Covalent Lithium

Earl Grey Lithium Project

Flora and Vegetation Environmental Management Plan

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Executive Summary

This Flora and Vegetation Environmental Management Plan (FVMP) is submitted to meet the requirements of Condition 6 of Ministerial Statement 1118 (MS1118) for the Earl Grey Lithium Project which is to be developed by Covalent Lithium Pty Ltd (Covalent). Table ES1 summarises the plan and its purpose.

This FVMP is designed to be adaptive and will be updated over the life of the Project. As monitoring programs are undertaken, quantifiable environmental criteria will be further defined. Covalent will update this FVMP in consultation with relevant government departments, as such, this FVMP remains a working document.

Table ES1: Summary and Purpose of the Environmental Management Plan

Item	Description
Proposal title	Earl Grey Lithium Project
Proponents name	Covalent Lithium Pty Ltd.
Short description of Proposal	The proposal is to develop a pegmatite-hosted lithium deposit at the abandoned Mt Holland Mine Site, in a development envelope of 2,347 ha. The proposal includes new clearing of up to 442 ha of native vegetation, for pit, waste rock dump, integrated waste landform, processing plant, airstrip, solar plant, accommodation village and associated infrastructure.
Purpose of the Environmental Management Plan	This Flora and Vegetation Management Plan (FVMP) has principally been developed to meet the environmental outcome of Condition 6-1(1) and Condition 6-2 of MS1118. The environmental outcome is: '6-1(1) The proponent shall ensure there is no proposal-\related direct or adverse indirect impacts to flora and vegetation within the exclusion zones' '6-1(2) The proponent shall ensure there are no proposal-related impacts to more than 9,732 individuals of Microcorys elatoides and 2 individuals of Banksia sphaerocarpa var. dolichostyla.' The FVMP provides a framework to ensure this objective is achieved by implementing management provisions to avoid direct impacts and mitigate potential indirect impacts. It also provides provisions for monitoring and reporting against trigger and threshold criteria which are used to demonstrate the outcome is being achieved.
Key environmental factors	Flora and Vegetation
EPA Objectives	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.
Key Management Plan Objectives	The key environmental criteria for the FVMP include: - No proposal related direct impact to flora and vegetation within a exclusion zones resulting in an adverse impact to flora and vegetation. - No proposal related indirect impact to vegetation within the exclusion zones resulting in an adverse impact to flora and vegetation. Management targets - no unauthorised clearing of native vegetation - no unauthorised access within the Vegetation Exclusion Zones (VEZ's) - minimise dust deposition from mining and related activities - minimise spread of weeds or dieback - minimise alteration of fire regimes or surface hydrology

1. Context, Scope and Rationale

The proposed Earl Grey Lithium Project (the Proposal; the Project) is located approximately 105 km south–southeast of Southern Cross, Western Australia in the Shire of Yilgarn (Figure 1-1). Covalent is a joint venture between Wesfarmers Limited (Wesfarmers) and Sociedad Química y Minera (SQM).

A large, economic pegmatite–hosted lithium deposit was discovered by Kidman Resources Limited in 2016. The deposit is situated at the previously abandoned Mt Holland Mine Site, which was operated between 1988 and 2001, and comprises open pits, an underground mine, a processing plant, waste rock dumps, tailings storage facilities (TSF) and associated infrastructure. The Mt Holland Mine is largely unrehabilitated and currently a liability of the State of Western Australia.

This Flora and Vegetation Management Plan (FVMP) is intended to meet Condition 6 of Ministerial Statement 1118 (MS1118) providing ministerial approval for the Earl Grey Lithium Project. Specifically, this FVMP aims to meet the key environmental outcome of Condition 6-1 (1) and Condition 6-2 which state:

- 6-1(1) The Proponent shall ensure there is no proposal-related direct or adverse indirect impacts to flora and vegetation within the exclusion zones as shown on Figure 3 and delineated by coordinates in Schedule 2.
- 6-1(2) The Proponent shall ensure there are no proposal-related impacts to more than 9,732 individuals of Microcorys elatoides and 2 individuals of Banksia sphaerocarpa var. dolichostyla.

The vegetation exclusion zones (VEZs) mentioned above are illustrated by Figure 1-2.

A separate Flora Offset Strategy will be developed to address any offset requirements under Condition 8-7 of MS1118.

1.1 Proposal

The Project will comprise open cut mining and processing of lithium ore, with transport of a lithium concentrate to an existing Western Australian port for export to overseas markets or a future potential lithium refinery in Kwinana. Within the Development Envelope (2,347 ha), the total Project footprint is 667 ha with the full extent of the Project to be developed progressively over a 40-year period. The location of the Development Envelope and Proposed Layout is shown in Figure 1.1.

The Project has been designed to maximise the use of existing disturbance areas. The Project requires clearing of 442 ha of native vegetation and will additionally use existing cleared areas. The additional clearing is predominately required for the mine pit, waste landforms and ancillary infrastructure.

1.2 Key Environmental Factors

The Proposal was referred under s 38 of the EP Act on 19 May 2017. The Environmental Protection Authority (EPA) determined the Proposal required a Public Environmental Review (PER) level of assessment on 14 July 2017. The EPA approved an Environmental Scoping Document (ESD) on 14 December 2017 identifying the preliminary key environmental factors, impacts to be assessed and work required to prepare the ERD.

The ESD identified Flora and Vegetation as one of the key preliminary environmental factors for the proposal.

The Proposal was also referred under the Commonwealth Government Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and received a 'Controlled Action' decision (2017/7950), which was authorised to be assessed under the WA bilateral assessment process. The EPBC Act requires an assessment as to whether a proposed action is likely to have a significant effect on a matter of national environmental significance (MNES). MNES are nationally and internationally recognised important flora, fauna and ecological communities and includes listed threatened species.

The listed threatened species and relevant MNES for this Proposal and relevant to this plan are:

- Ironcaps Banksia (Banksia sphaerocarpa var. dolichostyla) – Vulnerable.

On 21 November 2019, the Western Australian Minister for the Environment approved the Proposal under Ministerial Statement 1118 (MS1118). Condition 6 of MS1118 addresses the key

environmental factor of flora and vegetation and requires the proponent to meet the following environmental outcome:

- 'The proponent shall ensure there is no proposal-related direct or adverse indirect to flora and vegetation within the exclusion zones…'

The conditions of MS1118 relating to the key environmental factor of flora and vegetation are detailed by Table 1-1, including the relevant section of this FVMP where they are addressed.

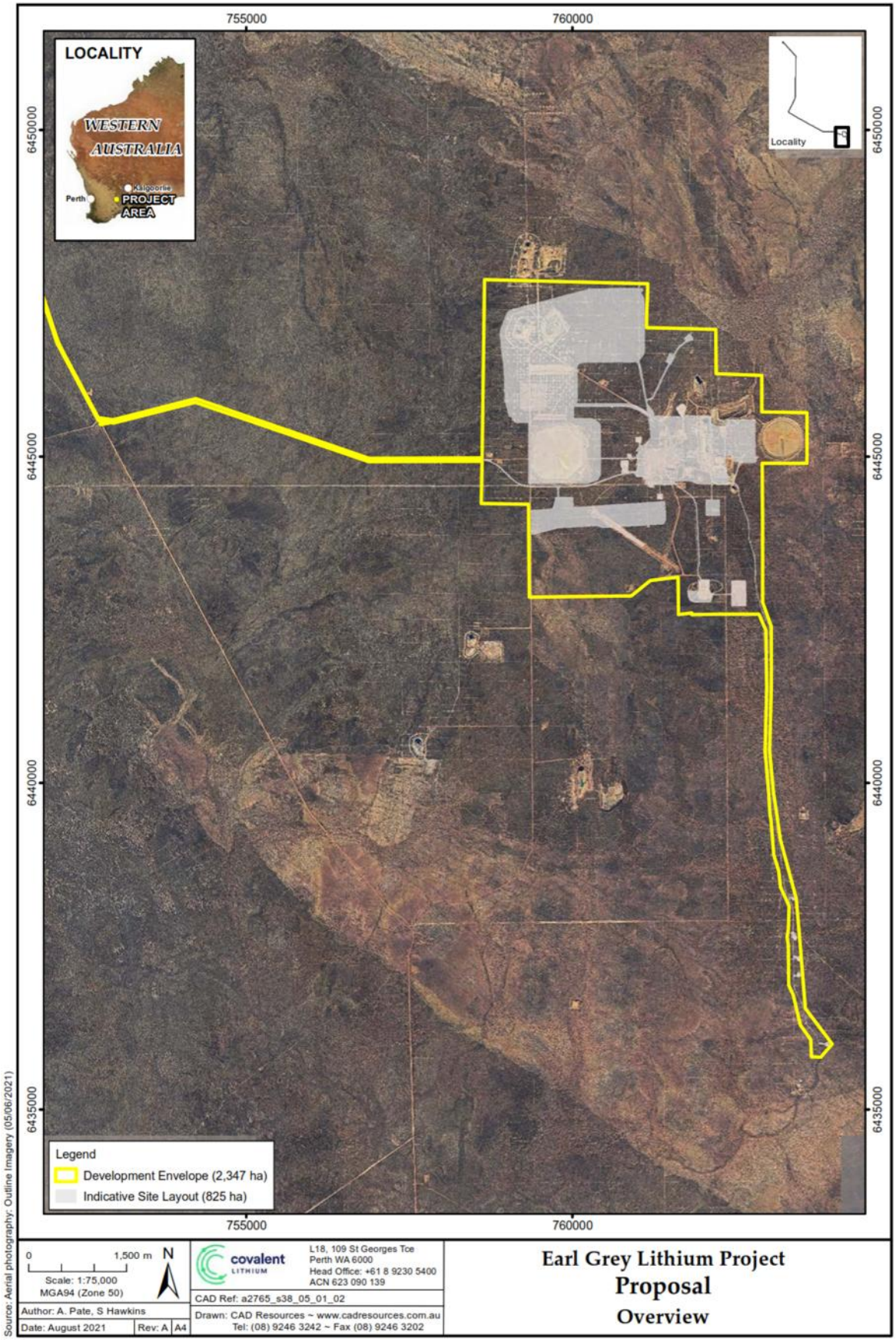

Figure 1-1: Development Envelope, proposed site layout

1.3 Condition Requirements

Table 1-1 details the relevant conditions of MS1118 and the corresponding section of this document where they are addressed.

Table 1-1: Conditions of MS1118

Item #	Condition	FVMP Section
6-1	(1) The proponent shall implement the proposal to meet the following environmental outcome: The proponent shall ensure there is no proposal-related direct or adverse indirect impacts to flora and vegetation within the exclusion zones as shown on Figure 3 and delineated by coordinates in Schedule 2.	This Plan
	(2) The proponent shall ensure there are no proposal-related impacts to more than 9,732 individuals of Microcorys elatoides and 2 individuals of Banksia sphaerocarpa var. dolichostyla	
6-2	Prior to the commencement of ground disturbing activities, the proponent must undertake pre-clearance vegetation and flora survey(s) within the development envelope in accordance with Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment.	Section 3
6-3	In order to meet the requirements of condition 6-1, the proponent shall update and submit to the CEO the Flora and Vegetation Environmental Management Plan on advice of the Department of Biodiversity, Conservation and Attractions within six (6) months of this statement being issued.	This Plan
6-4	The proponent shall not commence ground disturbing activities until such a time as the Flora and Vegetation Management Plan required by 6-3 is approved by the CEO.	This Plan
6-5	The Flora and Vegetation Environmental Management Plan shall:	
	(1) Include details of the timing, methods, limitations and results of the pre-clearance surveys required by condition 6-2 and demonstrate how the findings of the survey(s) have been considered, including provision of mitigation measures.	Section 3.1 and Section 3.2
	(2) Include actions to ensure that dust, weeds and fire are appropriately managed within the development envelope.	Section 2.2 and Table 2-3
	(3) specify trigger criteria that must provide an early warning that the threshold criteria identified in condition 6-4(4) may not be met;	Table 2-2 and Table 2-3
	(4) specify threshold criteria to demonstrate compliance with the environmental outcome specified in condition 6-1;	Table 2-2 and Table 2-3
	(5) specify monitoring to determine if trigger criteria and threshold criteria are exceeded;	Section 2.4, Table 2-2 and Table 2-3
	(6) specify trigger level actions to be implemented in the event that trigger criteria have been exceeded;	Table 2-2 and Table 2-3
	(7) specify threshold contingency actions to be implemented in the event that threshold criteria are exceeded; and	Table 2-2 and Table 2-3
	(8) provide the format and timing for the reporting of monitoring results against trigger criteria and threshold criteria to demonstrate that condition 6-1 has been met over the reporting period in the Compliance Assessment Report required by condition 4-6.	Section 2.5

The Project was designed to avoid and minimise impacts related to the Proposed Layout and the inclusion of the VEZs preserves key vegetation communities and species. Project activities may result in the potential for direct and indirect impacts on flora and vegetation within the VEZs.

1.3.1 Survey and Study Findings

1.3.1.1 Surveys

Floristic and vegetation surveys outlined in Table 1-2 were undertaken to support the assessment of potential impacts of the Proposal on flora and vegetation during the assessment process (section 1.2) and have been used to identify the location of the VEZs.

The surveys were completed in accordance with the standards set out in Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016a) and Environmental Factor Guideline: Flora and Vegetation (EPA 2016b). This included targeted surveys for Banksia sphaerocarpa var. dolichostyla and other priority flora.

Threatened or priority flora species identified within the VEZs are described by section 1.3.1.2, with the location of the VEZs identified by Figure 1-2.

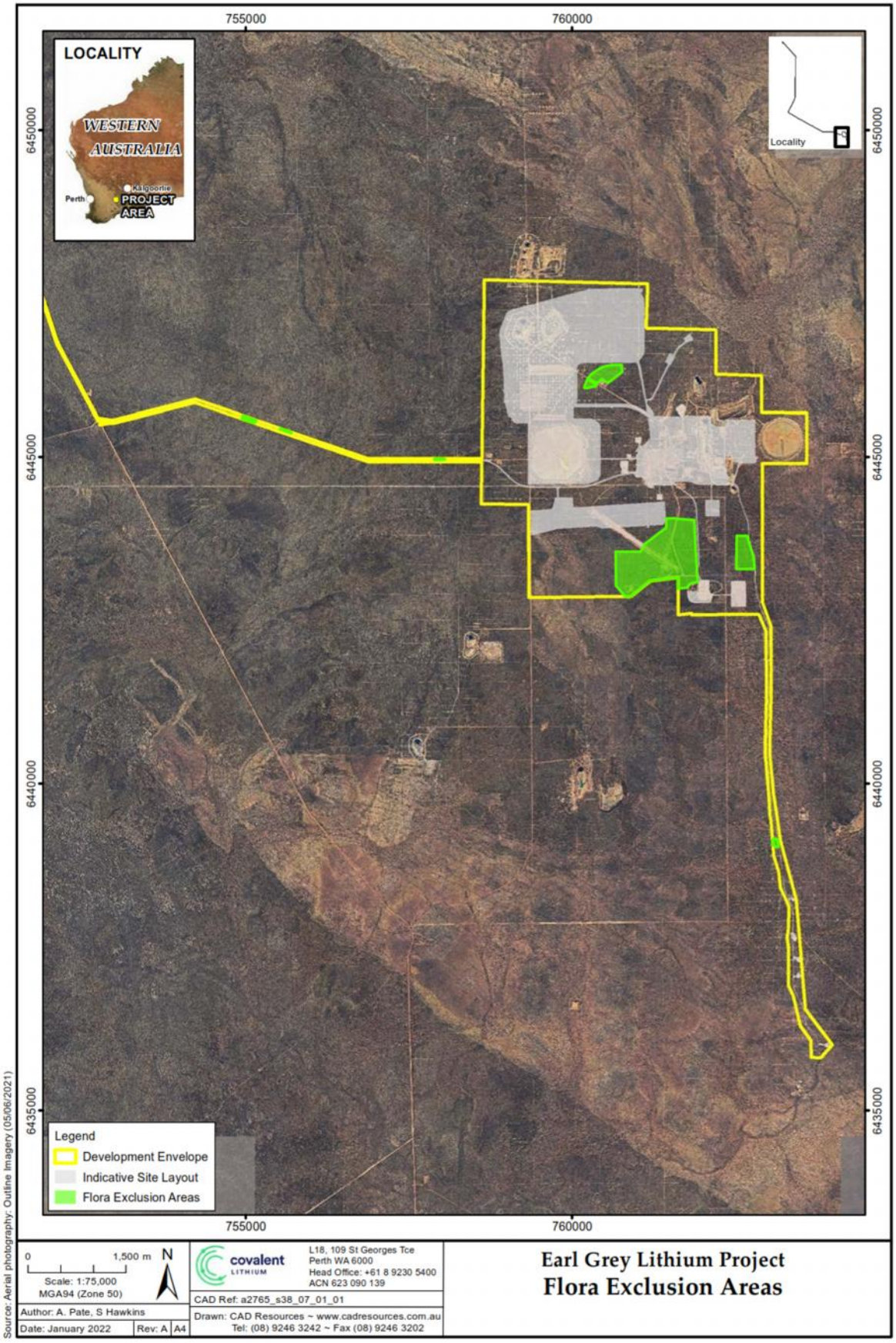

Figure 1-2: Vegetation Exclusion Zones

Table 1-2: Flora and vegetation studies completed for the Project

Investigation and Scope
Native Vegetation Solutions (2014) Targeted Banksia sphaerocarpa var. dolichostyla Survey. Report prepared by Native Vegetation Solutions for Kidman Resources Ltd.
Native Vegetation Solutions (2016) Level 1 Flora and Vegetation Survey Proposed Blue Vein Mine Mt Holland Project Tenement M77/1065. Report prepared by Native Vegetation Solutions for Kidman Resources Ltd.
Mattiske Consulting Pty Ltd (2017) Flora and Vegetation Assessment of the Earl Grey, Irish Breakfast and Prince of Wales Prospects. Report prepared by Angus D and Murdock N of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. Final (Version 4). April 2017.
Blueprint Environmental Strategies Pty Ltd (2017) Targeted Surveys for Threatened Flora Species Banksia sphaerocarpa var. dolichostyla. Report prepared by Blueprint Environmental Strategies Pty Ltd for Kidman Resources Ltd. May 2017.
Native Vegetation Solutions (2017) Targeted Search of Threatened Flora for Kidman Resources Limited – Mount Holland Gold Project. Report prepared by Reid E of Native Vegetation Solutions for Blueprint Environmental Strategies on behalf of Kidman Resources Ltd. October 2017.
Mattiske Consulting Pty Ltd (2018a) Flora and Vegetation Assessment Earl Grey Lithium Project. Report prepared by Angus D of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. Version 3. March 2018.
Mattiske Consulting Pty Ltd (2018b) Memorandum: Earl Grey Lithium Project Statistical Comparison of Vegetation Within Earl Grey Lithium Project with Ironcap Hills Vegetation Complex. Memorandum prepared by Angus D of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. October 2018.
Mattiske Consulting Pty Ltd (2019a) Earl Grey Lithium Project Banksia sphaerocarpa var. dolichostyla (T) Target Survey. Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 7. January 2019.
Mattiske Consulting Pty Ltd (2019b) Earl Grey Lithium Project Conservation Significant Flora Targeted Survey. Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 7. January 2019.
Mattiske Consulting Pty Ltd (2019c) Threatened and Priority Flora Assessment Tenement M77/215 Proposed Tracks and Drill Hole Locations. Report prepared by Riviera F and Sims Z of Mattiske Consulting Pty Ltd for Kidman Resources Ltd. Final (Version 3). April 2019.
JBS&G Australia Pty Ltd (2019) Earl Grey Lithium Mine Regional Flora Survey. Report prepared by Oversby W and Chesney R of Strategen-JBS&G (JBS&G Australia Pty Ltd) for Covalent Lithium Ltd. July 2019.
Mattiske Consulting Pty Ltd (2019d) Threatened and Priority Flora Assessment Earl Grey Lithium Project Pre-Clearance Surveys. Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Final. December 2019.
GHD Pty Ltd (2020) Flora Survey Mt Holland. Report prepared by Flemington S of GHD Pty Ltd for Covalent Lithium Pty Ltd. March 2020.
Mattiske Consulting Pty Ltd (2020a) Flora and Vegetation Assessment Earl Grey Lithium Project Water Pipeline Corridor. Report prepared by Sims Z and Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 6. May 2020.
Mattiske Consulting Pty Ltd (2020b) Flora and Vegetation Assessment Earl Grey Lithium Project Modified Great Eastern Highway Pipeline Alignment and Booster Station Access Areas: Water Pipeline Alignment Supplementary Report. Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 2. September 2020.
Mattiske Consulting Pty Ltd (2020c) Earl Grey Lithium Project Introduced Flora (Weed) Survey. Report prepared by Pereira A and Sims Z of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 3. October 2020.
Mattiske Consulting Pty Ltd (2020d) Memorandum: Earl Grey Lithium Project Field Survey 21st – 26th October 2020. Vegetation health monitoring transects and threatened ecological community

Investigation and Scope
assessment. Memorandum prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. October 2020.
Mattiske Consulting Pty Ltd (2020e) Memorandum: Earl Grey Lithium Project Field Survey 25th October 2020. Threatened ecological community assessment. Memorandum prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. November 2020.
360 Environmental Pty Ltd (2020) Targeted Flora Survey Mt Holland Lithium Project. Report prepared by Walker S of 360 Environmental Pty Ltd for Covalent Lithium Pty Ltd. November 2020.
Mattiske Consulting Pty Ltd (2021a) Earl Grey Lithium Project Vegetation Condition Monitoring Transect Establishment. Report prepared by Angus D of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Final. January 2021.
Mattiske Consulting Pty Ltd (2021b) Memorandum: Earl Grey Lithium Project Field Survey 14th – 21st March 2021. Vegetation health monitoring transects. Memorandum prepared by Sims Z of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. March 2021.
Mattiske Consulting Pty Ltd (2021c) Threatened and Priority Flora Assessment Earl Grey Lithium Project Pre-Clearance Surveys. Report prepared by Angus D and Sims Z of Mattiske Consulting Pty Ltd for Covalent Lithium Pty Ltd. Version 2. April 2021.

1.3.1.2 Survey results

A brief description of all flora species recorded by the biological surveys is provided in Appendix A.

The conservation significant species, current listing and abundance within the VEZs is detailed by Table 1-3. Whilst noting the full list of flora species recorded within the VEZs, the primary purpose of the VEZs is for the protection of Banksia sphaerocarpa var. dolichostyla, Microcorys elatoides and Vegetation Unit W17.

Table 1-3: Species, conservation status and abundance within VEZs

Species	Conservation status	Recorded individuals within VEZs
Acacia lachnocarpa	Priority 1	82
Banksia sphaerocarpa var. dolichostyla	Threatened	5,246
Boronia ternata var. promiscua	Priority 3	16
Chamelaucium sp. Parker Range	Priority 1	433
Chorizema circinale	Priority 3	1
Daviesia sarissa subsp. redacta	Priority 2	125
Eutaxia lasiocalyx	Priority 2	236
Grevillea lissopleura	Priority 1	498
Grevillea marriottii	Priority 1	25
Hakea pendens	Priority 3	1,124
Hibbertia tuberculata	Priority 1	1,082
Labichea rossii	Priority 1	567
Microcorys elatoides	Priority 1	13,553
Microcorys sp. Mt Holland broad-leaf	Priority 1	85
Orianthera exilis	Priority 2	1
Stylidium sejunctum	Priority 3	7
Thryptomene sp. Hyden	Priority 1	601
Verticordia stenopetala	Priority 3	1

1.3.1.3 Weeds

Weeds were very limited across the Development Envelope. During the surveys one introduced species was recorded from one location within the Development Envelope, outside of the Proposed Layout.

Overall, the vegetation within the EGLP is considered to be in excellent condition and is largely free of introduced species. The presence of introduced species was predominantly restricted to the areas

of historical clearing associated with the former Bounty Mine area. The exploration drill tracks and pads associated with the Earl Grey Lithium Project were free of introduced species. A total of 17 weed species were recorded in the Earl Grey Lithium Project survey area:

- Avena barbata
- Brassica tournefortii
- Brassica ×napus
- Bromus diandrus
- Carrichtera annua
- Centaurea melitensis
- Centaurium tenuiflorum
- Hordeum glaucum
- Hypochaeris glabra
- Lavandula stoechas
- Lysimachia arvensis
- Mesembryanthemum nodiflorum
- Pentameris airoides
- Rostraria cristata
- Solanum nigrum
- Sonchus asper
- Sonchus oleraceus

The taxa recorded with the highest number of individuals recorded were Carrichtera annua and Mesembryanthemum nodiflorum.

The implementation of hygiene protocols during construction and operations will be necessary to prevent the introduction and spread of new introduced species into the VEZs.

1.3.1.4 Fire

No fire has significantly altered the native vegetation within the VEZs since exploration commenced in 2016. Fires as a result of construction and operations will be mitigated as far as practicable with protocols implemented by the onsite emergency response team throughout the life of the Proposal.

1.3.1.5 Dust

Fugitive dust emissions from vegetation clearing, disturbed areas, mine pit excavation, crushing and road use have been identified as a potential indirect impact to vegetation within the VEZs. To date, there has been no background monitoring undertaken for dust deposition and it is unknown at what rates an adverse impact to native flora and vegetation within the VEZs may be apparent. Dust deposition gauges are considered the most appropriate means by which to measure dust fall on flora and vegetation. Dust deposition gauges will be installed and monitored in accordance with Australian Standard AS/NZS 3580.10.1:2003 methods for sampling and analysis of ambient air. Results will be considered in association with the results of flora and vegetation health and condition monitoring (outlined in sections 2.4.1 and 2.4.2) to manage dust emissions from mining activities and mitigate potential adverse impacts to flora and vegetation within the VEZs.

1.3.2 Key Assumptions and Uncertainties

1.3.2.1 Assumptions

- surveys to date provide sufficient information to confirm the extent of conservation significant flora within the VEZs.
- targeted surveys for threatened flora as outlined in the Biodiversity Conservation Act 2016. and other conservation significant flora are considered adequate to characterise the populations within VEZs. The surveys are of suitable quality to identify any Project related direct or indirect impacts to the VEZs.

1.3.2.2 Uncertainties

- the extent to which climatic factors outside of Covalent's control will affect the spread of dust, weeds and fire into the VEZs
- the extent to which dust generated from implementation of the Proposal will travel from the source to receptor
- the level of dust deposition that has the potential to indirectly impact vegetation within the VEZs
- the resilience of conservation significant flora species to dust deposition
- the extent to which climatic factors outside of Covalent's control will impact on the health and extent of populations of conservation significant flora within the VEZs

1.3.3 Management Approach

Management measures to minimise impacts from project activities are necessary to ensure the Proposal will not have a significant impact on flora and vegetation within the VEZs.

1.3.3.1 Potential Impacts

The potential impacts of relevance to the VEZs include:

- direct loss of conservation significant flora from vegetation clearing
- indirect impact from altered fire regimes
- indirect impact from dust, during construction and mining operations
- indirect impact from weed infestation during construction and mining operations.
- indirect impact from changes to surface hydrology, during construction and mining operations

1.3.3.2 Focus on Avoidance

Direct impacts (unauthorised clearing) of the VEZ will be avoided to meet the environmental outcomes of Condition 6-1(1) and Condition 6-1(2) of MS1118. The internal vegetation clearing procedure and permit will be utilised to control clearing within the Development Envelope. Furthermore, the VEZs will be surveyed and delineated by an appropriate means (for example flagging tape, fencing or signage) to prevent unauthorised access. Access will be limited to foot access only or vehicle access only to existing cleared tracks and controlled by a procedure and permitting process. This will aim to ensure the area is only accessed for monitoring or rehabilitation activities to meet the requirement of this FVMP. All personnel will be made aware of the requirement to avoid the VEZS through the site induction process.

1.3.3.4 Minimising Potential Impacts

While the objective to avoid direct impacts to the VEZs is readily achievable, the potential for factors that may lead to potential adverse indirect impacts also needs to be addressed. For this reason, potential indirect impacts such as dust, fire and weeds need to be minimised in order to meet the environmental outcome of Condition 6-1(1) and Condition 6-1(2) of MS1118.

Indirect impacts will be minimised to the maximum extent practicable using best management practices to suppress dust and minimise invasive plant species and impacts from altered surface hydrology as described in Section 2.2.

1.3.3.5 Remediation actions where impacts cannot be avoided

Mitigation measures where monitoring or observations have identified impact(s) on values are detailed in Table 4.1. In the unlikely event the environmental outcome of Condition 6-1(1) and/or and Condition 6-1(2) of MS1118 are not met, further actions will be undertaken to mitigate this loss. This shall include consultation with EPA and DBCA to determine an appropriate strategy.

1.3.3.6 Rationale for choice of provisions

The mitigation hierarchy is based on the objective of avoiding direct impacts and minimising indirect impacts to the VEZs.

The key mechanism by which direct impacts may occur to the VEZs is unauthorised clearing. Management measures mentioned by section 1.3.3.2 will avoid vegetation clearing by limiting access to the area. The key outcome will be to ensure there is no vegetation clearing within the VEZs (threshold criteria) and should there be failures of the management measures (section 1.3.3.2) without causing a direct impact on the VEZs, this will serve as an early warning trigger. For example, clearing within the Development Envelope, but outside of the VEZs without an internally approved clearing permit or unauthorised access to a VEZs.

The assessment process outlined by section 1.2 identified dust emissions, weeds and fire as a potential source of indirect effects on the flora and vegetation of the VEZs, and as a result MS1118 included conditions for their management. It is not known at what level dust and weeds will impact the vegetation communities of the VEZs and for this reason trigger and threshold criteria has not been prescribed for these aspects (section 1.3.2.2). However, monitoring of dust and weeds as outlined by section 2.4 will be undertaken in conjunction with flora and vegetation health and condition monitoring to understand if any indirect effects to vegetation of the VEZs are proposal related.

Plant health and condition monitoring will be undertaken on both a qualitative and quantitative basis. Trigger and threshold criteria have been developed based on the outcomes of this monitoring (section 2.1). Qualitative monitoring will include a scoring system for a visual assessment of plant health. Quantitative monitoring will be conducted using a plant pigment efficiency analyser (PEA) which measures chlorophyll inflorescence and photosynthetic function. Monitoring quadrats with at least five representative species will be placed both within the VEZs and control sites to allow for a statistical comparison. A potential adverse impact may be apparent in the event of a statistically significant difference between the VEZ and a non-impact area. This approach has been demonstrated and accepted at other mine sites within the mid-west region for this purpose. Monitoring for plant health is outlined further by section 2.4.

Periodic review of the management approach will be undertaken based on monitoring results and incident data. Adaptive management measures will be implemented with a view to achieving continuous improvement in managing the VEZs.

2. Management Plan Provisions

This FVMP outlines both outcomes-based and management-based provisions. Outcome-based provisions are performance-based and may be used where the part of the environment is capable of objective measurement and reporting. Therefore, outcome-based provisions have been established to specify trigger and thresholds on direct impacts and to ensure the Proposal achieves acceptable environmental outcomes (i.e., plant health monitoring).

Management-based provisions relate to management actions and may be used where the part of the environment is not capable of objective measurement and reporting. Therefore, management-

based provisions have been established to specify management actions and targets, particularly for indirect impacts that are non-quantifiable. In addition, management-based provisions will assist with onsite management in achieving the outcome-based environmental criteria. Early response triggers for management-based provisions are detailed in Section 4.1.

2.1 Outcome-Based Provisions

Environmental criteria, both triggers and thresholds, are detailed in Table 2-2.

2.1.1 Environmental Criteria Justification

Environmental criteria, both triggers and thresholds have been established for direct impacts discussed in the Environmental Review Document (Revision 6) and Response to Submissions. Justification for the environmental criteria is detailed in Table 2-1.

Table 2-1: Environmental Criteria justification

Environmental Criteria (Outcome)	Trigger and Threshold	Justification
No proposal related direct impact to flora and vegetation within a VEZ (Figure 1-2)	Trigger criteria: - Vegetation clearing without an authorised internal permit within the Development Envelope, but outside of the VEZs - Authorised clearing has occurred within 5 m of a VEZ - Unauthorised access by personnel to a VEZ	The means by which a direct proposal related impact may occur to a VEZ is vegetation clearing. If clearing occurs which has not received an approved internal clearing permit within the Development Envelope, but outside of the VEZ, it is considered a non-compliance or failure of the procedure which is in place to prevent vegetation clearing of the VEZs. Similarly, if personnel access a VEZ without authorisation, it also represents a failure in the procedure and permit to control access to the area.
	Threshold criteria: - Proposal related direct vegetation disturbance of any kind or extent within a VEZ resulting in the mortality of flora and vegetation. For example, vegetation clearing.	The objective of the key environmental outcome is for no proposal related direct impacts to flora and vegetation within the VEZ. Threshold criteria of no proposal related disturbance within VEZ has been chosen as it could lead to mortality of Banksia sphaerocarpa var. dolichostyla and other priority listed flora within these areas. Exceeding the threshold criteria will lead to investigation, reporting and corrective actions of the incident.
No proposal related indirect impact to flora and vegetation within a VEZ resulting in an adverse impact (Figure 1-2)	Trigger criteria: - Statistically significant reduction in mean condition ratings (more than 20% difference for qualitative or quantitative) of vegetation health within a VEZ in comparison to control sites, or a mean Fv/FM <0.6 (index of chlorophyll inflorescence)	Vegetation health monitoring will be undertaken and if a decline in health is identified, the response actions will allow investigation to determine if the causes are attributed to the Proposal and if necessary allow for further management measures to meet the environmental outcome. The triggers for species health decline will be compared with control monitoring to allow consideration for climatic variation such as rainfall and factors outside of the proponent's control.
	Threshold criteria: - Flora and vegetation within a VEZ experiences a statistically significant higher mortality rate than that of control sites (where that mortality is not attributed to direct or Project impacts). - Conservation significant species within a VEZ experiences a statistically significant higher foliage cover loss rate than that of control sites (where that foliage cover loss is not attributed to direct or Project impacts).	The objective of the key environmental outcome is for no proposal related indirect adverse impacts to flora and vegetation within the VEZs, where adverse is defined as an impact likely to change the conservation status or significantly change the local population numbers of a species. It is widely known that all plants experience a natural rate of mortality. By comparing the rate of mortality of the VEZs, it may be deduced if the VEZs is experiencing natural rates of mortality. If the rate of mortality appears higher than control sites, it should be investigated, reported and corrective actions implemented if it is attributable to proposal related indirect effects. However, It should be noted that the extent of mortality will determine if the key environmental outcome is not being achieved as it may not mean the impact can be defined as 'adverse' (section 7). By reporting a difference the proponent is adopting a precautionary approach. Through monitoring any significant foliage cover loss of conservation significant species, any potential degradation of individual health can be identified, investigated and potentially rectified prior to mortality.

[1] Impact to threatened flora as outlined in the Biodiversity Conservation Act 2016 is defined as 'taking all or part of an individual'. Damage to all or any part of a threatened flora individual requires a section 40 authorisation.

Table 2-2: Outcome-based provisions

Environmental objective[1]	Environmental criteria	Response actions	Monitoring	Reporting
No proposal related direct impact to flora and vegetation within a VEZ (Figure 1-2)	Trigger criteria:) Vegetation clearing without an authorised internal permit within the Development Envelope, but outside of the VEZs Trigger criteria: • Unauthorised access by personnel to a VEZ)	Trigger response:) Report internally as an incident in accordance with internal procedures.) Review management strategies and implement changes to prevent future occurrences. Management measures may include: o Undertake incident investigation o Review proximity of potential disturbance within/to VEZ. Should disturbance occur to threatened or Priority flora as a result of unauthorised access, report to DWER within 7 days of identification o Review and upgrade VEZ signage/delineation where appropriate o Audit and review of training and staff inductions (ie. Increase in staff training and awareness to include information on VEZ's, legislative requirements, appropriate clearing procedures) o Ground disturbance permit training competency training o Review impact of unauthorised clearing and report any noncompliance to DWER within 7 days of identification o Undertake rehabilitation of unauthorised clearing (ie disturbance from vehicle tracks, vegetation clearing) by appropriately qualified personnel as required, in accordance with rehabilitation procedure.	) Survey records of all clearing undertaken during operation of the Project.	) Annual reporting.) Clearing Register) Internal clearing permits.) Survey data) Incident reports.
	Threshold criteria:) Proposal related direct vegetation disturbance of any kind or extent within a VEZ resulting in the mortality of flora and vegetation. For example, vegetation clearing initiated by the proponents mining activities.	Threshold response:) Cease clearing activities) Immediately report internally) Undertake investigation to determine source of and extent of disturbance and if the disturbance is likely to result in the key environmental outcome not being achieved.) If disturbance is attributed to Proposal activities, undertake a review of layout to determine if impact can be minimised, development actions to prevent a recurrence and communicate findings to relevant personnel) A suitably qualified flora specialist to undertake an assessment of impact) Notification to DAWE, DWER and DBCA within 7 days) If necessary (deemed to be proposal related), consider measures to prevent an incident occurring and/or remediation strategies to address the impact. Report submitted to DWER with remediation actions proposed. Management measures may include the following: o Audit and review of training and staff inductions (ie. Increase in staff training and awareness to include information on VEZ's, legislative requirements, appropriate clearing procedures, 5 m trigger response criteria for authorised clearing approaching a VEZ) o Undertake rehabilitation of unauthorised access as required in accordance with internal rehabilitation procedures.) Engagement with key stakeholders including DBCA, and relevant specialists where required to determine key actions. Provide a report of the incident to EPA as detailed by condition 6-7(5) of MS1118 within 21 days.		
No proposal related indirect impact to flora and vegetation within a VEZ resulting in an adverse impact (Figure 1-2)	Trigger criteria:) Statistically significant reduction in mean condition ratings (more than 20% difference for qualitative or quantitative) of vegetation health within a VEZ in comparison to control sites, or a mean Fv/FM <0.6 (index of chlorophyll inflorescence)	Trigger response:) Report internally as an incident in accordance with site procedures.) Review all monitoring data (including control sites) in relation to management measures (Table 2.3) and any other available data such as weather and climate to determine if the decrease is due to proposal related impacts.) Review dust, weather and weed monitoring to compare VEZ and control sites. Determine whether the changes observed in the impact sites are comparable to the observations in the reference sites.) Investigate potential causes for the observed decline in vegetation health which may include but are not limited to:) seasonal conditions (e.g., rainfall and temperatures)) effectiveness of weed control) spatial variation (near-impact areas) versus sites located further from impact) Develop strategies based on the outcomes of the investigation to prevent a recurrence and if necessary or possible reverse the decline in health of the VEZ flora and vegetation. Management measures may include the following:	) Quarterly observations of plant health on commencement of Project for the first 12 months. Following the development of a strong dataset over this period, the monitoring methodology, frequency and monitoring sites will be reviewed.	) Annual reporting) Quarterly vegetation monitoring.

Environmental objective[1]	Environmental criteria	Response actions	Monitoring	Reporting
		• Change in frequency of vegetation health monitoring • Increase in staff training and awareness on factors which have implications to vegetation health for example dust, changes to hydrology		
	Threshold criteria: • Flora and vegetation within a VEZ experiences a statistically significant higher mortality rate than that of control sites (where that mortality is not attributed to direct or Project impacts). • Conservation significant species within a VEZ experiences a statistically significant higher foliage cover loss rate than that of control sites (where that foliage cover loss is not attributed to direct or Project impacts).	Threshold response: • Report internally as an incident • Investigate cause and extent of mortality and if it is likely to result in the key environmental outcome not being achieved • If necessary (deemed to be proposal related) consider measures to prevent a re-occurrence of the incident and/or remediation strategies to address the impact • Notification to DAWE, EPA and DBCA within 7 days • Engagement with key stakeholders including DBCA, and relevant specialists where required to determine key actions. Provide a report of the incident to EPA as detailed by condition 6-7(5) of MS1118 within 21 days.		

2.2 Management-Based Provisions

The following management actions will assist in meeting the trigger and thresholds proposed in the outcome-based provisions. These actions will be reviewed as part of the monitoring and reporting process and changes made where required.

The management actions are detailed in Table 2-3, and include:

- vegetation clearing management
- dust management
- weed management / dieback management
- fire regime management
- surface hydrology.

The management targets are:

- no unauthorised clearing of native vegetation
- no unauthorised access to VEZs
- minimise dust emissions
- minimise spread of weed or dieback
- avoid alteration of fire regimes or surface hydrology

Early response triggers have been established for management targets and are detailed in Section 4.1.

Table 2-3: Management-based provisions

Management Objective	Management Action	Management targets	Monitoring	Reporting
No unauthorised clearing of vegetation within the Development Envelope or personnel access within the VEZs	Avoidance - implementation of an internal clearing permit procedure - implementation of an internal procedure limiting access to VEZs by foot only or only by car where there is an existing track. - VEZs to be delineated with flagging tape, physical barrier, signage or similar to alert all personnel of their location - Inductions of all site personnel to include information on the location of VEZs, management targets, measures and expectations	No unauthorised clearing within the Development Envelope or VEZs. No unauthorised access to a VEZ.	Clearing register. Survey records of all clearing undertaken during operation of the Project.	Annual reporting. Clearing Register. Internal clearing permits. Survey data.
Minimise dust deposition on vegetation from mining and related activities	The Proponent will minimise dust deposition on vegetation through: - dust suppression on cleared areas - maximise efficiency of loads when transporting ore or concentrate (including haul trucks and conveyers) - use dust covers on machinery and dust suppressants on exposed areas where possible - minimise open area footprint and rehabilitate or cover (using vegetation, rock, water and/or dust suppressant) exposed areas as soon as practicable - design the mine layout to minimise dust emissions to VEZs where practicable - access roads will be sealed with an emulsion or suitable alternative, as shown in Figure 2-1b	Dust deposition (present as insoluble solids) at any gauge in excess of 10 g/m^2/month.	Dust deposition rates will be measured monthly using dust deposition gauges for the first 24 months from implementation of the proposal. The dataset gained will be reviewed to inform the dust monitoring regime for the next revision of the FVMP.	Annual reporting. Vegetation health monitoring. Incident report of significant dust plumes.
Minimise spread of weeds / dieback	The Proponent will minimise the risk of introduction of invasive species and spread of dieback through:	Minimise new weeds introduced to site. Prevent spread of weeds to VEZs.	- Annual weed monitoring across Development Envelope. - A Dieback Management Plan will be produced and provided to	Annual reporting. Vehicle hygiene certificates and auditing.

Management Objective	Management Action	Management targets	Monitoring	Reporting
	) implementation of a vehicle hygiene procedure, dieback management procedure and weed control) Development Envelope and VEZs will be surveyed for weeds periodically, so that any infestations of invasive species that establish can be eradicated before the plants can flower and set seed) Phytophthora (dieback) controls including signage, cleandown points, vehicle hygiene shall be implemented.	Prevent spread of dieback onsite.	DBCA, following the completion of baseline monitoring.) Dieback monitoring programme to be developed.) Quarterly observations of plant health on commencement of Proposal for first 12 months. Following the development of a strong dataset over this period, the monitoring methodology, frequency and monitoring sites will be reviewed.) Quarterly health monitoring at vegetation quadrats within VEZs and control sites to include observations for weeds and if the presence of weeds is having a potential indirect impact.	Invasive species control reports. Aerial photos. Incident reports.
Avoid alteration of fire regimes	The Proponent will contribute to fire management at the mine site and in the region through the following measures:) Internal procedures to prevent fires and manage the occurrence of fires due to operational activities (emergency response team, automated fire extinguishers on equipment, personnel trained to use fire fighting equipment).) implement fire management procedures (e.g. maintenance of fire breaks, Hot Work Permit system, firefighting training, Emergency Response Plan)) firefighting equipment will be located on site and in vehicles) lightning protection equipment will be installed as part of Project design where necessary	Prevent fires attributed to mining and associated Project activities.	) Incident reports of fire.) Quarterly observations of plant health on commencement of Proposal for first 12 months. Following the development of a strong dataset over this period, the monitoring methodology, frequency and monitoring sites will be reviewed.	Aerial photos. Incident reports.

Management Objective	Management Action	Management targets	Monitoring	Reporting
	) coordination with DBCA and Department of Fire and Emergency Services (DFES) to undertake prescribed burns.			
Avoid alteration surface hydrology	The Proponent will ensure the appropriate design of infrastructure including:) Drainage measures designed and constructed to minimise changes to natural surface water flow, including diversion drains, rock cladding and contouring as required.) Rehabilitation and closure to follow contours of natural landforms	Prevent changes to surface water hydrology attributed to mining and associated Project activities.	) Quarterly observations of plant health on commencement of Proposal for first 12 months. Following the development of a robust dataset over this period, the monitoring methodology, frequency and monitoring sites will be reviewed.) Quarterly health monitoring at vegetation quadrats within VEZs and control sites	Aerial photos. Incident reports. Annual reporting.

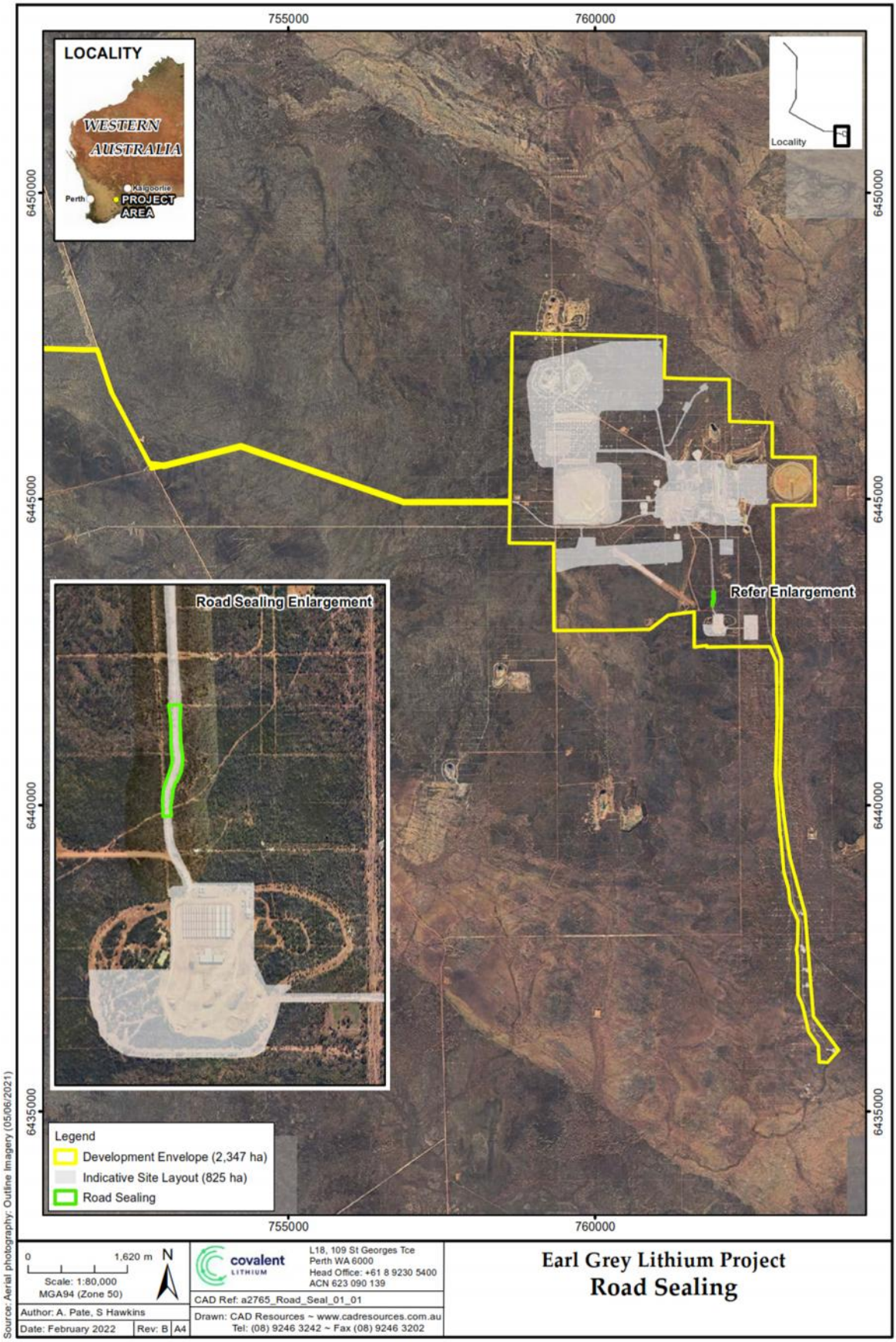

Figure 2-1a: Dust mitigation measures

Figure 2-2b: Dust monitoring locations

2.3 Implementation

The implementation of the FVMP will be assisted through an Environmental Management System that will incorporate systems, processes, procedures and work instructions relating to the management, monitoring and reporting components of the FVMP.

Covalent is committed to conducting its activities at the Earl Grey Lithium Project (the Project) in an ecologically responsible manner. The key personnel involved in implementation of the FVMP and their roles and responsibilities are listed in Table 2-4.

Covalent will undertake consultation with DBCA's Species and Communities Program if activities related to seeding, germinating or planting Banksia sphaerocarpa var. dolichostyla are being considered. The preparation and approval of a translocation proposal as required in Part 7 of the Biodiversity Conservation Regulations 2018 will be undertaken, including consultation with DBCA's Species and Communities Program. Impact to threatened flora as outlined in the Biodiversity Conservation Act 2016 is defined as 'taking all or part of an individual'. Damage to all or any part of a threatened flora individual requires a section 40 authorisation.

Table 2-4: Summary of roles and responsibilities relevant to the Earl Grey Lithium Project FVMP

Role	Responsibility
Covalent	) Covalent have the overall responsibility for the implementation of this FVMP if any roles are delegated to a contractor or consultant, Covalent has the responsibility to audit compliance and ensure any contingency actions are implemented.
Covalent Environmental Manager	) overall accountability for auditing and compliance assessment with this FVMP during operation to ensure it is maintained and meets objectives and targets) provide technical support to all Project personnel to ensure this FVMP is implemented correctly and complied with) implement and maintain this FVMP, review its effectiveness and review the implementation as required) obtain relevant approvals for disturbance as required) ensure all personnel involved in the project are inducted and will adhere to FVMP requirements) undertaking ongoing monitoring and documenting monitoring results) liaise with stakeholders and technical advisors for advice and resolution of management aspects/objectives as required) review and close out any contingency actions) report as required to regulating authorities) may delegate all or part responsibility to an appropriately qualified person
Construction Manager or Registered Manager (if different to Environmental manager)	) overall accountability for auditing and compliance assessment with this FVMP during construction to ensure it is maintained and meets objectives and targets) overall accountability to ensure this FVMP is implemented, reported and maintained on-site) ensure personnel attend inductions, have sufficient resources and training to meet the requirements of this FVMP) support the Proponent's flora management initiative and culture) comply with all legal requirements and the requirements of this FVMP) seek advice from the Proponent when in doubt about requirements) appoint appropriate consultants to undertake specific activities set out in the FVMP if required.
All personnel	) must receive induction prior to commencement of work on site) comply with all legal requirements and the requirements of this FVMP) attend environmental inductions and any other training required) participate in toolbox meetings and encourage personnel to suggest improvements.

2.3.1 Environmental Induction

The Proponent will require all workers, both during construction and operation of the mine, to attend a worker awareness training/environmental induction covering the following topics.

- Conservation significance of the flora and vegetation within the VEZs
- Compliance and legislative requirements of the VEZs
- Management measures and expectations of all personnel to ensure the key environmental outcome is achieved

2.3.2 Incidents and Corrective Actions

Environmental incidents are defined as breaches or non-adherences to objectives and procedures applied to the Project and prescribed in this FVMP. Environmental incidents are to be reported to the Covalent Environmental Manager by the person responsible for the incident or the first person at the site of an incident.

The Covalent Environmental Manager will assess the type and severity of the incident in accordance with internal procedures. Relevant personnel shall be notified and consulted whether the incident requires notification to regulatory agencies.

2.4 Monitoring

The monitoring program will involve monitoring of plant condition, dust deposition and weed monitoring in order to:

- determine if there are any changes occurring to flora and vegetation condition and health in the VEZs
- assess whether any changes in flora and vegetation are due to the Project or external/natural factors
- provide a methodology for ongoing monitoring to enable time-based comparisons.

This will be achieved as the program has been designed to be:

- extensive – sites within representative vegetation communities both within the VEZs and non-impact control sites
- balanced – replicate sites within potential impact areas, and areas outside of the Proposals influence to enable statistical analyses (for example but not limited to, ANOVA, MANOVA)
- repeatedly measurable, reliable and adaptable; allowing monitoring to be intensified or decreased as required based on measurements made.
- Furthermore, monitoring by the way of pre-clearance surveys has also been undertaken to meet condition 6-2 and 6-4(1) of MS1118. The timing, methods, limitations and reporting of those surveys is detailed by section 1.3.1.1 and 3.

2.4.1 Plant Condition Monitoring

Plant condition monitoring to provide a qualitative assessment of the vegetation condition will be undertaken at permanent representative sites within the VEZs and control sites away from any proposal related indirect effects. Each monitoring site will consist of a quadrat 10 m by 40 m arranged linearly with four sub quadrats of 10m x 10m, thereby providing an area equivalent to 20m x 20m and conforming to the recommended quadrat size for the bioregion (EPA Technical Guidance 2016a).

The locations of monitoring quadrats have been reviewed based on recommendations provided by DBCA and locations were revised to monitor the following sub-set of conservation significant species individuals in the monitoring program:

- Acacia lachnocarpa
- Acacia undosa

- Banksia sphaerocarpa var. dolichostyla
- Chamelaucium sp. Parker Range (B.H. Smith 1255)
- Daviesia sarissa subsp. redacta
- Grevillea lissopleura
- Grevillea marriottii
- Hakea pendens
- Hibbertia tuberculata
- Microcorys elatoides
- Microcorys broad-leaf (G. Barrett s.n. PERTH 04104927)
- Rinzia medifila
- Stylidium sejunctum

The GPS coordinates of approximate quadrats is provided in Table 2-5 and shown by Figure 2-1.

Table 2-5: Monitoring quadrat GPS coordinates

Site#	Type - Pair	Vegetation Community	Dust gauge (Y/N)	Easting	Northing	Locality	Siting Justification
1	Control - A	W7	N	763363	6443557	Rocky hill located 600 m east of borefield access track.	Hakea pendens (P3) community.
2	Impact – A	S1	Y	762678	6443570	70 m west of borefield access track.	Hakea pendens (P3) community (W17 vegetation) in VEZ.
3	Control - B	H1	N	761675	6442044	located 600 m south of accommodation village.	H1 vegetation unit – most restricted unit in Development Envelope.
4	Impact - B	W9	N	761794	6443696	95 m west of planned access road to accommodation village.	H1 vegetation unit in VEZ.
6	Impact – C	CL	N	761111	6444662	100 m north-west of power substation, and 70 m south of current planned disturbance.	Microcorys sp. Mt Holland broad-leaf
7	Control – D	Unknown	Y	760130	6451461	3.7 km north of current EGLP DE, and 530 m south of Jilbadji Nature Reserve.	W13 vegetation containing Acacia undosa (P3).
8	Impact – D	W13	Y	760120	6444511	20 m south of planned access road between existing TSF and airstrip. 295 m east on planned entry road to airstrip.	W13 vegetation containing Acacia undosa (P3).
9	Impact– E	S3	Y	760476	6446242	15 m from edge of old borrow pit north of old Earl Grey haul road.	Banksia sphaerocarpa var. dolichostyla (T) community (S3 vegetation) in VEZ. Proximate to TSF, mine pit and operations area (generally).
10	Control – E	S3	Y	761102	6443126	55 m north of main access road south of Mt Holland airstrip.	Banksia sphaerocarpa var. dolichostyla (T) community (S3 vegetation). Area suitable as control as road access will be closed off and nearest area of disturbance is 800 m to the north (new airstrip) or east (accommodation village).
11	Control – F	W9	Y	761652	6441960	860 m south of accommodation village.	W9 vegetation community.
12	Impact – G	W13	N	761457	6443963	20 m east of planned new airstrip.	W13 vegetation within VEZ

Site#	Type - Pair	Vegetation Community	Dust gauge (Y/N)	Easting	Northing	Locality	Siting Justification
13	Control – H	W5	N	758853	6443230	500 m west of Blue Vein Road	Banksia sphaerocarpa var. dolichostyla (T) community (S3 vegetation)
14	Impact – F	W9	Y	761826	6443962	12 m from planned access road to accommodation village.	W9 vegetation in VEZ.
15	Control – G	W5	N	760469	6442964	80 m north of main access road south of Mt Holland airstrip.	Area suitable as control as road access will be closed off and nearest area of disturbance is 950 m to the north (new airstrip), 1.3 km east (accommodation village) and 1.1 km west (Blue Vein Road).
16	Impact – H	W6	Y	755088	6445627	10 m north of main access road from the Forrestania Rd.	Banksia sphaerocarpa var. dolichostyla (T) community (S3 vegetation) in VEZ. Adjacent to high traffic area.
17	Control – I	Unknown	N	758514	6454004	1.9km to the north of the southern boundary of the Jilbadji Nature Reserve, and 1.7 km west of main north-south track through the Reserve.	Only other known Acacia lachnocarpa (P1) community.
18	Impact – I	W4	Y	757942	6444937	10 m south of main access road from the Forrestania Rd.	In W4 vegetation, on opposite side of road from VEZ. South side of road chose due to better Acacia lachnocarpa (P1) distribution.
19	Control – J	W11	N	760666	6442241	190 m east of Blue Vein Road and 10 m north of existing road south of Mt Holland airstrip.	Burnt W11 vegetation community with numerous conservation significant species.
20	Impact - J	W11	N	759552	6442928	1.2 km east of Blue Vein Road and 630 m south of access road south of Mt Holland airstrip.	Burnt W11 vegetation community with numerous conservation significant species.

Within each sub-quadrat, the following will be recorded:

- All plant species, both native and alien, present (this will allow for diversity calculations to be made and compared temporally). A specimen of all plant species recorded is to be collected for verification;
- The average height of each species present; and,
- The percentage foliage cover (dead / alive) of each species.

In addition, a minimum of five (dominant/keystone) species have been tagged, and the following information recorded for each specimen:

- Plant condition score, based on the scales in

- Table 2-6 and Table 2-7;
- Photographic record (taken from the north side of the quadrat to maintain temporal consistency);
- Reproductive status (vegetative, flowering, fruiting); and,
- Plant height and width.

A minimum of 20 plants will be individually tagged and scored within each quadrat. Conservation significant flora species have been tagged and where possible, the same species have been tagged in each of the sub-quadrats to provide for sample replication.

The visual assessment of a range of parameters to assist in determining plant condition score, is based on a stem classification system which has been used by Mattiske Consulting Pty Ltd on numerous projects, together with a modification of the method of Souter et al. (2010), to provide for visual assessments of a range of other characters. The range of visual characters used to assess plants has been designed to reduce inter-operator error when making assessments in the field.

Plant condition will be primarily measured by determining the extent and density of the foliage on the plant, or the crown cover of a tree (Table 2-7). In addition, a range of attributes will be scored to standardise the visual assessment process. Some of the attributes are positive, in terms of plant condition – signs of reproduction or new foliage growth. Some of the attributes are negative, in terms of plant health – increasing levels of leaf discolouration and death, insect damage. The attributes to be scored are:

- Leaf die-off
- New tip growth
- Reproductive state
- Epicormic growth
- Insect damage

These attributes will be assessed using the scale set out in

Table 2-6.

Table 2-6: Attributes scale

SCORE	DESCRIPTION
0	Absent - effect is not present
1	Scarce - effect is not obvious in a cursory examination, but is present.
2	Common - effect is clearly visible
3	Abundant - effect dominates the appearance of the shrub / tree

Table 2-7: Plant condition scoring

CONDITION	FACTORS
Healthy (score = 4)	) > 90% of foliage present) canopy is intact) if a tree, then no epicormic growth present) none or little indication of leaf discolouration or loss) none to minor evidence of insect damage, no fungal or other pathogen attack
Slightly stressed (score = 3)	) 75% - 90% of foliage present) some minor canopy loss) if a tree, then no epicormic growth) minor evidence of leaf discolouration; potentially some dead leaves on branch tips) minor evidence of insect damage, fungal or other pathogen attack
Stressed (score = 2)	) 50% - 75% of foliage present) moderate canopy loss) if a tree, then none to some epicormic growth evident) evidence of leaf discolouration; evident damage to leaves significant) evidence of insect, fungal or other pathogen attack obvious
Very stressed (score = 1)	) < 50% of foliage present) major canopy loss) if a tree, then epicormic growth likely) leaf discolouration significant; evident damage to leaves significant) evidence of insect, fungal or other pathogen attack obvious
Dead (score = 0)	) plant dead) foliage may present, but is brown and desiccated. If a tree then the bark is still attached (DR – dead recent)) foliage is absent, fine twigs still present. If a tree bark may be present (DM – dead moderate)) foliage and file twigs absent. If a tree the bark is also absent (DO- dead old)

The condition of the vegetation in each quadrat will also be assessed, based on the vegetation condition scale of Trudgeon (1988), for assessment of disturbance within the Eremaean and Northern Botanical Provinces. The disturbance scale is set out in

Table 2-8.

Table 2-8: Vegetation condition scale (adapted from Trudgeon, 1988)

VEGETATION CONDITION	DESCRIPTION
Excellent (Ex)	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very Good (VG)	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good (G)	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor (P)	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Degraded (D)	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely Degraded (CD)	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Baseline plant condition monitoring will consist of two baseline monitoring events conducted prior to commencement of construction and operations in spring and summer. On commencement of the Proposal, plant condition monitoring will be undertaken quarterly for the first 12 months during construction and operations. The data gained over this period will be used to review monitoring and inform the methodology and frequency of future monitoring. Should triggers be exceeded at any point, monitoring intensity shall be reviewed, and potentially increased if required and remain increased until such time as the trigger is no longer exceeded.

The mean condition monitoring scores will be compared across species and sites and appropriate statistical analysis undertaken to determine if there is a statistically significant difference between VEZs and control sites.

2.4.2 Plant Health Monitoring

The use of a plant pigment efficiency analyser (PEA) is an increasingly accepted method of determining plant health and function within the mining, forestry and agricultural industries. The PEA records a score of between 0.0 to 1 for Fv/Fm (index of chlorophyll inflorescence) with most plant taxa being considered healthy within a range of 0.7 to 0.8 (Kalaji et al 2014). When plants are experiencing stress, the ratio may decline and potentially represent a reduction in physiological function or healthy function of the plant. To date, it has generally been accepted that a Fv/Fm score of <0.6 in most regions is an indicator a plant is stressed.

Within or adjacent to each of the monitoring quadrats detailed by section 2.4.1, 25 plants (five from each keystone species) will be selected for testing with a PEA. Given control sites will be monitored, the requirement for monitoring prior to commencement of construction and operations is not considered necessary. As per section 2.4.1, monitoring will initially be undertaken quarterly following implementation of the proposal for the first 12 months to generate a robust dataset. For each monitoring event, the mean of each species Fv/Fm ratio will be compared between VEZs and control sites and appropriate statistical analysis used to determine if a significant difference is apparent. After the first 24 months the dataset will be reviewed and used to inform future monitoring requirements.

2.4.3 Dust Monitoring

Dust deposition rates will be measured with dust deposition gauges (DDGs) in accordance with AS/NZS 3580.10.1:2003. Data will be recorded monthly, commencing prior to construction or production enabling a baseline level to be established.

Nine DDGs will be installed at the select monitoring quadrats as detailed by Table 2-5 and shown by Figure 2-1b. This will enable a comparison of results between VEZs and control sites and assist with determining any proposal related indirect effects.

As detailed previously in section 1.3.2, it is unknown at what rates (if any) dust deposition may result in a reduction of health of the flora and vegetation within the VEZs. Matsuki et al (2016) investigated the effect of dust on two independent medium-term monitoring studies in semi-arid regions of Western Australia to determine the correlation of any dust on plant health. The Matsuki study found no such correlation of dust load or distance from the source impacting plant health.

However, the study by Williams and Yates (2017) found that the conclusion drawn by Matsuki et al. (2016), in respect of the impact of dust on T. paynterae paynterae at Windarling Range, was most likely attributed to the small sample size used in their analysis. Matsuki et al. (2016) used only a small sample of plants (about 1% of the available data) during the critical period between 2004 and 2005 when high mortality rates occurred, whereas Williams and Yates (2017) analysed the complete dataset for survival T. paynterae paynterae plants at Windarling Range in2005 (Yates & Williams 2005). The aspect of the position in which the plant was growing was also as an important factor affecting mortality rate (Yates & Williams 2005).

Williams and Yates (2017) concluded that there was a substantial impact resulting from the development of the mine. There were exceptionally high mortality rates among plants adjacent to the mine, especially those with an easterly or south-easterly aspect facing the mine which coincided with increased exposure of plants adjacent to the mine pit and with the high levels of dust recorded at the time. Subsequently, as the mine deepened and dust loads reduced, mortality rates declined.

Generally, variability of plant health correlated with climatic variation such as rainfall and temperature. Other mining operations have adopted a management target of 10 g/m^2 in the absence of evidence to suggest at what dust loads certain species may become stressed and experience a reduction in health. The management target of 10 g/m^2 has been adopted for this FVMP, however, this will be reviewed based on monitoring of the health and condition of the keystone species and may be reduced or increased after the initial 24 months of monitoring. As detailed by section 4.1 an early response trigger of 5 g/m^2 has also been adopted.

2.4.4 Census of Conservation Significant Species

In order to increase understanding as to the degree of potential long term impacts of the Project on conservation significant species, a census of the highest ranked conservation significant species will be undertaken in 10 years if a Proposal related decline is identified at VEZ monitoring locations. This census will be designed in consultation with an appropriate flora specialist consistent with monitoring undertaken within this plan.

2.4.5 Weed and Dieback Monitoring

Weed and dieback monitoring will be undertaken in conjunction with plant condition monitoring, as outlined in section 2.4.1 at both VEZs and control sites. This will allow for quarterly monitoring for the first 12 months, with the frequency to be reviewed following this period.

Furthermore, annual monitoring across the Development Envelope will be undertaken for the occurrence of new weeds, the spread of existing weeds and evidence of dieback.

A Dieback Management Plan will be produced and provided to DBCA following the completion of baseline monitoring. This plan will include Phytophthora (dieback) management controls such as signage, clean down points, vehicle hygiene and the inspection and monitoring of dieback infested areas.

2.4.7 Flora and Vegetation Monitoring - Rehabilitation and Closure

Monitoring of flora and vegetation as outlined in (sections 2.4.1 and 2.4.2) will be continued during rehabilitation and closure to confirm that rehabilitation and closure activities and outcomes are not contributing to any increased impacts on conservation significant flora species. Populations of conservation significant flora and vegetation within protection areas (Table 2-5) will continue for a suitable time period after mining has ceased and whilst rehabilitation and closure actions are ongoing.

2.5 Reporting

2.5.1 Key Environmental Outcome

A summary of all monitoring results against trigger and threshold criteria will be provided within the Annual Compliance Assessment Report. The summary will detail if any trigger or threshold criteria has been exceeded and the actions taken to prevent a recurrence and/or remediation strategies. Raw monitoring data against management measures such as dust deposition, weeds, fire and climate (such as annual rainfall and temperature) will also be provided for comparison to flora and vegetation health and condition monitoring.

Reporting of exceedances of threshold criteria will be undertaken to meet condition 6-7 of MS1118. This shall include:

- A report on the exceedance in writing to the EPA within seven (7) days of the exceedance being identified;
- An investigation to determine the cause of the threshold criteria being exceeded;
- An investigation to provide information to the EPA to determine potential environmental harm or alteration of the environment that occurred due to threshold criteria being exceeded; and
- a report to the EPA within twenty-one (21) days of the exceedance being reported as required by condition 6-7(1) of MS1118. The report shall include:
  - details of threshold contingency actions implemented;
  - the effectiveness of the threshold contingency actions implemented, against the threshold criteria;
  - the findings of the investigations required by conditions 6-7(3) and 6-7(4) of MS1118;
  - measures to prevent the threshold criteria being exceeded in the future;
  - measures to prevent, control or abate the environmental harm which may have occurred; and
  - justification of the threshold remaining, or being adjusted based on better understanding, demonstrating that objectives will continue to be met.

3. Pre-Clearance Surveys

Pre-clearance surveys have been conducted over the Proposed Layout. As a result of surveys, additional priority flora species were identified and mitigation measures proposed.

Prior to any ground disturbance, pre-clearance surveys will be undertaken as per the methodology detailed in Section 3.1. Any future pre-clearance survey reports will be communicated to EPA and include updated population impacts.

3.1 Methodology, Timing and Limitations

3.1.1 Methodology

Preclearance surveys were coordinated by Mattiske Consulting (Mattiske). Botanists from Mattiske utilised tablets to display all relevant information, including:

- Proposed layout of mine footprint identified for vegetation clearing within the Development Envelope,
- 10 m spaced transect lines (in a north-south and east-west orientation) across the entire area requiring vegetation clearing, and
- Previously recorded locations of conservation significant flora within the Development Envelope (prevent double counting of previous records).
- Each of the 10 m spaced transect lines were walked and the GPS coordinate of each species of conservation significant species was recorded. Specimens of all known conservation significant taxa and any plant not readily identifiable in the field as non-conservation significant taxa were collected for verification and identification.

3.1.2 Timing

Preclearance surveys were completed between March and November 2019 by Mattiske (Mattiske 2019d).

3.1.3 Limitations

Two minor constraints were associated with the preclearance surveys:

- Proportion of flora collect and identified as the surveys took place over 16 months in all months of the year (excluding December to February). A review of the flower periods ensured surveys were conducted at the appropriate time of year with consistent botanists to increase the confidence in identification of conservation significant species. It is acknowledged that the identification of some species is difficult outside the flower period (e.g. Chorizema circinale) or absence of flowers makes identification of non-conservation significant species from conservation significant species from the same genus (e.g. species of Baeckea, Rinzia, Verticordia and other small leafed myrtle species) difficult. This constraint was overcome through targeting areas identified as likely habitat for the above species during respective flowering periods and ensuring a range of vegetation communities were searched during respective flowering periods.
- Timing, weather and season as the surveys were undertaken over the autumn, winter and spring months, whereas the EPA guidance recommends surveys in the area to be undertaken after the main rainfall period (winter). However, the majority of species were identifiable when sterile. For species that are potentially more problematic for identification, as discussed above, the timing of surveys occurred during respective flowering periods.
- In future, all pre-clearance surveys will be conducted after the main rainfall period (winter), preferably in spring. The surveys will be considered valid for a period of five years from the time the field component of the survey is completed unless otherwise stated in the survey report. For each pre-clearance area, vegetation clearing must be undertaken within this five year period, or another pre-clearance survey will be required.

3.2 Pre-Clearance Survey Results

As a result of the pre-clearance surveys and preceding regional surveys, a total of 37 conservation significant species were recorded (Figure 3-1a to Figure 3-1e), with species potentially impacted detailed in Appendix A. This included seven species that had not been previously identified from past surveys.

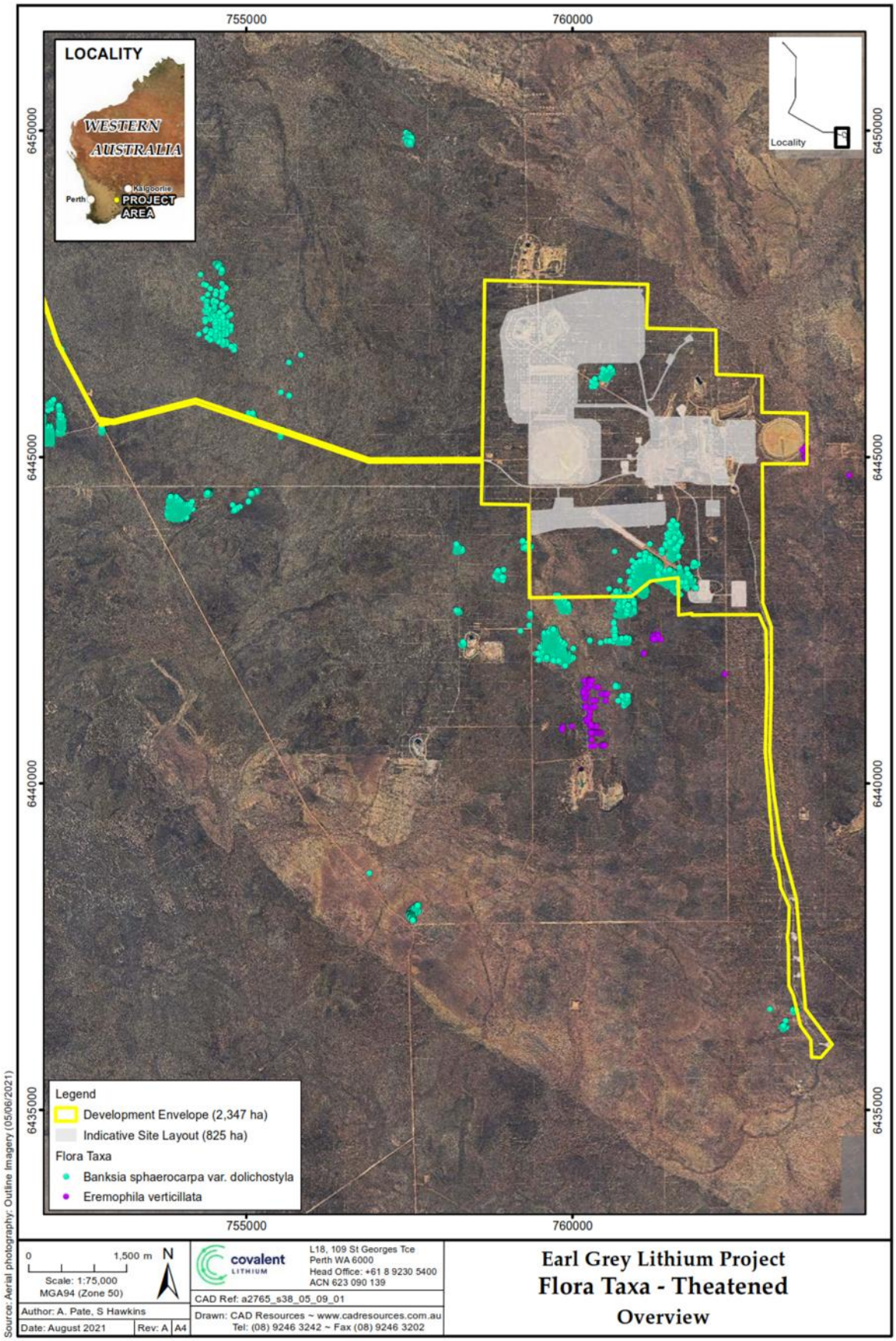

Figure 3-1a: Pre-clearance survey conservation significant flora records

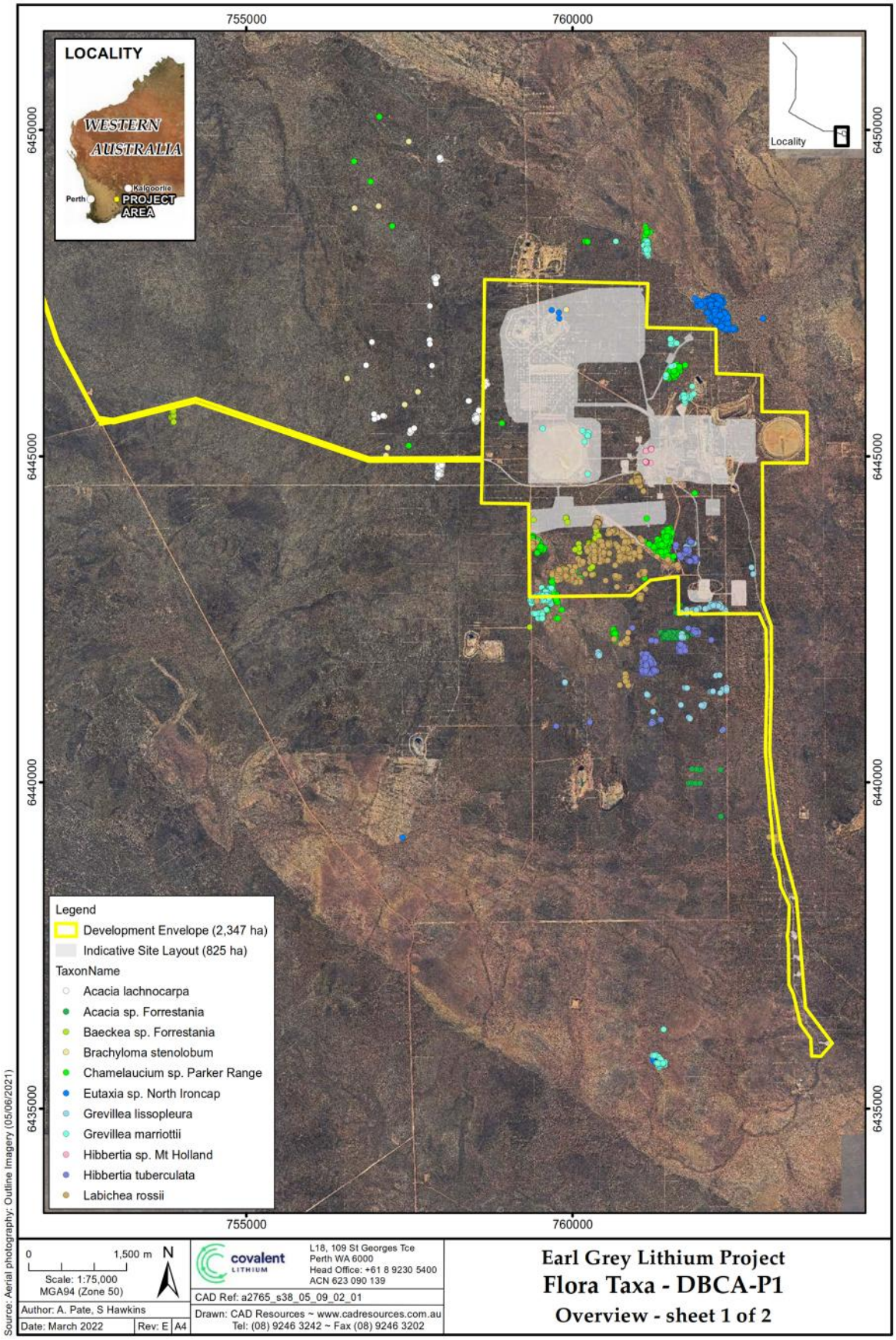

Figure 3-2b(i): Pre-clearance survey conservation significant flora records

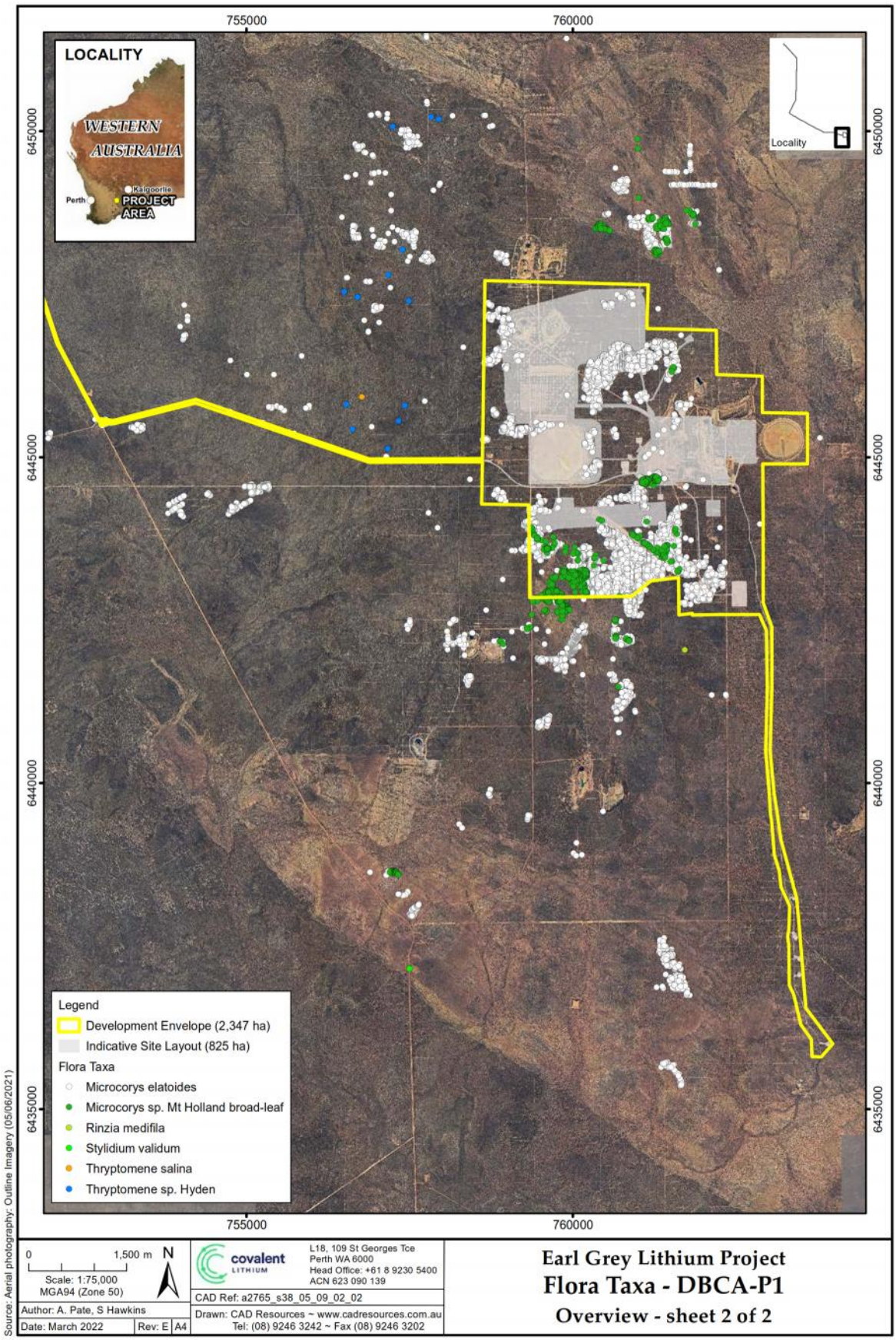

Figure 3-3b(ii): Pre-clearance survey conservation significant flora records

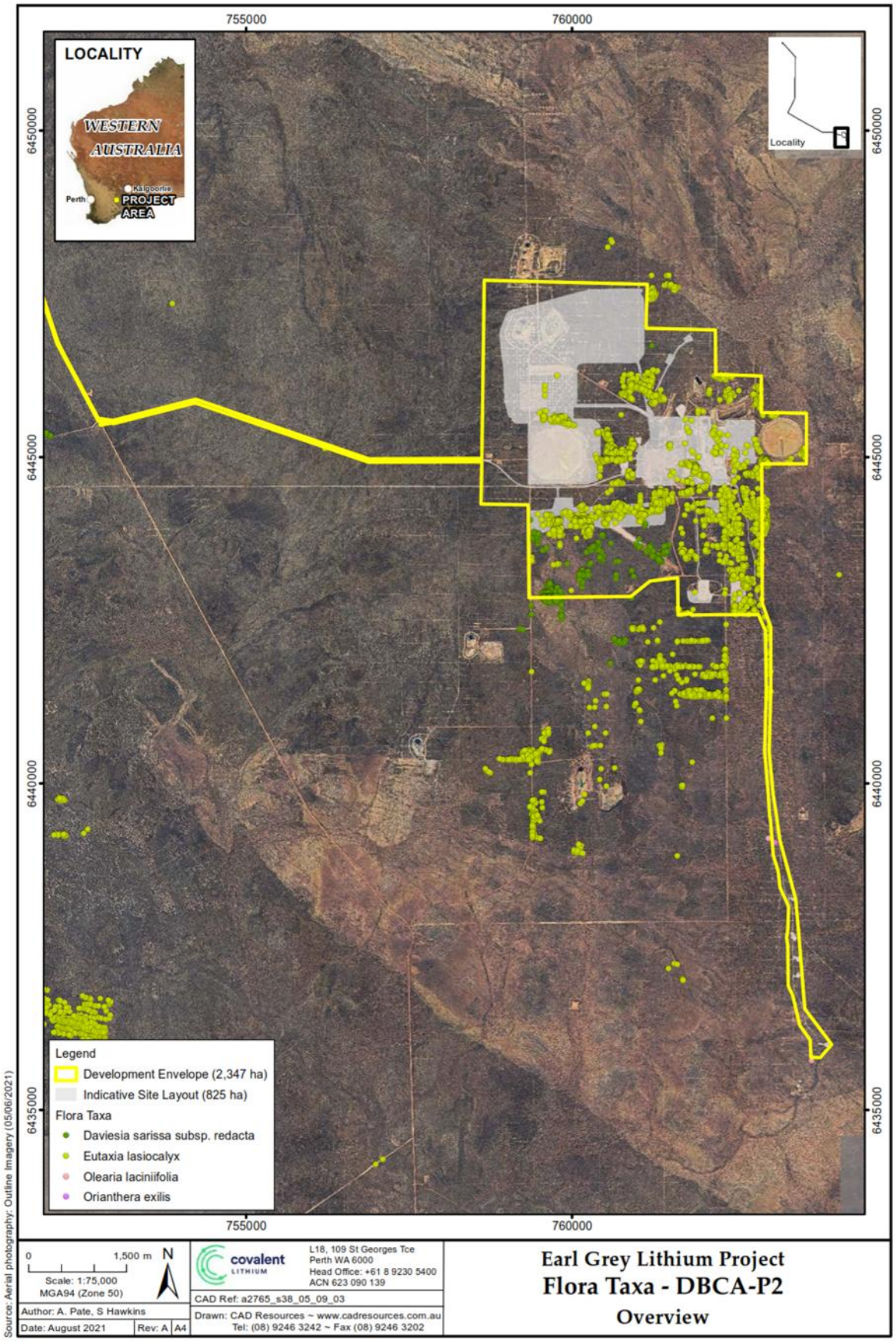

Figure 3-4c: Pre-clearance survey conservation significant flora records

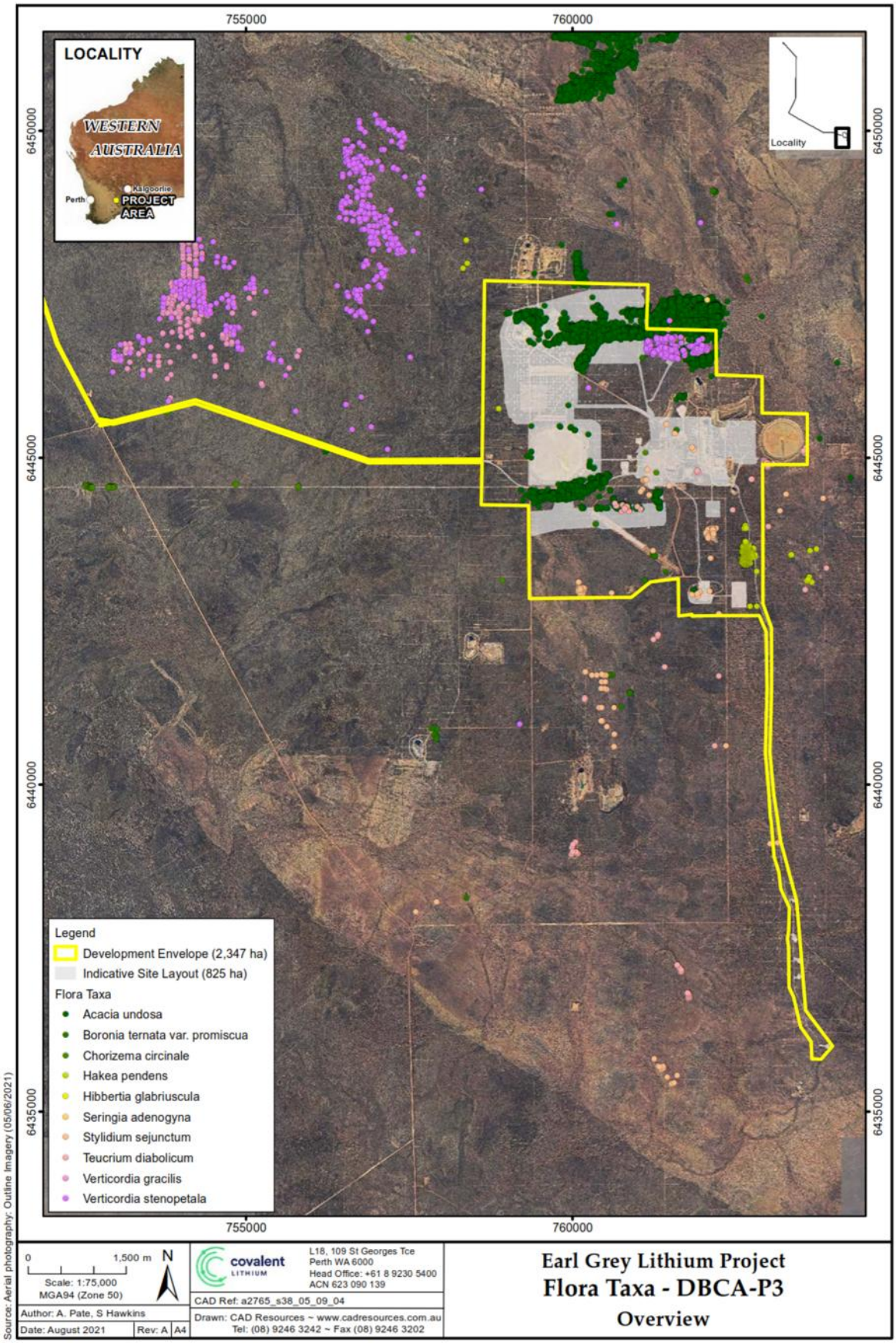

Figure 3-5d: Pre-clearance survey conservation significant flora records

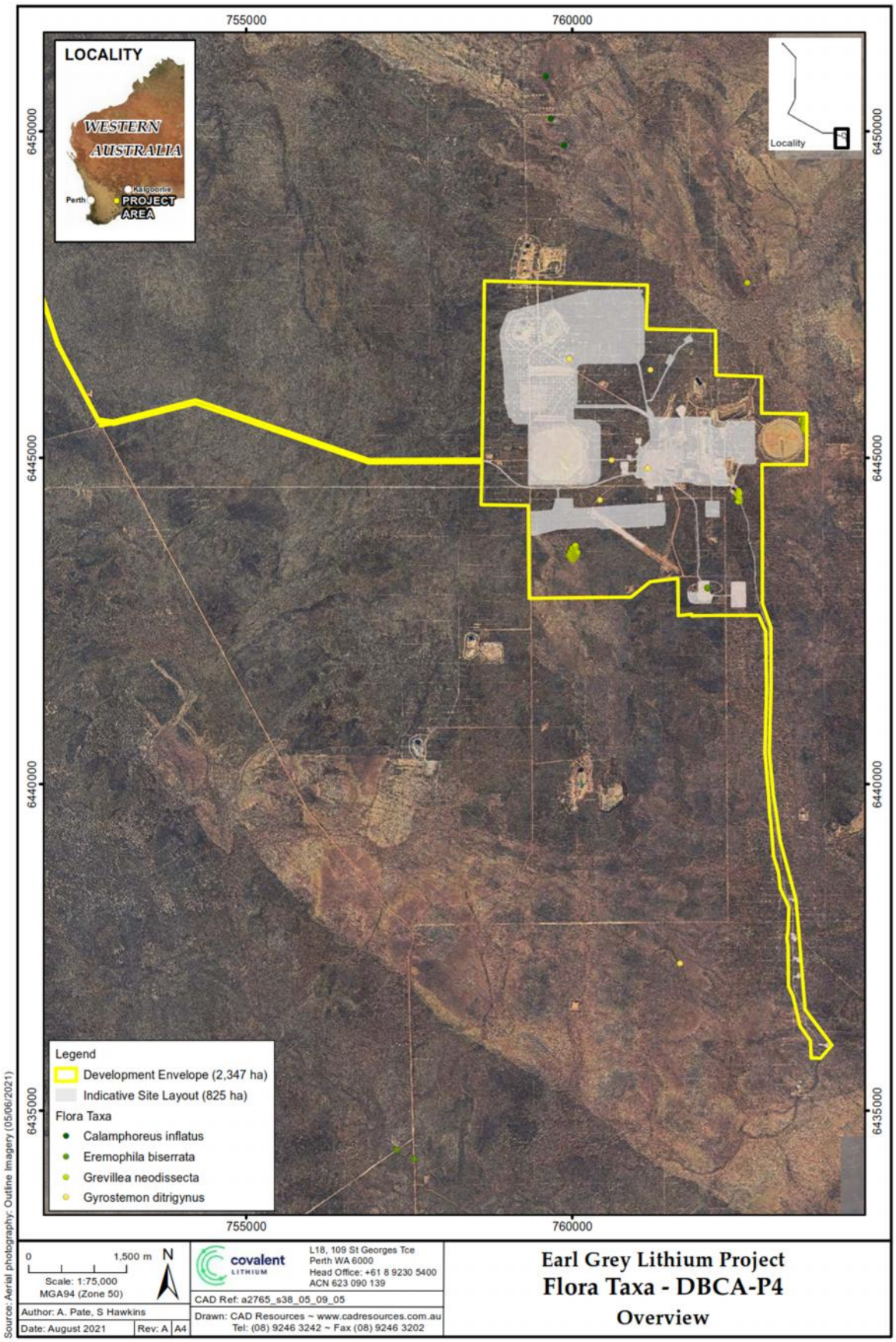

Figure 3-6e: Pre-clearance survey conservation significant flora records

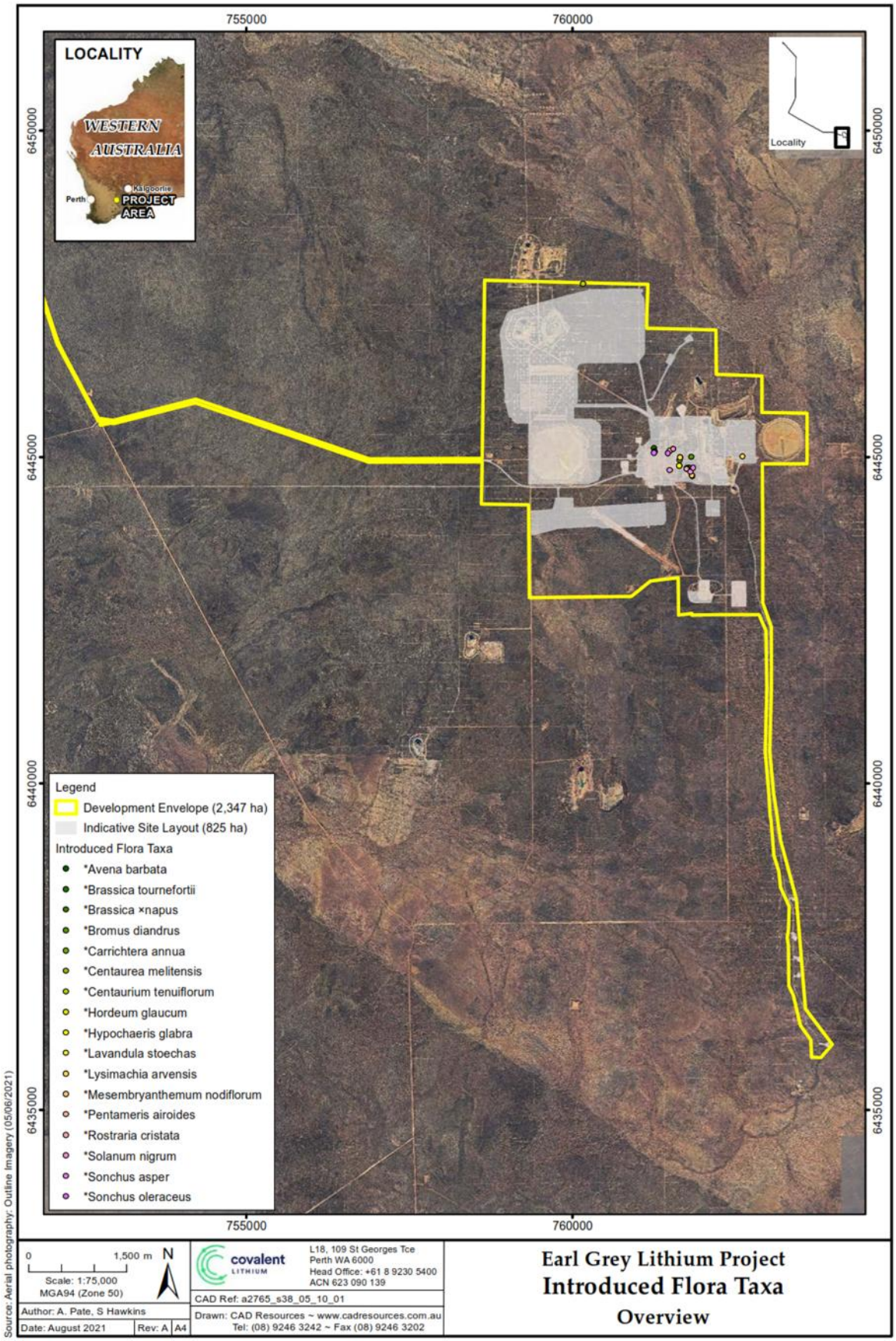

Figure 3-7f: Pre-clearance survey conservation significant flora records

3.3 Population Impact Target

The EPA Report 1651 noted that the majority of conservation significant species impacted (directly or indirectly) by the Proposal were below a 10% total regional impact level. The exceptions were Microcorys elatoides (then at 15.93%) and Acacia undosa (then at 11.47%). Microcorys elatoides, Banksia sphaerocarpa var. dolichostyla and Acacia lachnocarpa were the focus of EPA assessment. Based on the EPA Report, a 10% impact to conservation significant species is considered appropriate, with the exception of Microcorys elatoides and Acacia undosa, of which a higher impact is considered acceptable.

As a result of pre-clearance surveys, additional species and potential impacts have been identified. Therefore, following consultation with EPA, a population impact target of 10% regional population total (direct and indirect) impacts will be implemented to all conservation significant flora species (excluding EPBC Act listed species, Microcorys elatoides and Acacia undosa). Any impact to EPBC Act listed species (excluding currently approved impacts to Banksia sphaerocarpa var. dolichostyla) will require further consultation with regulators.

To ensure this management target is met mitigation measure are proposed, as detailed in Section 3.4. Covalent will not undertake any Project activities which may exceed the following population impact targets:

- 10% regional population total impact for any conservation significant species; with the exception of total impact to Microcorys elatoides and Acacia undosa;
- Any impact to EPBC Act listed species; with the exception of the assessed and approved impact for Banksia sphaerocarpa var. dolichostyla

3.4 Mitigation Measures

In the event that pre-clearance surveys identify additional species, individuals or an increase in population impacts, the resulting mitigation measures follow the below hierarchy:

- Avoidance - Adjust the proposed mine layout to avoid direct impacts and minimise indirect impacts to ensure population impact targets are not exceeded.
- Surveys - Undertake further surveys within local and regional areas to reduce the potential impact to an acceptable level based on 10% total threshold, based on EPA Report.
- Minimise – minimise indirect impacts to species through implementation of FVMP.
- Research - Commit to research programs with the aim of developing revegetation practices which will result in the reestablishment of the individuals to areas cleared of vegetation.
- Offsets - Apply the significant residual impacts model (EPA 2014) to determine the requirement for offsets.

Further detail on the mitigation hierarchy is detailed in Table 3-1.

Table 3-1: Application of mitigation hierarchy for conservation significant flora

#	Mitigation Measure	Action	Timeframe
1	Adjust site layout to ensure population impact target is not exceeded	Investigate alternate site layouts whereby the project may still be feasible, but reduces direct and potential indirect impacts.	As required.
		A review of the Proposed Layout shall be undertaken to ensure population impact targets (Section 3.2) are not exceeded. If any clearing is planned outside of the Proposed Layout, revised population impacts (as per) will be undertaken to ensure Population Impact Targets are met.	Prior to clearing
		Implementation of an internal clearing permit procedure which includes demarcation of clearing area to ensure accurate clearing boundaries	Prior to clearing
2	Undertake further surveys within local and regional areas to reduce the direct impact to an acceptable level against impact assessment criteria	Identify areas locally and regionally which may provide habitat for the species	As required.
		Undertake further surveys in accordance with relevant technical guidance (EPA 2016a) and within the appropriate season.	Within 12 months of identifying further survey areas
		Develop and present survey report (including impact assessment against management targets) to EPA and DBCA	Within two months of completing surveys
		EPA and DBCA review and accept report	Within three months of receiving final survey report
3	Minimise indirect impacts through implementation of FVMP	Implement FVMP management measures, including monitoring requirements	Ongoing.
4	Develop research programs for species revegetation	In consultation with research institutions, investigate programs to research and develop a greater scientific understanding of the species for the purpose of revegetation. Develop proposal and scope for the research program. Potential topics may include: - Habitat modelling and necessary biotic and abiotic factors for establishment and long-term survival - Seed ecology including germination cues - Seedling establishment via the collection and growth of cuttings - Revegetation trials	Within three months of Mitigation Measures 1, 2 and 3 proving to be unfeasible
		Submit research proposal to DBCA for review and acceptance.	Within one month of receiving research proposal.
		Implement research proposal and produce report on the outcomes.	Complete within 24 months of receiving DBCA acceptance.
		Submit report to EPA and DBCA on research outcomes for acceptance.	Review and accept within three months of receiving report.
		Implement research program outcomes.	Within one month of accepting the report.
5	Apply the Residual Significant Impact Model (RSIM)	Apply the RSIM as per the WA Environmental Offset Guidelines (2014)	Within three months of Mitigation Measures 1, 2 and 3 proving to be unfeasible
		Liaise with EPA and DBCA on the outcomes of the RISM and further actions required.	Within one month of applying the model.

As per mitigation measure 2, Covalent has undertaken further botanical surveys to increase flora population numbers of species potentially impacted by the Project. A summary of additional surveys are included in Table 1-2. As a result of these surveys, the majority of impacted species are below 10%. The exception is Microcorys elatoides and Acacia undosa. It is noted that offsets are proposed for Microcorys elatoides and a conservative estimate is used for Acacia undosa.

As part of Mitigation Measure 3, further surveys were undertaken, as detailed in Table 1-2. The resulting population impacts are detailed in Appendix A.

4. Adaptive Management and FVMP Review

Covalent recognises the dynamic nature of ecosystems and supports adaptive management under this FVMP. Adaptive management involves:

- implementing mitigation measures
- monitoring and evaluation against management targets (including early response triggers) and environmental criteria (including triggers and thresholds)
- systematically adapting management and mitigation measures and monitoring to meet the environmental objectives.

Any changes to the Project will instigate a review and consideration of management actions. Assumptions and uncertainties will be evaluated against collected monitoring data on a recurrent basis in a process of continual improvement and establishing early response indicators/criteria. Any review and consideration of management actions or additions to this plan made in relation to adaptive management will be submitted to DWER within 21 days for formal review. Examples of adaptive management throughout operations include:

- the introduction of a different / alternative monitoring initiative to better understand monitoring of the VEZs
- the outcome of additional preclearance surveys which significantly change conservation significant flora species population impacts
- the identification of more effective trigger criteria or early response triggers in light of more comprehensive monitoring information
- updated modelling and revision of trigger criteria or early response triggers in a system responding differently to that predicted in original modelling, for example:
  - The <0.6 index of Chlorophyll florescence (CF) CF is applied for plant health monitoring to indicate significant decline(s) in plant health and condition as outlined in Table 2-1. The relative CF measure is both species and environmentally specific. The applicability and appropriateness of this trigger will be reviewed once baseline data has been collected over two seasons. Should triggers be exceeded at any point, monitoring intensity shall be reviewed, and potentially increased if required and remain increased until such time as the trigger is no longer exceeded.
  - A management target of 10 g/m2 is set for dust monitoring in the absence of evidence to suggest at what dust loads certain plant species may become stressed and experience a reduction in health. The management target of 10 g/m2 has been adopted for this FVMP, however, this will be reviewed based on monitoring of the health and condition of the keystone species and may be reduced or increased after the initial 24 months of monitoring.
- changes to management actions and targets in response to monitoring data
- changes in technology.

4.1 Early Response Triggers

Early response triggers have been established for the management-based provisions in Table 2-3, as shown in Table 4-1.

Table 4-1: Early response triggers and actions

Management targets	Early response trigger	Early response action	Early response trigger justification
Minimisation of dust emissions	) Dust deposition results at a single VEZ site exceeds 5 g/m^2 for two consecutive months.	) Report internally that early response trigger has been met in accordance with internal procedures.) Review dust monitoring program. Determine whether the changes observed in the VEZ are comparable with control monitoring sites.) Review dust mitigation measures) Investigate and determine improvement strategy) Investigate the cause of the exceedance to determine if it is attributable to proposal related activities. Where the trigger is attributed to clearing, construction or operational activities, report the exceedance to DWER within 7 days of the exceedance being identified.	Whilst 10 g/m^2 a month is the adopted management target for dust deposition, adopting an early response trigger limit will identify trends of increasing dust emissions. Also, managing dust deposition to 5 mg/m^2 or less will reduce the risk of dust deposition leading to a decline in plant health or function.
Minimise new weeds introduced to site	) One new weed species sighted during annual monitoring but with limited to negligible coverage.	) Report internally that early response trigger has been met in accordance with internal procedures.) Review weed control programme and amend as required.) Staff training and awareness to include information on weed species and preventative measures such as vehicle/ weed hygiene procedures.) Review weed monitoring program. Trigger response actions may include the following: o Review monitoring frequency (quarterly for initial 12 months then annually), adjust accordingly. o Adjust timing of monitoring if appropriate, so that infestations of invasive species that establish can be eradicated before the plants can flower and set seed. o Review suitability of weed monitoring locations, adjust accordingly. o Determine whether the changes observed are comparable with control monitoring sites. o If after the two consecutive monitoring events, a threshold exceedance has not been identified, resume standard monitoring.	The potential for indirect effect on the health of vegetation within the VEZs due to weed impacts is currently unknown as impacts to populations have not been quantified. As population monitoring data is gathered, trending will indicate any threats (including weeds) and acceptable population changes. In the interim, the early response trigger has been established to identify trends with relation to weeds that could result in a potential indirect impact to flora and vegetation of the VEZ and provide an indication if the management actions detailed in Table 2-3 require review.

Table 4-1: Early response triggers and actions

Management targets	Early response trigger	Early response action	Early response trigger justification
Prevent fires attributed to mining and associated activities	) A fire occurrence within the Development Envelope that impacts on native vegetation.	) Report internally that early response trigger has been met in accordance with internal procedures.) Internal audit of fire management plan) Review fire mitigation strategies to limit spread of fire.) Staff training and awareness to include information on the prevention and management of fires.) Investigate the cause of the exceedance to determine if it is attributable to proposal related activities.	The management actions are considered sufficient to prevent fire impacts to the VEZs. However, in the event a fire occurs within the Development Envelope that impacts on native vegetation, this is an indicator that further refinement of the management actions is required.
10% regional population total impact for any conservation significant species; with the exception of total impact to Microcorys elatoides and Acacia undosa; Any impact to EPBC Act listed species; with the exception of the assessed and approved impact for Banksia sphaerocarpa var. dolichostyla	) Pre-clearance surveys result in total impacts to a conservation significant species population impact exceeding 10%	) Apply the Mitigation Measures detailed in Section 3.4) Undertake consultation with EPA and DBCA regarding outcome of mitigation measures) Project activities which may exceed the regional population total impact target will not proceed.	The mitigation measures will be applied to decrease population impacts prior to exceeding the management target.

4.2 Benchmarking and Best-Practice

For some environmental factors, environmental outcomes may include compliance with state, national or international standards, guidance or legislation. Covalent will conduct ongoing benchmarking against best practice options. Adaptive management in this context may include initiatives to implement improvements in technology and emission control technologies to meet best-practice in the relevant industry, proponent-driven improvements in operations, and keeping up-to-date with improvements in monitoring methods and standards for implementation.

4.3 Plan Revisions

The proponent will update this Management Plan as required to include any adaptive management updates based on information gathered from monitoring results. These amendments will involve regulatory consultation and be submitted to EPA for review. If the Proponent has gathered sufficient information through research and long-term monitoring to propose revisions to management targets, the plan may be revised and resubmitted to the EPA for approval.

Furthermore, in accordance with condition 6-8(2) of MS1118, the proponent will update this FVMP as and when directed by the EPA.

6. Stakeholder consultation

6.1 Key Stakeholders

Covalent have undertaken extensive consultation with key stakeholders, including:

- State government
- Federal government
- Local government
- Non–government organisations and interest groups.

A comprehensive list of key stakeholders is provided in Table 6-1.

Table 6-1: Key Stakeholders

Stakeholder Group	Stakeholder	Key Interests
State Government	Environmental Protection Authority (EPA)	Administration of the Environmental Protection Act 1986 (EP Act) Part IV (EP Act) Environmental Impact Assessments.
	Department of Mines, Industry Regulation and Safety (DMIRS)	Administration of the Mining Act 1978 (Mining Act) Tenement conditions Mining proposals and programs of work Mining Rehabilitation Fund (MRF) Closure and rehabilitation Safety.
	Department of Biodiversity, Conservation and Attractions (DBCA)	Administration of the Biodiversity Conservation Act 2016 (BC Act) Flora, fauna and habitat conservation.
	Department of Planning, Lands and Heritage (DPLH)	Native title and indigenous requirements Heritage sites.
	Department of Fire and Emergency Services (DFES)	Emergency services Fire breaks Fire reduction.
	Main Roads Western Australia (MRWA)	Use of public roads.
Federal Government	Department of Agriculture, Water and Environment (DAWE)	Administration of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) Referral and assessment of environmental impact assessments of matters of national environmental significance.
Local Government	Shire of Yilgarn and Shire of Kondinin	Use of public roads and infrastructure.
Non–government organisations and interest groups	Conservation Council of Western Australia; Wilderness Society; National Malleefowl Recovery Team	Protection of conservation significant species Potential interest in baseline flora and fauna survey data.

6.1.1 Stakeholder Engagement Process

Stakeholder engagement with State Departments and Local Government Authorities commenced in late 2016. The Proponent has since developed and implemented an external stakeholder consultation strategy for ongoing social engagement and community investment. As the joint venture manager, Covalent will be responsible for all engagement moving forward.

The stakeholder consultation strategy has adopted the principles from the Ministerial Council on Mineral and Petroleum Resources (MCMPR) Principles for Engagement with Communities and Stakeholders (2005). This includes:

- open and effective communication:
- two–way communication
- clear, accurate and relevant information
- timeliness
- transparency, requiring a process for communication and feedback
- collaboration, working cooperatively to seek mutually beneficial outcomes
- inclusiveness, with the aim of recognising, understanding and involving stakeholders early and throughout the process
- integrity, with engagement undertaken in a manner that fosters mutual respect and trust.

The outcomes of the consultation strategy are recorded in the Stakeholder Consultation Register. Consultation to date has been comprised predominately of meetings and correspondence with a number of State and Federal Departments and Agencies, Local Government Authorities, Traditional Owners and non–government organisations and interest groups.

The Proponent is committed to ongoing stakeholder identification, communication, engagement and consultation through the planning and approval phase, and through to construction, operational and closure phases of the Project.

6.1.1.1 Stakeholder Consultation

Ongoing stakeholder consultation has been underway since late 2016. Key engagement to date is summarised in the Mining Proposal.

7. Definitions

Term	Definition
Adverse	Impacts likely to change the conservation status or significantly change the local population numbers of a species.
Direct impact	Impact through direct loss of conservation significant flora and vegetation from vegetation clearing
Indirect impact	Effects which are considered to potentially reduce the health of flora and vegetation including:) dust, during construction and mining operations) weed infestation during construction and mining operations) Change in fire regimes Individuals within a 50m buffer of the proposed mine layout, whereby potential indirect impacts may be predominantly more apparent to flora and vegetation. This is based on the DWER Clearing Regulation Fact Sheet 24: Environmentally Sensitive Areas (August 2014), whereby a declared environmentally sensitive area is considered the area covered by vegetation within 50 m of rare flora, to the extent to which the vegetation is continuous with the vegetation in which the rare flora is located.
Plant condition	Qualitative measure of the condition of single plants based on leaf colour, new growth, foliage cover and general plant vigour.
Plant health	Quantitative measure of plant physiological function
Rate of mortality	Individual plant mortalities over a time period
Weeds	Flora species that are non-native to the bioregion
Unauthorised clearing	Clearing of vegetation or individual flora species without an approved internal clearing permit.

8. Acronyms and Short Titles

Abbreviation	Full Description
BC Act	Biodiversity Conservation Act 2016
CAR	Compliance Assessment Report
DBCA	Department of Biodiversity, Conservation, and Attractions
DFES	Department of Fire and Emergency Services
EPA	Environmental Protection Authority
EP Act	Environmental Protection Act 1986
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESD	Environmental Scoping Document
FVMP	Flora and Vegetation Management Plan
IUCN	International Union of Conservation of Nature
MCMPR	Ministerial Council on Mineral and Petroleum Resources
MNES	Matter of National environmental significance
NMRT	National Malleefowl Recovery Team
PER	Public Environmental Review
SQM	Sociedad Química y Minera
TSF	Tailings Storage Facility
VEZ	Vegetation Exclusion Zone
WRD	Waste Rock Dump

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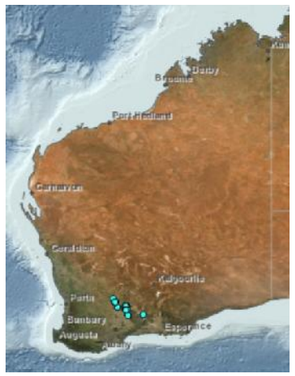
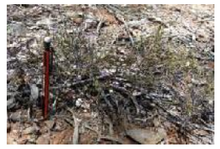
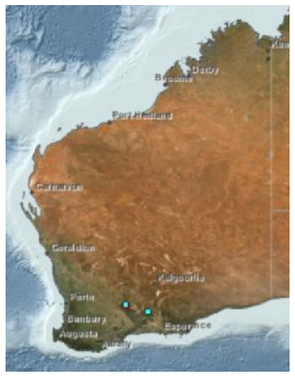
Appendix A Flora Species

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Banksia sphaerocarpa var. *dolichostyla* (BC-V, EPBC-V)		Description – Dense-canopied shrub or small tree to 4 metres tall with bluish-green and narrowly linear leaves. Flower heads are golden and spherical, and fruiting cones are spherical with often crowded follicles. Habitat – Iron–capped rises on ironstone profiles. It is found in low woodlands to low shrublands with associates which include *Dryandra* and *Allocasuarina* taxa.		*Banksia sphaerocarpa* var. *dolichostyla* has a recorded distribution of > 200 km from near Meriden (west) to near Mt Gordon (east, towards Charles Peak National Park). *Banksia sphaerocarpa* var. *dolichostyla* is one of several variants of the *Banksia sphaerocarpa* group (comprising 6 taxa), which have a broad distribution of ~700 km from Geraldton in the north to Albany in the south, and eastwards into the Goldfields region.	> 24,500 individuals	18,363	5,341	0 [2] (0%) [18, 40]	0 [2] (0%) [18, 40]
Eremophila verticillata (BC-CE, EPBC-E) (previously recorded as *Eremophila* sp. aff. *verticillata*)	 Source: Mattiske (2019b)	Description – Low spreading shrub, up to 0.8 m high, to 1 m wide. Fl. Purple-violet, Nov to Dec. Habitat – Clay loam, loam over limestone. Source: DBCA (2021b)		*Eremophila verticillata* has a recorded distribution of approximately 150 km, known from 22 record locations.	> 11,500 individuals	9,625	844	0 (0%) [0, 0]	0 (0%) [0, 0]
Acacia sp. Forrestania (DBCA-P1)	Source: Mattiske unpublished	Description – Not available Habitat – S4 Vegetation Community (*Eucalyptus* sp. Southern Wheatbelt, *Allocasuarina spinosissima*, *Allocasuarina acutivalvis* low open mallee woodland on light orange gravelly clay on upper-mid slopes. Source: Mattiske (2021c)	Not available	*Acacia* sp. Forrestania has a recorded distribution of approximately 3 km, known from 2 location records. (Mattiske 2021c)	-	7,485	242	0 (0%) [0, 0]	0 (0%) [0, 0]

[2] Whist noting the Indicative Site Layout for the Proposal avoids individuals of *Banksia sphaerocarpa* var. *dolichostyla* (BC-V, EPBC-V), the current Statement 1118 approval (WA Minister for Environment 2019) and EPBC Decision 2017/7950 approval (DAWE 2020) authorise the removal of up to 2 individuals of this taxon. No change to this authorisation under the Statement 1118 approval or the EPBC Decision 2017/7950 approval is proposed.

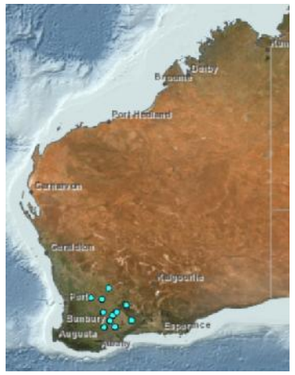
FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Acacia lachnocarpa (formerly *Acacia* sp. Mt Holland) (DBCA-P1)	Source: Ellery B / Angus D in Mattiske (2019b)	Description – Up to 100cm high 80cm wide. Branchlets terete, densely woolly when young, becoming glabrous, ultimately bare with raised projections from remnant leaf and branchlet bases. Habitat – Orange brown sandy clay soils with quartz on flats and slopes. Vegetation Communities W4, S2. Source: Mattiske (2018d).		*Acacia lachnocarpa* has a recorded distribution of approximately 60 km, known from 2 location records.	~ 25,000 (Mattiske 2021c)	14,294	982	502 (2%) [226, 201]	502 (2%) [226, 201]
Baeckea sp. Forrestania (DBCA-P1)	Source: B Longbottom / Covalent Lithium	Description – Shrub to 0.6 m high. Habitat – Predominately in Vegetation Community W13 (*Eucalyptus rigidula* low open mallee woodland on yellow brown to orange brown clayey sands on flats and slopes) Source: Mattiske (2021c)		*Baeckea* sp. Forrestania has a recorded distribution of approximately 30 km, known from 2 location records.	-	234	176	17 (7%) [1, 0]	17 (7%) [1, 0]
Brachyloma stenolobum (DBCA-P1)	Source: Hislop & Cranfield (2014) cited in Covalent Lithium (2019)	Description – The only Western Australian species of *Brachyloma*. White flowers and narrowly triangular, adaxially keeled corolla lobes. Habitat – Grows on yellow sandplain as a component of heath. (Hislop & Cranfield 2014). Bare yellow sandy loam flats Source: Mattiske (2021c)		*Brachyloma stenolobum* has a recorded distribution of approximately 140 km, known from 5 location records.	> 600 individuals	13	1	1 (<1%) [0]	1 (<1%) [0]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Chamelaucium sp. Parker Range (DBCA-P1)	Source: Western Botanical (unpublished)	Description – Not available Habitat – Sandy lateritic soils. Vegetation Communities W1, W13, S3 Source: Mattiske (2021c)		*Chamelaucium* sp. Parker Range has a recorded distribution of approximately 150 km, known from 11 location records.	-	1,324	820	1 (<1%) [0, 29]	1 (<1%) [0, 39]
Eutaxia sp. North Ironcap (DBCA-P1)	Source: Mattiske unpublished	Description – Erect spindly shrub (broom-like) Habitat – Red sandy clay. Undulating plains. Vegetation Communities W8, W13 Source: DBCA (2021b), Mattiske (2021c)		*Eutaxia* sp. North Ironcap has a recorded distribution of approximately 20 km, known from 2 location records. (Mattiske 2021c)	-	2,349	3	3 (<1%) [0, 0]	3 (<1%) [0, 0]
Grevillea lissopleura (DBCA-P1)	Source: Mattiske (2019b)	Description – A 0.5-1.5 m high shrub; branchlets hairy, not glaucous. Leaves alternate, Flowers in August. Habitat – Stony loam on banded ironstone; on ridges Source: Mattiske (2021c).		*Grevillea lissopleura* has a recorded distribution of approximately 140 km, known from 7 location records.	-	2,702	924	0 (0%) [0, 6]	0 (0%) [0, 6]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Grevillea marriottii (DBCA-P1)	Source: Mattiske (2019b)	Description – *Grevillea marriottii* blooms from July to October and produces a terminal raceme irregular inflorescence with green, white or green flowers. Later it forms ribbed ellispoidal glabrous fruit that is 10 to 14 mm. Habitat – The species is known from Yellow or white sand over laterite. On rises or on tops of lateritic cappings.		*Grevillea marriottii* has a recorded distribution of approximately 10 km, known from 15 location records.	-	2,879	725	15 (<1%) [0, 34]	15 (<1%) [0, 34]
Hibbertia sp. Mt Holland (DBCA-P1)	Source: Mattiske unpublished	Description – Not available Habitat – *Eucalyptus burracoppinensis* and *Allocasuarina acutivalvis* low open mallee woodland on light yellow-brown sandy clay Source: Mattiske (2021c)	Not available	*Hibbertia* sp. Mt Holland has a recorded distribution of > 200 km, known from 3 location records.	-	1,271	22	22 (<2%) [0, 0]	22 (<2%) [0, 0]
Hibbertia tuberculata (formerly *Hibbertia* aff. *oligantha*) (DBCA-P1)	Source: Mattiske (2019b) / Thompson W in Theile (2019)	Description – Shrub to 0.5 m high, yellow flowers, flowering September to October. Distinguished by combination of sessile flowers with 3–7, narrowly triangular to narrowly ovate bracts, erect stamens with free filaments on one side of the two glabrous carpels, and leaves (2–)3–5 mm long and prominently tuberculate. (Theile 2019) Habitat – Yellow sand, clayey grey sand, red clay, light brown loamy clay. Disturbed ground, utility reserves. Source: DBCA (2021b)	Not available	*Hibbertia tuberculata* has a recorded distribution of approximately 25 km, known from 3 location records.	-	6,925	1,087	0 (0%) [0, 113]	0 (0%) [0, 113]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Labichea rossii (DBCA-P1)	Source: Mattiske (2019b)	Description – Flowers in late September and early October. Habitat – Grows out of cracks in the massive outcropping banded ironstone, often in the shade of larger shrubs. Source: DBCA (2021b)		*Labichea rossii* has a recorded distribution of < 1 km, known from 2 location records.	-	7,694	7,384	133 (<2%) [113, 429]	400 (5%) [39, 276]
Microcorys elatoides (DBCA-P1) (previously recorded as *Microcorys* sp. Mt Holland)	Source: Mattiske (2019b)	Description – Dense to open erect, multi-stemmed woody perennial shrub to 120 cm high; leaves terete to sub-terete, without a pungent tip, often arranged in whorls of 3 along the stem. (Covalent Lithium 2019) Habitat – Clayey sands to lateritic clay soils; plains and lateritic slopes. (Covalent Lithium 2019)		*Microcorys elatoides* has a recorded distribution of approximately 10 km, known from 5 location records.	-	85,415	43,011	7,067 (8%) [697, 2,405]	7,579 (9%) [654, 2,740]
Microcorys sp. Mt Holland broad-leaf (DBCA-P1)	Source: Mattiske unpublished	Description – Dense to open erect, multi-stemmed woody perennial shrub to 120 cm high; leaves terete to sub-terete, without a pungent tip, often arranged in whorls of 3 along the stem. Habitat – Clayey sands to lateritic clay soils; plains and lateritic slopes. Source: DBCA (2021b)		*Microcorys* sp. Mt Holland broad-leaf has a recorded distribution of < 1 km, known from 5 location records.	-	6,565	3,545	341 (5%) [144, 162]	377 (6%) [127, 164]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Daviesia sarissa ssp. *redacta* (DBCA-P2)	(Source: Mattiske 2019b)	Description – Spreading or sprawling, glaucous shrub to 0.6 m high. Flowers yellow and red/brown, with flowering occurs in September. Habitat – Yellow sand. Plains. Source: DBCA (2021b)		*Daviesia sarissa* ssp. *redacta* has a recorded distribution of approximately 20 km, known from 8 location records.	-	1,516	1,016	1 (<1%) [2, 9]	18 (<1%) [9, 15]
Eutaxia lasiocalyx (DBCA-P2)	Source: Mattiske (2018d) cited in Covalent Lithium 2019)	Description – Low, spreading, multi–stemmed shrub which grows to 15 cm high. It flowers in November with yellow flowers. Habitat – Grows on red sandy loam and laterite and quartz gravel on gentle lower slopes. Source: DBCA (2021b)		*Eutaxia lasiocalyx* has a recorded distribution of approximately 70 km, known from 12 location records.	-	163,747	31,225	7,215 (4%) [973, 3,215]	8,595 (5%) [980, 2,424]
Orianthera exilis (DBCA-P2)	Source: Mattiske (2018d) cited in Covalent Lithium (2019)	Description – Low shrub, branches 1.1-1.5mm diameter. Stipule 0.3mm long. Habitat – Brown loam over laterite, Band ironstone (unconfirmed) (Mattiske 2021c)		*Orianthera exilis* has a recorded distribution of approximately 100 km, known from 10 location records.	-	1	1	0 (0%) [0, 1]	0 (0%) [0, 1]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Acacia undosa (DBCA-P3)	Source: Royal Botanic Gardens, Kew powo.science.kew.org/	Description – Dense, spreading shrub 30 cm to 1.5 m tall. It flowers yellow from July to September. Habitat – Sandy clay loam, clayey sand. Undulating plains, low-lying area. Source: DBCA (2021b)		*Acacia undosa* has a recorded distribution of approximately 280 km, known from 26 location records.	-	141,500	22,880	12,237 (9%) [1,186, 3,642]	12,684 (9%) [1,227, 3,434]
Boronia ternata var. *promiscua* (DBCA-P3)	Source: Mattiske unpublished	Description – Spreading shrub to 1 m high. Flowers in June or September to October. Habitat – Yellow sandy clay, laterite. Source: DBCA (2021b)		*Boronia ternata* var. *promiscua* has a recorded distribution of approximately 50 km, known from 8 location records.	-	315	22	4 (1%) [2, 0]	4 (1%) [2, 0]
Hakea pendens (DBCA-P3)		Description – Shrub that grows between 2 to 3m high, and 2.5 to 3.1m wide. It produces pink-white flowers in September. Habitat – Grows in stony loam and is found on ironstone ridges. Source: DBCA (2021b)		*Hakea pendens* has a recorded distribution of approximately 160 km, known from 74 location records.	-	1,167	1,142	0 (0%) [0, 44]	0 (0%) [0, 44]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Chorizema circinale (DBCA-P3)	Source: DBCA in Mattiske (2019b)	Description – Prostrate, scrambling, wiry shrub, to 0.4 m high. Fl. Yellow & orange & red, Sep to Dec. Habitat – Yellow sand, sandy clay with gravel. Flats, margin of gravel pit. Source: DBCA (2021b)		*Chorizema circinale* has a recorded distribution of approximately 280 km, known from 17 location records.	> 1,000 individuals	479	117	53 (5%) [28, 3]	53 (5%) [28, 3]
Rinzia triplex (DBCA-P3)	Not available	Description – Shrub to 1.5 m tall and 1.2 m wide, Petals bright pink at first, becoming paler with age. Distinguished by having 5–11 staminodes. Flowering late June to September. Habitat – Sandy plains in yellow to red, often gravelly or lateritic soils which may contain banded ironstone, dominated by *Acacia*, *Eucalyptus* or *Allocasuarina*, often with *Baeckea elderiana* present. Source: Rye (2017)		*Rinzia triplex* has a recorded distribution of approximately 300 km, known from 32 location records.	> 6,900 individuals (Mattiske 2021c)	24	24	24 (<1%) [0, 0]	24 (<1%) [0, 0]
Stylidium sejunctum (DBCA-P3)	Source: Botanica (2018)	Description – Caespitose perennial, herb 0.25-0.45 m high. Flowers white/pink-purple, with flowering in September to November. Habitat – Clayey sand or loam, laterite. Outcrops, upper slopes, breakaways. Mallee and *Allocasuarina* shrubland. Source: DBCA (2021b)		*Stylidium sejunctum* has a recorded distribution of approximately 250 km, known from 65 location records.	> 7,000 individuals	1,779	590	26 (<1%) [1, 6]	26 (<1%) [1, 6]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Teucrium diabolicum (DBCA-P3) (formerly *Teucrium* sp. Dwarf)	Source: Wedge & Davis (2020)	Description – A compact, dwarf shrub, 0.2 m high, 0.1 m wide, suckering from a thick woody rootstock, with white flowers. Flowering recorded in Autumn (March to early May) and spring (late October to mid-November) Habitat – Red cracking clay or clay loam, usually in shallow depressions or on low undulating plains that support low scrub or heath, or in association with low open woodland (e.g. with *Eucalyptus tenuis*). Source: Wedge & Davis (2020)		*Teucrium diabolicum* has a recorded distribution of approximately 240 km, known from 18 location records.	> 50,000 individuals	28,149	11,561	362 (<1%) [3, 120]	485 (1%) [88, 34]
Verticordia mitodes (DBCA-P3)	Source: E A George in DBCA (2021b)	Description – Spreading shrub to 0.7 m high. Flowers pink-purple, flowering October to December/January. Habitat – Yellow sand. Undulating plains. Source: DBCA (2021b)		*Verticordia mitodes* has a recorded distribution of > 200 km, known from 30 location records.	-	1	0	0 (0%) [0, 1]	0 (0%) [0, 1]
Verticordia stenopetala (DBCA-P3)	Source: E A Bembt in DBCA (2021b)	Description – Shrub to 0.6 m high, producing pink-purple-red flowers between October and January. Habitat – Recorded growing on yellow sands on undulating plains. Source: DBCA (2021b)		*Verticordia stenopetala* has a recorded distribution of approximately 280 km, known from 31 location records.	-	8,679	1,571	36 (<1%) [44, 95]	36 (<1%) [44, 95]

FLORA TAXA (Conservation Status)	IMAGE	DESCRIPTION & HABITAT	DISTRIBUTION MAP (DBCA 2021a)	DISTRIBUTION	REGIONAL RECORDS (No. of Individuals, Estimate)	FIELD SURVEY RECORDS (No. of Individuals)			
						SURVEY AREA	DEVELOPMENT ENVELOPE	APPROVED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]	REVISED PROPOSAL (INDICATIVE SITE LAYOUT) (% of Regional Records) [+0–10m, +10–50m]
Eremophila biserrata (DBCA-P4)	Source: L&M Greeve and B Buirchell in DBCA (2021b)	Description – Prostrate shrub to 3 m wide. Flowers green to yellow-green, with flowering September to November or March. Habitat – Sandy or sandy clay soils. Alluvial flats, salt flats & lakes. Source: DBCA (2021b)		*Eremophila biserrate* has a recorded distribution of > 200 km, known from 31 location records.	-	356	3	3 (<1%) [0, 0]	3 (<1%) [0, 0]
Grevillea neodissecta (DBCA-P4)	Source: Mattiske unpublished	Description – Shrub to 1 m high. Flowers in January, February, September, October, November or December. Habitat – Vegetation Communities W8, W11 Source: DBCA (2021b), Mattiske (2021c)		*Grevillea neodissecta* has a recorded distribution of approximately 70 km, known from 8 location records.	-	1,981	1,885	0 (0%) [12, 11]	0 (0%) [12, 11]
Gyrostemon ditrigynus (DBCA-P4)	Source: Esperance Wildflowers (2011)	Description – Shrub to 1.5 m high. Habitat – Recorded exclusively growing on cleared land, principally being drill pads Typically grows on sand, sandy clay, loam. Plains, low ironstone ridges. Source: Mattiske (2021c), DBCA (2021b)		*Gyrostemon ditrigynus* has a recorded distribution of > 400 km, known from 33 location records.	> 50,000 individuals	207	28	3 (<1%) [10, 0]	3 (<1%) [10, 0]