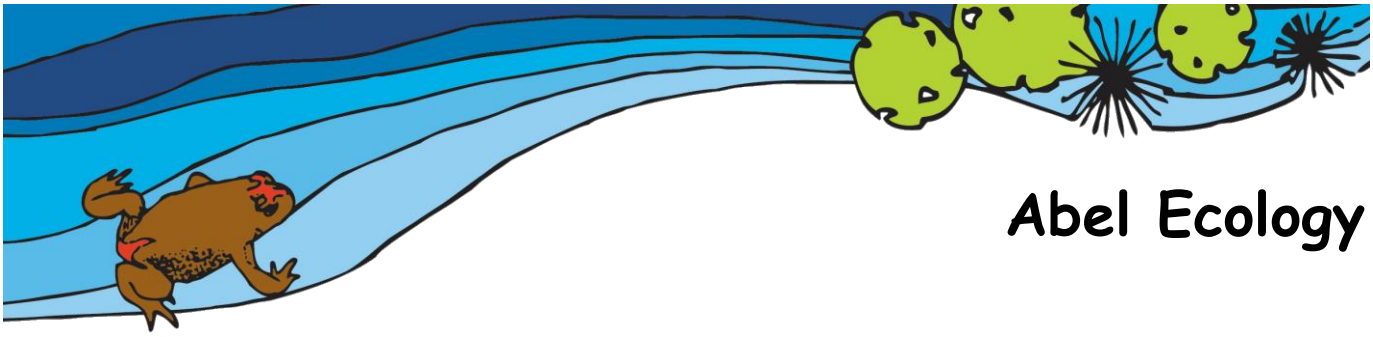

Abel Ecology

Bushfire assessment report

for

Honeycomb Drive, Eastern Creek
Lots 2 and 3, DP 1145808

Proposed Energy from Waste Facility, Eastern Creek (SSD 6236).

Date: 13 June 2014

Document No: 1282-REP-69-ISS-2

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Document history

Report	Version	Prepared by	Checked by	Submission	
				Method	Date
Final report	Issue 1	Dr Danny Wotherspoon	Jane Gentles	Email	19 May 14
Final report	Issue 2	Dr Danny Wotherspoon	Jane Gentles	Email	13 Jun 14

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List of Abbreviations

APZ	Asset Protection Zone
IPA	Inner Protection Area
OPA	Outer Protection Area
PBP 2006	Planning for Bushfire Protection 2006

Note regarding maps in this report

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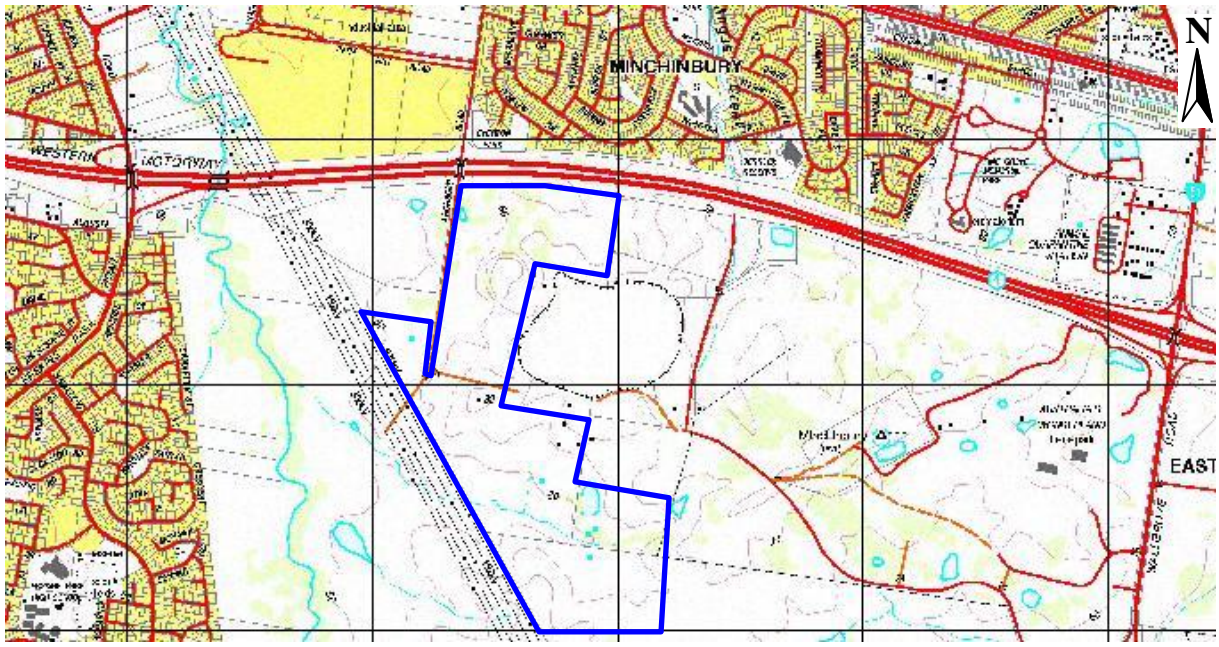


Figure 1. Locality map for Lots 2 and 3 DP 1145808, Honeycomb Drive, Eastern Creek

Site Locality

Scale: grid spacing = 1 km

Site locality

Figure 2 Air photo of the site and local area

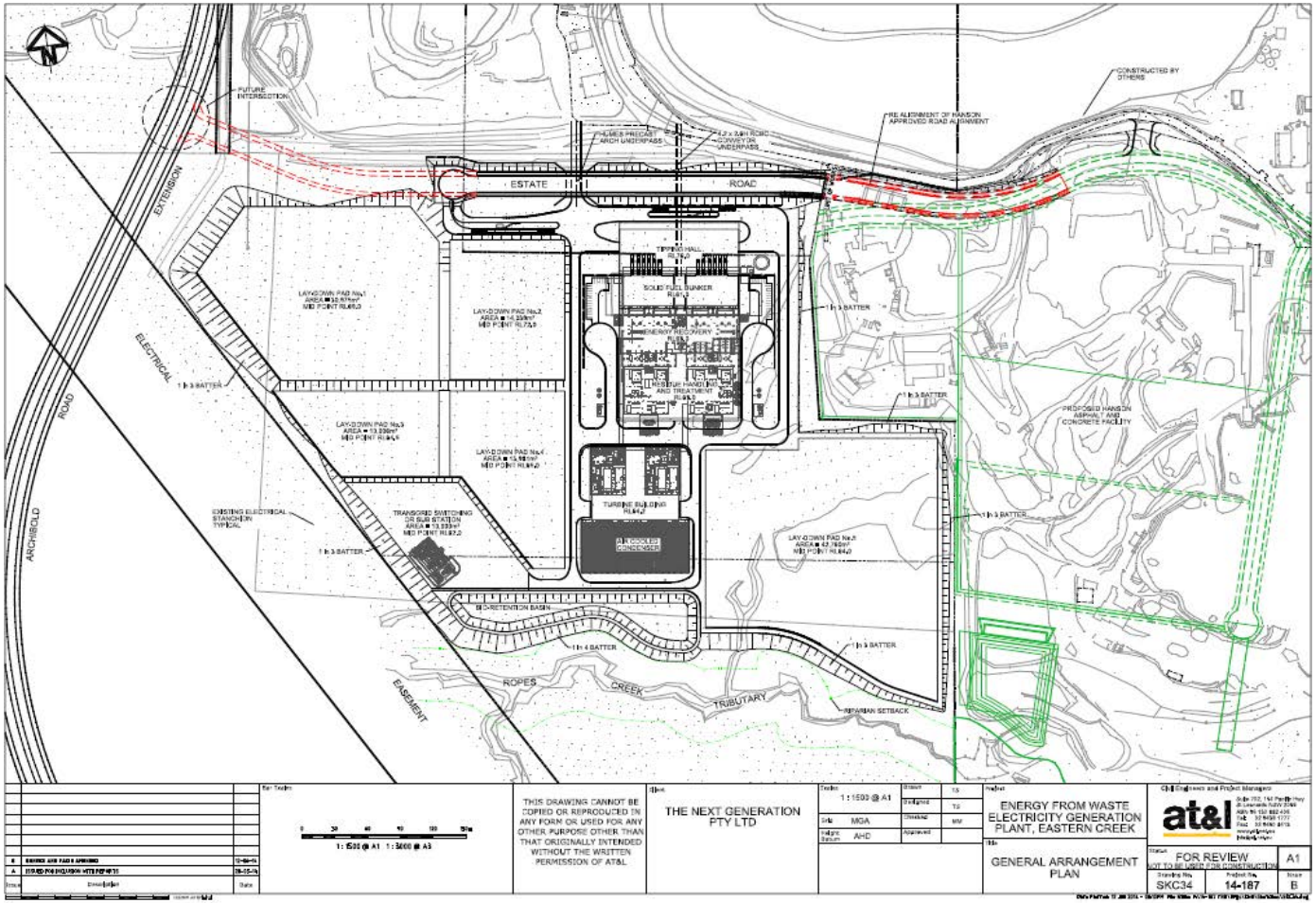
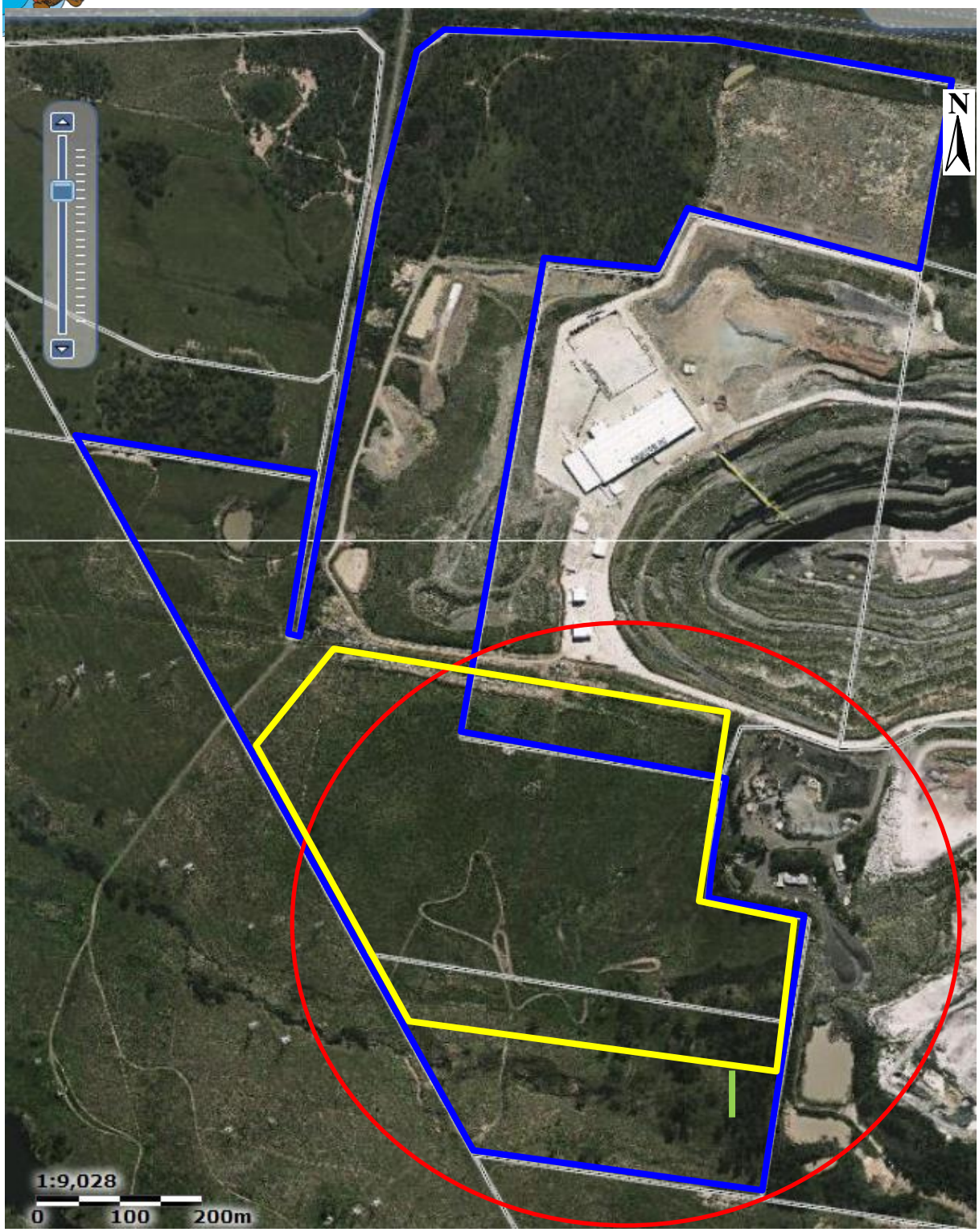


Figure 3. Proposal Diagram building layout



Site locality
Survey area

140 m assessment radius

Figure 4 Air photo of the site with 140 assessment area

Lot 3, DP1145808

Figure 5 Site vegetation showing forest upstream of the site in the south east corner

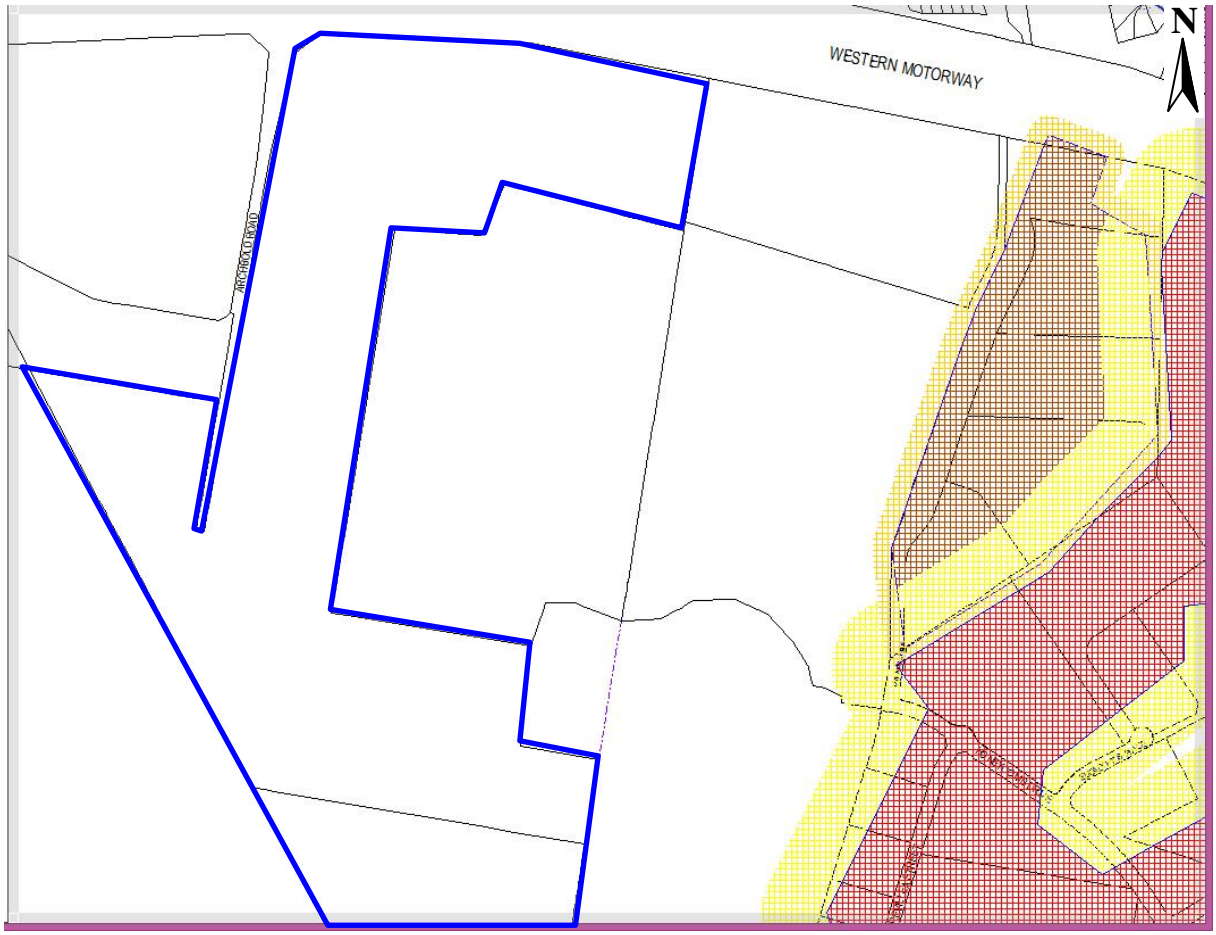


Figure 6. Bush Fire Prone Land map

Subject land

Bushfire Zone Buffer 1
Bushfire Zone Buffer 2
Bushfire Zone Category 1
Bushfire Zone Category 2

Extract from the Bush Fire Prone Land Map for the Blacktown Local Government Area, accessed 16 May 2014

.

Figure 7 View of swamp forest and grassland to the south east

Figure 8 Swamp forest to the south east

Executive Summary

A bushfire assessment of the proposed development, an Energy from Waste Facility, Eastern Creek (SSD 6236) at Lots 2 and 3, DP 1145808, ('the site' -Figure 1) was undertaken on 23, 24 April 2014. The development application is to erect an energy from waste facility and industrial subdivision of the land.

The vegetation hazard that will most significantly influence fire behaviour is the Forest to the south east and grassland to the west and south.

The aim of the assessment was to ascertain the potential fire hazard and establish the site capability for an Asset Protection Zone to protect staff and facilities.

The access road to the building footprint from Honeycomb Road is adequate for fire fighting access and emergency staff egress.

The site has significant vegetation as an endangered ecological community.

The site has threatened flora or fauna species in the form of two species of insectivorous bats (Abel Ecology Flora and Fauna report dated May 2014).

The following conclusions and recommendations apply:
In our opinion, the site is not sterilised by the bushfire threat. The owners will therefore be able to construct the proposed facility with the following measures included:

a) Building construction for all aspects of the buildings excluding windows will need to be minimum FRL 30/30/30 where separation of 27m from grassland and 55m from forest is not achieved;

b) Openable portions of windows are to be screened with metal mesh maximum 2mm aperture;

c) Water requirements. Fire hose reels must be provided, which is capable of reaching all extremities of the proposed development.

d) Grassland between the facility and unmanaged grassland is to be mown as lawn.

Special considerations

With regard to any clearing of native vegetation on the property, it is the responsibility of the landowner to check whether all required permissions from local and statutory authorities are in place. This may include Parts 4 and 5 of the EP&A Act; s.91 and s.95 licences or joint management agreements under the TSC Act; licence or conservation agreement under the NP&W Act; and approved Property Vegetation Plan under the Native Vegetation Act.

1. Introduction

We have been engaged by The Next Generation NSW Pty Ltd (TNG NSW) to prepare a bushfire assessment for an industrial development and industrial subdivision.

We have perused the details sent to us and completed a detailed inspection of the site. This report serves to:

a) identify the site and proposed development,

b) determine the bushfire threat, and

c) identify work required to be completed in order to improve the chances of building survival in the event of a bushfire. These works will satisfy the Performance Requirements of BCA.

The proposed development of an energy from waste facility comprises buildings and structures for electrical transmission. Parts of the site are proposed for industrial subdivision and construction of industrial buildings of various styles. The surrounding environment comprises grasslands and forest. The grasslands are regarded as "unmanaged" in that grazing is not intensive and the pastures are not mown. The forest is on an alluvial flat, with a weedy understorey. The forest off site to the east is expected to be retained.

This analysis anticipates that at least part of the development may be exposed to potential wildfire in either grassland or forest.

1.1 Planning relationships

1.1.1 Legislation

a) Rural Fires Act 1997 (amended) s.63(1), 63(2), 100B
b) Section 79C(1)(c) EP & A Act
c) Section 117 EP & A Act

1.2 Literature Review

Standards Australia (2009) AS 3959, Construction of buildings in bushfire-prone areas, Standards Australia, Sydney.

Cumberland Zone Bushfire Risk Management Plan 2010

Keith, D. (2004) Ocean shores to desert dunes: the native vegetation of New South Wales and the ACT. Department of Environment and Conservation (NSW), Hurstville.

2. The site and proposed development

2.1 Existing site description

On Site

The site is identified as Lots 2 and 3, DP 1145808 (see Figure 1)
The site is accessed directly from Honeycomb Road.

Adjacent Properties

Adjacent land uses are as follows:
North: developed industrial;
West: grazed grassland;
South: grazed grassland; and
East: developed industrial and riparian forest on a watercourse.

2.2 Existing vegetation description

On Site

The vegetation description is according to Table A2.1 'Classification of Vegetation Formations' in PBP 2006 based on Keith, 2004. The vegetation in the area is grassland and forest (Figure 5).

Adjacent Properties

Grasslands to the west and south are lightly grazed so are regarded as unmanaged grasslands for the purpose of assessing fuel load and fire hazard.
Riparian forest along the watercourse to the south east is regarded as forest.

2.3 The proposal

The proposal is to clear all vegetation within the site for industrial development, leaving grasslands to the west and south and riparian forest to the south east (Figure 4).

The proposed development involves the construction of an Energy from Waste (EFW) Electricity Generation Plant for The Next Generation NSW Pty Ltd (TNG) in Eastern Creek, approximately 36km west of the Sydney CBD.

The development involves the construction and operation of an Electricity Generation Plant, which will allow for unsalvageable and uneconomic residue waste from the Genesis Xero Material Processing Centre (MPC) and Waste Transfer Station (WTS) to be used for generation of electrical power. The EFW Plant is proposed to be located on Lots 2 and 3, DP 1145808.

This development site is part of a proposal to construct and operate NSW's largest Energy from Waste Plant using as fuel, residual waste which would otherwise be land filled, to allow for a "green" electricity generation facility. The plant, powered by burning non-recyclable combustible waste material, will have a capacity for up to 1.35 million tonnes of waste material per annum, as follows:

- 850,000 tonnes per annum from waste already being received at the neighbouring Genesis Xero Waste Facility; and
- Up to 500,000 tonnes per annum from external (new) sources.

The proposed EFW Facility will employment of a total of up to 55 staff upon operation, working over 3 shifts (i.e. not on site at any one time).

The project is identified as State Significant Development (SSD) under Schedule 1 of the State Environmental Planning Policy (State and Regional Development) 2011 being:

Cl. 20 Electricity generating works and heat or co-generation:

Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that:
(a) has a capital investment value of more than $30 million, or
(b) has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance

The proposal has a capital investment value of greater than $30 million and therefore is classified as a State Significant Development.

The site which is accessed off Honeycomb Drive at Eastern Creek is surrounded by land owned by the Corporate Group Alexandria Landfill Pty Ltd, ThaQuarry Pty Ltd, Australand, Hanson, Jacfin, the Department of Planning and Infrastructure and Sargents. The site and surrounding land is identified as part of the '*State Environmental Planning Policy (Western Sydney Employment Area) 2009 (WSEA SEPP)*' to be redeveloped for higher end industrial and employment uses over the next decade. The site has a total area of approximately 56 Ha including the Riparian Corridor, with a specific development area circa 9 Ha.

The proposed works will, in addition to the Energy from Waste Electricity Generation Facility, include the adoption of a plan of subdivision and the following ancillary works:

- Earthworks associated with the balance of the site;
- Internal roadways;
- Provision of a direct underpass connection (Precast Arch and Conveyor Culvert) between TNG Facility and the Genesis Xero Waste Facility;
- Staff amenities and ablutions;
- Staff carparking facilities;
- Water detention and treatment basins;

- Services (Sewerage, Water Supply, Communications, Power Supply).

Further to the above physical works associated with the proposed Energy from Waste Facility, this application seeks approval for the subdivision Lot 1, 2 and 3 in DP 1145805 in order to create a separate lot of 10,000 m² for the Transgrid Switching or Substation and additional lots to allow for future development of land not associated with the Energy from Waste Facility and the Genesis Xero Material Processing Plant.

2.4 Significant environmental features

The riparian zone runs from the south east corner along the south of the site. A patch of forest on the watercourse has habitat in the form of hollow trees for threatened species of microbats that were recorded as being present on the site.

2.5 Threatened flora and fauna

Two threatened species of microbats were recorded as being present on the site.
The vegetation is an endangered ecological community.
No part of the land has been identified as critical habitat.

2.6 Archaeological and Heritage Significant sites

Abel Ecology is not aware of Heritage Significant sites on the land.
Abel Ecology is not aware of Aboriginal relics on the land.

3. Survey methodology

Survey methods were applied in accordance with assessment methodology set in Appendix 2/3 of PBP 2006 and Table 2.4.2 of AS 3959. Calculations have been done using the AS3959 algorithm in the Abel Ecology calculator.

See Appendix 1 for definitions of fire management terminology.

4. Assessment of bushfire hazard

Hazard rating is assessed as follows:

4.1 Grassland on level ground

Separation 23m

VARIABLES	USER-INPUT VALUES
Local Government Area	Holroyd
Vegetation Group	Grassland (unmanaged)
Development Class	Residential & subdivision
Type of slope	Level
'Effective slope' beneath the hazard (Degrees)	0.0
Distance between building and hazard (m)	23
Does building-to-hazard slope = 'Effective slope' ?	Yes
Slope between the building and the hazard	0.0
IS THE SITE WITHIN AN ALPINE AREA ?	No
	PROGRAM-SUPPLIED VALUES
Surface fuel load (tonnes/ha)	4.5
Overall fuel load (tonnes/ha)	4.5
ASSESSMENT RESULTS	**OUTPUT VALUES**
CATEGORY OF BUSHFIRE ATTACK	BAL 12.5
LEVEL OF CONSTRUCTION	BAL 12.5
Radiation (W/m^2)	9,867
Flame width (m) (default 100m)	100
Rate of spread (Km/h)	16.90
Intensity (kW/m)	39,293
Flame length (m)	7.47
View factor	0.16
Flame angle (Degrees)	80
Transmissivity	0.824
Elevation of receiver (m)	3.68
Fire Danger Index (FDI)	130

4.2 Grassland level ground, development on a slope

Separation 23m

VARIABLES	USER-INPUT VALUES
Local Government Area	**Holroyd**
Vegetation Group	**Grassland (unmanaged)**
Development Class	**Residential & subdivision**
Type of slope	**Level**
'Effective slope' beneath the hazard (Degrees)	**0.0**
Distance between building and hazard (m)	**23**
Does building-to-hazard slope = 'Effective slope' ?	**Yes**
Slope between the building and the hazard	**5.5**
IS THE SITE WITHIN AN ALPINE AREA ?	**No**
	PROGRAM-SUPPLIED VALUES
Surface fuel load (tonnes/ha)	**4.5**
Overall fuel load (tonnes/ha)	**4.5**
ASSESSMENT RESULTS	**OUTPUT VALUES**
CATEGORY OF BUSHFIRE ATTACK	**BAL 12.5**
LEVEL OF CONSTRUCTION	**BAL 12.5**
Radiation (W/m²)	**9,736**
Flame width (m) (default 100m)	100
Rate of spread (Km/h)	16.90
Intensity (kW/m)	39,293
Flame length (m)	7.47
View factor	0.16
Flame angle (Degrees)	85
Transmissivity	0.823
Elevation of receiver (m)	1.51
Fire Danger Index (FDI)	130

4.3 Grassland on a slope with development above

Separation 27m

VARIABLES	USER-INPUT VALUES
Local Government Area	**Holroyd**
Vegetation Group	**Grassland (unmanaged)**
Development Class	**Residential & subdivision**
Type of slope	**Downslope**
'Effective slope' beneath the hazard (Degrees)	**5.5**
Distance between building and hazard (m)	**27**
Does building-to-hazard slope = 'Effective slope' ?	**Yes**
Slope between the building and the hazard	**5.5**
IS THE SITE WITHIN AN ALPINE AREA ?	**No**
	PROGRAM-SUPPLIED VALUES
Surface fuel load (tonnes/ha)	**4.5**
Overall fuel load (tonnes/ha)	**4.5**
ASSESSMENT RESULTS	**OUTPUT VALUES**
CATEGORY OF BUSHFIRE ATTACK	**BAL 12.5**
LEVEL OF CONSTRUCTION	**BAL 12.5**
Radiation (W/m²)	**9,737**
Flame width (m) (default 100m)	100
Rate of spread (Km/h)	24.70
Intensity (kW/m)	57,428
Flame length (m)	9.03
View factor	0.16
Flame angle (Degrees)	84
Transmissivity	0.813
Elevation of receiver (m)	1.89
Fire Danger Index (FDI)	130

4.4 Forest on level ground on the same level as the development

Separation 55m

VARIABLES	USER-INPUT VALUES
Local Government Area	**Holroyd**
Vegetation Group	**Forest (Wet and Dry Sclerophyll)**
Development Class	**Residential & subdivision**
Type of slope	**Level**
'Effective slope' beneath the hazard (Degrees)	**0.0**
Distance between building and hazard (m)	**55**
Does building-to-hazard slope = 'Effective slope' ?	**Yes**
Slope between the building and the hazard	**0.0**
IS THE SITE WITHIN AN ALPINE AREA ?	**No**
	PROGRAM-SUPPLIED VALUES
Surface fuel load (tonnes/ha)	**25.0**
Overall fuel load (tonnes/ha)	**35.0**
ASSESSMENT RESULTS	**OUTPUT VALUES**
CATEGORY OF BUSHFIRE ATTACK	**BAL 12.5**
LEVEL OF CONSTRUCTION	**BAL 12.5**
Radiation (W/m²)	**10,078**
Flame width (m) (default 100m)	100
Rate of spread (Km/h)	3.00
Intensity (kW/m)	54,250
Flame length (m)	23.70
View factor	0.17
Flame angle (Degrees)	73
Transmissivity	0.766
Elevation of receiver (m)	11.33
Fire Danger Index (FDI)	100

4.5 Forest on level ground below the development

Separation 55m

VARIABLES	USER-INPUT VALUES
Local Government Area	**Holroyd**
Vegetation Group	**Forest (Wet and Dry Sclerophyll)**
Development Class	**Residential & subdivision**
Type of slope	**Downslope**
'Effective slope' beneath the hazard (Degrees)	**0.0**
Distance between building and hazard (m)	**55**
Does building-to-hazard slope = 'Effective slope' ?	**Yes**
Slope between the building and the hazard	**5.5**
IS THE SITE WITHIN AN ALPINE AREA ?	**No**
	PROGRAM-SUPPLIED VALUES
Surface fuel load (tonnes/ha)	**25.0**
Overall fuel load (tonnes/ha)	**35.0**
ASSESSMENT RESULTS	**OUTPUT VALUES**
CATEGORY OF BUSHFIRE ATTACK	**BAL 12.5**
LEVEL OF CONSTRUCTION	**BAL 12.5**
Radiation (W/m²)	**9,817**
Flame width (m) (default 100m)	100
Rate of spread (Km/h)	3.00
Intensity (kW/m)	54,250
Flame length (m)	23.70
View factor	0.17
Flame angle (Degrees)	78
Transmissivity	0.764
Elevation of receiver (m)	6.30
Fire Danger Index (FDI)	100

5. Issues arising from the assessment

5.1 Threat

The facility may be threatened by bushfire in the form of either a grass fire or a forest fire.

Radiant heat and flame are likely to impinge on built structures. Flame and smoke provide atmospheric conditions that create a path for electrical discharge. That is the reason that electrical transmission lines and substation switch yards have clearances from vegetation. Even so, dense smoke provides a path for earthing from high voltage electrical structures.

Forest fire hazard may be increased if the approval authority requires planting of trees along the creek line. If so, that would likely be at most 10m from the top of bank of the watercourse. The forest may be required to be both regenerated and extended to offset impacts of removing part of the natural vegetation from the site. If so the fire threat would remain.

A fire poses a heat exposure that increases over about 15 minutes to a peak which lasts for about three minutes. The heat impact then declines by about half each 15 minutes. A smoke plume may be of longer duration depending on wind direction but is not predictable.

5.2 Protection criteria

The performance criterion is to protect any staff from undue exposure to radiant heat of 10kW/m^2.

Any part of the facility will need to withstand a radiant heat of 10kW/m^2 for three minutes and 5kW/m^2 for 15 minutes.

5.3 Analysis

The location of threats is west, south and east of the area proposed for development (Figure 4).

The level of exposure is shown in summary in Table 1 below and fully in Section 4.

Any part of the facility within 27m of unmown grass and 55m of forest will need to withstand a radiant heat of 10kW/m^2 for three minutes.

5.4 Management strategies

Grass fire may be controlled by mowing a strip 27m wide around any part of the facility.

Clearance of 55m from forest, being that 10m edge creek corridor (65m from top of bank) will be an adequate buffer distance.

Development of buildings adjacent to forest closer than 55m will require Fire Resistance Level construction of FRL 30/30/30 minimum for any wall facing forest. Most commercial construction is higher than that but windows will need to be screened with stainless steel mesh with a maximum aperture 2mm.

Staff and fire fighters require a retreat from flame and radiant heat which may be in the form of a door into a building or behind a wing wall.

Table 1: Summary of radiant heat exposure

Location of a development on the site	Separation (metres)	Radiant heat kW/m²	Flame length (metres)
Grassland on level ground on the same level as the development	23	9.9	7.5
Grassland level ground, development on a slope above	23	9.7	7.5
Grassland on a slope with development above	27	9.7	9
Forest on level ground on the same level as the development	55	10.1	23.7
Forest on level ground with development on a slope above	55	9.8	23.7

6. Infrastructure and other requirements

6.1 Asset Protection Zone management

Legislative responsibility to manage hazardous fuels s.63(2) RF Act

S.63(2) of the Rural Fires Act 1997 No 65 states, "It is the duty of the owner or occupier of land to take the notified steps (if any) and any other practicable steps to prevent the occurrence of bush fires on, and to minimise the danger of the spread of bush fires on or from, that land."

The occupants will be required to maintain fuel levels consistent with the provisions of the Asset Protection Zone.
A mown lawn of at least 27m will provide best protection from radiant heat for grass fire and 55m from forest for forest fire.

6.2 Access and egress

The following roads provide adequate access for fire fighting vehicles and evacuation opportunity for staff.

Public roads

Honeycomb Drive provides access to the property.

Property access

Fire fighting vehicles access for turning, passing bays and operational activities are to suit a Medium Rigid Vehicle.
There is no road access to the rear of the site for operational activities.
Specifications for fire engineering for any buildings is expected to fulfil this requirement.

6.3 Availability of fire fighting services

The nearest Fire Station is within 5 km from the site.
NSW Fire and Rescue, Huntingwood Drive, Huntingwood (8km).
NSW Rural Fire Service Rooty Hill Road South, Minchinbury (5km).
NSW Rural Fire Service, The Horsley Drive, Horsley Park (8km).

6.4 Landscaping

The landscape plan prepared for the site must observe the criteria for Inner Protection Area around the buildings, and is to include fire retardant local species of trees. Landscaping is not to abut buildings as this may cause a direct fire path to combustible building elements.

A pathway or non-combustible ground finish is to adjoin any building for a distance of at least 1.0 metre.

7. Building construction requirements

7.1 Ember attack

Openings in the construction can permit wind-blown embers into buildings and hence cause a fire.

The opening portions of windows and sliding glass doors will need to be protected with corrosion resistant metal gauze screens (e.g. bronze or steel, aluminium is unacceptable due to its low melting point) with a maximum aperture of 2 mm.

7.2 Radiant heat

Radiant heat will increase the temperature of materials. If these materials are combustible, the ember shower can easily ignite the gases given off from the heating process. It is therefore important to protect or reduce the use of combustible materials.

7.3 Direct flame

In the worst possible fire conditions it is estimated that the flames can last for up to 90 seconds. Suitable building materials will help to ensure that the building will survive these conditions.

7.4 Smoke plume

Electrical design for high voltage structures and transmission lines may need to consider protection from discharge into a smoke plume. That may be by insulated lines or underground cables.

8. Conclusion and recommendations

In our opinion, the site is not sterilised by the bushfire threat. The owners will therefore be able to construct the proposed facility with the following measures included:

a) Building construction for all aspects of the buildings excluding windows will need to be minimum FRL 30/30/30 where separation of 27m from grassland and 55m from forest is not achieved;

b) Openable portions of windows are to be screened with metal mesh maximum 2mm aperture;

c) Water requirements. Fire hose reels must be provided, which is capable of reaching all extremities of the proposed development.

d) Grassland between the facility and unmanaged grassland is to be mown as lawn.

Appendix 1. Glossary of Definitions and Terms

This section defines and explains some commonly used expressions relating to bushfires.

Bushfire (or wild fire) is generally defined to mean any unplanned fire in vegetation. Fires can also be used for land management purposes such as grazing or hazard reduction. Bushfires generally have a seasonal pattern and occur in spring and summer but can occur at other times of year under suitable conditions. The behaviour of fires is primarily influenced by:

- fuel (type, load, moisture, continuity and compaction);
- ignition source;
- topography (slope and aspect); and
- weather (humidity, temperature, wind).

Bushfire danger is a relative measure of weather conditions (temperature, drought indices, humidity and wind speed) describing the likelihood of fire ignition, spread, control difficulty and damage potential. There is currently an emphasis on prevention and suppression of bushfires to minimise damage to human life and property.

Bushfire hazard is an assessment of the particular combination of available fuel (vegetation), slope and climate/weather pattern relating to a site. This includes leaf litter and ground cover, standing fuel of the shrub and canopy layers and the season of the year. The assessment is usually rated on a scale from 'low' (or insignificant) to 'extreme' and gives a final indicator of the potential severity of a fire.

Bushfire risk means the probability of a wildfire "igniting, spreading and causing damage to assets of value to the community" (Planning for Bushfire Protection 2001). Related to this is bushfire threat which is the threat of potential damage to life and property arising from a combination of hazard, risk and bushfire danger.

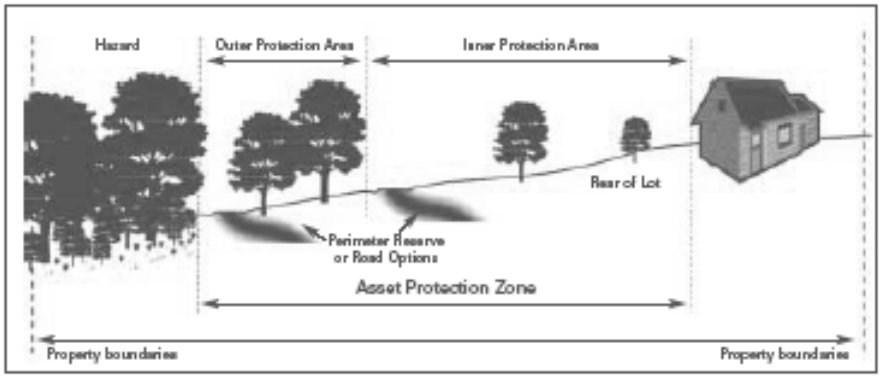
Hazard reduction means a reduction or modification of fuel by burning, chemical, mechanical or manual means.

Prescribed burn means a planned fire ignited by a land manager in accordance with a fuel management plan or for ecosystem management purposes.

Fire regime means the pattern of occurrence of fire, specifically the regularity, periodicity, seasonality, spatial extent, patchiness and intensity. This is important in terms of assessing risks and ecological impacts and is often used in prescribing a management goal to be achieved. There is debate about what constitutes a natural or pre European fire pattern. For the purpose of these definitions natural means an existence independent of human action.

Bushfire Risk Management is achieved by use of **Asset Protection Zones (APZ)**, defined by the document "Planning For Bushfire Protection" (N.S.W. Rural Fire Service). An APZ acts as a

buffer zone between the development and the bushfire hazard, and consists of an Outer Protection Area (OPA) and an Inner Protection Area (IPA). The primary purpose of an Asset Protection Zone is to ensure that a progressive reduction of bushfire fuels occurs between the bushfire hazard and any habitable structures within the development.



OPA = Outer Protection Area

Location: adjacent to the hazard

Purpose: substantially reduces the intensity of an approaching fire, reducing the level of direct flame, radiant heat and ember attack on the IPA

Depth: between 10 and 15m deep, depending on the type of land use and vulnerability of the dwelling or persons affected.

Fuel Loading: discontinuous tree canopy and shrub layer; fine fuel load usually less than 8 tonnes per hectare.

IPA = Inner Protection Area

Location: extends from the edge of the OPA to the development to be protected

Purpose: minimise the impact of direct flame contact and radiant heat on the development

Depth: dependent upon the slope of the land

Performance:

- Minimal fine fuel which can be set alight by a fire
- Any vegetation in the IPA does not provide a path for the transfer of fire to the development - i.e. fuels are discontinuous.

The presence of trees and shrubs in the IPA is acceptable provided that they:

- Do not touch or overhang the building;
- Do not form a continuous canopy;
- Are not species that retain dead material or deposit excessive quantities of ground fuel in a short time;
- Are located far enough away from a building that they will not ignite the building by direct flame contact or radiant heat emission.