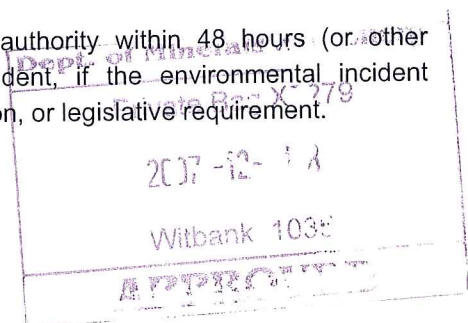
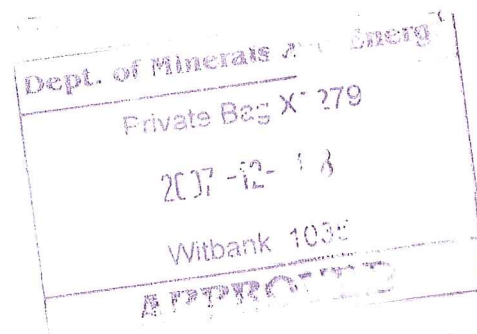


- AOL will ensure that, on appointment, all contracting companies operating on the site receive a copy of the EMP and understand their responsibility to operate within the framework of the measures defined in the EMP.
- AOL will ensure that contractor SHE induction to site includes environmental and social issues as well as awareness training to build capacity of staff and contract staff regarding management of the environment.
- AOL will ensure that the responsibility for implementing and adhering to the conditions of the EMP will form part of the conditions of appointment of all contractors.
- AOL will appoint a responsible person to audit the implementation of, and adherence to, the EMP. This party will be an independent environmental practitioner.
- AOL will develop and implement an Environmental Awareness programme for the Landau Colliery. This will specifically include local schools to ensure that non-resident pupils, their parents and people driving children to school in the vicinity are informed about the risks of mining and restricted areas.
- The Environmental Control Officer (ECO) on the mine will report directly to the General Manager, and will:
 - ensure that all environmental activities delegated to contractors operating on site are implemented.
 - ensure that all conditions of the EMP are implemented.
 - resolve any conflicts that may arise between Landau Colliery and contracting parties regarding implementation of the EMP.
- The ECO will brief contractors about no development / no go areas, including but not exclusively, access to neighbouring properties without prior approval from Landau Colliery, who will inform land owners of the need for access and will secure approval to access such sites.
- Landau Colliery staff and contract workers will be included in the target audience of the awareness programme.
- The Landau Colliery ECO will bring to the attention of the General Manager any environmental incident or breach of the conditions of the EMP, within 8 hours of occurrence of such event.
- The General Manager will notify the controlling authority within 48 hours (or other applicable legislative timeframe) of such an incident, if the environmental incident constitutes a breach of any permit or licence condition, or legislative requirement.



1.1.2 Responsibility of Contractors

- All contracting companies will be referred to the EMP at time of tender. Each contractor is to familiarise himself with the environmental management framework for the site and ensure that contracting prices allow for environmental costs.
- On appointment, the appointed contractor will receive a copy of the EMP. It is the responsibility of the contractor to ensure that all contracted staff is aware of the measures applicable to their area of work on site. Contractors will be held responsible by Landau Colliery for the implementation of the measures contained in the EMP, relevant to the area of responsibility of the contractor.
- It is the responsibility of the contractor to bring to the attention of the Landau ECO any environmental incident or breach of the conditions of the EMP, as soon as possible after the occurrence of such an event.
- The implementation of the relevant parts of the EMP by the contractors will be audited internally on an annual basis, and will form part of the EMP Performance Assessment Report of Landau Colliery that is conducted every two years, and submitted to the DME (refer also to Section 2.6 of this EMP).



SECTION TWO

Environmental Management Programme



2. ENVIRONMENTAL MANAGEMENT PROGRAMME

2.1 MITIGATION MEASURES FOR SIGNIFICANT IMPACTS

The potential impacts of the proposed project have been identified and their significance assessed for potential effects in terms of social, cultural and environmental factors as part of the Environmental Impact Assessment, compiled by Clean Stream Environmental Services in the document titled, "*Anglo Operations Limited. Landau Colliery. Proposed Navigation West Section. Environmental Impact Assessment*", with Reference Number AO/LND/NWS/02/2007, dated March 2007.

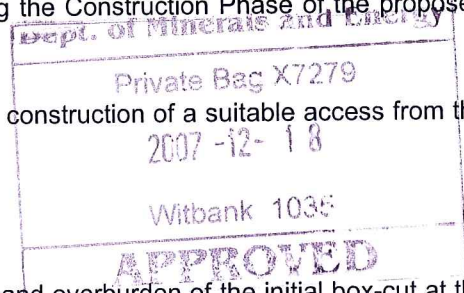
Mitigation measures are aimed at lessening negative consequences of the proposed mining operation. The mitigation measures include designs and / or management practices that will be adopted in order to minimise the identified impacts on these social, cultural and environmental factors.

For more information on the recommended mitigation measures selected for each impact refer to Part 5 of the Environmental Impact Assessment report, titled, "*Anglo Operations Limited. Landau Colliery. Proposed Navigation West Section. Environmental Impact Assessment*", with Reference Number AO/LND/NWS/02/2007, dated March 2007.

2.2 CONSTRUCTION PHASE

The following mining and related activities, which are expected to impact on the surrounding environmental aspects, are anticipated to take place during the Construction Phase of the proposed Navigation West Section:

- Construction of access and haul roads, including the construction of a suitable access from the adjacent existing road,
- Development of the initial box-cut with ramp,
- Stripping and separate stockpiling of topsoil, subsoil and overburden of the initial box-cut at the opencast area,
- Construction of storm water management measures such as berms for the separation of clean and dirty water management areas,
- Construction of the necessary surface water pollution control infrastructure (e.g. the pollution control pond),
- Erection of the tip and crushers for the separate processing of No. 4 Top Seam and No. 4 Select Seam ROM coal,
- Erection of the on-site Plant, which will be utilised during the Operational Phase to wash No.4 Seam Select coal,



- Other infrastructure such as:
 - Site offices,
 - Ablutions facilities,
 - Workshops,
 - Wash bays,
 - Security facilities (e.g. access boom and guard hut),
 - A fuel depot,
 - Stores areas,
 - Waste accumulation areas,
 - Pipelines for the transportation of potable water (for domestic use) and treated process water (for dust suppression and process use) from the Navigation Plant,
 - Pipelines to transport contaminated water from the proposed Navigation West Section pollution control pond to the Navigation Dam, and domestic wastewater from the offices and ablutions facilities to the sewage treatment Plant at Navigation, and
 - Any other necessary surface infrastructure.

2.2.1 Geology

Objective	:	To minimise the impacts of blasting on the surrounding stratigraphy.
Specific Goals	:	Blasting techniques that are specific to coal mining will be utilised during the Construction Phase.

Technical / Management Options	
Services of a qualified explosives engineer were used by Landau Colliery to select the most appropriate blasting technique to use to minimise the potential impacts on the Clewer residents. Monitoring of the impacts of blasting on the air as well as the ground vibrations will take place, as stipulated in Section 2.6.	

Action	Time Schedule
1. Ensure that blasting of the initial box cut has a minimum impact on the surrounding geological stratigraphy.	Prior to the commencement of the Construction Phase.
Select the most appropriate explosives for this purpose.	Prior to the commencement of the Construction Phase.

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Action	Time Schedule
Implement the most appropriate blasting techniques for this purpose.	During the excavation of the initial box-cut, during the Construction Phase.
Monitor impacts resulting from blasting.	Monthly.
Blasting techniques used will specifically take into consideration the nearby location of the adjacent Clewer residential area to ensure that possible vibrations generally associated with less controlled blasting do not influence any buildings in terms of cracks.	Prior to the excavation of the initial box-cut, during the Construction Phase.

2.2.2 Topography

Objective	: To minimise the impacts of mining and related activities such as stockpiling and open voids on the topography.
Specific Goals	: <ul style="list-style-type: none"> Ensure that stockpile construction has a minimum impact on topography. Ensure that the construction of the surface water management infrastructure has minimum impact on topography. Ensure that storm water diversion trenches are constructed in such a manner as to have minimum impact on topography. Ensure that excavation of the initial box-cut has minimum impact on topography. Ensure that the construction of the haul road has minimum impact on the topography.

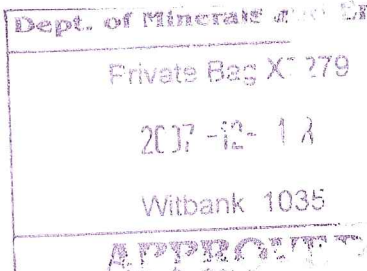
Technical / Management Options

Services of a qualified civil engineer were used by Landau Colliery to design the surface water management infrastructure at the proposed Navigation West Section. A qualified surveyor will ensure that all stockpiles are constructed to the maximum allowable heights and that the haul road (or conveyor belt) route, and the positions of the planned surface water management infrastructure and box-cut are surveyed prior to construction.

The Environmental Co-ordinator will ensure that the conveyor belt, surface water management infrastructure, box-cut and diversion trenches are constructed as specified in the mine plan (Attachment 1), as well as in the report titled, "A Division of Anglo Operations Ltd. Landau Colliery. Navigation West Block Opencast. Inputs to the Environmental Impact Assessment and Environmental Management Programme for the Landau Colliery EMPR. Navigation West Opencast (North Block). Surface Water" Report No: IPC/NAVWEST/P1/2006/01, dated February 2007, compiled by Inprocon Consultants cc. The mentioned report was attached as Appendix I of the afore-mentioned EIA for Navigation West Section.

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Action	Time Schedule
1. Ensure that stockpile construction has a minimum impact on topography.	
Topsoil stockpiled to a height of 3 meters.	During the excavation of initial box-cut.
Subsoil and hard overburden stockpiled to 6 meters.	During the excavation of initial box-cut.
Ensure that soil stockpiles are located in the designated areas.	Commencing during Construction Phase.
2. Ensure that the construction of the surface water management infrastructure has minimum impact on topography.	
Surface water management infrastructure will be designed by suitably qualified person.	Completed prior to the development of this EMP (refer to Appendix I of the afore-mentioned EIA for Navigation West Section). Future surface water management measures will also be designed by a suitably qualified person.
	
Position and dimensions of the planned surface water management infrastructure surveyed.	Prior to Construction Phase.
Surface water management infrastructure to be constructed to design specifications.	During Construction Phase before generation of mine affected water.
3. Ensure that storm water diversion trenches / berms are constructed to have minimum impact on topography.	
Positions and dimensions of the planned storm water diversion trenches / berms surveyed.	Prior to Construction Phase.
Storm water diversion trenches / berms to be constructed to specified size and depth.	During Construction Phase before generation of mine affected water.
4. Ensure that excavation of the initial box-cut has minimum impact on topography.	
Planned position and dimensions of initial box-cut to be surveyed.	Prior to Construction Phase.
Excavate the initial box-cut to design specifications within surveyed area.	During Construction Phase.
5. Ensure that the construction of the new on-site haul road / overland conveyor belt has minimum impact on the topography.	
Planned position and dimensions of new on-site haul road route to be surveyed.	Prior to Construction Phase.
Construct the new on-site haul road to design specifications within surveyed area.	During Construction Phase.

2.2.3 Soil

Objective	:	To minimise the impacts on soil.
Specific Goals	:	Ensure that stripping and stockpiling of soil are restricted to designated areas. Ensure that stripped topsoil is optimally stored for later use during rehabilitation. Ensure that the stockpiling of topsoil is managed according to soil potential and soil type.

Technical / Management Options:

Input from suitably qualified specialists was used to determine the most suitable positions for the topsoil stockpiles. A suitably qualified surveyor will ensure that the topsoil stockpiles are constructed to the maximum allowable heights and that the planned positions of the stockpiles are surveyed prior to construction thereof. The General Manager or his appointed representative will ensure that the soil stockpiles are constructed as specified by a suitably qualified person.

Action	Time Schedule
1. Ensure that stripping and stockpiling of soil are restricted to designated areas.	
Survey areas that are planned to be stripped prior to commencement of earthworks and digging.	Prior to Construction Phase.
Restrict movement of heavy machinery used for stripping and stockpiling of topsoil to within the surveyed initial box-cut and access route areas.	Construction Phase, continuing into Operational Phase.
Minimum depth of soil removal will be 300 mm.	Construction Phase, continuing through Operational Phase.
2. Ensure that topsoil is stored optimally for later use during rehabilitation.	
Topsoil stockpiles should be limited to 3 m in height.	Construction phase, continuing throughout Operational Phase.
Topsoil stockpiles should be vegetated to ensure that potential erosion is minimised.	Construction phase, continuing throughout Operational Phase.
Subsoil will be utilised for storm water diversion berm construction, and will be vegetated to reduce erosion.	Construction phase, continuing throughout Operational Phase.
Ensure that no soil is used for berm construction within designated dirty water management areas.	Construction phase, continuing throughout Operational Phase.
Ensure that stored topsoil does not come into contact with contaminating material (such as carbonaceous material).	Construction phase, continuing throughout Operational Phase.

Action	Time Schedule
3. Ensure that topsoil is stockpiled according to soil potential and soil type.	
All topsoil removed will be stockpiled separately on the designated topsoil stockpile areas.	Construction phase, continuing throughout Operational Phase.

Objective	: To minimise the impacts of hydrocarbon spillages on soil.
Specific Goals	: Ensure that installation of hydrocarbon storage tanks is conducted properly. Ensure that usage of hydrocarbon storage tanks has no impact on soil. Ensure that hydrocarbon spillages in workshop areas are contained and immediately cleaned up.

Technical / Management Options:

Services of a suitably qualified person will be used for construction of bunded area where the hydrocarbon storage tank(s) will be installed. A suitably qualified surveyor will ensure that the diesel tank is constructed to the maximum allowable heights and that the planned positions of the hydrocarbon storage tank(s) is / are surveyed prior to installation, to ensure that the tank(s) will be within the designated dirty water management area. The General Manager or his appointed representative will ensure that the hydrocarbon storage tank(s) is / are installed and operated as specified by a suitably qualified person.

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Action	Time Schedule
1. Ensure that installation of hydrocarbon storage tank(s) is conducted properly.	2007-12-17
Design the hydrocarbon storage tank(s) management measures.	Withbank 1035 Prior to Construction Phase.
Ensure that the hydrocarbon storage tank(s) are implemented according to design.	Construction Phase.
2. Ensure that usage of the hydrocarbon storage tank(s) has no impact on soil.	
Regular inspection of hydrocarbon storage tank(s) (e.g. diesel tanks) for leakages will be undertaken by the ECO.	Throughout Life of Mine.
Mine employees (including machinery drivers) will be educated regularly about consequence of hydrocarbon spillages on soil, as well as what action to take in such an event.	Throughout Life of Mine and as per environmental awareness plan.
3. Ensure that hydrocarbon spillages are contained and immediately cleaned up.	
Spillages of hydrocarbons within the workshop areas will be immediately contained and cleaned up using appropriate hydrocarbon spill clean up material, which will be appropriately disposed of within the parameters of Landau Colliery's waste management procedure.	Throughout Life of Mine.
Spillages of hydrocarbons in 'clean areas' where an impact on soil	Throughout Life of Mine.

Action	Time Schedule
may occur, will be immediately reported to the ECO and will be managed according to Landau Colliery's emergency / spillage management and rehabilitation procedure.	

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2.2.4 Land Capability

Objective	: To minimise impacts of mining and related activities on land capability.
Specific Goals	: Ensure that soil movement is conducted in accordance with the soil utilisation programme. Ensure that disturbance of vegetation is minimised. Ensure that the impacts caused by the change in land capability associated with the mining method are minimised.

Technical / Management Options:

The General Manager or his appointed representative will ensure that the management of environmental aspects influencing land capability, e.g. soil, vegetation and animal life are conducted according to the relevant commitments in this EMP.

Action	Time Schedule
1. Ensure that soil movement is conducted in accordance with the soil utilisation programme.	
All topsoil will be removed from areas to be affected. Minimum depth of topsoil removal will be 300 mm.	During Construction Phase, continuing through Operational Phase.
All topsoil removed will be stockpiled separately on the designated topsoil stockpile area.	During Construction Phase, continuing through Operational Phase.
The topsoil stockpile will not exceed a maximum height of 3 meters.	During Construction Phase, continuing through Operational Phase.
2. Ensure that disturbance of vegetation is minimised.	
The disturbance of vegetation will be restricted to designated areas where the removal and / or disturbance of vegetation is necessary for construction and / or mining purposes will take place.	During Construction Phase, continuing through Operational Phase.
3. Ensure that the impacts caused by the change in land capability associated with the mining method are minimised	
The area of surface disturbance will be minimised to limit the impact on land capability.	During Construction Phase, continuing through Operational Phase.

Action	Time Schedule
Existing infrastructure such as the haul roads and wastewater treatment plant at Navigation Section will be utilised to reduce the extent of the surface area where the land capability will be changed.	During Construction Phase, continuing through Operational Phase.

2.2.5 Land Use

Objective	: To minimise impacts of mining and related activities on land use.
Specific Goals	: Ensure that soil movement is conducted in accordance with the soil utilisation programme. Ensure that the surface area that is disturbed by the mining and related activities is minimised.

Technical / Management Options:

The General Manager or his appointed representative will ensure that the management of environmental aspects influencing land use are conducted according to the relevant commitments in this EMP. A suitably qualified surveyor will ensure that the area of surface disturbance is limited to within the area indicated on the mine plan.

Action	Time Schedule
1. Ensure that soil movement is conducted in accordance with the soil utilisation programme.	
All topsoil will be removed from areas to be affected. Minimum depth of topsoil removal will be 300 mm.	During Construction Phase, continuing through Operational Phase.
All topsoil removed will be stockpiled separately on the designated topsoil stockpile areas.	During Construction Phase, continuing through Operational Phase.
The topsoil stockpile will not exceed a maximum height of 3 meters.	During Construction Phase, continuing through Operational Phase.
2. Ensure that the surface area that is disturbed by the mining and related activities is minimised.	
Movement of machinery and vehicles will be limited to designated areas to minimise the area of surface disturbance.	During Construction Phase, continuing through Operational Phase.
The area over which vegetation will be disturbed will be limited.	During Construction Phase, continuing through Operational Phase.
Ensure that optimal areas within the mine boundary area are still made available for sustainable / existing land uses.	During Construction Phase, continuing through Operational Phase.

Action	Time Schedule
Ensure that all surface land use areas are limited in extent.	During Construction Phase, continuing through Operational Phase.

2.2.6 Natural Vegetation

Objective	: To prevent the loss of potentially occurring Red Data or protected floral species.
Specific Goals	: Ensure that no Red Data or protected plant species are present in the area that is designated to be disturbed. Ensure that Red Data or protected species will not be lost.

Technical / Management Options:
A vegetation specialist was used to determine whether any Red Data or protected species are present within the proposed area of surface disturbance. However, the study was conducted in May 2005, during a time of year when none of the Red Data and / or protected species was in flower, and may therefore occur within the proposed Navigation West Section, even though they were not identified during the mentioned study. The General Manager or his appointed representative will ensure any Red Data / protected species occurring within the designated area of disturbance will not be destroyed.

Action	Time Schedule
1. Ensure that no Red Data / protected plant species are present within the designated area of disturbance.	
Appoint a suitably qualified person to conduct a Red Data / protected species scan.	Prior to the Construction Phase, during the appropriate flowering times.
2. Ensure that no Red Data / protected species are destroyed.	
If it is found through the Red Data / protected plant species scan that certain species of value are present within the proposed area of disturbance, the identified specimens will be transplanted to suitable habitat elsewhere, in collaboration with the relevant Authorities.	If necessary, prior to Construction Phase.

Objective	: To prevent the disturbance of sensitive vegetation units.
Specific Goals	: Ensure that development will not occur within 30 m of the 1 in 100 year floodline of the seasonal stream or within the wetland habitats of any non-perennial tributaries. Ensure that the untransformed terrestrial Grassland and Rocky Grassland vegetation units, situated adjacent to the seasonal stream are also not

developed but conserved as a buffer.

Technical / Management Options:

A vegetation specialist was used to identify any potentially sensitive vegetation within the proposed area of surface disturbance. The General Manager or his appointed representative will ensure that sensitive vegetation units are conserved.

Action	Time Schedule
1. Ensure that development will not occur within 30 m of the 1 in 100 year floodline of the seasonal stream or within the wetland habitats of any non-perennial tributaries.	
The mine plan for the Navigation West Section; South Block will be adjusted to exclude the area within 30 m of the 1:100 year flood line of the unnamed tributary of the Grootspuit, prior to the commencement of the Construction Phase of the South Block.	Prior to the Construction Phase of the South Block.
2. Ensure that the untransformed terrestrial Grassland and Rocky Grassland vegetation units, situated adjacent to the seasonal stream are also not developed but conserved as a buffer.	
The mine plan will be adjusted to ensure that the mentioned sensitive vegetation units are excluded, with the exception of the pan.	Prior to Construction Phase.

Objective	:	To minimise the long-term impacts on the area's potential to maintain a natural vegetation cover.
Specific Goals	:	<p>Ensure that the removal of topsoil is conducted such that the impacts on the area's ability to maintain natural vegetation cover are minimised.</p> <p>Ensure that stockpiling of topsoil is conducted in a manner that will not impact on the ability of the area to maintain vegetation cover.</p> <p>Ensure that all declared weeds and alien invasive vegetation are controlled.</p>

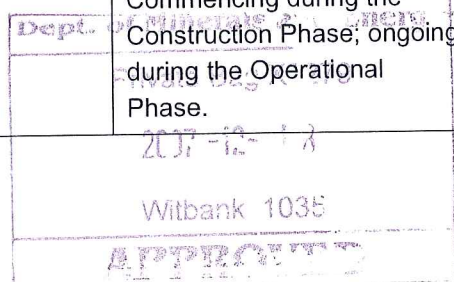
Technical / Management Options:

A soil specialist has been used to develop a soil utilisation guide according to which the removal and stockpiling of topsoil is to be conducted. The General Manager or his appointed representative will ensure that the topsoil is removed and stockpiled according to the soil utilisation guide.

The General Manager or his appointed representative will ensure that the area over which the vegetation will be removed is limited to within the area indicated on the mine plan.

Action	Time Schedule
1. Ensure that the removal of topsoil is conducted such that the impacts on the area's ability to maintain natural vegetation cover are minimised.	

Action	Time Schedule
All topsoil will be removed from areas to be affected.	Commencing during the Construction Phase; ongoing ahead of mining during the Operational Phase.
Minimum depth of topsoil removal will be 300 mm.	Commencing during the Construction Phase; ongoing ahead of mining during the Operational Phase.
The surface area over which the vegetation will be disturbed will be minimised.	Commencing during the Construction Phase; ongoing ahead of mining during the Operational Phase.
2. Ensure that stockpiling of topsoil is conducted in a manner that will not impact on the ability of the area to maintain vegetation cover.	
All topsoil that is removed will be stockpiled separately on the designated topsoil stockpile area.	Commencing during the Construction Phase; ongoing ahead of mining during the Operational Phase.
The topsoil stockpile will not exceed a maximum height of 3 m.	Commencing during the Construction Phase; ongoing ahead of mining during the Operational Phase.
Topsoil stockpiles and soils berms will be vegetated to minimise erosion, thus conserving soil for later use during rehabilitation.	Commencing during the Construction Phase; ongoing during the Operational Phase.
3. Ensure that all declared weeds and alien invasive vegetation are controlled.	
Remove all declared weeds and alien invasive plant species throughout the mine boundary area.	Commencing during the Construction Phase; ongoing during the Operational Phase.



2.2.7 Animal Life

Objective	: To minimise the impacts on animal species.
Specific Goals	: Ensure that no loss of life is suffered by the Red Data species that are present near the proposed Navigation West Section. Ensure that loss of animal life (excluding pest species) is minimised.