

11.0 STATEMENT OF COMMITMENTS

In addition to the conditions of the development consent, environmental protection license and mineral authorities, Centennial Mandalong commits to the implementation of the operational mitigation measures, monitoring activities and management strategies outlined in **Sections 9.0** and **10.0** for all activities associated with the Mandalong Southern Extension Project. **Table 72** summarises the major aspects of the Project and the key commitments proposed in this EIS.

Table 72 – Summary of Management Strategies and Monitoring Activities

Desired Outcome	Commitment/Action
	Construction Management
Minimise impacts from construction activities from the Mandalong South Surface Site on the environment and sensitive receivers.	Six months prior to the commencement of construction activities at the Mandalong South Surface Site, Centennial Mandalong will develop a Construction Environmental Management Plan for the construction phase of the Mandalong South Surface Site and access road. The Construction Management Plan will ensure: • That vegetation to be removed is clearly marked using temporary fencing (flagging tape or similar) to delineate boundaries and minimise the potential for equipment to accidentally enter areas to be retained. • That vegetation adjacent to the disturbance footprint of the proposed Mandalong South Surface Site and access road is fenced (fauna friendly fencing) prior to construction activities to reduce damage from uncontrolled or accidental access. • That material stockpiles are established within already disturbed areas and not within areas of retained vegetation. • Appropriate topsoil management, including: – Topsoil will be maintained in a slightly moist condition during stripping, and material will not be stripped in either an excessively dry or wet condition. – Stripping will be timed to take place in unison with any vegetation clearing activity. If planning to mix groundcover/grass with the soil (i.e. not removing groundcover prior to soil stripping), a weed assessment will be undertaken prior to stripping. – Where possible, grading or pushing soil into windrows with graders or dozers for later collection will be undertaken as a preferential less aggressive soil handling systems. – The surface of soil stockpiles will be left coarsely structured (as much as possible) in order to promote infiltration and minimise erosion until vegetation is established, and to prevent anaerobic zones forming. – Topsoil stockpiles will generally be maintained no higher than 3 metres. – If long-term stockpiling is planned (i.e. greater than three months), the stockpiles will be seeded and fertilised as soon as possible. An annual cover crop species that produces sterile florets or seeds will be sown. A rapid growing and healthy annual pasture sward will provide sufficient competition to minimise the emergence of undesirable weed species. The annual pasture species will not persist in the rehabilitation areas, however will provide sufficient competition for emerging weed species and enhance the desirable micro-organism activity in the soil. – Prior to re-spreading stockpiled topsoil, an assessment of weed infestation on stockpiles will be undertaken to determine if individual stockpiles require herbicide application and / or “scalping” of weed species prior to topsoil spreading. • That clearing activities are timed, where possible, to avoid removal of hollow-bearing trees during breeding season of threatened species. • That a specialist ecologist is engaged to supervise vegetation clearing and ensure vegetation clearing, particularly the removal of hollow-bearing trees, is undertaken as outlined in this EIS. • Noise impacts are minimised. • Air quality impacts are minimised All construction activity at the Mandalong South Surface Site will occur between the standard hours of 7.00 am to 6.00 pm Monday to Friday and 8.00 am to 1.00 pm on Saturday (no construction on Sundays or public holidays). The only exception to this will be the construction of the ventilation shafts, which will be undertaken 24 hours a day, seven days a week for a period of approximately one year.

Desired Outcome	Commitment/Action
	Rock hammering activities will be undertaken in areas that are away from the majority of residences and limited to between 8.00 am and 4.00 pm Monday to Friday and between 9.00 am and 1.00 pm on Saturdays (no rock hammering on Sundays or public holidays). Where necessary, and in consultation with potentially affected residents, temporary noise barriers will be established and maintained. To provide acoustic shielding for the shaft sinking activity at the Mandalong South Surface Site, a temporary barrier measuring seven metres high and 20 metres long will be installed at a distance of 20 metres from the drill rig at the intake shaft site (see Figure 54).
Exploration Drilling	
Enable Centennial Mandalong to conduct exploration activities in an environmentally responsible manner with due consideration to the community	Due-diligence field inspections and targeted surveys of proposed drill sites and access tracks will be undertaken by a qualified ecologist prior to commencement of works to ensure the potential for localised issues are minimised and, where necessary, appropriately managed.
	Prior to the commencement of works, Centennial Mandalong will ensure that the <i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</i> (DECCW 2010) is followed prior to the commencement of works. Proposed drill sites and access tracks will be inspected according to the protocols in the approved ACHMP.
	Consultation with potentially noise affected landholders will be undertaken in accordance with a Stakeholder Engagement Strategy in which all neighbouring landholders and any residents within 450 metres of a drill rig are notified of the timing, location and anticipated duration of the exploration drilling activities. Where drilling is to be undertaken in close proximity of residents, noise mitigation measures will be implemented.
	Specific bushfire risk treatment actions will be implemented, including: - No drilling will be conducted on total fire ban days; - Fire fighting equipment will be kept on active sites at all times; and - Hot work activities will be required to obtain internal work permits. Access provisions to each drill site will be identified prior to commencement of works.
	Upon completion of exploration activities, all boreholes and surface disturbance will be sealed and rehabilitated in accordance with the appropriate guidelines at the time.
Mining Operation	
Continue mining operations of the Mandalong Mine	Centennial Mandalong will continue to extract ROM coal at a rate of up to 6 Mtpa.
	Centennial Mandalong will continue to operate Mandalong Mine 24 hours a day, seven days per week.
Environmental Management and Reporting	
Enable Centennial Mandalong to manage its operations in an environmentally appropriate manner	Within six months following development consent, Centennial Mandalong will review and update the Mandalong Mine Environmental Management System (EMS), including issue-specific environmental management plans and monitoring programs. The review will take into consideration the environmental assessments undertaken as part of this EIS, the commitments made in this EIS and all relevant consent conditions. The EMS will include the following: - Aboriginal Cultural Heritage Management Plan; - Air Quality Monitoring and Management Plan; - Energy Savings Action Plan; - Flora and Fauna Management Plan; - Groundwater Monitoring and Management Plan; - Noise Monitoring and Management Plan; - Surface Water Monitoring and Management Plan (which will include Erosion and Sediment Control Management Plan); and - Waste Management Plan.
Enable Centennial Mandalong to meet its statutory reporting obligations	Centennial Mandalong will continue to report environmental monitoring results on Centennial's website in accordance with the POEO Act requirements.
	Each year, Centennial Mandalong will prepare an Annual Review, which will report environmental monitoring results and evaluate performance for the previous 12 month period, to be distributed to the relevant government agencies and the Mandalong Mine Community Consultative Committee.

Desired Outcome	Commitment/Action
Subsidence Monitoring and Management	
Manage subsidence associated with coal extraction from Mandalong Mine	Six months prior to the development of longwall 25, Centennial Mandalong will prepare the first Extraction Plan to manage subsidence associated with the proposed mining in the Southern Extension Area.
	As part of the development of each Extraction Plan, Centennial Mandalong will update the Public Safety Management Plan, Public Roads Management Plan, Telstra Management Plan and Powerline Management Plan in consultation with relevant infrastructure owners.
	As part of the development of an Extraction Plan impacting Nextgen infrastructure, Centennial Mandalong will develop a Nextgen Infrastructure Management Plan in consultation with Nextgen.
	As part of the development of an Extraction Plan, Centennial Mandalong will prepare Property Subsidence Management Plans for impacted private properties and will include recommendations by DGS (2013) and specified in this EIS.
Monitor subsidence associated with coal extraction from Mandalong Mine	As part of the development of each Extraction Plan, Centennial Mandalong will update the subsidence monitoring program, including surface and sub-surface monitoring activities, as recommended by DGS (2013) and specified in this EIS.
Soil and Land Capability	
Appropriate management of topsoil during construction	Centennial Mandalong will incorporate soil stripping, handling, stockpiling and transportation management activities into the Construction Environmental Management Plan for the Mandalong South Surface Site.
Managing topsoil resources for future rehabilitation uses	During construction of the Mandalong South Surface Site, Centennial Mandalong will develop and maintain a soil inventory to keep track of topsoil materials available for planned rehabilitation activities.
Groundwater	
Minimise and monitor groundwater impacts on the environment and registered water users	Within six months following development consent, Centennial Mandalong will update the existing Groundwater Monitoring and Management Plan to include the following: - Nested monitoring bores at locations where the depth of cover is less than 250 metres. This is primarily throughout the north-eastern extent within the Wyee Creek and Mannering Creek catchments. It is intended to install three monitoring bores (nested) above each of the proposed longwall panels where the depth of cover is less than 250 metres to monitored groundwater levels, pH and electrical conductivity. - Groundwater monitoring bores and/or vibrating wire piezometers within the Southern Extension Area to monitor the height of groundwater depressurisation prior to extraction of longwalls with lower depth of cover. An adaptive management approach will be adopted to ensure that if there is a risk of fracturing extending up to alluvial aquifers (based on monitoring data) actions will be taken to mitigate these impacts. - Monitoring of bore GW078601, which is the only registered water supply bore within the Southern Extension Area, subject to landowner approval.
	Each year, Centennial Mandalong will engage a specialist to undertake an analysis of alluvial groundwater levels to identify non-rainfall related trends.
	During construction of the shafts at the Mandalong South Surface Site and where blind boring techniques are employed, Centennial Mandalong will ensure groundwater loss is limited by minimising the construction time and the time that the shafts are unlined. Centennial Mandalong will also use non-hazardous polymer drilling muds during boring to reduce the flow of groundwater into the hole.
Surface Water	
Monitor surface water impacts on the environment	Within six months of development consent, Centennial Mandalong will update the existing Surface Water Monitoring and Management Plan to include the following: - Monitoring of the watercourses within the Southern Extension Area to be undermined, particularly in locations identified as potential scouring points, to evaluate watercourse stability. Monitoring will be undertaken before and after undermining of the areas, with additional inspection of these locations following significant rainfall events. - Surface water quality monitoring at the same locations within the Southern Extension Area used to gather background information.

Desired Outcome	Commitment/Action
	- Flow monitoring on the various creeks potentially impacted on by the Project by visual inspections during water quality sampling. - TARPs for the management of subsidence impacts on watercourses in consultation with relevant government agencies.
Water Management	
Appropriate management and discharge of mine water at Cooranbong Entry Site	- If the quality of mine water collected in the Borehole Dam is not suitable for discharge from the Cooranbong Entry Site, the water will be pumped back underground for recirculation (additional filtration and sediment settlement) through the Cooranbong Colliery goaf storage area before returning to the Borehole Dam (see Figure 25). - The storage volume of the Borehole Dam at the Cooranbong Entry Site will be increased to increase the settling capacity. In addition baffles will be retrofitted in the Borehole Dam to provide increased residence time and a flocculant will be introduced.
Flora and Fauna	
Minimise impacts to ecology within the Southern Extension Area	As part of the detailed design phase for the Mandalong South Surface Site, Centennial Mandalong will ensure that that proposed access road is aligned to minimise disturbance and avoid removal of any <i>M. biconvexa</i> specimens.
	As part of the construction activities at the Mandalong South Surface Site, a wheel wash will be installed to help prevent soil-borne disease (Phytophthora), pathogenic fungus (Myrtle Rust) transmission and weed seed dispersal.
	Within six months following development consent, Centennial Mandalong will develop a Flora and Fauna Management plan that includes: - Identification of weed management, monitoring and control practices to minimise the spread of exotic species. - Incorporation of the existing Wetland Management Plan.
Offset the ecological impacts of the Project	Within 12 months of development consent, Centennial Mandalong will implement a Land Management Plan (developed in consultation with the OEH) for land owned by Centennial in the Mandalong Valley. This plan will include the continuation of the following land management activities: - Management of weeds and feral animals. - Suitable fencing for the exclusion of stock from riparian areas. - Bushfire management. - A rehabilitation program for riparian areas where an assessment has determined that rehabilitation activities will improve water quality in the creek systems. - Provision of a nominal funding value towards research over the life of the Project into the habitat values of species likely to be impacted by the Project. - Provision of a nominal dollar amount for future maintenance of the land.
Aboriginal Heritage	
Monitor, mitigate and manage impacts to Aboriginal heritage sites	Six months prior to the commencement of construction activities associated with the Mandalong South Surface Site, Centennial Mandalong will engage a suitably qualified archaeologist and representatives from the registered Aboriginal parties to undertake sub-surface archaeological testing within Areas A, B and C (see Figure 44) in accordance with the Code of Practice (DECCW 2010).
	Within six months following development consent, Centennial Mandalong will update the Centennial Northern Holding's ACHMP (in consultation with the relevant government agencies and registered Aboriginal parties) to take into consideration the commitments made in this EIS and any relevant consent conditions.
	Immediately prior to and during construction of the Mandalong South Surface Site, Centennial Mandalong will ensure that a combination of silt and protective fencing is installed to ensure that run-off does not impact Aboriginal sites down slope of this area and that Aboriginal sites upslope are not inadvertently impacted by construction activities.
	As part of the preparation of each Extraction Plan, Centennial Mandalong will attempt to obtain access to unsurveyed privately owned land to identify any additional Aboriginal heritage sites.
	Centennial Mandalong will ensure all employees and contractors working within the Southern Extension Area are made aware of their statutory obligations for Aboriginal heritage under the NPW Act 1974 as part of the site induction process.

Desired Outcome	Commitment/Action
Offset the Aboriginal heritage impacts of the Project	Within 12 months following development consent, Centennial Mandalong will formalise an agreement to authorise the local Aboriginal community access to suitable areas within its land holdings in the Southern Extension Area that contain Aboriginal cultural heritage sites.
	Prior to undermining specific Aboriginal heritage sites located on Centennial-owned land, Centennial Mandalong will undertake the following research activities: - Detailed investigations on two Aboriginal rockshelter sites in consultation with the Registered Aboriginal Parties and the OEH in order to improve the cultural knowledge and understating of how the area was utilised by the Aboriginal people. - Subsidence monitoring and trial mitigation works for a grinding groove site that is located on Centennial-owned land and over the proposed mining area. The research program will be developed in consultation with the Registered Aboriginal Parties and the OEH.
Non-Indigenous Heritage	
Minimise impacts to items of European heritage	Six months prior to the commencement of construction activities associated with the Mandalong South Surface Site, Centennial Mandalong will ensure that the Landing Skid 2 is recorded by a qualified historical archaeologist.
	In the event that any additional non-Indigenous cultural heritage material is identified or uncovered during construction and/or exploration works, Centennial Mandalong will ensure that any surface works in the area ceases and will contact a heritage consultant to assess the condition of the item. Centennial Mandalong will adopt the appropriate mitigation measures, as provided by the heritage consultant, before recommencement of work.
	Centennial Mandalong will ensure that all employees and contractors working within the Southern Extension Area will be made aware of their statutory obligations for non-Indigenous heritage under the <i>NSW Heritage Act 1977</i> as part of the site induction process.
Air Quality	
Monitor air quality impacts	Within six months following development consent, Centennial Mandalong will update the Mandalong Mine Air Quality Monitoring and Management Plan to include the following: - Additional deposited dust gauges around the proposed Mandalong South Surface Site for both the construction and operational phases. - A PM₁₀ and PM_{2.5} monitoring system, which will be used for model verification purposes and to inform particulate management at the Mandalong Mine Access Site. The optimal location for these additional monitoring activities, along with the method and frequency of the monitoring activities, will be determined in consultation with a suitably qualified consultant.
Mitigate air quality impacts	The fan evasee at the Mandalong South Surface Site will be designed and constructed to face away from nearby surrounding residential receivers.
Understand the source of particulate matter	Within six months following development consent, Centennial Mandalong will commission additional studies to establish the source of the particulate matter entering the mine and the contribution of this to the total emissions from the ventilations fans at the Mandalong Mine Access Site. These studies will inform the need for and scope of mitigation measures and management strategies considered necessary to address particulate matter emission from the ventilation fans.
Greenhouse Gas	
Reduce energy and diesel usage	Within six months following development consent, Centennial Mandalong will update the existing Energy Savings Action Plan to include: - Continuation of the high voltage (33 kilovolt) power line from the mine switchyard to the Mandalong South Surface Site, which will reduce energy losses through the transmission of higher voltages over longer distances before the point of use. - Use of power factor correction units at the Mandalong South Surface Site, which will improve the efficiency of the electrical power used in the underground workings and hence reduce the overall power consumption. - Underground storage/goaf areas will be used in the management of mine water to enable filtration and sediment settlement prior to the water being pumped to the surface. This will reduce energy losses through the ability to pump cleaner water with the use of high efficiency positive displacement pumps.

Desired Outcome	Commitment/Action
	Bulk storage tanks/silos and boreholes will be installed at the Mandalong South Surface Site for the delivery of stone dust, concrete and ballast direct to the underground mine workings. This will result in significant diesel fuel savings by avoiding the transport of such materials via the decline tunnel.
Mitigate greenhouse gas emissions from the Project	Centennial Mandalong will progress the construction and commissioning of the gas flares, along with evaluating the electricity potential and capacity of the gas engines, at the Mandalong Mine Access Site to reduce greenhouse gas emissions.
	Centennial Mandalong will continue the trial of the VAM-RAB unit currently being constructed at the Mandalong Mine Access Site in order to determine whether it is a viable strategy for VAM abatement in the future.
	Centennial Mandalong will pay the relevant price per tonne of CO ₂ -e (carbon tax), depending on the year the liability is incurred, or purchase offsets. Where offsets are available and considered cost-effective, Centennial Mandalong will purchase only from registered suppliers under the relevant domestic or international scheme (the latter from July 2015 onwards).
Noise	
Monitor noise impacts from the Project	Within six months following development consent, Centennial Mandalong will update the existing Noise Monitoring and Management Plan to include quarterly operator-attended noise monitoring at and around the Mandalong South Surface Site.
Traffic	
Provide suitable and safe vehicle access to the Mandalong South Surface Site from Mandalong Road	As part of the detailed design phase for the Mandalong South Surface Site, Centennial Mandalong will ensure: - The access intersection from Mandalong Road to the proposed Mandalong South Surface Site is designed to be constructed as an at-grade (two roadways joining at the same level) BAR/CHL intersection (basic right turn treatment / channelised left turn) providing a left turn turning lane into the site. - The intersection is designed in accordance with Guide to Road Design Part 4A – Design of Unsignalised and Signalised Intersections (Austroads 2009). - LMCC are consulted regarding the final location of the intersection. Appropriate sight distances along Mandalong Road and appropriate turning templates for heavy vehicles are achieved.
Identify and address any impact on road pavements as a result of construction	Within 3 months of completion of construction activities at the Mandalong South Surface Site, Centennial Mandalong, in consultation with LMCC, will undertake a road dilapidation review to identify areas of road pavement deterioration requiring maintenance treatment that could be directly attributed to the construction activities. These areas will be rehabilitated to LMCC's satisfaction by Centennial Mandalong.
Visual Amenity	
Minimising visual impacts from the Mandalong South Surface Site	During construction of the Mandalong South Surface Site, Centennial Mandalong will ensure that, wherever possible, infrastructure items are dark in tone and constructed of non-reflective materials.
	Within six months of construction activities at the Mandalong South Surface Site being completed, Centennial Mandalong will undertake landscape works, such as shrub and tree planting, to increase the level of existing screening.
Bushfire	
Provide safe egress in the event of a bushfire	During construction of the Mandalong South Surface Site, Centennial Mandalong will establish an alternative egress route from the Mandalong South Surface Site and ensure it has a carrying capacity exceeding 15 tonnes.
Reduce risk of injury to personnel at the Mandalong South Surface Site in the event of a bushfire	Prior to commissioning the operation of the Mandalong South Surface Site, Centennial Mandalong will provide a safe place or fire bunker at the Mandalong South Surface Site to address the potential for an employee/contractor/visitor to be trapped at the surface site and unable to evacuate via the access road or alternate egress route.

Desired Outcome	Commitment/Action
Reduce risk to Centennial Mandalong infrastructure and local landholders' properties from bushfire	Within six months following development consent, Centennial Mandalong will review and update the existing <i>Emergency Management System</i> to incorporate the findings and conclusions of the bushfire risk assessment (Ecobiological 2013), the commitments made in this EIS and all relevant consent conditions.
	Subject to approval from the NSW Rural Fire Service, Centennial Mandalong will engage a specialist to undertake mosaic burns of forest vegetation outside of the designated APZ on a cyclic basis to reduce overall fuel loads approaching the APZ.
	Within three months of the completion of construction activities, Centennial Mandalong will establish the following Asset Protection Zones (APZs) in order provide a defendable space around infrastructure and avoid flame contact and radiant heat exceeding 40 kilowatts per square metre: Mandalong Mine Access Site – an APZ will be established around the gas drainage and ventilation management infrastructure to the following distances – 20 metres to the north, south and west; and 10 metres to the east. Mandalong South Surface Site – an APZ will be established around the infrastructure to the following distances – 45 metres to the north and south; 20 metres to the east; and 30 metres to the west. Fuel reduction will be undertaken within these APZs by regular grass slashing, weed control, reducing tree canopy cover to less than 30 percent, lopping tree branches within 3 metres of ground fuels, reducing the shrub layer density to less than 20 percent, and removing timber piles and combustible materials.
	Within six months following development consent, Centennial Mandalong will extend the water supply system at the Mandalong Mine Access Site to include reticulated water supply and hydrant access in the area containing the gas drainage and ventilation infrastructure.
	Prior to commissioning the operation of the Mandalong South Surface Site, Centennial Mandalong will ensure the Mandalong South Surface Site has a dedicated water supply of greater than 20,000 litres for bushfire protection. This supply will be connected to a hydrant system or a stand pipe with suitable truck access.
	Centennial Mandalong will ensure buildings that contain combustible infrastructure include ember protection similar to the relevant standards in the <i>Australian Standard AS3959-2009 – Construction of Buildings in Bushfire-Prone Areas</i> . This will generally involve sealing or screening areas with gaps greater than 3 millimetres.
Dangerous Goods	
Provide safe storage, handling and disposal of dangerous goods	Within six months following development consent, Centennial Mandalong will review and update the existing <i>Emergency Management System</i> and <i>Pollution Incident Response Management Plan</i> to incorporate the Project, the commitments made in this EIS and all relevant consent conditions.
Social	
Continue to engage with stakeholders	Within six months following development consent, Centennial Mandalong will update the existing Stakeholder Engagement Strategy to provide a consistent management framework for the identification and consultation with stakeholders that have an interest in the mine.
Meet Centennial's corporate social responsibility objectives	Within six months following development consent, Centennial Mandalong will develop and implement a mutually agreeable planning agreement with LMCC which will be aimed at providing and/or improving public amenities and public services.
Post-Mining Closure and Rehabilitation	
Rehabilitate the mine to an agreed final land use	Within five years of mine closure, Centennial Mandalong will prepare a detailed Mine Closure Management Plan with the aim of creating a land use capability compatible with the pre-mining land use (unless other beneficial uses are pre-determined and agreed). In addition to addressing the removal of surface infrastructure, the Plan will include: - Rehabilitation of disturbed areas including spreading of stockpiled topsoil accordance with commitments in this EIS, revegetation using locally occurring native plant species, and rehabilitation of disturbed land to a condition that is self-sustaining or where maintenance requirements are consistent with an agreed post-mining land use; and - Final rehabilitation success criteria.