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General Manager Environmental Compliance
Resource and Environmental Compliance Division
Department of Mines, Industry Regulation and Safety
Mineral House 100 Plain St EAST PERTH WA 6004

Lithco No.2
Level 7, 20 Parkland Road
Osborne Park WA 6017

Via email Daniel.endacott@dmirs.wa.gov.au

Re. Application for Clearing Permit for Bald Hill Project

Dear Daniel,

Lithco No. 2 Pty Ltd (Lithco) owns and operates the Bald Hill Project on M15/400, M15/1305, M15/1308 and G15/28. Operations are scheduled to resume at the project in January 2022, following a period of care and maintenance.

The Bald Hill project historically operated (by others) included some historical clearing before CPS 6131/3 was granted within M15/400 allowing for an additional 258 hectares of clearing (in association with the approved Mining Proposal Version 4 at that time), for expansion of the Bald Hill Project.

The expansion occurred between 2017 – 2019 for a total a total of 304.5ha of disturbance, prior to the site being placed in temporary closure. Additional infrastructure for mining and processing of lithium was in development, however was not completed.

As the new owners of Bald Hill, Lithco foresee additional clearing being required to further expand the project. An updated Mining Proposal and Mine Closure will also be submitted to capture the existing environmental legacies and future disturbances associated with the planned expansion.

In summary, a single, large open pit will be developed to extract tantalum and lithium ore, which will be concentrated on site for export. The expanded pit will require additional waste dumps, roads, topsoil storage areas, an evaporation dam and a new tailings storage facility (TSF).

This Supporting Document provides the information required to assess the enclosed clearing permit application. A total of 126 hectares (ha) of new clearing is has been determined to be required for the infrastructure, shown in Table 1 below. A site plan of M15/400 showing the areas previously disturbed (by others) and proposed new clearing is attached (Attachment 1). Also attached is a clearing map for L15/365, M15/1305 & M15/1308 showing the proposed clearing area that is 6 meters wide and follows the existing tracks of the project(Attachment 2). It is intended to clear a linear area which will ensure the pipeline is placed in a “V” drain along its length from the bore field to project area. The “V” drain will capture any spill from burst pipes (between inspection frequencies) and minimize saline water sterilizing the soil.

The following information is included in support of the application:

- Site plan;
- Flora and vegetation assessment;
- Fauna assessment; and
- Assessment of the proposal against the 10 Clearing Principles.

This application is for a total area of **126 hectares** which will allow for the continuation of mining operations at the Bald Hill Project. If you require any further information, please contact me on 0437 310 910 or at tammy.barker@lithco.com.au.

Yours sincerely,

TAMMY BARKER
Senior Environmental Advisor
Lithco No. 2

Flora and vegetation

A database search for threatened flora, followed by a site assessment of the vegetation and a targeted search for threatened flora identified in database searches was undertaken by Jeremy Shepherdson of Ecotec (WA) Pty Ltd in April 2017 (Appendix 1).

Searches of the Department of Biodiversity, Conservation and Attractions (DBCA) NatureMap (DBCA, 2017) and the Department of Environment and Energy's (DEE) Protected Matters Search Tool (DEE, 2017b) databases were undertaken using a 20km radius around the Bald Hill site. NatureMap returned four Priority-listed flora species, listed in Table 1.

Table 1: Priority listed flora from the project surrounds

Species	Status
<i>Allocasuarina eriochlamys</i> subsp. <i>grossa</i>	P3
<i>Eucalyptus kruseana</i>	P4
<i>Eucalyptus x brachyphylla</i>	P4
<i>Lepidosperma lyonsii</i>	P4

There are no records of Priority or Threatened Ecological Communities (PEC, TEC) within the search area.

The Protected Matters database search produced no results.

The site assessment found the vegetation in the immediate Bald Hill vicinity to be in a degraded condition, according to the Keighery (1994) scale. This is due to intensive grazing by cattle that remain close to a number of water points (dams and troughs) located in the area. It is also thought that trees may have been cleared from the area to create paddocks in the early days of establishing the pastoral station. The following photographs show vegetation typical of the Bald Hill area.



Photograph 1: Vegetation typical of the eastern side of the mine site.



Photograph 2: Vegetation to the north of the mine site.



Photograph 3: Vegetation and livestock to the west of the mine site.



Photograph 4: Vegetation and exploration activity to the south of the mine site.



Photograph 5: Salt lake fringing vegetation, typical of the *ecologia* survey area.

The vegetation within the immediate vicinity of the Bald Hill mine site can be described as very open shrubland of *Maireana brevifolia* and *M. sedifolia* over various herbaceous and annual species.

Scattered individual *Acacia tetragonophylla*, *Atriplex nummularia* and small stands of *Eucalyptus* (*E. griffithsii*, *E. flocktoniae*, *E. oleosa*) can be found throughout the area.

The weed *Salvia verbenaca* (Wild Sage) is prevalent. *Carthamus lanatus* (Saffron Thistle, a Department of Agriculture and Food “Declared pest”) and *Citrullus lanatus* (Pie Melon) were observed throughout the mine site and surrounding area, but were not abundant at the time of the assessment.

Soils are generally clay-loam and become progressively more saline toward the south of the site where a number of low-lying salt pans can be found – the northern fringes of Lake Cowan. Vegetation in this area tends toward that typical of salt lake margins and is dominated by *Tecticornia* species (Samphires).

The Priority listed species returned in the database search (Table 1) were not found during the site assessment and are believed unlikely to inhabit the area.

In August 2017 ecologia Environment was engaged to undertake a flora and vegetation assessment of the southern portion of the project area (Appendix 2). The objective of the assessment was to determine whether any Threatened and Priority listed flora species or vegetation communities are present in the southern portion of M15/400 and an area to the south of this, which supports salt lake fringing vegetation. The assessment included a desktop survey of Lake Cowan and surrounds utilising FloraBase and the Australian Virtual Herbarium. The desktop study identified 23 Threatened and Priority flora species in the vicinity of Lake Cowan, eight of which were considered possible inhabitants of the salt lake fringing vegetation to the south of the Bald Hill site.

A field survey was undertaken on 23 August 2017 by salt lake specialist botanist Dr Andrew Craigie. Four vegetation communities were identified in the survey area, generally considered to be in Very Good or Excellent condition according to the Keighery scale (1994), an indication of the low palatability of salt lake fringing vegetation to cattle.

The survey did not locate any Priority or Threatened flora species or vegetation communities. Photograph 5 shows vegetation typical of the survey area.

Fauna

A desktop fauna study was undertaken in March 2017 by Edward Cannella of BIOSTAT Pty Ltd (Appendix 3). The study was done primarily to determine the likelihood of threatened fauna being present in the vicinity of the mine site.

A database search of an area centred on the Bald Hill project area and with a radius of 20km was undertaken from BIOSTAT's own database, DBCA's NatureMap, the Protected Matters Search Tool and the Australian Living Atlas. Information from surveys and impact assessment documents from the St Ives and Kambalda mines were also used.

A preliminary search indicated there are no threatened ecological communities located in the search area. There are no DBCA managed lands (reserves and conservation parks) within the search radius. The descriptions of vegetation communities indicated fairly typical habitats for the area.

Nine species of bird listed under Federal or State legislation were returned from the database search. Most of the species returned in the database searches are of a low likelihood of occurrence in the project area. The rainbow bee-eater and the fork-tailed swift can be seasonally abundant. The proximity of the site to the ephemeral Lake Cowan system would increase the potential for a number of migratory waterbird species to be found in or near the project area.

There is no information available on the mammal and reptile fauna in the immediate vicinity of the project area. Surveys undertaken in the St Ives, Widgiemooltha and Kambalda areas suggest a relatively diverse range of reptiles and depauperate mammal fauna.

Short-range endemics and subterranean fauna

Surveys for short range endemic (SRE) and subterranean fauna have not been undertaken at the Bald Hill site. Due to the hypersaline groundwater and unsuitable geology, the presence of subterranean fauna (stygo fauna and troglo fauna) within the project area is considered unlikely. A review of reports prepared for other mining operations in the surrounding region supports this (Talis, 2016).

Assessment of the proposed activities against the Clearing Principles, as defined by the *Environmental Protection Act 1986*.

Principle (a)	Native vegetation should not be cleared if it comprises a high level of biological diversity.
<p>Vegetation across most of the Bald Hill Project area does not have a high biological diversity and is in a degraded condition due to the long-term presence of grazing livestock.</p> <p>The southern portion of M15/400 supports salt-lake fringing vegetation which is generally considered to be in Very Good to Excellent condition as most species present are not palatable to livestock. Despite the condition, the vegetation is not recognized as having a particularly high diversity of species, and is common in salt lake ecosystems within the region.</p>	
Principle (b)	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.
<p>Vegetation in the vicinity of the Bald Hill Project does not comprise the whole or part of any significant habitat for native fauna.</p>	
Principle (c)	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.
<p>No rare or otherwise conservation significant flora has been located in the project area.</p> <p>A number of conservation significant flora are known to inhabit the surrounding region, however with the sites high level of historic disturbance and grazing activity are not considered likely to be present in the project area.</p>	
Principle (d)	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.
<p>Vegetation in the vicinity of the Bald Hill Project does not comprise the whole or part of, nor is it necessary for the maintenance of a threatened ecological community. There are no recognised ecological communities in the vicinity of the project.</p>	
Principle (e)	Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
<p>Vegetation in the development area has been extensively impacted by intensive grazing and is generally in a degraded condition. There are small clusters of mature Eucalypt trees (various common species) in the project area which will be retained where ever practical to do so.</p>	
Principle (f)	Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
<p>An ephemeral creek runs in a north-south direction along the western side of M15/400. It is thought this creek has developed as a result of long term erosion of an historic track. It does not support riparian vegetation within the tenement area. There is no intent to impact the creek line, with an approximate 80m buffer to be retained between mining-related disturbance and the water course.</p> <p>There are no wetlands present in the project area. The Lake Cowan salt lake system is located approximately 2km south of the project. This will not be directly impacted and management practices are in place to ensure indirect impacts are prevented.</p>	
Principle (g)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

<p>Clearing of vegetation in the area to be developed is not expected to result in further degradation of the surrounding landscape. Surface water management structures will be established to prevent erosion resulting from runoff. Management strategies are in place to minimise the potential for saline water impact to surrounding vegetation.</p>	
Principle (h)	Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
<p>There are no conservation areas in the vicinity of the Bald Hill Project.</p>	
Principle (i)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.
<p>The areas to be cleared are located on a gentle slope which sheds water in a south-westerly direction following significant rainfall. Clearing and placement of infrastructure in this area is not expected to result in any impedance of surface water flows.</p> <p>Surface water management structures have been/will be established to capture runoff from the project area to minimise the potential for contamination of surface water and the ultimate receiving environment of Lake Cowan. In addition, monitoring of groundwater for contamination resulting from the operation is required under an existing DWER licence.</p>	
Principle (j)	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.
<p>The development area is located on a slight rise in the landscape and therefore not prone to flooding. Clearing of vegetation from the area is not expected to alter this.</p>	

Attachment 1: Bald Hill (M15/400) Site Plan Clearing Map.

Attachment 2: Pipeline Clearing Map.

Appendix 1: Flora Vegetation Assessment Ecotec 2017

Appendix 2: Flora Vegetation Assessment Ecologica 2017

Appendix 3: Fauna Risk Assessment BioStat 2017