



## Development Services Attachments Wednesday, 19 April 2017

REPORT NUMBER	REPORT TITLE AND ATTACHMENT DESCRIPTION	PAGE NUMBER(S)
9.1.1	<b>Proposed Transport Depot: Lot 191 Wandena Road, Lower Chittering</b> 1. Application report with plans 2. Additional information prepared by the applicant 3. Table of submissions 4. Site photographs	1 – 214
9.1.2	<b>Amendment to Proposed Scheme Amendment No 60: Proposal to Rezone from “Agriculture Resource” to “Light Industrial” - Lot M1606 (RN 3599) Great Northern Highway, Muchea</b> 1. Scheme Amendment Revision Documentation dated 19 January 2017 2. Schedule of Changes to Attachment 1 3. Schedule of Submissions	215 – 250
9.1.3	<b>Initiation of Scheme Amendment No 61 to Local Planning Scheme No 6: Revised Schedule 12 Provisions to Incorporate a Resort, Residential and Short Stay Accommodation - Lot 101 Teatree Road, Bindoon</b> 1. Structure Plan endorsed 12 June 2014 2. Proposed Amendment Plans 3. Proposed Resort Plan	251 – 253
9.1.4	<b>Proposed NBN Telecommunications Infrastructure: Lot 191 (RN 51) Hereford Way, Lower Chittering</b> 1. Report accompanying Planning Application 2. Schedule of Submissions 3. Photomontage of proposed telecommunications infrastructure 4. Assessment of state and local planning policies and strategies	254 – 319
9.1.5	<b>Proposed Tunnel Houses: Lot 1907 (RN 166) Chittering Street, Muchea</b> 1. Proposed Plans 2. Schedule of Submissions 3. Property Management Plan	320 – 445
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It is acknowledged that there is a discrepancy between the number of vehicles/machinery proposed under the original application and the numbers that have been provided in our latest presentation. The numbers which were initially proposed were considerably higher than the existing scale and operation of the business to allow for the future growth and expansion of the business. However **we can confirm that the correct number of vehicles/machines currently utilised by the business is: 10 commercial vehicles, 6 associated trailers and 23 additional machines.** These current vehicle numbers have informed the associated traffic assessment.

- The Traffic Impact Assessment provided by Shawmac has been revised. The following specific matters have been addressed:
  - Traffic count in figure 6 and part 4 has been revised and is now correct;
  - Additional clarification on crash history has been provided;
  - Additional clarification has been provided in relation to part 9.2. Essentially, this section of the TIA acknowledges that the existing unsealed road warrants upgrading based on the existing total daily traffic volumes (1560 VTPD) however the volume of traffic generated by the proposal (i.e. only 20 movements per day) does not itself trigger this upgrade.
  - The conclusion has been amended to provide greater clarity.
- Photographs of our client's existing development which has guided the design of the proposed Warehouse are attached for your reference.



36B  
Perth Batch  
N233897



WESTERN



AUSTRALIA

REGISTER NUMBER <b>191/DP59351</b>	
DUPLICATE EDITION <b>2</b>	DATE DUPLICATE ISSUED <b>27/1/2016</b>

**DUPLICATE CERTIFICATE OF TITLE**  
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2775** FOLIO **244**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

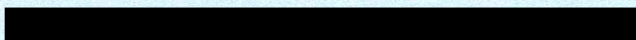


REGISTRAR OF TITLES

**LAND DESCRIPTION:**

LOT 191 ON DEPOSITED PLAN 59351

**REGISTERED PROPRIETOR:**  
(FIRST SCHEDULE)

WC & SJ WRIGHT SUPER FUND PTY LTD OF   
(T N233897 ) REGISTERED 22 JANUARY 2016

**LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:**  
(SECOND SCHEDULE)

- EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 1509/1949.
- EASEMENT BURDEN CREATED UNDER SECTION 167 P. & D. ACT FOR DRAINAGE PURPOSES TO SHIRE OF CHITTERING SEE DEPOSITED PLAN 59351
- EASEMENT BURDEN CREATED UNDER SECTION 167 P. & D. ACT FOR DRAINAGE PURPOSES TO SHIRE OF CHITTERING SEE DEPOSITED PLAN 59351

Warning: A current search of the certificate of title held in electronic form should be obtained before dealing on this land.  
Lot as described in the land description may be a lot or location.

-----END OF DUPLICATE CERTIFICATE OF TITLE-----

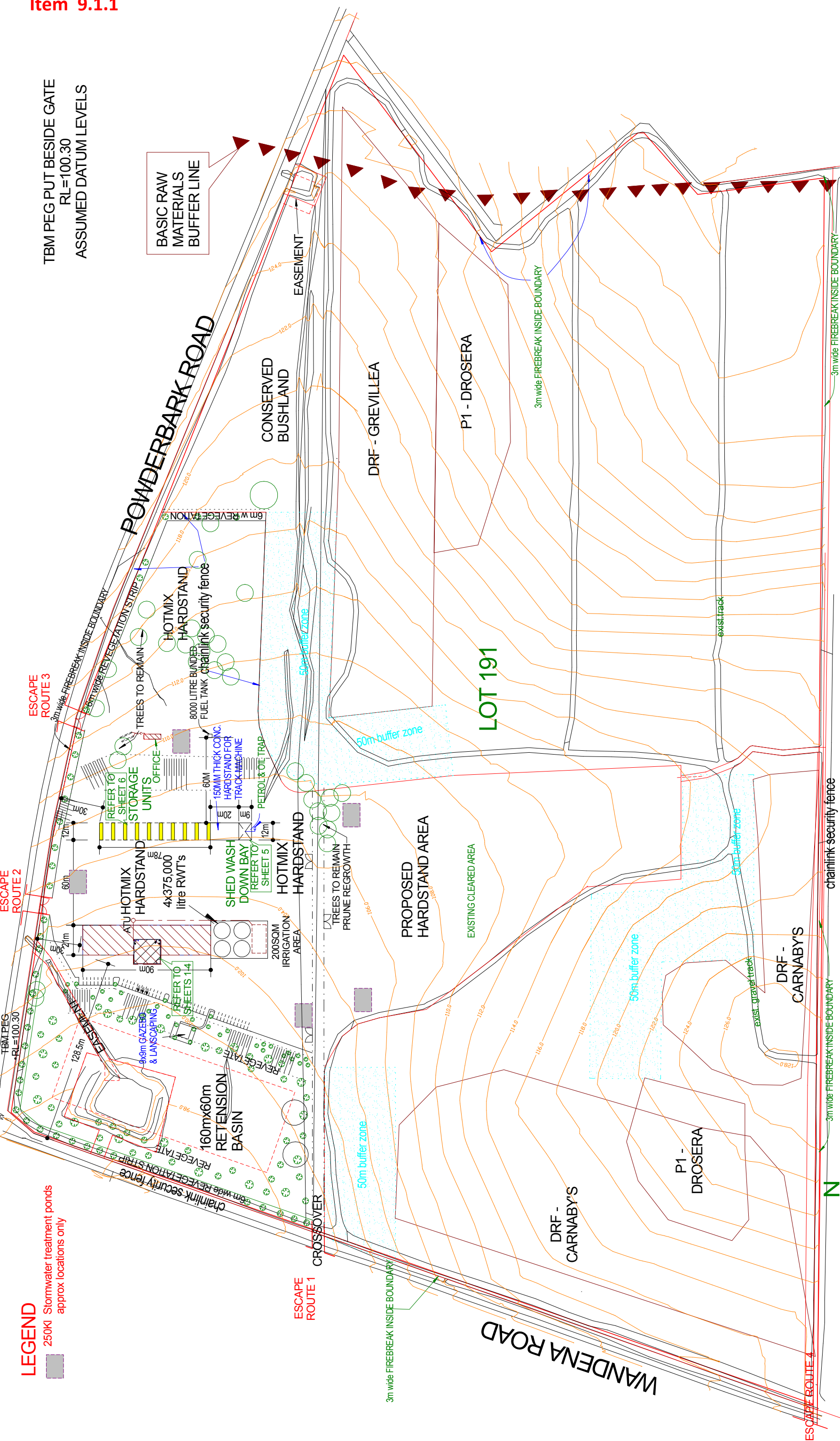
**STATEMENTS:**

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: DP59351.  
 PREVIOUS TITLE: 473-9A, 1605-226.  
 PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.  
 LOCAL GOVERNMENT AREA: SHIRE OF CHITTERING.



TBM PEG PUT BESIDE GATE  
RL=100.30  
ASSUMED DATUM LEVELS



**LEGEND**  
250kl Stormwater treatment ponds  
approx locations only

BASIC RAW MATERIALS BUFFER LINE

Rev No:	C	Date Dm:	97.8.18
	D		13.8.18
	E		27.9.16
	F		27.10.16
	G		28.10.16
	H		19.03.17
By:	LA		
	LA		
	LA		
	LA		
	LA		
	LA		

Client Name:	WAYNE WRIGHT
Site Address:	LOT 191 POWDERBARK ROAD LOWER CHITTERING
Shire:	SHIRE OF CHITTERING
Project Name:	LOCALITY SITE PLAN
File Name:	E:\Documents\JD2016 JD\Wright Wayne\Shop\LOCALITY.SKP

Rev No:	C	Date Dm:	97.8.18
	D		13.8.18
	E		27.9.16
	F		27.10.16
	G		28.10.16
	H		19.03.17
By:	LA		
	LA		
	LA		
	LA		
	LA		
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CLIENT NAME:  
**WAYNE WRIGHT**

SITE ADDRESS:  
**LOT 191 POWDERBARK ROAD  
LOWER CHITTERING**

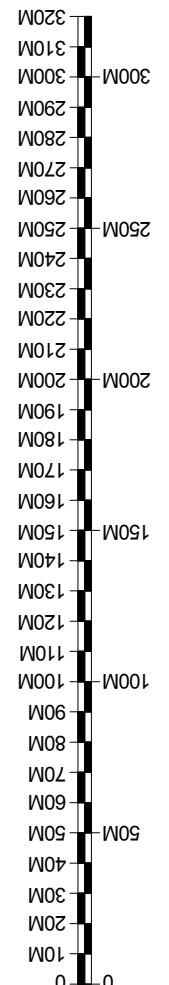
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**SHIRE OF CHITTERING**

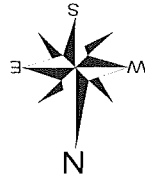
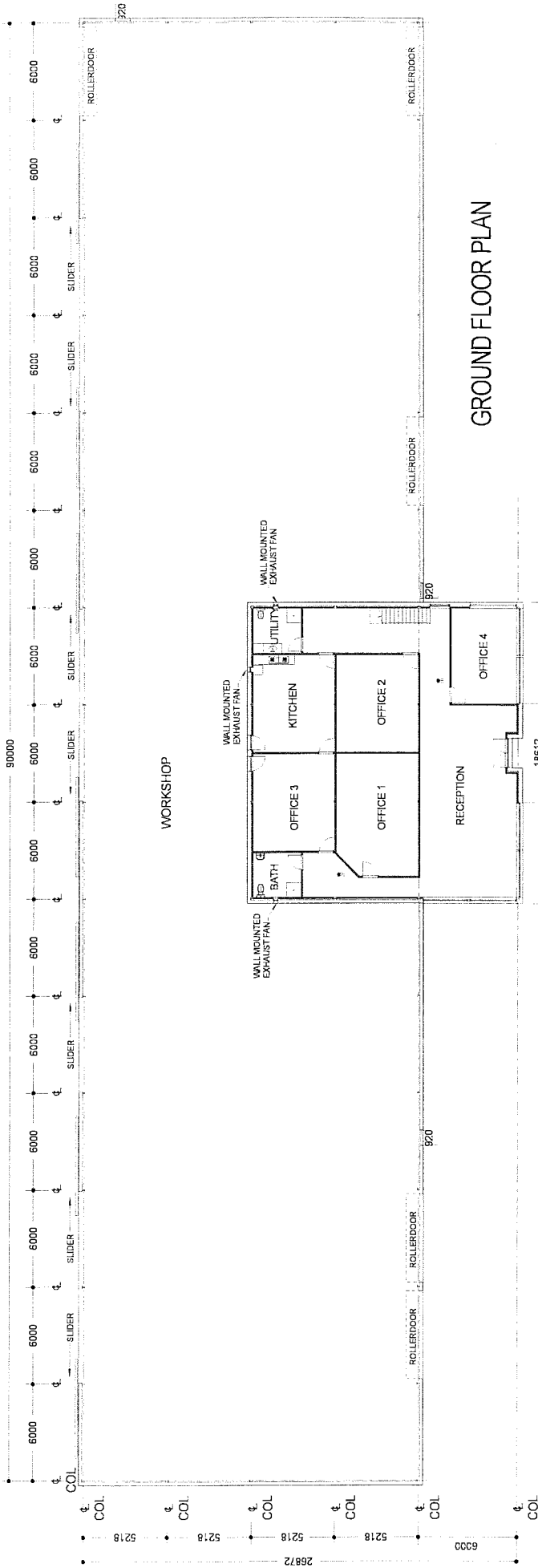
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Date Drawn: MAR 2017

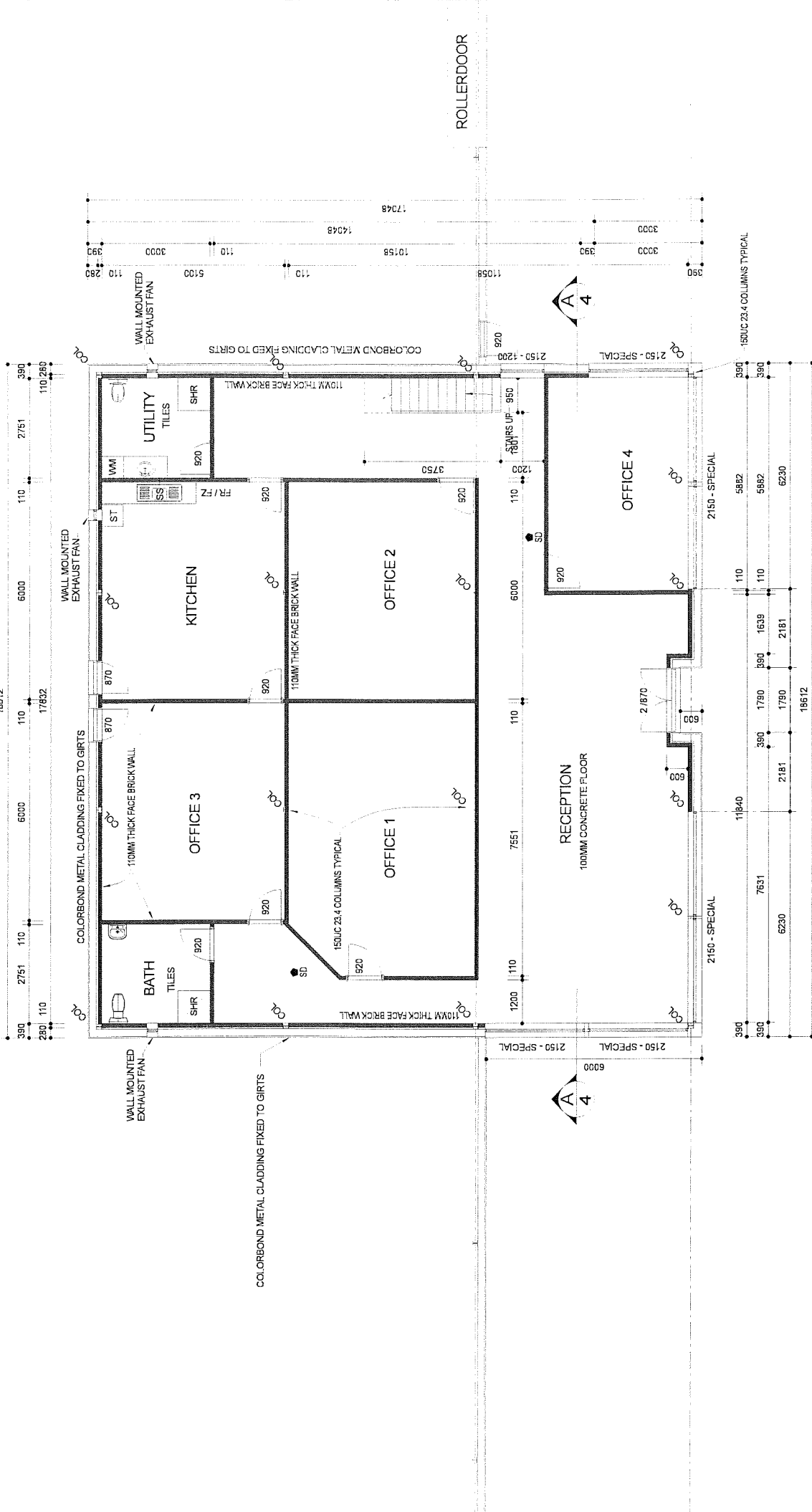
Sheet No: 7 OF 7


Revision: I

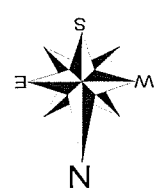


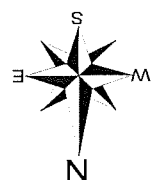
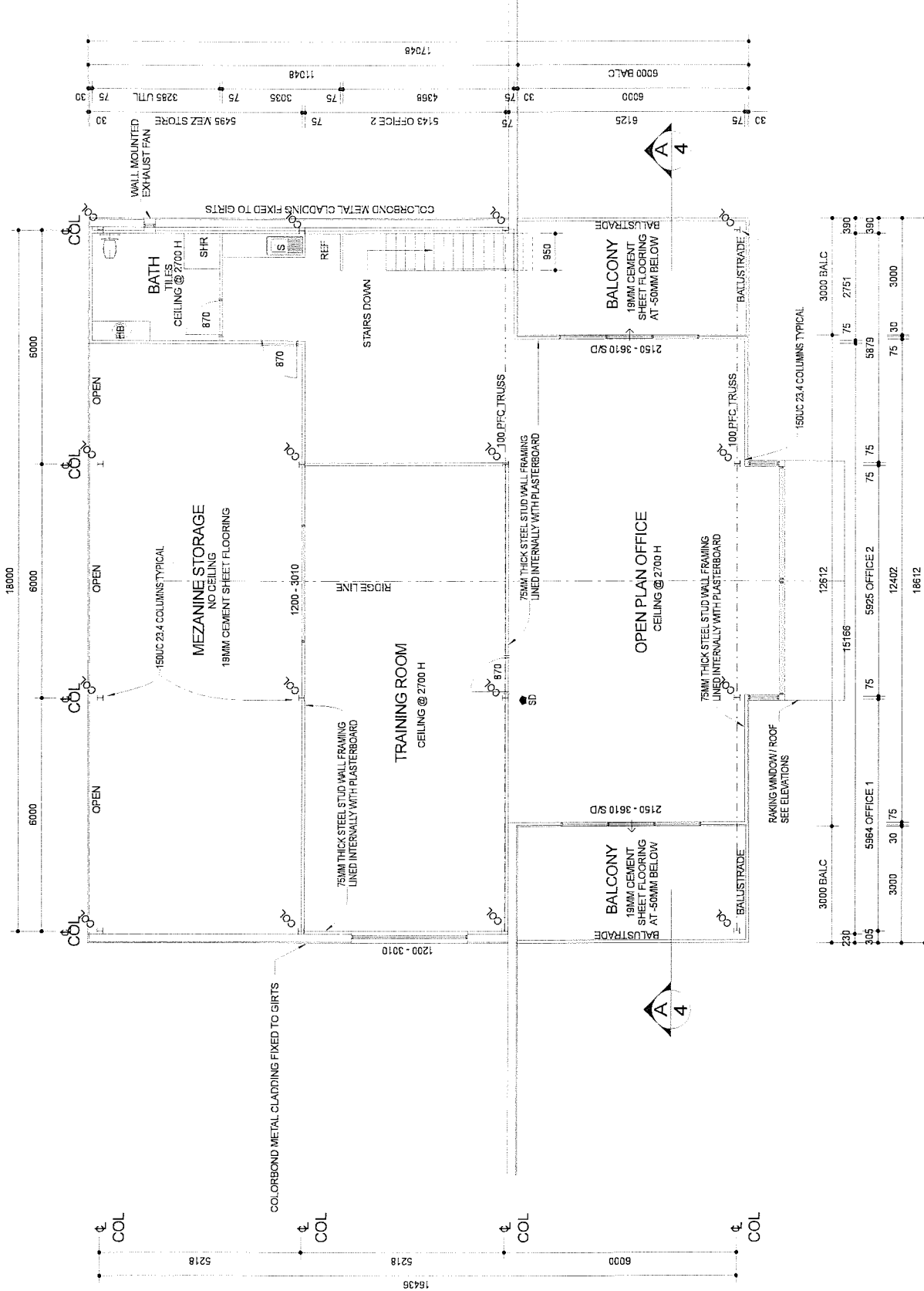


<b>CLIENT NAME:</b> <b>WAYNE WRIGHT</b> <b>SITE ADDRESS:</b> <b>LOT 191 POWDERBARK ROAD</b> <b>LOWER CHITTERING</b> <b>SHIRE:</b> <b>SHIRE OF CHITTERING</b>	<b>Rev No:</b> 0	<b>Version:</b> FOR APPROVAL	<b>Date Dtd:</b> 22/12/15	<b>By:</b> LA	<b>TRANSPORT DEPOT</b>
	<b>DRAWING NAME:</b> <b>WORKSHOP FLOOR PLAN</b>			<b>Sheet No:</b> <b>1 OF 7</b>	<b>Revision:</b> 0
<b>FILE NAME:</b> E:\Documents\20015 JW\Right Wayne\Shop.SWf					<b>Date Drawn:</b> DEC 2015
<b>JOONDALUP DESIGNS</b> 10/100 North Road Murdoch, WA 6150 Perth Office: 08 9271 8159 08 9271 8159 www.joondalupdesigns.com.au					<b>Scale:</b> 1 : 250



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	<p>DRAWING NAME: <b>OFFICE GROUND FLOOR PLAN</b></p> <p>FILE NAME: E:\Documents\12015 - Joondalup\WayneWright\Shop\OFFICES.SIF</p>			

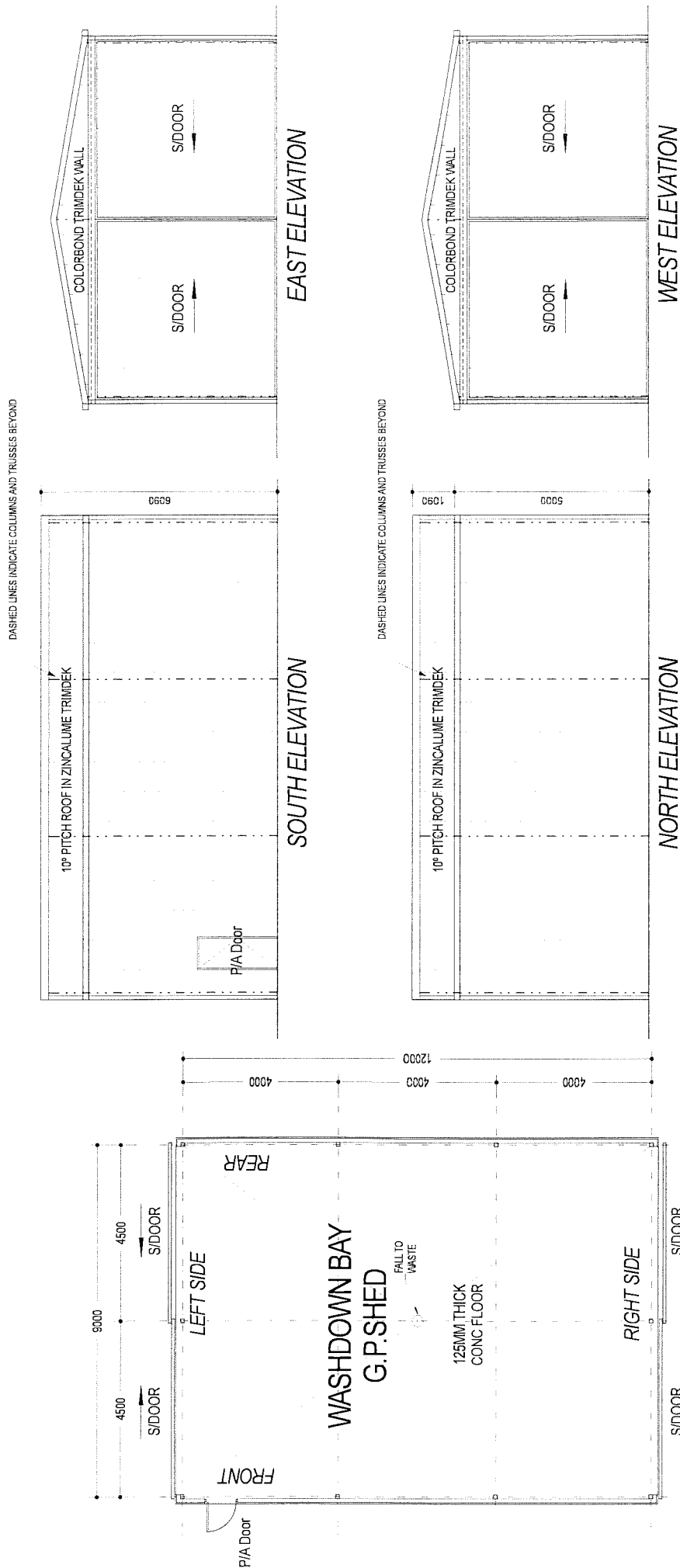




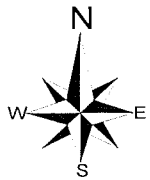
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<b>FILE NAME:</b> E:\Documents\JD2015 JD\Wright\Wayne\Shop-Office\SWF		Sheet No: 3 OF 7	Revision: 0	Date Drawn: DEC 2015	Scale: 1 : 100
<b>TRANSPORT DEPOT</b>					







REFER TO ENGINEERS DETAILS FOR STEEL FRAMED ROOF AND WALL COMPONENTS.



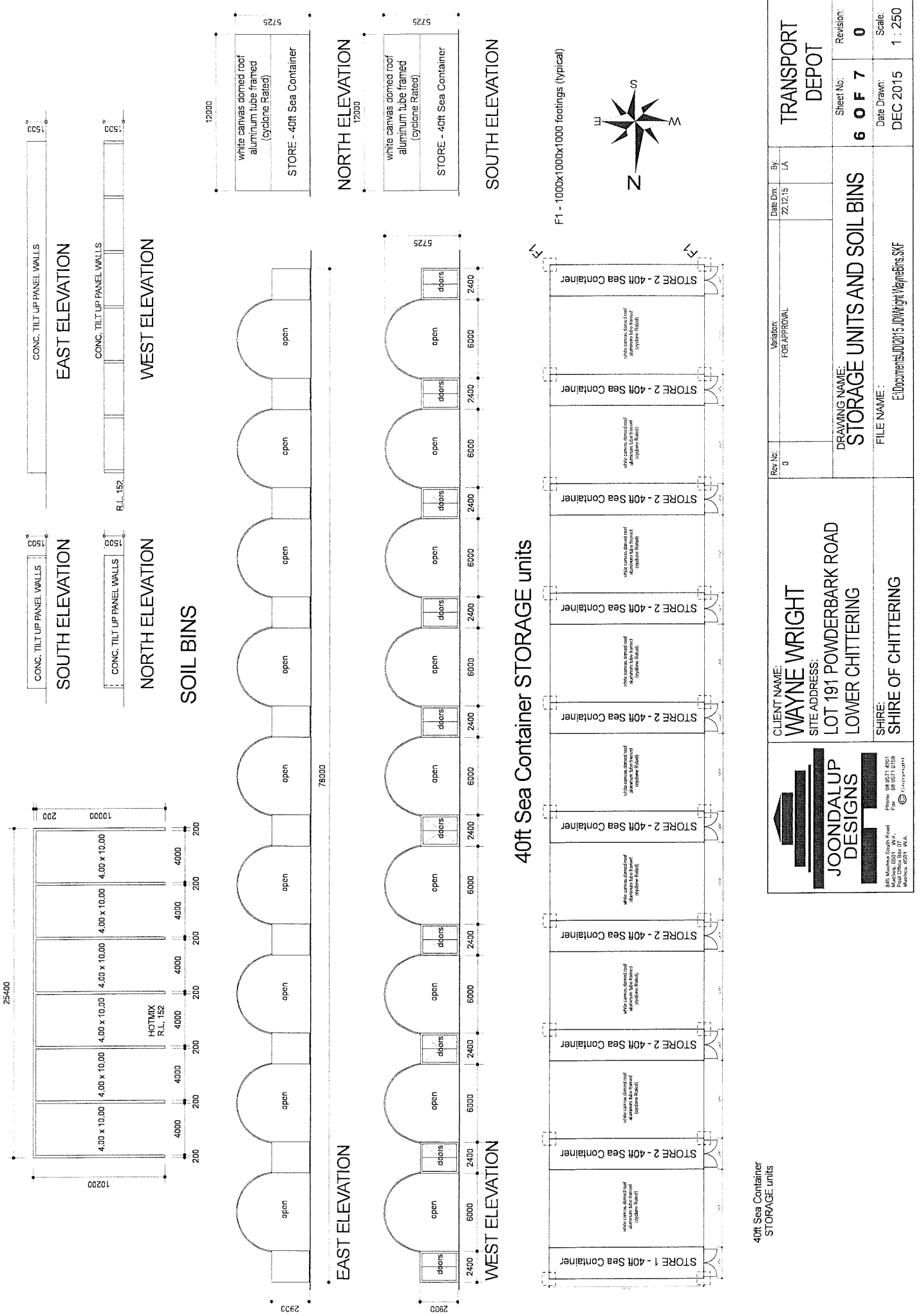
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CLIENT NAME: **WAYNE WRIGHT**  
 SITE ADDRESS: **LOT 191 POWDERBARK ROAD LOWER CHITTERING**  
 SHIRE: **SHIRE OF CHITTERING**

Rev. No. 0	Variation FOR APPROVAL	Date Dm: 22.12.15	By: LA
DRAWING NAME: <b>SHED WASH DOWN BAY</b>			
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TRANSPORT DEPOT		Sheet No: <b>5 OF 7</b>	Revision: <b>0</b>
		Date Drawn: <b>DEC 2015</b>	Scale: <b>1 : 100</b>





**PROPOSED DEVELOPMENT**

**191, POWDERBARK RD  
LOWER CHITTERING**

**Proposed Development**

191, Powderbark Rd, Lower Chittering. WA

Prepared by: Mark Bundock

Project Supervisor: P. Keating

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**Document Control**

Issue	Date	Author	Reviewer	Approved
1	29/03/2017	M. Bundock	P. Keating	P. Keating

## Part A – Original Environmental Constraints

DRF are known to occur in the most eastern part of the site, namely *Grevillea althoferorum* ssp. *fragilis*. A number of other species were identified as being in the area during the desktop survey. Two DRF and six priority flora were identified during site assessment, however there may be more, flowering at different times of the year.

### *Flora*

The site ranges from 'degraded' to 'excellent', due mainly to historical clearing and agricultural practices. The cleared areas have been degraded for a long time, whilst there are sections of bushland that are partly degraded, with fewer plant species, less cover and a poor middle storey. The eastern hilly area has good quality bushland with a larger number of plant species present, especially to the northern and eastern ends.

There is a large recognised population of the threatened *Grevillea althoferorum* ssp. *fragilis* on the site. Individual plants were identified and a GPS location taken during the survey, also several other priority species were noted on the survey.

It is recommended that these populations be avoided during any possible development and a buffer be instigated around them to prevent disturbance.

### *Fauna*

Foraging for fauna was far more varied and vegetation was denser in the north eastern portion of the hilly area, with a good middle storey. There was more active feeding of birds in this area and tracks and scats of a number of native mammals, including Grey Kangaroo, Quenda and Possum were seen.

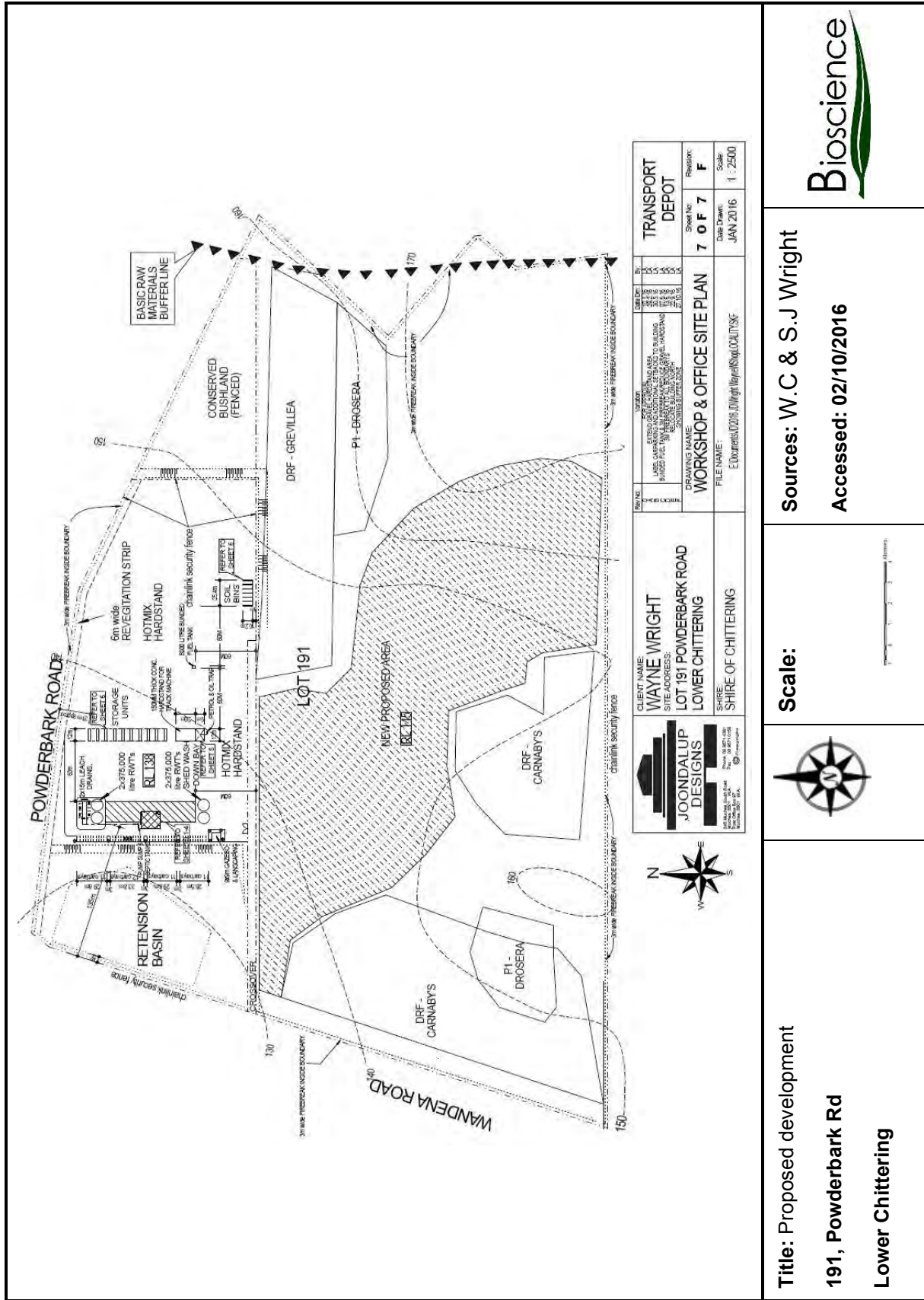
Several threatened and priority fauna were identified as being able to inhabit the area. Black Cockatoos were seen to be feeding in the South western portion of the property, on hakeas.

According to EPA's Guidance Statement Number 33 – Environmental Guidance for Planning and Development (2008), fauna is best protected by retaining bushland areas and fortunately on this site, significant natural habitat remains. Remnant trees should be retained where practical.

According to EPA's Guidance Statement Number 33 – Environmental Guidance for Planning and Development (2008), fauna is best protected by retaining bushland areas. It is recommended that the development retain vegetated areas which are most biodiverse and only develop areas which have been most degraded.

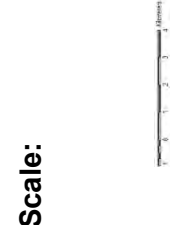
To develop the area as a transport yard would require a large number of the trees to be cut down. This size of clearance puts the development into the High risk of significant impact category. The number of large trees found on the site, the area of proposed clearance and the physical evidence that Carnaby's Cockatoo were using the site for foraging puts the development into the Uncertain risk category. Night roosting sites are found in the area, but it is not known if roosting occurs on this particular site.

It is therefore my recommendation that the proposed development be referred for consideration under the EPBC Act, for Black Cockatoos.



**Title:** Proposed development  
**191, Powderbark Rd**  
**Lower Chittering**

**Scale:**



**Sources:** W.C & S.J Wright  
**Accessed:** 02/10/2016



Figure 1 – Plan submitted to DPaW



## Part B – Current Development Proposal

### Summary - Current development Proposal

Bioscience has been carrying out survey work since November 2015, relating to a proposal for the development of a transport yard at Lot 191 Powderbark Rd, Lower Chittering, on behalf of W.C & S.J Wright. The original plan would have required the removal of approximately 11.5 Ha of bushland, after vegetation surveys this was reduced to approximately 4.5 Ha, concentrated in an area of bushland which was found to be the least biodiverse, with relatively small regrowth trees and fewer species overall. After consultation with DPaW, W.C & S.J Wright have committed to reducing the area of land to be cleared to approximately 0.9Ha.

### Survey Results

The initial inspection visit in February 2016, resulted in a full survey being scheduled for early and middle Spring 2016. This was carried out in September and October 2016 by three experienced Ecologists. The findings of the survey confirmed the presence of the DRF species *Calyptrorhynchus latirostris* and *Grevillea althoferorum* ssp *fragilis* but also found populations of a Priority 1 species – *Drosera sewelliae* and several Priority 2, 3 and 5 species. Areas of high and low biodiversity were mapped and a number of trees, which could be suitable for Black cockatoo nesting, were recorded on the site.

Through discussion with the proponent it was agreed that these areas should be avoided during the development and alternative plans would be drawn up. Several iterations of the original plan were drawn up, each successive plan providing greater protection for the sensitive areas and for the foraging habitat, which was actively being used by the black cockatoos on the last survey.

### Plan Modifications

A plan (Figure 1) was submitted to DPaW for their views on the development, especially regarding buffer distances. We also advised that it is to be submitted to the Department of the Environment, regarding the EPBC Act (2012), as the removal of over 1Ha of good quality foraging triggers the high-risk category of the Act (Part A – Original Environmental Constraints).

Following advice from DPaW, W.C & S.J Wright have included 50m buffers in their new plan and further reduced the area to be cleared, instead concentrating their business on the already degraded pasture lands (Figures 2&3). The remaining area to be cleared is approximately 0.9 hectares. This negates the need to refer the project to the EPBC and reduces the environmental impacts substantially.

## **Conclusion**

All areas of cockatoo feeding habitat and all potential breeding trees have been avoided, DRF and Priority plant species have substantial buffers, most of which are in excess of the 50m recommended by DPaW (Figure 2&3).

We have always found W.C & S.J Wright to be amenable to adapting their plans to afford protection of the habitats and species at the site, and will continue to work with them to reach an acceptable solution. This current plan has substantially reduced the area which will be impacted by the development and it affords a great deal of protection to the woodlands and wildlife on the site.

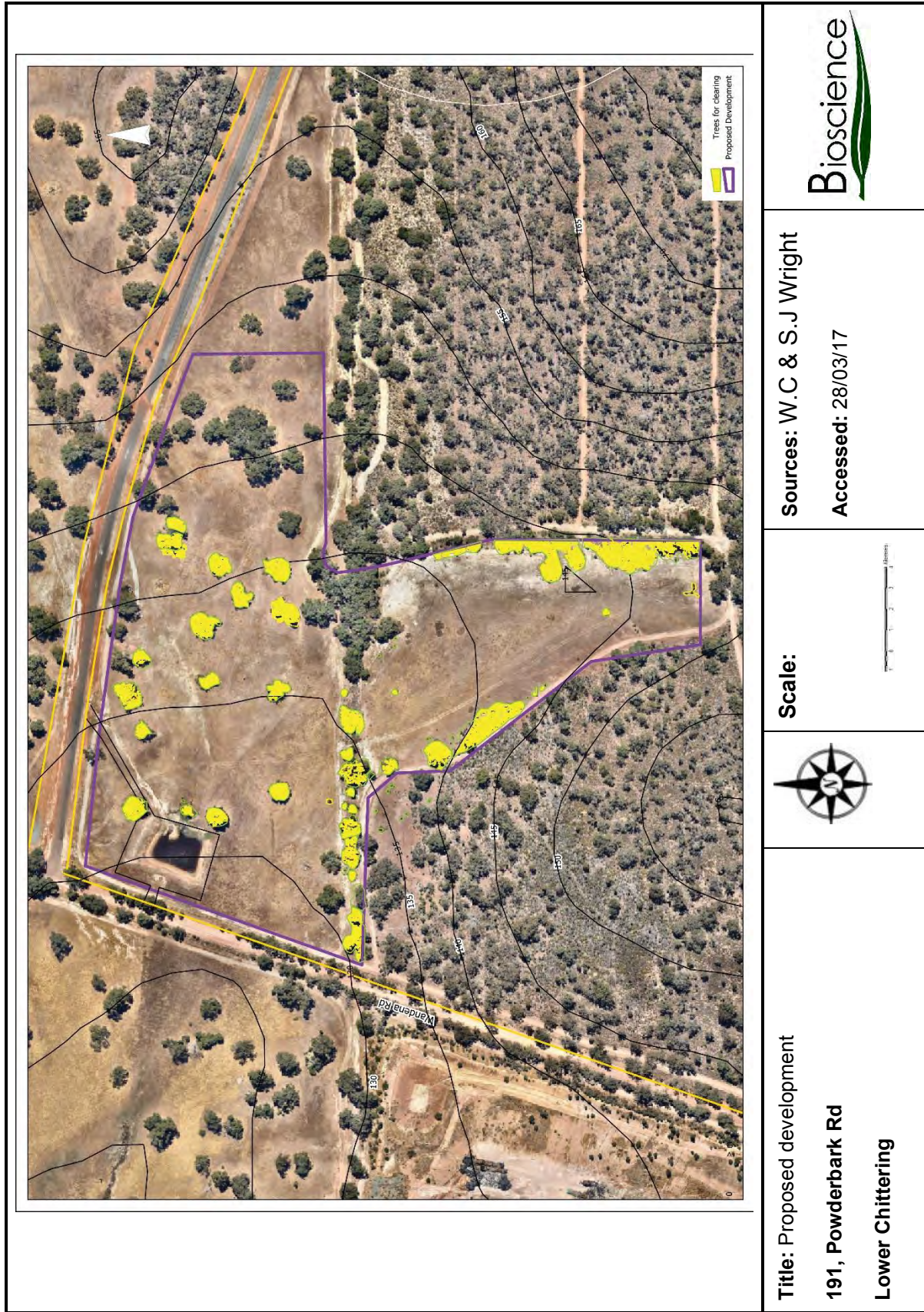


Figure 2 – Most Recent Map showing Area to be Cleared

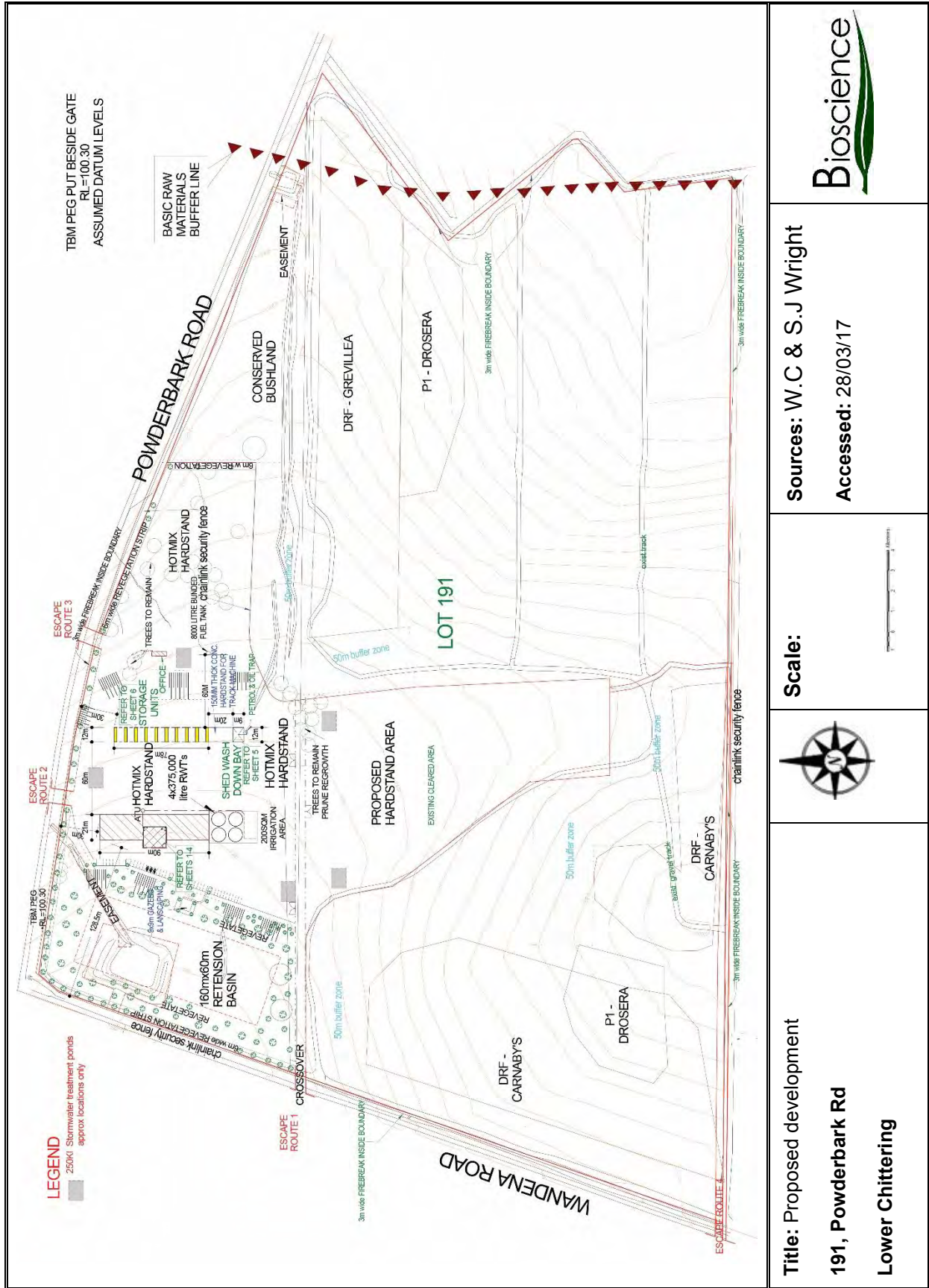





Figure 3. Latest Proposed Development

	<p>Sources: W.C &amp; S.J Wright          Accessed: 28/03/17</p>	<p>Scale:</p> 		<p>Title: Proposed development          191, Powderbark Rd          Lower Chittering</p>
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## **FLORA AND FAUNA SURVEY**

**LOT 191, POWDERBARK RD  
LOWER CHITTERING**

Integrating Resource Management

Lot 191, Powderbark Rd. Lower Chittering

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**Flora and Fauna Survey**

Lot 191, Powderbark Rd, Lower Chittering. WA

Prepared by: Mark Bundock  
Project Supervisor: P. Keating

**Bioscience Pty Ltd**

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**Document Control**

Issue	Date	Author	Reviewer	Approved
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3	12/10/2016	M. Bundock	P. Keating	P. Keating
4	18/10/2016	M. Bundock	P. Keating	P. Keating
5	26/10/2016	M. Bundock	P. Keating	P. Keating

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Lot 191, Powderbark Rd Lower Chittering



## **1. Summary**

*Bioscience has been carrying out survey work since November 2015, relating to a proposal for the development of a transport yard at Lot 191 Powderbark Rd, Lower Chittering, on behalf of W.C & S.J Wright Earthmoving.*

*After an initial inspection visit in February 2016, a full survey was scheduled for early and middle Spring 2016. These were carried out in September and October 2016 by three experienced Ecologists. The findings of the survey confirmed the presence of a DRF species -Grevillea althoferorum ssp fragilis but also found populations of a Priority 1 species – Drosera sewelliae and several Priority 2,3 and 5 species (Appendix A). Areas of high and low biodiversity were mapped and a number of trees, which could be suitable for Black cockatoo nesting, were recorded on the site.*

*In discussion with the proponent it was agreed that these areas should be avoided during the development and alternative plans would be drawn up. Several iterations of the original plan were drawn up, each successive plan providing greater protection for the sensitive areas and for the foraging habitat, which was actively being used by the black cockatoos on the last survey.*

*Although the plan being put forward still necessitates the removal of approximately 4.5 Ha of bushland, it is an area of bushland which was surveyed and found to be least biodiverse, with relatively small regrowth trees and fewer species overall.*

*The plan still needs to be submitted to DPaW for their views on the development especially regarding buffer distances. We have also advised that it is to be submitted to the Department of the Environment, regarding the EPBC Act (2012), as the removal of over 1Ha of good quality foraging triggers the high-risk category of the Act.*

*We have found W.C & S.J Wright Earthmoving to be amenable to adapting their plans to afford protection of the habitats and species at the site and will continue to work with them to reach an acceptable solution.*

Lot 191, Powderbark Rd Lower Chittering



## **2. Introduction**

Bioscience was tasked to carry out a vegetation assessment on Lot 191 Powderbark Rd, Lower Chittering (Figure 1 & 2).by Mr Wayne Wright, the owner of the property

Following extensive desktop surveys and an initial field inspection of the area on Monday 1<sup>th</sup> of February 2016, a survey was planned to take place over two days in early Spring. This was carried out on the 8<sup>th</sup> and 14<sup>th</sup> of September 2016, a possible late spring survey was also scheduled if required.

### **1.1 Objectives**

- Identify any priority species present on the site. These would then be mapped and used to direct planning.
- Provide information on key environmental characteristics within the subject site and surrounding area.
- Identify the environmental factors and constraints that affect the development of the subject site.
- Recommend appropriate management strategies to allow development whilst protecting environmental functions, values and attributes.
- Identify any relevant permissions or approvals required for development of the subject area.

The scope of the work is as follows:

- Review of surrounding land uses and compatibility.
- Identify site soils, potential/actual Acid Sulfate Soils (ASS), geology and geomorphology.
- Identify any Aboriginal or European heritage via search on relevant databases.
- Ecological features of significance.
- Assessment of flora and fauna.

### **1.1.2 Proposed Development**

The proposed development is for a transport yard to be built upon the site (Figure 3) towards the north-western edge. The owners are currently proposing to have gravel and hotmix hard stand areas, covering approximately 14 Ha, with buildings including maintenance sheds, offices and soil storage areas.

Lot 191, Powderbark Rd Lower Chittering



The following State, District and Local planning documents are relevant to the subject area:

- State Planning Strategy (WAPC, 1997)
- Metropolitan Region Scheme (MRS) (WAPC, 2011)
- Shire of Chittering Town Planning Scheme No. 6 (TPS 6) (WAPC, 2004)

The subject area is currently zoned “Agricultural Resources” as per the TPS updated December 2004 within a separate category of “Basic Raw Materials” (Figure 4).

## 2. Site Description and Desktop Investigations

### 2.1 Land Use

The property has been partially cleared in the north and an area running north to south down the middle of the property, for grazing, the remainder of the property is bushland. According to Landgate historical data the property has remained relatively unchanged since at least 1977 (the earliest aerial mapping of the area). A housing development has been built to the east of the property, consisting of houses on large bush blocks, since approximately 2006. Fire breaks have been installed and maintained around the property and there are several fire breaks crossing through the bush.

### 2.2 Climate

The south west of Western Australia is characterised by a Mediterranean climate comprising hot dry summers and cool, wet winters. According to the Bureau of Meteorology the average annual rainfall within the vicinity of the proposed development is 677mm (Pearce RAAF Airbase station. 009053). The monthly distribution of rainfall (Figure 5) indicates approximately 85% of the rainfall occurs during the months of May to October. The potential annual *evaporation* of the area is 2000mm, which is significantly more than annual precipitation (BOM 2015). The prevailing wind is from a south westerly direction, however easterly winds are common, particularly in the summer months.

### 2.3 Geomorphology and Topography

The area is on the border between the Perth sand plain and the Darling Scarp, the topography varies between 130m to approximately 180m on an undulating landscape, rising gradually towards the east (Figure 6).

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## 2.4 Regional Geology

The subject site is located between the Swan Coastal Plain and the Darling scarp. There are three dominant soil types on the site (Australian Soil Resource Information Service, ASRIS):

**Laterite (L<sub>2</sub>):** massive and cemented occasionally vesicular; up to 4m thick overlain by ferruginous gravel set in clay/sand matrix, residual in origin.

**Sand (S<sub>6</sub>):** light grey, fine to coarse, angular to sub rounded, quartz with some feldspar, moderately sorted, loose, of colluvial origin

**Gravel (G<sub>2</sub>):** Strong Brown coarse sub rounded to rounded laterised granite pebbles in clay/silt matrix, moderately sorted of colluvial origin (Figure 7).

## 2.5 Acid Sulfate Soils

Acid sulfate soils are soils which contain reduced forms of sulfur which typically originate from the reducing conditions associated with anaerobic soils in wetlands. In Western Australia, Acid Sulfate Soils occur in low lying coastal lands such as Holocene swamps and Lakes. If such soils are exposed to oxygen, for example by excavation or dewatering, reduced sulfides convert to sulfuric acid and significantly lower pH, causing a range of undesirable environmental consequences. Acid sulfate soils do not pose an environmental hazard if they are left in their natural state. According to the Planning bulletin 64 on Acid Sulfate Soils (WAPC 2003), the site has been classified as having had no occurrence of Acid Sulfate Soils (ASS).

## 2.6. Hydrogeology

### 2.6.1. Regional Hydrogeology

Based on our review of the information available and our own detailed investigations, the hydrology of the site is complex with some surface water features evident, including waterways, which are seasonal.

### 2.6.2 Groundwater

Broadly speaking, the Perth Groundwater Atlas (DoW 2004) indicates that groundwater levels across the site is approximately 60 m AHD in the north east. South west of the property groundwater levels are closer to 55m, with groundwater flowing



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in a south westerly direction towards Ellen Brook. The site is outside the range of the Perth Groundwater Atlas and therefore detailed information is not available.

### 2.6.3 Surface water

The site is situated within the Ellen Brook catchment, and the Ellen Brook waterway is situated to the west of the site.

The mapping provided by Landgate (2011) identified several surface water features within the site (Figure 8). Surface water features over the site were verified by Bioscience during a site visit in February 2016. The site inspection revealed two ephemeral waterways occur through the site, one situated centrally and the other to the south. In addition, a number of flow paths were identified in the northern portion of the site, however these have no defined channel forms and provide minimal broad overland flow within the site. As such these areas are not considered to be waterways but rather represent small topographic changes in the landscape.

The more significant central waterway flows east-west through the site and directs flow towards Ellen Brook, but is captured by the farm dam.

### 2.6.4 Surface Water and Drainage - Wetlands

The Geomorphic Wetlands Dataset displays the location, boundary, geomorphic classification and management category of wetlands on the Swan Coastal Plain. The information contained within the dataset was originally digitised from the Wetlands of the Swan Coastal Plain Volume 2B Wetland Mapping, Classification and Evaluation: Wetland Atlas, which was captured at a scale of 1:25,000 (Hill et al. 1996b). According to the dataset the land contains no Geomorphic wetlands.

## 2.7 Vegetation

The study area is in the North Swan coastal plain and has fringing vegetation from the Darling Scarp. Four major vegetation types are found in this area:

**Reagan complex:** Vegetation ranging from low open woodland of *Banksia* species, and *Eucalyptus tottiana* to closed heath, depending upon soil types.

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**Mogumber Complex - South:** Open woodland of *Corymbia calophylla* with some admixture of *Eucalyptus marginata* and a secondary storey of *Eucalyptus todtiana*, *Banksia attenuata /grandis/menziesii* and *illicifolia*.

**Moondah Complex:** low closed to low open forest of *Banksia attenuate/Banksia menziesii*. *Eucalyptus todtiana*, *Banksia prionotes* on slopes, open woodlands of *Corymbia calophylla* and *Banksia* species in the valleys (Heddle et al)

**Karamal Complex - South:** Open forest of *Eucalyptus marginata* and *Corymbia calophylla* with a second storey of *Banksia grandis*.

### 2.7.1 Flora of Conservation Significance

A search on DEC's NatureMap online indicated that four DRF and Eighteen priority plant species exist within 5km of the centre of the subject site (116°01' 32" E, 31°32' 34" S).

Priority 2	3	
Priority 3	4	
Priority 4	4	
Priority 5	1	
Protected under international agreement	1	
Rare or likely to become extinct	5	(Appendix B)

### 2.7.2 Vegetation

The area is impacted by localised clearing, grazing and invasive weeds. As a result, vegetation condition rating varies from 'excellent' to 'degraded' according to the Keigherey scale. Vegetation was mapped according to main component vegetation types (Figure 10).

### 2.7.3 Adjacent Off-Site Vegetation

The adjacent off site vegetation is very similar to that found on site. The majority of the adjacent land has been cleared for grazing, sand quarrying and building development purposes. Vegetation, where present, is found in bush blocks and remnant vegetation.

### 2.7.4 Fauna Habitat

The Carnaby's Cockatoo is endemic to southwest Western Australia and require a habitat comprising of *Eucalyptus* woodland with shrubland or kwongan heath in close proximity. The complexity of their habitat is due to their breeding and feeding habits

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as they feed in shrublands or kwongan heath but breed in Eucalyptus woodlands. If these two habitats are not within reasonable distance to each other breeding attempts may fail.

The Western Quoll prefers dry savannahs, Mallee shrublands or Jarrah woodlands and lives in a burrow or tree hollow, although they can climb they generally reside in vegetation close to the ground. They are carnivorous, feeding on mammals, birds, lizards, frogs, carrion, insects, and crustaceans. The subject area does contain some Western Quoll habitat however there has not been any documentation of its presence in the area in the recent past and it appears unlikely to be present. The species is more likely to be found east of the area within the Darling Ranges where habitat destruction and fragmentation are not as widespread.

The Southern Brown Bandicoot or Quenda is found in dense scrubby, often swampy vegetation with dense cover up to 1m in height. They nest in a heap of ground litter over a shallow depression and they are omnivorous, feeding on almost anything, with a seasonally changing diet as different foods become available.

## **2.8 Heritage**

### **2.8.1 Aboriginal**

A search on the Aboriginal heritage inquire system on the Department of Indigenous Affairs (DIA) website, indicated that the subject area does not impact on any Aboriginal site.

### **2.8.2 European**

A search on the Heritage Council of Western Australia (2011) database reveals no European heritage exists within the subject area.

### **2.8.3 Contamination**

The land is not registered as a contaminated site with DEC, and the current and past land use is not registered as being a potentially contaminating. The Contaminated Sites Act 2003 and associated regulations and guidelines require a tiered assessment process, and if no evidence of contamination is found from both desktop and initial field investigations, no further action is required.

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### 3. Survey Methodology

Due to time constraints and the large area needed to be surveyed it was decided to use a transect approach to the survey. Three ecologists were tasked with walking parallel transects, approximately five metres apart, in a north-south direction. A single GPS was used to record the tracks of the eastern most ecologist, to ensure that no large areas were omitted (Figure 9).

Along the transects, flora were recorded by each ecologist, in addition, photographs of plant species were taken, to act as a permanent record. Trees which were greater than the sizes specified in the EPBC Act were recorded and GPS locations noted.

Fauna, including signs, burrowing, scats and tracks were noted along the transects and where possible photographs were taken.

### 4. Survey Results

In total 166 plant species were recorded and a further 17 fauna species (mainly birds) were identified (Appendix A).

A large number of the DRF *Grevillea althoferorum* spp. *fragilis* were recorded and their GPS location recorded. In addition, three populations of the priority 1 species *Drosera sewelliae* were also recorded, priority 2, 3 and 5 species were noted and their approximate area marked on a map (Figure 10).

The survey resulted in two DRF species being identified within the subject area, along with one priority 1 species, two priority 2 species, two priority 3 species and one priority 5 species.

<i>Grevillea althoferorum</i> subsp. <i>fragilis</i>	7
<i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo)	7
<i>Drosera sewelliae</i> (Red Woolly Sundew)	1
<i>Grevillea candolleana</i>	2
<i>Leucopogon cymbiformis</i>	2
<i>Adenanthos cygnorum</i> subsp. <i>chamaephyton</i>	3
<i>Chamaescilla gibsonii</i>	3
<i>Isoodon obesulus</i> (Southern Brown Bandicoot)	5



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A full species list can be found in Appendix A. It is possible that some species may not have been identified on the site, due to having a different flowering season, or by being missed on the transects, but all efforts were made to ensure that this was kept to a minimum.

The site is relatively open to the adjacent properties and has some significant habitat for native fauna. A large number of trees are available to birds, including Carnaby's Cockatoo, but they would be expected to use the more upland part of the site. Evidence of introduced species such as rabbits is present, through their diggings. It is also likely that feral predators such as cats and foxes can access the area. Native mammals may still survive in the denser bushland, as this will protect them from attack.

Bush in the area is used by Black cockatoos for foraging, and there was evidence of them feeding upon hakeas. There are few trees currently large enough to support hollows of sufficient size, but all trees over 30cm were recorded and a GPS position taken (Figure 11). Mammals such as Chuddich and Quenda may live in the area, but were not sighted on the visit, although there was evidence of Quenda digging.

The subject area contains some Eucalyptus tree hollows, however, they appear to be too small. The area does provide food resources and Carnaby's Cockatoo were sighted during the survey. It is likely that the area is visited frequented by Carnaby's Cockatoo however there are no available nesting sites and therefore no resident populations.

A total of 40 Marri (*Corymbia calophylla*) Wandoo (*Eucalyptus wandoo*) and Jarrah (*Eucalyptus marginata*) trees were recorded as being over the minimum diameter specified in the Act. These trees were measured and a GPS reading was taken. A number of trees had hollows forming, with the potential for use as habitat trees. There was evidence of feeding by black cockatoos and Carnaby's cockatoo were noted at the time of the survey, feeding on Hakeas.

On returning to the office, all trees were mapped on to a georeferenced satellite image (Figure 11).



## 5. Summary of Environmental Constraints and Recommendations

DRF are known to occur in the most eastern part of the site, namely *Grevillea althoferorum ssp. fragilis*. A number of other species were identified as being in the area during the desktop survey. Two DRF and six priority flora were identified during site assessment, however there may be more, flowering at different times of the year.

### 5.1 Flora

The site ranges from 'degraded' to 'excellent', due mainly to historical clearing and agricultural practices. The cleared areas have been degraded for a long time, whilst there are sections of bushland that are partly degraded, with fewer plant species, less cover and a poor middle storey. The eastern hilly area has good quality bushland with a larger number of plant species present, especially to the northern and eastern ends.

There is a large recognised population of the threatened *Grevillea althoferorum ssp. fragilis* on the site. Individual plants were identified and a GPS location taken during the survey, also several other priority species were noted on the survey.

It is recommended that these populations be avoided during any possible development and a buffer be instigated around them to prevent disturbance.

### 5.2 Fauna

Foraging for fauna was far more varied and vegetation was denser in the north eastern portion of the hilly area, with a good middle storey. There was more active feeding of birds in this area and tracks and scats of a number of native mammals, including Grey Kangaroo, Quenda and Possum were seen.

Several threatened and priority fauna were identified as being able to inhabit the area. Black Cockatoos were seen to be feeding in the South western portion of the property, on hakeas.

According to EPA's Guidance Statement Number 33 – Environmental Guidance for Planning and Development (2008), fauna is best protected by retaining bushland areas. It is recommended that the development retain vegetated areas which are most biodiverse and only develop areas which have been most degraded.

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The areas that have visible signs of cockatoos feeding and the areas that have possible habitat trees are being avoided in the development. The proposed transport yard will still require an area of greater than 1Ha for clearance. This still puts the development into the High risk of significant impact, under the EPBC Act (2012), black cockatoos (Appendix C). However the area being considered for clearing is in the least biodiverse part of the site. Night roosting sites are found in the area, but no study has been carried out to definitively show that roosting occurs on this particular site.

It is therefore my recommendation that the proposed development still be referred for consideration under the EPBC Act (2012), for Black Cockatoos, as a precautionary measure..

### **5.3 Conclusion**

In consultation with the Owner of the property, Mr. W Wright a proposed area of operation has been designated (Figure 11). This development envelope avoids all of the areas which have DRF species present and the areas where there are trees large enough to form hollows for black cockatoos. These sensitive areas on the property will incorporate buffers (in consultation with DPaW) for the DRF species. This proposal will at all stages carry out consultation with DPaW and the Shire, before development commences.

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### 7. Figures

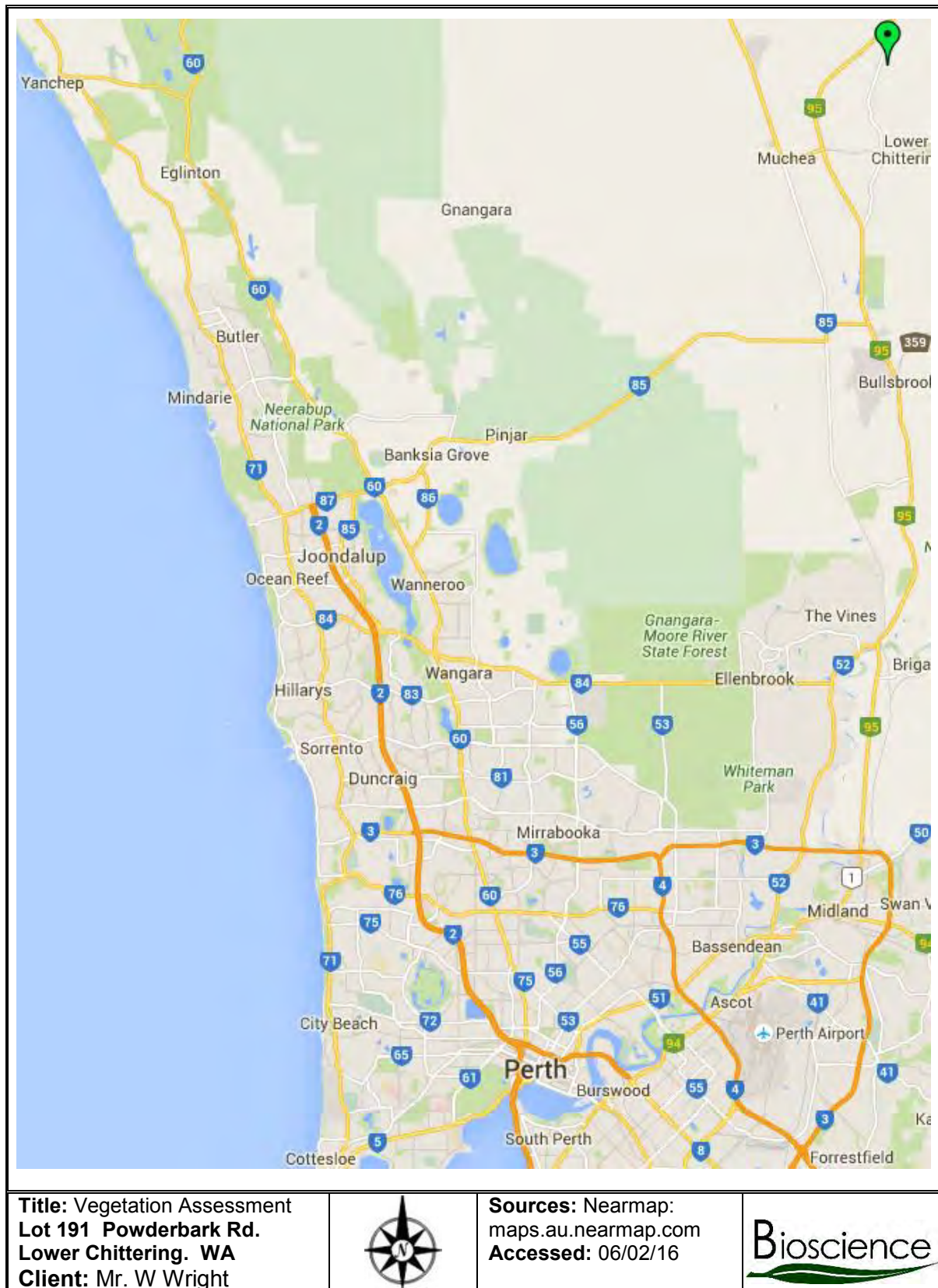


Figure 1 – Site Location

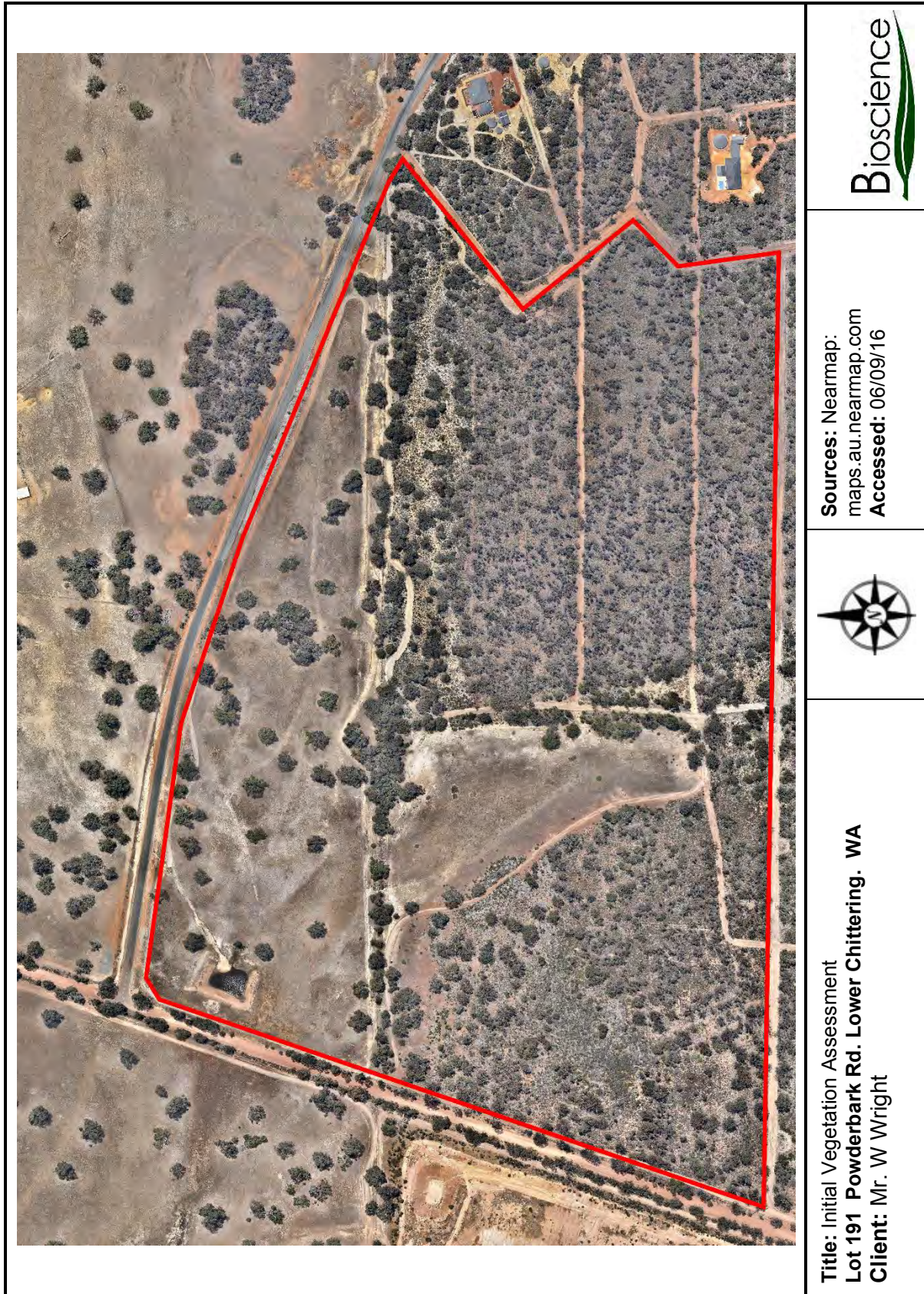


Figure 2 – Site Image

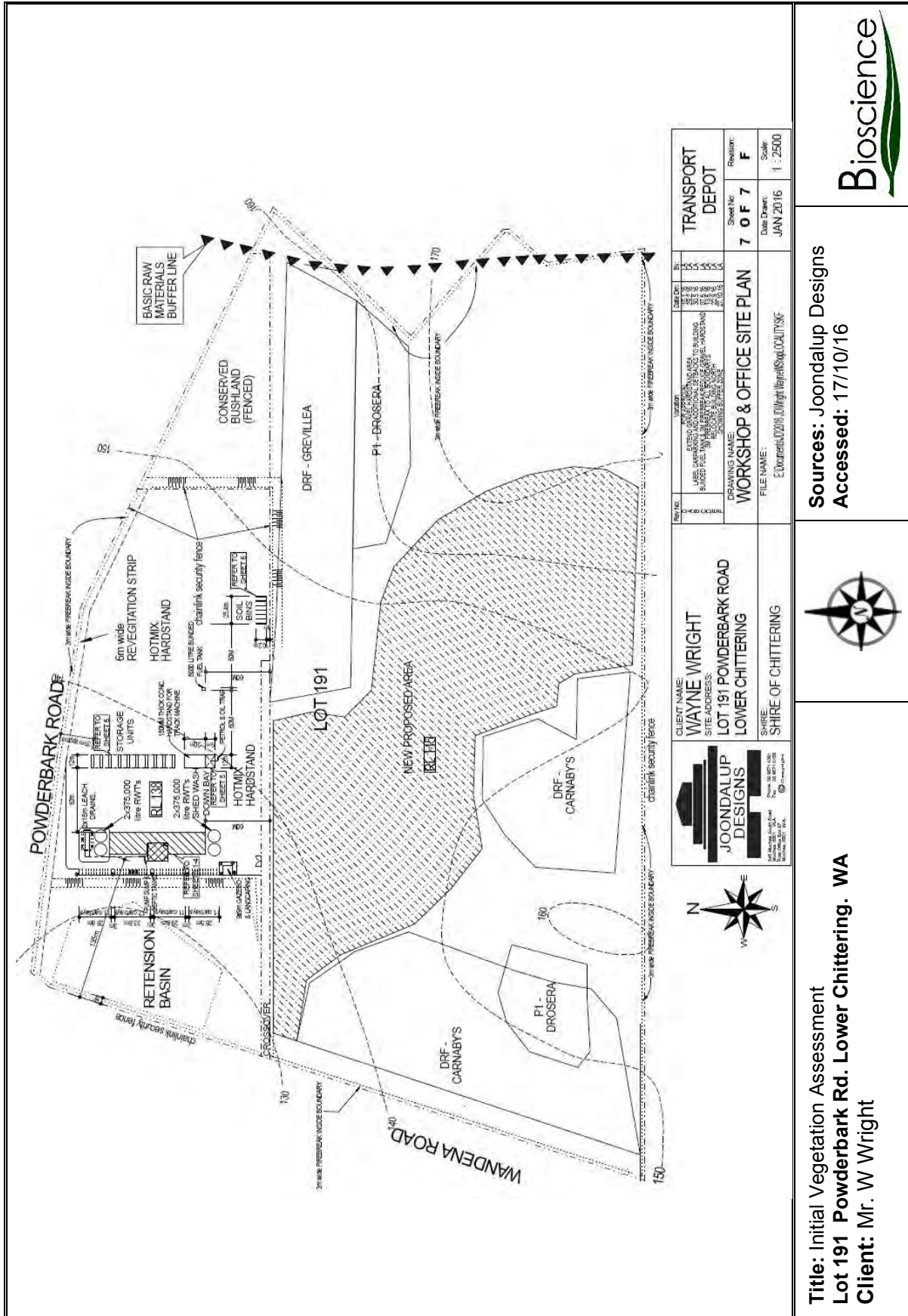


Figure 3. Proposed development





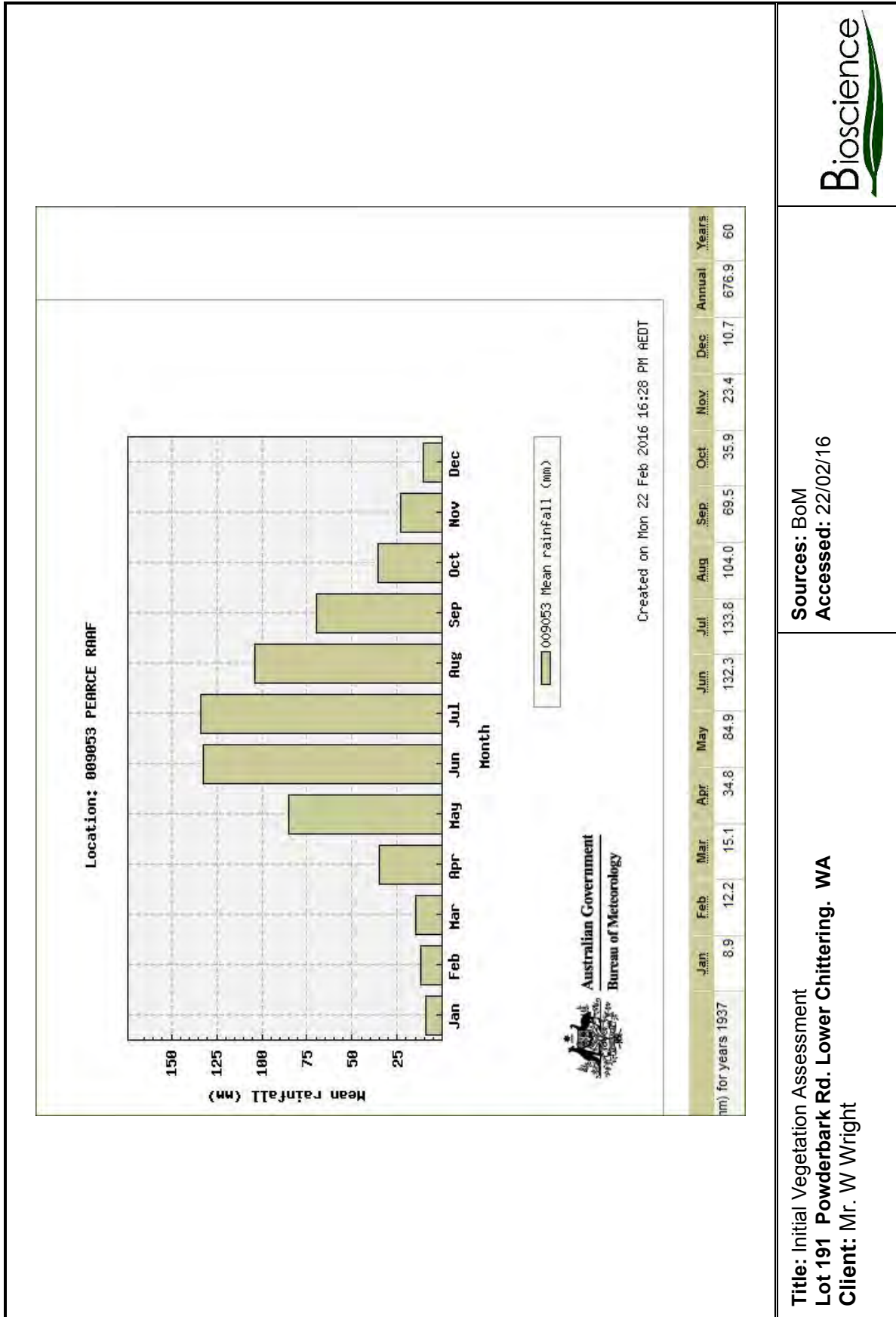


Figure 5. Average Rainfall

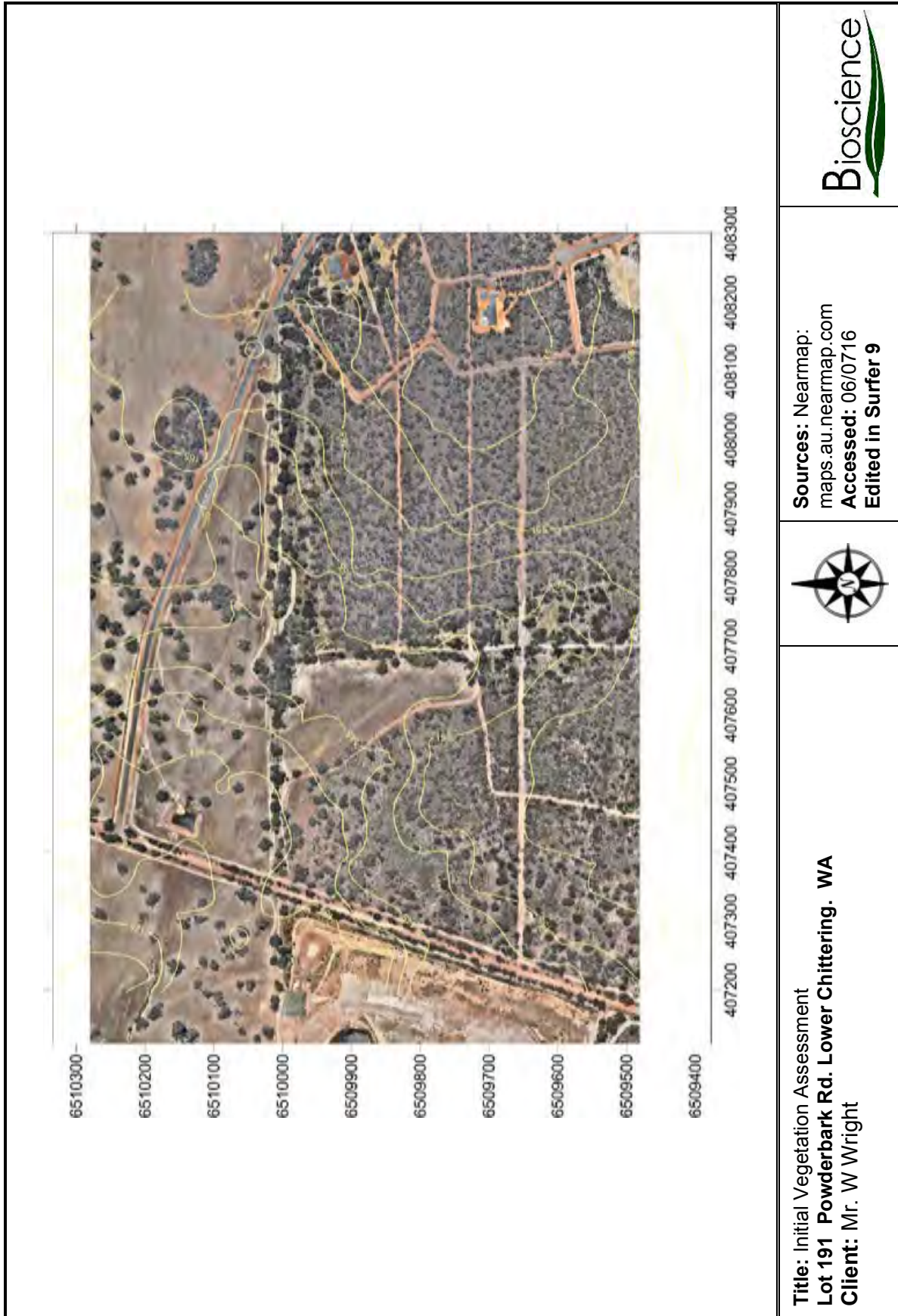


Figure 6. Site Elevation

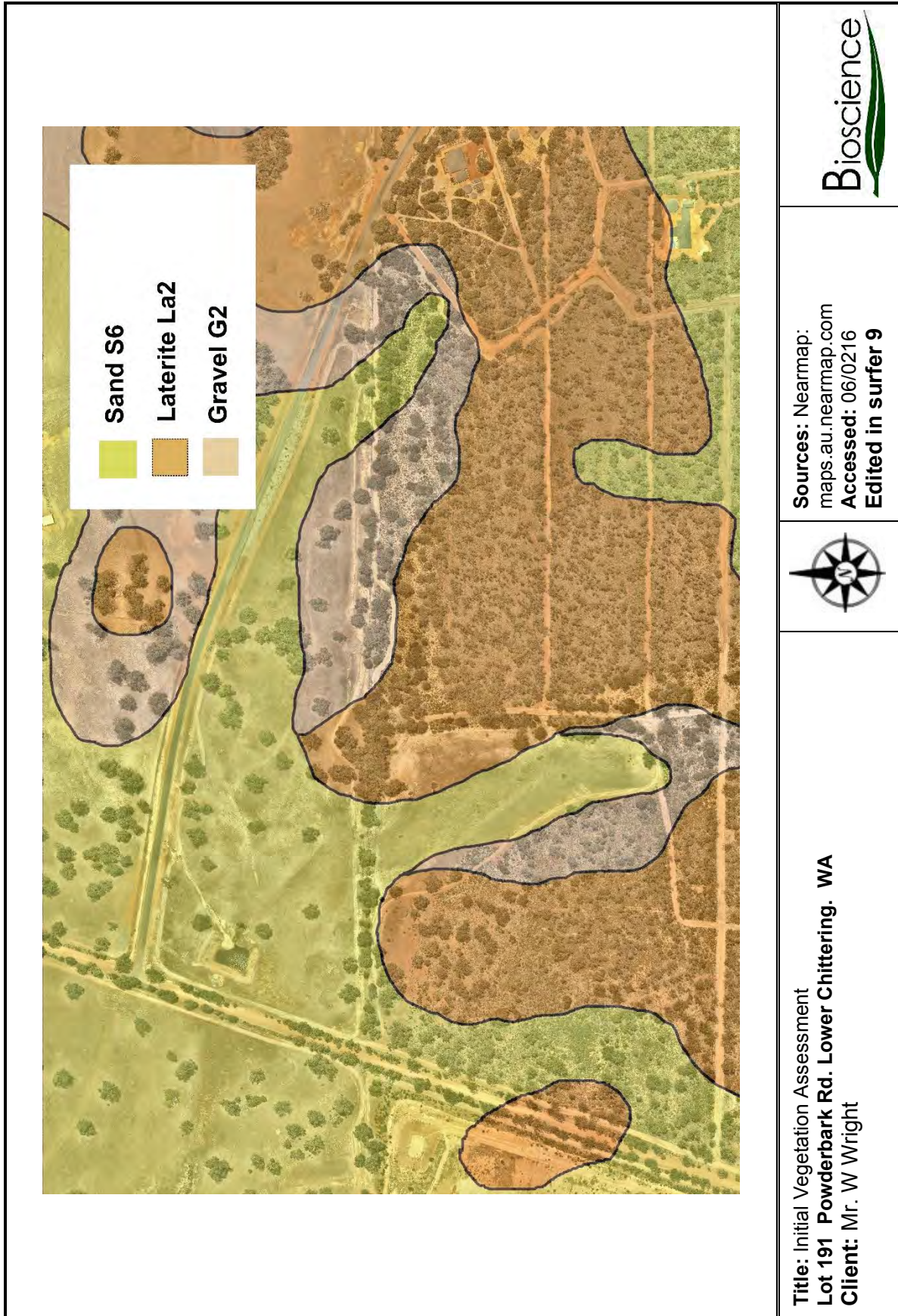


Figure 7. Local Geology

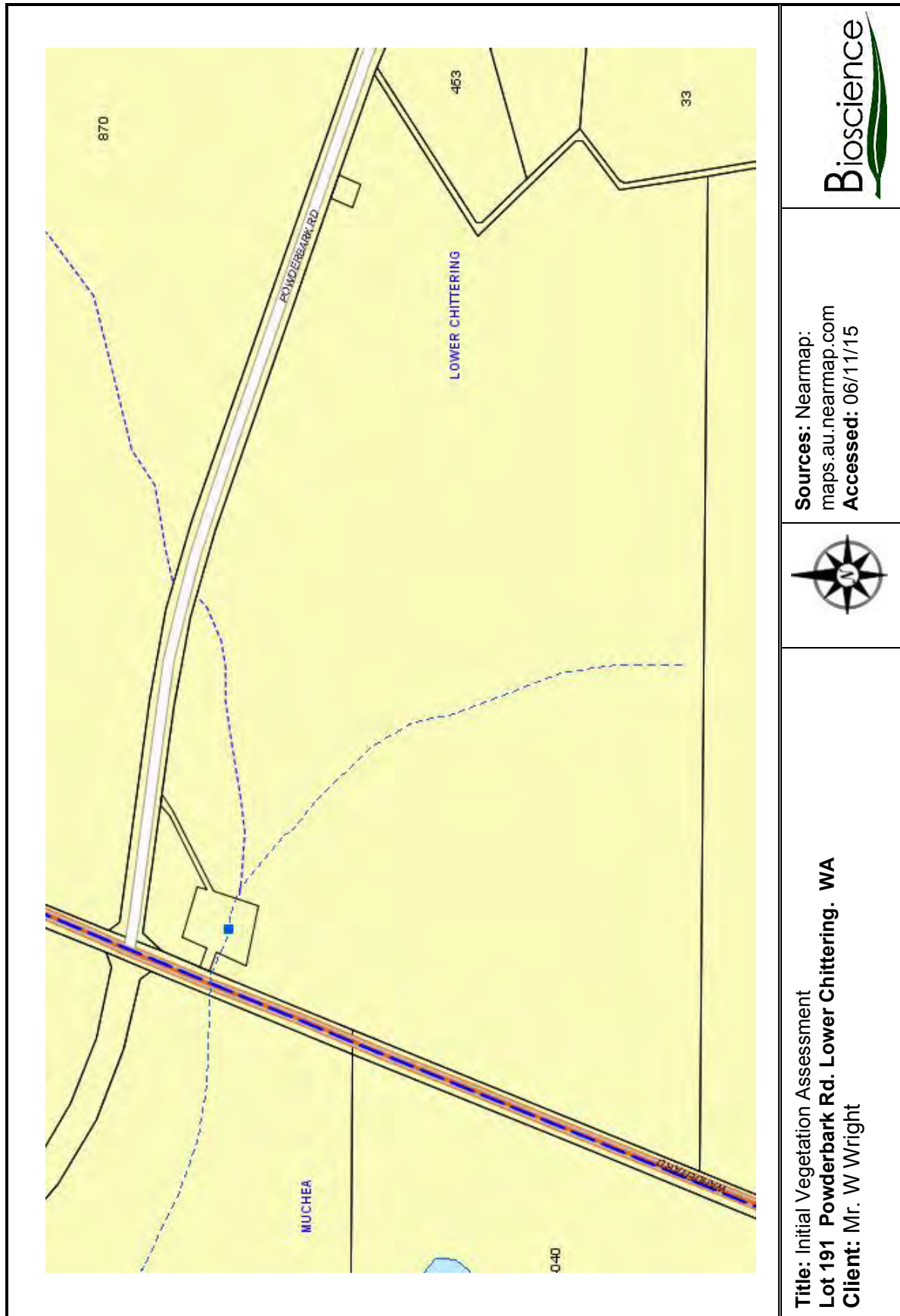


Figure 8. Waterways on the Property

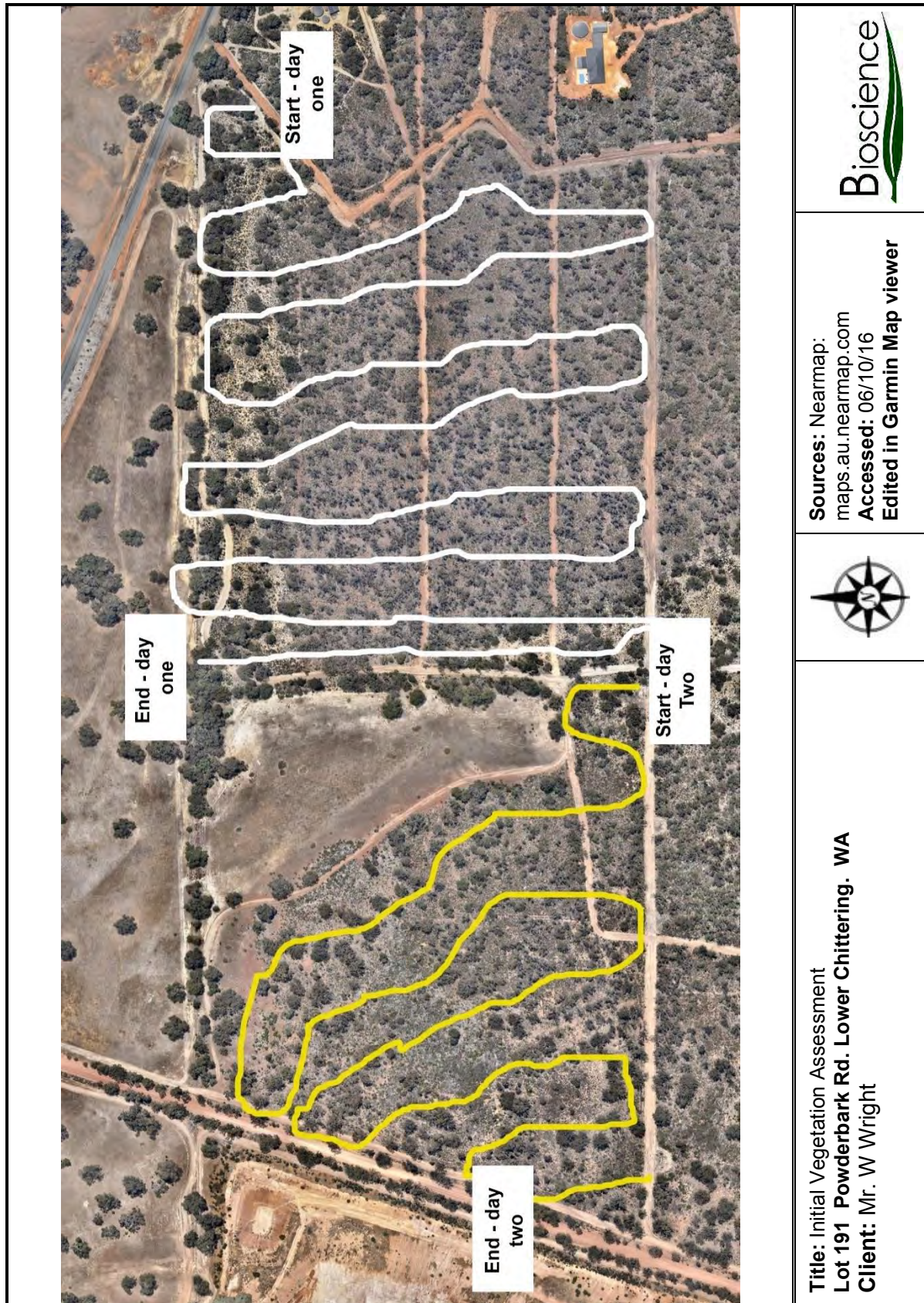


Figure 9. Survey track

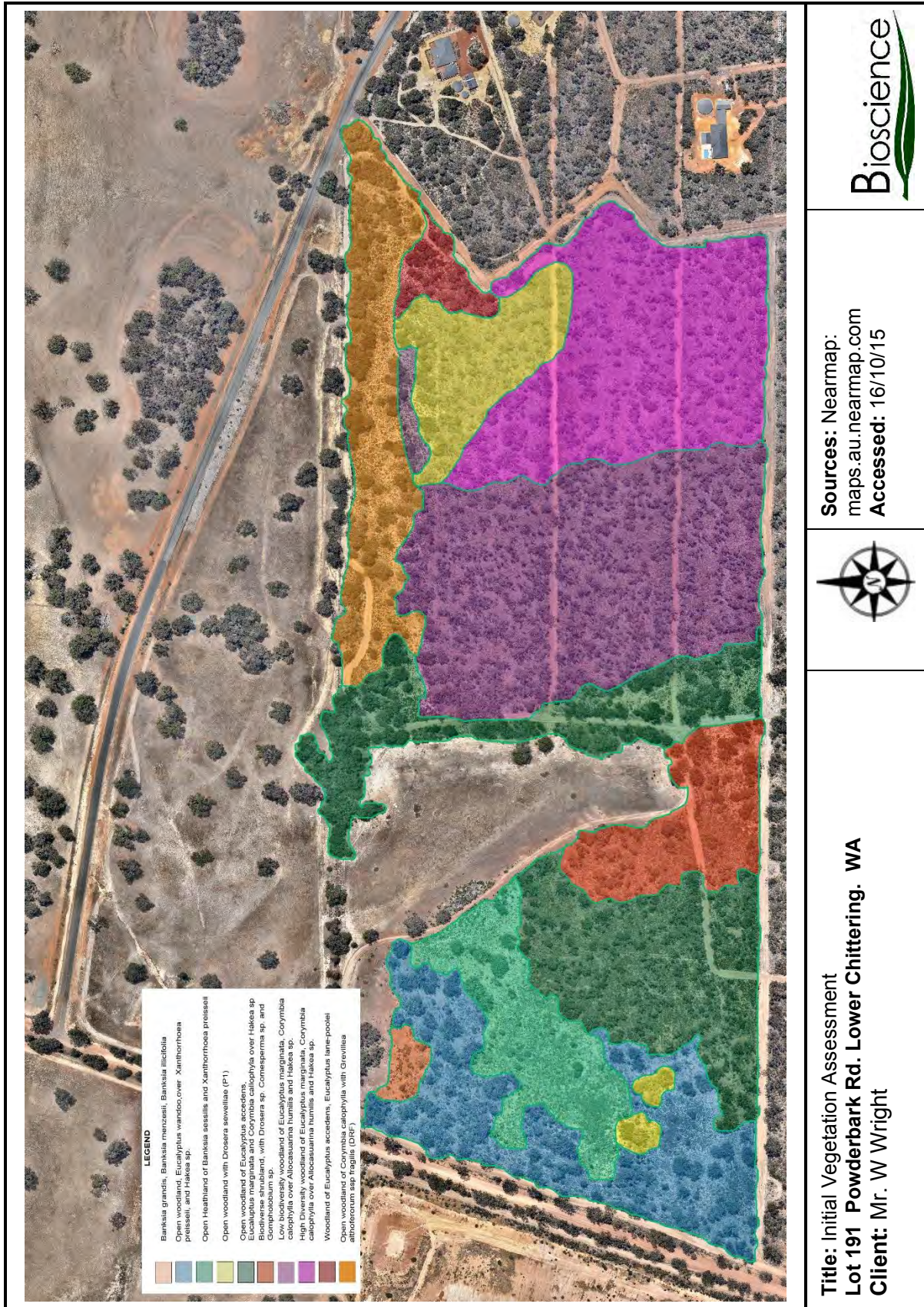


Figure 10. Vegetation Mapping

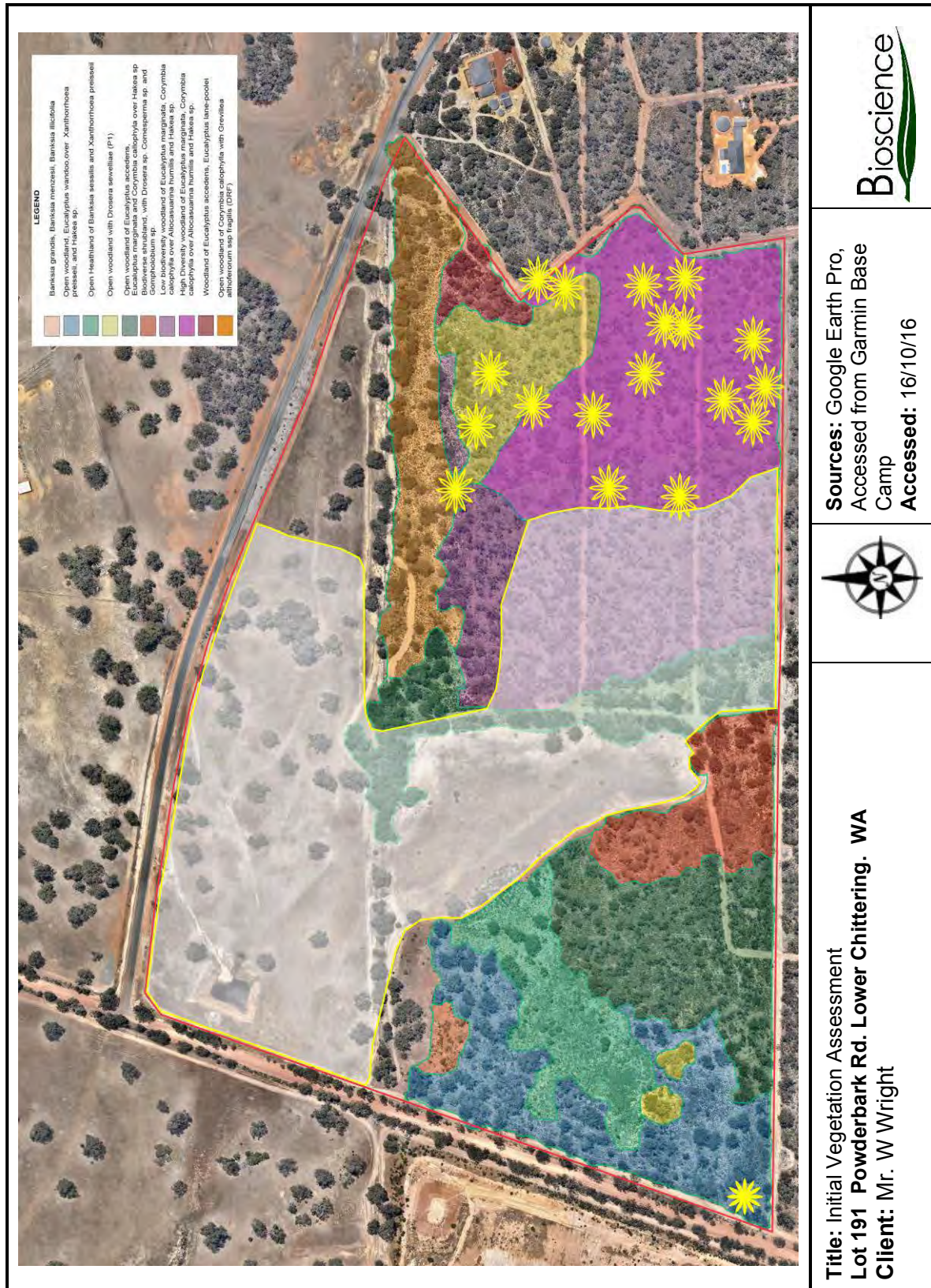


Figure 11. Map showing Significant trees (☀) and Possible Development Area



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## Appendix A –Species List of Flora and Fauna Found on the Site

### Flora

Genus / Species	Priority
<i>Grevillea althoferorum</i> subsp. <i>Fragilis</i>	T
<i>Drosera sewelliae</i> (Red Woolly Sundew)	1
<i>Grevillea candolleana</i>	2
<i>Leucopogon cymbiformis</i>	2
<i>Adenanthos cygnorum</i> subsp. <i>Chamaephyton</i>	3
<i>Chamaescilla gibsonii</i>	3
<i>Acacia applanata</i>	
<i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i>	
<i>Acacia pulchella</i> (Prickly Moses)	
<i>Acacia pulchella</i> var. <i>pulchella</i>	
<i>Adenanthos cygnorum</i> (Common Woollybush)	
<i>Adenanthos drummondii</i>	
<i>Agrostocrinum hirsutum</i>	
<i>Allocasuarina humilis</i> (Dwarf Sheoak)	
<i>Anigozanthos humilis</i> (Catspaw)	
<i>Anthocercis littorea</i>	
<i>Anigozanthos manglesii</i> (Mangles Kangaroo Paw, Kurulbrang)	
<i>Astroloma pallidum</i> (Kick Bush)	
<i>Banksia armata</i> (Prickly Dryandra)	
<i>Banksia attenuata</i> (Slender Banksia, Piara)	
<i>Banksia grandis</i> (Bull Banksia, Pulgarla)	
<i>Banksia ilicifolia</i> (Holly-leaved Banksia)	
<i>Banksia menziesii</i> (Firewood Banksia)	
<i>Banksia micrantha</i>	
<i>Banksia sessilis</i>	
<i>Beaufortia elegans</i>	
<i>Boronia ramosa</i>	
<i>Boronia scabra</i>	
<i>Bossiaea eriocarpa</i> (Common Brown Pea)	
<i>Burchardia bairdiae</i>	
<i>Burchardia congesta</i>	
<i>Burchardia multiflora</i> (Dwarf Burchardia)	
<i>Caladenia discoides</i>	
<i>Caladenia flava</i> subsp. <i>Flava</i>	
<i>Caladenia latifolia</i>	
<i>Caladenia longicauda</i> (Common White Spider Orchid)	
<i>Calectasia grandiflora</i>	
<i>Calothamnus lateralis</i>	
<i>Calothamnus quadrifidus</i>	
<i>Calytrix leschenaultii</i>	
<i>Calytrix sylvana</i>	
<i>Casuarina obesa</i> (Swamp Sheoak, Kuli)	

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<i>Chamaescilla corymbosa</i> (Blue Squill)	
<i>Chorizema dicksonii</i> (Yellow-eyed Flame Pea)	
<i>Comesperma calymega</i> (Blue-spike Milkwort)	
<i>Comesperma virgatum</i> (Milkwort)	
<i>Conospermum crassinervium</i> (Summer Smokebush)	
<i>Conospermum stoechadis</i> (Common Smokebush)	
<i>Conostylis aurea</i> (Golden Conostylis)	
<i>Conostylis candicans</i> (Grey Cottonhead)	
<i>Conostylis juncea</i>	
<i>Conostylis setigera</i> (Bristly Cottonhead)	
<i>Corymbia calophylla</i> (Marri)	
<i>Cyanicula gemata</i>	
<i>Cyanicula sericea</i>	
<i>Cyanostegia angustifolia</i> (Tinsel-flower)	
<i>Dactyloctenium radulans</i> (Button Grass)	
<i>Dampiera linearis</i> (Common Dampiera)	
<i>Daviesia brachyphylla</i>	
<i>Daviesia incrassata</i> subsp. <i>Incrassata</i>	
<i>Diuris longifolia</i> (Common Donkey Orchid)	
<i>Drosera erythrorhiza</i> (Red Ink Sundew)	
<i>Drosera glanduligera</i> (Pimpernel Sundew)	
<i>Drosera menziesii</i> subsp. <i>Penicillaris</i>	
<i>Drosera stolonifera</i> (Leafy Sundew)	
<i>Eremaea pauciflora</i>	
<i>Eucalyptus accedens</i> (Powderbark Wandoo)	
<i>Eucalyptus lane-pooleii</i>	
<i>Eucalyptus marginata</i> (Jarrah, Djara)	
<i>Eucalyptus todtiana</i> (Coastal Blackbutt)	
<i>Gastrolobium villosum</i> (Crinkle-leaved Poison)	
<i>Gladiolus undulatus</i> (Wild Gladiolus)	
<i>Gompholobium knightianum</i>	
<i>Gompholobium polymorphum</i>	
<i>Gompholobium tomentosum</i> (Hairy Yellow Pea)	
<i>Goodenia pulchella</i>	
<i>Grevillea bipinnatifida</i>	
<i>Grevillea pilulifera</i> (Woolly-flowered Grevillea)	
<i>Grevillea synapheae</i> (Catkin Grevillea)	
<i>Hakea amplexicaulis</i>	
<i>Hakea conchifolia</i>	
<i>Hakea erinacea</i> (Hedge-hog Hakea)	
<i>Hakea lissocarpha</i>	
<i>Hakea ruscifolia</i> (Candle Hakea)	
<i>Hakea trifurcata</i>	
<i>Hakea undulata</i>	
<i>Hakea varia</i> (Variable-leaved Hakea)	
<i>Hardenbergia comptoniana</i> (Native Wisteria)	
<i>Hemiandra linearis</i> (Speckled Snakebush)	

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<i>Hibbertia aurea</i>	
<i>Hibbertia huegleii</i>	
<i>Hibbertia hypericoides</i> (Yellow Buttercups)	
<i>Hibbertia subvaginata</i>	
<i>Hovea pungens</i> (Devil's Pins, Puyenak)	
<i>Hovea trisperma</i> var. <i>trisperma</i>	
<i>Hybanthus calycinus</i> (Wild Violet)	
<i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)	
<i>Isolepis cernua</i> var. <i>setiformis</i>	
<i>Isopogon asper</i>	
<i>Isotropis cuneifolia</i> (Granny Bonnets)	
<i>Jacksonia furcellata</i> (Grey Stinkwood)	
<i>Kennedia coccinea</i> (Coral Vine)	
<i>Kennedia prostrata</i> (Scarlet Runner)	
<i>Kunzea micrantha</i> subsp. <i>Oligandra</i>	
<i>Lambertia multiflora</i> var. <i>darlingensis</i>	
<i>Lasiopetalum lineare</i>	
<i>Laxmannia grandiflora</i> subsp. <i>Grandiflora</i>	
<i>Lechenaultia biloba</i> (Blue Leschenaultia)	
<i>Lepidosperma</i> sp.	
<i>Leucopogon oxycedrus</i>	
<i>Lobelia anceps</i> (Angled Lobelia)	
<i>Lobelia tenuior</i> (Slender Lobelia)	
<i>Lomandra caespitosa</i> (Tufted Mat Rush)	
<i>Macarthuria australis</i>	
<i>Macrozamia fraseri</i>	
<i>Marianthus bicolor</i>	
<i>Melaleuca concreta</i>	
<i>Melaleuca lateritia</i> (Robin Redbreast Bush)	
<i>Melaleuca viminea</i>	
<i>Mesomelaena gracilipes</i>	
<i>Mesomelaena pseudostygia</i>	
<i>Nuytsia floribunda</i>	
<i>Olearia elaeophila</i>	
<i>Pericalymma ellipticum</i> var. <i>ellipticum</i>	
<i>Petrophile seminuda</i>	
<i>Petrophile serruriae</i>	
<i>Philotheca spicata</i> (Pepper and Salt)	
<i>Phyllanthus calycinus</i>	
<i>Pimelea ciliata</i> subsp. <i>Ciliata</i>	
<i>Pimelea spectabilis</i> (Bunjong)	
<i>Pimelea suaveolens</i> (Scented Banjine)	
<i>Platysace juncea</i>	
<i>Pterostylis barbata</i>	
<i>Pterostylis recurva</i>	
<i>Pterostylis sanguinea</i>	
<i>Pterostylis vittata</i> (Banded Greenhood)	

Lot 191, Powderbark Rd Lower Chittering



<i>Regelia ciliata</i>	
<i>Scaevola repens</i>	
<i>Schoenus cuneifolius</i>	
<i>Schoenus sp.</i>	
<i>Scholtzia involucrata</i> ( <i>Spiked Scholtzia</i> )	
<i>Sowerbaea latifolia</i>	
<i>Stackhousia monogyna</i>	
<i>Stirlingia latifolia</i> ( <i>Blueboy</i> )	
<i>Stylidium affine</i> ( <i>Queen Triggerplant</i> )	
<i>Stylidium albolilacinum</i>	
<i>Stylidium brunonianum</i> ( <i>Pink Fountain Triggerplant</i> )	
<i>Stylidium calcaratum</i>	
<i>Stylidium cilium</i>	
<i>Stylidium diuroides</i> ( <i>Donkey Triggerplant</i> )	
<i>Stylidium diuroides subsp. Diuroides</i>	
<i>Stylidium hispidum</i> ( <i>White Butterfly Triggerplant</i> )	
<i>Stypantra glauca</i> ( <i>Blind Grass</i> )	
<i>Synaphea sp.</i>	
<i>Tetralochea hirsuta</i> ( <i>Black Eyed Susan</i> )	
<i>Thomasia macrocarpa</i>	
<i>Thysanotus arenarius</i>	
<i>Thysanotus manglesianus</i> ( <i>Fringed Lily</i> )	
<i>Thysanotus sparteus</i>	
<i>Tribonanthes australis</i>	
<i>Tripterococcus brunonis</i>	
<i>Trymalium angustifolium</i>	
<i>Verticordia densiflora var. densiflora</i>	
<i>Verticordia plumosa</i> ( <i>Plumed Featherflower</i> )	
<i>Waitzia suaveolens</i> ( <i>Fragrant Waitzia</i> )	
<i>Xanthorrhoea preissii</i> ( <i>Grass tree, Palga</i> )	

**Item 9.1.1**

Lot 191, Powderbark Rd Lower Chittering

**Fauna**

<b>Genus / Species</b>	<b>Priority</b>
<i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo)	<b>7</b>
<i>Isoodon obesulus</i> (Southern Brown Bandicoot)	<b>5</b>
<i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)	
<i>Acanthorhynchus superciliosus</i> (Western Spinebill)	
<i>Corvus coronoides</i> (Australian Raven)	
<i>Cracticus tibicen</i> (Australian Magpie)	
<i>Cracticus torquatus</i> (Grey Butcherbird)	
<i>Ctenotus</i> sp.	
<i>Geocrinia leai</i> (Ticking Frog)	
<i>Grallina cyanoleuca</i> (Magpie-lark)	
<i>Hirundo neoxena</i> (Welcome Swallow)	
<i>Hirundo nigricans</i> subsp. <i>nigricans</i> (Tree Martin)	
<i>Malurus splendens</i> (Splendid Fairy-wren)	
<i>Pachycephala pectoralis</i> (Golden Whistler)	
<i>Pachycephala rufiventris</i> (Rufous Whistler)	
<i>Petroica goodenovii</i> (Red-capped Robin)	
<i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)	
<i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)	
<i>Tiliqua rugosa</i>	

# NatureMap Species Report

Created By Guest user on 23/12/2015

Current Names Only Yes  
Core Datasets Only Yes  
Method 'By Circle'  
Centre 116°01' 39" E,31°32' 39" S  
Buffer 5km  
Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	208	1102
Priority 1	2	3
Priority 2	3	5
Priority 3	4	11
Priority 4	4	9
Priority 5	1	1
Protected under international agreement	1	13
Rare or likely to become extinct	5	45
<b>TOTAL</b>	<b>228</b>	<b>1189</b>

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
<b>Rare or likely to become extinct</b>				
1.	3219 <i>Acacia anomala</i> (Grass Wattle)		T	
2.	24734 <i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo (short-billed black-cockatoo), Carnaby's Cockatoo)		T	
3.	33559 <i>Grevillea althoferorum</i> subsp. <i>fragilis</i>		T	
4.	19601 <i>Hypocalymma sylvestre</i>		T	
5.	10862 <i>Thelymitra stellata</i> (Star Orchid)		T	
<b>Protected under international agreement</b>				
6.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)		IA	
<b>Priority 1</b>				
7.	8912 <i>Drosera sewelliae</i> (Red Woolly Sundew)		P1	
8.	19775 <i>Hibbertia glomerata</i> subsp. <i>ginginensis</i>		P1	
<b>Priority 2</b>				
9.	1975 <i>Grevillea candolleana</i>		P2	
10.	6384 <i>Leucopogon cymbiformis</i>		P2	
11.	7801 <i>Stylidium squamellosum</i> (Maize Trigger Plant)		P2	
<b>Priority 3</b>				
12.	11229 <i>Acacia drummondii</i> subsp. <i>affinis</i>		P3	
13.	11336 <i>Adenanthos cygnorum</i> subsp. <i>chamaephyton</i>		P3	
14.	19338 <i>Chamaescilla gibsonii</i>		P3	
15.	12460 <i>Verticordia serrata</i> var. <i>linearis</i>		P3	
<b>Priority 4</b>				
16.	17622 <i>Hypolaena robusta</i>		P4	
17.	7803 <i>Stylidium striatum</i> (Fan-leaved Triggerplant)		P4	
18.	16867 <i>Synaphea grandis</i>		P4	
19.	14714 <i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>		P4	
<b>Priority 5</b>				
20.	24153 <i>Isodon obesulus</i> subsp. <i>fusciventer</i> (Quenda, Southern Brown Bandicoot)		P5	
<b>Non-conservation taxon</b>				
21.	15466 <i>Acacia applanata</i>			
22.	3310 <i>Acacia drewiana</i>			
23.	11926 <i>Acacia drewiana</i> subsp. <i>drewiana</i>			
24.	3410 <i>Acacia lateriticola</i>			
25.	15482 <i>Acacia pulchella</i> var. <i>goadbyi</i>			
26.	15483 <i>Acacia pulchella</i> var. <i>pulchella</i>			
27.	15480 <i>Acacia pulchella</i> var. <i>reflexa</i>			
28.	30033 <i>Acacia saligna</i> subsp. <i>lindleyi</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
29.	30032 <i>Acacia saligna</i> subsp. <i>saligna</i>			
30.	3554 <i>Acacia squamata</i>			
31.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
32.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
33.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
34.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
35.	25544 <i>Aegotheles cristatus</i> (Australian Owlet-nightjar)			
36.	6314 <i>Andersonia lehmanniana</i>			
37.	1409 <i>Anigozanthos humilis</i> (Catspaw)			
38.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
39.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
40.	<i>Antichiropus variabilis</i>			
41.	<i>Antichiropus whistleri</i>			
42.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
43.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
44.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
45.	6332 <i>Astroloma microdonta</i> (Sandplain Cranberry)			
46.	6339 <i>Astroloma xerophyllum</i>			
47.	32681 <i>Banksia armata</i> (Prickly Dryandra)			
48.	1835 <i>Banksia micrantha</i>			
49.	12111 <i>Banksia sphaerocarpa</i> var. <i>sphaerocarpa</i> (Fox Banksia)			
50.	<i>Barnardius zonarius</i>			
51.	5382 <i>Beaufortia elegans</i>			
52.	1417 <i>Blancoa canescens</i> (Winter Bell)			
53.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
54.	25713 <i>Cacatua galerita</i> (Sulphur-crested Cockatoo)			
55.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
56.	<i>Cacatua</i> sp.			
57.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
58.	15348 <i>Caladenia flava</i> subsp. <i>flava</i>			
59.	2856 <i>Calandrinia liniflora</i> (Parakeelya)			
60.	<i>Calyptorhynchus</i> sp.			
61.	5458 <i>Calytrix flavescens</i> (Summer Starflower)			
62.	5481 <i>Calytrix sylvana</i>			
63.	5485 <i>Calytrix variabilis</i>			
64.	760 <i>Caustis dioica</i>			
65.	<i>Cercophonius granulosus</i>			
66.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
67.	<i>Cherax preissii</i>			
68.	<i>Cherax quinquecarinatus</i>			
69.	7925 <i>Chondrilla juncea</i> (Skeleton Weed)	Y		
70.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
71.	1864 <i>Conospermum crassinervium</i> (Summer Smokebush)			
72.	1882 <i>Conospermum stoechadis</i> (Common Smokebush)			
73.	1885 <i>Conospermum triplinervium</i> (Tree Smokebush)			
74.	6347 <i>Conostephium minus</i> (Pink-tipped Pearl flower)			
75.	1423 <i>Conostylis aurea</i> (Golden Conostylis)			
76.	1427 <i>Conostylis candicans</i> (Grey Cottonhead)			
77.	12035 <i>Conostylis caricina</i> subsp. <i>caricina</i>			
78.	1436 <i>Conostylis juncea</i>			
79.	1454 <i>Conostylis setigera</i> (Bristly Cottonhead)			
80.	11597 <i>Conostylis setigera</i> subsp. <i>setigera</i>			
81.	11870 <i>Conostylis teretifolia</i> subsp. <i>teretifolia</i>			
82.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
83.	24416 <i>Corvus bennetti</i> (Little Crow)			
84.	25592 <i>Corvus coronoides</i> (Australian Raven)			
85.	<i>Corvus</i> sp.			
86.	17104 <i>Corymbia calophylla</i> (Marri)			
87.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
88.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
89.	6747 <i>Cyanostegia angustifolia</i> (Tinsel-flower)			
90.	768 <i>Cyathochaeta avenacea</i>			
91.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
92.	25673 <i>Daphoenositta chrysoptera</i> (Varied Sittella)			
93.	5519 <i>Darwinia oederoides</i>			
94.	3793 <i>Daviesia angulata</i>			
95.	3805 <i>Daviesia decurrens</i> (Prickly Bitter-pea)			
96.	11879 <i>Daviesia hakeoides</i> subsp. <i>hakeoides</i>			
97.	15505 <i>Daviesia incrassata</i> subsp. <i>incrassata</i>			
98.	3832 <i>Daviesia physodes</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
99.	17691 <i>Desmocladius fasciculatus</i>			
100.	25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird)			
101.	1635 <i>Diuris longifolia</i> (Common Donkey Orchid)			
102.	<i>Diuris</i> sp.			
103.	15453 <i>Drosera gigantea</i> subsp. <i>gigantea</i>			
104.	19254 <i>Drosera zigzagia</i>			
105.	<i>Egretta novaehollandiae</i>			
106.	<i>Elanus axillaris</i>			
107.	<i>Eolophus roseicapillus</i>			
108.	5541 <i>Eremaea pauciflora</i>			
109.	5545 <i>Eucalyptus accedens</i> (Powderbark Wandoo)			
110.	5790 <i>Eucalyptus todtiana</i> (Coastal Blackbutt)			
111.	4648 <i>Euphorbia terracina</i> (Geraldton Carnation Weed)	Y		
112.	25621 <i>Falco berigora</i> (Brown Falcon)			
113.	25622 <i>Falco cenchroides</i> (Australian Kestrel)			
114.	<i>Fossombronina</i> sp.			
115.	5209 <i>Frankenia pauciflora</i> (Seaheath)			
116.	34028 <i>Galaxias occidentalis</i> (Western Minnow)			
117.	3936 <i>Genista linifolia</i> (Flaxleaf Broom)	Y		
118.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
119.	24735 <i>Glossopsitta porphyrocephala</i> (Purple-crowned Lorikeet)			
120.	6149 <i>Gonocarpus cordiger</i>			
121.	6161 <i>Gonocarpus pithyoides</i>			
122.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
123.	14106 <i>Grevillea althoferorum</i>			
124.	2066 <i>Grevillea pilulifera</i> (Woolly-flowered Grevillea)			
125.	14421 <i>Grevillea synapheae</i> subsp. <i>synapheae</i>			
126.	1470 <i>Haemodorum paniculatum</i> (Mardja)			
127.	1472 <i>Haemodorum simplex</i>			
128.	1474 <i>Haemodorum sparsiflorum</i>			
129.	2158 <i>Hakea erinacea</i> (Hedge-hog Hakea)			
130.	2197 <i>Hakea prostrata</i> (Harsh Hakea)			
131.	6842 <i>Hemigenia barbata</i>			
132.	5114 <i>Hibbertia commutata</i>			
133.	5134 <i>Hibbertia huegelii</i>			
134.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			
135.	5139 <i>Hibbertia lasiopus</i> (Large Hibbertia)			
136.	5153 <i>Hibbertia pachyrrhiza</i>			
137.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
138.	24492 <i>Hirundo nigricans</i> subsp. <i>nigricans</i> (Tree Martin)			
139.	3968 <i>Hovea trisperma</i> (Common Hovea)			
140.	2221 <i>Isopogon asper</i>			
141.	4010 <i>Jacksonia floribunda</i> (Holly Pea)			
142.	19632 <i>Johnsonia pubescens</i> subsp. <i>pubescens</i>			
143.	2249 <i>Lambertia multiflora</i> (Many-flowered Honeysuckle)			
144.	14083 <i>Lambertia multiflora</i> var. <i>darlingensis</i>			
145.	5036 <i>Lasiopetalum lineare</i>			
146.	<i>Lechenaultia</i> sp.			
147.	947 <i>Lepidosperma tenue</i>			
148.	951 <i>Lepidosperma viscidum</i> (Sticky Sword Sedge)			
149.	<i>Lethocolea pansa</i>			
150.	6374 <i>Leucopogon conostephioides</i>			
151.	6397 <i>Leucopogon glaucifolius</i>			
152.	6425 <i>Leucopogon oxycedrus</i>			
153.	<i>Leucopogon</i> sp.			
154.	28311 <i>Leucopogon</i> sp. Great Southern (R.S. Cowan A 586)			
155.	6444 <i>Leucopogon sprengeioides</i>			
156.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
157.	<i>Lophoictinia isura</i>			
158.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
159.	24583 <i>Manorina flavigula</i> (Yellow-throated Miner)			
160.	5893 <i>Melaleuca concreta</i>			
161.	5926 <i>Melaleuca lateritia</i> (Robin Redbreast Bush)			
162.	20297 <i>Melaleuca osullivanii</i>			
163.	25663 <i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
164.	2415 <i>Muehlenbeckia polybotrya</i>			
165.	<i>Nannoperca vittata</i>			
166.	25748 <i>Ninox novaeseelandiae</i> (Boobook Owl)			
167.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
168.	25679 <i>Pachycephala pectoralis</i> (Golden Whistler)			



Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
169.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
170.	20101 <i>Paragonis grandiflora</i>			
171.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
172.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
173.	16477 <i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			
174.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
175.	2308 <i>Petrophile seminuda</i>			
176.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
177.	18529 <i>Philothea spicata</i> (Pepper and Salt)			
178.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
179.	<i>Phytophthora cinnamomi</i>			
180.	11402 <i>Pimelea imbricata</i> var. <i>piligera</i>			
181.	5266 <i>Pimelea suaveolens</i> (Scented Banjine)			
182.	12041 <i>Pimelea suaveolens</i> subsp. <i>suaveolens</i>			
183.	25720 <i>Platycercus icterotis</i> (Western Rosella)			
184.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
185.	1669 <i>Prasophyllum cyphochilum</i> (Pouched Leek Orchid)			
186.	<i>Purpureicephalus spurius</i>			
187.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
188.	6033 <i>Scholtzia involucreta</i> (Spiked Scholtzia)			
189.	6037 <i>Scholtzia parviflora</i>			
190.	6 <i>Selaginella gracillima</i> (Tiny Clubmoss)			
191.	30948 <i>Smicronis brevirostris</i> (Weebill)			
192.	2316 <i>Stirlingia latifolia</i> (Blueboy)			
193.	<i>Strepera</i> ( <i>Neostrepera</i> ) <i>versicolor</i>			
194.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
195.	7681 <i>Stylidium affine</i> (Queen Triggerplant)			
196.	12846 <i>Stylidium albolilacinum</i>			
197.	25831 <i>Stylidium araeophyllum</i> (Stilt Walker)			
198.	19249 <i>Stylidium cilium</i>			
199.	7710 <i>Stylidium cygnorum</i>			
200.	7716 <i>Stylidium diuroides</i> (Donkey Triggerplant)			
201.	11808 <i>Stylidium diuroides</i> subsp. <i>diuroides</i>			
202.	19251 <i>Stylidium eriopodum</i>			
203.	18420 <i>Stylidium flagellum</i>			
204.	7736 <i>Stylidium hispidum</i> (White Butterfly Triggerplant)			
205.	25829 <i>Stylidium neurophyllum</i> (Coastal Plain Triggerplant)			
206.	7768 <i>Stylidium obtusatum</i> (Pinafore Triggerplant)			
207.	7773 <i>Stylidium petiolare</i> (Horn Triggerplant)			
208.	45594 <i>Stylidium tenue</i> subsp. <i>majusculum</i> (Showy Fountain Triggerplant)			
209.	6476 <i>Styphelia tenuiflora</i> (Common Pinheath)			
210.	<i>Synaphea</i> sp.			
211.	15532 <i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>			
212.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
213.	33020 <i>Tamarix parviflora</i>	Y		
214.	24844 <i>Threskiornis molucca</i> (Australian White Ibis)			
215.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
216.	1319 <i>Thysanotus arenarius</i>			
217.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
218.	1481 <i>Tribonanthes australis</i>			
219.	148 <i>Triglochin muelleri</i>			
220.	4737 <i>Tripterococcus brunonis</i> (Winged Stackhousia)			
221.	24983 <i>Underwoodisaurus milii</i> (Barking Gecko)			
222.	7666 <i>Verreauxia reinwardtii</i> (Common Verreauxia)			
223.	12388 <i>Verticordia acerosa</i> var. <i>preissii</i>			
224.	15432 <i>Verticordia densiflora</i> var. <i>densiflora</i>			
225.	15434 <i>Verticordia insignis</i> subsp. <i>insignis</i>			
226.	17042 <i>Vitis vinifera</i>	Y		
227.	6285 <i>Xanthosia ciliata</i>			
228.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

**Conservation Codes**

- T - Rare or likely to become extinct
- X - Presumed extinct
- IA - Protected under international agreement
- S - Other specially protected fauna
- 1 - Priority 1
- 2 - Priority 2
- 3 - Priority 3
- 4 - Priority 4
- 5 - Priority 5

<sup>1</sup> For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.



## Appendix C

**Table 3: Referral guidelines**

High risk of significant impacts: referral recommended
<ul style="list-style-type: none"> <li>• Clearing of any known nesting tree (see glossary).</li> <li>• Clearing or degradation of any part of a vegetation community known to contain breeding habitat (see Section 3).</li> <li>• Clearing of more than 1 ha of quality<sup>6</sup> foraging habitat<sup>7</sup> (see Table 1).</li> <li>• Clearing or degradation (including pruning the top canopy) of a known night roosting site (see glossary).</li> <li>• Creating a gap of greater than 4 km between patches of black cockatoo habitat (breeding, foraging or roosting).</li> </ul>
Uncertainty: referral recommended or contact the department
<ul style="list-style-type: none"> <li>• Degradation (such as through altered hydrology or <b>fir regimes</b>) of more than 1 ha of foraging habitat<sup>7</sup>. Significance will depend on the level and extent of degradation and the quality of the habitat.</li> <li>• Clearing or disturbance in areas surrounding black cockatoo breeding, foraging or night roosting habitat that has the potential to degrade habitat through introduction of invasive species, edge effects, hydrological changes, increased human visitation or fire.</li> <li>• Actions that do not directly affect the listed species but that have the potential for indirect impacts such as increasing competitors for nest hollows.</li> <li>• Actions with the potential to introduce known plant diseases such as <i>Phytophthora</i> spp. to an area where the pathogen was not previously known.</li> </ul>
Low risk of significant impacts: referral may not be required
<ul style="list-style-type: none"> <li>• Actions that do not affect black cockatoo habitat or individuals.</li> <li>• Actions whose impacts occur outside the modelled distribution of the three black cockatoos.</li> </ul>

6. Quality should be assessed as it pertains specifically to black cockatoo use of the habitat. For example, the condition of the understorey is a standard component of most ecological habitat quality surveys but is of limited relevance to considerations for some black cockatoos, particularly in relation to breeding habitat which may consist of mature woodland canopy with little or no understorey.
7. Maintaining the availability of foraging habitat is especially important in the breeding range, as sufficient foraging habitat within a 6–12 km radius of breeding sites is necessary to successfully raise chicks. Maintaining foraging habitat is also particularly important in the Perth metropolitan area, due to the role of these feeding areas in the survival of young birds and the maintenance of the population between breeding seasons, coupled with the lack of habitat remaining in this region and its connectivity values.



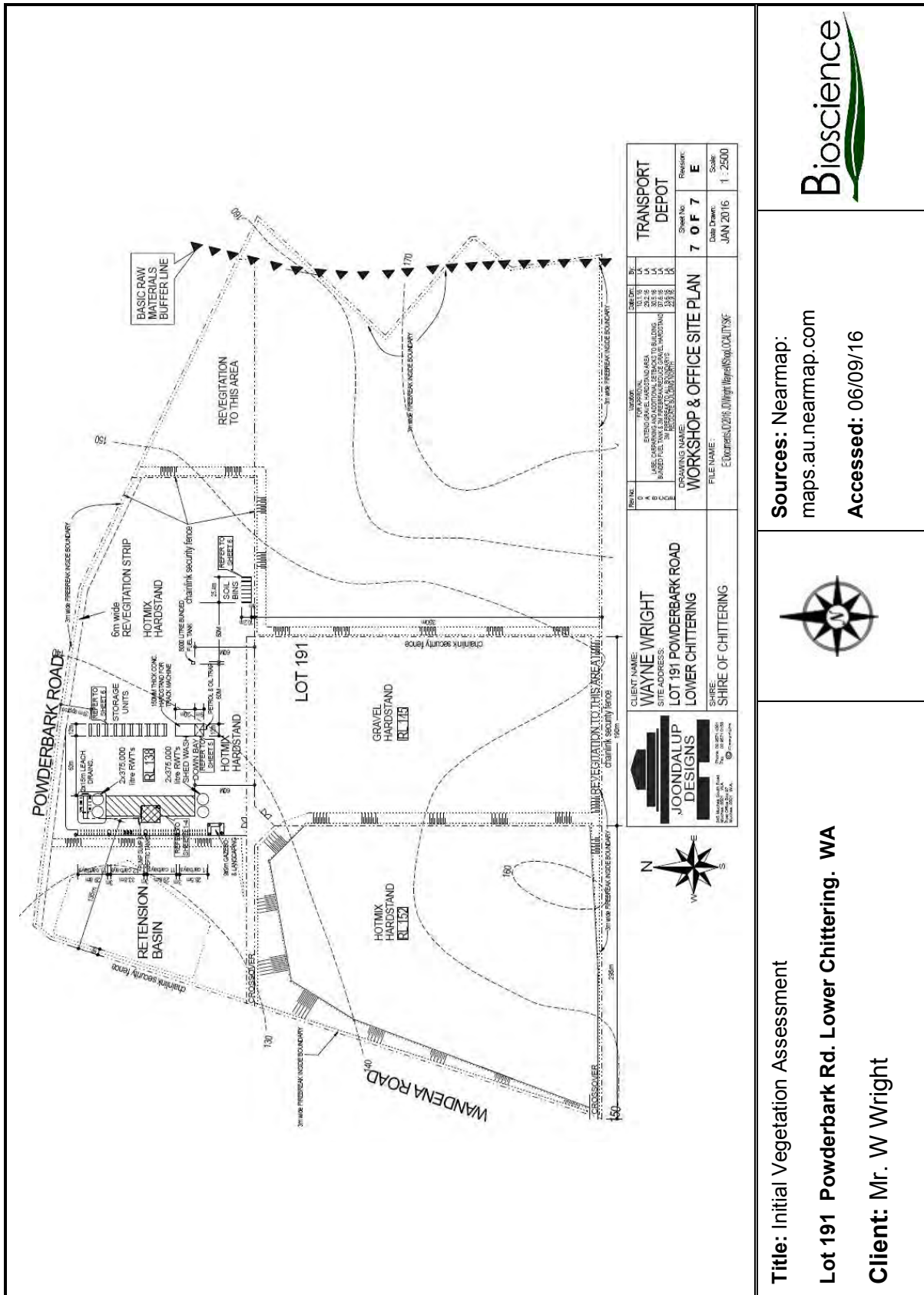
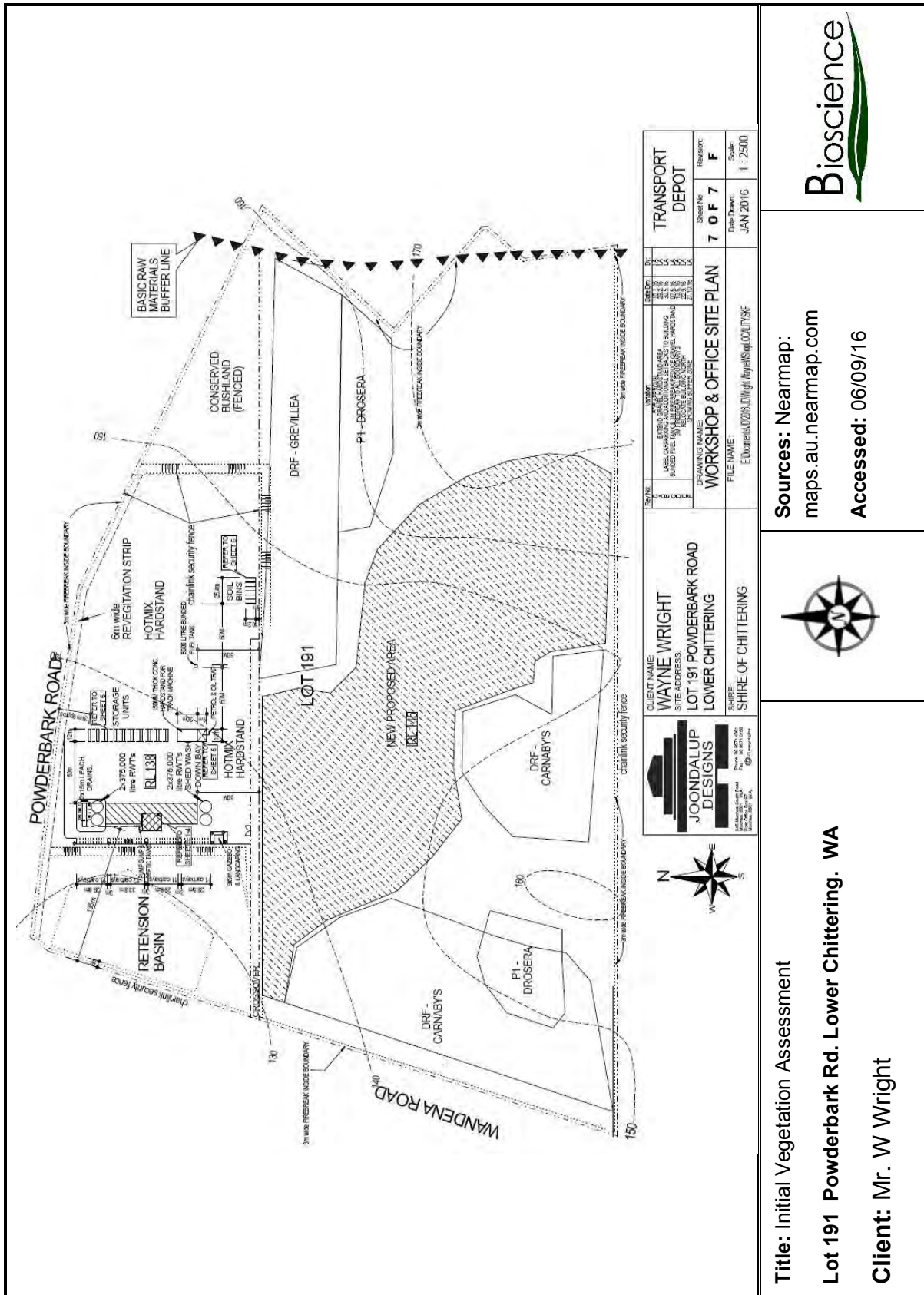


Figure B. Modified Plan -September 2016

Lot 191, Powderbark Rd Lower Chittering



**Title:** Initial Vegetation Assessment  
**Lot 191 Powderbark Rd. Lower Chittering. WA**  
**Client:** Mr. W Wright



**Sources:** Nearmap:  
[maps.au.nearmap.com](http://maps.au.nearmap.com)  
**Accessed:** 06/09/16



Figure C. Modified Plan October 28<sup>th</sup> 2016

# BUSHFIRE MANAGEMENT PLAN

Development Application

Lot 191 Powderbark Road,  
Lower Chittering

Shire of Chittering

*Blue Oar Pty Ltd  
Consulting*

*[blue.oar@bigpond.com](mailto:blue.oar@bigpond.com)*

## Bushfire Management Plan Preparation Detail

### *Bushfire Practitioner Details:*

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*Author Statement:* This Bushfire Management Plan has been prepared in accordance with the requirements of the *State Planning Policy No.3.7: Planning in Bushfire Prone Areas* and the Western Australian Planning Commission (WAPC) *Guidelines for Planning in Bushfire Prone Areas (Version 1.1 February 2017)*. *Bushfire Attack Level assessment and calculations prepared using the Simplified Procedure (Method 1) as detailed in Section 2 of AS 3959 – 2009 (Incorporating Amendment No's 1, 2 and 3)*. Subsequent versions of these documents, bushfire management research, additional bushfire management standards or changes to the development design, may require amendments, updates or a review of the bushfire management plan.

*Bushfire Consultant: G. Dunstan Signed:*



*Date: 21/03/2017*

## Document Control

Version	Comment	Prepared by	Prepared for	Date
May 2016	BMP - (V1)	Blue Oar Pty Ltd	WC & SJ Wright Superfund Pty Ltd	09.05.2016
March 2017	BMP - (V2)	Blue Oar Pty Ltd	WC & SJ Wright Superfund Pty Ltd	20.03.2017
March 2017	BMP - Final	Blue Oar Pty Ltd	WC & SJ Wright Superfund Pty Ltd	21.03.2017

*Disclaimer:* The measures or recommendations contained in this document are considered to be minimum standards and they do not guarantee that a building or assets will not be damaged in a bushfire. All surveys, forecasts, projections and recommendations made in this document associated with the project are made in good faith on the basis of information available to the author at the time; and achievement of the level of implementation of bushfire precautions will depend among other things on the actions of the landowners/proponents or occupiers over which the author has no control. This document is distributed on the understanding that the author is not responsible for the results of any actions taken on the basis of the information contained within this document or for any error in or omission from this document. In the making of these comments and recommendations in this bushfire management plan it should be understood that the focus of this document is to look into minimising the threat and impact of a bushfire in a known bushfire prone area to people residing or staying within the District. It must be concluded that bushfires will occur within the District. If there is not an immediate response with sufficient resources, fuel loading and weather conditions prevailing at the time may encourage high intensity fire to develop posing a risk to life and property. Any person living or staying within a bushfire prone area must take this into account. Copyright and all other intellectual property arising from the bushfire management assessment belong exclusively to Blue Oar Pty Ltd unless otherwise agreed.

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## 1.0 Executive summary

Annually, bushfires present a significant risk to people, property and the environment throughout the State, with subsequent associated financial and emotional impact. Reducing the likelihood and consequence of bushfire is essential to maintaining safer and resilient communities. This Bushfire Management Plan (BMP) has been developed utilising current bushfire planning guidelines, to outline the necessary bushfire protection measures to be implemented to reduce the vulnerability to persons, property and the environment, from a bushfire originating on or near the site. It should be noted that State and Local Government policies and guidelines in relation to bushfire management are regularly reviewed and therefore subject to change. Such changes, or where the development design or site conditions are altered, may result in the need to update this bushfire management plan.

The site bushfire risk as assessed is considered to be manageable, with a further reduction of the risk associated with bushfires through implementing the required bushfire management standards, addressing the relevant compliance elements of the bushfire protection criteria and achieving building construction standards, as determined by *AS 3959 – 2009 Construction of Buildings in Bushfire prone areas*, aligned with the appropriate separation from classified bushfire hazards.

The indicative assessment of the Bushfire Attack Level (BAL) rating for the development site (determined in accordance with 'Method 1' as per *AS 3959 – 2009*) indicates that new buildings within 100m of unmanaged bushland are able to achieve a BAL – 29 or lower, influenced by final building location, the building orientation and implementation of a low threat vegetation Asset Protection Zone (APZ).

The bushfire construction requirements of the Building Code of Australia only apply to certain types of residential buildings (being Class 1, 2 or 3 buildings and/or Class 10a buildings or decks associated with a Class 1, 2 or 3 building) in designated bushfire prone areas. Subsequently, AS 3959 does not apply to all buildings. The bushfire construction provisions of the BCA do not apply to Class 4 to Class 9 buildings. Utilising any or all of the elements of AS 3959 in the construction of these Classes of building/s may be at the discretion of the applicant as deemed appropriate for the level of bushfire risk associated with the site. A site specific bushfire attack level assessment and BAL Compliance Certificate in accordance with AS 3959 – 2009 for applicable buildings, may be required to be undertaken by a suitably experienced Fire Consultant, at building application stage, to confirm the BAL based on the actual distance from the proposed building or structure to vegetation classified. (s3.0 & s4.0)

The proposed development location is within land in which State Planning Policy No. 3.7 (SPP 3.7) applies and has been designated as being bushfire prone by the Fire and Emergency Services Commissioner.

In accordance with SPP 3.7 the development application therefore requires an assessment against the Guidelines for Planning in Bushfire Prone Areas (Version 1.1 February 2017) the 'Guidelines'. (s5.0)

The proposed development has been assessed against the acceptable solutions for bushfire protection criteria in relation to the four key elements; location, siting and design of development, vehicular access and water supply. It has been determined that the 'Proposal' can meet the Bushfire Protection Criteria. (s6.0)

The implementation of a physical separation between the extreme bushfire hazards for this development, by implementing asset protection zones, will assist in reducing fire intensity if a bushfire impacts on buildings within the site. Asset protection zones require the modification of existing vegetation on site and subsequently will incorporate low threat vegetation, cleared hardstand areas and landscaping, maintained to specified standards. The primary factor will be increased building construction standards for new Class 1, 2 or 3 buildings or Class 10a buildings or decks associated with Class 1, 2 or 3 buildings, that are within 100m of classified bushland, dependent upon the final building location. (s8.0, s10.0)

Access to the site is via the existing Wandena Road and Powderbark Road, connecting with Great Northern Highway to the north and Muchea East Road to the south, enabling two different vehicular access and egress routes to two differing destinations which are available to both public and emergency service vehicles at all times and under all weather conditions. The proposed development will provide on-site static water supply of sufficient capacity and located for efficient access and turn-around area for fire-fighting appliances and fire-fighting operations. (s8.0, s10.0)

The implementation of this bushfire management plan and subsequent identification of responsibilities of stakeholders for the ongoing bushfire mitigation measures, will ensure a bushfire compliant development and improved safety to adjoining properties and residents in the immediate area. (s9.0)

*\*(s) denotes section within this bushfire management plan*

2.0 Development proposal detail

The subject land comprises Lot 191 Powderbark Road, Lower Chittering. The property of 39.5185ha in area, is proposed to be developed for use as a 'Transport Depot'. (Figure 2.1)

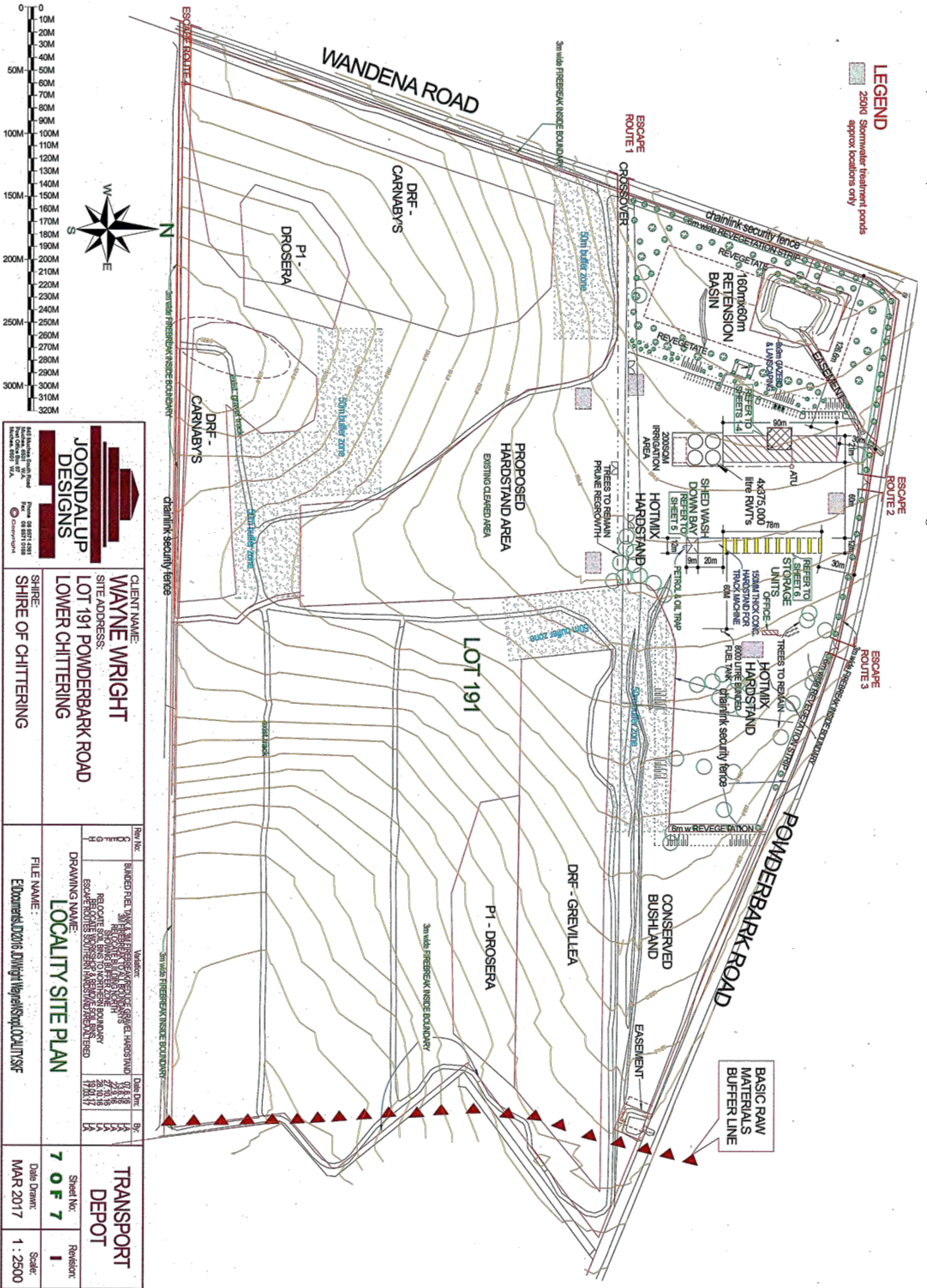
The site is zoned 'Agricultural Resource' under the Shire of Chittering Town Planning Scheme No.6.

Table 2.1 - Development detail

Site details	Lot 191 Powderbark Road
Location	Lower Chittering
Local Government	Shire of Chittering
TPS6 Zoning	Agricultural Resource
Lot area	39.5185ha
Development type	Transport Depot

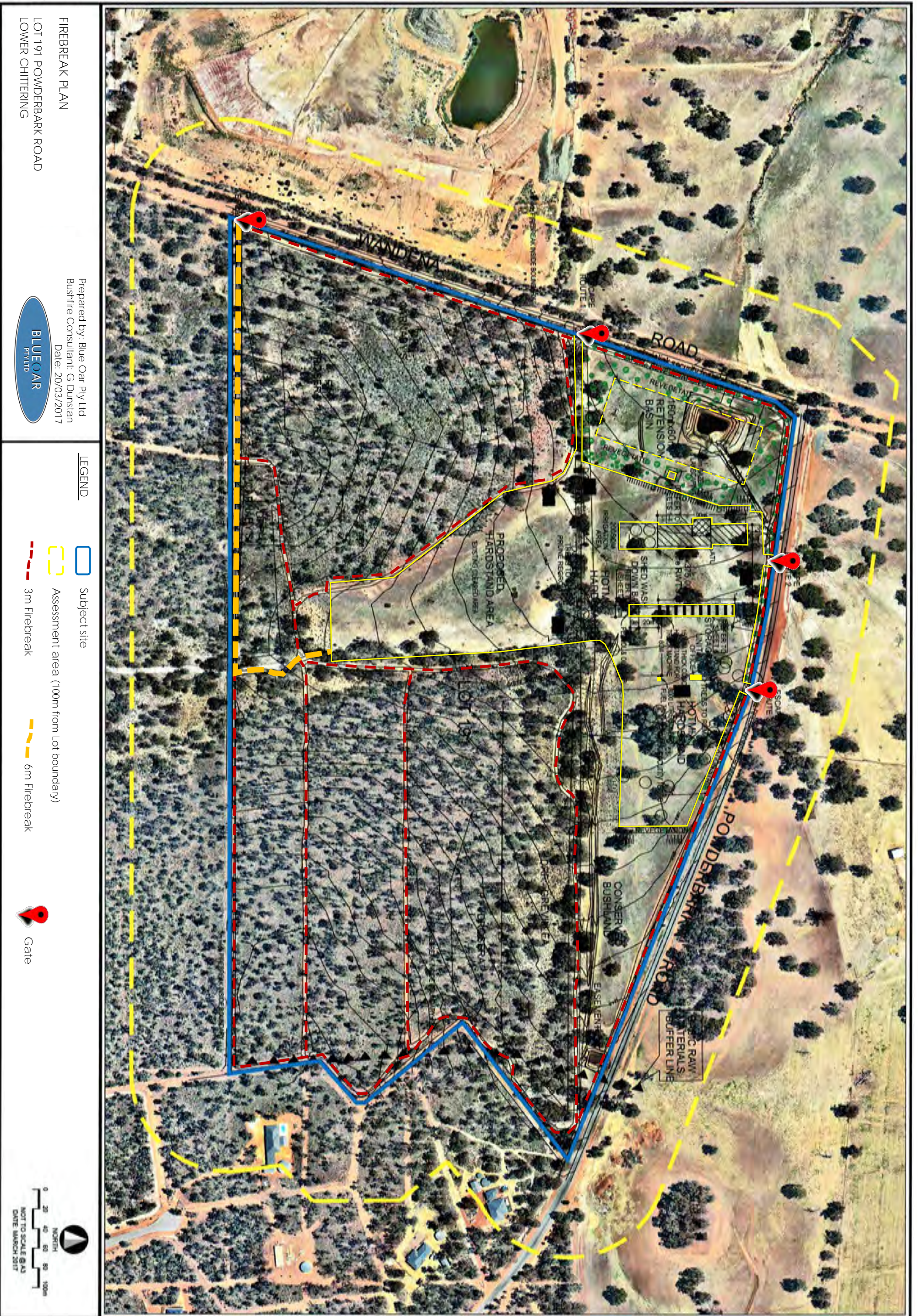
Proposed Lots	N/A	N/A	N/A
Lot areas	N/A	N/A	N/A

Figure 2.1 Proposed development – Lot 191 Powderbark Road, Lower Chittering



		<b>CLIENT NAME:</b> WAYNE WRIGHT <b>SITE ADDRESS:</b> LOT 191 POWDERBARK ROAD LOWER CHITTERING SHIRE OF CHITTERING	
<b>FILE NAME:</b> E:\Documents\102016 JW Wright\Wayne Wright\LOCALITY SKP		<b>DRAWING NAME:</b> LOCALITY SITE PLAN	
<b>Rev No.:</b> C B E F G H	<b>Validation:</b> BUNDED FUEL TANK & 3M FIREBREAK INSIDE BOUNDARY 3M FIREBREAK TO ALL BOUNDARIES RELOCATE BUILDINGS NORTH SHOWING BUFFER ZONE RELOCATE SOIL BINS TO NORTHERN BOUNDARY RELOCATE SOIL BINS TO SOUTHERN BOUNDARY ESCAPE ROUTES SOUTHERN HARDSTAND/ WASHDOWN	<b>Date Dwn.:</b> 07.6.16 13.6.16 27.10.16 28.10.16 19.03.17	<b>By:</b> LA LA LA LA LA
<b>TRANSPO</b> <b>RT</b> <b>DEPOT</b>		<b>Sheet No.:</b> 7 OF 7	<b>Revison:</b> 1
<b>Date Drawn:</b> MAR 2017		<b>Scale:</b> 1 : 2500	

Figure 2.2 Firebreak location plan



### 3.0 Consideration of bushfire threat

The subject site, Lot 191 Powderbark Road, Lower Chittering, property was inspected 09/05/2016 as part of the preliminary bushfire management planning for the proposal. The vegetation assessment includes all existing vegetation on and within a 100 metre external zone taken from the external perimeter of the development site.

#### 3.1 Site details

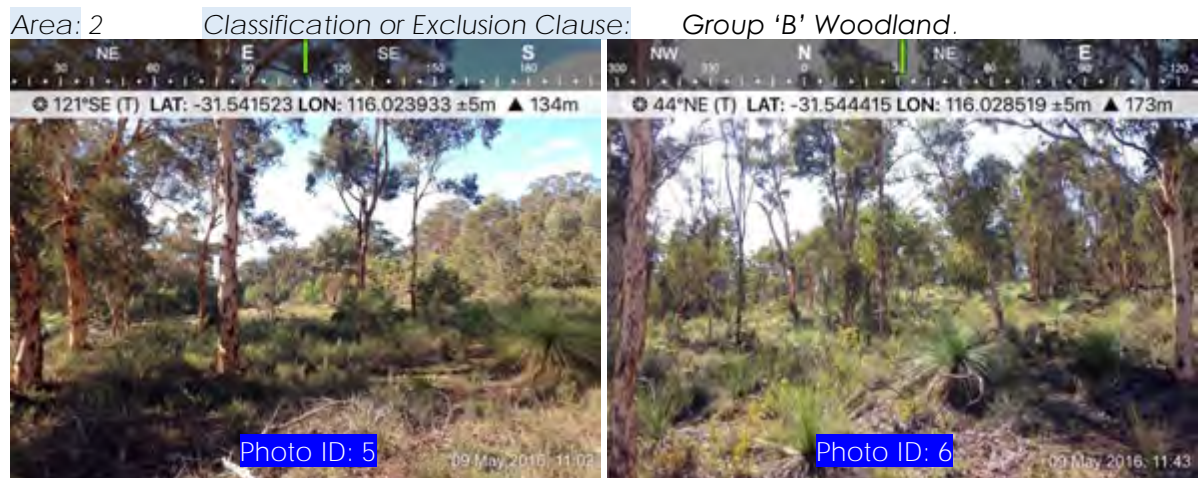
The site is within a rural area of Lower Chittering, located east of Wandena Road and south of Powderbark Road. Unmanaged vegetation on and within 100m of the development site is deemed to be 'available bushfire fuels' and requires to be assessed and classified in accordance with AS 3959 – 2009 Construction of buildings in bushfire-prone areas, to identify vegetation types. The bushfire attack level assessment takes into account existing conditions including:

- Topography - particularly ground slopes under classified vegetation;
- Vegetation cover - remnant and likely regrowth vegetation; and
- Relationship to surrounding development.

Vegetation on and in proximity to the site comprises native species, including Marri and Wandoo, with an understorey of Grass Trees, Parrot Bush, low shrubs and pasture/grasses. The vegetation type for this location is 'Group B – Woodland' and 'Group G – Grassland' classified in accordance with Clause 2.2.3 of AS 3959 - 2009, due to the structure of the vegetation and understorey configuration. The minimum setback distance required from classified vegetation that is 'Group B' and proposed buildings under the BAL - 'Low' construction standards is 100 metres and 50 metres from 'Group G'. Where this separation is not achievable the construction standard of new Class 1, 2 or 3 buildings and/or Class 10a buildings or decks associated with a Class 1, 2 or 3 buildings must be increased.

The future onsite modification to vegetation for this development proposal has been considered and is projected to be maintained as 'low threat' within the hardstand areas and identified asset protection zone. The ongoing management of vegetation within the transport depot retention basin area and landscaping will be required to meet asset protection zone standards to achieve a maximum building construction rating of BAL – 29. Asset protection zones will therefore be required to meet low threat vegetation exclusion classification as detailed in AS 3959 - 2009 Section 2.2.3.2, Exclusions. The ongoing management of remaining vegetation within the Lot and re-vegetation screening strips, will be required to also meet the Shire of Chittering Firebreak and Fuel Load Notice requirements. The areas of 'classified vegetation', post development 'low threat' vegetation or 'managed vegetation' on and within 100 metres of the site are identified in Figure 3.1, Bushfire Hazard Level Map and Vegetation Classification.

Each distinguishable vegetation type with the potential to determine the bushfire attack level is identified in the following site photographs.



Area: 3 Classification or Exclusion Clause: Group 'B' Woodland.



Area: 4 Classification or Exclusion Clause: Group 'B' Woodland.



Area: 4 Classification or Exclusion Clause: Group 'B' Woodland.





Area: 5 Classification or Exclusion Clause: Group 'G' Grassland.



Area: 6 Classification or Exclusion Clause: Group 'G' Grassland.



Table 3.1 - Determination of predominant vegetation class on and within 100m of the site – Relevant to the building site area. (Refer also to Figure 3.1)

Area No.	Vegetation type (AS 3959 Section 2.2.3.1) or Exclusion Clause (AS 3959 Section 2.2.3.2)	Effective slope under the classified vegetation type(s)
1	<b>Group 'G' Grassland</b>	Downslope (3.43°)
2	<b>Group 'B' Woodland</b>	Upslope (0°)
3	<b>Group 'B' Woodland</b>	Downslope (2.29°)
4	<b>Group 'B' Woodland</b>	Upslope (0°)
5	<b>Group 'G' Grassland</b>	Upslope (0°)
6	<b>Group 'G' Grassland</b>	Downslope (2.29°)

Figure 3.1 Bushfire hazard level map & Vegetation classification – Pre-development



## 4.0 Bushfire Attack Level (BAL) contour map

The indicative BAL Contour Map is used for risk assessment at the development stage. The BAL Contour Map illustrates the potential radiant heat impacts and the corresponding indicative BAL ratings for the site in relation to all vegetation that is required to be classified in accordance with AS 3959 – 2009 criteria. Landowners/Proponents should engage a Bushfire Planning Practitioner to complete a compliance certificate, or report, for the BAL Contour Map that relates to the approved development, post development works, to ensure the BAL Contour Map prepared prior to the approval of the development, is still consistent with the site conditions at that time. (Figures 4.1 & 4.2)

### 4.1 Bushfire attack level calculation

The bushfire construction requirements of the Building Code of Australia apply to residential buildings (Class 1, 2 or 3 buildings and/or Class 10a buildings or decks associated with a Class 1, 2 or 3 building). The implementation of increased building construction standards will enable future new buildings on this site to meet the requirements of AS 3959 – 2009 Construction of buildings in bushfire-prone areas. Failure to implement and maintain bushfire prevention measures on the site, vegetation modification by unplanned/unmanaged re-vegetation on the Lot, changes to vegetation type, vegetation structure and fuel loadings or removal of vegetation, after the date of this indicative BAL Contour Map assessment, may increase the bushfire threat to the future buildings or other infrastructure and subsequently alter the BAL rating.

The assessment area of the BAL Contour Map extends 100 metres from the Lot boundary. The determine the bushfire attack level (BAL) for the proposed development site has been calculated using 'Method 1' as detailed within the Australian Standard, AS 3959 – 2009.

The Australian Standard 'Construction of buildings in bushfire prone areas' has six categories of Bushfire Attack Level (BAL), these are: BAL-FZ (Flame Zone), BAL- 40, BAL-29, BAL-19, BAL-12.5 and BAL- LOW. The categories are based on heat flux exposure thresholds of kW/m<sup>2</sup>. The appropriate BAL and corresponding construction sections in AS 3959 – 2009 'Construction of buildings in bushfire prone areas' are outlined for new buildings. (Table 4.1)

The BAL rating is calculated based on both the effective slope under the classified vegetation and the relationship of the site to the vegetation (upslope, flat or downslope). The 'effective slope' refers to the slope under the classified vegetation and the distance from classified vegetation is measured in the horizontal plane. The fire danger index for this site has been determined in accordance with AS 3959 – 2009 Table 2.1 for WA.

To determine the indicative bushfire attack level (BAL) for the proposed development site, the following process and procedure is required under AS 3959-2009 (Method 1):

- Fire Danger Index for Western Australia - FDI 80;
- Vegetation Classification 'Predominant Hazard' for the site determined;
- Exclusions apply where vegetation is greater than 100m away, vegetation area is less than 1ha, multiple clumps of vegetation combined are less than 0.25ha, vegetation strips less than 20m wide and not within 20m of the site or each other or other areas of vegetation being classified, non-vegetated areas and low threat vegetation e.g. managed grassland/pasture maintained lawns, parklands, nature strips, windbreaks, maintained public reserves;
- Where the 100m separation is not achievable, the distance of the site from the classified vegetation is determined;
- The effective slope under the vegetation is determined (must not exceed 20 degrees downslope for Method 1 assessment);
- The relationship of the site to the vegetation is determined as upslope, flat or downslope;
- Bushfire Attack Level is determined; and
- Determine the appropriate construction requirements of buildings in accordance with AS 3959 – 2009.

An indicative bushfire attack level assessment was undertaken for the development proposal to demonstrate that achievable setbacks, (post development works and maintenance of existing or re-planted vegetation within the proposed transport depot site), from classified vegetation would result in a compliant development. A 'Low Threat' vegetation zone (APZ) to the required setback distances has been factored for this proposal to achieve BAL – 29 or lower for future proposed buildings.

Table 4.1 - Bushfire Attack Level (BAL) Descriptions

Bushfire Attack Level (BAL)	Description of risk and levels of exposure	Construction Standard as required in AS 3959
BAL – LOW	<i>There is insufficient risk to warrant specific construction requirements but there is still some risk.</i>	Section 4.  (DFES recommend that ember attack protection features be incorporated in the design where practicable).
BAL – 12.5	<i>Risk of radiant heat is considered low. Primarily risk of ember attack.</i>	Sections 3 & 5.
BAL – 19	<i>Risk is considered moderate. Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux between 12.5 and 19kW m<sup>2</sup>.</i>	Sections 3 & 6.
BAL – 29	<i>Risk is considered high. Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux between 19 and 29 kW m<sup>2</sup>.</i>	Sections 3 & 7.
BAL – 40	<i>Risk is considered very high. Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux with the increased likelihood of direct exposure to flames. The construction elements are expected to be exposed to a heat flux not greater than 40kW m<sup>2</sup>.</i>	Sections 3 & 8.
BAL – FZ	<i>Risk is considered extreme. Direct exposure to flames from fire front in addition to heat flux and ember attack. The construction elements are expected to be exposed to a heat flux greater than 40kW m<sup>2</sup>.</i>	Sections 3 & 9.

BAL construction levels in context



Source: Guidelines for Planning in Bushfire Prone Areas V1.1 2017

Figure 4.1 Bushfire Attack Level (BAL) Contour Map – Indicative BAL Ratings Development Area

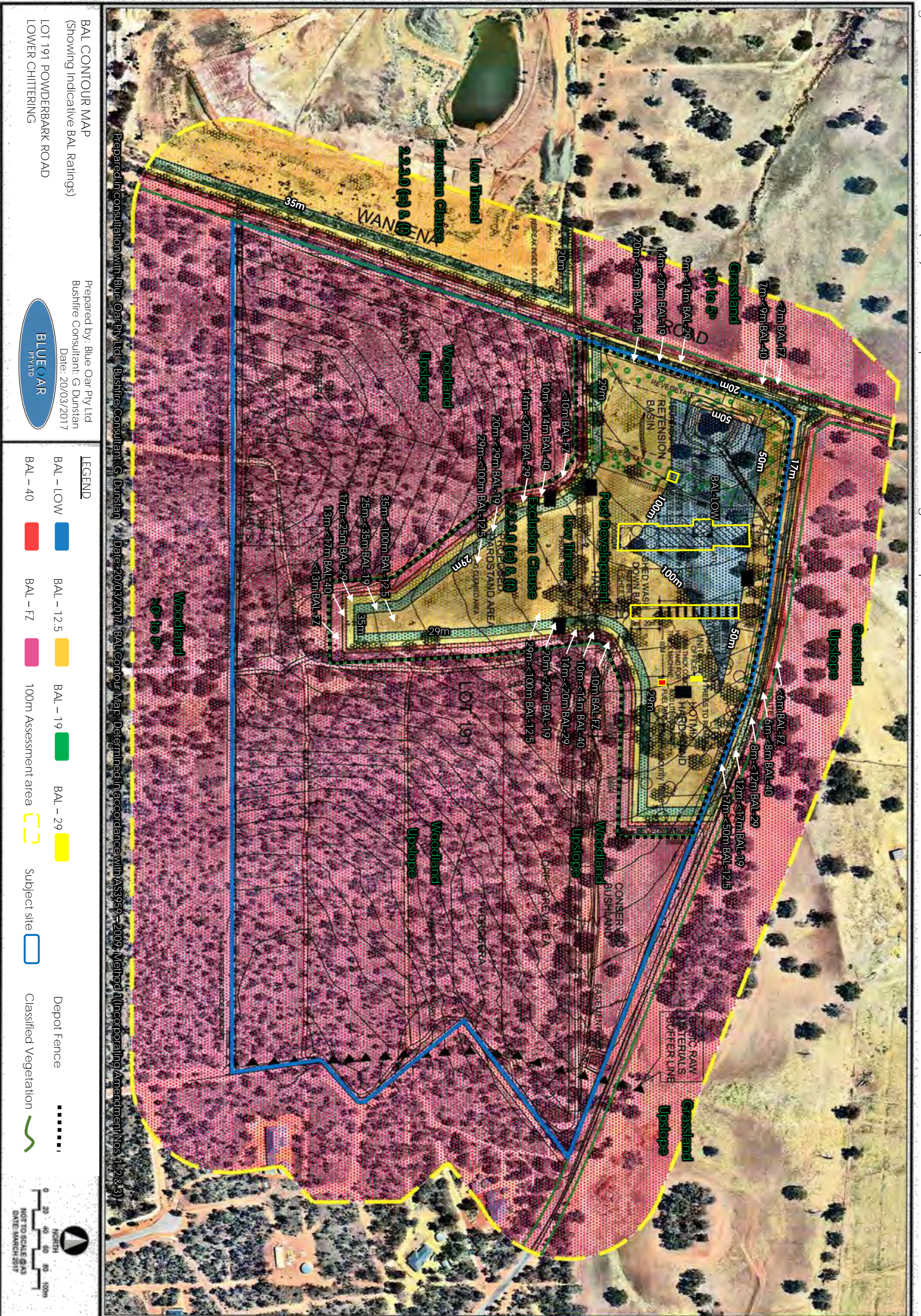


Figure 4.2 Asset Protection Zone for proposed development Workshop & Office site (Refer also Table 4.2 for indicative BAL ratings)



Table 4.2 – Indicative Bushfire Attack Level (BAL) ratings for proposed development  
(Post development works)

BAL Contour Map							
BAL calculation (Method 1) as detailed in Section 2 of AS 3959 – 2009							
Relevant Fire Danger Index (FDI) for WA. AS 3959 Table 2.4.3 – (80.)							
Flame temperature. AS 3959 Table 2.4.3 – (1090K.)							
Proposed Building/s Site.	Potential Bushfire Impact Area No.	Vegetation classification.	Effective slope.	Achievable BAL's & separation range from the edge of the classified vegetation.			
				BAL-29	BAL-19	BAL-12.5	BAL-LOW
	2	Woodland	Upslope (0°)	14m - <20m	20m - <29m	29m - <100m	>100m
Workshop & Office Site	3	Woodland	Downslope (2.29°)	17m - <25m	25m - <35m	35m - <100m	>100m
	4	Woodland	Upslope (0°)	14m - <20m	20m - <29m	29m - <100m	>100m
	5	Grassland	Upslope (0°)	8m - <12m	12m - <17m	17m - <50m	>50m
	6	Grassland	Downslope (2.29°)	9m - <14m	14m - <20m	20m - <50m	>50m

The above indicated BAL ratings are subject to implementation and maintenance of an APZ - low threat vegetation zone and depot hardstand clearing to the separation distances indicated.

#### 4.2 Identification of bushfire hazard issues arising from the BAL Contour Map

The BAL Contour Map indicates that vegetation on and external to the depot site has the potential to impact the proposed development, with a BAL – FZ and BAL – 40 rating indicated where unmanaged vegetation is in close proximity to the depot internal fence-line boundary. Consequently, the proposal can be given a merit-based assessment based on the SPP 3.7 principles.

The planning of this transport depot development focusses on the location and siting of future buildings in areas that will be cleared post development within the Lot and the development of asset protection zones around infrastructure to achieve suitable BAL construction standards where appropriate to building class. There are no existing buildings within the development site that would be effected by the current BAL requirements.

The bushfire management plan ensures that the bushfire hazard level for the site is not increased and the transport depot site is able to be managed in a low threat state. Bushfire hazards on adjoining land are subject to the Shire of Chittering annual Firebreak Notice and as such also have a requirement to comply with bushfire



mitigation measures. Compliance of the adjoining land is regulated through s33 of the Bush Fires Act 1954, thus ensuring there is a mechanism for the local government to abate bushfire hazards on adjoining land not subject to a bushfire management plan.

The siting of future buildings within the boundaries of the development site, due to large Lot area, provide an adequate buffer via future building setbacks from Lot boundaries effected by a BAL-40 or BAL-FZ and ensuring all future buildings are able to be located within areas of BAL-29 or lower.

The preservation of the natural environment has been considered for this development with the areas outside of the transport depot internal fence-line to be preserved. This vegetation is still required to be managed in accordance with the Shire of Chittering Firebreak and Fuel Load Notice, including reducing and maintaining fuel loads at between 5 – 8 tonnes per hectare. (Refer s7.0 & s10.2)

The site is within an established volunteer emergency services response area for bushfire, does not require the construction of new roads or additional emergency access and will provide a minimum storage of 50,000ltrs of water for fire-fighting operations at all times. The proposed development incorporates significant cleared hardstand areas, therefore, is considered a low risk in terms of radiant heat impact on buildings and infrastructure. The site is provided with multiple road ingress/egress to differing destinations, enabling evacuation to a safe zone where it may be necessary to relocate occupiers in the event of a bushfire impacting on the development from an external source to the site.

This proposed development improves the bushfire management capability of the site via the mitigation treatments as detailed within the bushfire management plan and the safety to adjacent landowners by removing bushfire threats and maintaining native vegetation in a low threat state in the existing vacant bushland.

## 5.0 Proposal compliance and justification

The proposed development is located in a designated bushfire prone area that has been identified and designated by the Fire and Emergency Services Commissioner. The map of Bush Fire Prone Areas 2016, indicates the potential of bushfire to impact the site and acts as a mechanism for initiating further consideration of bushfire mitigation in the planning process and future building requirements.

The intent of the State Planning Policy 3.7 is to 'implement effective risk-based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure'. The policy contains objectives and measures as well as reference to the bushfire protection criteria contained in the Guidelines.

The Guidelines for Planning in Bushfire Prone Areas provide the details of how the State Planning Policy 3.7 is to be applied at each stage. The following key policy objectives, measures and statements apply to this development application:

### SPP 3.7 Policy objective

5.4 Achieve an appropriate balance between bushfire risk management measures and, biodiversity conservation values, environmental protection and biodiversity management and landscape amenity, with consideration of the potential impacts of climate change.

*The proposed development meets the objective through the preparation of a bushfire management plan for the site, detailing acceptable bushfire protection criteria. The development identifies vegetation retention buffers and screening buffers with consideration to the proximity of existing settlement areas.*

### SPP 3.7 Policy measure

6.2(a) Strategic planning proposals, *subdivisions* and development applications within designated bushfire prone areas relating to land that has or will have a Bushfire Hazard Level (BHL) above low and/or where a Bushfire Attack Level (BAL) rating above BAL - LOW apply, are to comply with the policy measures.

6.2(b) Any strategic planning proposal, *subdivision* or development application in an area to which policy measure 6.2(a) applies, that has or will, on completion, have a moderate BHL and/or where BAL-12.5 to BAL-29 applies, may be considered for approval where it can be undertaken in accordance with policy measure 6.5.

*The proposed development has been assessed against and meets the policy **measures in accordance with the 'Guidelines' to be considered for approval.***

Development Applications to which policy measure 6.2 applies, in bushfire prone areas, to comply with the 'Guidelines' and the Bushfire Management Plan will include the following required information for the planning submission:

SPP 3.7 Information to accompany development application

6.5(a) A BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines BAL Contour Maps.

*A BAL Contour Map has been prepared for this development application.*

6.5(b) The identification of any bushfire hazard issues arising from the BAL Contour Map.

*Bushfire hazard issues for the site identified and detailed for the site, within this Bushfire Management Plan.*

6.5(c) An assessment against the bushfire protection criteria requirements contained within the Guidelines demonstrating compliance within the boundary of the development site.

*The appropriate mitigation measures relevant to this proposal have been applied in accordance with acceptable solutions to demonstrate compliance with the bushfire protection criteria.*

Policy measure 6.10 refers to the WAPC's ability to impose bushfire conditions on development applications to address the bushfire risk management implementation measures.

SPP 3.7 Policy measure

6.10 A 'notice on title' advising that the site is located in a bushfire prone area is required as a condition of development approval. In addition, if a Bushfire Management Plan is required, a notification on Title is required advising that the site is subject to a Bushfire Management Plan.

*A notification on Title is to be placed on the Lot for this development proposal advising that the site is located in a Bushfire Prone Area and subject to a Bushfire Management Plan.*

Bushfire construction requirements are triggered for the applicable classes of buildings when those buildings are located in a designated bushfire prone area. Land is designated as a bushfire prone area by the Fire and Emergency Services Commissioner under the powers provided in the Fire and Emergency Services Act 1988.

AS 3959 – 2009 Construction of buildings in bushfire-prone areas

The Building Code of Australia provides bushfire construction requirements that are to be applied to residential classes of development. Class 1, 2 or 3 buildings in designated bushfire prone areas, or Class 10a buildings or decks associated with Class 1, 2 or 3 buildings. The Building Code of Australia references AS 3959 as a deemed to satisfy solution that demonstrates compliance with the Building Code's bushfire performance requirements.

The bushfire construction provisions of the Building Code of Australia don't apply to Class 4 to 9 buildings. It is recommended that any or all of the elements of AS 3959 be incorporated in the construction of these building classes.

AS 3959 provides the specified construction standards and requirements for buildings in bushfire prone areas to improve resistance to bushfire attack.

*AS 3959 applies to the development proposal. The methodology as detailed in AS 3959 to classify vegetation and to calculate a bushfire attack level has been used (Method 1) for the BAL Contour Map and associated BAL calculation Tables within this Bushfire Management Plan.*

*Class 1, 2 or 3 buildings, or Class 10a buildings or decks associated with Class 1, 2 or 3 buildings for this proposal, are to comply with the construction requirements as **detailed in AS 3959, applicable to the determined BAL's for the site.***

*The bushfire construction provisions of the BCA do not apply to Class 4 to Class 9 buildings. Utilising any or all of the elements of AS 3959 in the construction of these Classes of building/s may be at the discretion of the applicant as deemed appropriate for the level of bushfire risk associated with the site.*

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In addition to the above, the development application is to meet the requirements of Shire of Chittering Town Planning Scheme No.6 and the relevant local policies.

Local Government Firebreak Notice

It is the responsibility of the landowner/proponent to maintain their bushfire protection measures on their land. This includes compliance with the local government's annual Firebreak Notice, issued under s33 of the Bush Fires Act 1954.

*The proposed development is to comply with the Firebreak Notice for all landowners/proponents or occupiers of land in the District of the Shire of Chittering regarding firebreaks, asset protection zones, bushfire management plans and any future bushfire mitigation requirements as directed in the Notice.*

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6.0 Bushfire protection criteria

The 'Guidelines' define the Bushfire Protection Criteria as a performance-based system of assessing bushfire risk management measures. The proposed development requires an assessment against the criteria. The criteria comprises four elements, location, siting and design of development, vehicular access and water supply. The elements each have an intent, an acceptable solution and a performance principle.

The following Tables indicate the 'Element' and a summary of the intent with the corresponding acceptable solution and justification of how that intent is met.

*Bushfire protection criteria development compliance – Element 1*

To achieve compliance with this Element using an acceptable solution, the following acceptable solution (A1.1) must be met.

Element	Performance Principle (P)	Acceptable Solution (A)	Justification	Compliance
Location	<p>P1</p> <p>The development application is located in an area where the bushfire hazard assessment is or will, on completion, be moderate or low, or a BAL-29 or below, and the risk can be managed.</p>	<p>A1.1</p> <p>The development is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level.</p> <p>Or</p> <p>A BAL-29 or below can be achieved.</p>	<p>The bushfire risk is manageable by implementing increased building construction standards appropriate to the Building Class and BAL for the site. A BAL-29 or lower can be achieved within the Lot for the proposed development with the implementation of APZ standards to the required distances.</p>	<p>The development will be compliant.</p>

*Bushfire protection criteria development compliance – Element 2*

To achieve the compliance with this Element using an acceptable solution, either or both acceptable solutions (A2.1 and A2.2) must be met to the extent that it satisfies Element 1.

Element	Performance Principle (P)	Acceptable Solution (A)	Justification	Compliance
Siting and design of development	<p>P2</p> <p>The siting and design of the development application, including roads, paths and landscaping, is appropriate to the level of bushfire threat that applies to the site. That it incorporates a defensible space and significantly reduces the heat intensities at the building surface thereby minimizing the bushfire risk to people, property and infrastructure, including compliance with AS 3959 if appropriate.</p>	<p>A2.1</p> <p>Asset Protection Zone (APZ):</p> <p>Every habitable building is surrounded by, and every proposed Lot can achieve, an APZ depicted on submitted plans, that meets the APZ criteria for width, location and management.</p> <p>The APZ should be sufficient enough to ensure the potential radiant heat impact of a fire does not exceed 29kW/m<sup>2</sup> (BAL-29).</p>	<p>Asset protection zone formation and maintenance to the required extent within the Lot boundary, to the specified APZ requirements.</p> <p>Future building works to meet determined BAL ratings under AS3959 where required under the Building Code of Australia (BCA) for building class, in relation to the achievable APZ and not exceed 29kW/m<sup>2</sup> (BAL-29).</p> <p>Compliance with the Local Government annual Firebreak Notice for firebreak and accumulative fuel load mitigation/hazard abatement.</p> <p>Enforced through provisions of the Bush Fires Act 1954, s33.</p>	<p>The development will be compliant.</p>

Bushfire protection criteria development compliance – Element 3

To achieve the intent, all applicable 'acceptable solutions' must be addressed.

Element	Performance Principle (P)	Acceptable Solution (A)	Justification	Compliance
Vehicular access	<p>P3</p> <p>The internal layout, design and construction of public and private vehicular access and egress in the development allow emergency vehicles to move through it easily and safely at all times.</p>	<p>A3.1</p> <p>Two access routes:</p> <p>Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions.</p>	<p>The proposed development does not incorporate new roads. The development is accessed via existing Wandena Road and Powderbark Road. Wandena Road and Powderbark Road provides two-way access/egress to differing destinations and links with multiple local road networks. The northern route connects directly with Great Northern Hwy. The southern route connect directly with Muchea East Road.</p>	<p>The development will be compliant.</p>
		<p>A3.2</p> <p>Public road:</p> <p>A public road is to meet the vehicular access technical requirements.</p>	<p>Existing constructed Roads meet Shire of Chittering requirements.</p>	<p>The development will be compliant.</p>
		<p>A3.3</p> <p>Cul-de-sac (including a dead-end road)</p> <p>Not applicable to this subdivision.</p>	<p>No cul-de-sac or dead-end roads.</p>	<p>N/A</p>



Element	Performance Principle (P)	Acceptable Solution (A)	Justification	Compliance
Vehicular access	P3 As above	A3.4 Battle-axe: Not applicable to this development.	No battle-axe.	N/A
		A3.5 Private driveways: Where a house site is more than 50 metres from a public road. Must meet the vehicular access technical requirements.	Transport Depot access driveway off Wandena Road to buildings will be greater than 50 metres from the public road. Vehicular access technical requirements will apply.	The development will be compliant.
		A3.6 Emergency Access Way: Not applicable to this development.	No emergency access way.	N/A
		A3.7 Fire service access routes (perimeter roads) Not applicable to this development.	No fire service access route.	N/A
		A3.8 Firebreak width: Lots must meet the level as prescribed in the local firebreak notice issued by the Local Government.	The Lot will incorporate perimeter firebreaks and will be required to comply with the Shire of Chittering annual Firebreak Notice.	The development will be compliant.

Bushfire protection criteria development compliance – Element 4

To ensure that water is available to the development, to enable people, property and infrastructure to be defended from bushfire.

Element	Performance Principle (P)	Acceptable Solution (A)	Justification	Compliance
Water	P4 The development is provided with a permanent and secure water supply that is sufficient for fire-fighting purposes.	A4.1 Reticulated areas: The development is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and the Department of Fire and Emergency Services.	The development is not within a reticulated area or being created as part of a new subdivision.	N/A
		A4.2 Non-reticulated areas (subdivision): Not applicable to this development.	The development is not being created as part of a new subdivision.	N/A
		A4.3 Non-reticulated areas (individual Lots): Single Lots above 500 square metres need a dedicated static water supply on the Lot that has the effective capacity of 10,000 litres.	The Transport Depot will incorporate static water supply tanks. A minimum of storage capacity of 50,000 litres will be held for fire-fighting operations, including tank to fire-fighting appliance connection couplings and turn-around point at the static water supply tank.	The development will be compliant.

## 7.0 Bushfire management and environmental considerations

The SPP 3.7 Policy objective 5.4, highlights that an appropriate balance is required between bushfire risk management and biodiversity conservation values, environmental protection and landscape amenity. The potential of the site specific bushfire management measures in relation to the impact on the local environment has been considered. A flora and fauna survey has been prepared by Bioscience Pty Ltd for the site version dated 'Issue 5' - 26.10.2016. This report is to be referred to for location of Declared Rare Flora and significant trees/habitat trees.

The proposed development land has been identified as containing vegetation requiring preservation. Vegetation preservation for the site is outside of the fenced transport depot portion of the site and extends to the Lot boundaries, creating a vegetation buffer zone (refer development plan Figure 2.1). A managed fire regime in the bushland areas within the Lot is therefore necessary.

Planned low intensity mosaic burning should be undertaken approximately 6 to 8 year intervals (or as determined by accumulative fuel load assessment to maintain fuel loads at between 5 – 8 tonnes per hectare) and alternate seasons spring/autumn, to allow for recovery of seed banks & habitat regeneration. Burning within environmentally sensitive areas on the site, such as the Declared Rare Flora (DRF) and where habitat trees are located, is to be planned carefully. The location of DRF and habitat trees must be considered in the planned burning process and the likelihood of native fauna habitation, including breeding seasons. Where appropriate the removal of accumulative ground fuels around these trees or pockets of vegetation by raking or other low impact mechanical means shall be undertaken prior to any planned burning, to a distance relevant to minimise flame and scorch height impact on these habitat trees or identified vegetation.

The Shire of Chittering and local volunteer bush fire brigades may provide advice and/or assistance with planned burning for the site. All 'running fire' burning should be undertaken in consultation with the Shire of Chittering and the Department of Parks and Wildlife (DPAW) to ensure current recommended burning methods, burning frequency and objectives can be met.

Re-vegetation or the establishment of landscaping is to be undertaken in accordance with the bushfire management plan. Re-vegetation screening along the boundaries in the identified areas is limited to 6 metres wide, ensuring a low threat classification.

Hardstand areas will be predominantly devoid of vegetation, with cleared understorey, due to clearing for transport vehicle parking/use and subsequently be determined as a low bushfire threat. Re-vegetation and landscaping planted around the retention basin is to meet APZ standards and will be managed in perpetuity as to not create an increase in the bushfire hazard on the site. (s10.0)

These areas and re-vegetation strip screening along fence-lines, will meet the criteria as detailed in AS 3959 2.2.3.2 (c), (d) & (f) Exclusions – Low threat vegetation and non-vegetation areas.

(c) Multiple areas of vegetation less than 0.25ha in area and not within 20m of the site (buildings), or each other;

(d) Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or each other, or other areas of vegetation being classified;

(f) Low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, cultivated gardens, nature strips and windbreaks.

Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack. (recognizable as short-cropped grass for example, to a nominal height of 100mm).

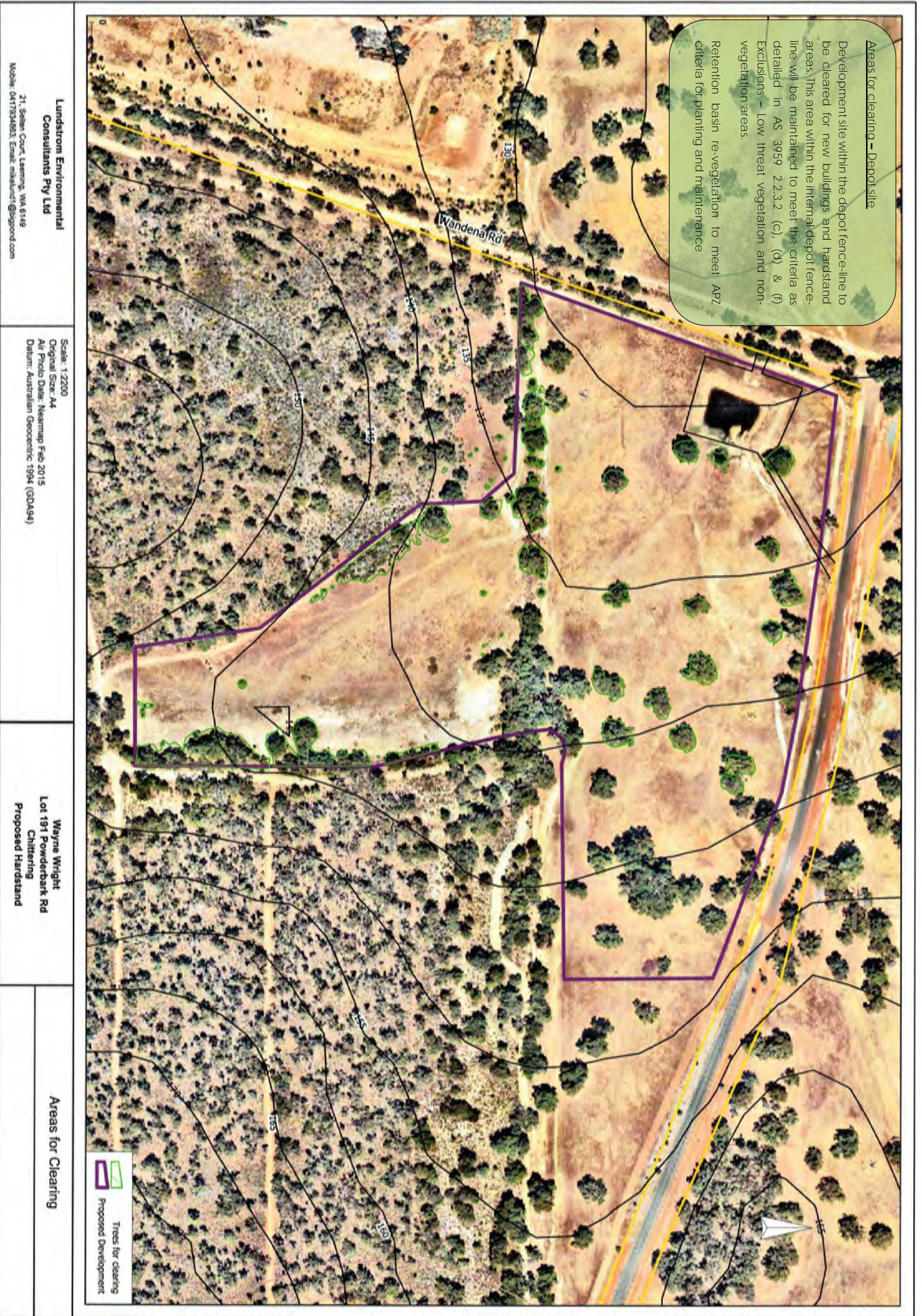
All firebreaks are to be constructed and maintained as to minimize erosion on site and deviate around mature canopy trees, where such trees are located in close proximity to Lot boundaries.

Note: 'Clearing of native vegetation in Western Australia requires a clearing permit under Part V, Division 2 of the Environmental Protection Act 1986 unless the clearing is for an exempt purpose. Exemptions from requiring a clearing permit are contained in Schedule 6 of the Environmental Protection Act or are prescribed in the Environmental Protection Regulations. Clearing required for compliance with subdivision conditions of approval is one example of where an exemption applies. However, the exemptions under the Environmental Protection Regulations do not apply in environmentally sensitive areas.'  
Source: Guidelines for Planning in Bushfire Prone Areas s2.3.

Environmental considerations relevant to bushfire

Clearing permit application lodged with the Department of Environment Regulation (DER).	Vegetation to be cleared for development site total 0.99ha (Refer Figure 7.1)
Consultation with the Department of Parks and Wildlife (DPAW).	Declared Rare Flora/Fauna on-site has determined an agreed 50m buffer zone around DRF. (Refer Figure 2.1)
Flora and Fauna Survey undertaken.	Prepared by Bioscience Pty Ltd. Flora and Fauna Survey to be referred to for DRF and habitat tree location.

Figure 7.1 Areas for clearing – Lot 191 Powderbark Road, Lower Chittering



Source: Lundstrom Environmental Consultants Pty Ltd (plan only)

## 8.0 Bushfire risk management measures

Bushfire risk is greatest from summer through to autumn when days of high temperatures, low humidity and strong gusty winds are particularly conducive to the spread of bushfire. When the moisture content of vegetation is low, this vegetation is likely to support a bushfire. The intensity and severity of a bushfire is influenced by fuel type, size, amount and structure.

The implementation of asset protection zones, as detailed in this bushfire management plan, requires the modification and management of available accumulative bushfire fuels (existing bush areas, grasses or re-vegetation). The measures to be implemented on the proposed development site to reduce the impact and risk associated with a bushfire, on or from an external source to the site, are detailed in the following and specific performance criteria for each management measure listed in the Appendices, s10.2 Asset Protection Zone.

It is recognized that vegetation is not the only contributor to fuel in bushfire events and that certain land uses may increase the potential to ignite a bushfire, impact on the severity, increase the intensity or duration of a bushfire. Where there is potential for increased risk to the community, fire-fighters and the environment to dangerous or hazardous substances during a bushfire event, an emergency evacuation plan for on-site occupants and /or a risk management plan for any on-site flammable hazards is recommended. This should include appropriate asset separation zones, fire risk mitigation measures (both from bushfire and hazardous substance/flammable material fire) and the appropriate storage of such material to reduce the threat on-site.

### 8.1 Location of buildings within the development site

The development site currently comprises pasture/grasses with limited canopy trees and woodland bush areas. The location of new buildings has been considered and are able to be located where identified Bushfire Attack Levels of BAL-29 or lower may be developed through APZ implementation through the development works. An overall reduction of the bushfire hazard on the site will occur post development works and therefore the transport depot is considered to be **predominantly a 'low hazard level'** in proximity to planned buildings.

### 8.2 Asset protection zones (APZ)

An asset protection zone is an ongoing managed low fuel area immediately surrounding a building to separate bushfire hazards. The aim of the APZ is to reduce bushfire intensity close to a building, and to minimise the likelihood of flame contact and direct radiant heat on the building. An APZ will be determined by the actual location of the building and the ground slope under hazardous classified vegetation.

An APZ is required for all buildings in proximity to moderate or extreme hazard and should be cleared of bushfire fuels such as dead wood, fallen branches, accumulative leaf litter and long dry grasses. Non-flammable features such as driveways, paths, vegetable patches, reticulated lawn, or landscaped gardens may form part of an asset protection zone. Isolated trees and shrubs may be retained within APZ. As the ground slope increases a greater separation distance is required.

Landscaping on the Lot is to adhere to APZ standards, surrounding future buildings and the retention basin, which are able to be established within the development site using asset protection zone performance criteria for development (Element 2, A2.1, E2.1 and Schedule 1, of Guidelines for Planning in Bushfire Prone Areas V1.1 February 2017). The provisions of the Shire of Chittering Firebreak Notice also applies in addition to APZ criteria detailed within this bushfire management plan. Asset protection zones are to be maintained to the determined bushfire attack level separation distances for BAL-29 or lower achievable BAL, around all buildings for this development proposal.

Landscaping and/or re-vegetation on the site is to consist of 'low planting' with consideration to fire retardant species, to reduce bushfire intensity close to the buildings and minimise the likelihood of flame contact and radiant heat. Trees planted within the APZ must comply with the standard outlined in the Appendices, s10.2 Asset Protection Zone. Planned re-vegetation on the proposed Lot must not be in conflict with the bushfire management requirements or increase the future accumulative bushfire fuels on the site above the recommended levels.

The main factors influencing fire behaviour are fuel moisture content, fuel type, fuel arrangement, and ground slope. Unmanaged vegetation down-slope on the property may expose buildings to the risk of a faster rate of fire spread up-slope and higher fire intensities. In areas of planned revegetation already subject to leaf litter, twigs and existing shrubs that add to the fuel load, an increase in fire intensity will make it harder to control a bushfire. The re-planting of compact ground covers and shrubs that form a dense understorey must be avoided and the surrounding property vegetation conditions taken into consideration.

Where the management of land in the vicinity of any proposed re-vegetation is not subject to a combined bushfire management plan or vegetation management plan that aims at minimizing and maintaining accumulative bushfire fuel loadings at manageable levels, the practicalities of ensuring future compliance and enforcement must be considered by the WAPC and the Shire of Chittering.

Increased separation between proposed new buildings and existing or re-planted vegetation and/or increased building construction standards may apply to buildings affected by re-vegetation or tree preservation areas.

Refer to the Department of Fire & Emergency Services (DFES) 'Plant Guide within the Building Protection Zone' publication for further information.

[www.dfes.wa.gov.au/safetyinformation/fire/bushfire/pages/publications.aspx](http://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/pages/publications.aspx)

The development will apply increased building construction standards for all applicable classes of new buildings in accordance with the Building Code of Australia and AS 3959, to meet bushfire mitigation requirements. (s4.1) Under AS 3959 – 2009, as the distance from the classified vegetation is reduced, the construction standard must be increased. The implementation of compliance with AS 3959 – 2009, not exceeding BAL-29, ensures the development meets the performance criterion.

### 8.3 Vehicular access

The proposed development does not incorporate the construction of new roads or access routes. Existing Roads are constructed to the Shire of Chittering standards for this location. The main access driveway to the depot is connected to Wandena Road, approximately 200m from the intersection with Powderbark Road, which ensures safe ingress/egress to two differing destinations, north to Great Northern Highway via the gravel portion of Wandena Road and south to Muchea East Road, via Powderbark Road which is available to all occupiers/the public and emergency services at all times. Wandena Road provides secondary direct link with Muchea East Road to the south.

Access within the depot shall be provided by a minimum 6 metre access road around the internal perimeter of the hardstand fence-line sections. No vehicles are to park with 6 metres of the fence-line to ensure fire appliances and/or emergency vehicles have unimpeded access around the hardstand site. The depot will incorporate four (4) escape route points with signposted gates, two onto Powderbark Road and two onto Wandena Road (Refer Figure 2.1). The southernmost escape route will be located on the firebreak alignment and be constructed to 6m in width, 4m trafficable surface and 4.5m vertical clearance.

Driveways/access roads around the internal hardstand perimeter and to buildings greater than 50 metres from the public road are to meet all Element 3, A3.5 criteria. (s10.3)

Firebreaks are to be constructed and maintained around the internal perimeter of the Lot and existing intermediate firebreaks in bushland areas retained, to Shire of Chittering firebreak requirements and standards. (Refer also Figure 2.2)

### 8.4 Water supply for firefighting

The development is to incorporate a permanent and secure static water supply that is sufficient for fire-fighting purposes. A static water supply tank with minimum 50,000 litres capacity (**either as a 'stand-alone' tank or in maintained in reserve from a larger capacity tank**) including hardstand and turn-around area suitable for a type 3.4 fire appliance (i.e. 17.5 metre diameter area) provided within three metres of the designated water tank. The water tank for fire-fighting purposes is to include either a hydrant, standpipe or direct access couplings, suitable for fire appliance connection, to the specification of the Shire of Chittering. Landowners/proponents are responsible for maintaining the tank, the required water capacity and ensuring the associated connections/apparatus for fire-fighting access are at all times operational. (s10.4)

### 8.5 Building construction standards

The Building Code of Australia provides bushfire construction requirements that are to be applied to residential classes of development. Class 1, 2 or 3 buildings in designated



bushfire prone areas, or Class 10a buildings or decks associated with Class 1, 2 or 3 buildings. The Building Code of Australia references AS 3959 as a deemed to satisfy solution that demonstrates compliance with the Building Code's bushfire performance requirements.

The bushfire construction provisions of the Building Code of Australia don't apply to Class 4 to 9 buildings. It is recommended that any or all of the elements of AS 3959 be incorporated in the construction of these building classes.

As the location of proposed buildings within the development are subject to a BAL rating above BAL- LOW, AS 3959 applies to the development proposal. Class 1, 2 or 3 buildings, or Class 10a buildings or decks associated with Class 1, 2 or 3 buildings or Class 10a buildings or decks associated with Class 1, 2 or 3 buildings, for this proposal are to comply with the construction requirements as detailed in AS 3959, applicable to the determined BAL's for the future building/s actual location.

#### 8.6 Site responsibilities

The bushfire danger period within the Shire of Chittering commences from October and generally continues through to April/May annually. Prior to each year's bushfire season, the Transport Depot property manager or a designated person responsible for the management of the property will ensure that all on-site safeguards and controls are in place and are effective for the prevention and control of bushfires. All people visiting the site or undertaking works have a responsibility to observe and comply with the relevant requirements of the bushfire management plan and to observe best practice when using vehicles or operating machinery on the property.

On-site property managers will be responsible for:

- Monitoring compliance with the bushfire management plan; and
- Documenting any bushfire or structural fire related incident.

#### 8.7 Emergency fire response

All fires on site are to be reported immediately via **'000'**.

Emergency services responding to a bushfire or structural fire on the site will be required to be made aware of the potential hazards involved in such incidents. For effective and safe emergency action, information about the type, quantity and locations of the hazards, such as fuel storage tanks, gas cylinders (LPG, Propane, Oxygen, Acetylene etc.), or chemicals stored at the transport depot must be readily available.

An emergency services manifest and site plans are to be kept in a red waterproof container as close as possible to the main entrance. It is recommended that the manifest and site plan be in the form of a **'Hazmat Box'**. The box should be located inside the main entrance boundary, on the left hand side as you enter the site for safe access to the manifest. The contents of the manifest box should be limited to the site manifest documentation and site plans.

The site information and site contacts are to be listed, followed by location and quantity information of the hazardous fuels, gases or chemicals stored. The site plan/s must clearly identify the hazardous material storage areas and other relevant information.

#### 8.8 Emergency evacuation planning

An emergency evacuation plan for the transport depot may be required to be prepared for use by site personnel and emergency responders and should outline procedures to be followed by the occupier's in an emergency situation. The emergency evacuation plan should include details as appropriate for the site, such as:

- a) The actions to be taken by personnel in the event of a bushfire or structural fire on or within proximity to the site, fuel/oil spill, explosion, gas leak or other emergency and should include fire-fighting action, alarm activation, evacuation procedures, shutdown procedures, the establishment of emergency control point, and any mutual aid arrangements (e.g. cooperation with relevant authorities, use of equipment on neighbouring properties etc);
- a) A list of contact telephone numbers for emergency services, regulatory authorities and local hospital. The criteria for contacting them and procedures to ensure that they are alerted and details (including at-work and after-hours) of personnel within transport depot who can provide specialist advice or assistance in an emergency;
- b) The implementation of a warden system;
- c) The establishment and sign posting of nominated muster points/assembly areas, away from the likely incident/hazard areas;
- d) Training of personnel in carrying out the plan (which may involve the local volunteer fire brigade and the Shire of Chittering);
- e) The location of material safety data sheets (MSDS);
- f) A copy of a current manifest listing the quantities, classes, UN numbers and names of the dangerous goods being stored and the location of the goods within the site. Copies of the material safety data sheets (MSDS) for all of the dangerous goods on the site;
- g) The emergency plan should be reviewed and updated annually.

The information on the site plans and manifest details to be provided in the emergency evacuation plan and in the 'Hazmat Box' should include, but are not limited to the following:

- a) The site plan to indicate north;
- b) The boundaries of the Lot and location of internal fencing/gates and the names of adjacent streets;

- c) The location of all buildings, identification numbers if appropriate and external stores on-site;
- d) Vehicular entry points, and vehicular access within and around the site;
- e) A current manifest listing the quantities, classes, UN numbers and names of the dangerous goods being stored and the location of flammable and combustible liquids/goods within the site;
- f) The fire service infrastructure layout (location of water supplies for fire-fighting);
- g) The location of the drainage system;
- h) The location of any isolation valves;
- i) The location of power supplies, including electricity metre box's;
- j) Details of the evacuation system at the site, including the location of alarm panels, the type of alarm and its means of actuation;
- k) The locations of muster points/assembly areas;
- l) A means by which emergency services can identify site warden/s;
- m) Management structure/senior staff for the premises.

#### Additional considerations

The transport depot is to ensure compliance with the relevant Standards and Regulations for potential on-site hazards and safe access to these hazard locations, in particular Australian Standard AS 1940 – 2004 The storage and handling of flammable and combustible liquids.

*“The objective of this Standard is to promote the safety of persons and property where flammable or combustible liquids are stored or handled, by providing requirements and recommendations that are based on industry best practices.”*

Source: Standards Australia AS 1940 – 2004.

The following should be referenced as appropriate to the site relevant to the approved development application:

- The Australian Storage and handling of dangerous goods - Code of practice;
- Standards Australia AS 1692 - 2006 Tanks for flammable and combustible liquids;
- Standards Australia AS 1940 - 2004 The storage and handling of flammable and combustible liquids;
- Standards Australia AS 1657 - 2013 Fixed platforms, walkways, stairways and ladders – Design, construction and installation.

Potential hazards on-site

Type & Volume	Storage
Diesel – Up to 8000ltrs	External bunded fuel tank.
Engine Oils – 400ltrs	Locked shipping container
Hydraulic Oils – 400ltrs	Locked shipping container
Gear Oils – 400ltrs	Locked shipping container
Grease – 200kgs	Locked shipping container
De-greaser – 200ltrs	Locked shipping container

\*Transport vehicles parked within the depot shall not store hazardous substances other than standard vehicle fuel tank/Oils at vehicle operating capacities.

\*Welding and cutting equipment on-site, from time to time, may include maintenance equipment capacities/volumes of Oxy-fuel processes incorporating a variety of fuel gases, the most common being; oxygen, acetylene. Other gases that may be used are propylene, liquefied petroleum gas (LPG), propane and methylacetylene-proadiene propane (MAPP) gas. All gases and associated equipment will be handled, labelled and stored in accordance with manufacturer/supplier cylinder safety requirements codes of practice and Australian Standard applicable to their specific operating needs.

Note: Both owners of above ground tanks and fuel suppliers have obligations under the respective State legislation, in the form of Acts and Regulations for Occupational Health & Safety (OH&S) and for protection of the environment. Owners of above ground tanks must **meet their "duty of care" obligations under State OH&S and Environmental legislation** for fuel storage. In addition, delivery drivers must not be placed in a situation that compromises safety, in order to deliver fuel to an unsafe facility. In meeting the requirements of the legislation it is **the owner's responsibility to ensure that the above ground tank and storage facilities on-site are maintained and operated safely and does not cause environmental harm.**

## 8.9 Assessment of fire management strategies

The standards and recommendations contained within this bushfire management plan are based on the performance criteria as outlined in Guidelines for Planning in Bushfire Prone Areas, Version 1.1 February 2017. Provided all works are carried out in accordance with this plan then a reduction in the risk is likely and the impact of bushfire on or near the transport depot land lessened. The bushfire management plan identifies that mitigation works are required to be implemented by the landowner/proponent to ensure the standards and performance criteria are met. In the event of a bushfire on this site, stakeholders can be confident that the effectiveness of the strategies will assist in fire-ground operations and post fire recovery. Where appropriate, a post incident analysis can be undertaken to further assess the effectiveness of the initial bushfire management plan and the plan adapted and amended accordingly.

### 8.10 Audit and review

The bushfire management plan shall be reviewed annually by the landowner/proponent with any substantial amendments to site operating procedures or bushfire mitigation measures attached as an addendum to the approved bushfire management plan document and version dated. A copy shall be forwarded to the Shire of Chittering where there are significant changes required to the bushfire management plan and these changes are deemed necessary, for review and endorsement by the Shire of Chittering. Changes to the document must not be in conflict with any approvals granted for the original development proposal.

Records of all on-site planned burning activities and fire related incidents are to be logged for audit purposes.

Audits should consider the documentation effectiveness, on-going site fire management requirements, procedures and contractor requirements. The organising and implementation of audits will be the responsibility of the Site Manager or appropriately designated person and should also be conducted where a major bushfire or structural fire incident has occurred.

The findings of any audits will be the subject of further review of the fire management plan and any actions recommended are to be implemented and the document updated to reflect the changes.

### 8.11 Site specific operational requirements

The following site specific operational requirements are to be implemented to minimize the risk of bushfire ignition:

#### 8.11.1 Mobile equipment operation

All earth moving and other mobile equipment used by operators/contractors must be maintained in good working order with efficient exhaust systems and fitted with spark arrestors. The earth moving machinery and mobile equipment shall be fitted with appropriate sized, number of and approved fire extinguishers suitable for the control of flammable liquid and electrical fires.

- All heavy machinery to be fitted with a minimum of two (2) appropriately rated fire extinguishers; and
- All light vehicles to be fitted with a minimum of one (1) appropriately rated fire extinguisher.

In addition, prior to any mobile earthmoving equipment or machinery working in vegetated or in close proximity to vegetated areas, it will be inspected by the operator/contractor to ensure:

- It is fitted with a securely fixed spark arrestor, that is in good condition;
- The fuel, electrical and braking systems, combustion chambers, manifolds, exhaust pipes and expansion chambers of the machine and joints are in all aspects in good order and condition (including fuel tanks and fuel lines being of a satisfactory design and firmly anchored);
- The equipment is free from surplus oils, dust impregnated with oil and vegetative matter;
- The exhaust system of any equipment working in a stationary position is directed away from flammable material; and
- The catalytic converter of vehicles using unleaded petrol will not come into contact with dry grasses and flammable material.

Any mobile equipment working in vegetated areas will not be left unattended and all mobile machinery and vehicles will be parked in cleared or hardstand areas. Any mobile equipment which must be left unattended within or in close proximity to vegetated areas will first be inspected and the immediate area made fire safe (e.g. clearing of vegetation/flammable debris etc. for a minimum of a 5m radius) before personnel leave the site.

#### 8.11.2 Clearing works or work in bushland areas

Vegetation clearing works or work in the bushland areas will not be undertaken during Harvest and Vehicle Movement Bans as issued by the local Government or Total Fire Bans declared by the Department of Fire and Emergency Services. An exemption under either or both sections 22C and 25A of the Bush Fires Act 1954 may be applied for where activities are deemed unavoidable, subject to approval by the appropriate authority.

Clearing works or work in bushland areas on the site (during the Restricted and Prohibited Burning Times) will require the following to be implemented as a minimum:

- The retention of cleared debris for use in any rehabilitation program for mulching or soil retention shall be stockpiled in accordance with section 9.1;
- Where not actively part of clearing works, all vehicle movements within the site will be restricted to firebreaks, access roads and cleared areas;
- At least one (1) vehicle fitted with fire-fighting equipment ('slip-on' or 'skid-mount' type) consisting of a minimum 500ltr water capacity, independent water delivery pump, hose reel with a minimum 30m length hose and suitable fire-fighting nozzle;
- A minimum of two (2) suitably trained personnel, in basic bushfire fighting, with appropriate fire-fighting PPE to operate the fire tender vehicle; or
- Attendance by a local Shire of Chittering Volunteer Bushfire Brigade with a minimum of one (1) light tanker fire appliance, for the duration of the works.

### 8.11.3 Hot works operations

All welding, grinding, metal cutting or similar activities will, as far as reasonably practicable, be conducted and confined to the cleared areas. Hot works operations will not be undertaken during Harvest and Vehicle Movement Bans as issued by the local Government or Total Fire Bans declared by the Department of Fire and Emergency Services. An exemption under either or both sections 22C and 25A of the Bush Fires Act 1954 may be applied for where activities are deemed unavoidable, subject to approval by the appropriate authority. **Where on site 'hot works'** is undertaken (during the Restricted and Prohibited Burning Times) the following safeguards will be implemented as a minimum:

- An area of 5m radius of the worksite will be cleared of all flammable materials;
- All oils, greases and fuels will be cleared/removed from within this work area;
- A minimum of one (1) fire extinguisher will be positioned within 5m of the work area; and
- A fire tender (purpose built appliance or 'slip on – skid mount' tank, pump and hose reel system) with suitably trained personnel will remain in readiness during the welding and/or cutting, grinding operations.

### 8.11.4 On-site induction

All contractors prior to undertaking works on site will receive a site induction/briefing detailing the fire management requirements for the site. Inductions/briefings, relevant to the scale of works, are to include but not limited to:

- The muster area in the case of an emergency and evacuation protocols;
- Ban of all smoking within vegetated areas;
- Ban of all open fires; and
- Plant/machinery and hot works requirements for works during the bushfire season.

### 8.11.5 Fire danger rating

The Fire Danger Rating provides a fire weather forecast and the risk from a fire should one start. During the Restricted Burning Times and Prohibited Burning Times, the fire danger rating shall be checked by the property manager to consider the planned daily site operations in regards to the level of fire danger forecast. (Table 3)

The Fire Danger Rating is available on the Bureau of Meteorology website [www.bom.gov.au/wa/forecasts](http://www.bom.gov.au/wa/forecasts) or via the Shire of Chittering Ranger/Fire Services or the DFES information line on 1300 657 209.

Table 3 – Fire danger rating guide

Fire Danger Rating	Description	Action
CATASTROPHIC 100+	<p><i>These are the worst conditions for a bush or grass fire.</i></p> <p><i>If a fire starts and takes hold, it will be extremely difficult to control and will take significant fire-fighting resources and cooler conditions to bring it under control.</i></p> <p><i>Spot fires will start well ahead of the main fire and cause rapid spread of the fire. Embers will come from many directions.</i></p> <p><i>The only safe place to be is away from bushfire risk areas.</i></p>	<p><i>Postpone all works.</i></p> <p><i>Consultation with the Shire of Chittering Chief or Deputy Chief Bush Fire Control Officer required.</i></p>
EXTREME 75-99	<p><i>These are very hot, dry and windy conditions for a bush or grass fire.</i></p> <p><i>If a fire starts and takes hold, it will be unpredictable, move very fast and difficult for fire fighters to bring under control.</i></p>	<p><i>Consider postponing all works or as directed by Harvest and Vehicle movement Bans or Total Fire Bans.</i></p>
SEVERE 50-74	<p><i>Spot fires will start and move quickly. Embers may come from many directions.</i></p> <p><i>You must be physically and mentally prepared to defend in these conditions.</i></p> <p><i>The only safe place to be is away from bushfire risk areas.</i></p>	<p><i>Consultation with the Shire of Chittering Chief or Deputy Chief Bush Fire Control Officer required.</i></p>
VERY HIGH 32-49	<p><i>These are hot, dry and possibly windy conditions for a bushfire.</i></p> <p><i>If a fire starts and takes hold, it may be hard for fire fighters to control.</i></p> <p><i>You must be physically and mentally prepared to defend in these conditions.</i></p>	<p><i>Work can be undertaken on site – Site bushfire management protocols apply.</i></p> <p><i>Consultation with the Shire of Chittering Chief or Deputy Chief Bush Fire Control Officer required.</i></p>
HIGH 12-31	<p><i>If a fire starts, it is likely to be controlled in these conditions.</i></p> <p><i>Be aware of how fires can start and reduce the risk.</i></p>	<p><i>Work can be undertaken on site – Site bushfire management protocols apply.</i></p>
LOW-MODERATE 0-11	<p><i>Controlled burning may occur in these conditions if it is safe – check to see if permits apply.</i></p>	

Source – Information based on the Government of Western Australia, Department of Fire & Emergency Services publication, 'Prepare.Act.Survive'.



## 9.0 Implementation and enforcement

The implementation and ongoing maintenance of bushfire protection measures have been considered for the proposed development. The Bushfire Management Plan, or specific assessments detailed within the plan, may require updating by the Landowner/Proponent if the development application proposal has substantially been altered, site conditions changed significantly or where considerable time has elapsed, at the discretion of the decision maker.

Landowners/proponents and subsequent landowners are reminded that changes to bushfire legislation may occur and they are required to be aware of, undertake works or implement preventative measures, using the most current requirements at that time.

### 9.1 Landowner/Proponent responsibilities

As part of the development works the landowner/proponent will remove bushfire hazards and vegetation for the construction of access driveways, hardstand areas, fence-lines, infrastructure, services and management of accumulative fuel loads in retained vegetation areas. These works will assist with reducing the over-all hazard level on-site.

The further management of fuel loads will be undertaken by the initial implementation of asset protection zones around buildings on the development site by the landowner/proponent and the future maintenance of the asset protection zones by the landowner/s.

When clearing or removing vegetation during the development works or at any time, the landowner/proponent must ensure that a fire hazard is not created by the inappropriate stockpiling of flammable material. Mulching of the vegetation or the compiling of manageable 'windrows', with little or no soil and rubble contamination, should be planned carefully to ensure the location of the material is accessible and structure of 'windrows' facilitates disposal.

Adequate firebreaks must be installed around mulch piles and 'windrows' until such time as the material has been removed. The landowner/proponent is required to manage the disposal of vegetation cleared on the site as part of development works.

In addition, the landowner/proponent shall be responsible for the following:

- a) The landowner/proponent is to lodge a Section 70A notification on Certificate of Title for this development proposal. The Notification shall alert future purchasers of land and successors in Title that the Lot is located within a designated bushfire prone area and as appropriate, that the Lot is subject to responsibilities detailed with a Bushfire Management Plan;
- b) The landowner/proponent is to ensure compliance with all aspects as detailed within the Bushfire Management Plan;

- c) The landowner/proponent responsible for having the Bushfire Management Plan prepared shall ensure anyone listed as having a responsibility under the BMP has endorsed it and is provided an endorsed copy for their information. This includes, but not limited to, the landowner/proponent, future landowners (via the Section 70A notification), local government and any other relevant authorities or referral agencies;
- d) The landowner/proponent responsible for having the Bushfire Management Plan prepared shall ensure anyone listed as having a responsibility under the BMP is provided an endorsed copy of the Flora and Fauna Survey, prepared by Bioscience Pty Ltd, for their information;
- e) The landowner/proponent responsible for having the Bushfire Management Plan prepared shall ensure anyone listed as having a responsibility under the BMP and any other relevant authorities are provided an endorsed copy of the Emergency Evacuation Plan, for their information;
- f) The landowner/proponent is to construct the firebreaks on the Lot, including 5m firebreaks around fuel storage tanks and ensure these are maintained in accordance with the Shire of Chittering annual Firebreak Notice and Bush Fires Act 1954;
- g) The landowner/proponent is to construct the asset protection zones around buildings and on-site hazards and ensure these are maintained in accordance with the APZ standards as detailed in the Appendices, s10.2 Asset Protection Zone. The landowner/proponent is to maintain the **APZ's** on the Lot and ensure prior to the future sale or change in ownership of the Lot, as applicable, that the Lot is compliant with the Bushfire Management Plan and the requirements of the annual Shire of Chittering Firebreak Notice;
- h) The landowner/proponent shall maintain asset protection zones in perpetuity and comply with the requirements annual Shire of Chittering Firebreak Notice, issued under s33 of the Bush Fires Act 1954;
- i) The landowner/proponent and future landowners are required to comply with AS 3959 Construction of buildings in bushfire-prone areas, (as appropriate to the class of building), for all new buildings on the Lot. Site specific bushfire attack level assessments may be required by future landowners/proponents. Where this is required, landowners/proponents should engage a Bushfire Planning Practitioner to complete a BAL compliance certificate, or report, for the BAL Contour Map that relates to the approved development, to ensure the BAL Contour Map prepared prior to the approval of the development, is still consistent with the site conditions at that time;
- j) The landowner/proponent shall ensure private driveway/access roads on the Lot meet all of the criteria for Element 3, A3.5, as detailed in the Appendices, s10.3 Vehicular Access;

- k) The landowner/proponent shall have no further responsibilities to provision of fire-fighting facilities or measures on the Lot, where the Lot passes from their ownership.

## 9.2 Local Government responsibilities

Local governments have responsibilities in relation to the implementation of SPP 3.7 and the 'Guidelines'. The responsibility for compliance with the law rests with individual landowners and occupiers and the following conditions are not intended to unnecessarily transfer some of the responsibilities to the Shire of Chittering.

The Shire of Chittering shall be responsible for the following:

- a) Provide advice on appropriate techniques to achieve bushfire hazard reduction and bushfire management methods for individual properties, in particular asset protection zones and firebreaks;
- b) Promote and monitor annual compliance with the Shire of Chittering Firebreak Notice and the Bushfire Management Plan;
- c) Ensure that the Shire of Chittering Firebreak Notice references the requirement for landowners/proponents to comply with any existing approved Bushfire Management Plan for their land in addition to the annual Firebreak Notice;
- d) Maintaining in good order the District facilities and apparatus for fire-fighting purposes under local government control;
- e) Ensuring individual BAL assessments are undertaken, as appropriate, upon submissions of development applications to ensure the appropriate building construction standards are applied, once building sites are determined, to the relevant AS 3959 BAL rating;
- f) The Shire of Chittering may initiate a review of the Bushfire Management Plan to ensure consistency with bushfire industry requirements or changing climate conditions, environmental or land use needs;
- g) Ensuring the Bushfire Management Plan lodged to support the development application is recorded and endorsed.

## 10.0 Appendices

### 10.1 Bushfire Protection Criteria Acceptable Solutions

The bushfire protection criteria for this development proposal have been provided to assist with clarifying the information detailed within the Bushfire Management Plan and demonstrate the compliance specifications applicable to the level of development.

The criteria are divided into four elements – Location, siting and design, vehicular access and water. The acceptable solutions provided are to ensure the development meets the requirements of the Guidelines for Planning in Bushfire Prone Areas 2015, Appendix 4.

The acceptable solutions detailed below that apply to this development are an extract from the 'Guidelines – Appendix 4' and are not altered in content.

### 10.2 Asset Protection Zone – Acceptable Solutions

#### A2.1 Asset Protection Zone (APZ)

Every habitable building is surrounded by, and every proposed Lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a bushfire does not exceed 29kW/m<sup>2</sup> (BAL-29) in all circumstances.

Location: the APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).

Management: the APZ is managed in accordance with the requirements of '*Standards for Asset Protection Zones*'. (see Schedule 1).

#### E2.1 Asset Protection Zone (APZ)

An APZ is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. The width of the required APZ varies with slope and vegetation. The APZ should at a minimum be of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m<sup>2</sup> (BAL-29). It should be lot specific. Hazard separation in the form of using subdivision design elements (refer to E2) or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the Lot.

The APZ includes a defendable space which is an area adjoining the asset within which firefighting operations can be undertaken to defend the structure. Vegetation within the defendable space should be kept at an absolute minimum and the area should be free from combustible items and obstructions.

The width of the defendable space is dependent on the space which is available on the property, but as a minimum should be 3 metres.

The APZ should be contained solely within the boundaries of the Lot on which the building is situated, except in instances where the neighbouring Lot or Lots will be managed in a low-fuel state on an ongoing basis, in perpetuity. The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural Lot, farmland, wetland reserves and unmanaged public reserves.

APZs can adversely affect the retention of native vegetation. Where the loss of vegetation is not acceptable or causes conflict with landscape or environmental objectives, such as waterway foreshore areas and wetland buffers, reducing lot yield may be necessary in order to minimise the removal and modification of remnant vegetation.

It is the responsibility of the landowner/proponent to maintain their APZ in accordance with Schedule 1 '*Standards for Asset Protection Zones*'. It is further recommended that maintenance of APZs is addressed through the local government firebreak notice, issued under s33 of the *Bushfires Act 1954*, and preferably included in a Bushfire Management Plan specifically as a how-to guide for the landowner.

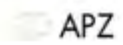
Design of Asset Protection Zone

The proportion of the APZ reflect the distance from the hazard to ensure adequate separation is achieved. Refer to Schedule 1 – Standards for Asset Protection Zones.

Hazard on one side



Hazard on three sides



Source: *Guidelines for Planning in Bushfire Prone Areas 2017, Appendix 4*

## Schedule 1: Standards for Asset Protection Zones

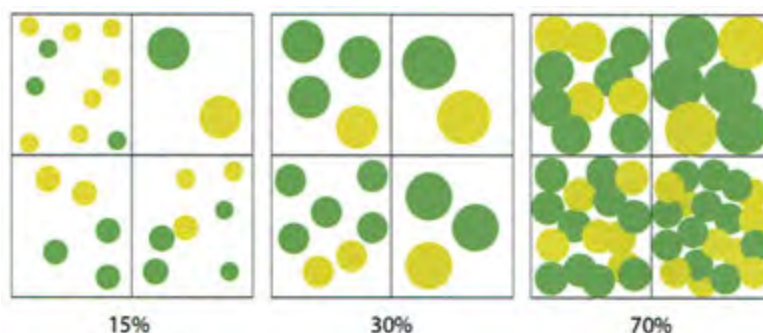
Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.

Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.

Fine Fuel load: combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.

Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy.

Tree canopy cover – ranging from 15 to 70 per cent at maturity



Source: *Guidelines for Planning in Bushfire Prone Areas 2017, Appendix 4*

Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m<sup>2</sup> in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.

Ground covers (<0.5 metres in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.

Grass: should be managed to maintain a height of 100 millimetres or less.

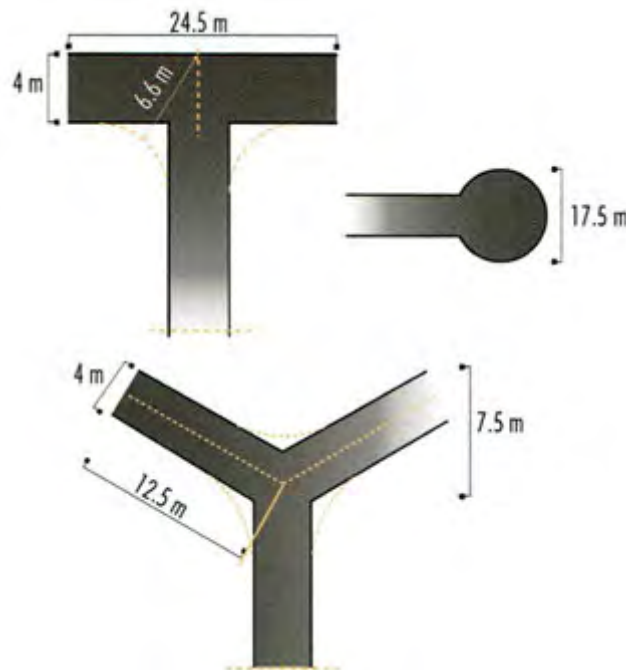
## 10.3 Vehicular Access – Acceptable Solutions

## A3.5 Private driveway longer than 50 metres

A private driveway is to meet all of the following requirements:

- a) Requirements in Table 4, Column 3 (refer page 51 of this BMP);
- b) Required where a house site is more than 50 metres from a public road;
- c) Passing bays: every 200 metres with a minimum length of 20 metres and a minimum width of two metres (i.e. the combined width of the passing bay and constructed private driveway to be a minimum six metres);
- d) Turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres) and within 50 metres of a house; and
- e) Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes;
- f) All-weather surface (i.e. compacted gravel, limestone or sealed).

Design requirements for a private driveway longer than 50 metres (Turning areas should allow type 3.4 fire appliances to turn safely)



Source: *Guidelines for Planning in Bushfire Prone Areas 2017, Appendix 4*



E3.5 Private driveway longer than 50 metres

For a driveway shorter than 50 metres, fire appliances typically operate from the street frontage however where the distance exceeds 50 metres, then fire appliances will need to gain access along the driveway in order to defend the property during a bushfire. Where house sites are more than 50 metres from a public road, access to individual houses and turnaround areas should be available for both conventional two-wheel drive vehicles of residents and type 3.4 fire appliances.

Turn-around areas should be located within 50 metres of a house. Passing bays should be available where driveways are longer than 200 metres and turn-around areas in driveways that are longer than 500 metres. Circular and loop driveway designs may also be considered. These criteria should be addressed through subdivision design.

Passing bays should be provided at 200 metre intervals along private driveways to allow two-way traffic. The passing bays should be a minimum length of 20 metres, with the combined width of the passing bay and the access being a minimum of six metres.

Turn-around areas should allow type 3.4 fire appliances to turn around safely (i.e. kerb to kerb 17.5 metres) and should be available at the house sites and at 500 metre intervals along the driveway.

(Table 4) Vehicular access technical requirements:

TECHNICAL REQUIREMENTS	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire services access routes
Minimum trafficable surface (m)	6*	6*	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	4.5	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5

\*Refer to E3.2 Public roads: Trafficable surface

(Guidelines for Planning in Bushfire Prone Areas 2015, Appendix 4)

### A3.8 Firebreak width

Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three metres or to the level as prescribed in the local firebreak notice issued by the local government.

The Shire of Chittering gives notice pursuant to Section 33 of the Bush Fires Act 1954 to all landowners or occupiers of land in its district that they are required as the landowner or occupier of the land to annually plough, cultivate, scarify, or otherwise clear firebreaks as specified the Notice and to maintain the firebreaks clear of flammable matter, for a set duration of time. The information contained within the Shire of Chittering Firebreak Notice is subject to change annually, landowners or occupiers must obtain the current version of the 'Notice' from the Shire of Chittering and ensure compliance annually.

### 10.4 Water – Acceptable Solutions

The proposed development is provided with a permanent and secure water supply that is sufficient for fire-fighting purposes, to enable people, property and infrastructure to be defended from bushfire.

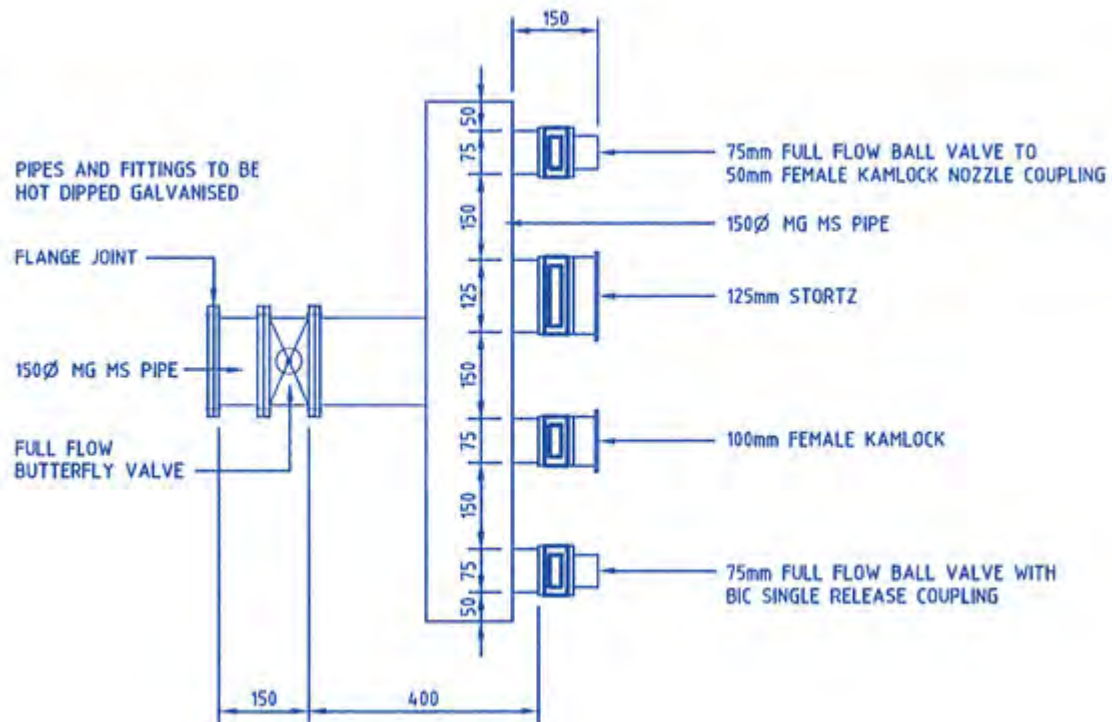
#### A4.3 Individual Lots within non-reticulated areas

\*Single Lots above 500 square metres need a dedicated static water supply on the Lot that has the effective capacity of 10,000 litres.

#### E4.2 Non-reticulated areas

A procedure must be in place to ensure that water tanks are maintained at or above the designated capacity, including home tanks on single Lots, at all times. This could be in the form of an agreement with the local government and the fire service.

\* Note Nominated static water tank supply of minimum 50,000 litres capacity, stored at all times, specific to this development proposal for fire-fighting purposes. Example static water supply tank manifold to accommodate a range of couplings for fire appliance connection. Tank construction and fittings to comply with Shire of Chittering specifications.



Source: Shire of Serpentine Jarrahdale Fire and Emergency Services

10.5 Contact list (Subject to change - to be updated annually)

**All fires and emergencies telephone '000'**

Shire of Chittering – Updates on Hot Works, Harvest and Movement of Machinery Bans  
**information line '9576 0219' (recorded message)**

Organisation	Title	Contact Person	Contact Number 1	Contact Number 2
Transport Depot		Wayne Wright	0417 971 630	
Transport Depot		Jackie Wright	9571 0004	0400 337 829

Organisation	Title	Contact Person	Contact Number 1	Contact Number 2
Shire of Chittering/DFES	Chief Bush Fire Control Officer/CESM	Jamie O'Neil	9576 4600	0409 529 138
Shire of Chittering Volunteer BFB	DCBFCO (South)	Ian Hollick	9571 8388	0427 489 287
Shire of Chittering Volunteer BFB	DCBFCO (Central)	Phil Humphry	9576 1050	0427 761 050
Shire of Chittering Volunteer BFB	DCBFCO (North)	Greg Cocking	9655 7015	0408 900 462
Shire of Chittering Rangers	Fire Control Officers	Ranger Services	9576 4600	
Lower Chittering Volunteer BFB	Fire Control Officer	Steve Browne	0427 300 964	
Lower Chittering Volunteer BFB	Fire Control Officer	Max Browne	0427 089 677	

\*DCBFCO – Deputy Chief Bush Fire Control Officer

## 11.0 References

- Standards Australia, Australian Standard AS 3959 - 2009, Construction of buildings in bushfire-prone areas, (Incorporating Amendments Nos.1, 2 & 3).
- Standards Australia, Australian Standard AS 1940 – 2004, The storage and handling of flammable and combustible liquids, (Incorporating Amendments Nos.1 & 2).
- Department of Planning, Visual guide for bushfire risk assessment in Western Australia, First Edition, February 2016.
- Western Australian Planning Commission, Guidelines for Planning for Bushfire Prone Areas, Version 1.1 February 2017.
- Western Australian Planning Commission, Guidelines for Planning for Bushfire Prone Areas, Appendices, Version 1.1 February 2017.
- Western Australian Planning Commission, State Planning Policy 3.7, Planning in Bushfire Prone Areas, December 2015.
- Department of Fire & Emergency Services (DFES) - Visual Fuel load Guide (for the scrub vegetation of the Swan Coastal Plain) August 2015 – Third Edition.
- Department of Environment & Conservation, Forest Fire Behaviour Tables for Western Australia 1998, by R.J. Sneeuwjagt and G.B. Peet.
- Department of Fire & Emergency Services (DFES) – Map of Bushfire Prone Areas 2015.
- Department of Fire & Emergency Services (DFES) – Rural Urban Bush Fire Threat Analysis, November 2003.
- Government of Western Australia Department of Fire & Emergency Services (Office of Bushfire Risk Management) Bushfire-prone Area Mapping Standard Western Australia, May 2014.
- Shire of Chittering – Firebreak Notice 2016/2017.
- Tank Manifold configuration - Shire of Serpentine Jarrahdale Fire and Emergency Services.
- Bush Fires Act 1954 – Version 09-e0-00 Sept 2016, Government of Western Australia.
- Bush Fires Regulations 1954 – Version 06-f0-01 April 201, Government of Western Australia.
- Aerial Photography – Nearmaps, March 2017.
- Site plan – Joondalup Designs.
- Flora and Fauna Survey information – Bioscience Pty Ltd, prepared by Mark Bundock, October 2016.
- Areas for clearing plan – Lundstrom Environmental Consultants Pty Ltd.



Government of **Western Australia**  
Department of **Mines and Petroleum**

Your ref: email: 19 July 2016  
Our ref: A1403/201601  
Enquiries: Colin Strickland - Ph 9222 3139 Fax 9222 3638  
Email: colin.strickland@dmp.wa.gov.au

Chief Executive Officer  
Shire of Chittering  
PO Box 70  
BINDOON WA 6502

Dear Sir/Madam

**APPLICATION FOR PLANNING APPROVAL 'TRANSPORT DEPOT'  
LOT 191 WANDENA ROAD (POWDERBARK ROAD), LOWER CHITTERING**

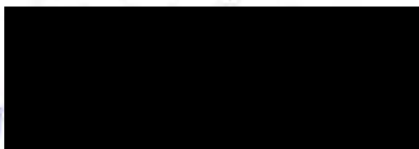
On the 25 July 2016 the Department of Mines and Petroleum (DMP) submitted its comments to the Shire regarding the above application. DMP noted the presence of a Priority Resource Location for clay (WAPC State Planning Policy 2.4) and GSWA's 'regionally significant basic raw materials – clay' mapping, and stated that the development of a 'Transport Depot' could have a negative impact on access for future clay extraction within Lot 191.


DMP concluded that it could not support the development of this 'Transport Depot' unless the proponent was able to provide evidence-based documentation to the satisfaction of DMP, that the remaining clay resources within Lot 191 were of insufficient quality or quantity to warrant classification as a Priority Resource.

On 23 February 2017 the proponent submitted to DMP a report detailing the results of a drilling programme designed to evaluate the presence of clay resources within the proposed development site. Based upon the results of this multi-hole drilling program, DMP is satisfied that the clay underlying this area of Lot 191 is of insufficient quantity and has too much overburden to warrant classification as a Priority Resource.

Consequently, DMP has determined that this proposed development raises no significant issues with respect to basic raw materials and will be recommending that the Western Australian Planning Commission amend the Priority Resource Location for clay in this location.

Yours sincerely



 Ian Tyler  
Acting Executive Director  
GEOLOGICAL SURVEY OF WESTERN AUSTRALIA

7 March 2017



CONSULTING CIVIL & TRAFFIC ENGINEERS, RISK MANAGERS.

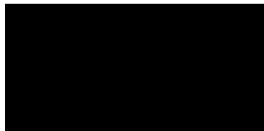


Project: Transport Statement, Lot 191 Powderbark Road, Lower Chittering.

Client: WC & SJ Wright.

Author: T Shaw / P Nguyen

Signature:



Date: 6<sup>th</sup> April 2017

Version: 2

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## 1. Summary.

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Shawmac was commissioned to assess the traffic impacts associated with the generation of traffic from a proposed transport depot on Lot 191 Powderbark Road in Lower Chittering.

The assessment follows the recommended outline contained in the West Australian Planning Commission guideline "Transport Impact Assessment Guidelines for Developments". Potential traffic flow from the site was based on advice from the proponent and was placed at 20 movements per day (10 inbound and 10 outbound).

Traffic was assigned to the adjacent existing road network and flows used as a basis for assessing traffic impacts associated with the site. Based on the assessment it was shown that the flows predicted can be accommodated within the existing network without unacceptable adverse impacts.

## 2. Introduction and Background.

---

### 2.1. Proponent.

Shawmac was commissioned by WC & SJ Wright to assess the traffic impacts associated with the generation of traffic from the proposed transport depot located on Lot 191 Powderbark Road in Lower Chittering.

### 2.2. Site Location and Land Use.

The site is located as shown on Figure 1 and is within the Shire of Chittering.



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Figure 1 - Site Location

The study site has previously been partly used for grazing.

The existing site together with the surrounding area is shown on the aerial photograph, refer Figure 2.



Figure 2 - Aerial Photograph



### 2.3. Referenced Information.

In undertaking the study, the information listed below was referenced.

- Austroads Guide to Road Design Part 4A – Unsignalised and Signalised Intersections.

## 3. Site Proposal.

### 3.1. Regional Context.

The site is located within the Shire of Chittering approximately 47 km northeast of the Perth CBD and has direct street frontage to Wandena Road and Powderbark Road.

### 3.2. Land Use.

The site is zoned under the Shire of Chittering Town Planning Scheme 6 (TPS No.6) for “Resource” use and “General Rural” under the Metropolitan Regional Scheme. The site has previously been used for grazing purposes.



Figure 3 - Extract of Shire of Chittering Town Planning Scheme

### 3.3. Major Attractors and Generators of Traffic.

Access to the site is via Powderbark Road and Wandena Road which connects to Great Northern Highway at the northern and southern end. It is anticipated that movements will largely be to the south with some movements to and from the north.



## 4. Existing Situation.

### 4.1. Existing Roads.

#### 4.1.1. Wandena Road

Wandena Road is classified as a Local Distributor road and is under the care and control of the Shire of Chittering. Wandena Road runs generally in a north – south direction from Great Northern Highway in the south to Great Northern Highway in the north. The road consists of an unsealed pavement about 8.0 metres wide. Wandena Road forms part of the RAV 2 network.

#### 4.1.2. Powderbark Road

Powderbark Road is classified as an Access Road and is under the care and control of the Shire of Chittering. It forms the northern boundary of Lot 191 and intersects with Wandena Road in an unchannelised T junction. Adjacent to the site it comprises a sealed road approximately 9.0 metres wide with 1.5 metre wide unsealed shoulders. The intersection is sealed and kerbed.

Traffic flows in Wandena Road based on Shire of Chittering counts taken in 2015 north of Powderbark Road and MRWA counts taken in 2014 south of Muchea East Road are shown on Table 1. Counts are not available for Powderbark Road; however given the land uses serviced by the road, daily flows are expected to be in the order of 1,000 vpd.

Table 1 - Adjacent Road Traffic Flows

Road and Location	ADT	AM Peak	PM Peak	Date
Wandena Road - 500 metres north of Powderbark Road	1,545 vpd	150 vph (estimated)	150 vph (estimated)	2014
Wandena Road - south of Muchea East Road Southbound	1,049 vpd	49 vph	150 vph	2015
Wandena Road - south of Muchea East Road Northbound	1,071 vpd	153 vph	59 vph	2015

Full count details are shown in Appendix A.

### 4.2. Intersections.

The intersection of Wandena Road and Powderbark Road is configured as a standard “T” junction which is sealed and kerbed. Flag lighting is provided adjacent to the intersection.



### 4.3. Road Hierarchy and Status.

Figure 4 shows the Road Hierarchy for the road network adjacent to and around the site.

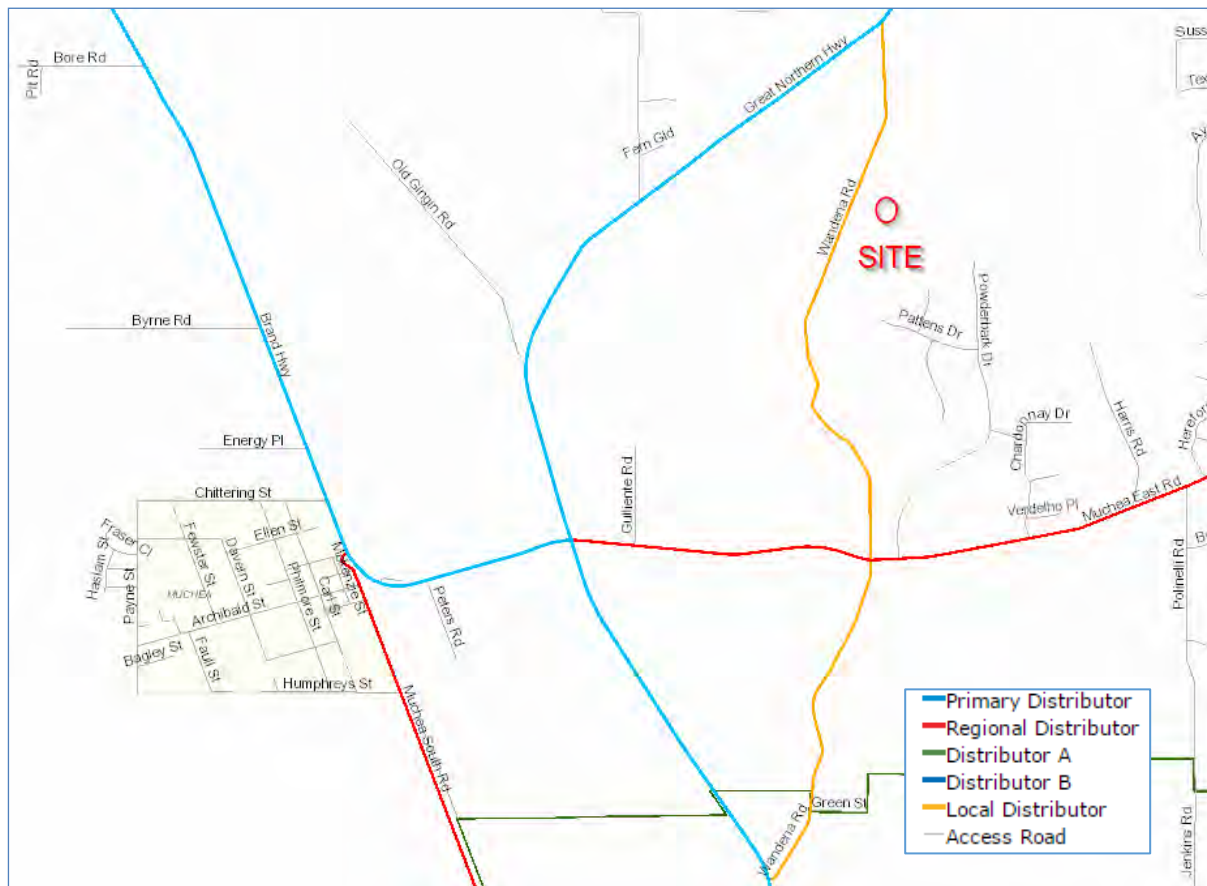


Figure 4 - Road Hierarchy

Local Distributors carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor typically discourages through traffic so that the cell formed by the grid of Local Distributors only carries traffic belonging to, or serving the area. These roads accommodate buses but should discourage trucks. They are managed by local government. Maximum desirable volume is in the order of 6,000 vehicles per day with typical operating speeds of 50 to 60 km/h.

Access Roads provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement role. These roads are bicycle and pedestrian friendly. They are managed by local government. Maximum desirable volume is in the order of 3,000 vehicles per day with typical operating speeds of 40 to 50 km/h.

### 4.4. Road Hierarchy vs Actual Flows.

Table 2 details the comparison of flows against the maximum desirable flows under the MRWA Functional Hierarchy criteria.




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Table 2 - Desirable Maximum Flow vs Actual Flow

Location and date of count		Classification	Desirable Max Traffic Volume (vpd)	Actual Daily Traffic Flows (vpd)
Wandena Road	North of Muchea East Road (2014)	Local Distributor	6,000 vpd.	1,545 vpd
Powderbark Road	East of Wandena Road	Access Road	3,000 vpd.	Estimated at 1,000 vpd

---

The table above indicates that all roads are operating within their capacity.

## 5. Crash History.

---

Detailed crash history for Wandena Road was sourced from the MRWA Reporting Centre for the five year period between January 2011 and December 2015 which is the limit of currently available data. No fatalities were recorded during this time period and no incidents occurred at the intersection of Wandena Road and Powderbark Road or adjacent to the site. Of the 9 recorded incidents during 5 years, 6 incidents were due to cars swerving to avoid objects or animals or were collisions with objects or animals.

The predicted volume of traffic generated by the proposed development is relatively low and is not considered to increase the risk profile of the road or nearby intersections.

## 6. Changes to Surrounding Transport Networks.

---

The planned development of Northlink (Perth to Darwin Highway) will result in the transference of traffic from Great Northern Highway however it is unlikely to impact on traffic on Wandena Road.

## 7. Assessment Years.

---

The development is assessed on current network conditions.

## 8. Time Periods for Assessment.

---

Assessment is based on both daily traffic and peak hour periods.

## 9. Development Generation and Distribution.

---

Potential traffic flows from the site as advised by the proponent indicates approximately 20 movements per day by a mixture of six wheel tippers and semitrailers.





Assuming a “worst case scenario” with 10 movements exiting the site in the AM peak and 10 movements entering the site in the PM peak, and movements split evenly between the north and south, the impact on the adjacent road would be as summarised on Table 3.

Table 3 - Midblock Traffic Prediction Adjacent Network

Location	Daily Traffic (Existing as estimated / Predicted as estimated)	AM Peak (Existing as estimated / Predicted as estimated)	PM Peak (Existing as estimated / Predicted as estimated)
Wandena Road (Northbound)	770 / 780 vpd	110 / 115 vph	40 / 45 vph
Wandena Road (Southbound)	770 / 780 vpd	40 / 45 vph	110 / 115 vph

### 9.1. Impact on Intersections.

The predicted increase in traffic is not expected to measurably impact on the performance of intersections likely to be affected by the additional traffic and is unlikely to trigger any need for intersection upgrades.

### 9.2. Wandena Road.

Austrroads “Guide to the Design of Rural Roads” indicates the following width requirements based on design daily traffic.

Table 4 - Road Width Requirement

Element	Design AADT				
	1-150	150-500	500-1,000	1,000-3,000	>3,000
Traffic Lanes	3.5 (1 x 3.5)	6.2 (2 x 3.1)	6.2-7.0 (2 x 3.1/3.5)	7.0 (2 x 3.5)	7.0 (2 x 3.5)
Total Shoulder	2.0	1.5	1.5	2.0	2.5
Shoulder Seal	0.5	0.5	0.5	1.0	1.5

Based on expected typical daily traffic volumes of about 1,560 vehicles per day, the guideline recommends 2 x 3.5 metre lanes with 1.0 metre wide sealed shoulders and 1.0 metre wide unsealed shoulders. The existing unsealed road width is typically 8.0 metres and on current traffic volumes an upgrading of the road is likely to be warranted based on the Austrroads guidelines.

Despite this, the volume of traffic generated by the proposed development is relatively low (20 movements per day) and would not justify the recommended upgrade. Further, it is expected that as the Muehea Employment Zone develops, Wandena Road north of Muehea East Road will be constructed to a sealed standard and likely to a design speed of 120 km/h.



### 9.3. Access Movements.

Access to and from the site will be via a crossover constructed approximately midpoint along the Wandena Road boundary of Lot 191. Vegetation on the Wandena road verge has the potential to impact on sight distance from the access point and there is likely to be a need to clear sight triangles so as to provide an appropriate sight distance to the north and to the south. The exact location of the crossover will need to be determined with reference to the vertical geometry of Wandena Road and the need to provide sight distance commensurate with the design speed of the road. Ideally the driveway should conform to conform to the MRWA Driveways Guideline and be located in a clear area so as to provide ample sight distance for a stopped vehicle to safely enter the road in a forward direction.

Desirably the sight distance provided should be the Safe Intersection Sight Distance however, if this is not possible, sight distance equal to Stopping Sight Distance for the design speed of the road should be provided.

## 10. Conclusions.

---

A review of the traffic impacts associated with the operation of a transport depot on Lot 191 Powderbark Road in Lower Chittering indicated the following:

- Under the development scenario, the predicted generation from the site is 20 vehicle movements per day (10 inbound and 10 outbound), based on advice from the proponent with all movements carried out by a mix of 6 wheel tippers and semi-trailer tippers. The movements are estimated to be split evenly towards the north and the south.
- Expected increase in traffic using these roads is predicted to be a maximum of 10 movements per hour; both in the morning and afternoon peak. This assumes that all movements will involve trucks exiting the site in the morning and returning in the afternoon.
- The location of the driveway on Wandena Road will need to be chosen so as to provide adequate sight distance to both the north and south and sight distance should meet the requirements for a design speed based on a sealed upgraded Wandena Road.
- The additional traffic generated by the proposed development will not trigger the need for modification to any intersection or the need to upgrade the surface of Wandena Road.



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Appendix A – Traffic Counts.

Weekly Volume by Hour																			
Traffic Flow:		Directional				Road Name:		Wandena Rd (5020030)											
Site No:		51871				Location Description:		South of Muchea East Rd (SLK 2.60)											
Date Range:		16 Jul 2015 to 03 Sep 2015				Count Type:		Classification Counts											
Average Vehicle Volume																			
Hour	Mon		Tue		Wed		Thu		Fri		Sat		Sun		Mon - Fri		Mon - Sun		
	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	
0000	1	2	1	4	1	4	1	4	2	6	2	9	3	10	1	4	2	6	
0100	0	4	1	3	1	3	1	4	2	5	2	3	2	5	1	4	1	4	
0200	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
0300	5	2	5	2	5	1	4	1	3	2	2	3	2	3	4	2	4	2	
0400	24	2	27	4	30	3	22	2	21	3	4	2	3	1	25	3	19	2	
0500	81	5	86	5	86	6	79	6	63	6	20	3	10	3	83	6	63	5	
0600	137	19	136	19	135	24	146	25	129	23	30	9	18	4	137	22	104	18	
0700	158	38	156	41	160	34	161	36	153	33	53	19	37	14	158	36	125	31	
0800	117	39	123	39	119	37	129	36	122	32	74	28	49	21	122	37	105	33	
0900	73	44	70	37	76	42	77	47	76	41	90	52	69	39	74	42	76	43	
1000	58	37	56	31	53	33	58	38	62	47	85	76	79	62	57	37	64	46	
1100	49	45	46	41	47	40	47	46	50	48	81	89	79	71	48	44	57	54	
1200	46	47	46	44	41	47	46	48	48	64	67	94	63	76	45	50	51	60	
1300	50	55	41	53	40	57	44	53	50	62	53	86	70	64	45	56	50	61	
1400	54	66	56	67	58	64	64	65	62	75	52	80	66	62	59	67	59	68	
1500	47	110	46	109	47	115	55	114	63	119	56	83	70	67	52	113	55	102	
1600	44	157	46	143	48	138	54	141	55	144	70	87	65	72	49	145	55	126	
1700	33	144	38	155	48	156	46	144	53	152	69	85	49	65	44	150	46	129	
1800	27	90	26	99	27	103	33	107	38	101	49	58	30	44	30	100	33	86	
1900	10	40	15	44	15	50	14	52	17	48	19	31	17	30	14	47	15	42	
2000	10	29	8	30	8	32	9	41	13	30	21	21	12	15	10	32	12	26	
2100	4	21	5	24	4	25	5	30	10	31	12	22	5	16	6	26	6	24	
2200	2	9	2	13	3	13	2	12	6	26	12	21	2	8	3	15	4	15	
2300	2	5	1	7	1	9	2	9	3	17	8	15	2	4	2	9	3	9	
Total	1034	1012	1039	1016	1055	1038	1101	1063	1123	1117	933	978	804	758	1071	1049	1013	996	
Peak Statistics																			
	Mon		Tue		Wed		Thu		Fri		Sat		Sun		Mon - Fri		Mon - Sun		
	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	
AM	1/4 Hour	0730	0915	0730	0745	0730	0800	0730	1145	0745	1145	1000	1145	1045	1145	0730	1145	0730	1145
	1/4 Hr Vol	44	12	44	13	44	11	39	13	42	13	26	26	22	19	42	11	33	15
	1/2 Hour	0730	1115	0730	0745	0730	1145	0730	0900	0730	1145	0945	1130	1030	1145	0730	1145	0730	1145
	1/2 Hr Vol	83	24	86	23	87	23	74	25	81	29	48	49	43	40	82	24	66	29
	1 Hour	0700	1130	0715	0730	0700	1130	0700	1145	0715	1145	0915	1145	1030	1145	0700	1145	0700	1145
	1 Hr Vol	158	47	156	44	160	46	141	47	154	62	94	98	84	77	153	49	123	60
	1 Hr Fact	.9036	.9139	.8864	.8556	.9032	.875	.9156	.8785	.9074	.9274	.919	.9321	.9545	.9358	.9156	.9323	.9212	.964
2 Hour	0600	1145	0615	1145	0615	1145	0600	1145	0615	1145	0630	1130	0930	1100	0615	1145	0645	1145	
2 Hr Vol	296	99	295	91	296	100	269	100	289	122	177	186	189	147	287	102	232	119	
PM	1/4 Hour	1445	1630	1415	1700	1400	1730	1430	1730	1430	1730	1630	1230	1530	1630	1430	1730	1430	1730
	1/4 Hr Vol	16	41	17	43	17	41	18	37	18	41	21	25	20	21	16	39	15	34
	1/2 Hour	1445	1615	1415	1645	1400	1715	1415	1730	1415	1600	1630	1215	1515	1200	1415	1715	1415	1715
	1/2 Hr Vol	30	79	31	79	31	79	35	75	34	79	37	49	37	40	31	75	30	65
	1 Hour	1400	1600	1400	1645	1345	1700	1400	1700	1430	1700	1630	1200	1445	1200	1400	1645	1400	1645
	1 Hr Vol	54	157	56	157	58	156	64	144	64	152	74	94	71	76	59	150	59	129
	1 Hr Fact	.8438	.9573	.8448	.9098	.875	.9479	.8767	.9632	.9032	.9236	.887	.9454	.8939	.9236	.9415	.95	.9541	.957
2 Hour	1315	1600	1400	1600	1345	1600	1400	1600	1415	1600	1600	1200	1345	1515	1400	1600	1400	1600	
2 Hr Vol	106	301	101	298	107	294	119	284	126	296	139	180	137	140	110	294	114	255	
Peak	12 Hour	0500	0715	0445	0730	0515	0745	0615	0845	0500	0845	0645	0830	0630	0745	0500	0745	0515	0745
	12 Hr Vol	914	878	907	865	910	881	873	882	952	934	801	849	728	674	910	884	854	849

Figure 5 - Wandena Road South of Muchea Road - Traffic Counts



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**ClassMatrix-63**  
**Site:** 502\_000030\_008000.0.ONS  
**Description:** WandenaRd\_500mNthOfPowderbarkRd\_29may14to24jun14  
**Filter time:** 0:00 Friday, 30 May 2014 => 8:31 Thursday, 26 June 2014  
**Scheme:** Vehicle classification (AustRoads94)  
**Filter:** Cls(1 2 3 4 5 6 7 8 9 10 11 12 ) Dir(NESW) Sp(10,160) Headway(>0)

Speed (km/h)	Class												Speed_Totals	
	1	2	3	4	5	6	7	8	9	10	11	12		
10 - 20	36	3	4	3	2	.	1	.	.	.	.	.	49	3.2%
20 - 30	379	20	47	2	1	2	3	.	.	.	.	.	454	29.4%
30 - 40	160	1	15	2	1	.	.	.	1	.	.	.	180	11.7%
40 - 50	96	15	7	1	.	.	.	.	.	.	.	.	119	7.7%
50 - 60	176	30	18	4	.	.	1	2	.	.	.	.	231	15.0%
60 - 70	152	23	14	19	14	.	3	1	2	.	.	.	228	14.8%
70 - 80	96	15	8	13	42	1	.	2	6	.	.	.	183	11.8%
80 - 90	39	9	4	9	16	.	.	.	.	.	.	.	77	5.0%
90 - 100	7	1	3	1	3	.	.	.	.	.	.	.	15	1.0%
100 - 110	2	1	.	1	.	.	.	.	.	.	.	.	4	0.3%
110 - 120	3	.	.	2	.	.	.	.	.	.	.	.	5	0.3%
120 - 130	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
130 - 140	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
140 - 150	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
150 - 160	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
<b>Totals</b>	<b>1146</b>	<b>118</b>	<b>120</b>	<b>57</b>	<b>79</b>	<b>3</b>	<b>8</b>	<b>5</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1545</b>	
	<b>74.2%</b>	<b>7.6%</b>	<b>7.8%</b>	<b>3.7%</b>	<b>5.1%</b>	<b>0.2%</b>	<b>0.5%</b>	<b>0.3%</b>	<b>0.6%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>		

Figure 6 - Wandena Road North of Powderbark Road - Traffic Counts



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## Appendix B – Detailed Crash History – Wandena Road

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Detailed Crash History



Report Criteria	SLK	CWY
5020030 - Wendara Rd	0.00 to 2.75	All
	2.75 to 7.44	All
	7.44 to 8.69	All

Parameter	Value	Description
From Date	01/01/2011	
To Date	31/12/2016	
Crash Type	All	
Severity	All	

Road	SLK	CWY	True Dist	Loc End Date	Dist Error	Intersection	Date	Day	Time	Severity	Crash No.	Type	Light Cond	Road Cond	Speed Limit	Traffic Control	Road Feature	Road Alignment	Speed Factor	MR Nature	Location	RUM	Unit	Unit Type	From Dir	To Dir	Wgn/Ped Move	First Object Hit	Second Object Hit	Third Object Hit	Target Impact Point						
5020030	0.18	S	0.18		0.00		19/01/2011	Wedne	1700	Hospital	20118	Medblock	Daylight	Dry	110	No Sign Or Control		Straight			Hit Object	On Right Verge After Leaving Oway	74/Off Path On Straight Oway Oh	Colliding	Station Wagon	S	N	S	S	S	S	S	Station Wagon				
	1.08	S	1.08		0.00		11/07/2015	Satur	0830	PDJ Major	20161	Medblock	Daylight	Dry		No Sign Or Control		Curve			Non Collision	On Left Verge After Leaving Oway	83/Off Path Oway Left Bend	Colliding	Station Wagon	N	S	S	S	S	S	S	Station Wagon				
	1.38	S	1.38				12/03/2013	Tuesd	1715	Medical	20130	Medblock	Daylight	Dry		No Sign Or Control		Curve			Hit Object	On Left Verge After Leaving Oway	82/Off Path On Curve Off Right Bend In	Colliding	Motor Cycle	S	N	S	S	S	S	S	Motor Cycle				
	2.75	S	2.75			MULCHEA EAST RD (010665)	19/06/2012	Satur	2305	PDJ Major	20128	Intersection	Dark - Street Lights On	Dry		No Sign Or Control	4way Jct.	Curve			Hit Object	On Right Verge After Leaving Oway	84/Off Path On Curve Off Right Bend In	Colliding	Car	W-MCH EAST RD	E-MCH EAST RD	S	S	S	S	Car					
	4.36	S	4.36				19/12/2014	Thursd	1155	PDJ Minor	20150	Medblock	Daylight			No Sign Or Control		Curve			On Oway	67/On Path Temp Oh On Oway	Colliding	Car	N	S	S	S	S	S	Car						
	4.58	S	4.58		0.00		12/11/2012	Monda	1610	PDJ Major	20127	Medblock	Daylight	Dry	110	No Sign Or Control		Curve			Hit Object	On Left Verge After Leaving Oway	82/Off Path On Curve Off Right Bend In	Colliding	Utility	S	N	S	S	S	S	Utility					
	4.77	S	4.77		0.00		10/10/2012	Tuesd	1830	PDJ Minor	20127	Medblock	Dawn Or Dusk	Dry	110	No Sign Or Control		Straight			Hit Animal	On Oway	88/On Path Hit Animal	Colliding	Car	N	S	S	S	S	S	Car					
	5.82	S	5.82		0.00		13/01/2014	Monda	0900	PDJ Major	20146	Medblock	Daylight	Dry		No Sign Or Control		Curve			Non Collision	On Oway	85/Off Path Lost Control On Oway	Colliding	Truck	N	S	S	S	S	S	Truck					
	8.81	S	8.81				19/01/2011	Wedne	1700	Hospital	20110	Medblock	Daylight	Dry	110	No Sign Or Control		Curve			Hit Object	On Right Verge After Leaving Oway	84/Off Path On Curve Off Left Bend In	Colliding	Station Wagon	S	N	S	S	S	S	Station Wagon					

**WATER MANAGEMENT PLAN**  
**FOR PROPOSED HARDSTAND DEVELOPMENT**  
**on**  
**LOT 191 POWDERBARK ROAD, LOWER CHITTERING**

PREPARED FOR

**WC AND SJ WRIGHT SUPERFUND**

BY



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**MARCH 2017**

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- Table 2: Rainfall Intensity/Frequency for the Site.
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- Appendix 1: Proposed Drain Type Illustrations
- Appendix 2: Hydrocarbon Spill Response Procedure



## 1. INTRODUCTION

The Owner of Lot 191 Powderbark Road, WC & SJ Wright Super Fund Pty Ltd, wishes to develop part of Lot 191 as a transport depot and associated infrastructure area. A previous planning approval application was submitted to the Shire of Chittering, but was returned to the applicant for further work on a number of issues, of which a revised Water Management Plan (WMP) was one. Specific comments received from the Shire of Chittering and the Department of Water (DoW) were that Water Sensitive Urban Design (WSUD) principles were not sufficiently incorporated into the initial submission. This report represents a revised WMP which takes into account the work done previously by others for this project, but adds to it the elements of WSUD principles.

Based on the research undertaken for this report and interaction with the Owner, the original footprint has decreased in size and this has also changed the previously calculated storm flows and overall storage requirement.

## 2. BACKGROUND

### 2.1 Locality and Ownership

Locality: Lot 191 on Deposited Plan 59351, Shire of Chittering  
 Ownership: WC & SJ Wright Super Fund Pty Ltd

Figure 1 shows the regional location of the site.

### 2.2 Topography and Drainage

Lot 191 can be generally described as gently undulating with the natural ground level ranging from 130m AHD in the western section of the property to 175m AHD in the south-eastern corner of the property. The catchment above the site is approximately 68ha and comprises both natural bush and pasture-land. A small amount of this catchment comprises rural residential property and the associated road network. Powderbark Road runs down the northern part of the catchment area and the roadside drainage from it is directed into a drainage easement on the subject land and detained in a basin. It is evident from sedimentation and erosion that have occurred on this site, that high rainfall events can create damaging stormwater flows down Powderbark Road

### 2.3 Regional Geology

The geology of the area falls within the Coolyena Group which consists of chalk, greensand, glauconitic sandstone, siltstone, and marl. It lies within the Dandaragan Trough of the Perth Basin. The Members of the Osborne Formation (Henley Sandstone, Kardinya Shale and Mirrabooka) which overlies the Leederville Formation contain the silts and shales of interest to such industries as brickmaking (Geoview 2017). The site has been drilled and evaluated for potential clay reserves, but suitable clays have been determined by the Department of Mines and Petroleum as being limited and too deep to be economical.

### 2.4 Groundwater Hydrology of the Site

The permanent water table is most likely to be at least greater than 20m below ground level, since a recent drilling program undertaken on the site by the proponent (all drill holes were to 20 metres) did not encounter the permanent water table. Since there are no long term DoW monitoring bores within 3 km of the site, it is difficult to estimate the depth to groundwater with any accuracy. Since groundwater is not close to the surface, it is unlikely that this project will have any impact on groundwater below the site.

### 2.5 Rainfall

The closest rainfall recording site with a reasonably long record for this project is Lower Chittering (9009). Statistical data for this site is included in Table 1 below.

**Table 1: Average Rainfall (mm) Lower Chittering Weather Station (9009)**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average rainfall	11.4	14.2	20.4	40.5	102.4	153.1	159.2	125.5	81.2	51	22.6	12.5	812.1*

*\*This average rainfall has been determined for the period 1915 to 2016.*

Rainfall intensity/frequency data has also been downloaded from the Bureau of Meteorology web site and is included as Table 2 below.

**Table 2: Rainfall Intensity/Frequency for the Site.**

Duration	AVERAGE RECURRENCE INTERVAL (ARI)						
	1 YEAR	2 YEARS	5 YEARS	10 YEARS	20 YEARS	50 YEARS	100 YEARS
5Mins	55.6	73.9	98.2	116	140	177	209
6Mins	51.9	68.8	91.4	108	130	164	193
10Mins	41.5	54.8	72.1	84_6	102	127	150
20Mins	28.9	38.0	49.1	57.1	68.1	84.4	98.3
30Mins	22.9	30.0	38.4	44.4	52.7	64.9	75.3
1Hr	15.1	19.6	24.8	28.4	33_4	40.8	47.0
2Hrs	9.79	12.7	15.8	18.0	21.1	25.5	29.2
3Hrs	7.60	9.81	12.2	13.8	16.1	19.4	22.2
6Hrs	4.95	6.36	7.81	8.80	10.2	12.2	13.9
12Hrs	3.21	4.11	5.01	5.62	6.50	7.75	8.78
24Hrs	2.05	2.61	3.18	3.56	4.10	4.88	5.52
48Hrs	1.26	1.61	1.95	2.18	2.52	3.00	3.40
72Hrs	.921	<b>1.18</b>	1.43	1.60	1.85	2.20	2.49

Source: Bureau of Meteorology (BoM) Data is in mm per hour

Data from Table 2 is used as input to calculations of flow.

## 2.6 Historic and Present Land Use

Lot 191 Powderbark Rd measures approximately 39ha comprising 14 ha of parkland cleared grazing land and 25ha of good quality *Eucalyptus* bushland. As easement for stormwater management exists on the Certificate of Title for the purpose of receiving drainage from Powderbark Road and a drain and pond have been constructed within this easement. There are currently no buildings on the property.

## 2.7 Proposed Development

The site will be used as a Transport Depot and will comprise the following elements:

- Bitumenised hardstand areas for vehicle and plant parking with offices, sheds and sea containers for storage. A wash-down bay and a vehicle refuelling facility will also to be included within this area (4.7ha).
- Gravelled hardstand area (3.9ha).
- Grassed and landscaped areas on constructed embankments (1.3ha).
- Park-land areas and water management features (4ha).
- Enlargement of the existing basin.

Figure 2 illustrates the proposed use of the site.

### 3. HYDROLOGY OF THE SITE

#### 3.1 Estimated Runoff through the Site

##### 3.1.1 Mean annual runoff

The site receives runoff from a catchment to the north and east which measures 68 ha. This catchment is illustrated in Figure 3. Mean annual runoff can be estimated using the method from Nelson KD (1997) as follows: 10% of mean annual rainfall x the catchment area = mean annual runoff. This is a general guideline only and may vary significantly from year to year. The calculation is as follows:

Catchment area= 68ha

Mean annual rainfall from Table 1= 812mm

Therefore mean annual runoff = 10% x 812mm x 68ha = 55,000m<sup>3</sup>

##### 3.2 Existing Water Infrastructure

Stormwater infrastructure has been created on the property to deal with runoff from the subdivision to the east and Powderbark Road. As evidenced by erosion and sedimentation on the site, stormwater impact on the site from these areas can be significant. Infrastructure that has been created on and around the property to deal with stormwater, consist of a retention basin and open drain constructed within an easement on the property, together with a culvert under Wandena Road and a number of drains along Powderbark Road. The retention basin is approximately 1100m<sup>2</sup> in area and 3m deep. The calculated capacity is approximately 3000kl. No formal armoured spillway exists and overflow is from the sides and then towards the culvert on Wandena Road.

##### 3.3 Estimated Storm Flows

Pre-development storm flows from the entire catchment area above the site have been estimated using the modelling package XP Storm and are included as Table 3.

**Table 3: Predevelopment Stormwater Volumes using XP Storm Modelling Software**

ARI Event	Duration	Volume m <sup>3</sup>
1 year	1 hour	1490
5 year	1 hour	3030
100 year	1 hour	7440

##### 3.3 Post Development Flows

Based on the proposed site land use described in section 2.7 of this report, the following calculations have been made in regard to post development estimated flood flows. Since this site is small, the basic Rational Method has been used with assumptions for catchment roughness coefficients as follows:

Bitumen hardstand: 0.8

Gravel hardstand: 0.6

Grassed and landscaped areas: 0.4

Parkland (undeveloped): 0.3

**Table 4: Storm Water Runoff from Elements of Proposed Development**

Development Element	ARI per 1 hour Storm Event			
	1 yr 1 hr storm m <sup>3</sup>	5 yr 1 hr storm m <sup>3</sup>	10 yr 1 hr Storm m <sup>3</sup>	100 yr 1hr storm m <sup>3</sup>
Bituminised hardstand	568	932	1068	1767
Gravelled hardstand	353	580	665	1100
Grassed and landscaped	79	129	147	244
Parkland	181	298	340	564
Total	1181	1939	2221	3675

Due to the hardened surfaces proposed for this development, it is estimated that additional storm water flows will be as listed in Table 4. The proposed development will add to the storm flows (depending on the storm event) that are currently experienced within the catchment. It is proposed to increase the size of the retention basin above Wandena Road to receive this water.

## 4. WATER SENSITIVE DESIGN ELEMENTS

Since the guidelines indicated in Water Quality Protection Note 52 (DoW 2010) indicate that the first 15mm of rainfall (1hr 1 yr ARI) should be stored and treated in situations where potential exists for contamination of open water resources, the following design elements are proposed for the site and shown on Figure 2:

- Storm water treatment ponds
- Various types of open drains (Types A, B and C are included as Appendix 1)
- Bunds to prevent water from natural areas entering the proposed development areas.
- An increase in the capacity on the existing retention basin.
- An ATU for onsite sewage disposal.
- An oily water separator to deal with effluent generated by the wash-down bay
- Spill Kits and Skip Bin hire for workshop waste.

Other elements of the project such as an ATU sewage treatment plant and a wash down bay are not illustrated on Figure 2 nor discussed in detail in this report. These installations will require detailed design as essentially “closed loop” facilities with pollution control technology associated with offsite disposal as and when required.

### 4.1 Storm water Treatment Ponds

Based on the calculated 1yr/1hr ARI for the two different hardstand areas, it is proposed that five, clay lined, storm water treatment ponds will be constructed, three within the bitumenised and two within the gravelled hardstand areas. These ponds will be designed to receive a half each of the 1yr/1hr ARI with a bypass system that activates once the pond has filled. Ponds will be regularly monitored for hydrocarbons and maintained by removing accumulated sediment. Rainwater from the hardstand areas will be directed to the ponds by the use of cross-falls and low diversion bunds. When necessary, cleanup methods, such as absorbent materials, will be used to remediate the water to acceptable standards prior to returning the water to the natural surrounds. A Hydrocarbon Spill Management Plan has been included as Appendix 2.

### 4.2 Open Drains

Open drains of various types will be used to convey water and these are described below.

A six metre strip of native trees and shrubs is proposed immediately along the property boundary with Powderbark Road. This area will serve a dual role as a visual screen and for stormwater conveyance. The ground within this zone will be shaped as a V-drain prior to planting, with a maximum depth at the centre of 0.5m. This drain will serve to convey any storm water accrued from the natural areas to the east or any overflow from the drains along Powderbark Road, into the retention pond in the west of the site. This drain is illustrated as Drain Type A in Appendix 1.

Along the eastern a western perimeters of the gravelled hardstand areas, open drains will be constructed to receive the runoff from the hardstand itself and to direct water into the treatment ponds. In constructing the drains, the material excavated will be deposited as a bund to the outer edge, thus preventing any ingress of water from the natural areas to the east and west. Since these natural areas comprise sandy soils and are densely vegetated, strong storm flows from these areas are unlikely. Grass will be allowed to grow within the drain to serve as a form of natural attenuation to strong flows which may cause erosion. Regular maintenance of these drains will be required to ensure their efficient operation. These drains are illustrated as Type B in Appendix 1.

A wide (+-5m) spoon type drain will be placed the northern end of the gravelled hardstand area and its purpose will be to convey water from the natural areas in the east and west and as overflow from the ponds on the

hardstand areas, into the retention pond to the west of the site. The shape of this drain should be designed to allow for ease of movement by vehicles. This drain is illustrated as Type C in Appendix 1.

#### **4.3 Retention Basin Enlargement**

It is proposed to enlarge the existing retention basin to buffer the impact of additional storm flows resulting from the proposed development. Based on the calculations done for this report, the additional storm water load that may occur from the 10 year 1 hour storm is 2221m<sup>3</sup> (Table 4). An enlargement of the existing retention basin, which has a current capacity of 3000m<sup>3</sup>, to hold the additional volume, can be easily achieved by increasing the surface area to 9,000m<sup>2</sup> and the depth to 4m. This will hold approximately 36,000m<sup>3</sup>, which will more than adequately deal with high flood events. The final sizing of the basin will require detailed design prior to its construction.

It is also proposed to use the water stored in the basin for the purpose of dust management and potentially also for firefighting. Advice from the DoW is that approval will be required for construction for these purposes. All approvals that are required for the construction of the increased retention basin will be obtained after planning approval for the proposed development has been obtained from the Shire.

#### **4.4 Site ATU**

An industry standard sewage ATU will be installed and the effluent produced will be water with only slightly elevated nutrients. This water will be applied to an area of grass which is close to the office premises. These systems do not impact water ways if properly managed.

#### **4.5 Wash Down Bay**

It is estimated that water usage in the wash-down bay will be 1000 litres per week, which equates to five trucks a week at approximately 200 litres per truck. All water used for this purpose will flow to a sump below the wash down area and then be processed through a package treatment works which will be purchased as a standalone unit. Purified water will be reused and the oily residue will be stored in drums and removed from site by a licensed contractor.

#### **4.6 Above Ground Fuel Storage Tank**

It is proposed to install a surface fuel storage tank for 8000 litres of diesel on the site. This tank will be purchased as a standalone unit and will conform to industry standards in all respects. Appropriate spill control equipment in kit form will be kept alongside this installation.

A hydrocarbon spill management strategy is included as Appendix 2.

#### **4.7 Workshop Spill Kit and Skip Bin hire**

A workshop will be in operation on the site. Potential hydrocarbons spills will be managed by the use of spill kits, with clean-up materials being disposed of in hired skip bins that are managed by specialist contractors.

## **5. REFERENCES**

ASRIS (2011). ASRIS - Australian Soil Resource Information System. <http://www.asris.csiro.au>. Accessed: March 2017.

Bioscience (2016). Stormwater Strategy. Lot 191 Wandena Road. Lower Chittering.

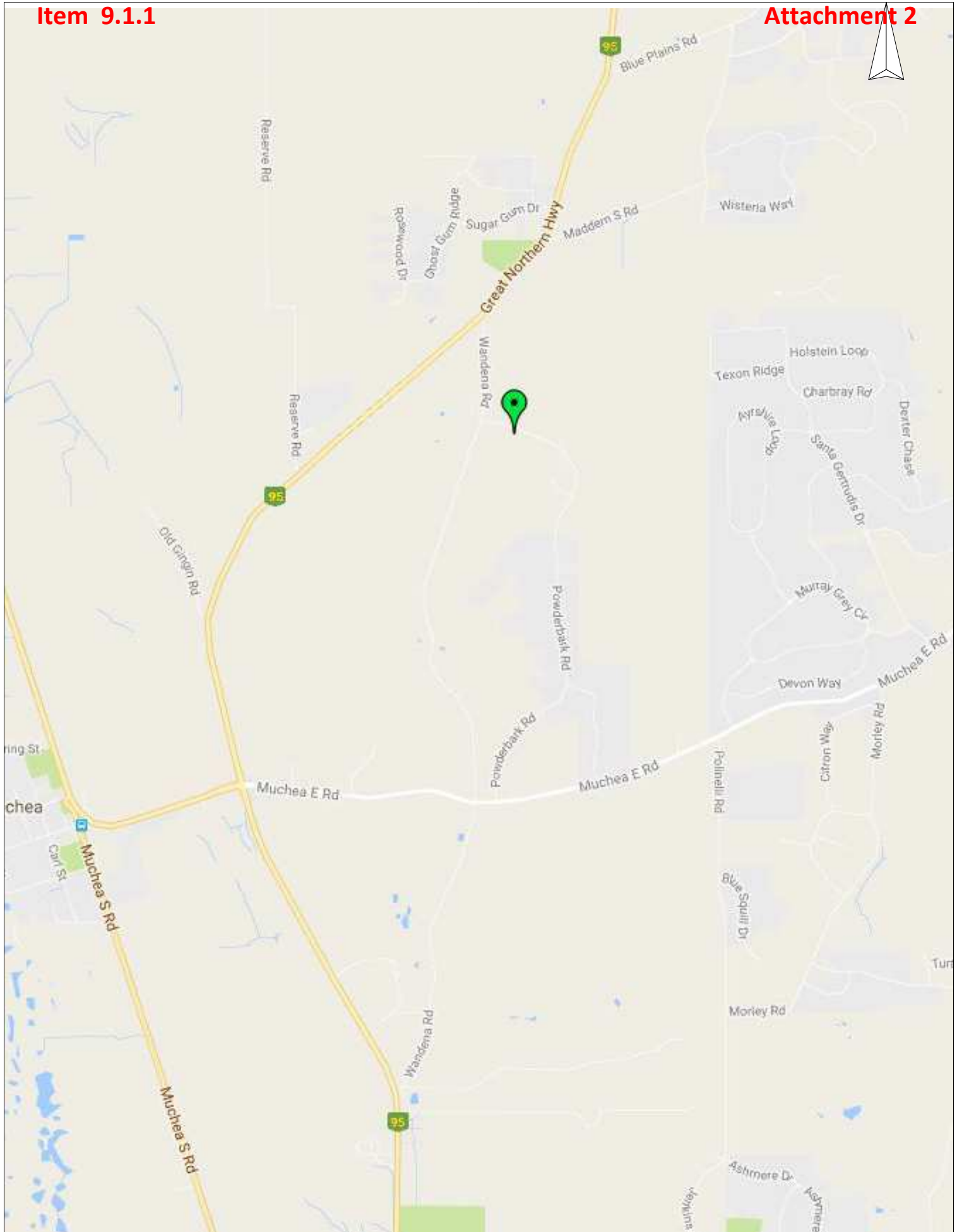
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**FIGURES**



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Scale: 1:3400  
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Air Photo Date: Nearmap Feb 2015  
Datum: World Geodetic 1984 (WGS84)

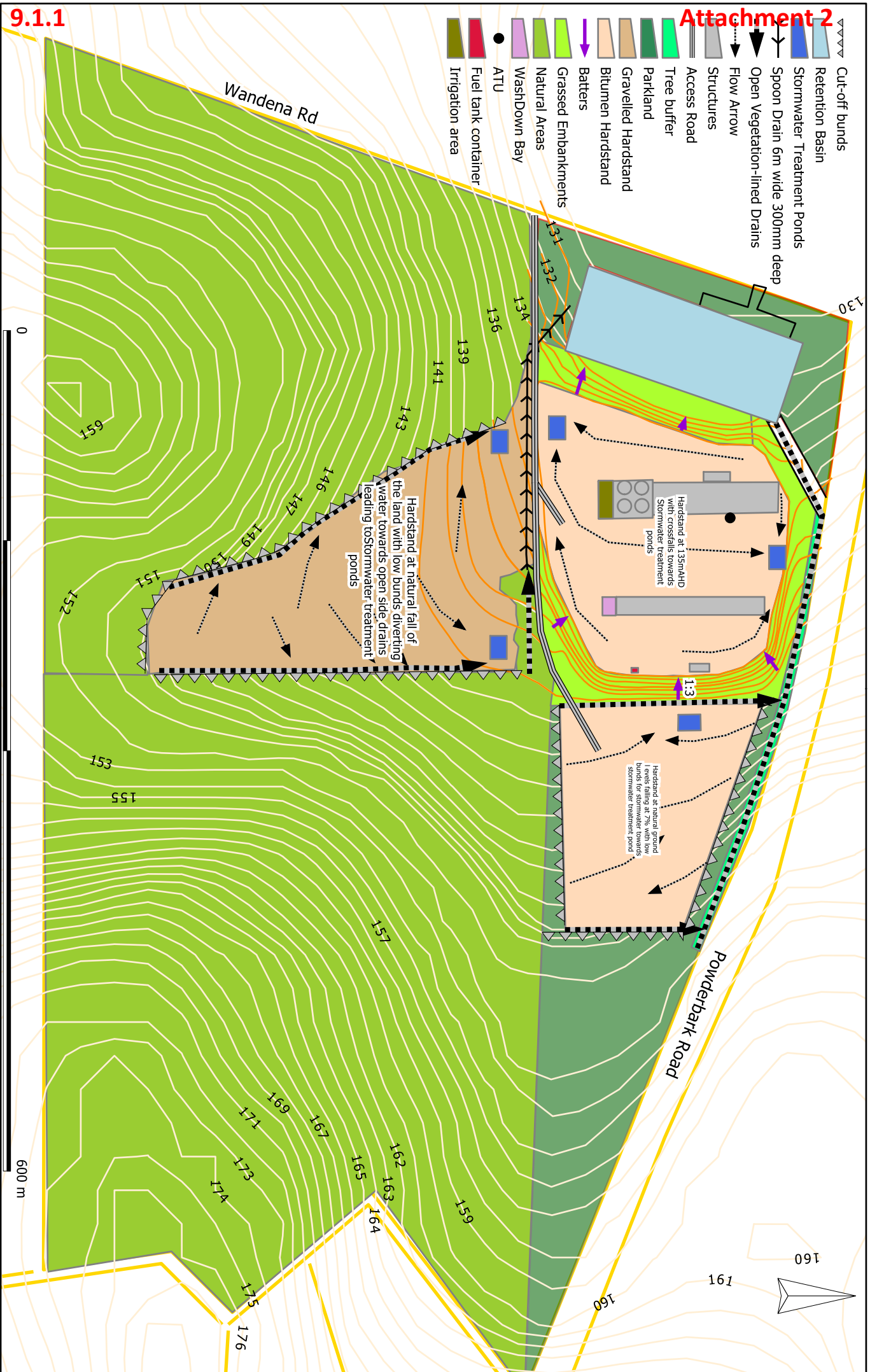
**WC and SJ Wright Superfund  
Lot 191 Powderbark Road  
Chittering  
Western Australia**

**Locality**

**Figure 1**

**Attachment 2**

- Cut-off bunds
- Retention Basin
- Stormwater Treatment Ponds
- Spoon Drain 6m wide 300mm deep
- Open Vegetation-lined Drains
- Flow Arrow
- Structures
- Access Road
- Tree buffer
- Parkland
- Gravelled Hardstand
- Bitumen Hardstand
- Batters
- Grassed Embankments
- Natural Areas
- WashDown Bay
- ATU
- Fuel tank container
- Irrigation area



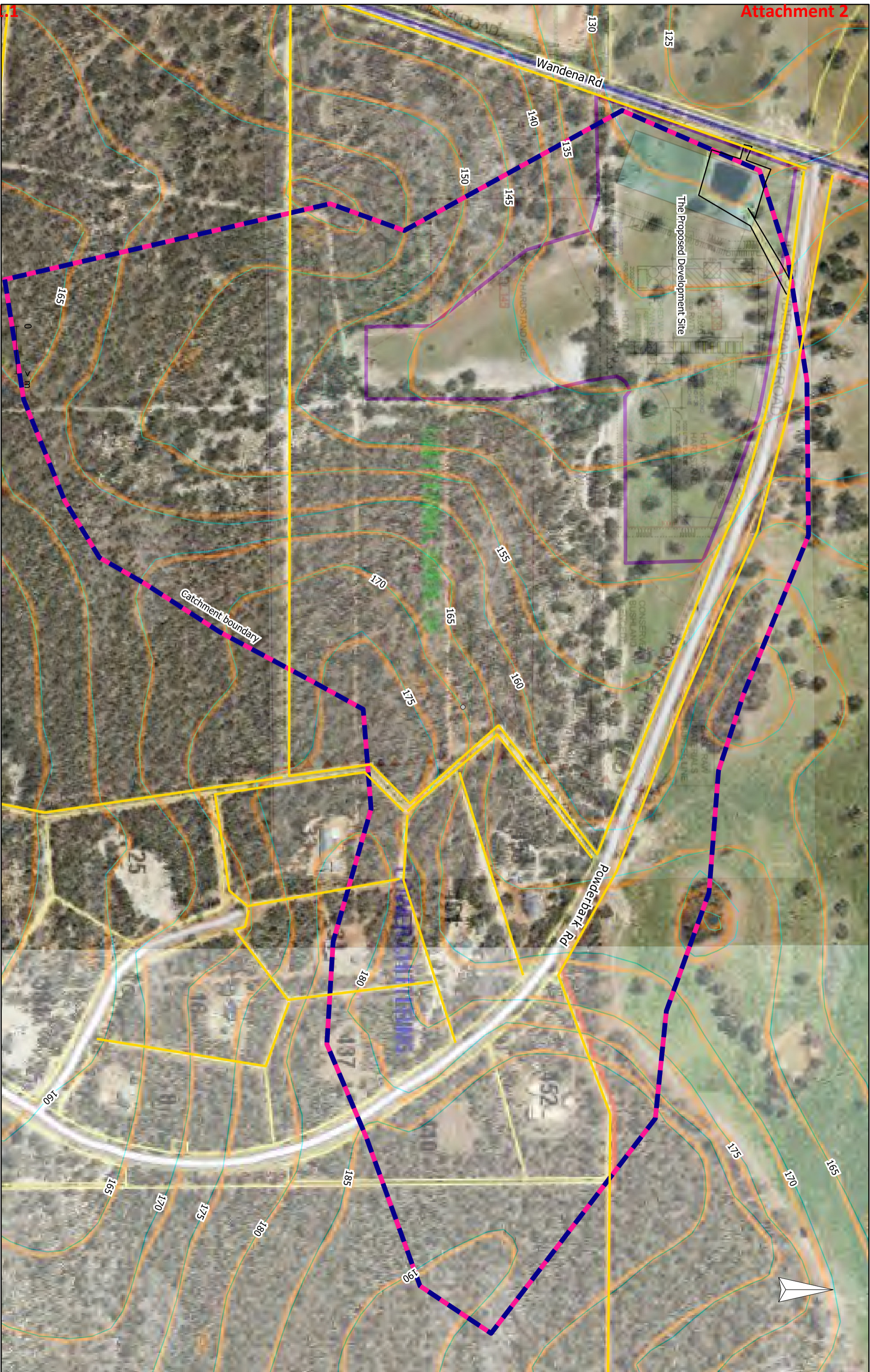
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**Storm Water Management Layout**  
**Figure 2**



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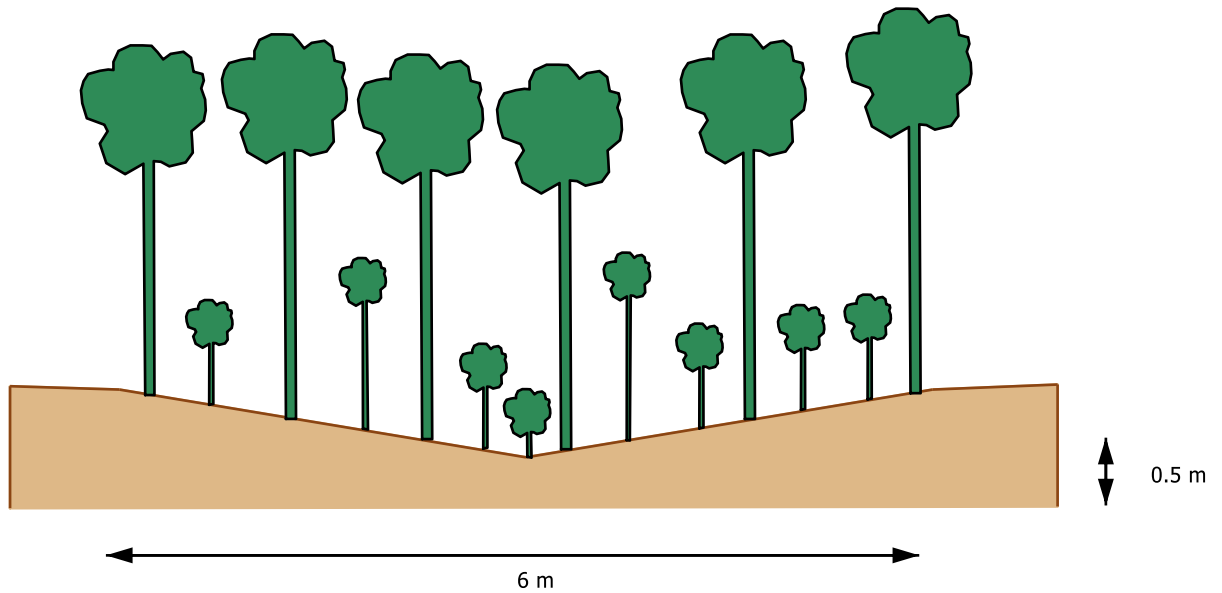
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 LOWER CHITTERING WA 6084

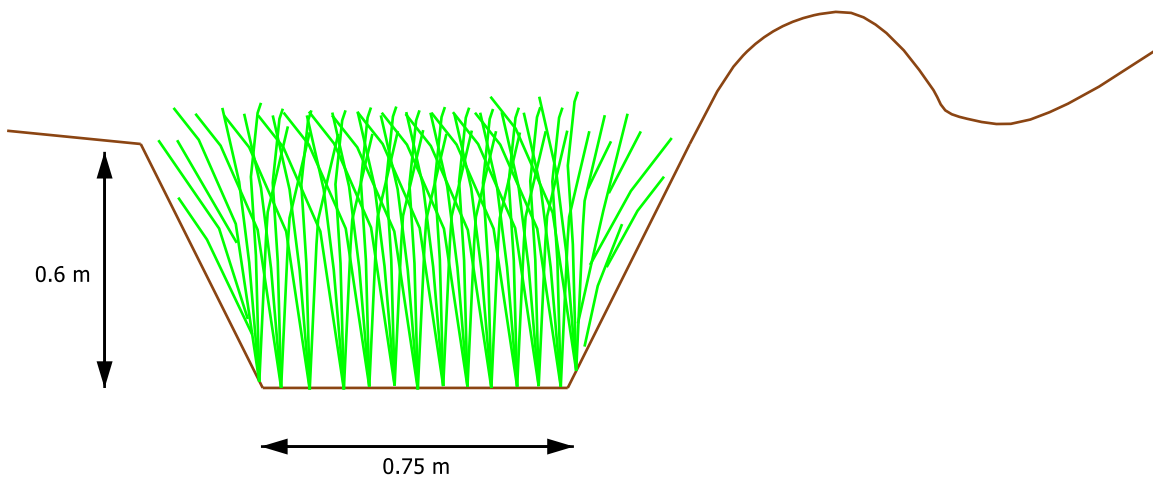
**Catchment Boundary**

Figure 3

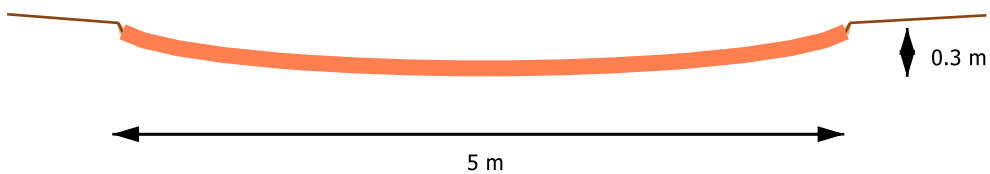
**APPENDIX 1:  
PROPOSED DRAIN TYPE ILLUSTRATIONS**



Drain Type B: Grassed Open Drain with Bund



Drain Type C



**APPENDIX 2**  
**HYDROCARBON SPILL RESPONSE PROCEDURE**

## HYDROCARBON SPILL MANAGEMENT PLAN

### 1 Hydrocarbon Spill Response

- 1.2 Identify the spilt substance
- 1.3 Identify hazards and PPE requirements – consult the appropriate MSDS.
- 1.4 If safe to do so, the source of the spill should be restricted or stopped (i.e. shutdown machinery, switch off pumps, close valves).
- 1.5 If suitable equipment is readily available and can be operated in a safe manner, the extent of the spill is to be contained.
- 1.6 Contact immediate Supervisor as soon as possible and advise of spill.

### 2 Techniques to restrict the extent of the contamination

- 2.1 If possible, restrict the source of the spill to ensure the flow of hydrocarbon is stopped.
- 2.2 If the spill is occurring outside a containment bund, use earthmoving equipment to construct additional earthen bunds to contain the extent of the flow.
- 2.3 Isolate drains.
- 2.4 On advice of the site manager, pump source material from either or both of the source container or the bunded containment into a safe container.

### 3 Techniques to collect spilled hydrocarbon

- 3.1 On advice of the Site Manager, pump source material from either or both of the source container or the bunded containment into a safe container.
- 3.2 Use absorbent materials to soak up residual hydrocarbon.
- 3.3 If the spill occurs in an area where a water body has become contaminated, use floating booms to contain the spread of hydrocarbon on the surface of the water.
- 3.4 Use a skimmer to collect contained hydrocarbon in a triple oil separator or retain on the surface of the water body and pump to a waste oil tank or other safe container.
- 3.5 Hydrocarbon absorbents are to be collected and disposed of by a registered contractor.

### 4 Techniques to treat soils contaminated by hydrocarbon

- 4.1 Dependent on site requirements and on advice from the Site Manager, contaminated soils may be treated in the following ways:
  - Collected and disposed of
  - Collected or remain in situ and treated by bioremediation to breakdown the hydrocarbon.
- 4.2 On completion of the rehabilitation program the Site Manager must inspect and verify that the spill has been successfully remediated.

### 5 Reporting requirements in regard to hydrocarbon spills

- 5.1 All incidents of hydrocarbon spills are to be reported to the immediate Supervisor as



## Item 9.1.1

## Attachment 2

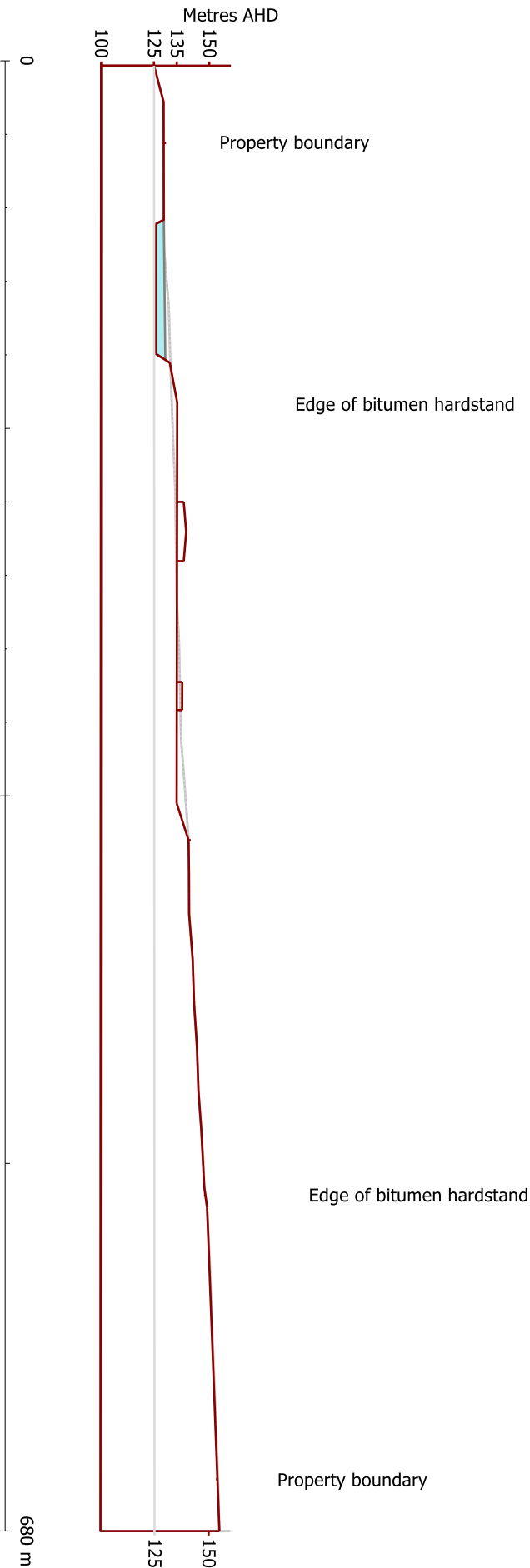
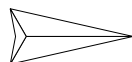
soon as possible and followed up with the completion of an Incident Report Form which requires an incident investigation to determine root cause and assists in the prevention of a reoccurrence.

5.2.1 The immediate Supervisor must then report the incident to the Site Manager to determine what reporting to external departments is required i.e. Department of Environment Regulation (DER).

### Suggested Spill Equipment

Type of Spill	Recommended Spill Equipment
Spill on rocks / dirt	<ul style="list-style-type: none"><li>• Use earthen bunds or booms to contain spill</li><li>• Polypropylene pads to mop up excess oil at the outset</li><li>• Global Peat or Enretec to treat contaminated soil in-situ</li></ul>
Spill on concrete / hardstand area e.g. workshop	<ul style="list-style-type: none"><li>• Polypropylene pads (easiest and quickest)</li><li>• Floorsorb / kitty litter if pads not available (this must be swept up and disposed of in hydrocarbon bins immediately, as these products are not hydrophobic and will not contain the spill if they become wet)</li></ul>
Spill in containment bund	<ul style="list-style-type: none"><li>• Polypropylene pads or pillows</li><li>• Bund can be drained or sucked out to waste oil receptacle if the spill is large</li></ul>
Spill occurs when raining or on a water body	<ul style="list-style-type: none"><li>• Polypropylene pads</li></ul>

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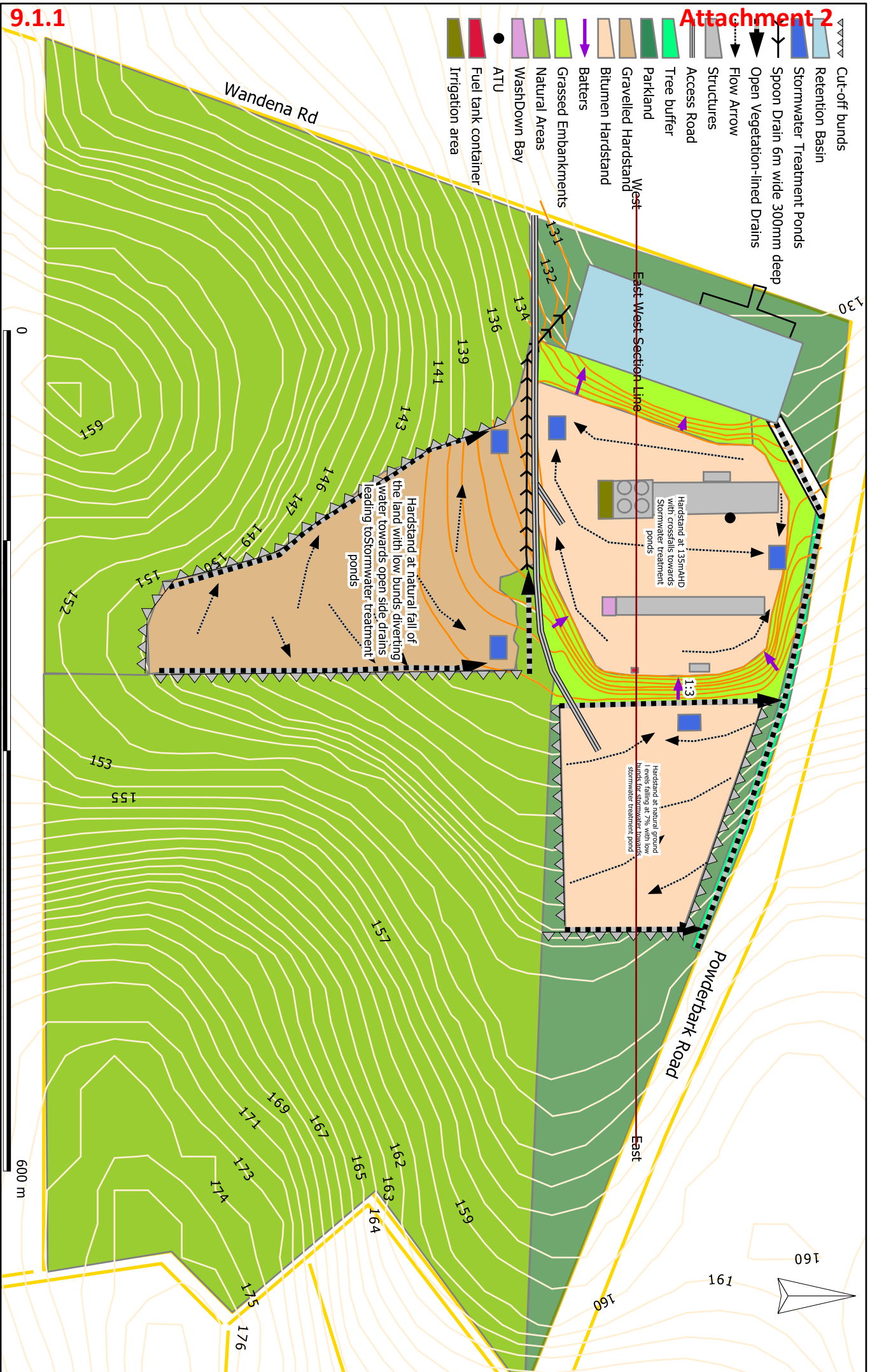
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**WC&SJ Wright Superfund**  
 Lot 191 Powderbark Road  
 LOWER CHITTERING WA 6084

**East West Cross section Through site**  
**Figure A**

**Attachment 2**

- Cut-off bunds
- Retention Basin
- Stormwater Treatment Ponds
- Spoon Drain 6m wide 300mm deep
- Open Vegetation-lined Drains
- Flow Arrow
- Structures
- Access Road
- Tree buffer
- Parkland
- Gravelled Hardstand
- Bitumen Hardstand
- Batters
- Grassed Embankments
- Natural Areas
- WashDown Bay
- ATU
- Fuel tank container
- Irrigation area



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 Original Size: A4  
 Air Photo Date: Nearmap Jan 2017

**WC&SJ Wright Superfund**  
 Lot 191 Powderbark Road  
 LOWER CHITTERING WA 6084

**Storm Water Management Layout**  
**Figure 2**

A11627 – Proposed Transport Depot and Hardstand – Lot 191 Wandena Road, Lower Chittering

\*Note: Comments are as per original submission received by the Shire. Submission comments have not been edited unless for the purposes of confidentiality where necessary.

Agency Submissions			
Submitter	Comment	Proponent Response	Shire Officer Response
Department of Fire and Emergency Services	<p>The Department of Fire &amp; Emergency Services (DFES) provides the following comments pursuant to State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) and the Guidelines for Planning in Bushfire Prone Areas (Guidelines):-</p> <ul style="list-style-type: none"> <li>i. The proposed development application is located in an area designated as bushfire prone pursuant to the <i>Fire and Emergency Services Act 1998 (as amended)</i> and identified on the <i>Map of Bush Fire Prone Areas</i>, and as such, the provisions of State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) apply.</li> <li>ii. In accordance with the requirements SPP 3.7, any development application within a bushfire prone area is to be accompanied by a Bushfire Attack Level (BAL) Contour Map and a Bushfire Management Plan (BMP), prepared by an accredited Bushfire Planning Practitioner.</li> <li>iii. Given that the proposed development application has the potential to increase the threat of bushfire to people, property and infrastructure, it is considered that it should not be supported until such time that the bushfire risk and hazard reduction measures are established and understood.</li> </ul> <p>We recommend that this subdivision application be deferred/refused to allow the proponent to submit a BAL Contour Map and BMP prepared by an accredited bushfire practitioner and in accordance with the Guidelines.</p> <p><b>LAND USE PLANNING REFERRAL (RECEIVED SEPERATELY)</b>  <i>A11627 Lot 191 Wandena Road, Lower Chittering – Bushfire Management Plan (BMP) Blue Oar Pty Ltd, V1 May 2016</i></p> <p>DFES have the following comments with regard to <i>State Planning Policy 3.7 Planning in Bushfire Prone Area (SPP 3.7)</i> and the <i>Guidelines for Planning in Bushfire Prone Areas (Guidelines)</i></p> <p>Considerations for the Shire of Chittering</p> <p><b>1. Policy Objectives</b></p> <ul style="list-style-type: none"> <li>i. The BAL assessment is for a site designated as bushfire prone on the Map of Bush Fire Prone Areas, and therefore SPP 3.7 and the Guidelines apply.</li> <li>ii. Does the Shire of Chittering consider this development application to be high risk land use? The BMP does not state what is stored at the depot / warehouse or in the transport vehicles parked at the depot. The plan in figure 2.1 depicts a petrol and oil trap.</li> <li>iii. Policy Measure 6.6.1 states that '<i>development applications should include an emergency evacuation plan</i>' for vulnerable or high-risk land use in area where BAL 12.5 to BAL 29 apply.</li> <li>iv. In Section 7.0 states that the APZ and HSZ are not restricted by any designated environmental requirements but it is unclear whether approval has been given to clear the majority of the site. The BMP is based on clearing the majority of the site to create gravel hardstands.</li> </ul> <p>Technical advice for the bushfire consultant</p>	<ul style="list-style-type: none"> <li>ii. A Bush Fire Management Plan and a BAL Contour Map have been prepared by Blue Oar Pty Ltd, Bushfire Consultants.</li> <li>iii. BMP addresses all issues associated with threat and management of fire</li> </ul>	<p>The Shire's Community Emergency Services Manager has confirmed the revised content is acceptable.</p>

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	<p><b>2. General Observations</b></p> <p>i. Section 6.0 Bushfire Protection Criteria table has a statement in the Compliance column of 'the development will be complaint' this should be amended to the 'the development will be compliant' throughout.</p> <p><b>3. BHL Assessment</b></p> <p>i. The BHL should apply the appropriate methodology as set out in the Guidelines (Appendix 2, page 50-51). Areas found to be of low bushfire hazard, but are within 100 metres of a moderate or extreme hazard level area are to adopt a moderate bushfire hazard within that 100 metres.</p> <p><b>4. Element 2: Siting and Design</b></p> <p>i. The BAL Contour Map is modelled from the vegetation outside the lot boundary. Clarification is required as to the post development state of the vegetation within the lot.</p> <p>ii. There is no detail to clearly show the post development low threat areas, or how they will be managed / maintained to low threat across the entire site to the west of the security fence. Figure 2.1 does not provide enough detail of the development.</p> <p>iii. There is no evidence of the separation distances used in the BAL rating calculation.</p> <p>iv. The building envelope is difficult to see on the BAL Contour Maps and therefore the BAL rating cannot be validated.</p> <p><b>RECOMMENDATION</b></p> <p>DFES advice is to seek a revised BMP for the development application in line with the above points. An Emergency Evacuation Plan should be provided to DFES if the Shire considers the proposal to be high risk land use.</p>		
Department of Aboriginal Affairs	<p>I am writing in response to the letter from Ms Bronwyn Southee to the Department of Aboriginal Affairs (DAA) dated 24 June 2016. Thank you for providing the opportunity to comment on the planning application for a proposed warehouse and transport depot at Lot 191 Wandena Road, Lower Chittering (the Subject Area).</p> <p>DAA has reviewed the relevant information and can confirm that there are currently no Aboriginal heritage places known to DAA within the Subject Area. There area therefore no known heritage implications to the application being approved.</p> <p>DAA has released Aboriginal Heritage Due Diligence Guidelines (the Guidelines) to assist developers with planning and considering Aboriginal heritage in relation to proposed works. It is recommended that the landowner/developer be made aware of the Guidelines. A copy of the Guidelines can be found on the DAA website at: <a href="http://www.daa.wa.gov.au/heritage/land-use">http://www.daa.wa.gov.au/heritage/land-use</a></p>	Noted.	Noted.
Ellen Brockman Integrated Catchment Group Inc.	<p>The Ellen Brockman Integrated Catchment Group has reviewed the forwarded proposal and makes the following comments</p> <p>This is based upon the information received – there does not appear to be information on Sheets 1-4, Sheet 5 and 6 which are noted on the workshops and office suite plan.</p> <ul style="list-style-type: none"> <li>The new environment report from Biodiverse is comprehensive. The consultant</li> </ul>	1. After consultation with DER we were advised that the proposed clearing is	Revised plans, which no longer propose to

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	<p>has recommended that the proposal be referred to the EPBC due to the impact of clearing of foraging vegetation for Carnabys Black Cockatoo. The proponent has been advised and therefore should initiate the process.</p> <ul style="list-style-type: none"> <li>The proposed area for gravel hardstand on the vegetated area on the southern side of the property is extensive. As with all developments which involve turning and reversing vehicles it is very easy for the area to become “extended”. The edges are very convoluted and defining the boundary would be arbitrary. Although this area is less biodiverse than the rest of the property the hard stand area is not supported as it initiates clearing of several larger trees and impinges upon the foraging area for the Carnabys Cockatoo. The use of vehicles in the area will disturb the birds as they feed.</li> <li>The development of this facility in an area which is frequented by Carnabys, quenda (bandicoot) and possums (noted in the Biodiverse report) will cause disruption to these species of fauna as well as other species which may be present. With decreasing areas of bushland fauna within the Chittering region is consistently being pushed into other areas. Removal of vegetation in high value conservation areas should be avoided.</li> <li>Furthermore, the establishment of the hardstand area will threaten the integrity of the vegetation. Phytophthora dieback is present in most gravel sources in the area. If the hardstand area is gravelled then the risk factor to the DRF of the property is unacceptable.</li> <li>The development map of the hotmix hardstand and the associated sheds, storage units, and parking area does not appear to provide a drainage plan. It is assumed that the flow would be towards the “retension”(sic) basin. If the water was shed off the hardstand area to the north of the property to be collected in roadside drainage this would exacerbate the problems existing on Powderbark Drive of extensive erosion which occurred during the winter rainfall events. A proper drainage plan should be prepared.</li> <li>The “petrol and oil” trap and the wash down bays do not appear to have any drainage system. If this drains towards the detention basin then a stripping facility in the basin will be required to strip nutrients from the water. The overflow from this basin enters a tributary of the Ellen Brook, the waterway which has the highest phosphate level on the Swan Coastal Plain. There is no indication of a stripping facility in the detention basin.</li> </ul>	<p>unlikely to be a controlled action however, we are in contact with the Department of Environment &amp; Energy to try and confirm this and obtain advice on next steps. 2 &amp; 3. The area of this has been significantly reduced from the initial plans. A boundary fence around the southern hardstand will be put in place to avoid ‘creeping’ caused from turning vehicles. Minimal clearing is to occur in this area only what is necessary to square up the edges as per the approved clearing by DER. No clearing of identified future potential nesting sites and surrounding bushland in the eastern part of the property is to occur.</p> <p>4. There are indicators that Phytophthora Dieback is present however given that the hardstand areas are to be fenced this will reduce the ‘treading’ of the disease through the bush via the native animals.</p> <p>5. A Stormwater/Hydrocarbon Management Plan has been prepared by Lundstrom Environmental. This includes various stormwater treatment ponds and oily water separators. Stormwater will be dispersed in an even north and south direction so as not to exacerbate erosion on Powderbark Road. The petrol and oil traps have a drainage system as outlined in the stormwater/hydrocarbon management plans.</p>	<p>remove any vegetation of significance, have been referred back to Landcare. The follow up response generally concurred with the revised Bioscience report.</p> <p>Furthermore the updated proposal has subsequently resulted in the environmental consultants concluding that referral to the DoEE (a federal department) was not required.</p> <p>In the event of approval, conditions relating to maintaining buffer areas and that the vegetated areas being fenced are recommended.</p> <p>The revised stormwater management plan has been updated to cater for 1:100 year storms, and includes specific measures to deal with storm water and hydrocarbon runoff. .</p>
<p>Department of Environment Regulation</p>	<p>I refer to the correspondence dated 24 June 2016 inviting comment from the Department of Environment Regulation (DER) on an application before the Council.</p> <p>The application for planning approval identifies the requirement to clear native vegetation. Under the <i>Environmental Protection Act 1986</i> (EP Act) it is an offence to clear native vegetation unless the clearing is done in accordance with a clearing permit, or an exemption applies. Fact sheets and Guides on the regulation of native vegetation clearing are available on DER’s website at <a href="http://www.der.wa.gov.au/our-work/clearing-permits">www.der.wa.gov.au/our-work/clearing-permits</a>.</p> <p>The clearing to construct a building or other structure exemption provided by item 1, Regulation 5, of the <i>Environmental Protection (Clearing of Native Vegetation) Regulations 2004</i> may apply to the proposed clearing for buildings and permanent structures. Note this</p>	<p>Follow up information from DER:</p> <p><i>the vegetation within 50 metres of rare flora is considered to be an environmentally sensitive area, within which the exemptions from the requirement for a clearing permit provided in the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations) would not apply</i></p> <p>On review of the available information (specifically the attached maps indicating locations of rare flora and extent of clearing proposed), the proposed clearing appears to be more than 50 metres from rare flora, and that the exemptions within the Clearing Regulations may apply provided that the proposed clearing is of a type prescribed in the Clearing Regulations and is done in accordance with the relevant criteria specified in the Clearing Regulations.</p>	<p>Noted. A clearing permit is not required to be obtained from DER as a result of the modifications to the site plan.</p>

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	<p>exemption is not applicable to any clearing within an Environmentally Sensitive Area. If clearing of native vegetation is required for gravel hardstands then a clearing permit is likely to be required under the EP Act.</p>		
Department of Parks and Wildlife	<p>The revised proposal and additional report satisfactorily addresses our concerns specified in the original advice provided and accommodates more desirable environmental outcomes.</p> <p>In terms of advice regarding buffers, the best outcome would be to conserve all of the native vegetation in which the DRF is present and which is continuous. A 50m buffer from the DRF as well would be great as this would help reduce any indirect impacts such as altered drainage, dust, inadvertent damage from the transport depot operations etc. The map showing the location of the DRF is not very detailed and so it is hard to say whether a 50m buffer from the DRF itself would then cut into the proposed development area, and so whether this is feasible with the current design.</p> <p>I have consulted the Departments Botanist at Species and Communities Branch and suggest the vegetation containing the DRF and Priority flora be fenced and also request that the design of the transport depot ensure the DRF and Priority flora will not be indirectly impacted, particularly through altered drainage. If the construction of the transport depot will be within 50m of the DRF the proponent will need to apply for a DRF permit via the Parks and Wildlife Species and Communities Branch to cover inadvertent damage to the DRF. The Flora Administrative Officer can be contacted on 9334 0422 and there is also information on our website at the below link:  <a href="https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants/200-permits-to-take-threatened-plants">https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants/200-permits-to-take-threatened-plants</a></p> <p>the latest development design which avoids the remnant vegetation, apart from a few remnant trees, is one that would be supported by this Department. It looks like a great outcome from the conservation perspective compared to the original two options. As the EPBC Act is looked after by the DoEE, I am unable to provide advice on referral matters, other than to refer decision makers to the referral guidelines.</p> <p>The advice from &lt;Officer&gt; in the email of 23 November 2016 regarding the fencing of the vegetation containing DRF and priority flora and the design of the transport depot ensuring these populations will not be affected by altered drainage still stands. It is pleasing to see the request for 50m buffers has been applied as this will reduce the chances of indirect impacts to these species.</p>	<p>Following consultation with DPaW it was agreed that a 50-metre buffer be placed around Declared Rare Flora.  Approval via email for this was provided</p>	<p>The final advice from DPaW confirms no objection to the revised layout. This is in particular relation to the maintaining and buffering of the development from any native vegetation.</p>
Department of Health	<p>Thank you for your letter, dated 24 June 2016, requesting comment from the Department of Health (DOH) on the above proposal. The DOH provides the following comment:</p> <p>The proposed development is required to connect to scheme water or have access to suitable supply of potable water which complies with the <i>Australian Drinking Water Quality Guidelines 2004</i>.</p> <p>The proponents are to be advised that approval is required from the DOH for any onsite waste water treatment process and wastewater recycling scheme. When considering stormwater reuse be aware that stormwater can contain high concentrations of contaminants both chemical and physical (motor oil, petrol, tyre, rubber, soil and debris). Stormwater must not be used for drinking purposes.</p>	<p>A site plan prepared by Joondalup Designs includes the following:</p> <ul style="list-style-type: none"> <li>- Rainwater tanks located on the south side of the main administration building suitable for drinking purposes</li> <li>- An ATU septic system for which approval from the Shire of Chittering will be sort prior to building works.</li> <li>- Stormwater is to be directed into treatment ponds with engineered bypass systems and will not be used for drinking.</li> </ul>	<p>The applicant's response and stormwater management plan, which coincides with the revised plan, has satisfactorily complied with the DOH comments.</p>

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	<p>The necessary requirements may be reference and downloaded from:  <a href="http://www.public.health.wa.gov.au/3/672/2/wastewater_legislation_and_guidelines .pm">http://www.public.health.wa.gov.au/3/672/2/wastewater legislation and guidelines .pm</a></p>		
<p>Department of Planning</p>	<p>Thank you for your letter of 24 June 2016 inviting the Department of Planning to comment on the abovementioned proposal. The Department of Planning does not have a role in determining development applications under local schemes and the following is provided as general advice only.</p> <p>Under TPS 6, the subject land is zoned ‘Agricultural Resource’, with the Transport Depot use class listed as ‘A’ for this zone. In determining the application, Council will need to be satisfied that the proposal is consistent with the following:</p> <ul style="list-style-type: none"> <li>• The objectives for the Agricultural Resource zone set out in Clause 4.2.5 of the Scheme;</li> <li>• The requirements for the Basic Raw Materials SCA prescribed in Clause 6.4, and the Military Considerations SCA prescribed in Clause 6.5 of the Scheme; and</li> <li>• The matters outlined Clause 67 of Schedule 2 – Deemed Provisions of the <i>Planning and Development (Local Planning Scheme) Regulations 2015</i>, particularly matters (m), (n) and (o).</li> <li>• The Western Australian Planning Commission’s (WAPC) draft <i>State Planning Policy 2.5 – Rural Planning 2015</i> (SPP 2.5), a seriously entertained planning document.</li> </ul> <p>Based on a desktop assessment, the site is considered to have high biodiversity conservation value and contains a known record of a critically endangered flora, listed under the Federal <i>Environmental Protection and Biodiversity Conservation Act 1999</i> and the WA <i>Wildlife Conservation Act 1950</i>. The site’s environmental values are reinforced in the Shire’s Local Biodiversity Strategy, which identifies the site as part of an Indicative High Conservation Value Area, and rates the site’s vegetation as being in ‘very good’ condition with less than 10% of this vegetation type protected regionally. In the absence of a satisfactory flora survey with sufficient detail to address the site’s environmental values, approval of the proposal may result in an undue negative impact to the biodiversity values of the site.</p> <p>Further, the site also contains ‘Regionally Significant Basic Raw Material’ clay deposits, as identified by the Department of Mines and Petroleum. SPP 2.5 seeks to secure BRM resources and provide for their extraction, by preventing such sites from being developed for other purposes unless development is compatible with future extraction. Based on the scale and nature of the proposed transport depot, the proposal does not appear to be consistent with the intent of SPP 2.5 to protect BRM resources.</p> <p>Additionally, Lot 191 has been designated as a bushfire prone area by the Fire and Emergency Services Commissioner. Development on the site will need to comply with the Western Australian Planning Commission’s <i>State Planning Policy 3.7 – Planning in Bushfire Prone Areas</i> and the accompanying <i>Guidelines for Planning in Bushfire Prone Areas</i>.</p> <p>I trust this information assists the Shire in determining the application.</p>	<p>Lot 191 is situated on land that is zoned ‘Agricultural Resource’. Under the TPS Zoning table a transport depot is listed as an ‘A’ use.          An ‘A’ use requires Council to exercise discretion to either approve or refuse a development after advertising a proposal.          Advertising has occurred with submissions received.</p> <p><b>1. OBJECTIVE 1 “To preserve productive land suitable for grazing, cropping and intensive horticulture;”</b></p> <p>‘Pasture’ is best defined as land covered with vegetation suitable for grazing. This is not the case with 191. The pasture has not been tended for many years and is of insufficient quality for cropping purposes. If this were to occur, then the required fertilising of the land to achieve a viable crop would contaminate downstream water sources.</p> <p><b>1.1 OBJECTIVE 1 (continued) “other compatible productive rural uses in a sustainable manner;”</b></p> <p>The development will include machinery for the purposes of contract ploughing, firebreaks, storage of chaff, hay and grain. Contracts will also be sought for carting of fertilisers and grains for farming properties.</p> <p><b>1.2 OBJECTIVE 2 “to protect the landform and landscape values of the district against despoliation and land degradation;”</b></p> <p>Areas identified on the property through the Flora and Fauna Survey will be protected with 50 metre buffers and fencing to prevent creeping. These actions by the proponent will protect the landform and landscapes that support the local wildlife and vegetation.</p> <p><b>1.3 OBJECTIVE 3 “to encourage intensive agriculture and associated tourist facilities, where appropriate;”</b></p> <p>The land area is not considered viable for intensive agriculture operations.</p> <p><b>1.4 OBJECTIVE 4 “to allow for the extraction of basic raw materials where it is environmentally and socially acceptable</b></p> <p>The Department of Mines and Petroleum advised that they had not objections to the proposed development of the site as the basic raw materials where either of insufficient quality (or) with too much ‘overburden’ for extraction to occur.</p>	<p>Applicant’s response is noted. SPP2.5 is a guide to development of rural land and is a matter to be considered under TPS6.</p> <p>In this instance, the applicant has demonstrated that the intended use incorporates rural based activities that are consistent with agricultural land, and in particular agricultural industries.</p> <p>in addition, the Basic Raw Material priority has been answered via DMP.</p>



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		<p><b>2. BASIC RAW MATERIALS SCA</b></p> <p><b>Clause 6.4</b> The requirements of the BRM have been met – See Department of Mines and Petroleum</p> <p><b>MILITARY CONSIDERATIONS SCA Clause 6.5</b> A map is attached showing the military consideration area. The boundary for this area incorporates many residential houses and their occupants extending from Ayrshire Loop (east) to west of Great Northern Highway through the area that the property owner currently operates from.</p> <p><b>3. (m) the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;</b></p> <ul style="list-style-type: none"> <li>• Adjoining land and other land within the immediate locality of the site include; Shire refuse, Muchea landfill and crushing facility (directly across the road) and Midland Brick Clay Pit. Other businesses within proximity are Lullfitz Nursery, WAMIA livestock centre and the various poultry farms and other uses that exist in - or around - the area should be noted.</li> <li>• Significant portion of the transport depot’s services will be provided directly to the surrounding resource extraction and rural land uses, therefore complementing these existing land uses.</li> <li>• Total commercial vehicle traffic (10VTPD) generated by the transport depot will have negligible impact to existing land uses and vehicle traffic.</li> <li>• Proposal is of a high design standard and is minor in scale compared to existing businesses in the locality.</li> <li>• Landscape corridors along road frontages will reduce the visual impact of the development.</li> <li>• 300m-500m natural vegetation buffer separates the site from the nearest rural-residential zone</li> </ul>	
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		<p><b>3.1 (n) the amenity of the locality including the following – (i) environmental impacts of the development; (ii) the character of the locality; (iii) social impacts of the development;</b></p> <p>(i) In terms of environmentally sensitive areas (ESA) the proponent has the support of DPAW agreeing on a 50-metre buffer from all declared rare flora (DRF) no concerns on the environmental impacts have been raised from DPAW.</p> <p><input type="checkbox"/> In consultation with Department of Environment Regulation (DER) no concerns were raised with the proposed clearing of 0.99ha. No environmental impacts from the clearing were identified.</p> <p><input type="checkbox"/> All proposed development is restricted to a portion of the site which is already largely bare of vegetation</p> <p><input type="checkbox"/> Owners of the rural residential properties would have been notified of the ‘Basic Raw Materials’ buffer at the time of purchase.</p> <p><b>(ii) The character of the locality;</b></p> <p><input type="checkbox"/> Comprises of intensive agricultural and extractive land uses. The subject site itself is intended for the extraction of raw material through excavation of the land.</p> <p><input type="checkbox"/> Transport depot is considered to be less intensive than the intended and surrounding land uses and will not compromise the character of the locality.</p> <p><input type="checkbox"/> Revegetation of the site is proposed to enhance the rural character of the land.</p> <p><input type="checkbox"/> The revegetation in conjunction with existing vegetation buffers will reduce the impact of the proposal on adjacent roads and properties.</p> <p><input type="checkbox"/> The operation of commercial vehicles is compatible with the surrounding locality as previously discussed.</p> <p><input type="checkbox"/> The development will also enable expansion of the existing business, which has the potential to generate local jobs as the business already employs local residents.</p> <p><b>(iii) Social impacts of the development;</b> The proponent envisages no social impacts should occur from noise, traffic or appearance of the site. The development will be extensively landscaped around buildings, screen plantings by the roadside and a neat and tidy appearance maintained. The development will support the area through local employment opportunities.</p> <p><b>(o) the likely effect of the development on the natural environment or water resources and any means that are proposed to protect or to mitigate impacts on the natural environment or the water resource;</b></p> <p>A range of referral bodies have been engaged in relation to the proposals impact on the natural environment. These referral bodies include:</p> <ul style="list-style-type: none"> <li>• Department of Parks and Wildlife</li> <li>• Department of Environment Regulation</li> </ul>	
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		<ul style="list-style-type: none"> <li>• Department of Mines and Petroleum</li> <li>• Department of Water</li> <li>• Department of Fire and Emergency Services; and</li> <li>• Ellen Brockman Integrated Catchment Group Inc.</li> </ul> <p>All requirements associated with minimising the effects on the natural environment have been satisfied.</p> <p>A summary of the consultation with each referral body will be discussed in further detail</p> <p><b><i>“The purpose of the WAPC policy is to protect and preserve Western Australia’s rural land assets due to the importance of their economic, natural resource, food production, environmental and landscape values”</i></b></p> <p><b><i>THE PROPONENT HAS THE FOLLOWING COMMENTS ON THE ABOVE POINTS;</i></b></p> <p><b><i>“Economic Contributions”</i></b> - None identified.</p> <p><b><i>“Natural resources”</i></b> - The site has been investigated for Basic Raw Materials (BRM) which confirmed there was insufficient quantity with too much overburden to make extraction viable. No other ‘natural resources’ are on the site.</p> <p><b><i>“Food production”</i></b> - The site consists of mainly sandy soil which is relatively poor in quality. In addition, as the area is small with parkland clearing it does not lend itself to a viable cropping programme capable of producing a good, sustainable yield.</p> <p><b><i>“Environmental &amp; Landscape”</i></b> - The developer acknowledges this and has been careful to curtail any impacts on the environment by reducing clearing to under 1ha, fencing the hardstand and creating 50m buffers (supported by DPAW) around DRF.</p> <p><b><i>“The objectives of this policy are to: (a) support existing, expanded and future primary production through the protection of rural land, particularly priority agricultural land and land required for animal premises and/or the production of food;”</i></b> - The site doesn’t fit into any of the categories above. I.e.: it is not on existing, expanded or future production rural land.</p> <p><b><i>5.12 “Preventing and managing impacts in land use planning. One of the key elements in achieving the objectives of this policy is ensuring that zones and sites are suitable for their intended purpose. As a result, at each stage of the planning framework, planning decision-makers need to consider the broad suitability of land uses and the ability to manage offsite impacts prior to determining whether the use of a buffer is necessary”</i></b> The site for this development is in the immediate area of other businesses ie; Muchea landfill and crushing, Shire refuse, Midland Brick, Lullfitz Nursery and WAMIA livestock centre</p>	
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		<p>which seemingly makes it a 'suitable' fit for the area. In comparison to the Landfill and refuse site this development will have significantly less dust, noise and rubbish pollution issues. The natural bushland buffer to the east side of the property is to remain undisturbed and the main activity area of the site will be approximately 500 metres from the nearest residences. No off-site impact is envisaged by the proponent and thought has been given to the visual appearance and reducing its imprint on the native environment. A 200-metre buffer is required between the depot and sensitive land uses (ie: residences) which the developer has incorporated into the site plan through careful consideration. This buffer is approximately 300 metres from homes with the main activity of the site being approximately 500 metres from homes.</p> <p><b>TO SUPPORT OUR APPLICATION TO OPERATE A TRANSPORT DEPOT WITHIN AN AGRICULTURAL RESOURCE ZONE THE PROPONENT WOULD LIKE TO MAKE THE BELOW COMMENTS;</b></p> <p>Lot 191 will incorporate the following rural/agricultural based activities;</p> <ul style="list-style-type: none"> <li>• Hire out of tractors, ploughs and other associated implements</li> <li>• Contract work for ploughing, firebreaks/slashing and fertilizer spreading</li> <li>• Cartage of grain and fertilizers</li> <li>• Running of livestock (feed permitting)</li> <li>• Storage of fencing material</li> <li>• Storage of stock-feeds</li> <li>• Storage of tractors and implements</li> <li>• Hire out of large water pumps</li> <li>• Hire out of generators</li> </ul> <p>1. As per the request by DMP a drilling programme was completed by Wallis Drilling to determine the BRM on site. Acid sulphate / pH testing on samples was completed at the time by Lundstrom Environmental.</p> <p>Feedback from the Department of Mines and Petroleum as seen in the next column confirmed that the underlying clay is of insufficient quality with too much overburden and therefore the development raises no significant issues with respect to BRM on site.</p> <p>2. A Bushfire Management Plan has been prepared by Blue Oar. The full document has been made available to the Shire of Chittering In response to MRWA comments the proponent obtained information from James Nelson Community and Stakeholder Manager   GNH M2W 'Jacobs' on the proposed upgrade of GNH – Old Gingin Road to Chittering Roadhouse to commence approximately mid-2017. This information included sketches and details on the intersection of GNH and Wandena Road. These showed the following:</p> <ul style="list-style-type: none"> <li>- South bound slip Lane</li> <li>- North bound turning pocket</li> <li>- The current bend to the north of the intersection is to be removed and straightened</li> </ul>	
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		<p>- Obtained sketches indicate that the upgrade of the intersection has made an allowance for vehicles 27.5 metres long Furthermore, Wandena Road forms part of the RAV2 network</p>	
<p>Main Roads WA</p>	<p>Further to your correspondence of the 24 June 2016 with attached application and details, Main Roads WA (MRWA) provides the following response:</p> <p>MRWA objects to the content of the above proposal and advises the following:</p> <ul style="list-style-type: none"> <li>Lot 191 does not abut a MRWA controlled road however the intersection of Wandena Road/Great Northern Highway will be the point of access to the MRWA Network. The application states ‘intended heavy movements are expected to be up to 50 trips per week’ and provided some of the movements will be to the north. MRWA Wheatbelt Region advises that the intersection of Wandena Road/Great Northern Highway is unsuitable for heavy vehicles movements as proposed and therefore the proposed movements cannot be safely accommodated as detailed.</li> </ul>	<p>In response to MRWA comments the proponent obtained information from &lt;Main Roads consultants&gt; Community and Stakeholder Manager   GNH M2W ‘Jacobs’ on the proposed upgrade of GNH – Old Gingin Road to Chittering Roadhouse to commence approximately mid-2017. This information included sketches and details on the intersection of GNH and Wandena Road. These showed the following:</p> <ul style="list-style-type: none"> <li>- South bound slip Lane</li> <li>- North bound turning pocket</li> <li>- The current bend to the north of the intersection is to be removed and straightened</li> <li>- Obtained sketches indicate that the upgrade of the intersection has made an allowance for vehicles 27.5 metres long</li> </ul> <p>Furthermore, Wandena Road forms part of the RAV2 network</p>	
<p>Department of Water</p>	<p>Thank you for the above referral dated 24 June 2016. The Department of Water (DoW) has assessed the proposal and associated Stormwater Strategy and provides the following advice:</p> <p>The DoW has reviewed the Stormwater Strategy prepared by Bioscience and at this stage is unable to support the plan; as best management practice Water Sensitive Urban Design (WSUD) principles have not been considered.</p> <p><b>Section 2.2 Geology and Geomorphology</b> A geotechnical report is required prior to the approval of the development application. The DoW notes that the Stormwater Strategy states that soil conditions will need to be confirmed prior to the next planning stage, however as this is the development application, there will be no further planning stages.</p>	<p><b>Section 2.2</b> Results of drilling carried out by ‘Wallis Drilling’ including the pH testing (soil conditions) have been forwarded to DoW for their consideration and comment.</p>	<p>The applicant has supplied a water management plan in accordance with this advice.</p>

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	<p><b>Section 2.3 Groundwater</b> While the DoW acknowledges there is unlikely to be any groundwater issues on the site, the dept to groundwater will need to be confirmed by the geotechnical report.</p> <p><b>Section 4. Site Stormwater Strategy</b> The DoW's position is that runoff due to the first 15mm rainfall (1 hour 1 year ARI or 1 exceedance per year, 1EY event) should be treated prior to discharging into the downstream receiving waterbody and managed as close to the source as practicable.</p> <p>Piping water to a drainage basin is not considered to be best practice WSUD. Tree pits, permeable paving, soak wells, bio filters, wales and oil and grease traps should all be considered as part of the stormwater strategy. All potentially contaminated stormwater from hardstand and wash-down areas should be treated prior to leaving the site, in accordance with <i>Water Quality Protection Note 52 – Stormwater Management at industrial sites</i> (DoW, 2010)</p> <p>Surface water runoff from the vegetated area should not be directed to the drainage basin. Pre-development flows should be maintained to protect ecological functions and features.</p> <p>The DoW notes that the application indicates that water collected in the drainage basin may be used for dust suppression and firefighting purposes. This needs to be clearly stated as part of the Stormwater Strategy and the <i>Guideline for the approval of non-drinking water systems in Western Australia</i> (DoW, 2013) may require consideration.</p>	<p><b>Section 2.3</b> Findings as a result of the drilling program showed that the groundwater depth was around the 20 metre mark. A copy of the report has been made available to the Shire of Chittering.</p> <p><b>Section 4.</b> The Stormwater Management Plan incorporates 5 stormwater treatment ponds with engineered bypass system. No water will be directly piped into the drainage basic. As mentioned earlier treatment ponds will be in place. Stormwater run-off is to be managed via the treatment ponds.</p>	
<b>Public Submissions</b>			
<p><b>PUBLIC 1 OBJECTION</b></p>	<p>In relation to the proposed development at 191 Powderbark Road, I oppose this development for the following reasons:</p> <ol style="list-style-type: none"> <li>1. I moved to Lower Chittering with my family from Ellenbrook to enjoy a peaceful lifestyle in the country away from busy roads and trucks and noise.</li> <li>2. My children have to walk along the local roads to catch the orange school bus to school. Increased traffic on these local roads will endanger my children's safety and other locals who regularly walk along these roads.</li> <li>3. There is an increased risk of accidents due to increased traffic movements from this potential development.</li> <li>4. The lot is approximately 39.36 hectares and according to the signage on Powderbark Road and Wandena Rd a total of 21.4 hectares will be cleared for hardstand gravel areas, destroying the local beautiful landscape at the end of Powderbark Rd.</li> <li>5. The Shire's local planning policy is to protect the natural environment INCLUDING the LANDSCAPE! Having this development is NOT protecting the local environment.</li> <li>6. This land is suitable for grazing as per planning scheme no. 6. If this proposal is approved than 21.4 hectares of potential grazing ground will be destroyed.</li> <li>7. With this potential development it will become a target hotspot area for theft, attracting crime to the area, another reason why I moved away from Ellenbrook.</li> <li>8. The erection of chain link security fence around the entire development would be an eyesore for the community.</li> <li>9. Specific details for the future operation of the proposed site at this time are in a</li> </ol>	<p>The applicant has responded to the public submissions by topic rather than individual submissions. The officer responses to the applicant are also included separately.</p>	<p>The development application has been modified significantly in line with this submission. The application no longer proposes to remove any sensitive vegetation. A small number of trees are proposed to be removed in the north-western corner, however these are not sensitive. The environmental consultants employed by the applicant have confirmed this will not require referral for the loss of cockatoo habitat.</p>

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	<p>preliminary state which means that these can be changed at any time.</p> <ol style="list-style-type: none"> <li>10. The transport site is EXPECTED to accommodate up to 15 staff members at any one time. EXPECTED not definitive!!!</li> <li>11. Maintenance and vehicle repairs to be conducted on site, which will entail hot works and will impose a fire danger in the area.</li> <li>12. The transport depot is LIKELY to operate between the stated hours of 6am to 6pm Monday to Friday and 6am to 2pm on Saturday. Again, LIKELY is not definitive.</li> <li>13. A maximum of 20 trucks, 100 trailers and 40 machines associated with the depot are EXPECTED to be parked on the land. Again, EXPECTED is not definitive.</li> <li>14. The transport depot is EXPECTED to generate 40 heavy vehicle movements per week. Again, EXPECTED is not definitive. Also as per the independent report by SHAWMAC they have stated that the vehicle movements will be 20 vehicles per day using 6 wheel toppers and semi-trailer tippers. This amounts to 120 movements per week based on a 6 day week and not 40 as stated by Mr Wright. Also in the independent report it states increased traffic movement of 10 per hour!!!! This is all very contradicting.</li> <li>15. Noise from any movement will be buffered by vegetation that is retained!!!! 21.4 hectares being removed! It doesn't leave much for so called buffering!!!!</li> <li>16. Bunded 8,000 litres fuel storage area! Potential for catastrophic fire danger!!!!</li> <li>17. Hydrocarbons used and stored in the depot, again this poses a risk for fire danger in a rural area!!</li> <li>18. Prospective lessees?! Mr Wright planning on subletting too, allowing more businesses to occupy the land for further detrimental effect on our beautiful community?!! Strongly oppose!!</li> <li>19. Mr Wright states that it is unlikely to compromise or have any adverse impacts of existing landform. What about the removal of 21.4 hectares of greenery, the use of fuel and hydrocarbons on the land and the excessive movement of vehicles in and around the depot!!!</li> <li>20. I would like to apply for freedom of information on Appendices 13 and 14 which are not enclosed in Mr Wrights' documentation.</li> <li>21. In the conclusion of the report by SHAWMAC it states that a sealed upgraded Wandena Rd would be needed and in the next paragraph states no upgrades are needed. Again very contradictory!</li> <li>22. Being a hardstand area all rain water which runs off has the potential to cause flooding on local roads.</li> </ol> <p>I love where I live and I love the peace and tranquillity this area brings! The scenery is beautiful and these are the reasons why I built here. I do not want to see a truck depot in this location. I don't want to worry about my children's safety walking along the local roads. I don't want to hear heavy vehicles moving around the area. I don't want to interact with any of these vehicles in the area.</p> <p>In light of the above opposable information, I hereby request Council's favourable consideration to OPPOSE this application at its earliest convenience.</p>		
<p><b>PUBLIC 2 OBJECTION</b></p>	<p>I wish to oppose the development of Lot 191 Powderbark Road as per the reasons set out in my husband's email below.</p> <p><i>*submission is identical to Public A.</i></p>		<p>Per above.</p>

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<p><b>PUBLIC 3 OBJECTION</b></p>	<p>I don't want the development on my street because;</p> <ol style="list-style-type: none"> <li>1. I don't want trucks going past while I am walking with my brother to the bus stop safely.</li> <li>2. I want to be able to walk my dogs safely.</li> <li>3. I don't want to be woken up in the morning if they go past.</li> <li>4. I don't want the dogs barking when the trucks go past.</li> <li>5. My parents bought me, my brother and sister here for peace and quiet and to listen to the birds cheeping NOT loud trucks.</li> </ol>		<p>Wandena Road is built to cater for large vehicles such as trucks. While the initial proposal proposed a significant number of trucks, this has been reduced to 10 trucks only. The traffic statement supplied by the applicant confirms movements are limited to 10 in the morning and 10 in the evening only. Therefore, this increase is unlikely to be significantly impactful upon amenity. Large vehicles with the exception of busses and for specific purposes are not able to be used on Powderbark Road for the purposes as a thoroughfare. Therefore there will not be any increase of traffic on Powderbark road as a result of this application.</p>
<p><b>PUBLIC 4 OBJECTION</b></p>	<p>We would like to make an objection to the proposed development for the following reasons:</p> <p>On reading the application details the wording is ambiguous at best #23 – The transport depot is LIKELY to operate between the hours of 6am – 6pm Mon to Fri and 6am – 2pm on Sat, with wording LIKLEY opens up for them the option to work whatever time they like.</p> <p>The transport depot is EXPECTED to generate a maximum of 40 heavy vehicles per week. We believe that that number will likely change as the proposed business grows.</p> <p>Another point we would like to share is the reverse beeping signal sound from all large trucks and machinery when reversing is a sound that the residents living at the north end of Powderbark would have to contend with all day. And on a Saturday which would impact their private down time with their families.</p> <p>Those residents I am sure bought their properties on the understanding that the area is a RURAL RESIDENTIAL area.</p> <p>Even the removalist's trucks dropping off home contents for storage in the proposed storage unit would have reversing signals that beep.</p> <p>It makes a statement that noise from any movement on site will be buffered by vegetation. It is a known fact that vegetation offers LITTLE sound buffering. That is why Main Roads and Local governments use large retaining walls as a buffer at the side of large motorways (although these offer little noise buffering)</p> <p>We live off Powderbark and already hear the noise from the Midland brick trucks using Wandena Road the proposed business will increase the number of heavy vehicles which we do NOT want in our RURAL RESIDENTIAL area.</p> <p>We think this is an industrial development and should be restricted to the already deemed industrial sites allocated by the council and not in a RURAL RESIDENTIAL area.</p>		<p>The operating times have been confirmed by the applicant and upheld through a condition of approval. In any event, the operation is to comply at all times with the Noise Regulations.</p> <p>The area in which the subject application is proposed is Agricultural Resource. The nearest Rural Residential zoning is in fact approximately one kilometre away from the revised hardstand area. The immediate adjoining landowners to the east are unlikely to be affected by the development in its revised state as there will be minimal to no additional truck movements on Powderbark Road, and the development will otherwise be screened from view.</p> <p>Wandena Road is a RAV2 network road, meaning the road has the capability of sustaining large vehicles. To this end this not a reason afforded to the Shire to refuse the development application.</p>



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	<p><b>Second Submission</b></p> <p>We object to the proposed Depot 191 Powderbark Road for the following reasons.</p> <p>Although the revised plans now put the depot in an area that is relatively free of natural bushland some clearing of natural vegetation will be done.</p> <p>It is considerably closer to the homes already built on Powderbark making it visible to those homes as there is no natural buffer.</p> <p>This will destroy the lovely views of natural bushland they now enjoy.</p> <p>Environmental Impacts – Reduction of bird life and fauna on the block, introduction of air pollution, dangerous fumes.</p> <p>Toxic chemicals, industrial security fencing, soil contamination &amp; waste management.</p> <p>Public Nuisance – Management of depot operation, noise pollution, light pollution, security, increased thefts.</p> <p>Vandalism, Increased road activity, reversing alarms and noise early in the mornings. And disruption of the quiet, peaceful lifestyle residents now enjoy.</p> <p>Public Health – Diesel particulate matter which is carcinogenic coming from the trucks on depot, could these particulates pollute our rain water tanks?</p> <p>Increased dust pollution, possible ground water pollution caused by oils, chemicals and detergents, increased fire risk.</p> <p>And the emotional mental wellbeing of residents living closest to the proposed depot.</p> <p>If the proposed depot was to get planning approval this would then set precedence for more industrial businesses to look for property in the area.</p> <p>This could affect all those living on the Wandena estate and surrounding areas, we feel that the area should be kept as residential.</p>		<p>The proposal includes the planting of 6 metre wide vegetation screening to screen the proposal from view. Additionally, a condition has been placed to minimise the visual impacts associated with large machinery.</p> <p>The subject lot has provided through qualified consultants, evidence that the proposal will not have an impact upon the environment or surrounds. This has been affirmed by DPaW and the Shire’s Principal Environmental Health Officer. Elements such as private mental health is not a matter able to be considered in this instance as it is not a planning matter.</p> <p>The lot is privately owned and is capable of being developed for the purposes. Unfortunately it is unrealistic to expect the lot to remain vacant.</p> <p>The lot is not able to be developed for residential purposes as the Basic Raw Materials Special Control Area prevents such land uses.</p>
<p><b>PUBLIC 5 OBJECTION</b></p>	<p>We wish to lodge a complaint about the above mentioned site.</p> <p>We strongly hope this development / transport depot does not go ahead.</p> <p>Three years ago we were pushed out of our previous house as zoning for land behind our property was changed from residential to light industrial. We chose to move to Lower Chittering to escape the busy lifestyle and noise associated with the excess traffic and industrial movements. Now we feel the same thing will happen to our quite peaceful home again.</p>		<p>Per above, this development has been revised to significantly reduce the number of vehicles and hardstand area and is unlikely to cause significant adverse effect on the surrounding residential properties. Therefore the vast majority of the lot will remain vegetated.</p>

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	<p>Please find below points of why we are against the proposal of a transport depot.</p> <ul style="list-style-type: none"> <li>• Wandena Estate is classed as a rural / residential area NOT industrial.</li> <li>• The noise associated from the increased traffic would ruin our serenity.             <ul style="list-style-type: none"> <li>• Noise – includes reversing beacons constantly sounding</li> <li>• Compression braking from the trucks</li> <li>• General noise from the large increase of truck movement</li> <li>• (These sounds will NOT be buffered by vegetation as we all know vegetation does not buffer a lot of sound.)</li> </ul> </li> <li>• Property values will go down as people would not want to be buying into an industrial estate.</li> <li>• It would also make it more difficult to sell our properties if or when the time should come.</li> <li>• If approval for 1 business of this size goes through it will set a precedent for other applications.</li> <li>• The amount of trucks coming down Powderbark Road would make our streets unsafe, especially for kids walking home from the busses and commuting to one and others houses.</li> <li>• Having fuel tanks on site in a built up high risk area is asking for trouble, it increases the risk of fire danger in our bush.</li> <li>• If the proposal goes ahead there will be no policing the amount of trips up and down our roads by these vehicles and as the business grows the traffic will increase also.</li> </ul> <p>I thank you for taking the time to read our submission and hope the points/reasons against the proposal are given some strong consideration.</p>		<p>Noise has been addressed, above.</p> <p>Property values are not a matter able to be considered in a planning application.</p> <p>The Shire is undertaking measures to prevent such determinations from becoming precedents.</p> <p>The number of vehicles on site is generally a good indication of the number of trips per property. In this instance, the likelihood is no more than 20, which the road as currently constructed is able to sustain.</p>
<p><b>PUBLIC 6 OBJECTION</b></p>	<p>It has recently come to our attention after talking with our neighbours that they had been approached by Mr Wayne Wright with regards to his plans for some depot development on Lot 191 Powder Bark Road. They explained too us what his intentions were and this concerned us at the time. Although our closest neighbours were approached we were and having now seen the full planning proposal we are even more concerned and wish to express these concerns and to say that we strongly oppose such plans going ahead.</p> <p>We consider this to be an Industrial Complex being built in a rural area which will have an impact not only on us but on all of the residents of Powderbark Road.</p> <p>We have listed the reasons for our objections as below:</p> <ul style="list-style-type: none"> <li>• 191 Powderbark Road was designated as a buffer zone between industrial and residential to protect residents living in the area.</li> <li>• The impact of increase and large/heavy vehicle traffic movement travelling along Powderbark Road and increased noise will affect the residents of Powder Bark Road and our cul-de-sac Nova Rise.</li> <li>• The area is to be fenced with chain lock security fence around the whole property which does not fit in with the rural look.</li> <li>• The use of sea containers are not permitted within rural areas as stated by the Chittering Shire Guidelines.</li> <li>• Noise disturbance from 0600hrs and weekends from trucks and industrial activity will affect the residents of Powder Bark Road. At the moment we are happy to put up with heavy vehicles servicing the new builds going on around us and we</li> </ul>		<p>In the greater context of Wandena Road from Muchea East Road to Great Northern Highway, the proposal is not outstanding as a use. Furthermore, the proposal as revised, is intended to utilise no more than 13% of the site area. This means that the vast majority of the lot will remain heavily vegetated as existing.</p> <p>There will be no additional heavy through traffic onto Powderbark Road as a result of this application.</p>

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	<p>know that it is not for ever just as we had to have that for our build last year. But not to have constant movement of heavy vehicles servicing a HGV Depo from 6am in the morning till 6pm at night.</p> <ul style="list-style-type: none"> <li>• The clearing of trees and natural vegetation when other rural owners in this area can only clear 2000m2 for a building envelope. This will have an environmental impact of the area.</li> <li>• Increased Fire Risks due to the storage of an 8000ltr fuel tank on site vehicle storage and vehicle maintenance. (This will increase the fire risk to residents of Powder Bark Road.)</li> <li>• Proposed Gravel Hardstand 2 will be clearly visible from Powder Bark Road as will the security fence which is not in keeping with the rural area. (Residents within the area were only allowed to build a fence in keeping with the rural area)</li> <li>• Having such a development on our doorstep would most certainly have an impact on property valuation and who would be interested in buy a residential property so close to a large HGV Industrial depot.</li> </ul> <p>Like our neighbours and close friends, we chose to move from the hustle and bustle of suburbia to Lower Chittering for the peace, quiet and its rural beauty. We feel if these proposed plans are approved not only our lives would be affected but also the other residents living on Powder Bark Road and its neighbouring cul-de-sacs. We feel the proposed development would probably turn out like the truck depot/storage facility on Great Northern Highway which is unsightly and not a characteristic of this residential area.</p> <p><b>SECOND SUBMISSION SENT AFTER NEW DOCUMENTS CIRCULATED</b></p> <p>On the 29<sup>th</sup> June 2016 we sent a letter to the Shire of Chittering regarding the Proposed Transport Depot, Storage &amp; Ware house Development – Lot 191 Powderbark Road. It was our way of showing our objections to this proposal for various reasons which despite changes having been made to the proposed plans we still have our concerns and wish again to say that we still object to such a development taking place.</p> <p>We consider this to be an Industrial Complex being built in a rural area which will have an impact not only on us but on all of the residents of Powderbark Road and those of us living on a small Cul-De-Sac off Powderbark and close to the development.</p> <p>We have listed the reasons for our objections as below:</p> <ul style="list-style-type: none"> <li>• 191 Powderbark Road was designated as a buffer zone between industrial and residential to protect residents living in the area. We looked at buying the block but found there were restrictions on building a home</li> <li>• The impact of increased and large/heavy vehicle traffic movement travelling along Powderbark Road and increased noise will affect the residents of Powder Bark Road and our cul-de-sac Nova Rise.</li> <li>• The area is to be fenced with chain lock security fence around the whole property which does not fit in with the rural look. As well as security lighting</li> </ul>		<p>The application has been revised such that the hardstand area will only be located within the non-sensitive vegetation areas.</p> <p>The fuel tank is required to meet specific standards from a separate regulating body in order to be installed. Furthermore, the onus is on the proprietor to maintain work place safety.</p> <p>Property valuation is not a relevant consideration.</p> <p>The subject lot was identified for resource extraction – a significantly more impactful industry than that proposed.</p> <p>There is no expected additional traffic onto Powderbark Road as a result of this proposal.</p> <p>The fencing is not ideal, however currently no power is available for the Shire to impose</p>
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	<ul style="list-style-type: none"> <li>• The use of sea containers are not permitted within rural areas as stated by the Chittering Shire Guidelines.</li> <li>• Noise disturbance from 0600hrs to early evening and weekends from trucks and industrial activity will affect the residents of Powder Bark Road. At the moment we are happy to put up with heavy vehicles servicing the new builds going on around us and we know that it is not for ever just as we had to have that for our build last year. But not to have constant movement of heavy vehicles servicing a HGV Depo from 6am in the morning till 6pm at night.</li> <li>• Increased Fire Risks due to the storage of an 8000ltr fuel tank on site vehicle storage and vehicle maintenance. (This will increase the fire risk to residents of Powder Bark Road).</li> <li>• Proposed Gravel Hardstand will be clearly visible from Powder Bark Road as will the security fence which is not in keeping with the rural area. (Residents within the area were only allowed to build a fence in keeping with the rural area).</li> <li>• Having such a development on our door step would most certainly have an impact on property valuation and who would be interested in buying a rural residential property so close to a large HGV Industrial depot.</li> <li>• Pollutants from HGV Vehicle fumes, increased Diesel particle contaminants in the air which could potentially enter our water tanks which we rely on for domestic water source</li> <li>• Potential disturbance to existing wildlife, such as the black parrots/cockatoos sited in the area</li> </ul> <p>Like our neighbours and close friends, we chose to move from the hustle and bustle of suburbia to Lower Chittering for the peace, quiet and its rural beauty. We often take walks or cycle rides in and around this area due to the peacefulness and knowing that its safe with very limited traffic movement.</p> <p>We feel if these proposed plans are approved not only our lives would be affected but also the other residents living on Powder Bark Road and its neighbouring cul-de-sacs. We feel the proposed development would probably turn out like the truck depot/storage facility on Great Northern Highway which is unsightly and not a characteristic of this beautiful residential area.</p>		<p>relating to this. From safety perspective, the fencing has been restricted so that no barbed or electrified fencing is installed.</p> <p>The proprietor is required to comply with Noise regulations at all times.</p> <p>Sea containers are permitted on rural land per Local Planning Policy 29.</p> <p>See response above relating to the additional matters raised.</p>
<p><b>PUBLIC 7 OBJECTION</b></p>	<p>This proposal appears to be a large scale development.</p> <p>The W.A. Planning Commission and the Shire of Chittering Council spent a vast amount of time and energy debating and preparing the rules and regulations for the Muchea Employment Node, (industrial area), where proposals as referred to above, could be situated.</p> <p>If this proposal is approved, it will set a precedent for other industries to be located outside of the industrial area, ad hoc.</p>		<p>Noted and agreed, however each application must be assessed on its own merits. The applicant does not own land within the MEN, and thus cannot be forced to situate in that location.</p>

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<p><b>PUBLIC 8 OBJECTION</b></p>	<p>We the owners of [REMOVED FOR PRIVACY] highly oppose the proposed development to Lot 191 Powderbark Road.</p> <p>This is not how the proposer Mr Wayne Wright explained his plans to us, and we feel that we have been misadvised and misled. When Mr Wright asked us to sign a letter saying that we had no objections, we were told it was to be an area to store his own company vehicles. It would include a workshop, office and a few Transportables in the far back corner of the block well out of sight from Powderbark Road. Also, any traffic movement would be confined to his own vehicles using the Wandena Road access so therefore we would not see the development, be affected by traffic, increased noise and we were not told about chain security fencing around the perimeter which depicts industrial land.</p> <p>We have listed the reasons for our objections as below:</p> <ul style="list-style-type: none"> <li>• 191 Powderbark Road was designated as a buffer zone between industrial and residential to protect residents living in the area.</li> <li>• The impact of increased and large/heavy vehicle traffic movement travelling along Powderbark Road and increase noise will affect the residents of Powderbark Road.</li> <li>• The area is to be fenced with chain lock security fence around the whole property which does not fit in with the rural look and will be visible from our property as it will run along the designated fire break.</li> <li>• The use of sea containers are not permitted within rural areas as stated by the Chittering Shire Guidelines.</li> <li>• Noise disturbance from 0600hrs and weekends from trucks and industrial activity with affect the residents of Powderbark Road.</li> <li>• The clearing of trees and natural vegetation when other rural owners in this area can only clear 2000m2 for a building envelope. This will have an environmental impact of the area.</li> <li>• Increased Fire Risks due to the storage of an 8000ltr fuel tank on site vehicle storage and vehicle maintenance. (This will increase the fire risk to residents of Powderbark Road.)</li> <li>• Proposed Gravel Hardstand 2 will be clearly visible from Powder bark Road as will the security fence which is not in keeping with the rural area. (Residents within the area were only allowed to build a fence in keeping with the rural area.)</li> </ul> <p>We chose to move from the hustle and bustle of suburbia to Lower Chittering for the peace, quiet and its rural beauty. We feel if these proposed plans are approved not only our lives would be affected but also the other residents living on Powderbark Road. We feel the proposed development would probably turn out like the truck depot/storage facility on Great Northern Highway which is unsightly and not a characteristic of this residential area.</p> <p>I would greatly appreciate if you would remove our no objection letter from Mr. Wayne Wrights Application (appendix 13). We have notified MR. Wright of our intention to object and our reasons thereof.</p> <p>Please excuse me writing to all of you; however, I was not sure who to address my concerns to. I am not sure who has what portfolios and who would have a specific interest in representing the residents of Powderbark Road, Lower Chittering to highly</p>		<p>This submission is identical to submission no.6 – please see response to that submission.</p>
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	<p>oppose the proposed development of lot 191 Powderbark Road. Transport Depot.</p> <p>I have attached my first letter which I wrote to Chittering Shire on the 29<sup>th</sup> June objecting to the development and would like the following objections to be added to my original letter as support for refusing the application.</p> <p><b>Objection sent to Councillors 11/7/16</b></p> <p>I would like it noted that we are the residents from [REMOVED FOR PRIVACY] (classified in the proposal as the sensitive area next to the proposed development which is only 200mts from the boundary of the proposed development) and we highly oppose the development on the following grounds:</p> <ul style="list-style-type: none"> <li>• Mr Wright mislead us into thinking that the land would be used to house his ‘own’ vehicles, when he asked for our approval in the first instance. He said that the development would not be seen by us or anyone using the road adjacent 191 Powderbark Road. He said that all vehicles would be using the access along Wandena Road and it would not affect any of the residents on Powderbark Road.</li> <li>• 191 Powderbark Road is zoned by the Shire as Agricultural &amp; Primary Basic Raw Materials Priority Resource land. The land is a buffer zone between industrial and residential living to protect the residents from noise, dust and industrial workings in the estate. I believe that this is the reason also that the land could not be sold as residential land. If the Shire does approve the proposed development which can be discretionary, this will go against the aims &amp; objective of the land’s current “Agricultural Resource &amp; Primary Basic Raw Materials Priority Resource area classifications as stated in the Chittering Local Planning Strategy Local Biodiversity Strategy Documents. The Agricultural Resource Area key Aims quoted from the Shire of Chittering Local Planning Strategy are: maintain agricultural lands for primary production purposes, protect improve natural environment, facilitate conversion of suitable land to intensive agriculture, and prevent loss of productive land to non-agriculture purposes. The proposed development will have a huge impact on the existing landform, environmental character and visual appearance to Wandena Estate having a huge impact on house prices of residential properties.</li> <li>• According to the Muchea Employment Node Structure Plan – Final Report August 2011 –It states that Powderbark Road lies to the east of Wandena Road and is outside of the Structure Plan Area therefore, I feel that the proposal for the transport depot should be refused as it outside of the Muchea Employment Industrial Node and is in a residential area.</li> <li>• The impact of increased dust from the proposed development and land clearing will have a negative impact on the local residents drinking water from our rainwater tanks. This was highlighted in the Community Update December 2013 “<u>How can impacts be managed?</u> As most nearby homes rely on rainwater tanks and/or bores for water supply, protecting air quality and groundwater is critical. This means that unacceptable emissions, dust or odour impacts cannot extend beyond the boundaries of the estate. Noise management will also be a factor. Special controls are required in the Shire’s planning scheme to ensure industries do not have unacceptable impacts on nearby residents. Our property is only 200meters off the border of the proposed development.</li> </ul>		
<p><b>PUBLIC 9</b></p>	<p>I am sending you this email to show my negative vote for the plan of a truck depo at the</p>		

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<p><b>OBJECTION</b></p>	<p>corner of Powderbark and Wandena Road. The reasons for my objections are as follows:</p> <ol style="list-style-type: none"> <li>1. More traffic on the dirt road and Powderbark making it a hazard for residents and children</li> <li>2. Dust which is a health risk for kids with asthma i.e my son and me.</li> <li>3. Powderbark is used as a cut through as it is so there is high volume of speeding cars and trucks so this would add to the load.</li> <li>4. Would the dirt road be tarred for the heavy loads and if so who is paying for that.</li> <li>5. Where would the trucks turn off to get to said lot?             <ol style="list-style-type: none"> <li>1. Wandena road already big trucks on there.</li> <li>2. Muchea east already had an objection from residents for the proposed truck depo at the corner of Powderbark and muchea east.</li> <li>3. If Wandena dirt road off GNH that is a hazardous corner for large trucks to be turning at.</li> </ol> </li> </ol> <p>Again I object to this lot been used as a truck depot due to the above concerns.</p> <p><b>SECOND SUBMISSION AFTER NEW INFORMATION RECEIVED</b></p> <p>Thank you for your email with updated documents.          I am still concerned about the noise and air pollution for a residential area. These both could affect the residents, wildlife and the pollution effect the protected flowers.          I am still against this going ahead.</p>		<p>The addition of 20 movements per day is unlikely to cause significant traffic issues. Regardless, a condition of approval requires that Wandena Road be maintained to a sufficient standard at their cost to the Shire’s satisfaction. Wandean Road is an existing Rav2 road, meaning the design of the road meets standards for such trucks.</p> <p>The proprietor is required to conform to the noise regulatons at all times. State environmental bodes have all cited no objections to the proposal.</p>
<p><b>PUBLIC 10 OBJECTION</b></p>	<p>We refer to the proposed transport depot, storage and warehouse development at Lot 191 Powderbark Road, Lower Chittering. As residents of Wandena Estate we wish to express our concerns with this proposed development for the following reasons.</p> <ol style="list-style-type: none"> <li>1. Increased traffic on Wandena Road and Powderbark Road. Even though the main access appears to be on Wandena Road, we believe traffic will also increase on Powderbark Road as a direct result of this proposed development. We have school aged children who walk 1 ½ kilometres along Powderbark Road to and from the nearest bus stop and increased traffic from heavy vehicles and up to 15 employees per day is a real safety concern.</li> <li>2. The proposed development states it is only 200 metres from existing rural properties. A development of this size and nature does not belong in a residential estate. The proposed development does not fit with the surrounding land use and does not comply with the current zoning of ‘Agricultural Resource’ and ‘Primary Basic Raw Materials Priority Resource’. We don’t feel it should be changed from the current zoning.</li> <li>3. Also of concern is the noise which will be generated from the proposed development. We don’t believe a buffer of retained vegetation and the distance of the buffer zone to residential houses will alleviate the noise from movement or works on the site.</li> <li>4. The proposed operating times of the site between 6am and 6pm on weekdays and 6am and 2pm on Saturdays is also of concern regarding noise and traffic management, especially in such a small and quiet estate. We have only recently built in the Estate</li> </ol>		<p>The addition of 20 movements per day is unlikely to cause significant traffic issues. Regardless, a condition of approval requires that Wandena Road be maintained to a sufficient standard at their cost to the Shire’s satisfaction. Wandean Road is an existing RAV2 road, meaning the design of the road meets standards for such trucks.</p> <p>The site is open at these times, however the nature of the business is that the majority of vehicles will leave early morning and not</p>

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	<p>because we wanted the peace and quiet that a rural property brings, away from all the traffic and noise of a built up suburban estate. We feel our lifestyle will be compromised if this development is approved.</p> <p>5. A development of this size and nature in such close proximity may devalue our property and the surrounding properties on the estate.</p> <p>We hope you will consider the negative impact this development will have on our family and other local residents and as such, we urge you to reject the planning application for the proposed transport depot, storage and warehouse development at Lot 191 Powderbark Road, Lower Chittering.</p>		<p>return until evening.</p> <p>Property valuation is not a relevant consideration.</p> <p>The application as previously proposed was not considered acceptable by the Shire. the revised version, as discussed in the officer's report, is significantly less intensive and as such is acceptable.</p>
<p><b>PUBLIC 11 SUPPORT</b></p>	<p>We have a property in Lower Chittering, specifically the estate in Chittering Springs and though I would not be directly affected by the development, I would like to support the submission by WC and SJ Wright for the development of Lot 191 Powderbark rd.</p> <p>Given that all access to the proposed buildings would be via Wandena Ave, and I cannot see how there would be any increase in truck traffic onto Powderbark Road. And the fact that there is currently a landfill directly across the street from the proposed development, there would be a minimal increase in traffic and the size of vehicles would be similar, also the current use of many of the properties on Wandena Rd seems to be a resource extractive nature, this depot would seem to fit into the uses of the local area.</p> <p>I have read the supporting documents and believe that there has been great consideration given to the current residents of Powderbark road that are near lot 191 and tend to believe there would be minimal impact to them both from a noise and visual perspective, there is a 500 meter vegetative buffer between the transport depot and the adjoining properties, and there is revegetation zones planned to minimize the visual impact from the road, also the main activity area of the depot is 1km from adjoining homes, the hard stand areas are to be used as storage of vehicles, i.e the vehicles won't be operated there other drive in/drive out.</p> <p>There also has been consideration given to environmental issues of the development, evidence by the revegetation proposals which would be better than what is currently present on site.</p> <p>I also think the Shire would benefit from having a small business such as this growing within the community, providing local jobs and local services.</p> <p>Thank you for your consideration.</p>		<p>Noted.</p>
<p><b>PUBLIC 12 SUPPORT</b></p>	<p>I am sending you this email supporting the proposed transport warehouse at Lot 191 Powderbark Road.</p> <p>As the site is within the buffer zone for clay pits and is in an area for rural resource and extractive industry, I cannot see any problems with this providing the revegetation is done to same or better quality that now exists. The buffer zone with trees is more than adequate for this and as it's only a depot, noise would be at a minimum anyhow. As the landfill site is over the road, I cannot see the depot causing any problems at all.</p> <p>Any project such as this will provide employment for our community, so that can only be a</p>		<p>Noted.</p>



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	good thing. I hope this goes ahead to help develop industry further in our Shire.		
<b>PUBLIC 13 SUPPORT</b>	Please be advised that Westmore Corporation has no objection to the proposed development to lot 191 Wandena Road, Lower Chittering.		Noted.
<b>PUBLIC 14 OBJECTION</b>	<p>In relation to the proposed development at 191 Powderbark Road I strongly oppose this for the following reasons:</p> <ol style="list-style-type: none"> <li>1. This new development will create a large amount of noise, especially since it has been proposed for 12 hour workdays with trucks going in and out of the development.</li> <li>2. I regularly walk around Powderbark Road and I don't want to have to worry about trucks flying past me and my 8 year old sister as we walk to the bus stop or just around the area.</li> <li>3. This development will make the natural area look like another industrial area. It will stand out and degrade from the natural bush.</li> <li>4. This development has a high chance of attracting theft and vandalism, as many of the things stored in this depot will be of some value. This will make the overall area seem unwanted or uncared for.</li> </ol>		<p>See responses, above. comments 1-3 cannot be substantiated.</p> <p>It is at the duty and care of the proprietor to care for the site.</p>
<b>PUBLIC 15 SUPPORT</b>	<p>Locally there has been some talk of a proposed transport depot at Lot 191 Powderbark Road, Lower Chittering. Having talked with several local residents we are in favour of the proposal due to the nature of its use. Whilst some people then there will be an abundance of heavy vehicles coming and going on a regular basis this does not appear to be the case. That being said, there is already significant heavy traffic due to the rubbish tip and the Midland Brick Clay Pit – which is right across the road!!!</p> <p>If this property development does not go ahead there is the risk of it being sold with potential buyers being able to dig and excavate as was the intention of Midland Brick – we find this far more offensive than having vehicles parked there. And with the current proposal the revegetation can only improve the appearance of the area which has been left barren in its former clearing for farming purposes.</p> <p>On a personal note: and one that not everyone in the community is aware of – Wayne Wright has looked after our fire breaks, and many others on an annual basis, and is a known DFES Contractor who will have the water resource in the form of a dam on site, which will benefit our community in the event of fires – we need this!!</p> <p>In summary I would like to say, there are more positives than negatives for this proposal, we do hope you will give it the consideration that we have, and allow it to proceed.</p>		Noted.
<b>PUBLIC 16 OBJECTION</b>	<p>Regarding the proposed transport yard. I as a rate payer who chose to buy in a semi rural peaceful environment in the Wandena Estate would like to see this proposal rejected. I won't go to the extent of going into all the reasons why as you would understand this an area that should not be considered for commercial is and in particular that have safety as well as aesthetic detriment to our community.</p> <p>And I'm sure you are aware of all the very ambiguous figures in their proposal. Particularly the amount of vehicles and trips going through our community.</p>		These figures have been put forward as fact and are not considered to significantly adversely affect the residential properties nearby.
<b>PUBLIC 17</b>	After careful consideration, I wish to put forward my support for the proposed transport		Noted.

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<p><b>SUPPORT</b></p>	<p>depot and warehouse development by WC &amp; SJ Wright Earthmoving to be located at Lot 191 Powderbark Road, Lower Chittering.</p> <p>I would like to make mention of several points in support.</p> <p>The property is in an area for rural resource and extractive industry. Main activity is almost 1km away from houses and hardstand is for storage and not for daily movements.</p> <p>The site is over the road from the landfill site, already operating with crushers, generators, screening plants, excavators, loaders and trucks.</p> <p>The site is within the buffer zone for clay pits.</p> <p>There is a 500m buffer of trees for transport depot and only 200m buffer is required.</p> <p>The revegetation is to screen the site and will be a better quality than what already exists there and what is to be cleared.</p> <p>The 500m buffer is the same as what exists for Midland Brick and Muchea Landfill – there is no area where this type of industry can be carried out at present – this is the most appropriate as within current buffer zone for extractive industry.</p> <p>Of high importance, create employment.</p> <p>I believe the positive aspects of this proposal far outweigh any negative. It would be a step forward for the area to support business growth.</p>		
<p><b>PUBLIC 18 OBJECTION</b></p>	<p>We are writing to indicate our objection to the Proposed Warehouse and Transport Depot on Lot 191 Wandena Road, Lower Chittering.</p> <p>We own <b>[REMOVED FOR PRIVACY]</b> and will be building a family home on this block in the very near future. We object to this proposal due to the following issues:-</p> <ul style="list-style-type: none"> <li>- There will be an increase in traffic along Powderbark Road, which in turn means more noise and fumes, and safety issues associated with heavy vehicle use along a residential road.</li> <li>- Due to the proximity of our land (we are approximately 1km away by Powderbark Road) we will be affected by noise generated by vehicles and machinery operating at the proposed depot.</li> <li>- We are concerned about a possible increased fire risk due to the large fuel storage tank being proposed.</li> <li>- The close location of an industrial business is likely to adversely affect ours and our neighbour's property values.</li> <li>- We bought this land to build a family home on in which to raise our two children in a peaceful rural lifestyle, away from the noise and pollution of the suburbs and industrial areas.</li> </ul>		<p>These comments are similar to previous submissions. Hence these comments have been responded to.</p>
<p><b>PUBLIC 19 SUPPORT</b></p>	<p>I have no objection to the above proposal provided the following conditions be met by the proposer and be part of the Shire's approval requirements.</p> <p>1. Powderbark Road "NOT BE USED" as an access road to the site by trucks, service or</p>		<p>Noted.</p>

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	<p>employee vehicles.</p> <ol style="list-style-type: none"> <li>2. Wandena Road between Great Northern Highway and East Muchea Road not be used by trucks as access to the site. Use only East Muchea Rd from Great Northern Highway.</li> <li>3. The upgrading and surfacing of Wandena Road north and south of the site be undertaken / paid by the proposer.</li> </ol> <p>Should these conditions not be acceptable to the proposer or the shire, then for many safety and quality of life reasons I would totally reject this proposal.</p>		
<p><b>PUBLIC 20 OBJECTION</b></p>	<p>This email is in relation to the Proposed Transport Depot/Warehouse – Lot 191 Powderbark (Cnr Wandena) Roads, Chittering. This is to inform you of our disapproval of said proposal.</p> <p>Our reasons for this are the industrial area proposed by the shire some years ago was to the west of Wandena Road down to Great Northern Highway. This proposal although just on the east side of Wandena Road is not deemed as part of the Shire’s industrial node. (It is hope that this side of Wandena Road will never be part of any present or future industrial node).</p> <p>Having resided in this Shire near on 19 years, what first attracted us to the area was not only its beauty but also its tranquillity. This should always be embraced by the Shire, as I am sure many residents would have the same reasons for moving to this area. Peace and Tranquillity should never be disregarded as a solid reason for allowing this proposal to go ahead. (Through Mental Health)</p> <p>We feel traffic flow will increase on Powderbark Road as it will become a thoroughfare for any developments at the end of Powderbark. People are accessing Powderbark to travel to Bindoon and other areas as a short cut. There are already many heavy vehicles using Powderbark whereby some of these are residents of Wandena Estate. (We thought as per shire laws you couldn’t keep large earthmoving equipment including six wheel tippers and semi-trailers for the running of a business in this Estate.) We do not want any increase in the traffic flow already in this estate as the people that do not live in this estate, do not respect the estate and do not keep to the speed limit. Sharing the road with heavy vehicles is not a reason why we moved out here.</p> <p>We also feel that as a part of our lifestyle, and the lifestyle the shire is trying to put forward in regards to having the use of bridle paths, road verges for not only horses but kids on pushbikes, familiars spending time together i.e. walking dogs etc. the traffic flow in the area will become significant not only from heavy vehicles but also light vehicles.</p> <p>Through environmental conditions and fire controls although we have seen these written in the documents provided, the question is, who will be policing these from day 1 through the lifespan of the business for now and in the future. We also feel that this will set a precedent for other business moving in our estate and bordering our estate.</p>		<p>The operation is to comply at all times with the Noise Regulations.</p> <p>The area in which the subject application is proposed is Agricultural Resource. The nearest Rural Residential zoning is in fact approximately one kilometre away from the revised hardstand area. The immediate adjoining landowners to the east are unlikely to be affected by the development in its revised state as there will be minimal to no additional truck movements on Powderbark Road, and the development will otherwise be screened from view.</p> <p>Wandena Road is a RAV2 network road, meaning the road has the capability of sustaining large vehicles. To this end this not a reason afforded to the Shire to refuse the development application.</p> <p>The proposal includes the planting of 6 metre wide vegetation screening to screen the proposal from view. Additionally, a condition has been placed to minimise the visual impacts associated with large machinery.</p> <p>The subject lot has provided through qualified consultants, evidence that the proposal will not have an impact upon the environment or surrounds. This has been affirmed by DPaW and the Shire’s Principal Environmental Health Officer.</p> <p>The lot is privately owned and is capable of being developed for the purposes. Unfortunately it is unrealistic to expect the lot to remain vacant.</p> <p>The lot is not able to be developed for</p>

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			residential purposes as the Basic Raw Materials Special Control Area prevents such land uses.
<b>PUBLIC 21 SUPPORT</b>	<p>I wish to advise my support for the above proposal as I believe it meets all the necessary criteria for it to be a benefit for the area. This project will provide employment for locals and because of its location will not interfere with others who live in the area.</p> <p>The depot is almost a kilometre away from the nearest house, it has a 500 meter buffer zone and the property is well located to service the needs of the local industry.</p>		Noted.
<b>PUBLIC 22 OBJECTION</b>	<p>I am writing this letter to oppose the proposal of a warehouse and transport depot in Wandena Estate. I feel that if this were to go ahead it would devalue the area greatly and contradict the Wandena Estate Residential Rural / Agricultural feel. It would create the excessive noise levels starting early (6am), and I don't like the idea of excessive diesel storage in a bush area that has just been classified as bushfire prone area. I also worry about the safety of the children walking in the streets and horse people riding in the area if they were to have to encounter numerous trucks. In addition, I don't think any of the intersections in the area Wandena/Muchea East Rd, Powderbark / Muchea East Road, Wandena/Great Northern Highway are safe enough to regularly share with numerous trucks. The gravel section of Wandena Rd would also not handle the trucks as this was witnessed in the brief time they thought about a truck depot on Blue Plains Road leading to numerous pot holes in a short period of time.</p> <p>I have lived in the area for over 6 years and specifically chose Wandena Estate to settle and building to escape the noise of the trucks when the cattle yards opened up just up the road from where I used to live.</p> <p>I really hope the council choose not to go ahead with this and send the applicants to somewhere a bit more suitable for a transport depot like the proposed industrial zone.</p>		<p>The operation is to comply at all times with the Noise Regulations.</p> <p>The area in which the subject application is proposed is Agricultural Resource. The nearest Rural Residential zoning is in fact approximately one kilometre away from the revised hardstand area. The immediate adjoining landowners to the east are unlikely to be affected by the development in its revised state as there will be minimal to no additional truck movements on Powderbark Road, and the development will otherwise be screened from view.</p> <p>Wandena Road is a RAV2 network road, meaning the road has the capability of sustaining large vehicles. To this end this not a reason afforded to the Shire to refuse the development application.</p> <p>The proposal includes the planting of 6 metre wide vegetation screening to screen the proposal from view. Additionally, a condition has been placed to minimise the visual impacts associated with large machinery.</p> <p>The subject lot has provided through qualified consultants, evidence that the proposal will not have an impact upon the environment or surrounds. This has been affirmed by DPaW and the Shire's Principal Environmental Health Officer.</p> <p>The lot is privately owned and is capable of being developed for the purposes. Unfortunately it is unrealistic to expect the lot to remain vacant.</p>
<b>PUBLIC 23 OBJECTION</b>	We the owners of [removed for privacy] highly oppose the proposed development at 191 Powderbark Road Lower Chittering.		The operation is to comply at all times with the Noise Regulations.

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	<p>Wayne Wright and his daughter approached us in regards to his intentions to develop the land at Lot 191 Wandena Road back in late March 2016. We signed a document to say this would all be OK to go ahead with going on the information Mr Wright had given us.</p> <p>In mid June our neighbour approached us to let us know their concerns about the development and we were shocked at the size and scale of the of the development. Since then we have received a letter from the Shire of Chittering at the start of July (around the 3<sup>rd</sup> of July). The letter id dated 24 June and we are wondering why a project of this size was not disclosed to us earlier? We now have further information from the council web site and from neighbours. We feel the information given to us back in March 2016 by Mr Wright was misleading and we now 100% oppose the development of Lot 191 Powderbark Rd, Lower Chittering. Furthermore we will be withdrawing our signatures of approval that were given to Mr Wayne Wight which he submitted to Council for this proposed development. Please remove this from his application (appendix 14).</p> <p>The reasons for our objections are as follows:</p> <ul style="list-style-type: none"> <li>• Noise pollution with trucks operating from 6am – 6pm and weekends. This will affect my lifestyle and others that live in this area. If this yard opens at 6am what time do the trucks plan on starting to arrive for a 6am start?</li> <li>• Heavy vehicle movements around our area will also create dust and vibrations.</li> <li>• Flashing lights and reversing beacons will provide sigh and also audible pollution.</li> <li>• We moved here in February 2016 as it was rural residential with the potential of a lifestyle change for ourselves and our 3 kids. With the potential of an industrial property 1 block away from us contradicts the whole reason why we moved here.</li> <li>• Hard stand development will be an eye sore in a residential area. Even though they plan to develop 6m with vegetation to hide it, it will take years to grow and will not cover the security fence, just take a look at some of the yards on Great Northern Highway near Bullsbrook. In fact others in this area are not allowed to have such fences.</li> <li>• Lot 191 Powderbark is agricultural block and as we understand it supposed to be used as a buffer block to protect the residents.</li> <li>• A great concern is when Mr Wright lets this property out to a big company where do we stand when they don't obey the rules for vehicle movements and noise? Are we the ones whom will have the never ending battle with a large company and the council over noise, dust, flashing lights in the darker hours of the day not to mention the heavy vehicle traffic that will undoubtable exceed the suggested amount of movements?</li> <li>• Approving this development will open up the opportunity for others to do the same in our residential area and we do not wish this to occur.</li> </ul> <p>In conclusion we feel that such a development will have a detrimental impact on our life style that we have chosen and also the value of our property. There are plenty of properties around the area that are zoned and earmarked for future zoning for this type of project.</p>		<p>The area in which the subject application is proposed is Agricultural Resource. The nearest Rural Residential zoning is in fact approximately one kilometre away from the revised hardstand area. The immediate adjoining landowners to the east are unlikely to be affected by the development in its revised state as there will be minimal to no additional truck movements on Powderbark Road, and the development will otherwise be screened from view.</p> <p>Wandena Road is a RAV2 network road, meaning the road has the capability of sustaining large vehicles. To this end this not a reason afforded to the Shire to refuse the development application.</p> <p>The proposal includes the planting of 6 metre wide vegetation screening to screen the proposal from view. Additionally, a condition has been placed to minimise the visual impacts associated with large machinery.</p> <p>The subject lot has provided through qualified consultants, evidence that the proposal will not have an impact upon the environment or surrounds. This has been affirmed by DPaW and the Shire's Principal Environmental Health Officer.</p> <p>The lot is privately owned and is capable of being developed for the purposes. Unfortunately it is unrealistic to expect the lot to remain vacant.</p>
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A11627 – Proposed Transport Depot and Hardstand – Lot 191 Wandena Road, Lower Chittering

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<p><b>PUBLIC 24 OBJECTION</b></p>	<p>We are both new owners and residents at [removed for privacy] and wish to lodge a serious objection to the proposed Warehouse and Transport Depot at Lot 191, just up the road from us.</p> <p>We are recent immigrants and chose country living after living in dangerous and chaotic South Africa, and are really savouring the peaceful lifestyle in Lower Chittering. This development would seriously diminish our life's savings, as it would lower the valuation of the properties in the immediate neighbourhood by completely changing the character of this beautiful area.</p> <p>There seems to be space (and zoning I would imagine) in nearby Muchea, already in a light industrial area, so why spoil a pristine countryside like ours?</p> <p>We also have a very rare plant species growing in our area; surely the green environmentalist's would not be happy with such a development? I would not want to resort to activist reaction; it would remind me too much of the disorder we chose to leave behind, so trust Aussie Rules will prevail!</p> <p>Lastly, we already have some noise pollution from RAAF Pearce (incidentally music to me as I am ex AF) but trucking would obviously increase this to very unsettling levels. Wandena Road is gravel, and Powderbark is tarred, so can only imagine the big increase in road traffic. We bought our Lot because it was the last in Powderbark Road with just open countryside immediately past us, thus having minimal traffic.</p> <p>I trust this issue gets resolved amicably, and am certain there will not be one agreement from local residents.</p>		<p>The operation is to comply at all times with the Noise Regulations.</p> <p>The area in which the subject application is proposed is Agricultural Resource. The nearest Rural Residential zoning is in fact approximately one kilometre away from the revised hardstand area. The immediate adjoining landowners to the east are unlikely to be affected by the development in its revised state as there will be minimal to no additional truck movements on Powderbark Road, and the development will otherwise be screened from view.</p> <p>Wandena Road is a RAV2 network road, meaning the road has the capability of sustaining large vehicles. To this end this not a reason afforded to the Shire to refuse the development application.</p> <p>The proposal includes the planting of 6 metre wide vegetation screening to screen the proposal from view. Additionally, a condition has been placed to minimise the visual impacts associated with large machinery.</p> <p>The subject lot has provided through qualified consultants, evidence that the proposal will not have an impact upon the environment or surrounds. This has been affirmed by DPaW and the Shire's Principal Environmental Health Officer.</p> <p>The lot is privately owned and is capable of being developed for the purposes. Unfortunately it is unrealistic to expect the lot to remain vacant.</p>
<p><b>PUBLIC 25 OBJECTION</b></p>	<p>We would like to raise our objections for the following reasons.</p> <ol style="list-style-type: none"> <li>1. The Muchea employment node has been set up for such projects. By allowing this proposal to go ahead would set precedence for others to allow further industrial incursions into Lower Chittering.</li> <li>2. The proposed clearing of the area is of great concern. Removing such a large area would have a massive effect on the wildlife, flora and fauna, which is abundant in this area.</li> <li>3. The use of Wandena Road by trucks in its present condition would render it an extreme hazard to other road users. The number and type of vehicles that is proposed along with</li> </ol>		<p>Noted and agreed, however each application must be assessed on its own merits. The applicant does not own land within the MEN, and thus cannot be forced to situate in that location.</p> <p>The clearing area has been significantly reduced.</p> <p>Wandena Road is a RAV2 network road, meaning the road has the capability of</p>

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	<p>the applicant's intention to sublet the facility we believe would generate for more vehicle movements a day than has been stated. The use of Powderbark Road would cause immediate and real danger, not only to other road users but to pedestrians as there are no footpaths. Even if truck movements are restricted on our estate, we feel this would be ignored by drivers, especially by the applicant, as his home is on Powderbark Road.</p> <p>In conclusion we wholeheartedly object to this proposal and would ask the Council to consider the fact that if this is approved you would be unable to refuse further applications and our estate would be become a rural industrial area.</p>		<p>sustaining large vehicles. To this end this not a reason afforded to the Shire to refuse the development application.</p>
<b>PUBLIC 26 OBJECTION</b>	<p>Please accept my objection to the proposed Transport Depot at 191 Powderbark Road, Lower Chittering, WA, for the reasons listed below.</p> <ol style="list-style-type: none"> <li>1. Council has previously ruled that no commercial / industrial enterprise will be allowed East of Wandena Road in the rural / residential zoned area of Wandena and Old Winery Estates.</li> <li>2. As a resident and rate payer I came here to live in the country to enjoy the safety, peace and quiet within nature. I strongly oppose to the intrusion of Heavy Transport into this area.</li> <li>3. The proposed depot would adjoin Residential Land. This proposal if approved will detract from the beauty and serenity of this rural residential area.</li> <li>4. Both Wandena and Powderbark Roads are unsuitable for extensive and continual use of Heavy Haulage and mining vehicles.</li> <li>5. The Intersection at Great Northern Highway and Wandena Roads, being on a bend, is highly unsuitable and potentially, extremely dangerous. This would pose high risk to all road users in that area.</li> <li>6. It would be of high risk and inevitable, with the large number of Heavy Industrial vehicles being parked and or travelling through the yard, that spillage or leakage of dangerous / hazardous materials would occur, that would not be collected by oil and grease traps thus leeching into the surrounding natural environment and water ways.</li> <li>7. Approval of this proposal would contravene the existing zoning, initiatives and objectives of the shire to maintain this area as natural bushland.</li> </ol>		<p>Incorrect as this site has been identified for resource extraction. This is a significant industrial use.</p> <p>The revised proposal results in minimal traffic and environmental impacts.</p> <p>The proposal is intended to be screened from nearby residential and Powerbark Road in general.</p> <p>A traffic analysis has confirmed the road network is capable of containing the development.</p>
<b>PUBLIC 27 OBJECTION</b>	<p>I have a number of objections to the proposed development re: Proposed Transport Depot/Warehouse – Lot 191 Powderbark (Cnr Wandena) Roads, Chittering.</p> <ul style="list-style-type: none"> <li>• The proposed use of the land is not in accordance with the current zoning; any zoning changes make a mockery of the land zoning principles and demean its meaning. Other residents abide by the zoning allocated to them and so should the proponent.</li> <li>• Powderbark Rd is asphalt, Wandena Rd is not. Erosion and dust are issues of gravel roads such as Wandena Road.</li> <li>• Dust from the gravel and hard stand areas are not addressed. The area is subject to high winds from the east in summer, from the west in winter. Wind measurements and modelling is not supplied for their proposal.</li> <li>• Increased traffic of Wandena results in more maintenance of the road by the Shire, and/or high cost of upgrading to bitumen.</li> <li>• Traffic counts had been neglected for Powderbark Rd. They could be done and need to be as no adequate modelling of traffic flows with heavy vehicles have been presented.</li> </ul>		<p>The landuse is capable of approval under the current zoning.</p> <p>Wandena Road is a RAV2 network road, meaning the road has the capability of sustaining large vehicles. Regardless, a condition of approval requires the applicant to maintain the northern section of Wandena Road to prevent dust and damage.</p> <p>There is no traffic intended to be increased on Powderbark Road as a result of this proposal.</p> <p>The addition of 20 movements per day is</p>

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	<ul style="list-style-type: none"> <li>• Vehicles per day (VPD) are adequate for the present, but are not adequate for future use, and different vehicles have different outcomes for the roads. Heavy vehicles affect roads differently to passenger vehicles, resulting in different maintenance regimes. This is not account for in the proposal.</li> <li>• Point 8 re: time periods for assessment is not adequately covered in the proposal.</li> <li>• The proponent expects the Shire to upgrade Wandena Rod to a sealed standard (Point 9.2). This is an unnecessary burden on the Shire and rather selfish of the proponent.</li> <li>• Point 9.3 the proponent expects the Shire to clear roadside vegetation in its behalf without a vegetation survey which is unethical and dangerous, given the rare flora in the area.</li> <li>• The conclusion (point 10) is contradictory to other data in the application.</li> <li>• No noise survey has been undertaken. This is essential with the movement of large vehicles. Powderbark Rd already has noise from Great Northern Highway travelling up the valley, so although the residential dwellings are several hundred metres from the proposed development, noise from trucks and movement is a potential issue and needs addressing.</li> <li>• Appendix A is irrelevant to the proposed development site and independent modelling needs to be carried out. The traffic flows on Wandena from 2012 are not referenced.</li> <li>• No groundwater sampling and monitoring has been carried out. This is essential to ANY, development State-wide. A 12 month dataset needs to be compiled of groundwater flows, depth, chemical characteristics and seasonal variation.</li> <li>• Vegetation Survey:</li> <li>• Inadequate hydrological information is supplied for a development. “Broadly speaking” is not a term suitable for a detailed scientific report.</li> <li>• I challenge point 2.7.1 in that the site was visited February 2016 and no DRF or Priority species were identified. February is not the time to undertake vegetation surveys, which need to be undertaken at a more suitable time of year.</li> <li>• I challenge point 2.7.5 “little natural habitat remains”. A simple drive by on Wandena Road clearly shows, as does the proposed maps that significant large trees are in abundance, and these are the ones to be cleared for the office / hard stand area.</li> <li>• An Aboriginal site survey needs to be undertaken, not just reliance on an enquiry to the DIA.</li> <li>• The appendix A – Species List is alarming in that it is not referenced authored and contains glaring omissions such as Eucalyptus Wandoo and Hakea Laurina. I suspect the report author is not Australian qualified to undertake a flora survey and provide a report.</li> <li>• Transport and trucking businesses are adequately provided for in other areas within the Shire that are already zoned for this use. The proponent needs to respect these areas and abide by the Shire’s zoning rules and laws.</li> </ul> <p>Please accept my opposition to the proposal based on the points I have detailed.</p>		<p>unlikely to cause significant traffic issues. Regardless, a condition of approval requires that Wandena Road be maintained to a sufficient standard at their cost to the Shire’s satisfaction. Wandena Road is an existing RAV2 road, meaning the design of the road meets standards for such trucks.</p> <p>The proposal includes the planting of 6 metre wide vegetation screening to screen the proposal from view. Additionally, a condition has been placed to minimise the visual impacts associated with large machinery.</p> <p>The subject lot has provided through qualified consultants, evidence that the proposal will not have an impact upon the environment or surrounds. This has been affirmed by DPaW and the Shire’s Principal Environmental Health Officer.</p> <p>Generally speaking the points raised in this submission were upheld in relation to the development application. The applicant has since revised the information to satisfy the questions raised.</p>
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	<p><b>SECOND SUBMISSION</b></p> <ul style="list-style-type: none"> <li>• The proposal does not meet the objectives of the Agricultural Resource zone (4.2.3 of the TPS No. 6).</li> <li>• Section 5.8.7 of the TPS No. 6 conditions are inadequately addressed.</li> <li>• The proposed development is on land classed as Agricultural resource. Nowhere in the definitions does the proposed development activities align with established agricultural activities. The State Government of Western Australia defines Agricultural land use as "The use of land for the production of food, fibre and timber, including grazing, cropping, horticulture and forestry". The proposed development is a transport depot (class 84) which is not permitted unless the local government has exercised its discretion by granting Planning permission. A transport depot and warehouse is not a compatible use of land with Agricultural Resource. It belongs in a Light Industrial Area for which the Shire has made adequate provision.</li> <li>• No community consultation has been undertaken by the proponent.</li> <li>• The flora and fauna survey was not peer reviewed, which is standard consultant practice, therefore it lacks professional credibility.</li> <li>• The fauna survey was simply a walk through the area by 3 ecologists noting what they observed. The observation notes are not attached to the report. This report lacks much of the detail expected of a consultant's report.</li> <li>• The EPA has published a guide to fauna surveys; this document was not referenced nor the principles followed.</li> <li>• The EPA recommends 11 methods of fauna surveys, 1 was employed, with no repeat surveys, no assessment of the reliability or veracity of the data or effectiveness of the sampling technique employed. It was substandard sampling that a school student could achieve better.</li> <li>• No survey was undertaken of bats. They ARE in the area and a transport depot may have considerable impact on their livelihood.</li> <li>• The EPA has published a guide to flora and vegetation surveys December 2015; this was not referred to or referenced in the flora survey report.</li> <li>• The transport vehicle numbers on Powderbark Rd should the proposed development progress are incompatible with the current land uses of other properties along Powderbark Rd.</li> <li>• As Powderbark Rd is an access to Muchea Rd East traffic tends to flow on Powderbark Rd rather than Wandena Rd due to the surface of the road. More heavy vehicular traffic results in more road wear which the Council is responsible for, not the proponent.</li> <li>• The speed limit for Powderbark Rd is 70km/h. Adjacent to 289 this speed is not maintained by large vehicles which need to maximise speed to get up the hill if travelling north. So road safety is compromised, more so with increased traffic numbers.</li> <li>• No traffic count was undertaken for Powderbark Rd. This is an important omission by the proponent and traffic numbers NEED to be ascertained for the proposed development to be properly assessed by the Shire.</li> <li>• The traffic Impact Study is obsolete as the revised site plan details Powderbark Rd as the access Rd not Wandena Rd on which the report is based. The traffic number so far locations is irrelevant.</li> <li>• The storm water strategy was written by a consultant who is not qualified or</li> </ul>		
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	<p>experienced to undertake such a report.</p> <ul style="list-style-type: none"> <li>• The storm water strategy is not peer reviewed.</li> <li>• The storm water strategy lists only 1 reference: which is for subdivision development. Therefore the report/ strategy is not relevant and suitable reference material needs to be provided such as the Department of Water Storm water Management Manual.</li> <li>• The proponent NEEDS to undertake a surface and subsurface water report for the Shire to make an informed decision.</li> <li>• The storm water strategy mentions the dam ( I assume a retention basin?) is to be constructed in accordance with the Shire of Chittering's local policies. This comment is irrelevant as water retention/ detention engineering needs to be constructed in accordance with the Department of Water guidelines. Surface water management is inadequately considered in this proposal.</li> </ul> <p>I strongly object to the proposal for 191 Powderbark Rd as it is neither in the interest of the Shire of Chittering nor the interest of the community to grant planning permission or approval.</p>		
<p><b>PUBLIC 28 OBJECTION</b></p>	<p>The purpose of this letter is for my wife and I to formally object to the planned rezoning and subsequent construction of a transport depot, storage, and warehouse by WC and SJ Wright Superfund at Lot 191 Powderbark Road, Lower Chittering.</p> <p>My wife, two kids and I have recently built upon our land which we purchased in late 2011. We purchased this land due to the location, the community feel of the shire and of Wandena Estate and its quiet picturesque surrounds. We are quite close to the proposed site, about 500m, and are extremely concerned about increases in noise, vibrations and dust levels, excess vehicle movement on Wandena and Powderbark roads, and what implications this proposed construction will have on our properties resale potential and on the remaining parcels of land adjoining Lot 191. We can already hear traffic moving along the Great Northern Highway since vegetation has been cleared in the estates northern valleys and do not want the proposed level of additional and consistent heavy machinery and truck traffic moving so close to our property.</p> <p>Lastly, regarding the prospective transport dept, storage and warehouse at Lot 191 Powderbark Road, I ask the question, who would purchase one of the neighbouring lots with the purpose to reside there? I certainly would not and nor would any of my neighbours, which leaves us with the possibility of future rezoning and industrial type constructions to be built upon the remaining lots.</p> <p>Ultimately, I would not have purchased my land if this type of proposed construction was going to or already was located so close to us. Such a large construction project, housing the vehicles anticipated and carrying out the functions described in the planning application presented by WC and SJ Wright to the Shire of Chittering will most definitely impact upon us, the neighbouring residents, negatively. Surely a better site in an area already prescribed for this type of construction would be a better option.</p>		<p>The concerns raised in this submission have been addressed previously. Other elements raised are generally 'buyer beware' – the Scheme as existing has contemplated such uses prior to the creation of the estate.</p>
<p><b>PUBLIC 29 SUPPORT</b></p>	<p>I am writing in regards to the proposed transport depot development on Powderbark / Wandena Roads, Lower Chittering.</p> <p>From reading the submission it is obvious that a lot of thought and planning has already</p>		<p>Noted.</p>

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	<p>occurred in relation to minimising the impact on the environment, local residents and potential problems of traffic flow to and around this site.</p> <p>I believe Mr Wright’s proposed development as per the submission is certainly preference to yet another “hole in the ground” that potentially may have been the case had Midland Brick not sold the land. The extension to the existing dam that would hold more water that could be used in a fire emergency situation would also be a useful addition to the estate.</p> <p>So, although I don’t absolutely disapprove the development, I do have some concerns that I would like to express.</p> <p>Firstly, the traffic study reports a negative crash history at the Powderbark /Wandena intersection – a relatively new and minimally used intersection.</p> <p>My concern is for the very busy Wandena / Muchea East Road intersection. I am not sure if there have been any actual crashes at this intersection but I am aware of some very “near misses”. The speed limit on the Muchea East Road near the intersection is currently set at 110km/h and is very close to a bend.</p> <p>Although there is a warning sign to slow to 80km/h at this bend, this is rarely adhered to. I believe with the increased traffic, especially slower moving trucks that would be coming in and out of Wandena Road at this intersection would pose a hazard and potentially result in a serious accident.</p> <p>If the speed limit was permanently reduced along this stretch of road near the intersection (as is the case near the Muchea Saleyards) this may reduce the risk.</p> <p>My other concern is the precedent having a development such as this so close to the residential area sets. As there are other large blocks for sale next to Lot 191, is it possible that other developments not in keeping with the rural/residential strategy of the area might also arise? Having lived in the area for almost 20 years I have been increasingly disappointed and upset at the continuing development that has resulted in changes to the landscape close to us. The very reason we decided to move here was to be away from industry, noise and pollution and to enjoy the benefits and beauty of living a rural lifestyle. I’m sure this is the reason most of the residents in the Shire of Chittering live here.</p> <p>If the proposal is given approval to proceed, what assurance can the local residents be given that no further non-agricultural developments will occur?</p>		
<p><b>PUBLIC 30 OBJECTION</b></p>	<p>We would like to express our objection to the Proposed Transport Depot / Warehouse at Lot 191 Powderbark Road based on the following reasons.</p> <ol style="list-style-type: none"> <li>1. Muchea Employment Node and Structure Area is planned to be located west of Wandena Road. In this area there are already areas for approved Transport Depots. These depots located only a few km’s down the road from Lot 12 Muchea East Road and are mainly always empty. Why do we need another depot outside of this zoned area when others down the road are not full? As long-time residents of Wandena Estate we have always been aware of the plans for the development and always fully aware of the rubbish disposal area. We purchased the property knowing this and have a good buffer between our estate and these operations. Our concern is that if you start approving things like Transport depots on the East</li> </ol>		<p>These concerns have been addressed previously.</p>

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side of Wandena Road it will open the flood gates for many other approvals based on the approval of this transport depot which is located right next to residential dwellings.

2. Environmental concerns – As long term residents of Wandena Estate and qualifications in horticulture we have long used the firebreak walks trails surrounding this area and are amazed by the diversity of flora in the area. Especially surrounding the “Declared Rare Flora” site. During spring many species can be seen. We do not feel that the Vegetation Survey presented will be accurate as stated by the author due to the timing that the survey was carried out. This survey should be carried out during spring when all plants can be identified. Our fear for the construction and approval of the depot is that it will slightly alter the climatic conditions surrounding the area and place pressure on the rare flora areas. From extra wind and less protection for extra clearing around the site. The trucks movement in and out of the depot with soil and dust bouncing off them has the potential to spread more weed seed into the area and threaten the rare flora areas. Areas surrounding the Wandena estate have also been marked as Jarrah dieback areas. If these trucks have movement across many properties before heading to the depot I can see nothing in the reports to manage the spread of the diseases into the transport depot area. If dieback was to be spread into the area it would put the Jarrah (*Eucalyptus marginata*) and many other species including the rare flora under risk. Has this been considered? Also once the area has been made into a hard stand it will degrade the cleared area forever. Even though the grazing land is not in the best shape it could be improved on and rehabilitated to improve the area to fit better with the key aims of the “agricultural resource” area. We feel by clearing and creating the hard stand this would go against the aims outline in the report. Just in addition to the fauna in the area. On many occasions we have seen Carnaby Cockatoos feeding in the surrounding area and also Echidnas.
3. Wandena Road Condition – As Wandena Road is a dirt road it quickly becomes degraded and badly corrugated. In its current state extra traffic on this road especially from large vehicles will cause rapid deterioration.
4. Noise – The buffer proposed will not be sufficient to reduce the noise from this site to close surrounding residences. From our location we can hear trucks on the Great Northern Highway during most still nights and also the cattle at the stock yard from where we live in the estate. As the estate is a very quiet estate with minimal traffic and man made noises any industrial type noise can be clearly heard for long distances in the estate and often the estate bounces noise back and forth and sometimes even neighbours over a 1km away can be clearly heard talking on a windless day. We think this needs to be reconsidered especially for the houses close by. Has a noise survey been carried out for the houses nearby and in the rest of the estate?
5. Heavy Vehicles on Powderbark Road – This road is used by school buses and many of the local children use this road to get and from the bus stops. As parents we are concerned to have these heavy vehicles come through our estate in increased volume and increase the potential to hit a child. There are no set paths so the children have to walk on the edge of the road. If the trucks are travelling west of the estate it would be quicker for them to use Powderbark Road and I could not see anything in the report to say that they would restrict traffic on this road.

We have no objection to the same proposal if located on the **Western** side of Wandena

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	Road but feel that for the above reasons this proposal should not be accepted based mainly on its location East of Wandena Road and the close proximity to many residence living in the Wandena Estate. Many of us have owned our properties for over 20 years and purchased the properties knowing of the proposed refuse site and planned employment nodes. We do not want to see any of this happening right up against our housing lots when it was of the understanding it was planned for the other side of Wandena Road with large buffer zones. As the land in the employment zone is largely under developed we see no reason for the shire to consider alternative sites site as a Lot 191 Powderbark Road.		
<b>PUBLIC 31 SUPPORT</b>	<p>I am writing to advise that I have no objection to the above proposal.</p> <p>I believe that we need commerce/industry within the shire to be encouraged and help create further employment opportunities within the shire.</p> <p>This business within the shire helps lower the costs of earth works for prospective residents &amp; ratepayers not to mention additional site works after residents have moved in, further improving property values.</p> <p>The location of this proposal is a good site considering the following:</p> <ul style="list-style-type: none"> <li>• This site is within a buffer zone for clay pits</li> <li>• The property is in an area for rural resource &amp; extractive industry</li> <li>• There is a 500m buffer of trees for transport depot and only a 200m buffer is required</li> <li>• The site is over the road from the landfill site operating with crushers, generators, screening plants, excavators, loaders and large amount of trucks</li> <li>• The 500m buffer is the same as what exists for Midland Brick and Muehea Landfill – there is no area where this type of industry can be carried out at present – this is the most appropriate as within current buffer zone for extractive industry</li> <li>• Main activity is almost 1km away from houses and hardstand is for storage and not for daily movements</li> </ul> <p>As I understand the land has no other intended use and would benefit an existing local business which supports the community.</p>		Noted.
<b>PUBLIC 32 SUPPORT</b>	<p>As ratepayers of the area we have noted the above proposal, and wish to add our positive support. It would seem that the area is already utilised as a rural resource and extractive industry, and the proposal is most certainly in line with the existing <i>status quo</i>.</p> <p>We further understand that the proposed depot involves relatively little traffic movement, and that even this minimum activity would have little, or no, impact upon residential development of the area which is some distance away. There is, too, a further consideration of any possible environmental consequences with the provision of substantial tree buffer which is in excess of the requirement of existing legalisation, and most certainly would have an aesthetic benefit.</p> <p>Given the above points, and obviously being supporters of sensible development within the region, we would like to think that the proposal is looked upon with some favour by you.</p>		Noted
<b>PUBLIC 33 SUPPORT</b>	Further to your letter dated 24 <sup>th</sup> June 2016 requesting comment on the proposed Warehouse and Transport Depot located at the above-mentioned location.		Noted

A11627 – Proposed Transport Depot and Hardstand – Lot 191 Wandena Road, Lower Chittering

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	We wish to advise that we have no objection to the above proposal.		
<b>PUBLIC 34 SUPPORT</b>	<p>We have had dealings with Wayne and Jackie on several occasions now, and have to say we have been impressed with their service. Whilst other companies have been contacted, we have waited in vain for the promised return call, but Wayne and Jackie always act in a timely fashion in responding to initial contacts, and in carrying out subcontracted work.</p> <p>It has been an absolute delight to find local people to subcontract, as so many services find Chittering ‘too far’ to bother. And to find local companies who are friendly, helpful and display a good degree of common sense is a real bonus! We have also had dealings with some of their contractors and found them also to be personable and professional.</p> <p>I believe that after living and working in this area for 18 years, it is surely time that this local business be given a solid ‘home’ to park their vehicles and run the daily work of their business. From the proposal I see that they have made a sensible decision as to the location of their proposed activities in relation to the proximity of homes and so forth. I am also pleased to note to revegetation plans.</p> <p>I strongly recommend that their plans be given the green light.</p>		Noted
<b>PUBLIC 35 OBJECTION</b>	<p>I am emailing in response to the proposed Warehouse and Transport depot – Lot 191 Wandena Road, Lower Chittering.</p> <p>My husband and I were wanting to make an objection to the proposed development. Our objection is based on multiple reasons as follows:</p> <ol style="list-style-type: none"> <li>1. The potential for devaluing to our property this sort of development would result in and the impact of the increased traffic and intended heavy movements that are expected including noise pollution.</li> <li>2. The potential risk to people who use Powderbark Rd to walk their dogs or exercise. And the risk to children who catch the bus along Powderbark Rd or ride their bikes/scooters along the road who I see often.</li> <li>3. The potential congestion caused by all the extra traffic and the intended heavy movements that this development is expecting to bring.</li> </ol> <p>We haven’t moved to the country to be surrounded by noise and traffic and must object to this development.</p>		Similar to previous submissions, the points raised in this submission have been addressed previously.
<b>PUBLIC 36 OBJECTION</b>	<p>We hereby submit our objection to the above mentioned planning application.</p> <p>Some of our concerns include, but at not limited to, the following listed below:</p> <p>Primarily the proposal does not meet the objectives of the Agricultural Resource zone with multiple heavy vehicles being parked on 3 large hardstands, including 2 comprising of gravel, potentially resulting in the degradation of land especially during heavy rains.</p> <p>There is no provision for runoff from the vehicle storage area which may contain oils and fuel and no way of containing possible contaminants from the gravel hard stand areas.</p> <p>The applicant states in his application that:</p>		This information within this submission has resulted in significant changes to the proposal. Generally speaking the result is such that these concerns are addressed in the final iteration of the proposal.

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<p>“The transport depot is expect to generate a <b>maximum of forty (40) heavy vehicle movements per week</b> the majority of which will occur during daylight hours due to road licencing requirements; The warehouse is expected to accommodate a maximum of <b>10 heavy vehicles movements per week</b>, the majority of which will again occur during daylight hours.”</p> <p>However, the Transport Statement provided contradicts this information, stating “predicted generation from the site is <b>20 vehicles per day</b> based on advice from the proponent with all movements carried out by a mix of 6 wheel tippers and semi-trailer tippers.” “The carting will result in an additional <b>10 trips each way per day</b> which will travel between the site to both the north and south along Wandena Road.”</p> <p>Regarding wear and tear on the gravel sections of Wandena Road. Who would be responsible for repairs and maintenance due to this daily heavy vehicle usage? What restrictions would be implemented to stop the applicant from using Powderbark Road as we already have damage (potholes) from everyday estate traffic?</p> <p>We also have concerns that the applicant is planning on leasing out portions of the development to several other contractors. Who would be responsible for ensuring lessee’s comply with any conditions placed on this development if it was approved?</p> <p>The visual impact of this development (“a maximum of twenty (20) trucks, one hundred (100) trailers and forty (40) machines associated with the transport depot use are expected to be parked on the land at any given time”) for anyone entering / leaving the estate at this end of Powderbark, not mention the view for the closest property owners, regardless of the proposed revegetation, is not in keeping with a rural residential estate.</p> <p>There are existing areas within the Shire more suited to this type of development, including the designated Muchea Employment Node. We are extremely concerned that if this application is approved, it may set a precedent for further commercial development on the adjoining 3 large blocks of land backing onto existing homes.</p> <p><b>SECOND SUBMISSION</b></p> <p>In response to the revised plans for Transport Depot/Warehouse Lot 191 Powderbark Rd, Lower Chittering, we wish to add the following to our previous letter of objection. Lot 191 Powderbark Road Lower Chittering has an approximate area of 39.39 ha, the majority of which is classified as “<b>Mogumber Complex-South</b>”</p> <p><b>Ref Shire of Chittering Local Biodiversity Strategy (adopted 21 April 2010)</b></p> <p><b>LBS Page 53: Precinct specific recommendations</b> Seek to protect 1,038 hectares of remaining native vegetation (<b>Mogumber Complex-South</b> ) and retain additional 1,450 hectares.</p>		
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**LBS Page 53: Lower Chittering.**

*Lower Chittering Planning Precinct is identified as suitable for rural residential subdivision with consideration of biodiversity preservation needs.*

**Phytophthora Dieback**

**Gravel for hardstands plus eight (8) soil bins to be installed onsite – High Risk of introducing Phytophthora Dieback to the property.**

“Over 40% of native WA plant species are susceptible to Phytophthora Dieback. Over 50% of the WA's rare or endangered flora species are susceptible. Some of the region's more common plants are susceptible, including \*jarrah, \*banksias, \*grass trees and zamia palms:”

*Ref Dieback Working Group <https://www.dwg.org.au/what-is-phytophthora-dieback>*

**\*Species identified on site**

**LBS Appendix 5 Common indicator species for the presence of disease caused by Phytophthora cinnamomi**

*“An indicator species is a plant species, which is reliably susceptible to Phytophthora cinnamomi (i.e. that the disease usually kills that species).*

According to the revised application, the applicant now plans to run a large gravel hardstand in between 2 large sections of DRF Carnaby foraging habitat which includes removing a sizeable area to accommodate the hardstand. Large vehicle movements in this area will impact on the Carnaby's feeding in these areas

**Carnaby's Black Cockatoo (Endangered, rare or likely to become extinct fauna)**

Carnaby's Black cockatoos require a close association between breeding and **feeding sites** during the breeding season. If these two very different habitats are not within a reasonable distance of each other, breeding attempts fail.

Carnaby's Black-Cockatoos feed on the seeds of a variety of native and introduced plant species and on insect larvae. Plants include kwongan heath plants such **banksias**, dryandra, **hakea**, **grevillea** and also **marri seeds**.

**LBS Page 10: Environmental rationale**

*“Areas of native vegetation provide habitat, home and food, to many species of animals that are still finding refuge within the Shire, including honey possums, the unique nectivorous marsupial, brushtail possums, wallabies but also the threatened Carnaby's black cockatoos.”*

*“All these species are significantly affected by land clearing and fragmentation of natural areas within significant sections of their natural extent, including the Perth Metropolitan Region.”*



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	<p><b>LBS Page 22:</b> <i>Carnaby’s black cockatoo, an iconic species of the South West of Western Australia is threatened due to the loss of breeding as well as its feeding habitat. Clearing and subsequent land degradation combined with increasing competition for nesting hollows by galahs, western corellas and feral honey bees all affect this bird’s future. With plans to significantly reduce the areas of pine plantations just southwest of the Shire’s boundary, the future populations of this iconic bird will be significantly affected (Government of Western Australia, 2009).</i></p> <p><i>Therefore, retention of <b>mature trees and native vegetation</b> to support this iconic species is critical to its survival.</i></p> <p><b>LBS Page 22:</b> <i>Honey possum <b>Tarsipes rostratus</b>, the unique nectivorous marsupial found only in the South West of Western Australia <b>still remains within the Shire and can be seen feeding on nectar of banksias, bottlebrushes or grevilleas.</b></i></p> <p><i>The long term future of this species is dependent on a connected mosaic of natural areas that provide a full range of mature flowering plants. In a highly fragmented landscape with increased risk of fires this can be very difficult considering that a sustainable population of honey possums requires a natural area which had at least 20 to 30 years post fire to achieve the required maturity of plants (Bradshaw, et al, 2007). While the consultant company have conducted a more extensive survey of the block, there is undoubtedly a large area that has not been covered (according to their own sketch of the surveyed areas). With the confirmed presence of Threatened and Priority listed flora and fauna, there is a high risk of damage or loss to any or all of these species due to the everyday operations that will be carried on with this business. Further to the above, we were of the understanding that when Stage 2 of Wandena Estate was subdivided, the 4 larger blocks were part said subdivision approval. These 4 lots were within a buffer zone whilst clay pits were in use, but would potentially be rezoned rural residential once the pit was no longer in operation.</i></p> <p>We respectfully request a total refusal of the discretionary uses requested for this development, which is more suited to an industrial area such as the Muchea Employment Node.</p>		
<p><b>PUBLIC 37 OBJECTION</b></p>	<p>I would like to send in our objection to the proposed transport development of Lot 191 Powderbark Rd. We have read the documents and are horrified at the proposal for a number of reasons.</p> <p>1. We have a tourism based business in the same street, we have guests come because they want to enjoy the peace and tranquillity of the area and the sights of the Chittering Valley. I set up the business here because of the peace and tranquillity. I do not want to see trucks or hear trucks coming down the road disturbing the peace. We often have traffic along Powderbark road, and it often travels faster than the allocated speed of 70kms hr. We notice the difference when trucks go up and down the road now and that’s with construction of the new homes, which we are prepared to tolerate because we know it’s not a permanent thing. The transport depot is going to detract for the area and provide a noise element that we currently do not have and don’t want.</p>		<p>The revised application addresses many of these points. There is no substantiation that this proposal will cause increased levels of traffic on Powderbark Road. .</p>

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	<p>2. If this proposal goes ahead then it will affect my business as I will lose guests who come to the Valley for those reasons stated above not to hear trucks pulling in and out. Yes I am aware that we are not next door but noise travels around this little valley.</p> <p>3. This is a rural residential area and we fought to keep it that way over the years. We have come here for the rural lifestyle not to have a trucking depot at the end of the street. This should be planned for the new industrial hub at Muchea not a rural residential estate.</p> <p>4. A transport dept runs 24/7 night and day we do not want our lives disturbed by trucks coming and going at all hours this is not why we moved here. I also feel that this will devalue our property, if this is allowed to go ahead we cannot run a business here and we need tourism in the area, it brings people in. If I can't run my business then we will have to move and with a property that's been devalued it's not going to be possible.</p> <p>5. Trucks bring their own problems, what's going to happen with the wash-down from the trucks and the fuel spills. This depot is next to an area of protected flora, we delight in the native animals and farm animals that we have in the area. Noise pollution, fumes from the trucks, chemicals and anything else that are washed from the trucks will eventually leach into the aquafer. We are trying to grow fruit trees and native bush tucker foods on our property, these plants are sensitive to pollution and again it will affect the viability and sustainability of our business.</p> <p>6. We have children on the property we enjoy taking them on their bikes around the estates tracks and roads and we will not be able to do this without fear that trucks will see them or us, the road has many bends and many hills and blind spots. Wandena road is already affected by the tip being there and trucks going to the tip the road has to be regraded frequently a transport depot is only going to make this worse.</p> <p>Please accept our opposition to this proposal. We are opposed to trucking depots we need transport in this big country of ours but not in a rural residential setting.</p>		
<p><b>PUBLIC 38 OBJECTION</b></p>	<p>THIS LETTER AND ATTACHMENTS IS A JOINT SUBMISSION FROM TWO OWNER OCCUPIERS:</p> <p><b>[NAMES AND ADDRESSES OF MENTIONED PROPERTY OWNERS FOR PRIVACY]</b></p> <p>We are writing to the Shire of Chittering regarding the proposal of establishing a warehouse and transport depot at Lot 191 Wandena Road, Lower Chittering.</p> <p>There are only 4 residences pertaining to this stretch of Wandena Road between Powderbark and GNH (Northern End) which will be directly affected.</p> <p>Below are listed our concerns regarding this proposal:</p> <ul style="list-style-type: none"> <li>• <b>DEVALUATION OF PROPERTY</b> <ul style="list-style-type: none"> <li>• Noise factor <i>Hours Heavy Vehicles can be operated?</i></li> <li>• Noise from GNH with additional HV movement along Wandena Rd means that we incur HV noise on two sides of our property.</li> </ul> </li> <li>• <b>ROAD</b> (Gravelled Wandena Road, between Powderbark and GNH)</li> </ul>		<p>These concerns have been addressed previously in other submission responses.</p>

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	<ul style="list-style-type: none"> <li>• The northern section of Wandena Road, where planning is proposed, needs to be widened. Current width of the road would appear to not be suitably wide enough to accommodate regular heavy truck movement – encroaching vegetation, tree over hanging &amp; potholes impinge on passing vehicles currently (photo attached)</li> <li>• Road pavement is not thick enough to withstand regular HV traffic, road currently breaks up with LV traffic</li> <li>• Corner has poor visibility from both directions (photos attached)</li> <li>• Radius of the corner is not suitable for long vehicles if oncoming traffic present</li> <li>• There has been an increase in traffic using Wandena Road in recent times for access to Powderbark (Wandena Estate)</li> <li>• A local school bus uses this route regularly <i>For heavy/long vehicles – would road not need to be upgraded to Mainroads standards NOT Local Government?</i> <i>Nesci Winery has a registered verge at driveway, how is this affected?</i></li> <li>• <b>DUST</b> <ul style="list-style-type: none"> <li>• During summer this road is very dusty with the traffic which we already experience and is only going to increase with additional truck movement, further increasing the regularity of maintenance, cleaning of items relating to our properties et: air cons, pond, pool etc.</li> </ul> </li> <li>• <b>MUD</b> <ul style="list-style-type: none"> <li>• In the winter months Wandena Road (gravel) turns to mud with increased heavy vehicle traffic it will cause continual damage to this road which, currently, is not being maintained regularly and at times has been impassable for standard cars</li> <li>• Road is slipping and drainage cannot withstand heavy or inclement weather, presently</li> <li>• Poor drainage and road not high enough (Floodway) near entrance to Nesci Winery.</li> </ul> </li> <li>• <b>CROSSOVER</b> <ul style="list-style-type: none"> <li>• Gravel crossover at Wandena Road and GNH is a hazard, in the time that we have resided in this area little or no attention has been given to this potential hazard – drain is a hazard, potholes at intersection are a hazard (photos attached)</li> </ul> </li> <li>• <b>SPEED</b> <ul style="list-style-type: none"> <li>• There is no posted speed signage on the gravelled section of Wandena that we are aware of</li> <li>• Road users use Wandena Road as a race track and / or drifting</li> </ul> </li> <li>• <b>ENVIRONMENT / POLLUTION</b> <ul style="list-style-type: none"> <li>• ALL premises rely on water catchment from our roofs and sheds for drinking and household use, increase in dust and pollution will also elevate contaminants into our drinking water.</li> <li>• Increase in dust and pollution will also elevate contaminants into the Wineries water supply possibly affecting the outcome of their product</li> <li>• Having a business of this scale operating from this area needs to provide suitable camouflage around their premises as per ARZ</li> <li>• We have a unique bush reserve filled with diverse wildlife and clearing this</li> </ul> </li> </ul>		
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	<p>land for business purposes is detrimental to The Chittering Valley cudos – beautification, Tourism</p> <p>As RATEPAYERS we would like to propose the following:</p> <ul style="list-style-type: none"> <li>• Bitumising the crossover is a necessity</li> <li>• Bitumising Wandena Road from GNH to Powderbark should be considered</li> <li>• To work with the developer in considering the proposal to have Wandena Road (Nth) upgraded and sealed</li> <li>• As ratepayers we would like to see an amicable solution in foreseeing the future development is a beneficial answer for all concerned.</li> </ul>		
<p><b>PUBLIC 39 OBJECTION</b></p>	<p>We write as residents of [REMOVED FOR PRIVACY]. Our property borders Lot 191 Powderbark to our west. We were led to believe that Lot 191 formed the buffer zone between the industrial areas and residential areas. After viewing the full planning submission, it appears to be an industrial complex to be built in a rural zone. Accordingly, we strongly oppose this development and believe this will have a huge impact not only on ourselves but all residents of Wandena Estate.</p> <p>191 Powderbark Road is zone by the Shire as Agricultural &amp; Primary Basic Raw Materials Priority Resource land. The land is a buffer zone between industrial and residential living to protect the residents from noise, dust and industrial workings in the estate. I believe that this is the reason also that the land could not be sold as residential land. If the Shire does approve the proposed development which can be directional, this will go against the aims &amp; objective of the land’s current “Agricultural Resource &amp; Primary Basic Raw Materials Priority Resource” area classifications as stated in the Chittering Local Planning Strategy, Local Biodiversity Strategy Documents. The Agricultural Resource Area key aims quoted from the Shire of Chittering Local Planning Strategy are: maintain agricultural lands for primary production purposes, protect improve natural environment, facilitate conversion of suitable land to intensive agriculture, prevent impact on the existing land form, environmental character and visual appearance to Wandena Estate having a huge impact on house prices of residential properties.</p> <p>According to the Muchea Employment Node Structure Plan – Final Report August 2011 – It states that Powderbark Road lies to the east of Wandena Road and is outside of the Structure Plan Area therefore, I feel that the proposal for the transport depot should be refused as it’s outside of the Employment Industrial Node and is in a residential area. The impact of increased dust from the proposed development and land clearing will have a negative impact on the local resident’s drinking water from our rainwater tanks. This was highlighted in the Community Update December 2013 “How can impacts be managed?” As most nearby homes rely on rainwater tanks and/or bores for water supply, protecting air quality and groundwater is critical. This means that unacceptable emissions, dust or odour impacts cannot extend beyond the boundaries of the estate. Noise management will also be a factor. Special controls are required in the Shire’s planning scheme to ensure industries do not have unacceptable impacts on nearby residents. Our property is adjacent to the border of the proposed development.</p> <p>It appears that roughly half the trees and bushland between our property and the industrial area will be removed. Apart from the effect of the local fauna and flora this will</p>		<p>The revised proposal has been modified such that no existing sensitive vegetation will be removed.</p>

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	<p>greatly reduce the noise absorption properties of trees. We are also concerned regarding the extra dust and other pollutants being blown over our property which will settle on our roof and then be washed into our water tank – our only source of drinking water. There will also be a large chain link fence along our boundary which will be visible from the house and alfresco areas.</p> <p>Thank you for taking the time to consider our concerns. We look forward to meeting you all in person to discuss this matter further.</p>		
<p><b>PUBLIC 40 OBJECTION</b></p>	<p>We were very distressed to hear that the Shire of Chittering was consenting a proposed warehouse and transport depot to be developed in the residential area of Wandena Estate near to homes that have been set up by people looking for a quiet relaxed semi rural lifestyle. We would like to make several points of concern to us and our neighbours.</p> <ol style="list-style-type: none"> <li>1. Lifestyle – pollution and noise generated by such a business is not conducive to the lifestyle people have come here for. More dust due to more vehicles travelling on Wandena Road which is at present a dirt road in this vicinity. An eyesore in a scenic location. Ten sea containers! We didn't think Council encouraged any!</li> <li>2. Flora and Fauna – Adjacent land has areas fenced off with signs stating that there is protected flora in this area. We have also seen black footed wallaby on the adjoining land that are struggling through loss of habitat.</li> <li>3. Depreciation of the land values of existing residential properties in the vicinity and appeal to future buyers.</li> <li>4. Safety – exit/entry point to Great Northern is on a bend; exit/entry via Wandena onto Muchea East is also on a bend with traffic travelling along Wandena and Great Northern at 100 km per hour. Exit/entry via Powderbark is travelling past homes and sharing the road with school buses and school children, other pedestrians, and riders on horseback. None of these entry exit points have slipways. None of these roads have footpaths for pedestrians to walk safely when sharing roads with trucks and other machinery.</li> <li>5. If this proposal is approved it sets precedence for other such like development and we fear we would lose the quiet, clean lifestyle that residents have come here for.</li> <li>6. The proposal doesn't state any restrictions on movement times or days.</li> </ol> <p>We notice that the property and the one adjoining is already purchased. What will be the outcome if Council rejects the planning application?</p> <p>We would hope that the Shire of Chittering upholds the rights of residents who already have homes in the estate to the quiet, safe, and aesthetically pleasing lifestyle they have invested heavily in and rejects this proposal for a warehouse and transport depot in such a location.</p> <p><b>Second submission</b> Thank you for this update we along with our neighbours have been extremely anxious regarding this proposal on our door steps. Some are considering moving out of this area which has had a quiet , community feel to it and are concerned for the value of their properties and that others will not want to live in an area so close to this type of development. We will look at the revised documents with interest.</p>		<p>These concerns have been addressed in previous responses.</p>
<p><b>PUBLIC 41 OBJECTION</b></p>	<p>We reside at [ADDRESS REMOVED FOR PRIVACY] and are against the proposed site at the corner of Powderbark and Wandena Roads. We only moved here in December 2015 to a</p>		<p>These concerns have been addressed previously.</p>

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	<p>rural/residential black not a light industrial area. Surely there is plenty of land away from homes for this sort of business. The homes that are closest to this site would be effected the most with the value of their properties dropping considerably and if we had known this was going to be an industrial area we would never have bought due to noise of moving vehicles all day long and pollution, so it would mean our choices would be taken away from us to stay as I believe we would have trouble selling and getting back what our place would be worth. When we and others bought our properties we didn't expect this area to be turned into an industrial area with vehicles and work vehicles using these roads.</p> <p>Please stop this depot from doing ahead for all the residents Wandena Estate.</p>		
<p><b>PUBLIC 42 OBJECTION</b></p>	<p>We made the move here for our peace and quiet in an estate free of businesses. We have an autistic child who is sound sensitive and another reason we moved for the quiet we are concerned for his quality of life now. Also we think that it would be a greater fire risk with trucks and machinery full of diesel unattended in hot summer months. Sea containers are an eyesore to our estate and it will also devalue our property. Many of us in the estate ride bikes, horses and walk up Powderbark Rd every day. So we do not agree on this proposed warehouse and transport depot.</p>		<p>Per above.</p>
<p><b>PUBLIC 43 OBJECTION</b></p>	<p>Thank you for inviting me to respond and comment on the Proposed Warehouse and Transport Depot – Lot 191 Wandena Road, Lower Chittering (Corner of Wandena Road and Powderbark Road)</p> <p>I moved from suburbia to Wandena Estate in 2007 to enjoy the quite rural lifestyle and beautiful, tranquil scenery of the Chittering valley countryside.</p> <p>The abovementioned Warehouse and Transport Depot devastates all true values of country living and peaceful tranquillity for Wandena Estate residents as per points highlighted below:</p> <ul style="list-style-type: none"> <li>- Weekly movement of heavy haulage trucks and associated machinery seems to be grossly underestimated given the scale of the operation which in time most probably will increase in size.             <ul style="list-style-type: none"> <li>- Twenty (20) trucks, one hundred (100) trailers and forty (40) machines associated with the transport depot use are expected to be parked on the land at any given time.</li> <li>- The transport depot is expected to generate a maximum of forty (40) heavy vehicle movements per week, the majority of which will occur during daylight hours due to road licensing requirements;</li> <li>- The warehouse is expected to accommodate a maximum of 10 heavy vehicle movements per week, the majority of which will again occur during daylight houses.</li> </ul> </li> <li>- I can see the following environmental issues             <ul style="list-style-type: none"> <li>- Excess dust being emitted from movement of heavy haulage on gravel roads such as Wandena Road. This will also force heavy transport onto residential bitumen roads such as Powderbark Road to reduce dust emissions which will also create hazardous traffic interaction between residential light vehicles and heavy haulage vehicles</li> <li>- Noise of machinery from depot operation (engine noise, machinery reversing alarms and workshop noise)</li> <li>- Noise of heavy haulage trucks on the road – particularly engine brakes</li> </ul> </li> </ul>		<p>The information cited has been revised to significantly smaller numbers. Acocrdingly these concerns, while valid, have been addressed.</p>

A11627 – Proposed Transport Depot and Hardstand – Lot 191 Wandena Road, Lower Chittering

\*Note: Comments are as per original submission received by the Shire. Submission comments have not been edited unless for the purposes of confidentiality where necessary.

	<ul style="list-style-type: none"> <li>- Heavy haulage trucks operating at night (oversize loads will not operate at night but heavy haulage such as standard semi-trailer loads will)</li> <li>- The cost of maintaining gravel roads for heavy haulage will be substantial for the shire especially in the winter months. Bitumen Roads will also require extra maintenance.</li> <li>- The depot is “likely” to operate between the hours of 6am to 6pm. Depots of this size traditionally run on a 24 hour operation 7 days a week and I think this will be the case over time.</li> <li>- Interaction of residential light vehicles with heavy haulage vehicles – in particular large oversized loads</li> <li>- The establishment of a large industrial depot will potentially lead to other industrial estates being built in the same area. I am of the understanding that all industrial developments were to be built on the west side of Wandena Road.</li> </ul> <p>Please advise on the proposed use of Powderbark Road for Heavy Haulage Transport to and from the Warehouse and Transport Depot as this is the main road for residents travelling to and from the Wandena Estate.</p> <p>The Government of Western Australia Department of Planning has listed a plan to develop a Muchea Employment Node Structure Plan which was located at the intersection of Brand Highway and Great Northern Highway and is an area set aside for service based uses such as Transport, Livestock, Fabrication, Warehousing, Wholesaling and General Commercial use.</p> <p>This is where the proposed Warehouse and Transport Depot should be located and not at the current proposed location.</p>		
<p><b>PUBLIC 44 OBJECTION</b></p>	<p>Further to your letter dated 24 June 2016, per media of this correspondence, we <b>formally submit our objections to the above referred development</b>, which are based on:</p> <p>(i) Our current understanding of the Shire/WAPC development considerations; and (ii) Our assessment of the application dated 22 June 2016, together with its supporting documentation.</p> <p><i>With respect to item (i), it is understood that:</i></p> <ul style="list-style-type: none"> <li>a) Wandena Rd, between Muchea East Rd and the Great Northern Highway, <b>represents a “line” of demarcation</b> between Commercial Developments to its West, i.e. within the “Muchea Employment Node”, and Agricultural/Special Rural and Rural Residential land to its East;</li> <li>b) Lot 191, recently purchased by the Proponent, is also located to the East of Wandena Rd, although <b>is not part</b> of the Wandena Country Estate;</li> <li>c) Properties to the immediate East of Wandena Rd, <b>can only be developed in</b> terms of its “Agricultural Zone” status, with the additional proviso that no form of residential housing is involved;</li> <li>d) Apart from Lot 191 Wandena, and possibly one other, all other land along this Eastern strip is owned by Midland Brick Pty Ltd;</li> <li>e) Non-compliant development of this land, (refer ( c ) above), can only proceed with <b>discretionary approval</b> of the Chittering Shire Council;</li> </ul> <p><i>Regarding item (ii) above, the following are a list of specific points arising from our</i></p>		<p>These concerns have been addressed previously.</p>

A11627 – Proposed Transport Depot and Hardstand – Lot 191 Wandena Road, Lower Chittering

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	<p>assessment of the Applicant’s documentation, and which has led to our objections to the Development Proposal, subject of the current review:</p> <ul style="list-style-type: none"> <li>• The development concept proposed for Lot 191 <b>does not comply</b> with the current guidelines relating to the areas along the Eastern side of Wandena Road;</li> <li>• Approval given for a land use such as being requested, could establish a <b>precedent</b> resulting in further applications for non-compliant type developments;</li> <li>• Assessment of Proposal documents indicated that the Development itself would strictly, be an <b>Earthworks/Civil Works Operation</b>, rather than a <i>Transport Depot cum Warehouse activity</i>;</li> <li>• It is clear from the Proposal, that the Lot 191 Facility, is designed to be significant, if not <b>major operation of</b> its type, and appears to have the potential for expansion;</li> <li>• Lot 191 Wandena Rd, would be close enough for its activities to <b>directly impact</b> those houses on the Wandena Estate, towards the end of Powderbark Rd, and Nova Rise, amongst possibly others;</li> <li>• With the <b>high</b> level of activity which has been implied for the developed site, generation of <b>noise and dust pollution arising</b> from its day to day operations, can be expected by residents living in close proximity;</li> <li>• The houses of immediate concern are estimated to be between <b>350 metres and 400 metres east</b> of the proposed eastern gravel hardstand. The noise buffer so obtained is appreciably less than the 500m minimum used by Planners (Shire?) and WAPC in establishing Employment Nodes;</li> <li>• The proposed methods for dust suppression is not considered likely to be effective given the <b>15ha of unsurfaced pavement</b> area plus roads, which would require treatment.</li> <li>• Similarly, the apparent reliance on local <b>vegetation</b> for noise mitigation is considered optimistic, while expectation of further noise suppression near the residences, <b>due to “an elevated area”</b> between the properties (and Lot 191) is likely to be marginal at best;</li> <li>• In light of the foregoing, and the expectation of Lot 191 being a very high activity site, perhaps an <b>extended Buffer Zone</b> in excess of 500 metres could be warranted.</li> <li>• Residents will be/are concerned in increased traffic flow along Powderbark, should Lot 191 proceed, notably in terms of an <b>increase in tipper-size traffic</b>;</li> <li>• Tippers number Powderbark Road varies, but can, on occasions, be significant. It is to be noted that this type of vehicle appear to <b>comprise the bulk</b> of the intended fleet for Lot 191;</li> <li>• The total traffic numbers along Powderbark <b>are not likely to exceed the Regulation Maximum</b>, even with additional numbers attributed to Lot 191; however a significant increase in tippers is considered to be undesirable, for a family based, rural residential community;</li> <li>• It is recognised that heavy haul equipment <b>will not use Powderbark Rd</b> because of its Road Rating;</li> <li>• Should the Development Application be approved, the above areas of concern, viz traffic, noise and dust, <b>will be greatly accentuated</b> during the construction of the Project facilities, with inevitable effects on the Wandena Community, unless rigorous controls prevent this occurring in an undisciplined manner;</li> <li>• By virtue of the size of the Development, it is our guestimate, that such a period could <b>extend to between 3-6 months</b>, depending on construction scheduling;</li> </ul>		
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A11627 – Proposed Transport Depot and Hardstand – Lot 191 Wandena Road, Lower Chittering

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	<ul style="list-style-type: none"> <li>From an environmental point of view, with the advent of such an operation proposed, established communities of <b>small animals</b> which may have formed in the immediate area, will be disturbed and no doubt disperse, while the <b>Carnabys' cockatoo</b> which in recent years are being sighted more frequently, will no doubt avoid the immediate areas, once operations commenced at Lot 191;</li> <li><b>Ground water supplies</b> are likely to be required for site, as well as off-site activities, most likely during dry summer periods. However, with the limited information available, estimates cannot be made at this time, although it can be expected that Lot 191 will become a significant user;</li> <li>If the Lot 191 Project is given approval the layout of <b>the Access Road network</b> marked in for Wandena Estate 7 its environs, which already has both Shire and the WAPC approval will require review.</li> </ul> <p>Please note that the above points represent a brief (sometimes) statement only, with no supporting information evident. However, in most cases listed above, background to their respective justification, can be made available, if and when required.</p>		
<p><b>PUBLIC 45 OBJECTION</b></p>	<p>We [REMOVED FOR PRIVACY] object to the proposed Transport Depot – Warehouse – Lot 191 Powderbark (Crnr Wandena) Roads, Chittering.</p> <p>The reasons for our objection:</p> <ul style="list-style-type: none"> <li>The lots in Powderbark Road are rural residential and should be kept that way. We chose to move to Lower Chittering from Perth to improve our lifestyle, should this depot proceed we might as well move back to the city.</li> <li>The increase in road traffic of heavy vehicles will be unacceptable as there will be an increase in noise and air pollution.</li> <li>We have a young family who enjoy riding bicycles in the local area; this will become a real danger for them due to the increased heavy vehicles on the road in the area.</li> <li>The value of our land will decrease due to the positioning of the transport depot. Visually and aesthetically the depot will be an eyesore.</li> <li>When developing our block of land we were not allowed to damage the fauna and flora. The proposed depot will be clearing the whole area. The proposed depot has no consideration for the damage it will cause and is not acceptable. Development of the land should have limited impact.</li> <li>There is no control of how the depot will be managed in the future. We could have a depot similar to the one on Great Northern Highway at the junction of Wandena.</li> </ul> <p>In closing I would like to add the extract from the Shires web page:          The Shire has approximately 4,996 residents (as per 2013 ABS) residing in the area. With a unique landscape of large areas of untouched bushland, state forest, wetlands, and industrial and commercial estates, the Shire is a wonderful place to visit and an ideal place to live. (*Highlighted as per submission.) One person's decision to improve his own financial status at the expense of 20 residents does not sit well with me. We are all for local business in the area, however heavy industry needs to be kept well away from (rural) residential areas. With development in the correct area we would support all initiatives similar to the proposed transport depot.</p>		<p>These concerns have been addressed previously.</p>

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## Responses to Public Submissions

<i>PUBLIC CONCERN</i>	<b>PROPOSANTS RESPONSE</b>	<b>SHIRE'S RESPONSE</b>
<p><i>Environmental impacts from:</i></p> <p>(1) Clearing native vegetation</p> <p>(2) Clearing of declared rare flora (DRF)</p> <p>(3) Destruction of the Carnaby Cockatoo habitat; feeding and breeding</p>	<p>(1) Total clearing for infrastructure and hardstands has been reduced from 21.4ha to 9.9ha. Only essential clearing for buildings/infrastructure is to take place and very limited amounts on the boundary area to square off hardstand areas.</p> <p>(2) No clearing of DRF is to occur for the development. Under the guidance and recommendation by DPaW a 50-metre buffer has been incorporated around DRF species to protect and preserve these areas. Fencing will be put in place to further protect.</p> <p>(3) Following a review by The Department of Environment no negative impact to the Carnaby's black cockatoos from the proposed clearing was identified.</p> <p>Highly biodiverse bush areas are to be retained and will remain as feeding areas for the birds.</p> <p>A constant water supply will be available to the birds due to the retention basin.</p> <p>Identified future nesting trees that have the potential to develop suitable breeding hollows will remain as well as the large area of bush surrounding these trees.</p> <p>Given the outgoing personality of the Carnaby Cockatoos it is anticipated that the activity within the proposed transport depot will not affect them.</p>	<p>As per the applicants response the proposal has significantly reduced any proposed clearing to 9.9ha. An environmental assessment has been undertaken and it has been confirmed that no Carnaby nesting will be cleared for the purpose of this application.</p>

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## Responses to Public Submissions

	<p>Where possible plantings undertaken by the proponent will include species suitable to the Cockatoos for feeding.</p> <p>We are currently in communication with the Department of Environment and Energy to confirm their recommendations on the impacts to the Carnaby Cockatoos</p>	
<p><b><i>The development will have a negative aesthetic appeal</i></b></p>	<p>(1) A 6-metre planted screen will obscure the development on the west, east &amp; north boundaries.</p> <p>(2) Landscaping around the retention basin</p> <p>(3) Landscaping around the main office building structure</p> <p>(4) There is a 300 to 400-meter natural vegetation buffer between the transport depot and the adjoining properties. This area is to remain undisturbed.</p>	<p>Noted. Since this submission was received the applicant has undertaken a number of amendemnts to the proposal including;</p> <ul style="list-style-type: none"> <li>• Reduction of hardstand area;</li> <li>• Reduction of proposed number of vehicles on site;</li> <li>• Landscaping including a 6 meter screen around the development;</li> <li>• Reduction of clearing.</li> </ul> <p>It is considered all of these measures will help reduce possible impact on aestaic appeal.</p>
<p><b><i>How will the development ensure the environment is protected?</i></b></p> <p>(1) Fencing</p> <p>(2) Declared Rare Flora</p>	<p>(1) Fencing of the gravel hardstand area to the south of the property will avoid any chances of ‘creeping’ occurring due to turning vehicles.</p> <p>(2) Under the guidance and recommendation by DPaW a 50-metre buffer has been incorporated around DRF species to protect and preserve these areas. Fencing of the hardstand area will further protect these areas.</p>	<p>As per the applicants response a number of measures have been put in place to ensure the environment will not be detrimentally I mpacted by this proposal, this includes fdencing off areas, retention of majority of development and an environmental assesment of the site inclusive of management reccommendations.</p>

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## Responses to Public Submissions

<p><b><i>How will the increase in noise to the estate be managed?</i></b></p>	<p>(1) The current buffer of the natural bushland to the west of the homes on Powderbark Road will remain due to planned clearing not incorporating this area</p> <p>(2) A 6 Metre screening on West, East and North boundaries creating a beautiful and natural noise buffer</p> <p><b>(3) The main activity area of the depot is approximately 500 metres from adjoining homes</b></p> <p>(4) There will be minimal operation of machinery or heavy vehicles on site which activity will consist mostly of drive in/drive out.</p> <p>(5) The site is NOT described as a 'high activity' site</p>	<p>The applicant has retained significant vegetation on the site along with proposed replanting to provide a buffer between the proposed use and sensitive receptors. There are only proposed 20vpd and all trucks are limited to using Wandena Road.</p>
<p><b><i>This will devalue our Properties</i></b></p>	<p>Comments that this development will reduce the value of properties is purely an assumption and based on emotions rather than facts.</p>	<p>In accordance with matters to be considered by Council matters of possible devaluation are not a valid planning consideration as it is deemed to be too subjective.</p>
<p><b><i>Increased traffic flow is a safety concern?</i></b></p> <p>(1) Powderbark Road</p> <p>(2) Wandena Road</p>	<p>(1) Most access to the proposed buildings would be via Wandena Ave, there will be very little increase in truck traffic onto Powderbark Road unless the route is necessary to access a 'job' in the area.</p> <ul style="list-style-type: none"> <li>• Powderbark Road will not be used as a 'cut-through' unless the above comment applies.</li> </ul> <p>(2) Proposed total trip for heavy vehicles is 10 trips each way per day.</p> <ul style="list-style-type: none"> <li>• An assessment by 'Shawmac' identified that <b><i>'the proposed movements could be accommodated without unacceptable adverse impacts'</i></b>.</li> <li>• The survey indicated that all roads are operating well within their maximum desired capacity</li> </ul>	<p>The subject proposal is proposing 20vpd which is a relatively minor addition to an already approved RAV 2 network. Powderbark Road is not proposed to be utilised as part of day to day operations of this proposal.</p>



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### Responses to Public Submissions

<p><i>dust and industrial workings in the estate.”</i></p>	<p>(1) The property is in an area for rural resource &amp; extractive industry</p> <p>(2) Many of the properties on Wandena Rd are identified as being of potential extractive nature ie: Landfill and Midland Brick Clay Pit</p>	
<p><b><i>There will be an increased risk of fires through:</i></b></p> <p>(1) Hot-works</p> <p>(2) Fuel Storage</p> <p>(3) Bush Fire</p>	<p>(1) HOTWORKS – All hot-works will occur within workshop and on a hardstand. Therefore there will be no risk of fire.</p> <p>(2) Only diesel fuel will be stored on site with a hazard separation zone of 50 metres.</p> <p>(3) The site is within an established volunteer emergency services response area for bushfire and proponent is currently a DFES Contractor.</p> <p>At all times there will be an on-site static water supply of sufficient capacity located for efficient access and turn-around area for firefighting appliances and operations.</p> <p>Stand pipe to be placed for use for firefighting efforts in the area, to be accessible from Wandena Road.</p> <p>The proposed development incorporates significant cleared hardstand areas and therefore is considered a low risk in terms of radiant heat impact on buildings and infrastructure.</p> <p>As determined in the BMP the development meets all</p>	<p>Form a development application perspective. A fire management plan has been submitted and is satisfactory for its intended purposes. Operational hazards are at the proprietor’s responsibility. This is no different to any person’s home.</p>

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## Responses to Public Submissions

	<p>guidelines/requirements of the <b><i>Bushfire protection criteria development compliance – Element 4</i></b></p> <p>Implementation of asset protection zones (20 metres) around buildings on the development site</p> <p>Implementation of hazard protection zone (50 metres)</p> <p>Implementation of BMP prepared by consultants Blue Oar</p> <p>Numerous existing 3 metre fire breaks on property boundary and internally to be maintained.</p> <p>The vegetation on site will be managed in accordance with the Shire of Chittering Firebreak and Fuel Load Notice, including reducing and maintaining fuel loads at between 5 – 8 tonnes per hectare.</p>	
<p><b>Safety concerns by:</b></p> <p>(1) Increased risk of traffic accidents</p> <p>(2) Safety issues for school children/pedestrians</p>	<p>(1) As identified by Shawmac there has been no accidents recorded at the intersection of Wandena and Powderbark Roads for the 5 years to December 2014.</p> <p>The assessment showed that predicted flows by the proponent can be accommodated without unacceptable adverse impacts.</p> <p>(2) Majority of movements in and out of the transport depot will be around 0630 and then again around 1600. This being the case there will be minimal interaction with school children and buses.</p> <ul style="list-style-type: none"> <li>• Responsible driving and adhering to speed limits is enforced</li> <li>• Powderbark Road WILL NOT be used as a thoroughfare</li> <li>• The site is not anticipated be of high activity ie: Vehicle movements are not expected to be high</li> </ul>	<p>More traffic inevitably leads to greater risk of accident. However in this instance, the additional 20 movements onto Wandena Road is highly unlikely to be a significant increase such that the use is untenable with its surrounds from a traffic perspective.</p>

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### Responses to Public Submissions

<p><b>Intersections:</b></p> <p>(1) GNH &amp; Wandena Road</p>	<p>(1) Proposed upgrade of this intersection to commence approximately mid-2017 to include:</p> <ul style="list-style-type: none"> <li>• South bound slip lane</li> <li>• North bound turning pocket</li> <li>• The current bend to the north of the intersection is to be removed and straightened</li> <li>• Obtained sketches indicate that the upgrade of the intersection has made an allowance for vehicles 27.5 metres long</li> </ul> <p>(2) The planned development of NorthLink WA (Perth to Darwin Highway) is unlikely to impact on Wandena Road however, it will result in the transference of traffic from Great Northern Highway hence reducing traffic on GNH and therefore interactions at Wandena Road.</p>	<p>Noted. Similar response to previous.</p>
<p><b>Dust polluting household water supplies</b></p> <p>(1) Main Hardstand (2) Gravel Hardstand &amp; Access Tracks</p>	<p>(1) The main hardstand is proposed to be hot-mixed so no dust issues with this area.</p> <p>(2) A water-cart will be on hand daily to ensure the gravel hardstand and access tracks are watered as required to manage any dust issues that may arise.</p>	<p>The applicant's response forms part of a dust management plan. Dust may be prevalent on Wandena Road, however a condition of approval requires the applicant to maintain the road to minimise dust and potholes.</p>
<p><b>Pollution from activities on site:</b></p> <p>(1) Oils, Fuels and Chemicals (2) Spillage</p>	<p>(1) A Hydrocarbon Plan will be in place prepared by Consultants, Lundstrom Environmental.</p> <p>(2) A response plan for spills will be implemented; staff trained and spill kits available throughout site.</p>	<p>The hydrocarbon management plan is acceptable subject to conditions relating to additional Environmental Health requirements.</p>



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## Responses to Public Submissions

<b>Management of Stormwater run-off</b>	(1) A Stormwater Management Plan will be in place prepared by Consultants, Lundstrom Environmental to include drains with rock-pitching allowing natural seepage and reducing erosion.	Noted. Similar to hydrocarbon management, the plan is acceptable subject to additional Environmental Health requirements.
<b>Management of Hydrocarbons</b>	(1) A Hydrocarbon Management Plan will be in place prepared by Consultants, Lundstrom Environmental. <ul style="list-style-type: none"> <li>• This Plan will ensure compliance in the managing, storing and use of hydrocarbons on site as well as documented clean up procedures should a spill occur.</li> <li>• All staff will be trained in the correct managing, storage and use of hydrocarbons.</li> <li>• A 'manifest' will be available at the site gate in the event of an incident</li> <li>• Material Safety Data Sheets (MSDS) are available both in the workshop and office</li> </ul>	Per above.
<b>Operating Hours</b>	Monday to Friday – 0600 to 1800 Saturdays – 0700 to 1700 Sundays – 1000 to 1600 Public holidays – Closed.  <i>(Note: As a DFES contractor, site access may be required outside operating hours if responding to an emergency situation).</i>	At all times the proprietor is required to adhere to noise regulations.
<b>Impacts on other wildlife</b>	(1) Identified High-biodiverse <u>vegetation to remain</u> including; <ul style="list-style-type: none"> <li>• Feeding areas for Carnaby's black cockatoos,</li> <li>• Potential developing trees identified as future nesting sites for</li> </ul>	As per the applicants response the proposal has significantly reduced any proposed clearing to 9.9ha. An environmental assessment has been undertaken and it has

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## Responses to Public Submissions

	<p>Cockatoos</p> <ul style="list-style-type: none"><li>• Dense area of vegetation to the north-eastern site of the property which is an active feeding area for native mammals including Grey Kangaroo, Quenda and Possums</li></ul> <p>(2) The proponent understands that fauna is best protected by retaining bushland. This has been achieved through reducing the cleared area and avoiding areas that are beneficial to the native wildlife on the site.</p>	<p>been confirmed that no Carnaby nesting will be cleared for the purpose of this application.</p>
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03/11/2016 10:48



03/11/2016 10:53





## SHIRE OF CHITTERING TOWN PLANNING SCHEME NO. 6, AMENDMENT 60 SCHEDULE OF MODIFICATIONS

Delete the amendment and replace with the following:

**1 – replace the zone objectives for the Light Industrial Zone with those from the Model Scheme Text**

### 3.2.2 Light Industrial Zone

~~To designate land for the development of strategically located light and service industries to provide supporting service to local agriculture and to create employment opportunities.~~

- (a) To provide for a range of industrial uses and service industries generally compatible with urban areas, that cannot be located in commercial zones.
- (b) To ensure that where any development adjoins zoned or developed residential properties, the development is suitably set back, screened or otherwise treated so as to not detract from the residential amenity.

**2 – replace the existing provisions of clause 4.9 with those below**

### 4.9 Requirements for industrial zones and land uses

Development approval or subdivision proposals for industrial uses requires that -

- (a) the effect on the environment by means of discharge of pollutants or contaminants into the air, ground and water be avoided, or managed within acceptable limits;
- (b) where wastewater disposal is proposed via aerobic treatment units the following shall apply –
  - i. geotechnical studies may be required to demonstrate site suitability;
  - ii. use of fill is to be limited to achieve separation from water tables; and
  - iii. suitable site area is to be set aside for effluent disposal, either through surface or sub-soil irrigation.
- (c) notwithstanding any other provisions of this scheme, unsewered industrial development be restricted to 'dry industry', being land uses that are predicted to generate wastewater for disposal per site of a daily rate of less than 540 litres per 1,000m<sup>2</sup>;
- (d) where a caretaker's dwelling is a discretionary use –
  - iv. only one dwelling be permitted on each lot;
  - v. the dwelling is to have a maximum floor area of 100m<sup>2</sup>;
  - vi. the dwelling is to be incidental to the industrial land use;
  - vii. subdivision of the dwelling from the parent lot will not be permitted;
  - viii. the use of notifications on title may be considered to advise prospective purchasers of potential impacts from noise, dust, odour or amenity that may arise from the location of a residential land use within the zone;
  - ix. the local government will not consider applications for caretakers'



- dwellings prior to the primary site activity being either approved or constructed;
- x. Where simultaneous approval has been granted by local government for both a caretaker's dwelling and the main activity on the same lot, the main activity must be developed and operational prior to occupation of the dwelling; and
  - xi. caretaker's dwellings are to be carefully sited and constructed so the potential site (or estate) impacts from noise, dust, odour or amenity are minimised.
- (e) in considering rezoning proposals for industrial zones, the local government may require the preparation of a structure plan, and any information relevant to the site conditions, in keeping with the matters listed in clause 67 of the deemed provisions and clause 5.7 of the scheme; and
  - (f) any other requirement as included in a Local Planning Policy adopted by the local government.

**3 – replace the existing provisions of clause 4.14 with those below**

#### **4.14 HIGHWAY AND MAJOR ROAD RESERVES**

Where development is proposed adjacent to a highway or main road the following shall apply:

- (a) unless access and egress to the site is in accordance with State policy, and following consideration of advice from the agency responsible for main roads, the local government may exercise its discretion to prevent or limit development which would intensify traffic movements and/or the type of vehicles using a site;
- (b) unless access and egress to the site is in accordance with State policy, and following consideration of advice from the agency responsible for main roads, where intensification of a development site would limit the ability of a proposed highway or main road to operate for that purpose, development is not to be permitted; and
- (c) development is to be set back a suitable distance from the road to manage visual impact and amenity

**4 – insert new provisions as clause 4.19 as below**

#### **4.19 AMENITY OF NON-RESIDENTIAL DEVELOPMENT**

Development is generally to conform to the following matters, with variation at the local government's discretion:

- (a) the form and scale of the development is to be compatible with surrounding land uses;
- (b) the impacts of the development are to be contained on site and/or suitably managed off-site;
- (c) the impact of the development on the road network and traffic management is to be consistent with the road function and hierarchy;

- (d) adequate provision is to be made for parking for staff and visitors, with separation between staff / visitor parking and service / haulage vehicles;
- (e) buildings are to have co-ordinated or complementary materials, colours and styles, including:
  - i. an entry that addresses the street and is clearly visible;
  - ii. doors, windows and building materials that develop a coherent pattern, and are proportional to the building; and
  - iii. screening of services and areas for waste management and essential services (eg air conditioning units).
- (f) visual impacts to be minimised by the use of vegetation screening, tree retention and building orientation;
- (g) landscaping to be provided, to a maximum of 10 per cent of the site area as required, using plant species approved by the local government, including provision of shade trees at 1 per 4 car bays;
- (h) minimised use of front fencing, and where front security fencing is required, to be set back to the building line and behind the landscaped area;
- (i) external lighting that minimises light spill and glare on adjoining properties;
- (j) storage of plant and equipment to be screened or remote from public areas, particularly from the street, and provision made on site for a loading bay where the land use requires it;
- (k) use of 'on building' signage where the building addresses the street, and where 'freestanding' signage is necessary, it should be affixed to either a front fence, or be a height commensurate with the tallest tree on the site, or immediately adjacent to it.

**5 – delete the provisions of clause 5.7 and replace with the text below**

## **5.7 MUCHEA EMPLOYMENT NODE**

The Muchea Employment Node Special Control Area is shown on the Scheme Map. Development approval is required for any development within the Special Control Area.

### **5.7.1 Purpose**

- (a) to provide a basis for the zoning and development of the Muchea Employment Node as an industrial estate in accordance with the Muchea Employment Node Structure Plan;
- (b) to accommodate impacts from industrial uses within the boundaries of the Muchea Employment Node;
- (c) to provide a basis for structure planning to guide subdivision and development;
- (d) to provide a basis for development contributions toward infrastructure in accordance with clause 4.18 and Schedule 9 of the Scheme;
- (e) to protect and manage the natural environment, landscape values and air and

water quality, resulting in a high quality industrial estate that responds to its natural setting;

- (f) to provide for essential services for a broad range of land uses; and
- (g) limit the development of land uses that might compromise the intended purpose of the area as an industrial estate.

### 5.7.2 Planning Requirements

5.7.2.1 Notwithstanding any other land use permissibility expressed in the Scheme, no residential land uses will be approved in the Mucea Employment Node Special Control Area.

5.7.2.2 In considering zoning proposals for 'Industrial Development', 'General Industry' and 'Light Industry' within the Mucea Employment Node, proposals are to address the objectives and requirements of the Mucea Employment Node Structure Plan, including :

- a) details of how the proposal will manage industrial run-off and wastewater disposal, relevant to the scale of the proposal, with specific reference to potential impacts on the Ellen Brook and its catchment, which may include studies in accordance with State Policy and the Better Urban Water Management Guidelines;
- b) details of potential impacts on flora and vegetation, wetlands and fauna, which may include studies in accordance with the Environmental Protection Authority Guidance Statement 51;
- c) a land capability and geotechnical report demonstrating that the site is capable of assimilating nutrients and disposing of wastewater without an adverse impact on ecosystem health ;
- d) a desktop Aboriginal heritage assessment; and
- e) any other matters relevant to the site, such as access and egress and basic raw materials.

5.7.2.3 Notwithstanding the provisions of the zoning table, when land located within the Mucea Employment Node SCA is zoned Industrial Development and a structure plan for the land has not been approved, a use that was permitted or approved and is operating at the time the land is rezoned to Industrial Development can continue to operate:

The Local Government has the discretion to issue development approval, for further development associated with existing uses within the Industrial Development zone, if it is satisfied the approval of such works will not impact upon the future development of the Mucea Employment Node.

5.7.2.4 With the exception of lots M1606, 100-102, 22, 30, 202, 3 and 201 shown on Figure 8 of the Mucea Employment Node Structure Plan published in 2011, the establishment of new uses, change of use or subdivision of land will not be supported until a structure plan has been approved, in accordance with Part 4 of the deemed provisions.

5.7.2.5 Subdivision or development of any land within the Mucea Employment Node shall also be in accordance with the provisions and requirements of Schedule 11 as applicable.

5.7.2.6 Where a Development Contribution Plan is in place, contributions are to be made in accordance with the relevant provisions of the Scheme.

5.7.2.7 Servicing within the SCA is to be as follows:

- (a) reticulated water supplied by a licenced provider is to be provided at the first stage of any subdivision;
- (b) land to be zoned for 'General Industry' is to be provided with a reticulated wastewater service supplied by a licenced provider;
- (c) where a licenced wastewater disposal service is not provided, land can only be zoned for 'Light Industry' and land uses will be restricted to 'dry' industries as outlined in clause 4.9 (c); and
- (d) at structure planning stage, provision is to be made for sites required for essential service infrastructure.

### 5.7.3 Relevant Considerations

5.7.3.1 In addition to the requirements of clause 4.19, in considering applications for Development Approval, the local government shall have regard to:-

- (a) The separation distances required for the proposed use and ability to ensure that impacts can be contained within the employment node boundaries;
- (b) That the visual impact of the development is in keeping with the surrounding rural landscape, including:
  - i. landscaping to protect views for roads adjoining the Muceha Employment Node;
  - ii. buildings to be designed and constructed to minimise visibility outside the Muceha Employment Node; and
  - iii. advertising signage being designed and appropriately located.
- (c) the protection of the environmental assets of the land including:
  - i. the need for appropriate setbacks and buffers;
  - ii. the maintenance of ecological linkages through the Node; and
  - iii. if there is a need for the environment assets to be in public ownership to ensure ongoing protection and maintenance;
- (d) water management of surface and groundwater to maintain the natural water balance within the Muceha Employment Node area, within the provisions set out in the water management plans for the area;
- (e) provision of infrastructure and services to each lot, with particular consideration to be given to the infrastructure to be provided through the proposed Development Contribution plan for the area;

- (f) whether there are basic raw materials located on the lot, and whether the proposed development will impact upon their extraction; and
- (g) uses which do not conform with the industrial zoning will not be considered to be sensitive uses when assessing development applications within the employment node

#### 5.7.4 Referrals

The Local Government may refer any application for development approval or other planning proposal to any relevant authority or community organisation.

#### 6 – update Schedule 1 – Dictionary of Defined Words and Expressions as shown below:

~~**Builders Storage Yard** means premises used for the storage of building material, pipes or similar items related to any trade, and may include the manufacture, assembly and dismantling processes incidental to the predominant use.~~

*This land use can only be incidental to another, and also overlaps with warehouse/storage and industry.*

**Commercial vehicle Parking**

means premises used for the parking of one or two commercial vehicles but does not include –

- (a) any part of a public road used for parking or for a taxi rank; or
- (b) parking of commercial vehicles incidental to the predominant use of the land

~~**Factory Unit Building** means premises, or group of buildings or structures on one lot, in which two or more separate industries or storage areas are carried out.~~

*This is not a land use.*

**Garden Centre**

~~means any land or buildings used for the sale and display of garden products, including garden ornaments, plants, seeds, domestic garden implements and motorised implements and the display but not manufacture of prefabricated garden buildings.~~

Means premises used for the propagation, rearing and/or sale of plants, and the storage and sale of products associated with horticulture and gardens.

**Industry**

at point (e) of the definition, replace existing text with the following:

- (e) incidental purposes.

~~**Landfill/Refuse Centre** means premises used in the disposal, storage and recycling of waste material.~~

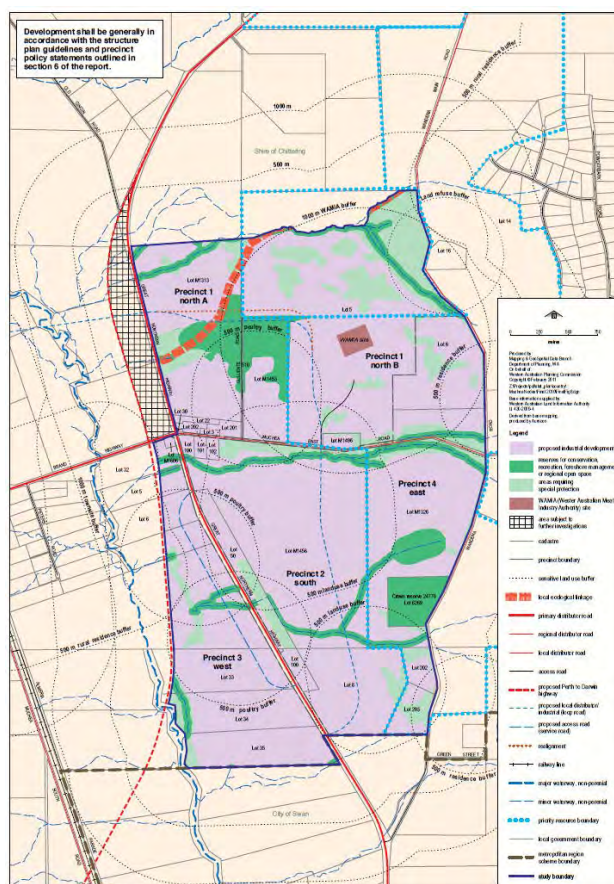
~~**Plant Nursery** means any land or buildings used for the propagation, rearing and sale of plants.~~



		Townsite	Light Industrial	Agricultural Resource	Rural Residential	Rural Smallholdings	Rural Retreat	Rural Conservation AMD 8 GG 30/1/09	Residential R2 AMD 40 GG 27/4/10	Industrial Development Zone	General Industry Zone AMD 52 GG 26/06/15
	<b>USE CLASS</b>										
	<del>AMD 39 GG 20/07/10</del>										
59	Plant Nursery	D	D	D	D	X	X	X			P
61	Reception Centre	D	A X	A	X	A	A	X			X
73	Showroom	P	P	X	X	X	X	X			P X
76	Stock Yards	X	X	A	X	X	X	X			P X

**8 – Amend the scheme map**

- (a) Extend the Muchea Employment Node Special Control Area around the boundary of the Employment Node, as identified in Figure 8 of the Muchea Employment Node Structure Plan (2011).



- (b) Reclassify Lot M1606 Great Northern Highway, Muchea from 'Agricultural Resource' to 'Light Industry'.

**ATTACHMENT**

**SHIRE OF CHITTERING TOWN PLANNING SCHEME NO. 6, AMENDMENT 60**  
**DRAFT MODIFICATIONS FOLLOWING ADVERTISING**

~~text like this~~ is recommended modification to re-advertised amendment  
~~text like this~~ is text that was advertised for deletion and either a recommended deletion from re-advertised amendment, or a deletion that that was re-advertised

**1 – replace the zone objectives for the Light Industrial Zone with those from the Model Scheme Text**

**3.2.2 Light Industrial Zone**

~~To designate land for the development of strategically located light and service industries to provide supporting service to local agriculture and to create employment opportunities.~~

- (a) To provide for a range of industrial uses and service industries generally compatible with urban areas, that cannot be located in commercial zones.
- (b) To ensure that where any development adjoins zoned or developed residential properties, the development is suitably set back, screened or otherwise treated so as to not detract from the residential amenity.

*retain as re-advertised*

**2 – replace the existing provisions of clause 4.9 with those below**

**4.9 Requirements for industrial zones and land uses**

Development approval or subdivision proposals for industrial uses requires that -

- (a) the effect on the environment by means of discharge of pollutants or contaminants into the air, ground and water be avoided, or managed within acceptable limits;
- (b) where wastewater disposal is proposed via aerobic treatment units the following shall apply –
  - i. geotechnical studies may be required to demonstrate site suitability;
  - ii. use of fill is to be limited to achieve separation from water tables; and
  - iii. suitable site area is to be set aside for effluent disposal, either through surface or sub-soil irrigation.
- (c) notwithstanding any other provisions of this scheme, unsewered industrial development **is to** be restricted to 'dry industry', being land uses that are predicted to generate wastewater for **groundwater** disposal per site of a daily rate of less than 540 litres per 1,000m<sup>2</sup>;
- (d) where a caretaker's dwelling is a discretionary use –
  - iv. only one dwelling be permitted on each lot;
  - v. the dwelling is to have a maximum floor area of 100m<sup>2</sup>;
  - vi. the dwelling is to be incidental to the industrial land use;
  - vii. subdivision of the dwelling from the parent lot will not be permitted;
  - viii. the use of notifications on title may be considered to advise prospective purchasers of potential impacts from noise, dust, odour or amenity that may arise from the location of a residential land use within the zone;
  - ix. the local government will not consider applications for caretakers'



- dwellings prior to the primary site activity being either approved or constructed;
- x. Where simultaneous approval has been granted by local government for both a caretaker's dwelling and the main activity on the same lot, the main activity must be developed and operational prior to occupation of the dwelling; and
  - xi. caretaker's dwellings are to be carefully sited and constructed so the potential site (or estate) impacts from noise, dust, odour or amenity are minimised.
- (e) in considering rezoning proposals for industrial zones, the local government may require the preparation of a structure plan, and any information relevant to the site conditions, in keeping with the matters listed in clause 67 of the deemed provisions and clause 5.7 of the scheme; and
  - (f) any other requirement as included in a Local Planning Policy adopted by the local government.

***generally retain as re-advertised - minor grammar tweak in 4.9 (c), and clarification that 'dry' industry is linked to disposal to groundwater. As currently drafted, it would preclude wastewater disposal via recycling or other potentially innovative means.***

### **3 – replace the existing provisions of clause 4.14 with those below**

#### **4.14 HIGHWAY AND MAJOR ROAD RESERVES**

Where development is proposed adjacent to a highway or main road the following shall apply:

- (a) unless access and egress to the site is in accordance with State policy, and following consideration of advice from the agency responsible for main roads, the local government ~~may~~ **is to**:
  - i. exercise its discretion to prevent or limit development which would intensify traffic movements and/or the type of vehicles using a site; or
  - ii. where intensification of a development site would limit the ability of a proposed highway or main road to operate for that purpose, development is not to be permitted; and
- (b) development is to be set back a suitable distance from the road to manage visual impact and amenity

***adjusted provisions slightly - as re-advertised, there was paras (a) to (c), and the lead in text of (a) and (b) was the same. These clauses have been consolidated to remove 'doubled up' lead in text and to split requirements of former paras (a) and (b) into i. and ii.***

### **4 – insert new provisions as clause 4.20 as below**

#### **4.20 AMENITY OF NON-RESIDENTIAL DEVELOPMENT**

Development is generally to conform to the following matters, **as relevant to site conditions**, with variation at the local government's discretion:

- (a) the form and scale of the development is to be compatible with surrounding land uses;
- (b) the impacts of the development are to be contained on site and/or suitably managed

off-site;

- (c) the impact of the development on the road network and traffic management is to be consistent with the road function and hierarchy;
- (d) adequate provision is to be made for parking for staff and visitors, with separation between staff / visitor parking and service / haulage vehicles;
- (e) buildings are to have co-ordinated or complementary materials, ~~colours and styles~~, including:
  - i. an entry that addresses the street and is clearly visible;
  - ii. doors, windows and building materials that develop a coherent pattern, and are proportional to the building; and
  - iii. screening of services and areas for waste management and essential services (eg air conditioning units).
- (f) visual impacts to be minimised by the use of vegetation screening, tree retention and building orientation;
- (g) landscaping to be provided, to a maximum of 10 per cent of the site area as required, using plant species approved by the local government, including provision of shade trees at 1 per 4 car bays;
- (h) minimised use of front fencing, and where front security fencing is required, to be set back to the building line and behind the landscaped area, **where feasible**;
- (i) external lighting that minimises light spill and glare on adjoining properties;
- (j) storage of plant and equipment to be screened or remote from public areas, particularly from the street, and provision made on site for a loading bay where the land use requires it;
- (k) use of 'on building' signage where the building addresses the street, and where 'freestanding' signage is necessary, it should be affixed to either a front fence, or be a height commensurate with the tallest tree on the site, or immediately adjacent to it.

*revised numbering, amended 'lead in' text and deleted text in para (e), to respond to submissions that suggested that the content of this section was more relevant to a local planning policy. Application of this entire section is at the local government's discretion, and are within the scope of matters that may be dealt with by a planning scheme (Schedule 7, P & D Act).*

**5 – delete the provisions of clause 5.7 and replace with the text below**

## **5.7 MUCHEA EMPLOYMENT NODE**

The Muchea Employment Node Special Control Area is shown on the Scheme Map. Development approval is required for any development within the Special Control Area.

### **5.7.1 Purpose**

- (a) to provide a basis for the zoning and development of the Muchea Employment Node as an industrial estate in accordance with the Muchea Employment Node Structure Plan;

- (b) to accommodate impacts from industrial uses within the boundaries of the Muchea Employment Node;
- (c) to provide a basis for **the co-ordination of future** structure planning to guide subdivision and development;
- ~~(d) to provide a basis for development contributions toward infrastructure in accordance with clause 4.18 and Schedule 9 of the Scheme;~~
- (e) to protect and manage the natural environment, landscape values and air and water quality, resulting in a high quality industrial estate that responds to its natural setting;
- (f) to provide for essential services for a broad range of land uses; and
- (g) limit the development of land uses that might compromise the intended purpose of the area as an industrial estate.

## 5.7.2 Planning Requirements

5.7.2.1 Notwithstanding any other land use permissibility expressed in the Scheme, no residential land uses **or caretakers' dwellings** will be approved in the Muchea Employment Node Special Control Area.

5.7.2.2 In considering zoning proposals for 'Industrial Development', 'General Industry' and 'Light Industry' within the Muchea Employment Node, proposals are to address the objectives and requirements of the Muchea Employment Node Structure Plan, including:

- (a) details of how the proposal will manage industrial run-off and wastewater disposal, relevant to the scale of the proposal, with specific reference to potential impacts on the Ellen Brook and its catchment, which may include studies in accordance with State Policy and the Better Urban Water Management Guidelines;
- (b) details of potential impacts on flora and vegetation, wetlands and fauna, which may include **the need** for studies in accordance with the Environmental Protection Authority's Guidance Statement 51;
- (c) a land capability and geotechnical report demonstrating that the site is capable of assimilating nutrients and disposing of wastewater without an adverse impact on ecosystem health;
- (d) a desktop Aboriginal heritage assessment; and
- (e) any other matters relevant to the site, such as access and egress and basic raw materials.

**5.7.2.3 Zoning proposals are to be assessed for suitability on the basis of:**

- (a) their location relative to sensitive land uses;**
- (b) the environmental sensitivity of the site;**
- (c) the potential impact on the environment of proposed drainage and wastewater disposal regimes.**

**5.7.2.4 With the exception of Lots M1606, 100-102, 22, 30, 202, 3 and 201 shown on Figure 8 of the *Muchea Employment Node Structure Plan* (2011), structure planning is required in the following circumstances:**

- (a) in precincts with multiple landowners, where orderly and comprehensive planning is required to achieve co-ordinated provision of services and infrastructure; and
- (b) where land is zoned for Industrial Development.

~~5.7.2.5 Notwithstanding the provisions of the zoning table, when land located within the Muchea Employment Node SCA is zoned Industrial Development and a structure plan for the land has not been approved, a use that was permitted or approved and is operating at the time the land is rezoned to Industrial Development can continue to operate.~~

~~The Local Government has the discretion to issue development approval, for further development associated with existing uses within the Industrial Development zone, if it is satisfied the approval of such works will not impact upon the future development of the Muchea Employment Node.~~

~~5.7.2.4 With the exception of lots M1606, 100-102, 22, 30, 202, 3 and 201 shown on Figure 8 of the *Muchea Employment Node Structure Plan* (2011), the establishment of new uses, change of use or subdivision of land will not be supported until a structure plan has been approved, in accordance with Part 4 of the deemed provisions.~~

~~5.7.2.5 Subdivision or development of any land within the Muchea Employment Node shall also be in accordance with the provisions and requirements of Schedule 11 as applicable.~~

~~5.7.2.6 Where a Development Contribution Plan is in place, contributions are to be made in accordance with the relevant provisions of the Scheme.~~

5.7.2.5 Unless a planning proposal demonstrates otherwise, and is supported by relevant agencies and the local government, servicing within the SCA is to be as follows:

- (a) reticulated water supplied by a licenced provider is to be provided at the first stage of any industrial subdivision;
- (b) land to be zoned for 'General Industry' is to be provided with a reticulated wastewater service supplied by a licenced provider. Wastewater disposal arrangements are to be in accordance with Government policy and clause 4.9 (c); and
- (c) where a licenced wastewater disposal service is not provided, land can only be zoned for 'Light Industry' and land uses will be restricted to 'dry' industries as outlined in clause 4.9 (c); and
- (d) at structure planning stage, provision is to be made for sites required for essential service infrastructure, including drainage, wastewater disposal, water supply and roads.

5.7.2.6 Internal roads identified in Figure 8 of the *Muchea Employment Node Structure Plan* (2011) are to be reserved and/or constructed at the first stage of industrial subdivision.

### 5.7.3 Relevant Considerations

5.7.3.1 In addition to the requirements of clause 4.19, in considering applications for Development Approval, the local government shall have regard to:-

- (a) The separation distances required for the proposed use and ability to ensure that impacts can be contained within the boundary of the **Special Control Area** ~~employment node boundaries~~;
- (b) That the visual impact of the development is in keeping with the surrounding rural landscape, including:
  - i. landscaping to protect views for roads adjoining the Muchea Employment Node;
  - ii. buildings to be designed and constructed to minimise visibility outside the Muchea Employment Node; and
  - iii. advertising signage being designed and appropriately located.
- (c) the protection of the environmental assets of the land including:
  - i. the need for appropriate setbacks and buffers;
  - ii. the maintenance of ecological ~~linkages through the Node~~; and
  - iii. if there is a need for the environment assets to be in public ownership to ensure ongoing protection and maintenance;
- (d) water management of surface and groundwater to maintain the natural water balance within the Muchea Employment Node area, within the provisions set out in the water management plans for the area;
- ~~(e) provision of infrastructure and services to each lot, with particular consideration to be given to the infrastructure to be provided through the proposed Development Contribution plan for the area;~~
- (ef) whether there are basic raw materials located on the lot, and whether the proposed development will impact upon their extraction; and
- ~~(g) uses which do not conform with the industrial zoning will not be considered to be sensitive uses when assessing development applications within the employment node~~

### 5.7.4 Referrals

The Local Government may refer any application for development approval or other planning proposal to any relevant authority or community organisation.

***adjusted provisions to respond to public comments as follows:***

- ***clarified, by the inclusion of 5.7.2.3, that designation of land as 'light' or 'general' industry is not on the basis of servicing, but on a range of factors, including impact on sensitive land uses and the environment;***

- *deleted clause 5.7.2.4 and added a new clause 5.7.2.4 that outlines the situations where structure planning is required, as the Regs and other provisions of the Act are sufficient to deal with subdivision and development proposals;*
- *deleted the first clause 5.7.2.5 because the discretion that exists for land in the 'Ind Devel' zone exists regardless of the status of the structure plan - land use and development is at Council's discretion;*
- *deleted SCA objectives and clauses 5.7.2.4 & 5 because these clauses are superfluous as there is no DCP in place, or environmental conditions in the scheme, and if there were, they would apply regardless of these clauses;*
- *adjusted 5.7.2.6 to confirm that wastewater services are to be in accordance with State policy and the 'dry industry' clauses;*
- *added 5.7.2.9 to address requirements in terms of roads (as there is no prospect of a Development Contribution Plan at this time); and*
- *updated clauses in 5.7.3 for the same reasons as above, to achieve consistency.*

## 6 – update Schedule 1 – Dictionary of Defined Words and Expressions as shown below:

~~**Builders Storage Yard** — means premises used for the storage of building material, pipes or similar items related to any trade, and may include the manufacture, assembly and dismantling processes incidental to the predominant use.~~

*This land use can only be incidental to another, and also overlaps with warehouse/storage and industry.*

**Commercial vehicle Parking**

means premises used for the parking of one or two commercial vehicles but does not include –

(a) any part of a public road used for parking or for a taxi rank;  
or

(b) parking of commercial vehicles incidental to the predominant use of the land

**Factory Unit Building**

means premises, or group of buildings or structures on one lot, in which two or more separate industries or storage areas are carried out.

*Was recommended to be deleted when re-advertised, but should be retained, as this captures the scenario where units are constructed without a land use being known, for future sale and/or lease (the Zoning Table is to remain the same, as this was overlooked for modification at re-advertising)*

**Garden Centre**

~~means any land or buildings used for the sale and display of garden products, including garden ornaments, plants, seeds, domestic garden implements and motorised implements and the display but not manufacture of prefabricated garden buildings.~~

Means premises used for the propagation, rearing and/or sale of plants, and the storage and sale of products associated with horticulture and gardens.

**Industry**

at point (e) of the definition, replace existing text with the following:

(e) incidental purposes.

**Landfill/Refuse Centre** ~~means premises used in the disposal, storage and recycling of waste material.~~

**Plant Nursery** ~~means any land or buildings used for the propagation, rearing and sale of plants.~~

**Resource Recovery Centre** means premises other than a waste disposal facility used for the recovery of resources from waste.

**Storage** ~~means premises used for the commercial storage of goods, equipment, plant or materials.~~

**Transport Depot** means premises used primarily for the parking or garaging of three or more commercial vehicles including --

- (a) any ancillary maintenance or refuelling of those vehicles; and
- (b) any ancillary storage of goods brought to the premises by those vehicles; and
- (c) the transfer of goods or persons from one vehicle to another.

**It excludes the parking of three or more commercial vehicles incidental to the use of the land.**

*This is a variation to the MST definitions, however, the proposed addition does achieve a consistency between this definition and the one for commercial vehicle parking that currently causes some confusion.*

**Waste disposal facility** means premises used  
 (a) for the disposal of waste by landfill; or  
 (b) the incineration of hazardous, clinical or biomedical waste.

**Waste storage facility** means premises used to collect, consolidate, temporarily store or sort waste before transfer to a waste disposal facility or a resource recovery facility on a commercial scale.

**Winery/Brewery** means premises used for the production and/or sale to the public of fermented viticultural or horticultural produce and associated products.

**7 – Update Schedule 2 – Zoning Table shown below and renumber as required:**

		Townsite	Light Industrial	Agricultural Resource	Rural Residential	Rural Smallholdings	Rural Retreat	Rural Conservation AMD 8 GG 30/1/09	Residential R2 AMD 40 GG 27/4/10	Industrial Development Zone	General Industry Zone AMD 52 GG 26/06/15
	<b>USE CLASS</b>										
14	<del>Builders Storage Yard</del>	✗	D	✗	✗	✗	✗	✗		In accordance with clause 3.4.3	P
22	Commercial vehicle parking	X	P	D	A	A	A	A	X		P
34	Funeral Parlour	A	✗ A	X	X	X	X	X			X
35	Garden Centre	D	D	✗ A D	X	X	X	X			P X
40	Industry - Extractive	X	✗ A	A	X	X	X	X			D
41	Industry	X	A X	X	X	X	X	X			D
46	<del>Land Refuse Centre AMD 39 GG 20/07/10</del>	✗	✗	✗	✗	✗	✗	✗			✗
59	<del>Plant Nursery</del>	D	D	D	D	✗	✗	✗			P
61	Reception Centre	D	A X	A	X	A	A	X			X
73	Showroom	P	P	X	X	X	X	X			P X I
76	Stock Yards	X	✗ A	A	X	X	X	X			P X A
	Resource recovery facility	X	P	X	X	X	X	X	X		P
	Waste disposal facility	X	X	X	X	X	X	X	X		X
	Waste storage facility	X	X	X	X	X	X	X	X	X	

At the bottom of the Zoning Table, add text for an 'Incidental' land use as follows:

I means that the use is permitted if it is consequent on, or naturally attaching, appertaining or relating to the predominant use of the land and it complies with any relevant development standards and requirements of the scheme.

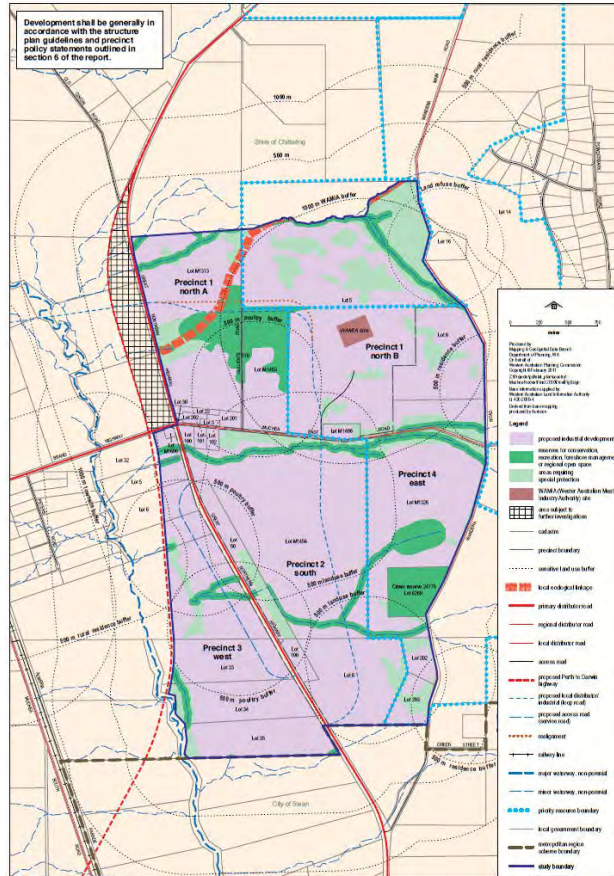
**Updated zoning table to include permissibility for:**

- newly defined land uses related to waste - these were missed during advertising, but the approach is broadly consistent with State policy (SPP 2.5) for regional facilities, and would fall under the category of a basic amendment (no advertising required);
- provide for stock yards in industrial zones as requested by WAMIA and Precinct 2 owners, and also to accord with zone objectives and the MENSP; and
- Provide for a 'showroom' in the general industry zone, provided it is incidental to an industrial land use. This could have implications for other land uses in the general industry zone, such as 'office' and 'shop', which are currently 'X' uses. This could be altered to 'I' in both of the industrial zones.



**8 – Amend the scheme map**

- (a) Extend the Muehea Employment Node Special Control Area around the boundary of the Employment Node, as identified in Figure 8 of the Muehea Employment Node Structure Plan (2011).



- (b) Reclassify Lot M1606 Great Northern Highway, Muehea from 'Agricultural Resource' to 'Light Industry'.

**9 - Additional modifications recommended following re-advertising**

- (a) In Schedule 3, under additional use A17 replace the text 'Builders Storage Yard' with 'Warehouse / Storage'.

*When 'builders storage yard' was recommended to be deleted, this affected A17, but was overlooked at re-advertising stage. However, warehouse / storage is a 'D' use in the Agricultural Resource zone anyway, so another option would be to delete 'builders storage yard' and not replace it at all. However, given there are 'live' proposals for the site, it is recommended to replace like with like.*

- (b) In Schedule 15 of the Scheme, update the Schedule numbers and text in condition 1 to refer to relevant scheme clauses. The Table of Contents of the Scheme should also be updated to reflect the changes made during the scheme conversion.

Agency Submissions			
Submitter	Comment	Shire Officer Response	Recommended changes
Department of Parks & Wildlife	I refer to your letter of 24 January 2017 providing opportunity to comment on the proposed modifications to TPS Amendment No. 60. The Department of Parks and Wildlife does not object to the proposed amendment and provides support for measures to protect remnant vegetation, wetland areas and the catchment areas of Ellen Brook located both within and adjoining the amendment area.	Noted	Nil
Department of Water	Thank you for the above referral dated 24 January 2017. The Department of Water (DoW) has assessed the proposal and has the following comments to provide:  The DoW has assessed the associated Muchea Employment Node Local Structure Plan 1 Local Water Management Strategy (LWMS) dated December 2015, prepared by Emerge Associates for Sirona Capital Management Pty Ltd. The DoW has provided comments on the LWMS and is currently awaiting a revised version of the document. Once the final version of the LWMS has been reviewed and approved, in conjunction with the Shire of Chittering, the DoW will provide support for the proposed Town Planning Scheme Amendment.	Noted	Nil
Department of Environment Regulation	I refer to the correspondence dated 24 January 2017 inviting comment from the Department of Environment Regulation (DER) on the above Scheme Amendment.  DER has no comment on this matter in reference to regulatory responsibilities under the <i>Environmental Protection Act 1986</i> and the <i>Contaminated Sites Act 2003</i> .	Noted	Nil
Main Roads WA	Further to your correspondence of the 24 January 2017 inviting submissions on the above proposal please be advised that since Main Roads is approached for comment on a routine basis to make comment as changes are made to Local Planning Schemes, it is considered that appropriate comment will have been previously made regarding changes that have resulted in this amendment.	Noted – for reference, the previous advice is as follows: <ol style="list-style-type: none"> <li>1. MRWA will not approve/support any future development via the existing access onto Great Northern Highway</li> <li>2. The ad hoc or piecemeal development of agricultural lots into light industry should be avoided particularly adjacent to highways and main roads where they require direct access which reduces the safety and efficiency of these roads</li> <li>3. The existing access to Lot 1606 via GNH was for the use of limited operational, low intensity and low volume purposes only; therefore, this access point should not be considered for any other businesses which would attract intensified movements in/out of the property.</li> </ol> A number of the provisions included within the amendment directly affect Main Roads and will require their input at Development Application Stage. While their early input was requested, it was not forthcoming.	Nil.
Public Submissions			
Public 1	We thank the Shire of Chittering (Shire) for the opportunity to comment on the proposed modifications to Amendment No. 60 (Amendment 60) to the Shire's Town Planning Scheme No.6 (TPS6). Having reviewed the advertised schedule of modifications, a number of concerns have been identified, summarised as follows:		

	<p>i. Proposed clause 4.14 provisions concerning development adjacent highways and major roads are vague and do not provide any additional clarity for affected landowners and decision makers.</p> <p>ii. Proposed clause 4.19 'Amenity of Non-Residential Development' contains provisions that are unsuitable and not reasonably applied to the full scope of non-residential land uses throughout the Shire (e.g. broad acre rural and large industrial uses).</p> <p>iii. Discretion to approve minor development / land uses changes and subdivision within the employment node area, in the absence of a Structure Plan, needs to be maintained. Proposed clause 5.7.2.4 of Amendment 60 is too restrictive, and is contrary to clause 27(2) of the 'Deemed Provisions' of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>.</p> <p>iv. The proposed deletion of the Builders Storage Yard land use classification is opposed, given the potential implications for Lots 802 and 803 which have an Additional Use classification (A17) permitting 'Builders Storage Yard' land use on the subject site.</p> <p>Each of these concerns are discussed in further detail below. We respectfully request the Shire and WA Planning Commission (WAPC) give due consideration to these concerns in its further assessment and consideration of Amendment 60.</p> <p><b>1 Highway and major road reserves</b></p> <p>Proposed clause 4.14 provisions concerning development adjacent highways and major roads are vague and do not provide any additional clarity for affected landowners and decision makers.</p> <p>The compatibility of development with its setting, the amenity of the locality, the adequacy of access arrangements and the amount of traffic generated are all listed as matters to be considered by the local government in clause 67 of the Deemed Provisions. In this regard, proposed clauses 4.14(a), (b) and (c) are considered unnecessary as they duplicate existing Deemed Provisions and don't provide any further meaningful guidance or clarity.</p> <p><b>2 Amenity of non-residential development</b></p> <p>Proposed clause 4.19 'Amenity of Non-Residential Development' contains provisions that are unsuitable and not reasonably applied to the full scope of non-residential land uses throughout the Shire (e.g. broad acre rural and large industrial uses).</p> <p>It is not clear what forms of 'non-residential development' this clause is intended to address, but the following specific provisions would appear incompatible with many forms of non-residential development on large landholdings (for example, the Aussie Modular Solutions operations currently taking place on Lots 802 and 803 Great Northern Highway):</p>	<p>Clause 4.14 is consistent with Main Roads' advice, and relates to road safety and efficiency. The clause replaces a development standard that was not seen to provide good development outcomes. Notwithstanding, this clause was rearranged to read more succinctly.</p> <p>Agricultural based uses on rural land are capable of gaining approval through these clauses. In line with SPP2.5, Industrialisation of rural land should be minimised where appropriate. The clause intends to relate to all non-residential development that requires discretion. This includes industrialised developments within rural zones, and industrialised developments within industrial zones. The intent is to ensure all development retains an attractive façade that successful industrial nodes are synonymous with; and that there are two roads which serve as tourist routes to the Shire from the Node, therefore making it imperative that the facades are attractive. The words "colours and styles" have been removed as they were considered too onerous.</p>	<p>Adjusted provisions slightly - as re-advertised, there was paras (a) to (c), and the lead in text of (a) and (b) was the same. These clauses have been consolidated to remove 'doubled up' lead in text and to split requirements of former paras (a) and (b) into i. and ii.</p> <p>Deleted text in para (e). Application of this entire section is at the local government's discretion, and is within the scope of matters that may be dealt with by a planning scheme (Schedule 7, P &amp; D Act).</p>
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	<p>4.19(e) buildings are to have co-ordinated or complementary materials, colours and styles, including:</p> <ul style="list-style-type: none"> <li>i. an entry that addresses the street and is clearly visible;</li> <li>ii. doors, windows and building materials that develop a coherent pattern, and are proportional to the building; and</li> <li>iii. screening of services and areas for waste management and essential services (eg air conditioning units).</li> </ul> <p>4.19(g) landscaping to be provided, to a maximum of 10 per cent of the site area as required, using plant species approved by the local government, including provision of shade trees at 1 per 4 car bays;</p> <p>4.19(h) minimised use of front fencing, and where front security fencing is required, to be set back to the building line and behind the landscaped area;</p> <p><b>3 Discretion to approve development / subdivision in the absence of a Structure Plan</b></p> <p>Greater clarity is required for landowners within the Muchea Employment Node SCA seeking to undertake minor land use changes and/or subdivision, in the absence of a Structure Plan.</p> <p>Proposed clause 5.7.2.4 of Amendment 60 appears to prohibit the establishment of new uses, changes of use or subdivision of land in the SCA (with the exception of a small number of properties) in the absence of an approved structure plan. Such a restriction is considered unnecessary, and contrary to clause 27(2) of the 'Deemed Provisions' of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>, which states:</p> <p style="padding-left: 40px;"><i>(2) A decision-maker for an application for development approval or subdivision approval in an area referred to in clause 15 as being an area for which a structure plan may be prepared, but for which no structure plan has been approved by the Commission, may approve the application if the decision-maker is satisfied that —</i></p> <ul style="list-style-type: none"> <li><i>(a) the proposed development or subdivision does not conflict with the principles of orderly and proper planning; and</i></li> <li><i>(b) the proposed development or subdivision would not prejudice the overall development potential of the area.</i></li> </ul> <p>Proposed clause 5.7.2.4 of Amendment 60 should be modified or removed to avoid confusion and any potential contradiction with the Deemed Provisions.</p> <p><b>4 Builders Storage Yard land use</b></p> <p>Lots 802 and 803 Great Northern Highway currently enjoy an Additional Use classification (A17) under Schedule 3 of TPS6 (applied via Amendment 50 in 2013), permitting the following additional uses which would otherwise be prohibited in the Agricultural Resource zone:</p> <ul style="list-style-type: none"> <li>• Industry – General (limited to the manufacture, assembly, storage and transportation of transportable buildings); and</li> <li>• Builders Storage Yard.</li> </ul>	<p>5.7.2.4 intends to provide requirement for the land be suitably planned to allow for industrial type of development prior to subdivision. Despite this, the clause has been reworded to provide for additional clarity and certainty for minor changes of use.</p> <p>The proposed clause supplements rather than contradicts the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. Because of the environmental hazards associated with the Shire generally, the importance of structure planning in the first instance is paramount more so than metropolitan authorities.</p> <p>When 'builders storage yard' was recommended to be deleted, this affected A17, but was overlooked at re-advertising stage. However, warehouse / storage is a 'D' use in the Agricultural Resource zone anyway, so another option would be to delete 'builders storage yard' and not replace it at all. However, given there are 'live' proposals for the site, it is recommended to replace like with like.</p>	<p>Adjusted clause 5.7.2.4 to indicate that rezoning is to be supported by structure planning, as the Regs and other provisions of the Act are sufficient to deal with subdivision and development proposals;</p> <p>Schedule 3 No.A17 additional use has been modified to state "Industry – General (and) Storage/Warehouse".</p>
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	<p>The proposed deletion of the Builders Storage Yard land use class via Amendment 60 would further restrict the scope of uses explicitly permitted within A17 (and already approved/being conducted on site). Notwithstanding some overlap with the Warehouse/Storage land use class (as recently introduced via Amendment 60), the permissibility of these land use classifications differs with respect to the subject site.</p> <p>The loss of the Builders Storage Yard permitted use, and reliance on a discretionary Warehouse/Storage use, presents an unacceptable risk to our client and the range of activities currently undertaken on site. For this reason, we request the Builders Storage Yard land use be retained within TPS6.</p> <p>On behalf of Karratha Enterprises Pty Ltd, we respectfully request the Shire and WAPC give due consideration to these concerns in its further assessment and consideration of Amendment 60. We would be more than happy to meet and discuss these matters should it be of assistance to the City and/or WAPC.</p>	<p>Noted – further informal consultation was undertaken and has subsequently contributed to the changes listed above.</p>	
<p><b>Public 2</b></p>	<p>We thank the Shire of Chittering (<b>Shire</b>) for the opportunity to comment on the proposed modifications to Amendment No.60 (<b>Amendment 60</b>) to the Shire’s Town Planning Scheme No.6 (<b>TPS6</b>). Having reviewed the advertised schedule of modifications, a number of concerns have been identified, summarised as follows:</p> <ul style="list-style-type: none"> <li>i. Development and subdivision restrictions relating to ‘dry industry’ are too restrictive, and don’t have regard for more sophisticated water management regimes and practices.</li> <li>ii. Limitations on caretaker’s dwellings are not sufficiently clear with respect to the Muchea Employment Node Special Control Area (SCA) (specifically the proposed prohibition of all ‘residential’ land uses in the SCA).</li> <li>iii. Proposed clause 4.14 provisions concerning development adjacent highways and major roads are vague and do not provide any additional clarity for affected landowners and decision makers.</li> <li>iv. Proposed clause 4.19 ‘Amenity of Non-Residential Development’ contains provisions that are unsuitable and not reasonably applied to the full scope of non-residential land uses throughout the Shire (e.g. broad acre rural and large industrial uses).</li> <li>v. Discretion to approve minor development/land use changes and subdivision within the employment node area, in the absence of a Structure Plan, needs to be maintained. Proposed clause 5.7.2.4 of Amendment 60 is too restrictive, and is contrary to clause 27(2) of the ‘Deemed Provisions’ of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>.</li> <li>vi. Resource Recovery Centre doesn’t appear to have been allocated any specific land use permissibility through the zoning table. This new land use class should be made capable of approval within the Agricultural Resource, Light Industrial, and Industrial Development and General Industrial zones.</li> <li>vii. The proposed prohibition of the Stock Yard land use classification in the General Industry zone is questioned, given the provisions of the Muchea Employment Node Structure Plan and presence of WAMIA’s</li> </ul>	<p>Responses to each is detailed in reference to each heading is discussed below.</p>	

	<p>Stock Yard operations within a precinct identified for 'proposed industrial development'.</p> <p>Each of these concerns are discussed in further detail below. We respectfully request the Shire and WA Planning Commission (<b>WAPC</b>) give due consideration to these concerns in its further assessment and consideration of Amendment 60.</p> <p><b>1 Dry Industry restrictions</b></p> <p>The challenges and associated development limitations in the absence of reticulated water and wastewater infrastructure are understood and appreciated by WAMIA. The absence of such infrastructure in the locality is clearly an issue for the future development of the Muchea Employment Node, and the need for clear guidance to developers and decision makers on this matter is acknowledged.</p> <p>Clause 4.9(c) of the Amendment 60 modifications, are however, too restrictive and lack the necessary flexibility to appropriately respond to more sophisticated water management regimes and practices that may be suitable. WAMIA, for example, has implemented comprehensive water management systems that are fit for purpose and facilitate a significant scale of operation on site.</p> <p>It is recommended that Amendment 60 provisions be amended to provide further flexibility and discretion to approve land uses and development exceeding the volumes stated, if appropriate management arrangements are demonstrated.</p> <p><b>2 Caretaker's Dwellings restrictions</b></p> <p>Proposed Amendment 60 limitations on caretaker's dwellings are not sufficiently clear with respect to industrial zones/uses and the Muchea Employment Node SCA.</p> <p>Under TPS6, Caretaker's Dwellings are listed as a D (discretionary) land use within the Townsite, Light Industrial and Agricultural Resource zones. However, the proposed prohibition of all 'residential' land uses in the Muchea Employment Node SCA would appear to potentially prohibit any further approval of Caretakers Dwellings in this area, regardless of its predominant Agricultural Resource zoning at present (or potential future Light Industrial zoning, subject to further planning). Caretakers Dwellings are an important component of many agricultural and industrial activities, and should be specifically excluded from proposed clause 5.7.2.1 of Amendment 60.</p> <p><b>3 Highway and major road reserves</b></p> <p>Proposed clause 4.14 provisions concerning development adjacent highways and major roads are vague and do not provide any additional clarity for affected landowners and decision makers.</p>	<p>Available technology suggests that the provisions for stormwater within Light Industry Zones are consistent with minimum requirements applied throughout the State. Regardless, the Scheme should acknowledge alternative means to control such disposal systems where found to be consistent with the objectives of both LGA and State authorities.</p> <p>Noted and agreed as residential is defined separately from 'Caretakers dwellings'.</p> <p>The proposed wording from the minister was convoluted and somewhat difficult to apply in a hypothetical sense. The intent is merely a reflection of Main Roads' feedback and as such the clauses should</p>	<p>Clause 4.9(c) has been updated to clarify that 'dry' industry is linked to disposal of groundwater. As previously drafted, it would preclude wastewater disposal via recycling or other potentially innovative means.</p> <p>'caretakers dwellings' has been included within the proposed wording of 5.7.2.1 to add clarification.</p> <p>adjusted provisions slightly - as re-advertised, there was paras (a) to (c), and the lead in text of (a) and (b) was the same. These clauses have been</p>
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	<p>The compatibility of development with its setting, the amenity of the locality, the adequacy of access arrangements and the amount of traffic generated are all listed as matters to be considered by the local government in clause 67 of the Deemed Provisions. In this regard, proposed clauses 4.14(a), (b) and (c) are considered unnecessary as they duplicate existing Deemed Provisions and don't provide any further meaningful guidance or clarity.</p> <p><b>4 Amenity of non-residential development</b></p> <p>Proposed clause 4.19 'Amenity of Non-Residential Development' contains provisions that are unsuitable and not reasonably applied to the full scope of non-residential land uses throughout the Shire (e.g. broad acre rural and large industrial uses).</p> <p>It is not clear what forms of 'non-residential development' this clause is intended to address, but the following specific provisions would appear incompatible with many forms of non-residential development on large landholdings (for example, the WAMIA operations on a 302-hectare property):</p> <p><i>4.19(e) buildings are to have co-ordinated or complementary materials, colours and styles, including:</i></p> <ul style="list-style-type: none"> <li><i>i an entry that addresses the street and is clearly visible;</i></li> <li><i>ii doors, windows and building materials that develop a coherent pattern, and are proportional to the building; and</i></li> <li><i>iii screening of services and areas for waste management and essential services (eg air conditioning units).</i></li> </ul> <p><i>4.19(g) landscaping to be provided, to a maximum of 10 per cent of the site area as required, using plant species approved by the local government, including provision of shade trees at 1 per 4 car bays;</i></p> <p><i>4.19(g) landscaping to be provided, to a maximum of 10 per cent of the site area as required, using plant species approved by the local government, including provision of shade trees at 1 per 4 car bays;</i></p> <p><i>4.19(h) minimised use of front fencing, and where front security fencing is required, to be set back to the building line and behind the landscaped area;</i></p> <p><b>5 Discretion to approve development / subdivision in the absence of a Structure Plan</b></p> <p>Greater clarity is required for landowners within the Muchea Employment Node SCA seeking to undertake minor land use changes and/or subdivision, in the absence of a Structure Plan.</p> <p>Proposed clause 5.7.2.4 of Amendment 60 appears to prohibit the establishment of new uses, changes of use or subdivision of land in the SCA (with the exception of a small number of properties) in the absence of an</p>	<p>remain, albeit with adjustment.</p> <p>The intent of Clause 4.20 (advertised as 4.19) is to ensure built form standards are maintained. These clauses are generally lifted from other best practice examples throughout the State. Notwithstanding, where applicable, corporate design preference and other macro level design requirements that may conflict have been removed. In addition, the clause numbering has been updated.</p> <p>Noted and agreed.</p>	<p>consolidated to remove 'doubled up' lead in text and to split requirements of former paras (a) and (b) into i. and ii.</p> <p>revised numbering, amended 'lead in' text and deleted text in para (e), to respond to submissions that suggested that the content of this section was more relevant to a local planning policy. Application of this entire section is at the local government's discretion, and are within the scope of matters that may be dealt with by a planning scheme (Schedule 7, P &amp; D Act).</p> <p>deleted clause 5.7.2.4 and added a new clause 5.7.2.4 that outlines the situations where structure planning is required, as the Regs and other provisions of the Act are sufficient to deal with subdivision and development proposals;</p>
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	<p>approved structure plan. Such a restriction is considered unnecessary, and contrary to clause 27(2) of the 'Deemed Provisions' of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>, which states:</p> <p><i>(2) A decision-maker for an application for development approval or subdivision approval in an area referred to in clause 15 as being an area for which a structure plan may be prepared, but for which no structure plan has been approved by the Commission, may approve the application if the decision-maker is satisfied that –</i></p> <p><i>(a) the proposed development or subdivision does not conflict with the principles of orderly and proper planning; and</i></p> <p><i>(b) the proposed development or subdivision would not prejudice the overall development potential of the area.</i></p> <p>Proposed clause 5.7.2.4 of Amendment 60 should be modified or removed to avoid confusion and any potential contradiction with the Deemed Provisions.</p> <p><b>6 Permissibility of Resource Recovery Centre land use</b></p> <p>The Resource Recovery Centre land use doesn't appear to have been allocated any specific permissibility through the zoning table changes described in the Amendment 60 schedule of modifications. Having regard for the various zone objectives and nature of the use, this new land use class should be made capable of approval within the Agricultural Resource, Light Industrial, Industrial Development and General Industrial zones.</p> <p><b>7 Permissibility of Stock Yards land use</b></p> <p>The Muchea Employment Node Structure Plan (<b>MENSP</b>), published by the WAPC in August 2011, provides a 20 year land use planning framework for the area. It acknowledges the presence of the Muchea Livestock Centre, stating that:</p> <p><i>The WA Meat Industry Authority (WAMIA) opened the Muchea Livestock Centre in May 2010. The Livestock Centre is a 302 ha site within the employment node and provides an opportunity for complementary businesses to set up in the area.</i></p> <p><i>The Shire of Chittering's preference is that industries that would impact on the amenity of Muchea and surrounds, should not be allowed to set up in the employment node. However, complimentary agri-industry businesses that would not impact on the amenity should be encouraged.</i></p> <p>Table B in Section 6.4 of the MENSP clearly identifies that 'Stock Yards' should be classified as a discretionary land use within the employment node. WAMIA's Stock Yard operations are situated within Precinct 1 of the MENSP, which is identified for 'proposed industrial development'. It is evident that the Muchea Livestock Centre (Stock Yards) are a key contemplated component of the employment node area, and generally considered to be compatible with a range of general and light industrial land uses.</p>	<p>The allocation was missed in the Minister's recommended changes. This has been updated accordingly.</p> <p>Noted. While WAMIA is a special use zone, and therefore would not be affected by general industry zone requirements, it is not in the intention of the Shire to create a monopoly industry within the Shire. While discretion is of high importance, allowing stock yards in the MEN is consistent with the objectives of the MENSP.</p>	<p>Resource recovery Centre, Waste Disposal Facility and Waste Storage Facility inserted into the Zoning Table.</p> <p>provide for stock yards in industrial zones as requested by WAMIA and Precinct 2 owners, and also to accord with zone objectives and the MENSP</p>
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	<p>The rationale for prohibiting the Stock Yard land use in the General Industry zone via Amendment 60 has not been clearly demonstrated, and is considered contrary to the 20 year planning framework established by the MENSF. It is requested that the permissibility of the Stock Yard land use be maintained in the General Industry zone, and not altered by Amendment 60. On behalf of WAMIA, we respectfully request the Shire and WAPC give due consideration to these concerns in its further assessment and consideration of Amendment 60. We would be more than happy to meet and discuss these matters should it be of assistance to the Shire and/or WAPC</p>		
<p><b>Public 3</b></p>	<p>Thank you for the opportunity to provide comment on the Minister’s proposed modifications to TPS 6. Whilst supportive of the proposed modifications in general, the submitter requests further clarification and justification of the matters identified below, and consideration of additional matters. The comments below rely on TPS 6 scheme text as published 31/3/16.</p> <p><b>Item 5.7 Muecha employment node</b>  <b>5.7.1(d)</b> to provide a basis for development contributions towards infrastructure in accordance with clause 4.18(???) and schedule 9(????) of the scheme (date)          Item 5.7.2.4 – What entity or authority is responsible for establishing overarching minimum uniform development and building standards applicable to the WAPC MEN structure plan (2011) area as a whole?          Item 5.7.2.5 – What is the content and provisions of the referred to schedule 11, also see comment below.          Item 5.7.3.1 – has TPS 6 clause 4.19 been inserted subsequent to the publicly available TPS 6 document (31/3/16)?          Item 5.7.3.1 (e) – reference to <u>proposed</u> DCP – see comment below. In addition, whilst not disagreeing with the concept of an overarching DCP, chicken and egg issues arise in ‘greenfield’ development sites, even if they are identified as special control areas (SCA). It is the submitters understanding that the Shire was progressing an SCA DCP, however it is unclear how the Shire would propose to control and manage essential service resources that are the domain of other entities.  <b>Comment:</b> It would appear to be unusual and highly unsatisfactory to have a planning and development scheme (law) that makes reference to clauses and schedules of things that may or may not be inserted at some future date – schedule 11, schedule 13. It is the submitters understanding that the TPS 6 scheme text is formulated to provide a high degree of certainty and surety to persons undertaking or proposing to undertake developments in the Shire, decision-makers and is relied on within judicial environments when adjudicating on disputes.</p> <p><b>Schedule 1 – dictionary words and expressions</b>  <b>Factory unit building – objection to the deletion</b>          Basis for objection          The Shire of Chittering has recently committed to being a small business friendly local government. The Muecha employment node industrial area has been identified as supporting local employment opportunities. Small business employs the majority of the workforce. Small business access to</p>	<p>The intent of Clause 5.7.2 is to add controls at the Local Structure Planning Stage, or otherwise development application stage for those lots not requiring a subdivision prior to development. The Shire therefore has the initial determining ability, though still requires feedback and acknowledgement from relevant State and other agencies.</p> <p>The wording of the clauses have been updated following community, investors, and industry related professional feedback.</p> <p>Reference to DCPs has been removed as there is no prospect of a DCP at this time. Instead this has been replaced with a general clause relating to the construction of roads.</p> <p>Noted and agreed. This clause has been removed.</p> <p>Noted and agreed. The initial reason for the deletion of this definition was articulated within the proposed changes. Put simply, the definition did not appear to specifically relate to a practical land use. Generally speaking, the use can be classified within other uses such as</p>	<p>adjusted provisions to respond to public comments as follows:          clarified, by the inclusion of 5.7.2.3, that designation of land as 'light' or 'general' industry is not on the basis of servicing, but on a range of factors, including impact on sensitive land uses and the environment;</p> <p>deleted clause 5.7.2.4 and added a new clause 5.7.2.4 that outlines the situations where structure planning is required, as the Regs and other provisions of the Act are sufficient to deal with subdivision and development proposals;</p> <p>deleted the first clause 5.7.2.5 because the discretion that exists for land in the 'Ind Devel' zone exists regardless of the status of the structure plan - land use and development is at Council's discretion;</p> <p>deleted SCA objectives and clauses 5.7.2.4 &amp; 5 because these clauses are superfluous as there is no DCP in place, or environmental conditions in the scheme, and if there were, they would apply regardless of these clauses;</p> <p>adjusted 5.7.2.6 to confirm that wastewater services are to be in accordance with State policy and the 'dry industry' clauses;</p> <p>added 5.7.2.9 to address requirements in terms of roads (as there is no prospect of a Development Contribution Plan at this time); and</p> <p>updated clauses in 5.7.3 for the same reasons as above, to achieve consistency.</p>

	<p>tenant occupied, secured, distinct and separate premises, within a group of buildings or structures on a single lot, is an essential element for the reasonable conduct of a small business operation.</p> <p>In the event that the specific term 'factory unit building' is deemed not to satisfy the definitional characterisation of an acceptable land use, then an alternate term be substituted ie XXXXXXXXXXXX – means a premise used primarily by a number of individual small business entities servicing the needs of agriculture, industry and the local community.</p> <p><b>Plant nursery – objection to deletion</b> Basis of objection Plant production nurseries are a legitimate horticultural activity appropriate for agricultural resource, light industrial and commercial zones. Modern plant breeding and propagation, capturing current technological advances of controlled environment conditions, may be undertaken within laboratory type premises. Growing out facilities involving shade houses, tunnel houses, open setting potted plant areas and the use of plant protection chemicals are essential components for wholesale production, where retail sales of plants may be an incidental activity. To suggest that the above would fall comfortably within a <b>garden centre</b> definition, within a townsite zone, would appear to be contrary to orderly planning for the land use activity.</p> <p><b>Transport depot - objection to the amended meaning</b> Basis for objection In more recent times there has been a large discretionary latitude in the scope and nature of what constitutes a 'transport depot' land use, within agricultural resource zoned land, with a number of applications proposing use of a site for open semi-permanent storage of large industrial type plant and equipment, and may involve the storage of industrial plant and equipment in excess to the current requirements of the mining and resource industry. In addition, storage of industrial plant and equipment on hardstand areas that may be available, appears to be approved as an ancillary use to the principal approved land use. The current situation is creating conflict in appropriate land use and amenity impacts on local residents. The MEN provides for the appropriate storage of industrial type plant and equipment and therefore the barriers constraining development of the MEN area should be dealt with as a matter of priority, more especially given the Northlink freight route will be operational by 2019.</p> <p><b>Transport depot</b> – reinstate the meaning of transport depot as defined in TPS 6 (24/9/12) to mean <b>'premises used for the garaging of two (2) or more motor vehicles, used or intended to be used for carrying of goods or persons for hire or reward, or for the transfer of goods or persons, and includes maintenance and repair of the vehicles, used but not for other vehicles'</b>.</p> <p><b>Waste disposal facility and waste storage facility</b> Neither descriptor appears in the proposed amended zoning table, therefore there is a high degree of uncertainty as to what constitutes an appropriate zoning location and the constraints that may or may not be imposed. The term <b>'waste'</b> is not defined, leaving it open to subjective value judgement on what may or may not be compatible with community expectations. To provide clarity and certainty, the term waste be categorised as: waste – building and construction, waste – domestic and household, waste – industrial and waste – medical, with appropriate descriptor</p>	<p>'storage/warehouse' or 'industry'. However, following consideration of these comments, the definition was reinserted.</p> <p>The definition is consistent with the deemed provisions of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. The definition is encompassing but not limiting as the submission suggests. Regardless, the use class has been modified to 'D' use within the Ag Resource zone as it potentially can be consistent with the Ag Resource zone objectives. In that instance, the application could possibly be determined without requiring advertising.</p> <p>Transport Depot' has been updated in accordance with the definition within the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. An additional wording has been added to provide additional clarity. This is a variation to the MST definitions, however, the proposed addition does achieve a consistency between this definition and the clause relating to commercial vehicle parking that currently causes some confusion.</p> <p>The omission from the zoning table was unintended. It has now been included. The definition is consistent with the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i> definitions and encompasses the use sufficiently and consistently throughout the State. These uses are typically subject to spot rezonings in order to properly incorporate buffers and other mechanisms to ensure such as use is appropriate.</p>	<p>Factory Unit Building was recommended to be deleted when re-advertised, but should be retained, as this captures the scenario where units are constructed without a land use being known, for future sale and/or lease (the Zoning Table is to remain the same, as this was overlooked for modification at re-advertising)</p> <p>the use class has been modified to 'D' use within the Ag Resource zone</p> <p>Added the following wording: <i>"It excludes the parking of three or more commercial vehicles incidental to the use of the land."</i></p> <p>Land use has now been included in the zoning table.</p>
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	<p>meanings. The term waste as a generic term may mean – anything unused, unproductive, serving no useful purpose to the previous owner, left over, superfluous, excess material or by product, excluding any radioactive or HAZMAT classified material or products, and materials that have no safe means of disposal without potential to cause harm to humans and the environment.</p> <p><b>Waste disposal facility – object to proposed definition meaning</b> Amend to: Waste disposal facility – means premises used for</p> <ul style="list-style-type: none"> <li>a) The safe and efficient ‘fit for purpose’ disposal of waste– building and construction, waste-domestic and household, waste-industrial, waste-medical.</li> <li>b) The high temperature incineration of medically hazardous, biological, clinical or biomedical waste</li> </ul> <p><b>Waste storage facility – object to proposed definition meaning</b> Amend to include: does not include the bulk storage, handling, sorting or disposal of radioactive materials or products, does not include the bulk storage, handling, sorting or disposal of materials or products that require HAZMAT classification that may have potential to cause harm to humans and the environment.</p> <p><b>Amendment to scheme map</b> Clearly identify the MEN industrial area buffer zone that protects the industrial area from intrusion by incompatible land uses. Discourage MEN perimeter and surrounds developments that would be consistent with orderly planning and development within the MEN SCA. Give consideration to the extension of the SCA and MEN industrial area, to include the land area northwards to the intersection of Wandena road and Great Northern highway. Reason – the area would be defined by a hard cadastral boundary and already has land usage more compatible with industrial zoning.</p>	<p>Same as the above.</p> <p>The MEN location is identifiable by the MENSF. Currently, the SCA relates to Lot M1313 (precinct 1 north A) only. This Scheme Amendment proposes to expand the SCA over the entire MENSF area. It is not appropriate to extend the boundaries of the MENSF without further investigation independently of this Scheme Amendment.</p>	<p>Land use has now been included in the zoning table.</p> <p>Nil.</p>
<p><b>Public 4</b></p>	<p>Thank you for the opportunity to provide this submission on the proposed modifications to Scheme Amendment No. 60 for Lot M1606 Great Northern Highway, Muchea. CLE Town Planning + Design have prepared this submission on behalf of our Client, Sirona Capital, who own lot 102 Great Northern Highway, Muchea which will be affected by the proposed modifications.</p> <p>As a major landowner within the Muchea Employment Node (MEN), Sirona are actively progressing the planning of lot 102 in accordance with the current MEN provisions within Town Planning Scheme No.6 (TPS6). Sirona have significant concerns with both the content of the proposed modifications as well as the process being implemented by the Minister to affect changes to the planning framework governing development of the MEN without following due process.</p> <p>Our concerns are discussed in further detail below, but are summarised as follows:</p> <ul style="list-style-type: none"> <li>• Amendment 60 is a spot rezoning to rezone a single lot from ‘Agricultural</li> </ul>	<p>This summary is acknowledged – the full response is detailed next to the detailed concerns.</p>	

- Resource' to 'Light Industrial' however, the proposed modifications seek to address matters beyond what could reasonably be considered as associated with the purpose of Amendment 60;
- Amendment 60 was initiated as a 'standard amendment' however, the proposed modifications affect the entire MEN and therefore constitute a 'complex amendment' under clause 34 of the *Planning and Development (Local Planning Schemes) Regulations 2015* ('the Regulations') and should therefore be initiated as a separate amendment;
  - The schedule of modifications references clauses within TPS6 that do not correspond, making it impossible to fully consider and determine the extent and impact of the proposed modifications;
  - The proposed modifications contain subjective development controls that are inappropriate for inclusion within TPS6 and should be implemented via a local planning policy or similar;
  - The modifications propose content that is inconsistent with the Western Australian Planning Commissions (WAPC) draft policy position for sewer and wastewater management (draft *Government Sewerage Policy*);
  - The proposed modifications directly contradict existing provisions within TPS6 gazetted in June 2015 via Amendment 52 upon which significant projects have been progressed;
  - The modifications seek to impose reticulated sewer requirements on 'General Industry' zoned land that is unnecessary where an overarching 'dry industry' restriction is proposed on industrial development in the absence of sewer. This will compromise development of the MEN as an industrial node and is inconsistent with previous approvals and negotiations;
  - The modifications regarding wastewater management propose content that is irrational and does not demonstrate a logical and informed position on the subject matter; and
  - The information and cost estimates that have been used to inform the modifications may be flawed.

#### Background

As you may be aware, the Department of Planning (DoP) is currently assessing Sirona's structure plan for lot 102 which was considered by the Shire of Chittering at its Council meeting on 18 May 2016. The Shire recommended approval of the structure plan subject to modifications. The structure plan covers a 149 hectare area within the MEN abutting the eastern boundary of Great Northern Highway. The structure plan will be directly accessed from the future Perth-Darwin National Highway (PDNH) via an interchange and will be the first stage of industrial development within the MEN. Lot 102 was rezoned from 'Agricultural Resource' to 'Industrial Development' on 26 June 2015 (Amendment 52 to TPS6) and Sirona have been progressing the planning of lot 102 since.

Aside from rezoning lot 102, Amendment 52 also created the Muchea Employment Node Special Control Area (SCA) over lot 102 and requires detailed assessment/reporting to be undertaken at future planning stages. Amendment 52 also introduced a 'General Industry' zone into TPS6 to allow for the future development of the MEN as an industrial node capable of

	<p>accommodating a range of industrial land uses. The scheme text provisions were refined at length with the DoP and eventuated into the current provisions within TPS6.</p> <p>Planning for lot 102 has been progressing based on the current SCA provisions however, the proposed modifications to the SCA under Amendment 60 will have a significant impact on the development of lot 102, including cost implications that threaten to undermine the viability of the project.</p> <p><b><u>Process for making modifications</u></b></p> <p>Whilst we have major concerns with the actual content of the proposed modifications (which are discussed later in this submission), the current advertised provisions should not be proposed through modifications to Amendment 60. Instead, the modifications should be subject to a separate amendment to TPS6 and standalone process.</p> <p>The modifications proposed by the Minister are so significant that the amendment no longer resembles that initiated by Council, contrary to established planning principles. Amendment 60 was effectively a spot rezoning however, the proposed modifications seek to amend TPS6 far beyond what is necessary to ensure the orderly and proper planning of lot M1606 by:</p> <ul style="list-style-type: none"> <li>• Expanding the current SCA (currently limited to lot 102) to encapsulate the entire MEN. To put this in perspective, the Shire initiated an amendment that affected one x 8,000m<sup>2</sup> lot however, the proposed modifications impact an approximate 1,113 hectare area within the MEN and numerous landowners;</li> <li>• Limiting all industrial land uses within the MEN to 'dry industry' in the absence of reticulated sewer where the 'transport depot' land use on lot M1606 is already established;</li> <li>• Inserting built form / design amenity provisions for industrial development. Lot M1606 is already developed and we understand the purpose of Amendment 60 was to align the zoning with the historic use of the land as a transport depot. We therefore see no connection between the proposed clause 4.19 within the modifications and Amendment 60;</li> <li>• Inserting additional provisions to be addressed by industrial proposals within the MEN in relation to industrial wastewater management, environmental impacts and geotechnical matters. Once again, as lot M1606 is already developed it is difficult to see how these modifications are linked to Amendment 60;</li> <li>• A requirement that all 'General Industry' zoned land within the MEN be provided with reticulated sewer. Once again, Amendment 60 proposes a 'Light Industrial' zoning and there is no connection between this modification and lot M1606; and</li> <li>• Other miscellaneous modifications not related to Amendment 60 but which are too numerous to list.</li> </ul>	<p>The Scheme amendment process can include additional requirements and standards that do not otherwise relate to a single property. The modified proposal seeks to include development standards for the betterment of the Muchea Employment Node, and the Shire in general.</p>	<p>Nil</p>
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	<p>It is evident that the modifications go beyond the scope of what is necessary to ensure the orderly and proper planning of lot M1606 as a 'Light Industrial' zoned lot. The proposed modifications should therefore be progressed as a separate amendment to TPS6 based on this fact alone however, there are other factors that support this position.</p> <p><u>Amendment stream</u></p> <p>Amendment 60 was initiated as a 'standard amendment' as defined under the Regulations. Expanding the SCA to approximately 1,113 hectares of land zoned 'Agricultural Resource' however, constitutes <i>"an amendment relating to development that is of a scale, or will have an impact, that is significant relative to development in the locality"</i> and, in accordance with clause 34 of the Regulations, is defined as a 'complex amendment'. On this basis, the proposed modifications must be prepared as a separate 'complex amendment' and follow the necessary process outlined under the Regulations.</p> <p><u>Consultation period</u></p> <p>Given the large scale and impact of the proposed modifications, progression of the content as a separate 'complex amendment' would allow for a more comprehensive and appropriate consultation period. The content of the modifications would have significant implications for lot 102 as well as other landowners within the MEN. The current consultation period does not allow for a full analysis of the proposed implications. A longer advertising period, consistent with that required for a 'complex amendment', should have been implemented to allow for a comprehensive consultation process on what are significant and complex issues.</p> <p><u>Improper application of Special Control Area</u></p> <p>The modifications seek to apply the SCA to land that is zoned 'Agricultural Resource' under TPS6 however, the intent of the SCA provisions is to coordinate future development of the MEN for <i>industrial</i> purposes. Application of the SCA over the MEN is not appropriate until an underlying zoning is in place that allows for industrial development. Further, the intent for the SCA to coordinate industrial development within the MEN directly contradicts the objectives for the 'Agricultural Resource' zone which focus on agricultural-type land uses.</p> <p><u>Environmental referral obligations under the <i>Planning and Development Act 2005</i></u></p> <p>As referenced above, the proposed modifications affect a land area significantly greater (1,390 times larger) than the Amendment 60 area (lot M1606). The characteristics of this expanded land area therefore need to be considered particularly in relation to environmental impacts. A critical step</p>	<p>The proposed SCA extension is consistent with the objectives of the MENSF &amp; strategic planning intent. The expansion of the SCA is over an additional 954ha as Precinct 1 North A is already subject to the SCA. The intent therefore is to ensure the process for rezoning, structure planning and development is consistent throughout the MEN.</p> <p>Additionally, the Minister referred the changes as a 'standard' amendment.</p> <p>The proposal was advertised for the required minimum period of 28 days in accordance with the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i>. To this end, sufficient time was provided for responses to be submitted. Late submissions were also accepted.</p> <p>The MENSF clearly stipulates that precinct structure planning and SAs are required to allow for intensified industrial development. The SCA extension is for the purpose of providing more specific guidelines and control over the MEN to allow for appropriate development, while avoiding undue environmental impact. As the Department of Planning and the Shire have increasing concerns regarding the proximity of the MEN to the Elenbrook catchment, only proper planning framework will ensure that this land is developed correctly.</p> <p>The amendment process remains consistent with the 'standard amendment' stream. Regardless, the EPA were provided with notification of the revised amendment. Their response is listed in this summary.</p>	<p>Nil</p> <p>Nil</p> <p>Nil</p> <p>Nil</p>
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	<p>in the local planning scheme amendment process is the requirement to refer proposed amendments to the Environmental Protection Authority pursuant to section 81 of the <i>Planning and Development Act 2005</i> ('the Act'). Progression of a significant amendment proposal via the modification process to include additional land beyond what was initiated and originally advertised circumvents the environmental referral process under the Act.</p> <p>The modifications should follow due process and be proposed as a separate amendment, subject to all necessary processes under the Act and the Regulations.</p> <p><u>Clause references</u></p> <p>The advertised schedule of modifications does not constitute a valid consultation process as the schedule of modifications refers to incorrect clauses of TPS6. The publically available version of TPS6 at the time of drafting this submission does not correspond with the clauses referred to in the schedule of modifications. We understand that there may be a version of TPS6 that has not been published to which the schedule of modifications refers however, without this being available to the public, it is impossible to assess and make conclusions on the extent and implications of the modifications. Should the modifications not be progressed as a separate amendment process as recommended above, the modifications must at least be readvertised to either refer to clauses within the publically available TPS6 or after the version of TPS6 to which the schedule of modifications refers is published.</p> <p><b><u>Content of proposed modifications</u></b></p> <p>The following outlines our key concerns with the content of the proposed modifications.</p> <p><u>Reticulated Sewer</u></p> <p>Draft clause 4.9 (c) limits land use for unsewered industrial development to 'dry industry'. This 'dry industry' limitation in the absence of reticulated sewer appears to apply across the entire MEN and it is therefore unclear why clause 5.7.2.7 (b) is necessary, which requires reticulated sewer for all 'General Industry' zoned land. Due to the overarching restriction on land use imposed by clause 4.9 (c), high wastewater generating land uses cannot occur without reticulated sewer, irrespective of the underlying zoning. It makes no difference whether the land is zoned 'General Industry' or 'Light Industrial' - so long as the end land use is restricted to 'dry industry' it is ensured that wastewater volumes are low enough to be managed without reticulated sewer. This approach provides flexibility in allowing for a range of potential land uses to occur whilst ensuring that wastewater is managed appropriately, which we expect is the ultimate objective. The requirement for 'General Industry' land to be connected to a reticulated sewer is therefore obviated by the 'dry industry' restriction within the MEN and clause 5.7.2.7 (b) should be deleted.</p>	<p>Amendment 60's changes reflect those clauses updated in amendment 62 (deemed provisions changes). Unfortunately, while at the time gazetted, the updated Scheme was not published on the State Government which was out of the control of the Shire. This has since been updated and clarified with the submitter.</p> <p>Without this amendment clarification, the previous definitions of General and light industry within TPS6 was minimal difference between the zones. The subject modification intends to allow for the clear distinction of use, for which general is much more water and land intensive industry than light, hence the modification. Notwithstanding, the clauses have been updated and modified so that designation of land as 'light' or 'general' industry is not on the basis of servicing, but on a range of factors, including impact on sensitive land uses and the environment. The clauses have also been renumbered, and thus clause 5.7.2.7 no longer exists.</p>	<p>adjusted provisions to respond to public comments as follows:</p> <p>clarified, by the inclusion of 5.7.2.3, that designation of land as 'light' or 'general' industry is not on the basis of servicing, but on a range of factors, including impact on sensitive land uses and the environment;</p> <p>deleted clause 5.7.2.4 and added a new clause 5.7.2.4 that outlines the situations where structure planning is required, as the Regs and other provisions of the Act are sufficient to deal with subdivision and development proposals;</p> <p>deleted the first clause in 5.7.2.5 because the discretion that exists for land in the 'Ind Devel' zone exists regardless of the status of the structure plan - land use and development is at Council's discretion;</p>
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	<p>Notwithstanding the fact that clause 5.7.2.7 (b) is unnecessary, onerous and a threat to development of the MEN, the logic upon which it is premised is fundamentally flawed. The notion of requiring reticulated sewer for the 'General Industry' but not the 'Light Industrial' zone is nonsensical and no explanation is provided to justify this in the advertised documents. The need to provide reticulated sewer is intrinsically linked to the volume of wastewater being generated by a land use. This is reflected in the 'dry industry' definition which allows for a ratio of 540 litres of wastewater per 1,000m<sup>2</sup> of site area without reticulated sewer. Wastewater generation is linked to human activity – the more people working and visiting the site the more wastewater will be generated. Following this logic, there is no relationship between 'General Industry' land and the need to provide reticulated sewer as 'General Industry' uses typically have low employment numbers per square meter of site area and low visitor traffic. Simply being 'General Industry' therefore does not mean that greater wastewater will be produced. A restriction on whether reticulated sewer is required should be linked to land use which is why the proposed 'dry industry' method of control is more appropriate. It allows flexibility whilst ensuring that high wastewater producing land uses are connected to reticulated sewer which is ultimately the intended outcome.</p> <p><u>Industrial wastewater management</u></p> <p>We understand that the proposed requirement for 'General Industry' zoned land to connect to sewer may be based on some permitted land uses within the zone having the potential to generate industrial wastewater. This logic is flawed as there are many uses that do not generate industrial wastewater that are more suited to the 'General Industry' zone than a 'Light Industrial' zone, such as a feed pellet mill.</p> <p>In the instance that a land uses does generate industrial wastewater, the presence of a reticulated sewer does not necessarily solve the issue of industrial wastewater management/disposal. This is confirmed in the WAPC's draft <i>Government Sewerage Policy</i> part 6.3 (3) which states that "<i>most reticulated sewerage schemes are not designed to accept trade waste, which could pose threats to public health and safety, and the environment</i>". The content of the draft <i>Government Sewerage Policy</i> is discussed in further detail later in this submission.</p> <p>The Water Corporation has established an 'Acceptance criteria for trade waste' which limits the types of industrial waste that can be disposed of via the sewer. Any wastewater that does not meet the criteria needs to be disposed of via alternate methods, such as collection by private contractors. There are numerous private operators who specialise in the removal of industrial wastewater due the inability to dispose of it via the sewer or onsite. The Water Corporation criteria are implemented through an individual assessment of the specific land use through an 'Industrial Waste Permit' application. This applies to all industrial uses, demonstrating that</p>	<p>It is understood that most trade waste is disposed of separately to the reticulated sewer system. The purpose of requiring reticulated, or services with similar protection outcomes for intensive industry, is due to the proximity concerns with the Brockman. Advice received from relevant agencies confirms that waste is better to be contained and piped out the closer it is to sensitive premises. However, further workings have been undertaken following public comment and the Shire in conjunction with the DoP have developed clause 5.7.2.5 in response to the submitter's concerns.</p>	<p>deleted SCA objectives and clauses 5.7.2.4 &amp; 5 because these clauses are superfluous as there is no DCP in place, or environmental conditions in the scheme, and if there were, they would apply regardless of these clauses; adjusted 5.7.2.6 to confirm that wastewater services are to be in accordance with State policy and the 'dry industry' clauses; added 5.7.2.9 to address requirements in terms of roads (as there is no prospect of a Development Contribution Plan at this time); and updated clauses in 5.7.3 for the same reasons as above, to achieve consistency.</p> <p>5.7.2.5 <b>Unless a planning proposal demonstrates otherwise, and is supported by relevant agencies and the local government, servicing within the SCA is to be as follows:</b></p> <p>(a) reticulated water supplied by a licenced provider is to be provided at the first stage of any <b>industrial</b> subdivision;</p> <p>(b) <del>land to be zoned for 'General Industry' is to be provided with a reticulated wastewater service supplied by a licenced provider</del> <b>wastewater disposal arrangements are to be in accordance with Government policy and clause 4.9 (c); and</b></p> <p>(c) <del>where a licenced wastewater disposal service is not provided, land can only be zoned for 'Light Industry' and land uses will be restricted to 'dry' industries as outlined in clause 4.9 (c); and</del></p> <p>(d) <del>at structure planning stage, provision is to be made for sites required for essential service infrastructure, including drainage, wastewater disposal, water supply and roads.</del></p>
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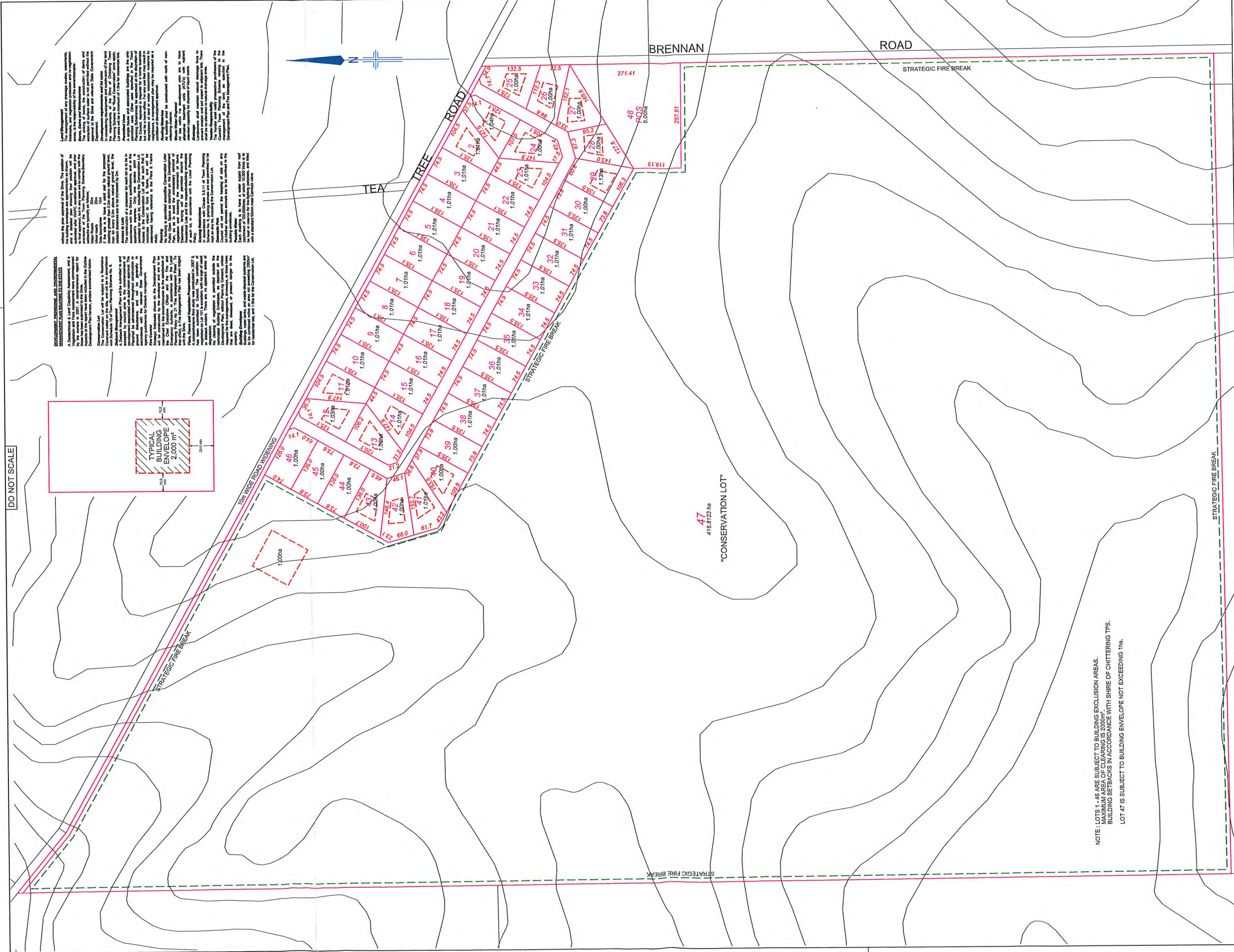


	<p>connection to sewer does not solve the issue of industrial wastewater disposal. Industrial wastewater producing uses can still occur on land that is unsewered subject to operating in accordance with the relevant environmental legislation. The Department of Water's 'Water quality protection note 51 – Industrial wastewater management and disposal' (WQPN 51) provides further guidance on this matter. WQPN 51 outlines the appropriate measures for disposing of industrial wastewater and confirms that disposal via the sewer is only one potential option and only in certain circumstances.</p> <p><u>Draft Government Sewerage Policy</u></p> <p>The proposed modification to require reticulated sewer for land zoned 'General Industry' regardless of the proposed land use is inconsistent with the WAPC's position outlined in its draft <i>Government Sewerage Policy</i> ('the Policy') as follows:</p> <ul style="list-style-type: none"> <li>• The Policy contains exemptions for non-residential development where reticulated sewer may not be required. It allows for on-site disposal in remote areas where reticulated sewer is not available and where it can be demonstrated that there is sufficient capacity to treat and dispose of sewage. The proposed modifications would deny the MEN this flexibility which is inconsistent with the published position of the WAPC;</li> <li>• The DoP facilitated an industry workshop where it was conveyed that non-commercial development, such as industrial land, should be assessed on a case by case basis to allow for on-site disposal in appropriate circumstances; and</li> <li>• The Policy establishes a link between lot sizes and the ability to accommodate onsite wastewater disposal systems to ensure that sufficient land is provided to accommodate onsite wastewater treatment facilities. The appropriateness of onsite disposal should be assessed on a case by case basis when lot sizes are confirmed. Notwithstanding this, the land uses that are expected to occur within the MEN will require large land parcels sufficiently sized to accommodate onsite wastewater treatment. For example, the structure plan for lot 102 will not create any lots less than 1 hectare in area, which will easily allow for ATU's and the necessary buffers to occur onsite.</li> </ul> <p><u>Inconsistencies with TPS6</u></p> <p>Some of the proposed modifications are inconsistent with the existing Schedule 15 of TPS6 which, so far as we can tell, is not proposed to be modified. As previously stated, Schedule 15 was incorporated into TPS6 via Amendment 52 which was gazetted on 26 June 2015 and is therefore relatively recent. Schedule 15 does not require reticulated sewer for development within the MEN. Clause 3.3.2 of Schedule 15 only requires "wastewater disposal systems" whereas provision of a <i>reticulated water supply</i> is specified. This is very different to the proposed modifications which would require all 'General Industry' zoned land to connect to reticulated</p>	<p>Per the above response, these concerns have been addressed in Clause 5.7.2.5. This clause is intended to allow each proposal to be assessed on its own merits.</p> <p>Per the above response, these concerns have been addressed in Clause 5.7.2.5. This clause is intended to allow each proposal to be assessed on its own merits. This addresses the submitter's concerns in relation to the implementation of sufficient and appropriate services within the Node.</p>	<p>Refer the insertions and modification of Clause 5.7.2.5, above.</p> <p>Refer the insertions and modification of Clause 5.7.2.5, above.</p>
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	<p>sewer regardless of actual land use.</p> <p>It is concerning that the Minister is proposing modifications that directly contradict scheme provisions that were gazetted less than two years ago, remain suitable and have formed the basis of progressing at least one significant project within the MEN. It is effectively 'shifting the goalposts' and with specific reference to lot 102, will compromise the commercial viability of the project.</p> <p><u>Wastewater Volumes</u></p> <p>As mentioned above, the need to provide reticulated sewer is linked to wastewater volumes which is determined by the number of people generating waste. The definition of 'dry industry' allows for a use that generates 540 litres of effluent per 1,000m<sup>2</sup> of site area per day, consistent with the Department of Health's standards for onsite wastewater disposal.</p> <p>Using the lot 102 structure plan as an example, approximately 108 hectares of land is proposed for industrial use. If the entire estate were developed for 'dry industry', this would theoretically allow for the production of 583,200 litres of wastewater per day to be disposed of via onsite treatment. Sirona's aggressive employment forecast for lot 102 estimates approximately 600 permanent employees. Using a highly conservative estimate of 300 litres of wastewater per person per day (equivalent to high domestic rates), this number of people would generate approximately 180,000 litres of wastewater per day - well within the 583,000 litre threshold of what would be allowed under 'dry industry'.</p> <p>These highly conservative figures demonstrate that the anticipated volumes of wastewater that could be generated within the MEN do not come close to warranting reticulated sewer. The requirement for reticulated sewer is therefore an unreasonably onerous burden on the MEN which will stifle development and flexibility in land uses.</p> <p><u>Infrastructure maintenances issues</u></p> <p>It is our understanding that reticulated sewer infrastructure requires a certain volume of wastewater to flow through the pipes in order to maintain them and keep them free from blockages. The DoP should undertake a comprehensive investigation into whether the sewer infrastructure can physically be implemented based on the minimal estimated wastewater volumes for the MEN before imposing requirements for reticulated sewer. If this has already occurred, we request an opportunity to review these findings.</p> <p><u>Amenity of non-residential development</u></p> <p>The modifications propose built form development controls that are subjective and therefore inappropriate for inclusion as scheme provisions. For example, a requirement for a building to have "coordinated or complementary materials, colours and styles" and "doors, windows and</p>	<p>The Shire, along with State Agencies, holds significant concerns over how the surrounding natural environment is impacted by development. Accordingly, appropriate systems are required to be installed to prevent such impacts from occurring. The inclusion of further detail around what is required is to supply industry, consultants and the community with certainty around how waste water in general industry is to be dealt with. There have been some modifications made to ensure consistency with state policy.</p> <p>This is addressed in the points above</p> <p>These clauses have been inserted to develop as a minimum standard, facades and estates which address street frontages where appropriate. The Shire has considered a policy position, however prefers Scheme clauses as it provides a more simple guide to non-residential</p>	<p>Similar to the above, clause 5.7.2.5 has been modified to address these concerns.</p> <p>Per above.</p>
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	<p><i>building materials that develop a coherent patterns</i>” is highly subjective and difficult to define. These types of provisions are better implemented through policy rather than statute. Scheme provisions should be clear, concise and highly prescriptive so as to limit the ability for misinterpretation and inconsistent application.</p> <p>The Shire of Chittering’s report on the structure plan for lot 102 confirms this approach for the MEN, stating that the Shire intends to prepare design guidelines for the MEN to address this matter.</p> <p><b><u>Summary</u></b></p> <p>As outlined in this submission, the proposed modifications to Amendment 60 must first and foremost be progressed as a separate ‘complex amendment’ rather than circumventing due process under the Act and the Regulations. The proposed modifications to Amendment 60 are not necessary to ensure the orderly and proper planning of lot M1606 and are so significant, that Amendment 60 as proposed no longer resembles the decision of Council to initiate it.</p> <p>Given that the modifications must be progressed as a separate amendment, the content of the modifications essentially becomes a moot point at this time however, we hope that the Shire and DoP will review the proposed modifications in response to this submission. Mandating reticulated sewer for the ‘General Industry’ zone is unnecessary provided that an overarching ‘dry industry’ land use restriction is in place. We have concerns with the logic and assumptions that has informed the proposed modifications and would welcome the opportunity to discuss the matter further.</p>	<p>development throughout the Shire, along with better statutory enforcement. Regardless reference to ‘Colour and styles’ has been removed as the Shire does not intend to override corporate design strategies. Fundamentally, this Scheme Amendment intends for non-residential development to maintain an architecturally approachable standard.</p> <p>There is no benefit for the department or the shire to incorrectly classify the amendment. These comments have been noted discussed further with the WAPC and the submitter.</p>	
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\*Note: Comments are as per original submission received by the Shire. Submission comments have not been edited unless for the purposes of confidentiality where necessary.

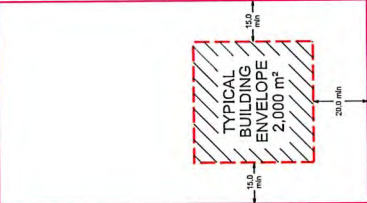


**ENVIRONMENTAL, PROVISIONAL AND ENVIRONMENTAL MANAGEMENT PLAN (EPM) FOR THE DEVELOPMENT**

A Geotechnical & Land Capability Assessment, and a Provisional Environmental Management Plan (PEMP) have been prepared for the development. The PEMP is a comprehensive report for the development, which includes the following information:

- Site location and description
- Site characteristics
- Site constraints
- Site potential
- Site assessment
- Site management
- Site monitoring
- Site reporting
- Site review

The PEMP is a key document for the development, and it provides a framework for the management of the site. It is a living document, and it will be updated as more information becomes available. The PEMP is a key document for the development, and it provides a framework for the management of the site. It is a living document, and it will be updated as more information becomes available.



DO NOT SCALE

NOTE : LOTS 1 - 46 ARE SUBJECT TO BUILDING EXCLUSION AREAS. MAXIMUM AREA OF CLEARING IS 2000m<sup>2</sup>. BUILDING SETBACKS IN ACCORDANCE WITH SHIRE OF CHITTERING TFS. LOT 47 IS SUBJECT TO BUILDING ENVELOPE NOT EXCEEDING 1ha.

**B. & L.C. ACUNTO**  
DEVELOPMENT PLAN

LOT 101 ON P17335  
TEA TREE ROAD, BINDOON

SCALE 1:4000 METRES

DRAWN C. MILBORN 15/02/2011  
SURVEYOR R. DELANY 15/02/2011

CHECKED E. TURTON 15/02/2011  
APPROVED R. DELANY

BRID. MGA94 (50) FB  
DATUM 10627-D001

REV 1 SIZE A1  
DRAWING NUMBER 10627-D001  
PS: CLIENT No. T. C0957

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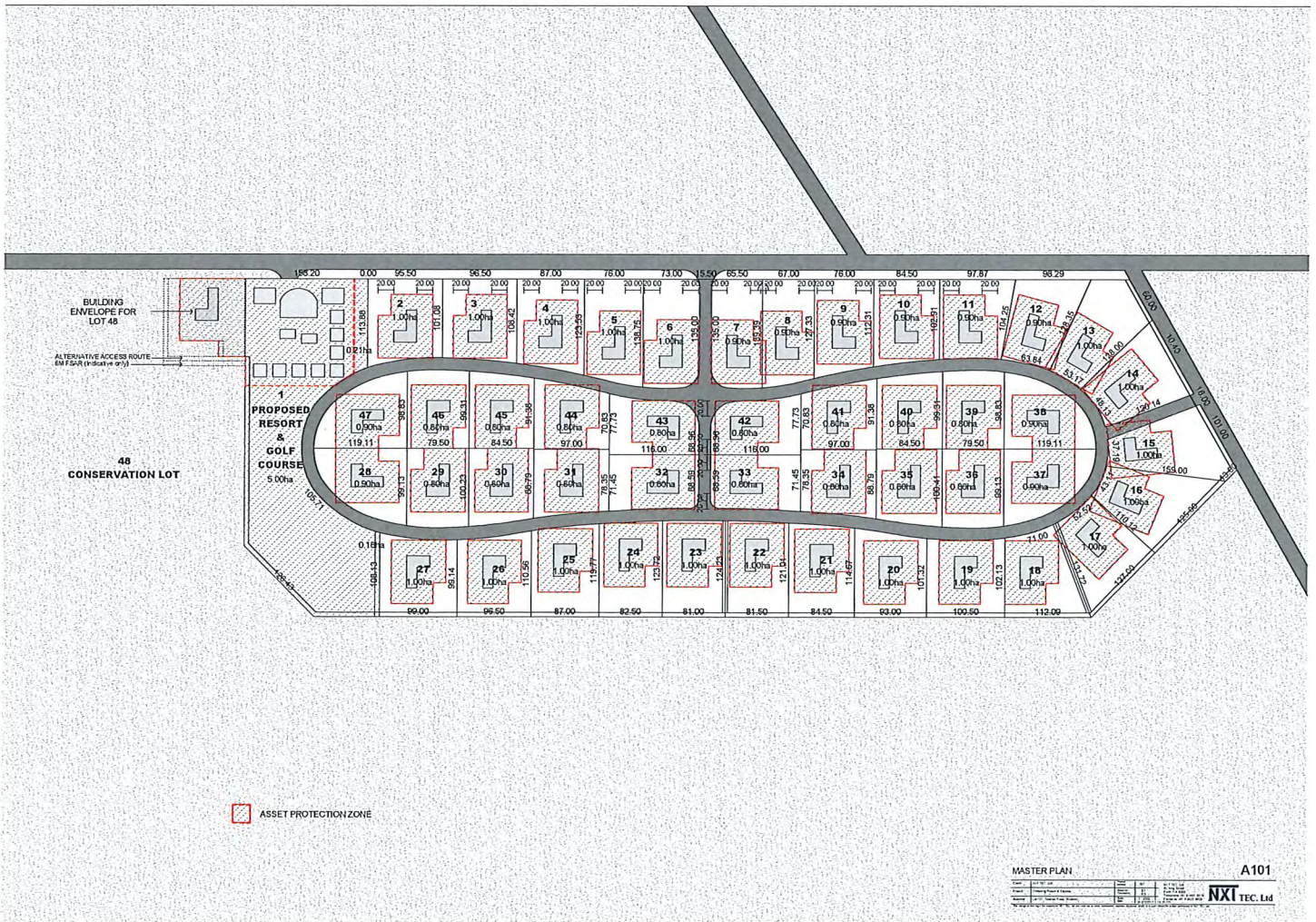
No.	Date	Revision
1	15/02/2011	GENERAL AMENDMENTS
A	15/06/10	APPROVED AND ISSUED TO CLIENT
		CM
		MFA
		RD
		RD

Drawn Surveyor/ Approved  
11:16:04 AM 18/06/2011



■ ASSET PROTECTION ZONE (LWS)  
■ FIRE SERVICE ACCESS ROUTE (FRM)  
 \*Note: On-site prepared landscaping within 6m of foundation to all occupancies & all drives for occupancies.  
 \*Note: Wind Tunnels and Fire Hydrant provisions to be determined.

**MASTER PLAN** A103  
 Date: 10/10/2023  
 Scale: 1:1000  
 Drawing No: A103-01  
 Project No: A103  
 Client: NXT TEC. Ltd  
**NXT TEC. Ltd**





# Planning Report

Proposed Fixed Wireless Facility

51 Hereford Way

Lower Chittering, WA 6084

NBN SITE REFERENCE:

Lower Chittering [NBN-6PEZ-6ELB-5109]





## Executive Summary

<b>Proposal</b>	<p><b>Nbn</b> propose to install a new fixed wireless facility at Lower Chittering comprised of the following:</p> <ul style="list-style-type: none"> <li>▪ 45m monopole tower;</li> <li>▪ 3x panel antennas;</li> <li>▪ 1x parabolic dish antennas;</li> <li>▪ 1x equipment shelter;</li> <li>▪ 2.4m high chain-link security compound fencing; and</li> <li>▪ ancillary equipment associated with operation of the facility.</li> </ul>	
<b>Purposes</b>	<p>The proposed facility is necessary to provide <b>nbn</b><sup>TM</sup> fixed wireless coverage to premises in Lower Chittering and establish a link between the <b>nbn</b><sup>TM</sup> Bullsbrook West facility in order to provide <b>nbn</b><sup>TM</sup> fixed wireless coverage to the wider area.</p>	
<b>Property Details</b>	<p><i>Lot and Plan No:</i> Lot 191 on Deposited Plan20207  <i>Street Address:</i> 51 Hereford Way, Lower Chittering  <i>Overall Site Area:</i> 2.1803ha  <i>Property Owner:</i> David and Camille Syred</p>	
<b>Town Planning Scheme</b>	<p><i>Shire of Chittering:</i> Town Planning Scheme No. 6  <i>Zone:</i> Rural Residential  <i>Other Planning Controls:</i> Defence (Area Control) Regulations 1989  <i>Use Definition:</i> Telecommunications Infrastructure</p>	
<b>Applicable Planning Policies</b>	<b>Relevant State &amp; Local Planning Policies</b>	<b>Complies</b>
	State Planning Policy 5.2 (Telecommunications Infrastructure) 2015	Yes
	Guiding Principles for the Location, Siting and Design of Telecommunications Infrastructure	Yes
<b>Application</b>	<p>Use and development of the land for the purposes of construction and operation of a Telecommunications Facility (Fixed Wireless facility)</p>	
<b>Applicant</b>	<p><b>nbn</b>  c/- Aurecon Australasia Pty Ltd  Level 5, 863 Hay Street  Perth WA 6000  Contact: Joel Gajic  Our Ref: NBN-6KAZ-6ELB-5109</p>	





## 1. INTRODUCTION

**Nbn** has engaged Ericsson as the equipment vendor and project manager to establish the infrastructure required to facilitate the fixed wireless component of the National Broadband Network (**nbn**<sup>TM</sup>). Ericsson has in turn engaged Aurecon to act on its behalf in relation to the establishment of the required fixed wireless network infrastructure.

The **nbn**<sup>TM</sup> is an upgrade to Australia's existing telecommunications network. It is designed to provide Australians with access to fast, affordable and reliable internet services. **Nbn** plans to upgrade the existing telecommunications network in the most cost-efficient way using best-fit technology and taking into consideration existing infrastructure.

An in-depth site selection process was undertaken in the area prior to confirming the site as the preferred location. This preferred location was advertised to the local community who were invited to attend a Community Information Session (CIS). A summary of the CIS and the feedback is provided under the heading 'Site Selection'. A presentation was also made to the Shire of Chittering regarding the planned **nbn** network roll out sites across the Shire.

This process matched potential candidates against four key factors, namely:

- Town planning considerations (such as zoning, surrounding land uses, environmental significance and visual impact);
- The ability of the site to provide acceptable coverage levels to the area;
- Construction feasibility; and
- The ability for **nbn** to secure a lease agreement with the landowner.



## 2. BACKGROUND

### 2.1 nbn and the National Broadband Network

**Nbn** is the organisation responsible for overseeing the upgrade of Australia's existing telecommunications network and for providing wholesale services to retail service providers. The **nbn**<sup>TM</sup> is designed to provide Australians with access to fast, affordable and reliable internet services.

**Nbn** plans to upgrade the existing telecommunications network in the most cost-efficient way using best-fit technology and taking into consideration existing infrastructure. The **nbn**<sup>TM</sup>'s fixed wireless network will use cellular technology to transmit signals to and from a small antenna fixed on the outside of a home or business, which is pointed directly towards the fixed wireless facility.

**Nbn**<sup>TM</sup>'s fixed wireless network is designed to offer service providers with wholesale access speeds of up to 50Mbps for downloads and 20Mbps for uploads.<sup>1</sup>

### 2.2 What is Fixed Wireless and how is it different to Mobile Broadband?

The **nbn**<sup>TM</sup>'s fixed wireless network, which uses advanced technology commonly referred to as LTE or 4G, is engineered to deliver services to a fixed number of premises within each coverage area. This means that the bandwidth per household is designed to be more consistent than mobile wireless, even in peak times of use.

Unlike a mobile wireless service where speeds can be affected by the number of people moving into and out of the area, the speed available in a fixed wireless network is designed to remain relatively steady.

### 2.3 The Fixed Wireless Network – Interdependencies

Although fixed wireless facilities are submitted to the Shire as standalone developments from a planning perspective, they are highly interdependent. Each

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<sup>1</sup> **nbn** is designing the **nbn**<sup>TM</sup> to provide these speeds to our wholesale customers, telephone and internet service providers. End user experience including the speeds actually achieved over the **nbn**<sup>TM</sup> depends on some factors outside **nbn**'s control like equipment quality, software, broadband plans and how the end user's service provider designs its network.



fixed wireless facility is connected to another to form a chain of facilities that link back to the fibre network. This is called the 'transmission network'.

The transmission network requires line of sight from facility to facility until it reaches the fibre network. The fixed wireless network will remain unconnected without the transmission network and a break in this chain can have flow on effects to multiple communities.

The proposed Fixed Wireless facility at Lower Chittering is a transmission end site (refer to **Figure 1**).

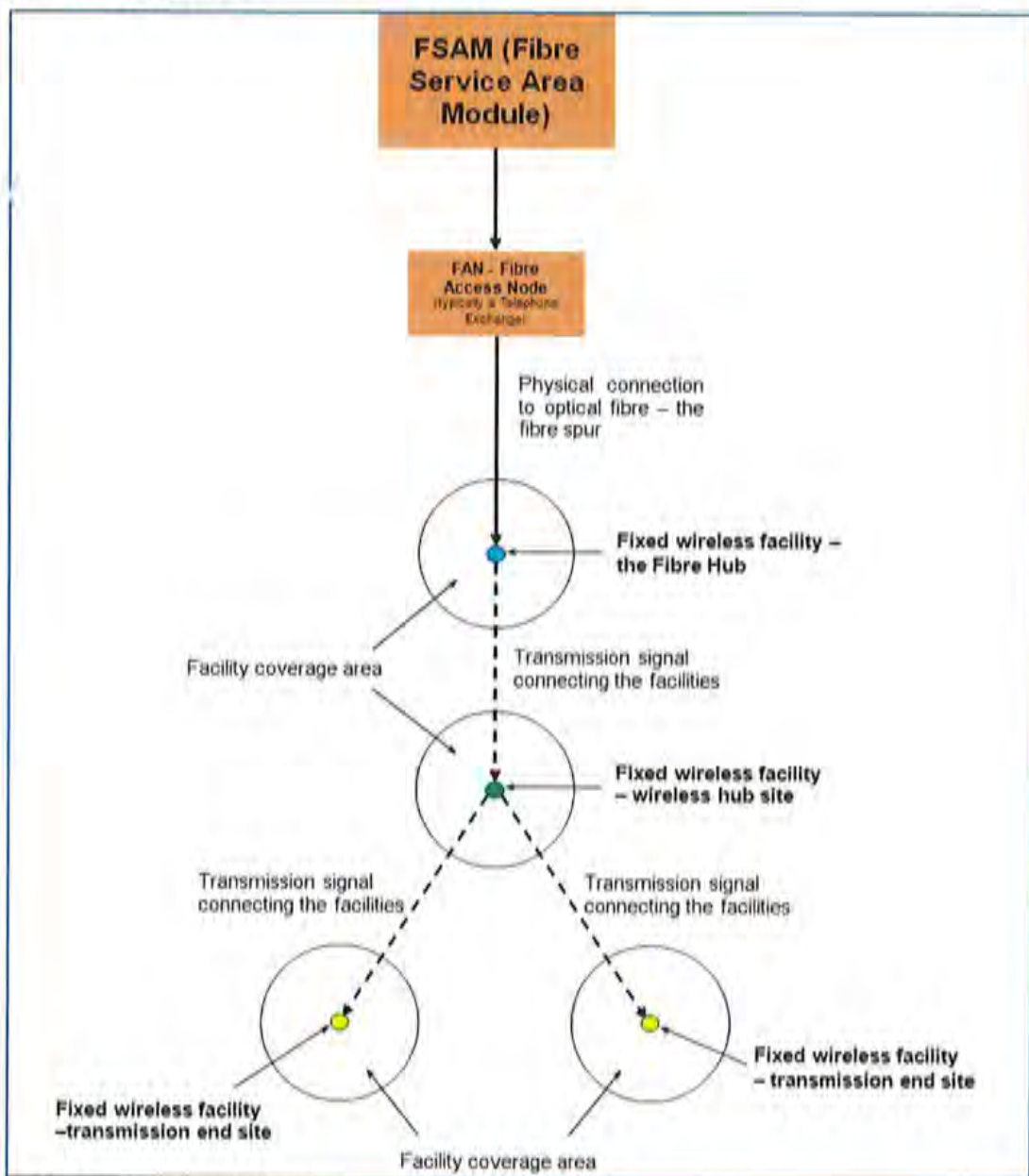


Figure 1 – The fixed wireless network



### 3. SITE SELECTION

Planning for a new fixed wireless broadband facility is a complex process. **Nbn** undertakes a rigorous multi-stage scoping process as outlined below.

It is noted that subsequent to selecting the preferred candidate site and confirming the ability to secure tenure a Community Information Session (CIS) was held to inform local residents of this proposal and that for Chittering North prior to submitting this Development Application. The CIS was held at the Immaculate Heart College Hall on 9 June 2016 between 3pm and 6pm. Approximately 25 people attended (excluding school staff who were also briefed) with 14 people formally registering their names on an attendance sheet. The vast majority supported the facilities. Feedback forms were made available and can be provided upon request.

In summary, ten (10) feedback forms were completed and returned specific to the Lower Chittering facility. Eight (8) were in support, two (2) were unsure and no objections were recorded. The general tone of the submissions reflected the current unreliable service and inadequate speeds available in the area.

#### 3.1 Site Selection Parameters

**Nbn** generally identifies an area where the requirement for a Fixed Wireless facility would be highest, a 'search area.' A preliminary investigation of the area is then undertaken, in conjunction with planning and property consultants, radiofrequency engineers and designers in order to identify possible locations to establish a facility.

Generally speaking, new sites must be located within, or immediately adjacent to, the identified search area in order to be technically feasible. The panel antennas (sectors) need to as far as practical balance the loading of those premises receiving a service to optimise efficiency. However, while the operational and geographical aspects of deploying new facilities are primary factors, there are also many other issues that influence network design, which have to be resolved in parallel.

**Nbn** has applied the Precautionary Approach in the selection and design of the proposed site in accordance with Sections 4.1 and 4.2 of the *Communications Alliance Industry Code C564:2011 for Mobile Phone Base Station Deployment*.

In selecting this site, **nbn** has used industry best practice to assess potential candidate sites, taking into account technical and non-technical criteria including:



- service objectives;
- topographical constraints affecting network line of site;
- potential co-locate at an existing telecommunications facility or building structure;
- visual impact on the surrounding area;
- the need to obtain relevant planning approvals;
- the proximity to community-sensitive locations;
- the proximity to areas of environmental or heritage significance;
- the availability of secure tenure;
- the availability of public utilities, such as power;
- construction issues (including structural and loading feasibility and access for maintenance purposes);
- occupational health and safety; and
- other cost factors.

The number, type and height of facilities required to complete the Fixed Wireless network are largely determined by the above operational, geographical and other factors discussed that influence final network design. These compounding factors often severely restrict the available search area within which a facility can be established to provide Fixed Wireless internet services to a local community.

### 3.2 Candidate Sites

Following the identification of the search area, fourteen (14) initial candidate sites were identified during a desktop assessment process and upon undertaking a site visit. Each candidate was assessed based on the ability to meet the coverage objectives and site considerations detailed above. **Figure 2** shows the location of the fourteen (14) candidate sites identified including a brief description of the opportunities and constraints for each site.

**Nbn** endeavours to avoid locating search areas in close proximity to residential localities and potentially sensitive land uses, where practicable. Candidate N provides separation from nearby residences, tourist routes or other locally or regionally significant views, as well as areas of historical or conservation value. Notwithstanding the State Policy states that telecommunications infrastructure should not be prohibited in any zone and the Local Planning Scheme only prohibits this use in the rural conservation zone, it is best practice to locate in rural and or industrial areas. We submit that our proposed rural residential zoned location adjacent to agricultural resource zoned land is consistent with industry practice. As such, **nbn** considers Candidate N the best option as it provides an appropriate location for a facility given the separation from residential and other



sensitive land uses, and the ability of vegetation and topography to substantively screen ground level infrastructure.



Figure 2 – nbn initial candidate sites (Source: Google Earth)

A summary of the three short-listed candidates deemed to be potentially viable options is set out below.

No	Address and Lot Number	Facility Type	Description
<b>J</b>	19 Hereford Way, Lower Chittering	New 45m monopole	Whilst land tenure was able to be obtained and the location met service objectives, a direct line of sight from the neighbour's outdoor living area and slightly higher construction costs than candidate N resulted in this being the 'backup' candidate.
<b>O</b>	Lot 218 Hereford Way, Lower Chittering	Replace 15m lattice tower	Whilst the location best met service objectives due to being



		with a 40m monopole	<p>elevated, land tenure was unable to be obtained.</p> <p>The removal of two trees and slightly higher construction costs than the other candidates would have also been mitigating factors should tenure have been achievable.</p>
<b>N</b>	51 Hereford Way, Lower Chittering	New 50m lattice tower	<p>Proposed candidate deemed to best satisfy the selection criteria across the disciplines responsible for radio frequency (RF) and transmission (TX) design, property services, town planning, and design and construction feasibility.</p>



## 4. SUBJECT SITE AND SURROUNDS

### 4.1 Site Description

The telecommunications facility is to be located at 51 Hereford Way, Lower Chittering (refer **Figure 3**). The land is formally described as Lot 191 on Deposited Plan20207. A copy of the Certificate of Title has been attached for information purposes (**Appendix A – Copy of Title**).

The subject property is located approximately 10.5k north of Bullsbrook. The site is irregular in shape and has a total area of 2.1803 hectares. Access to the property is granted via an existing gravel driveway from Hereford Way.



Figure 3 – Local Context subject site (source Google Earth)

The subject property features a single residential dwelling, and ancillary sheds. The lot can be broadly classified as 'rural' with minor low intensity residential land uses in the vicinity. The site contains patches of vegetation towards Hereford Way but is cleared in the location of the proposed facility. There is a fire break track running the length of the western boundary.

### 4.2 Surrounding Area

The surrounding area consists predominantly of rural land. The western boundary of the lot adjoins a large area of land zoned Agricultural Resource. The





built form and typical land uses on adjoining properties and surrounding areas are predominantly single detached dwellings on rural lots. Separation between the proposed development location on the subject property and the closest residential dwelling on the northern and southern properties is approximately 130m.

Where possible, **nbn** endeavours to co-locate with existing telecommunications facilities. In this instance, co-location could not be achieved as there are no telecommunications sites within the area.



## 5. THE PROPOSAL

### 5.1 Facility and Equipment Details

#### 5.1.1 Equipment to be installed

The facility comprises a 45m monopole and ancillary components including an outdoor equipment shelter and a distribution board enclosed within a secure compound being 80m<sup>2</sup> in area.

The compound will be located at the rear of the subject property adjacent to the fire break (refer to **Figure 4**), approximately 200m from the front Hereford Road boundary. No vegetation removal is required.



Figure 4 – Location of proposed facility along fire break track facing north

The proposed monopole will feature a circular headframe at the top containing five (5) panel antennas, with three (3) measuring 750mm (H) x 300mm (W) x 115mm (D) and two (2) measuring 800mm (H) x 320 (W) x 100mm (D). The monopole will also feature ten (10) remote radio units measuring 381mm (H) x 291mm (W) x 115mm (D). One (1) parabolic dish antennas will also be located



on the tower at 43m. The dish providing a link to the Bullsbrook West facility will be 900mm in diameter. Please refer to **Appendix B – Proposed Plans** for further details.

#### 5.1.2 Landscaping

The **nbn** has not proposed additional landscaping given the facility will be screened from public view by existing vegetation and the topography of the area.

#### 5.1.3 Access and Parking Details

The **nbn**<sup>TM</sup> network compound will be accessed via the existing track that runs along the existing internal fence line. The existing entry point on Hereford Way will be used. The crossover provides adequate sightlines for vehicles entering or exiting the facility in forward gear. It is planned to provide independent 24 hour access to the proposed facility.

**Nbn** considers the site access to be appropriate given the **nbn**<sup>TM</sup> network facility will not be a significant generator of traffic. During the construction phase, a truck will be used to deliver the equipment and a crane will be utilised to lift most of the equipment into place. Any traffic impacts associated with construction will be of a short-term duration and are not anticipated to adversely impact on the surrounding road network. In the unlikely event that road closure will be required, **nbn** will apply to the relevant authorities for permission.

A total construction period of approximately ten weeks (including civil works and network integration and equipment commissioning) is anticipated. Construction activities will involve four basic stages:

- Stage 1 (Week 1) – Site preparation works, including field testing, excavation and construction of foundations;
- Stage 2 (Weeks 2, 3 and 4) – Construction of the monopole;
- Stage 3 (Weeks 5 and 6) – Construction of the equipment shelter and fences;
- Stage 4 (Weeks 7 – 10) – Installation of antennas and radio equipment, as well as equipment testing.

Once operational, the facility will function on a continuously unstaffed basis and will typically only require maintenance works three times a year.

#### 5.1.4 Utility Service Details

The facility will be powered by a new underground power supply proposed from the existing service at Hereford Way to the proposed **nbn**<sup>TM</sup> power distribution board adjacent to the cabinets.



### 5.1.5 Construction and Noise

Noise and vibration emissions associated with the proposed facility are expected to be limited to the construction phase outlined above. Noise generated during the construction phase is anticipated to be of short duration and accord with the standards outlined in the Department of Environment Regulation (DER) *Environmental Protection (Noise) Regulations 1997*. Construction works are planned only to occur between the hours of 7.00am and 6.00pm.



## 6. CURRENT PLANNING CONTROLS

### 6.1 Commonwealth Legislation – The Telecommunications Act

Schedule 3 of the *Telecommunications Act 1997* empowers carriers to install low-impact facilities without participating in the planning approval process. The *Telecommunications (Low Impact Facilities) Determination 1997* defines which facilities are low-impact facilities.

The proposed facility is not low-impact under the definitions contained in the Commonwealth legislation. Development approval is therefore required for the proposed facility.

### 6.2 Defence (Area Control) Regulations 1989

The subject property falls within the boundary of the affected land near the Royal Australian Air Force Base Pearce and Gingin Airfield in the State of Western Australia. Applications require referral and approval from the Department of Defence for structures over 15 metres.

An application was made to the Department of Defence on 25<sup>th</sup> July 2016 for approval for the proposed facility and was approved by the Department on 8<sup>th</sup> February 2017. The approval is contained within **Appendix D** of this report.

### 6.3 State Legislation

State Planning Policy 5.2, prepared under Part Three of the *Planning and Development Act 2005*, applies to the assessment of this proposal.

The State Policy provides directions that telecommunications infrastructure should not be prohibited in any zone in the zoning table and that, subject to guidance within a planning scheme, be designated as a permitted use in some zones. Furthermore, the State Policy acknowledges that telecommunications carriers are required to comply with the Australian Radiation and Nuclear Protection Safety Agency (ARPANSA) Electromagnetic Radiation - Human Exposure Standard such that buffer zones and/or setback distances are not to be included in planning schemes or local planning policies.

Further to reiterating recent State Administrative Tribunal rulings that health and safety matters are not a planning consideration, the State Policy defines policy measures for local government to consider when determining development applications for telecommunications infrastructure. A response to the specific policy measures is provided below.





	<p>with lighter background colours such as the sky. The equipment shelter will be painted pale eucalypt so as to blend with vegetation in the immediate vicinity.</p> <p>No landscaping is proposed due to significant setbacks to surrounding roads and dwellings.</p>
<p><b>Policy Measure 2: Telecommunications Facilities should be located where it will facilitate continuous network coverage and/or improved telecommunications services to the community.</b></p>	
<p><b>Nbn</b> through its strategic planning processes has identified this site as having the potential to establish a link between <b>nbn™</b> facilities at Bullsbrook West in order to provide <b>nbn™</b> fixed wireless broadband coverage to premises in the Lower Chittering area.</p>	
<p><b>Policy Measure 3: Telecommunications cables should be co-located whenever possible.</b></p>	
<b>Specific Policy Measures</b>	<b>Comment</b>
a) Cables and lines should be located within an existing underground conduit or duct.	The connection to power is subject to Western Power recommendations.
b) Overhead lines and towers should be co-located with existing infrastructure and/or within existing infrastructure corridors and/or mounted on existing or proposed buildings.	There are no structures or buildings of sufficient height within the surrounding area that could facilitate <b>nbn™</b> infrastructure.

With respect to the above policy measures this proposal through its siting, design and location has addressed the provisions as far as practical.

### 6.3.1 Guiding Principles for the Location, Siting and Design of Telecommunications Infrastructure

The Guiding Principles for the Location, Siting and Design of Telecommunications Infrastructure (Guiding Principles) is published by the Western Australian Planning Commission (WAPC) to underpin State Planning Policy 5.2. The Guiding Principles philosophy is also reiterated in Part Three of *Visual Landscape Planning in Western Australia – a manual for evaluation, assessment, siting and design* which was also prepared by the WAPC. The guidelines were taken into consideration when selecting the site.



## 6.4 Local Legislation

### 6.4.1 Shire of Chittering Town Planning Scheme No. 6

General objectives of the Shire of Chittering Town Planning Scheme No.6 include to:

- *To provide for essential infrastructure consistent with and as needed to support the other aims of the Scheme.*

The availability of wireless high speed internet enables smaller settlements including rural living type areas to be serviced for which a cable service is not economically feasible. Services such as the transfer of medical images, marketing and research activities are all able to be performed more efficiently so as to allow more equitable competition with metropolitan businesses. These services also have the potential to allow people to stay in their homes longer by providing improved access to medical professionals, or medical monitoring services.<sup>2</sup> The introduction of the **nbn**<sup>TM</sup> within the community will allow for access to information and services which have the potential to provide a richer and more diverse experience for the end user.



Figure 5 – Zoning map (Shire of Chittering Town Planning Scheme No. 6)

<sup>2</sup> End user experience including the speeds actually achieved over the **nbn**<sup>TM</sup> depends on some factors outside **nbn**'s control like the end user's equipment quality, software, broadband plans and how the end user's service provider designs its network.





The subject land is zoned Rural Residential (**Figure 5**). **nbn** considers that the proposal is consistent with the objectives of the Shire of Chittering Town Planning Scheme No. 6 for the provision of services and infrastructure to meet the demands of the local population, businesses and visitors to the town.

Telecommunications infrastructure is an 'A' use in accordance with the Zoning Table. Council may, at its discretion, permit the use in the zone after giving special notice in accordance with Clause 9.4.

**Nbn** considers that the proposed facility is consistent with the objectives and development requirements of the zone for the following reasons:

- The local rural character of the zone is maintained as far as practical;
- The viability of agricultural activities, other rural pursuits and secondary uses will not be compromised by the proposed development;
- The environmental qualities of the landscape, vegetation, soils and water bodies will not be damaged; and
- The proposal does not seek to introduce a sensitive land use which would otherwise inhibit the operation and development of existing, future and potential rural land uses.

#### 6.4.2 Structure Plans

The subject site is not affected by a Structure Plan.



## 7. OTHER ENVIRONMENTAL CONSTRAINTS AND OPPORTUNITIES

### 7.1 Visual Impact

The siting of the proposed monopole on the subject property is considered appropriate. Critical to the site selection and decision making process was the potential impact of the structure in the visual landscape. The structure in the proposed location will not obscure an important view or vista. Whilst the structure may be visible from some aspects, based on the siting the proposed development will not result in adverse impacts on visual amenity in the local area.

Note that the proposed 45m monopole is considered to be the smallest structure capable of meeting coverage and operational objectives. A monopole is a structure that has a small profile and is considered the least visually intrusive design option for a new base station. Furthermore, the pole will remain unpainted, which over time has been demonstrated to most successfully blend with lighter backgrounds such as the sky.

### 7.2 Heritage

A desktop search of both the State Heritage Office's 'Inherit' heritage register and the Department of Aboriginal Affairs Aboriginal Heritage Inquiry System was undertaken as part of an environmental constraints mapping process. The investigation did not identify any registered cultural, historical or environmental heritage significance in the immediate vicinity of the proposed site.

### 7.3 Bushfire

The proposed development is classified under the Building Code of Australia as Class 10 (non-habitable buildings or structures). As such firebreaks are not required, nor will the development result in any additional fire load or risk to the subject or surrounding land. All **nbn** fixed-wireless ground level infrastructure and poles or towers are designed and manufactured well in excess of the fire resistance level specified under the *Australian Standard AS2959-2009 Construction of Buildings in Bushfire Prone Areas* for the highest risk category being a flame zone (FZ).

Notwithstanding, the Western Australian Planning Commission has provided advice that it is not the intent of State Planning Policy 3.7 Planning in Bushfire Prone Areas for Class 10 (Telecommunications Infrastructure) to require a BAL Bushfire Hazard Assessment in fire prone areas.



## 7.4 Electrical Interference and Grounding of the Facility

The **nbn**<sup>™</sup> fixed wireless network is licensed by the Australian Communications and Media Authority (ACMA) for the exclusive use of the OFDMA9800 frequency band. As **nbn** is the exclusive licensee of this sub-band, emissions from **nbn**<sup>™</sup> equipment within the frequency band should not cause interference.

Filters will also help to ensure that each facility meets the ACMA specifications for emission of spurious signals outside the **nbn**<sup>™</sup> frequency allocations. **Nbn** intends to promptly investigate any interference issues that are reported.

The facility is also designed to be grounded to the relevant Australian Standards – that is, the facility will be 'earthed'.

## 7.5 Erosion, Sedimentation Control and Waste Management

There will not be any notable change to the current flow of surface water following a rain event as a result of the development. As such there will be no concentrated discharge of stormwater otherwise requiring erosion control at the point of discharge (outlet). In addition, contractors must comply with the '**nbn** Construction Specification' that requires contractors to undertake the necessary erosion and sediment control measures in order to protect the surrounding environment during the construction process. On completion of the works, the site will be restored and reinstated to an appropriate standard. No waste which requires collection or disposal will be generated through the operation of the facility.

## 7.6 Flora and Fauna

A desktop search was undertaken of the Department of Environment Regulation (DER) Environmentally Sensitive Areas mapping system. Our environmental constraints mapping process also identifies the location of Bush Forever sites. Additionally, a review of the local planning policy framework was undertaken to ensure compliance with any applicable structure plan or building envelope.

The site is not located within an 'Environmentally Sensitive Area' or a Bush Forever reservation. A clearing permit from the Department of Environment Regulation is not required, or a referral to the Department of Planning Bush Forever Office required.





people and the environment from the harmful effects of radiation (ionising and non-ionising).

All **nbn™** network installations are designed and certified by qualified professionals in accordance with all relevant Australian Standards. This helps to ensure that the **nbn™** facility does not result in any increase in the level of risk to the public. It is for this reason that the new Telecommunications Infrastructure State Planning Policy makes it clear that public health is not a matter for local government to consider when determining development applications.

This facility is to be operated in compliance with the mandatory standard for human exposure to EME – currently the Radio communications (Electromagnetic Radiation Human Exposure) Standard 2003. The EME Report associated with this site is attached in **Appendix C – EME Report**. The report shows that the maximum predicted EME will equate to 0.012% of the maximum exposure limit (where 100% of the limit is still considered to be safe).

Moreover, all **nbn™** network equipment has the following features, all of which help to minimise the amounts of energy used and emitted:

- Dynamic/Adaptive Power Control is a network feature that automatically adjusts the power and hence minimises EME from the facility;
- Varying the facility's transmit power to the minimal required level, minimising EME from the network; and
- Discontinuous transmission, a feature that reduces EME emissions by automatically switching the transmitter off when no data is being sent.

## 7.9 The Public Interest and the Benefits of Telecommunications

The proposed **nbn™** facility is expected to have significant benefit for residents in the Lower Chittering area. **Nbn** believes that the public interest would be served by approval of the proposal, given benefits for enhanced internet coverage in the area. The facility is expected to have benefits for local residents and businesses within the district.

There are numerous other benefits of telecommunications connectivity, as follows:<sup>3</sup>

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<sup>3</sup> End user experience including the speeds actually achieved over the **nbn™** depends on some factors outside **nbn™**'s control like the end user's equipment quality, software, broadband plans and how the end user's service providers designs its network.



- There are many potential educational benefits justifying the implementation of the **nbn**<sup>™</sup>. Curriculum and data sharing, increased availability and accessibility of research materials, and virtual classroom environments are good examples. Such elements are particularly beneficial within a tertiary education context.
- Businesses can, through internet usage, increase efficiency through time, resource and monetary savings. Improved internet services effectively remove physical distance and travel time as a barrier to business.
- Improvements to internet services may also be of benefit for local employees, by enabling telecommuting and home business. The telecommuting trend is heavily reliant on access to fast internet services, and is anticipated to continually increase in popularity.

The public benefits of access to fast internet have been widely acknowledged for many years. Reliable internet access is now more than ever an integral component of daily life, so much so that its absence is considered a social disadvantage.



## 8. CONCLUSION

**Nbn** considers that the proposed facility, comprising a 45m monopole with circular headframe and ground level infrastructure has been proposed in the least impactful location whilst ensuring adequate coverage is achieved.

The facility has been strategically sited and designed to minimise visibility within the surrounding environment as much as practicable. In this regard **nbn** considers that the proposal satisfies the requirements of the State Planning Policy and the accompanying *Guidelines for the Location, Siting and Design of Telecommunications*.

**Nbn** considers that the proposal is also consistent with the stated objectives and aims of the Shire of Chittering Town Planning Scheme and should be supported. We look forward to delivering fast, reliable and affordable broadband services to premises in the Lower Chittering area.



## APPENDIX A – COPY OF TITLE



WESTERN



AUSTRALIA

REGISTER NUMBER <b>191/P20207</b>	
Duplicate Edition <b>2</b>	DATE DUPLICATE ISSUED <b>7/2/2011</b>

**RECORD OF CERTIFICATE OF TITLE**  
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2018** FOLIO **562**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

**LAND DESCRIPTION:**

LOT 191 ON PLAN 20207

**REGISTERED PROPRIETOR:**  
(FIRST SCHEDULE)

DAVID RONALD SYRED  
CAMILLE LORENA ELIZABETH SYRED  
BOTH OF 51 HEREFORD WAY, LOWER CHITTERING  
AS JOINT TENANTS

(T G171926) REGISTERED 8 MAY 1996

**LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:**  
(SECOND SCHEDULE)

1. EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 23917/1950.
2. F710086 EASEMENT TO SHIRE OF CHITTERING. SEE SKETCH ON VOL 2018 FOL 562. REGISTERED 24.10.1994.
3. G171926 RESTRICTIVE COVENANT BURDEN. REGISTERED 8.5.1996.
4. \*L550832 MORTGAGE TO WESTPAC BANKING CORPORATION REGISTERED 10.2.2011.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.  
\* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.  
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

**STATEMENTS:**

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2018-562 (191/P20207).  
PREVIOUS TITLE: 2001-294.  
PROPERTY STREET ADDRESS: 51 HEREFORD WAY, LOWER CHITTERING,  
LOCAL GOVERNMENT AREA: SHIRE OF CHITTERING.

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING L550832



## APPENDIX B – PROPOSED PLANS

<p>DATE OF ISSUE</p> <p>DRAWING PACKAGE VERSION</p>	<p>27.05.16</p> <p>1</p>
<p>GENERAL</p>	<p>6ELB-51-09-LOWC-T1 COVER SHEET 01</p> <p>6ELB-51-09-LOWC-C1 SITE SPECIFIC NOTES 01</p> <p>6ELB-51-09-LOWC-C2 OVERALL SITE PLAN 01</p> <p>6ELB-51-09-LOWC-C3 SITE SETOUT PLAN 01</p> <p>6ELB-51-09-LOWC-C4 SITE ELEVATION AND DETAILS 01</p>
<p>ELECTRICAL</p>	<p></p>
<p>RF AND TX CONFIGURATIONS</p>	<p>6ELB-51-09-LOWC-A1 NBN ANTENNA CONFIGURATION &amp; SETOUT PLAN 01</p>
<p>STRUCTURAL</p>	<p></p>
<p>CIVIL</p>	<p></p>
<p>MONOPOLE</p>	<p></p>
<p>LEASE / LICENCE</p>	<p></p>
<p>DISTRIBUTION</p>	<p>6ELB-51-09-LOWC-T1 COVER SHEET 01</p>
<p>SALED</p>	<p>CHRIS BRAYTON</p>
<p>ERICSSON</p>	<p>CARLY FERGUSON</p>
<p></p>	<p></p>
<p></p>	<p></p>
<p></p>	<p></p>
<p></p>	<p></p>

**SITE CODE: 6ELB-51-09-LOWC**

**LOWER CHITTERING**

**51 HEREFORD WAY**

**LOWER CHITTERING**

**WA 6084**

**RFNSA No. 6084018**



**PROJECT SUMMARY**

PROPOSED NBN GREENFIELD 4.5m MONOPOLE

PROPOSED NBN OUTDOOR CABINETS ON CONCRETE SLAB ON GROUND



NATIONAL BROADBAND NETWORK

SITE No: 6ELB-51-09-LOWC

LOWER CHITTERING

51 HEREFORD WAY

LOWER CHITTERING

WA 6084

PRELIMINARY

1. 6ELB-51-09-LOWC-T1 COVER SHEET

2. 6ELB-51-09-LOWC-T1 COVER SHEET

3. 6ELB-51-09-LOWC-T1 COVER SHEET

4. 6ELB-51-09-LOWC-T1 COVER SHEET

5. 6ELB-51-09-LOWC-T1 COVER SHEET

6. 6ELB-51-09-LOWC-T1 COVER SHEET

7. 6ELB-51-09-LOWC-T1 COVER SHEET

8. 6ELB-51-09-LOWC-T1 COVER SHEET

9. 6ELB-51-09-LOWC-T1 COVER SHEET

10. 6ELB-51-09-LOWC-T1 COVER SHEET



DESIGNER: LJM

DRAWN: RC

APPROVED: CB

DATE: 27.05.16

COVER SHEET

Drawing No: 6ELB-51-09-LOWC-T1

Sheet: 02

**SITE INFORMATION:**

1. **SITE ADDRESS**  
51 HEREFORD WAY, LOWER CHITTERING WA 6084.
2. **GENERAL**  
THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT NBN CONSTRUCTION STANDARDS, CURRENT AUSTRALIAN STANDARDS AND SPECIFICATIONS.
3. **SITE ACCESS**  
FROM PERTH TRAVEL NORTH APPROX 28km ALONG MITCHELL FREEWAY AND TAKE THE RIGHT EXIT AT BURNS BEACH ROAD. PROCEED EAST ALONG BURNS BEACH ROAD AND JOONDALUP DRIVE FOR 3.1 km TO WANNEROO ROAD. CONTINUE ON THROUGH WANNEROO ROAD ALONG JOONDALUP DRIVE THEN ONTO NEAVES ROAD FOR 23.2 km AND TURN LEFT INTO MUCHEA SOUTH ROAD. GO 0.9 km AND TURN RIGHT INTO RUTLAND ROAD. THEN GO 1.8 km AND TURN LEFT ONTO GREAT NORTHERN HIGHWAY. TRAVEL NORTH ALONG GREAT NORTHERN HIGHWAY FOR 4.5 km AND TURN RIGHT INTO WANDENA ROAD. GO 3.5km ALONG WANDENA ROAD. THEN TURN RIGHT INTO MUCHEA EAST ROAD AND GO ANOTHER 3.2km AND TURN LEFT INTO HEREFORD WAY. FOLLOW HEREFORD WAY FOR 0.5km TO DRIVEWAY AND LOOKED GATE ON THE LEFT AT HOUSE No. 51 GO ALONG DRIVEWAY FOR 60m THEN VEER LEFT AND TRAVERSE AROUND TREES AND THROUGH FARM GATE FOR 140m TO SITE LOCATED ADJACENT TO WESTERN FENCE.
4. **EQUIPMENT**  
NEW NBN OUTDOOR CABINET TO BE INSTALLED ON CONCRETE SLAB (4.75m<sup>2</sup> GFAL) WITHIN NBN LEASE AREA.
5. **STRUCTURE**  
PROPOSED NBN 45m MONOPOLE WITH HEADFRAME
6. **ANTENNA ACCESS**  
ANTENNA ACCESS USING ACCESS LADDER WITH LAD-SAF OR EWP, BY QUALIFIED PERSONNEL ONLY.
7. **EXISTING SERVICES**  
THE CONTRACTOR SHALL IDENTIFY AND CONFIRM THE LOCATION OF ALL RELEVANT EXISTING SERVICES AS REQUIRED PRIOR TO THE COMMENCEMENT OF WORKS.
8. **EXISTING SITE HAZARDS**  
THE FOLLOWING HAZARDS ARE PRESENT ON THIS SITE:  
- EXPOSURE TO ELEMENTS  
- TRIP HAZARDS  
- SNAKES, TICKS AND INSECTS
9. **ELECTRICAL SUPPLY**  
TO BE CONFIRMED
10. **TRANSMISSION LINK & BE CONFIGURATION**  
REFER TABLE ON DRAWING BELB-51-09-LOWC-A1 FOR DETAILS.
11. **SITE SPECIFIC INFORMATION**  
- NO RETAINING WALLS ARE REQUIRED  
- SITE IS FLAT GROUND IN OPEN Paddock.  
- SOME EXPOSED COFFEE ROCK - ROCK BREAKER MAY BE REQUIRED.  
- NO CLEARING REQUIRED  
- NEW ACCESS UPGRADE IS REQUIRED FOR APPROXIMATELY 25m FROM EXISTING GRAVEL DRIVEWAY.  
- NO LANDSCAPING IS PROPOSED  
- STORMWATER TO BE DISSIPATED THROUGH GRAVEL FINISH WITHIN COMPOUND  
- EXISTING EASEMENT TO SHIRE OF CHITTERING.

**12. WIND LOAD PARAMETERS**

SITE TOPOGRAPHIC DATA	
TERRAIN	TOPOGRAPHIC
REGION	CATEGORY (MULTIPLIER (M))
A1	TBC
	TBC

13. **SITE SIGNAGE AND LOCATION**  
- SITE ENQUIRY SIGN ON THE NBN ODC DOOR  
- HAZARDOUS VOLTAGE SIGN ON NBN METER PANEL (POB)  
- CLIMBING FALL ARREST SIGNAGE, CLOSE TO CLIMBING RUNG OR TO LADDER LOCATION (REFER RAN HANDBOOK SECTION 15.4 FOR FURTHER DETAILS)  
- EYE SIGNAGE, REFER NBN-STD-002.
14. **DIAL BEFORE YOU DIAL**  
DAILY JOB NUMBER - SEQ 10683156  
ENQUIRY DATE: 12/05/2016  
CONTRACTOR SHALL REVALIDATE AND VERIFY AT THE TIME OF CONSTRUCTION

NATIONAL BROADBAND NETWORK  
SITE No: BELB-51-09-LOWC  
LOWER CHITTERING  
51 HEREFORD WAY  
LOWER CHITTERING  
WA 6084

PRELIMINARY

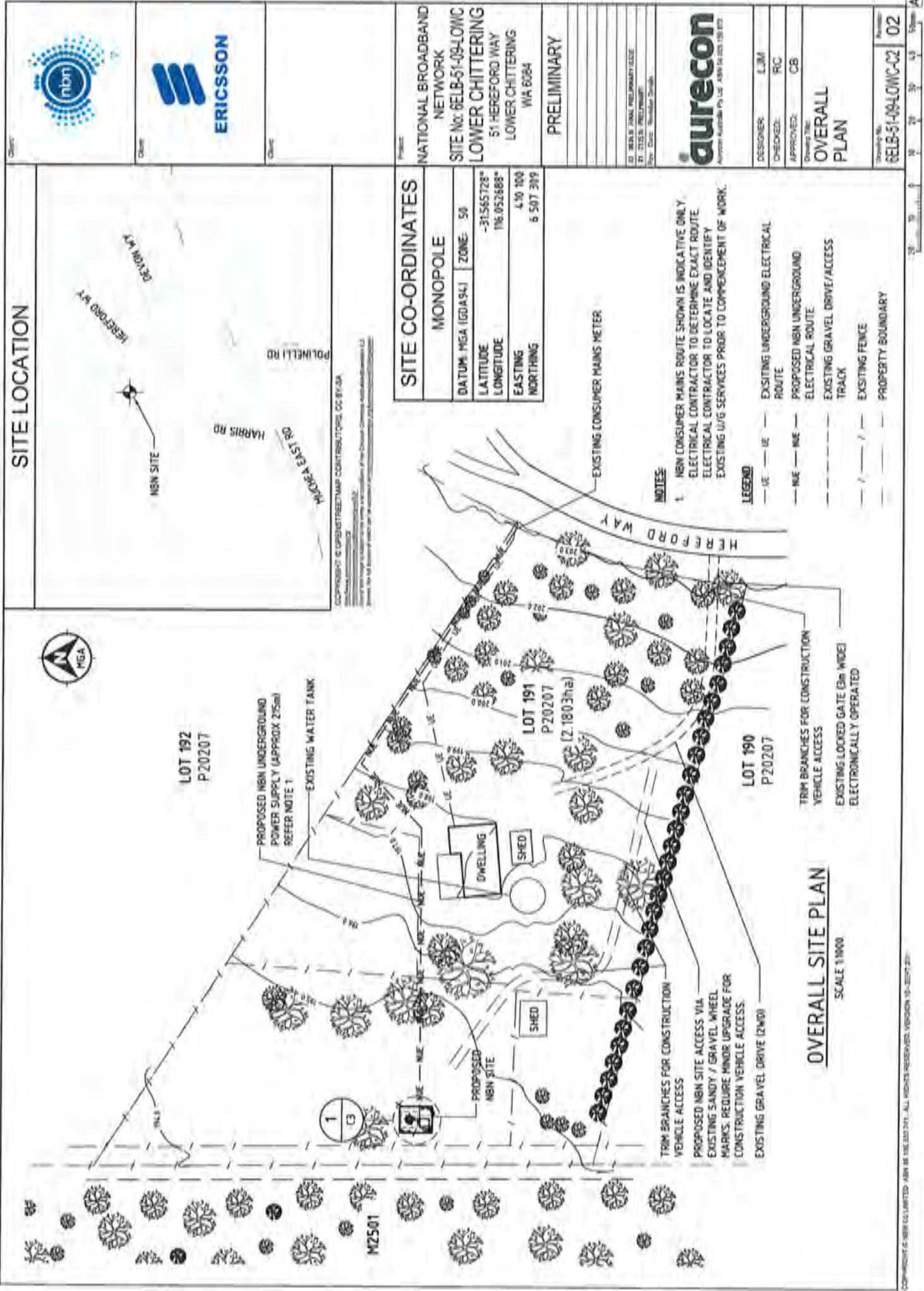
DR: BELB 51 FINAL PRELIMINARY DRAFT  
BY: JAMES B. PRELIMINARY  
Rev: 2016 - 01/05/2016  
Rev: 2016 - 01/05/2016

**aurecon**  
Aurecon Australia Pty Ltd - ABN 24 005 018 871

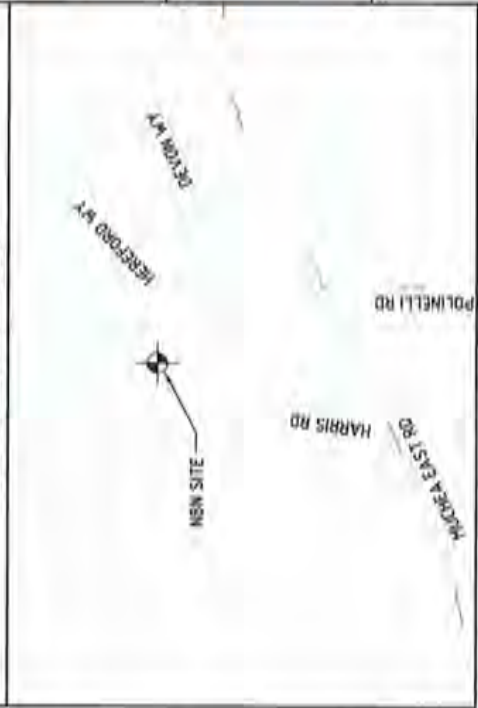
DESIGNER: LJM  
CHECKED: RC  
APPROVED: CB

Drawn By: LJM  
**SITE SPECIFIC NOTES**

Quantity No: 02  
Drawing No: BELB-51-09-LOWC-C



**SITE LOCATION**



**SITE CO-ORDINATES**

<b>MONOPOLE</b>	
DATE: MGA (GDA94)	ZONE: 50
LATITUDE	-31.565728°
LONGITUDE	116.052688°
EASTING	4 10 100
NORTHING	6 507 319

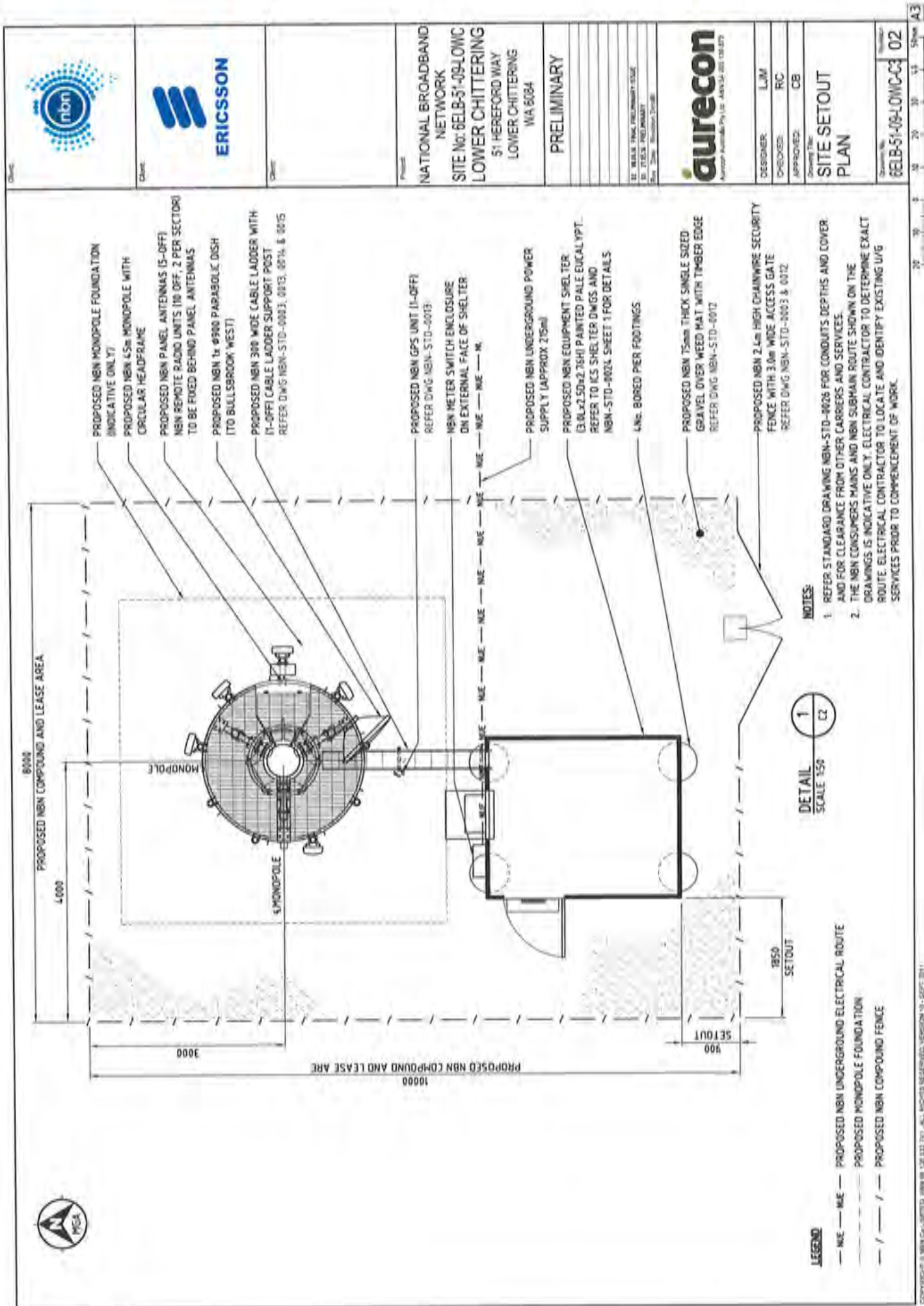
- NOTES:**
- NSM CONSUMER MAINS ROUTE SHOWN IS INDICATIVE ONLY. ELECTRICAL CONTRACTOR TO DETERMINE EXACT ROUTE. ELECTRICAL CONTRACTOR TO LOCATE AND IDENTIFY EXISTING U/G SERVICES PRIOR TO COMMENCEMENT OF WORK.

- LEGEND**
- UE — EXISTING UNDERGROUND ELECTRICAL ROUTE
  - NE — PROPOSED NSM UNDERGROUND ELECTRICAL ROUTE
  - ME — EXISTING GRAVEL DRIVE/ACCESS TRACK
  - / — EXISTING FENCE
  - — — — — PROPERTY BOUNDARY

**OVERALL SITE PLAN**

SCALE 1:1000

		<p><b>NATIONAL BROADBAND NETWORK</b>                  SITE No: 6ELB-51-09-LOWIC                  LOWER CHITTERING                  51 HERFORD WAY                  LOWER CHITTERING                  WA 6084</p>
<p><b>PRELIMINARY</b></p>		<p><b>aurecon</b>                  Aurecon Australia Pty Ltd ABN 14 003 150 873</p>
<p>DESIGNER: LJM</p>	<p>CHECKED: RC</p>	<p>APPROVED: CB</p>
<p>Drawing Title: <b>OVERALL PLAN</b></p>		
<p>Project No: 6ELB-51-09-LOWIC-C2</p>		<p>Sheet No: 02</p>



**NATIONAL BROADBAND NETWORK**  
**SITE No: 6ELB-51-09-LOWMC**  
**LOWER CHITTERING**  
 51 HEREFORD WAY  
 WA 6084

**PRELIMINARY**

12. HEALTH, ENVIRONMENT & SAFETY  
 13. UTILITIES  
 14. OTHER INFORMATION

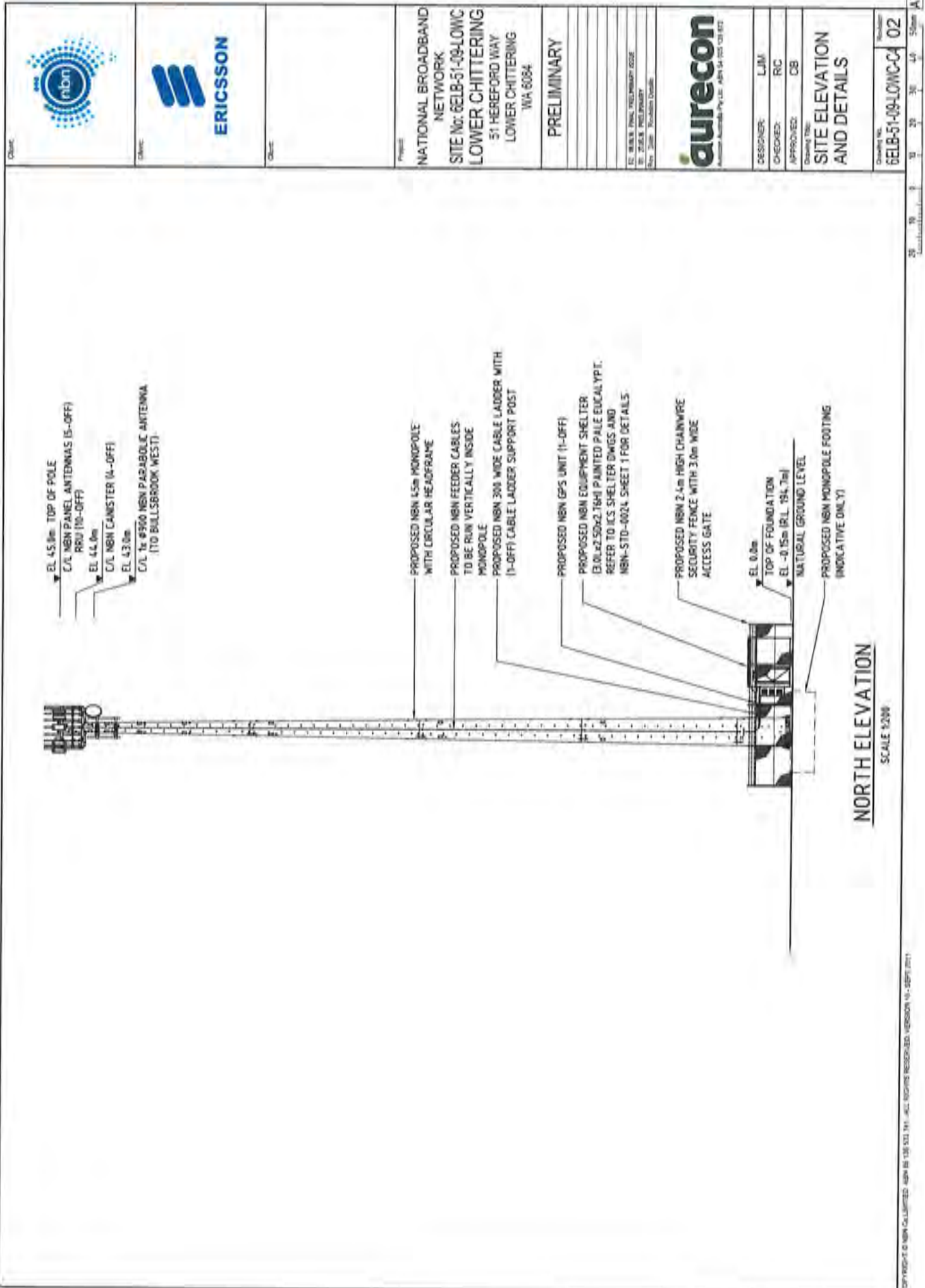


DESIGNER: LJM  
 CHECKED: RC  
 APPROVED: CB


**SITE SETOUT PLAN**

Drawing No: 6ELB-51-09-LOWMC-02

Sheet 1 of 1



**NORTH ELEVATION**  
SCALE 1:200

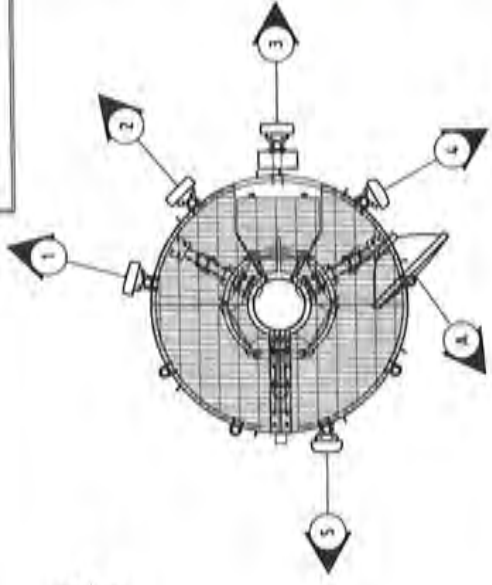
 nbn	 ERICSSON	PROJECT <b>NATIONAL BROADBAND NETWORK</b> SITE No: 6ELB-51-09-LOWC <b>LOWER CHITTING</b> 51 HEREFORD WAY LOWER CHITTING WA 6084	PRELIMINARY
DESIGNER: LJM CHECKED: RC APPROVED: CB			
Drawing Title: <b>SITE ELEVATION AND DETAILS</b>			
Drawing No: <b>6ELB-51-09-LOWC-C4</b>			Sheet: <b>02</b>

ANTENNA CONFIGURATION

ANTENNA DETAIL										MAIN FEEDER				RRU / FILTER			RF TAIL		RET CABLE	
SECTOR	SYMBOL	TYPE	DIMENSION HxWxD	HEIGHT L	AZMUTH (TN)	P1 & P2 e/TILT	P3 & P4 e/TILT	MECH DOWN TILT	TYPE	LENGTH	CAMSTER HEIGHT	CAMSTER TO RRU LENGTH	TYPE	LOCATION	HEIGHT L	RF FILTER QTY	TYPE	LENGTH	TYPE	LENGTH
1		ALPHA AW3497	800x320x100	4.5m	15°	6°	6°	0°	HLS HYBRID M90 } #19.5mm	50m	4.4m	4.5m	RRUS2218	BEHIND ANTENNA	4.5m	# 2-OFF	2-OFF HLS } BIRD PROOF LUSCA CABLE	1.5m	1/TSR 484 2V/2000	2.0m
2		ALPHA AW3497	800x320x100	4.5m	45°	6°	6°	0°	HLS HYBRID M90 } #19.5mm	50m	4.4m	4.5m	RRUS2218	BEHIND ANTENNA	4.5m	# 2-OFF	2-OFF HLS } BIRD PROOF LUSCA CABLE	1.5m	1/TSR 484 2V/2000	2.0m
3		ARGUS SSPX310R	750x300x115	4.5m	90°	6°	6°	0°	HLS HYBRID M90 } #19.5mm	50m	4.4m	4.5m	RRUS2218	BEHIND ANTENNA	4.5m	# 2-OFF	2-OFF HLS } BIRD PROOF LUSCA CABLE	1.5m	1/TSR 484 2V/2000	2.0m
4		ARGUS SSPX310R	750x300x115	4.5m	150°	7°	7°	0°	HLS HYBRID M90 } #19.5mm	50m	4.4m	4.5m	RRUS2218	BEHIND ANTENNA	4.5m	# 2-OFF	2-OFF HLS } BIRD PROOF LUSCA CABLE	1.5m	1/TSR 484 2V/2000	2.0m
5		ARGUS SSPX310R	750x300x115	4.5m	270°	7°	7°	0°	HLS HYBRID M90 } #19.5mm	50m	4.4m	4.5m	RRUS2218	BEHIND ANTENNA	4.5m	# 2-OFF	2-OFF HLS } BIRD PROOF LUSCA CABLE	1.5m	1/TSR 484 2V/2000	2.0m
GPS		KORE 1010082/1	Ø69 x 96	2.5m					LDF1-50	5m										

PARABOLIC				FEEDER		RAU			
SECTOR	SYMBOL	TYPE	DIMENSION HxWxD	HEIGHT L	AZMUTH (TN)	DESTINATION	TYPE	LENGTH	QTY RAU
A		PARABOLIC	Ø900	4.3m	225°	BULLSBROOK WEST	LDF1-50	65m	1 OFF



ANTENNA SETOUT PLAN  
SCALE 1:50

NATIONAL BROADBAND NETWORK  
SITE No: 6ELB-51-09-L0WC  
LOWER CHITTERING  
51 HEREFORD WAY  
LOWER CHITTERING  
WA 6104

PRELIMINARY



DESIGNER: LJM  
CHECKED: RC  
APPROVED: CB  
Drawing Title:  
NBN ANTENNA CONFIGURATION & SETOUT PLAN  
Drawing No:  
6ELB-51-09-L0WC-A1 02





## APPENDIX C – EME REPORT



## Environmental EME Report

### Lower Chittering 51 Hereford Way, LOWER CHITTERING WA 6084

This report provides a summary of Calculated RF EME Levels around the wireless base station

**Date 1/6/2016**

**RFNSA Site No. 6084018**

#### Introduction

The purpose of this report is to provide calculations of EME levels from the existing facilities at the site and any proposed additional facilities.

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at Lower Chittering 51 Hereford Way LOWER CHITTERING WA 6084 . These levels have been calculated by Ericsson using methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

The maximum EME level calculated for the proposed systems at this site is 0.12% of the public exposure limit.

#### The ARPANSA Standard

ARPANSA, an Australian Government agency in the Health and Ageing portfolio, has established a Radiation Protection Standard specifying limits for general public exposure to RF transmissions at frequencies used by wireless base stations. The Australian Communications and Media Authority (ACMA) mandates the exposure limits of the ARPANSA Standard.

#### How the EME is calculated in this report

The procedure used for these calculations is documented in the ARPANSA Technical Report "Radio Frequency EME Exposure Levels - Prediction Methodologies" which is available at <http://www.arpansa.gov.au>.

RF EME values are calculated at 1.5m above ground at various distances from the base station, assuming level ground.

The estimate is based on worst-case scenario, including:

- wireless base station transmitters for mobile and broadband data operating at maximum power
- simultaneous telephone calls and data transmission
- an unobstructed line of sight view to the antennas.

In practice, exposures are usually lower because:

- the presence of buildings, trees and other features of the environment reduces signal strength
- the base station automatically adjusts transmit power to the minimum required.

Maximum EME levels are estimated in 360° circular bands out to 500m from the base station.

These levels are cumulative and take into account emissions from all mobile phone antennas at this site.

The EME levels are presented in three different units:

- volts per metre (V/m) – the electric field component of the RF wave
- milliwatts per square metre (mW/m<sup>2</sup>) – the power density (or rate of flow of RF energy per unit area)
- percentage (%) of the ARPANSA Standard public exposure limit (the public exposure limit = 100%).

#### Results

The maximum EME level calculated for the proposed systems at this site is 2.11 V/m; equivalent to 11.86 mW/m<sup>2</sup> or 0.12% of the public exposure limit.

## Radio Systems at the Site

There are currently no existing radio systems for this site.

It is proposed that this base station will have equipment for transmitting the following services:

Carrier	Radio Systems
NBN Co	LTE3500 (proposed)

## Calculated EME Levels

This table provides calculations of RF EME at different distances from the base station for emissions from existing equipment alone and for emissions from existing equipment and proposed equipment combined.

Distance from the antennas at Lower Chittering 51 Hereford Way in 360° circular bands	Maximum Cumulative EME Level – All carriers at this site					
	Existing Equipment			Proposed Equipment		
	Electric Field V/m	Power Density mW/m <sup>2</sup>	% ARPANSA exposure limits	Electric Field V/m	Power Density mW/m <sup>2</sup>	% ARPANSA exposure limits
0m to 50m				0.3	0.24	0.0024%
50m to 100m				0.41	0.44	0.0044%
100m to 200m				1.37	4.97	0.05%
200m to 300m				2.11	11.86	0.12%
300m to 400m				2.063	11.28	0.11%
400m to 500m				1.72	7.83	0.078%
<b>Maximum EME level</b>				2.11	11.86	0.12
	273.58 m from the antennas at Lower Chittering 51 Hereford Way					

## Calculated EME levels at other areas of interest

This table contains calculations of the maximum EME levels at selected areas of interest that have been identified through the consultation requirements of the Communications Alliance Ltd Deployment Code C564:2011 or via any other means. The calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site.

Additional Locations	Height / Scan relative to location ground level	Maximum Cumulative EME Level All Carriers at this site Existing and Proposed Equipment		
		Electric Field V/m	Power Density mW/m <sup>2</sup>	% of ARPANSA exposure limits
No locations identified				

## RF EME Exposure Standard

The calculated EME levels in this report have been expressed as percentages of the ARPANSA RF Standard and this table shows the actual RF EME limits used for the frequency bands available. At frequencies below 2000 MHz the limits vary across the band and the limit has been determined at the Assessment Frequency indicated. The four exposure limit figures quoted are equivalent values expressed in different units – volts per metre (V/m), watts per square metre (W/m<sup>2</sup>), microwatts per square centimetre (µW/cm<sup>2</sup>) and milliwatts per square metre (mW/m<sup>2</sup>). Note: 1 W/m<sup>2</sup> = 100 µW/cm<sup>2</sup> = 1000 mW/m<sup>2</sup>.

Radio Systems	Frequency Band	Assessment Frequency	ARPANSA Exposure Limit (100% of Standard)
LTE 700	758 – 803 MHz	750 MHz	37.6 V/m = 3.75 W/m <sup>2</sup> = 375 µW/cm <sup>2</sup> = 3750 mW/m <sup>2</sup>
WCDMA850	870 – 890 MHz	900 MHz	41.1 V/m = 4.50 W/m <sup>2</sup> = 450 µW/cm <sup>2</sup> = 4500 mW/m <sup>2</sup>
GSM900, LTE900, WCDMA900	935 – 960 MHz	900 MHz	41.1 V/m = 4.50 W/m <sup>2</sup> = 450 µW/cm <sup>2</sup> = 4500 mW/m <sup>2</sup>
GSM1800, LTE1800	1805 – 1880 MHz	1800 MHz	58.1 V/m = 9.00 W/m <sup>2</sup> = 900 µW/cm <sup>2</sup> = 9000 mW/m <sup>2</sup>
LTE2100, WCDMA2100	2110 – 2170 MHz	2100 MHz	61.4 V/m = 10.00 W/m <sup>2</sup> = 1000 µW/cm <sup>2</sup> = 10000 mW/m <sup>2</sup>
LTE2300	2302 – 2400 MHz	2300 MHz	61.4 V/m = 10.00 W/m <sup>2</sup> = 1000 µW/cm <sup>2</sup> = 10000 mW/m <sup>2</sup>
LTE2600	2620 – 2690 MHz	2600 MHz	61.4 V/m = 10.00 W/m <sup>2</sup> = 1000 µW/cm <sup>2</sup> = 10000 mW/m <sup>2</sup>
LTE3500	3425 – 3575 MHz	3500 MHz	61.4 V/m = 10.00 W/m <sup>2</sup> = 1000 µW/cm <sup>2</sup> = 10000 mW/m <sup>2</sup>

## Further Information

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is a Federal Government agency incorporated under the Health and Ageing portfolio. ARPANSA is charged with responsibility for protecting the health and safety of people, and the environment, from the harmful effects of radiation (ionising and non-ionising).

Information about RF EME can be accessed at the ARPANSA website, <http://www.arpansa.gov.au>, including:

- Further explanation of this report in the document "Understanding the ARPANSA Environmental EME Report"
- The procedure used for the calculations in this report is documented in the ARPANSA Technical Report: "Radio Frequency EME Exposure Levels - Prediction Methodologies"
- the current RF EME exposure standard  
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), 2002, 'Radiation Protection Standard: Maximum Exposure Levels to Radiofrequency Fields — 3 kHz to 300 GHz', Radiation Protection Series Publication No. 3, ARPANSA, Yallambie Australia.  
[Printed version: ISBN 0-642-79400-6 ISSN 1445-9760] [Web version: ISBN 0-642-79402-2 ISSN 1445-9760]

The Australian Communications and Media Authority (ACMA) is responsible for the regulation of broadcasting, radiocommunications, telecommunications and online content. Information on EME is available at <http://emf.acma.gov.au>

The Communications Alliance Ltd Industry Code C564:2011 'Mobile Phone Base Station Deployment' is available from the Communications Alliance Ltd website, <http://commsalliance.com.au>.

Contact details for the Carriers (mobile phone companies) present at this site and the most recent version of this document are available online at the Radio Frequency National Site Archive, <http://www.rfnsa.com.au>.



## APPENDIX D – DoD APPROVAL



**Australian Government**  
**Department of Defence**  
**Estate and Infrastructure Group**

Mrs Seima Darrow  
A/Assistant Secretary, Estate Planning  
Infrastructure Division  
Brindabella Business Park (BP26-1-B001)  
PO Box 7925  
Department of Defence  
CANBERRA BC ACT 2610  
☎: (02) 6266 8002  
✉: seima.darrow@defence.gov.au

ASEP/OUT/2017/AF28007050

Ms Emma Storm  
Senior Project Planner  
Aurecon  
Level 5, 863 Hay Street  
PERTH WA 6000

Dear Ms Storm,

**APPLICATION FOR APPROVAL UNDER THE DEFENCE (AREAS CONTROL) REGULATIONS - PROPOSED NBN FIXED WIRELESS FACILITY, LOT 191 ON PLAN 20207, 51 HEREFORD WAY, LOWER CHITTERING, WESTERN AUSTRALIA**

Thank you for your correspondence dated 25 July 2016 and 27 October 2016 concerning the proposed construction of an NBN Fixed Wireless Facility and your request for approval under the Defence (Areas Control) Regulations [D(AC)R]. The proposal includes a 45 metre monopole at Lot 191 on Plan 20207, 51 Hereford Way, Lower Chittering, Western Australia.

The proposed NBN Facility will have a maximum height of 45 metres Above Ground Level (AGL) and is subject to a D(AC)R providing for Defence approval of all structures exceeding 15 metres AGL. The ground level at the monopole site is 194.7 metres Australian Height Datum (AHD) thereby making the top elevation of the NBN Facility 241.7 metres AHD, this includes a 2 metre margin to account for any antennas attached to the head frame.

The Department of Defence (Defence) has assessed the proposal for any possible impact on the safety of aircraft using the airfield at RAAF Base Pearce. On this basis, I grant Regulation 10 of the D(AC)R approval to your proposal subject to the following conditions:

- a. the height and location of the NBN facility shall be in accordance with the plans and coordinates supplied in the letter sent from Ms Emma Stone (Aurecon Pty Ltd) dated 25 July 2016 (Drawing Numbers 6ELB-51-09-LOWC-C2, 6ELB-51-09-LOWC-C3, 6ELB-51-09-LOWC-C4 and 6ELB-51-09-LOWC-A1).
- b. The height of the NBN Facility must not exceed an AGL height of 47 metres (this includes a 2 metre margin to account for any antennas attached to the head frame and possible lighting requirements) and a maximum elevation of 241.7 metres Australian Height Datum to ensure nil infringement of operational airspace;
- c. That the tower be obstacle marked in accordance with Civil Aviation Safety Authority (CASA) Manual of Standards (MOS) 139 requirements for a structure within the prescribed OLS; and

- d. The proponent provides Air Services Australia (ASA) with "as constructed" details. The details can be emailed to ASA at the following email address: [vod@airservicesaustralia.com](mailto:vod@airservicesaustralia.com)

Please note should the location or maximum height of the proposed development change from that approved by Defence, the amended proposal must be submitted to Defence for reassessment.

In addition, should the crane used during construction of the tower exceed 47m AGL a separate D(AC)R application will be required.

In accordance with Regulation 20 of the D(AC)R an application may be made to the Administrative Appeals Tribunal (AAT) to review this decision. Such an application is to be submitted in accordance with the provisions of the *Administrative Appeals Tribunal Act 1975*. More information on the process for making an application for review with the AAT is found at [www.aat.gov.au](http://www.aat.gov.au).

Should you wish to discuss the content of this advice further, please contact Mr Tim Hogan via email at [DSRGIDEP.ExecutiveSupport@defence.gov.au](mailto:DSRGIDEP.ExecutiveSupport@defence.gov.au) or telephone (02) 6266 8193.

Yours sincerely,



**SEIMA DARROW**  
Acting Assistant Secretary, Estate Planning

☞ February 2017

**For Information:**  
Regional Director DS Central & West  
RAAF Pearce ABXO  
RAAF Pearce BASO  
RAAF Pearce BSM

DATE OF ISSUE	27.05.16								
DRAWING PACKAGE VERSION	1								

**GENERAL**

6ELB-51-09-LOWC-T1	COVER SHEET	01							
6ELB-51-09-LOWC-C1	SITE SPECIFIC NOTES	01							
6ELB-51-09-LOWC-C2	OVERALL SITE PLAN	01							
6ELB-51-09-LOWC-C3	SITE SETOUT PLAN	01							
6ELB-51-09-LOWC-C4	SITE ELEVATION AND DETAILS	01							

**ELECTRICAL**


**RF AND TX CONFIGURATIONS**

6ELB-51-09-LOWC-A1	NBN ANTENNA CONFIGURATION & SETOUT PLAN	01							
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**STRUCTURAL**


**CIVIL**


**MONOPOLE**


**LEASE / LICENCE**

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**DISTRIBUTION**

SAED	CHRIS BRAYTON	1							
ERICSSON	CARLY FERGUSON	1							

# SITE CODE: 6ELB-51-09-LOWC

# LOWER CHITTERING

51 HEREFORD WAY  
LOWER CHITTERING  
WA 6084

RFNSA No. 6084018



Australia's  
broadband  
network

Client:

Client:

Client:

Project:

NATIONAL BROADBAND NETWORK  
SITE No: 6ELB-51-09-LOWC  
LOWER CHITTERING  
51 HEREFORD WAY  
LOWER CHITTERING  
WA 6084

PRELIMINARY

02	08.06.16	FINAL PRELIMINARY ISSUE
01	27.05.16	PRELIMINARY
Rev	Date	Revision Details

Aurecon Australia Pty Ltd ABN 54 005 139 873

DESIGNER:	LJM
CHECKED:	RC
APPROVED:	CB

Drawing Title:

## COVER SHEET

Drawing No.	Revision
6ELB-51-09-LOWC-T1	02



## SITE INFORMATION:

### 1. SITE ADDRESS

51 HEREFORD WAY, LOWER CHITTERING WA 6084

### 2. GENERAL

THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT NBN CONSTRUCTION STANDARDS, CURRENT AUSTRALIAN STANDARDS AND SPECIFICATIONS.

### 3. SITE ACCESS

FROM PERTH TRAVEL NORTH APPROX 28km ALONG MITCHELL FREEWAY AND TAKE THE RIGHT EXIT AT BURNS BEACH ROAD. PROCEED EAST ALONG BURNS BEACH ROAD AND JOONDALUP DRIVE FOR 3.1 km TO WANNEROO ROAD. CONTINUE ON THROUGH WANNEROO ROAD ALONG JOONDALUP DRIVE THEN ONTO NEAVES ROAD FOR 23.2 km AND TURN LEFT INTO MUCHEA SOUTH ROAD. GO 0.9 km AND TURN RIGHT INTO RUTLAND ROAD, THEN GO 1.8 km AND TURN LEFT ONTO GREAT NORTHERN HIGHWAY. TRAVEL NORTH ALONG GREAT NORTHERN HIGHWAY FOR 4.5 km AND TURN RIGHT INTO WANDENA ROAD. GO 3.5km ALONG WANDENA ROAD, THEN TURN RIGHT INTO MUCHEA EAST ROAD AND GO ANOTHER 3.2km AND TURN LEFT INTO HEREFORD WAY. FOLLOW HEREFORD WAY FOR 0.5km TO DRIVEWAY AND LOCKED GATE ON THE LEFT AT HOUSE No. 51. GO ALONG DRIVEWAY FOR 60m THEN VEER LEFT AND TRAVERSE AROUND TREES AND THROUGH FARM GATE FOR 140m TO SITE LOCATED ADJACENT TO WESTERN FENCE.

### 4. EQUIPMENT

NEW NBN OUTDOOR CABINET TO BE INSTALLED ON CONCRETE SLAB (<7.5m<sup>2</sup> GFA) WITHIN NBN LEASE AREA.

### 5. STRUCTURE

PROPOSED NBN 45m MONOPOLE WITH HEADFRAME.

### 6. ANTENNA ACCESS

ANTENNA ACCESS USING ACCESS LADDER WITH LAD-SAF OR EWP, BY QUALIFIED PERSONNEL ONLY.

### 7. EXISTING SERVICES

THE CONTRACTOR SHALL IDENTIFY AND CONFIRM THE LOCATION OF ALL RELEVANT EXISTING SERVICES AS REQUIRED PRIOR TO THE COMMENCEMENT OF WORKS.

### 8. EXISTING SITE HAZARDS

THE FOLLOWING HAZARDS ARE PRESENT ON THIS SITE:

- EXPOSURE TO ELEMENTS
- TRIP HAZARDS
- SNAKES, TICKS AND INSECTS

### 9. ELECTRICAL SUPPLY

TO BE CONFIRMED

### 10. TRANSMISSION LINK & RF CONFIGURATION

REFER TABLE ON DRAWING 6ELB-51-09-LOWC-A1 FOR DETAILS.

### 11. SITE SPECIFIC INFORMATION

- NO RETAINING WALLS ARE REQUIRED.
- SITE IS FLAT GROUND IN OPEN Paddock.
- SOME EXPOSED COFFEE ROCK - ROCK BREAKER MAY BE REQUIRED.
- NO CLEARING REQUIRED
- NEW ACCESS UPGRADE IS REQUIRED FOR APPROXIMATELY 25m FROM EXISTING GRAVEL DRIVEWAY
- NO LANDSCAPING IS PROPOSED
- STORMWATER TO BE DISSIPATED THROUGH GRAVEL FINISH WITHIN COMPOUND
- EXISTING EASEMENT TO SHIRE OF CHITTERING

### 12. WIND LOAD PARAMETERS

SITE TOPOGRAPHIC DATA		
REGION	TERRAIN CATEGORY	TOPOGRAPHIC MULTIPLIER (M)
A1	TBC	TBC

### 13. SITE SIGNAGE AND LOCATION

- SITE ENQUIRY SIGN, ON THE NBN ODC DOOR
- HAZARDOUS VOLTAGE SIGN, ON NBN METER PANEL/PDB
- CLIMBING FALL ARREST SIGNAGE, CLOSE TO CLIMBING RUNG OR TO LADDER LOCATION (REFER RAN HANDBOOK SECTION 15.4 FOR FURTHER DETAILS)
- EME SIGNAGE, REFER NBN-STD-0025

### 14. DIAL BEFORE YOU DIG

DBYD JOB NUMBER - SEQ 10683156

ENQUIRY DATE: 12/05/2016

CONTRACTOR SHALL REVALIDATE AND VERIFY AT THE TIME OF CONSTRUCTION.

Client:



Client:



Client:

Project:

NATIONAL BROADBAND NETWORK  
 SITE No: 6ELB-51-09-LOWC  
 LOWER CHITTERING  
 51 HEREFORD WAY  
 LOWER CHITTERING  
 WA 6084

PRELIMINARY

02 08.06.16 FINAL PRELIMINARY ISSUE

01 27.05.16 PRELIMINARY

Rev Date Revision Details



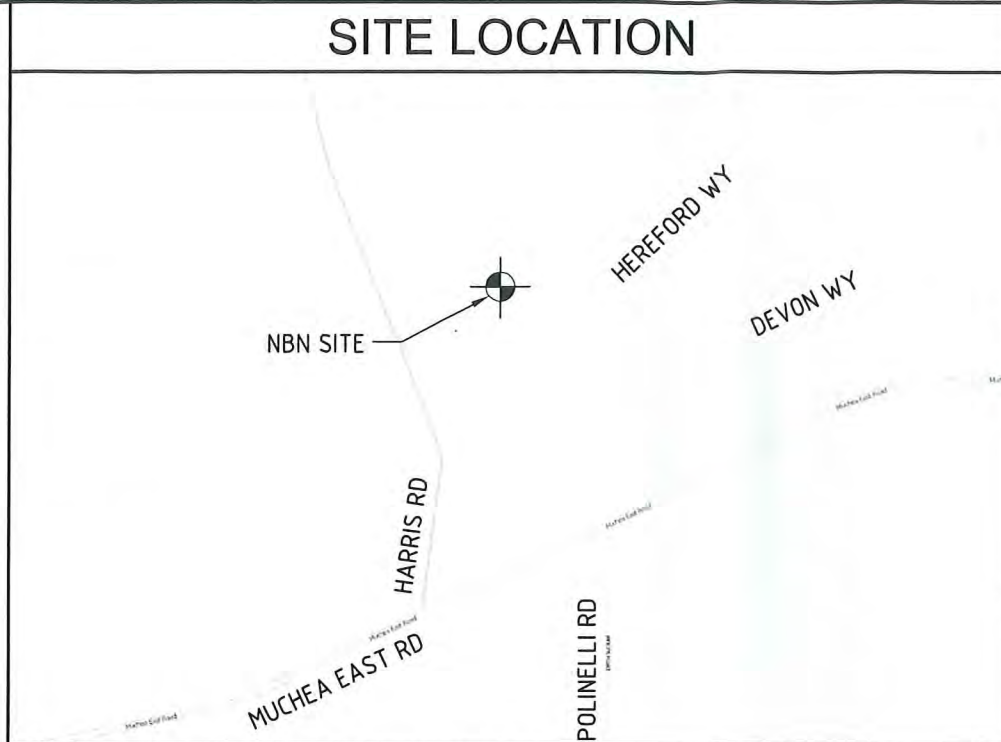
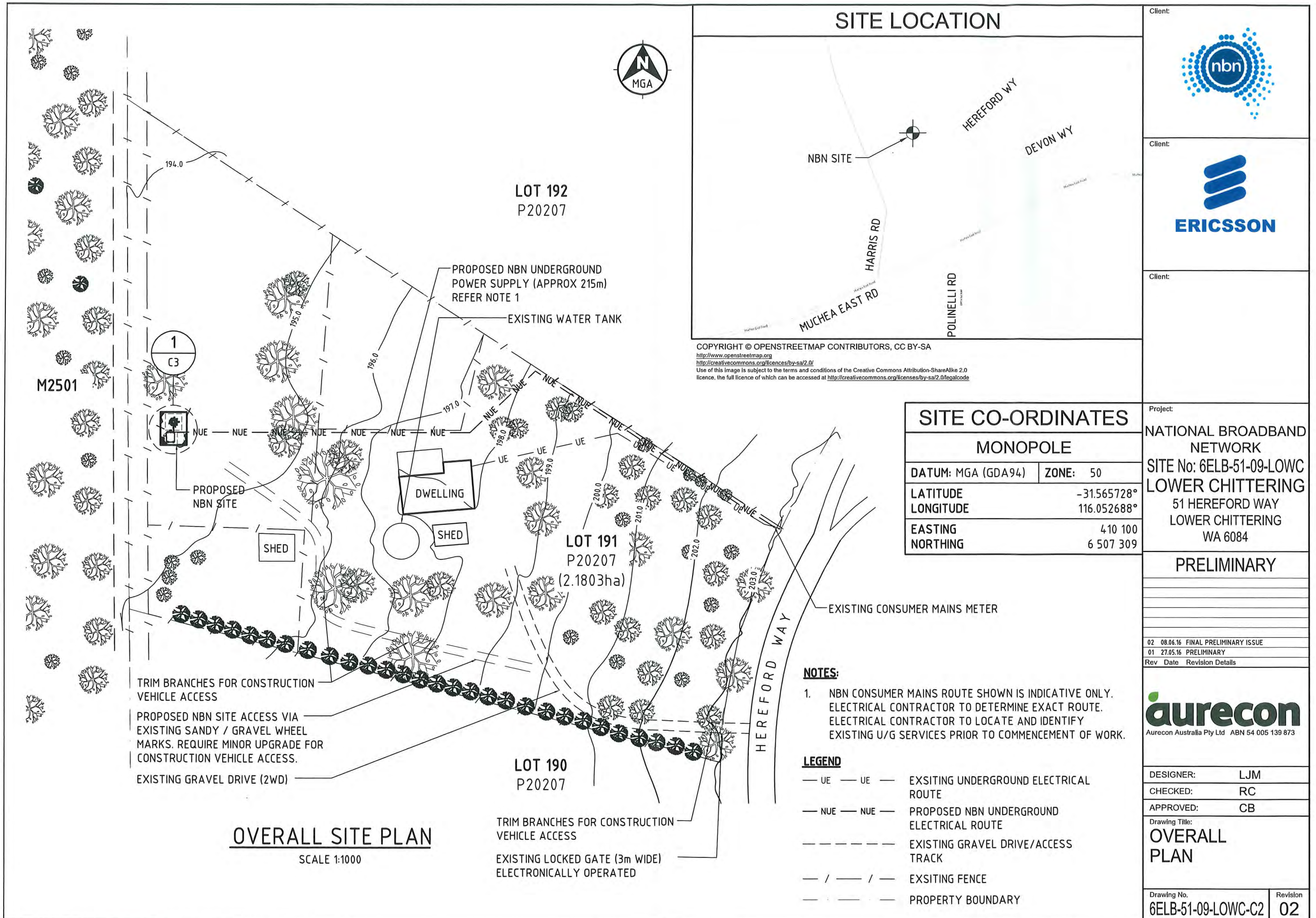
DESIGNER: LJM

CHECKED: RC

APPROVED: CB

Drawing Title:  
**SITE SPECIFIC NOTES**


Drawing No. 6ELB-51-09-LOWC-C1 Revision 02




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SITE CO-ORDINATES	
<b>MONOPOLE</b>	
DATUM: MGA (GDA94)	ZONE: 50
LATITUDE	-31.565728°
LONGITUDE	116.052688°
EASTING	4 10 100
NORTHING	6 507 309

Client:



Client:



Client:

Project:

**NATIONAL BROADBAND NETWORK**

**SITE No: 6ELB-51-09-LOWC**

**LOWER CHITTERING**

51 HEREFORD WAY  
 LOWER CHITTERING  
 WA 6084

**PRELIMINARY**

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01	27.05.16	PRELIMINARY
Rev	Date	Revision Details

**aurecon**  
 Aurecon Australia Pty Ltd ABN 54 005 139 873

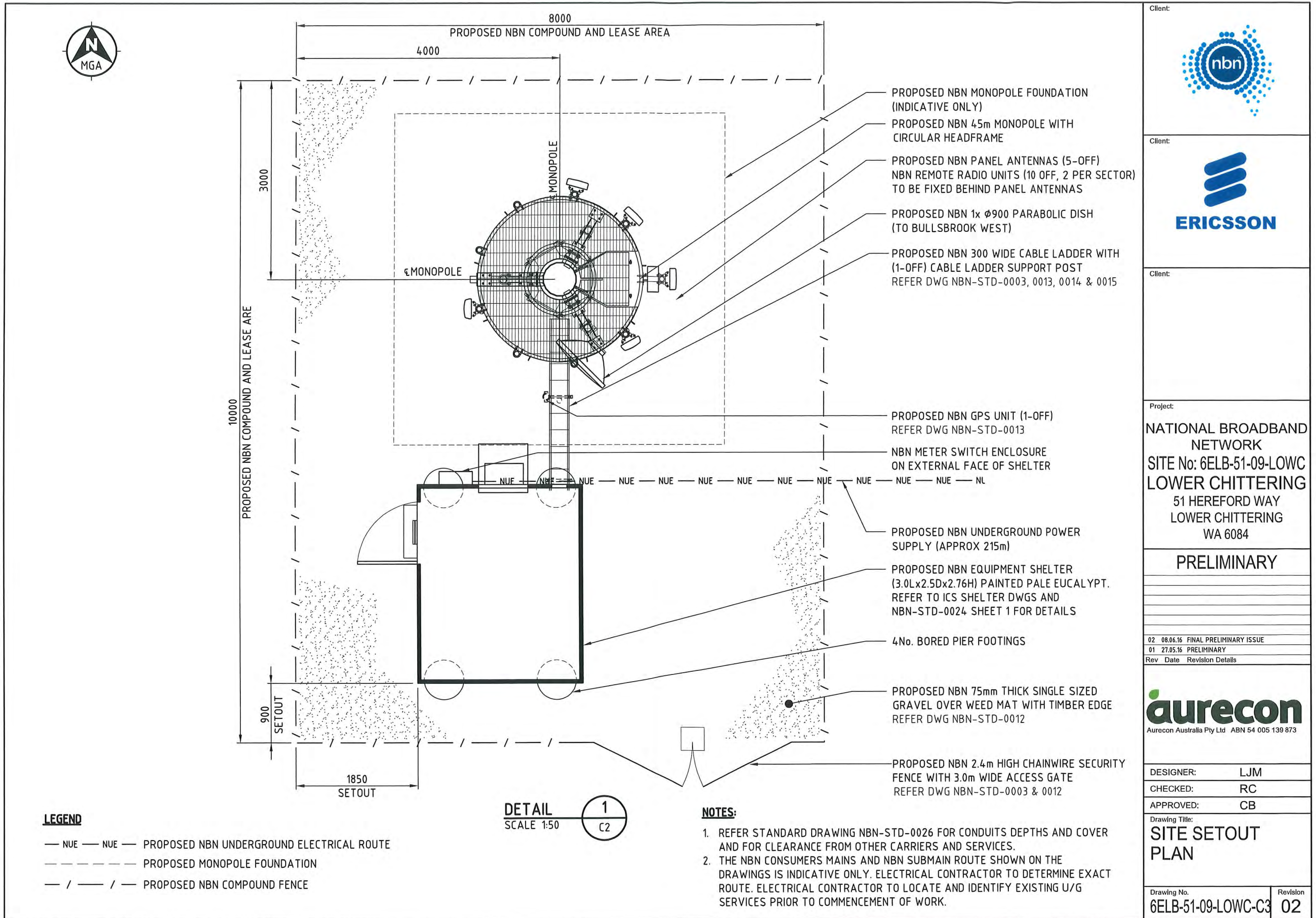
DESIGNER: LJM

CHECKED: RC

APPROVED: CB

Drawing Title:  
**OVERALL PLAN**

Drawing No. **6ELB-51-09-LOWC-C2** Revision **02**



Client:

Client:

Client:

Project:  
**NATIONAL BROADBAND NETWORK**  
**SITE No: 6ELB-51-09-LOWC**  
**LOWER CHITTERING**  
 51 HEREFORD WAY  
 LOWER CHITTERING  
 WA 6084

**PRELIMINARY**

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DESIGNER: LJM  
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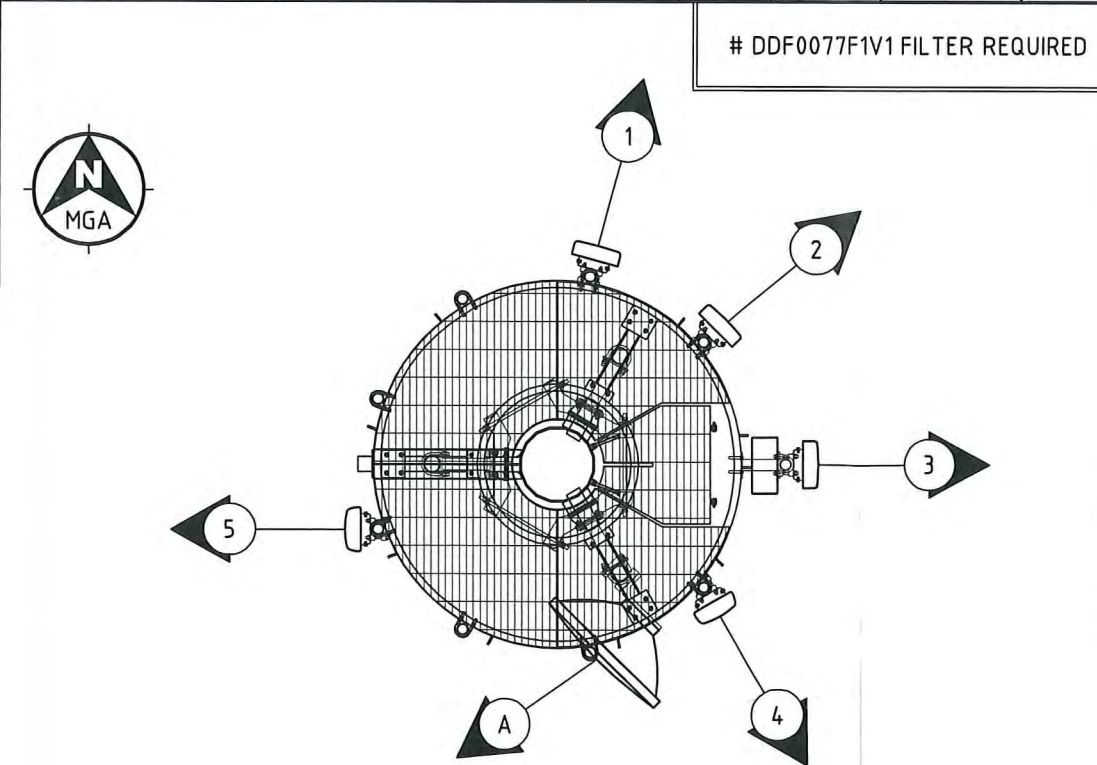
Drawing Title:  
**SITE SETOUT PLAN**

Drawing No. 6ELB-51-09-LOWC-C3  
 Revision 02

# ANTENNA CONFIGURATION

ANTENNA DETAIL									MAIN FEEDER				RRU / FILTER			RF TAIL		RET CABLE		
SECTOR	SYMBOL	TYPE	DIMENSION HxWxD	HEIGHT €	AZIMUTH (TN)	P1 & P2 eTILT	P3 & P4 eTILT	MECH DOWN TILT	TYPE	LENGTH	CANISTER HEIGHT	CANISTER TO RRU LENGTH	TYPE	LOCATION	HEIGHT €	RF FILTER QTY	TYPE	LENGTH	TYPE	LENGTH
1	1	ALPHA AW3497	800x320x100	45m	15°	6°	6°	0°	H&S HYBRID MKI 3/8 Ø19.6mm	50m	44m	4.5m	RRUS2218	BEHIND ANTENNA	45m	# 2-OFF	2-OFF H&S 1/2" BIRD PROOF LISCA CABLE	1.5m	1/TSR 484 21/2000	2.0m
2	2	ALPHA AW3497	800x320x100	45m	45°	6°	6°	0°					RRUS2218							
3	3	ARGUS SSPX310R	750x300x115	45m	90°	6°	6°	0°	H&S HYBRID MKI 3/8 Ø19.6mm	50m	44m	4.5m	RRUS2218	BEHIND ANTENNA	45m	# 2-OFF	2-OFF H&S 1/2" BIRD PROOF LISCA CABLE	1.5m	1/TSR 484 21/2000	2.0m
4	4	ARGUS SSPX310R	750x300x115	45m	150°	7°	7°	0°					RRUS2218							
5	5	ARGUS SSPX310R	750x300x115	45m	270°	7°	7°	0°	H&S HYBRID MKI 3/8 Ø19.6mm	50m	44m	4.5m	RRUS2218	BEHIND ANTENNA	45m	# 2-OFF	2-OFF H&S 1/2" BIRD PROOF LISCA CABLE	1.5m	1/TSR 484 21/2000	2.0m
GPS		KRE 1012082/1	Ø69 x 96	2.5m									LDF1-50							

PARABOLIC							FEEDER		RAU
SECTOR	SYMBOL	TYPE	DIMENSION HxWxD	€ HEIGHT	AZIMUTH (TN)	DESTINATION	TYPE	LENGTH	QTY RAU
A	A	PARABOLIC	Ø900	43m	225°	BULLSBROOK WEST	LDF1-50	60m	1 OFF



ANTENNA SETOUT PLAN

SCALE 1:50



Project:  
 NATIONAL BROADBAND NETWORK  
 SITE No: 6ELB-51-09-LOWC  
 LOWER CHITTERING  
 51 HEREFORD WAY  
 LOWER CHITTERING  
 WA 6084

PRELIMINARY

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Rev	Date	Revision Details



DESIGNER: LJM  
 CHECKED: RC  
 APPROVED: CB

Drawing Title:  
**NBN ANTENNA CONFIGURATION & SETOUT PLAN**

Drawing No. 6ELB-51-09-LOWC-A1 | Revision 02

PHOTO MONTAGE – TELECOMMUNICATIONS INFRASTRUCTRE (NBN TOWER)  
LOT 191 HEREFORD WAY, LOWER CHITTERING



PHOTO MONTAGE – TELECOMMUNICATIONS INFRASTRUCTRE (NBN TOWER)  
LOT 191 HEREFORD WAY, LOWER CHITTERING




Lower Chittering

51 Hereford Way, Lower Chittering

Location of facility pinned in yellow

45M MONOPOLE



Location	
1	Hereford Way, outside No. 33 Hereford Way approx. 310m separation
2	Junction Hereford Way and Devon Way approx. 240m separation
3	Hereford Way, outside No.52 Hereford Way 
4	Hereford Way, outside No.80 Hereford Way, approx. 350m separation
5	Hereford Way exit of roundabout at Murray Grey Circle, approx. 510m separation

Agency Submissions			
Submitter	Comment	Proponent Response	Shire Officer Response
Office of the EPA	<p>Thank you for your correspondence dated, 7 March 2017, seeking comment from the Environmental Protection Authority (EPA) regarding the proposed development for a Fixed Wireless Facility on Lot 191 Hereford Way, Lower Chittering.</p> <p>The EPA does not generally provide comment on planning application but the Office of the EPA has reviewed the documentation provided by the Shire and provides the following comments.</p> <p>The Office of the EPA notes that the proposal is in accordance with the State Planning Policy 5.2 <i>Telecommunications Infrastructure</i> and the Department of Defence <i>Defence (Area Control) Regulations 1989</i> and considers that this development will not have a significant impact on the environment.</p> <p>If you believe that future developments may have a significant impact on the environment please contact the Office of the EPA information on what might be considered significant can be found on the EPA’s website in the Referral Information guide at <a href="http://www.epa.wa.gov.au">http://www.epa.wa.gov.au</a></p>		Noted.
Department of Fire and Emergency Services	<p>We acknowledge the discrepancy that exists in the <i>Guidelines for Planning in Bushfire Prone Areas</i> (Guidelines) when considering telecommunications infrastructure. Section 5.5 and 5.7 of the Guidelines both mention telecommunications equipment.</p> <p>However, Planning Bulletin 111/2016 clarifies that SPP 3.7 should be applied pragmatically, and states: -</p> <p><i>“Exemptions from the requirements of SPP 3.7 and the deemed provisions should be applied pragmatically by the decision maker. If the proposal does not result in the intensification of development (or land use), does not result in an increase of residents or employees; or does not involve the occupation of employees on site for any considerable amount of time, then there may not be any practicable reason to require a BAL Assessment. Exemptions may apply to infrastructure including roads, telecommunications and dams; and to rural activities, including piggeries and chicken farms which do not involve employees on site for a considerable amount of time.”</i></p> <p>Telecommunications towers in Bush Fire Prone Areas are critical infrastructure for firefighting communications and for providing warnings, information and communication channels for people in bush fire prone areas during bush fire emergencies, and therefore may be considered unavoidable development.</p> <p>DFES supports the Shire’s ‘precautionary approach’ taken with respect to critical infrastructure associated with communications during emergencies.</p> <p>Actions should be taken by owners/operators to reduce the risk of loss of such infrastructure and associated infrastructure from the effects of bush fire attack. An asset protection zone around underlying infrastructure should be required to support such services which are predominately structures and</p>		Noted. Independently of this process the Shire of Chittering provides all approved tower locations to DFES for the purpose of providing them opportunity to co-locate emergency communications on the tower. Should this application be approved we would endeavour to do the same for this application.



	<p>buildings. Essential equipment should be designed and housed in such a way as to minimise the impact of bush fires on the capabilities of the infrastructure to provide communications capability during bush fire emergencies such as through back-up battery services.</p> <p>The Department of Planning's Bushfire Policy Team is currently reviewing information relating to Guidelines for Telecommunications Infrastructure, and it is envisaged that a factsheet will be released in future. We suggest liaising with this team to inform the assessment of your proposal by contacting <a href="mailto:bushfire@planning.wa.gov.au">bushfire@planning.wa.gov.au</a></p> <p>Given there is little influence we can advocate as a referral agency in relation to siting and design, access, water or building construction standards we provide no further comment.</p>		A condition of approval requiring an asset protection zone can be incorporated into the recommendation.
<b>Department of Aboriginal Affairs (DAA)</b>	<p>Thank you for your letter dated 7 March seeking comment from the Department of Aboriginal Affairs (DAA) regarding the proposed fixed wireless facility at Lot 191 Hereford Way, Lower Chittering.</p> <p>A review of the Register of Places and Objects as well as the DAA Aboriginal Heritage Database concludes that there are no known Aboriginal sites or Aboriginal heritage places within Lot 191 Hereford Way, Lower Chittering. Therefore based on the information held by DAA no approvals under the <i>Aboriginal Heritage Act 1972</i> (AHA) are required.</p> <p>For any proposed future works DAA suggests that the Shire refer to the State's Aboriginal Heritage Due Diligence Guidelines (Guidelines). The Guidelines can be found on the DAA website at the following link:</p> <p><a href="http://www.daa.wa.gov.au/heritage/land-use">http://www.daa.wa.gov.au/heritage/land-use</a></p> <p>The Guidelines allow proponents to undertake their own risk assessment regarding any proposal's potential to impact Aboriginal Heritage.</p>		Noted.
<b>Chittering Landcare</b>	<p>The Ellen Brockman Intergrated Catchment Group has reviewed this proposal and has no objections or comments to make.</p>		Noted.
<b>Department of Parks and Wildlife</b>	<p>The Department of Parks and Wildlife Swan Region apologises for the delay in this response and has no comments on this proposal.</p> <p>It is considered that any potential environmental impacts will be appropriately addressed through the existing planning framework.</p> <p>Please contact me via the details below if you require further advice.</p>		Noted.
<b>Department of Planning</b>	<p>Thank you for your letter dated 7 March 2017, inviting the Department of Planning to comment on the above proposal in the Shire of Chittering. The Department of Planning does not have a role in determining development applications, however provides the following comment.</p> <p>The Western Australian Planning Commission's (WAPC) <i>State Planning Policy 5.2 - Telecommunications Infrastructure</i> (SPP 5.2) provides guidance on the siting, location and design of telecommunications infrastructure. Section 5.11 of this policy establishes that the benefit of improved telecommunications services should be balanced with the visual impacts on the surrounding area.</p>		Noted.

	<p>In light of this, the Department's comments focus on the proposal's visual impact.</p> <p>The Department's viewshed mapping (<b>Attachment 1</b>) indicates that the ground level of the proposed tower would not be visible from Great Northern Highway or Chittering Valley Road in areas with no intervening vegetation. However, it is likely that the upper portion of the proposed tower will be visible from a number of points along Muchea East Road and Chittering Road, as well as, the adjoining Maryville rural-residential estate. After construction, the Shire may wish to identify locations near the site from which the proposed tower is a dominant feature in the landscape. Screen planting along key road corridors could be used to reduce the visual prominence of the proposed tower.</p>		
<b>Public Submissions</b>			
<p><b>Public 1 Support</b></p>	<p>I just wanted to express my wholehearted support for the proposed NBN Fixed Wireless facility at 51 Hereford Way.</p> <p>Although I see fixed wireless more as a stopgap solution to the bandwidth we'll need in years to come, at least it will help us get through the next five or ten years in relative comfort without too much buffering while streaming. Let's hope the towers do not get as congested as they are in many other FW areas in Australia. Some FW customers end up with worse speeds than they were getting on ADSL.</p> <p>I'll certainly be one of the first ones to connect to take advantage of the faster speeds, up to 50/20Mbps.</p> <p>I commend the shire in allowing just 25 days for submissions. The sooner we can get the approval sent off, the sooner construction can start and the sooner we'll be able to apply for an NBN service from our RSP. According to the NBN checker, our street, which will be served by the Hereford Way tower, should have availability by the end of the year. If that happens, I'll be happy.</p>		<p>Noted.</p>
<p><b>Public 2 Support</b></p>	<p>I think we need to do everything we can to get as much of this type of infrastructure into our community as possible, if not for this generation then for future generations.</p> <p>If it is possible for the developers to add a mobile booster to the infrastructure to reduce mobile black spots then I strongly encourage you to push for that to happen also.</p>		<p>Noted.</p> <p>The Shire must assess the application as is and cannot request mobile booster infrastructure from the applicant. However, Telstra has been in contact with the Shire regarding possible colocation of its towers to improve on black spot coverage,</p>
<p><b>Public 3 Oppose</b></p>	<p>Oppose</p>		<p>Noted.</p>
<p><b>Public 4 Support</b></p>	<p>Tower is long overdue.</p> <p>Access to wireless facility is subject to whims of how many people want the internet at a given time.</p> <p>You need to be fit and active to always be turning modem on and off as the existing system drops out.</p>		<p>Noted.</p>

	It has taken a long time since Aurecon came to the church hall in Santa Gertrudis Drive to explain the situation of the tower in Hereford Way which would give better access to the internet.		The delay is this application has been as a result of negotiations between Aurecon and the RAAF base Pearce relating to the height of the tower.
<b>Public 5 Support</b>	<p>The existing underground infrastructure is, according to the Telstra repair crews, old and damaged and in need of replacement.</p> <p>I have been forced to recently resort to a wireless 4G Broadband plan which works but is costly. The underground cables serving my street/home required replacement which would have entailed trenching across my property which I didn't want happening.</p> <p>I am probably not alone with these problems with the existing infrastructure.</p> <p>I would favour an NBN wireless option for my area.</p>		Noted.
<b>Public 6 Support</b>	Needed infrastructure – completely support it.		Noted.
<b>Public 7 Support</b>	I support the application get it as soon as possible.		Noted.
<b>Public 8 Support</b>	Support.		Noted.
<b>Public 9 Support</b>	Support.		Noted.
<b>Public 10 Oppose</b>	<p>Not knowing any health implications, whether or not our house prices will be affected.</p> <p>Unightly view from my back garden. It should be in a place of the community not in someone's back garden.</p> <p>Would you like to look around your property and see a thing like that up in the view. If the answer is no, then think about others.</p>		<p>Property devaluation is not a planning consideration in accordance with Part 9 of the Planning and Development (Local Planning Schemes) Regulations 2015</p> <p>The Shire must only assess the proposed location. The applicant has undertaken research to determine the most appropriate location which was found to be Hereford Way. The land owners have agreed to locate the tower in their property.</p> <p>Noted</p>
<b>Public 11 SUPPORT</b>	<p>We have concerns however over the site access to the tower during construction and over time.</p> <p>The plan discussion 'fire road' behind the property that the Shire of Chittering has an easement on. We own the first section of this easement road that the Shire of Chittering is allowed to use for 'fire access' purposes only. Many people do not realise this fact and even though the developer stipulates access off of Hereford Way. We can see the temptation of easy access off of Muchea East Road being utilised without land owner consent. It needs to be clearly noted that this 'fire track' is private land and under no circumstance is allowed to be utilised for access unless the permission of all landholders who own sections of the 'fire track' is granted.</p>		<p>Section 5.1.3 of the applicants report outlines the total construction period for the proposed tower. Traffic impacts are determined to be short-term and will not adversely impact the surrounding road network.</p> <p>Section 5.1.3 of the applicants' report advises the existing crossover on Hereford Way will be used to access the proposed location and not the 'fire road' at the rear of the property.</p>
<b>Public 12</b>	Nearly everyone has a mobile phone or wants/requires the internet. This		Noted.

<p><b>SUPPORT</b></p>	<p>usually means towers are required. Many may say “Not in my backyard” but this is the price for these services.</p> <p>My internet falls out “On average” 3 to 5 times a day. The hope is that this technology will overcome this problem and hopefully speed up the connection.</p> <p>I can see no rational objection to a tower that will , after a few weeks, become “invisible” on the landscape.</p>		
<p><b>Public 13 OBJECTION</b></p>	<p>We oppose this development because we don’t want it erected amongst housing. There has not been enough research into the emissions that could be harmful. Also who is going to fund the cost of erection and who is liable for ongoing costs?</p>		<p>The applicant’s report provides data that suggest the maximum EME levels to be generated will not cause any harm to residents.</p> <p>Erection and ongoing costs are funded by NBN co.</p>
<p><b>Public 14 OBJECTION</b></p>	<p>We strongly object to the NBN tower proposal at #51 Hereford Way on the following basis.</p> <p>1 – The tower will be visible from our property and will therefore affect our view and enjoyment of our property.</p> <p>2 – It is not proven that these towers do not affect health (humans/pets/wildlife) by the emissions given off.</p> <p>3 – We already have a tower (Telstra?) opposite our driveway; to have another in close proximity is unacceptable.</p> <p>4 – The new tower is to supposedly provide a better internet access for the community. This is fallacy as it will not work when it is raining or cloudy.</p> <p>5 – Although the fact that the erection of such a tower will have an effect on the value of our property is not a valid reason to deny planning permission, the fact remains that it will devalue our property, for which we will receive no compensation.</p> <p>6 – We choose to live in Chittering to enjoy the surroundings and lifestyle. Such a tower would be an eyesore – such monstrosities have no place here.</p> <p>The ‘Keep Australia Beautiful’ adage seems to have been swept aside!</p>	<p><b>Health</b></p> <p>EME levels have been calculated using a methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). ARPANSA, an Australian Government agency in the Health and Ageing portfolio, has established a Radiation Protection Standard specifying limits for general public exposure to RF EME transmissions at frequencies used by wireless base stations. The Australian Communications and Media Authority (ACMA) mandates the exposure limits of the ARPANSA Standard.</p> <p>The maximum EME level calculated for the proposed systems at the Lower Chittering site is 0.12% of the public exposure limit. The setting of standard limits is based on a weight of evidence approach, with a large measure of conservatism towards safety. It’s not correct to assume these matters are settled by any one particular study since the scientific approach requires careful review of all data and replication. Reputable mainstream standards like that applied in Australia formulate public RF exposure limits to be safe for continuous 24/7 exposure of all members of the general public, regardless of their age or health status. They are not considered only suitable for short term exposures.</p> <p>Public health is not a matter that is assessable by local government as the Australian Communications and Media Authority (ACMA) issue operating licenses that ensure compliance with Federal regulations administered by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). The State Planning Policy states, “Based on ARPANSA’s findings, setback distances for telecommunications infrastructure are not to be set out in local planning schemes or local planning policies to address health or safety standards for human exposure to electromagnetic emissions...When preparing or reviewing local planning schemes or local planning policies, local governments should ensure that...Buffer zones and/or setback distances are not included in local planning schemes or local planning policies...”</p> <p>Furthermore, the State Administrative Tribunal (SAT) has ruled that <i>it is disingenuous to demand a guarantee of no adverse health impact when</i></p>	<p>Per the officer’s report, aesthetic rationale is not a valid planning reason. The installation of nbn infrastructure is a federal government initiative that intends to provide high speed internet services. On this basis the report concludes that the nbn services are of greater long term value than the visual impacts.</p> <p>The applicant’s report provides data that suggest the maximum EME levels to be generated will not cause any harm to residents.</p> <p>Noted. The proposed tower is to address federal government initiative that intends to provide high speed internet services and would not relate to the existing tower in close proximity.</p> <p>Noted. As per the Applicants response the wholesale service has consistently exceeded 99.90% availability.</p> <p>Noted. Devaluation of property is not a planning consideration.</p> <p>Noted. As stated above, aesthetic rationale is not a valid planning reason. The installation of nbn infrastructure is a federal government initiative that intends to provide high speed internet services. On this basis the report concludes that the nbn services are of greater long term value than the visual impacts.</p>

		<p><i>all the currently available expert material in this field suggests that the issue simply does not arise on the basis of present knowledge and research.</i></p> <p>Health is not a planning consideration and should be set aside.</p> <p><b><u>Property Values</u></b></p> <p>Perceptions of impacts on property values is not a planning consideration. Nonetheless to our knowledge there is no documented or reputable evidence of land values being affected by telecommunications infrastructure.</p> <p><b><u>Weather Conditions</u></b></p> <p><b>nbn</b> advises that where it has gone live, the fixed wireless wholesale service has surpassed design and operational targets at different locations around Australia and in a variety of different weather conditions. Despite this, the wholesale service has consistently exceeded 99.90% availability. The high quality of nbn™’s fixed wireless network is due to the siting and design of individual network facilities (proximity of facilities and capped number of subscribers); the high-quality equipment deployed both on locally-situated network facilities and on subscribers’ rooftops; and the frequency utilised which is generally not as susceptible to severe weather conditions such as rain or fog.</p> <p><b><u>Visual Impact</u></b></p> <p>It is recognised that the facility will be visible from some aspects however completely invisible from others within a closer proximity due to the existing vegetation in the area that assists in screening the facility. The impact of the proposal on the visual landscape is considered to be acceptable in the context of the broader benefit that the nbn will bring to the area. Photo montages have been prepared to provide clarity to the community on the visual impact from certain viewpoints.</p> <p>The SAT has ruled that height is an integral part of a mobile phone base station. “While it is true that the tower will be higher than any other point in the immediate vicinity of the subject land, such height is an integral part of the successful functioning of the infrastructure, a matter recognised by SPP 5.2, cl 2.3 (‘mounted clear of surrounding obstructions’).” Optus Mobile v City of Stirling [2008] WASAT 238 [59].</p> <p>Furthermore, “the planning framework does not require the tower to be invisible.” Telstra Corporation v Shire of Waroona [2012] WASAT 179.</p> <p>In the case of nbn co limited v City of Albany [2016] WASAT 61, “There can be no doubt that part of the proposed development will be visible from a number of locations within the locality. The Tribunal is satisfied, however, that only the upper part of the monopole (and its attachments) will be visible. The fact that part of</p>	
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		<p>the proposed development will be visible does not, of itself, mean that the proposed development will have a negative impact on the visual amenity of the locality. As can be seen from SPP 5.2, factors such as the prominence of the development within the landscape, the extent to which visual aspects of value to the community as a whole might be compromised, and the degree to which the development is sympathetic to the surrounding landscape are relevant to this assessment".</p>	
<p><b>Public 15 SUPPORT</b></p>	<p>Support</p>		<p>Noted.</p>

\*Note: Comments are as per original submission received by the Shire. Submission comments have not been edited unless for the purposes of confidentiality where necessary.









## Attachment 4 – Assessment of compliance with State Planning Policies and Local and State Planning Strategies.

### Statutory Provisions

State: *State Planning Policy 5.2 – Telecommunications Infrastructure (SPP5.2)* provides the most comprehensive guide to determining such applications. *SPP5.2* provides clear guidance for information which is to be included in any planning application.

Throughout the process, the Shire has referred to *SPP5.2*, which has been read in conjunction with the *'Guidelines for the Location, Siting and Design of Telecommunication Infrastructure'* (2008):

(l) *the effect of the proposal on the cultural heritage significance of the area in which the development is located;*

Officers have taken into consideration the provisions of the *Shire of Chittering's Local Planning Scheme No.6*. There is no known documentation which identifies this locality as being of any heritage significance.

(m) *the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;*

The amenity of the area will be largely preserved if the Telecommunications Infrastructure was to be established within the subject property. While a small number of properties have direct views towards this location, the siting of the proposed tower through its setback and location of the facility are unlikely to significantly affect the existing panoramas currently enjoyed.

It is recognised that the facility will be visible from some aspects however completely invisible from others within a closer proximity due to the existing vegetation in the area that assists in screening the facility. The impact of the proposal on the visual landscape is considered

The visual impacts are indicated on the photomontages included in attachment 3.

With its grey colouring and streamline monopole, the infrastructure is not as visually intrusive as a lattice structure with red and white colouring.

(n) *the amenity of the locality including the following —*

(i) *environmental impacts of the development;*

(ii) *the character of the locality;*

(iii) *social impacts of the development;*

The applicant advised that they undertook a desktop study of the Department of Environmental Regulation 'Environmental Sensitive Areas' mapping system. (see attachment 1 Section 7.6 Flora and Fauna Study (p. 23).

From a characteristic perspective, some residents raised concern regarding the development application.

These concerns have been addressed by Council Officers and the applicant in the Schedule of Submissions, however it is considered that this proposal will not have a detrimental social impact nor impact the existing character of the area.

(r) *the suitability of the land for the development taking into account the possible risk to human health or safety;*

The applicant has submitted an Electromagnetic Energy (EME) report, which identifies that the infrastructure would emit approximately 0.012% of the maximum safe level of radiation exposure. As the State Planning Policy requires this specific report type, the applicant's report is to be accepted. This acceptability is reinforced by State Planning policy 5.2.

- (x) *the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;*  
As stated previously within this report, the impact of the development is considered to be positive as it will allow access to the national broadband network. In terms of built form, the infrastructure may have a short term visual amenity impact, however over time this may dissipate. This statement is based on other examples within the Shire and regionally.
- (y) *any submissions received on the application;*  
All submissions received by the Shire have been included and addressed in attachment 2 – Schedule of Submissions with responses addressed from both the applicant and also Shire Officers.
- (za) *the comments or submissions received from any authority consulted under clause 66.*  
All submissions received by the Shire have been included and addressed in attachment 2 – Schedule of Submissions with responses addressed from both the applicant and also Shire Officers.

It is recognised that the facility will be visible from some aspects however completely invisible from others within a closer proximity due to the existing vegetation in the area that assists in screening the facility. The impact of the proposal on the visual landscape is considered

With its grey colouring and streamline monopole, the infrastructure is not as visually intrusive as a lattice structure with red and white colouring.

### **Policy implications**

State: State Planning Policy 5.2 Telecommunications Infrastructure

Policy objectives:

- a) *facilitate the provision of telecommunications infrastructure in an efficient and environmentally responsible manner to meet community needs;*
- b) *manage the environmental, cultural heritage, visual and social impacts of telecommunications infrastructure;*
- c) *ensure that telecommunications infrastructure is included in relevant planning processes as essential infrastructure for business, personal and emergency reasons; and,*
- d) *promote a consistent approach in the preparation, assessment and determination of planning decisions for telecommunications infrastructure.*

### **Policy Measure 1**

***Telecommunications infrastructure should be sited and designed to minimize visual impact***

### Applicant's response

*The proposal involves the erection of a new facility incorporating a 45m monopole and associated ground level equipment. The height and design of the proposed tower is considered to be the minimum required to achieve reasonable transmission objectives. Nbn considers that the proposed new facility will have minimal visual impact on the existing landscape setting as seen by local residents and people passing through the area.*

### Officer response

In reference to the proposed location of the 45m monopole and associated infrastructure within the compound, it is acknowledged that there will be some visual impact on the amenity of the area. The streamline design of the monopole is less obtrusive than a traditional truss style tower. The area within the site which the proposed monopole is to be sited is largely surrounded by trees and requires no clearing which in turn reduces the impact of the infrastructure from the street level. It is considered that over time infrastructure such as monopoles become part of the visual landscape and less offensive to surrounding residents.

#### **Specific Policy Measures**

- |  |
|--|
| a) <i>Telecommunications infrastructure should be located where it will not be prominently visible from significant viewing locations such as scenic routes lookouts and recreation sites.</i> |
|--|

#### Applicant's response

*The site is located in a low density rural residential area, 10km north of Bullsbrook. The specific location within the property is setback 200m behind Hereford Way.*

#### Officer response

The proposed 45m monopole if approved will be located atop the plateau of the subject property. Whilst the existing vista may be a significant view point, the infrastructure is to be located on a small portion of a panoramic vista. Therefore the design of the slim line monopole is not considered to be significantly visually obtrusive when viewed from the eastern adjoining properties. Other locations are represented within the photo montages as supplied by the applicant.

- |   |
|---|
| b) <i>Telecommunication Infrastructure should be located to avoid detracting from a significant view of a heritage item or place, a landmark, streetscape, vista or panorama, whether viewed from public or private land.</i> |
|---|

#### Applicant's response

*The facility is designed so as not to compromise any significant views or places of significance or local landmarks. Additionally, the subject site is located a long distance from existing residential development and community sensitive land uses.*

#### Officer response

A significant portion of dwellings located in close vicinity to the subject property are oriented away from the proposed location itself and are otherwise obstructed by mature evergreen trees.

- |   |
|---|
| c) <i>Telecommunication Infrastructure should not be located where environmental, cultural heritage, social and visual landscape values may be compromised.</i> |
|---|

#### Applicant's response

*The construction area and overall compound area of the facility is designed to have minimal disturbance to the environmental characteristics of the site. The installation of the proposed facility can be undertaken at any time and is not anticipated to affect the use of the site or the surrounding area due to the accessibility of the site.*

#### Officer response

The applicant has undertaken studies pertaining to the cultural heritage of the reserve (both indigenous and European (p. 22) and the investigation did not identify any registered cultural, historical or environmental heritage significance in the immediate vicinity of the proposed site.

*d) Telecommunication Infrastructure should display design features including scale, materials, external colours and finishes that sympathetic to the surrounding landscape.*

Applicant's response

To minimise the visual impact of the facility nbn have proposed the use of a monopole and selected site that is located away from residential land uses. The proposed monopole is a structure that has a small profile and is considered the least visually intrusive design option for a new base station. Furthermore, the monopole will remain unpainted (galvanised steel), which over time has been demonstrated to most successfully blend with the uniform colours of the site's rural setting. No landscaping is proposed due to significant setbacks to surrounding roads as well as existing vegetation and topography mostly screening it from public view.

**Policy Measure 2**

***Telecommunications Facilities should be located where it will facilitate continuous network coverage and/or improve telecommunications services to the community.***

Applicant's response

Nbn through its strategic planning processes has identified this site as having the potential to establish a link between nbn facilities at Bullsbrook West in order to provide nbn fixed wireless broadband coverage to premises in the Lower Chittering area.

Officer response

The applicant has ascertained that the proposed location for the less visually significant monopole structure best meets the nbn's coverage objectives for the area, while also providing a service not otherwise available. There may be future co-location of a telco operator, however this cannot be considered or prevented through this application.

**Policy Measure 3**

***Telecommunication cables should be co-located whenever possible***

Officer response

The applicant in their submission has identified that there is no existing infrastructure in the area capable of co-location.

*a) Cables and lines should be located within an existing underground conduit or duct.*

Applicant's response

The connection to power is subject to Western Power recommendations.

Officer response

The applicant is responsible for undertaking consultations with Western Power prior to submission of a planning application. In any event, the proposed plans identify underground cabling, which provides a greater amenity outcome.

*b) Overhead lines and towers should be co-located with existing infrastructure and/or within existing infrastructure corridors and/or mounted on existing or proposed buildings.*

Applicant's response

*There are no structures or buildings of sufficient height within the surrounding area that could facilitate nbn infrastructure.*

Officer response

Generally speaking, telecommunications operators (such as Telstra, Vodafone or Optus) preference co-location as it is both less expensive to construct and is not subject to any local authority approvals. Moreover a site visit has confirmed that there is no availability of co-location or siting on any sufficient existing commercial and/or industrial buildings within this locality.

State: Visual Landscape Planning in Western Australia (2008)

Applicant's response

*The guiding principles for the location, siting and design of Telecommunications Infrastructure (Guiding Principles) is published by the Western Australian Planning Commission to underpin State Planning Policy 5.2. The guiding principles philosophy is also reiterated in Part Three of Visual Landscape Planning in Western Australia – a manual for evaluation, assessment, siting and design which was also prepared by the WAPC. The Guiding Principles were taken into consideration when selecting the site and selecting the structure.*

Officer response

In undertaking the assessment of this application, Officers took due regard in relation to the *Western Australian Planning Commissions State Planning Policy 5.2* and also the guiding document, *Visual Landscape Planning in Western Australia (2007)*.

This guiding policy indicates the importance of the provision of telecommunications, as *'the WAPC State Planning Strategy that advocates the provision of effective statewide telecommunications network in a manner consistent with the state's sustainability objectives (environmental, economic and social planning objectives'* (p. 135, *Visual Landscape Planning in Western Australia (2008)*).

In relation to the document, it is acknowledged that Telecommunications Infrastructure may be negatively perceived as, *'regardless of the visual prominence of utility towers, the community's perception of the importance of their function may impact on their perceived visual impact and therefore on the extent of visibility that is acceptable. For example, towers designed to provide safety, including lighthouses and airport control towers, may be perceived favourably.....Public suspicion about potential health risks associated with mobile phone towers and power transmission lines may result in these being less tolerated'* (p. 128). This is reiterated and the assumption that *'towers are least tolerated in natural landscapes and more likely to be considered acceptable in rural landscapes'* (p. 128) in one submission received in regards to this application.

State: State Planning Strategy 2050 (2014)

The State Government, has in its *State Planning Strategy 2050 (2014)* outlined its strategic direction for the state and ascertained a variety of areas it envisaged to achieve socially, environmentally and economically. The document outlines areas including 'Telecommunications' from which they wish to plan for, with it outlining that *"Telecommunications facilities are also crucial to improving regional and remote education and training outcomes"* (p. 44). Furthermore one of the objective states that they wish to *'To ensure those responsible for telecommunications take into account Western Australia's planning and development priorities and requirements'* (p. 83).

Importantly it also ascertains that *"Telecommunications services in Western Australia are provided through a mixture of fixed, wireless and satellite based networks operated by a number of licensed commercial carriers. Technology improvements mean that telecommunications infrastructure is in a*

*constant state of upgrade, expansion and replenishment*" (p. 83). This is something in which the applicant is trying to achieve through its proposed telecommunications infrastructure. The aspirations of this scheme also detail specifically that it is envisaged that:

- *Regional WA has reliable access to high-speed telecommunications*
- *Deployment of a high-speed and reliable broadband and telecommunications network for the whole community*
- *Telecommunications improves everyday life and assists business growth* (p. 84).

The State's strategic document clearly outlines the State government's support in establishing a broad range of telecommunications infrastructure for both urban and regional centres, with an underpinning theme of enhancing the social and economic benefits of its residents. The application meets the aspirations of the document in relation to telecommunications as it potentially provides a regional Shire with a rapidly growing population on the peri urban fringe with a service which may have a vast improvement on to the existing infrastructure currently available.

Critically it also ascertains that *'Telecommunications facilities are also crucial to improving regional and remote education and training outcomes'* (p. 44). The application therefore has strong strategic implications that intend to allow for such development in growth areas of the State.

Local: *Shire of Chittering Local Planning Strategy (2001 – 2015)*

The *Shire of Chittering Local Planning Strategy* outlines the long term goals of the Shire. In the mission statement of the document it states that:

*"Our Mission is to work with and for the community to:*

- *Protect our natural environment*
- *Enhance our rural lifestyle*
- *Develop quality services and facilities*
- *Facilitate suitable development and employment opportunities"* (p. 2).

Whilst the mission states that the Shire is to protect the natural environment, it also is encouraging of providing facilities and infrastructure which will enhance the rural lifestyle and also facilitate suitable development and employment opportunities.

The proposed Telecommunications Infrastructure is an opportunity for the Shire to establish infrastructure which would enhance the lifestyle of many of the residents within the Lower Chittering area who use internet services on a daily basis for educational, business and personal pursuits.

It also has a minimal impact on the environment in terms of being located in a cleared area amongst trees.

In a State Planning Strategy context, the Local Planning Strategy follows the regional vision statements of the State Planning Strategy:

- *Development of a range of expanded and consolidated towns linked by improved infrastructure*
- *Encouragement of innovation in agriculture, environmental management, and downstream processing of agricultural produce*
- *Rehabilitation and protection of productive farmlands*
- *Maintain and enhance vibrant, viable communities*
- *Sustainable management of the natural resources*

The development of the Telecommunications Infrastructure in the Maryville Downs Estate would provide an opportunity for the aims of the strategy mentioned above to be met and improved as it would enable increased connectivity for business within the Estate.

Local: *Shire of Chittering Strategic Community Plan (2012-2022)*

The Shire's Strategic Community Plan, 'Economic: Prosperity for the Future' section states 'Our Vision' as: *Chittering will have created a prosperous and thriving economy to ensure employment is available and Chittering thrives. Our natural areas will continue to attract visitors and be a weekend destination.*

This outcome to 'Support Local Businesses' in the strategy was to 'Advocate for improved broadband access. Promote local businesses. The key priorities of this was to Lobby Federal Government, with the timeframe as ongoing with partners such as nbn.

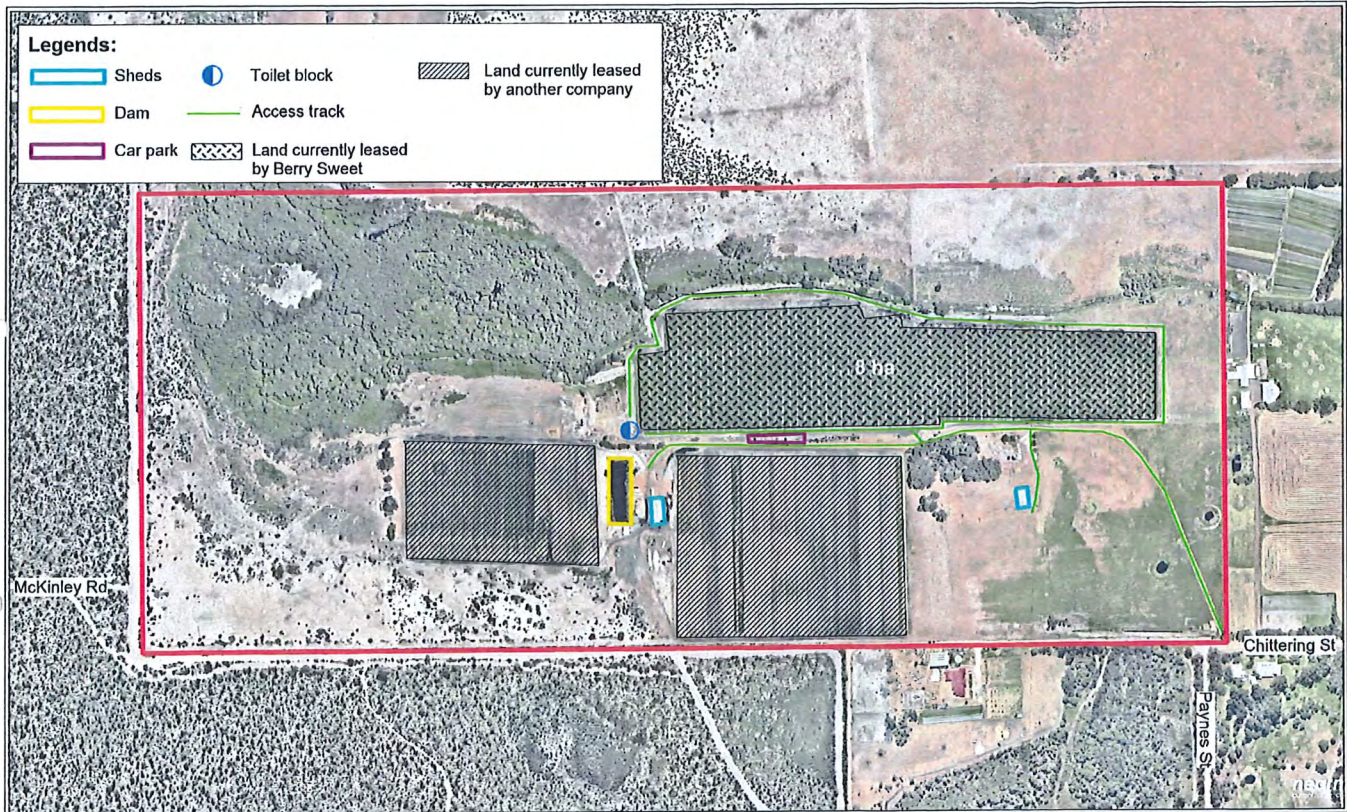
Further to the above, in the section titled "Economic: Prosperity for the Future" the outcome is to "Support Local Businesses" with the strategies to "Advocate for improved broadband access. Promote local businesses". The measurable results state that 'Council proactively participates in the National Broadband Network rollout – level of take up of new "broadband" services (p. 26, Shire of Chittering Strategic Community Plan).

The timeframe was seen as being achieved in the short, medium and long term and reiterates the Shire's desire to obtain such infrastructure to the benefit of the community at large.

Local: *Shire of Chittering Biodiversity Strategy (2010)*

The Shire's *Local Biodiversity Strategy* does not identify the site as a High Indicative Conservation Area and an on-ground assessment has revealed no existing vegetation will be removed or damaged. Therefore, the *Local Biodiversity Strategy* is not considered to be affected by this proposal.



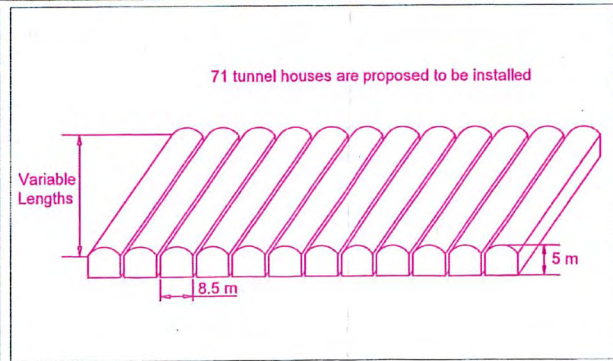
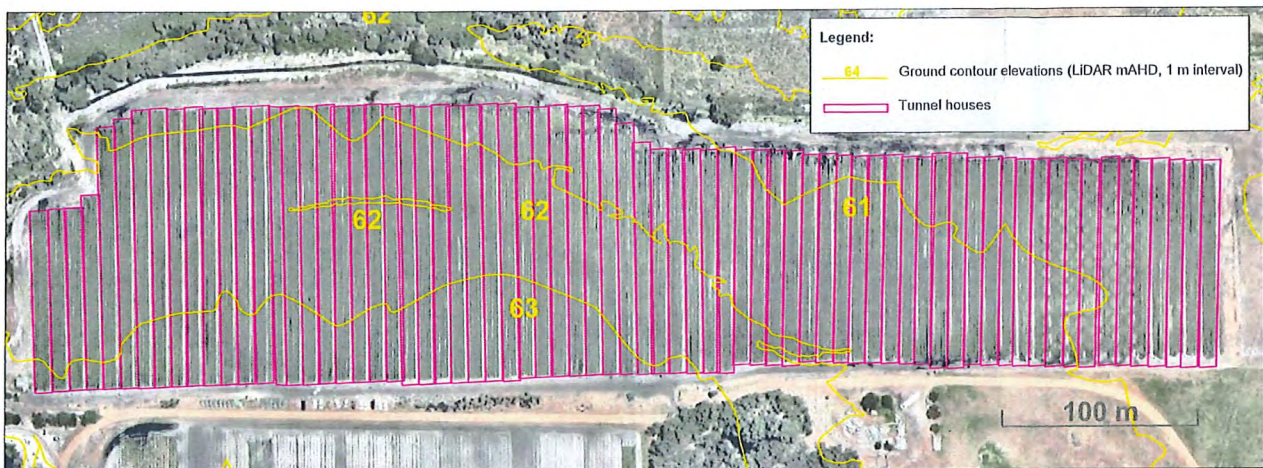


Project Title: DA Application: Tunnel Houses  
 Client: Berry Sweet  
 Date: 16/11/2016  
 Drawn: DA  
 Checked: PK  
 Revision: 0

0m 50m 100m 150m  
 BIOSCIENCE PTY LTD  
 488 NICHOLSON ROAD FORRESTDALE WA 6112  
 PO BOX 5486 CANNING VALE SOUTH WA 6155  
 PHONE: (08) 9397 2446 FAX: (08) 9397 2447  
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 WA IISH: www.biosciencewa.com

**Figure 3. Location of Infrastructures**  
 Lot 1907 (166) Chittering St, Muchea WA 6501

Source: Nearmap - aerial photo from 04/11/2016



Project Title: DA Application: Tunnel Houses  
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**Figure 2. Proposed Development**

Lot 1907 (166) Chittering St, Muchea WA 6501

Source: Nearmap - aerial photo from 04 / 11 / 2016, tunnel house pictures taken on 31 Bingham Rd

Agency Submissions			
Submitter	Comment	Proponent Response	Shire Officer Response
Nil			
Public Submissions			
<b>Public A</b>	<p>Our concerns are of the maintenance of the tunnel houses that they are kept to a standard that there is no refuse blown around.</p> <p>That any rubbish is to be properly disposed of within a certain time frame. We had a neighbouring person accuse us of burning rubbish, which appeared to be coming from the neighbouring property.</p> <p>We are concerned with the heavy chemical use, especially when it is a windy day blowing in our direction. As we are a certified organic farm this could be detrimental to our certification and livelihood and the contamination of ground water supply.</p> <p>Signage is an issue as we have car loads of Asian workers at times coming to our properties from 5am to late evenings on occasions. They don't understand English and don't stop when asked continuing to drive around our property looking to get to the strawberry farm.</p>	<p>At the request of Anthony Yewers, I met and spoke to the couple who own/operate the organic farm who are neighbours, and who we understand expressed concerns about the construction of greenhouses to the Shire of Chittering.</p> <p>The conversation took place a month ago, after my routine inspection of the site.</p> <ol style="list-style-type: none"> <li>1. Maintenance of Tunnel Houses: Their concerns related to the current state of Haygrove tunnels previously installed by BerrySweet in the Swan Valley on West Swan Rd. I explained that these are not owned and controlled by Anthony Yewers of Berry Sweet, but rather by the land owner Norm Gianatti. I explained that loose plastic flapping in the wind damages the structures and that to my certain knowledge, the existing 290 acres of tunnels operated by BerrySweet are very tidy, and no plastic blows or flaps from them. I suggested they visit the facility on Davidson Rd Bullsbrook to confirm that BerrySweet tunnels are neat and well maintained. They seemed happy with this answer.</li> <li>2. Rubbish: I explained the nature of rubbish generated in strawberry production operations. This is essentially the plastic mulch membranes and drip irrigation lines which are removed at the end of each growing season. This are rolled up on a purpose-build machine, placed in a truck, and disposed of to land fill. The beds are then plowed in so that crop trash breaks down in soil. Rolls of used plastic would be present on the site for no more than a few days per year. I assured them I would inform Anthony of their concerns, which I did, and he, without hesitation undertook to make sure that such rolls would be placed into his truck they day the beds were removed.</li> <li>3. Chemical Use: I explained to the neighbours that BerrySweet is in fact a "chemical free" grower, in that they used predatory insects, wasps and mites to control pests. Further, because of the climate control within Haygrove tunnels, the use of fungicides is very limited. Because strawberries are picked daily when in season, they can only use products with very short withholding periods. Such products have very low toxicity. Further, once the tunnels are constructed, the likelihood of any spray drift is significantly reduced. The majority of spray operations that they might witness are applications of foliar fertilisers, rather than chemicals. Again, they seemed happy with this explanation.</li> <li>4. Signage: We discussed the problem of pickers coming onto their farm instead of going to BerrySweet. Anthony Yewers has agreed that a sign will be erected, but it be the block number in</li> </ol>	<p>The recommendation can contain a condition of approval that the tunnel houses are to be maintained to the satisfaction of the Shire after which the applicant can be required to repair or remove the tunnel houses should this standard not be upheld.</p> <p>Noted. The tunnel houses are not deemed to increase intensify the operations, therefore, rubbish is not expected to increase.</p> <p>Chemical use has been addressed in the proponents' property management plan and found to comply.</p> <p>The Shire cannot condition the applicant to erect any signage and must assess the application as is. The officer has made attempts to contact the applicant to possibly encourage signage to be erected that will assist in stopping the flow of workers into neighbouring properties however no response was received.</p>
<b>Public B</b>	<p>I have lived here for more than thirty years and have seen changes but hope that this one does not take place.</p> <p>I have been coping with the trucks and semi trailers, cars, motor bikes, utes, vans for some time as a garden of spring onions and recently strawberries took place. At times it is like grand central station with vehicle noise of shifts coming and going and also the worry of drivers who come speeding out of that gate.</p> <p>I live in a townsite and had hoped to have some peace in my old age so when the neighbours told me of this application I was upset. In the past there has been heavy traffic and it has been hard to cope. The thought of another ugly eyesore is distressing but having heavy trucks and cars through the day and early hours of the morning would be unbearable. Property values may also drop as most people purchasing here are looking for a quiet rural life.</p> <p>I strongly object to any expansion or extension to these businesses because of the intolerable impact it will have to the residence of Chittering Street especially me because my bedroom is 12 meters from the road.</p> <p>I would suggest that using the Energy Road entrance off Brand Highway may be a compromise as the Asian workers who drive to</p>	<p>3. Chemical Use: I explained to the neighbours that BerrySweet is in fact a "chemical free" grower, in that they used predatory insects, wasps and mites to control pests. Further, because of the climate control within Haygrove tunnels, the use of fungicides is very limited. Because strawberries are picked daily when in season, they can only use products with very short withholding periods. Such products have very low toxicity. Further, once the tunnels are constructed, the likelihood of any spray drift is significantly reduced. The majority of spray operations that they might witness are applications of foliar fertilisers, rather than chemicals. Again, they seemed happy with this explanation.</p>	<p>Noted.</p> <p>Noted.</p> <p>Noted. As stipulated in the report, the proposal is not determined to intensify operations and hence increase traffic.</p> <p>The Shire cannot consider property values in its assessment.</p> <p>As above, the tunnel houses are not predicted to expand the operation as they are covering existing fields. In relation to distance from dwellings, the farm complies with setbacks requirements listed in the Shire's Local Planning Policy 18 – Setbacks.</p> <p>The Shire must consider the application as is which has</p>

	<p>these businesses have no regard for traffic laws, some don't even know how to drive. One who hit into me at great speed had only been in the country 5 days, had international driving license but no money, no insurance, no driving ability and no work visa. I would like to see local people employed instead.</p> <p>There is also the problem of stable flies and flies in general.</p> <p>I sincerely hope these 71 Strawberry tunnels which not been allowed.</p>	<p>prominent, red letters, with an arrow, rather than it saying BerrySweet. This is because BerrySweet have experienced a number of problems with prominent signage, including too many backpackers and others coming on site seeking work, and after hours, others coming to help themselves to strawberries. The business has undertaken to explain clearly to new employees where the property is, and to provide them with a simple map explaining where to go. However, the problem is likely to further reduce as increasingly BerrySweet are using contract labour, with contract firms driving pickers to the site in their own buses.</p> <p>5. Other Matters: The neighbours also stated that they were concerned about the dust generated by the traffic moving in and out of the property. Anthony has agreed to two solutions to this. The first is to place limestone gravel, blended with calcium chloride dust suppressant on those gravelly parts of the entrance road which generate dust The second is to place speed limit signs, and let pickers know that if they speed on the site, they will not be employed further.</p>	<p>proposed access from Chittering Street.</p> <p>The Shire's EHO and Ranger conducted a site inspection in May 2016 and found no evidence of stable fly breeding.</p> <p>Noted.</p>
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\*Note: Comments are as per original submission received by the Shire. Submission comments have not been edited unless for the purposes of confidentiality where necessary.



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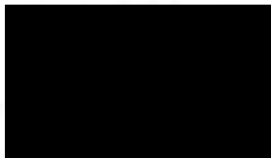
Dear Jeanisse,

**Re: Property Management Plan: 166 Chittering St**

As discussed over the phone on December 8, please find attached the property management plan for 166 Chittering St.

Should further information be required, please contact the undersigned.

Yours sincerely,



**Didier Alanoix**  
Environmental Scientist  
December 8, 2015

SHIRE OF CHITTERING  
RECEIVED  
10 DEC 2015  
Compliance  
file: A5015  
I1566491



Integrating Resource Management

**Property Management Plan:  
Lot 1907 (166) Chittering Street,  
Muchea WA 6501**

**8 December, 2015**



**Property Management Plan**

Lot 1907 (166) Chittering Street, Muchea WA 6501

*Prepared by*

**Didier Alanoix**

Environmental Scientist

*Project Supervisor*

**Peter Keating**

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**Document Control**

Issue	Date	Author	Reviewer	Approved
1	07/12/2015	D. Alanoix	P. Keating	P. Keating



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## Introduction

This Property Management Plan (PMP) was prepared by Bioscience Pty Ltd on behalf of Norman Gianatti, landowner of Lot 1907 (166) Chittering Street, Muchea. Under the Shire of Chittering Town Planning Scheme, it is a requirement for developers to prepare a PMP.

The scope of the PMP is as follows:

1. The statutory environment of the land is outlined;
2. The location and the ownership of the land are identified;
3. Resources and the environmental context are described;
4. Plans and documents relating to the land are provided;
5. The existing environment is described;
6. The catchment and stormwater management are described;
7. An environmental monitoring program is provided;
8. The presence of Acid Sulphate Soils is assessed;
9. Environmental incidents were addressed and preventive/control measures are proposed; and,
10. Ecological risk is assessed.

For the purpose of this report, unless the contrary intention appears:

- 'Land' refers to Lot 1907 (166) Chittering Street, Muchea;
- 'Site' also refers to Lot 1907 (166) Chittering Street, Muchea.



## 1 Statutory Environment of the Land

Lot 1907 (166) Chittering Street is zoned Agricultural Resource in the Shire of Chittering Scheme 6. Although intensive agriculture is permitted under the scheme, farmers must agree to:

- Maintain agricultural lands for primary productive purposes;
- Protect and improve the natural environment, including landscape quality of the land;
- Facilitate the conversion of suitable land to intensive agriculture based upon appropriate soils and water supplies;
- Prevent the loss of productive land to non agricultural purposes;
- Protect and revegetate streamlines to provide for biodiversity corridors;

This PMP demonstrates that the landowner and farmers leasing the land will comply with all five points listed above.



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## **2 Location and Ownership of the Land**

Lot 1907 (166) Chittering Street is located in Muchea WA 6501, Shire of Chittering. It is situated around 42 km north east of Perth City and 2.8 km west of the Ellen Brook (Figure 1).

Norman Lockhart Gianatti is the owner of the land. Two growers are currently leasing 21 ha of the 64 ha property:



### 3 Resources and Environmental Context

#### 3.1 Water Resource

Lot 1907 (166) Chittering Street is located within the Ellen Brook catchment. The catchment is located about 20 km north-east of Perth City and 25 km east from the coastline of Western Australia. The Ellen Brook is a natural, ephemeral waterway which flows south and joins the Swan River near Belhus during the months of May to November. Summer flows are unusual and only occur after significant summer rainfall, however isolated pools of water persist along the channel at several locations in the Bullsbrook area in the south of catchment (Smith and Shams 2002). The surface water catchment area of Ellen Brook, approximately 50 km long north to-south and 20 km wide east-to-west, is 715 km<sup>2</sup>. This area makes the Ellen Brook the largest sub-catchment of the Swan Canning Catchment (Swan River Trust).

#### 3.2 Land Resource

The three major physiographic units in the Ellen Brook catchment are the Swan Coastal Plain in the west, the uplands of the Dandaragan Plateau and the Darling Plateau in the east. Lot 1907 (166) Chittering Street lies within the Swan Coastal Plain. The plain comprises the gently undulating sand plains of the Bassendean Dune System and the clayey alluvial flats of the Pinjarra Plain (Smith and Shams 2002).

#### 3.3 Major Environmental Issues

The three major issues of land and water degradation of concern for land planners and managers within the Swan Coastal Plain of the Ellen Brook Catchment are nutrient entry to groundwater, erosion of banks and slopes and inundation of valley flats.

The Ellen Brook catchment is one of the highest contributors of the nutrients, nitrogen and phosphorus, to the Swan-Canning estuarine system. Very high levels of phosphorus and moderate levels of nitrogen are consistently found in the Ellen Brook. Fertilisers, animal wastes and soil-bound nutrients from current land use activities and the impacts of past management within the catchment are the major source of nutrients into Ellen Brook. As such, water quality management strategies and best management practice will be used on site to prevent nutrients from entering the groundwater. Management practice and strategies are further developed in Sections 6.3 and 6.5.

Within the Ellen Brook catchment, erosion is a major problem along the scarp face, steep slopes of the plateau and the banks of waterways, and is a concern on firebreaks, roads and tracks. Lot 1907 (166) Chittering Street is fairly flat, as such, has little erosion threat. Nonetheless, Section 6.4 identifies possible areas of revegetation to assist with erosion control within the lot.

The flat plains of the catchment, concentrated on the north-south drainage line, are prone to inundation in the winter either through rising watertable or waterlogging on surfaces with low permeability. These areas suffer loss of production, mobilisation of nutrients and seasonal salinity. Although inundation through rising watertable is not an issue on Lot 1907 (166)



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Chittering Street, waterlogging on surfaces could happen during high rainfall events. Stormwater management is discussed in Section 6.5.



#### 4 Relevant Documentation relating to the Land

Lot 1907 (166) Chittering Street is zoned Agricultural Resource in the Shire of Chittering Scheme 6 and has rural land uses. SPP 2.5 *Land Use Planning in Rural Areas* aims to support rural land uses to cater for both anticipated and unexpected future needs. The owner of the land understands that provisions found in this policy should be taken into consideration when developing a rural land.

SPP 2.5 *Land Use Planning in Rural Areas* supports the aims and objectives of SPP 1 *State Planning Framework Policy* (Variation No. 2) and should be read in conjunction with the following policies. Environmental planning and settlement planning in rural areas should consider provisions in SPP2 *Environment and Natural Resources* policy. Specific matters such as industrial buffers and water resources are addressed in policies SPP 4.1 *State Industrial Buffer policy* and SPP 2.9 *Water Resources*.



## 5 Existing Environment

### 5.1 Climate, Temperature and Rainfall

The climate of the area is characterized by Mediterranean climate comprising cool wet winters and hot dry summers. Temperature ranges from cool to cold (i.e. 1 degree) during winter months (May to August) and could reach up to 45 degrees during summer months.

Average annual rainfall (Bureau of Meteorology) recorded at Pearce RAAF weather station (located 10.7 km away from Muchea) is 655 mm, with the majority of rain falling between May and September. Table 1 shows the monthly average rainfall at Pearce RAAF weather station.

Evaporation is likely to be similar to the Perth area, which has an annual evaporation of 1716mm and exceeds the annual average rainfall by a factor of 2.61. Monthly rainfall typically only exceeds evaporation during 4 months, from May to August.

**Table 1: Rainfall and Evaporation at Pearce RAAF Weather Station (Bureau of Meteorology)**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average Rainfall (mm)	7.6	12.2	15.1	34.8	84.9	132.3	133.8	104.2	70.1	36.2	23.7	10.6	655
Average Evaporation (mm)	257	218	195	120	78	57	71	102	99	148	189	253	1716

### 5.2 Topography

The area has a low relief with minor variations in topography (Landgate), the south western corner of the property has an elevation of approximately 60m Australian Height Datum (AHD) rising to spot heights of 75m on sand ridges in the south western section of the property (Figure 2).

### 5.3 Geology and Hydrogeology

#### 5.3.1 Geology

The three major physiographic units in the Ellen Brook catchment are the Swan Coastal Plain in the west, the uplands of the Dandaragan Plateau and the Darling Plateau in the east.

The site lies within the Swan Coastal Plain. The surficial sediments on the Swan Coastal Plain are Late Tertiary to Quaternary in age. The Geological Survey of Western Australia Environmental Geological Series Muchea Map sheet 2034 I and part of 2134 IV (Figure 3) indicates that the site may contain the following soils:

- S8, Bassendean Sand (Qpb) on the western and south-western side of the site; and,
- S10, thin Bassendean Sand over Guildford Clay (Qpb/Qpa) over the rest of the property.



Sands allow groundwater and nutrients to move, and clays hinder groundwater movement and may also bind or exchange nutrients (Smith and Shams 2002).

Cross-section wise, the Bassendean Sand overlies the Guildford Formation, the Gngangara Sand and the Ascot Formation (Panasiewics, 2000).

### 5.3.2 Hydrogeology

A large groundwater resource occurs in the regional unconfined aquifer known as the superficial aquifer. The Gngangara Groundwater Mound that defines the flow of groundwater is influenced by topography, drainage lines and the hydraulic characteristics of the sediments (Davidson, 1995). Within the vicinity of the site, groundwater flows in an eastern direction towards the Ellen Brook (Figure 4).

Shallow groundwater levels fluctuate seasonally by about 1 m and have long term changes that are function of geology, groundwater throughflow, rainfall and abstraction (Smith and Shams 2002).

Groundwater is generally fresh but is locally saline at the watertable, mainly in the southern part of the catchment where the surface geology comprises Guildford Clay. This higher salinity is due to the low hydraulic conductivity (less than 0.2 m/d) of the plastic Guildford Clay and the concentration by evaporation from the very shallow watertable (Smith and Shams 2002).

## 5.4 Surface Water

The creek running from the wetland area is a tributary of the Ellen Brook. The sumpland site is permanently wet and evidence for this can be found in historical aerial photographs of the area. The creek itself is degraded, having been used as a water source for cattle. The Sumpland has been degraded in a number of ways:

- A drainage channel was dug through it
- Cattle were grazed on it.
- Fire was used to clear the undergrowth

Currently the REW is left alone and this has resulted in a very dense undergrowth, mainly of Bracken, Spearwood and Jacksonia sp.

## 5.5 Groundwater Use

Lot 1907 (166) Chittering Street lies within the Lake Mungala groundwater subarea of the Gingin groundwater area. Existing groundwater use on site was assessed through the Department of Water's Water Register database. Four production bores exist within the lot. Three bores, associated with GWL 102190, abstract water from the Superficial aquifer; while the bore associated with GWL176156, abstract water from the Mirrabooka aquifer. Licence allocation and additional information are provided in Table 2 below.





Table 2: Groundwater Use within Lot 1907 (166) Chittering Street

Licence no.	Allocation	Party	Associated number of bores	Aquifer	Subarea	Issue Date	Expiry Date
GWL102190	104400 kL/annum	Norman Gianatti	3	Superficial	Lake Mungala	08/04/2015	18/03/2021
GWL176156	100000 kL/annum	Norman Gianatti	1	Mirrabooka	Lake Mungala	28/10/2013	28/10/2023

## 5.6 Water Supply

On site, irrigation water will be supplied by the production bores.

## 5.7 Flora and Vegetation

A full vegetation survey usually means a level 2 Survey as per EPA Guidance 51. In this instance it was not possible, due to the timing of the survey. Guidance 51 surveys are appropriate for native vegetation in much better condition, and where vegetation units and structure are clearly discernible and comparable to the state's flora database. Accordingly, Bioscience undertook a modified vegetation survey of the subject land involving a careful assessment of the wetland and surrounding areas to document all native species present. This site visit indicated that the majority of native vegetation has been cleared and using the condition rating system of "Bush forever" is completely degraded.

The property can be subdivided into four vegetation zones or areas (Figure 5):

- Wetland area
- Completely cleared
- Banksia woodlands on dunes
- Fringing vegetation of *Kunzea sp.* and Bracken.

A species list for the wetland portion is attached as Appendix A.

## 5.8 Geomorphic Wetlands

The locations of the geomorphic wetlands were obtained through the use of Landgate's WA Atlas. As seen on Figure 6, two wetlands exist on the property.

A Sumpland Resource Enhancement wetland (UFI 8607) exists on the northern side of the property. Onsite assessment revealed that the eastern part of the wetland does not have enough natural assets to be categorized as Resource Enhancement. It is also noted that some areas defined as Resource Enhancement is already completely cleared farmland, suggesting that the mapping might require revision.

In contrast, the assessment also revealed that the western part of UFI 8607 presents natural assets and conditions that would usually be found in Conservation wetlands. An application to reclassify both parts of UFI 8607 was submitted to DER in November 2015



(Appendix C). Should the reclassification be approved, the western part of UFI 8607 would be fenced and protected; while the eastern side would be trimmed to allow farming.

Adjacent to UFI 8607, lies a Multiple Use wetland (UFI 8608). As seen on Figure 7, part of the wetland area will be used for farming.

Two Conservation wetlands (UFI 8593 and UFI 8483) are located south of the property. As these wetlands are not located down-gradient (with respect to groundwater flow), impacts on wetland hydrology by groundwater abstraction are expected to be minimal.

### 5.9 Mound Spring

The site is within a regional biodiversity corridor, and it is believed that the Resource Enhancement Wetland (UFI 8607), existing within the property, may contain a Mound Spring, which would make it only one of four vegetated Mound Springs remaining in the Swan Coastal plain.

Mound springs occur where the heavy clay soils of the Guildford Formation on the eastern side of the Swan Coastal Plain and the Bassendean Dune sands meet. The Bassendean sands contain the Gnangara Mound, a shallow aquifer that extends from the Moore River to the Swan River. This groundwater is forced to the surface at a series of discharge points on the eastern boundary of the aquifer where waters encounter the impermeable Guildford clays. A permanent supply of fresh water allows the continuous growth of vegetation. The build-up of decayed plant material from this dense vegetation forms peat around the permanent water supply. Water is continually forced, under pressure, to the surface, carrying sand and silt, which enhances the formation of the peat mounds (TEC's of Western Australia – DpaW).

Both a lithological investigation and a wetland assessment were carried out on 27 October 2015. Eight bores were drilled within the vicinity of UFI 8607 (Figure 8). Depths of the investigation ranged between 8 and 15 mBGL. Lithological logs (Appendix B) indicate that Bassendean sands and coffee rock occur mainly within the vicinity of UFI 8607. Guildford clay was found to occur at around 7.5 mBGL in areas located within the western part of the wetland.

The wetland assessment could not be fully undertaken. Overgrown bracken prevented access to the main part of UFI 8607. However, the presence of the Guildford Formation and aerial photographs suggest that some form of mound spring may occur inside the western part of the wetland, which remains permanently wet despite previous drainage.

### 5.10 Dieback Affected Areas

Lot 1907 (166) Chittering street is uninterpretable because of the extensive clearing.



## 6 Catchment and Stormwater Management Plan

### 6.1 Water Usage

On site, two lessees share the water entitlement (total volume of 204,400 kL/yr). Should more water be required, it is understood that the owner of the land would lease water from surrounding users.

### 6.2 Surrounding Land Use and Buffers

#### 6.2.1 Surrounding Land Use

Lot 1907 (166) Chittering street is surrounded by the following land uses:

- Crown Land to the west and to the south of the site;
- Farming land to the north; and
- Vegetable growing and organic farm to the east.

#### 6.2.2 Buffers

Both growers on site are defined as Light Industries under SPP 4.1. The machinery used, and the goods and commodities carried to and from the premises, will not cause any injury to, or will not adversely affect the amenity of the locality by reason of the emission of light, noise, electrical interference, vibration, smell, fumes, smoke vapour, steam, soot, ash, waste water or other waste products; and will not impose an undue load on any existing or proposed service for the supply or provision of water, gas, electricity, sewerage facilities, or any other like services.

As such, according to SPP 4.1, the land will not require any off-site buffer areas. On-site buffer areas should be sufficient to address local amenity. The following setback will be applied on site (upon approval of the Shire of Chittering):

- 10 m from the proposed Conservation Wetland
- 10 m from the property boundaries

### 6.3 Water Quality Strategies, Nutrient Management and Water Use Efficiency

To maximise plant uptake of nutrients and minimise nutrients entering waterways or groundwater, both growers leasing the site use best management practices to reduce water runoff and soil erosion, and maximise plant uptake of applied nutrients.

#### 6.3.1 Fertiliser Decisions and Application

On site, both growers use the following best management practices to improve fertiliser use efficiency:



- Fertiliser applications are based on soil test and leaf analyses.
- Fertiliser applications are recorded to assist future fertiliser management decisions.
- Fertilisers are applied through fertigation. Nutrients are applied close to the plant root zone to ensure that plant nutrient uptake is maximised.
- Fertilisers are applied in several small applications rather than single large applications to ensure maximum nutrient uptake.
- Fertilisers on site are stored as far from the dam and the wetland as possible.

### 6.3.2 Irrigation Methods

Both growers understand that over-watering can cause soil compaction and water logging, encourage root disease, reduce the quality of their production and cause nutrients to leach beyond the root zone making them unavailable for the plant.

On site, water use efficiency is based on the following:

- The decision of when and how much to irrigate is based on soil moisture levels, plant requirements and both growers' many years of experience.
- Small volumes of water are applied frequently rather than occasional heavy applications.
- Drip irrigation is used for strawberry production. This method of irrigation applies water close to the root zone and if managed well, results in zero runoff or seepage.
- Onions are irrigated via overhead sprinklers. Management techniques which promote good soil structure and which minimise the area of bare soil around beds are used. These techniques ensure high rates of water infiltration and lower rates of runoff and erosion.
- Finally, both growers regularly inspect their irrigation and ensure that repairs are carried out promptly should they be needed.

## 6.4 Bank Stability and Erosion Control

### 6.4.1 Bank Stability

To maintain and enhance the existing ecological functions of the REW UFI 8607, revegetation around within the vicinity of the wetland is proposed. Species will be as per the shire's list.

### 6.4.2 Erosion Control

The following practices are used on site to improve soil structure and control erosion:

- Heavy machinery is not used on too dry or too wet soils.
- Narrow compacted wheel tracks channel water and contribute to erosion, On site, the impact of wheel tracks between rows are reduced by using wider tyres on tractors.

## 6.5 Stormwater Management

Rainfall from 1 - 1 year ARI event will be managed by the establishment of grass between rows. This method has been proven to be an effective way of minimising soil movement. The root system holds the soil while the top growth protects the soil surface from water droplets.



It also slows and filters sediment from incoming rainfall or irrigation runoff, improves trafficability, offers a cleaner environment for workers and promotes cleaner fruit by minimising soil splash.

Excess runoff from 1 - 10 year ARI and 1 - 100 year ARI events will be directed naturally towards grass headlands. These uncultivated strips are situated above and below the paddocks. They reduce the speed of and filter sediment from runoff water flowing down rows.

## **7 Site Monitoring**

Monitoring is not a condition of the Town Planning Scheme as long as vineyards and/or orchards are not established on the property.

## **8 Acid Sulphate Soil Assessment**

The ASS Risk Map (Figure 9) presents two areas classified as Class 1 - high to moderate risk of ASS (occurring within 3 m of natural soil surface) - occurring within Lot 190 (166) Chittering Road. The rest of the property is classified as Class 2 (i.e moderate to low risk occurring within 3 m of natural soil surface but high to moderate risk of ASS beyond 3 m).

Farming areas will exclusively occur within the Class 2 zone. Also, land preparation for farming purpose will not involve dewatering, drainage work nor excavation of more than 100 m<sup>3</sup> of soil, and earthwork will not extend 3 m below natural ground surface. As such, as per WAPC ASS Self-Assessment Form and DER ASS Guidelines (2015), no ASS investigation is required (unless otherwise specified by DER).



## 9 Control of Environmental Incidents

Unforeseen releases of polluting substances can present an immediate and unacceptable short-term or long-term threat to the environment and persons. As such, to prevent and control environmental incidents, pesticides, herbicides, and fertilizers will be properly used and stored.

### 9.1 Pesticides and Herbicides Containment and Disposal

The use of pesticides in Australian agriculture is regulated through the Australian Pesticides and Veterinary Medicines Authority. The increasing trend in registration of products is to restrict the use of insecticides, fungicides and fumigants which have half lives of more than a few days. Environmentally persistent pesticides have been progressively deregistered and removed over the last 20 years.

Both dwellers will:

- Follow regulations set by the Australian Pesticides and Veterinary Medicines Authority governing the use, storage, and disposal of pesticides, herbicides and training of applicators and pest control advisors;
- Follow manufacturers' recommendations and label directions;
- Use pesticides only if there is an actual pest problem (not on a regular preventive schedule) and use the minimum amount of chemical needed for the job;
- Not apply pesticides if rain is expected or if wind speeds are above 8 km/h;
- Not mix and prepare pesticides within 30 m of any well, stream or pond;
- Not get rid of unused pesticides by washing them down drains;
- Employ techniques to minimize off-target application (e.g spray drift) of pesticides, including consideration of alternative application techniques;
- Clean pavement and sidewalk if chemicals are spilled on these surfaces before applying irrigation water;
- Store pesticides and herbicides in a storage area with a roof, concrete floor and concrete walls; and,
- Log application of pesticides/herbicides for potential auditing from QA agencies.

### 9.2 Fertilizer Use and Storage

As explained in Section 6.3, fertilizers will be applied to the root zone as needed, thus leaching of nutrient towards groundwater is deemed to be minimal.

Fertilizers will also be stored in a storage area with roof, concrete floor and concrete walls.



## 10 Ecological Risk Assessment

The site is not immediately upstream of any sensitive natural water resources or any groundwater user abstracting from the Superficial Aquifer, as such, risk associated with the farming activities is deemed to be low.

In addition, best practice management will be used on site to prevent leaching of nutrients and soil erosion.





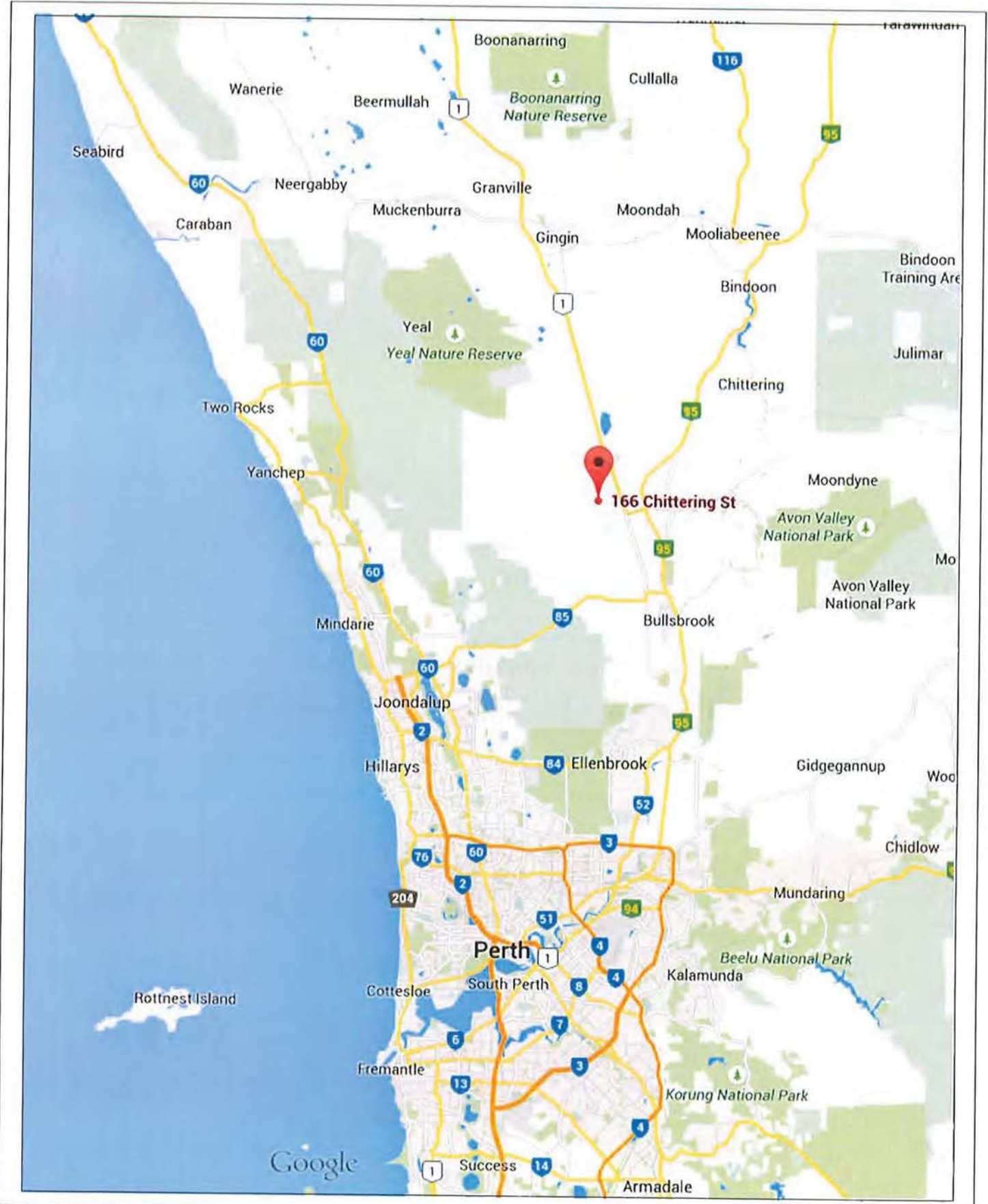
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## References

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- TEC's of Western Australia – DpaW: Organic Mound Springs of the Swan Coastal Plain



**Figures**



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Legend:



Site

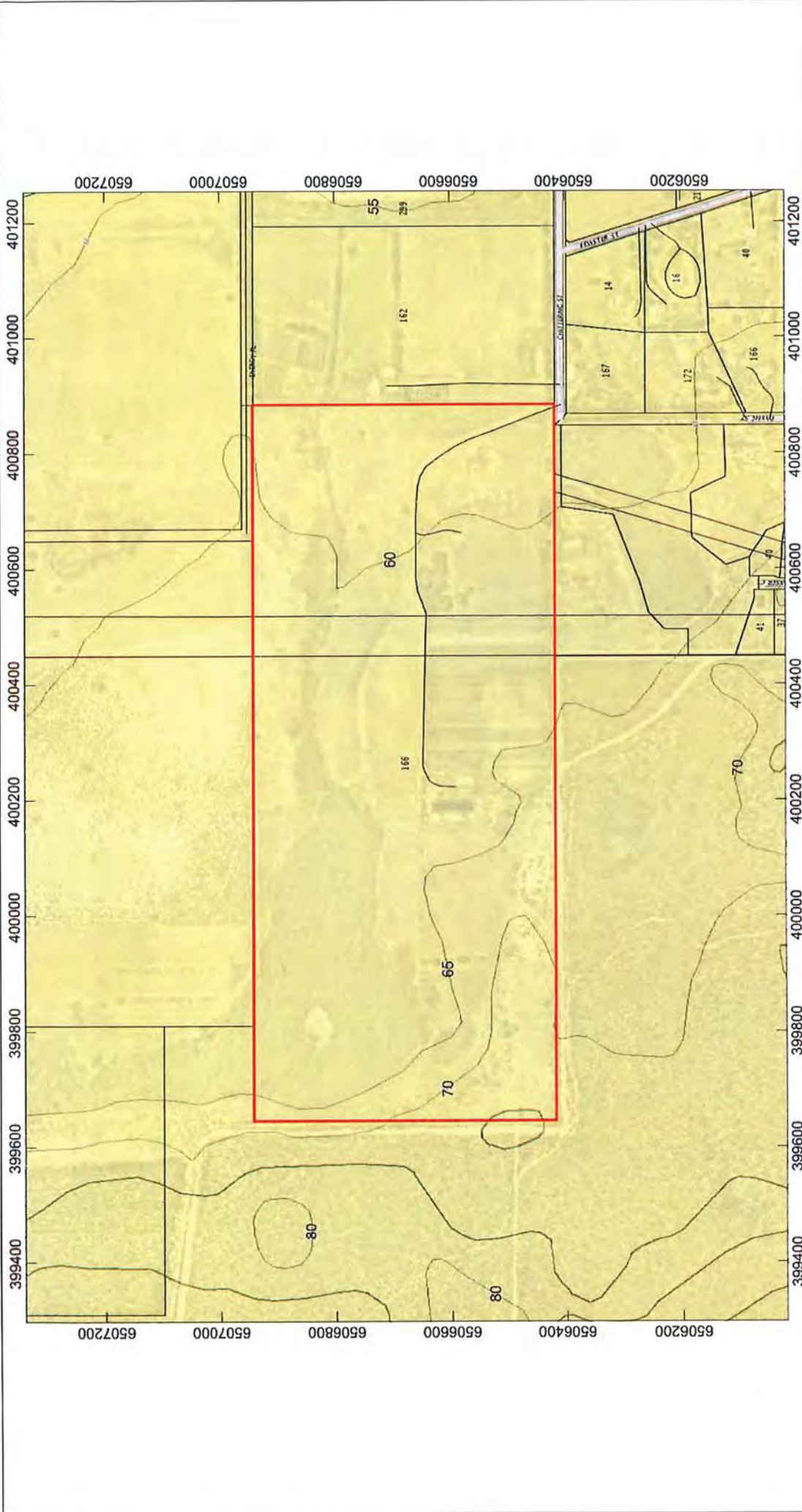


Data Source: Google Map

Datum: n/a  
 Project Title: PMP 166 Chittering St  
 Client: N. Gianatti  
 Date: 17/08/2015

Drawn: D. Alanoix  
 Checked: P. Keating

**Figure 1. Location Plan**



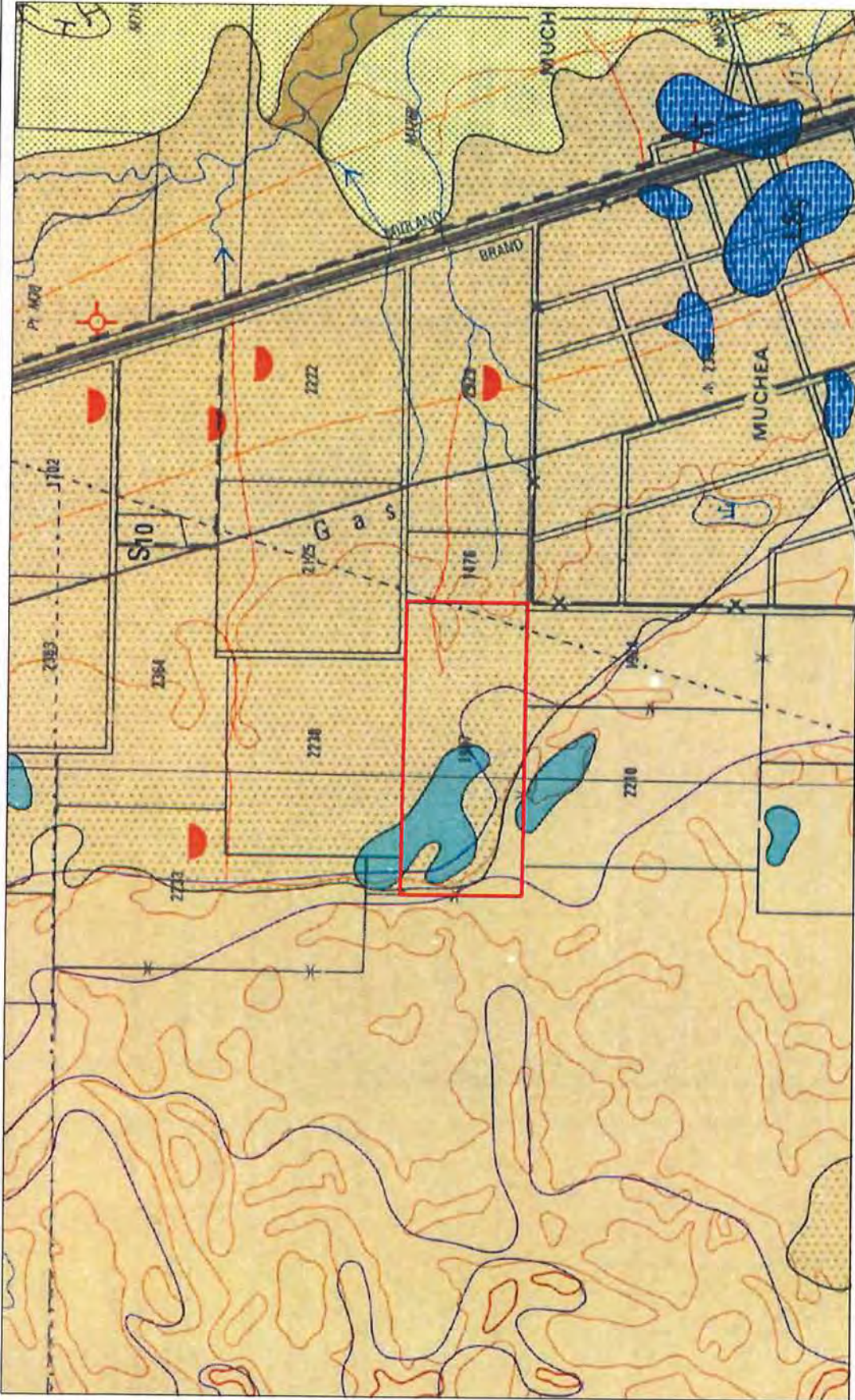
**Datum:** WGS84 UTM Zone 50S  
**Project Title:** Property Management Plan: 166 Chittering Street  
**Client:** N. Gianatti  
**Date:** 17/08/2015  
**Drawn:** Didier Alanoix  
**Checked:** Peter Keating


**Figure 2. Surface Elevations**

**Legend:**  
— Property boundaries  
— 70 Contours of surface elevations

Data Source: Nearmap and WA Atlas

  
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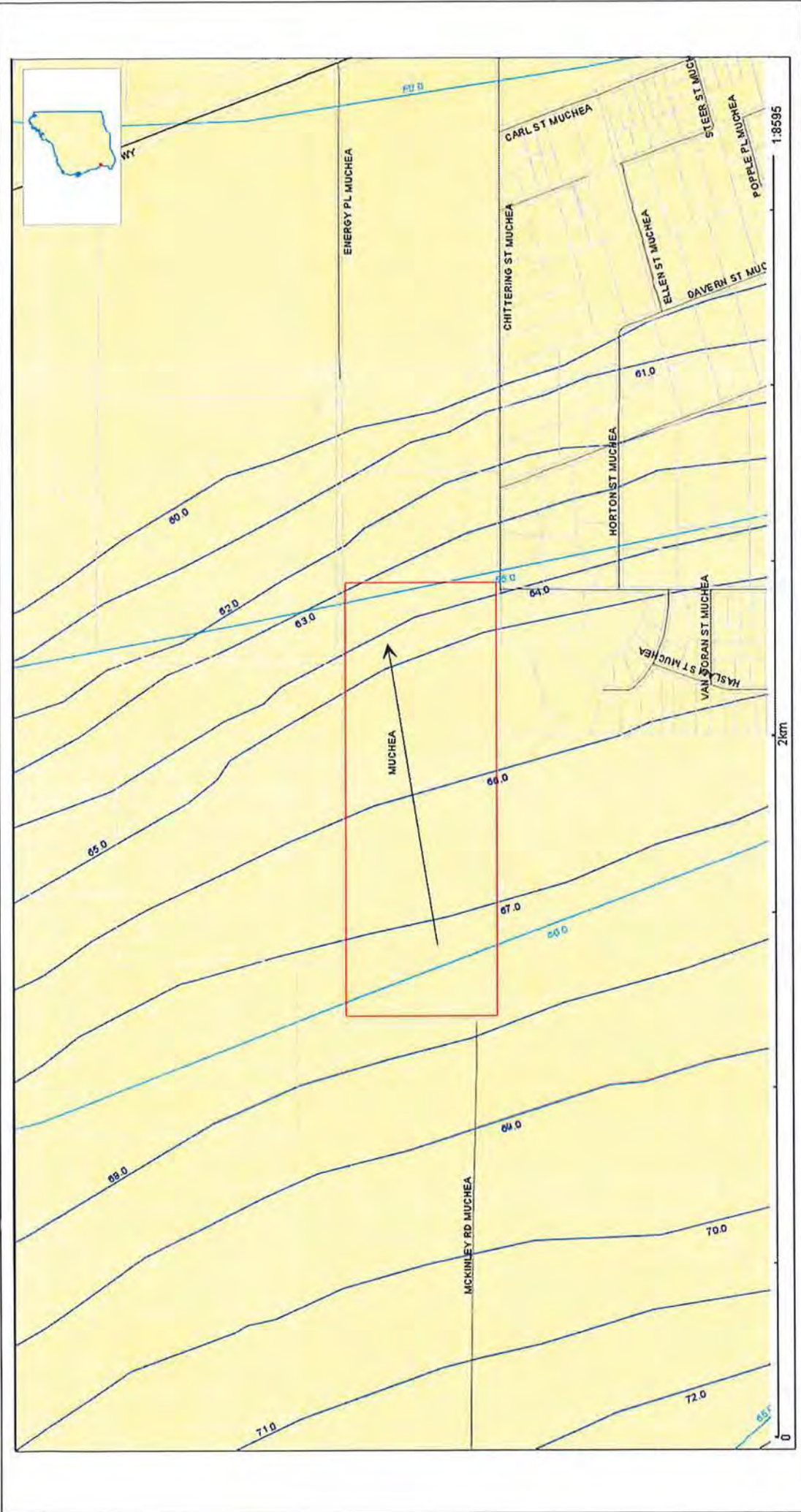
- Legend:**
-  Property boundaries
  -  Bassendean Sand (Qpb)
  -  Thin Bassendean Sand over Guildford Formation (Qpb/Qpa)

Data Source: Geological Survey of Western Australia

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Datum: n/a  
 Project Title: Property Management Plan: 166 Chiltering Street  
 Client: N. Gianatti  
 Date: 17/08/2015  
 Drawn: Didier Alanoix  
 Checked: Peter Keating

Figure 3. Geological Settings



**Datum:** n/a  
**Project Title:** Property Management Plan: 166 Chittering Street  
**Client:** N. Gianatti  
**Date:** 17/08/2015  
**Drawn:** Didier Alanoix  
**Checked:** Peter Keating

**Figure 4. Groundwater Flow**



**Legend:**

- Property boundaries
- Groundwater contour, historical max
- Groundwater contour, May 2003
- ↗ Flow direction

Data Source: The Perth Groundwater Atlas



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- Legend:**
- Wetland area
  - Fringing vegetation of Kunzea sp and Bracken
  - Banksia woodlands on dunes
  - Completely cleared

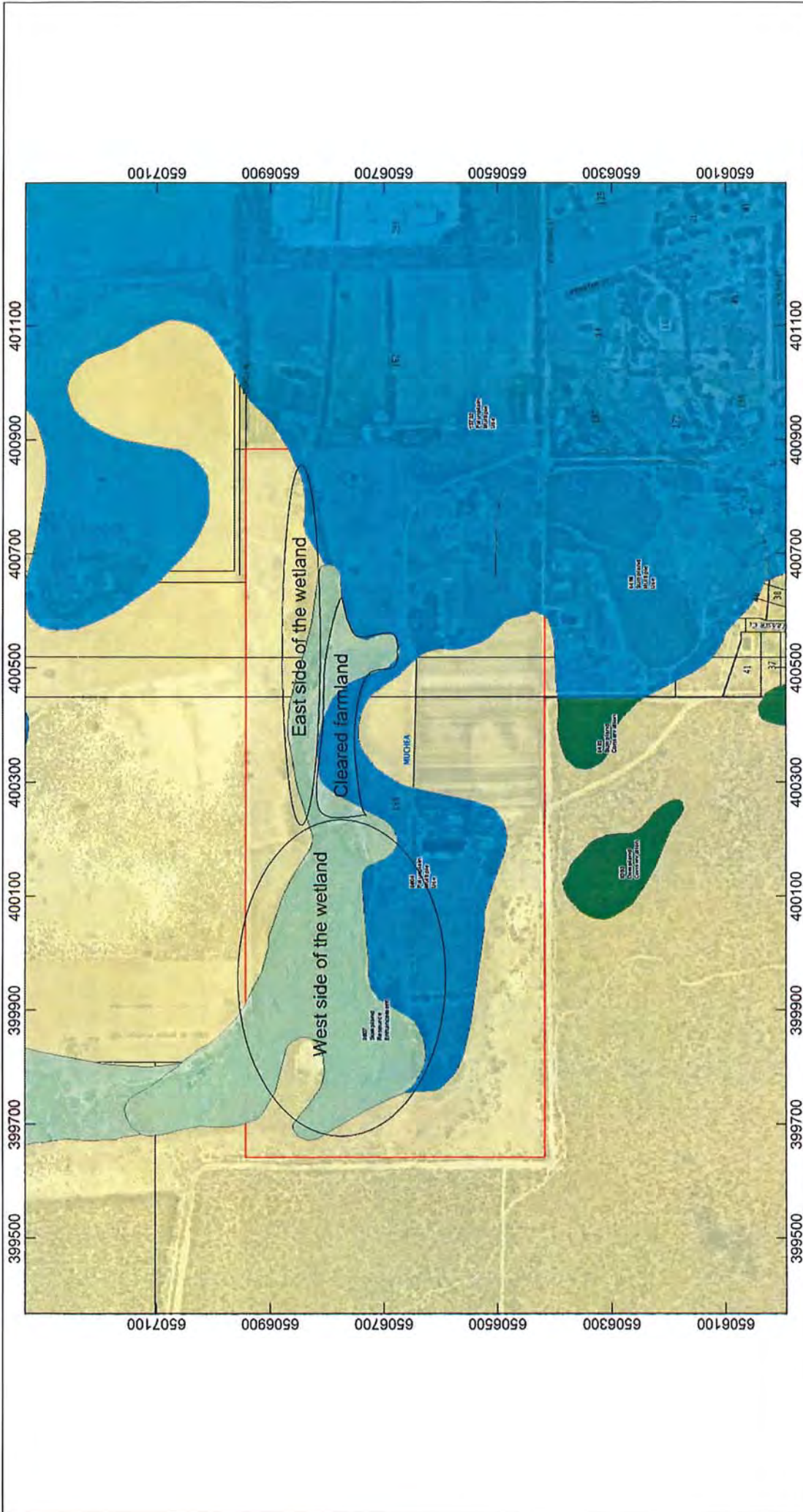
Data Source: Nearmap and Bioscience

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Datum: n/a  
 Project Title: Property Management Plan: 166 Chittering Street  
 Client: N. Gianatti  
 Date: 30/11/2015  
 Drawn: Mark Bundoock & Didier Alanoix  
 Checked: Peter Keating

**Figure 5. Vegetation Zone**



- Legend:**
- Property boundaries
  - Conservation
  - Resource Enhancement
  - Multiple Use
  - Not classified as wetland
- Data Source: Nearmap and WA Atlas

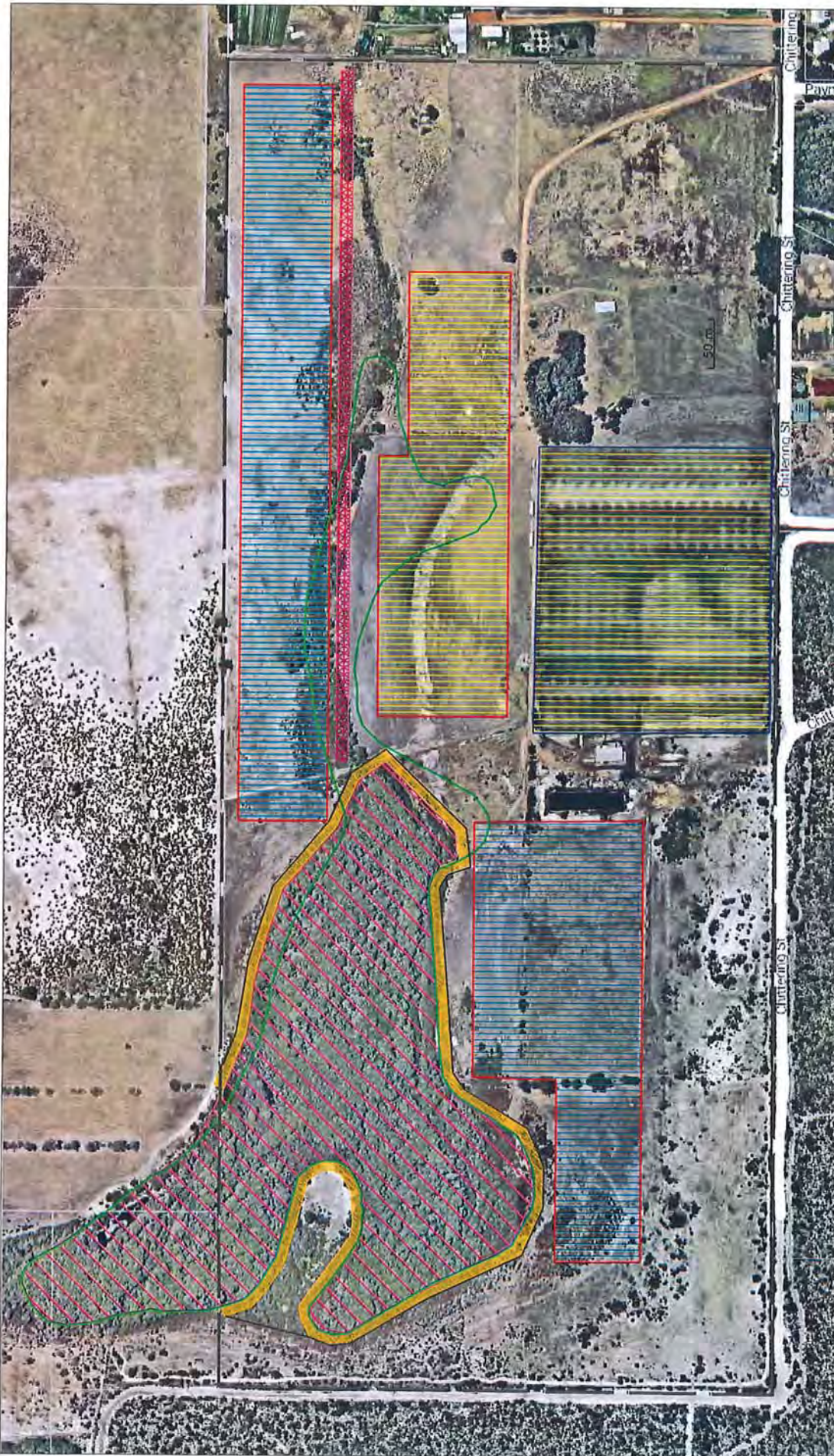
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Datum: WGS84 UTM Zone 50S  
 Project Title: Property Management Plan: 166 Chittering Street  
 Client: N. Gianatti  
 Date: 12/08/2015

Drawn: Didier Alanoix  
 Checked: Peter Keating

**Figure 6. Geomorphic Wetlands**





**Datum:** n/a  
**Project Title:** Chittering St - PMP  
**Location:** 166 Chittering St, Muchea  
**Client:** N. Gianatti  
**Date:** 27/1/2015  
**Drawn:** Didier Alanoix  
**Checked:** Peter Keating  
**Figure 7. Development Plan**

**Legend:**

- Property boundary
- REW UFI 8607 boundary
- Proposed CCW
- Proposed area of UFI 8607 (eastern part)
- Proposed buffer to CCW (10 m)
- Proposed fence line to CCW
- Area leased by grower 1

- Area leased by grower 2
- Area currently farmed on site
- Proposed area to be farmed

Data Source: Nearmap

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Legend:



Datum: WGS84 UTM Zone 50S  
 Project Title: PMP - Chittering St  
 Client: N. Gianotti  
 Date: 02/11/2015

Drawn: Didier Alanoix  
 Checked: Peter Keating

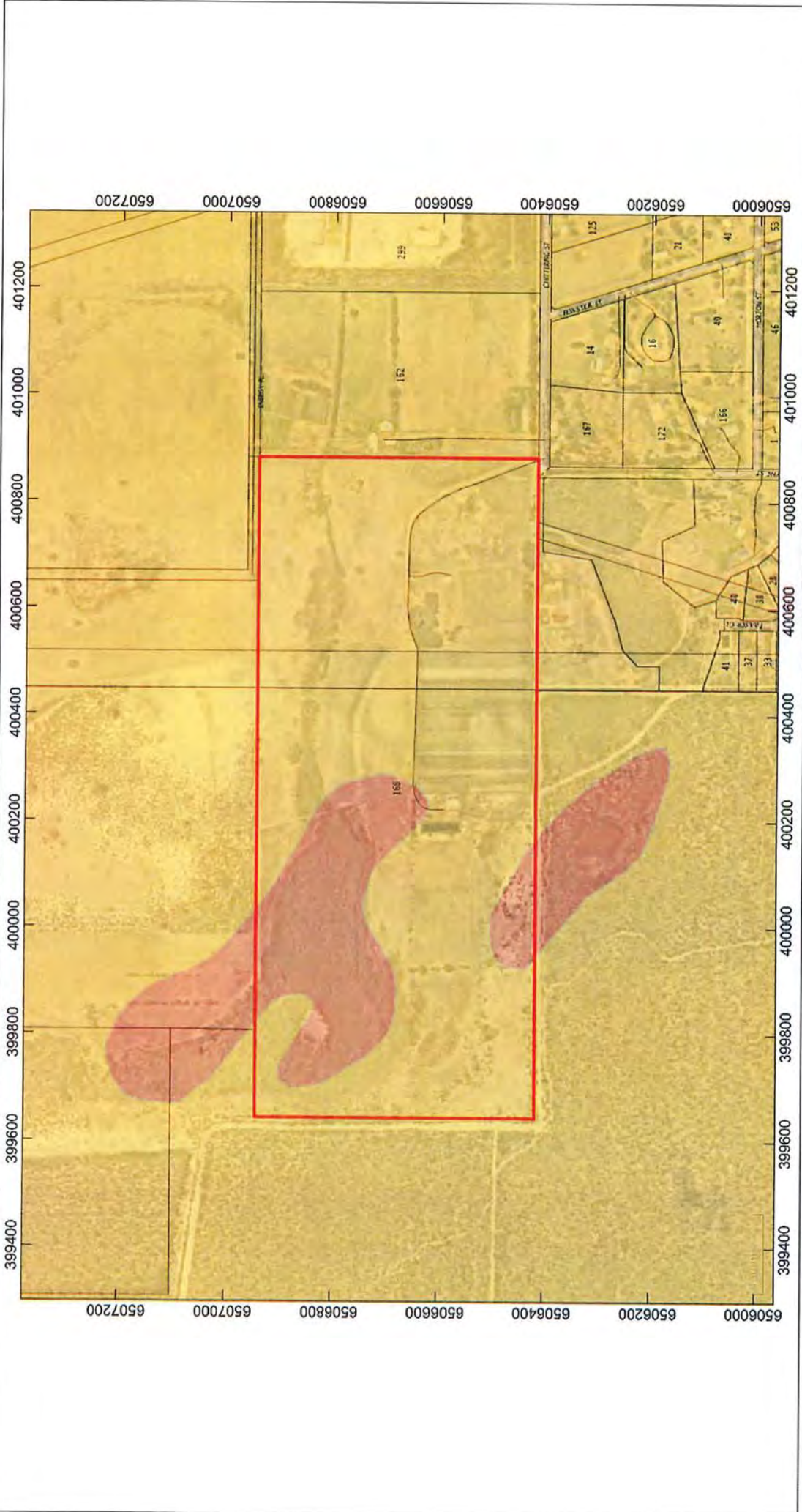
Figure 8. Bore Locations



Data Source: Nearmap 27/06/2015

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**Datum:** WGS84 UTM Zone 50S  
**Project Title:** Property Management Plan: 166 Chittering Street  
**Client:** N. Gianatti  
**Date:** 17/08/2015  
**Drawn:** Didier Alanoix  
**Checked:** Peter Keating

**Figure 9. ASS Risk Map**

- Legend:**
- Property boundaries
  - Moderate to low risk occurring within 3m of natural soil surface but high to moderate risk of ASS beyond 3m of natural soil surface
  - High to moderate risk of ASS occurring within 3m of natural soil surface

Data Source: Nearmap and WA Atlas

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**Appendices**

# NatureMap Species Report

Created By Guest user on 05/11/2015

Current Names Only Yes  
 Core Datasets Only Yes  
 Method 'By Circle'  
 Centre 115°56' 39" E,31°34' 09" S  
 Buffer 5km  
 Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	446	733
Other specially protected fauna	1	1
Priority 2	3	3
Priority 3	5	16
Priority 4	1	1
Priority 5	1	1
Protected under international agreement	1	2
Rare or likely to become extinct	6	76
<b>TOTAL</b>	<b>464</b>	<b>833</b>

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
<b>Rare or likely to become extinct</b>				
1.	3219 <i>Acacia anomala</i> (Grass Wattle)		T	
2.	24345 <i>Botaurus poiciloptilus</i> (Australasian Bittern)		T	
3.	1596 <i>Caladenia huegelii</i> (Grand Spider Orchid)		T	
4.	34773 <i>Darwinia foetida</i>		T	
5.	14408 <i>Grevillea curviloba</i> subsp. <i>curviloba</i>		T	
6.	14409 <i>Grevillea curviloba</i> subsp. <i>incurva</i>		T	
<b>Protected under international agreement</b>				
7.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)		IA	
<b>Other specially protected fauna</b>				
8.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
<b>Priority 2</b>				
9.	6432 <i>Leucopogon plumuliflorus</i>		P2	
10.	40804 <i>Leucopogon squarrosus</i> subsp. <i>trigynus</i>		P2	
11.	17406 <i>Trichocline</i> sp. <i>Treeton</i> (B.J. Keighery & N. Gibson 564)		P2	
<b>Priority 3</b>				
12.	11229 <i>Acacia drummondii</i> subsp. <i>affinis</i>		P3	
13.	19338 <i>Chamaescilla gibsonii</i>		P3	
14.	16245 <i>Cyathochaeta teretifolia</i>		P3	
15.	25249 <i>Neelaps calonotos</i> (Black-striped Snake)		P3	
16.	12460 <i>Verticordia serrata</i> var. <i>linearis</i>		P3	
<b>Priority 4</b>				
17.	14131 <i>Acacia oncinophylla</i> subsp. <i>patullifolia</i>		P4	
<b>Priority 5</b>				
18.	24153 <i>Isodon obesulus</i> subsp. <i>fusciventer</i> (Quenda, Southern Brown Bandicoot)		P5	
<b>Non-conservation taxon</b>				
19.	15486 <i>Acacia applanata</i>			
20.	11926 <i>Acacia drewiana</i> subsp. <i>drewiana</i>			
21.	3374 <i>Acacia huegelii</i>			
22.	3410 <i>Acacia latericola</i>			
23.	3502 <i>Acacia pulchella</i> (Prickly Moses)			
24.	15481 <i>Acacia pulchella</i> var. <i>glaberrima</i>			
25.	15480 <i>Acacia pulchella</i> var. <i>reflexa</i>			
26.	42600 <i>Acacia salicina</i>			
27.	3527 <i>Acacia saligna</i> (Orange Wattle, Kudjong)			
28.	30032 <i>Acacia saligna</i> subsp. <i>saligna</i>			
29.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
30.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
31.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
32.	6205 <i>Acinotus leucocephalus</i> (Flannel Flower)			
33.	1775 <i>Adenanthos cygnorum</i> (Common Woollybush)			
34.	1779 <i>Adenanthos drummondii</i>			
35.	1791 <i>Adenanthos obovatus</i> (Basket Flower)			
36.	1056 <i>Alexgeorgea nitens</i>			
37.	1721 <i>Allocauarina campestris</i>			
38.	1732 <i>Allocauarina humilis</i> (Dwarf Sheoak)			
39.	1734 <i>Allocauarina microstachya</i>			
40.	2668 <i>Amaranthus powellii</i> (Powell's Amaranth)	Y		
41.	<i>Amitermes heterognathus</i>			
42.	<i>Amitermes modicus</i>			
43.	200 <i>Amphipogon turbinalus</i>			
44.	2380 <i>Amyema miquelii</i> (Stalked Mistletoe)			
45.	<i>Aname mainae</i>			
46.	24310 <i>Anas castanea</i> (Chestnut Teal)			
47.	24312 <i>Anas gracilis</i> (Grey Teal)			
48.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
49.	6311 <i>Andersonia heterophylla</i>			
50.	1409 <i>Anigozanthos humilis</i> (Catspaw)			
51.	11434 <i>Anigozanthos humilis</i> subsp. <i>humilis</i>			
52.	29487 <i>Anigozanthos manglesii</i> var. <i>x angustifolius</i>			
53.	11566 <i>Anigozanthos viridis</i> subsp. <i>viridis</i>			
54.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
55.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
56.	<i>Anthrenocerus australis</i>			
57.	1117 <i>Aphelia cyperoides</i>			
58.	<i>Archiargiolestes pusillus</i>			
59.	24340 <i>Ardea novaehollandiae</i> (White-faced Heron)			
60.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
61.	6334 <i>Astroloma pallidum</i> (Kick Bush)			
62.	6337 <i>Astroloma stomarrhena</i> (Red Swamp Cranberry)			
63.	6339 <i>Astroloma xerophyllum</i>			
64.	17240 <i>Austrostipa flavescens</i>			
65.	17254 <i>Austrostipa tenuifolia</i>			
66.	36441 <i>Babingtonia camphorosmae</i> (Camphor Myrtle)			
67.	32681 <i>Banksia armata</i> (Prickly Dryandra)			
68.	1800 <i>Banksia attenuata</i> (Slender Banksia, Piara)			
69.	32679 <i>Banksia bipinnatifida</i> subsp. <i>multiloba</i>			
70.	1822 <i>Banksia ilicifolia</i> (Holly-leaved Banksia)			
71.	1834 <i>Banksia menziesii</i> (Firewood Banksia)			
72.	32080 <i>Banksia sessilis</i> var. <i>sessilis</i>			
73.	<i>Barnardius zonarius</i>			
74.	5382 <i>Beaufortia elegans</i>			
75.	5387 <i>Beaufortia macrostemon</i>			
76.	7855 <i>Bidens pilosa</i> (Cobbler's Pegs)	Y		
77.	25788 <i>Billardiera fraseri</i> (Elegant Pronaya)			
78.	4437 <i>Boronia purdieana</i> (Winter Boronia)			
79.	17665 <i>Boronia purdieana</i> subsp. <i>purdieana</i>			
80.	11381 <i>Boronia ramosa</i> subsp. <i>anethifolia</i>			
81.	1272 <i>Borya scirpoidea</i>			
82.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
83.	30136 <i>Brachyloma preissii</i> subsp. <i>preissii</i>			
84.	7878 <i>Brachyscome iberidifolia</i>			
85.	42381 <i>Brachyurophis semifasciatus</i> (Southern Shovel-nosed Snake)			
86.	244 <i>Briza maxima</i> (Blowfly Grass)	Y		
87.	1383 <i>Burchardia bairdiae</i>			
88.	1385 <i>Burchardia multiflora</i> (Dwarf Burchardia)			
89.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
90.	25715 <i>Cacatua roseicapilla</i> (Galah)			
91.	24729 <i>Cacatua tenuirostris</i> (Eastern Long-billed Corella)	Y		
92.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
93.	15348 <i>Caladenia flava</i> subsp. <i>flava</i>			
94.	15503 <i>Caladenia paludosa</i>			
95.	36600 <i>Callitris pyramidalis</i> (Swamp Cypress)			
96.	33160 <i>Calochilus uliginosus</i>			
97.	35856 <i>Calothamnus glaber</i>			
98.	5415 <i>Calothamnus lateralis</i>			
99.	5429 <i>Calothamnus sanguineus</i> (Silky-leaved Blood flower, Pindak)			

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
100.	5439 <i>Calytrix angulata</i> (Yellow Starflower)			
101.	5458 <i>Calytrix flavescens</i> (Summer Starflower)			
102.	5476 <i>Calytrix sapphirina</i>			
103.	5485 <i>Calytrix variabilis</i>			
104.	19713 <i>Campsis radicans</i>	Y		
105.	2951 <i>Cassytha flava</i> (Dodder Laurel)			
106.	2957 <i>Cassytha racemosa</i> (Dodder Laurel)			
107.	1742 <i>Casuarina obesa</i> (Swamp Sheoak, Kuli)			
108.	760 <i>Causis dioica</i>			
109.	258 <i>Cenchrus ciliaris</i> (Buffel Grass)	Y		
110.	6539 <i>Centaureum erythraea</i> (Common Centaury)	Y		
111.	1121 <i>Centrolepis aristata</i> (Pointed Centrolepis)			
112.	1216 <i>Chamaexeros macranthera</i>			
113.	<i>Chamelaucium</i> sp.			
114.	<i>Chamelaucium</i> sp. Walpole (P.G. Wilson 6318)			
115.	5498 <i>Chamelaucium uncinatum</i> (Geraldton Wax)			
116.	24373 <i>Charadrius melanops</i> (Black-fronted Dotterel)			
117.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
118.	267 <i>Chloris gayana</i> (Rhodes Grass)	Y		
119.	272 <i>Chloris virgata</i> (Feathertop Rhodes Grass)	Y		
120.	17833 <i>Chordifex microcodon</i>			
121.	25601 <i>Chrysococcyx lucidus</i> (Shining Bronze Cuckoo)			
122.	24833 <i>Cincloramphus cruralis</i> (Brown Songlark)			
123.	24288 <i>Circus approximans</i> (Swamp Harrier)			
124.	4561 <i>Comesperma scoparium</i> (Broom Milkwort)			
125.	15041 <i>Conospermum canaliculatum</i>			
126.	15516 <i>Conospermum canaliculatum</i> subsp. <i>canaliculatum</i>			
127.	1875 <i>Conospermum huegelii</i> (Slender Smokebush)			
128.	1882 <i>Conospermum stoechadis</i> (Common Smokebush)			
129.	15520 <i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>			
130.	1885 <i>Conospermum triplinervium</i> (Tree Smokebush)			
131.	6347 <i>Conostephium minus</i> (Pink-tipped Pearl flower)			
132.	6348 <i>Conostephium pendulum</i> (Pearl Flower)			
133.	6349 <i>Conostephium preissii</i>			
134.	11826 <i>Conostylis aculeata</i> subsp. <i>aculeata</i>			
135.	12109 <i>Conostylis aculeata</i> subsp. <i>preissii</i>			
136.	1423 <i>Conostylis aurea</i> (Golden Conostylis)			
137.	1427 <i>Conostylis candicans</i> (Grey Cottonhead)			
138.	11438 <i>Conostylis candicans</i> subsp. <i>candicans</i>			
139.	12035 <i>Conostylis caricina</i> subsp. <i>caricina</i>			
140.	1436 <i>Conostylis juncea</i>			
141.	11597 <i>Conostylis setigera</i> subsp. <i>setigera</i>			
142.	<i>Coptotermes michaelsoni</i>			
143.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
144.	17700 <i>Coriandrum sativum</i> (Coriander)	Y		
145.	25592 <i>Corvus coronoides</i> (Australian Raven)			
146.	1285 <i>Corynotheca micrantha</i> (Sand Lily)			
147.	7945 <i>Colula coronopifolia</i> (Waterbullens)	Y		
148.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
149.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
150.	3142 <i>Crassula natans</i>	Y		
151.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
152.	25400 <i>Crinia insignifera</i> (Squelching Froglet)			
153.	35838 <i>Cristonia biloba</i> subsp. <i>biloba</i>			
154.	30893 <i>Cryptoblepharus buchananii</i>			
155.	30899 <i>Ctenophorus adelaidensis</i> (Southern Heath Dragon, Western Heath Dragon)			
156.	25027 <i>Ctenopus australis</i>			
157.	6747 <i>Cyanostegia angustifolia</i> (Tinsel-flower)			
158.	40661 <i>Cyanogeton lineare</i>			
159.	815 <i>Cyperus tenellus</i> (Tiny Flatsedge)	Y		
160.	17692 <i>Cytogonidium leptocarpoides</i>			
161.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
162.	290 <i>Dactyloctenium radicans</i> (Bulbin Grass)			
163.	7449 <i>Dampiera juncea</i> (Rush-like Dampiera)			
164.	7475 <i>Dampiera spicigera</i> (Spiked Dampiera)			
165.	5519 <i>Darwinia oederoides</i>			
166.	5531 <i>Darwinia thymoides</i>			
167.	1218 <i>Dasyogon bromeliifolius</i> (Pineapple Bush)			
168.	3793 <i>Daviesia angulata</i>			
169.	15656 <i>Daviesia brachyphylla</i>			

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
170.	3799 <i>Daviesia cordata</i> (Bookleaf)			
171.	3805 <i>Daviesia decurrens</i> (Prickly Bitter-pea)			
172.	11879 <i>Daviesia hakeoides</i> subsp. <i>hakeoides</i>			
173.	15505 <i>Daviesia incrassata</i> subsp. <i>incrassata</i>			
174.	3817 <i>Daviesia inflata</i>			
175.	3819 <i>Daviesia longifolia</i>			
176.	3832 <i>Daviesia physodes</i>			
177.	17838 <i>Dielsia stenostachya</i>			
178.	4454 <i>Diplolaena dampieri</i> (Southern Diplolaena)			
179.	7055 <i>Dischisma capitatum</i> (Woolly-headed Dischisma)	Y		
180.	11049 <i>Diuris corymbosa</i>			
181.	<i>Drepanolermes tamminensis</i>			
182.	3095 <i>Drosera erythrorhiza</i> (Red Ink Sundew)			
183.	3098 <i>Drosera glanduligera</i> (Pimpernel Sundew)			
184.	13216 <i>Drosera menziesii</i> subsp. <i>penicillaris</i>			
185.	3113 <i>Drosera neesii</i> (Jewel Rainbow)			
186.	11768 <i>Drosera neesii</i> subsp. <i>neesii</i>			
187.	13188 <i>Drosera paleacea</i> subsp. <i>paleacea</i>			
188.	3118 <i>Drosera pallida</i> (Pale Rainbow)			
189.	3124 <i>Drosera pulchella</i> (Pretty Sundew)			
190.	13185 <i>Drosera spilos</i>			
191.	25251 <i>Echiopsis curta</i> (Bardick)			
192.	25100 <i>Egernia napoleonis</i>			
193.	<i>Elanus axillaris</i>			
194.	24290 <i>Elanus caeruleus</i> subsp. <i>axillaris</i> (Australian Black-shouldered Kite)			
195.	25250 <i>Elapognathus coronatus</i> (Crowned Snake)			
196.	<i>Eolophus roseicapillus</i>			
197.	6131 <i>Epilobium billardiereanum</i> (Glabrous Willow Herb)			
198.	379 <i>Eragrostis elongata</i> (Clustered Lovegrass)			
199.	13950 <i>Eremaea asterocarpa</i> subsp. <i>asterocarpa</i>			
200.	5542 <i>Eremaea purpurea</i>			
201.	17175 <i>Eremophila glabra</i> subsp. <i>albicans</i>			
202.	4332 <i>Erodium botrys</i> (Long Storksbill)	Y		
203.	5763 <i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
204.	5790 <i>Eucalyptus todtiana</i> (Coastal Blackbutt)			
205.	3872 <i>Euchilopsis linearis</i> (Swamp Pea)			
206.	<i>Eucyclops edylae</i>			
207.	4648 <i>Euphorbia terracina</i> (Geraldton Carnation Weed)	Y		
208.	25622 <i>Falco cenchroides</i> (Australian Kestrel)			
209.	25623 <i>Falco longipennis</i> (Australian Hobby)			
210.	27748 <i>Flavoparmelia ruidota</i>			
211.	<i>Fusarium</i> sp.			
212.	3895 <i>Gastrolobium calycinum</i> (York Road Poison)			
213.	19733 <i>Gastrolobium retusum</i>			
214.	3924 <i>Gastrolobium spinosum</i> (Prickly Poison)			
215.	3938 <i>Genista linifolia</i> (Flaxleaf Broom)	Y		
216.	4339 <i>Geranium molle</i> (Dove's Foot Cranesbill)	Y		
217.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
218.	1524 <i>Gladiolus urdulatus</i> (Wild Gladiolus)	Y		
219.	<i>Goebelobryum grossitextum</i>			
220.	10909 <i>Gompholobium confertum</i>			
221.	3950 <i>Gompholobium knightianum</i>			
222.	11083 <i>Gompholobium scabrum</i>			
223.	3957 <i>Gompholobium lomentosum</i> (Hairy Yellow Pea)			
224.	6161 <i>Gonocarpus pithyoides</i>			
225.	29362 <i>Goodenia coerulea</i>			
226.	12523 <i>Goodenia helmsii</i>			
227.	<i>Goodenia</i> sp.			
228.	12577 <i>Goodenia tripartita</i>			
229.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
230.	14282 <i>Gratiola pubescens</i>			
231.	1984 <i>Grevillea curviloba</i>			
232.	8836 <i>Grevillea obtusifolia</i> (Obtuse Leaved Grevillea)			
233.	2066 <i>Grevillea pilulifera</i> (Woolly-flowered Grevillea)			
234.	1472 <i>Haemodorum simplex</i>			
235.	1475 <i>Haemodorum spicatum</i> (Mardja)			
236.	2149 <i>Hakea cristata</i> (Snail Hakea)			
237.	2158 <i>Hakea erinacea</i> (Hedge-hog Hakea)			
238.	2197 <i>Hakea prostrata</i> (Harsh Hakea)			
239.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
240.	6839 <i>Hemiandra purgens</i> (Snakebush)			
241.	6842 <i>Hemigenia barbata</i>			
242.	1293 <i>Hensmania lurbinata</i>			
243.	<i>Hesperotermes infrequens</i>			
244.	5134 <i>Hibbertia huegellii</i>			
245.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			
246.	<i>Hibbertia</i> sp. Banksdown (R.T. Miller & C.P. Gibson s.n. 18/10/06)			
247.	5172 <i>Hibbertia stellaris</i> (Orange Stars)			
248.	5173 <i>Hibbertia subvaginata</i>			
249.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
250.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
251.	3968 <i>Hovea crispipennis</i> (Common Hovea)			
252.	12741 <i>Hyalosperma cotula</i>			
253.	5817 <i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)			
254.	5825 <i>Hypocalymma robustum</i> (Swan River Myrtle)			
255.	20200 <i>Isolopis cernua</i> var. <i>setiformis</i>			
256.	7396 <i>Isotoma hypocrateriformis</i> (Woodbridge Poison)			
257.	3992 <i>Isotropis cuneifolia</i> (Granny Bonnets)			
258.	19700 <i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>			
259.	4010 <i>Jacksonia floribunda</i> (Holly Pea)			
260.	4012 <i>Jacksonia lurcellata</i> (Grey Stinkwood)			
261.	4017 <i>Jacksonia horrida</i>			
262.	4029 <i>Jacksonia sternbergiana</i> (Stinkwood, Kapur)			
263.	1297 <i>Johnsonia lupulina</i> (Hooded Lily)			
264.	4037 <i>Kennedia coccinea</i> (Coral Vine)			
265.	17508 <i>Kunzea micrantha</i> subsp. <i>oligandra</i>			
266.	5841 <i>Kunzea recurva</i>			
267.	3669 <i>Labichea punctata</i> (Lance-leaved Cassia)			
268.	2249 <i>Lambertia multiflora</i> (Many-flowered Honeysuckle)			
269.	<i>Lambertia multiflora</i> var. <i>darlingiensis</i>			
270.	1305 <i>Laxmannia omnifertilis</i>			
271.	1307 <i>Laxmannia ramosa</i> (Branching Lily)			
272.	11911 <i>Laxmannia ramosa</i> subsp. <i>ramosa</i>			
273.	11464 <i>Laxmannia sessiliflora</i> subsp. <i>australis</i>			
274.	1309 <i>Laxmannia squarrosa</i>			
275.	7568 <i>Lechenaultia biloba</i> (Blue Leschenaultia)			
276.	7572 <i>Lechenaultia expansa</i>			
277.	7574 <i>Lechenaultia floribunda</i> (Free-flowering Leschenaultia)			
278.	1051 <i>Lemna disperma</i> (Duckweed)			
279.	18074 <i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>			
280.	1653 <i>Leporella fimbriata</i> (Hare Orchid)			
281.	2344 <i>Leptomeria empetriformis</i>			
282.	17852 <i>Leptorhynchus scaber</i> (Lanky Bultons)			
283.	5847 <i>Leptospermum erubescens</i> (Roadside Teatree)			
284.	5850 <i>Leptospermum laevigatum</i> (Coast Teatree)			
285.	25148 <i>Lerista lineopunctulata</i>	Y		
286.	6374 <i>Leucopogon conostephioides</i>			
287.	6400 <i>Leucopogon gracillimus</i>			
288.	6410 <i>Leucopogon leptanthus</i>			
289.	6425 <i>Leucopogon oxycedrus</i>			
290.	6434 <i>Leucopogon polymorphus</i>			
291.	19412 <i>Leucopogon</i> sp. Moore River (M. Hislop 1695)			
292.	6444 <i>Leucopogon sprengeioides</i>			
293.	7677 <i>Levenhookia stipitata</i> (Common Stylewort)			
294.	25005 <i>Lialis burtonis</i>			
295.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
296.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
297.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
298.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
299.	9289 <i>Lobelia anceps</i> (Angled Lobelia)			
300.	7408 <i>Lobelia tenuior</i> (Slender Lobelia)			
301.	6508 <i>Logania flaviflora</i> (Yellow Logania)			
302.	1228 <i>Lomandra hermaphrodita</i>			
303.	1243 <i>Lomandra sericea</i> (Silky Mat Rush)			
304.	8564 <i>Lotus subbiflorus</i>	Y		
305.	12783 <i>Lycopodiella serpentina</i>			
306.	1097 <i>Lyginia barbata</i>			
307.	36375 <i>Lysimachia arvensis</i> (Pimpernel)	Y		
308.	34736 <i>Lysinema pentapetalum</i>			
309.	2838 <i>Macarthuria apetala</i>			



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310.	1477 <i>Macropidia fuliginosa</i> (Black Kangaroo Paw)			
311.	24551 <i>Malurus pulcherimus</i> (Blue-breasted Fairy-wren)			
312.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
313.	4079 <i>Medicago polymorpha</i> (Burr Medic)	Y		
314.	17683 <i>Meeboldina cana</i>			
315.	17694 <i>Meeboldina scariosa</i>			
316.	5893 <i>Melaleuca concreta</i>			
317.	5920 <i>Melaleuca huegelii</i> (Chenille Honeymyrtle)			
318.	5926 <i>Melaleuca lateritia</i> (Robin Redbreast Bush)			
319.	20297 <i>Melaleuca osullivanii</i>			
320.	5959 <i>Melaleuca raphiophylla</i> (Swamp Paperbark)			
321.	19365 <i>Melaleuca ryeae</i>			
322.	5964 <i>Melaleuca seriata</i>			
323.	<i>Melaleuca</i> sp.			
324.	13280 <i>Melaleuca viminea</i> subsp. <i>viminea</i>			
325.	4085 <i>Melilotus indicus</i>	Y		
326.	<i>Microcerotermes serratus</i>			
327.	15419 <i>Microtis media</i> subsp. <i>media</i>			
328.	8105 <i>Mitotia myosoidifolia</i>			
329.	7085 <i>Misopates orontium</i> (Lesser Snapdragon)	Y		
330.	4662 <i>Monotaxis grandiflora</i> (Diamond of the Desert)			
331.	4666 <i>Monotaxis occidentalis</i>			
332.	2412 <i>Muehlenbeckia adpressa</i> (Climbing Lignum)			
333.	7289 <i>Myoporum caprarioides</i> (Slender Myoporum)			
334.	6974 <i>Nicotiana glauca</i> (Tree Tobacco)	Y		
335.	6978 <i>Nicotiana rotundifolia</i> (Round-leaved Tobacco)			
336.	<i>Nyctophilus geoffroyi</i> subsp. <i>geoffroyi</i>			
337.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
338.	16347 <i>Oenothera laciniata</i>	Y		
339.	4113 <i>Ornithopus compressus</i> (Yellow Serradella)	Y		
340.	4358 <i>Oxalis purpurea</i> (Large-flower Wood Sorrel)	Y		
341.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
342.	<i>Paracapritermes kraepelinii</i>			
343.	<i>Paracyclops intermedius</i>			
344.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
345.	7090 <i>Parentucellia viscosa</i> (Sticky Bartsia)	Y		
346.	1550 <i>Patersonia occidentalis</i> (Purple Flag, Koma)			
347.	16477 <i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			
348.	16478 <i>Pericalymma ellipticum</i> var. <i>floridum</i>			
349.	2258 <i>Persoonia comata</i>			
350.	2299 <i>Petrophile linearis</i> (Pixie Mops)			
351.	2308 <i>Petrophile seminuda</i>			
352.	2312 <i>Petrophile striata</i>			
353.	25698 <i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
354.	24666 <i>Phalacrocorax melanoleucos</i> subsp. <i>melanoleucos</i> (Little Pied Cormorant)			
355.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
356.	18529 <i>Philothea spicata</i> (Pepper and Salt)			
357.	1478 <i>Phlebocarya ciliata</i>			
358.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
359.	16824 <i>Phyllangium sulcatum</i>			
360.	4 <i>Phylloglossum drummondii</i> (Pigmy Clubmoss)			
361.	<i>Phytophthora cinnamomi</i>			
362.	11402 <i>Pimelea imbricata</i> var. <i>piligera</i>			
363.	5259 <i>Pimelea preissii</i>			
364.	5264 <i>Pimelea spectabilis</i> (Bunjong)			
365.	24841 <i>Platalaea flavipes</i> (Yellow-billed Spoonbill)			
366.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
367.	4524 <i>Platytheca galloides</i>			
368.	577 <i>Poa poliformis</i> (Coastal Poa)			
369.	8175 <i>Podolepis gracilis</i> (Slender Podolepis)			
370.	4691 <i>Poranthera microphylla</i> (Small Poranthera)			
371.	1669 <i>Prasophyllum cyphochilum</i> (Pouched Leek Orchid)			
372.	20195 <i>Pultenaea brachytropis</i>			
373.	4181 <i>Pultenaea reticulata</i>			
374.	25008 <i>Pygopus lepidopodus</i> (Common Scaly Foot)			
375.	2933 <i>Ranunculus muricatus</i> (Sharp Buttercup)	Y		
376.	6012 <i>Regelia ciliata</i>			
377.	25613 <i>Rhipidura fuliginosa</i> (Grey Fantail)			
378.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
379.	13300 <i>Rhodanthe citrina</i>			

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380.	2432 <i>Rumex conglomeratus</i> (Clustered Dock)	Y		
381.	2433 <i>Rumex crispus</i> (Curled Dock)	Y		
382.	40425 <i>Rytidosperma caespitosum</i>			
383.	2591 <i>Sarcocornia blackiana</i>			
384.	7595 <i>Scaevola anchusifolia</i>			
385.	7613 <i>Scaevola glandulifera</i> (Viscid Hand-flower)			
386.	7619 <i>Scaevola lanceolata</i> (Long-leaved Scaevola)			
387.	7626 <i>Scaevola nitiida</i> (Shining Fanflower)			
388.	7634 <i>Scaevola phlebopetala</i> (Velvet Fanflower)			
389.	24 <i>Schizaea fistulosa</i> (Narrow Comb Fern)			
390.	978 <i>Schoenus brevisetis</i>			
391.	984 <i>Schoenus curvilobus</i>			
392.	16254 <i>Schoenus</i> sp. G Broad Sheath (K.L. Wilson 2633)			
393.	6033 <i>Scholtzia involucrata</i> (Spiked Scholtzia)			
394.	6 <i>Selaginella gracillima</i> (Tiny Clubmoss)			
395.	<i>Septobasidium</i> sp.			
396.	8225 <i>Siloxerus humifusus</i> (Procumbent Siloxerus)			
397.	30948 <i>Smicromis brevirostris</i> (Weebill)			
398.	7022 <i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
399.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
400.	1312 <i>Sowerbaea laxillora</i> (Purple Tassels)			
401.	4205 <i>Sphaerolobium linophyllum</i>			
402.	4207 <i>Sphaerolobium medium</i>			
403.	2316 <i>Stirlingia latifolia</i> (Blueboy)			
404.	25518 <i>Strophurus spinigerus</i>			
405.	24942 <i>Strophurus spinigerus</i> subsp. <i>spinigerus</i>			
406.	7681 <i>Stylidium affine</i> (Queen Triggerplant)			
407.	12846 <i>Stylidium albollacinum</i>			
408.	7684 <i>Stylidium amosnum</i> (Lovely Triggerplant)			
409.	30278 <i>Stylidium androsaceum</i>			
410.	7693 <i>Stylidium brunonianum</i> (Pink Fountain Triggerplant)			
411.	7696 <i>Stylidium calcaratum</i> (Book Triggerplant)			
412.	7709 <i>Stylidium crossocephalum</i> (Posy Triggerplant)			
413.	7710 <i>Stylidium cygnorum</i>			
414.	7713 <i>Stylidium dichotomum</i> (Pins-and-needles)			
415.	7716 <i>Stylidium diuroides</i> (Donkey Triggerplant)			
416.	11808 <i>Stylidium diuroides</i> subsp. <i>diuroides</i>			
417.	7717 <i>Stylidium divaricatum</i> (Daddy-long-legs)			
418.	7736 <i>Stylidium hispidum</i> (White Butterfly Triggerplant)			
419.	33106 <i>Stylidium recurvum</i>			
420.	7785 <i>Stylidium repens</i> (Malted Triggerplant)			
421.	7790 <i>Stylidium roseolatum</i> (Pink-wing Triggerplant)			
422.	7798 <i>Stylidium schoenoides</i> (Cow Kicks)			
423.	2323 <i>Synaphea gracillima</i>			
424.	15532 <i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>			
425.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
426.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
427.	33020 <i>Tamarix parviflora</i>	Y		
428.	20135 <i>Taxandria linearifolia</i>			
429.	4535 <i>Tetralochea hirsuta</i> (Black Eyed Susan)			
430.	10856 <i>Thelymitra benthamiana</i> (Leopard Orchid)			
431.	5084 <i>Thomasia grandiflora</i> (Large Flowered Thomasia)			
432.	24844 <i>Threskiornis molucca</i> (Australian White Ibis)			
433.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
434.	1318 <i>Thysanotus arbuscula</i>			
435.	1319 <i>Thysanotus arenarius</i>			
436.	1320 <i>Thysanotus asper</i> (Hairy Fringe Lily)			
437.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
438.	6268 <i>Trachymene cyanopetala</i>			
439.	8251 <i>Trichocline spathulata</i> (Native Gerbera)			
440.	1361 <i>Tricoryne elatior</i> (Yellow Autumn Lily)			
441.	1363 <i>Tricoryne tenella</i>			
442.	33677 <i>Triglochin centrocarpa</i>			
443.	4737 <i>Tripterococcus brunonis</i> (Winged Stackhousia)			
444.	4839 <i>Trymalium angustifolium</i>			
445.	<i>Tumulitermes apioccephalus</i>			
446.	<i>Tumulitermes petilus</i>			
447.	24983 <i>Underwoodisaurus millii</i> (Barking Gecko)			
448.	<i>Urodacus novaehollandiae</i>			
449.	25526 <i>Varanus tristis</i> (Racehorse Monitor)			

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450.	7665 <i>Velleia trinervis</i>			
451.	7666 <i>Verreauxia reinwardtii</i> (Common Verreauxia)			
452.	<i>Verticillium</i> sp.			
453.	15432 <i>Verticordia densiflora</i> var. <i>densiflora</i>			
454.	6091 <i>Verticordia insignis</i>			
455.	15434 <i>Verticordia insignis</i> subsp. <i>insignis</i>			
456.	6101 <i>Verticordia nitens</i> (Morrison Featherflower, Kodjeningara)			
457.	6103 <i>Verticordia ovalifolia</i>			
458.	6107 <i>Verticordia pennigera</i>			
459.	12449 <i>Verticordia plumosa</i> var. <i>brachyphylla</i>			
460.	4322 <i>Vicia sativa</i> (Common Vetch)	Y		
461.	8282 <i>Waitzia suaveolens</i> (Fragrant Waitzia)			
462.	13333 <i>Waitzia suaveolens</i> var. <i>suaveolens</i>			
463.	6289 <i>Xanthosia huegelii</i>			
464.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

#### Conservation Codes

- T - Rare or likely to become extinct
- X - Presumed extinct
- IA - Protected under international agreement
- S - Other specially protected fauna
- 1 - Priority 1
- 2 - Priority 2
- 3 - Priority 3
- 4 - Priority 4
- 5 - Priority 5

<sup>3</sup> For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.



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**BORE COMPLETION LOG**

Client: N. Gianatti  
 Project: PMP - Chittering St  
 Location: 166 Chittering St, Muchea  
 Completion Date: 27/10/2015

Bore Name: NG1

Sheet No: 1/8

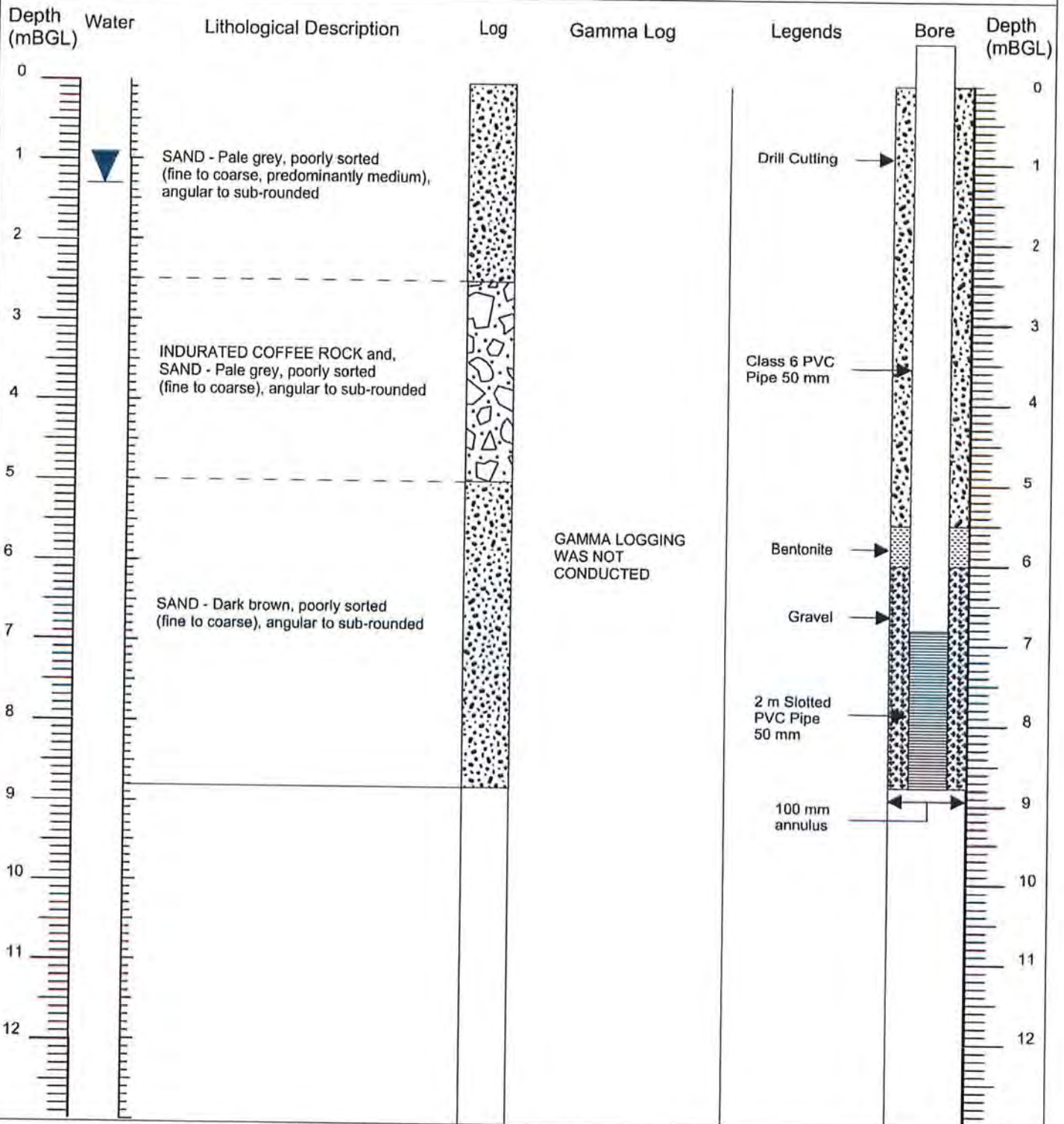
Logged by: D.A.

Easting: 400864

Northing: 6506816

Surface Elevation: ~ 60.2 mAHD

Rig Type: Rotary Mud Drilling



**Notes:** Drilling ended at 8.8 mBGL.  
 Length of Top of Pipe is ~ 0.4 m.

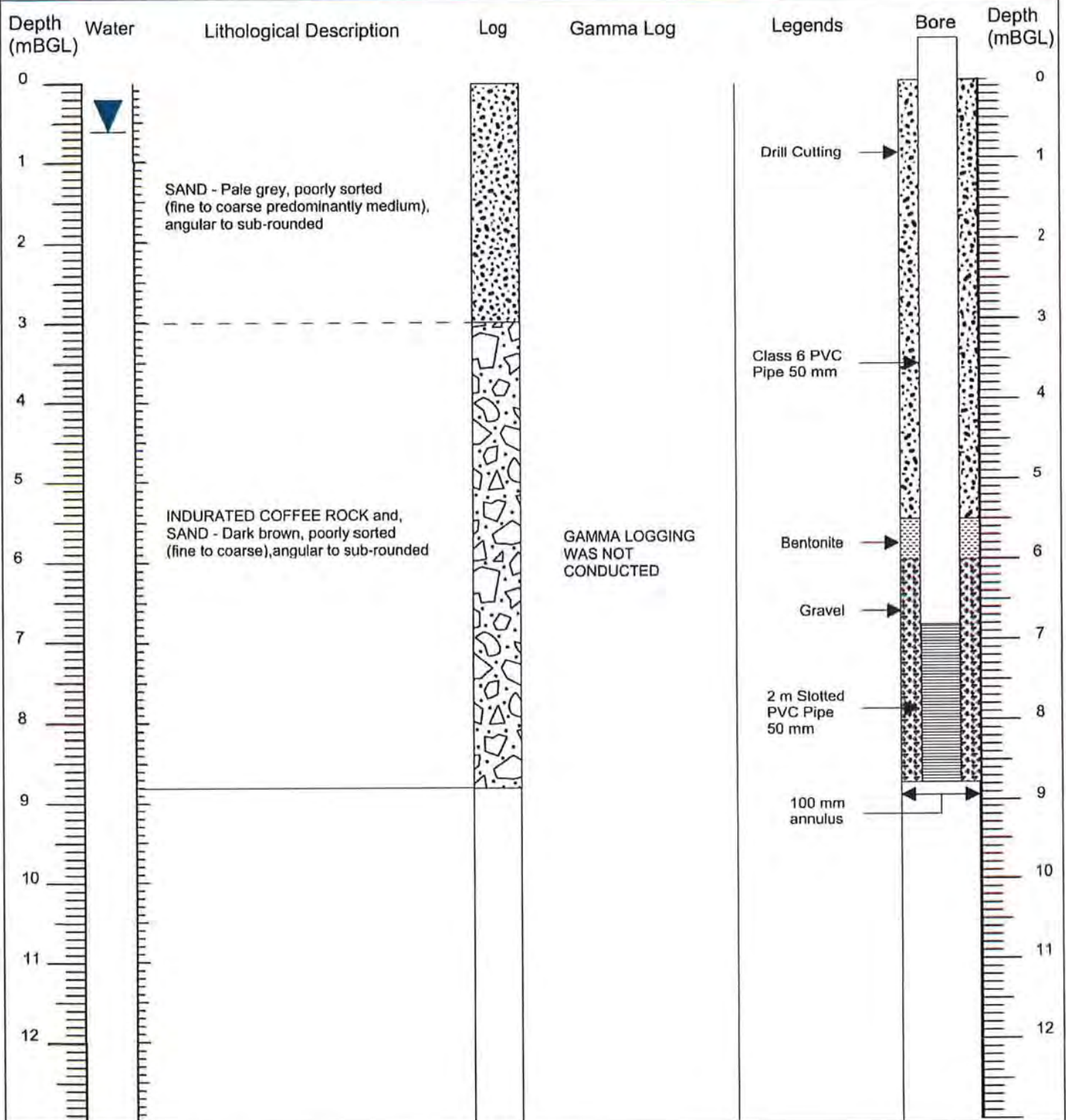


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**BORE COMPLETION LOG**  
 Client: N. Gianatti  
 Project: PMP - Chittering St  
 Location: 166 Chittering St, Muchea  
 Completion Date: 27/10/2015

Bore Name: NG2  
 Sheet No: 2/8  
 Logged by: D.A.

Easting: 400399      Northing: 6506820      Surface Elevation: ~ 64.2 mAHD      Rig Type: Rotary Mud Drilling



**Notes:** Drilling ended at 8.8 mBGL.  
 Length of Top of Pipe is ~ 0.9 m.



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**BORE COMPLETION LOG**  
 Client: N. Gianatti  
 Project: PMP - Chittering St  
 Location: 166 Chittering St, Muchea  
 Completion Date: 27/10/2015

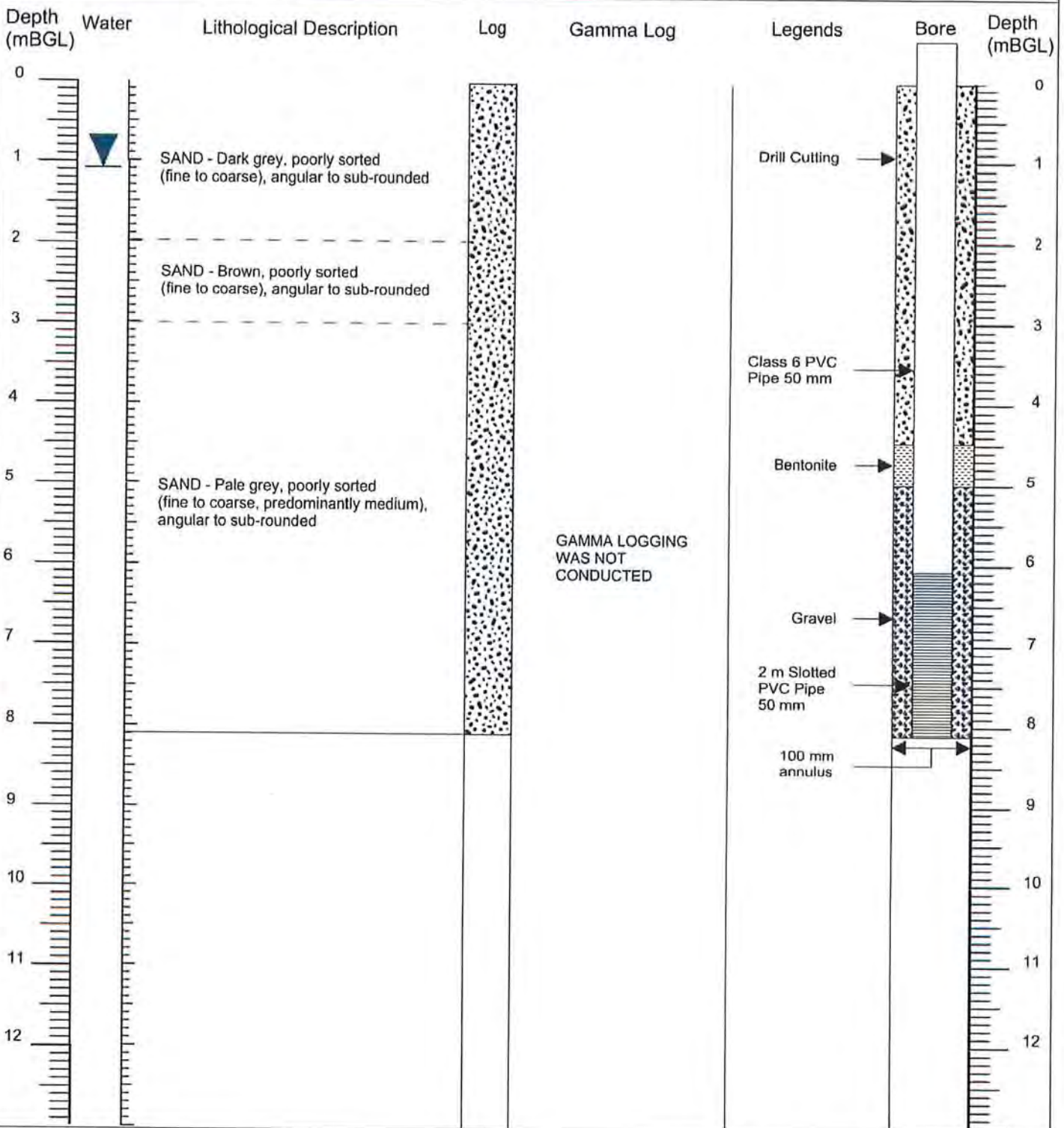
Bore Name: NG3  
 Sheet No: 3/8  
 Logged by: D.A.

Easting: 400055

Northing: 6506726

Surface Elevation: ~ 68 mAHD

Rig Type: Rotary Mud Drilling



**Notes:** Drilling ended at 8.1 mBGL.  
 Length of Top of Pipe is ~ 0.7 m.



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**BORE COMPLETION LOG**  
 Client: N. Gianatti  
 Project: PMP - Chittering St  
 Location: 166 Chittering St, Muchea  
 Completion Date: 27/10/2015

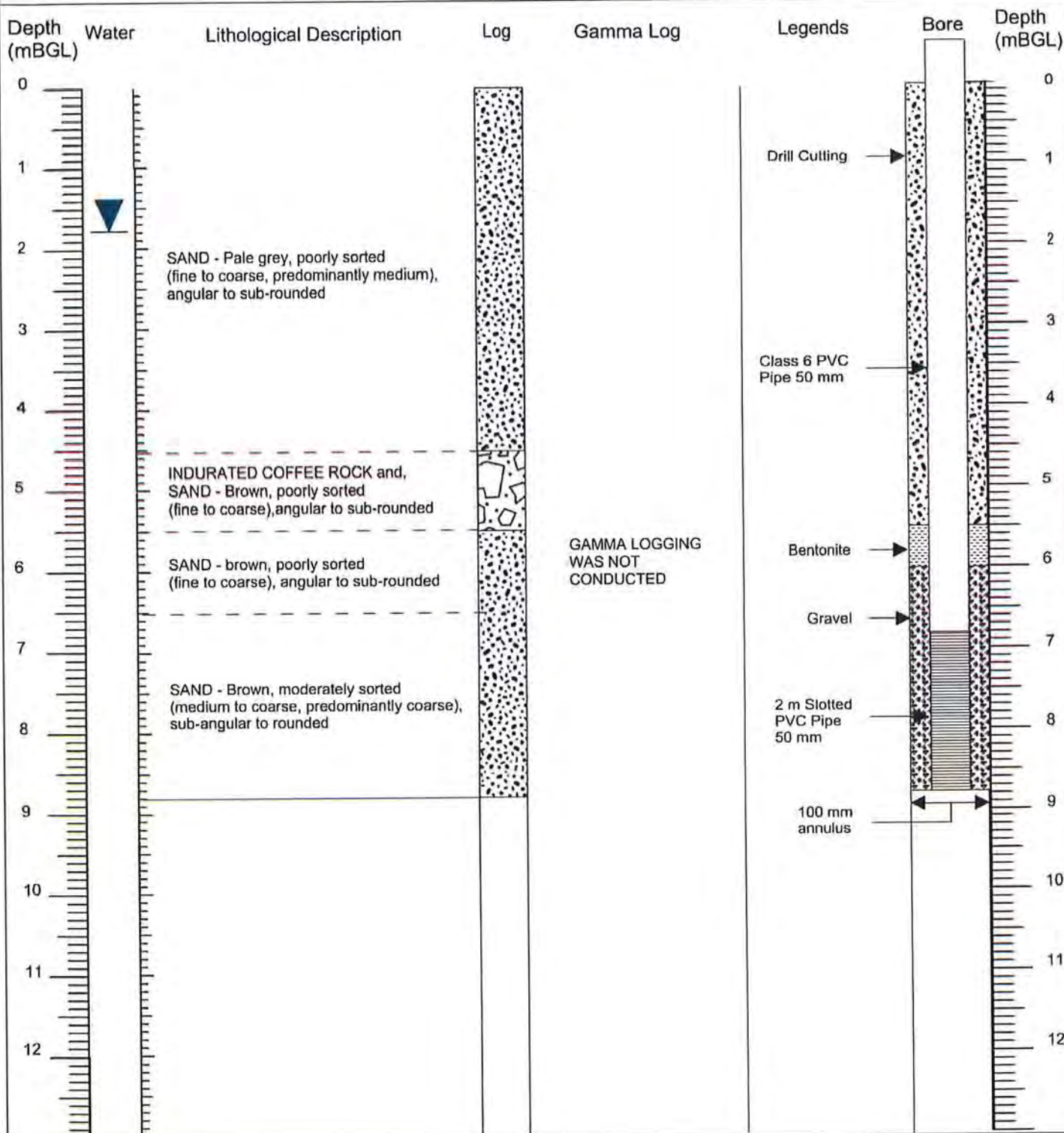
Bore Name: NG4  
 Sheet No: 4/8  
 Logged by: D.A.

Easting: 399937

Northing: 6506701

Surface Elevation: ~ 67 mAHD

Rig Type: Rotary Mud Drilling



**Notes:** Drilling ended at 8.8 mBGL.  
 Length of Top of Pipe is ~ 1 m.



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**BORE COMPLETION LOG**

Client: N. Gianatti  
 Project: PMP - Chittering St  
 Location: 166 Chittering St, Muchea  
 Completion Date: 27/10/2015

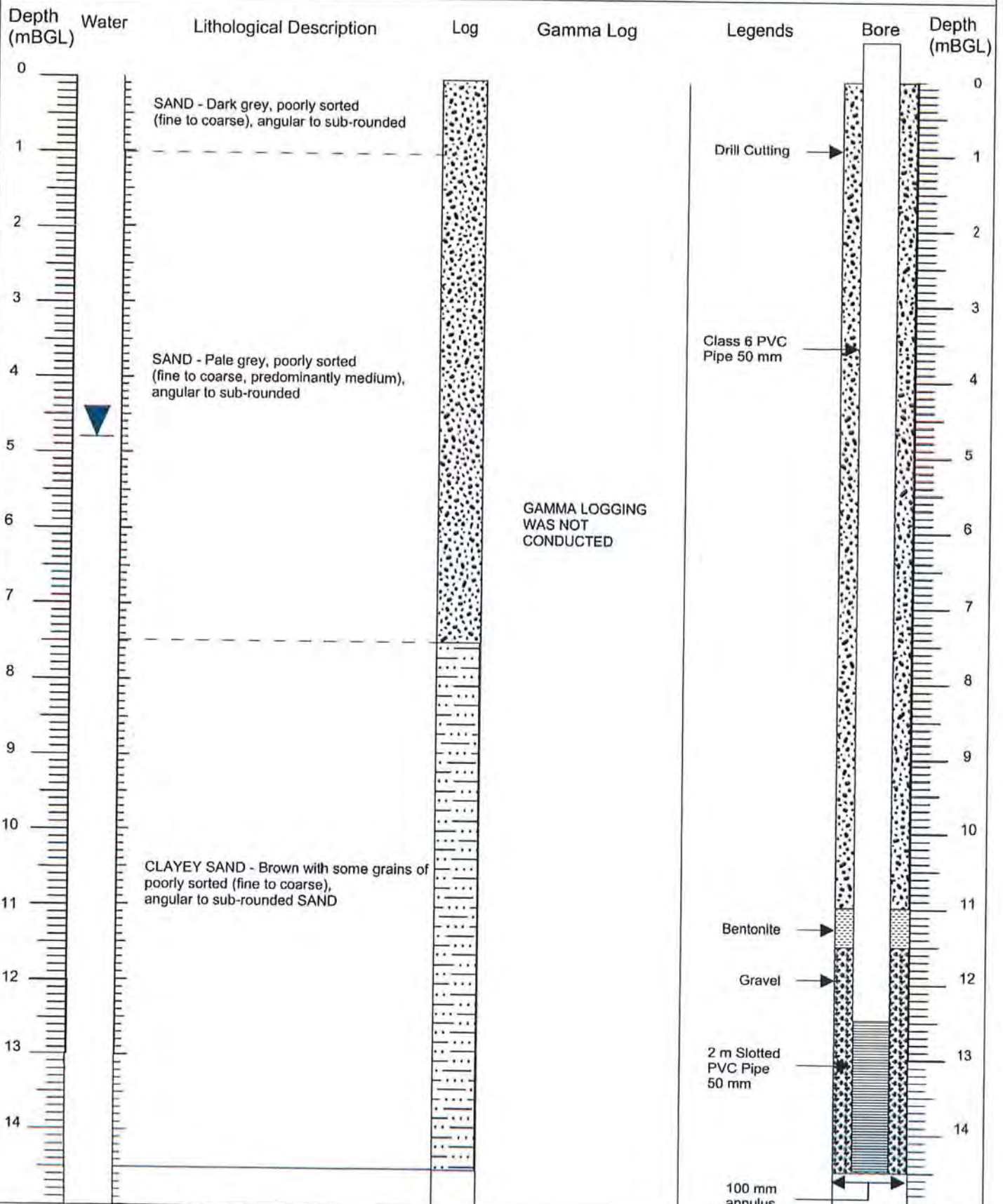
Bore Name: NG5  
 Sheet No: 5/8  
 Logged by: D.A.

Easting: 399747

Northing: 6506655

Surface Elevation: ~ 69.3 mAHD

Rig Type: Rotary Mud Drilling



**Notes:** Drilling ended at 14.5 mBGL.  
 Length of Top of Pipe is ~ 0.8 m.





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**BORE COMPLETION LOG**

Client: N. Gianatti  
 Project: PMP - Chittering St  
 Location: 166 Chittering St, Muchea  
 Completion Date: 27/10/2015

Bore Name: NG6

Sheet No: 6/8

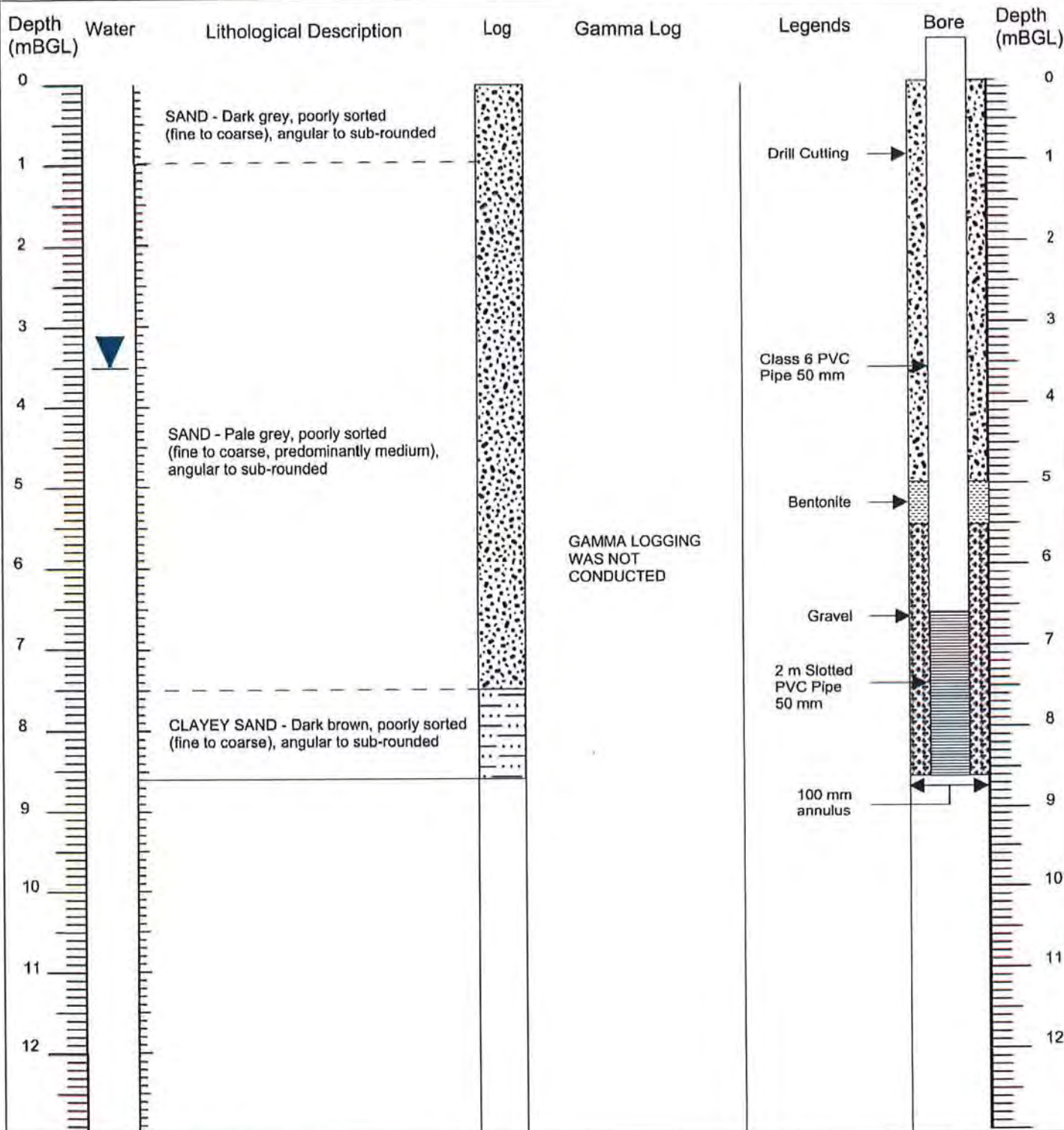
Logged by: D.A.

Easting: 399680

Northing: 6506975

Surface Elevation: ~ 69.9 mAHD

Rig Type: Rotary Mud Drilling



**Notes:** Drilling ended at 8.6 mBGL.  
 Length of Top of Pipe is ~ 0.55 m.



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**BORE COMPLETION LOG**

Client: N. Gianatti  
 Project: PMP - Chittering St  
 Location: 166 Chittering St, Muchea  
 Completion Date: 30/10/2015

Bore Name: NG7

Sheet No: 7/8

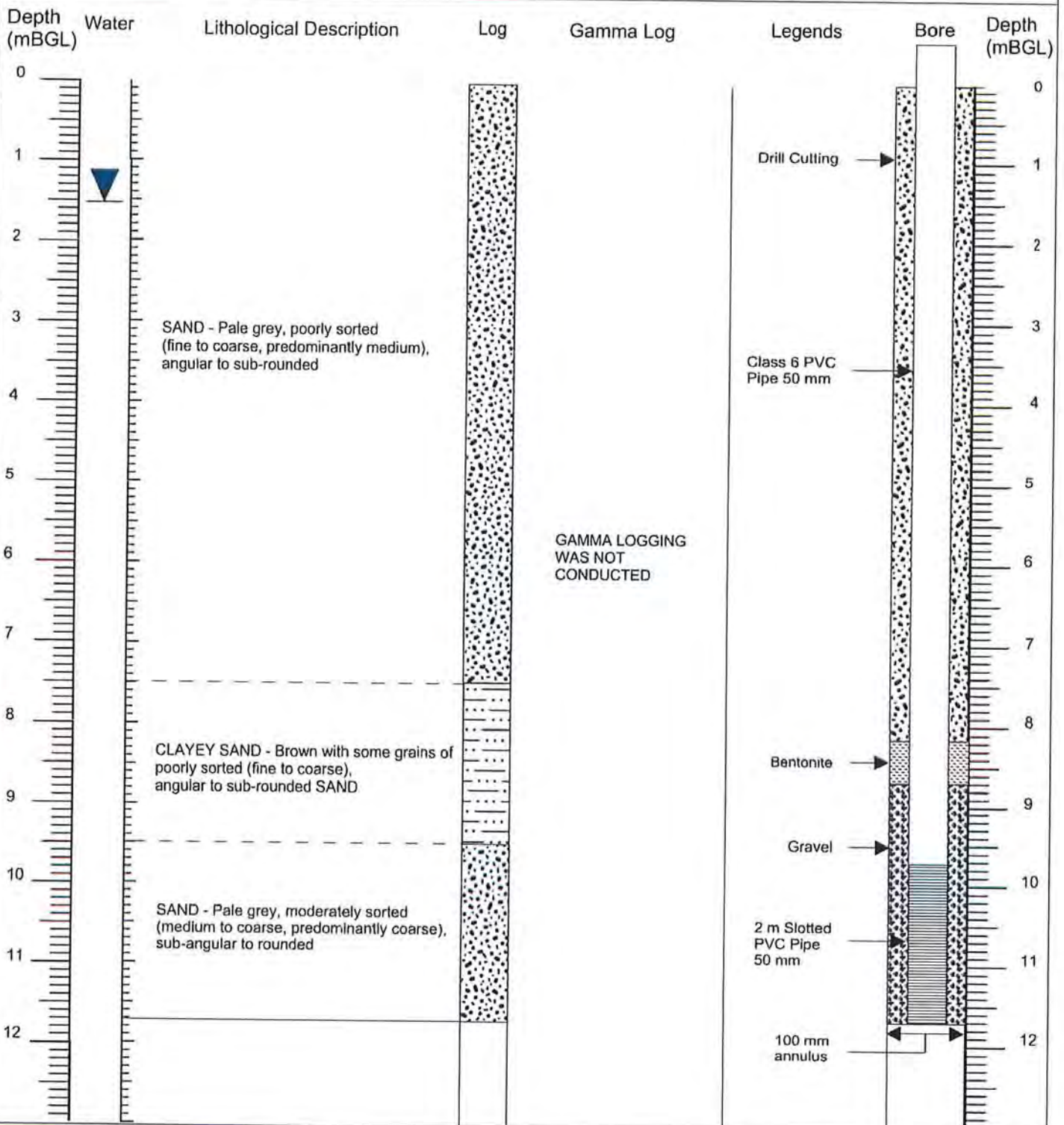
Logged by: D.A.

Easting: 399972

Northing: 6506920

Surface Elevation: ~ 67 mAHD

Rig Type: Rotary Mud Drilling



**Notes:** Drilling ended at 11.7 mBGL.  
 Length of Top of Pipe is ~ 0.7 m.



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**BORE COMPLETION LOG**

Client: N. Gianatti  
 Project: PMP - Chittering St  
 Location: 166 Chittering St, Muchea  
 Completion Date: 30/10/2015

Bore Name: NG8

Sheet No: 8/8

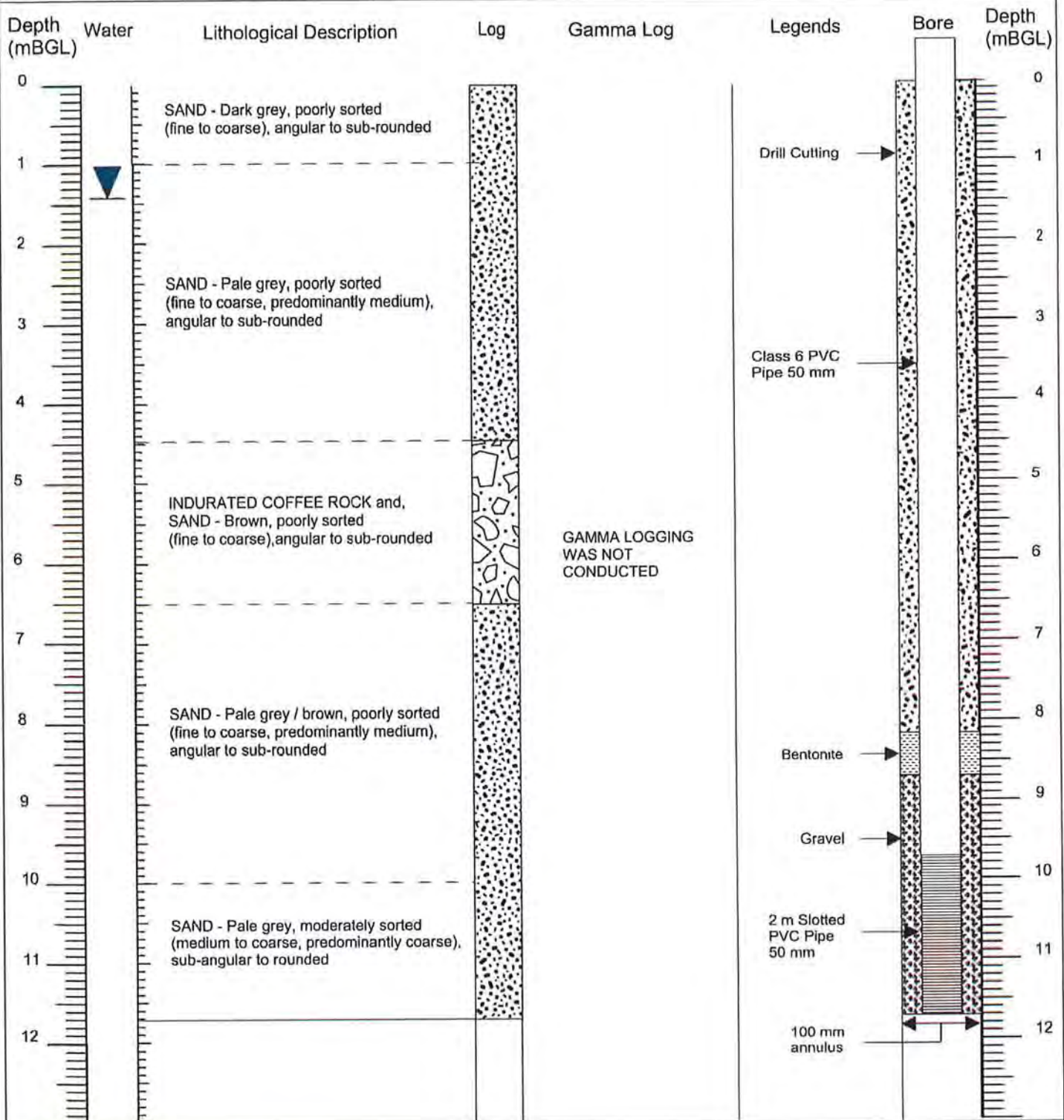
Logged by: D.A.

Easting: 400170

Northing: 6506835

Surface Elevation: ~ 64.4 mAHD

Rig Type: Rotary Mud Drilling



**Notes:** Drilling ended at 11.7 mBGL.  
 Length of Top of Pipe is ~ 0.8 m.

Appendix C



**WETLAND RECLASSIFICATION SURVEY**

**166 (LOT 1907), CHITTERING ST.  
MUCHEA**

Integrating Resource Management



166, Chittering St. Muchea. WA

BIOSCIENCE PTY LTD ACN 054 829 131

**Wetland Reclassification Survey**  
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**Document Control**

Issue	Date	Author	Reviewer	Approved
1	17/11/2015	M. Bundock	P. Keating	P. Keating
2				



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166, Mortimer Rd. Muchea



## 1. Introduction

166, Chittering St. (Lot 1907) Muchea is located approximately 44 km north of Perth and 29 km east of the coast (Figures 1 & 2). The property covers an area of 64.9Ha and is mostly cleared of native vegetation. The area has been used for low intensity cattle grazing and the land is being used as a market garden, growing berries and onions. There is no single residential house on the property, but there are several sheds.

Bioscience was engaged by Mr. N. Gianatti, in order to review the current Resource Enhancement Sumpland classification (UFI 8607) on this property and submit a request to modify the Swan Coastal Plain Geomorphic Wetlands dataset. The intention would be to increase the protection of the larger portion of the wetland to Conservation Category, but to reduce the categorisation of the highly degraded remainder to Multiple Use. It is believed that the wetland may contain a Mound Spring, which would make it only one of four vegetated Mound Springs remaining in the Swan Coastal plain. Bioscience was alerted to the possibility that there may be a Mound Spring on the property by the owner, who described finding a large upwelling tube in the South West of the wetland area. Desktop surveys and field investigations have led us to conclude, that although at the time of the site visits, no upwelling was found, this was mainly due to the inaccessibility of the wetland due to overgrown bracken, Stinkwood and Spearwood. Our conclusions indicate that the RE Dampland (UFI 8607) could be re-classified to CCW and the remaining, more degraded areas re-classified as a Multiple Use Sumpland.



166, Mortimer Rd. Muchea



## 2. Site Description and Investigations

### 2.1. Land use

According to the current owners the property has been used as agricultural land for at least 40 years. This prolonged period of agricultural use has resulted in the understory of the entire property becoming degraded. Landgate images, dating back to 1965 seem to support this, the major clearance of the property occurred sometime between 1965 and 1977.

### 2.2. Climate

The south west of Western Australia is characterised by a Mediterranean climate comprising hot dry summers and cool wet winters. According to the Bureau of Meteorology the average annual rainfall within the vicinity of the property is 678.8mm(Pearce Airbase 9039/9194). The monthly distribution of rainfall (Figure 3) indicates approximately 85% of the rainfall occurs during the months of May to October. The potential annual evaporation of the area is 1800 mm, which is significantly more than annual precipitation (Davidson and Yu, 2006), the actual annual evaporation is closer to 1000mm (BOM). The prevailing wind is from a south-westerly direction, however easterly winds are common, particularly in the summer months.

### 2.3. Geomorphology and Topography

The area has a low relief with minor variations in topography (Landgate), the south western corner of the property has an elevation of approximately 60m Australian Height Datum (AHD) rising to spot heights of 75m on sand ridges in the south western section of the property (Figure 4).

### 2.4. Regional Geology

The subject site is located on the Swan Coastal Plain on the border between the Bassendean and Guildford dune systems; a flat to very gently undulating sand plain with discrete sand rises. It comprises of a mixture of well to moderately well drained deep bleached grey sands and poorly drained deep siliceous or bleached sands (Figure 5). This is underlain by clay or less frequently a pale yellow B horizon or iron-inorganic hardpan 1-2m below the surface, described as Bassendean B2 or B4 phase (Australian Soil Resource Information Service, ASRIS).

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The underlying Guildford formations are complex and comprise a successive layering of soils, formed from erosion of material from the scarp to the east, overlying bedrock formations (figure 6). Rivers and streams have mostly carried the eroded material, which is deposited from the water as fans of alluvium. The Guildford formation is characterised by poor drainage due to the low permeability of sub-soil clays, which prevent the downward infiltration of rainfall, consequently during the winter month's waterlogging and surface inundation can occur. In addition, the clay fraction of the Guildford formation is known to have highly variable Plasticity Indices (Hillman et al., 2003).

This intersection between the two soil types is a characteristic of organic mound springs. *"These occur where the heavy clay soils of the Guildford Formation on the eastern side of the Swan Coastal Plain and the Bassendean Dune sands meet. The Bassendean sands contain the Gnangara Mound, a shallow aquifer that extends from the Moore River to the Swan River. This groundwater is forced to the surface at a series of discharge points on the eastern boundary of the aquifer where waters encounter the impermeable Guildford clays. A permanent supply of fresh water allows the continuous growth of vegetation. The build-up of decayed plant material from this dense vegetation forms peat around the permanent water supply. Water is continually forced, under pressure, to the surface, carrying sand and silt, which enhances the formation of the peat mounds."* (TEC's of Western Australia –DpaW)

## 2.5. Local Geology

There are three soils types found on the property (Figure 6):

### **Guildford Formation:**

The Guildford Formation, consists of pale-grey, blue, but predominantly brown silty and slightly sandy clay. The unit is up to 35 m thick and commonly contains lenses of fine to coarse-grained, very poorly sorted, conglomeratic and (in places) shelly sand at its base, particularly in the type area of the Swan Valley. The Guildford formation outcrops over much of the eastern Perth region, unconformably overlies Jurassic and Cretaceous rocks, Kings Park Formation, Ascot Formation or Yoganup Formation. It is essentially a fluvial mud deposit.

166, Mortimer Rd. Muchea



#### **Bassendean Sands :**

The Bassendean Sand, is present over much of the central Perth region, with a maximum thickness of about 80 m (Davidson, 1995). It is pale grey to white and includes fine to coarse, but is predominantly medium grained. It comprises moderately sorted, sub-rounded to rounded quartz sand, and commonly exhibits fining upward textures. A layer of friable, limonite-cemented sand, colloquially called 'coffee rock', occurs throughout most of the area near the water table. The Bassendean Sand unconformably overlies the Cretaceous and Tertiary strata, and inter-fingers to the east with the Guildford Formation. To the west, it is unconformably overlain by the Tamala Limestone. The depositional mechanism for this unit is unclear; it was likely deposited in a variety of fluvial, estuarine, and shallow-marine environments.

#### **Swamp and Lacustrine deposits:**

Lacustrine deposits are stratified geologic materials of the lake bottom. Sometimes the term indicates that these deposits have been exposed and made visible by the lowering of the water level or by the elevation of the land. Because, in contrast to seas and oceans, lakes are smaller, nearly closed systems with finer-grained sediment (silt and clay)—and are often rich in organic shales.

### **2.6. Acid Sulfate Soils**

Acid Sulfate soils are soils, which contain reduced forms of sulfur, which typically originate from the reducing conditions associated with anaerobic soils in wetlands. In Western Australia, Acid Sulfate Soils occur in low-lying coastal lands such as Holocene swamps and Lakes. If such soils are exposed to oxygen, for example by excavation or dewatering, reduced sulfides convert to sulfuric acid and significantly lower pH, causing a range of undesirable environmental consequences. If they remain undisturbed and inundated, they are stable.

According to the Planning bulletin 64 on Acid Sulfate Soils (WAPC 2003), the majority of the site has been classified as having a low to moderate risk of Acid Sulfate Soils (ASS) occurring within 3 m of the natural soil surface and activities disturbing soils at depths greater than 3m carry a moderate to high risk of disturbing ASS. However, two areas have a high risk of Acid Sulfate Soils, the wetland and an area to the south of the property (Figure 7).

166, Mortimer Rd. Muchea



## 2.7. Vegetation

A full vegetation survey usually means a level 2 Survey as per EPA Guidance 51, in this instance it was not possible, due to the timing of the survey. Guidance 51 surveys are appropriate for native vegetation in much better condition, and where vegetation units and structure are clearly discernible and comparable to the state's flora database. Accordingly, Bioscience undertook a modified vegetation survey of the subject land involving a careful assessment of all the wetland and surrounding areas to document all native species present. This site visit indicated that the majority of native vegetation has been cleared and using the condition rating system of "Bush forever" is completely degraded.

The property can be subdivided into four vegetation zones or areas (Figure 8):

1. Wetland area
2. Completely cleared
3. Banksia woodlands on dunes
4. Fringing vegetation of *Kunzea sp.* and Bracken.

A species list for the wetland portion is attached as [appendix G](#).

## 2.8. Hydrogeology

- Groundwater underlying the site flows from South west to North east, from the Gngangara mound towards the Ellen brook catchment. Recorded groundwater levels range between 60 and 55 m AHD across the site. Historically the maximum groundwater depth is between 67 and 63 m AHD across the site.
- Groundwater quality underlying the site is slightly acidic with a marginal salinity of between 501 – 1000 mg /L.

### 2.8.1. Regional Hydrogeology

The water table configuration is characterised by a groundwater mound, the Gngangara Mound to the south west, flow is outward from this mound. Only minor recharge takes place at the base of the Darling Scarp, where the soils are generally clayey. Groundwater flow rates typically range from 50 – 150 m/a in the Bassendean and Gngangara Sands, and may be twice as much in the Tamala Limestone (Davidson, 1995).

166, Mortimer Rd. Muchea



Hydraulic conductivities average 15 m/d in the sands to a range of 100-1000 m/d in the Tamala Limestone (Davidson, 1995). A major discontinuity in the water table occurs at the contact between sand and limestone within, or at the eastern edge of, the Tamala Limestone.

The superficial aquifer discharges to wetlands, to Ellen Brook and the Swan River and to the ocean. Most wetlands on the coastal plain are through flow lakes, which have a plume of higher salinity groundwater on the downstream side. Lakes Coooongup and Walyungup are salt lakes into which groundwater discharges and contributes salts to the underlying body of hypersaline groundwater. Discharge from the aquifer takes place above a saltwater interface which is present around the Swan Estuary and along the coast (Cargeeg and others, 1987). The groundwater salinity is lowest (less than 250 mg/L) in the Gnangara Mound and typically rises to 600–800 mg/L along the coast (Davidson, 1995). Pockets of high salinity occur in groundwater discharge areas (Maddington, Serpentine Flats). Lakes Coogee, Coooongup and Walyungup are saline. The superficial aquifer is used for public water supply from borefields in the Gnangara Sand on the Gnangara Mound and from the Tamala Limestone in the northern coastal suburbs. The aquifer is used for watering parks and recreation grounds, for irrigation of horticultural crops (particularly from Tamala Limestone on Spearwood soils) and by garden bores throughout the coastal plain. Groundwater from the superficial aquifers is treated for public supply to remove dissolved gases, dissolved iron and suspended matter.

### 2.7.2. Local Hydrogeology

The main waterway in the area is the Ellen Brook to the East, into which the wetland directly feeds through a much modified creek line. The Ellen Brook receive inflows from the network of shallow surface drains that cover much of the area.

## 2.9 Hydrology

Based on our review of the information available and our own investigations, the hydrology of the site is centred around the REW Sumpland. The border between Bassendean sands and Guildford clay have resulted in several permanent pools of water occurring in the wetland (Figure 9). Although no mound springs were viewed on the survey. It is our belief that some form of mound spring occurs inside the wetland, which remains permanently wet despite previous drainage.

166, Mortimer Rd. Muchea



### 2.7.1 Groundwater

The Perth Groundwater Atlas (DoW 2004) does not cover the area specifically but indicates that groundwater levels across the site range from between 60m AHD in the south west to 55 m AHD in the North East with groundwater flowing in a north easterly direction towards Ellen Brook. Groundwater is approximately 0 m to 3 m below ground surface (BGS) across the site. Site specific groundwater monitoring is currently being conducted at eight bores located within the site.

### 2.7.2 Sumpland water

The site is situated within the Ellen Brook catchment, and the Ellen Brook waterway is situated to the east of the site. The creek running from the wetland site is a tributary of the Ellen Brook. (Figure 9). The sumpland site is permanently wet and evidence for this can be found in historical aerial photographs of the area. The creek itself is degraded, having been used as a water source for cattle. The Sumpland has been degraded in a number of ways:

- A drainage channel was dug through it
- Cattle were grazed on it.
- Fire was used to clear the undergrowth

Currently the REW is left alone and this has resulted in a very dense undergrowth, mainly of Bracken, Spearwood and Jacksonia sp.

## 3. Local Vegetation

Species of flora acquire Declared Rare Flora (DRF) or Priority Flora (PF) conservation status, where populations are restricted geographically or threatened by local processes. The DPaW recognises these threats and subsequently applies regulations towards population protection and species conservation. The DPaW enforces regulations under the Wildlife Conservation Act 1950 (WC Act) to conserve DRF species and protect significant populations. PF are described as potentially rare or threatened species and are classified in order of threat. DRF and PF category definitions are listed (Appendix A) in Table 7. No significant flora species, either recognized as DRF or Priority Flora listed by the DPaW or listed under the EPBC Act were recorded in the Flora and Vegetation Survey and Wetland Assessment. Some DRF species listed under the WC Act are also listed at a Federal level. Section 178 and 179 of the EPBC Act provides for the lists and categories of threatened species under the Act and is summarised in Appendix B.

166, Mortimer Rd. Muchea



### 3.1. *Threatened Ecological Communities*

In Western Australia, Threatened Ecological Communities (TECs) are defined by the Western Australian Threatened Ecological Communities Scientific Advisory Committee. Generally these can be described as vegetation communities that are assemblages of species that occur together in a particular type of habitat. They are the sum of species within an ecosystem and, as a whole provide many of the processes which support a specific ecosystem.

### 3.2. *Wetlands*

The original information regarding classification of the wetlands of the sand plain was first published in the *Wetlands of the Swan Coastal Plain Volume 2B Wetland Mapping, Classification and Evaluation: Wetland Atlas* (Fig. 10), which was captured at a scale of 1:25,000 (Hill et al. 1996b). This was subsequently digitised into the Geomorphic Wetlands Dataset, which displays the location, boundary, geomorphic classification and management category of wetlands on the Swan Coastal Plain. According to the dataset (Fig. 11) the property can be divided into three areas, unclassified, a Multiple Use Wetland and a Resource Enhancement Wetland. The Multiple Use Palusplain (*UFI 8608*) and Resource Enhancement Sumpland (*UFI 8607*) are mapped on the wetland geomorphic dataset as occurring in the central part of the property, following a creek line. Historic aerial photography reveals that the Multiple Use Wetland and parts of the Resource Enhancement Wetland areas have been cleared for farmland, since the 1960's, suggesting the mapping may be in error. Field investigation would also suggest that parts the REW remain wet throughout the year, and may constitute a Mound Spring wetland.

## 4. **Swan Coastal Plain Wetland Evaluation**

As per DEC requirements a Swan Coastal Plain wetland evaluation was conducted on site to determine the conservation status of the wetland (Appendix C-E). The overall score was 10 high, 13 intermediate and 1 low therefore the RE Sumpland is better described by the Conservation category. As part of the site investigation, a series of photographs were taken (Appendix F).



## 5. Justification for Wetland Re-classification

Wetlands are defined as areas where the soil can become inundated or waterlogged, either permanently or seasonally, with fresh or saline water. Where natural soils become waterlogged, their chemistry changes, due mainly to soil microbes and plant roots removing oxygen at a rate greater than it can be replenished from the atmosphere. The altered chemistry is manifest as decreasing redox potential, the gradual accumulation of organic carbon, and depending on soil mineralogy, the potential accumulation of reduced iron and sulphur. Such soils are not conducive to the growth of many plants, so a selection occurs for those plant species, which have special adaptive mechanisms to cope with anaerobic soil. As such, wetlands develop a characteristic vegetation community.

Driven by the recognition of the importance of wetlands in the Swan Coastal Plain ecosystem, and the fact that European settlement had caused a rapid loss of wetlands, studies were initiated in the 1990's to map wetlands in the Perth area, and to assign management categories in order for them to be protected from future decline.

Initially five management categories were assigned, but later this became three categories:

**Conservation Category Wetlands** have high conservation significance where the wetland functions, values and attributes are to be protected by preventing activities which may cause their decline. The surrounding land is likewise protected in order to provide a buffer against threats to the wetland function and attributes. The management objective should be to preserve and protect all the ecological, hydrological and social functions.

**Resource Enhancement Wetlands** are those which retain functions, values and attributes which, although somewhat compromised and degraded, are still worthy of preservation. The management objective is to restore the values and attributes of such areas towards those of Conservation Category Wetlands.

**Multiple Use Wetlands** are areas where wetland functions, values and attributes have been seriously degraded such that they no longer serve any substantial ecological role. They are typically cleared of native vegetation and most wetland fauna. The management



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objective is to preserved hydrological functions, but otherwise they can be developed for more beneficial use.

The location and management category of wetlands was originally determined and published in 1996 in Hill et al, Wetlands of the Swan Coastal Plain Volumes 2a and 2b (1996). Since that time, maps have been converted to digital format as the Wetlands geomorphic dataset, which is administered by the Wetland Program Office of the Department of Environment Regulation.

The location and classification of wetlands are determined by the presence or absence of these three features:

- The presence of water at or above the soil surface either permanently or intermittently.
- Changes in soil chemistry characterised as becoming hydritic.
- Vegetation which includes plants adapted to inundated soils.

From a comparison of the digitised datasets with a satellite image of the property (Fig.12), it can be inferred that there is little discrepancy between the datasets and the satellite image. The satellite image shows that the RE Sumpland is largely intact, with very little disturbance.

Bioscience accepts that this area can become waterlogged in the winter months but also has standing water throughout the year and thus still retain wetland function, we believe that its values and attributes are consistent with it being classified as a Conservation Classified Wetland. However, we believe that the outer, more degraded areas could best be described as Multiple Use Wetlands.

## 6. Conclusion

The majority of the wetland (UFI 8607) is more appropriately classified as a Conservation Category Wetland, as the values and attributes of the wetland are largely intact and still perform a substantial ecological role. Outlying more degraded areas would be better described as Multiple Use Wetland.

In summary the majority of the wetland;

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- 
- Has lost some wetland function, values and attributes, but is essentially still intact.
  - Vegetation dominated by native species, although there has been some clearing, fire, drainage and grazing.
  - Scores indicate that is better described as a Conservation Category Wetland using Bulletin 686.

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## 7. References

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### Figures

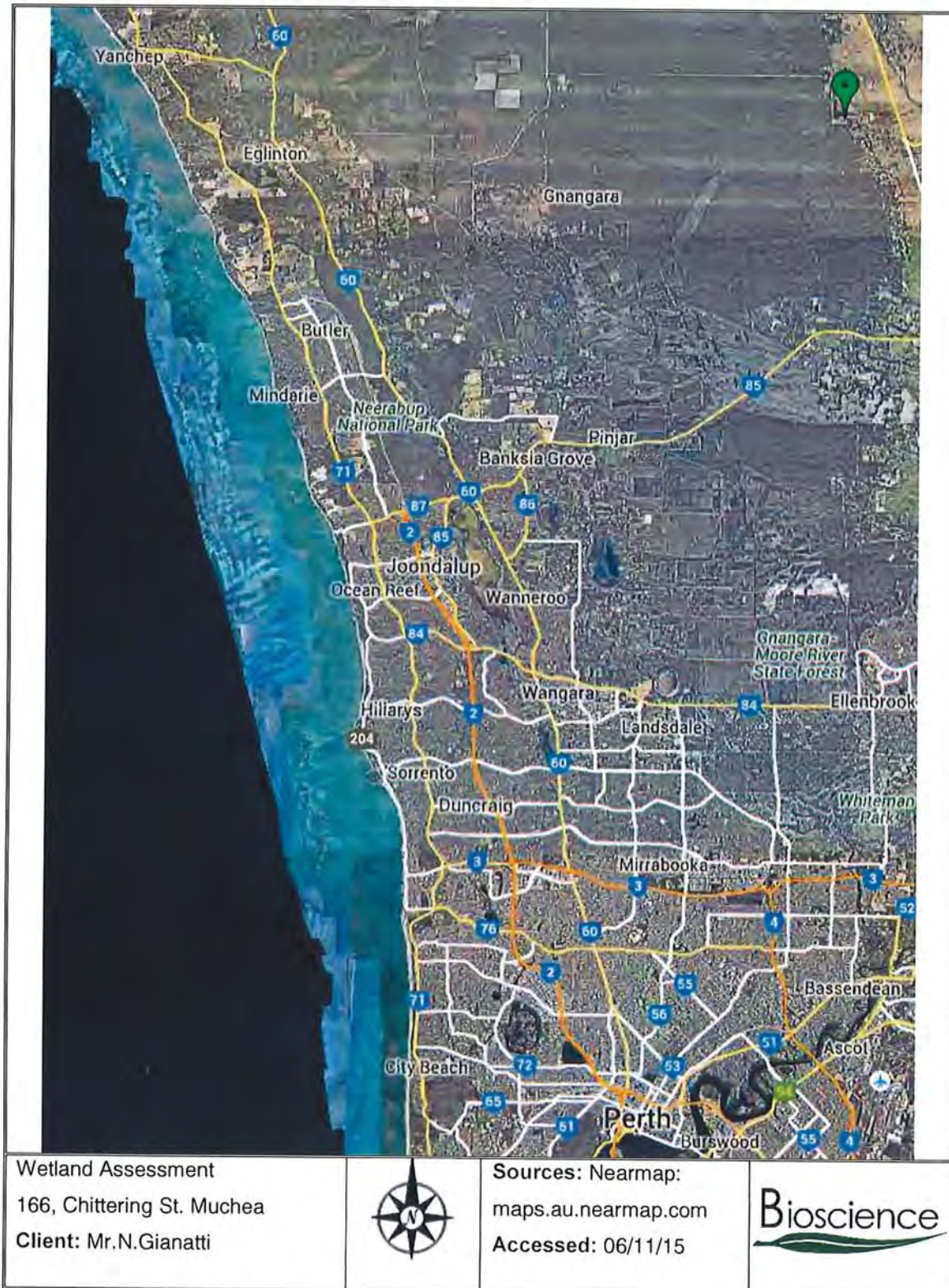


Figure 1 – Site Location

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Figure 2 – Site Map

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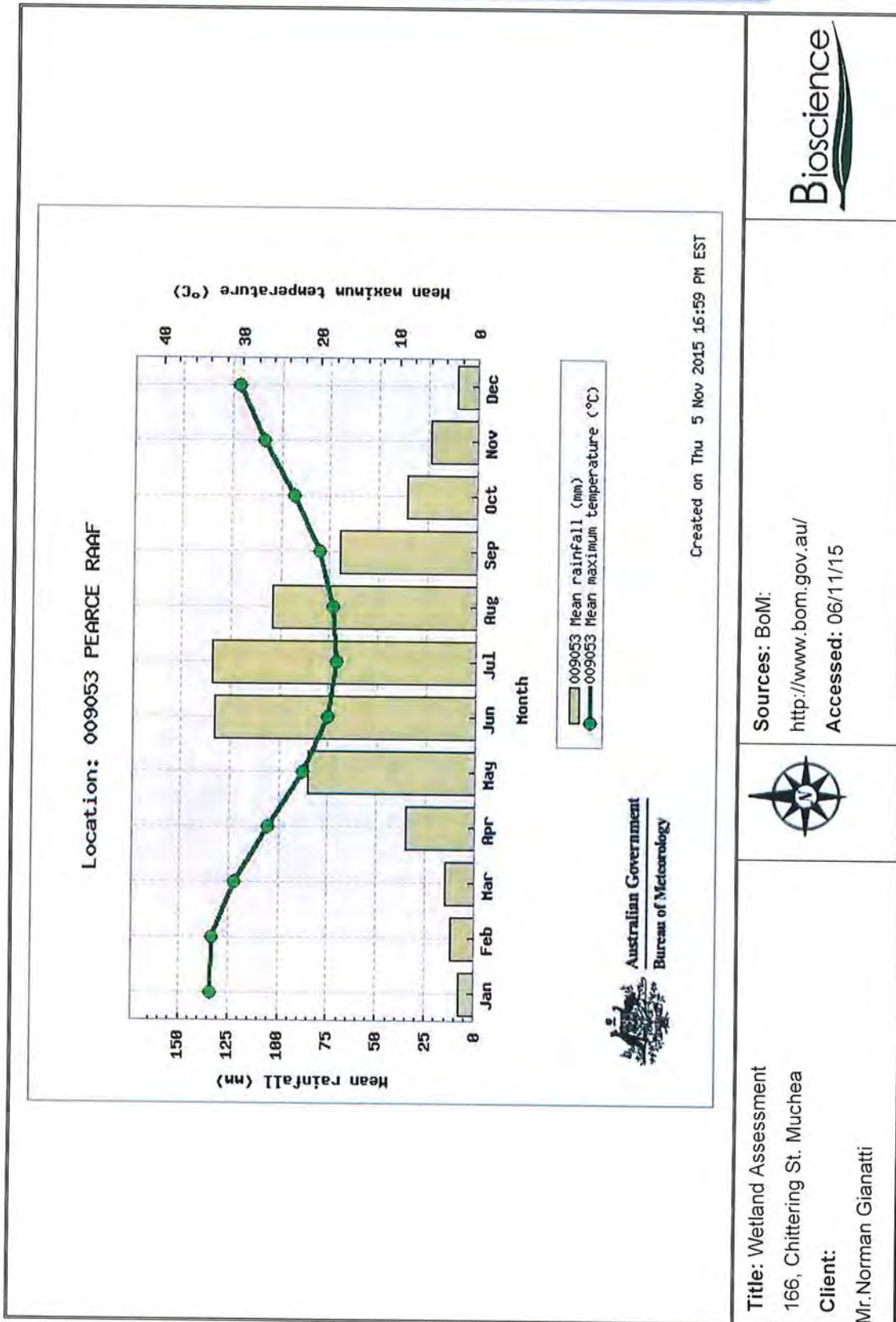


Figure 3 – Mean rainfall and Temperature – Pearce airbase

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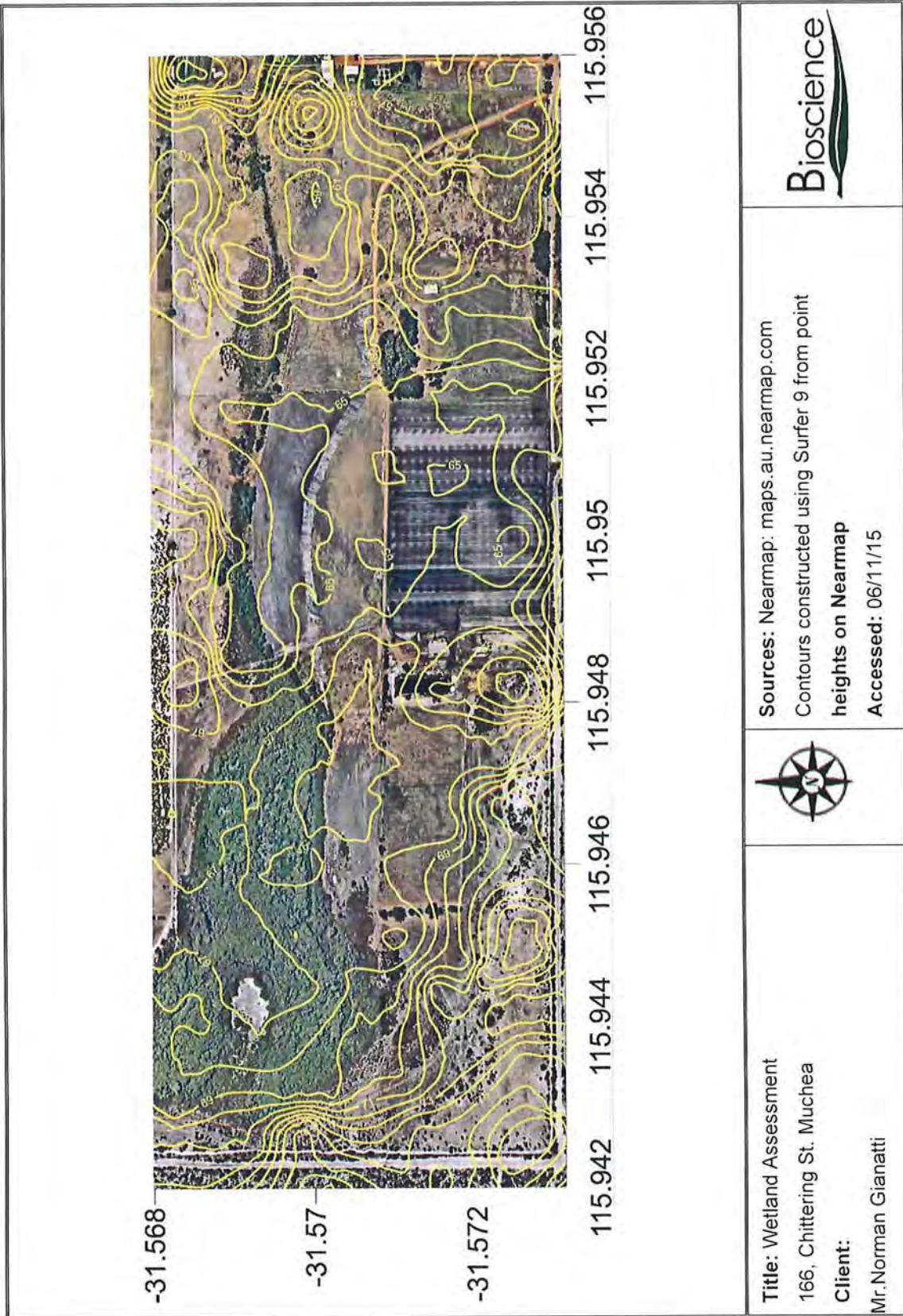


Figure 4. Elevation

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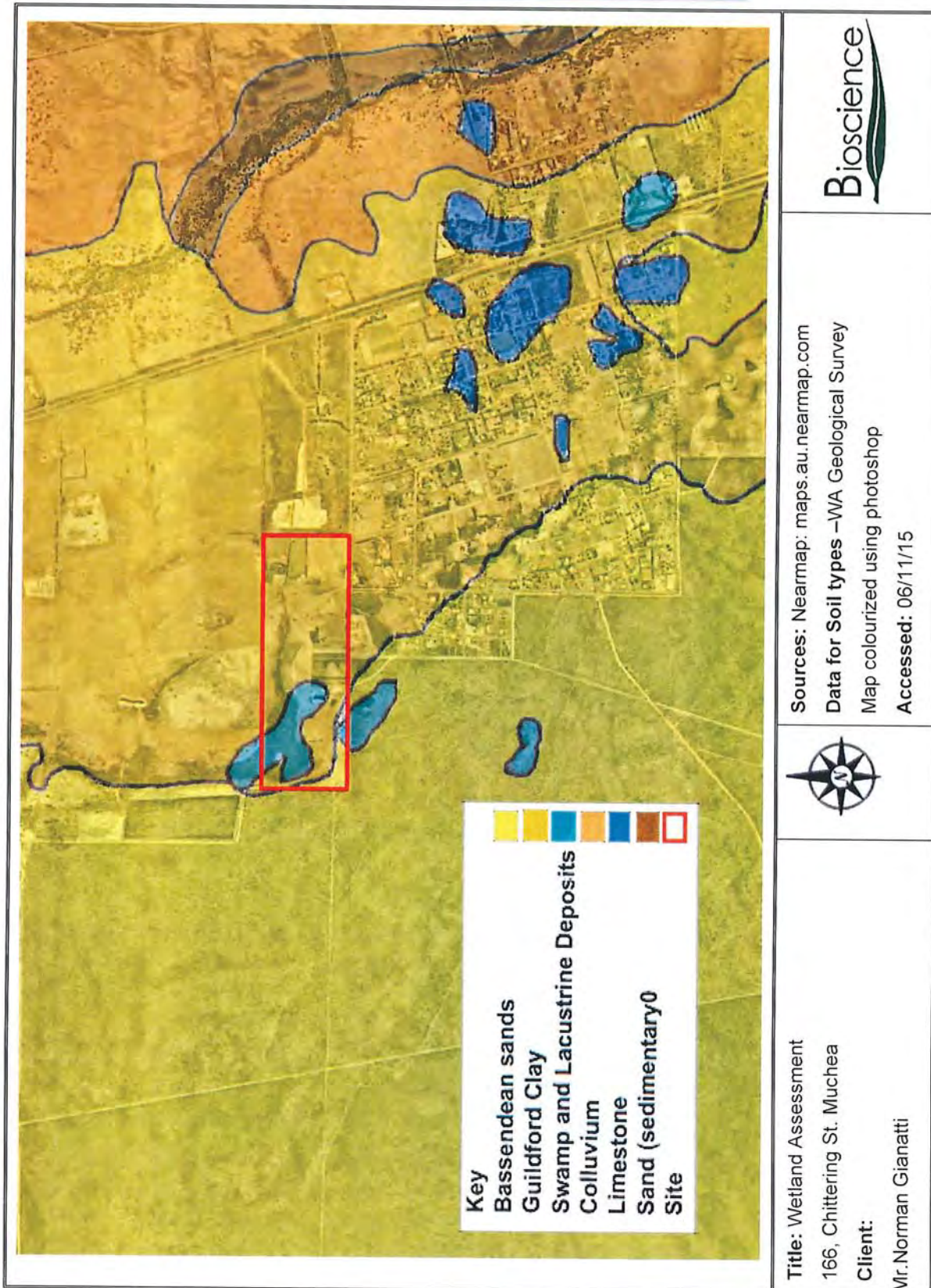


Figure 5 – Soil types in Muchea locality



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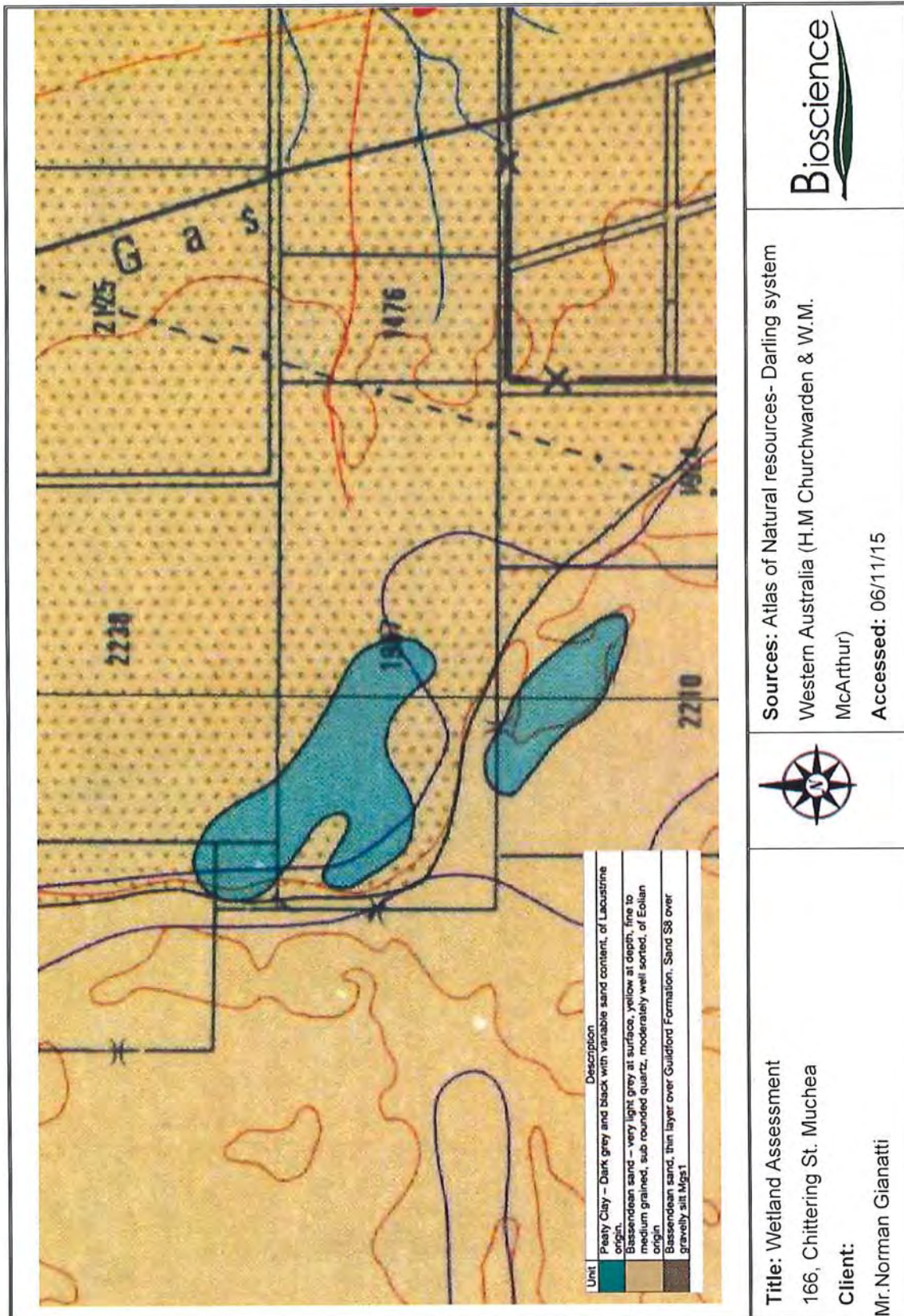


Figure 6 – Local geology

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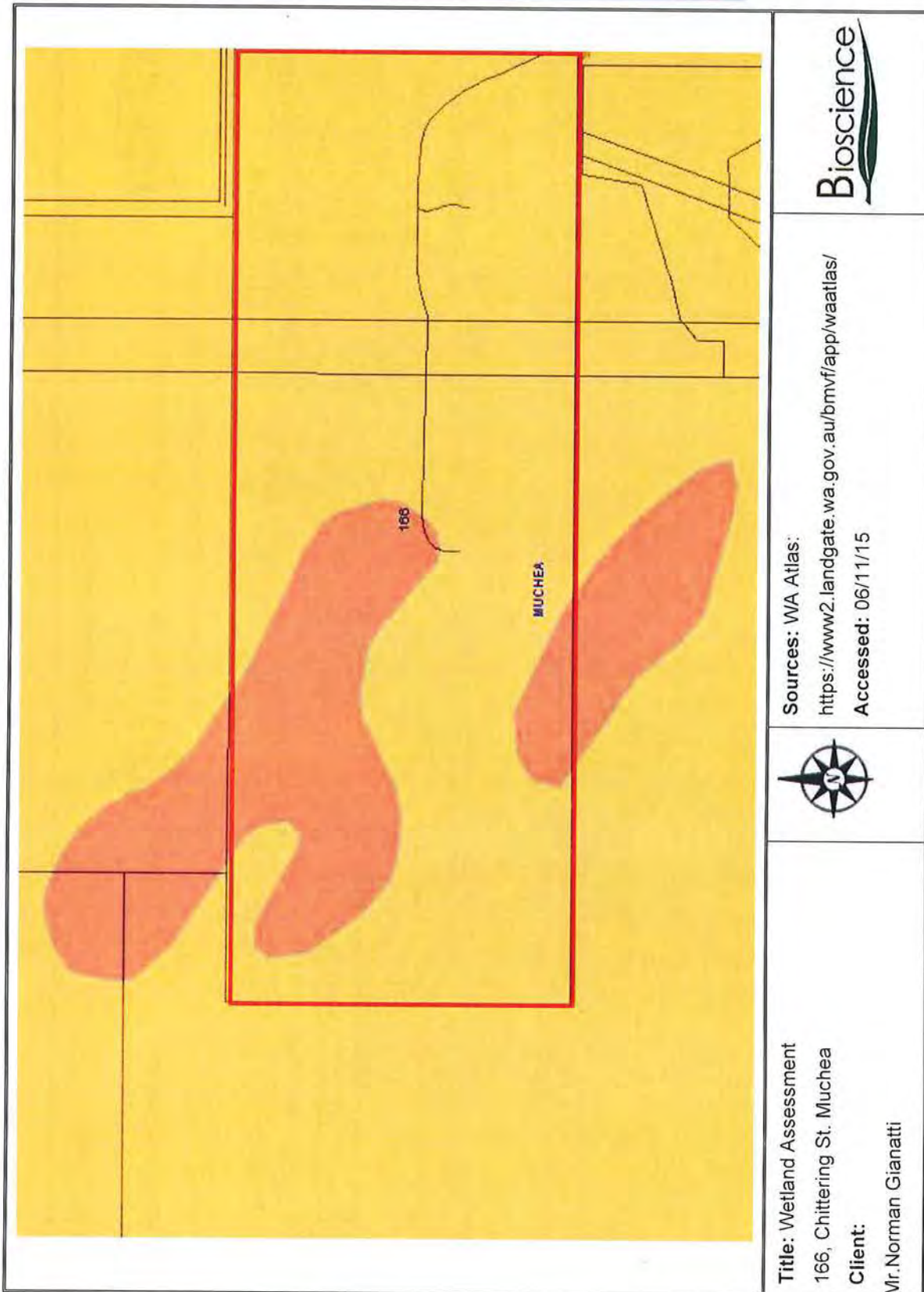


Figure 7 – Acid Sulphate Soils Risk

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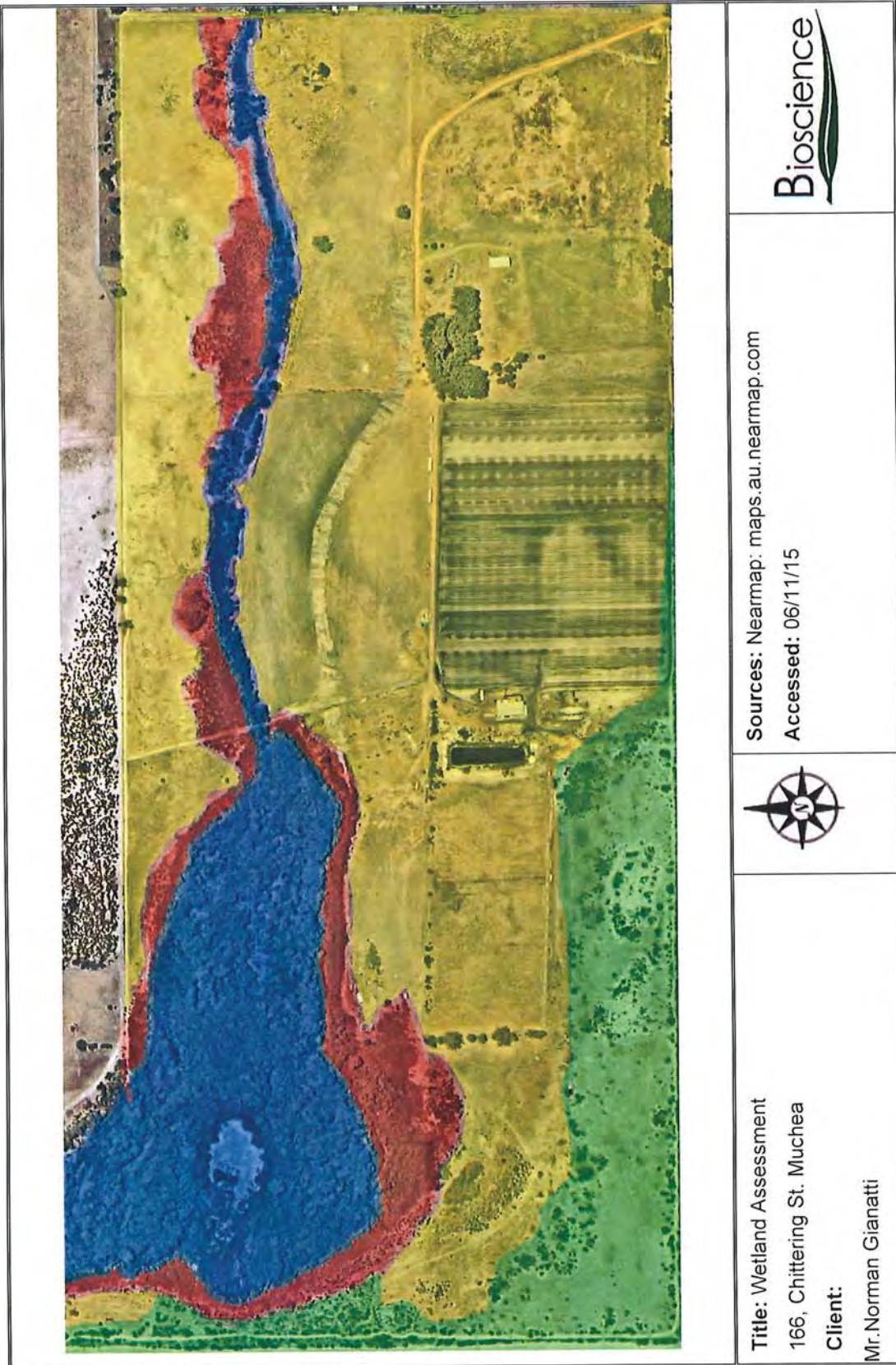


Figure 8 – Vegetation Zones

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Figure 9 – Creek Line and Ellen Brook



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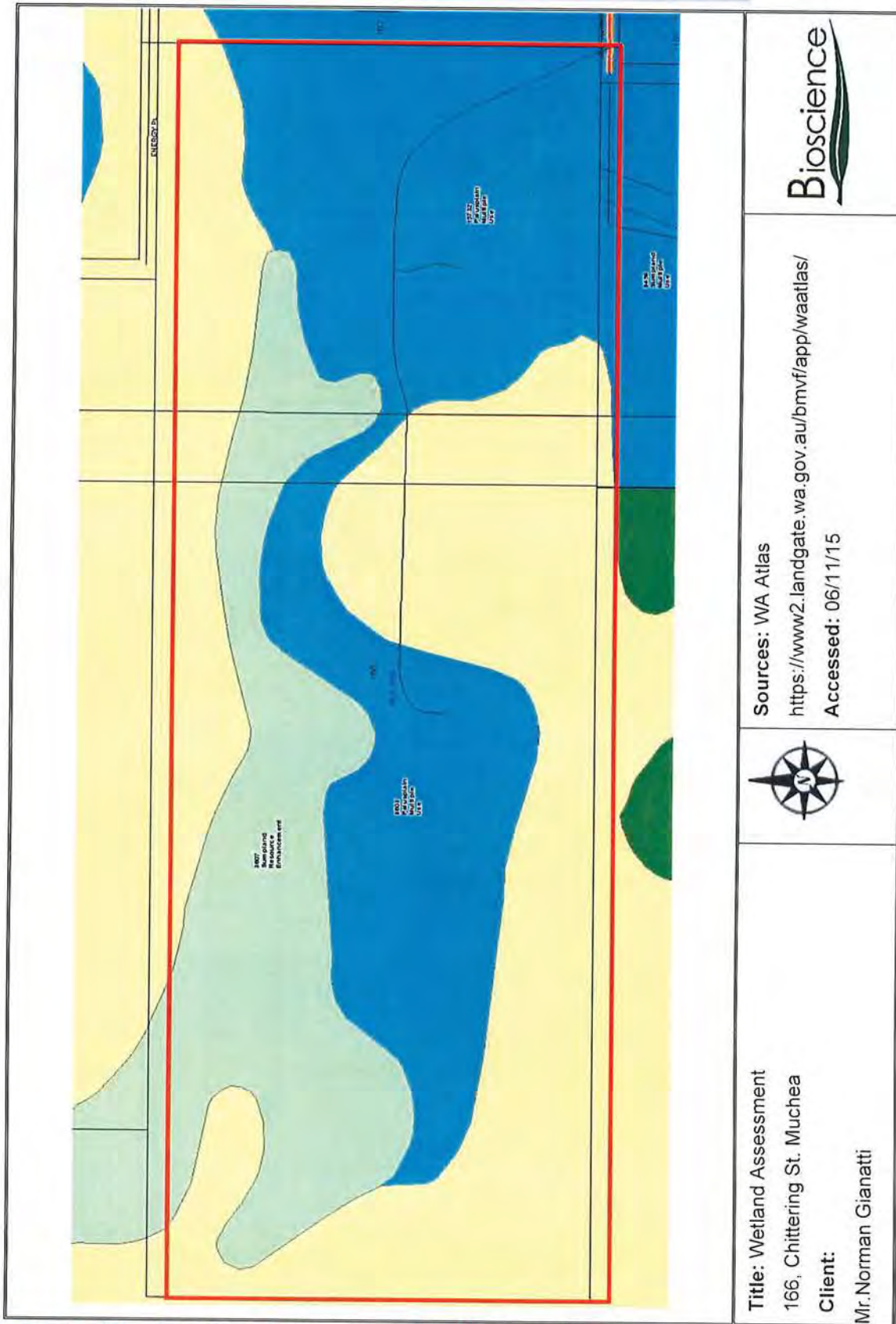
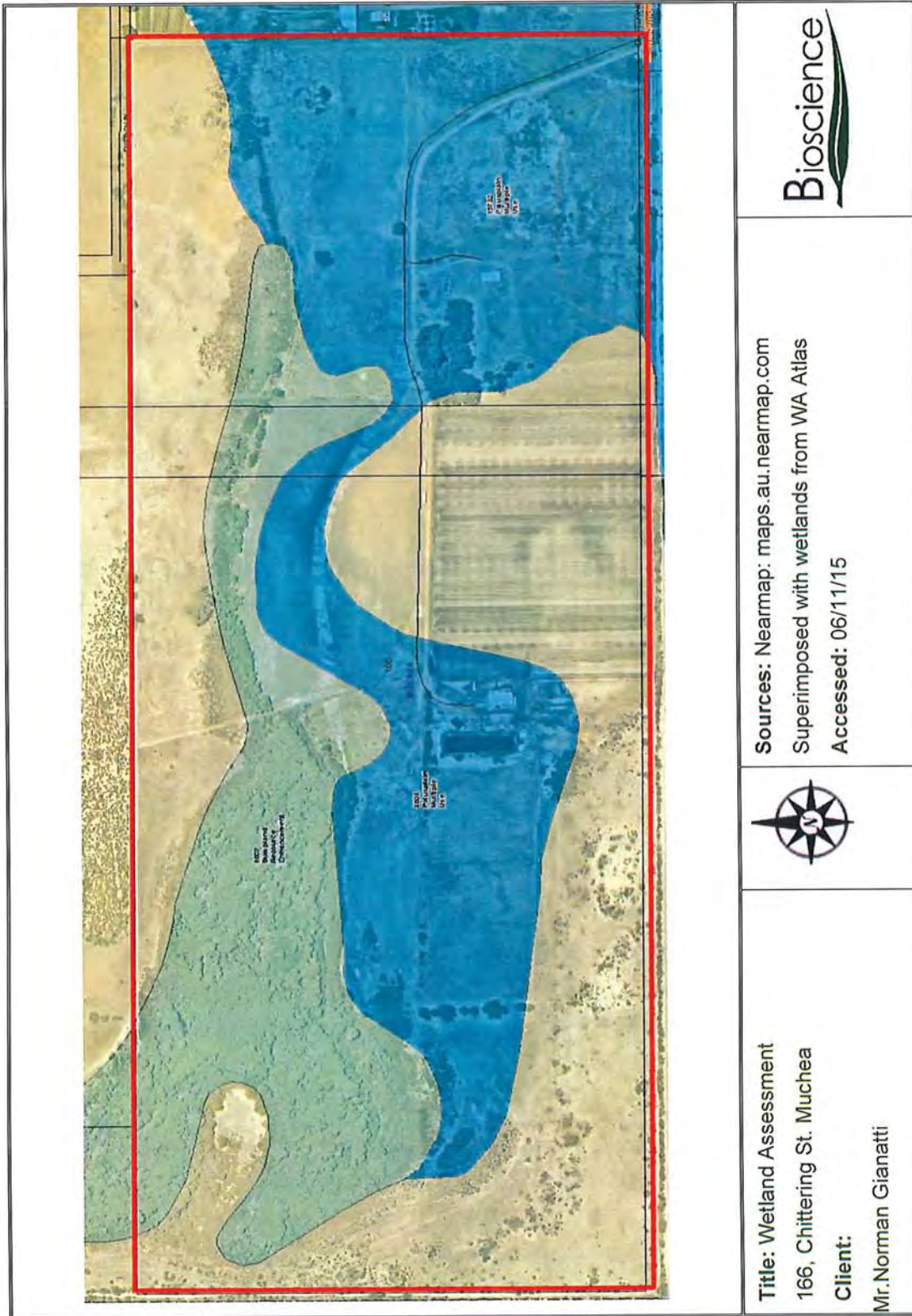


Figure 11 – Digitised Geomorphic Wetland Set

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	<p><b>Sources:</b> Nearmap: maps.au.nearmap.com                  Superimposed with wetlands from WA Atlas                  Accessed: 06/11/15</p>		<p><b>Title:</b> Wetland Assessment                  166, Chittering St. Muchea  <b>Client:</b>                  Mr. Norman Gianatti</p>
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**Figure 12 – Comparison of Geomorphic Wetland Dataset and Aerial Photograph**

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## Appendix A

### Definition of Rare and Priority Flora species.

#### *Conservation Code And Category*

##### *R1 Declared Rare Flora – Extant Taxa.*

Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.

##### *X Declared Rare Flora – Presumed Extinct Taxa*

Taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such.

##### *P1 Priority One – Poorly Known Taxa*

Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat e.g. road verges, urban areas, farmland, active mineral leases etc., or the plants are under threat, e.g. from disease, grazing by feral animals etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

##### *P2 Priority Two – Poorly Known Taxa*

Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but urgently need further survey.

##### *P3 Priority Three – Poorly Known Taxa*

Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the number of known populations (generally >5), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora' but need further survey.

##### *P4 Priority Four – Rare Taxa*

Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors.

These taxa require monitoring every 5-10 years. The Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) promotes the conservation of biodiversity by providing statutory protection for plants at a species level.



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## Appendix B

### Categories of Threatened Species (EPBC Act, Section 178 & 179, 1999)

(Only categories marked with an \* are matters of national environmental significance under the EPBC Act 1999)

CONSERVATION CODE CATEGORY

#### *Extinct (E)*

Taxa which is known only to survive in cultivation, in captivity or as a naturalized population, well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

#### *Critically Endangered (CE)*

Taxa which is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria.

#### *Endangered (En)*

Taxa which are not critically endangered and is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

#### *Vulnerable (V)*

Taxa which is not endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

#### *Conservation Dependant (CD)*

A species that is the focus of a specific conservation program; the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

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## Appendix C

### Wetland evaluation desktop and site assessment form

The *Wetland evaluation desktop and site assessment form* has been designed to simplify the collection and processing of information required to complete a wetland evaluation on the Swan Coastal Plain. It is applicable to lake, sumpland, dampland, palusplain and paluslope wetland classifications.

This form is divided into two questionnaires:

- 1) Preliminary desktop and site assessment questions: should be completed prior to commencement of the preliminary evaluation.
- 2) Full site assessment questions: should be completed if the preliminary evaluation indicates that a secondary evaluation is required. The full site assessment questions should be completed prior to the commencement of the secondary evaluation.

Information sources to assist in the collection of wetland data are outlined in Appendix B.

Once completed, the information collected can be adapted for use in wetland management plans and local and regional planning. It is recommended that the completed *Wetland evaluation desktop and site assessment form* along with the results of the wetland evaluations be submitted to DPaW to ensure current wetland information is available for the Swan Coastal Plain.

*The following information should be collected during a desktop and site assessment prior to completing the preliminary evaluation and secondary evaluation for wetlands on the Swan Coastal Plain.*

#### GENERAL INFORMATION

##### Assessor details

Name/s:

**Dr. Mark Bundock**

Date/s of site visit:

**09/09/15 & 30/10/15**

Agency/Company:

**BioScience**

Contact number:

**0437 882440**

Email address:

**mark.bundock@biosciencewa.com**

Weather during site visit:

**Warm, Dry, breezy. Hot, humid, clear**

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**Land ownership and contact details**

Landowner:

**Mr. N. Gianatti**

Land manager (if different to owner):

Consultant (if applicable):

**BioScience**

Contact for site visit:

**Mr. N. Gianatti**

Landowner permission received for site access: **yes** / no

**Property details**

Location (e.g. lot, street, suburb):

**Lot 1907, 166, Chittering St. Muchea**

Latitude and longitude/MGA:

**-32.570779, 115.948865**

**Wetland details**

Name:

**Un-named**

Unique feature identifier number/s:

**34 Sr, UFI 8607**

Hill et al. (1996) map sheet number and wetland identification number/s (WIN):

**39993650669**

Consanguineous suite: **Muchea B/P3**

Area (hectares) of the wetland: **5542.5Ha**

Area (hectares) subject to this evaluation: **16.2Ha**

Is the wetland being assessed as a portion of a wetland with varying areas of value **yes** / no.

Mapped management category: Conservation, **Rehabilitation Potential**, Multiple Use.

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Wetland type:

Water permanence	Host landform				
	Basin	Flat	Slope	Highland	Channel
Permanent inundation	Lake	-	-	-	River*
Seasonal inundation	Sumpland	Floodplain*	-	-	Creek*
Intermittent inundation	Playa*	Barlkarra*	-	-	Wadi*
Seasonal waterlogging	Dampland	Palusplain	Paluslope	Palusmont*	Trough*

\*Wetland types not applicable to this evaluation methodology.

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**PRELIMINARY DESKTOP AND SITE ASSESSMENT QUESTIONS**

Answer the following desktop based questions using the information outlined in Appendix B, Appendix D and a preliminary site visit. Once the desktop questions have been completed and the wetland's values verified, the preliminary evaluation can commence.

**Land uses**

Current ownership of wetland: **private** / local government / other government / unknown

Current land use:

**Agricultural – Grazing/Horticulture**

Past land use:

**Agricultural/Horticulture**

Surrounding land use:

**Agricultural/ rural**

Existing management:

**None**

Fire history/regime: **-None available**

**International, national or regional significance**

Indicate whether the wetland is identified (permanent or interim) on one of the following international, national or state registers or listings.

Conservation significance	Y/N
<i>Ramsar Convention on Wetlands</i> (Ramsar 1971)	N
<i>Directory of Important Wetlands in Australia</i> (Environment Australia 2001)	N
<i>Register of National Estate</i> (Commonwealth of Australia 2007)	N
<i>Conservation Reserves for Western Australia Systems 1, 2, 3, 5</i> (Department of Conservation and Environment, 1976)	N
<i>Conservation Reserves for Western Australia, The Darling System – System 6</i> (Department of Conservation and Environment, 1983)	N
<i>A Systematic Overview of Environmental Values of the Wetlands, Rivers and Estuaries of the Busselton – Walpole Region</i> (Pen 1997)	N
<i>The Environmental Significance of Wetlands in the Perth to Bunbury Region</i> (Le Provost et al. 1987)	N
<i>Bush Forever</i> (Government of Western Australia 2000)	N
<i>Swan Bioplan</i> (Environmental Protection Authority 2010)	N
<i>Environmental Protection (Swan Coastal Plain Lakes) Policy 1992</i>	N
<i>Environmental Protection (Western Swamp Tortoise Habitat) Policy Approval Order 2002</i>	N
Conservation Estate (e.g. National Park, Nature Reserve, A Class Reserve)	N
Other (list):	N

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Does the wetland retain the values for which it was originally registered or listed, describe:

#### Fauna

Note the presence (recorded or observed) or evidence of fauna in or surrounding the wetland which is listed by the Commonwealth (e.g. *Environment Protection and Biodiversity Conservation Act 1999*, CAMBA, RoKAMBA, JAMBA) or State (e.g. Threatened or Specially Protected Fauna under the *Wildlife Conservation Act 1950*) or Priority Fauna or Priority or Threatened Ecological Communities related to fauna which are listed by DPaW.

Species / name of ecological community	Significance (e.g. EPBC Act, CAMBA)	Observations (e.g. population size, age, evidence, activities, habitat requirements)	Source of information (e.g. observatory, literature, DPaW, WA Museum)
None noted			
None noted			

#### Scientific value

List any scientific values including geoheritage or geoconservation values (e.g. important sediments or geological features, fossils, pollen records, stromatolites, thrombolites, evidence of evolutionary processes, evidence of a change in climate, unique flora or fauna adaptations) that the wetland may contain.

Scientific, geoheritage or geoconservation values	Significance and observations	Source of information (e.g. observatory, literature, DPaW, WA Museum)
Possible Mound Spring	Limited number in Perth SP	DPaW Literature
None noted		

#### Flora

Use aerial photography and a site visit to determine and confirm the condition of the vegetation within and 50 metres surrounding the wetland. Using the scale outlined in Appendix B, display the locations of the vegetation conditions in the attached map and calculate their total area:

Vegetation condition	Total area (%) within the wetland	Area (%) 50 metres surrounding the wetland
Pristine		
Excellent	30	10
Very Good	30	10
Good	15	30
Degraded	15	20
Completely Degraded	10	30

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Using this information, is the wetland dominated by vegetation in a good or better condition: **yes** / no

What vegetation complex (Hedde et al. 1980 ) does the wetland belong to: **Bassendean & Pinjarra**

Using the information sources outlined in Appendix B, what extent of the vegetation complex is remaining on the Swan Coastal Plain (circle): < 10 % / **10-30 %** / >30 %

List any occurrences of Priority and Threatened Ecological Communities related to flora and wetland systems which are known to occur within and 5 kilometres surrounding the wetland. **If they are located within or adjacent to the wetland display their boundary in the attached map:**

Name of ecological community	Significance (e.g. priority, threatened)	Observations (e.g. condition, area, habitat type)	Source of information (e.g. observatory, literature, DPaW)
Mound springs SCP	Endangered	Swan Coastal Plain Bassendean/Guildford interface	TEC Descriptors - DPaW
Muchea Limestone shrublands	Endangered	Swan Coastal Plain Muchea	TEC Descriptors - DPaW
Corymbia Calophylla/ Xanthorrhoea preissii woodlands	Threatened	Swan Coastal Plain Muchea	TEC Descriptors - DPaW

List any occurrences of Declared Rare flora or Priority flora known to occur within and 1 kilometre surrounding the wetland and display their location in the attached map:

Species	Significance (e.g. Declared Rare, Priority 1)	Population measure (number, single record, abundance comment)	Observations (e.g. habitat type, flowering season)	Source of information (e.g., literature, DPaW, surveyed population, Herbarium record)
<i>None Listed in NatureMap</i>				

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**Representativeness**

Using the wetlands data outlined in section 4.3, Appendix D and available on DPaW's website record the corresponding area:

	% area
What is the % area of wetlands with the same classification assigned a Conservation management category on the Swan Coastal Plain	<b>37 – Sumpland</b>
What is the % area of wetlands in the same consanguineous suite assigned a Conservation management category	<b>38.7</b>
What is the % area of wetlands with the same classification in the same consanguineous suite assigned a conservation management category	<b>58.9% - Sumpland</b>

Is the wetland rare? (e.g. only wetland in its consanguineous suite, best wetland example in its consanguineous suite or region, only Conservation management category wetland in the consanguineous suite or region, primary saline wetland within a consanguineous suite predominated by freshwater): **Yes, if it contains a mound spring it would be extremely rare.**

*Once the above preliminary desktop and site assessment questions are completed the preliminary evaluation outlined in section 5.3 can commence.*



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## Appendix D

### FULL SITE ASSESSMENT QUESTIONS

Answer the following site assessment questions after the desktop questions and the preliminary evaluation has been completed and the wetland is required to be evaluated using the secondary evaluation method. If the results of the preliminary evaluation indicate that the wetland should be assigned a Conservation management category then it is only optional to complete the site assessment questions. Once the site assessment questions have been completed the secondary evaluation may commence.

#### Geomorphology

What geomorphic unit does the wetland belong to (e.g. Pinjarra Plain, Bassendean Dune): **Bassendean dune and Guildford clay**

Can all areas of the wetland be visited? **yes** /no. Comment: **but very overgrown and partially inaccessible.**

Describe the wetland's surface soil (e.g. peat, quartz sand): **peaty sand**

What is the slope of the wetland: flat / gentle undulations / steep banks. **Flat, with few undulations**

Indicate whether any of the following human induced alterations have occurred to the wetland's geomorphology:

Human induced alterations	Y/N – describe
fill	N
excavation	Y
partition	N
alienation along boundaries	Y – <b>weed invasion is evident in surrounding bushland,</b>
damming	N
structural control	N
mining	N
dredging	N
drains	Y – <b>drain inserted in wetland from NW to SE</b>
other	<b>Grazing and fire</b>

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What extent (%) of the wetland's geomorphology is altered (circle): <10 / 10-25 / 25-50 / **50-75** / 75-90 / >90

Compare the wetland's geomorphology to other wetlands of the same type in the same consanguineous suite domain. List any differences, similarities or unusual characteristics observed: **The geomorphology remains largely unchanged, other than a general levelling of the land, due to agricultural usage.**

Additional notes:

#### Wetland processes

Identify the processes occurring in the wetland (e.g. sedimentological, hydrological, geochemical). Identify whether they are inferred or observed: **Sedimentological and hydrology processes inferred by site visit and aerial photography.**

To what extent have each of these processes been altered : negligible / low / **medium** / high / unknown. Describe:

Have alterations to the processes affected the wetland's natural attributes and functions: no / **low** / impacts / high impacts. Describe: **Drainage and agricultural use have degraded some of the wetlands' natural attributes.**

Compare the wetland's processes to other wetlands of the same type. List any differences, similarities or unusual characteristics observed: **The processes are degraded but the wetland still functions and are contain water all year around.**

The wetland is: fresh (< 1000 mg/L) / hyposaline (1000 – 10 000 mg/L) / saline (10 000 – 100 000 mg/L) / hypersaline (>100 000 mg/L) / **unknown**

The wetland is **groundwater dependant** / perched / both / unknown. State whether inferred or based on data. **Inferred from observations and research**

Did the wetland contain surface water at the time of the survey or evidence of inundation. **yes** / no.

Explain: **There was standing water in two pools in the NW and water moving along the creekline in pools.**

Does the wetland contain artificial attributes and functions which contribute to the hydrological cycle (e.g. detention basins, artificial drains or channels) **yes** / no. Describe and map: **A drain from the NW corner of the property to the south west. (Fig 9)**

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**Linkages**

Describe if the wetland is part of a hydrological link in a larger or more complex system (e.g. wetland linked to estuary ecology, wetland linked to river system, Beeliiar Wetland Chain): **possibly linked to chain of Mound springs at the Bassendean/Guildford interface.**

Is the wetland part of an ecological linkage or wildlife corridor or, is it connected by vegetation or waterways to other nearby bushlands or wetlands? If yes, describe: **Linked to Ellen Brook**

Is a portion of the wetland vegetated and as a result functions as a fragmented ecological linkage or wildlife corridor? If yes, describe: **Yes, heavily vegetated and forms fragmented linkage to Ellen Brook.**

**Habitats**

List any native fauna (e.g. frogs, oblong turtle) or flora (e.g. macrophytes, algae) observed to be dependent on the wetland's surface water:

Species	Observations (e.g. form, population size, location in the substrate, habitat type)
None observed	
None observed	

Is the wetland important for maintaining the genetic and ecological diversity in a regional or local context (circle): **yes** no. Describe: **Further investigation needed to establish invertebrate populations present.**

Describe whether the wetland supports or is likely to support fauna populations at a vulnerable stage of their life cycle (e.g. turtle eggs, tadpoles) or provides a nursery for fauna (e.g. nursery for cygnets): **Possibly.**

List or select from below the various habitats located within and 50 metres surrounding the wetland:

large trees with canopy	trees with hollows	dead wood	low dense shrubland	scattered shrubland
fringing sedges/rushes	scattered sedges/rushes	inundated sedges/rushes	submerged aquatic vegetation	samphire/salt marsh
seasonally inundated grasslands	mud flats	shallow open water	deep open water	islands (natural or man-made)
rocky outcrops	sandy substrate	heavy leaf litter	feral fauna burrows	thickets scrub
other:	other:	other:	other:	other:

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Compare the wetland's habitats to other habitats of wetlands of the same type, consanguineous suite or the surrounding area. Describe any differences, similarities or unusual characteristics observed:

**If the wetland is shown to contain a mound spring, it would be one of very few to remain vegetated.**

Determine whether habitat diversity is the result of disturbance or natural complexity (i.e. is the diversity evident in the wetland a result of disturbance, e.g. fire generating small holes and microhabitats, or sand wash into wetland margins generating new peripheral habitats, or excavations and drains creating avifaunal and aquatic environments by generating free standing water). Describe these habitat features:

**The habitat is the result of natural complexity, although historical grazing and horticulture have reduced the size and diversity.**

Additional notes:

#### Flora

Confirm the occurrence or believed to be occurrence of Threatened or Priority Ecological Communities, Declared Rare Flora and Priority Flora recorded during the desktop assessment. Note any additional observations or occurrences and include advice on search effort in any area of suitable habitat for these communities or species: **TEC believed to be present –Mound spring**

List any significant flora confirmed to be present within the wetland or whether it is a known location for significant flora.

Species	Observations (e.g. population's size, percentage cover, flowering/fruitlet activity)	Known (K) or new (N) occurrence?
None observed		
None observed		

List the dominant flora species located within the wetland in each growth form layer and estimate their per cent cover in the wetland.

Growth form layer	Dominant species	Percentage cover (to the nearest 10%)
Trees over 30 m		
Trees 10–30 m	<i>Corymbia calophylla</i>	5
Trees under 10 m	<i>Melaleuca raphiophylla</i> ,	5
Mallee over 8 m		
Mallee under 8 m	<i>Pinus sp.</i> , <i>Acacia saligna</i> , <i>banksia attenuata</i>	10

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Shrub over 2 m	<i>Kunzea glabrescens, Pericalymma ellipticum.</i>	20
Shrubs 1–2 m	<i>Jacksonia furcellata. Bracken sp.</i>	20
Shrubs under 1 m		
Herbs	<i>Ferns</i>	10-15
Sedges/rushes		
Grasses		
Open water		
Bare ground		
Other		

List the most common weed species occurring in the wetland:

*Zanedeschia aethiopica, Euphorbia terracina. Kikuyu grass (Cenchrus clandestinus)*

Use aerial photography and the site visit to determine the percentage of the wetland boundary which is surrounded by land dominated by native vegetation. Describe any observations: 100 – 75% / 75 – 50% / 50-10% **<10%**

Using site observations, compare the diversity of native flora in the wetland to other wetlands of the same type. List reference sites used. Does the wetland have a high diversity of native flora: yes / **no** / similar  
 Explain: **Compared to wetlands of similar type, containing mound springs, there was a low diversity, but high percentage cover of plants**

Has the vegetation been changed by direct disturbance during the last 24 months? For example, grazing, clearing, ploughing, fire: yes / **no**

If yes, provide details, including information regarding the type of disturbance, extent and nature of the impact to the vegetation e.g. continuous or periodic, and if periodic, the last known occasion.

Identify whether any form of clearing is legal. If yes, is regeneration evident? If regeneration is not evident, outline the potential for regeneration and rehabilitation of vegetation if direct disturbance (a) continues and (b) ceases. **This clearing was carried out historically since the 1960's. Regeneration is evident, but the number of plant species is reduced.**

Has the flora diversity or composition changed due to human induced disturbances other than direct impacts in the last 24 months? If yes, provide information **Yes** clearance has occurred in the southern portion to the edge of the wetland

166, Mortimer Rd. Muchea



### Fauna

Document all other observations of individuals and evidence (e.g. tracks and scats) of native fauna species utilising the wetland as a feeding, breeding, roosting or refuge site.

Species	Native / introduced	Observations (e.g. habitat type, populations size, age)	Source of information (e.g. observatory, literature, DPaW, WA Museum)
<i>Litoria adelaidensis</i> (Slender tree frog)	Native	Heard calling in wetland	Observation
<i>Crinia georgiana</i> (Quacking Froglet)	Native	Heard calling in wetland	Observation
<i>Geocrinia leai</i> (Clicking Froglet)	Native	Heard calling in wetland	Observation
<i>Notechis scutatus occidentalis</i> (Tiger snake)	Native	Observed hunting	Observation
<i>Pseudonaja nuchalis</i> (Gwardar)	Native	Observed hunting	Observation
<i>Heliastur sphenurus</i> (Whistling Kite)	Native	Observed hunting	Observation

Does the wetland function or have the potential to function as an ecological refuge **yes** / no.

Comment on whether fauna are residing in the wetland for feeding, breeding and roosting purposes or if they migrate between other natural wetlands or bushlands. **Most species noted would be resident in the wetland, as they have a limited range. The whistling kite may have been feeding only in the area, as no nest was observed.**

Using site observations compare the fauna occurring in the wetland to other wetlands of the same type. **More fauna would be expected to be found at Mound springs in the area, but this is dependent on vegetative cover.**

Does the wetland support a variety of fauna species compared to the other wetlands: yes / no **similar**

Explain: **As so few Mound spring wetlands exist and they vary in cover, this site could be considered to be average.**

### Cultural

Is the wetland identified (either interim or permanently) on a national (e.g. National Heritage List), state (e.g. Heritage Council of Western Australia), regional or local (e.g. Local Government Municipal Inventory of Heritage Places) heritage list: yes **no**.

166, Mortimer Rd. Muchea



Document all heritage values for the wetland and its immediate surrounds. Display their location on the attached map.

Is the wetland identified for its Aboriginal cultural value (interim or permanently) e.g. by the Department of Aboriginal Affairs: yes / **no**

Document all the Aboriginal cultural value of the wetland and its immediate surrounds. Display their location on the attached map:

Are there any important social values of the wetland to the national, state, regional or local community (e.g. friends group, iconic picnic area): **No**

Select the passive and active recreational based activities which currently or potentially occur in or directly surrounding the wetland.

Bushwalking	dog walking	bird watching
Photography	spiritual activities e.g. meditation	picnic
play equipment	bike riding	horse riding
Swimming	canoeing	boating
wind sailing	hunting	fishing
4 wheel driving		

Comments:

**Education and scientific**

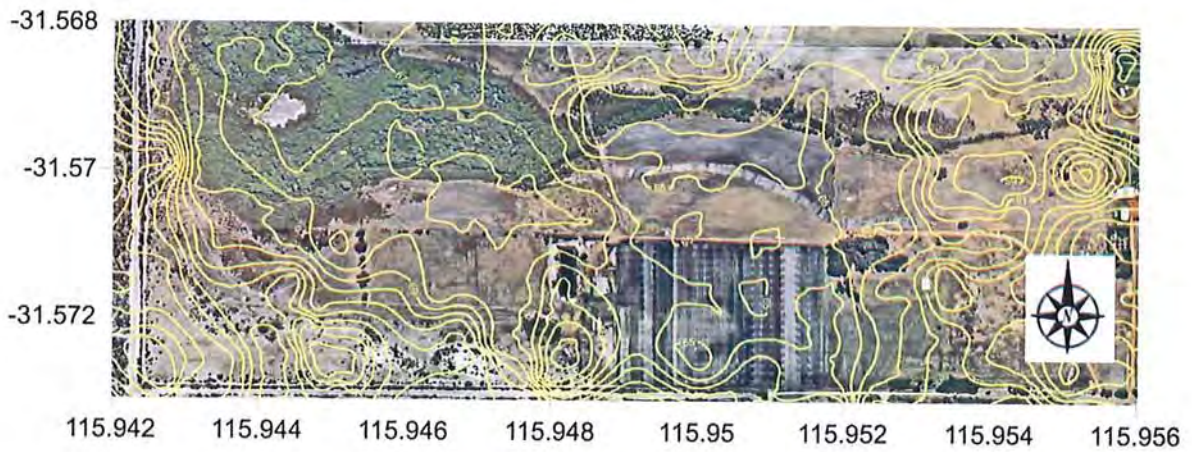
Is there a primary, secondary or tertiary institution or scientific agency which is known or is previously known to use the wetland for educational or scientific purposes: yes / **no** / unknown. Details:

Is there potential for the wetland to be used in the future for education by one of these institutions: yes / no / **unknown**

Figure: Illustration of the wetland



Cross - Sectional view of the wetland (scale on Plan)



Plane View of the wetland (above)




Scale :



Appendix E - UFI 860

PRELIMINARY EVALUATION CRITERIA

No.	Criteria	Y/N
	<p>The wetland is currently recognised as internationally or nationally significant for its natural values. Lists/registers include:</p> <p>The Ramsar Convention on Wetlands</p> <p>State government endorsed candidate sites for the Ramsar Convention on Wetlands</p> <p>Directory of Important Wetlands in Australia</p> <p>National Heritage List</p> <p>Or equivalent.</p>	N
	<p>The wetland is spatially dominated by vegetation in a good or better condition using the vegetation condition scale outlined in Appendix B and is identified as significant for its natural values under one or more of the following:</p> <p>Conservation Reserves for Western Australia Systems 1, 2, 3, 5</p> <p>Conservation Reserves for Western Australia, The Darling System – System 6</p> <p>A Systematic Overview of Environmental Values of the Wetlands, Rivers and Estuaries of the Busselton – Walpole Region</p> <p>The Environmental Significance of Wetlands in the Perth to Bunbury Region</p> <p>Bush Forever, Swan Bioplan or equivalent.</p>	N
	<p>The wetland supports a breeding, roosting, or refuge site or a critical feeding site for populations of fauna listed by the Australian Government (for example, Environment Protection and Biodiversity Conservation Act 1999, migratory bird agreements such as JAMBA, CAMBA and RoKAMBA) or the State (for example, Threatened and Specially Protected Fauna listed under the Wildlife Conservation Act 1950).</p>	N

No.	Criteria	Y/N
1	<p>The wetland is spatially dominated by vegetation in a good or better condition using the vegetation condition scale outlined in Appendix B and supports one or more of the following:</p> <ul style="list-style-type: none"> <li>An occurrence of a Threatened Ecological Community</li> <li>A confirmed occurrence of a Priority 1 or Priority 2 Ecological Community</li> <li>A confirmed occurrence of a Declared Rare (Threatened) flora species.</li> </ul>	
2	<p>Equal to or greater than 90% of the wetland supports vegetation in a good or better condition using the vegetation condition scale outlined in Appendix B.</p>	N
3	<p>The wetland is spatially dominated by vegetation in a good or better condition using the vegetation condition scale outlined in Appendix B and is known to support internationally, nationally or state-wide scientific values including geoheritage and geoconservation.</p>	N
4	<p>The wetland is spatially dominated by vegetation in a good or better condition using the vegetation condition scale outlined in Appendix B and meets one of the following:</p> <ul style="list-style-type: none"> <li>≤10% of wetlands of the same type are assigned Conservation management category within the Swan Coastal Plain (by area)</li> <li>≤10% of all wetlands in the same consanguineous suite are assigned Conservation management category (by area)</li> <li>≤10% of wetlands of the same type in its consanguineous suite are assigned Conservation management category (by area)</li> <li>best representative of its type within its consanguineous suite domain.</li> </ul>	N

Note: If a wetland does not satisfy any of the above preliminary evaluation criteria or, does satisfy the preliminary evaluation criteria but is not considered to be commensurate with the values of a Conservation management category wetland then a secondary evaluation including a full site assessment is required. Refer to Step 3 and 4 of the evaluation procedure which indicates the process for conducting a secondary evaluation.

## SECONDARY EVALUATION CRITERIA

Attributes/ functions/ values	General criteria	Criteria	Score
<b>Geomorphology</b>			
1	Representative- ness	≤20% of wetlands of the same type are assigned Conservation on the Swan Coastal Plain by area.	H
2		≤20% of wetlands in the same consanguineous suite are assigned Conservation by area.	H
3		≤20% of wetlands of the same type in the same consanguineous suite are assigned Conservation by area.	H
4		The wetland is outstanding in some geomorphic aspect, for example size, origin, height relative to sea level, depth, age.	H
5	Naturalness	Alteration to the wetland's geomorphology by % area:  < 25% altered  25-75% altered  > 75% altered.	H  I  L
6	Scarcity	The wetland exhibits unusual geomorphology or unusual internal geomorphic features compared to other wetlands of the same type in the consanguineous suite.	H
7		The wetland is the best example of its type in its consanguineous suite.	H
<b>Wetland processes</b>			
8	Representative- ness	The wetland is an important component of the natural hydrological cycle providing natural functions (e.g. flood protection and recharge/discharge).  The wetland's vegetation, geomorphology, hydrology or sediments are modified; however, the wetland is still a component of the hydrological	H  I

Attributes/ functions/ values	General criteria	Criteria	Score
		<p>cycle providing natural and artificial functions (e.g. flood remediation, recharge/discharge and hydrological storage).</p> <p>The wetland's vegetation, geomorphology, hydrology or sediments are modified to the extent that the wetlands hydrological functions are artificial such as storage, or the wetland has been disconnected from the natural hydrological cycle and no longer provides natural attributes and functions.</p>	L
9		<p>The wetland supports a representative process (e.g. wetland process typical of the wetland's hydrological setting, sediment accretionary process typical of the wetland's geomorphic setting or hydrochemical process typical of the wetland's geological setting).</p>	H
10	Naturalness	<p>The wetland is not subject to altered wetland processes or, is subject to altered wetland processes and the wetland's natural attributes and functions are maintained.</p> <p>The wetland is subject to altered wetland processes and the wetland's natural attributes and functions have been changed; however, they have the potential to be rehabilitated.</p> <p>The wetland is subject to altered wetland processes to the extent that the wetland no longer supports natural attributes and functions.</p>	<p>H</p> <p>L</p>
11	Scarcity	<p>The wetland exhibits unusual processes (e.g. hydrological, sedimentological, chemical, biological) compared to other wetlands of the same type in the consanguineous suite.</p>	H
<b>Linkages</b>			
12	Representative-ness	<p>The wetland is a hydrological link in a larger or more complex and intact system.</p>	H

Attributes/ functions/ values	General criteria	Criteria	Score
13	Naturalness	<p>The wetland is part of a continuous ecological linkage or wildlife corridor, or a regionally significant ecological linkage or wildlife corridor connecting bushland or wetland areas.</p> <p>The wetland is part of a fragmented ecological linkage or wildlife corridor.</p> <p>The wetland is disturbed and isolated, surrounded by either a built or highly disturbed environment with no nearby native vegetation or waterways to support an intact or fragmented ecological linkage or wildlife corridor.</p>	<p>H</p> <p>L</p>
14	Scarcity	The wetland has unusual hydrological, hydrochemical or ecological linkages with adjacent wetland or bushland.	H
<b>Habitats</b>			
15	Representative-ness	The wetland is isolated from other undisturbed wetlands or bushland and as a result, maintains important ecological or genetic fauna or flora diversity within its consanguineous suite domain.	H
16		The wetland contains evidence of surface water that is vital to maintaining regionally significant populations of native aquatic or terrestrial flora or fauna.	H
17		The wetland provides a nursery for native fauna populations, or maintains fauna populations at a vulnerable stage of their life cycle.	H
18	Naturalness	<p>The wetland supports habitats that are unaltered or the wetland has been altered and its natural habitats are maintained.</p> <p>The wetland supports habitats that are altered; however, the habitats are still identifiable and have the potential to be rehabilitated.</p> <p>The wetland is altered and as a result is no longer supporting natural habitats which can be rehabilitated.</p>	<p>H</p> <p>L</p>

Attributes/ functions/ values	General criteria	Criteria	Score
19	Scarcity	The wetland supports habitats that are unusual compared to other wetlands of the same type on the Swan Coastal Plain.	H
<b>Flora</b>			
20	Representative- ness	<p>The wetland's current diversity of native flora is similar to what would be expected in an unaltered state.</p> <p>The wetland supports a reduced diversity of native flora due to human induced disturbances.</p> <p>The wetland supports a significantly reduced diversity of native flora species due to human induced disturbances.</p>	<p>H</p> <p>I</p> <p>L</p>
21		<p>The wetland is identified in a vegetation complex (Hedde et al. 1980) which is represented by:</p> <p>≤30% of the pre-European extent</p> <p>30-50% of the pre-European extent.</p>	<p>H</p> <p>I</p>
22	Naturalness	<p>Using the vegetation condition scale outlined in Appendix B, the wetland's vegetation condition by area is:</p> <p>≥ 75% Good, Very Good, Excellent or Pristine</p> <p>25-75% Good, Very Good, Excellent or Pristine</p> <p>&lt; 25% Good, Very Good, Excellent or Pristine.</p>	<p>H</p> <p>I</p> <p>L</p>
23		<p>The wetland or ≥ 50% of the wetland boundary is surrounded by land dominated by remnant native vegetation.</p> <p>The wetland or 10-50% of the wetland boundary is surrounded by land dominated by remnant native vegetation.</p> <p>The wetland or &lt; 10% of the wetland boundary is surrounded by land dominated by remnant native vegetation.</p>	<p>H</p> <p>I</p> <p>L</p>

Attributes/ functions/ values	General criteria	Criteria	Score
24	Scarcity	The wetland supports an occurrence of Declared Rare, Priority 1, Priority 2, Priority 3 or Priority 4 flora, or an occurrence of 3 or more significant flora taxa.	H
25		The wetland is likely to support Declared Rare, Priority 1, Priority 2, Priority 3 or Priority 4 flora; however, the occurrence cannot be located or its habitat has been altered and is no longer in a natural state.	I
26		The wetland supports an occurrence of a Threatened Ecological Community, Priority 1 or Priority 2 ecological community.	H
27		The wetland supports an occurrence of a Priority 3 or Priority 4 ecological community.	I
<b>Fauna</b>			
28	Representative-ness	<p>The wetland is an ecological refuge for regionally significant fauna species or fauna assemblages.</p> <p>The wetland has the potential to be an ecological refuge but is disturbed and its attributes and functions require rehabilitation.</p>	H I
29		<p>The wetland supports a permanent or seasonal feeding, breeding, roosting or watering site for regionally significant native fauna.</p> <p>The wetland supports a permanent or seasonal feeding, breeding, roosting or watering site for regional or local fauna but only in association with other surrounding natural areas.</p>	H I
30	Naturalness	<p>The wetland's current diversity of native fauna is similar to what would be expected in an unaltered state, or the wetland supports diverse fauna compared to other wetlands of the same type.</p> <p>The wetland supports a reduced diversity of fauna compared to other wetlands of the same type.</p>	H I

Attributes/ functions/ values	General criteria	Criteria	Score
31		The wetland supports limited attributes and functions for fauna populations due to human induced disturbances.	L
32	Scarcity	The wetland is likely to support a breeding, roosting, refuge or feeding site for populations of fauna listed by the Commonwealth (e.g. EPBC Act 1999, JAMBA, CAMBA, RoKAMBA Agreements) or the State (e.g. Threatened or Specially Protected Fauna listed under the Wildlife Conservation Act 1950).	H
33		The wetland supports a breeding, roosting, refuge or feeding site for Priority 1, Priority 2, Priority 3 or Priority 4 fauna.	H
34		The wetland supports an occurrence of a Threatened Ecological Community, Priority 1 or Priority 2 ecological community.	H
35		The wetland supports an occurrence of a Priority 3 or Priority 4 ecological community or a breeding, roosting, refuge or feeding site for significant fauna.	I
<b>Cultural</b>			
36	Representative-ness	The wetland or its immediate surrounds is identified for its natural values on a national or State heritage list or the wetland supports other known regional heritage values.	H
37		The wetland or its immediate surrounds is identified for its natural values on a municipal heritage list or the wetland supports other known local heritage values.	I
38		The wetland or its immediate surrounds is identified on a national, State or local list or register for its Aboriginal cultural value (e.g. Department of Aboriginal Affairs register).	H
39		The wetland is important to the local community either nationally or state wide for its natural values.	H



Attributes/ functions/ values	General criteria	Criteria	Score
40		The wetland is or has the potential to be a site for public or private based recreation.	I
41		<p>The wetland is likely to support heritage, cultural or social values; however, the value cannot be confirmed or the value has been disturbed and are no longer as important or significant.</p> <p>The wetland did support heritage, cultural or social values; however, these have been significantly disturbed and are no longer important or the values have been removed.</p>	I L
<b>Scientific and educational</b>			
42	Representative- ness	<p>The wetland supports known important teaching or research characteristics and for this reason is an existing or potential education or research site. Note, the wetland must still support the relevant teaching or research characteristics.</p> <p>The wetland has the potential to be used as a study or research site.</p>	H I
43		The wetland supports known scientific, geoheritage or geoconservation values.	H
44		The wetland did support scientific or educational values; however, these have been significantly disturbed and are no longer as important or the values have been removed.	L

SECONDARY EVALUATION TALLY

Attributes/functions/values	Scores		
	High	Intermediate	Low
Geomorphology	2	1	
Wetland processes	1	2	
Linkages		2	
Habitats	3	1	
Flora	2	4	
Fauna	2	2	
Cultural			
Scientific and educational		1	1
<b>Total score</b>	<b>10</b>	<b>13</b>	<b>1</b>
Defining attributes/functions/values	Degraded but intact wetland possible Mound Spring site.		
Applicable management category	CCW		

# NatureMap Species Report

Created By Guest user on 05/11/2015

Current Names Only Yes  
 Core Datasets Only Yes  
 Method 'By Circle'  
 Centre 115°56' 39" E, 31°34' 09" S  
 Buffer 5km  
 Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	446	733
Other specially protected fauna	1	1
Priority 2	3	3
Priority 3	5	16
Priority 4	1	1
Priority 5	1	1
Protected under international agreement	1	2
Rare or likely to become extinct	6	76
<b>TOTAL</b>	<b>464</b>	<b>833</b>

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
<b>Rare or likely to become extinct</b>				
1.	3219 <i>Acacia anomala</i> (Grass Wattle)		T	
2.	24345 <i>Botaurus poiciloptilus</i> (Australasian Bittern)		T	
3.	1596 <i>Caladenia huegelii</i> (Grand Spider Orchid)		T	
4.	34773 <i>Darwinia foetida</i>		T	
5.	14408 <i>Grevillea curviloba</i> subsp. <i>curviloba</i>		T	
6.	14409 <i>Grevillea curviloba</i> subsp. <i>incurva</i>		T	
<b>Protected under international agreement</b>				
7.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)		IA	
<b>Other specially protected fauna</b>				
8.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
<b>Priority 2</b>				
9.	6432 <i>Leucopogon plumuliflorus</i>		P2	
10.	40804 <i>Leucopogon squarrosus</i> subsp. <i>trigynus</i>		P2	
11.	17406 <i>Trichocline</i> sp. <i>Treeton</i> (B.J. Keighery & N. Gibson 564)		P2	
<b>Priority 3</b>				
12.	11229 <i>Acacia drummondii</i> subsp. <i>affinis</i>		P3	
13.	19338 <i>Chamaescilla gibsonii</i>		P3	
14.	16245 <i>Cyathochaeta teretifolia</i>		P3	
15.	25249 <i>Neelaps calonotos</i> (Black-striped Snake)		P3	
16.	12460 <i>Verticordia serrata</i> var. <i>linearis</i>		P3	
<b>Priority 4</b>				
17.	14131 <i>Acacia oncinophylla</i> subsp. <i>patulifolia</i>		P4	
<b>Priority 5</b>				
18.	24153 <i>Isoodon obesulus</i> subsp. <i>fusciventer</i> (Quenda, Southern Brown Bandicoot)		P5	
<b>Non-conservation taxon</b>				
19.	15466 <i>Acacia applanata</i>			
20.	11926 <i>Acacia drewiana</i> subsp. <i>drewiana</i>			
21.	3374 <i>Acacia huegelii</i>			
22.	3410 <i>Acacia laterilicola</i>			
23.	3502 <i>Acacia pulchella</i> (Prickly Moses)			
24.	15481 <i>Acacia pulchella</i> var. <i>glaberrima</i>			
25.	15480 <i>Acacia pulchella</i> var. <i>reflexa</i>			
26.	42600 <i>Acacia salicina</i>			
27.	3527 <i>Acacia saligna</i> (Orange Wattle, Kudjong)			
28.	30032 <i>Acacia saligna</i> subsp. <i>saligna</i>			
29.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
30.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
31.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
32.	6205 <i>Actinotus leucocephalus</i> (Flannel Flower)			
33.	1775 <i>Adenanthos cygnorum</i> (Common Woollybush)			
34.	1779 <i>Adenanthos drummondii</i>			
35.	1791 <i>Adenanthos obovatus</i> (Basket Flower)			
36.	1056 <i>Alexgeorgea nitens</i>			
37.	1721 <i>Allocastraria campestris</i>			
38.	1732 <i>Allocastraria humilis</i> (Dwarf Sheoak)			
39.	1734 <i>Allocastraria microstachya</i>			
40.	2668 <i>Amaranthus powellii</i> (Powell's Amaranth)	Y		
41.	<i>Amitermes heterognathus</i>			
42.	<i>Amitermes modicus</i>			
43.	200 <i>Amphipogon turbinatus</i>			
44.	2380 <i>Amyema miquelii</i> (Stalked Mistletoe)			
45.	<i>Aname mainae</i>			
46.	24310 <i>Anas castanea</i> (Chestnut Teal)			
47.	24312 <i>Anas gracilis</i> (Grey Teal)			
48.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
49.	6311 <i>Andersonia heterophylla</i>			
50.	1409 <i>Anigozanthos humilis</i> (Catspaw)			
51.	11434 <i>Anigozanthos humilis</i> subsp. <i>humilis</i>			
52.	29487 <i>Anigozanthos manglesii</i> var. <i>x angustilobus</i>			
53.	11566 <i>Anigozanthos viridis</i> subsp. <i>viridis</i>			
54.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
55.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
56.	<i>Anthrenocerus australis</i>			
57.	1117 <i>Aphelia cyperoides</i>			
58.	<i>Archargiolestes pusillus</i>			
59.	24340 <i>Ardea novaehollandiae</i> (White-faced Heron)			
60.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
61.	6334 <i>Astraloma pallidum</i> (Kick Bush)			
62.	6337 <i>Astraloma stomarrhena</i> (Red Swamp Cranberry)			
63.	6339 <i>Astraloma xerophyllum</i>			
64.	17240 <i>Austrostipa flavescens</i>			
65.	17254 <i>Austrostipa tenuifolia</i>			
66.	36441 <i>Babingtonia camphorosmae</i> (Camphor Myrtle)			
67.	32681 <i>Banksia armata</i> (Prickly Dryandra)			
68.	1800 <i>Banksia attenuata</i> (Slender Banksia, Piara)			
69.	32679 <i>Banksia bipinnatifida</i> subsp. <i>multifida</i>			
70.	1822 <i>Banksia ilicifolia</i> (Holly-leaved Banksia)			
71.	1834 <i>Banksia menziesii</i> (Firewood Banksia)			
72.	32080 <i>Banksia sessilis</i> var. <i>sessilis</i>			
73.	<i>Barnardius zonarius</i>			
74.	5382 <i>Beaufortia elegans</i>			
75.	5387 <i>Beaufortia macrostemon</i>			
76.	7855 <i>Bidens pilosa</i> (Cobbler's Pegs)	Y		
77.	25788 <i>Billardiera fraseri</i> (Elegant Pronaya)			
78.	4437 <i>Boronia purdieana</i> (Winter Boronia)			
79.	17665 <i>Boronia purdieana</i> subsp. <i>purdieana</i>			
80.	11381 <i>Boronia ramosa</i> subsp. <i>anethifolia</i>			
81.	1272 <i>Borya scirpoidea</i>			
82.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
83.	30136 <i>Brachyloma preissii</i> subsp. <i>preissii</i>			
84.	7878 <i>Brachyscome iberidifolia</i>			
85.	42381 <i>Brachyurophis semifasciatus</i> (Southern Shovel-nosed Snake)			
86.	244 <i>Briza maxima</i> (Blowfly Grass)	Y		
87.	1383 <i>Burchardia bairdiae</i>			
88.	1385 <i>Burchardia multiflora</i> (Dwarf Burchardia)			
89.	25714 <i>Cacatua pascinator</i> (Western Long-billed Corella)			
90.	25715 <i>Cacatua roseicapilla</i> (Galah)			
91.	24729 <i>Cacatua tenuirostris</i> (Eastern Long-billed Corella)	Y		
92.	42307 <i>Cacomantus pallidus</i> (Pallid Cuckoo)			
93.	15348 <i>Caladenia flava</i> subsp. <i>flava</i>			
94.	15503 <i>Caladenia patudosa</i>			
95.	36600 <i>Callitris pyramidalis</i> (Swamp Cypress)			
96.	33160 <i>Calochilus uliginosus</i>			
97.	35856 <i>Calothamnus glaber</i>			
98.	5415 <i>Calothamnus lateralis</i>			
99.	5429 <i>Calothamnus sanguineus</i> (Silky-leaved Blood flower, Pindak)			

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
100.	5439 <i>Calytrix angulata</i> (Yellow Starflower)			
101.	5458 <i>Calytrix flavescens</i> (Summer Starflower)			
102.	5476 <i>Calytrix sapphirina</i>			
103.	5485 <i>Calytrix variabilis</i>			
104.	19713 <i>Campsis radicans</i>	Y		
105.	2951 <i>Cassytha flava</i> (Dodder Laurel)			
106.	2957 <i>Cassytha racemosa</i> (Dodder Laurel)			
107.	1742 <i>Casuarina obesa</i> (Swamp Sheoak, Kuli)			
108.	760 <i>Caustis dioica</i>			
109.	258 <i>Cenchrus ciliaris</i> (Buffel Grass)	Y		
110.	6539 <i>Centaurium erythraea</i> (Common Centaury)	Y		
111.	1121 <i>Centrolepis aristata</i> (Pointed Centrolepis)			
112.	1216 <i>Chamaexeros macranthera</i>			
113.	<i>Chamelaucium</i> sp.			
114.	<i>Chamelaucium</i> sp. Walpole (P. G. Wilson 6318)			
115.	5498 <i>Chamelaucium uncinatum</i> (Geraldton Wax)			
116.	24373 <i>Charadrius melanops</i> (Black-fronted Dotterel)			
117.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
118.	267 <i>Chloris gayana</i> (Rhodes Grass)	Y		
119.	272 <i>Chloris virgata</i> (Feathertop Rhodes Grass)	Y		
120.	17833 <i>Chordiflex microcodon</i>			
121.	25601 <i>Chrysococcyx lucidus</i> (Shining Bronze Cuckoo)			
122.	24833 <i>Cincloramphus cruralis</i> (Brown Songlark)			
123.	24288 <i>Circus approximans</i> (Swamp Harrier)			
124.	4561 <i>Comesperma scoparium</i> (Broom Milkwort)			
125.	15041 <i>Conospermum canaliculatum</i>			
126.	15516 <i>Conospermum canaliculatum</i> subsp. <i>canaliculatum</i>			
127.	1875 <i>Conospermum huegelii</i> (Slender Smokebush)			
128.	1882 <i>Conospermum stoechadis</i> (Common Smokebush)			
129.	15520 <i>Conospermum stoechadis</i> subsp. <i>sclerophyllum</i>			
130.	1885 <i>Conospermum triplinervium</i> (Tree Smokebush)			
131.	6347 <i>Conostephium minus</i> (Pink-tipped Pearl flower)			
132.	6348 <i>Conostephium pendulum</i> (Pearl Flower)			
133.	6349 <i>Conostephium preissii</i>			
134.	11826 <i>Conostylis aculeata</i> subsp. <i>aculeata</i>			
135.	12109 <i>Conostylis aculeata</i> subsp. <i>preissii</i>			
136.	1423 <i>Conostylis aurea</i> (Golden Conostylis)			
137.	1427 <i>Conostylis candicans</i> (Grey Cottonhead)			
138.	11438 <i>Conostylis candicans</i> subsp. <i>candicans</i>			
139.	12035 <i>Conostylis caricina</i> subsp. <i>caricina</i>			
140.	1436 <i>Conostylis juncea</i>			
141.	11597 <i>Conostylis setigera</i> subsp. <i>setigera</i>			
142.	<i>Coptolermes michaelsoni</i>			
143.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
144.	17700 <i>Coriandrum sativum</i> (Coriander)	Y		
145.	25592 <i>Corvus coronoides</i> (Australian Raven)			
146.	1285 <i>Corynotheca micrantha</i> (Sand Lily)			
147.	7945 <i>Cotula coronopifolia</i> (Waterbuttons)	Y		
148.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
149.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
150.	3142 <i>Crassula natans</i>	Y		
151.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
152.	25400 <i>Crinia insignifera</i> (Squelching Froglet)			
153.	35838 <i>Cristonia biloba</i> subsp. <i>biloba</i>			
154.	30893 <i>Cryptoblepharus buchananii</i>			
155.	30899 <i>Ctenophorus adelaidensis</i> (Southern Heath Dragon, Western Heath Dragon)			
156.	25027 <i>Ctenopus australis</i>			
157.	6747 <i>Cyanostegia angustifolia</i> (Tinsel-flower)			
158.	40651 <i>Cynogelon lineare</i>			
159.	815 <i>Cyperus tenellus</i> (Tiny Flatsedge)	Y		
160.	17692 <i>Cytogonidium leplocarpoides</i>			
161.	30901 <i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
162.	290 <i>Dactyloctenium radulans</i> (Button Grass)			
163.	7449 <i>Dampiera juncea</i> (Rush-like Dampiera)			
164.	7475 <i>Dampiera spicigera</i> (Spiked Dampiera)			
165.	5519 <i>Darwinia oederoides</i>			
166.	5531 <i>Darwinia thymoides</i>			
167.	1218 <i>Dasypogon bromeliifolius</i> (Pineapple Bush)			
168.	3793 <i>Daviesia angulata</i>			
169.	15656 <i>Daviesia brachyphylla</i>			

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
170.	3799 <i>Daviesia cordata</i> (Bookleaf)			
171.	3805 <i>Daviesia decurrens</i> (Prickly Bitter-pea)			
172.	11879 <i>Daviesia hakeoides</i> subsp. <i>hakeoides</i>			
173.	15505 <i>Daviesia incrassata</i> subsp. <i>incrassata</i>			
174.	3817 <i>Daviesia inflata</i>			
175.	3819 <i>Daviesia longifolia</i>			
176.	3832 <i>Daviesia physodes</i>			
177.	17838 <i>Dielsia stenostachya</i>			
178.	4454 <i>Diplolaena dampieri</i> (Southern Diplolaena)			
179.	7055 <i>Dischisma capitatum</i> (Woolly-headed Dischisma)	Y		
180.	11049 <i>Diuris corymbosa</i>			
181.	<i>Drepanotermes lamminiensis</i>			
182.	3095 <i>Drosera erythrorhiza</i> (Red Ink Sundew)			
183.	3098 <i>Drosera glandulifera</i> (Pimpinel Sundew)			
184.	13216 <i>Drosera menziesii</i> subsp. <i>pericillaris</i>			
185.	3113 <i>Drosera neesii</i> (Jewel Rainbow)			
186.	11768 <i>Drosera neesii</i> subsp. <i>neesii</i>			
187.	13188 <i>Drosera paleacea</i> subsp. <i>paleacea</i>			
188.	3118 <i>Drosera pallida</i> (Pale Rainbow)			
189.	3124 <i>Drosera pulchella</i> (Pretty Sundew)			
190.	13185 <i>Drosera pilos</i>			
191.	25251 <i>Echiopsis curta</i> (Bardick)			
192.	25100 <i>Egernia napoleonis</i>			
193.	<i>Elanus axillaris</i>			
194.	24290 <i>Elanus caeruleus</i> subsp. <i>axillaris</i> (Australian Black-shouldered Kite)			
195.	25250 <i>Elapognathus coronatus</i> (Crowned Snake)			
196.	<i>Eolophus roseicapillus</i>			
197.	6131 <i>Epilobium billardiereanum</i> (Glabrous Willow Herb)			
198.	379 <i>Eragrostis elongata</i> (Clustered Lovegrass)			
199.	13950 <i>Eremaea asterocarpa</i> subsp. <i>asterocarpa</i>			
200.	5542 <i>Eremaea purpurea</i>			
201.	17175 <i>Eremophila glabra</i> subsp. <i>albicans</i>			
202.	4332 <i>Erodium botrys</i> (Long Storksbill)	Y		
203.	5763 <i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
204.	5790 <i>Eucalyptus todtiana</i> (Coastal Blackbutt)			
205.	3872 <i>Euchloopsis linearis</i> (Swamp Pea)			
206.	<i>Eucyclops edytae</i>			
207.	4648 <i>Euphorbia terracina</i> (Geraldton Carnation Weed)	Y		
208.	25622 <i>Falco cenchroides</i> (Australian Kestrel)			
209.	25623 <i>Falco longipennis</i> (Australian Hobby)			
210.	27748 <i>Flavoparmelia rutidota</i>			
211.	<i>Fusarium</i> sp.			
212.	3895 <i>Gastrolobium calycinum</i> (York Road Poison)			
213.	19733 <i>Gastrolobium retusum</i>			
214.	3924 <i>Gastrolobium spinosum</i> (Prickly Poison)			
215.	3936 <i>Genista linifolia</i> (Flaxleaf Broom)	Y		
216.	4339 <i>Geranium molle</i> (Dove's Foot Cranesbill)	Y		
217.	25530 <i>Gerygone fusca</i> (Western Gerygone)			
218.	1524 <i>Gladiolus undulatus</i> (Wild Gladiolus)	Y		
219.	<i>Goebelobryum grossilextum</i>			
220.	10909 <i>Gompholobium confertum</i>			
221.	3950 <i>Gompholobium knightianum</i>			
222.	11083 <i>Gompholobium scabrum</i>			
223.	3957 <i>Gompholobium tomentosum</i> (Hairy Yellow Pea)			
224.	6161 <i>Gonocarpus pithyoides</i>			
225.	29362 <i>Goodenia coerulea</i>			
226.	12523 <i>Goodenia helmsii</i>			
227.	<i>Goodenia</i> sp.			
228.	12577 <i>Goodenia tripartita</i>			
229.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
230.	14282 <i>Gratiola pubescens</i>			
231.	1984 <i>Grevillea curviloba</i>			
232.	8836 <i>Grevillea obtusifolia</i> (Obtuse Leaved Grevillea)			
233.	2066 <i>Grevillea pilulifera</i> (Woolly-flowered Grevillea)			
234.	1472 <i>Haemodorum simplex</i>			
235.	1475 <i>Haemodorum spicatum</i> (Mardja)			
236.	2149 <i>Hakea cristata</i> (Snail Hakea)			
237.	2158 <i>Hakea erinacea</i> (Hedge-hog Hakea)			
238.	2197 <i>Hakea prostrata</i> (Harsh Hakea)			
239.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			

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240.	6839 <i>Hemiandra pungens</i> (Snakebush)			
241.	6842 <i>Hemigenia barbata</i>			
242.	1293 <i>Hansmania turbinata</i>			
243.	<i>Hesperotermes infrequens</i>			
244.	5134 <i>Hibbertia huegeli</i>			
245.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			
246.	<i>Hibbertia</i> sp. Bankstown (R. T. Miller & C. P. Gibson s.n. 18/10/06)			
247.	5172 <i>Hibbertia stellaris</i> (Orange Stars)			
248.	5173 <i>Hibbertia subvaginata</i>			
249.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
250.	24491 <i>Hirundo neaxena</i> (Welcome Swallow)			
251.	3968 <i>Hovea trisperma</i> (Common Hovea)			
252.	12741 <i>Hyalosperma cotula</i>			
253.	5817 <i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)			
254.	5825 <i>Hypocalymma robustum</i> (Swan River Myrtle)			
255.	20200 <i>Isolepis cernua</i> var. <i>setiformis</i>			
256.	7396 <i>Isotoma hypocrateriformis</i> (Woodbridge Poison)			
257.	3992 <i>Isotropis cuneifolia</i> (Granny Bonnets)			
258.	19700 <i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>			
259.	4010 <i>Jacksonia floribunda</i> (Holly Pea)			
260.	4012 <i>Jacksonia furcellata</i> (Grey Stinkwood)			
261.	4017 <i>Jacksonia horrida</i>			
262.	4029 <i>Jacksonia sternbergiana</i> (Stinkwood, Kapur)			
263.	1297 <i>Johnsonia lupulina</i> (Hooded Lily)			
264.	4037 <i>Kennedia coccinea</i> (Coral Vine)			
265.	17508 <i>Kunzea micrantha</i> subsp. <i>oligandra</i>			
266.	5841 <i>Kunzea recurva</i>			
267.	3669 <i>Labichea punctata</i> (Lance-leaved Cassia)			
268.	2249 <i>Lambertia multiflora</i> (Many-flowered Honeysuckle)			
269.	<i>Lambertia multiflora</i> var. <i>darlingiensis</i>			
270.	1305 <i>Laxmannia omnifertilis</i>			
271.	1307 <i>Laxmannia ramosa</i> (Branching Lily)			
272.	11911 <i>Laxmannia ramosa</i> subsp. <i>ramosa</i>			
273.	11464 <i>Laxmannia sessiliflora</i> subsp. <i>australis</i>			
274.	1309 <i>Laxmannia squarrosa</i>			
275.	7568 <i>Lechenaultia biloba</i> (Blue Leschenaultia)			
276.	7572 <i>Lechenaultia expansa</i>			
277.	7574 <i>Lechenaultia floribunda</i> (Free-flowering Leschenaultia)			
278.	1051 <i>Lemna disperma</i> (Duckweed)			
279.	18074 <i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>			
280.	1653 <i>Leporella limbrata</i> (Hare Orchid)			
281.	2344 <i>Leptomeria empetriformis</i>			
282.	17852 <i>Leptorhynchus scaber</i> (Lanky Buttons)			
283.	5847 <i>Leptospermum erubescens</i> (Roadside Teatree)			
284.	5850 <i>Leptospermum laevigatum</i> (Coast Teatree)	Y		
285.	25148 <i>Lerista lineopunctulata</i>			
286.	6374 <i>Leucopogon conostephioides</i>			
287.	6400 <i>Leucopogon gracillimus</i>			
288.	6410 <i>Leucopogon leptanthus</i>			
289.	6425 <i>Leucopogon oxycedrus</i>			
290.	6434 <i>Leucopogon polymorphus</i>			
291.	19412 <i>Leucopogon</i> sp. Moore River (M. Hislop 1695)			
292.	6444 <i>Leucopogon sprengeloides</i>			
293.	7677 <i>Levanhookia stipitata</i> (Common Stylewort)			
294.	25005 <i>Lialis burtonis</i>			
295.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
296.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
297.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
298.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
299.	9289 <i>Lobelia anceps</i> (Angled Lobelia)			
300.	7408 <i>Lobelia lenuior</i> (Slender Lobelia)			
301.	6508 <i>Logania flaviflora</i> (Yellow Logania)			
302.	1228 <i>Lomandra hermaphrodita</i>			
303.	1243 <i>Lomandra sericea</i> (Silky Mat Rush)			
304.	8564 <i>Lotus subbiflorus</i>	Y		
305.	12783 <i>Lycopodiella serpentina</i>			
306.	1097 <i>Lyginia barbata</i>			
307.	36375 <i>Lysimachia arvensis</i> (Pimpernel)	Y		
308.	34736 <i>Lysinema pentapetalum</i>			
309.	2838 <i>Macarthuria apetala</i>			

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310.	1477 <i>Macropidia fuliginosa</i> (Black Kangaroo Paw)			
311.	24551 <i>Malurus pulcherrimus</i> (Blue-breasted Fairy-wren)			
312.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
313.	4079 <i>Medicago polymorpha</i> (Burr Medic)	Y		
314.	17683 <i>Meeboldina cana</i>			
315.	17694 <i>Meeboldina scariosa</i>			
316.	5893 <i>Melaleuca concreta</i>			
317.	5920 <i>Melaleuca huegelii</i> (Chenille Honeymyrtle)			
318.	5926 <i>Melaleuca lateritia</i> (Robin Redbreast Bush)			
319.	20297 <i>Melaleuca osullivanii</i>			
320.	5959 <i>Melaleuca thaphiophylla</i> (Swamp Paperbark)			
321.	19365 <i>Melaleuca ryeae</i>			
322.	5964 <i>Melaleuca seriata</i>			
323.	<i>Melaleuca</i> sp.			
324.	13280 <i>Melaleuca viminea</i> subsp. <i>viminea</i>			
325.	4085 <i>Mellilotus indicus</i>	Y		
326.	<i>Microcerolermes serratus</i>			
327.	15419 <i>Microtis media</i> subsp. <i>media</i>			
328.	8105 <i>Millotia myosotidolia</i>			
329.	7085 <i>Misopates orontium</i> (Lesser Snapdragon)	Y		
330.	4662 <i>Monotaxis grandiflora</i> (Diamond of the Desert)			
331.	4666 <i>Monotaxis occidentalis</i>			
332.	2412 <i>Muehlenbeckia adpressa</i> (Climbing Lignum)			
333.	7289 <i>Myoporum caprarioides</i> (Slender Myoporum)			
334.	6974 <i>Nicotiana glauca</i> (Tree Tobacco)	Y		
335.	6978 <i>Nicotiana rotundifolia</i> (Round-leaved Tobacco)			
336.	<i>Nyctophilus geoffroyi</i> subsp. <i>geoffroyi</i>			
337.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
338.	16347 <i>Oenothera laciniata</i>	Y		
339.	4113 <i>Ornithopus compressus</i> (Yellow Serradella)	Y		
340.	4356 <i>Oxalis purpurea</i> (Largeflower Wood Sorrel)	Y		
341.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
342.	<i>Paracapritermes kraepelinii</i>			
343.	<i>Paracyclops intermedius</i>			
344.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
345.	7090 <i>Parentucellia viscosa</i> (Sticky Bartsia)	Y		
346.	1550 <i>Patersonia occidentalis</i> (Purple Flag, Koma)			
347.	16477 <i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			
348.	16478 <i>Pericalymma ellipticum</i> var. <i>floridum</i>			
349.	2258 <i>Persoonia comata</i>			
350.	2299 <i>Petrophile linearis</i> (Pixie Mops)			
351.	2308 <i>Petrophile seminuda</i>			
352.	2312 <i>Petrophile striata</i>			
353.	25698 <i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
354.	24666 <i>Phalacrocorax melanoleucos</i> subsp. <i>melanoleucos</i> (Little Pied Cormorant)			
355.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
356.	18529 <i>Philothea spicata</i> (Pepper and Salt)			
357.	1478 <i>Phlebocarya ciliata</i>			
358.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
359.	16824 <i>Phyllangium sulcatum</i>			
360.	4 <i>Phylloglossum drummondii</i> (Pigmy Clubmoss)			
361.	<i>Phytophthora cinnamomi</i>			
362.	11402 <i>Pimelea imbricata</i> var. <i>piligera</i>			
363.	5259 <i>Pimelea preissii</i>			
364.	5264 <i>Pimelea spectabilis</i> (Bunjong)			
365.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
366.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
367.	4524 <i>Platytheca galioides</i>			
368.	577 <i>Poa poiliformis</i> (Coastal Poa)			
369.	8175 <i>Podolepis gracilis</i> (Slender Podolepis)			
370.	4691 <i>Poranthera microphylla</i> (Small Poranthera)			
371.	1669 <i>Prasophyllum cyphochilum</i> (Pouched Leek Orchid)			
372.	20195 <i>Pullenaea brachytropis</i>			
373.	4181 <i>Pullenaea reticulata</i>			
374.	25008 <i>Pygopus lepidopodus</i> (Common Scaly Foot)			
375.	2933 <i>Ranunculus muricatus</i> (Sharp Buttercup)	Y		
376.	6012 <i>Regelia ciliata</i>			
377.	25613 <i>Rhipidura fuliginosa</i> (Grey Fantail)			
378.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
379.	13300 <i>Rhodanthe citrina</i>			



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380.	2432 <i>Rumex conglomeratus</i> (Clustered Dock)	Y		
381.	2433 <i>Rumex crispus</i> (Curled Dock)	Y		
382.	40425 <i>Rytidosperma caespitosum</i>			
383.	2591 <i>Sarcocornia blackiana</i>			
384.	7595 <i>Scaevola anchusifolia</i>			
385.	7613 <i>Scaevola glandulifera</i> (Viscid Hand-flower)			
386.	7619 <i>Scaevola lanceolata</i> (Long-leaved Scaevola)			
387.	7626 <i>Scaevola nitida</i> (Shining Fanflower)			
388.	7634 <i>Scaevola phlebopetala</i> (Velvet Fanflower)			
389.	24 <i>Schizaea fistulosa</i> (Narrow Comb Fern)			
390.	978 <i>Schoenus brevisetis</i>			
391.	984 <i>Schoenus curvifolius</i>			
392.	16254 <i>Schoenus</i> sp. G Broad Sheath (K.L. Wilson 2633)			
393.	6033 <i>Scholtzia involucreta</i> (Spiked Scholtzia)			
394.	6 <i>Selaginella gracillima</i> (Tiny Clubmoss)			
395.	<i>Septobasidium</i> sp.			
396.	8225 <i>Siloxerus humifusus</i> (Procumbent Siloxerus)			
397.	30948 <i>Smicronis brevirostris</i> (Weebill)			
398.	7022 <i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
399.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
400.	1312 <i>Sowerbaea laxiflora</i> (Purple Tassels)			
401.	4205 <i>Sphaerolobium linophyllum</i>			
402.	4207 <i>Sphaerolobium medium</i>			
403.	2316 <i>Stirlingia latifolia</i> (Blueboy)			
404.	25518 <i>Strophurus spinigerus</i>			
405.	24942 <i>Strophurus spinigerus</i> subsp. <i>spinigerus</i>			
406.	7681 <i>Stylidium affine</i> (Queen Triggerplant)			
407.	12846 <i>Stylidium albolilacinum</i>			
408.	7684 <i>Stylidium amoenum</i> (Lovely Triggerplant)			
409.	30278 <i>Stylidium androsaceum</i>			
410.	7693 <i>Stylidium brunonianum</i> (Pink Fountain Triggerplant)			
411.	7696 <i>Stylidium calcaratum</i> (Book Triggerplant)			
412.	7709 <i>Stylidium crossocephalum</i> (Posy Triggerplant)			
413.	7710 <i>Stylidium cygnorum</i>			
414.	7713 <i>Stylidium dichotomum</i> (Pins-and-needles)			
415.	7716 <i>Stylidium diuroides</i> (Donkey Triggerplant)			
416.	11808 <i>Stylidium diuroides</i> subsp. <i>diuroides</i>			
417.	7717 <i>Stylidium divaricatum</i> (Daddy-long-legs)			
418.	7736 <i>Stylidium hispidum</i> (White Butterfly Triggerplant)			
419.	33106 <i>Stylidium recurvum</i>			
420.	7785 <i>Stylidium repens</i> (Matted Triggerplant)			
421.	7790 <i>Stylidium roseoalatum</i> (Pink-wing Triggerplant)			
422.	7798 <i>Stylidium schoenoides</i> (Cow Kicks)			
423.	2323 <i>Synaphea gracillima</i>			
424.	15532 <i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>			
425.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
426.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
427.	33020 <i>Tamarix parviflora</i>	Y		
428.	20135 <i>Taxandria linearifolia</i>			
429.	4535 <i>Tetralochea hirsuta</i> (Black Eyed Susan)			
430.	10856 <i>Thelymitra benthamiana</i> (Leopard Orchid)			
431.	5084 <i>Thomasia grandiflora</i> (Large Flowered Thomasia)			
432.	24844 <i>Threskiornis molucca</i> (Australian White Ibis)			
433.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
434.	1318 <i>Thysanotus arbuscula</i>			
435.	1319 <i>Thysanotus arenarius</i>			
436.	1320 <i>Thysanotus asper</i> (Hairy Fringe Lily)			
437.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
438.	6268 <i>Trachymene cyanopelala</i>			
439.	8251 <i>Trichocline spathulata</i> (Native Gerbera)			
440.	1361 <i>Tricoryne elatior</i> (Yellow Autumn Lily)			
441.	1363 <i>Tricoryne tenella</i>			
442.	33677 <i>Triglochin centrocarpa</i>			
443.	4737 <i>Tripterococcus brunonis</i> (Winged Stackhousia)			
444.	4839 <i>Trymalium angustifolium</i>			
445.	<i>Tumulitermes apiocephalus</i>			
446.	<i>Tumulitermes petilus</i>			
447.	24983 <i>Underwoodisaurus millii</i> (Barking Gecko)			
448.	<i>Urodacus novaehollandiae</i>			
449.	25526 <i>Varanus tristis</i> (Racehorse Monitor)			

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
450.	7665 <i>Velleia trinervis</i>			
451.	7665 <i>Verreauxia reinwardtii</i> (Common Verreauxia)			
452.	<i>Verticillium</i> sp.			
453.	15432 <i>Verticordia densiflora</i> var. <i>densiflora</i>			
454.	6091 <i>Verticordia insignis</i>			
455.	15434 <i>Verticordia insignis</i> subsp. <i>insignis</i>			
456.	6101 <i>Verticordia nitens</i> (Morrison Featherflower, Kodjeningara)			
457.	6103 <i>Verticordia ovalifolia</i>			
458.	6107 <i>Verticordia pennigera</i>			
459.	12449 <i>Verticordia plumosa</i> var. <i>brachyphylla</i>			
460.	4322 <i>Vicia sativa</i> (Common Vetch)	Y		
461.	8282 <i>Waitzia suaveolens</i> (Fragrant Waitzia)			
462.	13333 <i>Waitzia suaveolens</i> var. <i>suaveolens</i>			
463.	6289 <i>Xanthosia huegelii</i>			
464.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

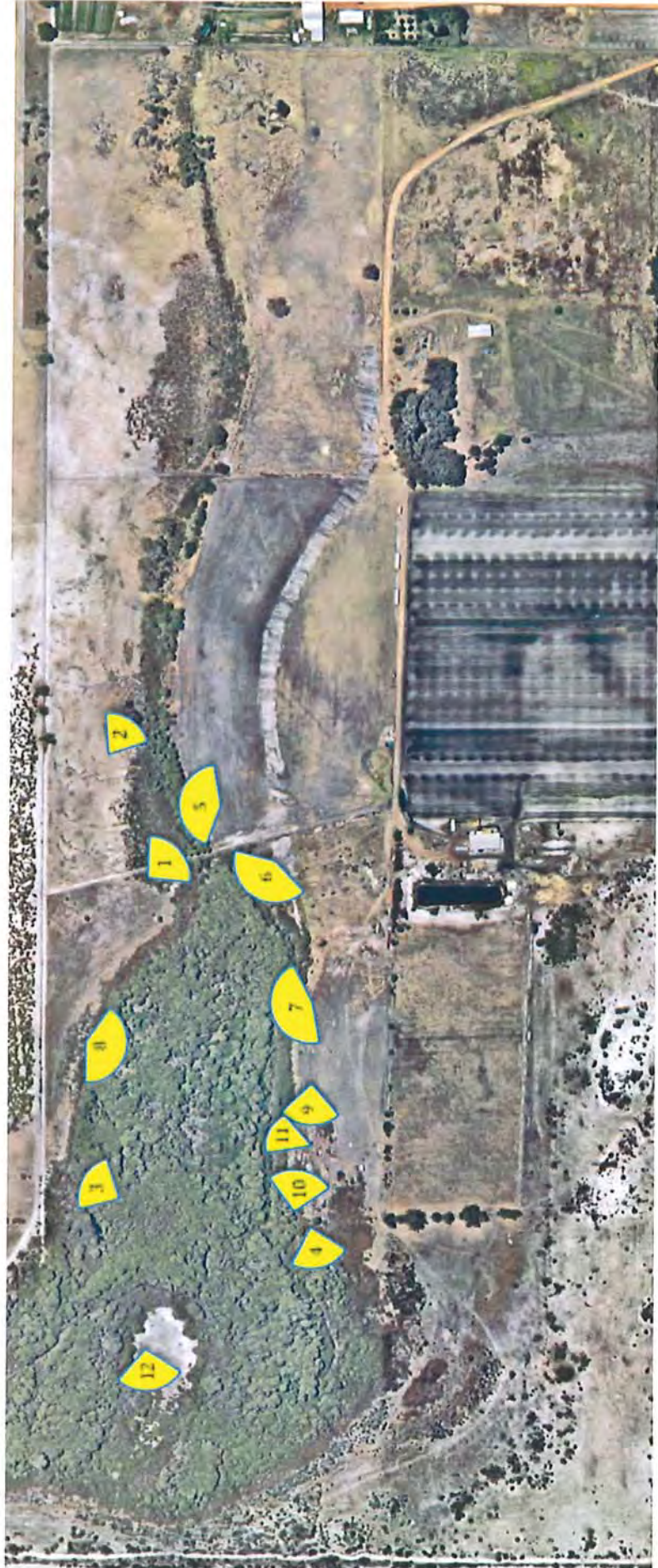
**Conservation Codes**

- T - Rare or likely to become extinct
- X - Presumed extinct
- IA - Protected under international agreement
- S - Other specially protected fauna
- 1 - Priority 1
- 2 - Priority 2
- 3 - Priority 3
- 4 - Priority 4
- 5 - Priority 5

<sup>1</sup> For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

Appendix G  
Photographs from  
166, Chittering St Wetland

# Positions and Field of view of Images

























FORM N 1

FORM APPROVED  
NO. B2594

WESTERN AUSTRALIA  
TRANSFER OF LAND ACT 1893 AS AMENDED

### NOTIFICATION UNDER SECTION 70A

DESCRIPTION OF LAND (Note 1)

EXTENT

VOLUME

FOLIO

Lot 155 on Deposited Plan 409938  Lot 156 on Deposited Plan 409938	Whole  Whole		
--	--------------------	--	--

REGISTERED PROPRIETOR (Note 2)

SHANE DARIAN KAY of 71 Crest Hill Road, Bindoon

LOCAL GOVERNMENT / PUBLIC AUTHORITY (Note 3)

SHIRE OF CHITTERING

FACTOR AFFECTING USE OR ENJOYMENT OF LAND (Note 4)

(See page 2)

Dated this \_\_\_\_\_ day of \_\_\_\_\_ Year 2017

LOCAL GOVERNMENT / PUBLIC AUTHORITY ATTESTATION (Note 5)

REGISTERED PROPRIETOR/S SIGN HERE (Note 6)

For Execution see Page 3

For Execution see Page 3

**FACTORS AFFECTING USE OR ENJOYMENT OF THE LAND (Note 4)**

Registered proprietors and prospective purchasers of the land described above or any part thereof are notified that the use of the land is subject to conditions of Western Australian Planning Commission subdivision approval No. 154427 dated 27 January 2017 which affect the use of the land in the following manner:

- (a) A mains potable water supply is not available to the lot/s.
- (b) A reticulated sewerage service is not available to the lot/s.

Further information may be obtained from the offices of the local government.



NOTIFICATION UNDER SECTION 70A

EXECUTED by SHANE DARIAN KAY in the presence of:

\_\_\_\_\_

Signature of Shane Darian Kay

\_\_\_\_\_  
Witness Sign

\_\_\_\_\_  
Full Name of Witness

\_\_\_\_\_  
Address

\_\_\_\_\_  
Occupation

THE COMMON SEAL of the SHIRE OF CHITTERING was hereunto affixed by authority of a resolution of the Council in the presence of -

\_\_\_\_\_  
Shire President

\_\_\_\_\_  
(Print Full Name)

\_\_\_\_\_  
Chief Executive Officer

\_\_\_\_\_  
(Print Full Name)

INSTRUCTIONS

1. If insufficient space in any section, Additional Sheet, Form B1, should be used with appropriate headings. The boxed sections should only contain the words "see page ..."
2. Additional Sheets shall be numbered consecutively and bound to this document by staples along the left margin prior to execution by the parties.
3. No alteration should be made by erasure. The words rejected should be scored through and those substituted typed or written above them, the alteration being initialled by the persons signing this document and their witnesses.

NOTES

1. **DESCRIPTION OF LAND**  
 Lot and Diagram/Plan/Strata/Survey-Strata Plan number or Location name and number to be stated.  
 Extent - Whole, part or balance of the land comprised in the Certificate of Title to be stated.  
 The Volume and Folio number, to be stated.
2. **REGISTERED PROPRIETOR**  
 State full name and address of the Registered Proprietors as shown on the Certificate of Title and the address / addresses to which future Notices can be sent.
3. **LOCAL GOVERNMENT / PUBLIC AUTHORITY**  
 State the name of the Local Government or the Public Authority preparing and lodging this notification.
4. **FACTOR AFFECTING THE USE AND ENJOYMENT OF LAND**  
 Describe the factor affecting the use or enjoyment of land.
5. **ATTESTATION OF LOCAL GOVERNMENT / PUBLIC AUTHORITY**  
 To be attested in the manner prescribed by the Local Government Act or as prescribed by the Act constituting the Public Authority.
6. **REGISTERED PROPRIETOR'S EXECUTION**  
 A separate attestation is required for every person signing this document. Each signature should be separately witnessed by an Adult Person. The address and occupation of the witness must be stated.

EXAMINED

OFFICE USE ONLY

**NOTIFICATION**

LODGED BY	McLeods
ADDRESS	220 - 222 Stirling Highway CLAREMONT WA 6010
PHONE No.	9383 3133
FAX No	9383 4935
REFERENCE No.	FG:CHIT:40630 - Notification
ISSUING BOX No.	346K

PREPARED BY	McLeods
ADDRESS	220 - 222 Stirling Highway CLAREMONT WA 6010
PHONE No.	9383 3133
FAX No.	9383 4935

INSTRUCT IF ANY DOCUMENTS ARE TO ISSUE TO OTHER THAN LODGING PARTY.

TITLES, LEASES, DECLARATIONS ETC. LODGED HERewith

1.	_____	Received Items
2.	_____	Nos.
3.	_____	
4.	_____	
5.	_____	
6.	_____	Receiving Clerk

Lodged pursuant to the provisions of the TRANSFER OF LAND ACT 1893 as amended on the day and time shown above and particulars entered in the Register.

