Report and recommendations of the Environmental Protection Authority

Albemarle Kemerton Plant

Albemarle Lithium Pty Ltd

Report 1618

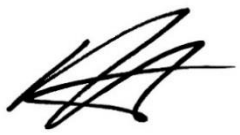
June 2018

Environmental impact assessment process timelines

Date	Progress stages	Time (weeks)
20/02/2018	EPA decides to assess – level of assessment set at Referral Information (with additional information required under section 40(2)(a) of the *Environmental Protection Act 1986*)	
16/03/2018	Proponent provided additional required information	3
06/04/2018	EPA accepted additional required information	3
09/04/2018	Additional required information released for public review	3 days
20/04/2018	Public review period for additional required information closed	2
17/05/2018	EPA completed its assessment	3
11/06/2018	EPA provided report to the Minister for Environment	3
15/06/2018	EPA report published	4 days
29/06/2018	Close of appeals period	2

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the Environmental Protection Authority met its timeline objective to complete its assessment and provide a report to the Minister.



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Chairman

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1. Introduction

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for Environment on the outcomes of the EPA's environmental impact assessment of Albemarle Lithium Pty Ltd's proposal to develop the Albemarle Kemerton Plant. The lithium hydroxide product manufacturing plant and associated infrastructure would be located within the Kemerton Strategic Industrial Area (KSIA), approximately 17 kilometres (km) north-east of Bunbury.

The EPA has prepared this report in accordance with section 44 of the *Environmental Protection Act 1986* (EP Act). This section of the Act requires the EPA to prepare a report on the outcome of its assessment of a proposal and provide this assessment report to the Minister for Environment. The report must set out:

- what the EPA considers to be the key environmental factors identified during the assessment
- the EPA's recommendations as to whether or not the proposal may be implemented and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may also include any other information, advice and recommendations in the assessment report as it thinks fit.

The proponent referred the proposal to the EPA on 8 November 2017. On 20 February 2018, the EPA decided to assess the proposal and set the level of assessment at Referral Information (with additional information required under section 40(2)(a) of the EP Act). The additional information required under section 40(2)(a) of the EP Act (Albemarle Lithium Pty Ltd 2018) was released for public review from 9 April 2018 to 23 April 2018.

1.1 EPA procedures

The EPA followed the procedures in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) administrative procedures 2016* (EPA 2016h) and the *Environmental Impact Assessment (Part IV Divisions 1 and 2) procedures manual 2016* (EPA 2016i).

1.2 Assessment on behalf of Commonwealth

The proposal was determined to be a controlled action (EPBC 2017/8099) by a delegate of the Commonwealth Minister for the Environment and Energy under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 5 January 2018, given the likelihood of it having a significant impact on the following Matters of National Environmental Significance (MNES):

- Listed threatened species and communities (section 18 and 18A).

The proposal was assessed bilaterally as an accredited assessment between the Commonwealth and Western Australian governments.

2. The proposal

2.1 Proposal summary

The proponent, Albemarle Lithium Pty Ltd, proposes to construct and operate the Albemarle Kemerton Plant, a lithium manufacturing plant (the 'plant') and associated infrastructure, within the Kemerton Strategic Industrial Area (KSIA), approximately 17 km north-east of Bunbury (Figure 1).

The Albemarle Kemerton Plant is to be located within the KSIA's Strategic Industry Zone at Part Lot 510, Wellesley Road, Wellesley.

The proposal is to be developed within a defined development envelope covering an area of 89.25 hectares (ha), including the plant, associated infrastructure and a service corridor to provide road access from Marriott Road, as well as electricity, natural gas, water and telecommunications (Figure 2).

The plant is designed to process up to 1 million tonnes of spodumene ore concentrate (containing six per cent lithium oxide), sourced from the Talison Greenbushes Operation (Greenbushes). The ore concentrate will be processed within up to five lithium hydroxide product process trains, which are proposed to be brought online one at a time as production increases. These process trains operate using a combination of pyrometallurgical and hydrometallurgical operations to produce a total of up to 100 000 tonnes of lithium hydroxide product and up to 200 000 tonnes of sodium sulfate by-product per year. Up to 1.1 million tonnes of tailings will also be produced as a waste product.

The lithium hydroxide product will be transported 155 km by road to the Port of Fremantle for export (although it could potentially be exported from the Port of Bunbury in the future). Sodium sulfate by-product will also be transported by road to either Fremantle or Bunbury for export. Tailings will be transported by road to be disposed of at a licensed Class III landfill facility.

The key characteristics of the proposal are summarised in tables 1 and 2 below. A detailed description of the proposal is provided in Section 2 of the *Albemarle Kemerton Plant environmental referral supporting document* (Albemarle Lithium Pty Ltd 2017).

Table 1: Summary of the proposal

Proposal title	Albemarle Kemerton Plant
Short description	The proposal is to construct and operate a lithium hydroxide product manufacturing plant in the Kemerton Strategic Industrial Area, 17 km north-east of Bunbury. The proposal includes construction of up to five lithium hydroxide product process trains and associated infrastructure.

Table 2: Location and proposed extent of physical and operational elements

Element	Location	Proposed extent
Physical elements		
Vegetation clearing	Figure 2	Clearing of no more than 54.31 ha of native vegetation and 33.39 ha of pine plantation
Operational elements		
Process plant capacity	Figure 2	No more than 100 000 tonnes of lithium hydroxide product
Tailings production	Figure 2	No more than 1.1 million tonnes per year

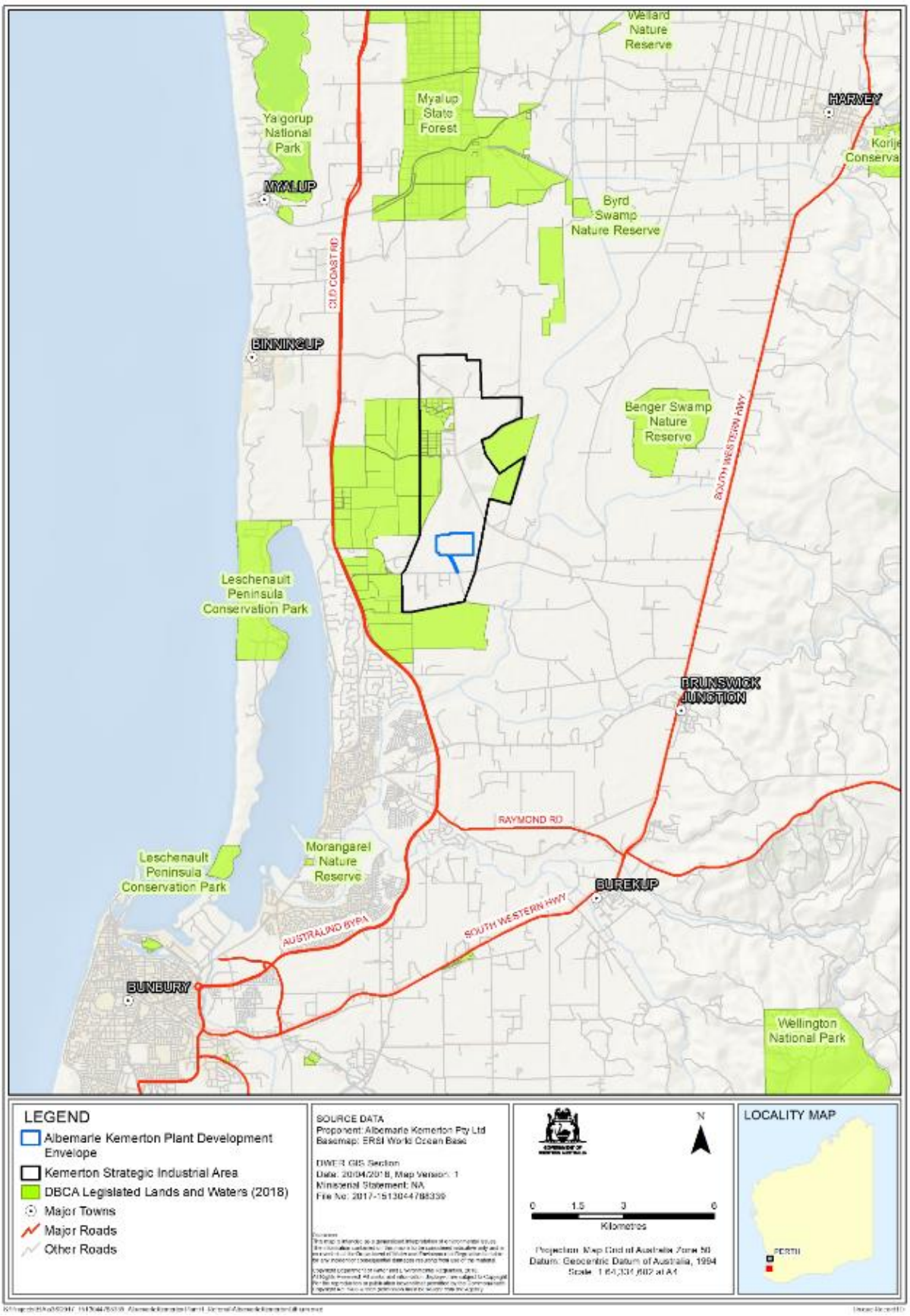

Figure 1: Regional location

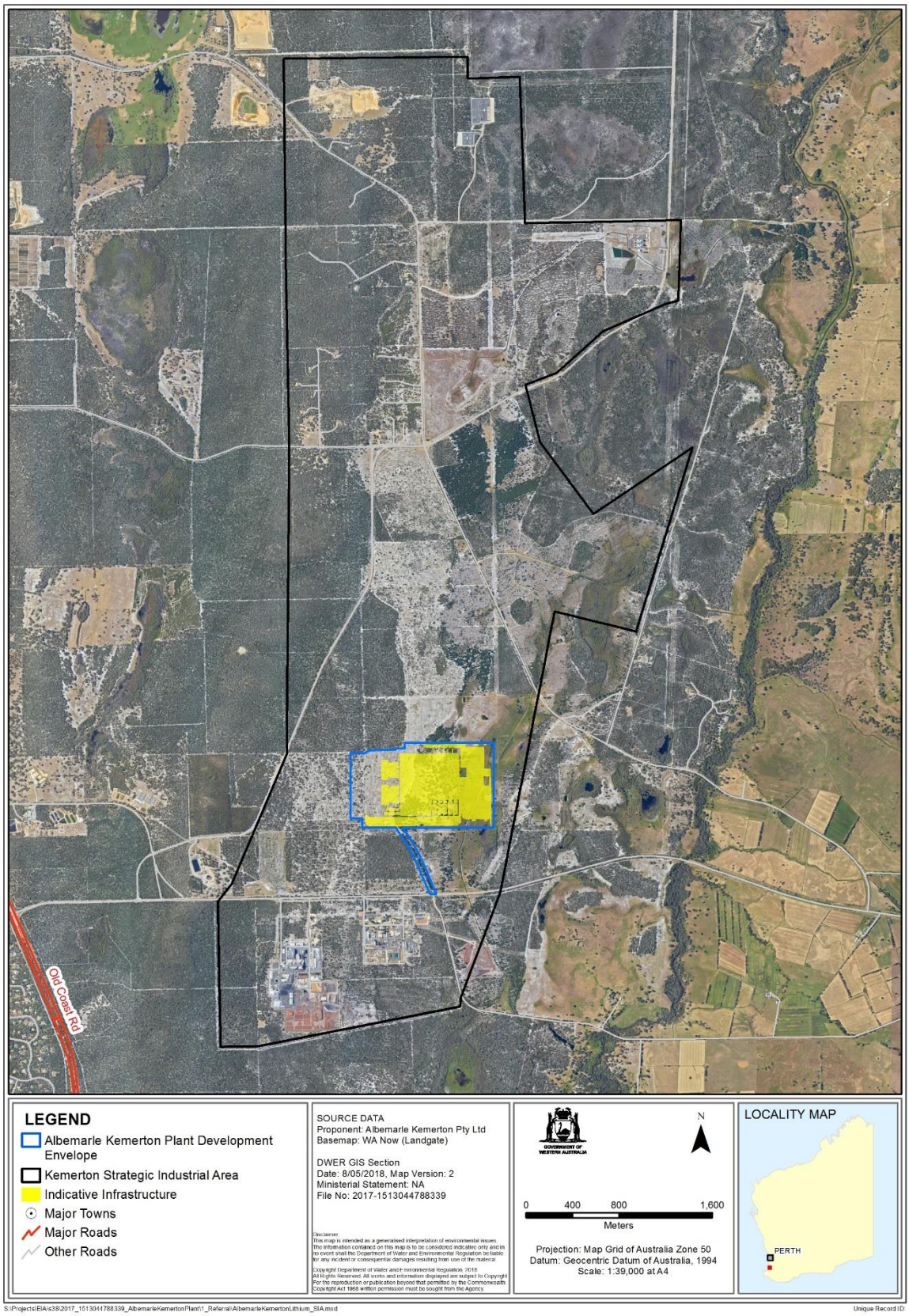

Figure 2: Development envelope and indicative infrastructure

2.2 Context

Land use and zoning

The proposal is located within the KSIA's Strategic Industry Zone – a designated industrial park under the Shire of Harvey District Planning Scheme no. 1 and the Greater Bunbury Region Scheme (GBRS).

The KSIA was established in 1985 as a location for major (heavy) industry to undertake downstream processing and value-adding to the primary resources in the South West. The KSIA comprises the following specific areas (Figure 3):

- 2024 ha Strategic Industry Zone (industrial core) for the establishment of major industries
- 284 ha Ancillary Industry Zone (support industry area) – industry in this area will be ancillary to the heavy industry in the Strategic Industry Zone
- 5200 ha Industry Buffer Zone (buffer) – intended to ensure the industries located in the Strategic Industry Zone do not adversely impact on premises beyond the KSIA's boundary.

At present the KSIA is made up of cleared former grazing land, forestry plantations, semi-rural residential land holdings and areas of native vegetation and wetlands. In addition, several existing industries and utilities are located within the KSIA.

Land ownership in the KSIA is divided into three key categories:

- LandCorp – approximately 57 per cent ownership within the Strategic Industry Zone and 24 per cent within the Industry Buffer Zone
- Department of Biodiversity, Conservation and Attractions (DBCA) – approximately 10 per cent ownership within the Strategic Industry Zone and 47 per cent within the Industry Buffer Zone
- other ownership (private ownership, local government authorities, infrastructure service agencies) – approximately 33 per cent ownership within the Strategic Industry Zone and 32 per cent within the Industry Buffer Zone.

Industrial development only covers a small portion of the 2024 ha Strategic Industry Zone (industrial core), thus significant capacity remains for additional future industrial development.

Previous EPA advice and assessment of the KSIA

Previous planning for the KSIA, and subsequent EPA advice and formal assessment (EPA Bulletins 902 and 1108), identified that the presence of concentrated industrial developments could result in the following potential cumulative impacts:

- increase in noise levels
- reduction in air quality
- losses of remnant vegetation and fauna
- degradation of groundwater and/or surface water quality
- contamination associated with solid/liquid waste disposal.

The KSIA's 5200 ha Industry Buffer Zone was designed to maintain a buffer between industry and the surrounding land uses. The EPA considered that this buffer provided adequate separation between the proposed industrial development and surrounding land uses to accommodate the impacts of noise and air quality. In its advice to the Minister (EPA Bulletin 1108), the EPA also noted it had deferred assessment of the above environmental factors, until such time that it had the opportunity to assess proposals impacting on these environmental factors in more detail, at the appropriate stage of the planning process.

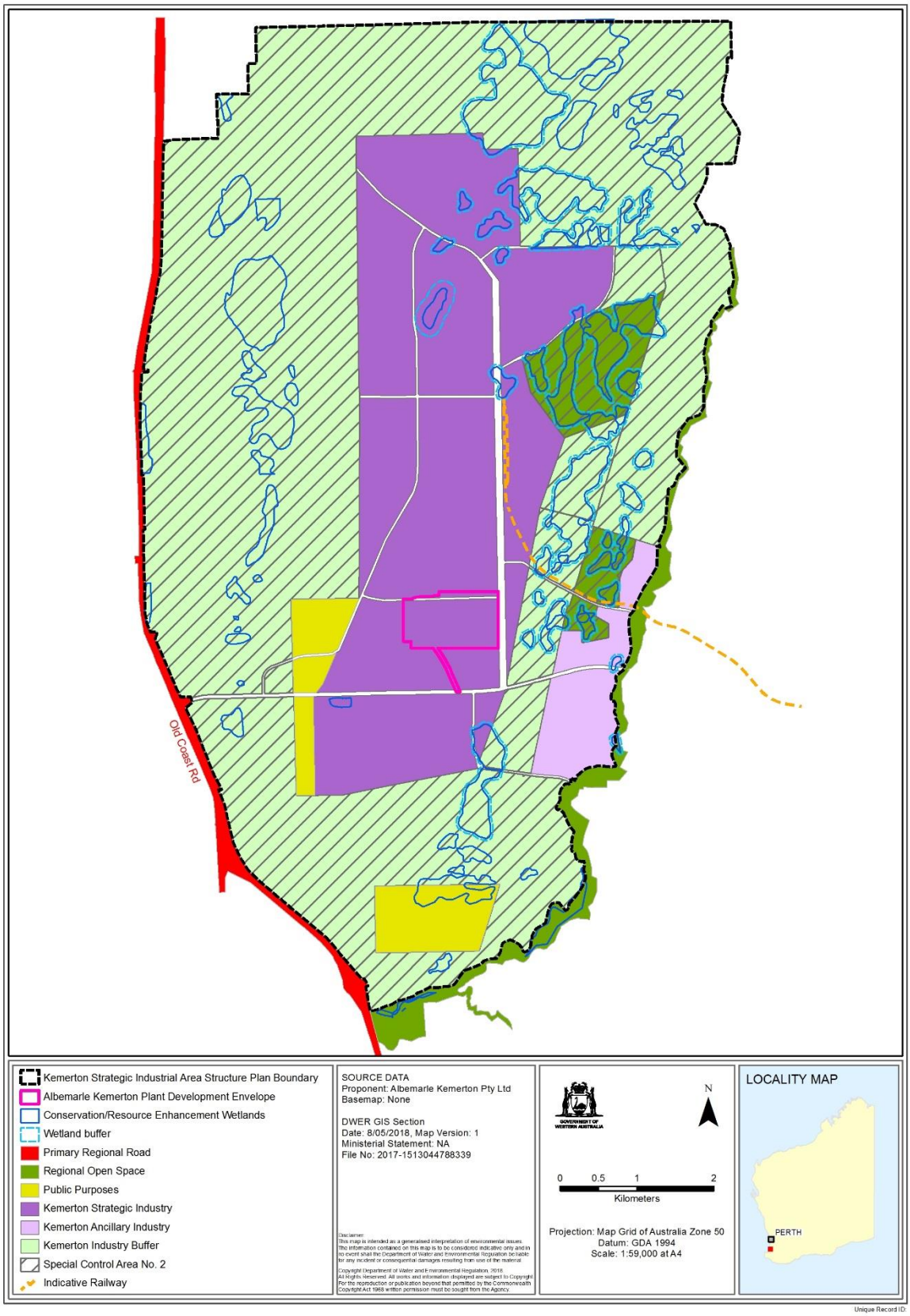

Figure 3: Proposal location within KSIA

3. Consultation

The EPA advertised the referral information for the proposal for public comment in November 2017 and received four submissions. One submission requested 'Do not assess' and three submissions requested 'Assess – Public Environmental Review'.

The proponent consulted with government agencies and key stakeholders, including the Department of Environment and Energy, during preparation of the supporting document provided with the original referral (Albemarle Lithium Pty Ltd 2017). The agencies and stakeholders consulted, the issues raised and the proponent's response are detailed in Table 3-1 of the proponent's supporting document.

Supplementary information provided during the assessment (Albemarle Lithium Pty Ltd 2018) was advertised for a two-week public review in April 2018. Two public comments were received and the key issues raised related to:

- the management of potentially contaminated stormwater
- separation distances between the plant and the underlying groundwater
- tailings management
- transport
- air, noise and groundwater monitoring.

The proponent addressed the issues raised by providing additional information about stormwater management, proposal design and transport.

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders about the proposed development. Further, the EPA has taken into account the relevant environmental issues identified from this process during its assessment of the proposal.

4. Key environmental factors

In undertaking its assessment of this proposal and preparing this report, the EPA had regard for the object and principles contained in s4A of the EP Act to the extent relevant to the particular matters that were considered.

The EPA considered the following information during its assessment:

- the proponent's referral information (Albemarle Lithium Pty Ltd 2017)
- additional information required under section 40(2)(a) of the EP Act and provided by the proponent regarding Flora and Vegetation ('Banksia woodlands of Swan Coastal Plain'), Terrestrial Fauna (black cockatoos) and Terrestrial Environmental Quality (waste management) (Albemarle Lithium Pty Ltd 2018)
- public comments received on the referral, stakeholder comments received during preparation of the proponent's documentation, and public and agency comments received on the additional information required under section 40(2)(a) of the EP Act
- the proponent's response to submissions raised during the public review of the additional information required under section 40(2)(a) of the EP Act
- the EPA's own inquiries
- the EPA's *Statement of environmental principles, factors and objectives* (EPA 2016)
- the principles, policy and guidance relevant to an assessment of each key environmental factor in sections 4.1 to 4.7.

Having regard to the above information, the EPA identified the following key environmental factors during the course of its assessment of the proposal:

- **Flora and Vegetation** – direct impacts associated with the clearing of native vegetation, priority flora and vegetation associated with a Priority Ecological Community.
- **Terrestrial Environmental Quality** – waste management impacts associated with the production and management of 1.1 million tonnes of tailings per year.
- **Terrestrial Fauna** – direct impacts associated with the clearing of potential black cockatoo foraging and breeding habitat.
- **Hydrological Processes** – direct impacts associated with the disturbance of surface water systems and the diversion of a drainage line.
- **Inland Waters Environmental Quality** – direct impacts associated with leaks or spills from reagent storage and the management of stormwater.
- **Air Quality** – direct emissions of air pollutants and greenhouse gases during ore processing and vehicle use.

The EPA considered other environmental factors during the course of its assessment of the proposal. These factors, which were not identified as key environmental

factors, are discussed in the proponent's referral documentation (Albemarle Lithium Pty Ltd 2017). Appendix 3 contains an evaluation of why these other environmental factors were not identified as key environmental factors.

Having regard to the EP Act principles, the EPA considered that the following principles were particularly relevant to its assessment of the proposal:

1. **The precautionary principle** – the proponent's investigations into the biological and physical environment have provided sufficient certainty to assess risk and identify measures to avoid or minimise impacts.
2. **Principle of the conservation of biological diversity and ecological integrity** – the EPA has considered the impacts on Flora and Vegetation and Terrestrial Fauna (black cockatoos), as well as Terrestrial Environmental Quality (waste management). It has recommended conditions to manage impacts on conservation significant flora and fauna so that biological diversity is maintained. It has also recommended an offset condition to counterbalance the significant residual environmental impacts associated with this proposal.
3. **The principle of waste minimisation** – the EPA notes that the proponent proposes to apply the waste management hierarchy to this proposal and the principle of waste minimisation.

Appendix 2 provides a summary of the principles and how the EPA considered these principles in its assessment.

The EPA's assessment of the proposal's impacts on the key environmental factors is provided in sections 4.1–4.6. These sections outline whether or not the EPA considers that the impacts on each factor are manageable. Section 7 provides the EPA's conclusion as to whether or not the proposal as a whole is environmentally acceptable.

Assessment on behalf of Commonwealth

The EPA assessed the proposal on behalf of the Commonwealth Minister for Environment as an accredited assessment. The EPA has addressed MNES under each relevant factor (see Section 6 for a summary).

4.1 Flora and Vegetation

EPA objective

The EPA's environmental objective for this factor is 'to protect flora and vegetation so that biological diversity and ecological integrity are maintained'.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental factor guideline – Flora and Vegetation* (EPA 2016b)

- *Technical guidance – flora and vegetation surveys for environmental impact assessment* (EPA 2016k)
- *WA Environmental Offsets Policy* (Government of Western Australia 2011)
- *WA Environmental Offsets Guidelines* (Government of Western Australia 2014).

The considerations for environmental impact assessment (EIA) for this factor are outlined in *Environmental factor guideline – Flora and Vegetation* (EPA 2016b).

EPA assessment

Existing environment

The proponent has undertaken flora and vegetation surveys relevant to the Albemarle development envelope (ELA 2017a, b& c).

The flora and vegetation surveys identified:

- No Threatened flora listed under the *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act) and *Wildlife Conservation Act 1950* (WC Act) were identified within the development envelope. Desktop searches identified two locations of an orchid *Drakaea elastica* (listed as Endangered under the EPBC Act and Threatened under the WC Act), approximately 45 m from the northern boundary (Figure 4).
- Two other orchids which are listed as Threatened under the WC Act are known to occur within the KSIA: the dwarf bee-orchid (*Diuris micrantha*) and the dwarf hammer-orchid (*Drakaea micrantha*). Neither of these species were considered likely to occur within the development envelope due to long-term ground disturbance (ELA 2017c).
- No Weeds of National Significance were identified during the field surveys, however one of the introduced flora species recorded, **Zantedeschia aethiopica* (arum lily), is listed as a Declared Pest under the *Biosecurity and Agriculture Management Act 2007* (BAM Act).

Vegetation condition within the development envelope was identified as predominantly being in 'Completely Degraded' (57.75 ha) or 'Degraded' (25.04 ha) condition, affected by cattle grazing, weed invasion, unauthorised access (e.g. unplanned tracks, rubbish dumping, motorbikes) and clearing/logging. There is a small area (0.09 ha) of vegetation in 'Excellent' condition, with the remaining 6.37 ha mapped as being in 'Good' condition (Figure 5).

Two of the vegetation associations were identified as being representative of the 'Low lying *Banksia attenuata* woodlands or shrublands' Priority Ecological Community (PEC). This PEC covers an area of 6.37 ha within the development envelope and extends into areas outside the development envelope (Figure 4). Almost all of this PEC (6.27 ha) was recorded as being in 'Good' or 'Excellent' condition, with the remaining 0.1 ha classed as 'Completely Degraded'. The vegetation associations that form this PEC are also representative of the 'Banksia woodlands of the Swan Coastal Plain' Threatened Ecological Community (TEC),

listed as Endangered under the EPBC Act (assessed as a Matter of National Environmental Significance in Section 6).

The proposal is considered to occur in an area at risk of *Phytophthora cinnamomi*, commonly known as Dieback.

Impacts

Flora and Vegetation would be impacted through the direct clearing of:

- 54.31 ha of native vegetation (including 6.37 ha of vegetation associated with the 'Low lying *Banksia attenuata* woodlands or shrublands' PEC)
- 33.39 ha of pine plantation that provides foraging habitat for black cockatoos.

Flora and Vegetation has the potential to be indirectly impacted through:

- alteration of site hydrological processes
- the introduction and spread of weeds
- the introduction and spread of Dieback
- disturbance of acid sulfate soils (ASS)
- increased fire risk.

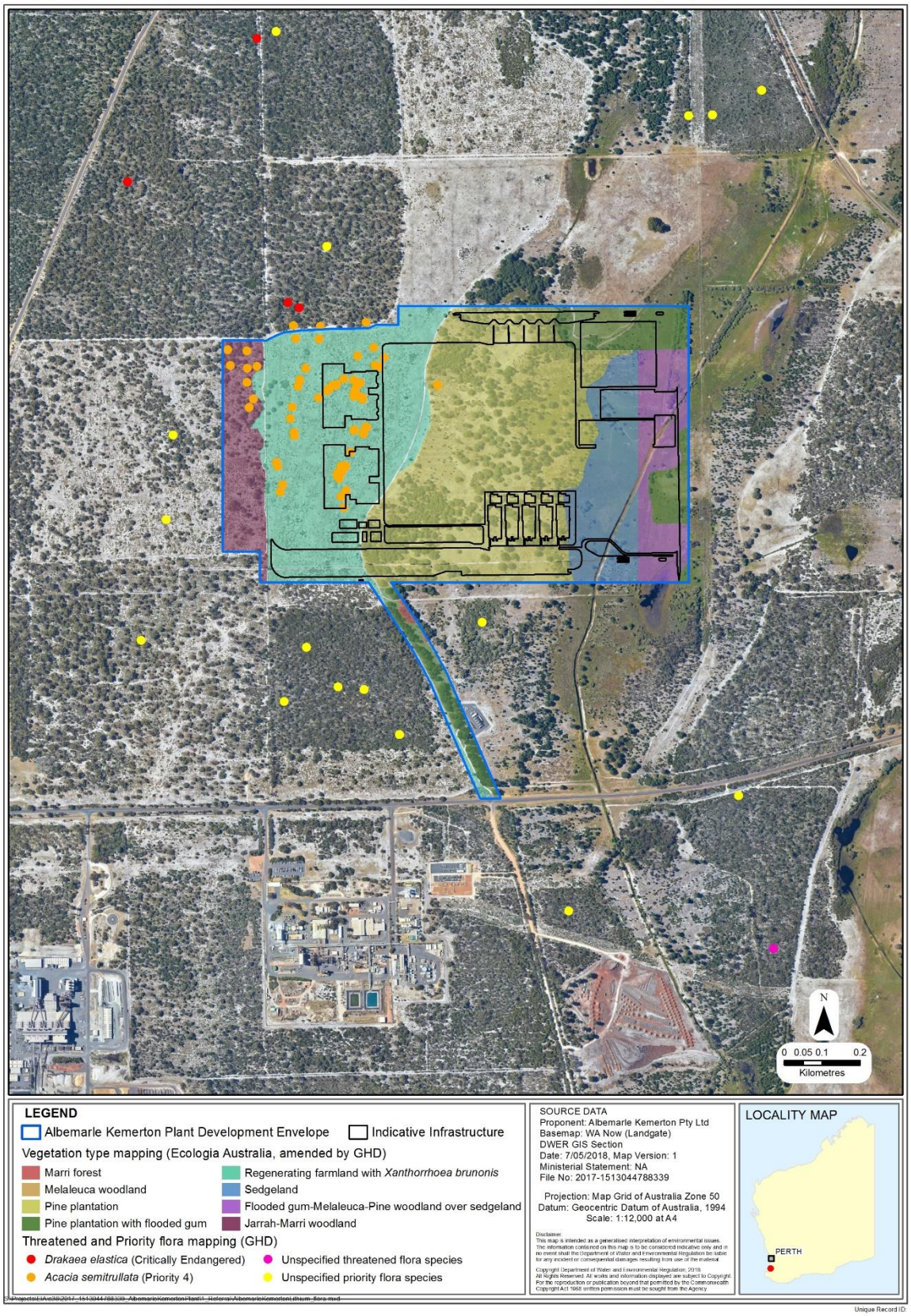

Figure 4: Vegetation associations and conservation significant flora locations

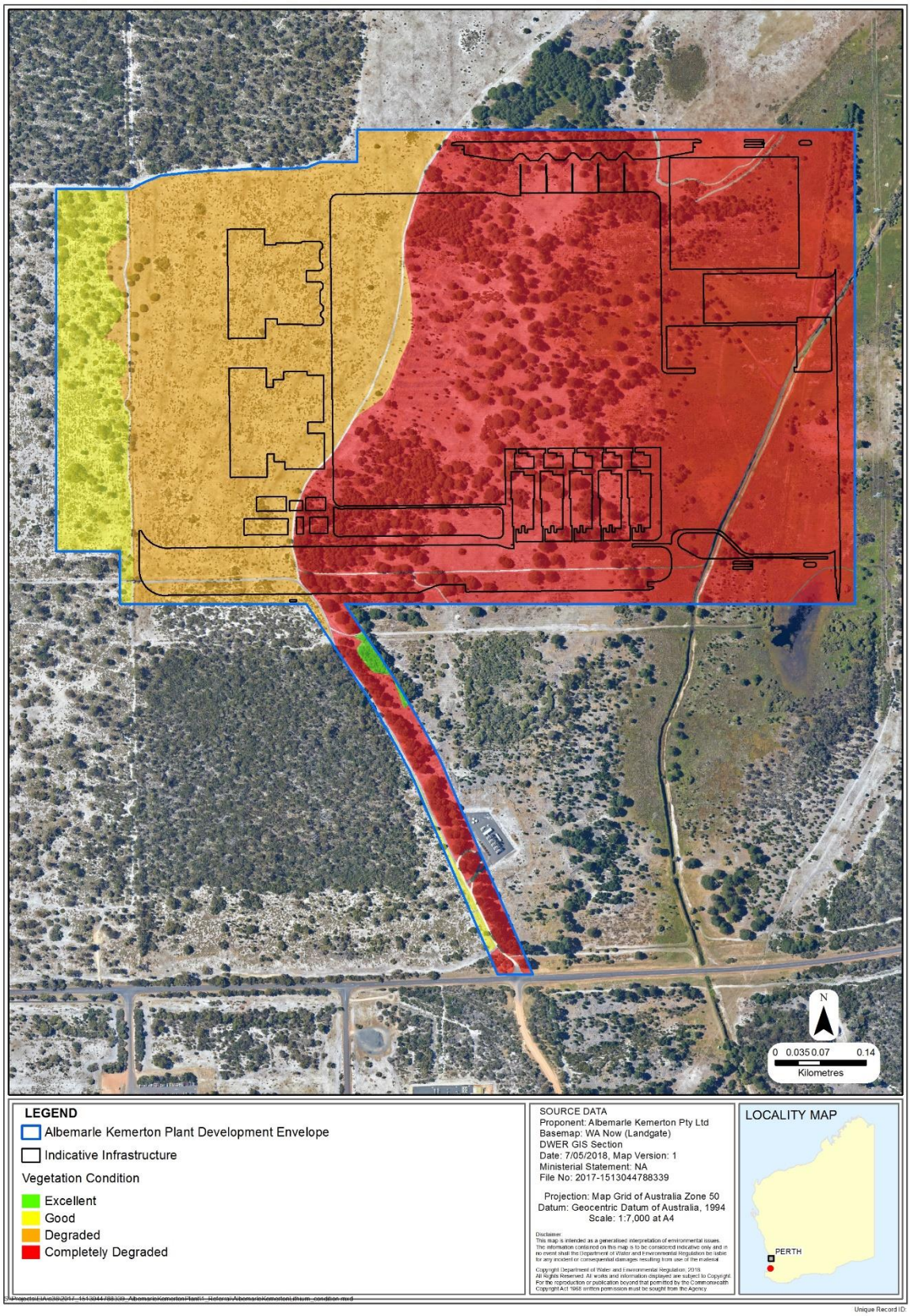

Figure 5: Vegetation condition within Albemarle development envelope

Mitigation and management

The EPA notes that in designing the proposal and selecting the site, the proponent has considered the application of the mitigation hierarchy, in accordance with the *Environmental factor guideline – Flora and Vegetation* (EPA 2016b).

The proponent has a lease agreement with LandCorp for a 257 ha land parcel, and the 89.25 ha development envelope boundary was chosen from within this larger land parcel. The proponent conducted a site-selection process within the 257 ha land parcel, aiming to avoid areas of higher biodiversity values as much as reasonably possible and to use previously disturbed areas (Albemarle 2018). Two location options were identified, with the eastern option subsequently being chosen after a desktop review and site visit determined that it had lower ecological value.

The site-selection process resulted in a proposed development envelope that:

- avoids known locations of *Drakaea elastica* (listed as Endangered under the EPBC Act and Threatened under the WC Act)
- avoids 80 ha of vegetation that represents the 'Low lying *Banksia attenuata* woodlands or shrublands' PEC within the original lease option
- contains predominantly 'Degraded' or 'Completely Degraded' quality vegetation.

Of the 6.37 ha of 'Low lying *Banksia attenuata* woodlands or shrublands' PEC that remains within the development envelope, the proponent has committed to minimise clearing within 5.94 ha of this area. The proponent has also committed to rehabilitate cleared land within the PEC if it is no longer required after construction of the plant.

The proponent has committed to developing a flora and vegetation management plan that includes measures to minimise impacts on Threatened orchids. The proponent has also developed a water management plan for the site and committed to manage acid sulfate soils if they are encountered during pre-disturbance investigations.

The EPA considers that through the site-selection process, the proponent has avoided and minimised impacts as much as reasonable. The EPA considers that a significant residual impact to this PEC will remain, however, and notes that the proponent has committed to an offsets strategy for this significant residual impact (see Section 5).

The EPA considers that while no Threatened flora, including orchids, would be directly impacted, the proposal might result in indirect impacts to Threatened orchid species. The EPA notes that the proponent has committed to develop and implement a flora and vegetation management plan and measures to manage water quality and flows (such as through a water management plan) to reduce indirect impacts to the orchids.

Summary

The EPA has paid particular attention to the:

- *Environmental factor guideline – Flora and Vegetation* (EPA 2016b)
- proponent's application of the mitigation hierarchy to avoid and minimise the clearing of conservation significant flora and vegetation
- proponent's application of the mitigation hierarchy to avoid and minimise indirect impacts to Threatened orchid species
- proposed clearing of 6.37 ha of vegetation that represents the 'Low lying *Banksia attenuata* woodlands or shrublands' PEC of 'Good' or 'Excellent' condition.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Flora and Vegetation, that the impacts on this factor are manageable and would not be significant, provided:

- there is a limit on the clearing of native vegetation through the authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 4)
- a flora and vegetation monitoring and management plan for indirect impacts is prepared and implemented (Condition 6)
- a water management plan is prepared and implemented (Condition 7)
- an offsets strategy (see Section 5, condition 10) is implemented to counterbalance the significant residual impact of clearing of 6.37 ha of 'Low lying *Banksia attenuata* woodlands or shrublands' PEC of 'Good' or 'Excellent' condition.

4.2 Terrestrial Environmental Quality

EPA objective

The EPA's environmental objective for this factor is 'to maintain the quality of land and soils so that environmental values are protected'.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental factor guideline – Terrestrial Environmental Quality* (EPA 2016f).

The considerations for EIA for this factor are outlined in *Environmental factor guideline – Terrestrial Environmental Quality* (EPA 2016f).

EPA assessment

Existing environment

The proposal occurs within the Swan Province and primarily intersects the Bassendean dune and sandplain system with a small area intersecting the

Spearwood dune and sandplain system. Desktop surveys have classified soils across the site as potentially 'high to moderate risk' and 'moderate to low risk' of acid sulfate soils (ASS) within 3 m of the natural soil surface within the development envelope.

Impacts

The EPA notes that the primary focus related to this key environmental factor is management of tailings. Tailings are proposed to be transported offsite to a Class III landfill facility licensed under Part V of the EP Act; however, the EPA would need to consider how this relates to the principle of waste minimisation as well as tailings management on the site.

Other potential impacts on Terrestrial Environmental Quality are:

- acidification of soils as result of the disturbance of ASS
- contamination of soils as a result of leaks or spills of reagents, hydrocarbons, ore, lithium products or tailings.

Mitigation and management

The proposal includes the production of up to 1.1 million tonnes of tailings per year, as well as the transport of the tailings to a Class III landfill facility for disposal. The tailings will be composed of aluminosilicates, gypsum, residual salts and water. The principle of waste minimisation is significant to the proposal, given the volume of tailings produced and use of a Class III landfill for final disposal of the tailings.

The proponent has conducted an assessment against the waste hierarchy set in the *Waste Avoidance and Resource Recovery Act 2007* and committed to the following:

- using high grade spodumene ore concentrate
- recovering tailings leachate
- recovering by-products
- investigating the following waste recovery options:
  - use of tailings as mine backfill
  - use of tailings in the production of shotcrete
  - recovery of additional metals.

The proposal includes levelling the site, which will involve the cutting (excavation) of areas identified as being 'moderate to low risk' of ASS in the western portion of the development envelope, and filling the area identified as being 'high to moderate risk' of ASS. The only excavation within the 'high to moderate risk' ASS area is associated with the construction of the drain diversion (see Section 4.4 for information on water flows and the drain diversion).

The proponent has committed to conduct an ASS site investigation in accordance with *Identification and investigation of acid sulfate soils and acidic landscapes 2015* (Department of Environment Regulation 2015) before land clearing begins. If the

investigation identifies that ASS may be disturbed, then the proponent has committed to develop ASS management measures.

The proposal includes the use of several reagents to be stored onsite, but if these are not stored appropriately, the underlying soils could become contaminated. The proponent has committed to store the reagents within secondary containment areas.

Summary

The EPA has paid particular attention to the:

- *Environmental factor guideline – Terrestrial Environmental Quality* (EPA 2016f)
- proponent's application of the waste hierarchy for tailings production and disposal
- proponent's commitment to investigate alternative uses for the tailings
- proponent's commitment to secondary containment of reagents
- proponent's commitment to investigate potential ASS before land clearing and manage any identified potential ASS.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Terrestrial Environmental Quality, that the impacts on this factor are manageable and would not be significant, provided:

- there is a limit on annual tailings production through the authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 4)
- a waste management plan is prepared and implemented to meet the EPA objective for Terrestrial Environmental Quality (Condition 8)
- management action is taken should actual ASS be encountered during potential ASS site investigations (Condition 7-2(3)).

In addition, the EPA notes that the use of chemicals on the site will be regulated by a dangerous goods licence issued under the *Dangerous Goods Safety Act 2004*, and a licence issued under Part V of the EP Act.

4.3 Terrestrial Fauna

EPA objective

The EPA's environmental objective for this factor is 'to protect terrestrial fauna so that biological diversity and ecological integrity are maintained'.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental factor guideline – Terrestrial Fauna* (EPA 2016g)
- *Technical guidance – sampling methods for terrestrial vertebrate fauna* (EPA 2016l)

- *Technical guidance – sampling of short range endemic invertebrate fauna* (EPA 2016m)
- *Technical guidance – terrestrial fauna surveys* (EPA 2016n)
- *WA Environmental Offsets Policy* (Government of Western Australia 2011)
- *WA Environmental Offsets Guidelines* (Government of Western Australia 2014).

The considerations for environmental impact assessment (EIA) for this factor are outlined in *Environmental factor guideline – Terrestrial Fauna* (EPA 2016g).

EPA assessment

Existing environment

The proponent has undertaken a desktop fauna assessment and surveys relevant to the Albemarle development envelope (ELA 2017a, b, c; GHD 2017a).

The fauna surveys identified:

- nine fauna habitats (Figure 6)
- two conservation-significant fauna species listed under the WC Act within the development envelope:
  - Carnaby's black cockatoo (*Calyptohynchus latirostris*) (Endangered, schedule 2)
  - forest red-tailed black cockatoo (*Calyptohynchus banksii naso*) (Vulnerable, schedule 3)
- Baudin's black cockatoo (*Calyptohynchus baudinii*) (Vulnerable, schedule 3) – although this species was not found during the surveys, it was determined that it might still occur within the development envelope.

Approximately 62.63 ha of potential black cockatoo foraging habitat was recorded within the development envelope. The value of the habitat varies, with 39.94 ha considered to be of moderate- to high-value foraging habitat (including 33.81 ha of pine plantation) and 22.68 ha of low value. An assessment of the pine plantation determined that 17.31 ha of this habitat type was not covered by pine canopy (previously cleared) and would therefore not constitute potential foraging habitat. Hence the proposed area of black cockatoo foraging habitat to be cleared was determined to be 45.73 ha (23.05 ha of high value and 22.68 ha of low value).

Initial surveys of the area noted the potential foraging and breeding trees within the development envelope. However, a follow-up investigation found the jarrah and marri trees within the development envelope did not contain hollows and were therefore unlikely to be breeding trees (Figure 6). In 2013 Eco Logical Australia assessed the black cockatoo habitat value of the KSIA (ELA 2013). It estimated there was up to 4275 ha of 'moderate to high' or 'high quality' foraging habitat within the broader KSIA (Figure 7).

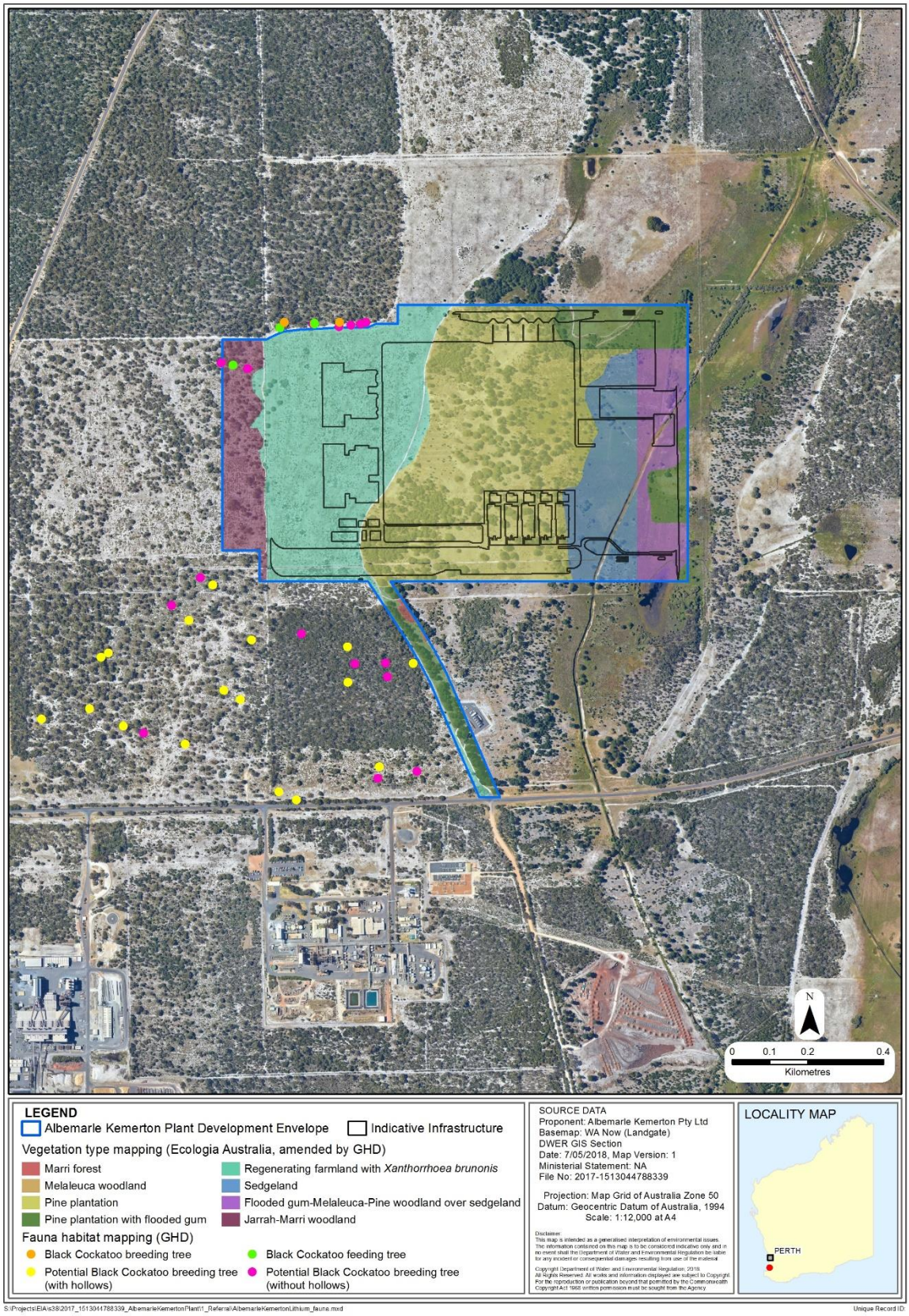

Figure 6: Fauna habitats and black cockatoo breeding trees

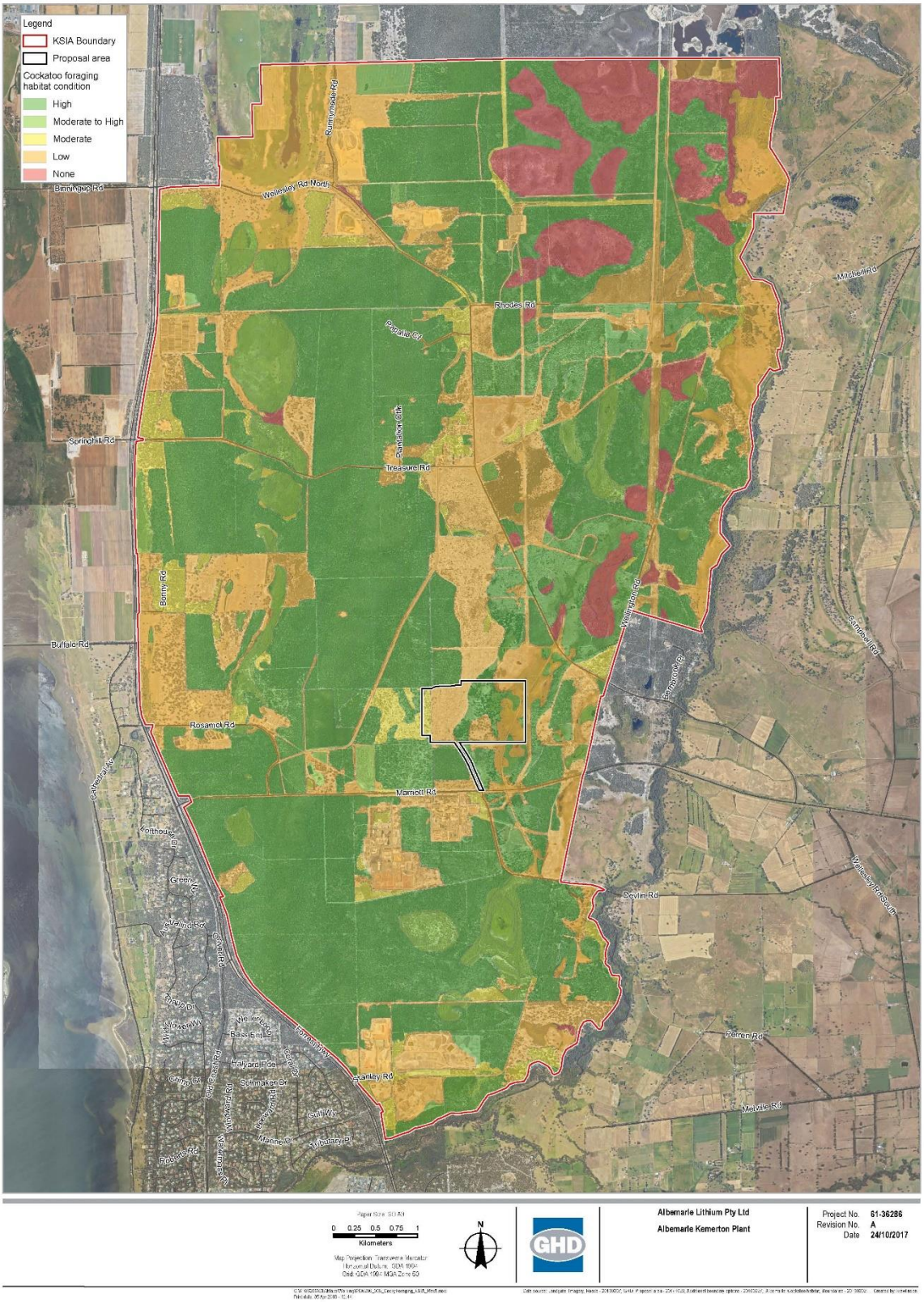

Figure 7: Potential black cockatoo foraging habitat within the KSIA

Impacts

Terrestrial fauna would be impacted through the direct clearing of:

- 45.73 ha of potential black cockatoo foraging habitat.

Terrestrial fauna has the potential to be indirectly impacted through:

- degradation of habitat as a result of alterations to site drainage, or the introduction and spread of weeds or Dieback
- vehicle strikes
- noise, dust and light emissions
- increased fire risk.

Mitigation and management

As described in Section 4.1, the proponent undertook a site-selection process when determining the final boundaries of the development envelope, based on an assessment of conservation significance. In regard to Terrestrial Fauna, the process found:

- known black cockatoo breeding tree locations were located outside the development envelope (Figure 6)
- only one of the identified potential black cockatoo breeding trees was located within the development envelope (Figure 6), and this tree did not contain a hollow
- with the exception of the pine plantation, most of the areas of high-value black cockatoo foraging and breeding habitat have been excluded from the development envelope (Figure 7).

The EPA notes that the site-selection process targeted the clearing of pine plantation in preference to clearing of native vegetation. The EPA considers that this approach is appropriate, however the pine plantation has foraging value for black cockatoos. The EPA therefore notes that the following direct impacts to black cockatoo habitat will remain:

- clearing of habitat considered to be of foraging value, including:
  - 23.05 ha considered to be of ‘moderate to high value’ foraging habitat
  - 22.68 ha considered to be of ‘low value’ foraging habitat
- clearing of 6.55 ha of habitat considered to be of ‘moderate to high’ breeding value
- clearing of 7.9 ha of habitat considered to be of ‘low’ breeding value.

The proponent has committed to an offsets strategy for this significant residual impact (see Section 5).

The EPA notes that through the site-selection process, the proponent has avoided as much impact on the breeding and foraging habitat as reasonable. The EPA notes

that the habitat surrounding the site would need to be managed so as not to be indirectly impacted (see also 'Flora and Vegetation').

Summary

The EPA has paid particular attention to the:

- *Environmental factor guideline – Terrestrial Fauna* (EPA 2016g)
- application of the mitigation hierarchy to avoid and minimise the clearing of habitat
- application of the mitigation hierarchy to avoid locations of known black cockatoo breeding trees
- proposed clearing of 45.73 ha of potential black cockatoo foraging habitat, and 14.45 ha of potential breeding habitat
- proponent's commitment to avoid or minimise indirect impacts to terrestrial fauna.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Terrestrial Fauna, that the impacts to this factor are manageable and would not be significant, provided:

- there is a limit on the clearing of native vegetation and pine plantation through the authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 4)
- a flora and vegetation monitoring and management plan (Condition 6) and water management plan (Condition 7) for indirect impacts is prepared and implemented
- offsets (see Section 5, Condition 10) are implemented to counterbalance the significant residual impact of clearing of 45.73 ha of black cockatoo foraging habitat.

4.4 Hydrological Processes

EPA objective

The EPA's environmental objective for this factor is 'to maintain the hydrological regimes of groundwater and surface water so that environmental values are protected'.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental factor guideline – Hydrological Processes* (EPA 2016c)

The considerations for EIA for this factor are outlined in *Environmental factor guideline – Hydrological Processes* (EPA 2016c).

EPA assessment

Existing environment

The proposal is located within two gazetted groundwater areas proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act): the South West Coastal Groundwater Area and the Bunbury Groundwater Area. The area is relatively low lying, thus groundwater within the development envelope is shallow, generally 0–5 metres below ground level (mbgl) (RPS 2016). No Ramsar or Nationally Important Wetlands occur in the area. Surface water within the development envelope is expected to flow to the east, although natural surface water drainage is limited given the low topography and deep, well-drained sandy soils. A historical drain occurs on the site.

Impacts

The proposal may impact on Hydrological Processes through:

- alteration of groundwater and surface water regimes by:
  - clearing of vegetation
  - installation of hard stands
  - changes to infiltration rates
  - diversion of surface runoff
  - short-term dewatering of the superficial aquifer.

Mitigation and management

The proponent has designed the development so that it maintains the hydrological regimes of the broader area by allowing infiltration of larger rainfall events into the groundwater and maintaining the historical drainage pathways. The proponent would replace a historical drain on the site with one better suited to the site's natural flowpath.

The proponent would not be using groundwater from the site for operations. It is possible, however, that short-term (several weeks) dewatering may be required, depending on groundwater levels at the time of construction. The proponent has committed to construction occurring during the summer months if possible (when groundwater levels are lowest), prioritising works to reduce dewatering timeframes and preparing and implementing dewatering management measures if required.

A preliminary water management plan (WMP) was provided during the assessment for public comment. The EPA notes that the preliminary WMP contained updated management measures that differed from what was proposed in the original referral supporting document; these measures are expected to be included in the final WMP required by Condition 7. The EPA further notes that the proponent has committed to include provisions in accordance with the requirements of the KSIA's over-arching water management strategy in the final WMP (RPS 2016).

Summary

The EPA has paid particular attention to the:

- *Environmental factor guideline – Hydrological Processes* (EPA 2016c)
- exclusion of groundwater supply abstraction from the proposal
- maintenance of current surface water flows
- management and minimisation of dewatering
- commitment to the development of dewatering measures (should dewatering occur) and a WMP
- commitment to align with KSIA's over-arching water management strategy (RPS 2016).

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Hydrological Processes, that the impacts on this factor are manageable and would not be significant, provided that:

- a water management plan is prepared and/or implemented to address impacts on Hydrological Processes (Condition 7).

In addition, the EPA notes that water management on the site would also be regulated through a licence issued under Part V of the EP Act.

4.5 Inland Waters Environmental Quality

EPA objective

The EPA's environmental objective for this factor is 'to maintain the quality of groundwater and surface water so that environmental values are protected'.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental factor guideline – Inland Waters Environmental Quality* (EPA 2016d).

The considerations for EIA for this factor are outlined in *Environmental factor guideline – Inland Waters Environmental Quality* (EPA 2016d).

EPA assessment

Existing environment

Groundwater in the Kemerton area is used for industry, agriculture and public water supply. Existing industries in the KSIA abstract water for process and potable requirements from the unconfined and confined groundwater aquifers and the Harvey Irrigation Scheme. The dispersed nature of the superficial aquifer makes

extraction for industrial use difficult, so generally water is abstracted from the Cattamarra Coal Measures aquifer, although this can also be challenging given it is relatively deep (>150 mbgl) and highly saline (RPS 2016). The superficial aquifer is generally fresh to marginal (250–1500 mg/L total dissolved solids) and is closer to brackish within the development envelope.

The surface water characteristics of the development envelope are described in the Hydrological Processes section (Section 4.4).

Impacts

The proposal may impact on Inland Waters Environmental Quality through:

- sedimentation of downstream waters as a result of earthworks during construction
- acidification of downstream waters resulting from disturbed acid sulfate soils (ASS)
- contamination as a result of leaks or spills of reagents, hydrocarbons, ore, lithium products or tailings, or contaminated stormwater.

The EPA notes that the proposal does not include tailings disposal or any process discharges to inland waters. Tailings are discussed further under the key environmental factor 'Terrestrial Environmental Quality'.

Mitigation and management

The proposal includes levelling the site, which will involve the cutting (excavation) of areas identified as being 'moderate to low risk' of ASS. If not appropriately managed, the exposure of ASS could result in the acidification of the underlying superficial aquifer or downstream surface waters. The management of potential ASS is discussed in Section 4.2.

The proposal includes the use of several reagents that are stored onsite. If not appropriately stored, these reagents could contaminate the underlying groundwater systems or downstream surface water systems. Stormwater within the development envelope could also be contaminated by reagents, sediment, hydrocarbons, ore or lithium products. Any stormwater generated within process areas – where potential mixing with contaminants could occur – will be managed separately to ensure no transport of contaminants offsite. Those areas will be bunded and constructed with specially engineered stormwater containment, treatment and recirculation systems. The proponent has committed to developing a water management plan, which will document stormwater control methods in detail, as well as monitoring to demonstrate that contamination of surface water and groundwater is not occurring.

The EPA considers that the proponent has adequately designed the site to manage stormwater and is undertaking further investigations and management actions for ASS. The EPA notes that management of stormwater and ASS is common for industrial and land developments on the Swan Coastal Plain so the risks are not unusual or unmanageable.

Summary

The EPA has paid particular attention to the:

- *Environmental factor guideline – Inland Waters Environmental Quality* (EPA 2016d)
- proponent's commitment to secondary containment of reagents
- proponent's application of the mitigation hierarchy to minimise the discharge of potentially contaminated stormwater by fully containing and reusing any stormwater captured within the process plant
- proponent's commitment to investigate potential ASS before land clearing and management of any identified ASS
- proponent's commitment to develop a water management plan
- other proposed management measures to avoid or minimise impacts to this factor.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Inland Waters Environmental Quality, that the impacts on this factor are manageable and would not be significant, provided:

- a water management plan is prepared and/or implemented to address impacts on Inland Waters Environmental Quality (Condition 7).

In addition, the EPA notes that the onsite use of chemicals will be regulated by a dangerous goods licence issued under the *Dangerous Goods Safety Act 2004*. The EPA also notes that chemical storage and management of stormwater would be further assessed and managed through a works approval and licence issued under Part V of the EP Act.

4.6 Air Quality

EPA objective

The EPA's environmental objective for this factor is 'to maintain air quality and minimise emissions so that environmental values are protected'.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental factor guideline – Air Quality* (EPA 2016a)
- *Guidance statement no. 3 – Separation distances between industrial and sensitive land uses.*

The considerations for EIA for this factor are outlined in *Environmental factor guideline – Air Quality* (EPA 2016a).

EPA assessment

Existing environment

The proposal is located within the 2024 ha Strategic Industry Zone of the KSIA, a designated industrial park under the Shire of Harvey District Planning Scheme no. 1 and the GBRS. The Strategic Industry Zone is surrounded by a 5200 ha Industry Buffer Zone. The closest sensitive receptors are located about 1.2 km away from the site.

EPA *Guidance statement no. 3* does not apply in its entirety to the proposal, as the statement provides no minimum separation distance for process plants that produce more than 1000 tonnes per year.

Impacts

The proposal may impact on Air Quality as a result of air emissions during construction and operations. Emissions include:

- process plant stack emissions, predominantly nitrogen oxides (NOx), sulfur oxides (SOx), carbon monoxide (CO) and particulate matter (PM_{10} and $PM_{2.5}$)
- vehicle and generator exhaust emissions
- dust (soil, ore and product)
- greenhouse gas emissions.

Mitigation and management

The primary source of air emissions from the proposal is the process plant. The proponent has committed to several measures designed to reduce air pollutants, including the use of natural gas, scrubbing of acid fumes and an indirect fired kiln. The proponent has identified that the air emission concentrations presented in the proposal are likely to be overestimated as they were based on a conceptual design using National Pollutant Inventory emission factors (which do not account for all the controls available with the use of best-available emission control equipment).

Air dispersion was modelled for the site using an AERMOD dispersion model and 2015 meteorological data from the Bunbury automatic weather station (GHD 2017). The proponent has compared the modelling data to the National Environment Protection Measure (NEPM) ambient air quality criteria. The NEPM criteria are designed to ensure government jurisdictions monitor and report on ambient air quality in larger population centres. They also aim to guide policy development for air quality but the values provided are not binding on each state. In this analysis, the proponent has included $PM_{2.5}$ concentrations, as well as the normal parameters.

The plant was found to be a minor contributor to air emissions for most parameters. The cumulative results of the air quality modelling found that:

- NO_2, SO_2 and CO air concentrations were well below NEPM criteria at all sensitive receptors.
- PM_{10} and $PM_{2.5}$ 24-hour average concentrations were also well below the NEPM criteria.

- The annual average $PM_{2.5}$ concentrations were predicted to be slightly above NEPM criteria. The plant's contribution to the $PM_{2.5}$ concentrations was small (i.e. approx. five per cent on average) and the background concentration was slightly above the NEPM criteria.

The EPA advises that the background data taken from the Bunbury monitoring stations had an elevated annual average $PM_{2.5}$ concentration due to the long-range transport and recirculation of smoke from lightning-caused bushfires in Waroona Shire, as well as several prescribed burns (DER 2016). The EPA advises that the elevated $PM_{2.5}$ levels from bushfires and prescribed burns would not have been included in the background concentration data for the $PM_{2.5}$ 24-hour average concentrations (they are considered exceptional events), but would rather have been used in the background concentration data for the annual average $PM_{2.5}$ concentrations as per the NEPM requirements (DER 2016).

The EPA considers that the differences between the $PM_{2.5}$ 24-hour average and annual average background concentrations may highlight the issue with using all data to develop an annual average $PM_{2.5}$ concentration where bushfire and prescribed burns are common. The EPA notes that due to the contribution of bushfires and prescribed burns to data at the Bunbury monitoring station, such events may be having a disproportionate impact on the annual average $PM_{2.5}$ average concentration. For example, DER (2016) shows that the 90th percentile $PM_{2.5}$ 24-hour average concentrations are equal to or lower in Bunbury than the Perth monitoring stations, suggesting the background $PM_{2.5}$ concentration in Bunbury – without the influence of bushfires and prescribed burns – is similar or lower than areas of Perth.

In considering the above data, the EPA notes in addition that:

1. The plant is located in an industrial zone
2. The industrial zone has a very low level of development
3. Emissions for all air quality criteria are well below NEPM criteria for 24-hour concentrations
4. When considering the cumulative data, the $PM_{2.5}$ emissions from the plant are minor when compared with other sources such as prescribed burns and bushfires.

The EPA further notes that the plant's air emissions are likely to be overestimated as they were based on a conceptual design using National Pollutant Inventory emission factors that do not account for all the controls available, including the best-available emission control equipment.

The EPA considers that the proponent has undertaken reasonable and practicable measures to reduce annual average $PM_{2.5}$ concentrations and that the high background concentration from prescribed burns and bushfires might be unavoidable. The EPA does nonetheless recommend the proponent implements best-available emission control equipment and a monitoring program for $PM_{2.5}$. A limit has been placed on $PM_{2.5}$ from the plant, requiring the proponent to meet a stringent standard, so that its contribution to background concentrations are minimal. This could be achieved through a Part V licence condition. See Section 8 for further advice.

The proposal will result in greenhouse gas emissions, primarily from the process plant and vehicle movements during transport and construction. The proponent has estimated that 254 862 tonnes of carbon dioxide will be produced each year during full capacity operations. This is equivalent to 0.29 per cent of the total greenhouse gas emissions produced in Western Australia (based on the latest calculations from 2014–15) once the plant is operating at full capacity. The proponent has committed to using the best-available technology and considering energy efficiency in the proposal design. The EPA also notes that a key use of the plant's lithium products will be rechargeable batteries, and therefore the proposal may ultimately result in an indirect reduction of greenhouse gas emissions by reducing the use of fossil fuels.

Even though the plant would be a minor contributor to the state's greenhouse gas emissions, the EPA nevertheless requires the proponent to report annually on greenhouse gas emissions (Condition 9) to help maintain a robust dataset on the state's greenhouse gas emissions.

Summary

The EPA has paid particular attention to the:

- *Environmental factor guideline – Air Quality* (EPA 2016a)
- location of the proposal within the KSIA's Strategic Industry Zone
- location of the proposal with regard to the KSIA's Industry Buffer Zone and the 1.2 km distance to the nearest sensitive receptors
- conservative values when determining emissions from the plant
- predicted cumulative pollutant concentrations at sensitive receptors as a result of the proposal
- other proposed management measures to avoid or minimise impacts to this factor.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Air Quality, that the impacts on this factor are manageable and would not be significant, provided there is:

- a control on the maximum capacity of the process plant through the authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 4)
- a condition requiring the annual reporting of greenhouse gas emissions to DWER (Condition 9).

In addition, the EPA notes that the plant's design would be managed through a works approval and air quality emissions would be regulated through a licence issued under Part V of the EP Act. See Section 8 for further details.

5. Offsets

Relevant policy and guidance

The EPA considers that the following policy and guidance is relevant to its assessment of offsets for the proposal:

- *WA Environmental Offsets Policy* (Government of Western Australia 2011)
- *WA Environmental Offsets Guidelines* (Government of Western Australia 2014)
- *Environmental Impact Assessment (Part IV Divisions 1 and 2) procedures manual 2016* (EPA 2016i).

EPA assessment

Environmental offsets are actions that provide environmental benefits which counterbalance the significant residual impacts of a proposal. The EPA may apply environmental offsets where it determines that a proposal's residual impacts are significant, after avoidance, minimisation and rehabilitation have been pursued.

Principle 1 of the state government's Offsets Policy (Government of WA 2011) states that 'environmental offsets will only be considered after avoidance and mitigation options have been pursued'. Consistent with this policy, the proponent has applied the mitigation hierarchy by identifying measures to avoid, minimise and rehabilitate. The proponent's main action to meet this policy's requirements was site selection and design, which avoided development in several areas of native vegetation with black cockatoo nesting sites, and reduced the development envelope to the smallest size possible.

Mitigation measures are assessed under the relevant environmental factor (see Section 4). In applying the residual impact significance model (Government of Western Australia 2014), the EPA considers the proposal would have a significant residual impact from the following actions:

- clearing of 6.37 ha of vegetation that represents the 'Low lying *Banksia attenuata* woodlands or shrublands' PEC of 'Good' or 'Excellent' condition
- clearing of 45.73 ha of black cockatoo foraging habitat.

In noting the above significant residual impacts, the EPA has considered Principle 2 (environmental offsets are not appropriate for all projects) of the Offsets Policy (Government of WA 2011) and has determined that offsets are appropriate and applicable for this proposal.

The EPA has considered principles 3 (relevant and proportionate) and 4 (based on sound environmental information) during its assessment of the proposed offset strategy. The KSIA is surrounded by a buffer zone that has large areas of native vegetation, including areas of 'Low lying *Banksia attenuata* woodlands or shrublands' and foraging habitat suitable for the black cockatoo species. The proponent has proposed an offsets strategy which involves acquiring land for conservation purposes within the buffer zone around KSIA. In identifying appropriate areas within

the buffer zone to counterbalance the significant residual impacts, the EPA notes the proponent has undertaken vegetation surveys to confirm the presence and areas of occurrence of the relevant environmental values.

The proposed offsets strategy has had regard to principles 5 (adaptive management) and 6 (long-term strategic outcomes). It is intended that the land identified for offset will be vested with the DBCA conservation estate and managed by the DBCA in accordance with its land management practices, which are adapted over time in accordance with developments in environmental knowledge. The proposed offset area may also form part of the McLarty/Kemerton/Twin Rivers/Preston River/Gwindinnup Link, a regional ecological corridor which links significant remnant vegetation patches within the South West (ELA 2015), therefore increasing the protection of land within this corridor for the foreseeable future.

In addition to the above, the proponent has noted that other sites in the KSIA buffer are also available for use. Given the availability of land in the buffer and the availability of rehabilitation techniques to enhance land values, such as those for banksia, the EPA is confident that a suitable offsets strategy which counterbalances the significant residual impacts can be achieved.

In considering how the offsets strategy has applied the six principles, the EPA recommends a condition that requires an offsets strategy to be prepared and submitted within 12 months of the issue of the Ministerial Statement.

Summary

The EPA recommends that an offset condition (Condition 10) is imposed to counterbalance the significant residual impacts of the proposal. The condition requires an offsets strategy to be prepared and submitted within 12 months of the issue of the Ministerial Statement or as otherwise agreed by the CEO.

6. Matters of National Environmental Significance

The Commonwealth Minister for the Environment has determined that the proposal is a controlled action under the EPBC Act, given the likelihood of it having a significant impact on one or more MNES. It was determined that the proposed action would likely have a significant impact on the following matters protected by the EPBC Act:

- Listed threatened species and communities (section 18 and 18A).

The EPA has assessed the controlled action on behalf of the Commonwealth as an accredited assessment under the EPBC Act.

This assessment report is provided to the Commonwealth Minister for Environment, who will decide whether or not to approve the proposal under the EPBC Act. This is separate from any Western Australian approval that may be required.

Commonwealth policy and guidance

The EPA considers that the assessment aligns with the following relevant Commonwealth guidelines, policies and plans:

- *Commonwealth EPBC Act Environmental Offsets Policy* (Commonwealth of Australia 2012)
- *Approved conservation advice (incorporating listing advice) for the Banksia woodlands of the Swan Coastal Plain Ecological Community* (Commonwealth of Australia 2016)
- *Carnaby's cockatoo* (Calyptorhynchus latirostris) *recovery plan* (Department of Parks and Wildlife 2013)
- *Forest black cockatoo (Baudin's cockatoo* Calyptorhynchus baudinii *and forest red-tailed black cockatoo* Calyptorhynchus banksii naso*) recovery plan* (Department of Environment and Conservation 2008)
- *Glossy-leafed hammer orchid* (Drakaea elastica) *recovery plan* (Department of Environment and Conservation 2009)
- *Threat abatement plan for disease in natural ecosystems caused by* Phytophthora cinnamomi (Department of the Environment 2014)
- *Threat abatement plan for competition and land degradation by rabbits* (Department of the Environment and Energy 2016)
- *Approved conservation advice for* Calyptorhynchus banksii naso *(forest red-tailed black cockatoo)* (Department of the Environment, Water, Heritage and the Arts 2009)
- *Conservation advice* Calyptorhynchus baudinii *Baudin's cockatoo* (Threatened Species Scientific Committee 2018)
- *Approved conservation advice for* Diuris micrantha *(dwarf bee-orchid)* (Department of the Environment, Water, Heritage and the Arts 2008)

- *Approved conservation advice for* Drakaea micrantha *(dwarf hammer orchid)* (Department of the Environment, Water, Heritage and the Arts 2008).

EPA assessment

Impacts on the environment are covered under the key environmental factors of Flora and Vegetation, Terrestrial Environmental Quality, Terrestrial Fauna, Hydrological Processes, Inland Waters Environmental Quality and Air Quality where relevant.

Banksia woodlands of the Swan Coastal Plain TEC

The proposal will require the clearing of 6.37 ha of vegetation that represents the 'Banksia woodlands of the Swan Coastal Plain' Threatened Ecological Community (TEC). The vegetation types that represent this TEC also represent the 'Low lying *Banksia attenuata* woodlands or shrublands' PEC. The EPA's assessment of direct and indirect impacts to this PEC (see Section 4.1), and the offsets proposed to counterbalance the residual impacts (see Section 5), will therefore also apply to the 'Banksia woodlands of the Swan Coastal Plain' TEC. The EPA has recommended conditions to address the impacts on this TEC (see below).

Listed Threatened orchids

The glossy-leafed hammer orchid (*Drakaea elastica*) (listed as Endangered under the EPBC Act) has previously been recorded in two locations about 45 m from the northern boundary of the development envelope (Figure 4). Two other orchids which are listed as Vulnerable under the EPBC Act are known to occur within the KSIA: the dwarf bee-orchid (*Diuris micrantha*) and the dwarf hammer orchid (*Drakaea micrantha*). Neither of these species were considered likely to occur within the development envelope due to long-term ground disturbance (ELA 2017c).

The EPA has assessed the potential indirect impacts on listed Threatened orchids, particularly the glossy-leafed hammer orchid (*Drakaea elastica*), given its proximity to the proposal (see Section 4). The EPA has recommended conditions to address the potential impacts on listed Threatened orchids (see below).

Listed Threatened black cockatoos

Three listed Threatened black cockatoos were recorded or identified as being likely to occur within the development envelope:

- Carnaby's black cockatoo (*Calyptohynchus latirostris*) (Endangered)
- forest red-tailed black cockatoo (*Calyptohynchus banksii naso*) (Vulnerable)
- Baudin's black cockatoo (*Calyptohynchus baudinii*) (Endangered).

The proposal will require the clearing of 45.73 ha of black cockatoo foraging habitat, which includes 14.45 ha of potential breeding habitat and one potential breeding tree, although this tree does not contain hollows. The EPA has assessed the proposal's direct and indirect impacts on these species (see Section 4.3) and offsets have been proposed to counterbalance the residual impacts of the proposal's implementation (see Section 5).

Summary

The EPA has recommended the following environmental conditions to minimise impacts on MNES:

- a limit on the clearing of native vegetation and pine plantation through the authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 4)
- preparation and implementation of a flora and vegetation monitoring and management plan (Condition 6) and water management plan (Condition 7) to address potential indirect impacts to the 'Banksia woodlands of the Swan Coastal Plain' TEC and black cockatoo foraging habitat.

The EPA considers that significant residual impacts will occur from the clearing of 6.37 ha of vegetation that represents the 'Banksia woodlands of the Swan Coastal Plain' TEC, as well as the clearing of 45.73 ha of black cockatoo foraging habitat and 14.45 ha of potential breeding habitat. The EPA has recommended the preparation and implementation of an offset strategy in Condition 10 (see Section 5) which takes into account the significant residual impacts described above.

The EPA's view is that the impacts of the proposal on the above-listed MNES are therefore not expected to result in an unacceptable or unsustainable impact on the listed Threatened species and communities.

7. Conclusion

The EPA has considered the proponent's proposal to develop the Albemarle Kemerton Plant, a lithium hydroxide product manufacturing plant located 17 km north-east of Bunbury in the KSIA.

The proposal is located within the KSIA's Strategic Industry Zone, which is surrounded by a significant buffer zone designed to minimise impacts to surrounding land uses. The proponent conducted a site-selection process that considered two options for the development envelope. The EPA notes that the option eventually chosen requires less clearing of the existing vegetation communities.

Application of mitigation hierarchy

Consistent with relevant policies and guidance, the proponent has addressed the mitigation hierarchy by identifying measures to avoid, minimise and rehabilitate environmental impacts including, but not limited to:

- avoiding recorded locations of the glossy-leafed hammer orchid (*Drakaea elastica*) which is listed as Threatened under the WC Act
- avoiding known black cockatoo breeding trees and minimising impacts on potential breeding trees
- minimising clearing of the 'Banksia woodlands of the Swan Coastal Plain' TEC (EPBC Act) and the 'Low lying *Banksia attenuata* woodlands or shrublands' PEC (WC Act)
- designing the plant in accordance with the best-available technologies
- maintaining surface water and groundwater regimes
- managing impacts from potential acid sulfate soils, water contamination, weeds, fire and phytophthora through a flora and vegetation monitoring and management plan and a water management plan
- developing strategies for tailings reuse in accordance with the waste hierarchy through a waste management plan
- annual reporting of greenhouse gas emissions.

Offsets

The EPA considers the proposal would have a significant residual impact from the following:

- clearing of 6.37 ha of vegetation that represents the 'Low lying *Banksia attenuata* woodlands or shrublands' PEC of 'Good' or 'Excellent' condition
- clearing of 45.73 ha of black cockatoo foraging habitat.

The proponent has committed to a strategy that will involve a 'like for like' offset with the objective of counterbalancing the significant residual impacts listed above. The EPA has also recommended a condition for an offset strategy. This strategy will

propose an offset and demonstrate that the offset adequately counterbalances the significant residual impacts.

Conclusion

The EPA has taken the following into account in its assessment of the proposal as a whole:

- the site's location within the KSIA
- the site's selection and design which seeks to avoid and minimise impacts on flora, vegetation and fauna
- the use of best-available technologies
- the relevant EP Act principles, including the precautionary principle; principles relating to improved valuation, pricing and incentive mechanisms; and the principle of waste minimisation
- the EPA's environmental objectives for Terrestrial Environmental Quality, Flora and Vegetation, Air Quality, Terrestrial Fauna, Hydrological Processes and Inland Waters Environmental Quality
- the EPA's view that the impacts to the Terrestrial Environmental Quality, Flora and Vegetation, Air Quality, Terrestrial Fauna, Hydrological Processes and Inland Waters Environmental Quality are manageable, provided the recommended conditions are imposed.

Given the above, the EPA has concluded that the proposal is environmentally acceptable and therefore recommends that the proposal may be implemented subject to the conditions recommended in Appendix 4.

The EPA also notes that there are additional regulatory requirements for this facility under which further conditions of approval may apply, including those under Part V of the EP Act.

8. Other advice

Air emissions

The EPA notes that the annual average $PM_{2.5}$ concentrations were elevated in the South West region as a result of bushfires and prescribed burns. The EPA notes that many of these events are unavoidable (in this case the most significant event that caused particulates to increase was caused by a lightning strike). The risk of bushfires is ever-present in the south west of Western Australia during the dry summer months and the potential impacts of fire on conservation reserves, home owners and industry needs to be continually managed. The EPA recommends that development of specific $PM_{2.5}$ air quality criteria be considered for the KSIA that takes into account the episodic nature of prescribed burns and bushfires. Although this may not be a major concern with the limited number of industries in the KSIA at present, it is something that needs to be considered as the state further develops this area.

The EPA notes that many of the potential emissions and discharges assessed in this report will be regulated under Part V of the EP Act via a works approval and licence (Category 5). The EPA notes that DWER will need to ensure the plant's final design includes the best-available technology to which the proponent has committed. The EPA recommends that suitable end-of-stack monitoring for $PM_{2.5}$, site-specific background data gathering and modelling is conducted on a yearly basis to show that the emission of $PM_{2.5}$ is as low, if not lower, than predicted in this assessment. The EPA recommends that a target or limit on $PM_{2.5}$ is placed on the licence.

Offsets

The EPA recommends that the state government considers the use of a pre-determined biodiversity offset for all the industrial zones within the KSIA. This would reduce the need for site-specific offsets to be developed for each industrial development and provide a more strategic approach to offsets. This type of approach has been used in other areas of the state and ensures that the best-available offsets are captured ('like for like') before the development of an area.

9. Recommendations

The EPA recommends that the Minister for Environment notes:

1. That the proposal assessed is for the development of the Albemarle Kemerton Plant, a lithium hydroxide product manufacturing plant located 17 km north-east of Bunbury in the Kemerton Strategic Industrial Area.
2. The key environmental factors identified by the EPA in the course of its assessment are Flora and Vegetation, Terrestrial Environmental Quality, Terrestrial Fauna, Hydrological Processes, Inland Waters Environmental Quality and Air Quality, set out in Section 4.
3. The EPA has concluded that the proposal may be implemented, provided the proposal's implementation is carried out in accordance with the recommended conditions and procedures set out in Appendix 4. Matters addressed in the conditions include the following:
    a) Preparation and implementation of a flora and vegetation monitoring and management plan (Condition 6) and water management plan (condition 7) to minimise impacts to Flora and Vegetation, Terrestrial Fauna, Hydrological Processes and Inland Waters Environmental Quality
    b) Preparation and implementation of a waste management plan (Condition 8) to minimise the generation of waste (tailings in particular) and its discharge into the environment
    c) Reporting of greenhouse gas emissions (Condition 9)
    d) Preparation and implementation of an offset strategy (Condition 10) to counterbalance impacts to a Priority Ecological Community and black cockatoo foraging habitat.
4. Other information, advice and recommendations provided by the EPA, set out in Section 8.

Appendix 1

List of submitters

Organisations:

None.

Individuals:

Anonymous submitter 1
Anonymous submitter 2

Appendix 2

Consideration of principles

EP Act Principle	Consideration
1. The precautionary principle *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In application of this precautionary principle, decisions should be guided by –* *a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *b) an assessment of the risk-weighted consequences of various options.*	This principle is a relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors of Flora and Vegetation, Terrestrial Environmental Quality, Terrestrial Fauna, Hydrological Processes, Inland Waters Environmental Quality, and Air Quality. The EPA notes that the proponent has identified measures to avoid or minimise impacts. The EPA has considered these measures during its assessment. Investigations into the biological and physical environmental that have been undertaken by the proponent have provided sufficient certainty to assess direct impacts and identify measures to avoid or minimise these impacts. Some uncertainty remains regarding offsets for residual impacts and potential indirect impacts and therefore the EPA has recommended conditions to ensure relevant measures are undertaken by the proponent (if the proposal is approved for implementation). From its assessment of the proposal, the EPA has concluded there is no threat of serious or irreversible harm.
2. The principle of intergenerational equity *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*	In considering this principle, the EPA notes that Terrestrial Environmental Quality, Inland Waters Environmental Quality and Air Quality could be significantly impacted by the proposal. The assessment of these impacts is provided in this report. The proposal will contribute to the production of lithium hydroxide product, which will supply the renewable battery market and reduce future dependency on fossil fuels. From its assessment of this proposal, the EPA has concluded that that the environmental values will be protected and that the health, diversity and

	productivity of the environment will be maintained for the benefit of future generations.
3. The principle of the conservation of biological diversity and ecological integrity *Conservation of biological diversity and ecological integrity should be a fundamental consideration.*	This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors of Flora and Vegetation and Terrestrial Fauna. The EPA notes that the proponent has identified measures to avoid or minimise impacts. The EPA has considered these measures during its assessment. The proposal would involve clearing of a Priority Ecological Community, as well as black cockatoo foraging and potential breeding habitat. The proposal may also result in indirect impacts to these values. The EPA concludes that biological diversity and ecological integrity will be impacted due to the residual impacts on a Priority Ecological Community, and black cockatoo foraging and potential breeding habitat. The EPA has also considered to what extent the potential impacts from the proposal can be ameliorated by recommended conditions, including offsets. The EPA has concluded that given the nature of the impacts, that an offset strategy can likely be developed to ameliorate the impacts of the loss of biological diversity and ecological integrity – given the presence of potential offset sites in the KSIA buffer area.
4. Principles relating to improved valuation, pricing and incentive mechanisms *(1) Environmental factors should be included in the valuation of assets and services.* *(2) The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.* *(3) The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services,*	In considering this principle, the EPA notes that the proponent would bear the costs relating to waste disposal (in particular tailings) and pollution. The cost for ongoing management and monitoring of the proposal would be the responsibility of the proponent. The EPA has had regard to this principle during the assessment of the proposal.

including the use of natural resources and assets and the ultimate disposal of any waste. *(4) Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solution and responses to environmental problems.*	
5. The principle of waste minimisation *All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.*	This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factor of Terrestrial Environmental Quality. The proposal outlines that up to 1.1 million tonnes of tailings will be produced during each year of operation. The tailings will then be transported to a licensed landfill facility and disposed of into a Class III landfill cell. The EPA has assessed the proposal against the principle of waste minimisation and has determined that it cannot be demonstrated that the principle has been met in all aspects at this stage. The EPA concludes that this principle can be addressed by the inclusion of a condition to ensure investigations are conducted to determine the viability of alternative uses of the tailings. The condition should also include a requirement for these investigations to be conducted on a regular basis over the life of the proposal.

Appendix 3

Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
LAND			
Landforms	• No distinct landforms are present within the development envelope • The proposal will require some fill to be brought in to level the site before construction. Fill is expected to be in the order of several metres. • No other landform changes are proposed	**Agency comments** • None received for this factor **Public comments** • None received for this factor	Landforms was not identified as a preliminary key environmental factor when the EPA decided to assess the proposal. Having regard to: • the minor landform changes proposed • lack of comments on the proposal regarding this factor • the significance considerations in the Statement of Environmental Principles, Factors and Objectives, the EPA considers it is unlikely that the proposal would have a significant impact on Landforms and that the impacts to this factor are manageable. Accordingly, the **EPA did not consider Landforms to be a key environmental factor** at the conclusion of its assessment.
Subterranean Fauna	• No groundwater is to be abstracted for use onsite • Short-term dewatering may be required to construct a drain diversion	**Agency comments** • None received for this factor **Public comments** • None received for this factor	Subterranean Fauna was not identified as a preliminary key environmental factor when the EPA decided to assess the proposal. Having regard to:

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
	• The south west of WA is not highly prospective for subterranean fauna		• the low Subterranean Fauna habitat prospectivity of the development envelope • the lack of comments on the proposal regarding this factor; and • the significance considerations in the Statement of Environmental Principles, Factors and Objectives, the EPA considers it is unlikely that the proposal would have a significant impact on Subterranean Fauna and that the impacts to this factor are manageable. Accordingly, the **EPA did not consider Subterranean Fauna to be a key environmental factor** at the conclusion of its assessment.
PEOPLE			
Human Health	• Increase in air pollutant levels • Radiation is not predicted to be at levels of concern to human health • Contamination of the underlying groundwater from reagents, products, tailings or ore	**Agency comments** • None received for this factor **Public comments** • Proposal may impact potable water sources	Human Health was not identified as a preliminary key environmental factor when the EPA decided to assess the proposal. Having regard to: • the assessment of air pollutants under the Air Quality factor • the assessment of potential contamination of groundwater under the Inland Waters Environmental Quality factor

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			• comments on the proposal • the significance considerations in the Statement of Environmental Principles, Factors and Objectives, the EPA considers that it is unlikely that the proposal would have a significant impact on Human Health and that the impacts to this factor are manageable. Accordingly, the **EPA did not consider Human Health to be a key environmental factor** at the conclusion of its assessment.
Social Surrounds	• Noise from the operations may impact on sensitive receptors • There is the potential for impacts to heritage sites	**Agency comments** • None received for this factor **Public comments** • None received for this factor	Social Surrounds was identified as a preliminary key environmental factor when the EPA decided to assess the proposal. Having regard to: • *Environmental factor guideline – Social Surroundings* (EPA 2016e); • location of the proposal within the KSIA's Strategic Industry Zone • location of the proposal with regard to the KSIA's Industry Buffer Zone and the 1.2 km distance to the nearest sensitive receptors • modelling results that predict compliance with the Environmental Protection (Noise) Regulations 1997 at

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			sensitive receptors as a result of the proposal • lack of 'Registered' sites of Aboriginal heritage significance within 1 km of the development envelope • the significance considerations in the Statement of Environmental Principles, Factors and Objectives, the EPA considers that it is unlikely that the proposal would have a significant impact on Social Surrounds and that the impacts to this factor are manageable. Accordingly, the **EPA did not consider Social Surrounds to be a key environmental factor** at the conclusion of its assessment.

Appendix 4

Identified decision-making authorities and recommended environmental conditions

Published on DD Month YYYY

Identified decision-making authorities

Section 44(2) of EP Act specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This Appendix contains the EPA's recommended conditions and procedures.

Section 45(1) requires the Minister for Environment to consult with decision-making authorities (DMAs), and if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following decision-making authorities have been identified:

Decision-making authority	Legislation (and approval)
1. Minister for Environment	*Wildlife Conservation Act 1950* (Taking of flora and fauna)
2. CEO, Department of Water and Environment Regulation	*Environmental Protection Act 1986* (Works Approval and Licence)
3. Southern Joint Development Assessment Panel	*Planning and Development Act 2005* (Planning approval)
4. CEO, Shire of Harvey	*Building Act 2011* (Building Permit)
5. Chief Health Officer, Department of Health	*Health Act 1911* (Apparatus for the treatment of sewage)
6. Chief Dangerous Goods Officer	*Dangerous Goods Safety Act 2004* (Dangerous Goods Licence)

Statement No. xxx

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
***(Environmental Protection Act 1986*)**

ALBEMARLE KEMERTON PLANT

Proposal: The proposal is for the construction and operation of the Albemarle Kemerton Plant, and associated infrastructure, within the Kemerton Strategic Industrial Area (KSIA), approximately 17 kilometres north-east of Bunbury Western Australia. The proposal includes construction of up to five lithium hydroxide product process trains and associated infrastructure.

Proponent: Albemarle Lithium Pty Ltd
Australian Company Number 618 095 471

Proponent Address: Albemarle Lithium Pty Ltd
Level 3 – 25 National Circuit
Forrest ACT 2603

Assessment Number: 2153

Report of the Environmental Protection Authority: XXXX

Pursuant to section 45 of the *Environmental Protection Act 1986* it has been agreed that the proposal described and documented in Tables 1-2 of Schedule 1 may be implemented and that the implementation of the proposal is subject to the following implementation conditions and procedures:

1 Proposal Implementation

1-1 When implementing the proposal, the proponent shall not exceed the authorised extent of the proposal as defined in Table 2 in Schedule 1, unless amendments to the proposal and the authorised extent of the proposal have been approved under the EP Act.

2 Contact Details

2-1 The proponent shall notify the CEO of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

3 Time Limit for Substantial Commencement

3-1 The proposal must be substantially commenced within 5 years from the date of this Statement.

3-2 The proponent must provide to the CEO documentary evidence demonstrating that they have complied with condition 3-1 no later than 30 days after expiration of 5 years from the date of this Statement.

4 Compliance Reporting

4-1 The proponent shall prepare, and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 4-6, or prior to implementation of the proposal, whichever is sooner.

4-2 The Compliance Assessment Plan shall indicate:

(1) the frequency of compliance reporting;

(2) the approach and timing of compliance assessments;

(3) the retention of compliance assessments;

(4) the method of reporting of potential non-compliances and corrective actions taken;

(5) the table of contents of Compliance Assessment Reports; and

(6) public availability of Compliance Assessment Reports.

4-3 After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 4-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 4-1.

4-4 The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 4-1 and shall make those reports available when requested by the CEO.

4-5 The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.

4-6 The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO.

The Compliance Assessment Report shall:

(1) be endorsed by the proponent's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;

(2) include a statement as to whether the proponent has complied with the conditions;

(3) identify all potential non-compliances and describe corrective and preventative actions taken;

(4) be made publicly available in accordance with the approved Compliance Assessment Plan; and

(5) indicate any proposed changes to the Compliance Assessment Plan required by condition 4-1.

5 Public Availability of Data

5-1 Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)) relevant to the assessment of this proposal and implementation of this Statement.

5-2 If any data referred to in condition 5-1 contains particulars of:

(1) a secret formula or process; or

(2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

6 Flora and Vegetation

6-1 The proponent shall ensure that the construction and ongoing operation of the proposal is undertaken in a manner that avoids direct or indirect impacts to Threatened Flora and Communities, including Glossy-leafed Hammer Orchid (*Drakaea elastica*), Dwarf Bee-orchid (*Diuris micrantha*), Dwarf Hammer-orchid (*Drakaea micrantha),* Banksia Woodlands of the Swan Coastal Plain and Low lying *banksia attenuata* woodlands or shrublands outside of the Albemarle Development Envelope, as shown in Schedule 1.

6-2 Prior to ground-disturbing activities or as otherwise agreed by the CEO, the proponent shall prepare and submit a Flora and Vegetation Monitoring and Management Plan (the Plan) to the CEO. The Plan shall:

(1) when implemented, substantiate and ensure that condition 6-1 is being met;
(2) detail the proposed frequency, timing and indicative locations of Threatened Flora and Communities monitoring to be implemented during construction and operational phase of the Albemarle Plant;
(3) specify management actions for potential impacts including but not limited to those from weeds, *Phytophthora cinnamomi* (Dieback), increased fire risk and litter, and changes to surface water and groundwater regimes that will be implemented during construction and operations to ensure the management objective in 6-1 is achieved;
(4) specify trigger criteria that will trigger the implementation of contingency actions to prevent direct or indirect impacts to Threatened Flora and Communities outside of the Albemarle Development Envelope; and
(5) specify management or contingency actions to be implemented in the event that the criteria identified required by condition 6-2(4) have been triggered.

6-3 In the event that the monitoring specified in the Plan indicates that the criteria specified in the Plan have been triggered, the proponent shall:

(1) report such findings to the CEO within 21 days of the criteria being triggered;
(2) provide evidence to the CEO which allows for determination of the likely cause of the trigger criteria being reached and to identify any additional contingency actions required to prevent the criteria being triggered in the future; and
(3) if the triggering the criteria is determined by the CEO to be a result of activities undertaken in implementing the proposal, immediately implement the management and/or contingency actions specified in the Flora and Vegetation Monitoring and Management Plan and continue implementation of those actions until the trigger criteria are met, or until the CEO has confirmed by notice in writing that it has been demonstrated that the objective in condition 6-1 will continue to be met and implementation of the management and/or contingency actions is no longer required.

6-4 The proponent may review and revise the Flora and Vegetation Monitoring and Management Plan.

6-5 The proponent shall review and revise the Flora and Vegetation Monitoring and Management Plan as and when directed by the CEO.

6-6 The proponent shall implement the latest version of the Flora and Vegetation Monitoring and Management Plan, which the CEO has confirmed by notice in writing, satisfies the requirements of condition 6-2.

7 Water Management Plan

7-1 The proponent shall ensure that construction and ongoing operation of the proposal is undertaken in a manner that:

- Maintains the quality and quantity of off-site surface and groundwater, to the receiving environment including but not limited to the Threatened Orchid habitat.

7-2 Prior to ground disturbing activities or as otherwise agreed by the CEO, the proponent shall prepare and submit a Water Management Plan (the Plan) to the CEO, on the advice of the Department of Water and Environmental Regulation. The Plan shall:

(1) when implemented, substantiate and ensure that condition 7-1 is being met;
(2) specify management actions including but not limited to those from potential impacts from Acid Sulphate Soils, stormwater runoff and sedimentation) that will be implemented during construction and operations to ensure the management objective in 7-1 is achieved;
(3) detail the proposed frequency, timing and indicative locations of groundwater and surface water monitoring for potential contamination;
(4) specify trigger criteria that will trigger the implementation of contingency actions to prevent impacts to the receiving environment including Threatened Flora outside of the Albemarle Development Envelope;
(5) specify management or contingency actions to be implemented in the event that the criteria identified required by condition 7-2(4) have been triggered.

7-3 In the event that the monitoring specified in the Plan indicates that the criteria specified in the Plan have been triggered, the proponent shall:

(1) report such findings to the CEO within 21 days of the criteria being triggered;
(2) provide evidence to the CEO which allows for determination of the likely cause of the trigger criteria being reached and to identify any additional contingency actions required to prevent the criteria being triggered in the future; and
(3) if the triggering the criteria is determined by the CEO to be a result of activities undertaken in implementing the proposal, immediately implement the management and/or contingency actions specified in the Plan and continue implementation of those actions until the trigger criteria are met, or until the CEO has confirmed by notice in writing that it has been demonstrated that the objective in condition 7-1 will continue to be met and implementation of the management and/or contingency actions is no longer required.

7-4 The proponent may review and revise the Water Management Plan.

7-5 The proponent shall review and revise the Water Management Plan as and when directed by the CEO.

7-6 The proponent shall implement the latest version of the Water Management Plan, which the CEO has confirmed by notice in writing, satisfies the requirements of condition 7-2.

8 Terrestrial Environmental Quality (Waste Management)

8-1 During operation of Albemarle Lithium Plant, the proponent shall ensure that all reasonable and practicable measures have been undertake to minimise the generation of waste and its discharge into the environment.

8-2 Within 3 years of the publication of this Statement or as otherwise agreed by the CEO, the proponent shall prepare and submit a Waste Management Plan to the CEO. The Waste Management Plan shall:

(1) when implemented, substantiate and ensure that condition 8-1 is being met;
(2) specify targets to be met, and detail actions undertaken to meet those targets by applying principles of Waste Management Hierarchy including Avoidance, Recovery and Disposal;
(3) quantify the outcome/s of applying the principle of the “Recovery (re-use, reprocessing, recycling); and
(4) provide evidence that all reasonable and practicable measures have been undertaken to Avoid and Recover waste.

8-3 After receiving notice in writing from the CEO that the Waste Management Plan satisfies the requirements of condition 8-2, the proponent shall:

(1) implement the actions in accordance with the requirements of the approved Waste Management Plan; and
(2) continue to implement the approved Waste Management Plan until the CEO has confirmed by notice in writing that it has been demonstrated that the targets specified in condition 8-2 have been met and therefore the implementation of the actions is no longer required.

8-4 The proponent may review and revise the Waste Management Plan.

8-5 The proponent shall review and revise the Waste Management Plan as and when directed by the CEO.

8-6 The proponent shall implement the latest version of the Waste Management Plan, which the CEO has confirmed by notice in writing, satisfies the requirements of condition 8-2.

9 Greenhouse Gas Reporting

9-1 The proponent shall publicly report the greenhouse gas emissions from the proposal on an annual basis, in a manner approved by the CEO.

10 Offsets

10-1 The proponent shall undertake an offset with the objective of counterbalancing the significant residual impact to 6.37 ha of 'low lying *Banksia attenuata* woodlands or shrublands' and 45.73 ha of foraging and potential breeding habitat for Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and Baudin's Black Cockatoo (*Calyptorhynchus baudinii*) as a result of implementation of the proposal.

10-2 Within twelve months of the publication of this Statement, the proponent shall prepare and submit an Offset Strategy to the CEO. The Offset Strategy shall:

(1) identify an initially unprotected area or areas to be protected and managed for conservation that contains the Priority Ecological Community and foraging habitat values identified in condition 10-1;
(2) demonstrate how the proposed offset counterbalances the significant residual impact through consideration of the six principles and completion of the WA Offsets Template, as described in the WA Environmental Offsets Guidelines 2014, and the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (October 2012) in conjunction with the associated Offsets assessment guide;
(3) identify the environmental values of the offset area(s);
(4) commit to a protection mechanism for any areas of land acquisition, being either the area is ceded to the Crown for the purpose of conservation, or the area is managed under other suitable mechanisms as agreed by the CEO;
(5) if any land is to be ceded to the Crown for the purpose of conservation, the proponent will identify:
    (a) the quantum of, and provide funds for, the upfront works associated with establishing the conservation area;
    (b) the quantum of, and provide a contribution of funds for, the management of this area for the first 20 years after completion of purchase, and
    (c) an appropriate management body for the ceded land.

(6) Identify any threats to offset values and provide management and/or rehabilitation actions to be undertaken to address the threats including:

(a) the objectives and targets to be achieved, including completion criteria;
(b) management and/or rehabilitation actions and a timeframe for the actions to be undertaken;
(c) funding arrangements and timing of funding for conservation activities; and
(d) monitoring requirements for activities.

(7) Define the role of the proponent and/or any third parties.

10-3 After receiving notice in writing from the CEO, on advice of the Department of Biodiversity, Conservation and Attractions, that the Offset Strategy satisfies the requirements of condition 10-2, the proponent shall:

(1) implement the actions in accordance with the requirements of the approved Offsets Strategy; and
(2) continue to implement the approved Offset Strategy until the CEO has confirmed by notice in writing that it has been demonstrated that the completion criteria in the Offset Strategy have been met and therefore the implementation of the actions is no longer required.

10-4 The proponent shall review and revise the Offset Strategy as and when directed by the CEO.

10-5 The proponent shall implement the latest version of the Offset Strategy, which the CEO has confirmed by notice in writing, satisfies the requirements of condition 10-2.

Schedule 1

Table 1: Summary of the Proposal

Proposal Title	Albemarle Kemerton Plant
Short Description	The proposal is for the construction and operation of the Albemarle Kemerton Plant, and associated infrastructure, within the Kemerton Strategic Industrial Area (KSIA), approximately 17 kilometres north-east of Bunbury Western Australia. The proposal includes construction of up to five lithium hydroxide product process trains and associated infrastructure.

Table 2: Location and authorised extent of physical and operational elements

Column 1	Column 2	Column 3
Element	**Location**	**Authorised Extent**
Physical elements		
Vegetation clearing	Figure 1	Clearing of no more than 54.31 ha of native vegetation and 33.39 ha of pine plantation.
Operational elements		
Process plant capacity	N/A	No more than 100,000 tonnes of lithium hydroxide product and no more than 200,000 tonnes of sodium sulfate by-product produced per year
Tailings production	N/A	No more than 1.1 million tonnes per year

Table 3: Abbreviations and Definitions

Acronym or Abbreviation	Definition or Term
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or his delegate.
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986*
OEPA	Office of the Environmental Protection Authority
ha	Hectare

Figures (attached)

Figure 1 Albemarle Kemerton Plant Development Envelope and Disturbance Footprint
This figure is a representation of the co-ordinates shown in Schedule 2

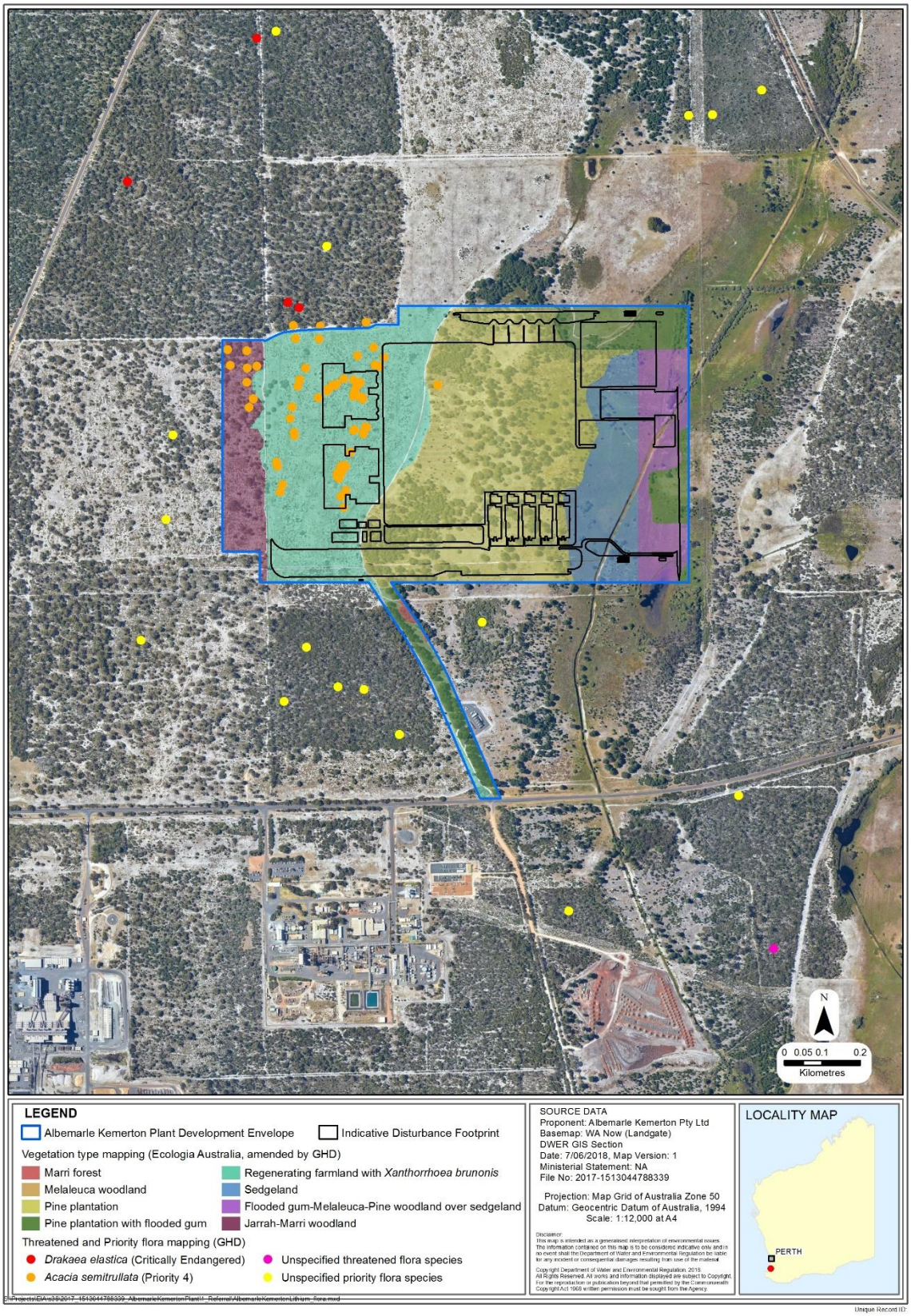

Figure 1 Albemarle Kemerton Plant development envelope and disturbance footprint

Schedule 2

Coordinates defining the development envelope are held by the Department of Water and Environmental Regulation, Document Reference Number 2018 - 1524815189469

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