Development Services Attachments
Wednesday, 16 July 2014

WESTMORE CORPORATION MUCHEA LANDFILL

GLASS PROCESSING LICENCE AMENDMENT APPLICATION

SUPPORTING DOCUMENTATION

Prepared for

WESTMORE CORPORATION

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1. Introduction

Westmore Corporation (WC) has requested that the Department of Environment Regulation (DER) amend the Muchea Landfill operating licence to enable it to operate a crusher and associated activities relating to the recycling of glass and other fine material from waste processing facilities.

The proposed activity is to process waste glass and other fine residual materials into recyclable products, with only a small percentage of the material being sent to a Class II landfill facility. None of the material associated with the proposed processing operation will be landfilled on site.

As part of the DER assessment of the proposal, it has become apparent that there is a need for the Shire to also approve the proposed activities. This document provides the Shire with the necessary supporting information in order to make its determination.

2. DER Assessment

The DER has assessed the proposed activities and is ready to amend the facility operating licence accordingly; however, can only do this once the appropriate Development Approval is in place.

3. Crushing Category

Crushing was anticipated in the original facility approvals (both SAT and DER Works Approval); however, crushing did not commence at the time of issue of the facility license and hence is not included in the current licence. This was because WC opted to commence operations without the crushing activity and wait and see how much crushable waste material was received on site before committing to purchasing a crusher and associated materials handling equipment.

4.Original SAT Orders

As part of the original approval for the landfill development, the State Administrative Tribunal (SAT) issued 29 Orders relating to the development. Of these, the vast majority are unrelated to the proposed activity or the proposed activity is in accordance with these conditions.

There are however two conditions which potentially could conflict with the proposed activities, these being Condition 4 and Condition 21.

4.1. Condition 4

This condition currenty states:

"*Any putrescible (or other) waste not falling within the waste permitted to be buried on-site is to be separated and taken off-site within 24-hours of its arrival on-site and deposited at an appropriate alternative facility.*"

The proposal to process recycling residue was not envisaged at the time of the original Works Approval/Planning Approval and hence, there is no specific reference to this type of site activity in the SAT determination. Condition 4 relates to waste that is delivered to site for the intended purpose of being landfilled. If any of this waste were deemed as non-conforming, it would have to be removed from site within 24 hours. The intent of this condition is to prevent WC from stockpiling non-conforming waste on site for unlimited durations. The proposed materials processing operation is unrelated to this condition as the material is not being landfilled on site, it is only temporarily on site and all material will be removed after it has been processed. The Works Approval will contain limitations for the type of material that can be processed and also the duration that materials can remain on site (maximum 10 days); hence, is consistent with the intent of Condition 4, but with different durations to enable the materials processing operation to take place without resulting in negative environmental impact.

Consequently, for the avoidance of doubt, there is a need to amend Condition 4 to clarify the difference in materials handling between waste delivered to site for landfilling and material delivered to site for processing and subsequent removal.

Typically, the following changes may be deemed suitable:

"*Any putrescible (or other) waste delivered to site for the intention of landfilling not falling within the waste permitted to be buried on-site is to be separated and taken off-site within 24-hours of its arrival on-site and deposited at an appropriate alternative facility. All material delivered to site for processing and subsequent removal is to be processed and taken off-site within 10 days of its arrival on-site and recycled or deposited at an appropriate alternative facility.*"

The above proposed modifications (or something similar) would then be consistent with the intent of the SAT condition where the proponent is restricted to how long non-landfill material can remain on site so as to prevent excessive stockpiling and potential negative environmental consequences.

4.2. Condition 21

This condition currenty states:

"*Crushing is only to occur in the area within the bunds and identified for crushing on the plans submitted for approval.*"

The material processing application proposes to initially commence processing on the landfill surface and then once the landfill progresses to a point where there is insufficient space to continue the glass processing on the landfill, the operation will be relocated to the position identified in the SAT condition. The proposal to initially operate on the landfill surface is because this location is lower down in the valley and hence will have less visual and acoustic impact on the surrounding properties than if it were carried out in the location identified in Condition 21. Effectively, the "on landfill" location is a far better location; however, only a temporary location as this area will eventually be consumed by landfill waste placement.

The benefit of initially operating on the landfill surface includes:

- Existing flat area - no additional site disturbance required.
- Stormwater is already diverted away from the landfill; hence, no additional stormwater management requirements.
- The landfill surface is lower than the nominated external crushing area; hence, less noise and visual impact.
- Operating within the existing void negates the need to construct a full 6 m high perimeter bund as the operation would be carried out within the existing landfill void, below natural ground level. There will still be effective binding of 6 m high around the glass processing operations; however, some of this will be achieved by the batters of the existing clay void.

Appendix No. 1 – Crushing Locations indicates the proposed crushing location on the landfill as a well as the originally proposed crushing location.

Typically, the following changes may be deemed suitable:

"*Crushing is only to occur on the landfill surface or in the area within the bunds and identified for crushing on the plans submitted for approval.*

The above proposed modifications (or something similar) would then be consistent with the intent of the SAT condition where the proponent may only undertake crushing operations in an area that is likely to result in the least visual and acoustic impact on neighboring properties.

5.Original Works Approval Conditions

The original Works Approval (No. W4525/2009/1) allowed for the commencement of crushing on site and included the following associated conditions:

- Noise testing of the crusher to be conducted by a qualified acoustic engineer or consultancy after three months of operation, with results being provided to the Shire.
- The operation of the crusher is to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997 (WA)* in respect to noise.
- Crushing is only to occur in the area within bunds and identified for crushing on plans submitted for approval.
- Prior to carrying out any crushing operations at the site, the applicant is to ensure that the receiving hopper is suitably lined and bunds to a height of 6 m and extended as agreed by the acoustic expert, but in any event, sufficient to ensure compliance with the *Environmental Protection (Noise) Regulations 1997 (WA)* are in place.

These conditions are primarily a repetition of the relevant SAT conditions associated with the approval.

6. Material Processing Overview

WC has identified the potential to utilise the landfill site for the processing of selected residue from waste sorting/recycling activities. The majority of this residue currently ends up in landfill. WC has developed a glass processing operation that allows it to crush (grind) and screen the secondary waste treatment facility residue to remove glass, sand and stones (earth, concrete or brick) fragments from the waste residue. This removed material is ground down to a suitable size to be used as a construction material; hence, diverging from landfill. In addition, a pre-screening operation of one of the input products produces a sand/fine organic product that is used for rehabilitation purposes. The remaining residue is separated from the crushed and screened products and subsequently removed from site to a Class II landfill.

7. Material Types and Quantities

WC proposed to process two types of waste streams:

1. Glass Residue from Material Recovery Facilities (MRF's). This product consists of 95% to 98% glass with the remaining percentage being bottle tops (plastic and steel), bottle labels (paper and plastic) and other assorted small bits and pieces.
2. Organic Processing Coarse Heavies Residue. Table 7.1 - Organic Processing Coarse Heavies Breakdown provides the breakdown of this input feedstock and the anticipated processing quantities.

Table 7.1 - Organic Processing Coarse Heavies Breakdown

Fraction	Feedstock Composition	Recycled Glass & Inert	Recycled Sand & Organics	Residue to Landfill
Paper	0	0	0	0
Cardboard	0	0	0	0
Textiles	0	0	0	0
Organic	17	2	10	5
Hazardous	1	0	0	1
Other	1	0	0	1
Medical	0	0	0	0
Earth	20	15	5	0
Glass	36	36	0	0
Plastic	12	4	2	6
Ferrous	9	2	2	5
Non-Ferrous	1	0	0	1
Miscellaneous	3	1	1	1
Total	100%	60%	20%	20%

Image of MRF Glass Residue


Image of Organic Processing Coarse Heavies Residue


Based on current volumes, there will be approximately 32,000 tonnes per year of MRF glass residue and 8,000 tonnes per year of organic processing coarse heavies. That is a current total of approximately 40,000 tonnes per year of material processed on site. To allow for future increases in input feedstock, the facility throughput is proposed as 50,000 tonnes per year.

The equipment design capacity is approximately 55 tonnes per hour. Hence, for an average year at full capacity (8 hours per day, 50 weeks per year, allowing two weeks for maintenance) the equipment could reasonably process 110,000 tonnes a year, which would represent the facility annual design capacity.

Based on the anticipated facility throughput of 50,000 tonnes per year, the processing equipment would typically operate for four hours per day or for a full day every second day.

8. Processing Locations

The original Works Approval has a nominated crushing location comprising of an area of 5,000 m² to the south-east of the landfill area.

Initially, while there is a suitable flat area on the landfill, it is proposed to undertake the material processing on the landfill. Once the landfill fills up and there is no longer sufficient flat area on the landfill to accommodate the glass processing operation, the process will be relocated to the originally identified crushing location as identified in the SAT approval.

The benefit of initially operating on the landfill surface includes:

- Existing flat area - no additional site disturbance required.
- Stormwater is already diverted away from the landfill; hence, no additional stormwater management requirements.
- The landfill surface is lower than the nominated external crushing area; hence, less noise and visual impact.
- Operating within the existing void negates the need to construct a full 6 m high perimeter bund as the operation would be carried out within the existing landfill void, below natural ground level. There will still be effective binding of 6 m high around the glass processing operations; however, some of this will be achieved by the batters of the existing clay void.

When the glass processing operation is relocated to the originally nominated area, the necessary 6 m high bunds will be constructed to minimise the visual and noise impact of the glass processing operation.

Appendix No. 1 – Crushing Locations indicates the proposed crushing location on the landfill as a well as the originally proposed crushing location.

9.Glass Processing Operation

The feedstock material will be delivered to site and tipped near the processing equipment. The material will either be processed immediately or be stockpiled until approximately 500 tonnes of material has been accumulated. Based on anticipated initial facility throughput (40,000 tonnes a year) 500 tonnes is equivalent to 3 to 4 days deliveries.

Once approximately 500 tonnes of material has been accumulated, the stock piled material will be processed. At a throughput of 55 tonnes per hour, this will take approximately 9 hours (1 day) to process.

With there being two feedstock material types (MRF glass and organic process coarse heavies) there will be two separate stockpiles, the combined quantities thereof being approximately 500 tonnes.

The MRF glass will go through a dual process, whereby it will be ground and screened to produce to output materials, the processed glass (95% to 98% of the input quantity) and a waste residue. The process glass will be stockpiled on the landfill surface in preparation for off-site removal and the waste residue will be stored in a sealed bin in preparation for disposal at a Class II landfill. No material will be landfilled on-site and all processed material and waste residue will be removed from site. It is noted that the processing equipment ejects the waste residue directly into the sealed bin and not onto the landfill surface.

The organic process coarse heavies will go through a three-stage process. Initially there will be a primary screen to remove the sand and fine organics, with the remainder of the material being processed as per the glass processing above. The processed glass/rock product will be stockpiled on the landfill surface separately from the glass product, with the waste residue again being ejected into the sealed waste residue bin.

At any one time, under normal operations, there will be a maximum of 500 tonnes of input feedstock and 500 tonnes of processed products and waste residue. That is a total of 1,000 tonnes of materials on site at any one time. Of this, the waste residue will be stored in sealed bins and all other material stockpiled on the ground.

Appendix No. 2 - Powerscreen 1000SR Technical Specification provides the detailed specification for the proposed processing equipment.

In the event that there is a breakdown of the processing equipment, the equipment will be repaired as soon as possible and if this does not occur within 10 days of the breakdown, an alternative piece of equipment will be hired in to temporarily replace the unavailable equipment.

During the maximum 10 day breakdown period, the feedstock will continue to be received on site and stockpiled for when the equipment is once again operational. Based on the daily quantities being received, there would be a maximum of 2,000 tonnes of feedstock material stockpiled on site. This equates to 4.5 days of full production to process this stockpiled material once production has been restored.

10. Materials Handling

Input feedstock will be delivered in bins of up to 30 m³ or in semitrailers (20 m³ per trailer). The waste residue will be removed from site in the same sealed bin that it was ejected into from the processing equipment. There will be no double handling of waste residue on site.

The processed glass and coarse heavies will be removed from site in either bins or semitrailers.

The same vehicles that deliver the feedstock material will remove the processed material and waste material; consequently, there will be a continuous flow of material onto and off the site; hence, no accumulation of excess stockpiles.

11. Emissions

Based on the proposed input feedstock, storage duration and process, the only emissions of concern may be noise and dust. Odour is not a concern as the organic material within the coarse heavies process has been stabilised through an organic process before being delivered to site; hence, the biodegradable odour-generating component has been removed.

11.1. Noise Emissions

The potential for noise emissions is due to the crushing activity. The process being proposed is a grinding action as opposed to a crushing action. The grinding action has relatively lower noise emissions than a crushing action. In addition, the feedstock, being predominantly a glass product, is relatively soft in comparison to the traditional rock or concrete products; hence, the noise emissions are even further reduced.

Appendix No. 3 - Crusher Acoustic Levels provides the manufacturer's acoustic levels for the proposed equipment. It is noted that the manufacturers acoustic monitoring was carried out on rock and concrete products; hence, the actual production acoustic levels are anticipated to be lower.

As required, the proponent will undertake acoustic monitoring after three months of crushing operations. The acoustic monitoring will be carried out by a suitably qualified consultant, with the results being provided to both the Department of Environmental Regulation and the Shire.

All activities will be carried out to comply with the *Environmental Protection (Noise) Regulations 1997 (WA)*.

11.2. Dust Emissions

There is potential to generate dust from the processing activity. This is addressed by the following:

- Site internal buffer distances from the equipment to the site boundary (75 m).
- Perimeter bunding 6 m high (including the existing excavation).
- Grinding action as opposed to an impact crusher action.
- Factory fitted dust suppression system:
    - Water atomising nozzles (minimum eight nozzles, two sprinklers on grinder and six sprinklers on the discharge conveyor).
    - Water pressure 2.8 bar (42 psi).
    - Pump flow rate 15 L per minute.
    - Adjustable pump flowrate.
    - Enclosed (tarped) conveyors.

Based on the above, there is not anticipated to be any dust emission issues as a result of the proposed activities.

12. Summary

The proposed glass processing activity will reduce waste to landfill as the input products are currently ending up in landfill. Due to the proposed equipment and materials handling activities, there will be no unacceptable emissions from site and none of the processed material will be landfilled on site. All processed material will be recycled and all waste residue sent to an appropriate Class II landfill facility.

Appendices

Appendix No. 1 – Crushing Locations

Appendix No. 2 - Powerscreen 1000SR Technical Specification

Appendix No. 3 - Crusher Acoustic Levels

As the mining quarry is an old clay excavation pit, the pit is therefore lined with clay to act as a natural liner. A bunding system will be constructed along the internal slopes of the quarry to divert surface water to a sedimentation pond. All surface water management works (bunding system and sedimentation pond) will be undertaken with the Surface Water Management Plan required by State Administrative Tribunal (SAT) Approval Conditions.

Dewatering will occur from the old clay excavation pit to allow landfilling activities to occur where the amount dewatered will be approximately 55ML. This is not a prescribed activity according to the *Environmental Protection Regulations 1987* and will not be assessed in Section 3.0. The water will be discharged to an on-site pond and used for dust suppression activities. The dewatering activities will be managed by the proponent's Stormwater and Surface Water Management Plan.

Surface water management measures will be implemented to ensure that stormwater is diverted away from the operational landfill. A bunding system will be constructed within the inner batters of the void to capture and divert stormwater. The captured water will be diverted into stormwater holding ponds which will be emptied when required by pumping the water into the surface water sedimentation pond (1.5 million litre capacity) on the premises. This water will then be recycled and used for dust suppression.

There is a gravel access road that runs along the northern boundary off Great Northern Highway. All vehicles will use this road which will be the only access point to the facility. A site office and workshop building will be located alongside the gravel track approximately 200 metres from the material acceptance area. The estimated total area of the building is 300m². All operations will be carried out on areas cleared by previous industrial activities so that no vegetation clearing will occur.

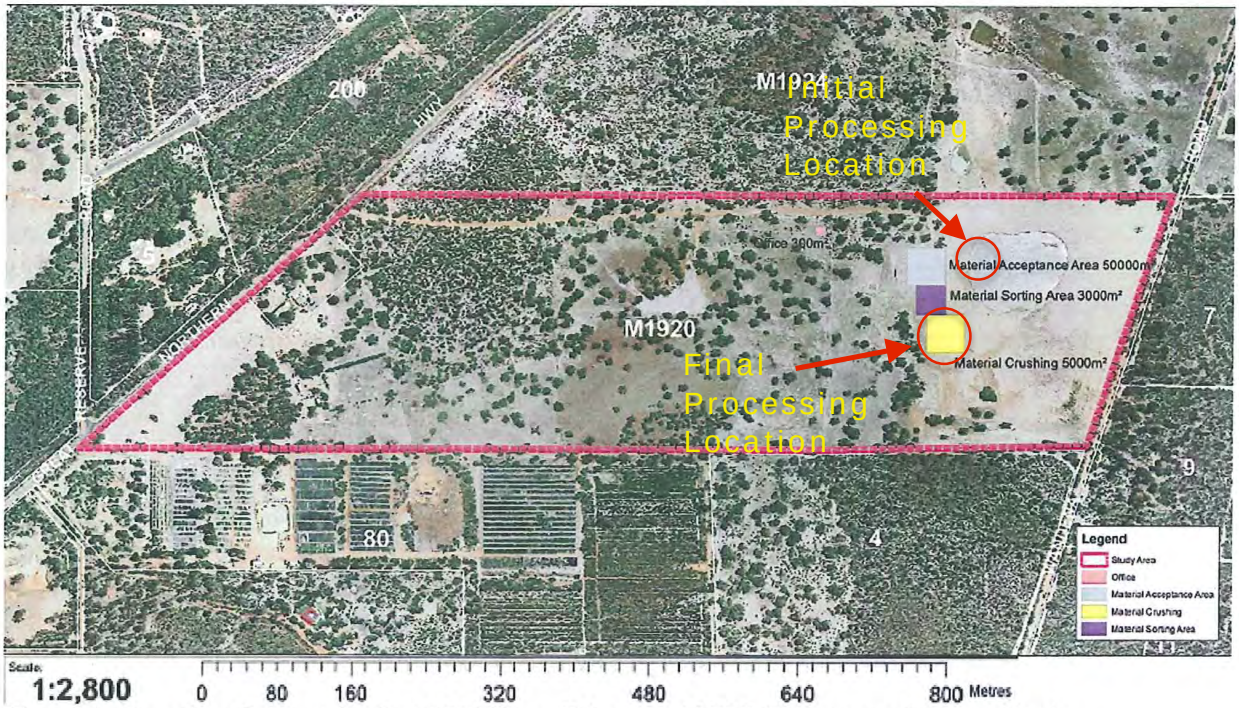


Figure 1: Premises Layout for Lot M1920 on Diagram 12777 (Westmore Corporation)

Powerscreen® 1000SR

Cone Crusher

SPECIFICATION - Rev 4. 01-01-2012

POWERSCREEN®
A TEREX BRAND

Specification		1000SR
Total weight		38,500kg (84,900lbs)
Transport	Length	16.9m (55’ 5”)
	Width	3.1m (10’ 2”)
	Height	3.45m (11’ 4”)
Working	Length	16.9m (55’ 5”)
	Width	3.1m (10’ 2”)
	Height	4.85m (15’ 11”)

Crusher type:	1000 Automax Crusher
Powerunit:	Caterpillar C-9 ACERT 261kW (350hp) or Scania DC9 70A 257kW (350hp)
Paint colour:	RAL 5021

Features & Benefits

The Powerscreen® 1000SR is a highly compact crushing & screening plant that combines the benefits of the 1000 Maxtrak & Powerscreen Chieftain 1400 on one chassis to form a highly manoeuvrable self contained, closed loop plant that can be easily setup. The 1000SR has been designed for direct feed applications without pre-screening on clean rock. At the heart of the Maxtrak is the Automax® cone crusher with hydraulic setting, tramp release & unblocking system.

The Powerscreen® 1000SR is suitable for secondary & tertiary applications, it features a re-circulating conveyor & a double deck screen to provide the complete crushing & screening process on a single chassis. The Powerscreen 1000SR can produce up to three end products when oversized material doesn't require re-circulation to the crusher.

- Output potential up to 230 tph (253 US tph)
- Combines crushing & screening capabilities on a single plant
- Suitable for re-circulating oversized material
- Renowned Automax® crusher technology
- Accepts clean all in feed
- High reduction ratio, excellent product shape, rock on rock attrition crushing
- Cone feed box level control to maintain choke feeding
- Hydraulic crusher setting
- Cone overload protection
- Metal detector
- Dust suppression system
- Economical to operate with a highly fuel efficient direct drive system
- Latest generation power units that meet EU Stage IIIB / US Tier 4i & EU Stage IIIA / US Tier 3 Emissions Legislation
- Produce three products sizes using optional stockpile conveyor
- Heavy duty chassis & track frame
- Remote control via umbilical

Applications

Aggregate

- Sand & gravel
- Blasted rock
- River rock

Recycling

- C&D waste
- Foundry waste

Mining

- Processed ores
- Processed minerals

Powerscreen® 1000SR

SPECIFICATION - Rev 4. 01-01-2012

Cone Crusher

Crusher type:	**1000 Automax crusher fitted as standard with long throw eccentric**
Liners:	**Manganese steel alloy mantle & concave**
Standard concave:	**Medium Coarse (MC)**
Lubrication:	**Pumped system having a chassis mounted lube tank with airblast cooler**
Adjustment:	**Hydraulic setting adjustment, automatic over load release & hydraulic unblocking**
Control:	**2 Operating modes available: - Autoset Mode: fixed parameters - Maxset Mode: load sensing, param-**
eters	**auto adjust & maximise performance**
Concave options:	**Extra coarse (XC) Coarse (C) Autosand (AS)**
Eccentric option:	**Short throw**
Drive:	**Wedge belt drive from engine via hydraulically controlled clutch**

Crusher Options

CONCAVE	MAXIMUM FEED SIZE	MAXIMUM RECOMMENDED CSS
Medium Coarse	160mm (6.3”)	36mm (1.4”)
Coarse	175mm (6.9”)	36mm (1.4”)
Extra Coarse	195mm (7.7”)	36mm (1.4”)
Autosand	63mm (2.5”)	32mm (1.25”)
Each of the above available with choice of long & short throw eccentrics		

Feed Hopper

Hopper type:	**Fixed feed hopper**
Hopper length:	**3.38m (11')**
Hopper width:	**2.5m (8' 2")**
Hopper capacity:	**Up to 4.4m^3 (5.8 cu. yd.) gross depending on method of feed**
Hopper body:	**Fabricated in 10mm wear resistant steel plate, with internal crash bars to minimise impact load on the feed conveyor**

Feed Conveyor

Conveyor type:	**Shallow troughed belt variable speed**
Design:	**Designed to raise & lower hydraulically for transport, operation & crusher maintenance**
Belt type:	**EP500/3 with 5mm top & 1.5mm bottom heavy-duty rubber covers, vulcanised joint**
Belt adjustment:	**Screw adjustment at the tail shaft**
Belt width:	**1000mm (39")**
Feed height:	**2.8m (9' 2")**
Drive:	**Hydraulic drive via flange mounted gearbox**
Impact rollers:	**Immediately below feed hopper**
Metal detector:	**Suitable for detecting steel & manganese, complete with audible warning device & connected to stop the feed conveyor**
Barge boards:	**Extend from the feed conveyor to the conveyor head**
Lubrication:	**Oil lubricated head drum gearbox. Grease nipples for lubrication of shaft bearings**
Level probe:	**Crusher feed ring fitted with level probe designed to regulate & constantly choke feed the crusher**

Product Conveyor

Conveyor type:	**Troughed belt, fixed speed conveyor with fixed tail end**
Belt type:	**EP400/3 with 4mm top & 2mm bottom heavy-duty rubber covers & vulcanised joint**
Belt width:	**800mm (32”)**
Impact rollers:	**Provided immediately below the crusher outlet under the conveyor feed point**
Feedboot:	**Fabricated in mild steel plate with abrasion resistant steel at impact points**
Skirting:	**Fully skirted wear resistant rubber sealing along the conveyor length**
Belt covers:	**Canvas type removable dust covers are fitted at the head end**
Drive:	**Direct drive hydraulic motor**
Belt adjustment:	**Screw adjusters at head shaft**
Lubrication:	**Grease nipples for lubrication of shaft bearings**

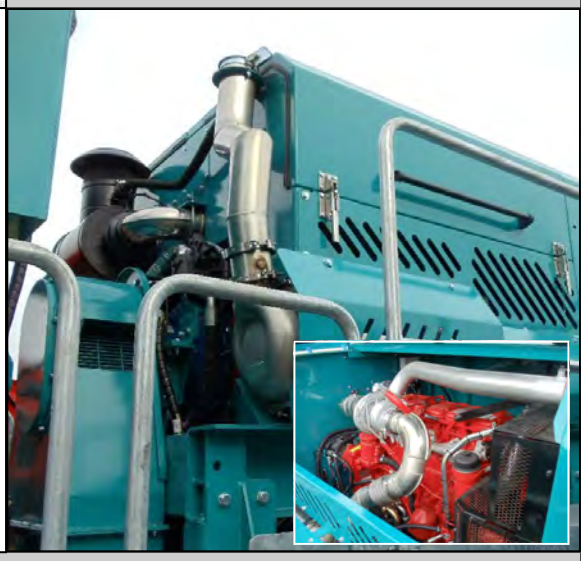
Chutes

Feed box:	**Fabricated in 6mm mild steel plates. Hinge down back plate to lower feed conveyor head section for transportation**
Product conveyor:	**Fabricated in 10mm wear resistant steel**
Recirc chute:	**Fabricated in 5mm thick mild steel with wear resistant liners, Hydraulically raises & lowers for transport**

Powerunit

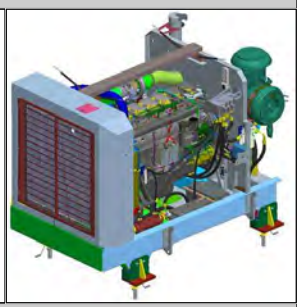
EU Stage IIIA / US Tier 3:	Caterpillar C-9 ACERT, 6 cylinder, 261 kW (350hp) at 1800rpm #
Operating Conditions:	Ambient temp. +40℃ & –12℃ (104ºF & 10ºF) altitudes up to 1000m (3281ft) above sea level.#
Operating rpm range:	1800rpm
Typical fuel consumption:	N/A
Plant drive:	High quality pumps driven via belt drive from engine & engine PTO
Fuel tank capacity:	522 L (137 US Gal)
Clutch type:	High efficiency, self-adjusting HFO clutch with electro-hydraulic operation.

EU Stage IIIB / US Tier 4i :	**Scania DC09 083A** 5 cylinder turbo 257 kW (350hp) at 2100rpm,
Operating conditions:	Ambient temp.+40℃ & –12℃ (104ºF &10ºF) altitudes up to 1000m (3281ft) above sea level.#
Operating rpm range:	1800rpm
Typical fuel consumption:	N/A
Emission control technique:	Selective Catalytic Reduction (SCR)
Reductant tank size:	60 L (16 US Gal)
Plant drive:	High quality pumps driven via engine PTOs
Fuel tank capacity:	650 L (171 US Gal)
Clutch type:	Highly efficient, Self-adjusting HPTO 12 dry plate clutch with electro hydraulic operation



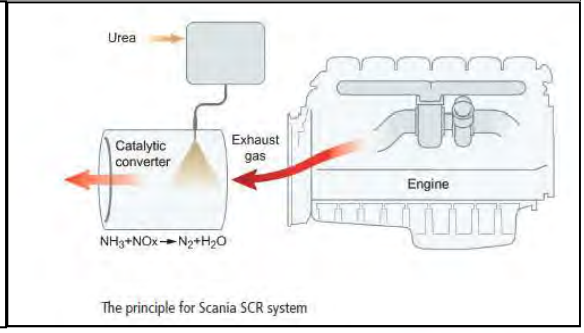
Hydraulic tank capacity:	365 L (96 US Gal)
Crusher drive:	Direct drive via wedge belts
Crusher drive tensioning:	Manually adjustable screw tensioners located under Powerunit

For applications outside this range please consult with Powerscreen as the plant performance / reliability may be affected.



Selective Catalytic Reduction (SCR)
SCR technology is used for Stage IIIB & Tier 4i to reduce the NOX content in the exhaust gases. A chemical process is started by injecting reductant, a urea & water mixture, into the exhaust gas stream. During injection the water evapo-rates & the urea breaks down to form ammonia. The ammonia then reacts with the nitrogen gases in the catalytic converter & forms harmless products such as nitrogen gas & water.

Through the use of SCR the exhaust gases are purged of poisonous levels of NOX in the best possible way. The Reductant tank holds 60 litres & is heated by the engine's cooling system in order to avoid freezing of the urea solution, urea freezes at -11℃.



The principle for Scania SCR system

Crawler Tracks

Type:	**Heavy-duty tracks fitted as standard**
Longitudinal centres:	**3800mm (12’ 5”)**
Track pad width:	**400mm (16”)**
Climbing grade:	**30˚ maximum**
Speed:	**1.0kph (0.6mph)**
Drive:	**Hydraulic**
Track tensioning:	**Hydraulic adjuster, grease tension**

Guards

Wire mesh or sheet metal guards are provided for all drives, pulleys & couplings.

The guards provided are designed & manufactured to CE & ANSI standards.

Platforms

Platforms are provided for inspection & maintenance, allowing access to each side of the crusher, rear of the engine & one side of the feed conveyor.

They are made from open mesh steel flooring with steel toe boards, double row handrails & access ladders.

Chassis

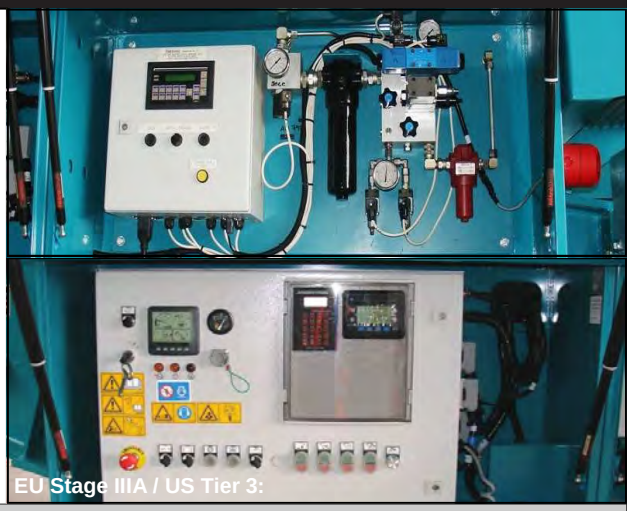
Heavy Duty I-Section welded construction, provides maximum strength & accessibility.

Controls - EU Stage IIIA / US Tier 3

Plant: control panel to operate the following items:

- Crusher (start/stop)
- Oil lubrication pump (start/stop)
- All on plant conveyors (start/stop)
- Screen
- Crusher level controls

Crusher: The hydraulic system control panel enables crusher-setting changes to be made & to calibrate & monitor manganese wear



EU Stage IIIA / US Tier 3:

Controls - EU Stage IIIB / US Tier 4i

On EU Stage IIIB / US Tier 4i equipped machines both crusher & plant controls have been simplified into one panel. All functionality remains as before, with improved diagnostics capabilities

- Crusher (start/stop)
- Oil lubrication pump (start/stop)
- Crusher level controls
- Crusher setting changes
- All plant conveyors (start/stop)
- Screen (start/stop)
- Calibrate & monitor manganese wear

EU Stage IIIB / US Tier 4i:

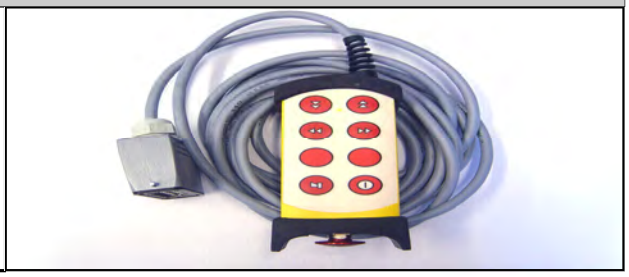
Dust Suppression System

Sprays bars with atomiser nozzles mounted over the crusher mouth, product conveyor feed & discharge points. Piped to an inlet manifold for customers pressured water supply.

Type:	**Clean water atomising nozzles**
Inlet:	**Single point on chassis**
Pressure required:	**2.8 bar (42 psi)**
Frost protection:	**Via system drain valves**
Pump:	**Optional extra**

Umbilical Control

An umbilical control unit is also supplied with the plant. This is used to control the tracking function & is also fitted with a stop button for the plant.

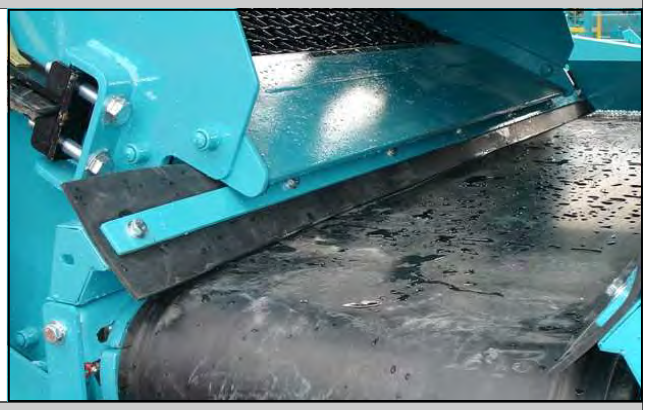


After Screen

Type:	2 deck vibrating screen, 4 bearing
Size:	3350mm x 1525mm (11' x 5')
Location:	After product conveyor
Drive:	Hydraulic drive, fixed speed
Top deck:	45mm aperture fitted as standard
Bottom deck:	Optional mesh
Lubrication:	4 grease nipples
Access:	Screen & fines conveyor lowers for maintenance

Top Deck - Transfer Conveyor

Function:	Transfers material from top deck of screen to re-circulating conveyor.
Belt type:	Plain Belt, EP400/3 with 5mm top & 2mm bottom rubber covers & vul-canised joint
Belt width:	500mm (20")
Drive:	Direct drive hydraulic motor



Oversize - Recirculation Conveyor

Function:	Returns oversize material from after screen to crusher for re-crushing. Can also be repositioned for oversize material stockpiling
Conveyor type:	Chevron type troughed belt
Belt type:	Chevron belt, EP 315/3 with 3mm top & 1.5mm bottom rubber covers, 15mm cleat, vulcanised joint
Width:	500mm (19.6")
Drive:	Direct drive hydraulic motor
Lubrication:	Remote grease nipples
Transport:	Needs to be lowered for tracking on uneven ground, changing gradients & for transportation

Fine Size - Product Conveyor

Function:	**Stockpiles fines from afterscreen**
Conveyor type:	**Plain troughed belt**
Belt type:	**Plain EP400/3 with 4mm top 2mm bottom covers, vulcanised joint**
Width:	**1400mm (4'5")**
Discharge height:	**2.92m (9' 7")**
Stockpile volume:	**37m^3 (48 cu. yd.)**
Drive:	**Direct drive hydraulic motor**

Bottom Deck - Transfer Conveyor

Function:	**Transfers material from bottom deck to plant mounted stockpiling conveyor or re-circulating conveyor**
Belt type:	**Plain EP400/3 with 4mm top & 2mm bottom covers, vulcanised joint**
Width:	**500mm (20")**
Drive:	**Direct drive hydraulic motor**
Lubrication:	**Grease nipples on bearing housings**

Set Up Controls

A control panel is fitted onto the plant to operate the following items:

- **Feed conveyor (raise/lower)**
- **Screen (raise/lower)**
- **Recirculating conveyor (raise/lower)**
- **Recirculating chute (raise/lower)**

Optional Extras

- **Additional level sensor over feed hopper**
- **Automax Extra Coarse (XC) concave**
- **Automax Coarse (C) concave**
- **Autosand (AS) concave**
- **Short throw eccentric**
- **Feed hopper extension plates (remove for transport)**
- **Additional stockpilling conveyor**
- **Bottom Deck Aperture Mesh**
- **Electric re-fuelling pump**
- **Hydraulic water pump**
- **Radio remote control**

(For prices please contact to your dealer)

Midsize - Stockpiling Conveyor

Conveyor:	**Stockpiles material from bottom deck side transfer conveyor**
Conveyor type:	**Chevron type troughed belt**
Belt type:	**Chevron EP315/2 with 3mm top & 1mm bottom covers, 15mm cleat, vulcanised joint**
Width:	**500mm (20")**
Discharge height:	**3.98m (13' 1")**
Stockpile volume:	**93m^3 (122 cu. yd.)**
Drive:	**Direct drive hydraulic motor**
Transport:	**Remove for transport or when tracking on uneven ground changing gradients**

Electric Refuelling Pump

A 24 volt refuelling pump, allows fuel to be drawn from a remote source. Fuel transfer rate is 50 L/min.

Hydraulic Water Pump

A hydraulically powered water pump is available to power the dust suppression system.

Radio Remote Control

Complete with integrated tracking functions & plant stop function

NB— Only available in certain countries where type approval has been obtained

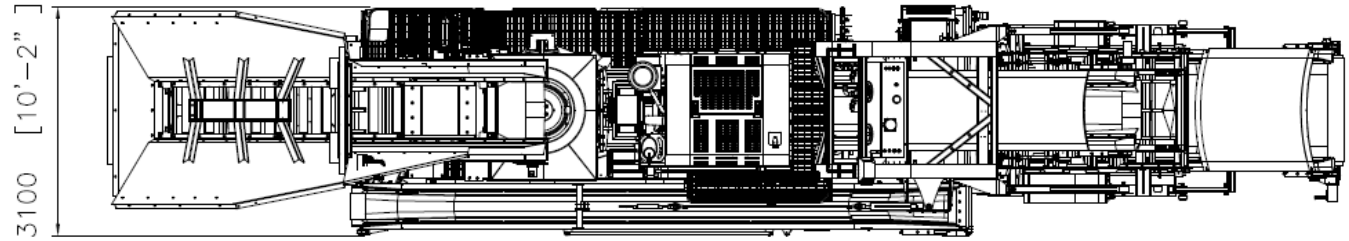
Remote can also be used to:

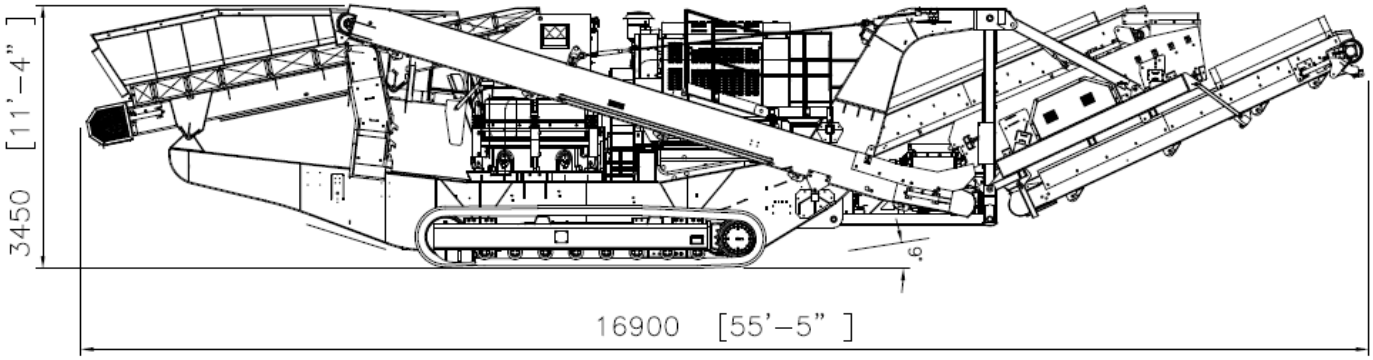
- **Start/stop vibrating grizzly feeder**

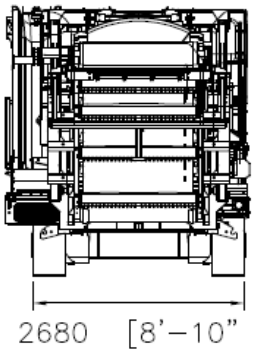
Approximate Plant Weights & Dimensions

Transport length:	**16.9m (55' 5")**
Transport width:	**3.1m (10' 2")**
Transport height:	**3.45m (11' 4")**
Total plant weight:	**38,500kgs (84,900lbs)**
Paint colour:	**RAL 5021**

1000SR
Transport Dimensions



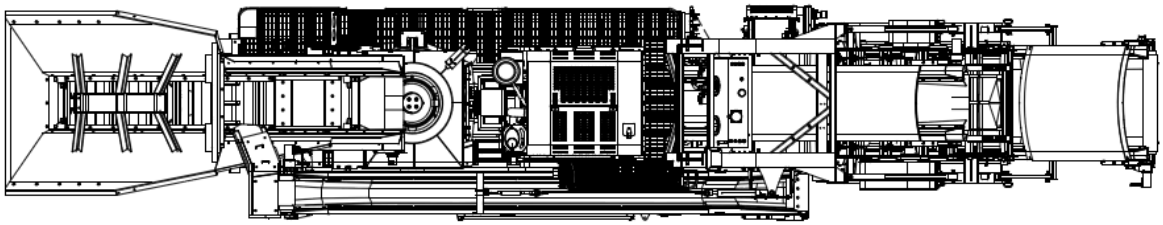


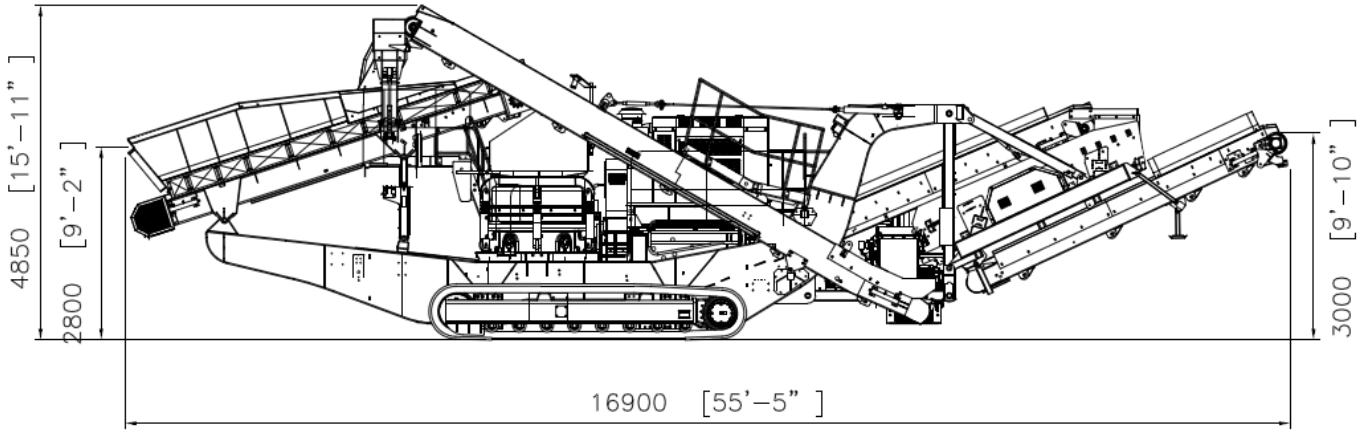


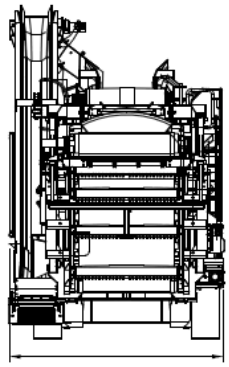
Approximate Plant Weights & Dimensions

Working length:	**16.9m**	**(55’ 5”)**
Working height:	**4.85m**	**(15’ 11”)**
Working width:	**3.1m**	**(10’ 2”)**

1000SR
Working Dimensions







Powerscreen equipment complies with CE requirements.

Please consult Powerscreen if you have any other specific requirements in respect of guarding, noise or vibration levels, dust emissions, or any other factors relevant to health and safety measures or environmental protection needs. On receipt of specific requests, we will endeavour to ascertain the need for additional equipment and, if appropriate, quote extra to contract prices.

All reasonable steps have been taken to ensure the accuracy of this publication, however due to a policy of continual product development we reserve the right to change specifications without notice.

It is the importers' responsibility to check that all equipment supplied complies with local legislation regulatory requirements.

Plant performance figures given in this brochure are for illustration purposes only and will vary depending upon various factors, including feed material gradings and characteristics. Information relating to capacity or performance contained within this publication is not intended to be, nor will be, legally binding.

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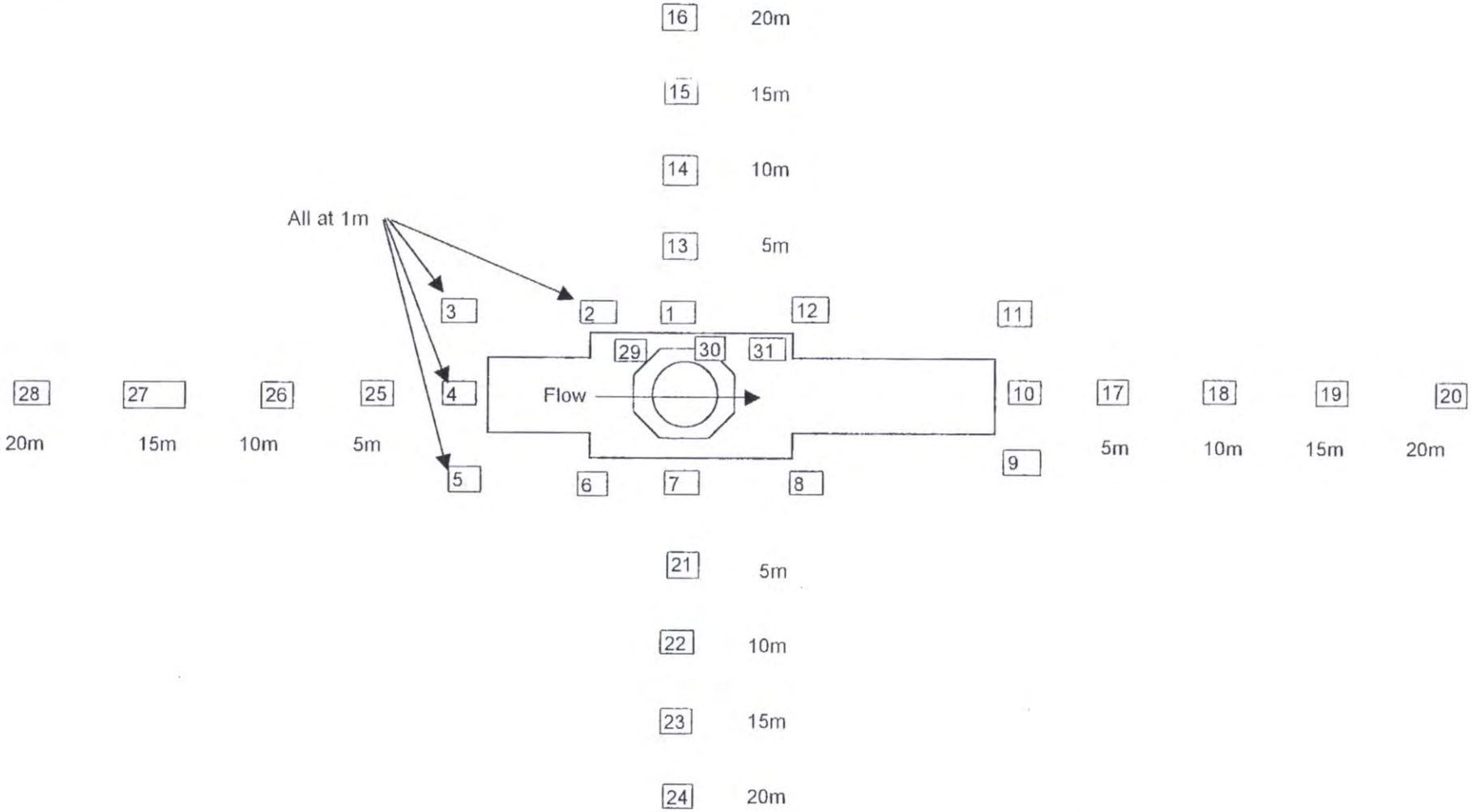
E-Mail: sales@powerscreen.com
Web: www.powerscreen.com

Noise Assessment

1000SR

RA:06/01/09



NOT TO SCALE

Noise Assessment

1000 Maxtrak

Measurement Point	Reading in Decibel (dB(A)
1	96.2
2	93.1
3	86.2
4	84.0
5	87.1
6	94.3
7	96.8
8	92.8
9	84.9
10	82.8
11	84.9
12	93.0
13	89.8
14	85.5
15	84.5
16	83.0
17	80.3
18	78.3
19	75.7
20	75.6
21	90.2
22	86.4
23	83.7
24	80.0
25	80.3
26	74.4
26	71.4
28	71.3
29	89.5
30	102.5
31	103.4

Sound Pressure Level (SPL)dB(A)
87.4 dB(A) @ 5 metre

83.5 dB(A) @ 10 metre

Sound Power Level (SWL)dB
109.4 dB

Date 28/01/04

Assessor A.John Moore

Signed

OUR REF: GLE MAR

12 May 2014

Shire of Chittering
PO BOX 70
Great Northern Highway
BINDOON WA 6502

RobertsDay
planning·design·place

Attention: Mr. B Jeans- Senior Planning Officer

Dear Brendan,

RE: MARYVILLE ESTEATE- DEED

We refer to your email on Wednesday 7 May 2014 seeking clarification on the 10ha POS area and community fund contribution for stage 11 Maryville. Following discussions with Terry and Kevin Prindiville I can confirm the following:

- 10ha POS Area- the project surveyors have been instructed to lodge a Deposited Plan for the creation of the 10ha POS area to be ceded free of cost to the Shire of Chittering
- Upon the issue of a Tax Invoice for the community fund contribution the funds will be forwarded directly to the Shire of Chittering.

Based upon the above, the Revised Deed for Stage 11- Maryville will include the following;

a. *10m widening of McGlew Road free of cost to Council;*
b. *Land containing Marbling Brook to be fenced and ceded free of cost to Council*
c. *Cede free of cost 46ha for Public Open Space to be made available to Council upon the development of Stage 11.*
d. *McGlew Road to be upgraded (constructed and funded as detailed below)*
    - *Upgrading works- 7m asphalt seal/swale drainage/intersection improvements (Munchea East Road)*
    - *Funding- Maryville Landowners (90%- $800,000.00)/Shire of Chittering (10%- $80, 000.00 limit)*

We request Council formally consider the above modification before the revised Deed is finalised by McLeod's Barristers and Solicitors.

Should you require any further clarification of the above or further information, please do not hesitate to contact the undersigned on 9218 8700.

Yours sincerely,
ROBERTS DAY

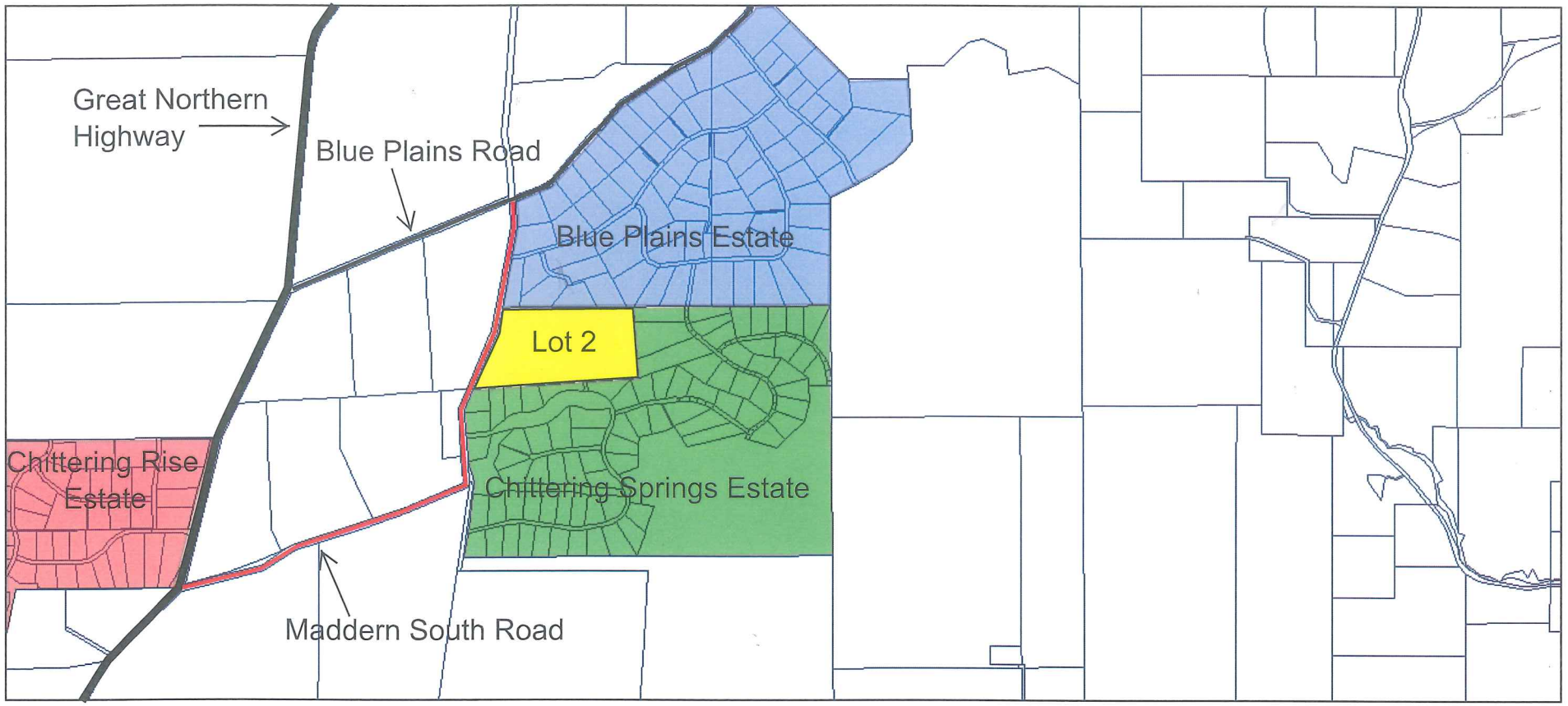
TIM TREFRY FPIA
PRINCIPAL

CC: MR K PRINDIVLLE - BERNVILLE PTY LTD

roberts day
abn 53 667 373 703
level one
130 royal street east perth
wa australia 6004
t+61 8 9218 8700
robertsday.com.au
perth melbourne sydney

Attachment 1 Locality Plan - Proposed Development Plan and Subdivision

Lot 2 Maddern South Road, Chittering



The Subject property is highlighted yellow. Maddern South Road is highlighted red.

DEVELOPMENT PROVISIONS RELATING TO THE ESTATE

1. Development Plan:
This Development Plan has been endorsed by the Shire Council. Subdivision and development should generally be in accordance with this Plan.

2. Development Requirements and Lot Sizes:
In considering development and subdivision of the land, the requirements of the Shire of Chittering Town Planning Scheme No. 6 for the Rural Residential Zone apply.

3. Building Envelopes:
Buildings, water tanks, waste disposal and a building protection zone for fire management are to be contained within a cleared area not to exceed a maximum of 2000m² without the prior approval of Council; prior to confirming a building clearing area a vegetation survey is to be undertaken to ensure no rare or endangered flora is present; buildings are to have setbacks in accordance Local Planning Policy No. 18 Setbacks, with minimum setbacks from cadastral boundaries as follows:

Road	20 metres
Rear	20 metres
Sides	15 metres

4. Fencing:
In accordance with Local Planning Policy No. 22 - Fences, the construction of a fence is permitted within the building clearing area, any previously cleared area and adjoining an authorised fire break. Where natural vegetation adjoins a road reserve, no fence is to be constructed between the road reserve and the building clearing area. Elsewhere, no boundary fences are permitted in Vegetation Protection areas identified on the Development Plan, without planning consent of the Council. Where a fence crosses a strategic fire break a gate of approved design is to be provided. Elsewhere, boundary fencing is to be in accordance with LPP22 - Fencing.

5. Crossovers:
The construction of a crossover to each lot is to be in accordance with Council's specifications.

6. Potable Water:
Each dwelling is to have a water supply from roof catchment of a minimum of 120,000 litres, of which 10,000 litres is to be kept in reserve for fire-fighting purposes and fitted with a standard Camlock valve.

7. Land Management:
The maintenance of any drainage swales, easements, fire breaks and Vegetation Protection areas on private property is the responsibility of the owner/occupier.

8. Bores, Dams and Water Courses:
The sinking of bores, construction of dams and extraction of surface water is not permitted without the approval of the Council and relevant State Government department.

9. Fire Control:
A Bush Fire Management Plan applies to this area and includes specific Bushfire Management provisions that must be adhered to by property owners. All buildings to be constructed to AS3959. No development is to occur in areas of extreme bushfire risk.

10. Permitted Uses:
A single house and associated outbuildings are the only permitted uses. Other uses specified in the Town Planning Scheme may be approved at the discretion of the Council. Approval is required for a home business but not for a home office. For any use that may result in degradation of land or water resources or nuisance to neighbours, a management plan may be required as a condition of development approval.

11. Stocking Restrictions:
The keeping of any grazing animal or stock on any property shall be in accordance with LPP 24 - Stocking Rates.

12. Poultry:
The keeping of poultry for domestic purposes is permitted, in accordance with the Shire's Health Local Law.

13. Vegetation Protection Areas:
Vegetation Protection Areas are defined on the Development Plan as all naturally vegetated areas. In the areas identified for the preservation of trees a maximum clearing area of 2,000m2 is permitted, other than for driveways and required firebreaks. Council may require a landowner, as a condition of approval, to commence tree planting to its specification, and to maintain those trees for a period of not less than two summer seasons'.

14. Non-reflective Materials:
All buildings shall be constructed with roofs of non-reflective materials.

15. Effluent Disposal:
Alternative Treatment Units (ATUs) with nutrient retention capability are required on all lots unless proven otherwise by the developer / landowner in accordance with the soil capability for the site.

16. Vendor Responsibility:
The developer/vendor shall inform prospective purchasers of the lots, in writing, of the provisions of the Council's Town Planning Scheme relating to the management of the land, as specified in the Development Plan and Fire Management Plan.

landinsights

Attachment 2 Proposed Development Plan

OUTLINE DEVELOPMENT PLAN
LAYOUT
LOT 2 MADDERN ROAD, CHITTERING
SHIRE OF CHITTERING

1/3 ALVAN STREET MT LAWLEY W.A. 6050 POSTAL ADDRESS: PO BOX 289 MT LAWLEY W.A. 6929
phone: (08) 9271 0506 fax: (08) 6161 2597 email: admin@landinsights.com.au

All dimensions and areas subject to survey

PLAN NO: 955-09 SCALE: 1:3000 (A3) DATE: June 2014

Schedule of Submissions

	Submission Comments	Applicant Response Comments	Officer Response Comments
Public Submission - A	1. One of the Council's requirements is to ensure that "Development(s) are to be undertaken in a manner which minimises the impact on the natural environment". Therefore, we are concerned that the appropriate investigation has been/be undertaken by an appropriate environmental specialist/professional, to ensure that the placement of roads and building envelopes has eliminated or minimised the need to remove trees and bushland.	1. The ODP report includes a review of environmental features and values of the site as well as proposed Environmental Management. This report was prepared by consultants at Land Insights with qualifications in Environmental Science. The Land Capability and Geotechnical Report also includes an assessment of environmental features and values across the site and proposed Environmental Management. This report was prepared by Lindsay Stephens from Landform Research who has qualifications in environmental science, geology and plant ecology. The plan was prepared with due considerations for the environmental features of the site and roads and building envelopes were placed in cleared areas where possible to reduce impacts.	1. Noted. The applicant has submitted a Land Capability and Geotechnical Report in addition to a review of the environmental features of the site. Thereby, the proposals impact on the natural environment can be assessed. The impact of development on the natural environment is a key consideration of Council through their local planning framework in determining the proposal. Recommendation has been made to modify the proposed lot and road layout and permitted building areas outlined by the Development Plan to minimise clearing.
	2. We want the Council to ensure it protects the environment and wildlife including in particular, threatened species such as the Black Cockatoo, which would require that no large trees in which they may nest or have the potential to nest **not** be removed and to ensure that wildlife habitats are preserved as much as possible including ensuring effective wildlife corridors.	2. Building envelopes and roads have been placed in cleared areas where possible to avoid and reduce clearing native vegetation. Retention of large, mature trees will be encouraged.	2. Noted. The recommended modifications outlined in response A1 above further minimise clearing. Therefore, potential nesting sites for species such as Carnaby's Cockatoo will be preserved to a greater extent.
	3. Fire Management Plan - Our query and concern is, we are of the understanding that the Council requirement is to ensure all new land developments have 'Fire Services Access Routes' around the perimeter of the development. From our reading, this is not apparent in the current proposed Fire Management Plan (FMP).	3. The Fire Management Plan includes recommendations for firebreaks around the perimeter of each lot and requires that landowners comply with the Shire's Firebreak Notice. Section 6.4.1 states *All Lots are required to adhere to the standards contained within the Shire of Chittering firebreak regulations as published annually.*	3. Noted. The Fire Management Plan was referred to the Shire's Community Emergency Service Manager who advised a 'Fire Services Access Route' would not be necessary given such routes exist in adjacent Estates which provide emergency access.
	4. It appears from Local Planning Policy No 21 that the FMP is to be reviewed and signed off by the Community Emergency Services Manager and the Chief Bush Fire Control Officer in addition to the Shire Planner – would you please advise us of the process and timing for when this is to happen, as our understanding is the FMP you sent us is just part (Appendix E) of the proposed development plan.	4. We are of the understanding that the report has been circulated to the relevant personnel for review.	4. The requirement for a Fire Management Plan is a condition of subdivision approval. Therefore, the Fire Management Plan is only required to be signed off in accordance with Local Planning Policy 21 should the proposed subdivision be approved by the Western Australian Planning Commission subject to such a condition. A draft Fire Management Plan has been provided at this point in the process to allow the bush fire risk associated with the proposal to be assessed.
	5. Thank you for the opportunity to express our concerns and queries on this proposed development. We are currently of the view, that we cannot support the proposed development until we have full information from the Shire on our concerns and queries, and look forward to receiving a positive response as quickly as possible.	5. Noted.	5. Noted. The concerns have been addressed above.
Public Submission - B	1. One of the Council's requirements is to ensure that "Development(s) are to be undertaken in a manner which minimises the impact on the natural environment". Therefore, we are concerned that the appropriate investigation has been/be undertaken by an appropriate environmental specialist/professional, to ensure that the placement of roads and building envelopes has eliminated or minimised the need to	1. The ODP report includes a review of environmental features and values of the site as well as proposed Environmental Management. This report was prepared by consultants at Land Insights with qualifications in Environmental Science. The Land Capability and Geotechnical Report also includes an assessment of environmental features and values across the site and proposed Environmental Management. This report was prepared by	1. Noted. The applicant has submitted a Land Capability and Geotechnical Report in addition to a review of the environmental features of the site. Thereby, the proposals impact on the natural environment can be assessed. The impact of development on the natural environment is a key consideration of Council through their local planning framework in determining the proposal. Recommendation has been made to modify the proposed lot and

Schedule of Submissions

	remove trees and bushland.	Lindsay Stephens from Landform Research who has qualifications in environmental science, geology and plant ecology. The plan was prepared with due considerations for the environmental features of the site and roads and building envelopes were placed in cleared areas where possible to reduce impacts.	road layout and permitted building areas outlined by the Development Plan to minimise clearing.
	2. We want the Council to ensure it protects the environment and wildlife including in particular, threatened species such as the Black Cockatoo, which would require that no large trees in which they may nest or have the potential to nest **not** be removed and to ensure that wildlife habitats are preserved as much as possible including ensuring effective wildlife corridors.	2. Building envelopes and roads have been placed in cleared areas where possible to avoid and reduce clearing native vegetation. Retention of large, mature trees will be encouraged.	2. Noted. The recommended modifications outlined in response A1 above further minimise clearing. Therefore, potential nesting sites for species such as Carnaby's Cockatoo will be preserved to a greater extent.
	3. Fire Management Plan - Our query and concern is, we are of the understanding that the Council requirement is to ensure all new land developments have 'Fire Services Access Routes' around the perimeter of the development. From our reading, this is not apparent in the current proposed Fire Management Plan (FMP).	3. The Fire Management Plan includes recommendations for firebreaks around the perimeter of each lot and requires that landowners comply with the Shire's Firebreak Notice. Section 6.4.1 states *All Lots are required to adhere to the standards contained within the Shire of Chittering firebreak regulations as published annually.*	3. Noted. The Fire Management Plan was referred to the Shire's Community Emergency Service Manager who advised a 'Fire Services Access Route' would not be necessary given such routes exist in adjacent Estates which provide emergency access.
	4. It appears from Local Planning Policy No 21 that the FMP is to be reviewed and signed off by the Community Emergency Services Manager and the Chief Bush Fire Control Officer in addition to the Shire Planner – would you please advise us of the process and timing for when this is to happen, as our understanding is the FMP you sent us is just part (Appendix E) of the proposed development plan.	4. We are of the understanding that the report has been circulated to the relevant personnel for review.	4. The requirement for a Fire Management Plan is a condition of subdivision approval. Therefore, the Fire Management Plan is only required to be signed off in accordance with Local Planning Policy 21 should the proposed subdivision be approved by the Western Australian Planning Commission subject to such a condition. A draft Fire Management Plan has been provided at this point in the process to allow the bush fire risk associated with the proposal to be assessed.
	5. Thank you for the opportunity to express our concerns and queries on this proposed development. We are currently of the view, that we cannot support the proposed development until we have full information from the Shire on our concerns and queries, and look forward to receiving a positive response as quickly as possible.	5. Noted.	5. Noted. The concerns have been addressed above.
Public Submission - C	1. We would like to ensure that the building envelopes on Lots 10, 11 & 12 cannot be moved back further into their respective blocks, i.e. to the east, as they would then have a view into the back of our house. We positioned our house considering vacant land to the north.	1. The building envelopes on Lots 10, 11 and 12 have been placed in cleared areas at the western side of the property and with adequate setback from the vegetation to the east. It is recommended that these building envelopes are not relocated further east to reduce clearing any vegetation on the eastern side of these lots. It should be noted that any future landowner can apply to the Shire to have Building Envelopes moved. We would assume each application would be assessed by Council on its relative merits in regards to privacy, bushfire management and environmental protection.	1. Noted. It is considered unreasonable to restrict the movement of building envelopes if proposed envelope locations comply with the local planning framework and are assessed on their merits. The prescribed setbacks provide sufficient separation distance from adjoining properties pursuant to Council's *Local Planning Policy 18 Setbacks*.
	2. Provided the building envelopes are not allowed to move from their proposed positions, we have no objections.	2. Noted.	2. Noted.
Submission – D Department of Parks	1. The Department of Parks and Wildlife has no comments on this proposal.	1. Noted.	1. Noted.

Schedule of Submissions

and Wildlife	2. It is considered that the proposal and any potential environmental impacts will be appropriately addressed through the existing planning framework.	2. Noted.	2. Noted.
Submission - E Ellen Brockman Integrated Catchment Group	The Ellen Brockman Integrated Catchment Groups has reviewed the above proposal and makes the following comments: 1. The removal of large eucalyptus wandoo trees should be avoided wherever possible as these trees assist in the management of soil and stream salinity by holding water in the upper catchment.	1. Noted, large trees will be retained where possible. Building envelopes and roads have been placed in cleared areas where possible to reduce clearing.	1. Noted. Recommended modifications to realign and amalgamate property boundaries, the identification of Vegetation Protection Areas, restrictive covenants of Certificates of Title and the location of building envelopes will result in minimised clearing. Vegetation surrounding the non-perennial water course to the East will preserved through drainage easements.
	2. Wandoo trees with significant hollows should be exempt from clearing as per the Recovery Plan for Carnabys Cockatoos. Information is provided below: *Carnaby's Black-Cockatoo nests in large hollows in tall, living or dead eucalypts. It nests most commonly in smooth-barked Wandoo and Salmon Gum, but birds have also been recorded breeding in Red Morrell (E. loriqicomis), York Gum (E. toxophlebe), Tuart (E. gomphocephala), Flooded Gum (E. rudis), Swamp Yate (E. occidentelts), Gimlet (E. salubris) and Marri, and are said to nest in any species of eucalypt with a suitable hollow (Cale 2003; Carnaby* 1933; *Orton* & *Sandland* 1913; *Saunders 1979b, 1979c, 1980; Storr 1991). Suitable hollows can take from 120-150 years to develop (Pittman et. al. 2007). The size of the tree (measured as the diameter at breast height, DBH)* is *a good indication of the hollow-bearing potential of the tree (Whitford 2002).* ***Trees approaching 680*** **mm** ***DBH are close to developing suitable hollows. Trees smaller than 680*** **mm** ***DBH are considered to have the potential to develop hollows and are therefore also important resources for Carnaby's Black Cockatoos.*** The success of this Recovery Plan can only be achieved by avoiding those activities that will adversely affect Carnaby's cockatoo and then minimizing or mitigating those that cannot be avoided. Activities that may have an impact on Carnaby's cockatoo, or its habitat include: • Any activity or action that leads to the permanent loss of eucalypt woodlands within the species range that currently or potentially provide nest hollows for breeding, along with nearby areas that provide important feeding and watering habitat that supports breeding of Carnaby's cockatoo. • Any activity or action that leads to the permanent loss of native vegetation that forms habitat of Carnoby's cockatoo during the non-breeding season, that provides for feeding, night roosting and watering. • Any activity or action that leads to temporary loss of native vegetation related to breeding, feeding, watering or night roosting habitat for Carnaby's cockatoo. • Any action, including changes in land use and hydrology within catchments, that leads to feeding, watering or night roosting habitat. • Clearing of are as of habitat (feeding, roosting and breeding) that have been established through revegetation or	2. Noted, large trees will be retained where possible. Building envelopes and roads have been placed in cleared areas where possible to reduce clearing.	2. Noted. Response E1 above outlines methods which will minimise clearing, thereby predominantly preserving potential nesting tree for Carnaby's Cockatoo.

Schedule of Submissions

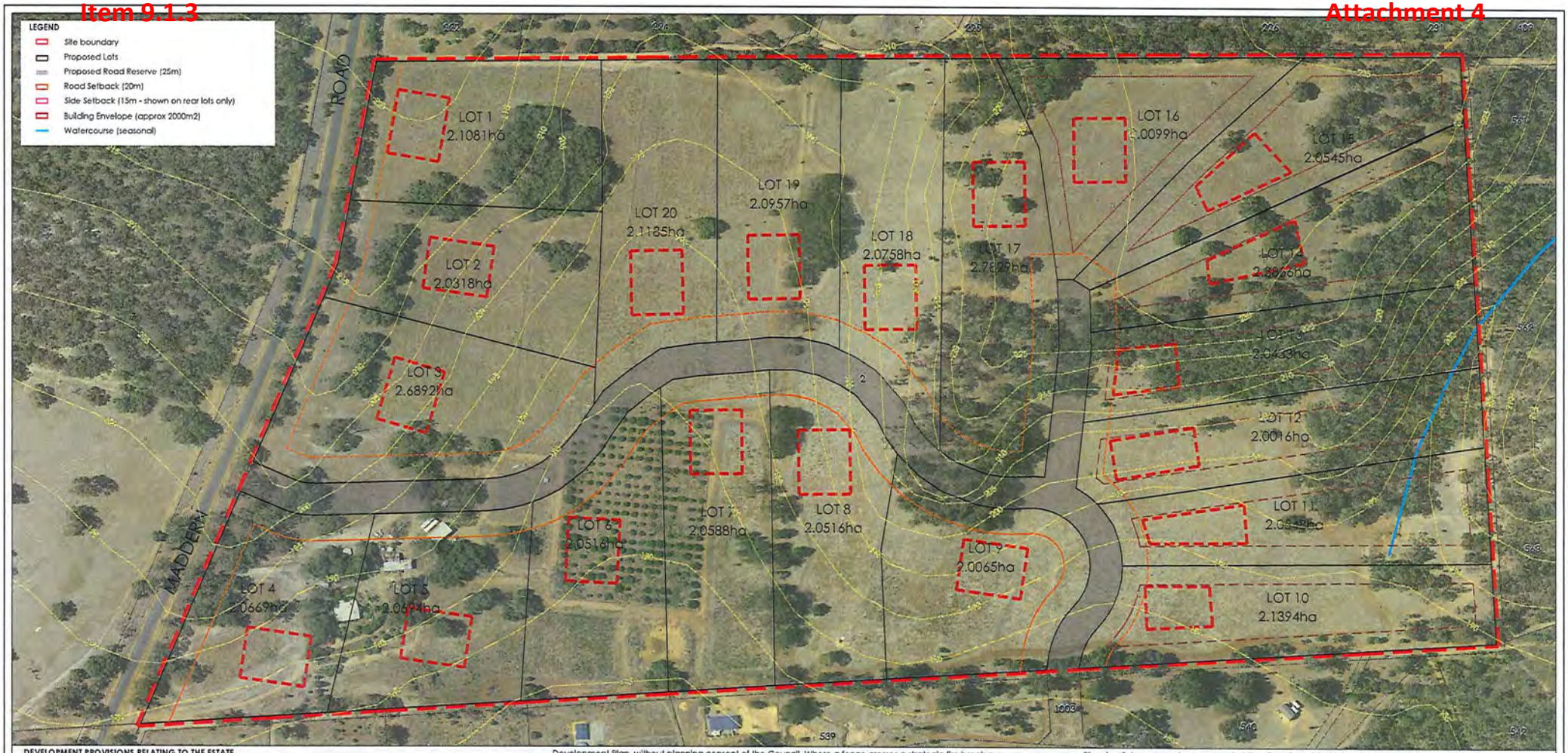
	restoration, and are successful in providing resources for Carnaby's cockatoo (e.g. offsets for this species). The above is an excerpt from the following full policy *http://www.environment.gov.au/sYstem/tiles/resources/94138936-bd46-490e-821d-b71d3ee6dd04/files!carnabyscockatoo-recovery-plan.pdf*		
	3. With the above in mind the Ellen Brockman Group would recommend realignment of the road way to avoid removal of the vegetation contained within Lots 9 and 17 and to prevent the major excavation of the hillside on which the wandoo woodland is located. It is also suggested that possibly the road alignment could be to the north of the trees on Lot 17 and form a curve around the woodland rather than create a cul de sac, which would avoid more of the wandoo woodland on the knolls and provide a better road gradient with less propensity to erode.	3. The road cannot be realigned due to the topography of the site. The road has been designed by an engineer with due consideration of the topography. An alignment was considered which extended north of the trees on Lot 17, however the road needed to turn at the steep slope which was considered too dangerous. The road cannot end in a cul-de-sac as suggested as it cannot be greater than 200m in length in accordance with the Bushfire Protection Guidelines. The road needs to connect to the existing access south of the site (Wisteria Way) and the cul-de-sac extending north provides access to the north-east corner lots.	3. Noted. The Development Plan has been modified as a result of the advertising process, requiring the cul-de-sac road location to be modified to a previously cleared area. See response E1 above.
	4. It is further recommended that Lot 13 be placed in public open space to protect a number of significant trees with hollows suitable for use by Carnaby's Cockatoos. This bushland falls within a Chittering Shire biodiversity corridor as outlined in the Biodiversity Strategy.	4. Vegetation on the eastern portion of this lot will be retained. Creating a POS reserve will not be advantageous to the community and will need to be managed by the Shire. A private landowner can manage the remnant vegetation on this property.	4. Public Open Space can only be dedicated though the rezoning process. The land has already been zoned Rural Residential with the adoption the *Local Planning Scheme No. 6*. See response E2 above. In addition, lot 13 has been amalgamated with another lot to allow the establishment of building envelope outside of the Vegetation Protection Area.
	5. Firebreaks in Lot 13 would remove enough vegetation to qualify for an application to clear under the Native Vegetation Act and as the shire has made a decision that any lot two hectares and over requires firebreaks then this needs to be considered in the context of the Shires biodiversity strategy, a strategy which has been adopted by council.	5. Clearing for firebreaks will not require a Clearing Permit under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004. The development will be exempt from requiring a clearing permit under the Schedule 6 Exemptions, Clause 1 – *Clearing that is required under other laws*. For example, Section 33 of the Bush Fires Act 1954 states *A local government at any time may require an owner or occupier of land in its boundaries to clear fire-breaks in such a manner… as the local government may determine and to maintain the fire-breaks clear of inflammable matter*.	5. Noted. As outlined by the applicant clearing for firebreaks would be exempt from requiring a clearing permit as it is required in accordance with the Shire's Firebreak Notice gazetted under the *Bush Fires Act 1954*. See response E2 above. The recommended modifications to the Development Plan will also minimise the clearing through lots being amalgamated which will result in less firebreaks being required.
	6. The property is infested with narrow-leaf cotton bush (Gomphocarpus fruticosus), a weed which has come to the attention of the WALGA. Several Councils have approached the State Government to request the weed be declared. It is recommended that the proponent should be required to eradicate the weed prior to subdivision.	6. It is unreasonable to request that the weed be completely eradicated from the property. It can be managed and controlled appropriately.	6. Noted. The requirement to eradicate weeds prior to subdivision does not exist in Council's local planning framework to warrant such a subdivision condition. However, Pursuant to Council's *Local Planning Policy 32 Development Plans*, it is recommended a Development Provision be added to the Development Plan in regard to the management of the narrow-leaf cotton bush (Gomphocarpus fruticosus).
	7. These are recommendations from the Ellen Brockman Group. In response to your request for clarification per your letter notes 16, 17, 18 the Group does not have statutory body status and subsequently the ability to impose conditions. However, the	7. DPaW have reviewed the ODP and provided a response. They had no issues.	7. Noted. The proposal was referred to the Department of Parks and Wildlife who raised no comments.

Schedule of Submissions

	proponent is removing significant trees and they could be required to submit the development for assessment under the EPBC Act. Assessment of development proposals by state agencies such as DPaW, which do have statutory authority to impose conditions, is subject to lengthy delays due to lack of staff and they usually cannot respond in the required 21 days. 8. It is encouraging to see subdivision on previously cleared land rather than remnant vegetation and with these small modifications the Group would be happy to support this development.	8. Noted.	8. Noted.
Submission - F Main Roads Western Australia	1. Further to your correspondence of 17 April 2014 with attachments, Main Roads WA (MRWA) has determined from the information provided that the proposed development plan will not have an adverse impact on the MRWA network and therefore advises no objection to the proposal.	1. Noted.	1. Noted.
Submission - G Department of Agriculture and Food	1. The Department of Agriculture and Food (DAFWA) welcomes the opportunity to provide feedback for the proposed development plan for subdivision of Lot 2022550 (RN 262) Maddern South Rd, Chittering. 2. DAFWA has no objection to the plan as the area has previously been identified in the Shire of Chittering Local Planning Strategy as a Rural Residential Precinct. 3. The location is dominated by undulating terrain with poorer soils of deep sands and gravels. It may be prone to erosion in areas. It is desirable that the development plan should encourage good land management practices to protect the soils in the area which are highly vulnerable to degradation from inappropriate land uses. 4. In response to the specific questions in your covering letter: 1. The Shire of Chittering is not lawfully obliged to incorporate advice from the DAFWA in its decision on this proposal. 2. The Department does not have any independent statutory approval or licence to grant in respect of this proposal. 3. The Department does not recommend any conditions on this proposal for which the Department is responsible for enforcing or monitoring.	1. Noted. 2. Noted. 3. Noted. This is addressed in the Land Capability and Geotechnical Report by Landform Research. 4. Noted.	1. Noted. 2. Noted. 3. Noted. The use of the land is subject to Council's local planning framework regardless of the Development Provision outlined by the Development Plan. This framework addresses appropriate uses of the land and management practices. Modifications to the Development Plan provisions have been recommended to give more reference to Council's framework. 4. Noted.
Submission - H Department of Water	No comments.	1. Noted.	1. Noted.
Submission – I Department of Planning	A preliminary assessment of the application has identified the following matters below: 1. We would recommend that the following provisions be added to the Structure Plan: • No development is to occur in areas of extreme bushfire risk. • All buildings to be constructed to AS3959. • A Bush Fire Management Plan applies to this area and	1. Noted, this can be added to the report text.	1. Noted. It is recommended that the development Provisions are added to the Development Plan accordingly under Development Provision 9 'Fire Control'.

Schedule of Submissions

	includes specific Bushfire Management provisions that must be adhered to by property owners. In addition, we note that: 2. The building envelope of Lot 13 is located in an area that has been identified as having an 'Extreme' bush fire risk and would be unacceptable as currently configured. 3. Interpretation of colours on 'Post Development BAL Assessment' is not possible due to a lack of any key/legend being provided.	2. The post-BAL plan attached to the Fire Management Plan shows that the building envelope on proposed Lot 13 has a BAL-19 once vegetation is cleared for the building envelope and building protection zone. It will therefore no longer be within an 'extreme' bush fire risk area. 3. The legend for the BAL plan is within the Fire Management Plan (page 25). The legend can also be added to the post BAL plan.	2. Noted. Lot 13 has been amalgamated with another lot subsequent the advertising process to allow the establishment of building envelope in an area that conforms to BAL 29 as outlined by the Post BAL Assessment Plan. 3. Noted. The applicant has advised that the Fire Management Plan is to be amended to be in accordance with the new road and lot layout. It is recommended the changes are in accordance with the applicants response.



DEVELOPMENT PROVISIONS RELATING TO THE ESTATE

1. Development Plan:
This Development Plan has been endorsed by the Shire Council. Subdivision and development should generally be in accordance with this Plan.

2. Development Requirements and Lot Sizes:
In considering development and subdivision of the land, the requirements of the Shire of Chittering Town Planning Scheme No. 6 for the Rural Residential Zone apply.

3. Building Envelopes:
Buildings, water tanks, waste disposal and a building protection zone for fire management are to be contained within a cleared area not to exceed a maximum of 2000m² without the prior approval of Council; prior to confirming a building clearing area a vegetation survey is to be undertaken to ensure no rare or endangered flora is present; buildings are to have setbacks in accordance Local Planning Policy No. 18 Setbacks, with minimum setbacks from cadastral boundaries as follows:

Road	20 metres
Rear	20 metres
Sides	15 metres

4. Fencing:
In accordance with Local Planning Policy No. 22 - Fences, the construction of a fence is permitted within the building clearing area, any previously cleared area and adjoining an authorised fire break. Where natural vegetation adjoins a road reserve, no fence is to be constructed between the road reserve and the building clearing area. Elsewhere, no boundary fences are permitted in Vegetation Protection areas identified on the Development Plan, without planning consent of the Council. Where a fence crosses a strategic fire break a gate of approved design is to be provided.

5. Crossovers:
The construction of a crossover to each lot is to be in accordance with Council's specifications.

6. Potable Water:
Each dwelling is to have a water supply from roof catchment of a minimum of 120,000 litres, of which 10,000 litres is to be kept in reserve for fire-fighting purposes and fitted with a standard Camlock valve.

7. Land Management:
The maintenance of any drainage swales, easements, fire breaks and Vegetation Protection areas on private property is the responsibility of the owner/occupier.

8. Bores, Dams and Water Courses:
The sinking of bores, construction of dams and extraction of surface water is not permitted without the approval of the Council and relevant State Government department.

9. Fire Control:
A Fire Management Plan has been prepared for the Estate and endorsed by the Shire of Chittering. Development shall accord to the requirements of the Fire Management Plan.

10. Permitted Uses:
A single house and associated outbuildings are the only permitted uses. Other uses specified in the Town Planning Scheme may be approved at the discretion of the Council. Approval is required for a home business but not for a home office. For any use that may result in degradation of land or water resources or nuisance to neighbours, a management plan may be required as a condition of development approval.

11. Stocking Restrictions:
Stock shall be restricted to previously cleared areas. The prior approval of Council is required for the keeping of any grazing animal on a lot. If, in the opinion of Council, any lot is overgrazed or constitutes land degradation, it may order the removal of any or all stock, either temporarily or permanently until the remedial works are carried out by the landowner to render the land stable.

12. Poultry:
The keeping of poultry for domestic purposes is permitted, in accordance with the Shire's Health Local Law.

13. Non-reflective Materials:
All buildings shall be constructed with roofs of non-reflective materials.

14. Effluent Disposal:
Alternative Treatment Units (ATUs) with nutrient retention capability are required on all lots unless proven otherwise by the developer / landowner in accordance with the soil capability for the site.

15. Vendor Responsibility:
The developer/vendor shall inform prospective purchasers of the lots, in writing, of the provisions of the Council's Town Planning Scheme relating to the management of the land, as specified in the Development Plan and Fire Management Plan.

Attachment 4 Original Proposed Development Plan

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PLANNING DESIGN ENVIRONMENT

0 50 100 Metres

NORTH

OUTLINE DEVELOPMENT PLAN
LAYOUT
LOT 2 MADDERN ROAD, CHITTERING
SHIRE OF CHITTERING

1/1 ALVAN STREET MT LAWLEY W.A. 6050 POSTAL ADDRESS: PO BOX 289 MT LAWLEY W.A. 6929
phone: (08) 9271 8504 fax: (08) 6161 2897 email: admin@landinsights.com.au

All dimensions and areas subject to survey

PLAN NO: 955-08 SCALE: 1:3000 (A3) DATE: March 2014

Dam

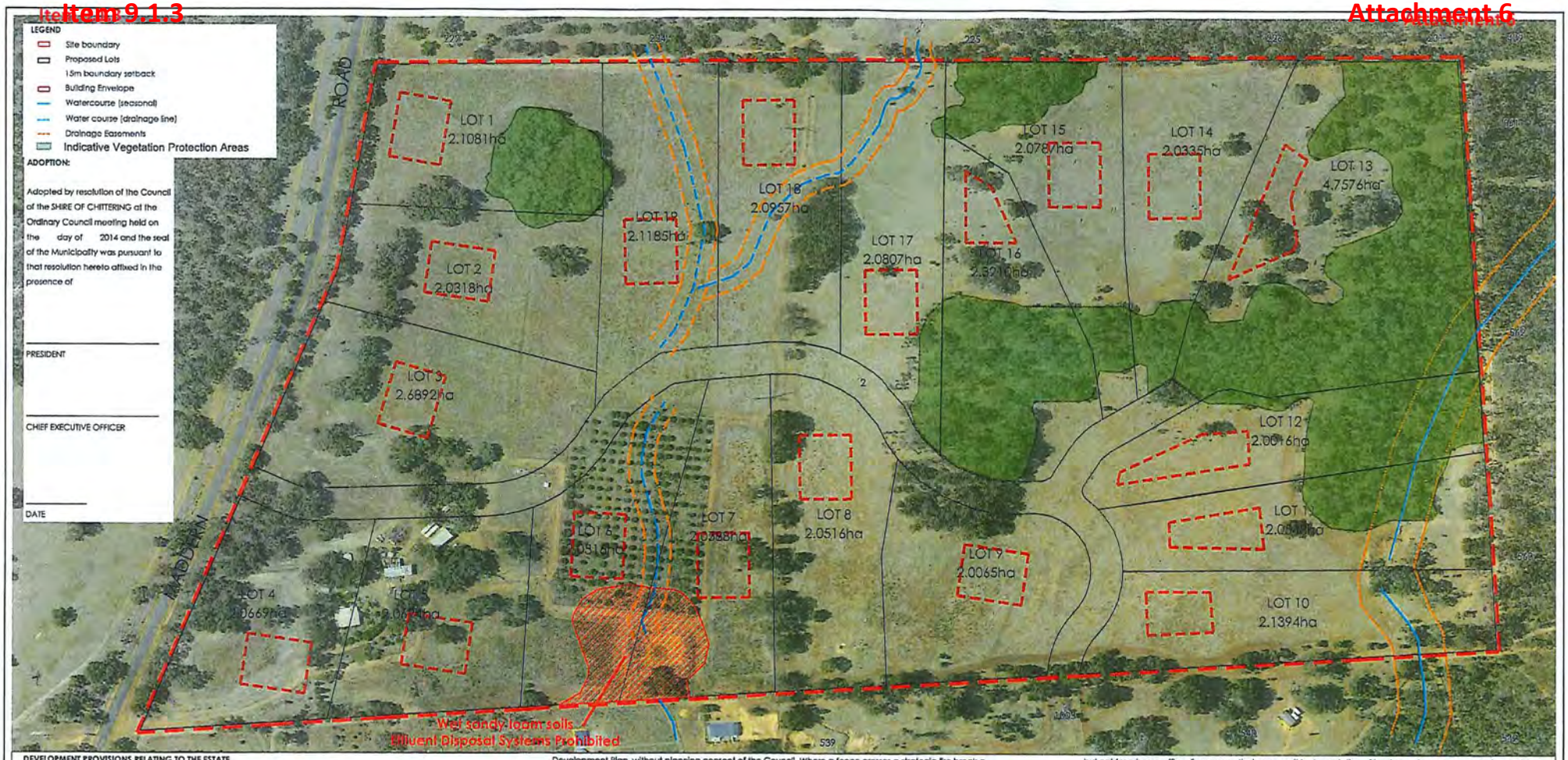
Creekline

Stormwater flow line. Only flows in response to heavy rainfall events

LOT 2, MADDERN ROAD, CHITTERING	
HYDROLOGY	
Landform Research	Feb 2014
Basemap LANDGATE	Scale See Plan

Figure 6

Attachment 5 - Hydrology Plan



DEVELOPMENT PROVISIONS RELATING TO THE ESTATE

1. Development Plan:
This Development Plan has been endorsed by the Shire Council. Subdivision and development should generally be in accordance with this Plan.

2. Development Requirements and Lot Sizes:
In considering development and subdivision of the land, the requirements of the Shire of Chittering Town Planning Scheme No. 6 for the Rural Residential Zone apply.

3. Building Envelopes:
Buildings, water tanks, waste disposal and a building protection zone for fire management are to be contained within a cleared area not to exceed a maximum of 2000m² without the prior approval of Council; prior to confirming a building clearing area a vegetation survey is to be undertaken to ensure no rare or endangered flora is present; buildings are to have setbacks in accordance Local Planning Policy No. 18 Setbacks, with minimum setbacks from cadastral boundaries as follows:

Road	20 metres
Rear	20 metres
Sides	15 metres

4. Fencing:
In accordance with Local Planning Policy No. 22 - Fences, the construction of a fence is permitted within the building clearing area, any previously cleared area and adjoining an authorised fire break. Where natural vegetation adjoins a road reserve, no fence is to be constructed between the road reserve and the building clearing area. Elsewhere, no boundary fences are permitted in Vegetation Protection areas identified on the Development Plan, without planning consent of the Council. Where a fence crosses a strategic fire break a gate of approved design is to be provided. Elsewhere, boundary fencing is to be in accordance with LPP22 - Fencing.

5. Crossovers:
The construction of a crossover to each lot is to be in accordance with Council's specifications.

6. Potable Water:
Each dwelling is to have a water supply from roof catchment of a minimum of 120,000 litres, of which 10,000 litres is to be kept in reserve for fire-fighting purposes and fitted with a standard Camlock valve.

7. Land Management:
The maintenance of any drainage swales, easements, fire breaks and Vegetation Protection areas on private property is the responsibility of the owner/occupier.

8. Bores, Dams and Water Courses:
The sinking of bores, construction of dams and extraction of surface water is not permitted without the approval of the Council and relevant State Government department.

9. Fire Control:
A Bush Fire Management Plan applies to this area and includes specific Bushfire Management provisions that must be adhered to by property owners. All buildings to be constructed to AS3959. No development is to occur in areas of extreme bushfire risk.

10. Permitted Uses:
A single house and associated outbuildings are the only permitted uses. Other uses specified in the Town Planning Scheme may be approved at the discretion of the Council. Approval is required for a home business but not for a home office. For any use that may result in degradation of land or water resources or nuisance to neighbours, a management plan may be required as a condition of development approval.

11. Stocking Restrictions:
The keeping of any grazing animal or stock on any property shall be in accordance with LPP 24 - Stocking Rates.

12. Poultry:
The keeping of poultry for domestic purposes is permitted, in accordance with the Shire's Health Local Law.

13. Vegetation Protection Areas:
Vegetation Protection Areas are defined on the Development Plan as all naturally vegetated areas. In the areas identified for the preservation of trees a maximum clearing area of 2,000m2 is permitted, other than for driveways and required firebreaks. Council may require a landowner, as a condition of approval, to commence tree planting to its specification, and to maintain those trees for a period of not less than two summer seasons'.

14. Non-reflective Materials:
All buildings shall be constructed with roofs of non-reflective materials.

15. Effluent Disposal:
Alternative Treatment Units (ATUs) with nutrient retention capability are required on all lots unless proven otherwise by the developer / landowner in accordance with the soil capability for the site.

16. Vendor Responsibility:
The developer/vendor shall inform prospective purchasers of the lots, in writing, of the provisions of the Council's Town Planning Scheme relating to the management of the land, as specified in the Development Plan and Fire Management Plan.

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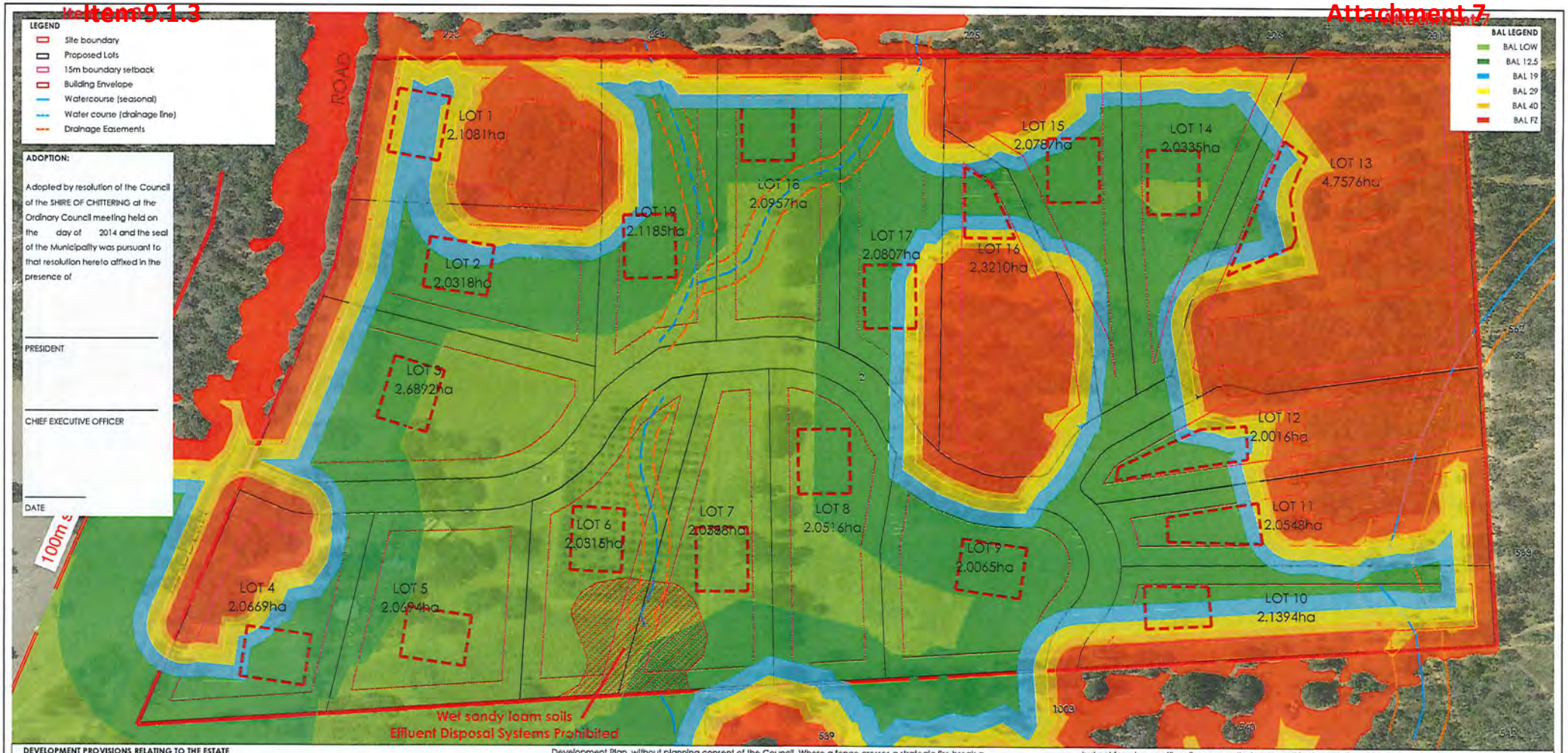
Attachment 2 Proposed Development Plan

2 July 2014

OUTLINE DEVELOPMENT PLAN
LAYOUT
LOT 2 MADDERN ROAD, CHITTERING
SHIRE OF CHITTERING

7/1 ALVAN STREET MT LAWLEY W.A. 6050 POSTAL ADDRESS: PO BOX 289 MT LAWLEY, W.A. 6929
phone: (08) 9271 8504 fax: (08) 9271 2597 email: admin@landinsight.com.au

All dimensions and areas subject to survey PLAN NO: 935-09 SCALE: 1:3000 (A3)



DEVELOPMENT PROVISIONS RELATING TO THE ESTATE

1. Development Plan:
This Development Plan has been endorsed by the Shire Council. Subdivision and development should generally be in accordance with this Plan.

2. Development Requirements and Lot Sizes:
In considering development and subdivision of the land, the requirements of the Shire of Chittering Town Planning Scheme No. 6 for the Rural Residential Zone apply.

3. Building Envelopes:
Buildings, water tanks, waste disposal and a building protection zone for fire management are to be contained within a cleared area not to exceed a maximum of 2000m² without the prior approval of Council; prior to confirming a building clearing area a vegetation survey is to be undertaken to ensure no rare or endangered flora is present; buildings are to have setbacks in accordance Local Planning Policy No. 18 Setbacks, with minimum setbacks from cadastral boundaries as follows:

Road	20 metres
Rear	20 metres
Sides	15 metres

4. Fencing:
In accordance with Local Planning Policy No. 22 - Fences, the construction of a fence is permitted within the building clearing area, any previously cleared area and adjoining an authorised fire break. Where natural vegetation adjoins a road reserve, no fence is to be constructed between the road reserve and the building clearing area. Elsewhere, no boundary fences are permitted in Vegetation Protection areas identified on the Development Plan, without planning consent of the Council. Where a fence crosses a strategic fire break a gate of approved design is to be provided. Elsewhere, boundary fencing is to be in accordance with LPP22 - Fencing.

5. Crossovers:
The construction of a crossover to each lot is to be in accordance with Council's specifications.

6. Potable Water:
Each dwelling is to have a water supply from roof catchment of a minimum of 120,000 litres, of which 10,000 litres is to be kept in reserve for fire-fighting purposes and fitted with a standard Camlock valve.

7. Land Management:
The maintenance of any drainage swales, easements, fire breaks and Vegetation Protection areas on private property is the responsibility of the owner/occupier.

8. Bores, Dams and Water Courses:
The sinking of bores, construction of dams and extraction of surface water is not permitted without the approval of the Council and relevant State Government department.

9. Fire Control:
A Bush Fire Management Plan applies to this area and includes specific Bushfire Management provisions that must be adhered to by property owners. All buildings to be constructed to AS3959. No development is to occur in areas of extreme bushfire risk.

10. Permitted Uses:
A single house and associated outbuildings are the only permitted uses. Other uses specified in the Town Planning Scheme may be approved at the discretion of the Council. Approval is required for a home business but not for a home office. For any use that may result in degradation of land or water resources or nuisance to neighbours, a management plan may be required as a condition of development approval.

11. Stocking Restrictions:
The keeping of any grazing animal or stock on any property shall be in accordance with LPP 24 - Stocking Rates.

12. Poultry:
The keeping of poultry for domestic purposes is permitted, in accordance with the Shire's Health Local Law.

13. Vegetation Protection Areas:
Vegetation Protection Areas are defined on the Development Plan as all naturally vegetated areas. In the areas identified for the preservation of trees a maximum clearing area of 2,000m2 is permitted, other than for driveways and required firebreaks. Council may require a landowner, as a condition of approval, to commence tree planting to its specification, and to maintain those trees for a period of not less than two summer seasons'.

14. Non-reflective Materials:
All buildings shall be constructed with roofs of non-reflective materials.

15. Effluent Disposal:
Alternative Treatment Units (ATUs) with nutrient retention capability are required on all lots unless proven otherwise by the developer / landowner in accordance with the soil capability for the site.

16. Vendor Responsibility:
The developer/vendor shall inform prospective purchasers of the lots, in writing, of the provisions of the Council's Town Planning Scheme relating to the management of the land, as specified in the Development Plan and Fire Management Plan.

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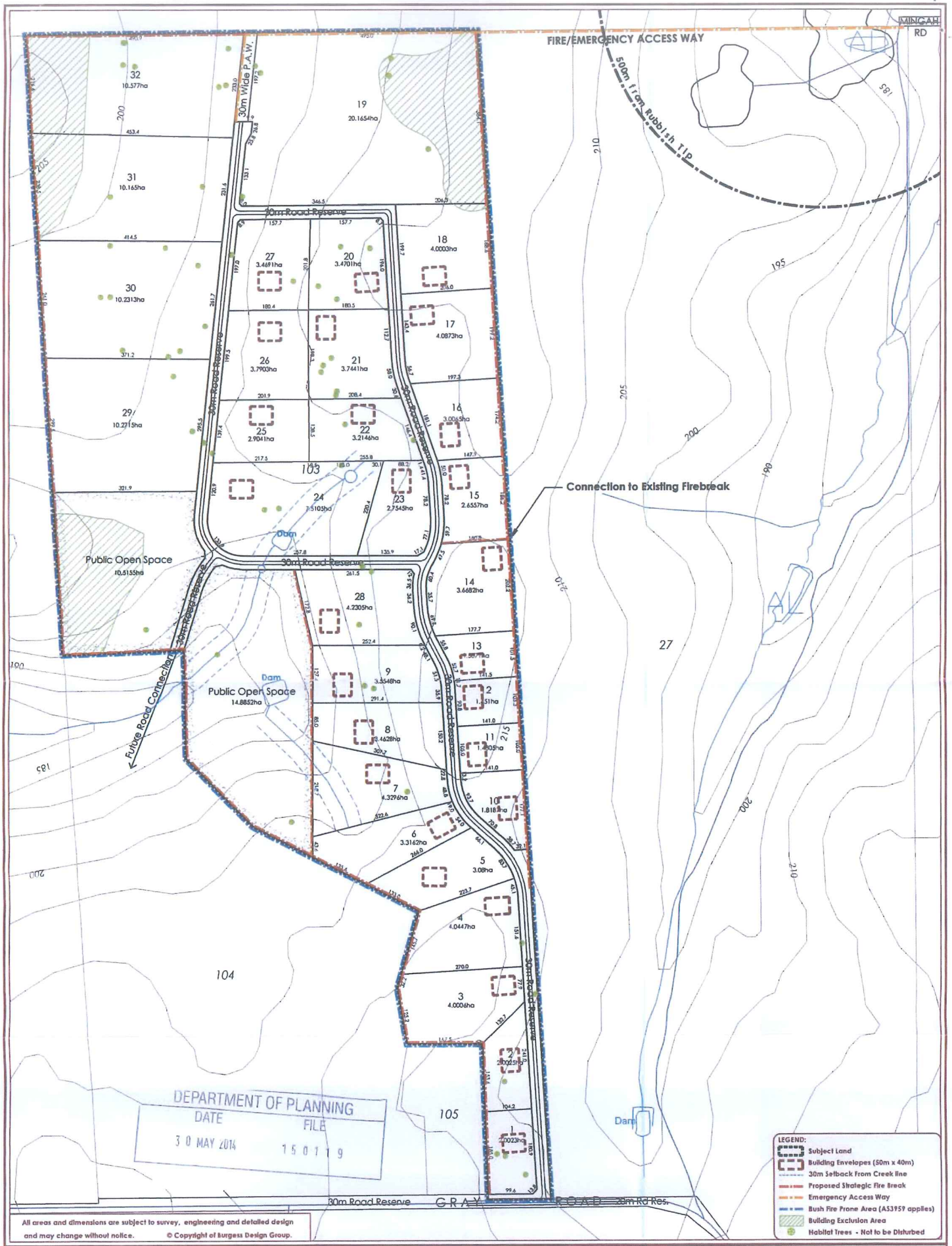
Attachment 7 Draft Post BAL Assessment Plan

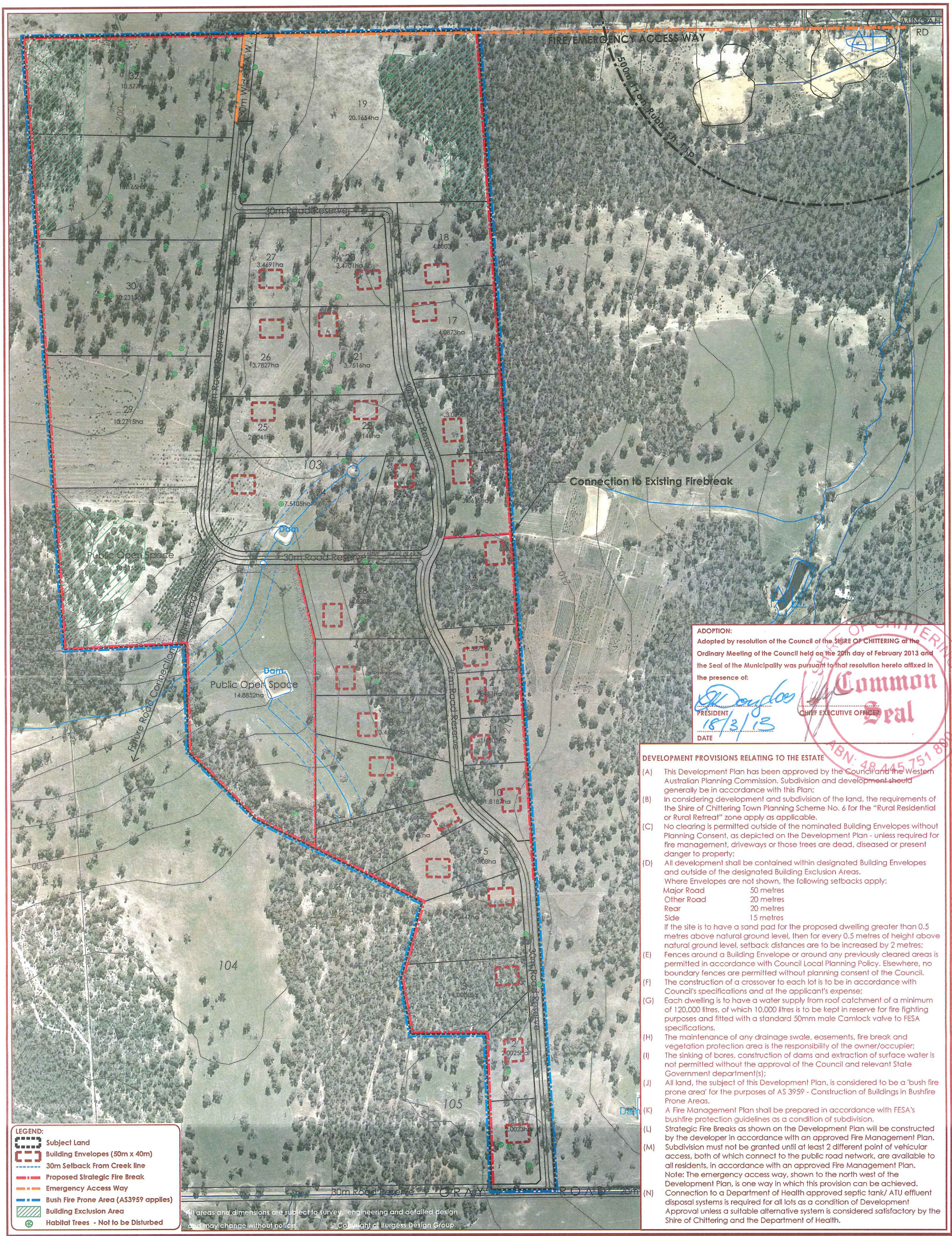
NORTH

OUTLINE DEVELOPMENT PLAN
LAYOUT
LOT 2 MADDERN ROAD, CHITTERING
SHIRE OF CHITTERING

1/3 ALVAN STREET MT LAWLEY W.A. 6050 POSTAL ADDRESS: PO BOX 289 MT LAWLEY W.A. 6929
phone: (08) 9271 8404 fax: (08) 6161 2697 email: admin@landinsights.com.au

All dimensions and areas subject to survey PLAN NO: 955-09 SCALE 1:3000 (A3) DATE June 2014


FIRE/EMERGENCY ACCESS WAY
500m from Rubbish Tip
MINGAH RD
30m Wide P.A.W.
30m Road Reserve
Connection to Existing Firebreak
Public Open Space
10.5135ha
Public Open Space
14.8852ha
Future Road Connection
Dam
Dam
Dam
GRAY ROAD 20m Rd Res.
32 10.577ha
31 10.165ha
30 10.2313ha
29 10.2715ha
19 20.1654ha
18 4.0003ha
17 4.0873ha
16 3.0065ha
15 2.6557ha
14 3.6682ha
13 3.5877ha
27 3.4691ha
20 3.4701ha
26 3.7903ha
21 3.7441ha
25 2.9041ha
22 3.2146ha
24 3.5105ha
23 2.7545ha
28 4.2305ha
9 3.3548ha
8 3.4628ha
7 4.3296ha
6 3.3162ha
5 3.08ha
4 4.0447ha
3 4.0006ha
2 2.0025ha
11 1.4005ha
10 1.8188ha
103
104
105
27
DEPARTMENT OF PLANNING
DATE 30 MAY 2014
FILE 150119
All areas and dimensions are subject to survey, engineering and detailed design and may change without notice.
© Copyright of Burgess Design Group.
LEGEND:
Subject Land
Building Envelopes (50m x 40m)
30m Setback From Creek line
Proposed Strategic Fire Break
Emergency Access Way
Bush Fire Prone Area (AS3959 applies)
Building Exclusion Area
Habitat Trees - Not to be Disturbed
LOT YIELD SUMMARY
2.0-6.0ha 25 Lots
6.0ha+ 7 Lots
Total 32 Lots
Lot 103 189.3562ha
POS 25.4007ha (13.41%)
NORTH
0 100 200 300 400 500m
SCALE 1:7,500 (A3)
PROPOSED SUBDIVISION
Lot 103 Gray Road
Bindoon
burgess design group
TOWN PLANNING + URBAN DESIGN
PO Box 8729 Perth BC WA 6849
www.burgessdesigngroup.com.au
P (08) 9328 6411
F (08) 9328 4062
Plan No: FOU SIN-2-07i DP Client: Foulkes-Taylor
Date: 07.01.13 Planner: JP
SHIRE OF CHITTERING



ADOPTION:

Adopted by resolution of the Council of the SHIRE OF CHITTERING at the Ordinary Meeting of the Council held on the 20th day of February 2013 and the Seal of the Municipality was pursuant to that resolution hereto affixed in the presence of:

PRESIDENT

CHIEF EXECUTIVE OFFICER

DATE 18/3/13

SHIRE OF CHITTERING Common Seal ABN: 48 445 751 899

DEVELOPMENT PROVISIONS RELATING TO THE ESTATE

(A) This Development Plan has been approved by the Council and the Western Australian Planning Commission. Subdivision and development should generally be in accordance with this Plan;

(B) In considering development and subdivision of the land, the requirements of the Shire of Chittering Town Planning Scheme No. 6 for the "Rural Residential or Rural Retreat" zone apply as applicable.

(C) No clearing is permitted outside of the nominated Building Envelopes without Planning Consent, as depicted on the Development Plan - unless required for fire management, driveways or those trees are dead, diseased or present danger to property;

(D) All development shall be contained within designated Building Envelopes and outside of the designated Building Exclusion Areas.
Where Envelopes are not shown, the following setbacks apply:

Major Road	50 metres
Other Road	20 metres
Rear	20 metres
Side	15 metres

If the site is to have a sand pad for the proposed dwelling greater than 0.5 metres above natural ground level, then for every 0.5 metres of height above natural ground level, setback distances are to be increased by 2 metres;

(E) Fences around a Building Envelope or around any previously cleared areas is permitted in accordance with Council Local Planning Policy. Elsewhere, no boundary fences are permitted without planning consent of the Council.

(F) The construction of a crossover to each lot is to be in accordance with Council's specifications and at the applicant's expense;

(G) Each dwelling is to have a water supply from roof catchment of a minimum of 120,000 litres, of which 10,000 litres is to be kept in reserve for fire fighting purposes and fitted with a standard 50mm male Camlock valve to FESA specifications.

(H) The maintenance of any drainage swale, easements, fire break and vegetation protection area is the responsibility of the owner/occupier;

(I) The sinking of bores, construction of dams and extraction of surface water is not permitted without the approval of the Council and relevant State Government department(s);

(J) All land, the subject of this Development Plan, is considered to be a 'bush fire prone area' for the purposes of AS 3959 - Construction of Buildings in Bushfire Prone Areas.

(K) A Fire Management Plan shall be prepared in accordance with FESA's bushfire protection guidelines as a condition of subdivision.

(L) Strategic Fire Breaks as shown on the Development Plan will be constructed by the developer in accordance with an approved Fire Management Plan.

(M) Subdivision must not be granted until at least 2 different point of vehicular access, both of which connect to the public road network, are available to all residents, in accordance with an approved Fire Management Plan.
Note: The emergency access way, shown to the north west of the Development Plan, is one way in which this provision can be achieved.

(N) Connection to a Department of Health approved septic tank/ ATU effluent disposal systems is required for all lots as a condition of Development Approval unless a suitable alternative system is considered satisfactory by the Shire of Chittering and the Department of Health.

LOT YIELD SUMMARY	
2.0-6.0ha	25 Lots
6.0ha+	7 Lots
Total	32 Lots
Lot 103	189.3562ha
POS	25.4007ha (13.41%)

NORTH

0 100 200 300 400 500m

SCALE 1:7,500 (A3)

DEVELOPMENT PLAN

Lot 103 Gray Road, Bindoon

SHIRE OF CHITTERING

burgess design group
TOWN PLANNING + URBAN DESIGN
PO Box 374 Northbridge WA 6865
www.burgessdesigngroup.com.au
P (08) 9328 6411
F (08) 9328 6511

Plan No: FOU BIN-2-07i_DP Client: Foulkes-Taylor
Date: 07.01.13 Planner: JP

NOISE SURVEY – BLUEBERRY BLISS LOT 500 GREAT NORTHERN HIGHWAY, BINDOON

Assessment

The assessment has examined the gas gun and electronic bird scarer emissions against the LAmax assigned level and the electronic scarer against the LA10 assigned level. The assessment has consider the assigned levels that apply to 'highly sensitive' areas, that is locations within 15m of a house and 'non-sensitive' areas, those that apply at other locations greater than 15m from a house. With regard to the highly sensitive area assigned levels, the influencing factor has been determined to be 0dB on the basis of the most recent Main Roads traffic data for Great Northern Hwy south of Flat Rocks Road showing 2570 vehicles/day (2008/09). At this traffic volume Great Northern Hwy would not be considered a major or secondary road under the *Environmental Protection (Noise) Regulations 1997* (Regulations). Consequently, the applicable assigned levels are presented in Table 1 below.

Table 1: Assigned Levels

Type of premises receiving noise	Time of day	Assigned level (dB)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
Noise sensitive premises: highly sensitive area	0700 to 1900 hours Monday to Saturday	45	55	65
	0900 to 1900 hours Sunday and public holidays	40	50	65
	1900 to 2200 hours all days	40	50	55

Type of premises receiving noise	Time of day	Assigned level (dB)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	35	45	55
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80

It was noted the clock time of the meter was incorrect so the officers notes and voiced comments in the audio recording were used to establish the meter time was approximately 3 hours and 34 minutes in advance of the measurement time. The reported times below have been adjusted accordingly.

Audio recordings were used to identify the one second logged periods affected by the relevant noise emission.

Assessment against the LAmax assigned level

At each location gas gun blasts were identified by the audio recording and the one second logged data associated with each blast was examined for impulsiveness in accordance with regulation 9 of the Regulations. At location 1 the high noise level [> 55dB(A)] of the electronic scarer was also assessed against the LAmax assigned level in a similar manner.

Assessment against LA10 assigned level

The electronic scarer noise was regular and cyclic, sounding for 11s and off for 9s (approx.) before repeating. Because the scarer noise is present for 11 out of every 20 seconds, the emission is present for more than 10% of the representative assessment period (RAP), so can be assessed against the LA10 assigned level [the level not be exceed for more than 10% of the RAP].

Noise of this nature emitted during the daytime is usually assessed over a 4 hour RAP, requiring the noise be present for at least 24 minutes for assessment against the LA10 assigned level. However, the measurements in this instance were short, 10 – 15 minutes duration, so the assessment has assumed the noise continues in a similar manner over a RAP. Because the measurements show the noise level of the scarer is quite variable, probably due to changing wind direction the assessment has looked at three scenarios:

1. Worst case – taking the highest LA10 level for a complete cycle (i.e. the period from the start of one scarer noise emission to the start of the next scarer noise emission) measured at each location and assuming that the scarer will sound at or above this level for at least 24 minutes in the 4 hour period.

2. Best case - taking the lowest LA10 level for a complete cycle measured at each location and assuming the scarer will sound at this level for at least 24 minutes in the 4 hour period.

3. Average case – takes into consideration the variation in the level of the emission over the measurement period and assumes a similar LA10 level would be recorded over a 4 hour period.

In all instances the measured LA10 levels were adjusted for the presence of tonality (+5dB) and modulation (+5dB) and presented as the adjusted levels for the purpose of assessment against the assigned levels.

Results

LAmax assessment

The results of the LAmax assessment are presented in Table 2 below:

Table 2: LAmax Assessment Results

LAmax Assessment Results								
Location	Time (approx)	Source	Impulsive	Adjusted Level	Assigned Level (highly sensitive)	Exceedence	Assigned Level (non-sensitive)	Exceedence
1	10:38	Gas gun	YES	76.4	65	11.4	80	-3.6
1	10:38	Gas gun	YES	75.5	65	10.5	80	-4.5
1	10:40	Electronic Scarer	YES	61.3	65	-3.7	80	-18.7
1	10:40	Electronic Scarer	-	54.8	65	-10.2	80	-25.2
1	10:40	Electronic Scarer	-	61.4	65	-3.6	80	-18.6
1	10:40	Electronic Scarer	-	55.8	65	-9.2	80	-24.2
1	10:40	Electronic Scarer	-	59	65	-6	80	-21
1	10:41	Electronic Scarer (no audio)	-	66.6	65	1.6	80	-13.4
1	10:41	Electronic Scarer (no audio)	YES	68	65	3	80	-12
1	10:41	Electronic Scarer (no audio)	-	63.2	65	-1.8	80	-16.8
1	10:44	Electronic scarer noise levels drops to below 55dB (LASmax), possibly due to wind change, so not assessed beyond this time.						
1	10:47	Gas gun	YES	78	65	13	80	-2
1	10:47	Gas gun	YES	78.2	65	13.2	80	-1.8
2	11:01	Gas gun	YES	57.8	65	-7.2	80	-22.2
2	11:01	Gas gun	YES	59.9	65	-5.1	80	-20.1
2	11:05	Gas gun	YES	58.4	65	-6.6	80	-21.6
2	11:05	Gas gun	YES	61.3	65	-3.7	80	-18.7
2	11:10	Gas gun	YES	60.7	65	-4.3	80	-19.3
2	11:10	Gas gun	YES	60.4	65	-4.6	80	-19.6
2	11:14	Gas gun	YES	58.4	65	-6.6	80	-21.6
2	11:14	Gas gun	YES	63.8	65	-1.2	80	-16.2
3	11:26	Gas gun	YES	63	65	-2	80	-17

3	11:26	Gas gun	YES	65.3	65	0.3	80	-14.7
3	11:30	Gas gun	YES	66	65	1	80	-14
3	11:30	Gas gun	YES	60.5	65	-4.5	80	-19.5
3	11:35	Gas gun	YES	57.9	65	-7.1	80	-22.1
3	11:35	Gas gun	YES	57.4	65	-7.6	80	-22.6
4	11:51	Gas gun	YES	64.6	65	-0.4	80	-15.4
4	11:51	Gas gun	YES	65.1	65	0.1	80	-14.9
4	11:54	Gas gun	YES	63.8	65	-1.2	80	-16.2
4	11:54	Gas gun	YES	64.5	65	-0.5	80	-15.5
4	11:58	Gas gun	YES	63.3	65	-1.7	80	-16.7
4	11:58	Gas gun	YES	62.6	65	-2.4	80	-17.4
4	12:02	Gas gun	YES	61.4	65	-3.6	80	-18.6
4	12:02	Gas gun	YES	60.8	65	-4.2	80	-19.2
5	12:21	Gas gun	YES	58.7	65	-6.3	80	-21.3
5	12:21	Gas gun	YES	56.1	65	-8.9	80	-23.9
5	12:25	Gas gun	YES	63.6	65	-1.4	80	-16.4
5	12:25	Gas gun	YES	64.9	65	-0.1	80	-15.1
6	12:47	Gas gun	YES	48	65	-17	80	-32
6	12:47	Gas gun	YES	46.6	65	-18.4	80	-33.4
6	12:51	Gas gun	YES	49.8	65	-15.2	80	-30.2
6	12:51	Gas gun	YES	47.7	65	-17.3	80	-32.3

The results show no exceedence of the LAmax assigned levels for ‘non-sensitive’ areas (more than 15m from a house) at any of the locations. Only location 1 measured any significant exceedence of the assigned level for ‘highly sensitive’ areas (within 15m of a house). The exceedences by the electronic scarer relate to measurements for which no audio was recorded so it is not possible to be completely confident the exceedences relate to the scarer. However the shape of the one-third octave spectrum at the time of the “no audio” measurement is similar to that during the measurement with audio, as shown in Figures 1a and 1b below, identifying the scarer as a probable source of the noise emission.

Figure 1a: Example electronic scarer spectrum – with audio

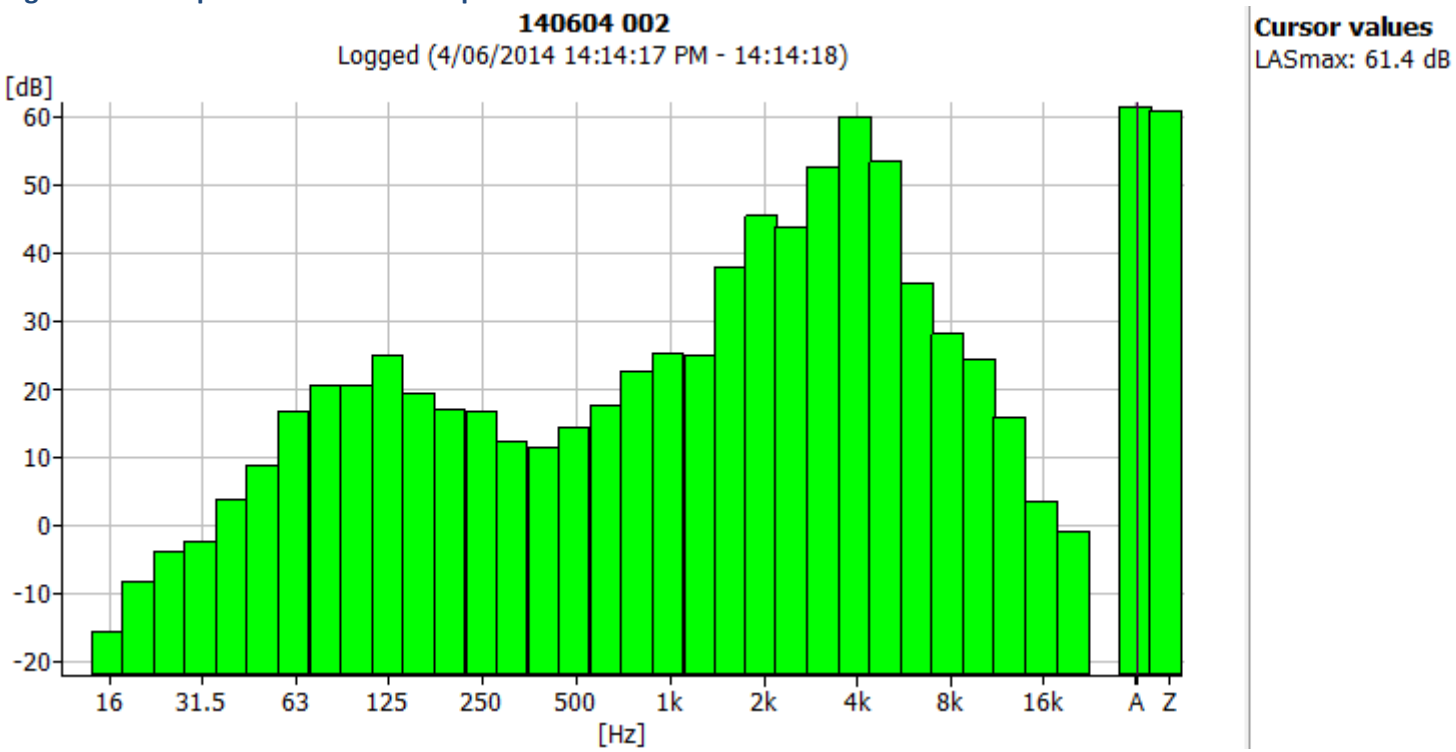
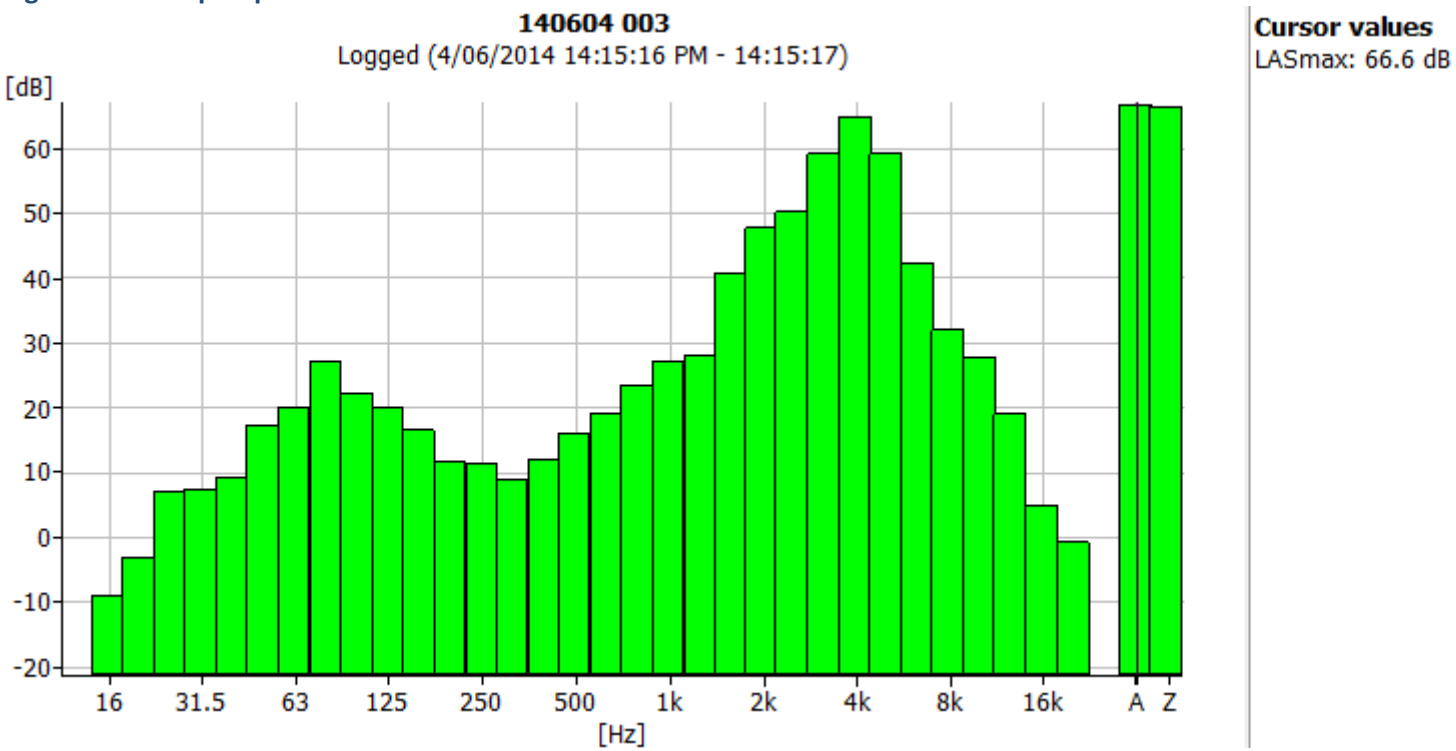


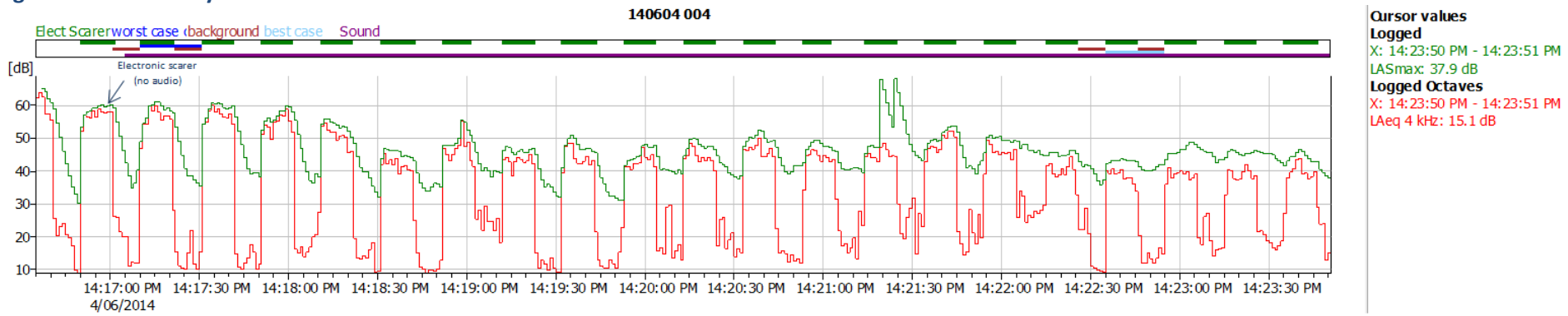
Figure 1b: Example spectrum – without audio



The time history of the one second measurements at location 1 are presented in Figure 2 below. The green line is the measured LASmax broadband level and the red line is the LAeq level of the 4kHz one third octave band, this the dominant frequency band of the electronic scarer noise and corresponds to the high frequency peak in the spectrums shown above (Figures 1a and 1b). By the way the low frequency peaks in the figures above relates to distant traffic noise. The “on/off” cycle of the scarer is shown by the peaks and troughs of the red line in Figure 2. The first complete peak in the time history identifies a scarer emission for which there was no audio recording. The audio recording (*Sound)* is identified by the purple horizontal line in the box above the time history trace, it can be seen that it begins just after the first complete peak of the red line, showing audio is available for the rest of the time history after this point.

The two peaks in the green line at about 14:21:30 relate to the two gas gun blasts at 10:47 in Table 2 above.

Figure 2: Time history - location 1



LA10 assessment – Location 1

The results of the LA10 assessment at location 1 are presented in Table 3 below.

Table 3: LA10 assessment results – location 1

Location	Source	LA10 Measured Level						Assigned Level		LA10 Adjusted Level								
		Worst Case	Based on	Average Case	Based on	Best Case	Based on	Highly sensitive	Non-sensitive	Worst Case	Worst Case Exceedence (dB)		Average Case	Average Case Exceedence (dB)		Best Case	Best Case Exceedence (dB)	
		dB(A)		dB(A)		dB(A)		dB(A)	dB(A)	dB(A)	Highly sensitive	Non-sensitive	dB(A)	Highly sensitive	Non-sensitive	dB(A)	Highly sensitive	Non-sensitive
1	Electronic Scarer	60.1	LAS10	53.0	LAS10 (4kHz)	39.9	LAS10 (4kHz)	45	60	70	25	10	63	18	3	50	5	-10

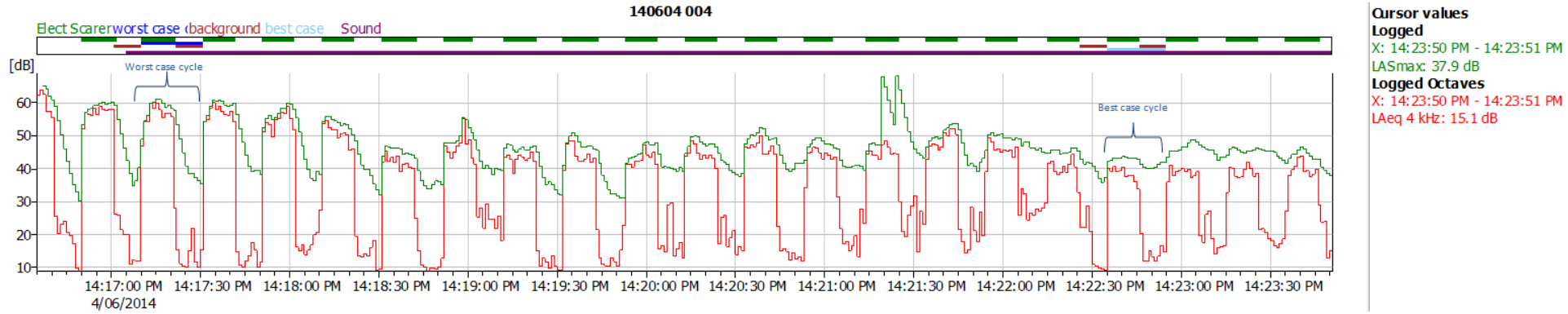
Examining the time history presented in Figure 3 below it can be seen that at the start of the measurement the broadband noise levels (green line) are driven by the electronic scarer during its operation (indicated by the red line). However towards the end of the measurement the electronic scarer noise level drops (red line) and so the broadband levels become independent of the scarer levels as the influence of background noise takes over. Because of this the 'worst case' assessment (worst case cycle - Figure 3) is based on the broadband LAS level [LAS10] as the scarer noise completely dominates at this time, however the 'best case' assessment (best case cycle – Figure 3) is based upon the 4 kHz one-third octave band [LAS10(4kHz)]. The 4 kHz one-third octave band, unlike the broadband levels, is largely unaffected by background noise (in particular traffic noise) so can be used as a conservative measure of the scarer noise. I say conservative as it will understate the level of the scarer a little as there is clearly sound energy from the scarer contained in other

frequencies, in particular the 3.15kHz and 5 kHz bands (refer to spectrums in Figure 1 above). The only way for us to properly incorporate these bands is to filter and re-analyse the recorded wave files which is a time consuming process, but by way of guidance the excluded bands would not contribute more than 2dB to the 4 kHz measured levels.

Similarly, as the 'average case' assessment is based upon the scarer noise over the whole measurement period the influence of background noise needs to be negated, so the assessment is based upon the 4kHz one-third octave band levels [LAS10(4kHz)].

From Table 3 above it can be seen that the 'highly sensitive' area assigned level is exceeded for all three scenarios, while the 'non-sensitive' area assigned level is only exceeded in the average and worst case scenarios. Even when allowing for the underestimate of the level produced by the 4kHz one-third octave assessment method the 'best case' scenario would still comply with the non-sensitive assigned level.

Figure 3: Time history - location 1



LA10 assessment – Location 2

The results of the LA10 assessment at location 2 are presented in Table 4 below.

Table 4: LA10 assessment results – location 2

Location	Source	LA10 Measured Level						Assigned Level		LA10 Adjusted Level								
		Worst Case	Based on	Average Case	Based on	Best Case	Based on	Highly sensitive	Non-sensitive	Worst Case	Worst Case Exceedence (dB)		Average Case	Average Case Exceedence (dB)		Best Case	Best Case Exceedence (dB)	
		dB(A)		dB(A)		dB(A)		dB(A)	dB(A)	dB(A)	Highly sensitive	Non-sensitive	dB(A)	Highly sensitive	Non-sensitive	dB(A)	Highly sensitive	Non-sensitive
2	Electronic Scarer	45.3	LAS10 (3.15kHz)	42.0	LAS10 (3.15kHz)	37.8	LAS10 (3.15kHz)	45	60	55	10	-5	52	7	-8	48	3	-12

At location 2 the measurements are more affected by distant traffic noise than at location 1, so in all three cases (worst, average and best) the scarer noise assessment has been based upon the scarer's dominant one-third octave band, in this instance the 3.15kHz band. The average one-third octave spectrum during the operation of the scarer is presented in Figure 4 below. The influence of traffic noise can be seen in the low frequencies 63-250Hz while the electronic scarer is in the higher 2-4kHz range.

Figure 4: Average frequency spectrum during electronic scarer operation

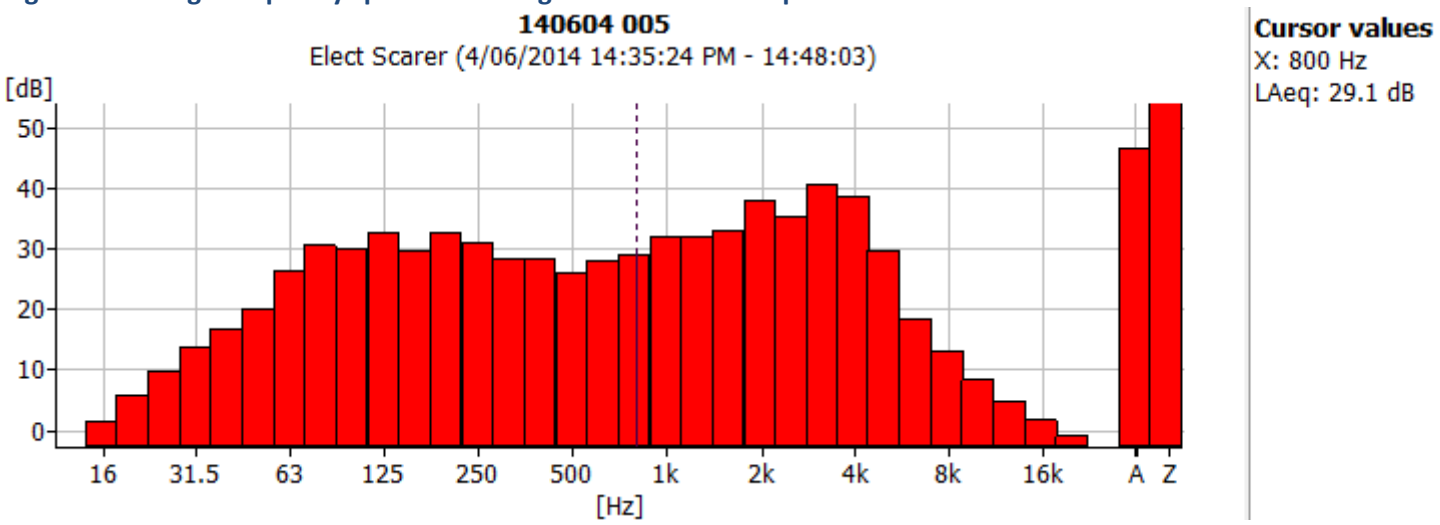


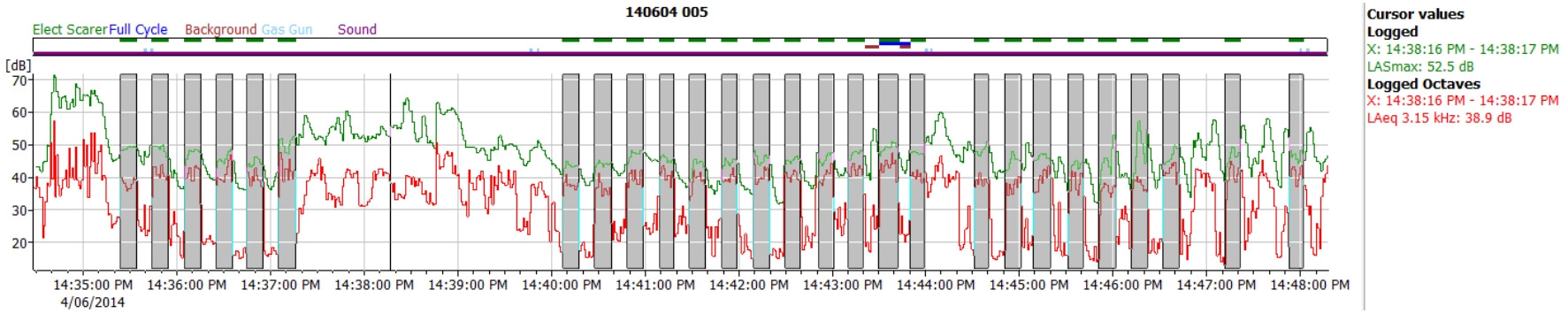
Figure 5 below shows the time history of noise levels at location 2. The green line is the broadband levels while the red line is the level of the 3.15kHz one-third octave band. The vertical grey bars (corresponding to the green horizontal marker bars in the box above the time history profile) represent the

'marked' time periods that are used to calculated the average case LA10 levels. Periods of the time history where the scarer is operating but extraneous noise is affecting the 3.15kHz band have not been marked so as not to affected the calculation of the scarer noise level.

Best and worst case scarer noise cycles were selected in the same way as for location 1 (these are not shown in Figure 5).

With regard to the 'highly sensitive' area assigned level the scarer noise at location 2 does not comply for any of the three scenarios, but does comply in all cases with the 'non-sensitive' assigned level.

Figure 5: Time history - location 2



LA10 assessment locations 3,4 and 5.

The results of the LA10 assessment at locations 3, 4 and 5 are presented in Table 5 below.

Table 5: LA10 assessment results – locations 3,4 and 5

Location	Source	LA10 Measured Level						Assigned Level		LA10 Adjusted Level								
		Worst Case	Based on	Average Case	Based on	Best Case	Based on	Highly sensitive	Non-sensitive	Worst Case	Worst Case Exceedence (dB)		Average Case	Average Case Exceedence (dB)		Best Case	Best Case Exceedence (dB)	
		dB(A)		dB(A)		dB(A)		dB(A)	dB(A)	dB(A)	Highly sensitive	Non-sensitive	dB(A)	Highly sensitive	Non-sensitive	dB(A)	Highly sensitive	Non-sensitive
3	Electronic Scarer	35.8	LAS10 (3.15kHz)	33.0	LAS10 (3.15kHz)	29.7	LAS10 (3.15kHz)	45	60	46	1	-14	43	-2	-17	40	-5	-20
4	Electronic Scarer	33.6	LAS10 (3.15kHz)	32.0	LAS10 (3.15kHz)	26.9	LAS10 (3.15kHz)	45	60	44	-1	-16	42	-3	-18	37	-8	-23
5	Electronic Scarer	28.7	LAS10 (3.15kHz)	27.0	LAS10 (3.15kHz)	24.5	LAS10 (3.15kHz)	45	60	39	-6	-21	37	-8	-23	35	-11	-26

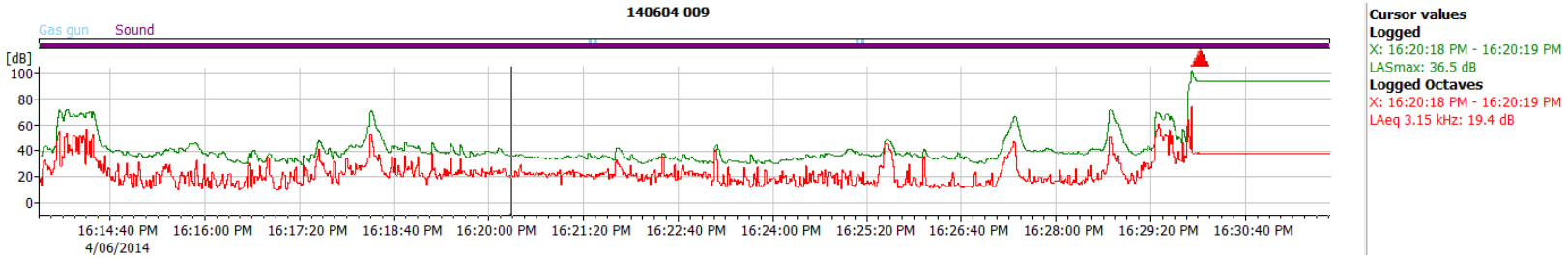
Again the influence of traffic noise at these three locations was significant, so the assessment was based on the 3.15kHz one-third octave band for all scenarios. These locations were more impacted by extraneous noise than location 1 and 2, resulting in relatively short periods on measurable scarer noise; between 00:20 – 02:12 (minute:second). Such short measurement periods may not be representative of the emission over the longer term and should be taken into consideration when interpreting these results, in particular at location 5 where only 20 seconds of unaffected scarer noise was captured.

The results generally show compliance with both the 'highly sensitive' area and the 'non-sensitive' area assigned levels for all three scenarios at all three locations. The exception being an insignificant 1dB exceedence of the 'highly sensitive' area assigned level for the worst case scenario at location 3.

LA10 assessment location 6.

The electronic scarer was not audible in the audio record at location 6 and no evidence of it could be found in the one-third octave band time history. Figure 6 shows the time history of the broadband level (green line) and the 3.15kHz one-third octave level for the measurement period at this location.

Figure 6: time history – location 6



Conclusion

The Lamax assigned level was only found to be significantly exceeded at location 1, however this was only in relation to the 'highly sensitive' area assigned level. It is understood that location 1 is not near to a residence, so the 'highly sensitive' assigned level would not apply to this location in any case. The applicable 'non-sensitive' area assigned level was found to comply for all scenarios.

The LA10 assigned level was found to be significantly exceeded at locations 1 and 2 and essentially compliant at all other locations. At location 1, as noted above, the 'non-sensitive' area assigned level is most applicable. This assigned level was exceeded for both the worst case and average case scenarios indicting that on any given occasion the use of the electronic scarer is quite likely to exceed the assigned level at this location.

At location 2 the exceedence of the LA10 assigned levels was limited to the level applicable for a 'highly sensitive' area. Location 2 is understood to be remote from any residence so the 'highly sensitive' area assigned level would not apply, while the 'non-sensitive' assigned level was complied with for all scenarios.

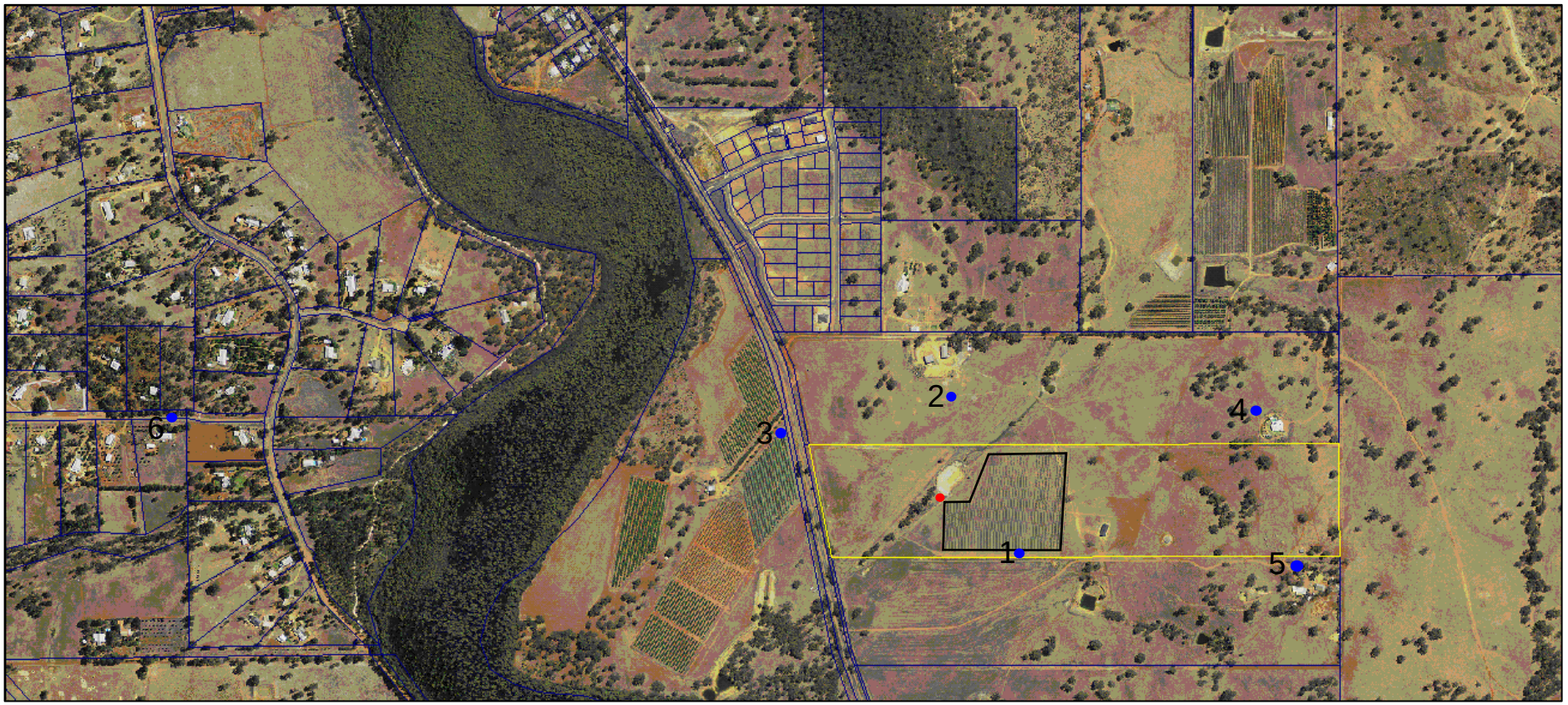
I have attached an Excel file with the complete results tables for the 2 assessments (1st 2 sheets only).

Please get in touch if anything in this assessment is unclear or you would like to discuss it further.

Regards

Jon Button
Noise Regulation Officer

Noise Measurement Locations Around Blueberry Bliss



Gas Gun Location

Noise Measurement Locations

Blueberry Bliss Orchard

Distance From Gas Gun

1: 234m
2: 254m
3: 371m
4: 676m
5: 722m
6: 1591m

BLUEBERRY BLISS NOISE MANAGEMENT PLAN UPDATE

LOT 505 GREAT NORTHERN HIGHWAY BINDOON

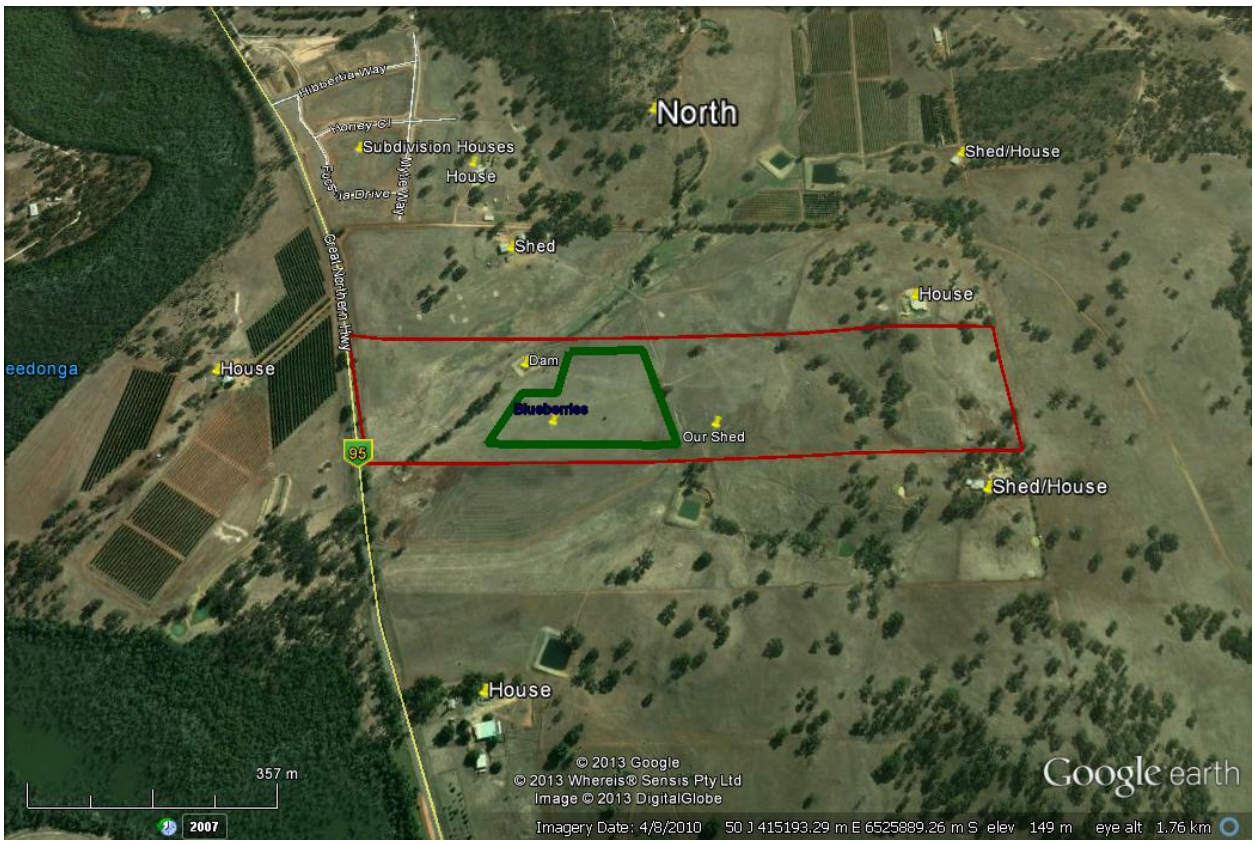
7 July 2014

The Western Australian State Government in consultation with the WA fruit Growers Association has produced *Best Practice Guidelines for Bird Scaring in Orchards noise and threatened species*. These guidelines are intended to help fruit growers, residents and local government authorities manage environmental noise from gas guns and other noisy devices used in orchards. This Noise Management Plan has been prepared based on best practice principles.

1. Overview

"Blueberry Bliss" is a 63 acre property with 8 hectares of blueberries in a major fruit growing district of Bindoon. A small seasonal creek runs through the western side of the property. There are open pasture paddocks to South, East and North, and an orange orchard to the West that is across the road from Great Northern Highway.

The below image outlines our property in red and marks out the nearest location of houses and other structures.



2. Bird Damage

The Blueberries began to ripen in June this year and once again the fruit that was on the plants the week before had gone in the following week. Bird strike resulted in considerable loss of fruit before it was ready to be picked. Last season I spent a lot of time during the day to watch what bird species was doing what in the orchard. This allowed me to prioritise species against which to direct my best efforts. I noticed 28's, black white pink and grey cockatoos, crows, magpies, swallows, willie wagtails, butcher birds and silver eyes. The 28 parrots, black cockatoos, crows, magpies, butcher birds and silver eyes where the main species of birds that where causing damage to our berries.

3. Bird Deterrents

Shooting to kill is the most effective method of reducing damage by birds and may be used for bird species such as 28's. I have written to the Department of Environment and Conservation on 22 August 2013 and received advice on the species that can be shot without a permit. These species include all 28's, white and pink / grey cockatoos, crows, and silver eyes to name a few. That said, shooting to kill is not a management option for protected species including magpies, butcher birds and black cockatoos. The following alternative methods of bird control therefore have been applied.

3.1 Visual bird repellents

Visual bird repellents have been strung above the plants through the orchard consisting of big eyes reflective and visual tape. Rubber snakes have been placed in some plants and rows at different locations of the orchard to provide another visual source of deterrent. The snakes still have a dramatic effect on me when I come across them.

3.2 Vehicles

The operation of vehicles and quad bikes assists in displacing birds from the orchard. To increase the effectiveness we have disconnected a part of the exhaust to the 4 wheel drive vehicle so as it has a greater noise range.

3.3 Firearm

A firearm (.22) is used to shoot unprotected species of birds that are in the orchard. This has had some success however some of the birds just fly from one section to the other. A rifle is used as it limits the damage to irrigation lines and plants compared to a shot gun.

3.4 Gas Gun

The gas gun is located on the south western section of the orchard. This location was selected after moving the gun around in different locations to gauge and limit noise to residential dwellings.

The gas cannon has 2 programmable on/off time settings. It is currently used for two continuous periods per day for a maximum of 4 hours in the morning from first light and 4 hours in the afternoon to the sun sets. Having the ability to vary the time of day that it is turned on is important so as not to get the birds use to a feeding time. It will operate for a maximum of these times from seven days a week. That said, given the recent noise level readings, this time may be extended if bird strike become excessive and requires additional use.

Having experimented with the frequency and times that it is operated, I have found that if it set to go off longer than 14 minutes the birds return to eating the blueberries. Although this can be further refined to find the best balance, a 10 minute interval has provided a high amount of protection. At this time frame the birds perched on nearby trees but where scared off after the gas cannon activated. That said, the minimum interval setting will be set for 11 minutes during its operation and will be monitored to determine if the time can be extended during the picking period from June to the end of February.

Our orchard has sugar gum trees surrounding it on 3 sides that were planted to provide a wind break. I envisage that as these increase in size they will provide a further buffer to the gas cannon. Hay bales have been placed on three sides of the gas cannon to reduce the noise to residence.

The use of the gas cannon will be undertaken as outlined in this plan without the need for someone to be present at all times during its operation. Weekly monitoring of bird

activity will be carried out to determine if any reduction of times and frequency can be achieved.

3.5 Electronic bird scaring speakers

I have been in contact with Bird Gard Pty Ltd, a company in Queensland that specialises in bird protection. They have provided advice on the placement of 4 individual speakers throughout the block. This system has been in use for two weeks resulting in no birds on the first week and heaps of birds returning on the second week. I will continue to have this device on during daylight hours during the fruiting season to act as a continuing deterrent.

3.6 Netting

This will provide a barrier for birds without the need for any noise repellents. That said, the high cost prohibits us implementing this system at the moment. I have received 2 quotes one for $125,000 and another for $213,000 to net the orchard. This cost did not include erecting the poles for the structure or securing points.

We have purchased 30 electricity poles from local contractors and hope to get the additional 20 that we need by September. Once we have a deposit for the netting the company will assist us in providing the location to put the poles and we will start to put them in. At this stage we are still looking at up to a 3 year timeframe to install netting as originally proposed however sooner would be preferable to us as the canopy will provide additional shading and wind protection benefits.

4. Communication

Neighbours have been informed of our bird scaring activities. A letter has been given to them on the 14 June 2014. Please see letter attached.

Upon request, information will be given to neighbours in person or by phone to any changes of time in the use of a gas gun. In addition, a sign will be placed on our front gate alerting nearby residents to the possibility that they may experience noise during the fruit growing season.

5. Complaints

If someone wishes to make a complaint or register a concern they should find it easy to do so. It is Blueberry Blisses' policy to welcome complaints and look upon them as an opportunity to learn, adapt, improve and provide better services. We will ensure that complaints are dealt with properly and that all complaints or comments are taken seriously.

We believe that failure to listen to or acknowledge complaints will lead to an aggravation of problems and support the concept that most complaints, if dealt with early, openly and honestly, can be sorted out. If this fails due to the complainant being dissatisfied with the result the complaint will be referred to local council.

Dear Neighbour

Our blueberry fruiting season will be underway soon at our property Lot 505 Great Northern Highway. During the season, I am required to use methods of bird control that does not harm black cockatoos, which are threatened species and in following the recommended best practices I will continue work to minimise any potential disturbance to you. We are commitment to continually investigate and implement alternative bird control measures balancing the effectiveness and cost.

During the next seven months, we will continue to use a variety of bird scaring techniques to prevent damage to our crop that include:

- Visual bird repellents consisting of big eyes, reflective and visual tape strung above plants in sections of the orchard. Rubber snakes have also been placed in some plants and on the ground in the rows at different locations (and still scare us at times) in the orchard.
- The operation of vehicles and quad bikes has assisted slightly in displacing birds from the orchard. Due to the size of the orchard we have found that birds get scared from one area and fly to another. It is quite time consuming to drive around and chase birds so we have mainly restricted this to driving through different sections of the orchard when picking or driving past the orchard.
- Shooting a small number of Galahs, Twenty-eight parrots and Australian ravens. Shooting to kill is the most effective method of reducing damage by birds and reinforces our other bird scaring devices. That said, shooting to kill is not a management option for protected species including black cockatoos.
- The use of a gas gun that is now located on the Southern edge of our dam wall facing an easterly direction. I believe that this location has reduced the noise where there is the highest number of residential properties. Hay bales have also been placed around the gas gun which has further reduced noise to other properties. The gas gun has 2 programmable on /off time settings that will be set from sunrise to four hours in the morning and 2pm to 6pm in the afternoon at a 15 minute interval. We intend to continue the use of this for no more than two periods per day for 4 hours in the morning and afternoon.
- This year we have included electronic bird scaring speakers which give out distress noises which make birds uneasy.

Our intention is to erect permanent bird netting over the orchard to protect our high value fruit and we have taken steps to get this underway however, the high cost to do this will mean it will take some time to complete.

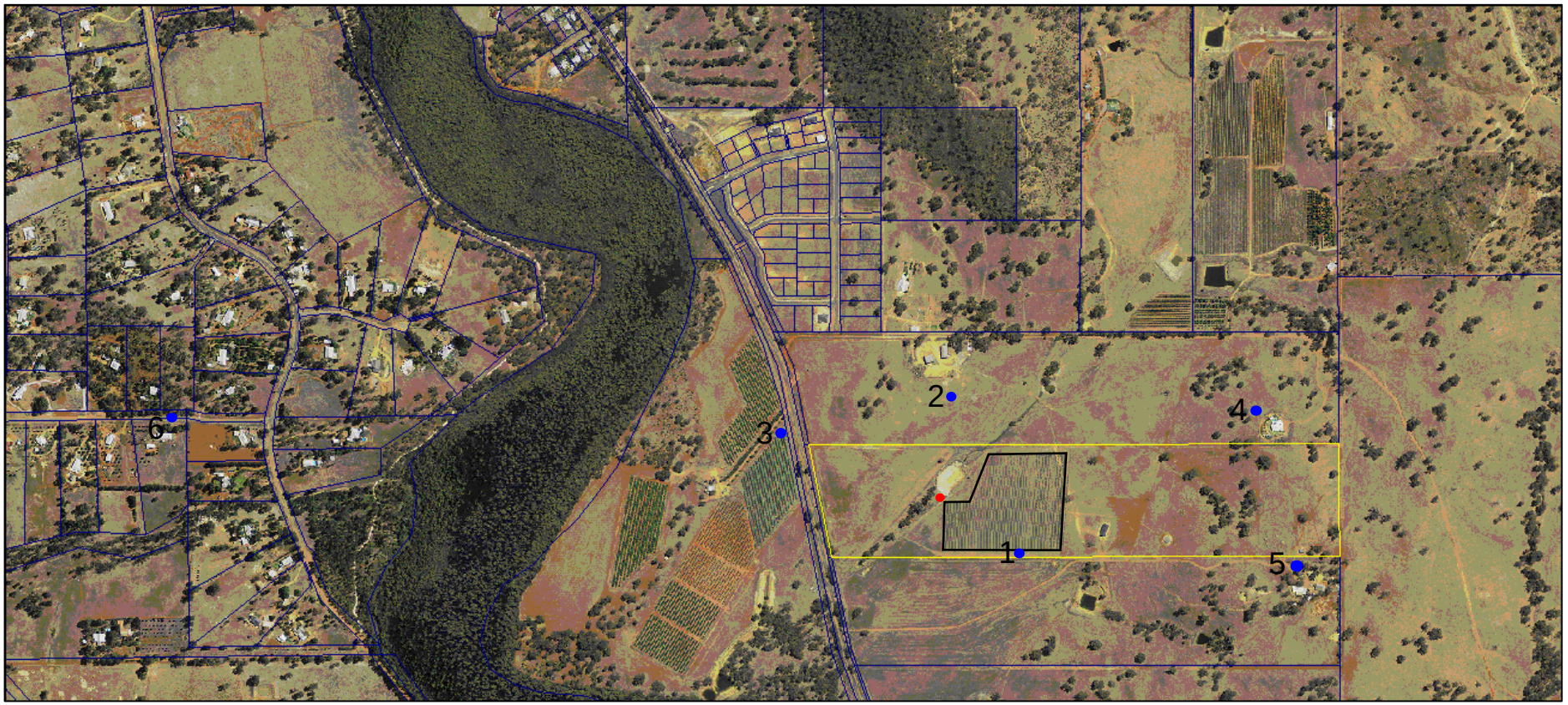
I trust that the above information will better inform you of our bird management plan in regard to minimising any noise impact to your property whist providing for an effective integrated system against bird strike in our orchard. If you have any further questions relating to this please feel free to contact me.

Thank you for your understanding.

Troy Easter
Ph. 0402006103

14/06/2014

Noise Measurement Locations Around Blueberry Bliss



Gas Gun Location

Noise Measurement Locations

Blueberry Bliss Orchard

Distance From Gas Gun

1: 234m
2: 254m
3: 371m
4: 676m
5: 722m
6: 1591m