

MEMORANDUM

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| TO: | DEPARTMENT OF TRANSPORT | | |
| ATTENTION: | Maureen Davin / James Holder | | |
| FROM | Jeremy Fitzpatrick | | |
| DATE: | 26 October 2016 | OUR REF: | EEN161102 |
| SUBJECT: | PURPOSE PERMIT CLEARING APPLICATION – BURSWOOD PUBLIC JETTY | | |

The new Perth Stadium (nPS) project is currently under construction with environmental approvals in place for the stadium, the pedestrian bridge and associated land transport links. In addition, it is also proposed that a jetty is constructed on the eastern bank of the Swan River, approximately 100 m upstream from the pedestrian bridge (Figure 1).

A Permit to Clear Native Vegetation under the *Environmental Protection Act 1986* has already been granted for the area (CPS 6887/1) to Brookfield Multiplex Engineering and Infrastructure Pty Ltd as the contractor constructing the stadium and built surrounds. This Purpose Permit covers clearing up to 0.6 ha of native foreshore vegetation to facilitate installing infrastructure and landscaping associated with the new Perth Stadium. The Department of Transport (DoT) has been advised that it may require a separate Clearing Permit (Purpose Permit) for an area of 0.06 ha of native vegetation within the Brookfield permit, to undertake clearing works associated with the proposed jetty. This area allows for clearing the development footprint (<0.03 ha) and a buffer on each side to allow for construction impacts and edge effects.

This report has been prepared to support the clearing required to construct the jetty. Figure 2 shows the narrow strip of riparian regrowth vegetation at the development site, part of which will need to be cleared for construction. The location and design of the jetty has not been finalised, however all design options under consideration include land reclamation and would require clearing less than 0.06 ha of riparian vegetation.

1.0 Clearing Application Summary

A summary of the clearing proposal is provided below in Table 1.

Table 1: Clearing Proposal Summary

| | | |
|----------------------------|--|----------|
| Location | Burswood, Town of Victoria Park | Figure 1 |
| Area | <0.06 ha (within the 0.12 ha footprint boundary) | Figure 2 |
| Timing | Clearing will occur between January 2017 and December 2020 | |
| Clearing Method | Mechanical removal | |
| Purpose of Clearing | For the construction of the proposed new Burswood Public Jetty | |

| | | |
|--|---|--|
| Vegetation Proposed to be Cleared | Thin strip of riparian vegetation along the riverbank comprising <i>Juncus kraussii</i> sedgeland with patches of <i>Tecticornia</i> sp. over <i>Sporobolus virginicus</i> closed grassland, abutting exotic grass turf. This vegetation does not constitute an example of the Subtropical and Temperate Coastal Saltmarsh TEC. Aquatic flora species include <i>Ulva lactuca</i> growing or entangled on the root mass of the <i>Juncus</i> sedge. No seagrasses are present in the area A few <i>Casuarina obesa</i> trees are present within or adjacent the footprint, these are either dead or in poor condition. | |
|--|---|--|

2.0 Existing Environment

2.1 Geology and Soils

The site consists mainly of fine to medium grain sand interspersed with coarse shell grit and rock materials. The sediment tends to be more fine grain silt and clay material in the vicinity of the shore (~10–20 m) (RPS 2014).

The Burswood Peninsula is classified as containing a “high to moderate risk of ASS within three metres of the natural ground surface”. No planned activities will affect ASS, and therefore no impact to vegetation is anticipated.

2.2 Groundwater

Groundwater levels and flow in the area are likely to be seasonally influenced by rainfall and irrigation, resulting in localised variation in flow direction (RPS 2014). Such seasonal groundwater fluctuations will potentially result in changes in groundwater levels between 0.5 to 1.0 m. In addition, investigations undertaken at the Barrack Street Jetty identified fluctuations of 1.4 m, determined to be a consequence of tidal influence. However, general flow direction is anticipated to be towards the Swan River (RPS 2014). The proposed jetty will not affect groundwater flows to the extent that boundary effects on remaining vegetation are expected.

2.3 Surface Water

The proposed jetty is located on the Swan River. The Swan River is listed as a Conservation Category Wetland and is protected by the *Swan and Canning Rivers Management Act 2006*.

2.4 Vegetation and Flora

2.4.1 Vegetation

On 27 July 2016, RPS botanist Caroline Gill undertook an assessment of the Swan River foreshore vegetation in the area to support the proposed jetty approvals. The foreshore vegetation within the clearing application area consists of *Juncus kraussii* sedgeland with patches of *Tecticornia* sp. over *Sporobolus virginicus* closed grassland (Plate 1 to Plate 5). Other species recorded included ?*Wilsonia backhousei*, an epiphytic green alga (*Ulva lactuca*) growing on or entangled in the roots and stems of the *Juncus kraussii* at the water’s edge (Plate 6) and isolated individual *Casuarina obesa* (river sheoak). One of the *Casuarina obesa* trees is dead and others are in poor condition with exposed roots (Plate 7). The great majority of *Casuarina obesa* in the area occurs to the north and south of the application area.



Plate 1: Foreshore, Looking North (Upriver)



Plate 2: Foreshore, Looking South (Downriver)



Plate 3: *Juncus krausii* and *Tecticornia* sp.



Plate 4: *Juncus krausii* and *Tecticornia* sp.



Plate 5: *Juncus krausii* and *Tecticornia* sp.



Plate 6: *Ulva lactuca* (Green Alga) on *Juncus krausii* Roots



Plate 7: *Casuarina obesa* Trees within the Jetty Footprint

2.4.2 Vegetation Condition

The Vegetation Condition of the foreshore vegetation was generally assessed as Very Good, with altered vegetation structure and obvious signs of disturbance. No weeds were recorded on the immediate foreshore, however the *Sporobolus virginicus* closed grassland on the landward side of the association is a cultured lawn where the *Sporobolus* intergrades with exotic turfing grass and is regularly mown.

There was some rubbish present.

2.4.3 Significant Vegetation

The floristic composition of the foreshore vegetation within the application area is consistent with that of the federally-listed Threatened Ecological Community (TEC), and state-listed Priority Ecological Community (PEC) – Subtropical and Temperate Coastal Saltmarsh; however the total area of patches of this vegetation mosaic fall below the threshold for the TEC.

*Priority Ecological Communities for Western Australia Version 22 (DPaW 2015)*¹ describes the Subtropical and Temperate Coastal Saltmarsh PEC as:

The community consists mainly of salt-tolerant vegetation (halophytes) including grasses, herbs, reeds, sedges and shrubs. Succulent herbs and grasses generally dominate, and vegetation is generally <0.5m tall with the exception of some reeds and sedges. Many species of non-vascular plants are also found in saltmarsh, including epiphytic algae, diatoms and cyanobacterial mats. Four structural saltmarsh forms are currently recognised based on dominance of a particular vegetation type:

- dominance by succulent shrubs (e.g. *Tecticornia*)
- dominance by grasses (e.g. *Sporobolus virginicus*)
- dominance by sedges and grasses (e.g. *Juncus kraussii*, *Gahnia trifida*)
- dominance by herbs (e.g. low-growing creeping plants such as *Wilsonia backhousei*, *Samolus repens*, *Schoenus nitens*).

¹ Department of Parks and Wildlife. 2015. Priority ecological communities for Western Australia Version 22. 6 June 2015. Department of Parks and Wildlife, WA.

Based on the Department of the Environment (DoE) Conservation Advice² for the ecological community, the foreshore vegetation within the application area satisfies the following five key diagnostic characteristics for the TEC:

- Occurs south of 23°37'S latitude – from the central Mackay coast on the east coast of Australia, southerly around to Shark Bay on the west coast of Australia (26° latitude), and including the Tasmanian coast and islands within the above range.
- Occurs on the coastal margin, along estuaries and coastal embayments and on low wave energy coasts.
- Occurs on places with at least some tidal connection, including rarely inundated supratidal areas, intermittently opened or closed lagoons, and groundwater tidal influences, but not areas receiving only aerosol spray.
- Occurs on sandy or muddy substrate and may include coastal clay pans (and the like)
- Consists of dense to patchy areas of characteristic coastal saltmarsh plant species (i.e. Salt-tolerant herbs, succulent shrubs or grasses that may also include bare sediment as part of the mosaic).
- Proportional cover by tree canopy such as mangroves, *Melaleuca* spp. or *Casuarina* spp. is not greater than 50%, nor is proportional ground cover by seagrass greater than 50%.

The vegetation does not, however, satisfy the patch size requirements for the TEC. The patch size threshold is based on the minimum size capable of maintaining the ecological function of the community, and ensuring adequate propagule dispersal and food web dynamics. The diagnostic characteristic of the ecological community requires that an isolated patch or a mosaic of small patches no more than 30 m apart, must collectively be greater than or equal to 0.1 ha to be considered as an example of the TEC (DoE 2016).

The total area of patches of this foreshore vegetation mosaic which are less than 30 m apart is 0.05 ha. This falls well below the 0.1 ha patch size threshold. Consequently, the vegetation within the application area does not satisfy all of the requirements for the TEC and is not considered to be an example of the TEC.

2.4 Fauna

Fauna assessments undertaken within the area for the new Perth Stadium and associated projects include:

- Proposed Burswood Stadium – Level I Flora Survey (Golder 2012)
- Assessment of the importance of Burswood Peninsula and Claisebrook for Migratory and other Significant Birds (Bamford 2012)
- Assessment of the importance of Burswood Peninsula and Claisebrook for Non-Avian Fauna (Bamford 2012b)
- New Perth Stadium Flora and Fauna Surveys Report (Golder 2012b).

² Department of the Environment (2016). Subtropical and Temperate Coastal Saltmarsh in Community and Species Profile and Threats Database, Department of the Environment, Canberra. Available from: <http://www.environment.gov.au/sprat>. Accessed 2016-08-12T14:49:30AEST.

Based on vegetation present within the proposed jetty footprint and, in particular, lack of trees or dense vegetation, of those species identified as occurring in the area, only the following fauna species may occasionally utilise the site:

- eastern great egret (*Ardea modesta*)
- eastern osprey (*Pandion cristatus*)
- common greenshank (*Tringa nebularia*)
- common sandpiper (*Actitis hypoleucos*)
- Caspian tern (*Hydroprogne caspia*).

The narrow strip of vegetation within the proposed jetty footprint is adjacent to a well-used cyclist and pedestrian pathway (Plates 1 and 2) and this level of regular disturbance significantly reduces its potential to provide suitable roosting and foraging habitat for these birds.

3.0 Assessment Against the 10 Clearing Principles

Table 4 below provides an assessment of the proposed clearing activities against the “10 Clearing Principles” as outlined in Schedule 5 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, to determine whether the proposed clearing is at variance to the Principles. This project is only at variance to Principle (f) because it comprises riparian vegetation.

Table 2: Assessment of the Subject Land Against the 10 Clearing Principles

| Principle | Assessment | Outcome |
|--|--|--|
| a) Native vegetation should not be cleared if it comprises a high level of biological diversity | The vegetation within the footprint does not comprise a high level of biological diversity, consisting of <i>Juncus krausii</i> sedgeland with patches of <i>Tecticornia</i> sp. over <i>Sporobolus virginicus</i> closed grassland. Other species recorded included ? <i>Wilsonia backhousei</i> and <i>Ulva lactuca</i> algae on the roots and stems of the <i>Juncus krausii</i> at the water's edge. | The proposal is not at variance with Principle (a) |
| b) Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous Western Australia. | Vegetation within the proposed jetty footprint may occasionally provide habitat for small numbers of waterbirds. However, the application area is adjacent to a well-used pathway and this disturbance reduces the fauna habitat values within the proposed jetty footprint. The vegetation proposed to be cleared to construct the jetty is not likely to provide significant habitat to fauna species. | The proposal is not at variance with Principle (b) |
| c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora. | RPS botanist undertook an assessment of the jetty footprint in July 2016. During the site assessment, no significant flora species were identified. | The proposal is not at variance with Principle (c) |

| Principle | Assessment | Outcome |
|---|--|--|
| d) Native 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 encompassing the proposed jetty footprint does not satisfy the patch size requirements for the TEC which requires that an isolated patch or a mosaic of small patches no more than 30 m apart, must collectively be greater than or equal to 0.1 ha. The foreshore vegetation encompassing the application area covers 0.05 ha. Therefore, the vegetation within the application area does not satisfy all of the requirements for the TEC. No vegetation within the proposed jetty footprint comprises, or is necessary for the maintenance of a TEC. | The proposal is not at variance with Principle (d) |
| e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared | There are large areas of similar foreshore vegetation protected along the Swan River, including Baigup wetlands which are approximately 3 km upstream. Consequently, the sedgeland within the proposed clearing area is not considered significant as a remnant of native vegetation in an area that has been extensively cleared. | The proposal is not at variance with Principle (e) |
| f) Native vegetation should not be cleared if it is growing in or in association with a watercourse or wetland. | The vegetation proposed to be cleared is located along the Swan River foreshore. The loss of the riparian vegetation is offset by the change of shoreline type to rock wall which will provide better protection against erosion than the vegetation. | The proposal is at variance with Principle (f) |
| g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation. | A Construction Environmental Management Plan (CEMP) will be prepared to detail how disruption to the foreshore will be managed during clearing and construction to minimise land degradation and erosion. The loss of the riparian vegetation is offset by the change of shoreline type to rock wall which will provide better protection against erosion than the vegetation. With appropriate management measures in place, the proposed clearing activities will not cause land degradation. | The proposal is not at variance with Principle (g) |
| h) Native 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. | There is no vegetation with high environmental values adjacent to the proposed disturbance and the CEMP will outline management measures to ensure there are no impacts to surrounding vegetation. The CEMP will also outline management measures such as erosion and pollution control which will prevent any conservation areas downstream from the proposal being impacted. | The proposal is not at variance with Principle (h) |
| i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water | The clearing of vegetation and the proposed final use as a jetty is unlikely to cause any deterioration in the quality of surface or underground water. No chemicals (e.g. fuel) are proposed to be stored in the area during or post-construction that may impact water quality. No erosion of the riverbank is expected. | The proposal is not at variance with Principle (i) |
| j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the intensity of flooding. | The proposed jetty has been designed to replicate existing levels so that once constructed, the jetty will not impact flooding distribution or intensity. Vegetation within the jetty foreshore footprint is patchy and is unlikely to have an impact on current flooding regimes, therefore removing the vegetation is unlikely to impact flooding in the area. | The proposal is not at variance with Principle (j) |

4.0 Post-clearing Land Use

The Department of Transport proposes to construct the jetty adjacent to the new Perth Stadium pedestrian bridge to provide additional transport options to and from the new Perth Stadium. In particular, the proposed jetty will assist in quickly moving people away from the new Perth Stadium after an event. The jetty will support commercial and recreational boat use between events at the stadium.

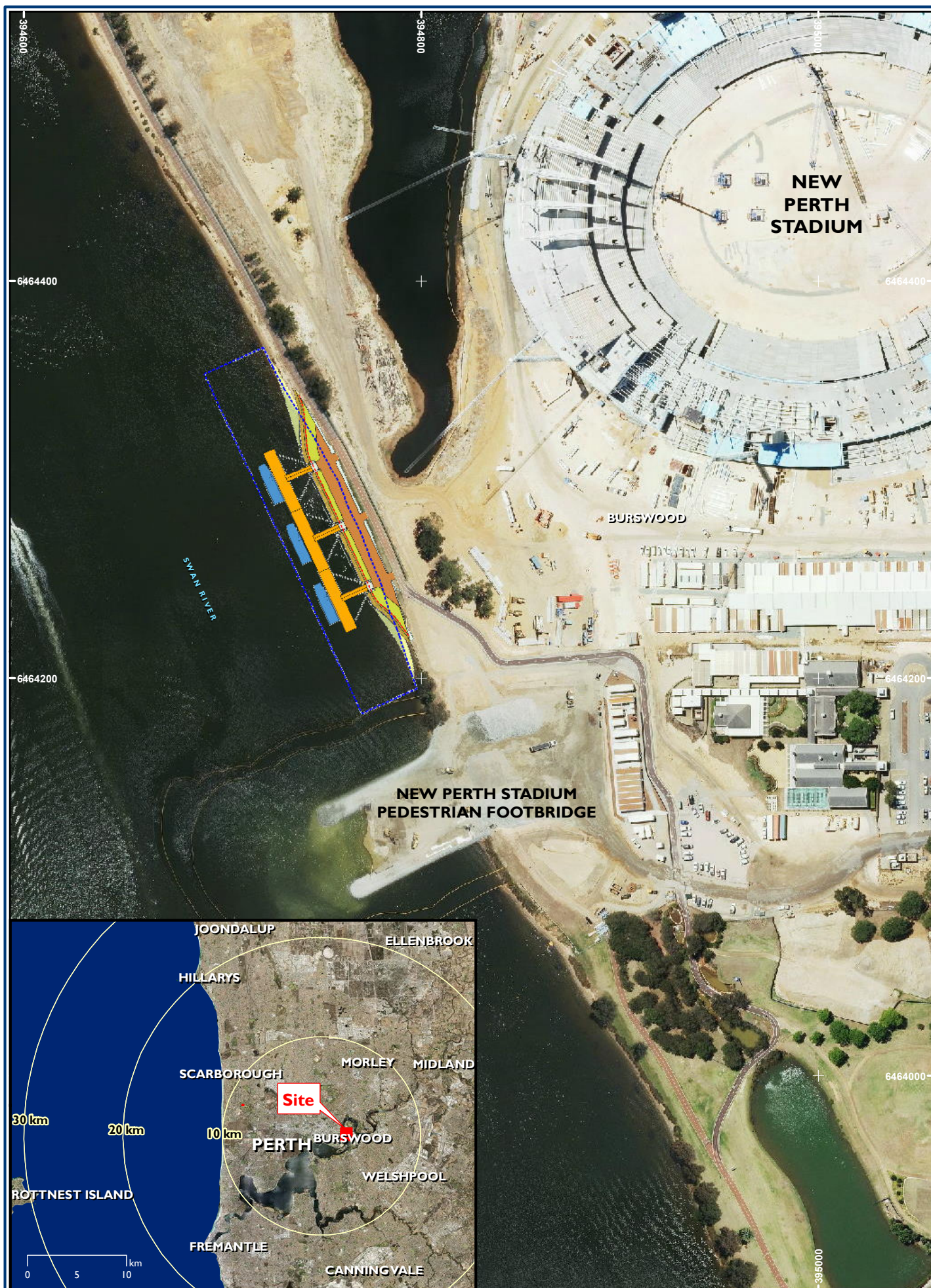
The cleared area will be subsumed by land reclamation to provide a congregation area for ferry passengers and access paths to the existing public pathway. Native species will be considered in the vegetative enhancement of the landscaped hardstand area.

4.1 Conclusion

The proposed clearing does not affect any conservation significant species or associations and is consistent with all of the native vegetation clearing principles, apart from Clearing Principle (f) due to its location on the bank of the Swan River.

Management measures during construction will be detailed in a Construction Environmental Management Plan to ensure there are no impacts beyond the area of direct clearing. The ecological impacts from removing this vegetation are not considered to be significant.

If you have any questions in relation this clearing application, please do not hesitate to contact me on 9211 3501.





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