Targeted Orchid Survey

Kwinana Freeway Upgrades

Main Roads

17 December 2025

→ **The Power of Commitment**

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Executive summary

Main Roads Western Australia (Main Roads) is planning to widen a section of the Kwinana Freeway between Roe Highway south to Mortimer Road, with upgrades to on ramps at Mundijong Road and Safety Bay Road (the Project). To support the assessment of biological values for the Project, Main Roads commissioned GHD Pty Ltd (GHD) to conduct a targeted survey for three orchid species in native vegetation areas within the Project footprint. The orchid species targeted during the survey included Glossy-leaved Hammer Orchid (*Drakaea elastica*) (Endangered), King Spider-orchid (*Caladenia huegelii*) (Endangered) and Dwarf Bee-orchid (*Diuris micrantha*), listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This report is subject to, and must be read in conjunction with, the limitations set out in section 1.5 and the assumptions and qualifications contained throughout the Report.

All remnant native vegetation types and two roadside revegetation types were included in the search area for the targeted survey. These were considered potential/may be potential habitat for one or more of the target orchids. Survey methods involved traverses spaced between 5 and 20 m apart as per Draft Survey Guidelines for Australia's Threatened Orchids (DCCEEW, 2013).

Flowering time for all three orchids coincides in late September to October. The targeted survey was conducted in late October from 27 to 30 October 2025. Survey timing was considered suitable based on recorded flowering time documented in relevant plans/advice, the weather conditions recorded in the lead up to the survey and during 2025, and the flowering status of Grand Spider Orchid at other locations.

No individuals of Glossy-leaved Hammer Orchid, Grand Spider-orchid or Dwarf Bee-orchid were recorded during the targeted survey. Post survey all species were considered unlikely to occur in the survey area based on sufficient survey efforts and suitability of the habitat present.

Contents

1. Introduction **1**
- 1.1 Background 1
- 1.2 Purpose of this report 1
- 1.3 Project location 1
- 1.4 Scope of works 1
- 1.5 Report limitations and assumptions 1

2. Methods **3**
- 2.1 Guiding documentation 3
- 2.2 Target species 3
  - Glossy-leafed Hammer Orchid (*Drakaea elastica*) 3
  - Grand Spider Orchid (*Caladenia huegelii*) 3
  - Dwarf Bee-orchid (*Diuris micrantha)* 3
- 2.3 Targeted vegetation/search area 4
- 2.4 Timing 5
- 2.5 Survey personnel 6
- 2.6 Data collection and search techniques 6
- 2.7 Limitations 6

3. Results and discussion **8**

4. References **9**

Table index

Table 1 Vegetation unit review 4
Table 2 Field survey limitations 7

Plate index

Plate 1 Average climatic statistics for Jandakot Airport site number 009172 (BOM 2025) 6

Figure index

Figure 1 Survey area 12
Figure 2 Survey effort 13

Appendices

Appendix A Figures
Appendix B Photographs

1. Introduction

1.1 Background

Main Roads Western Australia (Main Roads) is planning to widen a section of the Kwinana Freeway between Roe Highway south to Mortimer Road, with upgrades to on ramps at Mundijong Road and Safety Bay Road (the Project). The Project is part of the Smart Freeway initiative based on Maximum Sustainable Flow Rate requirements contained in the Smart Freeways guidelines. To support the assessment of biological values for the Project, Main Roads commissioned GHD Pty Ltd (GHD) to conduct a targeted survey for three orchid species in native vegetation areas within the Project footprint. The orchid species targeted during the survey included Glossy-leaved Hammer Orchid (*Drakaea elastica*) (Endangered), King Spider-orchid (*Caladenia huegelii*) (Endangered) and Dwarf Bee-orchid (*Diuris micrantha*), listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.2 Purpose of this report

The purpose of this report is to document the methods and results from the targeted survey for Glossy-leaved Hammer Orchid, King Spider-orchid and Dwarf Bee-orchid. The outcome of the survey and information supplied in this survey report will be used to inform the environmental assessment and approvals process. The results of the survey will also be used in the preparation of Environmental Impact Assessment documentation.

1.3 Project location

The Project is located along the Kwinana Freeway, from the Roe Highway intersection, approximately 14 kilometres (km) south of Perth, extending ~21 km to Mortimer Road. The targeted orchid survey area included native vegetation areas within the Project footprint. The survey area covers 25.43 hectares (ha) and is shown in Figure 1, Appendix A.

1.4 Scope of works

The agreed the scope of work for the targeted survey includes the following for the survey area:

– A desktop review of relevant information to determine vegetation units to target searching during the survey, suitable timing for the survey and survey methods.
– A targeted survey for Glossy-leaved Hammer Orchid, Grand Spider-orchid and Dwarf Bee-orchid
– A technical report covering the targeted orchid survey
– Survey data in electronic format consistent with Index of Biodiversity Surveys for Assessments and Main Roads data standards.

1.5 Report limitations and assumptions

This report has been prepared by GHD for Main Roads and may only be used and relied on by Main Roads for the purpose agreed between GHD and Main Roads as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Main Roads arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of infrastructure, services and access. As a result, not all relevant site features and conditions may have been identified in this report.

GHD has prepared this report on the basis of information provided by Main Roads and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

2. Methods

2.1 Guiding documentation

The survey methodology and data collection by GHD was consistent with relevant aspects of:

– Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
– Glossy-leafed Hammer Orchid (*Drakaea elastica*) Recovery Plan (DEC, 2008a)
– Grand Spider Orchid (*Caladenia huegelii*) Recovery Plan (DEC, 2008b)
– Approved Conservation Advice for *Diuris micrantha* (Dwarf Bee-orchid) (DEWHA, 2008)
– Draft survey guidelines for Australia's threatened orchids (Commonwealth of Australia, 2013)

2.2 Target species

Glossy-leafed Hammer Orchid (*Drakaea elastica*)

Glossy-leafed Hammer Orchid has a slender flower stem up to 30 cm high and a single distinctively glossy, bright green, prostrate, heart-shaped leaf 1 to 2 cm in diameter. The leaf emerges in May and starts to wither by the time the orchid flowers in September. Flowers are first seen in late September and continue flowering until late October or more rarely early November. The plant dies back to a dormant underground tuber over summer (DEC, 2008a).

The species grows on bare patches of white or grey sand within otherwise dense vegetation in low-lying areas alongside winter-wet swamps, typically in banksia (*Banksia menziesii, B. attenuata* and *B. ilicifoli*a) woodland or spearwood (*Kunzea glabrescens*) thicket vegetation (DEC, 2008a).

There are four records of Glossy-leafed Hammer Orchid within a 15 km radius of the survey area based on DBCA database searches (DBCA, 2024). The closest record to the survey area is from 1982 approximately 1.09 km east of the survey area within Banksia/Kunzea woodland. The most recent record is from 2010 located 2 km east of the survey area within private property (DBCA, 2024).

Grand Spider Orchid (*Caladenia huegelii*)

Grand Spider Orchid grows up to 60 cm tall with a single erect, pale green, hairy leaf and one or two (rarely three) predominantly pale greenish-cream flowers. It has an active growing period from May to mid-November during which it produces a single leaf. Between late September and early November some (but not all) plants flower and the leaf and flower begin to dry out by mid-November (DEC, 2008b).

The species occurs in areas of mixed woodland dominated by jarrah and banksia with scattered sheoak and marri. Throughout its range the species tends to favour areas of dense undergrowth. Soil is usually deep grey-white sand usually associated with the Bassendean sand-dune system. However, rare plants have been known to extend into the Spearwood system (in which calcareous yellow sands dominate) in some areas (DEC 2008b).

There are 72 records of Grand Spider Orchid recorded between 1833 and 2017 within a 15 km radius of the survey area based on DBCA database searches (DBCA, 2024). From aerial imagery it can be seen that a number of these records no longer exist due to vegetation clearing and land development. The closest record to the survey area is 800 m east, dated 2012. The most recent record is from GHD's flora and vegetation survey of Roe Highway in 2024 (GHD 2025); this record is 2 km east of the survey area in Banksia woodland.

Dwarf Bee-orchid (*Diuris micrantha)*

Dwarf Bee-orchid has a basal tuft of narrow, linear leaves and a loose, slender inflorescence up to 60 cm high. The yellow flowers are the smallest in the genus, measuring up to 1.3 cm across. Flowers typically appear from August to early October (DEWHA, 2008).

The species typically occurs on dark (brown, grey to blackish) sandy clay-loam substrates in inter-wet depressions or swamps and shallow water amongst low dense native sedges ((Hoffman & Brown, 2011) (DEWHA, 2008).

There are four records of Dwarf Bee-orchid within a 15 km radius of the survey area based on DBCA database searches (DBCA, 2024). The closest record occurs within the survey area and is dated 1977. This record is likely extinct as it occurs on the edge of the Kwinana off ramp to Thomas Road and was thoroughly searched by GHD in 2024 and 2025. The most recent record to the survey area is from 2009 and is approximately 350m west of the survey area within a black peat swamp.

2.3 Targeted vegetation/search area

Five remnant native vegetation types and seven roadside revegetation types were mapped within the Project footprint during biological surveys (GHD, 2025a). A review of the types was undertaken to determine if they provide potential habitat for the target orchid species and should be targeted/searched during the survey. A summary of the review is provided in Table 1. All remnant native vegetation types and two roadside revegetation types were included in the search area for the targeted survey. These were considered potential/may be potential habitat for one or more of the target orchids. The modified wetland area (a revegetation type) was considered unlikely to be potential habitat for Dwarf Bee-orchid due to the vegetation condition and presence of aggressive weeds including **Asparagus asparagoides* and **Zantedeschia aethiopica*. Photographs of this area are provided in Appendix B.

Table 1 ***Vegetation unit review***

Classification	Vegetation type description	Inclusion in survey?
Remnant native	**BmBa – *Banksia menziesii B. attenuata* woodland** *Banksia menziesii* and *B. attenuata* woodland over *Hibbertia hypericoides, Scholtzia involucrata* and *Styphelia conostephioides* low shrubland over *Patersonia occidentalis, Desmocladus flexuosus* and *Lyginia barbata* open herb/sedgeland. This vegetation type ranged from Very Good to Completely Degraded in condition and was mapped on Bassendean system.	This vegetation type is potential habitat for Glossy-leafed Hammer Orchid and Grand Spider Orchid. Vegetation type included in search area for targeted survey.
Remnant native	**EgBspp. – *Eucalyptus gomphocephala* and Banksia spp. woodland** +/- *Eucalyptus gomphocephala* tall open woodland over *Banksia attenuata* and *B. menziesii* woodland over *Acacia pulchella* var. *pulchella, Xanthorrhoea preissii* and *Hibbertia hypericoides* low open shrubland over *Mesomelaena pseudostygia* and **Ehrharta calycina* sedgeland/ grassland. This vegetation type ranged from Very Good to Degraded in condition and was mapped on Bassendean system and Spearwood system.	This vegetation type is potential habitat for Glossy-leafed Hammer Orchid and Grand Spider Orchid. Vegetation type included in search area for targeted survey.
Remnant native	**EmBspp. – *Eucalyptus marginata* and *Banksia* spp. woodland** +/- *Eucalyptus marginata* tall open woodland over *Banksia attenuata, B. menziesii* and *Allocasuarina fraseriana* woodland over *Acacia pulchella* var. *pulchella, Hibbertia hypericoides* and *Bossiaea eriocarpa* low open shrubland over weedy grasses. This vegetation type ranged from Very Good to Completely Degraded in condition and was mapped on Bassendean system.	This vegetation type is potential habitat for Glossy-leafed Hammer Orchid and Grand Spider Orchid. Vegetation type included in search area for targeted survey.
Remnant native	**Cc – *Corymbia calophylla* woodland** *Corymbia calophylla* tall woodland over *Kunzea glabrescens* tall sparse shrubland over *Xanthorrhoea preissii* and *X. gracilis* mid shrubland over *Phlebocarya ciliata, Dasypogon bromeliifolius* and *Desmocladus flexuosus* herbland/ sedgeland. This vegetation type ranged from Very Good to Good-Degraded in condition and was mapped on Bassendean system.	This vegetation type may be potential habitat for Glossy-leafed Hammer Orchid and Grand Spider Orchid. Vegetation type included in search area for targeted survey.
Remnant native	**ErMr – *Eucalyptus rudis* over *Melaleuca rhaphiophylla* +/- *M. preissiana* woodland** *Eucalyptus rudis* over *Melaleuca rhaphiophylla* +/- *M. preissiana* over *Kunzea glabrescens* tall sparse shrubland over *Xanthorrhoea preissii* low shrubland over *Lepidosperma longitudinale* sedgeland.	This vegetation type may be potential habitat for Glossy-leafed Hammer Orchid and Dwarf Bee-orchid. Vegetation type included in search area for targeted survey.

Classification	Vegetation type description	Inclusion in survey?
	This vegetation type ranged from Very Good to Completely Degraded in condition and was mapped on Bassendean system.	
Roadside revegetation	**BmBa** *Banksia menziesii B. attenuata* woodland. This vegetation type ranged from Very Good to Completely Degraded in condition.	This revegetation type may be potential habitat for Glossy-leafed Hammer Orchid and Grand Spider Orchid. Revegetation type included in search area for targeted survey.
Roadside revegetation	**EgBspp.** *Eucalyptus gomphocephala* and *Banksia* spp. woodland. This vegetation type ranged from Very Good to Degraded in condition.	This revegetation type may be potential habitat for Glossy-leafed Hammer Orchid and Grand Spider Orchid. Revegetation type included in search area for targeted survey.
Roadside revegetation	**Isolated *Corymbia calophylla*** Isolated stands of *Corymbia calophylla* over scattered natives and weeds. This revegetation type was Completely Degraded in condition.	This revegetation type is unlikely to be potential habitat for any of the three orchid species. Revegetation type not included in search area for targeted survey.
Roadside revegetation	**Isolated *Eucalyptus* spp.** Native and planted naturalised *Eucalyptus* spp. over scattered natives and weeds. This revegetation type ranged from Degraded-Completely Degraded to Completely Degraded in condition.	This revegetation type is unlikely to be potential habitat for any of the three orchid species. Revegetation type not included in search area for targeted survey.
Roadside revegetation	**Isolated *Banksia* spp.** Isolated *Banksia menziesii* and *B. attenuata* over scattered natives and weeds. This revegetation type ranged from Degraded to Completely Degraded in condition.	This revegetation type is unlikely to be potential habitat for any of the three orchid species. Revegetation type not included in search area for targeted survey.
Roadside revegetation	**Mixed shrubs** Native and Introduced shrubs. This revegetation type was Completely Degraded in condition.	This revegetation type is unlikely to be potential habitat for any of the three orchid species. Revegetation type not included in search area for targeted survey.
Roadside revegetation	**Modified wetland** Modified wetland/ drainage area. This revegetation type ranged from Degraded-Completely Degraded to Completely Degraded in condition.	This revegetation type is unlikely to be potential habitat for Dwarf Bee-orchid due to vegetation condition and presence of aggressive weeds including **Asparagus asparagoides* and **Zantedeschia aethiopica*.

2.4 Timing

Flowering time for all three orchids coincides in late September to October. The targeted survey was conducted in late October from 27 to 30 October 2025. Survey timing was considered suitable based on recorded flowering time documented in relevant plans/advice (see Section 2.1), the weather conditions recorded in the lead up to the survey and during 2025, and the flowering status of Grand Spider Orchid at other locations.

The closest weather recording station to the Project is at Jandakot Airport (site number: 009172), which is approximately 2 km east of the Project. Rainfall and temperature data from this station show during winter (June, July and August) and in the months prior to and of the survey (September and October), rainfall was above the long-term average. There was 815.6 mm recorded from June to October in 2025 compared with the long-term average of 581.9 mm for the same period (Plate 1). Mean maximum temperatures during 2025 were similar to the

long-term average. Based on recorded rainfall and maximum temperatures, no seasonal constraints were identified.

To further confirm the appropriateness of survey timing, advice was sought from the Friends of Ken Hurst Park on the flowering status of Grand Spider Orchid. Ken Hurst Park, which is approximately 2 km from the Project contains a large population of Grand Spider Orchid. A Friends of Ken Hurst Park member confirmed that individuals of Grand Spider Orchid were observed flowering in the Park in late September and late October.

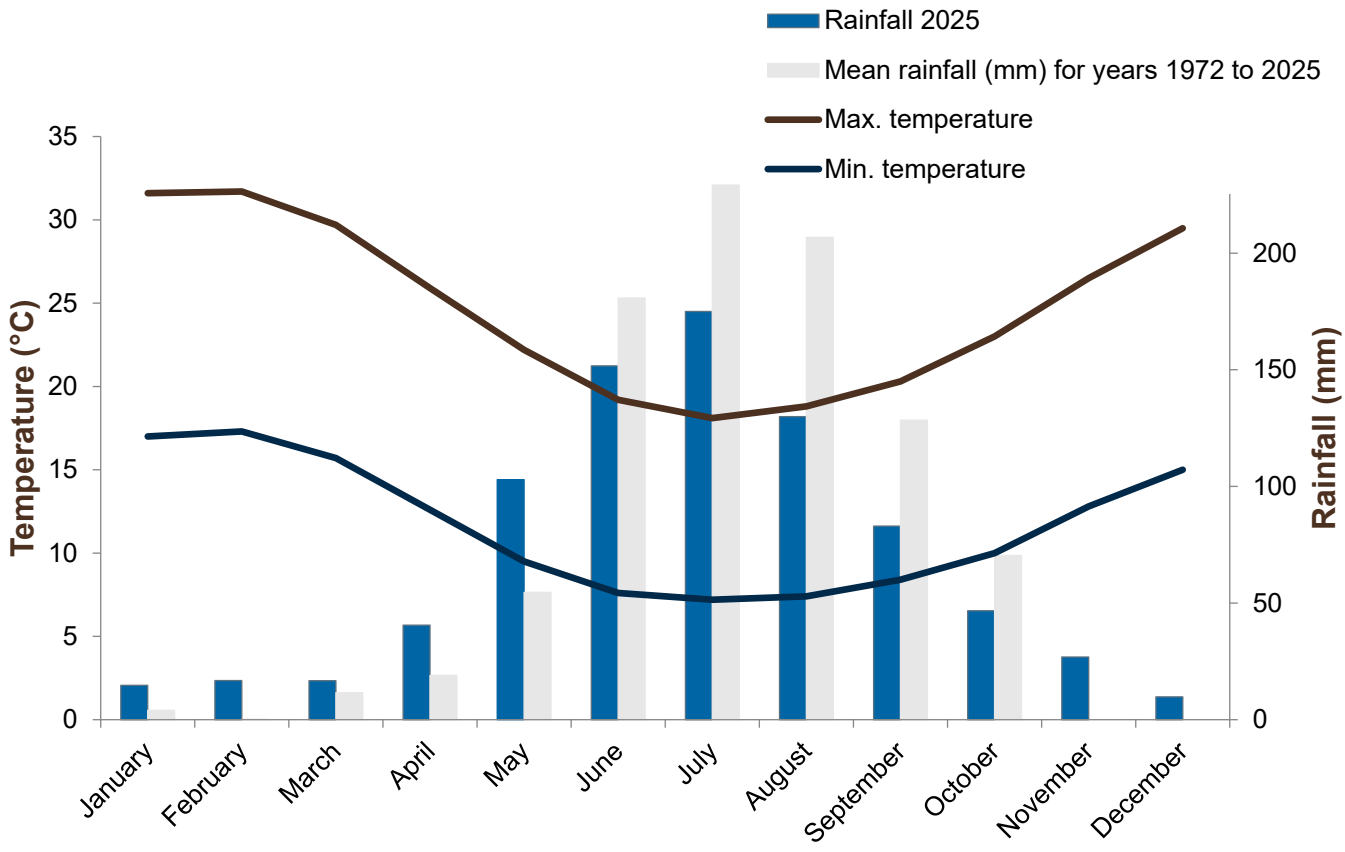

Plate 1 *Average climatic statistics for Jandakot Airport site number 009172 (BOM 2025)*

2.5 Survey personnel

The targeted survey was conducted by GHD Senior Botanist Angela Benkovic (flora licence no. FB62000080-3) and graduate botanist Rachel Graham.

2.6 Data collection and search techniques

Survey methods involved traverses spaced between 5 and 20 m apart. In areas of potentially suitable habitat, where vegetation condition was Good or better traverse distance was approximately 5 to 10 m apart as per Draft Survey Guidelines for Australia's Threatened Orchids (DCCEEW, 2013). In areas where vegetation condition was Degraded or worse, traverse distance was spaced between 10 and 20 m depending on ground cover density.

Data collection was completed using Stonex S580+ tablets with S580 DGPS. GPS devices were used to capture survey effort (track logs) shown in Figure 2, Appendix A. Field photographs were taken with an Olympus Tough F2.0 camera and where applicable have been provided in Appendix B.

2.7 Limitations

The EPA (2016) Technical Guidance states that flora survey reports for environmental impact assessment in WA should contain a section describing the limitations of the survey methods used. The limitations and constraints

associated with this field survey are discussed in Table 2. Based on this assessment, the survey effort has not been subject to any constraints that affect the thoroughness of the assessment, and the conclusions formed.

Table 2 Field survey limitations

Aspect	Constraint	Comment
Sources of information and availability of contextual information	Nil	Adequate information is available for the survey area which is summarised in GHD (2025a).
Scope (what life forms were sampled etc.).	Nil	Three orchid species were targeted during the survey, Glossy-leafed Hammer Orchid, Grand Spider Orchid and Dwarf Bee-orchid.
Proportion of flora collected and identified (based on sampling, timing and intensity).	Nil	Not applicable.
Flora determination	Nil	Senior Botanist Angela Benkovic is experienced in-situ orchid identification.
Completeness and further work which might be needed (e.g. was the relevant area fully surveyed)	Nil	The survey area was adequately searched for the purpose of targeting orchid species Glossy-leafed Hammer Orchid, Grand Spider Orchid and Dwarf Bee-orchid. The survey area has been subject to previous targeted flora surveys completed in July 2024 and September 2024.
Mapping reliability	Nil	Data was recorded in the field using hand-held GPS devices including Stonex S580+ tablets with S580 DGPS. These devices are accurate to within ± 1cm.
Timing/weather/ season/cycle	Nil	The targeted survey was conducted during late October. Survey timing was considered suitable based on the orchid recorded flowering time documented in relevant plans/advice, the weather conditions recorded in the lead up to the survey and during 2025, and the flowering status of Grand Spider Orchid at other locations. See discussion on survey timing in Section 2.1.
Disturbances (e.g. fire, flood, accidental human intervention)	Minor	Portions of the survey area has been subjected to urban development; however, these disturbances did not affect the results of the survey. An area north of PP6 had been burnt recently (<1yr).
Intensity (in retrospect, was the intensity adequate)	Nil	The targeted orchid survey was conducted in accordance with (EPA, 2016) and (Commonwealth of Australia, 2013). The survey area was sufficiently covered by the field team using 10 people days.
Resources	Nil	Adequate resources were employed during the targeted flora survey. One Senior Botanist and one graduate botanist undertook the survey over 10 person days.
Access restrictions	Minor	Botanists could not gain access to a patch of Banksia woodland within the fenced Western Power substation, near PP1.
Experience level	Nil	The botanists who executed the survey are practitioners suitably qualified and experienced. Senior Botanist Angela Benkovic has over 18 years' experience in undertaking flora and vegetation surveys, with a focus on the SCP. Angela led the botanical surveys for the Kwinana Freeway in 2024 (see (GHD, 2025a)) and is intimately familiar with the survey area. Angela has completed more than 15 targeted flora surveys across the SCP in the past 5 years. This has included multiple surveys for Grand Spider Orchid.

3. Results and discussion

No individuals of Glossy-leaved Hammer Orchid, Grand Spider-orchid or Dwarf Bee-orchid were recorded during the targeted survey.

Survey efforts for all targeted species focused on areas of potential habitat. For Glossy-leafed Hammer Orchid this included areas mapped as BmBa, EgBspp, EmBspp. Cc and ErMr. Whilst traversing these vegetation types it was observed that these vegetation types may have contained the associated species described in the habitat required for the Glossy-leafed Hammer Orchid however, they lacked either the bare white/ grey sand due to weed invasion, dense leaf litter or dense bracken. Other areas were too high in the landscape and not near low lying winter wet swamps. One area that was considered to be potential habitat occurred near PP23 and PP24 (Figure 2 and Appendix B). This area was mapped as ErMr and had bare grey to white sand near the water's edge. A rusted barbed wire fence inhibited access to the water. Botanists were able to sufficiently survey this area and scanned the sandy edges alongside the water from the fenceline. It was also noted that there was a high presence of rabbit scats in the area along with heavy grazing evidence. The presence of rabbits and grazing are both listed as main threats to Glossy-leafed Hammer Orchid (DEC, 2008a).

Potential suitable habitat for Grand Spider Orchid included vegetation types BmBa, EgBspp., EmBspp. and Cc. In the field all these vegetation types appeared to be suitable habitat as they contained the associated species and sandy substrate required to support Grand Spider Orchid. These vegetation types were thoroughly traversed even when the vegetation condition was less than Good as Grand Spider Orchid has been recorded in disturbed habitats with a dominance of weedy grasses. Areas where no survey effort was completed included vegetation that had been recently (<1yr) burnt, north of PP6 as it was highly unlikely Grand Spider Orchid would have recovered so quickly if it had been present. Vegetation behind a high fence surrounding a Western Power substation at PP1 was unable to be accessed and was not traversed. Botanists looked through the fence to see as far as possible into the area and didn't observe any Grand Spider Orchid (Figure 2 and Appendix B).

For Dwarf Bee-orchid only vegetation type ErMr was considered potential suitable habitat. Observations and survey effort confirmed most of the habitat as unsuitable. Most of the floodplain and wetland areas within the survey area are represented by highly modified systems which are associated with road drainage and dominated by invasive species or *Typha* spp./*Pteridium esculentum*. Changes in hydrology are one of several main potential threats to the species along with clearing, grazing and feral animals (DEWHA, 2008). The small section of survey area that may have potentially supported the Dwarf Bee-orchid were located near PP21 and PP29 (Figure 2 and Appendix B). The area was sufficiently traverses and no individuals were recorded.

Post surveys ((GHD, 2025a, 2025b) and the current survey), the likelihood of occurrence of Glossy-leafed Hammer Orchid and the Dwarf Bee-orchid were considered unlikely to occur within the survey area. Both have ideal habitat requirements that the vegetation along the edge of Kwinana Freeway is unlikely to provide to due high disturbance from weed invasion, rubbish, rabbits, bandicoots and altered drainage of wetlands. Additionally, Dwarf Bee-orchid and Glossy-leafed Hammer Orchid have not been recorded since 2009 and 2010 within 15 km of the survey area, respectively (DBCA, 2024). There were sufficient survey efforts that would have detected the species if present.

Some sections of the survey area had the potential to provide suitable habitat for Grand Spider Orchid. Post surveys ((GHD, 2025a, 2025b) and the current survey) the likelihood of occurrence of Grand Spider Orchid was considered unlikely to occur. This was due to sufficient survey efforts that would have detected the species if present, and degradation of understorey species and altered structure of woodlands. This is further supported by confirmation that Grand Spider Orchid was flowering in nearby Ken Hurst Park in late October in 2025.

4. References

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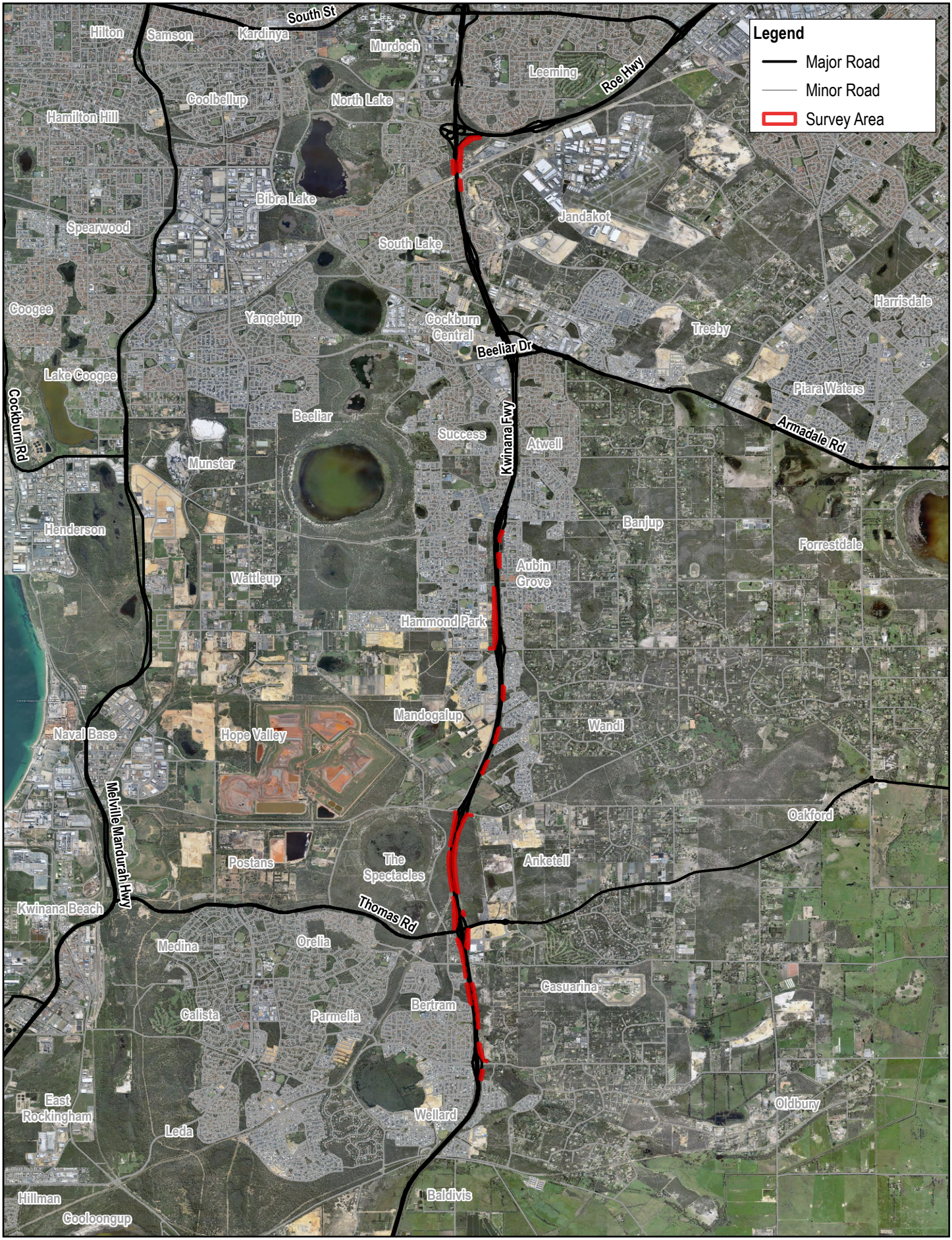
Appendices

Appendix A

Figures



Paper Size ISO A4

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Kilometers

Horizontal Datum: GDA2020
Grid: GDA2020

N

GHD

Main Roads WA
Kwinana Targeted Orchid Survey

Project No. **12657323**
Revision No. **0**
Date **17/11/2025**

Site Location

FIGURE 1

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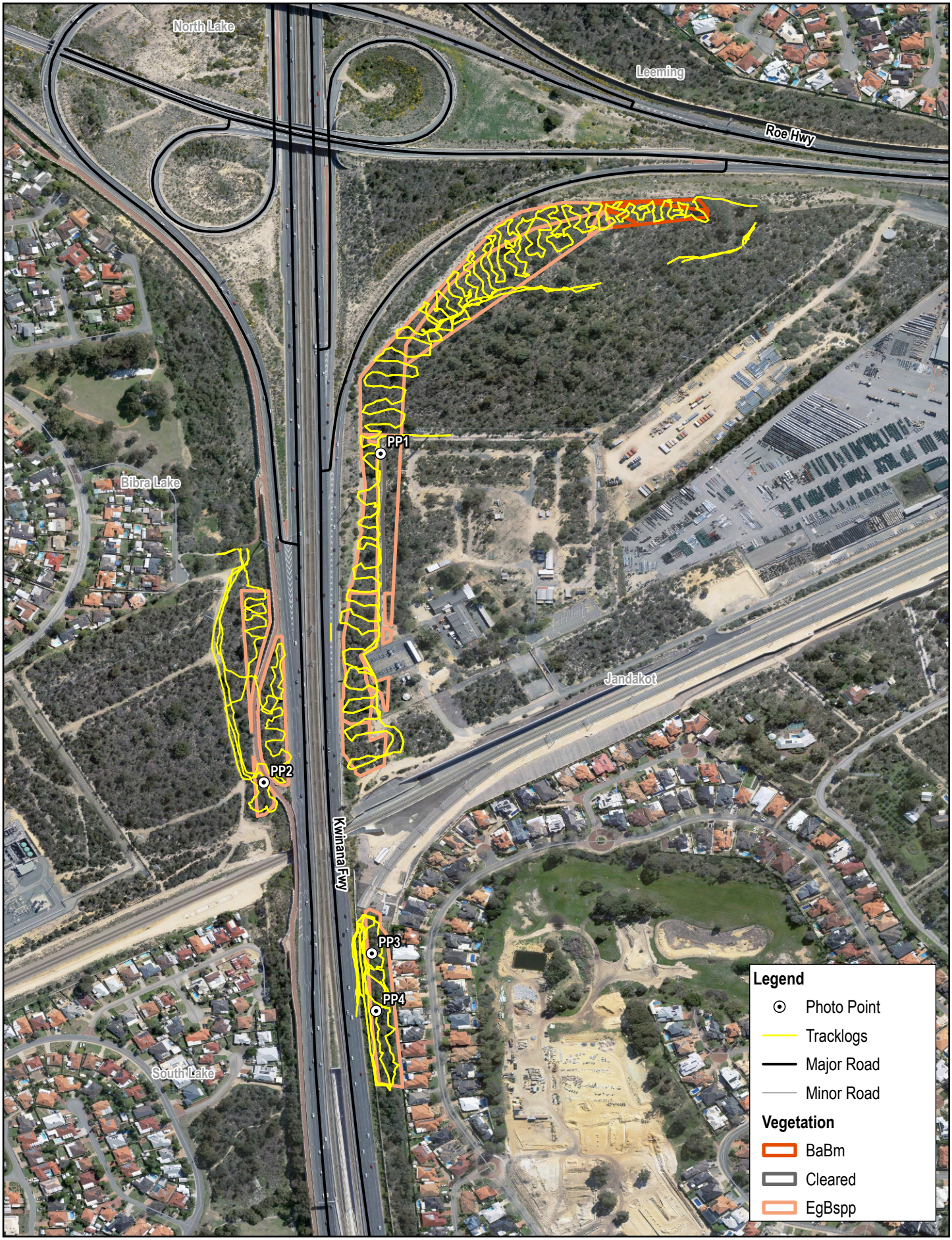

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Horizontal Datum: GDA2020
Grid: GDA2020

Main Roads WA
Kwinana Targeted Orchid Survey

Project No. **12657323**
Revision No. **0**
Date **17/11/2025**

Survey Effort and Photo Points

FIGURE 2

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Paper Size ISO A4

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Meters

Horizontal Datum: GDA2020
Grid: GDA2020

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GHD

Main Roads WA
Kwinana Targeted Orchid Survey

Project No. **12657323**
Revision No. **0**
Date **17/11/2025**

Survey Effort and Photo Points

FIGURE 2

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Paper Size ISO A4

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Meters

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Horizontal Datum: GDA2020
Grid: GDA2020

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Survey Effort and Photo Points

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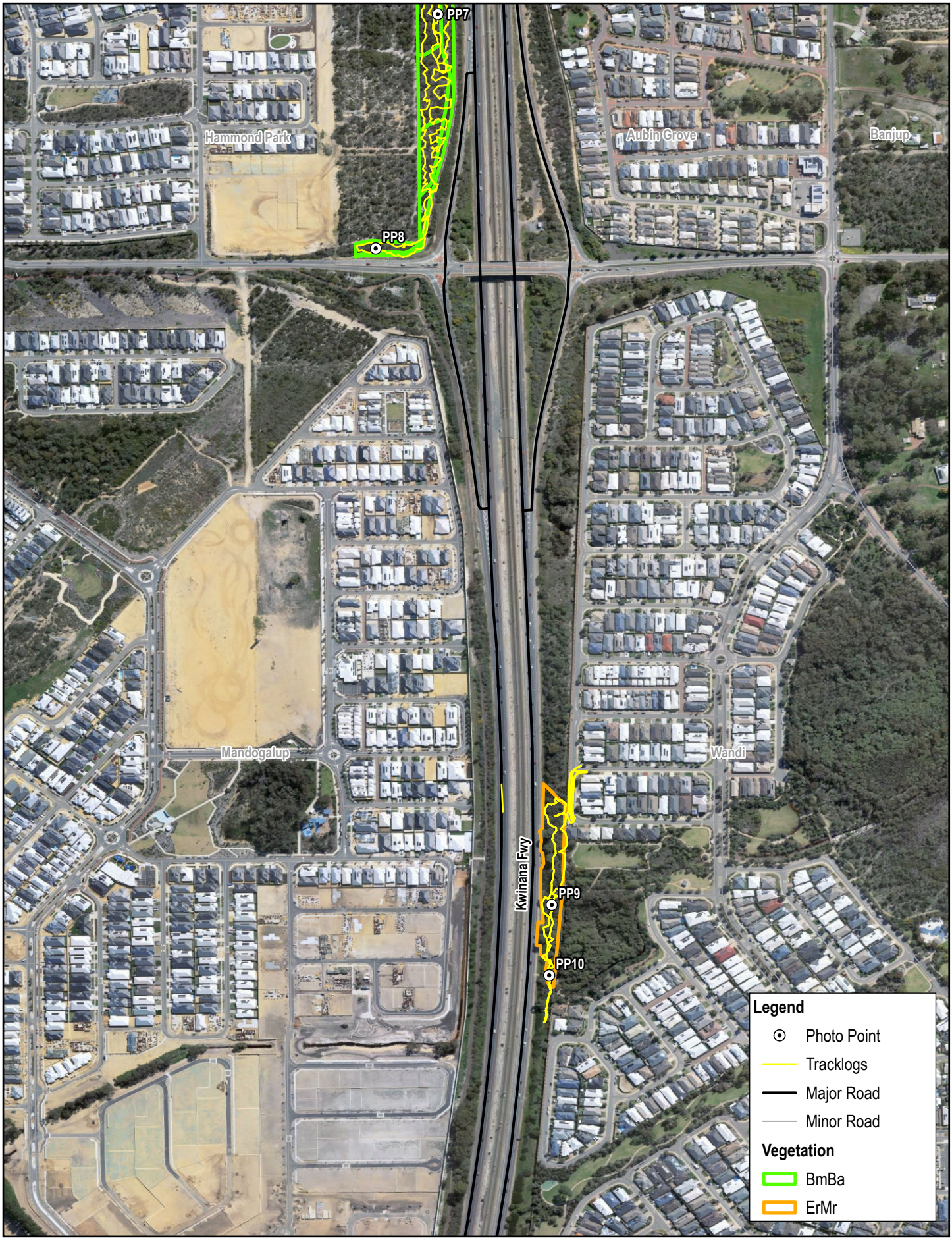

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Horizontal Datum: GDA2020
Grid: GDA2020

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GHD

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Paper Size ISO A4

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Meters

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Horizontal Datum: GDA2020
Grid: GDA2020

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Meters

Horizontal Datum: GDA2020
Grid: GDA2020

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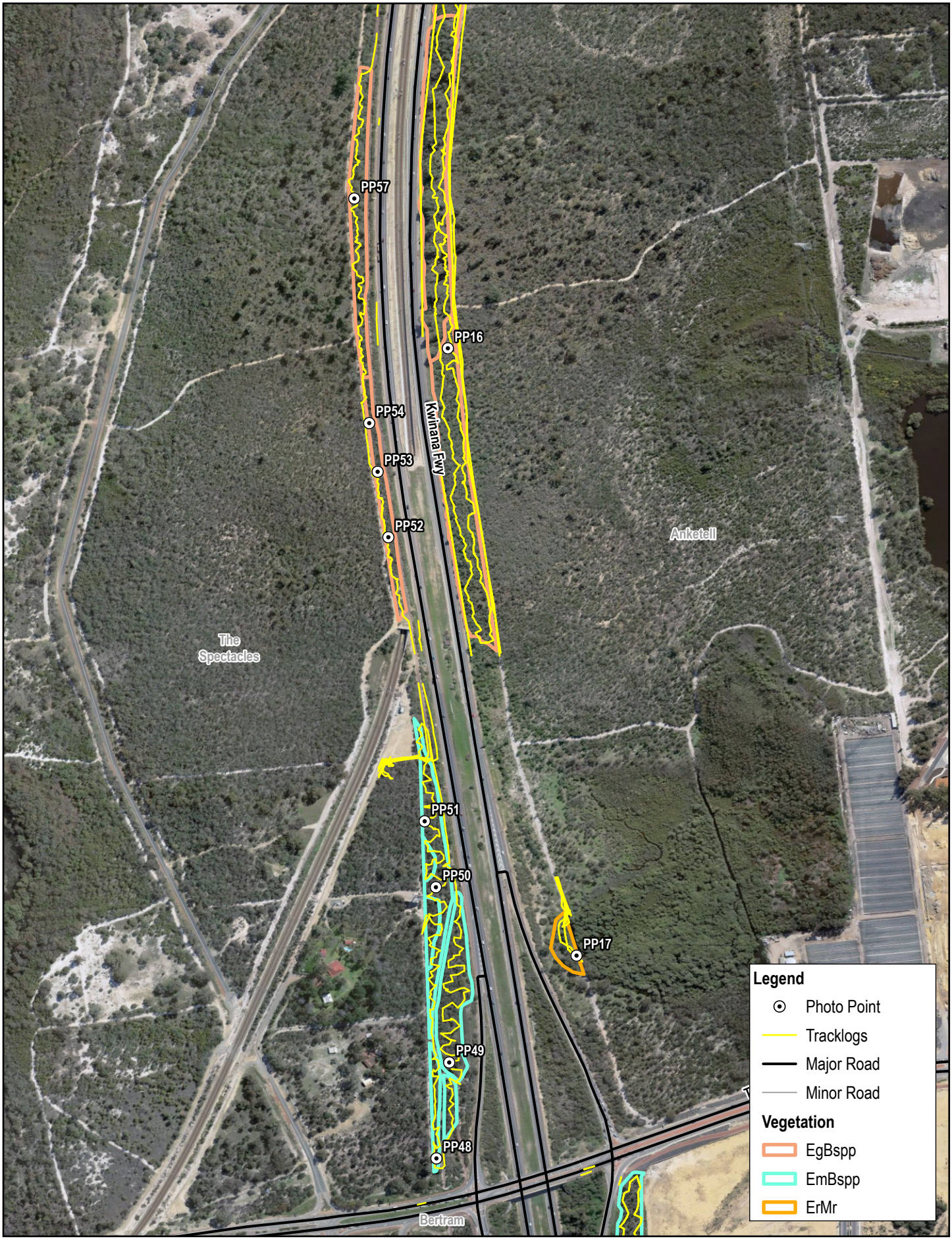

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Horizontal Datum: GDA2020
Grid: GDA2020

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Main Roads WA
Kwinana Targeted Orchid Survey

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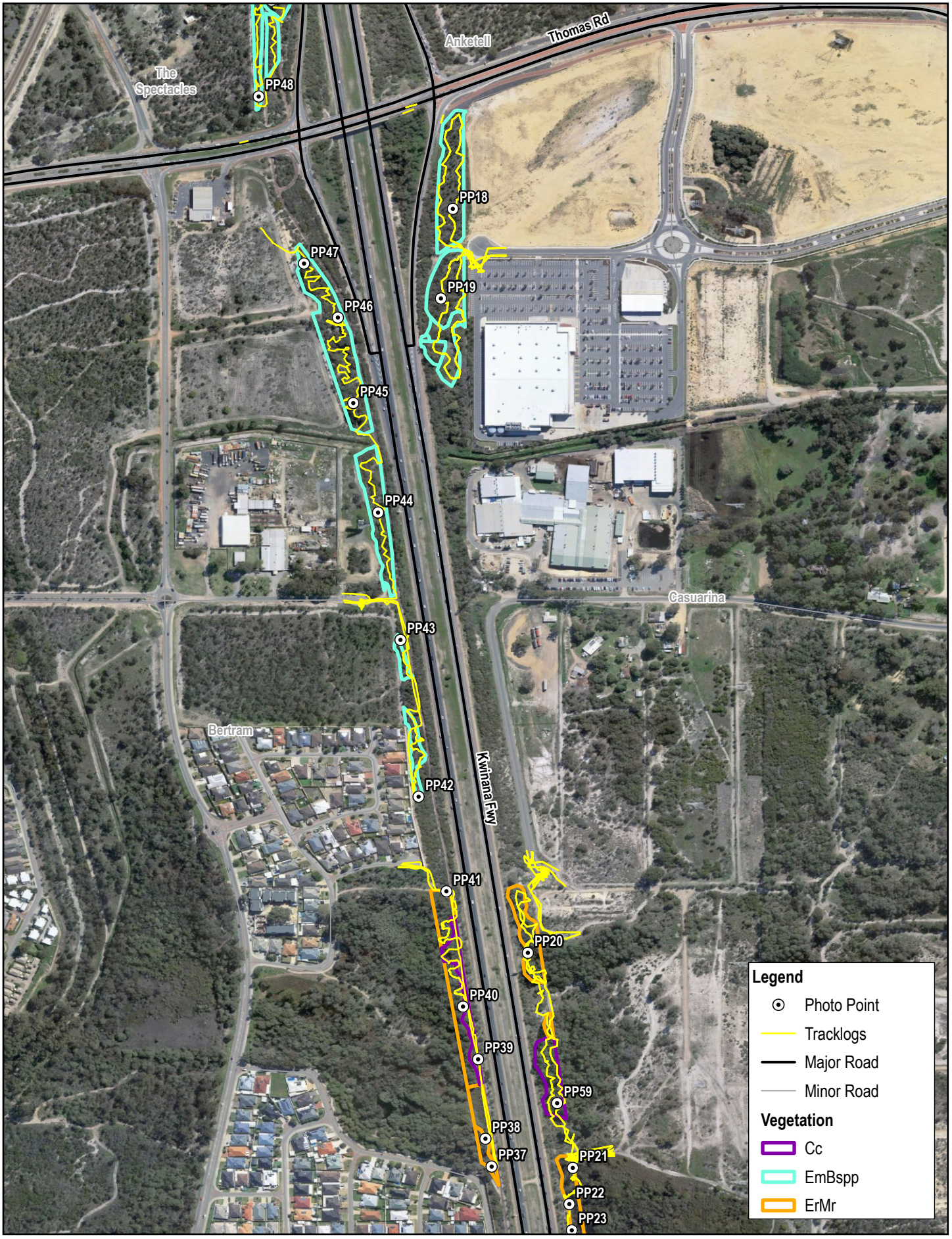

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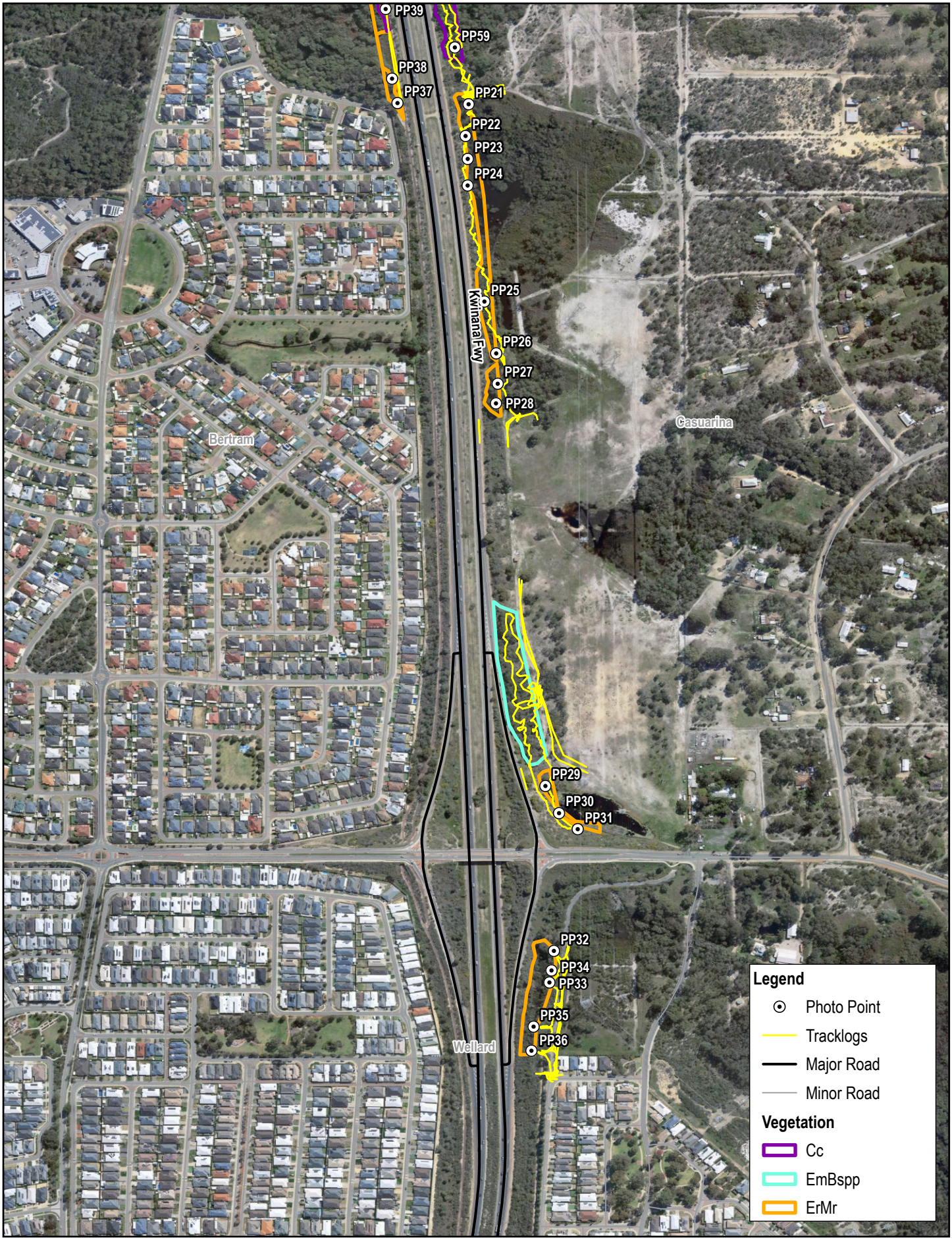

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Data source: Landgate_Subscription_Imagery/WANow: Imagery_Offline: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community. Created by: dchan3

Appendix B

Photographs

Photo points

PP1

PP2

PP3

PP4

PP5

PP6-

PP7

PP8-

PP9

PP10

PP11

PP12

PP13

PP14

PP15

PP16

PP17

PP18

PP19

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