11 June 2020

Department of Water and Environmental Regulation
Locked Bag 33
CLOISTERS SQUARE
PERTH WA 6850

Dear Sir/Madam,

RE: Rowley Road, Darling Downs – Clearing Permit Documentation

On behalf of Darling Downs Estate Pty Ltd and the City of Armadale please find attached a Clearing Permit application to clear 0.556ha of native vegetation to manage Bushfire Attack Levels (BAL) for existing and future development abutting an unmade section of the Rowley road reserve.

The area of proposed clearing is shown in Attachment 1.

1 Background

Darling Downs Estate Pty Ltd is currently developing a new residential subdivision in the suburb of Darling Downs in the City of Armadale. The subdivision sits north and south of an unmade portion of the Rowley Road reserve. Most of the subdivision has been developed, including roads and houses, however some future housing lots and the eastern end of Rowley Road are yet to be constructed. To the north is Peet's Hilbert Park Estate which has also been developed.

The existing subdivision was approved under an earlier version of the bushfire regulations. A Bushfire Attack Level assessment was undertaken for the development in March 2020 using the current bushfire regulations (Attachment 2). The report indicates that many of the existing houses built adjacent to the unmade section of Rowley Road, and some of the undeveloped lots, are within high BAL levels and all existing houses that are within 30m of the road reserve are within the Flame Zone. This is both within the Darling Downs Estate and Hilbert Park Estate. Some of the lots yet to be developed will need to be constructed at a high BAL level standard which will impact on the cost of building.

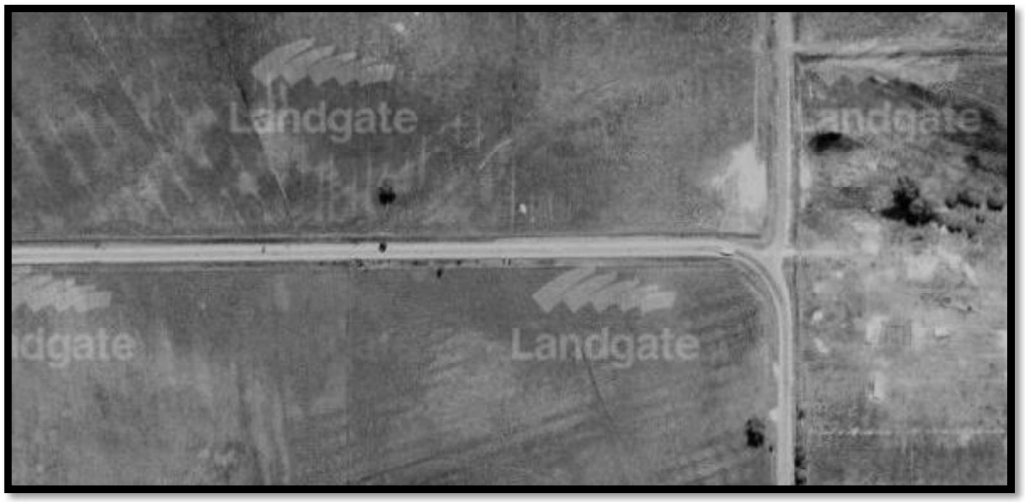
Clearing the Rowley Road reserve is important to reduce the fire hazard risk to existing dwellings and to avoid the increased cost of building for new lots, which is considered unnecessary as the Rowley Road reserve will be upgraded in the future and result in the clearing of vegetation within the road reserve.

The road reserve is currently under the management of the City of Armadale who has expressed support for the clearing and provided a Letter of Authority to apply for the clearing permit (Attachment 3).

2 Land Use

The section of the Rowley Road reserve relevant to the clearing permit application was completely cleared in the past as shown in historical aerial photography from 1974 (Plate 1).

Plate 1: Historical Aerial Photography from September 1974



The vegetation has since regrown as evidenced in the 2019 aerial photograph.

Plate 2: Historical Aerial Photography from November 2019

3 Soil and Hydrology

The site is located on the Pinjarra Plain which is fluviatile in origin and extends from the eastern side of the Bassendean Dunes to the western edge of the Darling Scarp.

The site is mapped within the Pinjarra P3 Phase soil type, which is described as flat to very gently undulating plain with deep, imperfect to poorly drained acidic gradational yellow or grey-brown earths and mottled yellow duplex soils, with loam to clay loam surface horizons.

The maximum groundwater level at the site is at approximately 23m Australian Height Datum (AHD), which is 4m below ground level. The area is mapped as a Multiple Use Palusplain that extends over a large area.

4 Vegetation

PGV Environmental undertook a vegetation assessment of the Rowley Road reserve on 24 March 2020. Most of the vegetation in the road reserve is native Sheoak (*Casuarina obesa*). The eastern end of the road reserve contains non-native River Red Gum trees (*Eucalyptus camaldulensis*), a Cape Lilac tree and a weedy understorey. The eastern area is not native vegetation under the *Environmental Protection Act 1986* (EP Act) and therefore does not require a Clearing Permit.

The area containing native vegetation is mapped within the Beermullah Complex which is described as:

> *Mixture of low open forest of Casuarina obesa (Swamp Sheoak) and open woodland of Corymbia calophylla (Marri) - Eucalyptus wandoo (Wandoo) - Eucalyptus marginata (Jarrah). Minor components include closed scrub of Melaleuca species and occurrence of Actinostrobus pyramidalis (Swamp Cypress) (Wandoo) - Eucalyptus marginata (Jarrah)*

The native Sheoak in the road reserve is regrowth vegetation and has two noticeable different age ranges for the trees. The trees on the northern part of the road reserve, on either side of an old track, are mostly older trees up to 6m high. The trees in the southern part of the road reserve on lower ground are younger trees around 3-4m high. Plate 3 shows the two age groups.

Plate 3: Different Age Native Sheoak in the Road Reserve

The Sheoak vegetation in the road reserve is described by PGV Environmental as:

> Open Woodland of *Casuarina obesa* over a weedy understorey of **Cynodon dactylon, *Avena* sp., *Eragrostis curvula*, *Taraxacum officinale*, *Conyza* sp., *Bromus diandrus* and *Trifolium arvense* (*denotes an introduced species)

The condition of the areas of native vegetation to be cleared is Degraded. The condition rating scale is shown in Table 1.

Table 1: Vegetation Condition Rating Scale.

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very Good	Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Source: Government of Western Australia, 2000.

No Threatened Ecological Community (TEC) or Priority Ecological Community (PEC) is mapped on the site (National Map, 2020). The native vegetation is too Degraded to be considered a TEC or PEC.

5 Flora

No Threatened or Priority plant species are mapped on the site (National Map, 2020) or are expected to occur on the site due to the past clearing and Degraded condition.

6 Fauna

The fauna habitat values for the areas of native vegetation to be cleared are rated as Highly Degraded Fauna Habitat, which is defined as:

> *These areas often have a significant loss of vegetation, an abundance of weeds, and a large number of vehicle tracks or are completely cleared. Limited or no fauna habitat connectivity. Faunal assemblages in these areas are likely to be significantly different to what might have been in the area pre-disturbance.*

The Sheoak vegetation may provide foraging habitat for Black Cockatoos.

7 Ten Clearing Principles

The Ten Clearing Principles have been addressed below to determine the environmental impact that the removal of the native vegetation on the site would have.

Principle (a): Vegetation should not be cleared if it comprises a high level of biological diversity.

The vegetation on the site is Degraded with abundant grassy weeds. The diversity of vegetation types is low. The number of native species in the application area has not been surveyed in detail, however observations by PGV Environmental indicate the number of native species is very low which is consistent with degree of past disturbances on the site.

The vegetation is not representative of a TEC or a PEC and has not been mapped as such in the Department of Biodiversity, Conservation and Attractions (DBCA) database.

The proposed clearing is not considered at variance to this principle.

Principle (b): Vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

The fauna habitat is Highly Degraded Fauna Habitat and provides limited habitat for any Conservation Significant species. A search of the DBCA Naturemap Database (Attachment 4) indicates that there are 10 Threatened fauna species, 16 species protected under International Agreements and ten priority fauna species that have been recorded within a 5m radius of the site. The vegetation may provide some foraging habitat for Black Cockatoos. The area proposed to be cleared is 0.556ha which is not considered significant habitat for Black Cockatoos.

The proposed area of clearing does not provide habitat for and fauna reliant on permanent water sources, such as birds or Carter's Freshwater Mussel, as there is no permanent water on the site.

Two species of short-tongued native bees, *Leioproctus douglasiellus* and *Neopasiphae simplicior* were identified in the database search. These species are only currently known from the Anstey-Keane dampland and/or Forestdale Lake Nature Reserve, which are within 5km of the proposed area of clearing. The key flora species associated with these native bee habitats do not occur in the proposed area of clearing. Given this, the proposed clearing is not likely to significantly impact on native vegetation that comprises significant habitat for native bees.

The proposed clearing is not considered at variance to this principle, given that the impact on significant species is unlikely to comprise a significant habitat.

Principle (c): Vegetation should not be cleared if it includes, or is necessary for the continued existence of rare flora.

No Threatened or Priority plant species have been recorded on the site (National Map, 2020). It is highly unlikely that rare flora is present on the site given the small area of native vegetation and Degraded condition of the vegetation. Therefore, the proposed clearing is not considered at variance to this principle.

Principle (d): Vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

The vegetation on the site is not representative of a Threatened Ecological Community. There are no occurrences of TECs mapped nearby. Therefore, the proposed clearing is not considered at variance to this principle.

Principle (e): Vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

The site is not a significant remnant of vegetation. The proposed area of clearing is part of the Beermullah Complex. Approximately 6.67% of the original extent of the Beermullah Complex remains and 2.13% is in DBCA managed land. The site is located in a 'constrained area'. The EPA's target is to retain at least 10% of each vegetation complex in constrained areas. The vegetation on the site is therefore in an area below the EPA's target for vegetation retention at the regional level. However, the vegetation is Degraded and is not considered a good representation of the Beermullah Vegetation Complex for retention. The understorey is too degraded for the vegetation to regenerate to a better condition than Degraded.

The proposed clearing may be at variance to this principle however is Degraded and not likely to be considered a significant remnant.

Principle (f): Vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

The vegetation to be cleared is located in part of a Multiple Use wetland. The MU wetland is large and fragmented and is partially developed and the existing native vegetation is in Degraded condition.

The clearing is not considered likely to be at variance to this principle.

Principle (g): Vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Clearing the vegetation on the site will not result in land degradation.

The area of clearing is mapped within the Pinjarra P3 Phase soil type, which is described as flat to very gently undulating plain with deep, imperfect to poorly drained acidic gradational yellow or grey-brown earths and mottled yellow duplex soils, with loam to clay loam surface horizons.

Land Degradation Risk Category Pinjarra P3 Phase

Water Erosion	<3% of map unit has a high to extreme water erosion risk
Wind Erosion	<3% of map unit has a high to extreme wind erosion risk
Waterlogging	>70% of map unit has a moderate to very high waterlogging risk
Flooding	<3% of the map unit has a moderate to high flood risk
Salinity risk	3-10% of map unit has a moderate to high salinity risk or is presently saline

Over 70 per cent of the mapped soil type has a high risk of waterlogging, therefore the proposed clearing area is likely to be inundated following significant rainfall events. The proposed clearing area is generally not susceptible to erosion, flooding or risk of salinity, therefore the proposed clearing is not likely to cause appreciable land degradation.

The proposed clearing is not considered at variance to this principle

Principle (h): Vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

The site is not connected to any reserves or Conservation Areas. The proposed clearing will not impact on the environmental values of any reserves or Conservation Areas.

The proposed clearing is not considered at variance to this principle

Principle (i): Vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

There are no watercourses that intersect the application area. Stormwater will collect in the low-lying parts of the road reserve after clearing as it currently does and is unlikely the proposed clearing will cause the deterioration of surface water quality.

Groundwater salinity within the application area is mapped at 1,500-3,000 milligrams per litre, total dissolved solids. This level of groundwater salinity is classified as 'brackish to saline'. The area to be cleared is 0.556ha in an already cleared area and as such is not likely to impact on salinity in the area.

The proposed clearing is not considered at variance to this principle

Principle (j): Vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.

The clearing of the vegetation will not increase the incidence of flooding, as although the area is poorly drained the risk of flooding is low and stormwater controls have been installed as part of the adjoining development.

The proposed clearing is not considered at variance to this principle

8 Conclusion

Assessment of the proposed clearing of 0.556ha of native vegetation required to reduce Bushfire Attack Levels on existing dwellings and future development abutting the Rowley Road reserve indicates that the clearing would not be at variance to any of the ten clearing principles.

Please contact me if you would like any further information or if you would like some assistance on site during a site inspection.

Attachments

Attachment 1:	Clearing Extent
Attachment 2:	Bushfire Attack Level Report (Smith Bushfire Consultants Pty Ltd)
Attachment 3:	Letter of Authority from the City of Armadale
Attachment 4:	Naturemap Report

References

Beard (1990) *Vegetation Survey of Western Australia 1:1000000 Vegetation Series Swan* University of Western Australia Press

Department of Biodiversity, Conservation and Attractions (DBCA) (2018) Vegetation Retention Statistics Perth, Western Australia

Department of Biodiversity, Conservation and Attractions (DBCA) (2020) Naturemap . Accessed May 2020 https://naturemap.dpaw.wa.gov.au/ Government of Western Australia, Perth.

Department of Primary Industries and Regional Development (DPIRD) (2020) Natural Resource Information. Accessed May 2020 http://maps.agric.wa.gov.au/nrm-info/ Government of Western Australia, Perth.

Department of Water and Environmental Regulation (DWER) (2020) *Perth Groundwater Map.* Accessed May 2020 https://maps.water.wa.gov.au/#/webmap/gwm Government of Western Australia, Perth.

Government of Western Australia (2000) Bush Forever - *Keeping the Bush in the City. Volume 2: Directory of Bush Forever Sites*. Perth, Western Australia.

Heddle, E.M., Loneragan, O.W. and Havel, J.J. (1980) Vegetation complexes of the Darling System, Western Australia. In *Atlas of Natural Resources of the Darling System of Western Australia*. Department of Conservation and Environment. Perth, Western Australia.

Landgate (2020) Historical Aerial Photography Accessed May 2020 https://www.landgate.wa.gov.au/bmvf/app/mapviewer/ Government of Western Australia, Perth.

National Map (2020) Map-Based Access to Spatial Data from Australian Government Agencies http://nationalmap.gov.au/#wa Accessed May 2020 Government of Australia