GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9424/1
Permit Holder:	Golden River Developments (WA) Pty Ltd
Duration of Permit:	From 9 June 2022 to 9 June 2032

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of bulk earthworks to facilitate the Belmont Park Racecourse Redevelopment.

2. Land on which clearing is to be done

Lot 102 on Deposited Plan 72026, Burswood

Lot 9101 on Deposited Plan 73845, Burswood

3. Clearing authorised

The permit holder must not clear more than three (3) hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any native vegetation after 9 June 2027.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

(a) avoid the *clearing* of *native vegetation*;

(b) minimise the amount of *native vegetation* to be cleared; and

(c) reduce the impact of *clearing* on any environmental value.

6. Weed and dieback management

When undertaking any *clearing* authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no known *dieback* or *weed*-affected soil, mulch, fill, or other material is brought into the area to be cleared; and

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

7. Fauna Management (Directional Clearing)

The permit holder must conduct *clearing* activities in a slow, progressive manner in a single direction towards adjacent *native vegetation* to allow fauna to move into adjacent *native vegetation* ahead of the *clearing* activity.

8. Erosion Management

The permit holder must begin bulk earthworks within two months of undertaking *clearing* authorised under this permit.

9. Mitigation - revegetation and rehabilitation

Within 12 months of the commencement of *clearing*, the permit holder must implement and adhere to the "Foreshore Management Plan Precinct A – Belmont Park Racecourse Redevelopment. February 2022", including but not limited to the following actions:

(a) demarcation of the trees proposed for retention using a numbered metal tag, which will provide a unique number for each tree to be referred to throughout the development process.

(b) retain the vegetative material and topsoil removed by *clearing* autorised under this permit and stockpile the vegetative material and topsoil to be used in *revegetation* in an area that has already been cleared.

(c) at an *optimal time*, commence *rehabilitation* of the areas cross-hatched red in Figure 2 of Schedule 3.

(d) at an *optimal time,* commence *revegetation* of three native trees per one native tree cleared within the area cross hatched red in Figure 3 of Schedule 3.

(e) undertake condition 9(c) and 9(d) by;

  (i) laying the appropriate vegetative material and topsoil retained under condition 9(b) and fill to a height required so that landform interact with high to very high tidal ranges as appropriate;

  (ii) deliberately planting tube stock and salvaged *native vegetation*, also factoring provenance into the consideration;

  (iii) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.

(f) water planted vegetation for the first two years post planting as required.

(g) install signage to ensure that *revegetation* and *rehabilitation* areas are not disturbed..

(h) implement hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the *revegetation* and *rehabilitation* sites;

(i) undertake *weed* control activities on an 'as needed' basis to maintain a *weed* cover less than five per cent by the end of the project maintenance period;

(j) achieve the completion criteria specified in Schedule 2 after the three-year monitoring period for areas *revegetated* and *rehabilitated* under this permit;

(k) under remedial actions for areas *revegetated* and *rehabilitated* where monitoring indicates that *revegetation* has not met the completion criteria outlined in 9(j), including:

  (i) *revegetate* the areas by deliberately planting *native vegetation* that will result in the minimum target in 9(j) and ensuring only propagating material are used;

  (ii) undertake further *weed* control activities; and

  (iii) undertake further watering activities.

(l) annual monitoring of each *revegetated* and *rehabilitated* areas by an *environmental specialist*, until completion criteria, outlined in 9(j) are met.

PART III - RECORD KEEPING AND REPORTING

10. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised *clearing* activities generally	(a) the species composition, structure, and density of the cleared area; (b) the location where the *clearing* occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the direction that the area was cleared; (e) the size of the area cleared (in hectares); (f) the date that bulk earthworks commenced; (g) actions taken to avoid, minimise, and reduce the impacts and extent of *clearing* in accordance with *condition* 5; and (h) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with *condition* 6.
2.	In relation to *revegetation* and *rehabilitation* pursuant to *condition* 9	(a) the size of the area *revegetated* and *rehabilitated*; (b) the date(s) on which the area *revegetation* and *rehabilitation* was undertaken; (c) the boundaries of the area *revegetated* and *rehabilitated* (recorded digitally as a shapefile); (d) any remedial actions undertaken within the area

No.	Relevant matter	Specifications
		revegetated and *rehabilitated;* and (e) results of annual monitoring of each *revegetated* and *rehabilitated* areas, until completion criteria.

11. Reporting

(a) The permit holder must provide to the *CEO*, on or before 31 December of each calendar year, a written report containing:

(i) the records required to be kept under *condition* 10; and

(ii) records of activities done by the permit holder under this permit between 1 July of the preceding calendar year and 30 June of the current calendar year.

(b) If no *clearing* authorised under this permit has been undertaken, a written report confirming that no *clearing* under this has been undertaken, must be provided to the *CEO* on or before 31 December of each calendar year.

(c) The permit holder must provide to the *CEO*, no later than 90 calendar days prior to the expiry date of the permit, a written report of the records required under *condition* 10, where these records have not already been provided under *condition* 11(a).

DEFINITIONS

In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
dieback	means the effect of *Phytophthora* species on native vegetation.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of two (2) years of work experience relevant to the type of environmental advice that an environmental specialist is required to provide under this permit, or who is approved by the CEO as a suitable environmental specialist
EP Act	*Environmental Protection Act 1986* (WA)
fill	means material used to increase the ground level, or to fill a depression.
local provenance	means native vegetation seeds and propagating material from natural sources within 25 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.

Term	Definition
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimal time	Means the period from May to September for undertaking planting and seeding.
rehabilitate/ed/ion	rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area.
revegetate/ed/ion	revegetate/ed/ion means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area
tree	a woody plant, more than 2 m tall with a single stem or branches well above the base.
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS

Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

16 May 2022

Schedule 1

Plan 9424/1

The boundary of the area within which clearing may occur is shown in the map below (Figure 1).

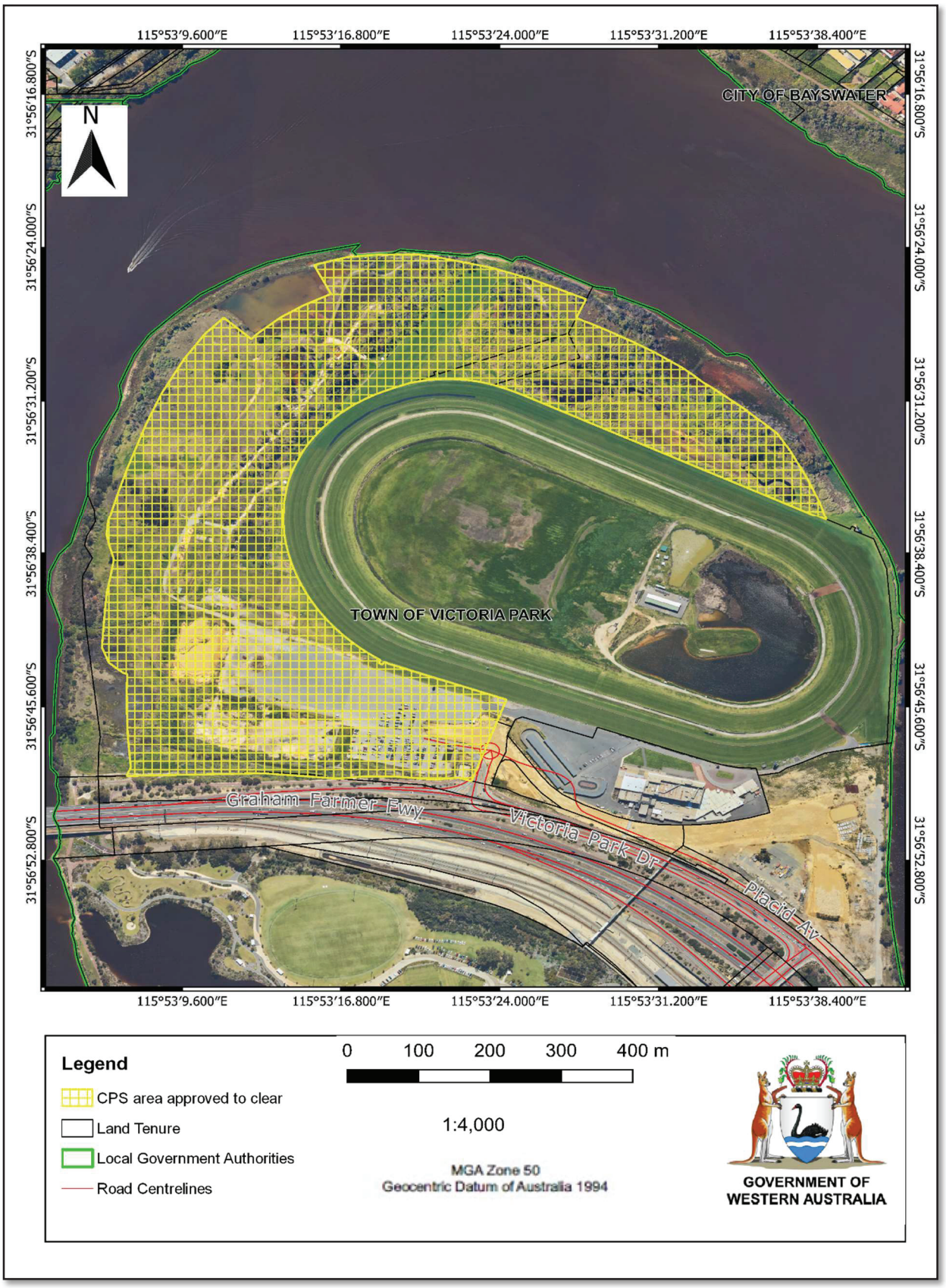

Figure 1: Map of the boundary of the area within which clearing may occur

Schedule 2

Revegetation completion criteria

Coastal Saltmarsh TEC – Very good (Keighery, 1994) condition	
Objective	**Target**
Retaining and enhancing natural elements of the foreshore.	Protect and enhance coastal saltmarsh vegetation such that: • understorey cover comprises >50% key native saltmarsh species (*Juncus kraussii*, *Salicornia* spp. and *Tecticornia* spp.) • weed cover <5% • landform is stable
Coastal Saltmarsh TEC – Good to degraded (Keighery, 1994) condition	
Objective	**Target**
• Retaining and enhancing natural elements of the foreshore • Infill plantation by installation of tubestock within the area crosshatched red in Figure 2 of Schedule 3	Protect, enhance and infill coastal saltmarsh vegetation to achieve a very good condition such that: • understorey cover comprises >50% key native saltmarsh species (*Juncus kraussii*, *Salicornia* spp. and *Tecticornia* spp.) • weed cover <5% • landform is stable
Coastal saltmarsh TEC – Completely degraded (Keighery, 1994) condition	
Objective	**Target**
Revegetation and *rehabilitation* including landform preparation and stabilisation within the area crosshatched red in Figure 2 of Schedule 3	Restore coastal saltmarsh vegetation to achieve a very good condition such that: • understorey cover comprises >50% key native saltmarsh species (*Juncus kraussii*, *Salicornia* spp. and *Tecticornia* spp.) • weed cover <5% • landform is stable • no standing water is created
Native trees proposed to be cleared	
Objective	**Target**
Revegetation and *rehabilitation* including landform preparation and stabilization within the area crosshatched red in Figure 3 of Schedule 3	Restore native trees cleared by; • planting three native trees for every native tree cleared.

Schedule 3

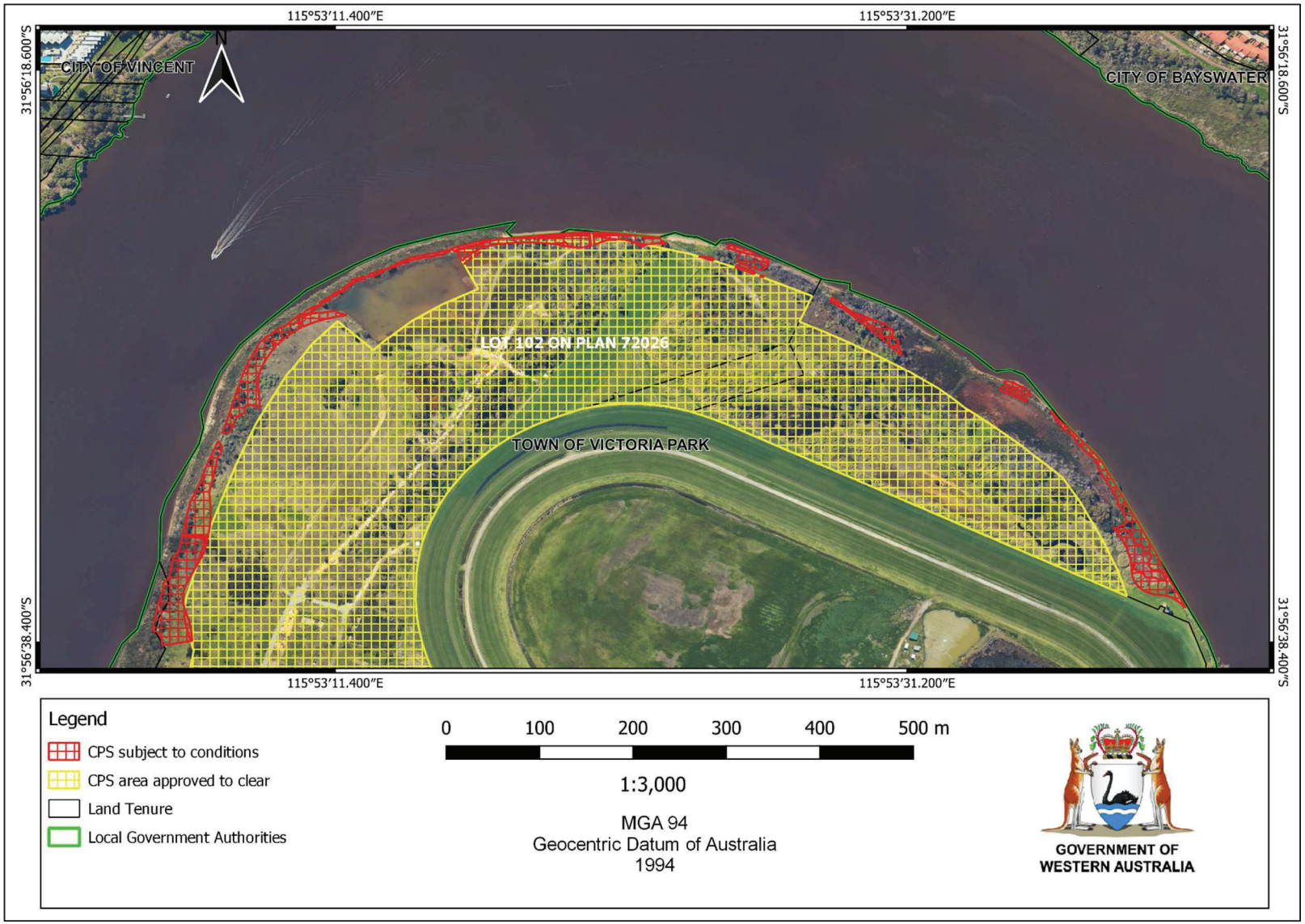

Figure 2: Map of the boundary of the area proposed for foreshore revegetation and rehabilitation.

Schedule 3

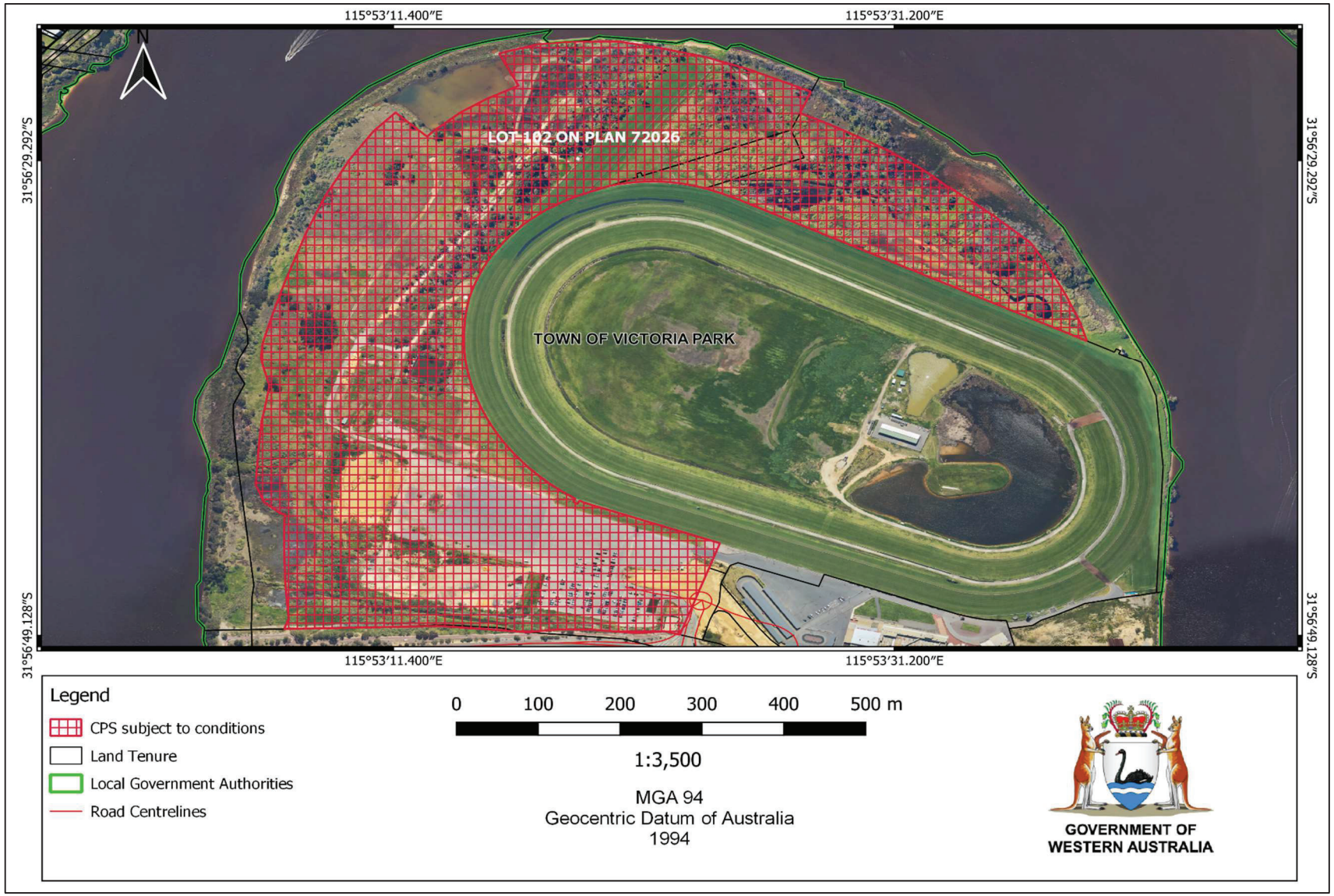

Figure 3: Map of the boundary of the area proposed for revegetation with native trees.

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1 Permit application details

Permit number:	CPS 9424/1
Permit type:	Purpose permit
Applicant name:	Golden River Developments (WA) Pty Ltd
Application received:	8 August 2021
Application area:	3 hectares (revised) of native vegetation within a 26.38 hectares application area (as revised)
Purpose of clearing:	Bulk earthworks to facilitate the Belmont Park Racecourse Redevelopment
Method of clearing:	Mechanical
Property:	Lot 102 on Deposited Plan 72026 Lot 9101 on Deposited Plan 73845
Location (LGA area/s):	Town of Victoria Park
Localities (suburb/s):	Burswood

1.2 Description of clearing activities

The proposed clearing is to facilitate the pre-development works required to commence the Belmont Park Racecourse Redevelopment. The pre-development works involve pre-loading of fill material to allow for the consolidation of the sediments prior to construction occurring (Emerge Associates, 2021a).

The initial application area was approximately 33.17 hectares in overall extent and was revised during the assessment process, in response to the findings from the Department of Water and Environmental Regulation's (DWER) preliminary assessment and request for further information. The revised footprint is 26.38 hectares. The changes included realigning the perimeter of the original application area to exclude clearing of approximately one hectare of native vegetation. The area of native vegetation clearing has been revised from 3.33 hectares to 2.53 hectares. The applicant requests approval of the clearing permit to clear up to three hectares of native vegetation to account for incidental changes during earthworks (Emerge Associates, 2021c).

The local area for this assessment is defined as a ten-kilometre radius from the perimeter of the revised application area. The extent of the proposed clearing is indicated in Figure 1 (see Section 1.5).

1.3 Decision on application

Decision:	Granted
Decision date:	16 May 2022
Decision area:	Three (3) hectares of native vegetation (revised), as depicted in Section 1.5, below.

1.4 Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). DWER advertised the initial application for 21 days and one submission was received. The revised application was readvertised on 16 December 2021 for a period of seven days and no further public submissions were received. Consideration of matters raised in the public submission is summarised in Appendix B.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix C), relevant datasets (see Appendix G.1), the photographs and information provided by the applicant, the findings of a flora, vegetation and fauna assessment (Emerge Associates, 2021b), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), relevant planning instruments, the applicant's minimisation and mitigation measures, and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing would result in:

- the loss of native vegetation that is representative of a threatened ecological community and may comprise a high level of biodiversity in an extensively cleared local area;
- the loss of *Eucalyptus rudis* (flooded gum) and/or *Eucalyptus camaldulensis* (river gum) woodland, and a further loss of *Casuarina obesa* (swamp sheoak) woodland, which comprise suitable (but unlikely to be significant) habitat for fauna species of conservation significance;
- injury to fauna species that may utilise the application area during the time of clearing;
- the potential introduction and spread of weeds and dieback into adjacent vegetation (which includes a conservation area), which could impact on the quality of the adjacent vegetation and its habitat values; and
- potential land degradation in the form of wind erosion, and associated risk to surface water quality through the transport of sediments and nutrients.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing can be minimised and managed to unlikely lead to an unacceptable risk to environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing, in particular avoid clearing of the Coastal Saltmarsh threatened ecological community (TEC) within the foreshore;
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback;
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activities;
- the bulk earthworks must commence within two months of undertaking clearing activity;
- revegetate and rehabilitate areas according to the Foreshore Management Plan Precinct A – Belmont Park Racecourse Redevelopment, February 2022.

1.5 Site map

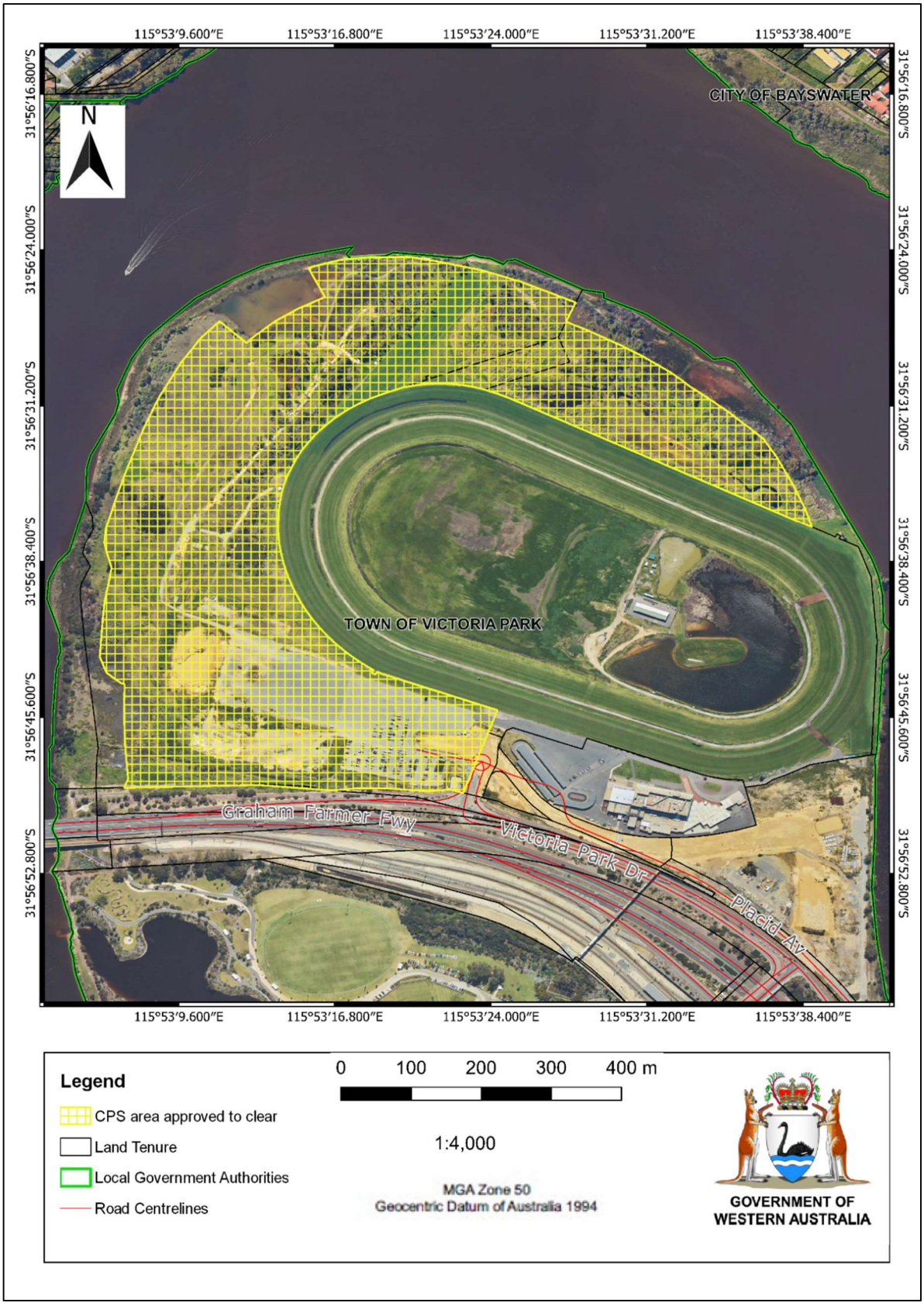

Figure 1 Map of the application area

The area cross-hatched yellow indicates the area where three hectares is authorised to be cleared under the granted clearing permit.

CPS 9424/1 16 May 2022

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection* (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Contaminated Sites Act 2003* (CS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016).

3 Detailed assessments of application

3.1. Avoidance and mitigation measures

The application form states:

> '*As part of the development process, the footprint of the proposed development and associated earthworks have been revised to minimise the impact on the better-quality vegetation adjacent to the application area. The key constraining factor for the development is the location of the existing racecourse and the Swan River. Avoidance measures include locating the development within an area that has historically been cleared of native vegetation and retaining majority of the better-quality vegetation fringing the Swan River. Other mitigation measures that will be incorporated as part of the proposed clearing include the revegetation of impacted fringing vegetation along the Swan River foreshore and incorporating native plant species within the landscaped public open space areas'* (Emerge Associates, 2021a).

The Delegated Officer considered the above did not adequately demonstrate that all reasonable efforts had been taken to avoid and minimise potential impacts of the proposed clearing on the environmental values, due to the extent of native vegetation predominantly in 'good' or better (Keighery, 1994) condition that is representative of a TEC within the original application area.

DWER wrote to the applicant, inviting the applicant to modify the original application area to avoid or reduce impacts to the TEC and fringing vegetation in 'good' or better (Keighery, 1994) condition in the foreshore reserve. In response, the applicant provided a revised application area which excluded approximately one hectare and included a new area of approximately 0.03 hectares of native vegetation (see Appendix A). The overall reduction of the proposed footprint has reduced the clearing of good vegetation (Keighery, 1994) from 2.05 hectares to 1.45 hectares which corresponds to a 28.57 per cent decrease. The reduction in the footprint has further reduced the impact to the coastal saltmarsh TEC by 34.49 per cent. The overall larger application area has been reduced from 33.17 hectares to 28.05 hectares and a further reduction to 26.38 hectares. The applicant has achieved the reduction in the footprint through considering alternative methods to pre-loading work (Emerge Associates, 2021c).

The Delegated Officer was satisfied that in revising the application area, the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

The applicant proposes to revegetate and rehabilitate within the foreshore reserve to mitigate the impact to the TEC and the foraging habitat for Carnaby's cockatoos. The revegetation will include using species that are representative of the TEC and rehabilitation of degraded areas consisting of high weed coverage will be restored. The applicant further proposes to revegetate three native trees for each native tree cleared. The revegetation will occur within 12 months of the commencement of the clearing (Emerge Associates, 2022) (Appendix F). Golden River Development

has submitted a detailed Foreshore Management Plan to DWER outlining the proposed revegetation and rehabilitation activities within the foreshore.

The Delegated Officer was satisfied that the applicant has proposed a reasonable proposal to mitigate the impacts from the proposed clearing.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix C), and considered the extent to which the impacts of the proposed clearing present a risk to environmental values and whether these can be managed to be environmentally acceptable.

The assessment against the clearing principles (contained in Appendix D) identified that the impacts of the proposed clearing present a risk to biological values and significant remnant vegetation. The consideration of these impacts, and the extent to which they could be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1 Biological values – fauna, flora and ecological communities (clearing principles a, b, c and d)

Assessment

The application area is located adjacent to the Swan River foreshore and contains approximately 2.53 hectares of native vegetation across eight plant communities ranging from 'Very Good' (Keighery, 1994) to 'Degraded' (Keighery, 1994) condition with a further 23.85 hectares in 'Completely Degraded' (Keighery, 1994) condition including cleared areas. Aerial imagery indicates that the majority of the native vegetation in 'Very Good' (Keighery, 1994) to 'Degraded' (Keighery, 1994) condition is in the north-western and eastern portions of the application area.

Soils within the application area are mapped as silty clay/clayey silt, with a degree of modification due to imported fill and historical land uses (Emerge Associates, 2021a).

The information provided by the applicant include a flora, vegetation and fauna assessment, comprising a desktop component (consideration of previous surveys and database records) and a field assessment undertaken in June 2021 (Emerge Associates, 2021b).

Fauna

Two of the mapped plant communities of the native vegetation within the application area contain low forest/woodland dominated by *Eucalyptus rudis* (flooded gum) and/or *Eucalyptus camaldulensis* (river gum). A further area of vegetation contains woodland dominated by *Casuarina obesa* (swamp sheoak). Understorey within these areas is generally comprised of rushes, sedges and introduced grasses (Emerge Associates, 2021b).

Information provided by the applicant indicate that five fauna habitat types occur within the application area: woodland, river, dam, fringing riverine vegetation, grassland and cleared area, and that the highest value fauna habitats are associated with the woodland and fringing riverine vegetation (Emerge Associates, 2021b).

Thirty-two threatened, 20 priority, one 'other specially protected' fauna, two conservation dependent and 18 fauna that are migratory/protected under an international agreement have been recorded in the local area. In forming a view on the likelihood of these species occurring within the application area, the preferred habitat types and typical home ranges of these species and their recorded proximity to the application area were considered, along with the type and condition (Keighery, 1994) of the vegetation within the application area.

Many of the species are migratory birds and/or are associated with marine/aquatic habitats. The fringes of the application area adjacent to the Swan River may be occasionally utilised by some of these migratory birds for roosting and foraging as they move through the landscape, however noting the specific habitat, breeding location and feeding requirements of these species, the application area is unlikely to comprise significant habitat for these species.

The application area may contain suitable habitat for four threatened, two priority, one 'conservation dependent', one 'other specially protected' and one migratory fauna. These are considered below.

- *Calyptorhynchus latirostris* (Carnaby's cockatoo, Endangered), *Calyptorhynchus baudinii* (Baudin's cockatoo, Endangered) and (*Calyptorhynchus banksii* subsp. *naso* (forest red-tailed black cockatoo, Vulnerable) were recorded within the local area. The nearest records are approximately 0.4 kilometres, 6.3 kilometres and 0.9 kilometres from the application area respectively. Information provided by the applicant indicates that Carnaby's cockatoo and Forest red-tailed black cockatoo may possibly utilise the application area (Emerge Associates, 2021b). The applicant's information also indicates that inspection of 33 habitat trees within the application area both from the ground and with a drone/pole-mounted camera, concluded that none of the trees currently provide suitable breeding habitat for black cockatoos (Emerge Associates, 2021b).

In combination with other plants, the application area may have value as foraging and roosting habitat. The majority of the black cockatoo species identified within the local area were the Carnaby's black cockatoos (3611 records). Carnaby's cockatoos forage on the seeds, nuts and flowers of a variety of plants, including proteaceous species (banksia, hakea and grevillea), as well as allocasuarina and eucalyptus species, marri and a range of introduced species (Valentine and Stock, 2008). Carnaby's cockatoos generally forages within six (and up to 12 kilometres) of its nesting or night roost site (Commonwealth of Australia, 2012). The foraging habitat is considered to be of 'low quality' based on Commonwealth guidance, that is, the vegetation proposed to be cleared comprises individual foraging plants or a small stand of foraging plants (DEE, 2017). Whilst approved to clear three hectares of native vegetation, less than one hectare would be considered foraging habitat (noting large areas of grassland and forbland within the application area that are not suitable foraging species). No evidence of foraging activity was observed within the site. Although the foraging habitat is considered low, the trees will still provide foraging value to the black cockatoos within the local area. Therefore, to mitigate the loss of black cockatoo foraging species as a result of clearing, the applicant will be planting three native trees per every native tree cleared.

There are 34 known black cockatoo roost sites within a six-kilometre radius buffer from the application area. 'Roosting habitat' include groups or individual tall trees but generally is the tallest tree in an area. Roost sites are located within six kilometres of water and food resources, with additional foraging ranging within 12 kilometres. Given this, the native and the non-native vegetation within the application area has the potential to provide roosting habitat for black cockatoos however, no evidence of black cockatoo roosting activity such as droppings, feathers or branch clipping were observed within the site during the field survey (Emerge Associates, 2021b).

- *Falco hypoleucos* (grey falcon, Vulnerable): The species frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses. The species has been observed hunting in treeless areas and frequents tussock grassland and open woodland, especially in winter. The nests chosen are usually in the tallest trees along watercourses, including river gums (DEC, 2019). The nearest record is approximately 1.8 kilometres from the application area. Based on the information from the survey, it indicates that the application area will not provide core habitat for the grey falcon (Emerge Associates, 2021b). Noting the presence of river gums, this species may utilise the fringing vegetation within the application area as part of a broader habitat.
- *Isoodon fusciventer* (quenda/south-western brown bandicoot, Priority 4): This species typically prefers dense understorey (DBCA 2017; DEC, 2012c). The nearest record is approximately 0.7 kilometres from the application area. The survey indicates that indirect foraging evidence was recorded within the broader survey area (Emerge Associates, 2021b). This species may utilise dense understorey and fringing vegetation within application area as habitat and a corridor. Given this, clearing is to be undertaken in a slow and in a single direction to allow any Quenda individuals to move into the adjacent vegetation.
- *Hydromys chrysogaster* (water-rat/rakali, Priority 4): This species lives in burrows on low banks of rivers, lakes, wetlands, estuaries and even along the coast. Intact riparian vegetation and associated bank stability is critical to their survival. A nocturnal species, hunting macroinvertebrates, fish and crustaceans, molluscs frogs and even water birds and bird eggs (DWER, 2020). The nearest record is approximately 2.2 kilometres from the application area. The survey indicates that the water rat may be a transient visitor to the application area (Emerge Associates, 2021b). The fringes of the application area adjacent to the Swan River may be utilised by the water-rat.
- *Cacatua pastinator* subsp. *pastinator* (Muir's corella, Conservation Dependent): The habitat critical to survival and important populations of Muir's Corella comprises large live or dead eucalypts, including flooded gums, in the lower south-west and south coast areas (DEC, 2008b). The nearest record is approximately 0.9 kilometres from the application area. The survey indicates that the Muir's corella is unlikely to occur within the application area noting the known range of this species. However, based on the presence of flooded gums, this species if it was present may utilise fringing vegetation within the application area as part of a broader habitat (Emerge Associates, 2021b).
- *Falco peregrinus* (peregrine falcon, Other Specially Protected): The Australian Museum website states that this species 'is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water, and may even be found nesting on high city buildings' (Australian Museum, 2021). This species is widespread and highly mobile, and is found in various habitats. the Peregrine falcon may opportunistically occur over the application area for short periods or fly over the application area on commute while searching for prey. The nearest record is approximately 0.4 kilometres from the application area. The application area will not provide core habitat for the peregrine falcon.
- *Pandion cristatus* (osprey, Migratory): The Osprey patrols the coast, searching for prey. The Osprey is cosmopolitan, being found in many coastal and lake areas of the world. In Australia, it is found on the north and east coast from Broome to the south coast of New South Wales. Ospreys are also found in terrestrial wetlands

of tropical and temperate Australia and off-shore islands, occasionally ranging inland along rivers, though mainly in the north of the country (Birdlife Australia, 2021). The nearest record is approximately 1.4 kilometres from the application area. The osprey may be a transient visitor to the application area.

Flora

The desktop assessment identified 11 threatened and 69 priority flora in the local area. In forming a view on the likelihood of these species occurring within the application area, the preferred habitat types of these species and their recorded proximity to the application area were considered, along with the vegetation/soil types and landforms within the application area.

The application area may contain suitable habitat for three threatened and eight priority flora species recorded from habitats broadly similar to the low-lying vegetated areas of the application area, and from soil and/or vegetation types similar to those mapped within the application area. These are considered below.

- *Grevillea thelemanniana* (spider net grevillea, Critically Endangered): The Florabase website (Western Australian Herbarium, 1998-) indicates that this species is known from 37 recorded populations (some records may overlap) in the local government areas of Armadale, Canning, East Fremantle, Gosnells, Kalamunda and Wandering. The Florabase website describes this species as a spreading lignotuberous shrub 0.3-1.5 metres high, with pink and red flowers in May to November, growing in sand and sandy clay, associated with winter-wet low-lying flats. Records on the Florabase website indicate this species grows in association with shrubland and heath. The nearest record is approximately 7.73 kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that the spider net grevillea is unlikely to occur within the application area. Noting that this species would have been in flower in June, it is likely to have been identified during the flora, vegetation and fauna assessment if it was present.
- *Eremophila glabra* subsp. *chlorella* (Endangered): The Florabase website indicates that this species is known from 32 recorded populations (some records may overlap) from the local government areas of Canning, Carnamah, Dandaragan, Gingin, Gosnells, Moora and Victoria Plains. The Florabase website describes this species as a prostrate and spreading or sprawling shrub to one metre high, with green and yellow flowers in July to November, growing in sandy clay, associated with winter-wet depressions. Records on the Florabase website indicate this species is associated with low banksia woodland, shrubland, river gum and/or paperbark woodland, and shrubland. The nearest record is approximately 7.73 kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that this species is unlikely to occur within the application area. Noting that this species is a distinctive shrub, it is likely to have been identified during the flora, vegetation and fauna assessment if it was present.
- *Diuris drummondii* (tall donkey orchid, Vulnerable): The Florabase website indicates that this species is known from 53 recorded populations (some records may overlap) from the local government areas of Albany, Boyup Brook, Canning, Capel, Chittering, Cockburn, Cranbrook, Dardanup, Denmark, Gingin, Harvey, Kojonup, Manjimup, Murray, Nannup, Plantagenet, Swan, Waroona and York. The Florabase website describes this species as a tuberous perennial herb to 1.05 metres high, with yellow flowers in November to January, associated with low-lying depressions and swamps. Records on the Florabase website indicate this species grows in peat, sandy loam, brown loam, associated with flooded gum and/or paperbark woodland, and shrubland. The nearest record is approximately 8.42 kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that this species is unlikely to occur within the application area. Noting the preference for loamy soils and peat, this species is unlikely to be present.
- *Bolboschoenus fluviatilis* (Priority 1): The Florabase website indicates that this species is known from five recorded populations (some records may overlap) from the local government areas of Bassendean, Bayswater, Gosnells and Swan. Records on the Florabase website indicate this species to be a perennial sedge to 1.7 metres high, growing in brown silt and sand, associated with the littoral zone of the Swan River and flooded gum woodland. The nearest record is approximately 4.99 kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that this species is unlikely to occur within the application area. Noting that this species has a distinctive growth habit, it is likely to have been identified during the flora, vegetation and fauna assessment if it was present.
- *Hydrocotyle striata* (Priority 1): The Florabase website indicates that this species is known from seven recorded populations (some records may overlap) from the local government areas of Kalamunda, Melville and Swan. Records on the Florabase website indicate this species is a spreading prostrate annual herb, associated with low paperbark woodland, flooded gum and swamp paperbark woodland, associated with winter-wet creek lines and seasonally inundated areas. The nearest record is approximately 9.52 kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that this species is unlikely to occur within the application area.

- *Angianthus micropodioides* (Priority 3): The Florabase website indicates that this species is known from 41 recorded populations (some records may overlap) from the local government areas of Canning, Cunderdin, Dalwallinu, Dandaragan, East Fremantle, Greater Geraldton, Kellerberrin, Koorda, Melville, Morawa, Perenjori, Perth, South Perth, Wongan-Ballidu and Yilgarn. The Florabase website describes this species as an erect or decumbent annual herb to 0.15 metres high, with yellow and white flowers in November to February, growing on saline sandy soils, associated with river edges, saline depressions and claypans. The nearest record is approximately 1.89 kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that this species is unlikely to occur within the application area. Noting the range of this species and the number of records from which it is known, the proposed clearing is unlikely to change its conservation status if it is present.
- *Babingtonia urbana* (coastal plain babingtonia, Priority 3): The Florabase website indicates that this species is known from 26 recorded populations (some records may overlap) from the local government areas of Canning, Dandaragan, Gosnells and Serpentine-Jarrahdale. Records on the Florabase website indicate that this species is a sprawling shrub to 0.4 metres high, with pink flowers, growing in sand, clay loam, associated with winter-wet depressions and low shrubland. The nearest record is approximately 7.73 kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that this species is unlikely to occur within the application area. Noting the preference for low shrubland, and that the understorey within the application area is generally dominated by rushes and introduced grasses, this species is unlikely to be present.
- *Cyathochaeta teretifolia* (Priority 3): The Florabase website indicates that this species is known from 39 recorded populations (some records may overlap) from the local government areas of Augusta Margaret River, Bayswater, Busselton, Capel, Chittering, Cockburn, Denmark, Harvey, Kwinana, Melville, Murray, Nannup, Swan and Wanneroo. The Florabase website describes this species as a rhizomatous clumped robust perennial grass-like or herb to two metres high with brown flowers, growing in grey sand and sandy clay, associated with swamps and creek edges. The nearest record is approximately three kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that this species is unlikely to occur within the application area. Noting that this species has a distinctive growth habit, it is likely to have been identified during the flora, vegetation and fauna assessment if it was present.
- *Dampiera triloba* (Priority 3): The Florabase website indicates that this species is known from 16 recorded populations (some records may overlap) from the local government areas of Bayswater, Cockburn, Corrigin, Cunderdin, Esperance, Fremantle, Manjimup and Wanneroo. The Florabase website describes this species as an erect perennial herb or shrub to 0.5 metres high, with blue flowers in August to December. Records on the Florabase website indicate this species grows in brown or grey peat, sand, loamy sand and sand over clay, associated with low-lying areas (watercourses and wetlands), and paperbark and/or eucalypt woodland and/or shrubland. The nearest record is approximately three kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that this species is unlikely to occur within the application area.
- *Schoenus benthamii* (Priority 3): The Florabase website indicates that this species is known from 21 recorded populations (some records may overlap) from the local government areas of Albany, Belmont, Bunbury, Busselton, Canning, Capel, Gosnells, Manjimup, Murray and Victoria Plains. The Florabase website describes this species as a tufted perennial grass-like or herb (sedge) to 0.45 metres high, with brown flowers in October to November, growing on white and grey sand and sandy clay, associated with winter-wet flats and swamps. The nearest record is approximately 7.73 kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that this species is unlikely to occur within the application area.
- *Drosera occidentalis* (western sundew, Priority 4): The Florabase website indicates that this species is known from 19 recorded populations (some records may overlap) from the local government areas of Armadale, Canning, Collie, Gosnells, Serpentine-Jarrahdale, Swan and Wandering. The Florabase website describes this species as a fibrous-rooted rosetted perennial herb to 0.025 metres high, with pink and white flowers in October to January. Records on the Florabase website indicate this species grows in sand and sandy clay, associated with seasonally wet swamps, and open woodland and sedgeland. The nearest record is approximately 7.76 kilometres from the application area. Information from the survey (Emerge Associates, 2021b) indicates that this species is unlikely to occur within the application area.

Ecological communities

Four threatened and three priority ecological communities (State-listed; some are also threatened under Commonwealth legislation) have been recorded in the local area. In forming a view on the likelihood of these ecological communities occurring within the application area, the preferred habitat types of these ecological communities and their recorded proximity to the application area were considered, along with the vegetation/soil types and landforms within the application area.

Seven ecological communities are characterised by suites of species and preferred habitats (including geomorphology) that do not occur within the application area.

The application area contains two plant communities Jk and SqT within the application area, the majority of which ranges from 'Very Good' to 'Good' (Keighery, 1994) condition that are representative of a Commonwealth-listed TEC. The characteristics of this ecological community are considered below.

- Subtropical and Temperate Coastal Saltmarsh (State-listed as Priority 3; synonymous with the ecological community of the same name listed as Vulnerable under EPBC Act (Cth)): This ecological community consists mainly of salt-tolerant vegetation (halophytes) including: grasses, herbs, sedges, rushes and shrubs. Succulent herbs, shrubs and grasses generally dominate, and vegetation is generally of less than 0.5 m height (with the exception of some reeds and sedges). Key diagnostic characteristics include: occurs on the coastal margin, along estuaries and coastal embayment 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; and proportional cover by tree canopy (melaleucas, casuarinas) or groundcover (seagrass) is not greater than 50 per cent in each case. Characteristic species may include *Austrostipa stipoides* (spear grass), *Gahnia trifida* (clumped sedge), *Juncus kraussii* (sea rush), *Samolus repens* (creeping brookweed), *Salicornia quinqueflora* (beaded glasswort), *Sporobolus virginicus* (marine couch), *Suaeda australis* (seablite), *Tecticornia pergranulata* (blackseed samphire), *Tecticornia arbuscula* (shrubby glasswort), *Triglochin striata* (arrowgrass), *Wilsonia backhousei* (narrow-leaf wilsonia), and *Wilsonia rotundifolia* (round-leaf wilsonia) (SEWPAC, 2013).

Information provided by the applicant acknowledged the presence of the TEC within the application area and indicates that the occurrence is comprised of both native (1.57 ha) and non-native vegetation (0.69 ha) totalling approximately 2.26 hectares of the application area (Emerge Associates, 2021a). The area of native vegetation is generally in very good condition. The applicant's information indicates that due to its location on the Swan River, this occurrence of the TEC is likely to be locally significant and provides a buffer to the river as well as habitat for multiple fauna species, particularly birds (Emerge Associates, 2021b). The applicant also submitted that while the proposed clearing will impact on the TEC, the impact is unlikely to be significant as the revegetation and restoration of the Swan River foreshore proposed as part of the development will result in restoration of the TEC and improve the overall habitat through the removal of non-native vegetation (Emerge Associates, 2021a). An area of 1.23 hectares will be rehabilitated within the foreshore area as well as the three trees for every tree cleared mentioned above.

With advice received from DBCA, the applicant revised the application area to minimise clearing of the coastal saltmarsh TEC in Very Good (Keighery, 1994) condition within the foreshore reserve. The area of coastal saltmarsh TEC cleared will be restored as part of the foreshore management plan once the pre-loading fill is removed from the application area (Emerge Associates, 2021c).

Conclusion

Significant habitat refers to the resources, connectivity or habitat area for a species or community that is critical for its survival.

Noting the types and condition (Keighery, 1994) of the vegetation proposed to be cleared, and with regard for adjacent remnant vegetation linking with other fringing remnant vegetation along the Swan River, the application area comprises suitable habitat for indigenous fauna, including species of conservation significance. However, with regard for the adjacent remnant, the application area is unlikely to be significant for the survival of indigenous fauna, is unlikely to contain threatened or priority flora, and is unlikely to be necessary for the maintenance of a significant habitat for conservation-significant species.

The application area contains native vegetation that is representative of a priority/threatened ecological community which extends more broadly along the fringes of the Swan River. Other remnant vegetation within the application area adjacent to the ecological community may be necessary for the maintenance of this occurrence.

There is potential that the proposed clearing could result in the introduction and/or spread of weeds and dieback into adjacent vegetation within the fringing corridor along the Swan River foreshore, which could impact on the quality of habitat values.

Conditions

It is considered that the impacts outlined above can be managed. To address these impacts, the following management measures will be required as conditions on the clearing permit:

- avoid and minimise clearing, to minimise the direct impacts to native vegetation.
- slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity.

- weed and dieback management, to minimise the risk of the introduction and spread of weeds and dieback into adjacent vegetation.
- rehabilitation of foreshore vegetation following removal of pre-loading fill.
- revegetation of native trees within the broader application area.

3.2.2 Significant remnant vegetation and conservation areas (clearing principles e)

Assessment

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The Environmental Protection Authority (EPA) recommends a minimum ten per cent representation threshold for ecological communities in constrained areas 'where there is a reasonable expectation that development will be able to proceed' (EPA, 2008).

The application area is located within the Perth Metropolitan Region Scheme boundary, which the EPA recognises to be a constrained area.

The mapped vegetation association 1009 and Swan Complex each retains more than ten per cent of their pre-European extents remaining (at 16.4 per cent and 13.57 per cent respectively) and are considered to be well represented within the constrained area. However, the local area retains less than ten per cent of its pre-European native vegetation cover (at 5.17 per cent) and is considered to be extensively cleared (despite being within a constrained area).

The majority of the application area is unlikely to be required to maintain ecosystem services (such as hydrological processes), and with regard for the composition and Completely Degraded (Keighery, 1994) condition of the majority of the vegetation, is unlikely to be biologically diverse or comprise significant habitats for indigenous fauna or flora (including species conservation significance). However, a portion of the vegetation within the application area is in Good (Keighery, 1994) or better condition and is representative of a priority/threatened ecological community within an extensively cleared local area and is likely to be biologically diverse and locally significant due to its location on the Swan River. On this basis, it is considered that the application area is significant as a remnant in an extensively cleared area.

Conclusion

For the reasons set out above, it is considered that the native vegetation within the application area is significant as a remnant in an extensively cleared area.

Noting the applicant propose to rehabilitate the impacted areas of fringing vegetation along the Swan River foreshore, it is considered that the impact of the proposed clearing is unlikely to sever connectivity within the foreshore corridor. Applicant has further proposed to revegetate three native trees for every native tree cleared (Emerge Associates, 2022). This is deemed to mitigate the loss of native vegetation within the extensively cleared local area.

Conditions

It is considered that the impacts outlined above can be managed. To address these impacts, the following management measures will be required as conditions on the clearing permit:

- avoid and minimise clearing, to minimise the direct impacts to native vegetation.
- rehabilitation of foreshore vegetation following removal of pre-loading fill.
- revegetation with native tree species within the broader application area.

3.2.3 Land and water resources (clearing principles f, g and j)

Assessment

Land degradation

Soils within the application area are mapped as alluvial clayey silt. Information provided by the applicant indicates that these soils have been modified through the introduction of fill and historic land uses (Emerge Associates, 2021b).

The primary land degradation risks are from subsurface acidification and phosphorus export, and to a lesser extent from waterlogging, salinity, water erosion and wind erosion (DPIRD, 2019).

Noting the extent and purpose of the proposed clearing, the location of the application area adjacent to the Swan River, and the mapped groundwater salinity in the local area, the proposed clearing is unlikely to cause an appreciable increase to the existing risks of subsurface acidification, phosphorus export, waterlogging or salinity.

Noting the landscape position and mapped soil type, the proposed clearing may cause land degradation in the form of short-term water erosion during the times of high rainfall but able to be managed to not cause appreciable land degradation through the implementation of standard construction methodologies and commencing work soon after clearing activities.

Watercourse or wetland

The application area is within the buffer of the Swan-Canning River, which is mapped as a Conservation Category Wetland and it is also on the Directory of important Wetlands in Australia. The application area itself does not fall within a watercourse or wetland.

The proposed clearing will include clearing of wetland dependent vegetation for temporary activities. Emerge associates have considered the impact to riparian vegetation from the proposed clearing and have submitted a Foreshore Management Plan which includes retaining and enhancing natural elements of the foreshore, such as remnant foreshore vegetation and the influence of the Swan River estuary. The design and management approach for the foreshore reserve further include protecting remnant riparian vegetation associated with Swan River and restoring riparian vegetation including the TEC in bare or currently weed infested areas. This is deemed to maximise fauna habitat and ensure the overall riparian value areas are maintained and further enhanced (Emerge Associates, 2022).

Erosion

The potential risk of surface water run-off on cleared land, may lead to a change in the quality of surface water through the transport of sediments and nutrients, which may impact on the adjacent section of the Swan River (including foreshore vegetation).

The topography of the application area is determined to be flat and fill material present within the site is of low permeability. This may result in short term ponding of surface water during the times of high rainfall activities. However, surface water runoff rates are low and given the vegetation and the presence of bunding and artificial banks to the north and west of the site, it is unlikely there will be a significant impact to the swan river as a result of surface water run-off.

Conclusion

For the reasons set out above, it is considered the proposed clearing may result in land degradation in the form of sediment transport in surface water run-off. With conditions on the clearing permit and the standard construction methodologies that will be implemented by the applicant during construction activities, the proposed clearing will not lead to an unacceptable level of land degradation.

Conditions

It is considered that the impacts outlined above can be managed. To address these impacts, the following management measures will be required as conditions on the clearing permit:

- Development must commence no later than two months post clearing of native vegetation to minimise potential surface water run off to the Swan River Estuary.

Relevant planning instruments and other matters

The original application was advertised on DWER's website on 23 September 2021 for a 21-day submission period. One public submission was received in response to the advertisement for the original application area, raising concerns in relation to three threatened black cockatoo species (refer Appendix B). The revised application area was readvertised on 16 December 2021 for a period of seven days and no further public submissions were received.

Development applications

The application area includes land zoned 'Urban' under the Metropolitan Region Scheme (MRS), and an area fringing the Swan River reserved as 'Parks and Recreation' under the MRS which is also contained in the Swan-Canning Development Control Area.

The application area is subject to the Belmont Park Racecourse Local Structure Plan (LSP) (April 2013) and the Burswood Peninsula District Structure Plan (February 2015), which provide the strategic planning framework for the broader area:

- The LSP requires the preparation of a Local Development Plan (LDP) for each of four precincts identified in the LSP. The application area traverses Precincts A and B under the LSP; a draft LDP for Precinct A has been submitted to the Town of Victoria Park (Town) for approval, and an LDP for Precinct B has not yet been prepared.

- The Western Australian Planning Commission (WAPC) has issued various subdivision approvals within the LSP area. Relevant to the application area are WAPC Ref 143943 and WAPC Ref 160634, which created unserviced super lots for financial and land management purposes (DPLH, 2021).

The application area is subject to two current applications for development approval. Golden River Development received the approval from Department of Planning, Lands and Heritage (DPLH) and approval from Town of Victoria Park on 05 April 2022.

Clearing approvals

Clearing Permit CPS 4786/1 was granted to the applicant on 21 June 2012, authorising the clearing of 1.98 hectares of native vegetation within a similar broad footprint and for a similar purpose as this application. This permit (now expired) was subject to conditions including weed control, revegetation and rehabilitation of areas not permanently cleared, and record-keeping and reporting.

Contaminated sites

In 2010, Lots 102 and Lot 9101 were classified together under the *Contaminated Sites Act 2003* (CS Act) as 'possibly contaminated – investigation required'. Several investigations have been carried out since then in preparation for potential future redevelopment, and based on these the Lots now have multiple classifications under the CS Act:

- The portion of Lot 102 known as 'Subject M' on Deposited Plan 414105 (as shown on certificate of title 2776/542) was classified as 'remediated for restricted use' because of the presence of uncontrolled fill. This portion of the site was found suitable for its current use provided the auditor-approved Site Management Plan was adhered to.
- The balance of Lot 102 (that is, excluding the portion known as 'Subject M' on Deposited Plan 414105) was classified as 'not contaminated – unrestricted use'.
- Investigations on Lot 9101 were limited due to the current racetrack use, and the unknown nature and extent of contamination. Lot 9101 remains classified as 'possibly contaminated – investigation required'.

As indicated above, the auditor-approved Site Management Plan (SMP), entitled '*Site Management Plan, Perth Riverfront Lot 102, Project No: EP16-109(06)*' (Emerge Associates, 2019), is required to be adhered to for any ground disturbance works. In accordance with the SMP, a project-specific SMP or a project-specific health and safety management plan is required to be developed prior to the clearing works.

Aboriginal sites

One registered Aboriginal site (15915) has been mapped within the application area (DPLH-001). It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through clearing processes.

End

Appendix A. Additional information provided by applicant

Information	Description
CPS 9424/1 – Supporting information – Application Cover Letter (Emerge Associates, 2021a)	The supporting document provided to DWER by Emerge Associates comprise of: • Summary of the purpose of the proposed clearing. • Avoidance, mitigation and rehabilitation measures implemented by the applicant. • Summary of the Environmental conditions which describes flora, vegetation and fauna values within the application area. • External approvals required prior to the commencement of project work. • A response to the EP Act clearing principles as determined by Emerge Associates.
CPS 9424/1 – Supporting information – Flora, Vegetation and Fauna Assessment (Emerge Associates, 2021b)	Emerge Associates was employed by Golden River Developments (WA) Pty Ltd to provide information regarding the flora and vegetation values within the site. The scope of the work included: • Desktop review of the site and surrounds. • Dataset searches for threatened flora, fauna and ecological communities. • Identification of potential habitat for conservation significant flora and fauna and an assessment of likelihood of occurrence. • Creating maps which represent plant communities, vegetation condition (Keighery, 1994) and fauna habitat types within the application area. • Identifying black cockatoo habitat including mapping of black cockatoo habitat trees. • Identification conservation significant flora, vegetation and/or fauna within the site.
CPS 9424/1 – Supporting information – Photographs of Native Vegetation	Emerge Associates provided DWER with photographs of each of the vegetation communities identified within the application area.
Clearing Permit Application CPS 9424/1 – Response to Request for further Information (Emerge Associates, 2021c)	Emerge Associates provided DWER with a response to the further information requested on the letter dated 5 November 2021. Application area was modified by the applicant to largely avoid the vegetation mapped as a TEC. The information further comprised of comments to the public submissions received (Emerge Associates, 2021c).
Foreshore Management Plan – Response to Request for further information (Emerge Associates, 2022)	Emerge Associates provided DWER with the Foreshore Management Plan which outlines the rehabilitation and revegetation commitments by Golden River Developments Pty Ltd.

Appendix B. Details of public submissions

One public submission was received in response to the advertisement for the original application area, raising concerns in relation to three threatened black cockatoo species. The submittor's comments, and the Department's consideration of these, are summarised below.

Summary of comments	Consideration of comment
Tracking data from 2020-21 indicates that a forest red-tailed black cockatoo and its flock consistently roosted in the immediate vicinity of, and within daily foraging distance of, the application area from April to June 2021. It would be very likely that these birds and Carnaby's black cockatoos would utilise any suitable foraging habitat within the application area. This indicates the importance of the habitat within the application area as a foraging resource. The proposed clearing would mean the loss of up to four hectares of foraging habitat, noting that there is already insufficient foraging habitat on the Swan Coastal Plain to sustain black cockatoo populations. There is a need to retain not only current but also future breeding trees for black cockatoos, Consideration of cumulative impacts is vital for black cockatoo population viability and for clearing applications. It is unclear whether the applicant is planning to refer the proposed clearing under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). This will be important to consider, given the proposed clearing of >1 hectares of black cockatoo foraging habitat. The Department would be an appropriate agency to advise the applicant regarding the need to consider any Commonwealth-level referral requirements; such advice could make a valuable positive contribution to efforts to protect Western Australia's threatened black cockatoos. The proponent of this clearing permit application has not proposed any offset or other measures to mitigate their impacts on black cockatoo foraging habitat.	As set out under sections 1.4 and 3.2, the Department's assessment has had regard for the characteristics of the application area, relevant datasets including records of threatened fauna in the local area, supporting information provided by the applicant, and any other information considered to be relevant. It is acknowledged that the black cockatoo foraging habitat within the application area is secondary food plants. Whilst approved to clear three hectares of native vegetation, less than one hectare would be considered foraging habitat (noting large areas of grassland and forbland). The trees proposed to be cleared did not have evidence of hollows suitable for use by black cockatoo species (Emerge Associates, 2021b). Surveys indicate that none of the 33 habitat trees currently provide suitable breeding habitat for black cockatoos (Emerge Associates, 2021b). Cumulative impacts have been considered in the assessment against clearing principle (e), which focusses on the importance of the native vegetation proposed to be cleared in regional and local contexts. For the reasons set out in Section 3.2.2, it is considered that the native vegetation within the application area in Good (Keighery, 1994) or better condition is significant as a remnant in a local area that has been extensively cleared, and that the proposed clearing is 'at variance' with clearing principle (e). The applicant is conditioned to revegetate and rehabilitate with native vegetation to mitigate the loss of native vegetation. The Department has advised the applicant that they may have notification responsibilities under the Commonwealth EPBC Act in relation to black cockatoos. The responsibility for determining if notification is required is with the applicant. From the assessment findings, and with regard for the *WA Environmental Offsets Policy* and *Guidelines*, it is concluded that the proposed clearing will not result in any significant residual impacts that would require counterbalancing by an offset. Applicant is conditioned to undertaken rehabilitation and revegetation activities to mitigate the clearing of native vegetation consisting of a TEC and potential black cockatoo foraging and roosting habitat.

Appendix C. Site characteristics

C.1. Site characteristics

The information provided below describes the characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of the assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td>Local context</td><td>The application area is located on a peninsula, largely surrounded by the Swan River.

The local area (ten-kilometre radius buffer - terrestrial portion) retains approximately 5.17 per cent of native vegetation cover.</td></tr>
<tr><td>Ecological linkage</td><td>The application area includes part of a fringing corridor along the Swan River, and this portion of the application area is likely to function as part of an ecological corridor.</td></tr>
<tr><td>Conservation areas</td><td>More than 15 DBCA-managed lands and waters and 29 Bush Forever areas occur within the local area. The nearest conservation area is (un-named) Reserve 48325 and is for the purpose of landscape protection under the Swan and Canning Rivers Management Act 2006, which is adjacent to the application area.</td></tr>
<tr><td>Vegetation description</td><td>The vegetation types within the application area are mapped as:
Beard vegetation association 1009, described as: Medium woodland; Corymbia calophylla (marri) and Eucalyptus camaldulensis (river gum) (Government of Western Australia, 2019b).
Swan Complex described as: fringing woodland of Eucalyptus rudis (flooded gum) - Melaleuca rhaphiophylla (swamp paperbark) with localised occurrence of low open forest of Casuarina obesa (swamp sheoak) and Melaleuca cuticularis (saltwater paperbark). (Government of Western Australia, 2019a).
Information provided by the applicant indicates that the application area is also mapped as ‘SWA02’ or Perth subregion, characterised as mainly containing Banksia low woodland on leached sands with Melaleuca swamps where ill-drained; and woodland of Eucalyptus gomphocephala (tuart), Eucalyptus marginata (jarrah) and Corymbia calophylla (marri) on less leached soils (Emerge Associates, 2021b).

The flora, vegetation and fauna assessment recorded eight vegetation communities (and their extents) within the survey area (Emerge Associates, 2021b):
<table>
<tr><th>Veg community</th><th>Description</th></tr>
<tr><td>Co</td><td>Low closed forest of Casuarina obesa (swamp sheoak) over scattered introduced species Washingtonia robusta and Cortaderia selloana (pampas grass)</td></tr>
<tr><td>EcJk</td><td>Low open forest of Eucalyptus camaldulensis (river gum) over open rushland to rushland of Juncus kraussii subsp. australiensis (willdenowia) over open to closed tussock grassland of introduced species Cynodon dactylon (couch grass) and Cenchrus clandestinus (kikuyu grass)</td></tr>
<tr><td>Er</td><td>Low open forest to open woodland of Eucalyptus rudis (flooded gum) over sparse rushland of Juncus spp. over grassland to closed grassland of introduced species couch grass and kikuyu grass</td></tr>
<tr><td>Jk</td><td>Closed rushland Juncus kraussii subsp. australiensis (willdenowia) over open forbland to forbland of Salicornia quinqueflora (beaded samphire) and Suaeda australis (seablite)</td></tr>
<tr><td>Pl</td><td>Closed tall shrubland of Paraserianthes lophantha</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td></td><td>
<table>
<tr><td>SqT</td><td>Scattered Casuarina obesa (swamp sheoak) (or absent) over open to closed shrubland Salicornia quinqueflora (beaded samphire) and Tecticornia spp. with open rushland of Juncus kraussii subsp. australiensis (willdenowia) (or layer absent)</td></tr>
<tr><td>VjCo</td><td>Low open woodland to woodland of Casuarina obesa (swamp sheoak) over tall closed shrubland of Viminaria juncea (swishbush) over tussock grassland of introduced species Cenchrus clandestinus (kikuyu grass) and Polypogon monspeliensis (annual beardgrass)</td></tr>
<tr><td>Non-native</td><td>Heavily disturbed areas comprising weeds with occasional native rushes and forbs and planted vegetation</td></tr>
</table>

Representative photographs of the extent of each of the plant communities within the survey area are available in Appendix F.
</td></tr>
<tr><td>Vegetation condition</td><td>Photographs provided by the applicant (Emerge Associates, 2021a) and the findings of the flora, vegetation and fauna assessment (Emerge Associates, 2021b) indicate that the vegetation within the application area ranges from Very Good (Keighery, 1994) to Completely Degraded (Keighery, 1994) condition, with the most intact being in the north-western and eastern portions.

The full Keighery (1994) condition rating scale is provided in Appendix E.

Representative photographs of the vegetation communities are available in Appendix F.</td></tr>
<tr><td>Climate and landform</td><td>Rainfall: ~730.9 millimetres per year
Geology: The application area is on the Swan Coastal Plain, underlain by the Pinjarra System.
Topography: Information provided by the applicant indicates that the application area is low-lying and generally flat, with elevation ranging from one metre in relation to the Australian height datum (AHD) near the Swan River three meters Australian Height Datum (AHD) towards the centre of the site (Emerge Associates, 2021b).</td></tr>
<tr><td>Soil description</td><td>The soil type within the application area is mapped as:
• EnvGeol Mc1 Phase (213Pj_Mc1), described as: Clayey silt; yellow brown to strong brown, blocky, mottled, soft, with variable clay content, dispersive in part, of alluvial origin (DPIRD, 2019).
Information provided by the applicant indicates that the application area contains black-brown silty clay soils, which have been modified through the introduction of fill and historic landuses (Emerge Associates, 2021b).</td></tr>
<tr><td>Land degradation risk</td><td>The application area is mapped as having a high risk of subsurface acidification and phosphorus export, a moderate risk of waterlogging, salinity, and wind erosion, and a low risk of water erosion, flooding and water repellence (refer ‘Land degradation risk table’ below).</td></tr>
<tr><td>Waterbodies</td><td>The application area is within the Swan River Estuary consanguineous wetland suite. A large number of waterbodies are mapped within the local area, including wetlands listed in the Directory of Important Wetlands, ‘conservation’ (and other) category wetlands, and several watercourses. A man-made waterline (drain) occurs in the eastern part of the application area.

The application area is adjacent to the Swan River, mapped as a perennial major river and estuary; the adjacent portion is also mapped as a ‘conservation’ category wetland and is listed in the Directory of Important Wetlands.</td></tr>
<tr><td>Hydrogeography</td><td>The application area is within the Coastal Plain hydrological zone, and the South West division of the Swan Avon – Lower Swan hydrographic catchment. The application area is within the Perth Groundwater Area proclaimed under the Rights in Water and Irrigation</td></tr>
</table>

Characteristic	Details
	Act 1914 (RiWI Act) (DWER-034). The applicant holds seven groundwater licences within the application area but has no intention to abstract groundwater. The application area does not fall within surface water area proclaimed under the RiWI Act and does not fall within an area subject to the *Country Areas Water Supply Act 1917*, nor does it occur within a Public Drinking Water Source Area (DWER-033). Groundwater salinity (Total Dissolved Solids) is mapped as 500-1,000 milligrams per litre (fresh) (DWER-026).
Flora	Ten threatened and 64 priority flora have been recorded in the local area. The nearest record is approximately 1.89 kilometres from the application area (refer 'Flora analysis table' below).
Ecological communities	Four threatened and three State-listed priority ecological communities (some are threatened under Commonwealth legislation) have been recorded in the local area. One Commonwealth-listed TEC occurs within the application area (refer 'Ecological community table' below).
Fauna	Thirty-two threatened, 20 priority, two 'conservation dependent', two 'other specially protected' fauna and 18 fauna that are migratory/protected under an international agreement, have been recorded in the local area. The nearest record is approximately 0.2 kilometres from the application area (refer 'Fauna analysis table' below).

C.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.9	579,813.4	38.62	222,916.97	14.85
Vegetation complex (in bioregion)					
Beard vegetation association 1009 *	18,184.8	2,983.0	16.4	107.35	0.59
Swan Complex **	15,194.1	2,062.0	13.57	140.58	0.93
Local area (terrestrial portion)					
10km radius	39,042.7	2,022.2	5.17	-	-

*Government of Western Australia (2019b)

**Government of Western Australia (2019a)

C.3. Flora analysis table

A total of 80 conservation significant flora species were recorded within the ten-kilometre radius local area in which 11 species were categorised as threatened and 69 species were categorised as priority taxa. The priority flora species that were identified as unlikely to occur over the soil type and vegetation type of the application area were not included within the flora analysis table. Further considerations were given to those priority flora species the application area provided suitable habitat for and the table also lists flora classified as Threatened. (T: Threatened, P: Priority).

Species name	Conservation status (State)	Suitable habitat features? [Y/N/Possible]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Did survey identify? [Y, N,]
Threatened Flora							
Acacia denticulosa	T	N	N	N	4.41	2	N
Andersonia gracilis	T	N	N	Y	7.73	4	N
Acacia denticulosa (sandpaper wattle)	T	N	N	N	4.29	2	N
Caladenia huegelii (grand spider orchid)	T	N	N	Y	6.28	5	N
Conospermum undulatum (wavy-leaved smokebush)	T	N	N	N	4.24	38	N
Diuris purdiei (Purdie's donkey orchid)	T	N	N	N	7.76	6	N
Diuris drummondii (tall donkey orchid)	T	Possible	Y	Y	8.42	1	N
Eremophila glabra subsp. *chlorella*	T	Possible	Y	Y	7.73	7	N
Eucalyptus rhodantha var. *rhodantha*	T	N	N	N	4.29	1	N
Grevillea thelemanniana (spider net grevillea)	T	Possible	Possible	Y	7.73	10	N
Macarthuria keigheryi	T	N	N	N	7.30	16	N
Priority Flora							
Angianthus micropodioides	P3	Y	N	Y	1.89	5	N
Aponogeton hexatepalus	P4	N	N	Y	9.07	2	N
Babingtonia urbana (coastal plain babingtonia)	P3	Possible	N	Y	7.73	9	N
Bolboschoenus fluviatilis	P1	Y	Y	Y	4.99	4	N
Byblis gigantea (rainbox plant)	P3	N	N	Y	1.89	16	N
Calectasia grandiflora (blue tinsel lily)	P2	N	N	Y	6.51	1	N
Carex tereticaulis	P3	N	N	N	9.38	3	N
Cyathochaeta teretifolia	P3	Y	N	Y	3.00	1	N
Dampiera triloba	P3	Y	N	Y	3.00	2	N
Dillwynia dillwynioides	P3	N	N	N	7.22	1	N
Drosera occidentalis (western sundew)	P4	Possible	N	Y	7.76	4	N
Haloragis scoparia	P1	N	Y	Y	7.48	1	N
Hydrocotyle striata	P1	Possible	Y	N	9.52	2	N
Jacksonia gracillima	P3	N	Y	N	8.68	1	N
Lepidium pseudohyssopifolium	P1	N	N	N	8.95	1	N
Meionectes tenuifolia	P3	N	N	N	9.38	1	N
Schoenus benthamii	P3	Possible	N	Y	7.73	5	N
Schoenus capillifolius	P3	N	N	Y	6.51	1	N
Schoenus natans	P4	N	N	N	8.23	2	N
Schoenus pennisetis	P3	N	N	Y	8.68	4	N
Stylidium longitubum	P4	N	N	Y	7.89	3	N
Stylidium paludicola	P3	N	Y	Y	3.00	2	N
Thelymitra variegata (Queen of Sheba)	P2	N	N	Y	2.52	8	N
Verticordia lindleyi subsp. *lindleyi*	P4	N	N	Y	3.87	18	N

C.4. Fauna analysis table

Seventy-four species of conservation significant were recorded within the ten-kilometre radius local buffer. EIghteen of the recorded species were migratory birds which the application area does not provide significant core habitat for, although may utilise the application area at times. These birds are not included within the fauna analysis table but discussed in section 3.2.1. Species classified as fish or require a source of water to survive were also excluded from the fauna analysis table. All species not classified as migratory, or aquatic required further consideration and are listed below. (EN: Endangered, VU: Vulnerable, CD: Conservation Dependent, P: Priority, OS: Other Specially protected, CR: Critically Endangered).

Species scientific name	Species Common name	Conservation status	Year of most recent record	Number of known records (total)	Distance of closest record to application area (km)	Suitable habitat features? [N/Y]	Did survey Identify? [Y/N]
BIRD							
Anous tenuirostris melanops	Australian lesser noddy	EN	-	2	8.38	N	N
Ardenna carneipes	flesh-footed shearwater, fleshy-footed shearwater	VU	1931	1	6.14	N	N
Botaurus poiciloptilus	Australasian bittern	EN	2003	10	2.25	Y	N
Cacatua pastinator pastinator	Muir's corella	CD	-	7	0.87	N	N
Calidris canutus	Red knot	EN	2002	9	3.79	Y	N
Calidris ferruginea	curlew sandpiper	CR	2005	21	2.33	Y	N
Calidris tenuirostris	Great knot	CR	2005	11	3.79	Y	N
Calyptorhynchus banksii naso	forest red-tailed black cockatoo	VU	2020	108	0.91	Y	N
Calyptorhynchus baudinii	Baudin's cockatoo	EN	2015	11	5.35	Y	N
Calyptorhynchus latirostris	Carnaby's cockatoo	EN	2019	3611	0.43	Y	N
Calyptorhynchus sp. 'white-tailed black cockatoo'	white-tailed black cockatoo	EN	2020	94	1.17	Y	N
Charadrius leschenaultii	Greater sand plover, large sand plover	VU	2002	1	7.16	N	N
Charadrius mongolus	Lesser Sand Plover	EN	1999	1	7.12	N	N
Dasyornis longirostris	western bristlebird	EN	-	1	2.41	N	N
Elanus scriptus	Letter-winged kite	P4	1980	1	3.79	N	N
Falco hypoleucos	grey falcon	VU	1929	1	1.63	N	N
Falco peregrinus	Peregrine falcon	OS	2014	62	0.38	Y	N
Ixobrychus dubius	Australian little bittern	P4	2012	2	1.26	Y	N
Ixobrychus flavicollis australis (southwest subpop.)	Black bittern (southwest subpop.)	P2	1929	5	3.35	Y	N
Leipoa ocellata	malleefowl	VU	1981	46	5.19	N	N
Ninox connivens connivens (southwest subpop.)	barking owl (southwest subpop.)	P3	1902	1	8.49	N	N
Numenius madagascariensis	eastern curlew	CR	1959	2	3.62	Y	N
Oxyura australis	Blue-billed duck	P4	2013	653	0.22	Y	N
Phoebetria fusca	sooty albatross	EN	1946	2	3.35	N	N
Rostratula australis	Australian painted snipe	EN	2002	1	7.13	Y	N
Sternula nereis nereis	Fairy tern	VU	2013	2	3.59	Y	N
Thalassarche chrysostoma	Grey-headed albatross	VU	1984	1	3.35	N	N
Thinornis rubricollis	hooded plover, hooded dotterel	P4	1994	1	7.31	N	N
Tyto novaehollandiae novaehollandiae	masked owl (southwest)	P3	2001	5	2.42	Y	N
MAMMAL							
Bettongia penicillata ogilbyi	Woylie, brush-tailed bettong	CR	2015	25	8.34	N	N
Dasyurus geoffroii	chuditch, western quoll	VU	1969	19	0.87	N	N
Hydromys chrysogaster	water-rat, rakali	P4	2019	28	1.69	Y	N

Species scientific name	Species Common name	Conservation status	Year of most recent record	Number of known records (total)	Distance of closest record to application area (km)	Suitable habitat features? [N/Y]	Did survey Identify? [Y/N]
Isoodon fusciventer	Quenda, southwestern brown bandicoot	P4	2019	359	0.72	Y	Y foraging evidence
Macrotis lagotis	Bilby, dalgyte, ninu	VU	-	1	5.16	N	N
Myrmecobius fasciatus	Numbat, walpurti	EN	-	3	2.78	N	N
Notamacropus irma	Western brush wallaby	P4	2012	5	3.35	N	N
Phascogale tapoatafa wambenger	South-western brush-tailed phascogale, wambenger	CD	2017	6	2.04	N	N
Setonix brachyurus	Quokka	VU	-	1	9.01	N	N
REPTILE							
Ctenotus ora	Coastal Plains skink	P3	1965	6	2.25	N	N
Lerista lineata	Perth slider, lined skink	P3	2000	15	7.78	Y	N
Neelaps calonotos	Black-striped snake, black-striped burrowing snake	P3	2012	88	0.87	N	N
Pseudemydura umbrina	western swamp tortoise	CR	1970	2	6.15	N	N
INVERTEBRATE							
Australotomurus morbidus	cemetery springtail, Guildford springtail	P3	1993	4	7.23	N	N
Hylaeus globuliferus	woolybush bee	P3	1957	1	5.70	N	N
Idiosoma sigillatum	Swan Coastal Plain shield-backed trapdoor spider	P3	2019	90	0.87	N	N
Leioproctus douglasiellus	a short-tongued bee	EN	2006	1	9.30	N	N
Neopasiphae simplicior	a short-tongued bee	EN	1954	1	8.76	N	N
Synemon gratiosa	Graceful sunmoth	P4	2011	41	5.82	N	N

C.5. Ecological community analysis table

Community name	Conservation status (State)	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Did survey identify? [Y, N, N/A]
Subtropical and Temperate Coastal Saltmarsh	Priority 3	Y	Y	Y	Within application	Y
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Priority 3	N	N	N	0.4	N
Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain	Priority 3	N	N	N	5.3	N
Banksia attenuata woodlands over species rich dense shrublands (FCT 20a as originally described in Gibson et al. (1994))	Endangered	N	N	N	6.7	N
Herb rich saline shrublands in clay pans (floristic community type 7 as originally described in Gibson et al. (1994))	Vulnerable	N	N	N	9.3	N
Banksia attenuata and/or *Eucalyptus marginata* woodlands of the eastern side of the Swan Coastal Plain (floristic community type (FCT) 20b as originally described in Gibson et al. (1994))	Endangered	N	N	N	9.6	N

Community name	Conservation status (State)	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Did survey identify? [Y, N, N/A]
Shrublands and woodlands on Muchea Limestone of the Swan Coastal Plain	Endangered	N	N	N	9.7	N

C.6. Land degradation risk table

Risk categories	EnvGeol Mc1 Phase (213Pj_Mc1)
Wind erosion	M2: 30-50% of the map unit has a high to extreme risk.
Water erosion	L2: 3-10% of the map unit has a very high to extreme risk.
Salinity	M2: 30-50% of the map unit has a moderate risk
Subsurface acidification	H2: >70% of the map unit has a high risk
Flood risk	L1: <3% of the map unit has a moderate to high risk
Waterlogging	H1: 50-70% of the map unit has a moderate to high risk.
Phosphorus export risk	H2: >70% of the map unit has a high to extreme risk
Water repellence	L1: <3% of the map unit has a high risk.

(DPIRD, 2019).

Appendix D. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The clearing area is three hectares within a 26.38 hectare footprint. Approximately ten per cent of the application area (approximately 2.53 hectares) contains native vegetation comprising seven plant communities ranging from 'Very Good' to 'Degraded' (Keighery, 1994) condition. The mapped native vegetation within the overall application contains locally significant plant assemblages that are mapped as a TEC. Noting that the local area retains less than ten per cent native vegetation cover, these portions of the application area comprise high biodiversity. The remainder of the application area is in 'completely degraded' condition or cleared and is unlikely to comprise high biodiversity.	At variance	Yes Refer to Section 3.2.1 above.
Principle (b): *"Native 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."* Assessment: The application area is adjacent to the Swan River foreshore and contains suitable habitat for, and is likely to be utilised by, indigenous fauna, including four threatened, two priority, one 'conservation dependent', one 'other specially protected' and one migratory species. It is likely the trees within the application area may provide foraging and roosting habitat for black cockatoos. Five different fauna habitats were identified during the survey from Emerge Associates (2021b)	May be at variance	Yes Refer to Section 3.2.1 above.
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The application area may contain suitable habitat for three threatened species recorded from habitats broadly similar to the low-lying vegetated areas of the application area, and from soil and/or vegetation types similar to those mapped within the application area. The flora, vegetation and fauna assessment did not identify the presence of any threatened flora species within the application area. The application area is unlikely to be necessary for the existence of threatened flora.	Not likely to be at variance	Yes Refer to Section 3.2.1 above.
Principle (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."* Assessment: The application area contains native vegetation representative of the Subtropical and Temperate Coastal Saltmarsh TEC. The broader occurrence of this ecological community within and adjacent to the application area is likely to be locally significant due to its location on the Swan River.	At variance	Yes Refer to Section 3.2.1 above.
Environmental value: significant remnant vegetation and conservation areas		
Principle (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."* Assessment: The local area retains approximately 5.17 per cent remnant vegetation cover, which is less than the ten per cent thresholds for biodiversity conservation in constrained areas and is considered to be extensively cleared. A portion of the vegetation within the application area is in Good (Keighery,	At variance	Yes Refer to Section 3.2.2 above.

Assessment against the clearing principles	Variance level	Is further consideration required?
1994) or better condition and is representative of the TEC, and is likely to be biologically diverse and locally significant due to its location on the Swan River. The application area is significant as a remnant in an extensively cleared area.		
Principle (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."* Assessment: The nearest conservation area is (un-named) Reserve 48325 for the purpose of landscape protection under the *Swan and Canning Rivers Management Act 2006*, which is adjacent to the application area. There is potential that the proposed clearing could result in the introduction and/or spread of weeds and dieback into adjacent vegetation within the fringing corridor along the Swan River foreshore, which could impact on the quality of habitat values.	May be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: The native vegetation within the application area is comprised of species and assemblages that are associated with fringing/riparian corridors along watercourses. A portion of the spatial layer for the listing of the Swan River in the Directory of Important Wetlands overlaps the north-eastern portion of the application area. The portions of native vegetation within the application area is growing in association with the Swan River.	At variance	Yes Refer to Section 3.2.3 above.
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The primary land degradation risks are from subsurface acidification and phosphorus export, and to a lesser extent from waterlogging, salinity and wind erosion. Noting the landscape position and mapped soil type, the proposed clearing will not cause appreciable land degradation.	Not likely to be at variance	Yes Refer to Section 3.2.3 above.
Principle (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."* Assessment: The potential for increased surface water run-off on cleared land, may lead to a change in the quality of surface water through the transport of sediments and nutrients during the times of high rainfall, which may impact on the adjacent section of the Swan River (including foreshore vegetation).	May be at variance	Yes Refer to Section 3.2.3 above.
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The soil type mapped within the application area has a low risk of flooding. The proposed clearing is unlikely to influence the incidence or intensity of flooding.	Not likely to be at variance	No

Appendix E. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. 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/or 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/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix F. Biological survey information excerpts / photographs of the vegetation (Emerge Associates, 2021b) and information excerpts from the Foreshore Management Plan (Emerge Associates, 2022).

Table 1: Clearing impacts within application area

	Original application area (ha)	Revised application area (ha)	Reduction (%)
Clearing footprint	28.05	26.38	5.95
Native vegetation	3.33	2.53	24.02
Native vegetation in 'good' or better condition	2.03	1.45	28.57
Coastal saltmarsh TEC	3.45	2.26	34.49

The flora, vegetation and fauna assessment recorded eight plant communities (and their extents) within the survey area (Emerge Associates, 2021b):

Co: Low closed forest of *Casuarina obesa* (swamp sheoak) over scattered introduced species *Washingtonia robusta* and *Cortaderia selloana* (pampas grass); photograph indicative of this plant community in 'Degraded' (Keighery, 1994) condition.

EcJk: Low open forest of *Eucalyptus camaldulensis* (river gum) over open rushland to rushland of *Juncus kraussii* subsp. *australiensis* (willdenowia) over open to closed tussock grassland of introduced species *Cynodon dactylon* (couch grass) and *Cenchrus clandestinus* (kikuyu grass). photograph indicative of this plant community in 'Degraded' (Keighery, 1994) condition.

Er: Low open forest to open woodland of *Eucalyptus rudis* (flooded gum) over sparse rushland of *Juncus* spp. over grassland to closed grassland of introduced species couch grass and kikuyu grass; photograph indicative of this plant community in 'Degraded' (Keighery, 1994) condition.

Jk: Closed rushland *Juncus kraussii* subsp. *australiensis* (willdenowia) over open forbland to forbland of *Salicornia quinqueflora* (beaded samphire) and *Suaeda australis* (seablite); photograph indicative of this plant community in 'Very Good' (Keighery, 1994) condition.

Pl: Closed tall shrubland of *Paraserianthes lophantha*; photograph indicative of this plant community in 'Degraded' (Keighery, 1994) condition.

SqT: Scattered *Casuarina obesa* (swamp sheoak) (or absent) over open to closed shrubland *Salicornia quinqueflora* (beaded samphire) and *Tecticornia* spp. with open rushland of *Juncus kraussii* subsp. *australiensis* (willdenowia) (or layer absent); photograph indicative of this plant community in 'Very Good to Good' (Keighery, 1994) condition.

VjCo: Low open woodland to woodland of *Casuarina obesa* (swamp sheoak) over tall closed shrubland of *Viminaria juncea* (swishbush) over tussock grassland of introduced species *Cenchrus clandestinus* (kikuyu grass) and *Polypogon monspeliensis* (annual beardgrass); photograph indicative of this plant community in 'Degraded' (Keighery, 1994) condition.

Non-native: Heavily disturbed areas comprising weeds with occasional native rushes and forbs and planted vegetation; incl. minor cleared areas and tracks; photograph indicative of this plant community in 'Completely Degraded' (Keighery, 1994) condition.

The flora, vegetation and fauna assessment recorded the following fauna habitat types within the survey area as listed on the below table (Emerge Associates, 2021b):

Table 2: Fauna habitats identified within the survey area.

Habitat type	Description	Area (ha)
Woodland	Woodlands to open forests *Eucalyptus rudis, *Eucalyptus camaldulensis, *Eucalyptus* spp. and *Casuarina obesa* over non-native grasslands (**Plate 10)**.	1.38
River	Open water forming part of the Swan River (**Plate 11**)	0.63
Fringing riverine vegetation	Open to closed forbland, rushland and shrubland fringing the Swan River and subject to varying levels of inundation (**Plate 11**)	5.42
Dam	Water within a constructed dam.	0.10
Grassland	Dense non-native grassland with scattered trees and shrubs (**Plate 12**)	22.5
Bare ground	Areas of bare ground and hardstand.	4.50

Woodland: Woodlands to open forests *Eucalyptus rudis* (flooded gum), *Eucalyptus camaldulensis* (river gum), *Eucalyptus* spp. and *Casuarina obesa* (swamp sheoak) over non-native grasslands; mapped across the vegetation communities (Co, EcJk, Er).

Fringing riverine vegetation: Open to closed forbland, rushland and shrubland fringing the Swan River and subject to varying levels of inundation; mapped across the vegetation communties (Jk, SqT, VjCo).

Grassland: Dense non-native grassland with scattered trees and shrubs; mapped across the vegetation communities (Non-native).

Bare ground: Areas of bare ground and hardstand; balance of application area.

Figure 2: **Plant Communities**

Project: Flora, Vegetation and Fauna Assessment
Burswood Peninsula
Client: Golden Sedayu Pty Ltd

Plan Number: EP21-054(02)--F02
Drawn: GAR
Date: 07/07/2021
Checked: SKP
Approved: RAW
Date: 15/07/2021

N

0 100 200
Metres
Scale: 1:5,000@A4
GDA 1994 MGA Zone 50

emerge ASSOCIATES

Figure 2: Plant Communities

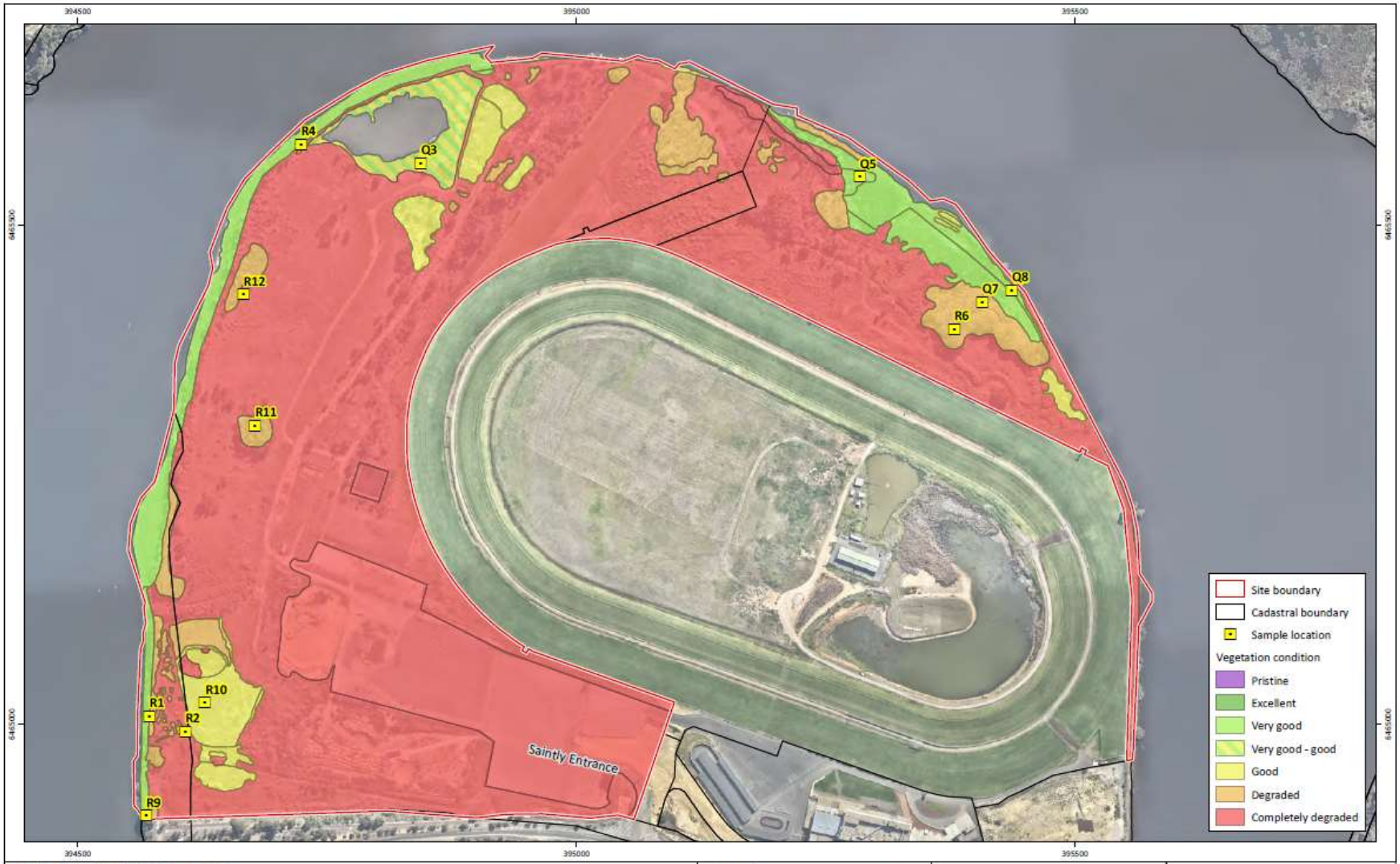

Figure 3: Vegetation Condition

Project: Flora, Vegetation and Fauna Assessment
Burswood Peninsula
Client: Golden Sedayu Pty Ltd

Plan Number: EP21-054(02)--F03
Drawn: GAR
Date: 07/07/2021
Checked: SKP
Approved: RAW
Date: 15/07/2021

Figure 3: Vegetation Condition (Keighery, 1994)

Figure 5: Fauna Habitats

Project:	Flora, Vegetation and Fauna Assessment Burswood Peninsula
Client:	Golden Sedayu Pty Ltd

Plan Number: EP21-054(02)--F05

Drawn:	GAR
Date:	07/07/2021
Checked:	SKP
Approved:	RAW
Date:	15/07/2021

N

0 100 200
Metres

Scale: 1:5,000@A4

GDA 1994 MGA Zone 50

emerge ASSOCIATES

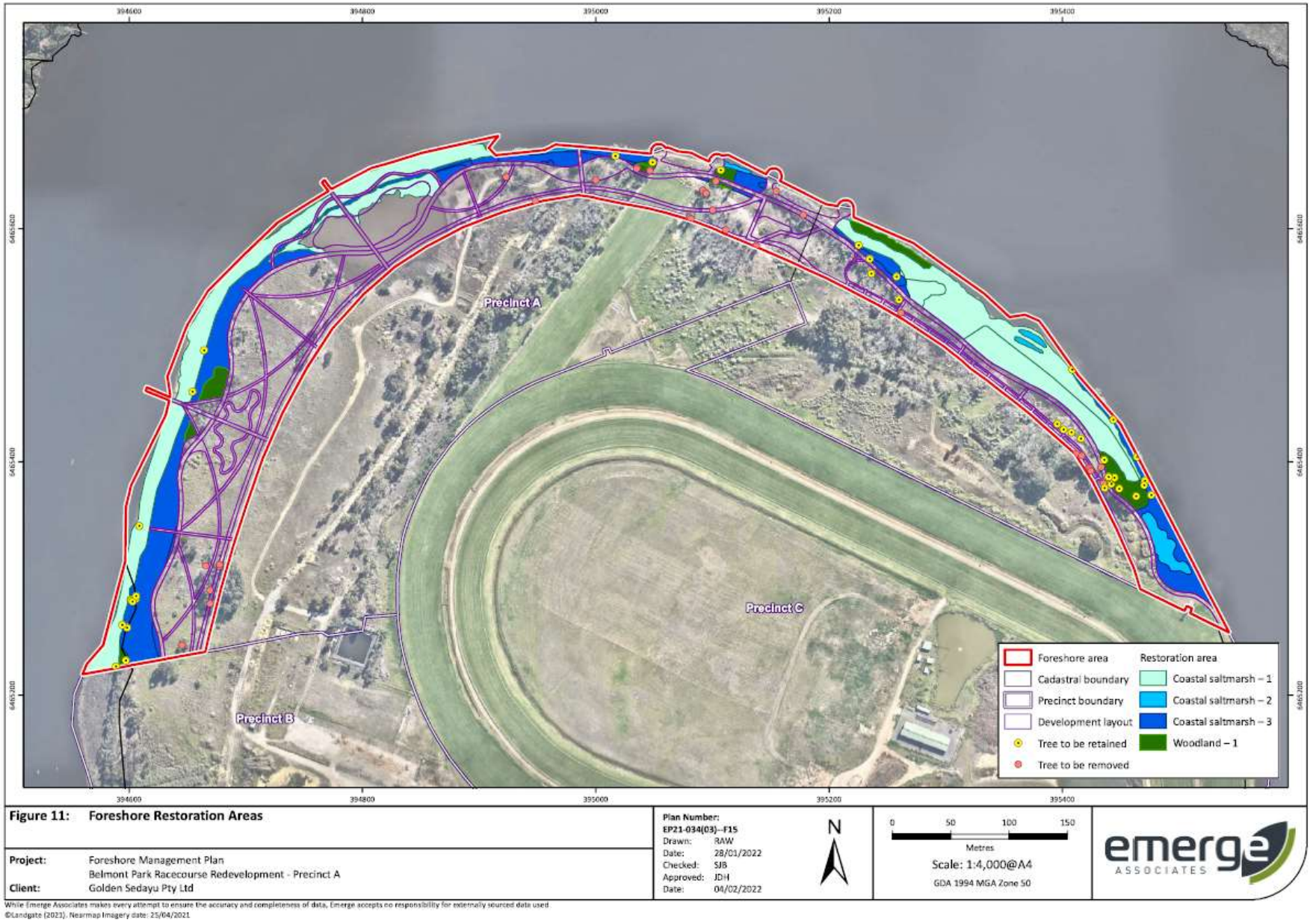

Figure 5: Foreshore Restoration Area

Appendix G. Sources of information

G.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contaminated Sites Database (DWER-059)
- DBCA Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography, Linear (Hierarchy) (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Mining Tenements (DMIRS-003)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation (DPIRD-006)
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Salinity Risk (DPIRD-009)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Systems (DPIRD-064)
- Vegetation Complexes – Swan Coastal Plain (DBCA-046)

Other/restricted GIS Databases used:

- Hydrography – Inland Waters – Waterlines
- ICMS (Incident Complaints Management System) – Points and Polygons
- Imagery
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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