



Oyu Tolgoi LLC

Health, Safety, Environment, Security and Communities

Land Disturbance Control and Rehabilitation Management Plan

Land Disturbance Control and Rehabilitation Management Plan		
Effective Date: 2016.04.01	Document Number: OT-10-E14-PLN-0005	Version: 1.0

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1 INTRODUCTION

Document Number

This document is the Land Disturbance Control and Rehabilitation Management Plan (LDC&RMP) for the Oyu Tolgoi (OT) project. The document reference number for this Management Plan is OT-10-E14-PLN-0005.

Purpose

The purpose of this Management Plan is to:

- define the scope of the Management Plan and set out applicable management interfaces;
- define roles and responsibilities;
- outline the applicable Project Standards relevant to this Management Plan;
- define Project commitments, operational procedures and guidance relevant to this Management Plan;
- define monitoring and reporting procedures, including Key Performance Indicators;
- define training requirements; and
- set out references for supporting materials and information.

Project commitment

OT's goal is to have a net positive impact on the biodiversity of the southern Gobi region. OT aims, (as is consistent with Rio Tinto strategy), to reach this goal by the time of mine closure, however OT will seek opportunities to achieve NPI as early as practicable in the project.

The objective of the LDC&RMP is therefore to establish the process and procedures that will ensure:

- OT operates on as small footprint on land as practicable to conduct its business.
- The mitigation hierarchy is applied to avoid and minimise impacts on biodiversity and to reinstate it post-disturbance, in line with required outcomes and on the basis of biological completion criteria
- Land disturbance is planned and phased to allow early recognition of risks to priority biodiversity and appropriate avoidance if necessary
- Sufficient, suitable topsoil and growth medium is recovered and retained for use in rehabilitation of disturbed lands
- Timely and progressive implementation of technical and biological rehabilitation takes place, to maximise chances of success
- Rehabilitation prepares safe and stable landforms and restores equivalent areas to those disturbed to pre-mining conditions to achieve technical and biological rehabilitation completion criteria and support target land uses
- Restoration focuses on returning the maximum amount of disturbed land to pre-mining conditions suitable for nomadic herdsman and their grazing animals, providing equal or better outcomes, in terms of habitat area and quality, compared with the original disturbed habitat

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- The impacts (positive and negative) of land disturbance, rehabilitation and restoration on priority species and habitats are recorded to enable the project to demonstrate no net loss, moreover NPI for natural habitat and vegetation community.

Application

This Management Plan is based on the Rio Tinto E14 Land disturbance control and rehabilitation Standard, issued in June 2014. Any subsequent changes to the Rio Tinto E9 Land Use Stewardship Standard may result in the changes to this Oyu Tolgoi Management Plan.

This Management Plan is owned by the Oyu Tolgoi General Manager Health, Safety, Environment, Security and Communities (HSESC). This Management Plan may be updated from time to time to reflect changes in the Project.

Approach

Appendix 1 is a commitments register that tracks ESIA commitments relating to land disturbance control and rehabilitation. As this indicates, most ESIA commitments now reside in specific procedures. This management plan essentially links the relevant OT procedures. It requires that these be implemented in consort to ensure risks around land disturbance are effectively managed through avoidance, minimisation and rehabilitation.

Commencement

This Management Plan applies from 20 September 2015.

Authority and Management

The OT Executive Committee approved this Management Plan on 20 September 2015 and it will be reviewed every two years.

The OT General Manager HSESC is the custodian of this Management Plan. Any requests for changes to this Management Plan must be addressed to this person and will be subjected to the appropriate review and approval processes.

2 SCOPE

Scope of this Management Plan

This management plan applies to all lands owned, leased, or managed by Oyu Tolgoi LLC or for which the business may have liability through all phases of the project life cycle: project planning, construction and operation to closure. This includes both lands directly disturbed by our activities and undisturbed lands held as a buffer or for some other reason such biodiversity offset.

The intent of this is to reference the procedures that relate to sustainable stewardship of the land that OT owns, leases or conducts/contracts management activities within.

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This Management Plan covers all OT biodiversity management initiatives, commitments and obligations for the operations phase and includes contractor activities. This operations phase plan includes relevant construction related mitigation and management measures for on-going works that involve land disturbance and rehabilitation (largely captured in Appendix 1).

This management plan is developed to guide implementation of OT’s biodiversity commitments (including the specific requirements in regards to identified Critical Habitat) in accordance with the International Finance Corporation’s (IFC) Performance Standards and the European Bank for Reconstruction and Development’s (EBRD’s) Performance Requirements. In addition, implementation of this Plan will ensure Oyu Tolgoi’s compliance with Mongolia’s obligations.

Overlaps with other Management Plans

This Management Plan is part of the overall suite of Operations Management Plans developed for the OT Project and as described in the Environmental and Social Management Plan (ESMP) Framework (OT-10-PLN-0003).

This Management Plan has overlaps and cross-linkages to a number of other Management Plans, including:

- Biodiversity Management Plan (OT-10-E14-PLN-0003), particularly in relation to protection of wildlife habitats, rare plant species, and native vegetation communities;
- Pastureland Management Plan (forthcoming), in relation to pastureland management;
- Offsets Management Plan (forthcoming), in relation to activities designed to offset residual impacts on biodiversity and deliver the project’s commitment to NPI;
- Mineral Waste Management Plan (OT-10-E13-PLN-0001);
- Integrated Mineral Waste, Acid Rock Drainage and Dump Management Plan (OT-10-E8-PLN-0002);
- Contractor Management Framework (OT-07-PLN-9001);
- Mine Closure Plan (OT-10-E14-PLN-0002); and
- Stakeholder Engagement Management Plan (OT-05-PLN-0001).

3 ROLES AND RESPONSIBILITIES

Key Roles and Responsibilities for Management Plan Implementation

Principal roles and responsibilities for the implementation of this plan are outlined below.

Table 1: Key Roles and Responsibilities

Role	Accountability
OT General Manager HSESC	<ul style="list-style-type: none"> • Overall responsibility for the implementation of this Management Plan, including ensuring that adequate resources are provided to allow implementation. • Develop and communicate on a regular basis to relevant department managers targets related to land use requirements.

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OT Manager Environment and Biodiversity	<ul style="list-style-type: none"> • Ensures this plan is available to all OT employees and contractors. • Ensures all Operational department Managers implement the relevant control measures indicated in this management plan. • Preparation and completion of quarterly and annual environmental reports including details on land use. • Ensure the OT staffs has an adequate knowledge for implementation and improvement of this management plan and engage with professional experts to obtain specialist advice in relation to the achievement of this plan. • Liaises with other departments to plan and schedule land disturbance and rehabilitation activities.
Operational department Managers	<ul style="list-style-type: none"> • Ensure management control measures in this plan are implemented at operational work places / areas • Provide necessary information and quarterly updates on planned land disturbance activities to the Environmental teams to support effective implementation of this management plan
HSE Compliance team	<ul style="list-style-type: none"> • Ensure changes in National legislation on land, and also updates in the applied National and Project standards are timely informed to the Environment Manager and Environmental teams including the Land and Flora Research for incorporation into this Management plan.
OT Environmental Land team	<ul style="list-style-type: none"> • Ensuring the associated procedures are enforced and records retained. • Supports the Manager Environment and Biodiversity in preparation of quarterly and annual environmental reports on implementation of this management plan.
Flora Research team	<ul style="list-style-type: none"> • Ensuring the associated procedures are enforced and records retained.
Social Performance Department	<ul style="list-style-type: none"> • Communicate timely with Environmental Land team of land related community complaints and recorded incidents to ensure timely responses to the issues and accurate tracking of KPIs of this management plan.
Environmental GIS Officer	<ul style="list-style-type: none"> • Maintain geodatabase on OT land use, and keep accurate and up-to-date
Advisor Government Relations	<ul style="list-style-type: none"> • Provide necessary documents (permits, approvals, and certificates related to land on which the business may have liability) and other relevant information to Environmental GIS Officer for regular and accurate updating of the OT total land holdings database.
Senior Surveyor, Mine Technical Services	<ul style="list-style-type: none"> • Provide monthly updates on land disturbance by OP operations, including TSF.
All Employees and Contractors	<ul style="list-style-type: none"> • Comply with the environmental requirements enforced in this management plan.

Key Interfaces

Key interfaces in the implementation of this Management Plan (i.e. roles with responsibility for delivering elements of this Management Plan) include:

- HSESC Department;

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- Social Performance Department (SP)
- Concentrator and Infrastructure Departments;
- Engineering/Maintenance;
- Open Pit and TSF Department;
- Underground Department and
- Permitting Department (Legal).

Due to the need to manage expectation with local authorities regarding completion indicators and outcomes, the following stakeholders have been identified as key external interfaces of this management plan:

- Local and state regulators;
- Local communities; and
- Interest groups including Tri-Partite Council and Joint Working Group of Khanbogd soum administration and herders.

4 PROJECT STANDARDS

Applicable Standards must be complied with for all Project activities (the “Project Standards”). Project Standards comprise:

- applicable Mongolian Legislation;
- applicable Mongolian National Standards;
- Detailed Environmental Impact Assessment (DEIA) requirements;
- other commitments to and requirements of Mongolian Government authorities;
- applicable Lender standards;
- applicable Rio Tinto standards; and
- Other industry guidelines with which OT has committed to comply.

Applicable Mongolian Legislation

Mongolian Laws

- Law on Environmental Protection, 1995 (amendment in 2012);
- Law on Land, 2002 (amendment in 2015);
- Law on Land Fees, 1997 (amendment in 2015);
- Law on Soil Protection and Prevention of Desertification, 2012;
- Law on Subsoil, 1988 (amendment in 1994);
- Law on Cultural Heritage Protection, 2014;
- Law on Fauna, 2012.
- Law on Natural Plants, 1995 (amendment in 2010);
- Law on Fees for Natural Resources Use, 2012;
- Law on Environmental Impact Assessment, 2012;

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Applicable Mongolian National Standards

Mongolian National Standards are developed by the Mongolian Agency for Standardisation and Metrology. These standards include biodiversity related issues in regards to land reclamation and mine rehabilitation including re-vegetation as provided below:

- MNS 5914:2008. Environment. Land reclamation. Terms and definitions
- MNS 5915:2008. Environment. Classification of land disturbed by mining activities
- MNS 5916:2008. Environment. Requirements for fertile soil removing and its temporary storage during the earth excavation
- MNS 5917:2008. Environment. Reclamation of land disturbed by mining activities. General technical requirements
- MNS 5918:2008. Environment. Re-vegetation of disturbed land. General technical requirements
- MNS 5850:2008. Environment. Soil quality. Soil pollutant elements and substances.

DEIAs

Land disturbance control and rehabilitation management requirements set out in Environmental Protection Plans and Environmental Monitoring Plans which accompany DEIAs have been incorporated into this Management Plan. The OT statutory commitments relevant to land disturbance and rehabilitation are provided in the DEIA reports which have been prepared in accordance with the Law on Environmental Impact Assessment and the *Minerals Law of Mongolia*.

Other Commitments to and Requirements of Mongolian Government Authorities

Paragraphs 6.4, 6.9, 6.10 and 6.11 of the Investment Agreement apply:

- The Investor shall meet all costs for each year of implementing an environmental protection plan ("EPP") and environmental monitoring and analysis programme, in connection with implementation of the OT Project and shall provide to the State central administrative authority in charge of environment a report, prepared by a certified, independent, professional firm, on addressing the Investor's implementation of the measures specified in the EPP every 3 (three) years.
- The Investor shall submit annually a report detailing its comprehensive environmental monitoring and analysis programme associated with Core Operations to the State central administrative authority in charge of environment.
- If any material adverse impact on air, water, soil, animals, plants and/or subsoil is found by the environmental monitoring and analysis programme, the Investor shall take necessary measures to eliminate such material adverse impact at the Investor's expense. The Investor shall pay compensation for unanticipated and irreversible ecological damage directly caused by the operations of the OT Project based on the ecological and economic value for the permanently damaged natural resources, to the extent prescribed by the Law on Environmental Protection and other relevant laws and regulations.

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Applicable International Standards and Guidelines

The international standards which Oyu Tolgoi will implement are those set by the International Finance Corporation and by EBRD. Specifically OT is committed to meeting the requirements of IFC PS 6 and EBRD PR 6. These require no net loss of natural habitat and net gain for corresponding biodiversity. The key relevant guidelines are IFC EHS Guidelines for Mining, 2007.

IFC EHS Guidelines for Mining

The IFC EHS Guidelines for mining have the following guidance with regard to land disturbance, topsoil management and rehabilitation¹:

Temporary and permanent terrestrial habitat alteration should be minimized to the extent feasible and be consistent with the requirement to protect and preserve critical habitat. Recommended management strategies include:

- *Siting access routes and facilities in locations that avoid impacts to critical terrestrial habitat, and planning exploration and construction activities to avoid sensitive times of the year;*
- *Minimizing disturbance to vegetation and soils;*
- *Implementation of mitigation measures appropriate for the type of habitat and potential impacts including, for example, post-operation restoration (which may include baseline inventories, evaluations, and eventual rescue of species), offset of losses, or compensation of direct users;*
- *Planning and avoiding sensitive areas and implementing buffer zones;*
- *Implementing soil conservation measures (e.g. segregation, proper placement and stockpiling of clean soils and overburden material for existing site remediation) - key factors such as placement, location, design, duration, coverage, reuse, and single handling should be considered;*
- *Where topsoil is pre-stripped, it should be stored for future site rehabilitation activities. Topsoil management should include maintenance of soil integrity in readiness for future use. Storage areas should be temporarily protected or vegetated to prevent erosion;*
- *Conserving the quality and composition of growth medium for use (e.g. for capping) during site reclamation and closure activities;*
- *Ensuring that the growth medium is sufficient to support native plant species appropriate for the local climate and consistent with proposed future land uses. Overall thickness of the growth medium should be consistent with surrounding undisturbed areas and future land use.*
- *Development of a Mine Closure Plan with a commitment to progressive rehabilitation of the mine area including activities such as demolishing buildings and physical infrastructure; closing open pits; stabilizing and preventing public access to underground workings and*

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shafts; reclamation of slopes; and ensuring that water draining from the mine site and waste deposits are not a risk to human health and the environment.

Applicable Rio Tinto Standards

The primary Rio Tinto Standards that applies to land disturbance and rehabilitation is *E14 - Land disturbance control and rehabilitation standard, 2014*, and the *Closure Plan, 2013*.

5 MANAGEMENT CONTROLS

The key operational management controls described in *Table 2* below point towards the relevant procedures that contain ESIA commitments. In addition, any ESIA commitments that (1) have not moved into procedures; (2) relate specifically to land disturbance control or rehabilitation; and (3) are not contained within other management plans are included in *Table 2*.

This management plan is also supported by a number of procedures and standards, which provide more detail on specific operational day to day activities undertaken by OT personnel and contractors, these are:

- Land Disturbance Permit Procedure (OT-10-E14-PRC-0003);
- Topsoil Handling Procedure (OT-10-E14-PRC-0001);
- Long-term topsoil stockpile quality monitoring procedure (forthcoming)
- Technical Rehabilitation Procedure (OT-10-E14-PRC-0002);
- Biological Rehabilitation Procedure (OT-10-E14-PRC-0010)
- Priority Plant Protection Procedure (OT-10-E14-PRC-0007)
- Vegetation Monitoring Procedure (OT-0244-00-SWPO-0008)
- Biological Rehabilitation Completion Criteria (Forthcoming)
- Soil sampling for pollutant analysis (OT0243-00-SWPO-0002)
- Monitor soil bacteriology and hygiene (OT0243-00-SWPO-0003)
- Characterise soil properties in the field (OT0243-00-SWPO-0004)
- Soil sampling for analysis of chemical and physical properties (OT0243-00-SWPO-0005)
- Incident Management Procedure (OT-14-PRC-0001)

Table 2: Key Management Controls

ID	Topic/ Aspect	Applicability/Impacts	Control Description	Responsible Parties	Means of verification
LD01	Land Use	<ul style="list-style-type: none"> • Economic displacement (loss of pasture/disrupted access to pasture and water) 	Oyu Tolgoi will return the maximum amount of disturbed land to pre-mining conditions suitable for nomadic herdsmen and their grazing animals.	Environment & Biodiversity Department; SP Department	<ul style="list-style-type: none"> • Rehabilitation records

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ID	Topic/ Aspect	Applicability/Impacts	Control Description	Responsible Parties	Means of verification
LD02	Land Use	<ul style="list-style-type: none"> Unnecessary Land disturbance 	Implementation of the Land Disturbance Permit Procedure that sets rules for land disturbance and establishes the environmental requirements for the internal approvals process.	Environment & Biodiversity Department Operational and Infrastructure departments Contractors	<ul style="list-style-type: none"> Land Disturbance permit registers and incident records
LD03	Topsoil	<ul style="list-style-type: none"> Loss of topsoil Impact of dust on topsoil stockpile quality 	<ul style="list-style-type: none"> Implementation of the Topsoil Handling Procedure that includes, but is not limited to, details with respect to planning, stripping, storage and use of topsoil. To ensure the overall site needs and balance in rehabilitation growth media, suitable subsoils and other geological materials including benign waste rock, will be salvaged and stockpiled. Implementation of the Long-term Topsoil Stockpile Monitoring Procedure that defines scope and requirements for effective topsoil stockpile quality monitoring. 	Operational and Infrastructure departments Environment & Biodiversity Department	<ul style="list-style-type: none"> Topsoil log sheets Topsoil handling performance inspection reports Land disturbance permits with such requirements specified Topsoil stockpile monitoring records
LD04	Soil	<ul style="list-style-type: none"> Impacts on soil quality in the MLA and infrastructure areas 	<ul style="list-style-type: none"> Mitigation, where possible preventions of potential impacts on soil quality in the MLA and infrastructure areas are ensured with implementation of the air emissions and soil contamination control measures. Routine soil monitoring (chemical and physical characteristics, contamination, etc.) is implemented in accordance with the respective SWPs including: 	Environment & Biodiversity department	<ul style="list-style-type: none"> Laboratory results Annual environmental reports

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ID	Topic/ Aspect	Applicability/Impacts	Control Description	Responsible Parties	Means of verification
			<ul style="list-style-type: none"> - Soil sampling for pollutant analysis (OT0243-00-SWPO-0002) - Monitor soil bacteriology and hygiene (OT0243-00-SWPO-0003) - Characterise soil properties in the field (OT0243-00-SWPO-0004) - Soil sampling for analysis of chemical and physical properties (OT0243-00-SWPO-0005) • Land quality assessments in the MLA and its infrastructure areas are organized every five year in compliance with the Mongolian Law on Land; 	Government Relations Department	<ul style="list-style-type: none"> • LQA reports
LD05	Rehabilitation	<ul style="list-style-type: none"> • Land disturbance 	<ul style="list-style-type: none"> • Oyu Tolgoi will implement annual Rehabilitation Management Plans supported by Technical and Biological rehabilitation procedures with the aim to achieve final land uses compatible with pre-mining uses and to reinstate equivalent vegetation types and cover, water bodies, wildlife habitat, and livestock pasture, based upon completion criteria in line with OT's biodiversity commitment to deliver No Net Loss of natural habitats and net gain for critical habitat. 	Environment & Biodiversity Department	<ul style="list-style-type: none"> • Rehabilitation records
LD06	Rehabilitation	<ul style="list-style-type: none"> • Changes to topography and landscape through cut and fill, levelling, borrow and pit excavation, creation of waste dumps 	<ul style="list-style-type: none"> • Implementation of the OT Technical Rehabilitation Procedure. in line with the Rio Tinto Land Disturbance Control and Rehabilitation standard (E14) • The project will rehabilitate equal areas to the area of disturbance. 	Environment & Biodiversity Department Operations and Infrastructure Departments Contractors	<ul style="list-style-type: none"> • LDP-completion (rehabilitation) inspection reports / Rehabilitation Acts • Rehabilitation monitoring records

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ID	Topic/ Aspect	Applicability/Impacts	Control Description	Responsible Parties	Means of verification
					<ul style="list-style-type: none"> Quarterly and annual Environmental Reports
LD07	Rehabilitation	<ul style="list-style-type: none"> Vegetation cover loss 	<ul style="list-style-type: none"> Implementation of the OT Biological Rehabilitation Procedure in line with the Rio Tinto Land Disturbance Control and Rehabilitation standard (E14) and OT Priority Plant Protection Procedure; The project will rehabilitate equal areas to the area of disturbance. The project will restore priority species equal or better to those in the original disturbed habitat 	Environment & Biodiversity Department Operational and Infrastructure departments Contractors	<ul style="list-style-type: none"> Rehabilitation records VCR records Vegetation Monitoring report
LD08		<ul style="list-style-type: none"> Loss of natural vegetation and specific plant communities 	<ul style="list-style-type: none"> Implement Biological Rehabilitation procedure and apply Completion Criteria (forthcoming). The project will rehabilitate equal areas to the pre-disturbance condition. 	Environment & Biodiversity Department	<ul style="list-style-type: none"> Monitoring records and reports Vegetation monitoring record
LD09	Topography	<ul style="list-style-type: none"> Visual impact of project structures inside the Mine Licence Area. 	<ul style="list-style-type: none"> OT will minimise visual impacts for low lying project structures using the following measures where practicable: <ul style="list-style-type: none"> Use of landscaping for smaller structures and open pit mine Screening of structures by the WRD Use of 10% of residential area in Mine Licence Area for landscaping. OT will survey and use natural topography to screen operations where appropriate. 	Environment Department Open Pit Department	<ul style="list-style-type: none"> Rehabilitation records

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ID	Topic/ Aspect	Applicability/Impacts	Control Description	Responsible Parties	Means of verification
LD10	Land Use	<ul style="list-style-type: none"> Uncontrolled land disturbances 	<ul style="list-style-type: none"> Regular records on OT land use in the following categories: <ul style="list-style-type: none"> Disturbed land; Topsoil storage; Technical rehabilitation including naturally re-vegetated areas; Biological rehabilitation; 	Environment & Biodiversity Department	<ul style="list-style-type: none"> Quarterly and annual reports
LD11		<ul style="list-style-type: none"> Loss of priority plants and habitats 	<ul style="list-style-type: none"> Quarterly review of planned land disturbance activities will take place with the involvement of relevant departments, to allow appropriate biodiversity risk review and scheduling of land disturbance permitting, pre-disturbance surveys, topsoil management and technical and biological rehabilitation Implement Biological Rehabilitation Procedure and Priority Plant Protection procedure for rare plant survey. Selection of project sites with considerations of avoidance of priority plants in accordance with the Priority Plant Protection procedure and LDP procedure. 	Environment & Biodiversity Department OT Departments and CEG	<ul style="list-style-type: none"> Register of planned construction and infrastructure developments Monitoring records and reports Proposed work sites survey reports Transplantation reports

6 IMPLEMENTATION SCHEDULE

Review and Revision of this Management Plan

This Management Plan will be reviewed every two years and any necessary revisions made to reflect the changing circumstances or operational needs of OT. Review and revision of this Management Plan will be the responsibility of the OT General Manager HSESC who is custodian of this Plan.

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If material changes to operating procedures are required (as identified through the Management of Change procedure contained within the OT HSE Management System), this Management Plan may be updated on an “as required” basis.

Any revisions to this Management Plan will be uploaded to the OT Portal to ensure that all OT staff have access to the latest version of this Management Plan

7 MONITORING

Overview of Monitoring Requirements

The Monitoring measures that are to be implemented during the operations phase to assess compliance with Project Standards, including rehabilitation completion criteria, are described in this section.

In the event that monitoring identifies non-conformance with Project Standards including completion criteria, these will be investigated and appropriate corrective actions identified to enable adaptive management (see Element 14 Non-conformance incident and action management of the OT HSE MS).

Key Performance Indicators

Key performance indicators (KPIs) that will track implementation of this plan’s key management controls are outlined in Table 3.

Table 3. Key Performance Indicators

ID	KPI	Target/threshold	Monitoring measure	Relevant management controls
LD-KPI 01	Area rehabilitated compared with the area in annual technical rehabilitation plan	Target - 100% implementation	Implementation of Annual rehabilitation plan 4.2. Technical rehabilitation completion criteria in Technical rehabilitation procedure	LD01, LD02, LD03, LD05, LD06, LD07, LD08, LD09
LD-KPI 02	Area re-vegetated compared with the areas in annual biological rehabilitation plan	Target - 100% implementation	Implementation of Annual rehabilitation plan OT Vegetation monitoring procedure	LD07, LD09
LD-KPI 03	Volume of stored topsoil (both short and long term) compared with the volume estimated in approved LDPs	Target – 100% implementation of estimated topsoil removal implementation	Records in Topsoil log sheet Topsoil handling procedure – Topsoil handling performance	LD03

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ID	KPI	Target/threshold	Monitoring measure	Relevant management controls
			inspection	
LD-KPI 04	Number of recorded non-compliances against the Land Disturbance Permit Procedure	Target – zero non-compliance	Number of land disturbance activities started prior to issuance of permits Incident management procedure	LD02, LD10
LD-KPI 05	Condition of rehabilitated land	Condition in line with the relevant completion criteria	Annual rehabilitation plan OT Vegetation monitoring procedure Completion criteria in the Biological rehabilitation procedure	LD08, LD01, LD05
LD-KPI 06	Non-compliance with soil quality standards	Target: 0 per year	Soil chemical and physical, bacteriological, and hydrocarbon content monitoring to be implemented as per Annual Environmental Monitoring Plan:- Soil sampling for pollutant analysis (OT0243-00-SWPO-0002) - Monitor soil bacteriology and hygiene (OT0243-00-SWPO-0003) - Soil sampling for analysis of chemical and physical properties (OT0243-00-SWPO-0005)	LD04

Key Monitoring Activities

Key monitoring activities will focus on implementation of the Topsoil Handling Procedure, Rehabilitation Procedures, including technical and biological, and the Land Disturbance Permit Procedure. The key monitoring measure for biological rehabilitation will feed into the project Net Positive Impact forecast.

Key monitoring measures are set out below.

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Table 4. Key Monitoring Measures

ID	Topic/Aspects	Methods	Periodicity	Location
LU-M 01	Land disturbance	Analyse LDP requests and geodatabase	Annually	All disturbed areas
LU-M 02	Topsoil	Report on implementation of the topsoil procedure: topsoil stripping/stockpiling against approved LDP conditions and; - topsoil stockpile quality monitoring as set out in the annual EPP	Annually	Topsoil stockpiles
LU-M 03	Rehabilitation	Track area rehabilitated against area disturbed. Report within the annual rehabilitation plan. • Soil quality monitoring prior disturbance, after technical and biological rehabilitation. • Habitat rehabilitation including area, species, seedling survival rates and measures of revegetation success (% cover, species richness, % perennials versus annuals) (methods under internal review)	Annually	Covers all OT rehabilitation

8 TRAINING

Overview

All necessary training is provided as part of induction training (to provide general awareness) and job-specific training as necessary.

Induction Training

All employees of OT and Contractors working at OT will be provided with general induction, site specific induction and a broad range of health, safety and environmental awareness training, including a specific awareness module on this management plan and related procedures.

Job-Specific Training

All employees and contractors working at OT shall be subject to toolbox training as required. This will include details on the importance of the procedures associated with this management plan. OT will seek to provide learning opportunities to field supervisors to build capacity within OT to address ongoing rehabilitation, tree planting and translocation in accordance with the needs of the company.

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9 AUDITING AND REPORTING

Internal Auditing

Daily inspections will be carried out by operational area superintendents / supervisors covering a broad range of health, safety and environmental aspects. Routine inspections will additionally be carried out by the HSESC Department using an Inspection Checklist.

Any incidents identified during these inspections will be reported to the incident management system (Element 14).

Conformance with this management plan will be monitored via annual internal audit program in accordance with Element 16 Performance Assessment and auditing. This will be undertaken to assess broad compliance with requirements of HSE management system (including ESIA and management plans).

All incidents and non-conformances identified during these inspections are reported as per the requirements of the OT HSE Management System as described in the Environmental ESMP Framework Document.

External Auditing

Conformance with this plan will be subject to periodic assessment as part of the Rio Tinto HSE Business Conformance Audit programme and by Project Lenders.

Record keeping

Records of audits, inspections and incidents will be managed in accordance with Element 8 Documentation and Document Control and Element 15 Data and Records Management.

Rio Tinto Business Solution shall be used to record Internal and External Audit findings and related actions and Incidents and related investigation and actions.

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10 DOCUMENT CONTROL

File Name	Land disturbance control and rehabilitation management plan
Description	This management plan applies to all lands owned, leased, or managed by Oyu Tolgoi LLC or for which the business may have liability through all phases of the project life cycle: project planning, construction and operation to closure.
Original Author(s)	Tsetsegsuren Luvsan and Altantsetseg Balt
Creation Date	2015.09.12
Approved By	Dennis Hosack, Manager Environment and Biodiversity
Approval Date	2016.04.01
Change Record Number	##

Risk Ranking	Assessment Date	Risk Assessor	Review Schedule	Next Review Date
Moderate		Environment and Biodiversity team	Bi-annually	2018.04.01

Version	Revision Date	Author(s)	Approved By	Revision Notes
1.0	2016.04.01	Various	Dennis Hosack	

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APPENDIX A: LAND DISTURBANCE CONTROL AND REHABILITATION COMMITMENTS REGISTER

This spreadsheet tracks the history of changes to all land disturbance and rehabilitation related management actions from the Construction Phase Flora and Fauna Management Plan.

Construction Phase ID	Topic/ Aspect	Applicability/ Activity	Control Description	New ID Ref	Documents	Comment/Justification for removal or revision of management action
FF04	Land disturbance	Land disturbance procedure	Oyu Tolgoi operates Land Disturbance Permit procedure which is an internal approval for any type of land disturbing activities covering all native vegetation clearing inside and outside the lease areas.	LDPP	Land Disturbance Permit Procedure	
FF04-a	Land disturbance	Land disturbance procedure	Prior to disturbance, proposed disturbance areas will be demarcated and inspected by Oyu Tolgoi Environmental Officers for aspects which may require environmental protection (threatened flora and fauna, priority fauna habitat, significant ecological communities etc.). A land disturbance permit can be refused if it will negatively impact priority biodiversity features as outlined in the project Biodiversity Management Plan.	LDPP	Land Disturbance Permit Procedure	Section 4.1.2. Bullet 1, and LDP Compliance Inspection Form address boundary demarcation prior to work being conducted. Several different points in the LDP mention habitat identification and avoidance, and this would feed directly into demarcation of areas of work: Areas where avoidance of habitat are mentioned include: Section 1.1: Bullet 4; Section 3: Environmental Department; Section 4.1 Introductory paragraph; Section 4.1.2 Topsoil Removal; Section 4.1.7 Biodiversity Conservation and Habitat Protection: Bullet 1 and 2.
FF04-b	Land disturbance	Land disturbance procedure	Where necessary, rare or endangered species of flora identified in the work area may be transplanted in order to avoid adverse environmental impacts.	LDPP	Land Disturbance Permit Procedure	Section 4.1.2. Bullet 4, on transplanting see also : Rehabilitation Procedures (OT-10-E14-PRC-0002)
FF04-c	Land disturbance	Land disturbance procedure	Where impacts to an item or items of environmental or cultural significance are unavoidable, all practicable steps will be taken to minimise the degree of impact.	LDPP	Land Disturbance Permit Procedure	Section 4.1.2. Bullet 4, on transplanting; Section 4.2.2 on discovery and rescue of cultural heritage, as well as chance finds procedure; LDP compliance form, reference to chance finds procedure compliance;
FF04-d	Land disturbance	Land disturbance	Areas containing an item or items of environmental or cultural significance	LDPP	Land Disturbance	Section 5: Area of Significance Definition; Section 4.1.7; Section 4.2.2 Cultural Heritage Protection first

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		procedure	(including biodiversity) which is determined cannot be disturbed will be physically barricaded and sign posted.		Permit Procedure	paragraph;
FF04-e	Land disturbance	Land disturbance procedure	Where practicable, clearance of vegetation identified as containing potential breeding resources for fauna is to be conducted outside of breeding periods.	LDPP	Land Disturbance Permit Procedure	Several different points of mention in LDP about habitat identification and avoidance, and Section 4.1.2. Topsoil Removal, Bullet 7 notes avoidance of work during bird breeding seasons. Areas where avoidance of habitat are mentioned include;; Section 3: Environmental Department; Section 4 Intro Paragraph; Section 4.1.2 Topsoil Removal; Section 4.1.7 Biodiversity Conservation and Habitat Protection: Bullet 1 and 2
FF04-f	Land disturbance	Land disturbance procedure	Where construction activities are unable to be scheduled outside of breeding periods, for example – Haboura Bustard lekking season, specific activity plans will be developed that include: § Field monitoring of proposed disturbance area immediately prior to and during activities to identify habitat or activity that will be avoided; § Specific measures to minimise construction activities in identified sensitive areas (such as the Galbyn Gobi Important Bird Area); § Measures to schedule works such that impacts on sensitive areas can be avoided where ever possible; and § Specific induction of contractors and employees on measures to minimise disturbance of breeding species through restriction of certain activities or avoidance of machinery use in identified areas.	LDPP	Land Disturbance Permit Procedure	Specific requirements incorporated into Section 4.1.7 of LDP

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FF06-a	Land take, earthworks and construction	Restoration	Oyu Tolgoi will assess the feasibility and practicality of collecting seeds from local species and they will be propagated in a Khanbogd nursery where practical.	RP	Land Disturbance Permit Procedure, Rehabilitation Procedure	
FF06-b	Land take, earthworks and construction	Restoration	Oyu Tolgoi will return the maximum amount of disturbed land to pre-mining conditions suitable for nomadic herdsman and their grazing animals.	LD01	Mine Closure Plan	The Mine Closure Plan include commitments to, as a minimum, rehabilitation of an equal area of land as that disturbed by the project. These plans also include land rehabilitation completion criteria that reflect traditional land use requirements.
FF06-c	Land take, earthworks and construction	Restoration	Oyu Tolgoi will leave the open pit areas (e.g. borrow pits), waste dumps and TSF in a condition that adequately protects long term safety of animals and the public.	MCP	Mine Closure Plan	
FF06-d	Land take, earthworks and construction	Restoration	Oyu Tolgoi will use, where possible, locally occurring vegetation species in the reclamation process.	RP	Rehabilitation Procedure	
FF07	Rehabilitation	General	Oyu Tolgoi will implement annual Rehabilitation Management Plans with the aim to achieve final land uses compatible with pre-mining uses including endemic vegetation cover, water bodies, wildlife habitat, and livestock pasture.	LD05	LDCRP	
FF07-a	Rehabilitation	General	Oyu Tolgoi will rehabilitate and restore areas and features impacted in line with the standard Rio Tinto rehabilitation and restoration practice.	LD07	LDCRP	
FF07-c	Rehabilitation	General	Suitable plant species for use in rehabilitation, seed species mix, application rates etc. will be determined by rehabilitation trials conducted by the Oyu Tolgoi Environment Team. Vegetation of natural analogue sites will be	RP	Rehabilitation Procedure	In the LDP, this is addressed in Section: 4.4 Earthwork Completion or Reclamation, paragraph 2; In the Rehabilitation Procedure, this is addressed in Section 4.1.2 Roads and Tracks for Rehabilitation, Bullet 4; Section 4.2.2 Borrow Pits for

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			used to guide the ratio of annual to perennial plants used in rehabilitation seeding mixes.			Rehabilitation, Bullet 10.
FF07-d	Rehabilitation	General	Where appropriate, rehabilitation and restoration of disturbed vegetation will specifically include Priority Biodiversity Features such as Mongolian Chesney, Riverine Elm Trees and Tall Saxaul.	RP	Rehabilitation Procedure	The Rehabilitation Procedure includes the need to include species of conservation and or cultural significance in land rehabilitation which is a broader and more inclusive description than naming the specific species.
FF07-e	Rehabilitation	General	Where appropriate, use culturally useful/significant plant species as part of rehabilitation of disturbed areas.	RP	Rehabilitation Procedure	
FF07-f	Rehabilitation	General	As part of its rehabilitation programmes, Oyu Tolgoi will progressively recreate stable landforms compatible with the surrounding environment following the completion of Oyu Tolgoi mine project infrastructure components.	RP	Rehabilitation Procedure	
FF07-g	Rehabilitation	General	Areas disturbed during exploration, construction, development and mining operations will be progressively rehabilitated rather than deferring large scale rehabilitation to the mine closure phase.	LD03	LDCRP	
FF07-h	Rehabilitation	General	Rehabilitation will also be managed through the Mine Closure Management Plan that will be developed as part of the suite of operational management plans. See Chapter D21: Mine Closure and Rehabilitation Framework and also Chapter D4: Topsoil Construction Management Plan.	MCP	Mine Closure Plan	
FF07-i	Rehabilitation	Rehabilitation	Areas disturbed during exploration, construction, development and mining operations, including the Temporary Airstrip, will be progressively rehabilitated rather than deferring large scale rehabilitation to the mine closure phase.	LD03	LDCRP	

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FF08	Reinstatement	Roads and tracks	Old and disused roads and tracks that were constructed by Oyu Tolgoi will be progressively rehabilitated. Rehabilitated tracks and roads will be appropriately sign-posted to prevent future use by vehicles and will be monitored to assess rehab success.	RP	Rehabilitation Procedure	
FF10	Land take, earthworks and construction	Rare species	Prior to disturbance, proposed land disturbance areas will be demarcated and inspected by suitably qualified Oyu Tolgoi Environmental Officers for aspects which may require environmental protection (threatened flora and fauna, priority fauna habitat, conservation significant ecological communities etc.). Based on results of environmental survey, the Environmental Department may develop specific measures to protect flora and fauna with a proposed land disturbance envelope. These measures must be implemented and maintained by the earthwork operators/contractors at all times throughout the proposed earthwork. Biodiversity features retained within a land disturbance envelope will be mapped and monitored to ensure adverse impacts are avoided/minimised. In circumstances where trees must be removed and not translocated, the species and tree age/diameters will be logged. Recording of all other incidents involving fauna.	LDDP	Land Disturbance Permit Procedure	Land Disturbance Permit Procedure Section 3: Environmental Department Responsibilities; Section 4.1 states "Environmental requirements to be considered in processing LDP requests include topsoil protection, rare or endangered flora species protection, wildlife and its habitat protection, and water resource and quality protection" Section 4.1.2 Topsoil Removal Section 4.1.7: "The Environmental Department shall take necessary actions on biodiversity conservation, as well as on habitat protection following the conclusions from the pre-disturbance inspections in proposed work areas. The Environmental Department may develop recommendations for Contractors on biodiversity and habitat protection,. The recommendations must be implemented by the earthwork operators at all times throughout the proposed earthwork" Section 4.1.7 Biodiversity Conservation and Habitat Protection has been updated to reference fauna incident reports.

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FF11	Land take, earthworks and construction.	Rare plants - relocation	Where pre-clearance surveys identify the presence of priority plant species, the Oyu Tolgoi Environmental Department will investigate the potential for relocating individuals of priority plant species. Any use of herbicides will comply with the requirements for pesticide use and management of paragraphs 12-15 of the 2006 version of IFC Performance Standard 3: Pollution Control and Abatement.	LDPP	Land Disturbance Permit Procedure	
FF11-a	Land take, earthworks and construction.	Rare plants - relocation	Prior to disturbance, proposed land disturbance areas will be demarcated and inspected by suitably qualified Oyu Tolgoi Environmental Officers for aspects which may require environmental protection including rare and very rare plants or other priority flora.	LDPP	Land Disturbance Permit Procedure	
FF11-b	Land take, earthworks and construction.	Rare plants - relocation	Prior to any relocation effort, a relocation plan will be drawn up and locations identified for the relocation of flora.	LDPP	Land Disturbance Permit Procedure	
FF11-c	Land take, earthworks and construction.	Rare plants - relocation	Rare and very rare plants within the Mine Licence Area that could be affected by construction (but which are not within any land disturbance envelope) will be demarcated to ensure no unintentional disturbance occurs.	LDPP	Land Disturbance Permit Procedure	
FF11-d	Land take, earthworks and construction.	Rare plants - relocation	Weed Control Management, as outlined in the interim rehabilitation management plan, will be implemented.	RP	Rehabilitation Procedure	Note that GBC confirmed in email of 17 April 2013, that: (i) we agree that removal of mention of these mitigation actions from high-level documents (in the most part to plans and policies) is commensurate with their relatively low importance; and (ii) we do not believe that even complete loss of these mitigation actions, should it take place, would result in high or critical risks to priority biodiversity

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						features.
FF11-e	Land take, earthworks and construction.	Rare plants - relocation	Herbicides will not be used unless the appropriate approvals have been obtained from the applicable Mongolian authorities. Wherever possible the use of herbicides will be minimised.	RP	Rehabilitation Procedure	
FF11-f	Land take, earthworks and construction.	Rare plants - relocation	There will be no new quarries constructed by Oyu Tolgoi in the “pristine” or “limited use” zones of the SGSPA (South Gobi Strictly Protected Area).	LDPP	Land Disturbance Permit Procedure	