

Appendix E

Land Capability and Soil Assessment Addendum



LFB Resources NL ABN: 90 073 478 574



McPhillamys Gold Project

Land Capability and Soil Assessment

Addendum



**Prepared by
SUSTAINABLE SOILS MANAGEMENT PTY LTD**

August, 2020



LFB Resources NL ABN: 90 073 478 574

Land Capability and Soil Assessment - Addendum

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SUMMARY

LFB Resources NL is seeking State significant development consent under Division 4.7 of Part 4 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act) to develop and operate the McPhillamys Gold Mine Project (the project) a greenfield open cut gold mine, associated mine infrastructure and a water supply pipeline in Central West NSW.

In response to issues raised in submissions received, as well as a result of further detailed mine planning and design, Regis has made a number of refinements to the project.

Modification of the layout of the project has resulted in some changes in the volumes of soil required and available, and the predicted post rehabilitation Land and Soil Capability.

The modified footprint will result in post project LSC being a reduction of 411 ha of LSC 5, an increase of 323 ha in LSC 6 and smaller change in LSC classes 4, 7 and 8 (Table S1). The amended project will result in 9 ha more land with LSC 4, a 13 ha reduction in the area of LSC 6, 8 ha more LSC 7 and 5 ha less LSC 8 (Table S1).

Table S1. Change in areas of each Land and Soil Capability class over the life of McPhillamys Gold Project.

| LSC Class | Capability | Pre-mining area (ha) | Post-mining area (ha) | | Change over mine life for Amended Project (ha) |
|---|----------------|----------------------|-----------------------|-----------------|--|
| | | | EIS | Amended Project | |
| Land with a wide range of uses (cropping, grazing, horticulture, nature conservation) | | | | | |
| 1 | Extremely high | 0 | 0 | 0 | |
| 2 | Very high | 0 | 0 | 0 | |
| 3 | High | 0 | 0 | 0 | |
| Land with a variety of uses (cropping with restricted cultivation, pasture cropping, grazing, some horticulture, forestry, nature conservation) | | | | | |
| 4 | Moderate | 932 | 920 | 929 | -3 |
| 5 | Moderate-low | 1492 | 1080 | 1081 | -411 |
| Land with a limited range of uses (grazing, forestry and nature conservation) | | | | | |
| 6 | Low | 86 | 422 | 409 | 323 |
| Land generally unable to support agriculture (selective forestry and nature conservation) | | | | | |
| 7 | Very low | 4 | 21 | 29 | 25 |
| 8 | Extremely low | 0 | 71 | 66 | 66 |

The volumes of soil that can be supplied by stripping and required for rehabilitation were recalculated based on the modified disturbance footprint. It was estimated that there is adequate topsoil and a relatively small surplus of subsoil available to rehabilitate disturbed areas to the planned post closure LSC.

1. INTRODUCTION

1.1. BACKGROUND

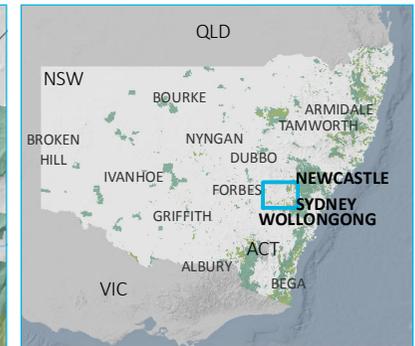
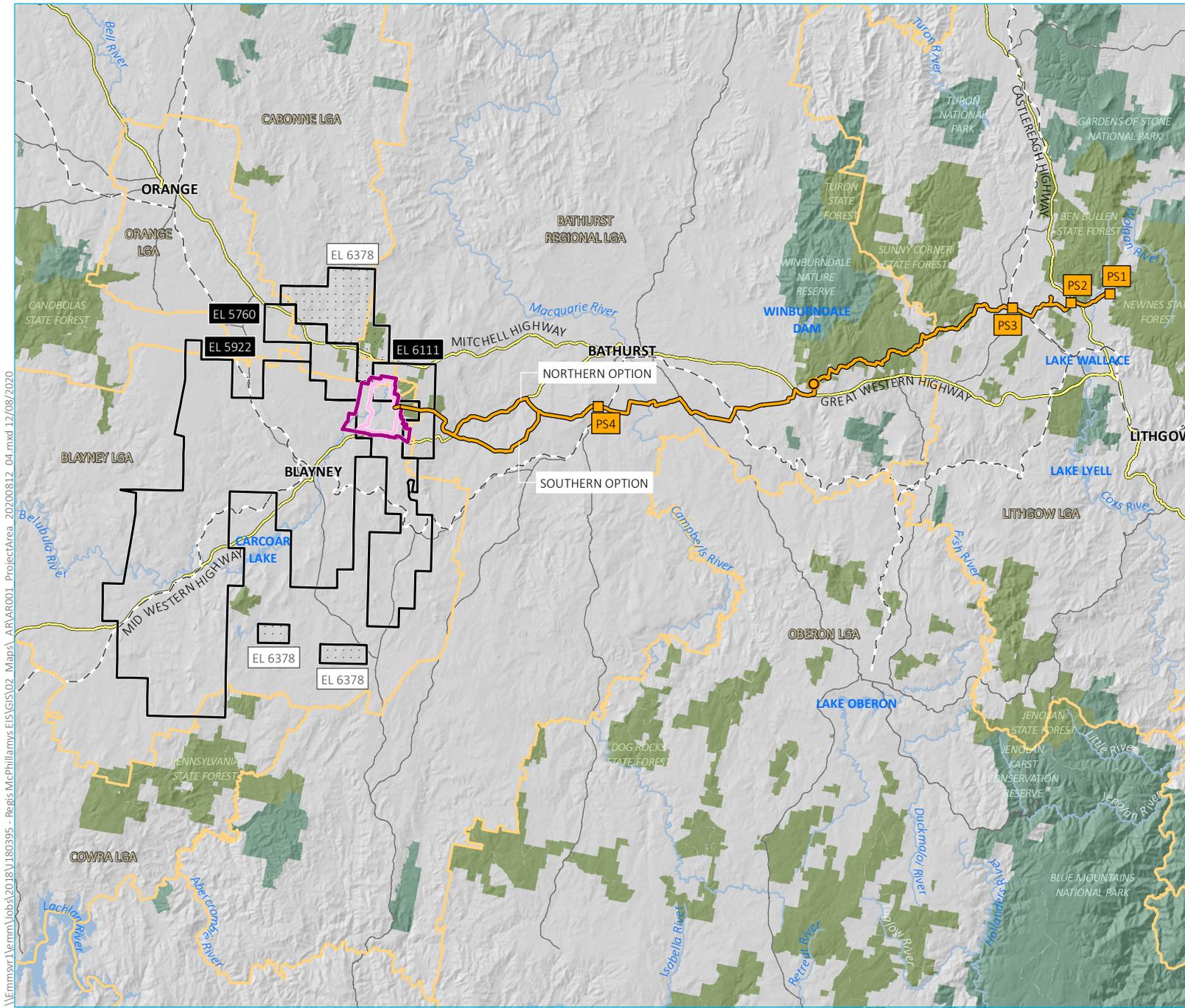
LFB Resources NL is seeking State significant development consent under Division 4.7 of Part 4 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act) to develop and operate a greenfield open cut gold mine, associated mine infrastructure and a water supply pipeline in Central West NSW. The project application area is illustrated at a regional scale in Figure 1.1. LFB Resources NL is a 100% owned subsidiary of Regis Resources Limited (herein referred to as Regis).

As shown in Figure 1.1, the McPhillamys Gold Project (the project) is comprised of two key components; the mine site where the ore will be extracted, processed and gold produced for distribution to the market (the mine development), and an associated water pipeline which will enable the supply of water from approximately 90 km away near Lithgow to the mine site (the pipeline development). The mine development is around 8 km north east of Blayney, within the Blayney and Cabonne local government areas (LGAs).

Up to 8.5 Million tonnes per annum (Mtpa) of ore will be extracted from the McPhillamys gold deposit over a total project life of 15 years. The mine development will include a conventional carbon-in-leach processing facility, waste rock emplacement, an engineered tailings storage facility (TSF) and associated mine infrastructure including workshops, administration buildings, roads, water management infrastructure, laydown and hardstand areas, and soil stockpiles.

In accordance with the requirements of the EP&A Act, the NSW Environmental Planning & Assessment Regulation 2000 (EP&A Regulation) and the Secretary's Environmental Assessment Requirements (SEARs) for the project, an Environmental Impact Statement (EIS) was prepared to assess the potential environmental, economic and social impacts of the project. The development application and accompanying EIS was submitted to the NSW Department of Planning, Industry and Environment (DPIE) and subsequently publicly exhibited for six weeks, from 12 September 2019 to 24 October 2019. During this exhibition period, Regis received submissions from government agencies, the community, businesses and other organisations regarding varying aspects of the project.

In response to issues raised in submissions received, as well as a result of further detailed mine planning and design, Regis has made a number of refinements to the project. Accordingly, an Amendment Report has been prepared by EMM Consulting Pty Ltd (EMM 2020) to outline the changes to the project that have been made since the public exhibition of the EIS and to assess the potential impacts of the amended project, compared to those that were presented in the EIS. This report forms part of the Amendment Report and presents an assessment of the soil and land capability impacts of the mine development component of the McPhillamys Gold Project. References to 'the project' throughout this report are therefore referring to the mine development only. The potential soil impacts associated with the pipeline development component of the amended project are addressed in the Amendment Report (EMM 2020).



- KEY**
- Project application area
 - Mine development project area (2,514.06 ha)
 - Mining lease application area (1,806.17 ha) (Note: boundary offset for clarity)
 - Pressure reducing system
 - Pumping station facility
 - Pipeline
 - Existing environment
 - Rail line
 - Primary road
 - Arterial road
 - River
 - Waterbody
 - NPWS reserve
 - State forest
 - Local government area
 - Exploration lease boundaries (of interest)
 - Held by LFB Resources NL (Regis)
 - Held by others

Regional setting –
 project application area –
 amended project

McPhillamys Gold Project

Figure 1.1

Source: EMM (2020); Regis Resources (2020); DPE (2018); DFSI (2017); GA (2011)



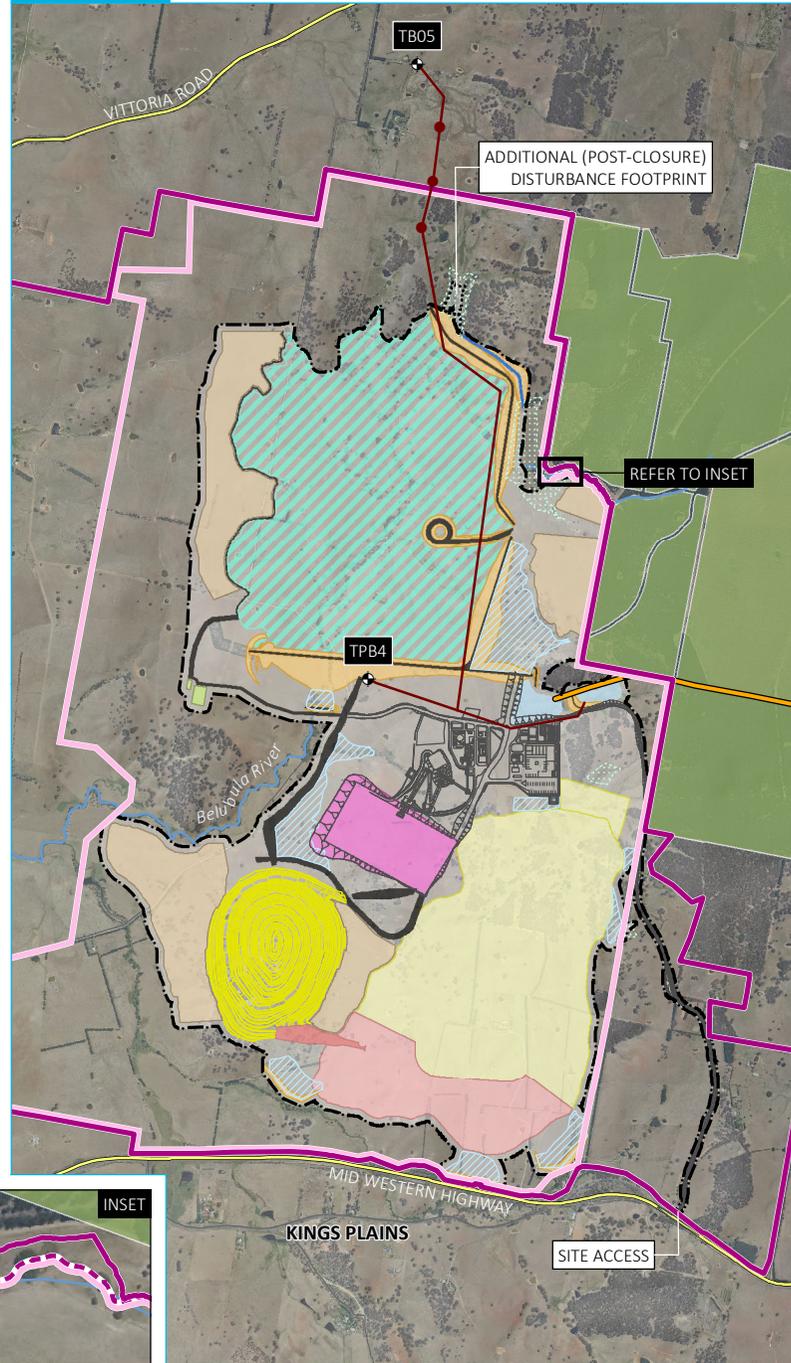
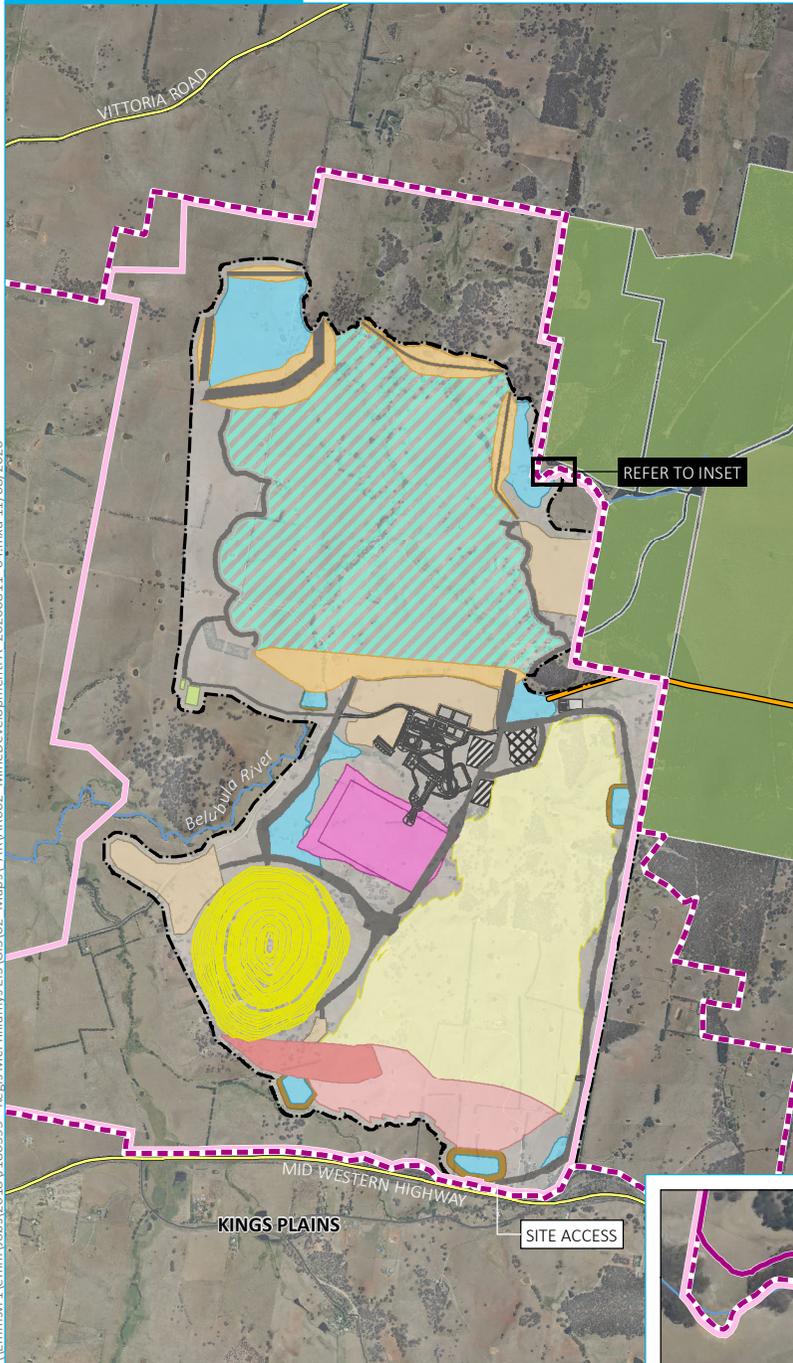
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1.2. PROJECT AMENDMENT OVERVIEW

A summary of the key amendments to the project since the exhibition of the EIS are summarised below and described in detail in Chapter 2 of the Amendment Report (EMM 2020):

- **Site access** – a new location for the site access intersection off the Mid-Western Highway is proposed, approximately 1 km east of the original location assessed in the EIS, in response to feedback from Transport for NSW (TfNSW, former Roads and Maritime Services) and the community. A new alignment is subsequently proposed for the site access road to the mine administration and infrastructure area.
- **Mine and waste rock emplacement schedule** – revision of the mine schedule and the subsequent construction sequence of the waste rock emplacement has been undertaken, in particular consideration of predicted noise levels in Kings Plains. This achieved a reduction in predicted noise levels at nearby residences while extending the construction timeframe for the southern amenity bund.
- **Pit amenity bund** – the size of the pit amenity bund has been reduced as a result of optimisation of the open cut pit design and the improved location of exit ramps for haul trucks.
- **Tailings Storage Facility (TSF)** – amendments to the design include changes to the embankment design and construction timing, the TSF footprint, and the TSF post closure landform.
- **Water management system** – the secondary water management facility (WMF) has been removed from the water management system resulting in an avoidance of impacts to a potential item of historic heritage (MGP 23 - Hallwood Farm Complex (Hallwood)). The size of the WMFs has also been revised to achieve a reduced likelihood of discharge from the storages within the operational water management system as part of a revised nil discharge design.
- **Mine administration and infrastructure area** – the layout of this area has been revised and optimised.
- **Mine development project area** – a very small change has been made to the mine development project area along the eastern boundary (an additional 1 ha, or 0.04% change), to accommodate the required clean water management system. The change takes the project area from 2,513 hectares (ha) to 2,514 ha.

No amendments have been made to other key aspects of the project as presented in the EIS for which approval is sought, such as the proposed mining method, operating hours, annual ore extraction rate of up to 8.5 Mtpa, annual ore processing rate of up to 7 Mtpa, employee numbers, and rehabilitation methods and outcomes.



- KEY**
- Project application area
 - Mine development project area (EIS)
 - Mine development project area (amended project)
 - Mining lease application area (Note: boundary offset for clarity)
 - Disturbance footprint
 - Pipeline corridor
 - Project general arrangement
 - Construction groundwater bore
 - Indicative construction groundwater bore
 - Indicative construction groundwater pipeline
 - Open cut mine
 - Site infrastructure
 - Belubula River
 - Road
 - Mine administration (EIS)
 - Workshop (EIS)
 - Mining equipment areas (EIS)
 - Magazine and ammonium nitrate emulsion storage
 - Southern amenity bund
 - Pit amenity bund
 - ROM pad
 - Soil zone
 - Embankment
 - Sediment basin structure (EIS)
 - Waste rock emplacement
 - Tailings storage facility (TSF)
 - Water management area (EIS)
 - Clean water diversion (amended project)
 - Water management facility (WMF) - continuous storage (amended project)
 - Water management facility (WMF) - infrequent storage (amended project)
 - Clean water facility (CWF) (amended project)
 - Existing environment
 - Major road
 - Minor road
 - Vittoria State Forest

Amended mine development layout

McPhillamys Gold Project

Figure 1.2

1.3. PURPOSE OF THIS REPORT

This report has been prepared to assess the soil impacts of the amended project. The assessment considers and outlines the differences in impacts compared to the original project as presented in the EIS. In this way, it serves as an update to the McPhillamys Gold Project Soil and Land Capability Assessment (SSM, 2019) (Appendix H of the McPhillamys Gold Project EIS).

Table 1.1 Issues addressed in this report

| Issue | Section |
|---|----------------|
| Disturbance footprint and existing Soil Associations and Land and Soil Capability | 2.1 |
| Constraints to stripping depth under modified footprint | 2.2 |
| Post mining land and soil capability | 2.3 |
| Estimates of topsoil and subsoil required and available for rehabilitation | 3 |

2. MODIFIED POTENTIAL IMPACT OF PROJECT ON SOIL RESOURCES

The main changes of the amended project layout relevant to this addendum assessment are removal of a water storage at the north of the mine project area, and relocation of the main access road approximately 600 m to the east. These amendments result in changes to the proportion of land in each Soil Association and LSC Class as described below.

2.1. DISTURBANCE FOOTPRINT

The footprint of soil disturbance is shown in Figure 1.2. The areas and timing of disturbance are summarised in Table 2.1. The amended project layout will result in a reduction of 20 ha in the total area of disturbance (Table 2.1).

Table 2.1. Areas disturbed by components of the McPhillamys Gold Project. (Note these areas refer to final disturbance, i.e. areas that will be used for different purposes throughout the mine life have been tabulated as their final use; e.g. part of the final water diversion drain will be part of the processing plant during operations but have been considered under clean water diversion in the table).

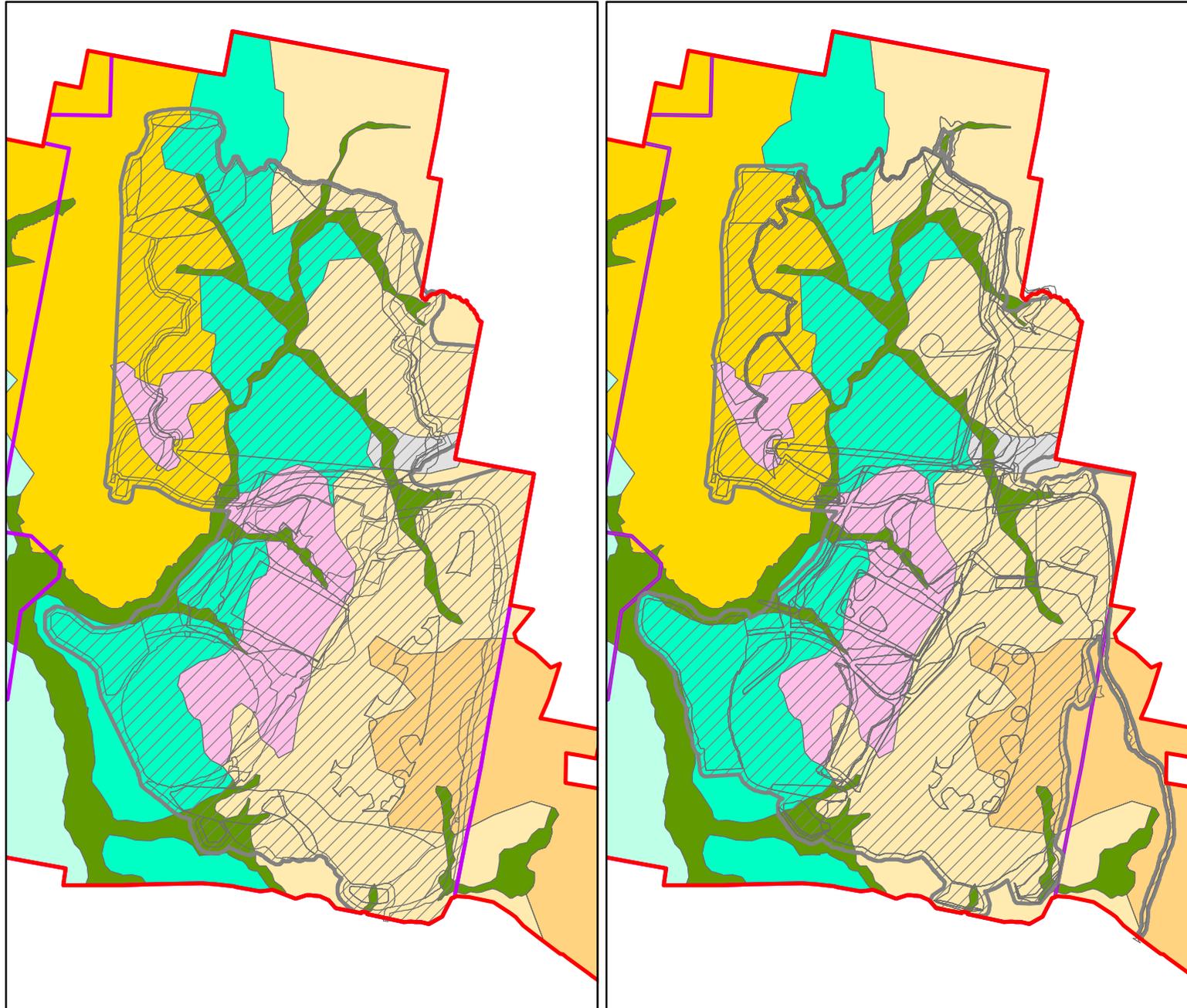
| Initial disturbance type | Area (ha) | | Timing |
|--|-------------|-----------------|--------------------------|
| | EIS | Amended Project | |
| Open Cut | 71 | 66 | Project establishment |
| Waste Rock Emplacement and amenity bunds | 275 | 243 | Progressive construction |
| Run of Mine pad | 65 | 34 | Project establishment |
| Tailings Storage Facility and embankments | 306 | 300 | Staged as required |
| Soil Stockpiles | 50 | 121 | Staged as required |
| Water storage embankments | 23 | 9 | Project establishment |
| Water storages (excluding embankment footprint) | 54 | 39 | Project establishment |
| Processing Plant and associated infrastructure and laydown yards | 27 | 45 | Project establishment |
| Roads | 45 | 35 | Project establishment |
| Clean water diversion | 17 | 3 | Project establishment |
| Clear trees, maintain as grassland during project | 203 | 221 | Project establishment |
| Total | 1136 | 1116 | |
| <i>Additional disturbance during closure</i> | | | |
| Final clean water diversion | 0 | 18 | |
| ROM cap batter | 0 | 13 | |

The 20 ha reduction in total footprint will be distributed as 4 ha less in Manganic East Association, 12 ha less in Upland Centre Association, 3 ha less in Upland East Association, and minor changes in the remaining 4 Soil Associations (Figure 3.1).

From the perspective of Land and Soil Capability, the amended project design will result in disturbance of an additional 12 ha with LSC class 4, and a reduction of 32 ha in land with LSC 6 (Figure 3.2).

ENVIRONMENTAL IMPACT STATEMENT

AMENDED PROJECT



Legend

- Project Area
- Mining Lease Application Area
- Disturbance Boundary

Association

- Alluvium
- Manganic West
- Manganic East
- Red Soil
- Upland East
- Upland East-Aluminic
- Upland Centre
- Sodic Discharge

| Association | Disturbed Area (ha) | |
|----------------------|---------------------|-------------|
| | EIS | Amended |
| Alluvium | 90 | 90 |
| Red Soil | 144 | 144 |
| Manganic East | 262 | 258 |
| Upland Centre | 135 | 123 |
| Upland East | 410 | 407 |
| Upland East-Aluminic | 84 | 83 |
| Sodic Discharge | 10 | 11 |
| Total | 1136 | 1116 |

Figure 3.1. Disturbance Footprint and Soil Associations



ENVIRONMENTAL IMPACT STATEMENT

AMENDED PROJECT



Figure 3.2. Disturbance, Land and Soil Capability and Topdressing Suitability

2.2. CONSTRAINTS TO STRIPPING DEPTH

Soil suitability for use in mine rehabilitation was assessed using a 2 stage process in line with the large difference between topsoil and subsoil properties of undisturbed soil.

Topsoil properties were assessed using physical constraints to stripping depth according to the method of Elliot and Veness (1981) and are shown in Figure 3.2 and Table 2.2.

Table 2.2. Estimated depth of soil suitable for stripping, storage and use as topdressing according to the Elliott and Veness (1981) criteria in the Disturbance footprint in Map 3.

| Association | Stripping Depth for use as topdressing (cm) | | | |
|----------------------|---|-------------------------|----------|--|
| | < 15 | 15 to 30 | 30 to 50 | > 50 |
| Alluvium | | 757 | 740 | 743 |
| Red Soil | 703 | | | 737, 751, 762, 777, 778, 786, 793, 794 |
| Manganic East | 760, 796 | 763, 795 | 773 | 4005, 702, 756, 764, 782 |
| Upland Centre | 951 | 755 | | 774, 776, 784, 785 |
| Upland East | 748, 753, 768, 772, 787, 792 | 770, 771, 779, 788, 789 | 761 | 746, 747, 758, 766, 767, 780 |
| Upland East Aluminic | 791, 952, 953, 956, 961 | | | 749, 750, 752, 790, 965 |
| Sodic Discharge | 781 | | | |

Subsoil suitability was assessed by mapping surfaces of depth to chemical constraint to suitability for use as a growing medium. These were created using data from laboratory analyses and land shape covariates. The surfaces are shown in Figure 3.3 and indicate that 60 cm or more can be stripped from much of the Disturbance Area and used as subsoil. Soil from the 30 to 60 cm layer has a range of chemical constraints that vary across the Disturbance Area. This variation should be taken into account when stripping, stockpiling and respreading subsoil. This requires testing the soil to be stripping, and amending it before it is respread.

The amended project design has little effect on the suitability of the soil for use in rehabilitating the Mine Site.

ENVIRONMENTAL IMPACT STATEMENT

AMENDED PROJECT

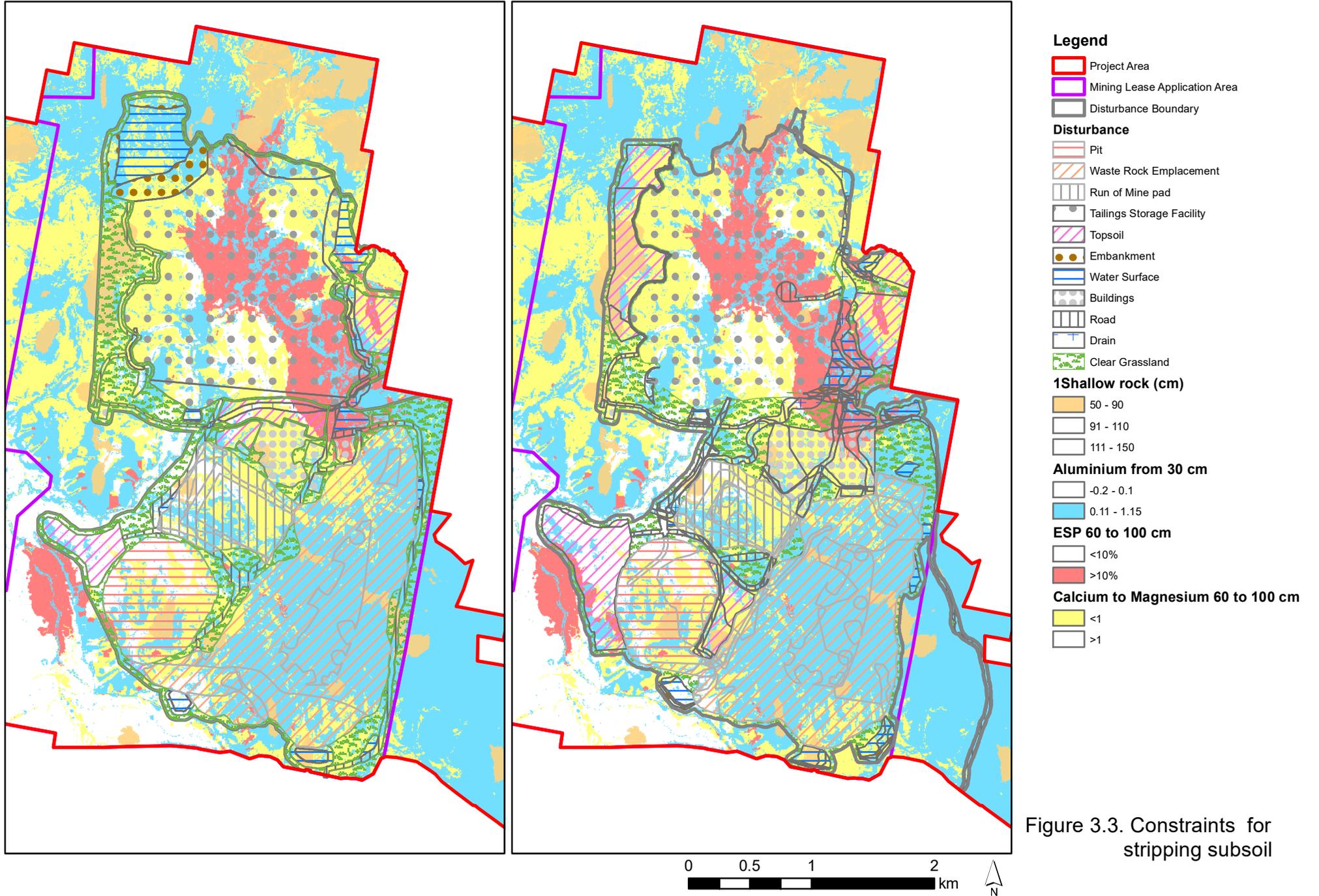


Figure 3.3. Constraints for stripping subsoil

2.3. POST MINE LAND AND SOIL CAPABILITY

The goal in the project's rehabilitation plan is to return disturbed land to a condition that is stable, non-polluting, and supports the proposed post mining use, which is a mixture of grazing of improved pasture, and woodland areas. The final landform shape will be integrated into the current landform.

The principles used to guide the predicted Land and Soil Capability class after rehabilitation are summarised in Table 2.3. As per the EIS design, the final LSC class for the amended project will be constrained by changes in landform as a result of the project.

Table 2.3. LSC class changes during the McPhillamys Gold Project.

| Infrastructure type | Disturbance and Rehabilitation | Estimated post-mining LSC class |
|---|--|--|
| Mine void | Construct pit approximately 1,000 m across and leave as void | LSC 8. No agricultural use possible |
| Waste Rock Emplacement and amenity bunds- top surface | Man-made landform with some undulations | LSC 5. Soil requirements include: Topsoil texture sandy loam or finer, stable topsoil structure, soil depth > 50 cm, topsoil pH _{CaCl2} > 4.0, waterlogging occurs less often than 2 to 3 months every year, exposed to wind. |
| Waste Rock Emplacement and amenity bunds- batters | Waste rock with 10 cm topsoil cover and 25 cm subsoil | LSC 6. Limited by relatively long slope lengths and 1 in 4 batter slope. |
| Waste Rock Emplacement – Low grade ore and Cap rock stockpile | Used as low ore/cap rock stockpile. Surface will be formed to a shape that provides subsurface drainage, then ripped to 1 m, then covered with 50 cm thick subsoil, then 10 cm topsoil | LSC 4. Soil requirements include: Topsoil texture sandy loam or finer, stable topsoil structure, soil depth > 50 cm, topsoil pH _{CaCl2} > 4.7, waterlogging occurs less often than 2 to 3 months every 2 to 3 years, medium wind exposure |
| Run of Mine pad | Large level area will be constructed by cutting high areas and filling low areas | LSC 6. Based on 25 cm soil and loosened subgrade that can be explored by roots and 1: 4 batter slope |
| Tailings Storage Facility- top surface | Tailings Storage Facility will be filled, then the tailings will be covered with 50 cm thick trafficking layer, then 60 cm thick subsoil, covered with 10 cm topsoil | LSC 4. Soil requirements include: Topsoil texture sandy loam or finer, stable topsoil structure, soil depth > 50 cm, topsoil pH _{CaCl2} > 4.7, waterlogging occurs less often than 2 to 3 months every 2 to 3 years, medium wind exposure |
| Tailings Storage Facility- embankments | Earthen embankments with 10 cm topsoil cover and 25 cm subsoil over a rock core | LSC 6. Due to 1:5 batter slope |
| Topsoil stockpiles | Topsoil will be stockpiled, then removed and respread | LSC should be the same as it was before disturbance provided some amendments are added to restart biological processes that occur in topsoil, but not subsoil |
| Water storage embankments | Topsoil will be stripped, embankments constructed, remain for life of project, then be entirely removed at end of project before topsoil is replaced. | LSC should be the same as it was before disturbance provided some amendments are added to restart biological processes that occur in topsoil, but not subsoil |

| Infrastructure type | Disturbance and Rehabilitation | Estimated post-mining LSC class |
|--|--|--|
| Water Storages | Inundated during project. Water drained at end of project. | LSC should be the same as it was before disturbance provided some amendments are added to restart biological processes |
| Processing Plant and associated infrastructure and laydown yards | Large level areas will be constructed by cutting high areas and filling low areas | LSC 6. Based on 30 cm soil and loosened subgrade that can be explored by roots |
| Roads | Engineered roads will be constructed by smoothing the land surface, compacting the subgrade, then placing a waterproof gravel or asphalt surface | LSC 6. Based on 30 cm soil and loosened subgrade so that it can be explored by roots |
| Diversion drains | Drain constructed during Project Closure to divert water around Tailings Storage Facility footprint | LSC 7. Based on 1:2 batter slope |
| Clear Trees | Clear trees during project establishment. Maintain as grassland during project | LSC should not be changed by project as land will be exposed to minimal disturbance. |

The modified McPhillamys Gold Project is predicted to be associated with a nett reduction of 414 ha of soil with LSC classes 4 and 5 and a 323 ha increase in the area of LSC class 6 and a 91 ha increase in the area of LSC 7 and 8 (Table 2.4). This amended design will result in a 9 ha increase in the area of land with LSC 4 and 5 and an 13 ha reduction in the area of LSC 6. There will be little nett change in the areas with LSC 7 and 8.

Table 2.4. Change in areas of each Land and Soil Capability class over the life of McPhillamys Gold Project.

| LSC Class | Capability | Pre-mining area (ha) | Post-mining area (ha) | | Change over mine life for Amended Project (ha) |
|---|----------------|----------------------|-----------------------|-----------------|--|
| | | | EIS | Amended Project | |
| Land with a wide range of uses (cropping, grazing, horticulture, nature conservation) | | | | | |
| 1 | Extremely high | 0 | 0 | 0 | |
| 2 | Very high | 0 | 0 | 0 | |
| 3 | High | 0 | 0 | 0 | |
| Land with a variety of uses (cropping with restricted cultivation, pasture cropping, grazing, some horticulture, forestry, nature conservation) | | | | | |
| 4 | Moderate | 932 | 920 | 929 | -3 |
| 5 | Moderate-low | 1492 | 1080 | 1081 | -411 |
| Land with a limited range of uses (grazing, forestry and nature conservation) | | | | | |
| 6 | Low | 86 | 422 | 409 | 323 |
| Land generally unable to support agriculture (selective forestry and nature conservation) | | | | | |
| 7 | Very low | 4 | 21 | 29 | 25 |
| 8 | Extremely low | 0 | 71 | 66 | 66 |

Much of the land with LSC 6 post-project is on the batters of the waste rock emplacement and capped ROM Pad. The LSC 7 land is predominantly the batters and floor of a diversion drain which will convey fresh water around the rehabilitated tailing storage facility (Figure 3.4).

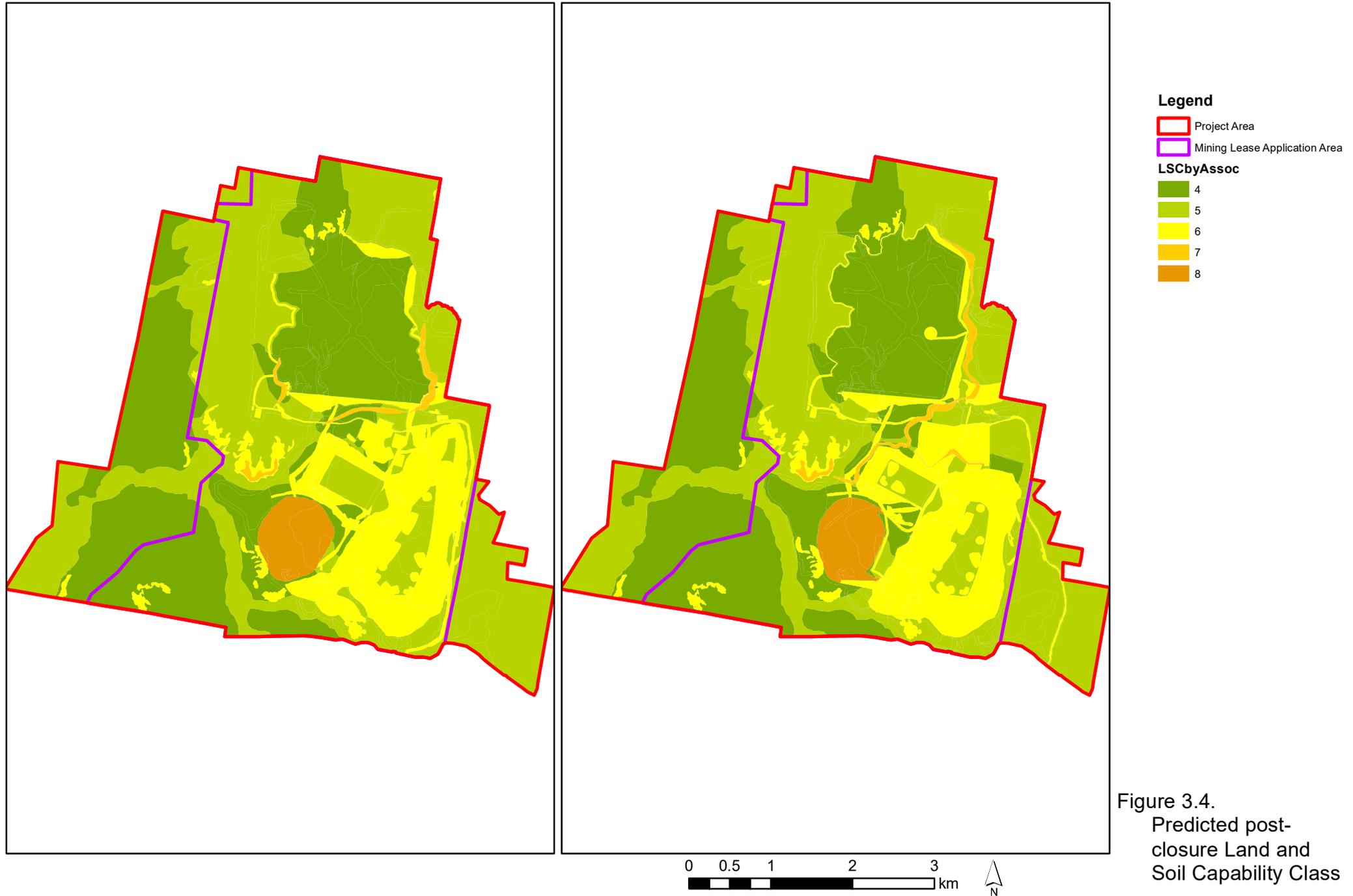


Figure 3.4.
Predicted post-closure Land and Soil Capability Class

3. SOIL MANAGEMENT

Mitigation measures to manage disturbed soil are outlined in Section 10 of the Land and Soil Capability Assessment (SSM 2019) and have been included in the Statement of Commitments outlined in Chapter 38 of the EIS. These commitments have been reiterated in the updated mitigation measures included as Appendix C in the Amended Project Report EMM 2020. A revised soil balance is provided in the following subsection.

3.1. ENSURE ADEQUATE SOIL IS AVAILABLE FOR REHABILITATION

A preliminary estimate of the soil requirements for rehabilitation using the amended project footprint is presented in Table 3.1. The volume of topsoil available was estimated as 15 cm over the area to be stripped. The volume of subsoil was estimated as the shallowest of 1 m or the depth to weathered rock in Map 3 for each disturbance type. The volume required was estimated from the rehabilitation described in Table 2.3.

As estimated 3,650,000 m³ will be required for rehabilitation consisting of 825,000 m² of topsoil and 2,825,000 m³ of subsoil. This is 4% less than the estimated total of 3,813,000 m³ required for rehabilitation of the EIS design, which consisted of an estimated 872,000 m³ of topsoil and 2,941,000 m³ of subsoil.

The largest difference in soil requirement for the amended project is a 150,000 m³ reduction in the volume of soil required to rehabilitate the Waste Rock Emplacement (RWE) and Run of Mine stockpile (ROM). This was associated with a 46 ha reduction in the footprint of the WRE and a 14 ha reduction in the ROM footprint.

These estimates should be confirmed before construction begins, but they indicate that there is adequate suitable topsoil and subsoil to construct the planned soil profiles.

Table 3.1. Estimates of soil available and required during rehabilitation of McPhillamys Gold Mine.

| | Topsoil available | | Subsoil available | | Topsoil required | | Subsoil required | |
|---|-------------------|------------------|-------------------|------------------|------------------|----------------|------------------|------------------|
| | Depth (m) | Volume (m3) | Depth (m) | Volume (m3) | Depth (m) | Volume (m3) | Depth (m) | Volume (m3) |
| Mine void | 0.15 | 105,000 | 0.50 | 351,000 | | | | |
| Waste Rock Emplacement, Amenity Bunds and Run of Mine pad - top surface | 0.15 | 104,000 | 0.45 | 311,000 | 0.115 | 59,000 | 0.50 | 254,000 |
| Waste Rock Emplacement, Amenity Bunds and Run of Mine pad - batters | 0.15 | 309,000 | 0.45 | 926,000 | 0.115 | 74,000 | 0.25 | 596,000 |
| Waste Rock Emplacement – Low grade ore and Cap rock stockpile | 0.15 | 11,000 | 0.45 | 34,000 | 0.115 | 13,000 | 0.60 | 68,000 |
| Tailings Storage Facility- top surface | 0.15 | 386,000 | 0.45 | 1,157,000 | 0.115 | 311,000 | 0.60 | 1,623,000 |
| Tailings Storage Facility- embankments | 0.15 | 62,000 | 0.45 | 187,000 | 0.115 | 35,000 | 0.25 | 76,000 |
| Topsoil stockpiles | 0 | | 0 | | | | | |
| Water storage embankments | 0.15 | 16,000 | 0 | | 0.115 | 13,000 | | |
| Water storages | 0 | | 0 | | | | | |
| Processing Plant and associated infrastructure and laydown yards | 0.15 | 71,000 | 0 | | 0.115 | 52,000 | 0.20 | 90,000 |
| Roads | 0.15 | 69,000 | 0.15 | 69,000 | 0.115 | 40,000 | 0.20 | 69,000 |
| Diversion Drain | 0.15 | 30,000 | 0.50 | 98,000 | 0.115 | 28,000 | 0.20 | 49,000 |
| Clear trees | | | | | | | | |
| Total | | 1,163,000 | | 3,133,000 | | 825,000 | | 2,825,000 |

This balance predicts adequate topsoil and a relatively small surplus of subsoil available to rehabilitate disturbed areas to the planned post closure LSC.

Care should be taken to model and monitor the volumes of soil being stripped, stockpiled and respread.

4. REFERENCES

Elliot, G.L., and Veness, R.A., 1981. Selection of topdressing material for rehabilitation of disturbed areas in the Hunter Valley. *Journal of Soil Conservation, NSW*. 37:37-40.

EMM, 2020 McPhillamys Gold Project Amendment Report, prepared for LFB Resources NL

Sustainable Soils Management, 2019. Land Capability and Soil Assessment. Appendix X of the McPhillamys Gold Project EIS, 106 pp +App.

5. LIMITATIONS

The investigations described in this report identified actual conditions only at those locations where sampling occurred. This data has been interpreted and an opinion given regarding the overall physical and chemical conditions at the site.

Although the information in this report has been used to interpret conditions at the site, actual conditions may vary from those inferred, especially between sampling locations. Consequently, this report should be read with the understanding that it is a professional interpretation of conditions at the site based on a set of data. Although the data were considered representative of the site they cannot fully define the conditions across the site.