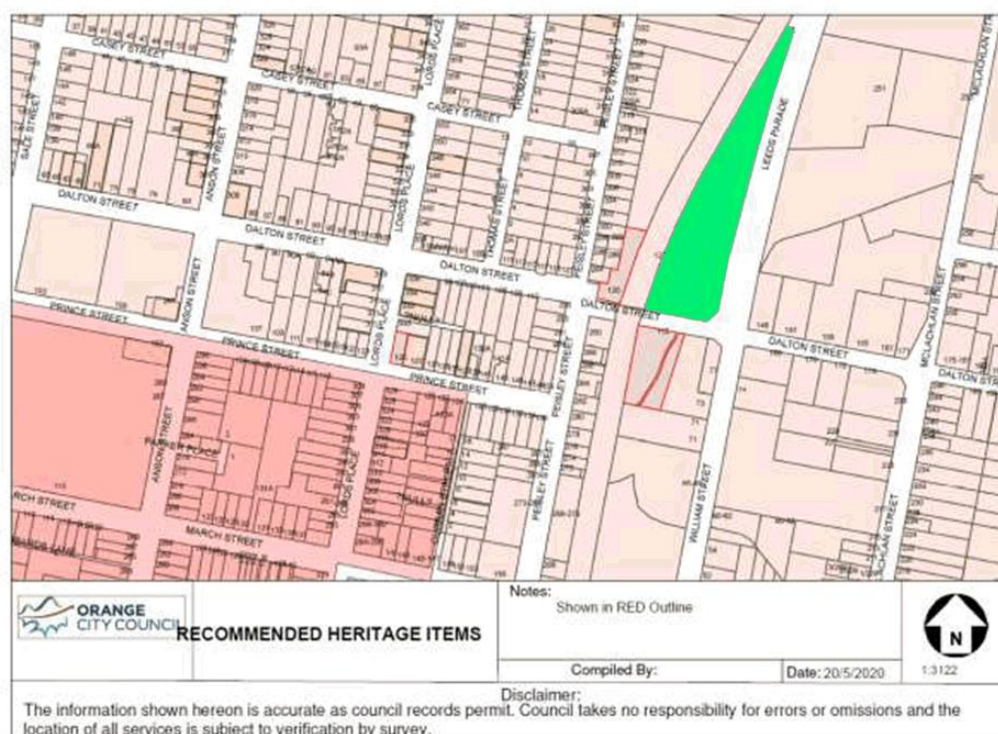
The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, rarity and aesthetic significance.



5.6. 125 Dalton Street



Orange City Council: Heritage conservation area review 2019-20



Railway cottage for Level crossing: Cottage only



Photograph

Physical Description

The house is a standard model residence constructed by the railways for level crossing operators. The masonry building is a very distinctive floorplan with central brick chimney and residential rooms. Modifications on this particular building include the verandahs and painting of the face brickwork, and a front fence. The elevations include the symmetrical arrangement of paired windows, using the original timber DHSS units with 6 panes per sash. The building has additions to the east and rear, but these do not detract from the significance, which is capable of interpretation.

Statement of Significance

The former railway level crossing keeper's cottage retains the original form and distinctive character. The building is both rare and representative of this building type and provides a prominent focal point of Dalton St at the level crossing.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, associative, rarity and aesthetic significance.

5.7. 112 Dalton Street



Aerial site plan



Figure 13 The cottage only, warrants a level of significance for the listing

Photograph

Physical Description

The rendered and painted brick villa includes a protruding room, with paired double hung windows, expressed lintels and prominent gable with carved bargeboards, and circular ventilator. The return is a bullnose verandah typical of the late Victorian period. The eave includes a decorative dentil cornice of brickwork. A tall masonry fence provides some protection from the busy level crossing junction. The building has been adapted for a commercial use, with additions to the side and rear, and a manufacturing shed is attached. These modifications are generally sympathetic and do not detract from the prominence and significance of the original villa cottage.

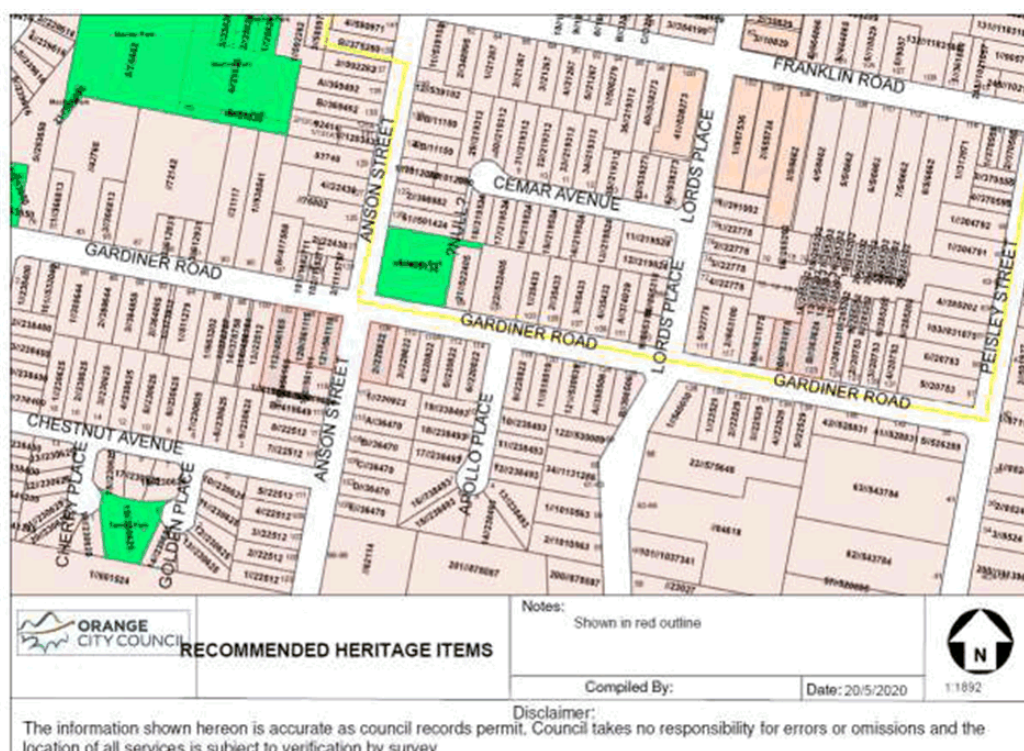
Orange City Council: Heritage conservation area review 2019-20

Statement of Significance

The late Victorian villa is an intact example of a simple cottage with distinctive features of the period and style, including the paired DHSS window, elaborate carved bargeboards to the front gable and the low pitched bullnose returning verandah. The building complements the streetscape, and together with the railway level crossing keeper's cottage diagonally opposite provides an historic focal point to Dalton Street.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, rarity and aesthetic significance.

5.8. 121 Gardiner Road



Orange City Council: Heritage conservation area review 2019-20



Photograph

Physical Description

A simple cottage with iron gabled roof, and bullnose verandah with posts and brackets. The unusual plan uses a single loaded passage associated with detached dwellings, and now includes an extension. The west side includes a brick chimney, while the site also now provides a traditional building structure. The expressed gable on the front elevation is clad with a painted, roughcast cement render.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, rarity and aesthetic significance.

5.9. 123 Gardiner Road



Photograph

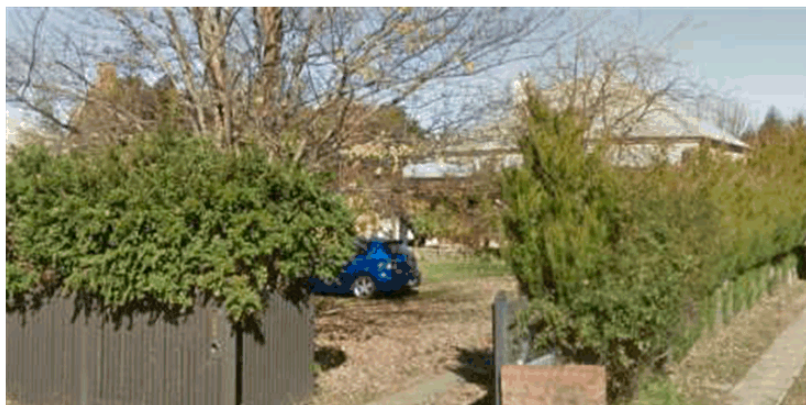
Physical Description

The residence consists of a villa plan form typical of the late Victorian period, while the verandah details are Edwardian in character. The pyramidal roof form includes 3 substantial rendered chimneys, capped with terracotta pots and the verandah returns to the east elevation, and tapers from the main roof form. The front projecting room is capped with a gable including a roughcast rendered apex above a decorative corbel string course. The windows are late Victorian tall DHSS types, with rendered sills. The waist high external walls are smooth rendered, although this may relate to a damp treatment. The verandah posts include decorative carved perforated brackets. The front garden presents a very sympathetic picket fence to Gardiner Road. The building includes a substantial rear extension, located behind the line of the eastern verandah.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, and aesthetic significance.

5.10. 102 Gardiner Road



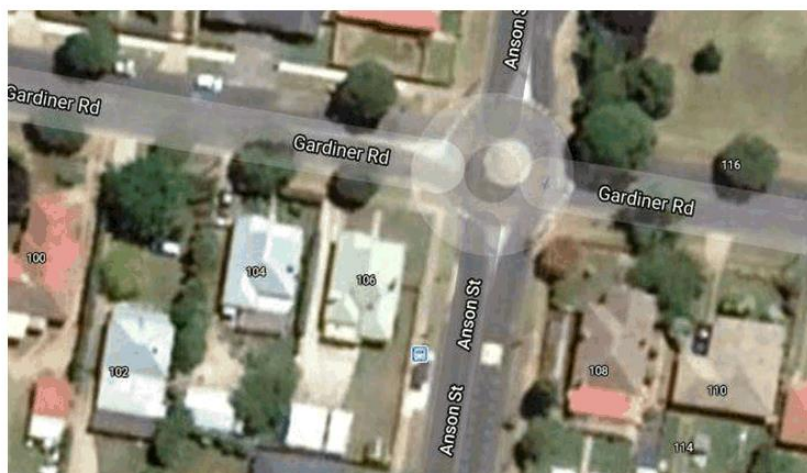
Photograph

Physical Description

A rare and secluded late Victorian period styled residence with hipped iron roof includes a bull nosed front verandah and brick chimney. The original front portion of the house extends to the rear with a skillion area similar in size to the main area beneath the roof form. The large front garden includes two substantial mature trees. The residence and siting forms a group with the two adjoining traditional and intact Gardiner Street properties.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance. The building is a contributory element with other traditional buildings in the setting to the streetscape of the Dalton and Anson Street junction.



Aerial site plan

5.11. 104 Gardiner Road



Photograph

Physical Description

A traditional brick building in the Californian Bungalow style with galvanised iron roof including overlapping gables with battened sheet infills, awning to the windows on the projecting room and flat roofed verandah to the return supported on paired timber verandah posts down to waist high brickwork with capped piers. The fenestration is original double hung timber sliding sashes. The front setback is private garden with solid hedge screening.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance. The building is a pair with 106 Gardiner Street and a contributory element with other traditional buildings in the setting to the streetscape of the Dalton and Anson Street junction.

5.12. 106 Gardiner Road



Photograph

Physical Description

A traditional brick building in the Californian Bungalow style with galvanised iron roof including overlapping gables with battened sheet infills, tall painted chimney, awning to the windows on the projecting room and flat roofed verandah to the return supported on paired timber verandah posts down to waist high brickwork with capped piers. The fenestration is original double hung timber sliding sashes. The front setback is lawn garden with no complimentary planting or hedge screening and a weldmesh fence which detracts from the significance and prominent street corner location.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance. The building is a pair with 104 Gardiner Street a contributory element with other traditional buildings in the setting to the streetscape of the Dalton and Anson Street junction.

5.13. 108 Gardiner Road



Photograph

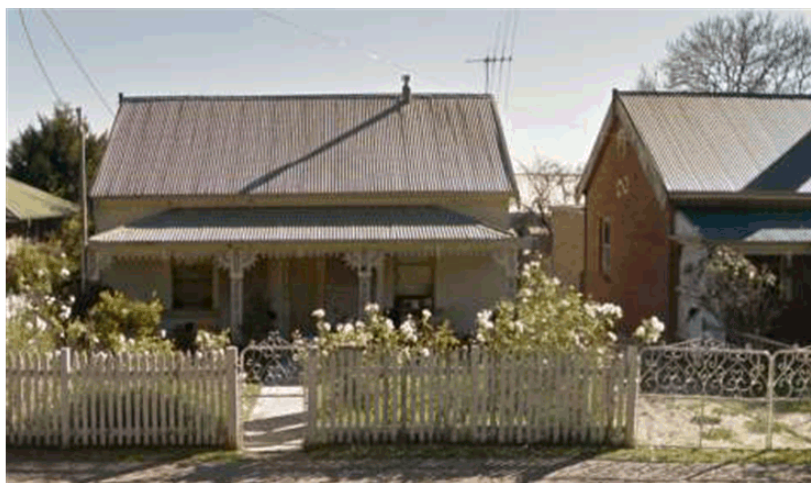
Physical Description

The brick residence is an unusual Bungalow with distinctive local basalt foundation, terra-cotta tiled hipped roof with rendered chimney, symmetrical floor plan and asymmetrical gabled front verandah. The verandah is a porch with capped piers and paired posts topped by a battened gable. The fenestration is two sets of three grouped tall sashes with top lights. The front garden presents to the street with symmetrical planters and original low wall and piers including cyclone infills.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, rarity and aesthetic significance. The building is a contributory element with other traditional buildings in the setting to the streetscape of the Dalton and Anson Street junction.

5.14. 21 Spring Street



Photograph

Physical Description

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, rarity and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.15. 23 Spring Street



Photograph

Physical Description

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, rarity and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.16. 25 Spring Street



Photograph

Physical Description

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, rarity and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.17. 105 Spring Street



Photograph



Aerial site plan

Physical Description

This range of pre-fabricated timber houses was made in Stroud in the vicinity of the forest and timber mill and then sent to Orange by train for local erection. The timber framing was 75x38mm. The efficient floor plan located all the plumbing in one portion to reduce the plumbing cost – kitchen, bathroom and laundry.

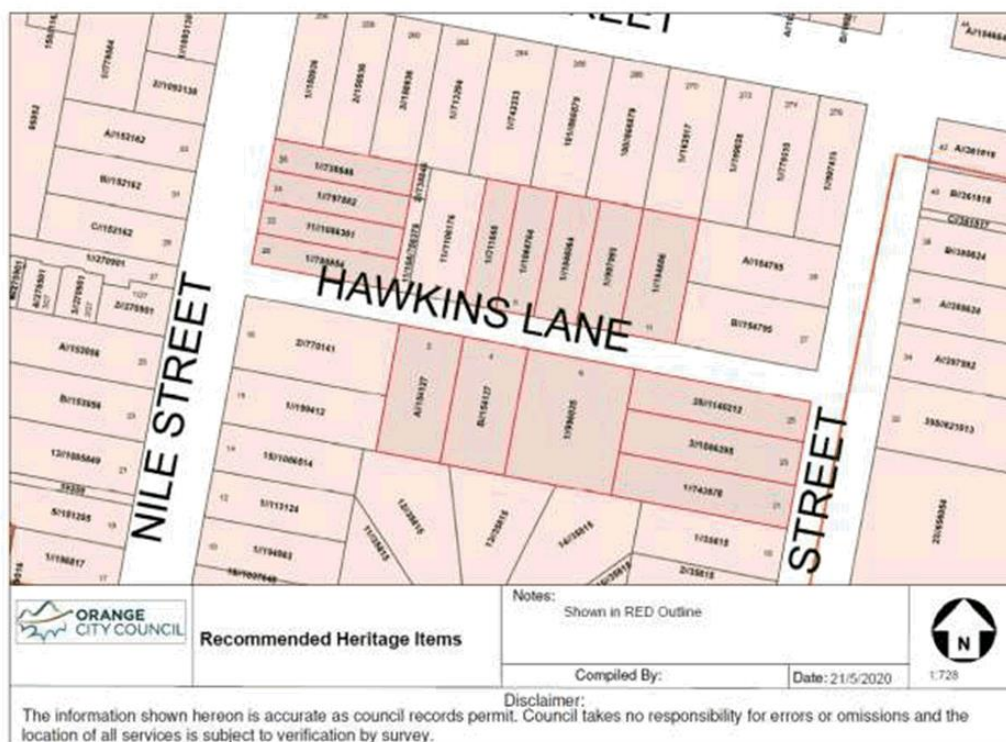
Statement of Significance

The residence is an outstanding intact example of the 'Stroud' houses manufactured and supplied to local builders for erection to for the NSW Housing Commission to suit the public housing market.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, rarity, associative, representative and aesthetic significance.

Orange City Council: Heritage conservation area review 2019-20

5.18. Hawkins Lane group



Hawkins Lane



5.19. 5 Hawkins Lane



Physical Description

A double fronted brick cottage with hipped steel roof and bull nosed front verandah. The short setback is presented to the Lane with a traditional timber picket fence and gates. The contemporary paint colour scheme detracts from the original brickwork. Additions include the side carport and aluminium verandah frieze.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, rarity and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.20. 7 Hawkins Lane



Photograph

Physical Description

A double fronted brick cottage with hipped steel roof and skillion form front verandah. The short setback is presented to the Lane with a contemporary styled rendered and painted brick wall with piers and steel palisade infills. A large extension is located to the rear of the original cottage. The rendered frontage includes detailed window & door surrounds. The modified verandah includes interpretive carved brackets.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.21. 9 Hawkins Lane



Photograph

Physical Description

A double fronted brick cottage with hipped steel roof and skillion form hipped end front verandah with posts and carved brackets. The original face brick walls include a dentil course at the eave. The traditional double hung sliding sash windows & front door include rendered surrounds and sills. The building may have originated as a speculative pair with No.11.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical rarity and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.22. 11 Hawkins Lane



Photograph

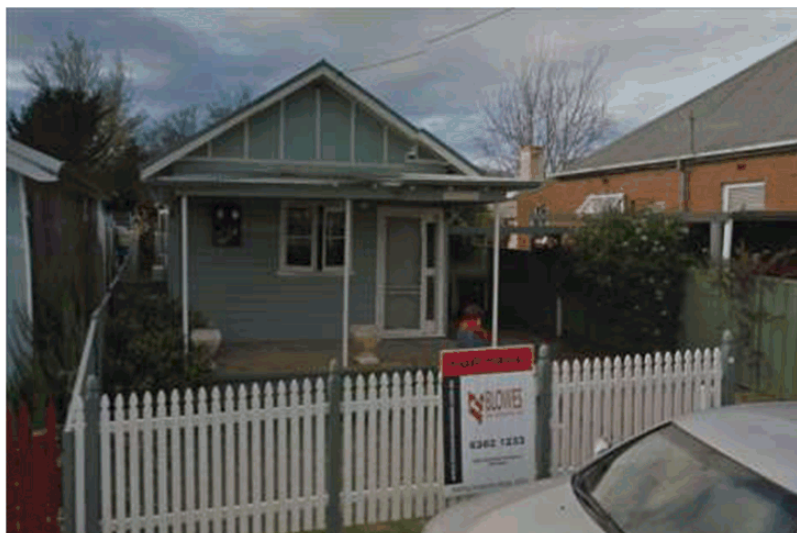
Physical Description

A double fronted brick cottage with hipped steel roof and skillion front verandah with posts and carved brackets. The original face brick walls have been painted but retain a dentil course at the eave. The traditional double hung sliding sash windows & front door include rendered surrounds and sills. The building may have originated as a speculative pair with No.9.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.23. 3 Hawkins Lane



Photograph

Physical Description

An unusual cottage type, the building has the plan form derived from an attached dwelling wide side passage and single row of rooms. The timber building includes weatherboard cladding and gabled roof with battened infill. The verandah posts have been replaced while the paired sash windows remain and the front door includes a narrow sidelight. The timber picket fence is appropriate in principle however the acorn picket is considerably earlier than the inter war character of the house – all capable of future conservation.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.24. 6 Hawkins Lane



Photograph

Physical Description

A double fronted brick cottage with hipped steel roof, reduced chimney and skillion form returning front verandah with posts. The brick walls have been painted but include the decorative dentil course at the eave. The traditional double hung sliding sash windows & front door include rendered surrounds and sills. The contemporary colour scheme is uncharacteristic of the period and style but is capable of future conservation. The building may have originated as a speculative set with Nos.9 & 11.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.25. 4 Hawkins Lane



Photograph

Physical Description

A double fronted brick cottage with hipped steel roof and skillion form hipped end front verandah with posts and carved brackets. The original face brick walls have been retained while the roof uses exposed rafter tails. The traditional double hung sliding sash windows with 6 panes to the top sash and brick sills. The building may have originated as a speculative pair with No.2.

Orange City Council: Heritage conservation area review 2019-20

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, rarity and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.26. 2 Hawkins Lane



Photograph

Physical Description

A double fronted brick cottage with hipped steel roof and skillion form hipped end front verandah with posts and carved stepped timber brackets. The original face brick walls have been retained while the roof uses exposed rafter tails. The traditional double hung sliding sash windows with 6 panes to the top sash and paired panes in the lower sash and brick sills. The building may have originated as a speculative pair with No.4.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance including the contributory value as part of the Hawkins Lane group.

5.27. 20 Nile Street



Photograph

Orange City Council: Heritage conservation area review 2019-20

Physical Description

A double fronted brick cottage with hipped steel roof and bull nose front verandah with posts and stepped brackets. The original face brick walls have been retained while the verandah is part enclosed. The traditional double hung sliding sash windows with 6 panes to the top sash and paired panes in the lower sash and brick sills. The site includes timber picket fence. The building may have been one of a speculative group of four with 22 – 26.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, rarity and aesthetic significance including the contributory value as part of the Hawkins Lane group and Nile Street streetscape.

5.28. 22 Nile Street



Photograph

Physical Description

A double fronted brick cottage with hipped steel roof and replacement skillion front verandah with posts and stepped brackets. The original face brick walls have been painted, the roof has been replaced with 'decrumatic' sheeting while the verandah is part enclosed. The traditional picket fence has been replaced with a rendered masonry low wall. The building may have been one of a speculative group of four with 22 – 26.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical, technical, rarity and aesthetic significance including the contributory value as part of the Hawkins Lane group and the Nile Street streetscape.

5.29. 24 Nile Street



Photograph

Physical Description

A double fronted brick cottage with hipped steel roof and bull nose front verandah with posts and replacement brackets. The original face brick walls have been painted. The traditional double hung sliding sash windows appear to be concealed with shutters. The site includes a modified timber picket fence on a brick base. The building may have been one of a speculative group of four with 22 – 26.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance including the contributory value as part of the Hawkins Lane group and the Nile Street streetscape.

5.30. 26 Nile Street



Photograph

Physical Description

A double fronted brick cottage with hipped steel roof and bull nose front verandah with stop chamfered posts and replacement brackets. The original face brick walls and dentil course at the

[Orange City Council: Heritage conservation area review 2019-20](#)

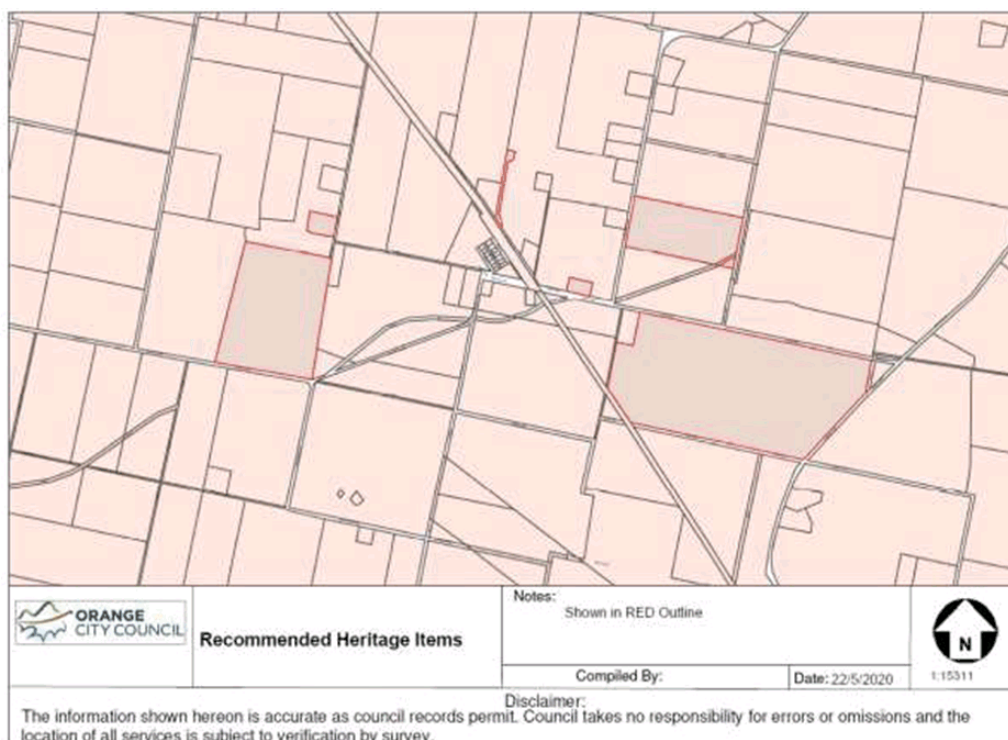
eave have been retained. The traditional double hung sliding sash windows with 6 panes to both sashes and rendered string course and surrounds to the openings. The site includes timber picket fence set within a modified rendered brick wall with piers. The building may have been one of a speculative group of four with 22 – 26.

Statement of Significance

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, based on its historical and aesthetic significance including the contributory value as part of the Hawkins Lane group and the Nile Street streetscape.

6. Items for further investigation

The following places are located in Huntley. They are outlined in Red on the map and have been nominated based on general community knowledge and local history. Many are distant from the public road and therefore the materials, details and condition are not evident. These properties have been nominated based on this limited information. A more detailed site inspection is required to assess the significance out of courtesy to the site owners. This will be carried out by appointment and arranged in the forthcoming period following the initial report. A further detailed heritage assessment of their significance will then be provided.



6.1. 15 Capps Lane, Huntley



Photograph



Photograph courtesy real Estate website

Physical Description

A former Butter factory adapted to provide a residence, the building was erected c. 1840 and consists currently of a brick structure with timber front verandah providing two bedrooms, two bathrooms and a large open living dining room. Original elements include a brick chimney and fireplace, exposed face brickwork, timber ceilings and rafters and timber flooring. Windows include early double hung sliding sash timber windows with 6 panes per sash and later inter war timber windows with lateral muntins.

Statement of Significance

The former Butter factory provides a good example of an adapted agricultural service building from the early 1840s which served historically as a butter factory associated with the local dairy industry while being adapted sympathetically in the 20th C. to provide a residence.

[Orange City Council: Heritage conservation area review 2019-20](#)

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, subject to further inspection by arrangement, based on its historical, technical, rarity and aesthetic significance.

6.2. 1 Capps Lane, Huntley



Photograph

Physical Description

Description: 'Huntley Downs' is part of the Orange Airport Estate and includes an early vernacular cottage and large traditional galvanised iron shed.

Statement of Significance

Preliminary Statement of Significance: The property has historic significance for the Huntley area as it includes a rare traditional vernacular cottage and large galvanised iron clad shed and is located in an appropriate rural setting with a substantial collection of mature eucalypts. The contemporary dwelling has no significance and is well screened with hedge planting.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, subject to further assessment by arrangement, based on its historical, technical, rarity and aesthetic significance.

[Orange City Council: Heritage conservation area review 2019-20](#)

6.3. 38 Kinghorn Lane, Huntley



Site Photograph



Building Photograph

Physical Description

Description: 'Kareela' is a traditional hipped iron roofed residence with long tree-lined driveway. The building is a villa plan from of Californian bungalow with overlapping gables in galvanised iron and battened gable infills

[Orange City Council: Heritage conservation area review 2019-20](#)

Statement of Significance

Preliminary Statement of Significance: The residence was the original home of Harry Ironmonger, son of Charles Ironmonger.

Subject to further investigation of the building through an arranged site inspection, the site has the potential for listing on the LEP as a heritage item.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, subject to a site inspection by arrangement, based on its historical, technical, rarity and aesthetic significance.

6.4. 23 Blunt Road, Huntley



Photograph



Photo courtesy Real Estate 2018

Orange City Council: Heritage conservation area review 2019-20

Physical Description

The residence is a timber framed villa plan structure with steel roof, battened gable infill and custom orb steel external cladding. The windows are timber framed double hung sliding sashes with two panes per sash and broad surrounds and awnings. The building has been extensively refurbished but the original character is capable of interpretation.

Statement of Significance

'Dudley's cottage and formerly McGee's

Subject to further investigation based on an arranged site inspection, the site has the potential for listing on the LEP as a heritage item.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, subject to a site inspection by arrangement, based on its historical and aesthetic significance.

6.5. 'Waverton', 76 Blunt Road, Huntley



Photograph

Physical Description

Statement of Significance

Formerly Wiggin's family property

Subject to further investigation, the site has the potential for listing on the LEP as a heritage item.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, subject to a site inspection by arrangement, based on its historical, technical, rarity and aesthetic significance.

6.6. 'Homeleigh', 359 Phoenix Mine Road, Huntley



Photograph



Site entry

Physical Description

Large early residence with mature garden setting and traditional farm sheds

Statement of Significance

The House and farm complex is formerly Draper's home and includes agricultural farm sheds and provides an intact representative example of early development in Huntley
Subject to further investigation based on an arranged site inspection, the site has the potential for listing on the LEP as a heritage item.

The site is recommended for listing on the Orange LEP under Schedule 5 as a Heritage item, subject to a site inspection by arrangement, based on its historical, technical, rarity and aesthetic significance.

6.7. Farm shed, 'Kymrock', 47 Cully Road

The site as a shed does not have sufficient level of significance to warrant listing as heritage item on the LEP.

6.8. 'Yanina', 1050 Huntley Road, Huntley

Timber framed house with fibro sheet cladding and external brick chimneys with garden setting and mature trees. The solar panels detract from the character and appearance when viewed from the street.

[Orange City Council: Heritage conservation area review 2019-20](#)

The site does not meet the criteria for listing as heritage item on the LEP while in the current condition.

[Orange City Council: Heritage conservation area review 2019-20](#)

7. Complex site analysis

The brief indicated the following task;

- Identify appropriate sites that could be refined to the area of significance and a curtilage.

The issues which arise during development relate to the need to protect the aspects of heritage significance while enabling appropriate and sympathetic development.

There are many places within the larger sized heritage listings which are capable of development without impinging upon the heritage value of the larger or whole site. A good example is a typical retail tenancy within the retail complex formerly known as Daltons and Myer.

The objective will therefore be to identify a way to describe and list the significant parts of the site while excluding those elements, such as specific tenancies away from the historic parts. This will ensure that development which will not impact on heritage will be able to proceed without the need for a Development Application, notwithstanding other reasons why a consent may be required.

The following examples are a preliminary list of locations on the LEP, where the current listing is capable of being refined in order to exclude smaller sites where various forms of development may proceed:

- Emco/Electrolux site;
- Orange Retail centre, Summer Street;
- Kinross Wolaroi school at Bathurst Road;
- Kinross Wolaroi school at Coronation Drive;
- Orange showground - pavilions;
- CSU campus - water tower;
- Hawthorn plantings.

[Orange City Council: Heritage conservation area review 2019-20](#)

8. The Next steps

Presentation of the Report and findings to Councillors

- Notifications to owners
- Further site inspections by arrangement
- Complex site analysis with visits by arrangement
- Public Exhibition
- Amendments as required
- Final Report
- Adoption by Council