2023
RESIDENT INFORMATION PACK

Mandalong Longwall Extraction Plans

Centennial Mandalong (Mandalong) has been extracting coal in the Mandalong Valley for over 15 years. Planning is now underway to move into the eastern part of Mandalong's mining lease (known as the Eastern Longwalls). The Eastern Longwalls extend south of Manhire Road (Longwall 39) and progress south towards the Buttonderry Waste Facility (Longwall 54).

Mining of Longwall 39 is expected to commence in 2025. Centennial is dedicated to ensuring effective communication with the community regarding our mining operations. Mandalong is currently planning to develop Extraction Plans for Longwalls 39 to 43. Baseline environmental assessments (which include flora, fauna and cultural heritage assessments) have commenced and will be ongoing up to and post mining. The purpose of these surveys is to add to our existing data set to build on our understanding of the pre-mining environment and to confirm findings that are forecasted in the Environmental Impact Statement (EIS).

Mandalong is now preparing to engage with landholders to arrange a time to meet and discuss the mining process in more detail, and to undertake an inventory of your property including built features and improvements.

This Resident Information Pack has been created to address any inquiries you may have regarding mine subsidence and its potential impact on your property. Within this package, you will find the following valuable information:

- Mandalong current mine plan.
- Information about longwall mining and the measures undertaken by Mandalong to manage subsidence.
- Instructions on how to arrange a pre-mining inspection, which will be provided to property owners at no cost.
- An overview of the claims process for any potential damages that may occur as a result of longwall mining.
- Frequently asked questions addressing common concerns.

If you have any additional inquiries or would like to discuss this matter further, a Centennial representative will be pleased to engage in direct discussions with you. Please contact us for any further assistance or clarification you may require.

Mandalong Snapshot

Injects approximately $500 million into the local economy annually.

Contributes $28.3 million in state royalties (2022).

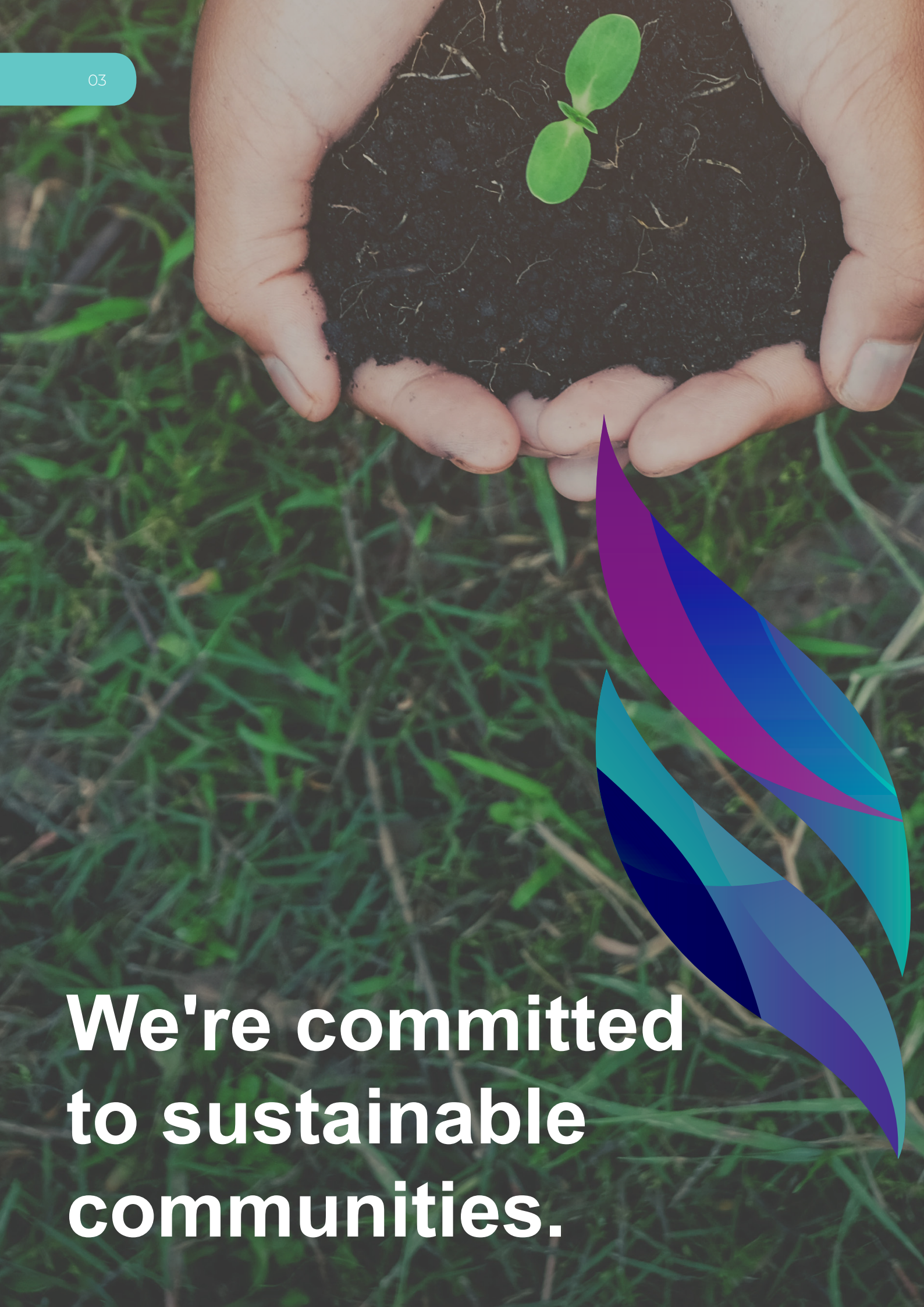
Major provider of employment to the region: 450 direct jobs, plus 160 contractors and indirect employment of over 3,000.

Monitors environmental impact on native vegetation and water sources.

Ongoing participation in community initiatives.

Major financial supporter of local schools, businesses, and sporting teams.

Supplies coal to the domestic and overseas markets.



We're committed to sustainable communities.

Mandalong Mine Operations

Mandalong is an underground coal mine situated in the Lake Macquarie region of New South Wales. It commenced operations in January 2005 and holds the authorisation to extract a maximum of 6.5 million tonnes of Run of Mine (ROM) coal each year.

The mine focuses on extracting thermal coal from the East Wallarah seam, which is utilised for energy generation purposes. The produced coal is transported by underground and surface conveyors to two local power stations and also by rail to Port of Newcastle for export to international customers.

Employing approximately 600 individuals, including both employees and contractors, Mandalong plays a vital role in supporting numerous local and regional businesses and services in the area. Mandalong is a proud supporter of local charities and service organisations through its sustainable development program and sponsorships.

First Workings and Longwall Mining

Mandalong utilises the longwall mining technique to extract coal from the East Wallarah Seam. The first workings process involves the development of a series of parallel tunnels (known as headings or roadways) that are driven into the coal using a continuous mining machine. These roadways primarily consist of tunnels that are located entirely or predominantly within the seam. While rectangular shapes are typically employed, there are instances where arched or circular profiles may be used. Interconnecting these roadways at regular intervals are additional roadways called cut-throughs, which create coal pillars.

Although these pillars are commonly rectangular, their shape may vary. It is essential that these pillars possess dimensions that ensure stability, meaning they can withstand the existing strata and stress conditions both presently and in the future, including any changes resulting from subsequent excavations. Before the extraction of a longwall panel commences, continuous mining equipment will form development headings around the longwall panel. The longwall face equipment will be established at the end of the panel, which is remote from the main headings (as illustrated in Figure 1).

The entire rectangular block of coal will be extracted by the longwall equipment taking slices of coal approximately 1-metre thick across the longwall face from one gate road to the other until it eventually ends up at the main headings. The longwall shearer will cut and load the coal onto a conveyor system, which transports it through a series of underground and surface belts to local power stations and our coal handling and preparation plant (CHPP) at Cooranbong.

When coal is extracted using this method, the rock strata immediately above the seam is allowed to collapse into the void that remains as the longwall face retreats. This void is referred to as the goaf. Miners working along the coalface, operating the machinery, will be shielded from the collapsing strata by a canopy of hydraulic roof supports. As the rock collapses into the goaf behind the roof supports, the fracturing and settlement of the rocks progresses through the overlying strata resulting in sagging and bending of the near surface rocks and subsidence of the ground above. When a longwall panel has been extracted completely, the longwall equipment will be dismantled and transported along the Mains and development headings for installation at the top of the next panel for the process to continue. In the meantime, the development headings for the next panel will be established with the continuous miner, and the process will continue for subsequent longwall panels.

The longwall panels in the LW39 to 43 area measure 3–3.5 kilometres long and 160–180 metres wide.

Mandalong delivers coal to two local power stations, Eraring and Vales Point, which supply electricity to New South Wales energy users. Coal is also approved for transport by truck on private haul road for further processing and subsequent transport into domestic and export markets. The mining operations target the East Wallarah seam, which ranges in height from 1.8–2.4 metres. The height of the longwall cut varies between 2–2.4 metres, depending on the thickness of the seam in the area.

Annual Coal Production at Mandalong Mine

2.538 million tonnes of saleable coal was produced in 2022.

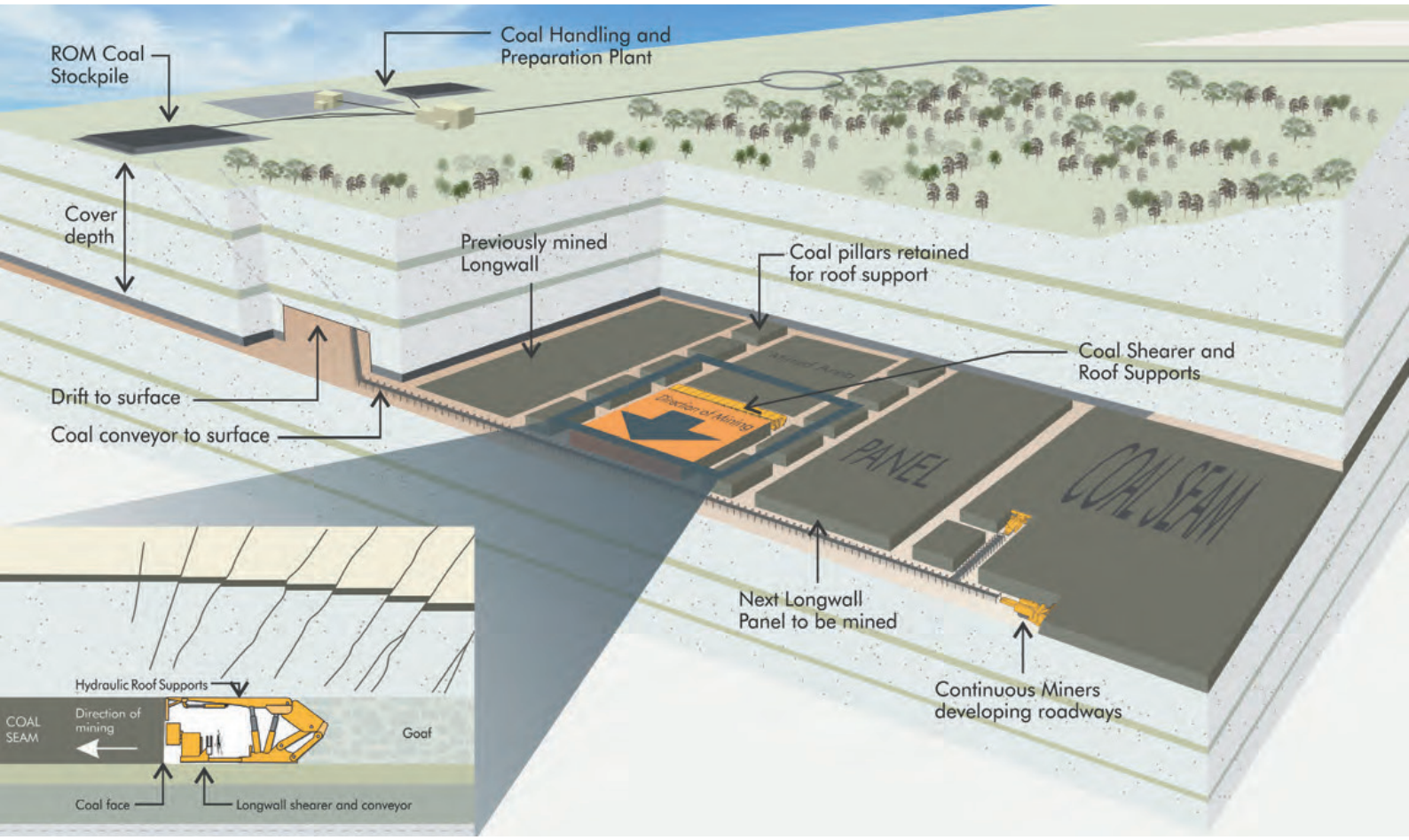


Figure 1: Longwall mining schematic

Underground Coal Mining Terms

Block	A dimensional delineation of the mineral deposit; as in ‘a block of coal’ or ‘coal blocked out for extraction’.
Coal face	The current working place for coal extraction.
Coal Handling Preparation Plant (CHPP)	Processing plant where coal is sized, washed and prepared for the market.
Coal seam	Naturally formed underground layer of coal.
Continuous miner	The electric powered cutting machine used to remove coal from the active mining face and load it into the shuttle car.
Conveyor	The means of transporting coal from the coal face to the underground bin or surface. It consists of a belt being driven by a motor over a roller assembly.
Cover depth	The depth from the surface to the mine workings.
Development	The operations involved in preparing the coal seam for extraction.
Downcast	A shaft or other mine opening down to the underground workings in which fresh air from the surface passes.
Drift	An inclined access opening from the surface to the coal seam.
Exploration	The search for mineral deposits and the work done to prove or establish the extent of a mineral deposit.
First workings	The driving of headings (underground roadways) in the solid coal seam prior to the commencement of extraction.
Gate road	An underground roadway leading to a working place in longwall mining.
Goaf	The underground area abandoned and left to collapse after the extraction of coal.
Heading	An underground roadway formed in the direction of a development panel.
Longwall	A system of mining coal in which the seam is extracted on a broad front or long face using a coal shearer and the roof is supported by hydraulic roof supports.
Longwall panel	A block of coal to be mined by longwall defined by gate roads and coal seam thickness.
Panel	Underground workings are broken up into several panels, which are working places for each mining crew.

Run of mine (ROM)	Raw coal production; the unprocessed mined coal that is conveyed to the CHPP. ROM may consist of coal and rock.
Shaft	A vertical opening connecting the surface with the underground workings, typically used to ventilate the mine.
Subsidence	The vertical lowering or collapse of the ground surface following coal extraction.

Mandalong Extension Coal Mine Plan

Figure 2 shows the proposed longwalls relevant to the next Extraction Approval for Mandalong. Please note this is subject to change pending relevant approvals and operations. If you live within the predicted 20-millimetre Subsidence Area (as outlined in pink) please contact us to arrange a free pre-mining inspection.

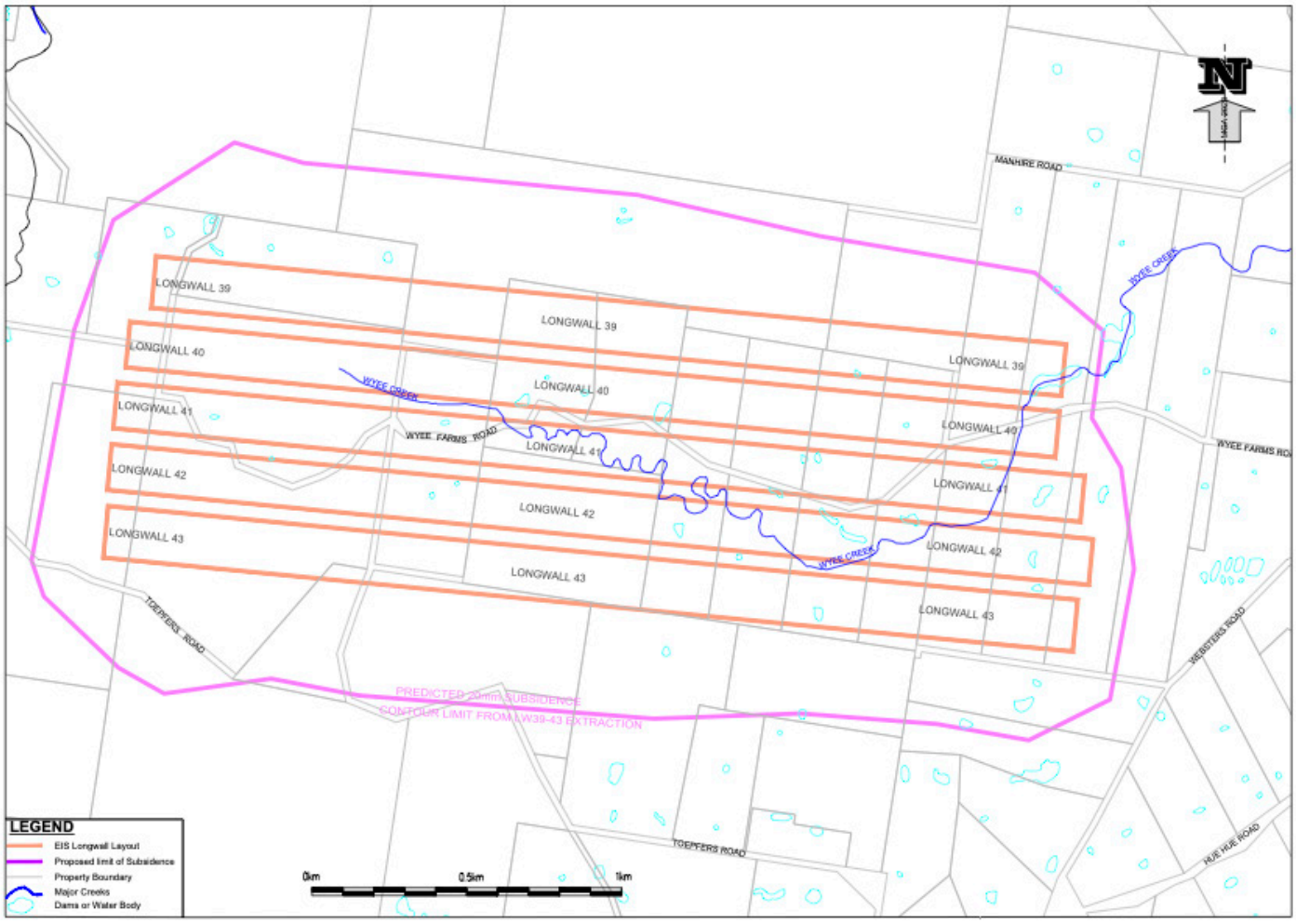


Figure 2: Mandalong mine plan for Longwalls 39 to 43.

What is Subsidence?

Subsidence is a natural phenomenon that can occur when underground mining takes place. It refers to the movement of the ground surface due to the extraction of materials from beneath the earth. In simple terms, subsidence involves the adjustment of the land above an underground mine as a response to the changes happening below. To illustrate this process, consider Figure 3, which provides a cross-sectional view of the effects of mine subsidence.

The amount of subsidence experienced can vary across the area affected by mining. Typically, the greatest subsidence occurs at the centre of the mined area and gradually decreases towards the outer edges. If subsidence is uniform throughout the region, it is unlikely to be noticeable or cause significant impacts. However, when differential subsidence occurs, the ground can tilt and bend, leading to observable effects on surface features.

In addition to vertical movement, subsidence can also involve horizontal shifts. These horizontal movements result from differential strain on the ground. While small horizontal shifts may be felt in areas distanced from the mining activity, they are generally not as significant as vertical movements.

Types of Subsidence

Mine subsidence movements can be described using the following parameters:

Vertical subsidence — this is the lowering of the land and all surface infrastructure. If the infrastructure lowers by the same amount, it will have little or no effect on the structure, unless it is in a flood-prone area. Subsidence develops very gradually, and it is not readily apparent.

Tilt — a small change of slope on the surface arising from the surface lowering unevenly. Generally, tilt does not lead to structural damage.

Strain — the tensile stretching or comprehensive squeezing of the land surface as it lowers to the new level, relative to the land surrounding it.

Curvature — the bending of the land surface as it lowers to a new level.

What does this subsidence mean at the surface?

Subsidence can bring about alterations to both surface and sub-surface conditions. It is worth noting that the effects of subsidence may not always be immediately apparent due to the natural undulations of the land, which can mask the movements caused by subsidence.

The extent of impact on surface and sub-surface features is influenced by the magnitude of movement and the sensitivity of each feature to these movements. Certain structures, like houses, are particularly sensitive to ground tilt, curvature, and strain. Therefore, their vulnerability to subsidence-related changes are taken into consideration.

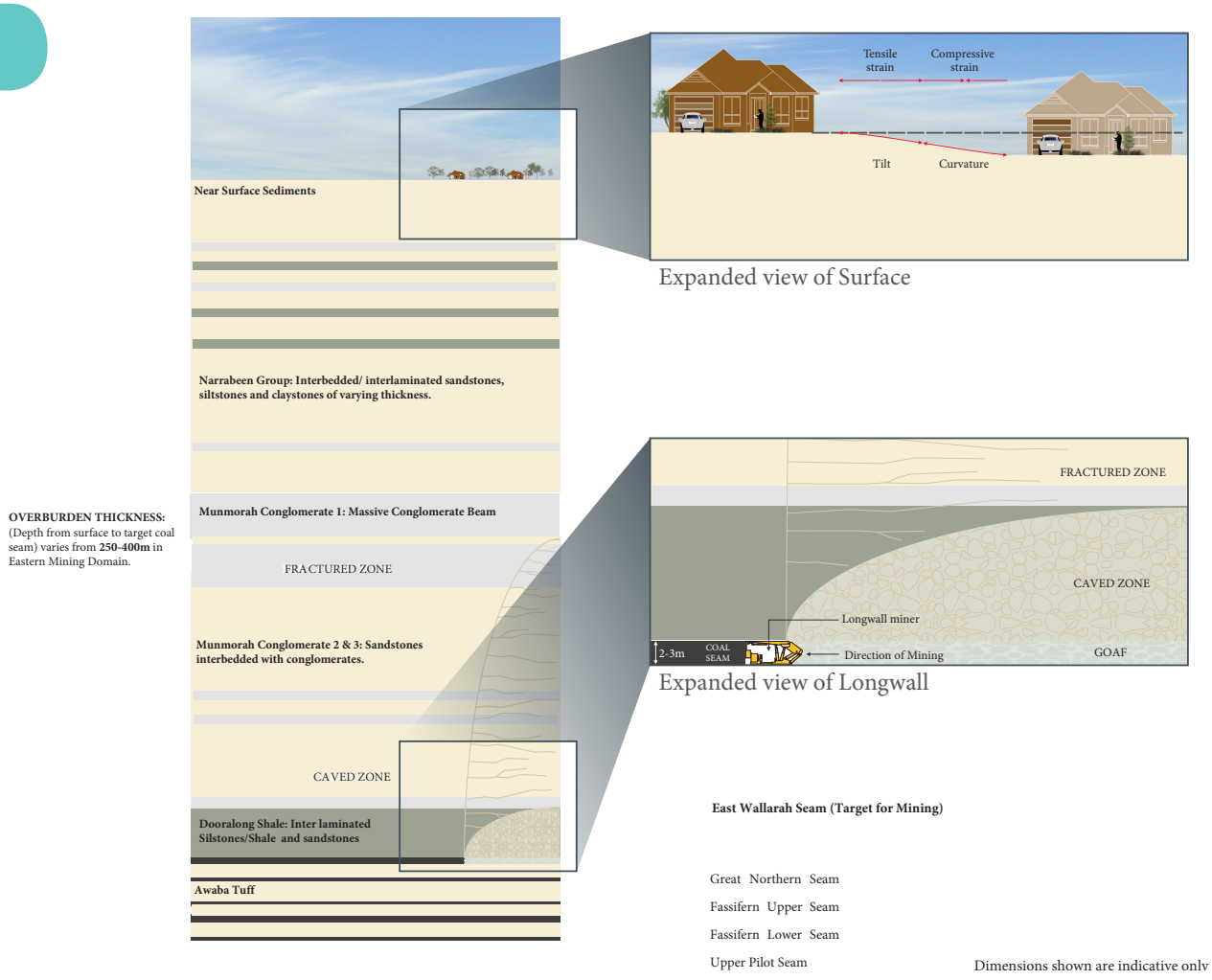


Figure 3: Typical cross section of longwall and mine subsidence.

Regulations

In New South Wales, the regulation of mine subsidence is rigorously enforced. As part of the assessment for Mandalong longwalls, a thorough evaluation is conducted to determine the potential effects of subsidence on various surface features. This assessment encompasses both man-made structures (such as buildings, pipelines, dams and bridges) and natural environmental elements (including rivers, cliffs, aquifers and ecosystems).

To ensure responsible management of subsidence impacts, Extraction Plans are prepared and must receive approval. These plans outline the techniques and strategies that will be employed to maintain impacts within acceptable levels.

The approval process for an Extraction Plan involves multiple government agencies, with the New South Wales Department of Planning and Environment playing a crucial role. This comprehensive approach allows for the holistic consideration of all mine subsidence-related matters during the approval process.

Subsidence management

Centennial has demonstrated a commendable track record in effectively addressing and managing the potential consequences associated with subsidence for several years. Mandalong uses a professional analytical subsidence prediction model that factors in the spanning of massive conglomerates across the longwall panel and overburden. This advanced model enables accurate forecasts of subsidence and informs decision-making for mitigating risks. Furthermore, this approach has successfully reduced subsidence levels, thus minimising its impact on property, surface infrastructure, the floodplain, and the environment.

Subsidence management

The mine design at Mandalong has proven successful for 34 longwall panels mined thus far, and the same methodology has been adopted for LW39 to 43.

There are various methods available for managing subsidence, including:

- Mine design
- Pre-mining strengthening works
- Monitoring during mining
- Post subsidence remediation works

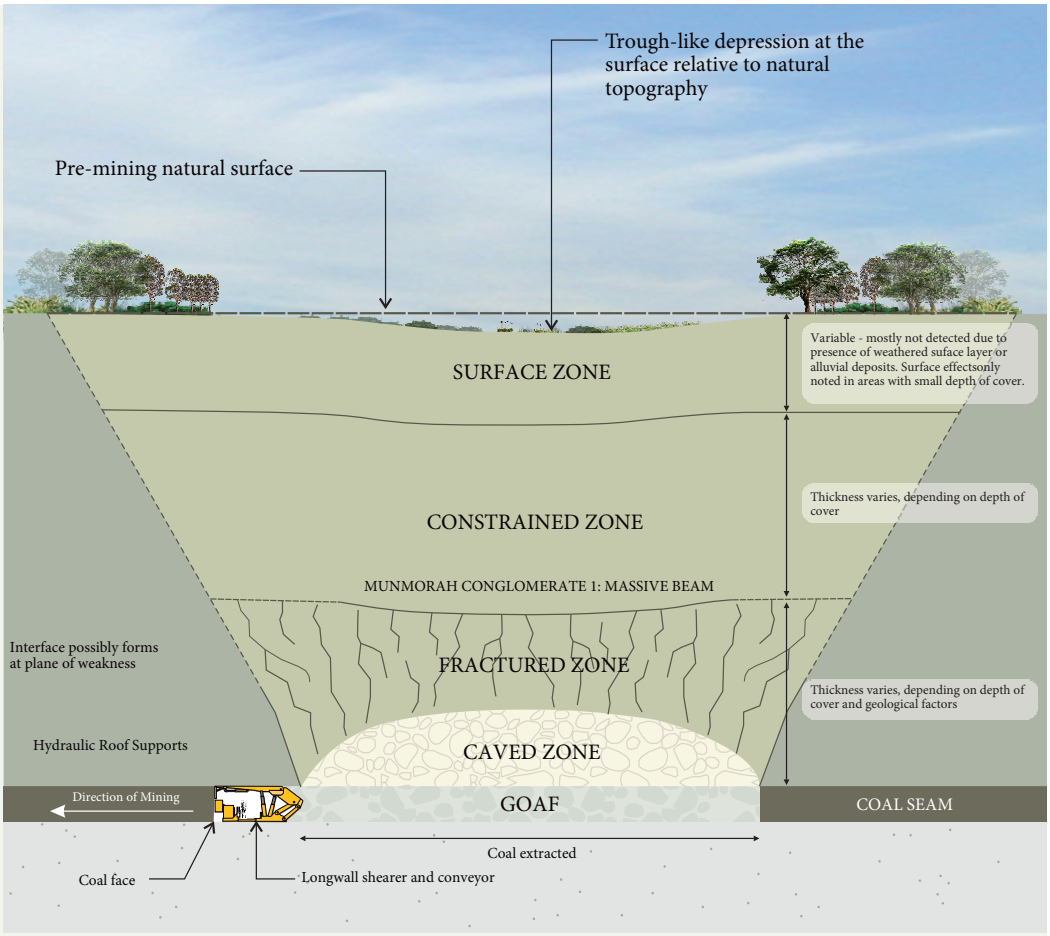


Figure 4: Cross-sectional view of effect of mine subsidence.

Subsidence Impacts

Mandalong has an effective mine design, which ensures mining can continue with minimum impact to nearby residential and rural land users. A Property Subsidence Management Plan (PSMP) is developed for each property to predict how much subsidence may affect each property well in advance of mining activity.

Subsidence Monitoring and Management

Historically, Centennial has conducted mining operations directly beneath or near residential houses, civil structures, power lines, cultural heritage sites, flood plains, dams, creek lines, transmission towers, local roads and bridges. Centennial has implemented extensive measures prior to, during, and after mining to ensure that the health and safety of community have not been put at risk due to mine subsidence. Management strategies for the successful mining beneath structures include:

- Regular consultation with the community before, during, and after mining.
- Site-specific investigations for identified properties.
- Implementation of mitigation measures as suggested by specialist engineers.
- Subsidence surveys.
- Detailed visual inspections.

Centennial has a team of specialists to visually inspect, monitor, and survey surface and below-surface infrastructure to not only ensure there is no risk to public safety but also monitor change and discuss any concerns residents may have.

Our dedicated team includes:

- Mine Subsidence Engineers
- Structural Engineers
- Geotechnical Engineers
- Environmental Specialists
- Mine Surveyors
- Building Inspectors

Pre-mining inspection

Centennial encourages property owners in areas near planned underground mining to have a Pre-Mining Inspection (PMI) carried out on their property.

PMIs are free and are administrated by Subsidence Advisory NSW. Completing a PMI facilitates a straightforward claims process if a property is impacted by subsidence.

The PMI's purpose is to determine the condition of a property prior to mining. PMIs are an added protection for property owners to ensure they receive adequate compensation to return their property to its pre-mining condition should it be impacted by subsidence. The inspector undertaking the PMI will document the condition of the property using photographs and survey levels. Once completed, property owners are given a copy of the PMI report. This report can be used as a reference to identify potential damage once mining has occurred.

Property Hazard Inspection

The *Work Health and Safety (Mines and Petroleum Sites) Regulation 2022*, in relation to subsidence, requires Centennial to identify and control hazards that may cause harm to people from subsidence. Centennial's risk management process includes hazard identification via a preliminary risk screening process involving a visual inspection of each property within the active subsidence area from publicly accessible viewpoints and a more detailed property hazard inspection, where the consent of the property owner is provided.

Centennial offers all property owners within the active subsidence area a free property hazard inspection that will be undertaken by a qualified structural engineer.

Subsidence Damage

The signs of mine subsidence damage to buildings and other structures can range from cracks in walls and jammed doors to more significant structural issues. Generally, buildings damaged by mine subsidence remain safe and serviceable until they are repaired.

The extent of damage will vary depending on the location of the building in proximity to the mine workings and other subsidence-related factors.

Subsidence Impacts

Duty to Disclose

Impacts to property improvements are covered by the *Coal Mine Subsidence Compensation Act 2017*, however, please consult with your insurance agency and mortgagee to determine if you have an obligation to disclose to them that mining will occur beneath your property.

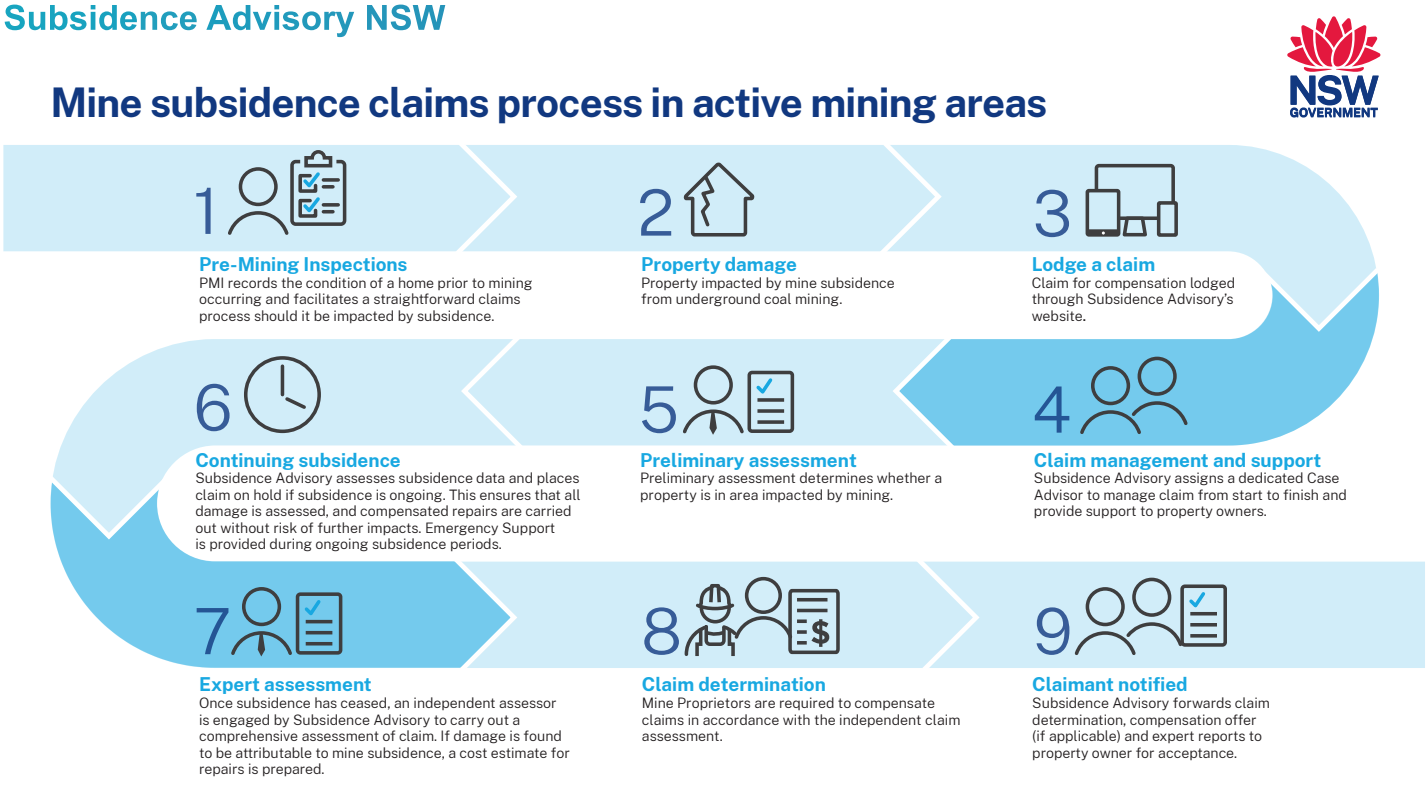
Under the *Mining Act 1992* Mandalong is responsible for providing compensation to property owners for a compensable loss with the exception of compensation provided by Subsidence Advisory NSW (SA NSW). This means that Mandalong has the responsibility for providing compensation for impacts caused by mining within the Mandalong Mining Leases upon property features that are not man-made. These features can include but are not limited to:

- Surface of the land.
- Crops, trees, grasses and other vegetation.
- Stock.
- Other business usages.
- Surface drainage.

How to request a pre-mining inspection and a Property Hazard Inspection

Please contact Centennial to request a PMI or a Property Hazard Inspection. An inspection time will then be arranged through Subsidence Advisory NSW.

Subsidence Advisory NSW



Review Rights
Property owners have access to an independent review by the Secretary of the Department of Customer Service or their delegate. Secretary determinations can be appealed to the Land and Environment Court.

Emergency Support
All mine subsidence safety & serviceability issues should be immediately reported to our 24 Hour Emergency Hotline on **1800 248 083**. Subsidence Advisory will co-ordinate a response.

nsw.gov.au subsidence advisory 02 4908 4300

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Subsidence Advisory NSW

Subsidence Advisory NSW is the New South Wales government agency responsible for administering the *Coal Mine Subsidence Compensation Act 2017*. Subsidence Advisory:

- Manages compensation claims for mine subsidence damage to homes and other surface improvements.

- Regulates development within Mine Subsidence Districts (districts) to reduce the risk of mine subsidence damage.

- Provides a 24-hour emergency hotline (1800 248 083) to all members of the public to report subsidence safety issues.

Subsidence Advisory provides expert advice on developments in districts to property owners, government departments, councils, community organisations and industries within coal mining areas of New South Wales.

A Mine Subsidence District is a tool used by Subsidence Advisory to help protect homes and other structures from potential mine subsidence damage through regulation of development. Districts are proclaimed in areas where there are potential subsidence risks from active or non-active underground coal mining. All developments within a district are required to meet Subsidence Advisory's approval requirements. Building and subdivision applications must be submitted and approved prior to commencing work.

Subsidence Advisory NSW's online portal

Subsidence Advisory has an online portal for end-to-end management of claims, enquiries, building and subdivision applications. You can use the portal to lodge and track compensation claims for subsidence damage and applications to build or subdivide in districts.

Find out more at nsw.gov.au/subsidence-advisory.

Subsidence Advisory NSW

02 4908 4300 (8:30am–4:30pm weekdays)

1800 248 083 (24-hour emergency hotline)

subsidenceadvisory@customerservice.nsw.gov.au

nsw.gov.au/subsidence-advisory

Frequently Asked Questions

Will I bear the costs of subsidence damage to my property?

You can be confident that you will not incur the financial responsibility for any subsidence damage to your property. To ensure this, there are multiple safeguards, including the *Coal Mine Subsidence Compensation Act 2017*; the *Mining Act 1992*; and the planning consent for Mandalong, which includes specific conditions for Centennial to rectify or compensate the landholder when certain subsidence issues occur.

Should I wait until subsidence is finished on my property before developing something on it?

No, it is not recommended to wait until subsidence is completed on your property before pursuing any development plans. It is advised to proceed with your development plans as usual.

Subsidence Advisory can offer advice on developing in active mining areas located within a mine subsidence district. This advice can include any likely design requirement conditions. Further information, including a step-by-step guide, is available at nsw.gov.au/subsidence-advisory/development.

How do I find out when mining is occurring near my property?

To receive regular mining updates please contact Mandalong to be placed on our contact database.

What if I am a tenant?

If you are a tenant, please make sure you keep your landlord or managing agent informed if you notice any changes to your property that may be from mine subsidence.

Alternatively, if you receive information regarding your property from either Mandalong or Subsidence Advisory NSW, forward the information to your landlord or managing agent. It is important that not only the tenant receives information, but the owner or managing agent is also kept informed about mining operations.

What are the advantages of a pre-mining inspection (PMI)?

The purpose of a PMI is to determine the condition of a property prior to mining. PMIs are an added protection for property owners to ensure they receive adequate compensation to return their property to its pre-mining condition should it be impacted by subsidence.

How do I arrange a pre-mining inspection?

To request a PMI simply contact Mandalong. An inspection time will then be arranged with you through Subsidence Advisory. Alternatively, you can request an inspection online at nsw.gov.au/subsidence-advisory/PMI.

What if I don't have access to the internet or a computer to lodge a claim online?

Subsidence Advisory can accept claims for compensation and development applications in hardcopy. To lodge a hardcopy application with Subsidence Advisory, please contact it on 02 4908 4300 to have the applicable form posted to you with a free return envelope.

Who manages my claim?

All claims are managed by a Subsidence Advisory case advisor who will provide property owners with focused support and a dedicated point of contact throughout the process.

What happens if the mine ceases to operate?

If the mine ceases to operate, claims for compensation would continue to be managed in accordance with the *Coal Mine Subsidence Compensation Act 2017*. Mining companies are required to pay levies into a Coal Mine Subsidence Compensation Fund, which is managed and controlled by SA NSW. Levy amounts are estimated and paid annually, with the value based on coal extraction rates. Any subsidence-related compensation to homeowners would be paid by SA NSW via the fund, ensuring security for homeowners, irrespective of the mine company's financial status.

There is also a rehabilitation security deposit, held by the Resources Regulator for Mandalong Mine (as is required of all title holders), which ensures adequate funds are available to complete rehabilitation and subsidence repairs in the unlikely event of unexpected closure of the mine.

Contact Centennial

02 4973 0948 (business hours)

02 4973 0902 (after hours)

mandalong.approvals@centennialcoal.com.au

www.centennialcoal.com.au/about/#contact

Emergency contact

In cases of emergency call 000 for police, fire and ambulance.

For gas emergencies, call 131 909. For Hunter Water, call 1300 657 000.