



Oyu Tolgoi LLC

Health, Safety and Environment Management System Procedures

Topsoil Handling Procedure

Topsoil Handling Procedure		
Effective Date: 2016.04.01	Document Number: OT-10-E14-PRC-0001-E	Version: 1.1

1. PURPOSE

To outline the requirements for effective topsoil management, including stripping, stockpiling and monitoring activities. Effective handling of topsoil is imperative to ensuring successful rehabilitation of disturbed areas.

The aims of this Topsoil Handling Procedure, which will ensure effective preservation of topsoil quality, are as follows:

- to define the appropriate suitability and stripping depth of soil material to be removed;
- to establish soil stripping requirements to:
 - ensure topsoil is properly stripped prior to land disturbing activities; and
 - minimize the potential for degradation of topsoil caused by mixing, compaction, rutting, or loss of organic matter;
- to determine the topsoil stockpile management requirements to preserve the topsoil quality through effective topsoil storage, minimizing re-handling, and maximizing availability of high quality topsoil for use in rehabilitation;
- to describe the topsoil monitoring processes implemented; and
- to set up strategies in appropriate use of topsoil to:
 - ensure topsoil is not used in purposes other than in rehabilitation of disturbed lands; and
 - to ensure topsoil is used within type.

2. SCOPE

The Topsoil Handling Procedure (THP) applies to all project activities that are likely to cause disturbance to existing topsoil and other suitable plant growth media within and outside of the OT Lease.

This procedure should be implemented in conjunction with other management plans and procedures including:

- Land Disturbance Permit Procedure (OT-10-E14-PRC-0003);
- Priority Plant Protection Procedure (OT-10-E14-PRC-0007);
- Long-term topsoil stockpile quality monitoring procedure
- Technical Rehabilitation Procedure (OT-10-E14-PRC-0002);
- Spill response procedure (OT-10-E15-PRC-0002);
- Chance Find Procedure;
- Atmospheric emissions management plan (OT-10-E12-PLN-0001);
- Land Disturbance Control and Rehabilitation Plan (OT-E14-PLN-0001) and
- Mine Closure Plan (OT-10-E14-PLN-0002).

3. ROLES AND RESPONSIBILITIES

All personnel from OT LLC and contractor companies involved in earthwork projects need to be aware of, and are required to abide by this Topsoil Handling Procedure.

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Role	Accountabilities
General Manager HSESC	<ul style="list-style-type: none"> Ensures the document is adhered to by OT departments and contractors involved in earth works managed by OT.
Manager Environment and Biodiversity	<ul style="list-style-type: none"> Ensures the THP and its contents are communicated and enforced throughout the OT project. Reviews and approves revisions of this procedure. Ensures appropriate soil surveys are undertaken by expert institutions in major topsoil resource lands prior to stripping. Designates areas for topsoil storage. Ensures topsoil quality is analysed in an accredited laboratory in Mongolia. Provides guidance to the Environmental team in discussions with other departments and contractor companies on non-conformances with THP requirements and follow up actions when necessary.
Specialist Environment	<ul style="list-style-type: none"> Reviews and updates this procedure.
Officer GIS	<ul style="list-style-type: none"> Prepares a map on topsoil stripping required area during LDP-request reviewing and processing
Environmental Officer - Land	<ul style="list-style-type: none"> Ensures topsoil handling requirements specified by the Flora team are indicated in LDP conditions.
Flora Research and Rehabilitation team	<ul style="list-style-type: none"> Conducts the pre-disturbance environmental inspection in the proposed work site and provides the topsoil information such as soil condition, topsoil type, stripping depth, storage location and project specific topsoil handling considerations additional to THP requirements to the Land team. Delineates on field the area requiring topsoil stripping to ensure topsoil is not mixed with non-storable quality of topsoil. Verifies topsoil in permitted area is removed and stockpiled as specified in approved LDP, as well as in accordance with the THP requirements. Conducts regular inspections of topsoil stockpiles and ensures they are properly maintained. Maintains topsoil data sheet on topsoil movement and storage. Performs topsoil stockpile quality monitoring. Prepares reports on the topsoil quality monitoring and storage for the Specialist Rehabilitation and Manager Environment & Biodiversity reviewing. Implements annual plan of long-term topsoil stockpile re-vegetation. Reports on non-compliances with this procedure on RTBS as per the OT Incident reporting procedure.
Project coordinating team and Earthworks Supervisors (including Contractors)	<ul style="list-style-type: none"> Undertake work site surveys with respect to topsoil removal and storage locations. Undertake pre-work site clearing activities. Adhere to all aspects of this procedure and collaborating with the Environmental teams during proposed work implementation. Ensure that all involved employees are inducted on the principles

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	<p>of topsoil handling.</p> <ul style="list-style-type: none"> • Ensure activities associated with the proposed works be compliant with applicable laws, regulations and standards both National and International, as well as company rules as listed in Section 6 of this document. • Ensure the earthwork operators are inducted on OT Chance Find Procedure prior to topsoil stripping. • Inform the Flora Research and Rehabilitation team of the date and time of topsoil stripping and stockpiling commencement and completion for verifications of implementations of the THP requirements. • Place signposts for topsoil stockpiles. • Notify the Environmental Department on the intended commencement of rehabilitation work at least 3 weeks in advance. • Appoint competent workers/employees to perform earthworks.
Open Pit Survey Team	<ul style="list-style-type: none"> • Performs the topsoil stockpile surveys for data including height, slope, density and volume of the topsoil stockpiles on a quarterly basis and provides the data to the Flora Research and Rehabilitation team.

4. PROCEDURE

The Topsoil Handling Procedure consists of four components, including topsoil stripping stockpiling, stockpile quality monitoring, and topsoil reuse requirements. Each of these elements is detailed below.

Steps of topsoil stripping and stockpiling procedures are summarized in a flowchart provided in Appendix 1.

4.1. Topsoil Stripping/Removal Procedure

The key considerations for topsoil stripping and removal are outlined in *Table 1*. Implementation of these principles is recommended to preserve topsoil quality to maximise its effectiveness in rehabilitation activities.

Table 1. Summary of key considerations for topsoil stripping/removal

Considerations	Explanatory notes
Keep vehicular traffic to a minimum on the soils to be stripped	<ul style="list-style-type: none"> • Topsoil will be compacted and consequently, the soil quality will be deteriorated.
Topsoil must not be stripped too deeply.	<ul style="list-style-type: none"> • Topsoil must not be stripped too deeply so that topsoil becomes incorporated with subsoil layers, thereby reducing soil fertility and consequently plant productivity.
All efforts must be made to avoid mixing topsoil with subsoil.	
Stripping of frozen topsoil must be evaluated carefully	<ul style="list-style-type: none"> • Under deep frost and high moisture conditions, shallow topsoil can cement to the overburden making topsoil stripping problematic. In such instances, topsoil stripping shall be delayed until a later stage.

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Stripping of topsoil shall only take place when soils are in a lightly moist and friable condition.	<ul style="list-style-type: none"> When the ground is moist, it will be firm enough to carry the weight of machinery without damaging the soil structure through compaction and smearing of wet soil. Therefore, soil handling shall be suspended during or after heavy rainfall, or if the surface of the material over which machinery has to pass is saturated.
Windy condition is not ideal for stripping topsoil.	<ul style="list-style-type: none"> High wind factor will exacerbate the dust generation in the surrounding vicinity, and thus cause nuisance to the local community and vegetation cover. Moreover, excessive dust erosion will affect ambient air quality.
Topsoil should be stripped only during the daylight hours.	<ul style="list-style-type: none"> Colour changes, which are critical in differentiating between topsoil and subsoil, are not readily evident after dark. Other than removal of topsoil from the upper portion of stockpiles, topsoil should not be stripped at night.
Topsoil stripping area must be clean.	<ul style="list-style-type: none"> Spill contamination and/or garbage in the stockpile will deteriorate the quality of the stored topsoil. The area shall be free from weeds and other foreign plant material or vegetative debris undesirable or harmful to plant life or which will prevent the formation of a suitable seedbed, in accordance with the MNS 5916:2008

4.1.1. Prerequisites for the topsoil removal commencement:

The following are pre-requisites, which must be implemented prior to topsoil removal commencing:

- Approved Land Disturbance Permit (LDP) for a proposed earthwork must be obtained.
- The area requiring topsoil removal shall be clearly delineated with pegs or flagging so that equipment operations are limited within the bounds of the designated disturbance areas.
- The area requiring topsoil stripping shall be free from spills and garbage. Spill contaminated soils shall be cleaned up from the area and transported to the OT Landfarm in accordance with OT Spill Response Procedure (OT-10-E15-PRC-0002).
- Any standing crop and excess vegetation, briars, stumps and large roots, rubbish or stones, which may interfere with subsequent operations, shall be removed from the proposed work area. Individuals of rare plant species found in the topsoil stripping area shall be transplanted in accordance with the Rare Plant Protection Procedure (OT-10-E14-PRC-0007).
- Ensure that topsoil is stripped at the latest possible stage to ensure that surfaces are not left exposed for prolonged periods of time. Furthermore, ensure that rehabilitation activities are planned in conjunction with topsoil stripping, to ensure that surface exposure without topsoil is minimised.
- Topsoil storage for temporary linear disturbance (e.g. tracks, pipeline corridors) shall occur as a windrow adjacent to the area cleared. This allows easy replacement of this material during rehabilitation activities;
- Previously surveyed topsoil depths will be staked in the work area. and
- Erosion and sediment control measures must be established for the area.

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4.1.2. Access to the Site

The following shall be considered by operators prior to accessing new project work areas:

- The access road to the work site will be prepared and stripped off topsoil to road side/s. However, in cases of temporary access topsoil stripping may not be necessary as scarification of the tracks upon completion of the work has been proven to be effective with vegetation recovering rapidly;
- The physical layout of the site and the haulage roads within the site shall be designed to facilitate the removal of soils and overburden with a minimal traffic on unstripped soils;
- Stripping and haul vehicles must be kept to designated routes and wheeled vehicles off topsoil; and
- No machinery or vehicles will cross any area of unstripped topsoil except where such movement is essential and unavoidable for the purposes of undertaking permitted operations.

4.1.3. Topsoil stripping equipment

Topsoil stripping and stockpiling will be completed using earth-moving equipment such as bulldozers, scrapers, graders and off-road trucks. In areas where topsoil layers are relatively thin, attention must be given to minimize mixing of topsoil and subsoils.

Inappropriate choice of equipment will usually lead to poor quality topsoil recovery, higher costs, and potential compliance concerns.

Generally, in thin topsoil horizons found on and offsite around OT, the preference is to use a grader to cut topsoil into up to 200 mm furloughs for loading and removal to stockpiles. In flat terrain where large surface areas of topsoil need to be stripped, scraper use is best suited.

For areas where equipment choice is unsure, seek advice from the OT Environment and Biodiversity Department.

4.1.4. Topsoil stripping

The following requirements are considered mandatory in topsoil stripping activities:

- Topsoil will be stripped to the depth specified by the Environment and Biodiversity Department for the proposed work site;
- The date and time of topsoil stripping commencement shall be informed to the Flora Research team; for the in-progress inspection.
- During the stripping process there may be unexpected changes in the depth of the topsoil. Where practical, avoid the inclusion of evidently poor quality soil material;
- Topsoil stripping should proceed from higher to lower topographical areas or similarly, from shallow to deeper topsoil. In this way the scrapers are always being pushed downhill for their best efficiency, and they finish loading in an unstripped area;
- Topsoil should be stripped from the bottom of drainage corridors in order to prevent topsoil contamination by disturbed runoff;
- Sediment control needs to be addressed daily. At the end of each work day, all disturbed areas shall be contained and wet in order to control dust; and
- During stripping, if any items of cultural or historic significance were found, works must be ceased in the immediate vicinity as soon as an earthwork operator becomes aware of the findings. Moreover, the findings must be reported to either the SP Department or Control Room immediately.

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4.1.5. Topsoil movement

In each phase of removal, all topsoil stripped will be moved by dump trucks directly to the designated storage location, unless there is an opportunity for direct placement of such soils on restored land areas for immediate use in rehabilitation;

4.1.6. Completion of topsoil stripping/removal

Upon completion, all topsoil removal areas shall be inspected to collect any additional topsoil not salvaged by scrapers or graders; Upon notification of topsoil stripping completion, the OT Flora Research and Rehabilitation team inspects the work area for the topsoil stripping performance against the requirements indicated in this procedure by completing Topsoil Handling Performance Inspection Checklist (Appendix 2) and if stripping is deemed inadequate, corrective measures must be taken to recover the remaining topsoil from the area. Non-conformances shall be reported in the RTBS after discussing with the relevant managements.

4.2. Topsoil Stockpiling/Storage Procedure

If topsoil stockpiling is performed incorrectly, the physical condition of the soil can be damaged irreversibly, resulting in a loss of a valuable resource. Key considerations for topsoil stockpiling and storage are outlined in Table 2.

Table 2. Summary of considerations for topsoil stockpiling/storage

Considerations	Explanatory note
Topsoil stockpiling area must be clean	<ul style="list-style-type: none"> Spill contamination and/or garbage in the stockpile will deteriorate the quality of the stored topsoil. Topsoil stockpiling area must be free from weeds and other foreign plant material or vegetative debris undesirable or harmful to plant life or which will prevent the formation of a suitable seedbed, in accordance with the MNS 5916:2008.
Topsoil, upper subsoil and lower subsoil shall be stored separately.	<ul style="list-style-type: none"> Attention must be paid to segregate soil, spoil and waste material. If these become mixed, the topsoil quality will be compromised and may require remedial action to segregate these materials unusable.
Location of stockpiling area must be chosen carefully	<ul style="list-style-type: none"> Topsoil shall be stockpiled away from the area of mining disturbance, away from watercourses, and away from waste dump areas, remote from overburden stockpiles to avoid contamination and soil erosion. Location of topsoil stockpiles shall be chosen by the OT Manager Environment & Biodiversity or Specialist Rehabilitation so that dust eroded by wind from the stockpile surface would not cause nuisance to the local community. Site selection for long-term topsoil stockpile must also consider future construction, mining and rehabilitation plans.
Do not allow vehicles and equipment to drive on top of stockpiles unless topsoil mounds are being compacted with the purpose of dust control.	<ul style="list-style-type: none"> Allowing vehicles and equipment to drive on topsoil stockpiles can lead to undesired compaction of topsoil and consequently, the topsoil quality will deteriorate.

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4.2.1. Prerequisites for topsoil stockpiling

The following shall occur prior to stockpiling topsoil:

- Stockpile areas approved by the Environment and Biodiversity Department must be demarcated before stockpiling commences to ensure that the resource is identifiable to prevent any disturbance by equipment or pedestrians. A perimeter ditch should be constructed preceding any activities associated with topsoil stockpiling depending on the length of storage;
- A silt fence shall be constructed along the perimeter of the stockpile area;
- The surface of the stockpile area shall be loosened by tools/equipment approved by appropriate manager or contractor Supervisor, to a minimum of 50-150 mm depth to facilitate bonding of the topsoil in the stockpile area to the bottom of the stockpiles; and
- A signpost indicating the original source area and the stripping commencement date shall be placed where the first windrow will be placed.

4.2.2. Access to the stockpile area

Access road to the stockpile area will be prepared and stripped off topsoil to a road side/s. However, in cases of temporary access topsoil stripping may not be necessary as scarification of the tracks upon completion of the work has been proven to be effective with vegetation recovering rapidly.

Access to the stockpiles shall be restricted to authorised personnel only. Authorised personnel will be defined by the Environment and Biodiversity Department, and includes those maintaining or managing the topsoil stockpiles.

4.2.3. Transportation of topsoil to the stockpile area

Topsoil to be stockpiled shall be transported with dump trucks to the designated area. Trucks must keep to the approved tracks.

4.2.4. Topsoil stockpiling

Topsoil will be stockpiled in low mounds forming up windrows. The height of the windrows shall be less than 3 meters in order to minimize problems with anaerobic conditions. Length and width of the windrows will be decided by the Environmental Department depending on the size of an area designated for stockpiling.

To allow Hydroseeder movement across the stockpile area for a purpose of surface re-vegetation, a minimum of eight meters wide corridor shall be left open between the windrows at every 60th meter of the stockpile sides.

4.2.5. Completion of topsoil stockpiling

The following activities shall occur after all topsoil stripped from the work site has been transported to the stockpile area:

- The windrows will be compacted from the top and the sides with a loader bucket to minimize the contour surface;
- Windrow slopes should not exceed 15° to allow for seeding necessary to reduce or prevent risk of erosion; and
- The Flora Research and Rehabilitation team inspects the performance against the requirements given in this procedure by completing the Topsoil Handling Performance Inspection Checklist (Appendix 2), and if non-conformances noted, those must be reported

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in the RTBS incident recording system unless immediate corrective actions are not taken by the operators. Flora Research and Rehabilitation team registers the topsoil stockpile into the Topsoil Log Sheet upon completion of the topsoil stockpiling activities.

4.2.6. Stockpiles erosion control

- MNS 5916:2008 recommends that stockpile preservation in excess of 2 years should be re-vegetated with the final seed mixture of native plants (perennial grass) to protect from erosion and loss.
- Properly constructed slopes as well as a ditch around the stockpile will aid in erosion control and topsoil conservation. The topsoil stockpile shall be completely enclosed with this ditch, slope of which should be as high as required for sediment/erosion control;
- The surface of stockpiles may be scarified to minimize wind and water erosion, and seeded or protected with appropriate covers depending on the prospective life of stockpile;
- The stockpiles may include berms and contour drains designed to facilitate drainage and discourage ponding;
- Stockpiles will be stabilized by seeding, sterile native vegetation cover, and/or hydro mulching, and/or binding agents to reduce the risk of wind and water erosion. The establishment of a quick growing vegetation cover on the topsoil stockpiles is one of the advantageous approaches to reduce erosion and loss of topsoil from stockpiles; and
- Efforts must be given to employ Best Available Techniques (BAT) for topsoil stockpiles protection from wind and water erosion.

4.2.7. Long-term Topsoil Stockpile Inventory

Long-term topsoil stockpiles shall be mapped and included in a Topsoil Inventory, which will be managed by the Environment and Biodiversity Department in cooperation with Open Pit Survey team.

Flora Research and Rehabilitation team maintains the long-term topsoil stockpile inventory in the Topsoil Log Sheet (Appendix 3) on a regular basis in line with Land Disturbance Permits issued for projects proposed in areas of storable topsoil quality.

GIS Officer Fauna Research team maintains the geodatabase with updates on long-term topsoil stockpile locations and areas on a quarterly basis in collaboration with Open Pit Survey team.

4.2.8. Topsoil Stockpile Quality Monitoring

Changes in topsoil quality can occur during stockpile life. The changes that may occur and should be monitored include reduction in the content of available nutrients, soil pH, organic matter levels, soil microbiological properties and seed bank. To preserve viability of long-term topsoil stockpiles for rehabilitation, these parameters are monitored and where topsoil quality does not meet the initial compositions, remedial treatments shall be implemented. Moreover, MNS 5916:2008 recommends that stockpile preservation in excess of 2 years should be monitored for weed invasion.

Long-term topsoil stockpile quality monitoring procedure defines scope and requirements for implementation of topsoil stockpile quality monitoring. Samples are collected upon the completion of topsoil stockpiling, during the stockpile life and prior to use of topsoil.

The suitability of the topsoil for re-using generally shall be determined comparing the last lab results to the initial condition results.

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5. DUST CONTROL MEASURES

Generation of dust should be minimized wherever possible throughout stripping and stockpiling operations. Dust suppression activities shall be undertaken in line with the control measures specified in the Atmospheric emissions management plan (OT-10-E12-PLN-0001). However, the following are the essential rules for controlling dust problems during the topsoil removal and storage processes:

- Dust erosion from vehicles and machinery traffics shall be minimized by watering access roads;
- Topsoil stripping and stockpiling should not be performed in excessively windy condition;
- Dust generation from the surface of temporary stockpiles will be minimized by using environmentally benign dust suppressants chosen and checked by the Environment and Biodiversity Department; and
- As for the long-term stockpiles, the surface area will be vegetated by the Environment and Biodiversity Department at the earliest possible opportunity in order to mitigate, where possible, prevent community nuisance and valuable soil loss problems caused by dust erosion.

6. RE-USE OF TOPSOIL

OT strategies in topsoil reuse management include, but not limited to:

- Topsoil will not be used in any purposes other than rehabilitation of the disturbed land and greenery activities.
- The preference is always to reuse topsoil immediately after stripping to minimise handling and maximise topsoil quality utilised in rehabilitation activities;
- Topsoil will be used within its appropriate soil type and zone, i.e. topsoil will not be transferred for use in rehabilitation of areas with a different pre-disturbance soil type.
- In rehabilitation areas where the topsoil was not salvaged from, topsoil of similar type will be used from the available topsoil stockpiles. Flora Research and Rehabilitation team will indicate a suitable stockpile based on the quarterly monitoring results for all long-term topsoil stockpiles.
- Depth/thickness of topsoil cover to be placed over rehabilitation area will be equal to the topsoil stripping depth specified in the pre-disturbance inspection during LDP processing. If the area had been disturbed before LDP procedure got in implementation, i.e. relevant pre-disturbance inspection report is unavailable, Flora Research and Rehabilitation team will conduct a soil survey in the adjoining land and will determine the depth/thickness of topsoil cover necessary for the rehabilitation.
- Need for topsoil for greenery activities other than rehabilitation activities included in Annual Technical Rehabilitation plans will need to be notified to Flora Research and Rehabilitation team by submitting a completed Topsoil Re-Use Request form (Appendix 4).
- Topsoil necessary in rehabilitation areas included in Annual Rehabilitation Plans will be estimated within the respective Scope of Works and thus will be provided from the other available topsoil sources. This can be either from the long-term topsoil stockpiles of suitable quality, if not stored at the rehabilitation sites, or directly moved from new permanent land disturbance area. The latter is preferable. The Flora Research and Rehabilitation team decides on the sources where the topsoil will be reused for rehabilitation.

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7. DEFINITIONS

Erosion: Soil erosion is the wearing away of the land surface by physical forces such as rainfall, flowing water, wind, ice, temperature change, gravity or other natural or anthropogenic agents that scrape, detach and remove soil or geological material from one point on the earth's surface to be deposited elsewhere. Soil erosion is normally a natural process over a geological timescale. However, human activities accelerate this natural rate causing a threat to soil.

Humus: Soil organic substance consisting of partially or wholly decayed vegetable or animal matter that provides nutrients for plants and increases the ability of soil to retain water.

Hydroseeder: A machine that carries out hydroseeding. Kenworth T800 Hydroseeder Truck is used at Oyu Tolgoi mine site.

Hydroseeding: A process whereby seed, fertilizer and/or lime and wood fiber mulch (using water as a carrying medium) are applied on the soil to establish vegetation.

Long-term topsoil stockpile: The stockpile that is going to be stored for more than 2 years.

Poor quality topsoil: Soil material dominated with subsoil clay, saline or stone/ rocks.

Project coordinating team: A team/role coordinating the proposed works in the permitted area.

Rehabilitation: A process that attempts to restore a land back to its natural state after it has been disturbed with a purpose of development, or damaged as a result of disruptive activities.

Subsoil: The layer of the earth surface beneath the topsoil and underlying bedrock. The subsoil may include substances such as clay and sand.

Topsoil: A finite resource and a biologically active living component that is typically referred to an upper layer (i.e., "A" horizon) of the soil, it is essential for supporting the vegetation growth and creating new landscapes. Topsoil contains a natural seed bank, roots, microorganisms, organic contents and a high nutrient content. This can be easily damaged by disturbances such as tracking, excavating, etc.

Topsoil stockpiling: Storage and protection of topsoil in designated stockpile or containment area for cover application and reclamation at later dates.

Topsoil stripping: Careful removal of fertile layer of soil to the depth specified for a particular site/area with a purpose to preserve the soil material for the future rehabilitation of disturbed areas.

8. REFERENCES AND RELATED DOCUMENTS

	Name	Location
Legal and Other Requirements	<ul style="list-style-type: none"> MNS 5916:2008 Environment. Fertile or topsoil removal and storage during the earth works. MNS 5917:2008 Environment. Reclamation of land destroyed due to mining activities. General technical requirements. Rio Tinto E-14 Land disturbance control and rehabilitation standard 	Legal register
Oyu Tolgoi HSESC Management System	<ul style="list-style-type: none"> Land disturbance permit procedure (OT-10-E14-PRC-0003) Priority plants protection procedure (OT-10-E14-PRC-0007) Long-term topsoil stockpile quality monitoring procedure (in progress) 	OT Portal

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	<ul style="list-style-type: none"> • Technical rehabilitation procedure (OT-10-E14-PRC-0002) • Atmospheric emissions management plan (OT-10-E12-PLN-0001) • Land disturbance control and rehabilitation plan (OT-10-E14-PLN-0001) • Mine closure plan (OT-10-E14-PLN-0002) • Change find procedure (no reference number available) • Spill response procedure (OT-10-E15-PRC-0002) 	
Forms, Checklists, Permits, Templates	<ul style="list-style-type: none"> • Topsoil handling performance checklist (Appendix 2) • Topsoil log sheet (Appendix 3) • Topsoil re-use request form (Appendix 4) 	OT Portal

9. DOCUMENT CONTROL

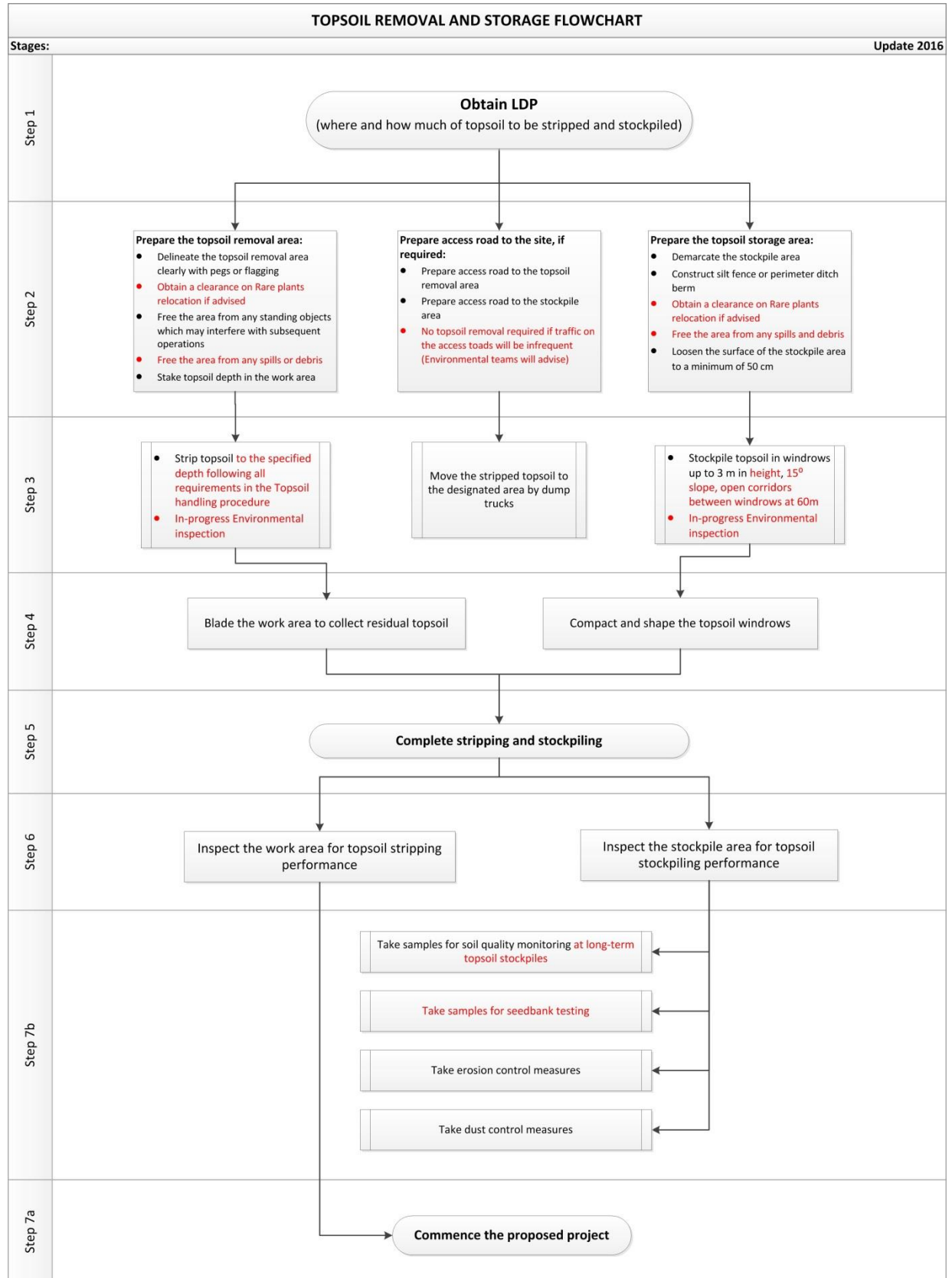
File Name	Topsoil Handling Procedure
Description	Sets guidelines for the proper maintenance of topsoil, including stripping, stockpiling, reuse and monitoring activities; flowchart of this process
Original Author(s)	Tsetsegsuren Luvsan
Creation Date	2010.05.25
Approved By	Shea O'Neill, Environment Principal Advisor
Approval Date	2010.10.06
Change Record Number	##

Risk Ranking	Assessment Date	Risk Assessor	Review Schedule	Next Review Date
Moderate	2013.05.06	Dolgor Baasansuren	2 Yearly	2017.09.01

Version	Revision Date	Author(s)	Approved By	Revision Notes
1.0	2013.05.06	Tsetsegsuren Luvsan	Mark Newby	Inserted into a new template.
1.1	2015.09.01	Tsetsegsuren Luvsan Uuganbayar Buyantogtokh	Dennis Hosack	Roles and responsibilities aligned with OT's current practices in topsoil handling; added necessary considerations and requirements; revised Topsoil Stockpile Quality Monitoring (formerly) section; added a new section "Re-Use of Topsoil"; updated 7. Definitions; updated 8. Reference and Related documents table; updated THP flowchart; added Appendices such as "Topsoil handling performance inspection checklist", "Topsoil log sheet" and "Topsoil re-use request form".

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Appendix 1. Flowchart of topsoil stripping and stockpiling



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Appendix 2. Topsoil handling performance inspection checklist



TOPSOIL HANDLING PERFORMANCE INSPECTION SHEET

Project title:					
LDP Number:		Project start date:		Project end date:	
Topsoil area [ha]:		Topsoil depth [cm]:		Estimated volume [m ³]:	
Designated location of topsoil stockpile:					

Yes signifies that environmental requirements have been satisfied.

#	Environmental Requirements	Yes	No	N/A	Required actions
1. Topsoil removal area					
1.1.	An access road to the proposed work area been prepared?				
1.2.	Topsoil removal required area been clearly demarcated?				
1.3.	Clearance on rare species plant been granted?				
1.4.	Topsoil stripping area free from spills and debris?				
1.5.	Topsoil depth in the work area been staked?				
1.6.	Topsoil been stripped to the right depth?				
1.7.	Topsoil stripping been limited within demarcation boundaries?				
1.8.	Dust controls indicated in LDP been implemented?				
2. Topsoil storage area					
2.1.	Clearance on rare species plant been granted?				
2.2.	The stripped topsoil been moved to the designated location?				
2.3.	An access road been prepared to the designated stockpile area?				
2.4.	The stockpile area been demarcated?				
2.5.	Signpost for topsoil stockpile identity been placed?				
2.6.	Silt fence and/or perimeter ditch berm been constructed around the stockpile area?				
2.7.	Topsoil stockpile are free from spill and debris?				
2.8.	Stockpile area prepared by loosening the surface to a depth of 5-15 cm?				
2.9.	Has the topsoil been stockpiled in less than 3m-high windrows?				
2.10.	Has the topsoil windrows been compacted and contoured with a 15 degrees of gradient slope?				
2.11.	An open corridors been left between windrows at every 60 meters?				
2.12.	Dust controls indicated in LDP been implemented?				
3. Conclusion and recommendations					

INSPECTION DATE:

INSPECTED BY:

.....

PROJECT TEAM LEADER:

.....

Appendix 3. Topsoil Log Sheet


Өнгөн хөрстэй ажиллах журмын Хавсралт / Attachment to the Topsoil Handling Procedure OT-10-E9-PRC-0001



TOPSOIL LOG SHEET

No	LDP number/ ГХЗ дугаар	Project name/ Төслийн нэр	Topsoil stripping location/ Өнгөн хөрс хуулах байршил	Topsoil stripping area/ha/ Өнгөн хөрс хуулах талбай /га/	Topsoil stripping depth /cm/ Өнгөн хөрс хуулах зузаан /см/	Stripped topsoil volume /m3/ Хуулагдах өнгөн хөрсний хэмжээ /м3/	Soil type/ Хөрсний шинж чанар	Topsoil storage location/ Өнгөн хөрс зөөвөрлөх талбай	Complied with the topsoil stockpiling requirements?/ Өнгөн хөрс хадгалах журмыг мөрдсөн эсэх?	Soil type/ Хөрсний шинж чанар	Soil sampling needed?/ Хөрсний дээж авах шаардлагатай эсэх	Comment/ Тэмдэглэл

Appendix 4. Topsoil Re-Use Request form

		Topsoil Re-Use Request form OT-10-E14-FRM-000X	
		Department information of topsoil usage request	
Department name	Person in charge	Contact info: (tel and e-mail address)	Date
Date topsoil applied	Topsoil application area /ha/	Topsoil volume used /m ³ /	Topsoil application depth /mm/
Purpose of the topsoil usage:			
Application area location: (attach plan with coordinates)			
Topsoil source location: (attach plan with coordinates)			
Topsoil source ID		Topsoil type:	
Conclusive comment:			
Recorded by:			Date: