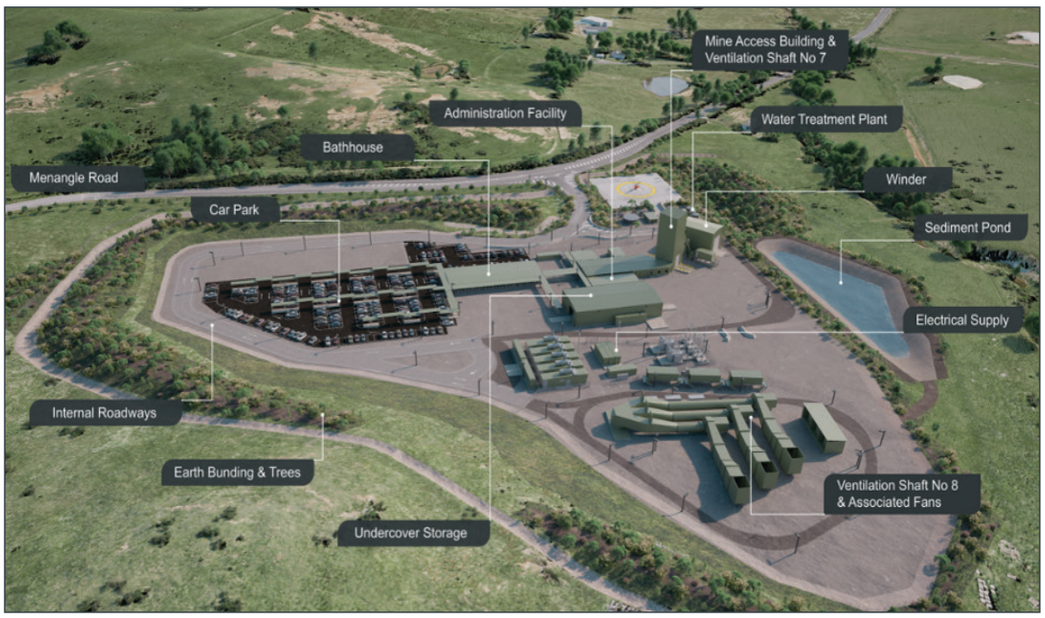
SOUTH32
Illawarra Metallurgical Coal

Fact Sheet

Conventional Shaft Sinking Method



Project details

An integral requirement of underground mining is adequate ventilation and mine access, to ensure a safe and efficient working environment for our people.

At the Appin Mine Ventilation and Access Project, we are constructing two ventilation shafts: a downcast shaft that draws air into the mine; and an upcast shaft that draws air out of the mine. The new ventilation shafts will ensure our people continue to work in a safe environment and have been designed to avoid or minimise impacts on the local community where possible.

This project is essential for the continuation of Appin Mine and our workforce of 1,800 employees. The mine access infrastructure will support access to the mine for some of our workforce and supplies. No coal handling infrastructure is proposed.

Scan the QR code for further details on the Project, view our Contruction Environmental Management Plan (CEMP), and view our construction activity sequence video.

Sinking the ventilation shafts

Conventional shaft sinking methods will be employed to construct the shafts, using controlled charges (or blasts) to excavate from the surface to the target depth. The method is not new and is commonly used to excavate in hard rock conditions.

The shaft sinking cycle is repeated sequentially until each of the shafts reach their completed depth. Services can then be installed, such as power, ventilation, compressed air, and water.

RUC Mining has been awarded the contract to design and construct the two ventilation shafts.

RUC is an Australian-based company that brings a wide range of experience and expertise gained from sinking and equipping some of the largest shafts in the world.

Controlled blasting is a common method used to break rock in construction and shaft sinking.

Typical steps in the shaft sinking cycle are:

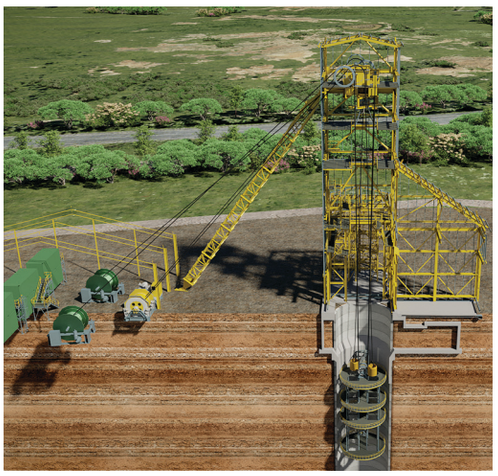
- Pre-drilling the rock “in the base of the shaft” with a series of holes
- Loading the holes with small charges and other materials
- Placing blast mats and other protections over the shaft top
- Electronically detonating the charges in a timed sequence
- Removing the broken-up pieces of rock and supporting the shaft walls

Conventional shaft sinking and safety

Controlled blasting will be done in accordance with strict environmental compliance criteria provided by the Department of Planning and Environment in the Project Approval.

All blasts will be designed and conducted by a qualified drill and blast specialist with experience in construction and shaft-sinking. Blast covers will be used, and monitoring equipment will measure and record overpressure and ground vibration levels in real-time.

A blast notification board detailing the date and time of the next blast will be maintained in both directions on Menangle Road. We intend to conduct a maximum of one blast per 24-hour period at each of the shafts. Blasting will initially occur between 9am and 5pm from Monday to Friday, and between 9am and 1pm on Saturdays.



Example of a temporary headframe used in the Conventional Shaft Sinking method.

KEY FACTS

Controlled blasting is a tried and tested method

The method is used in underground road construction and to excavate ventilation shafts. Examples where controlled blasting has been used include:

- Sydney Metro City, NSW
- NorthConnex, NSW
- WestConnex, NSW
- Airport Link Brisbane, QLD

Ventilation shaft design

Ventilation Shaft 7 will be about 591m deep and 7.5m wide. This shaft will draw air into the mine and will double as mine access.

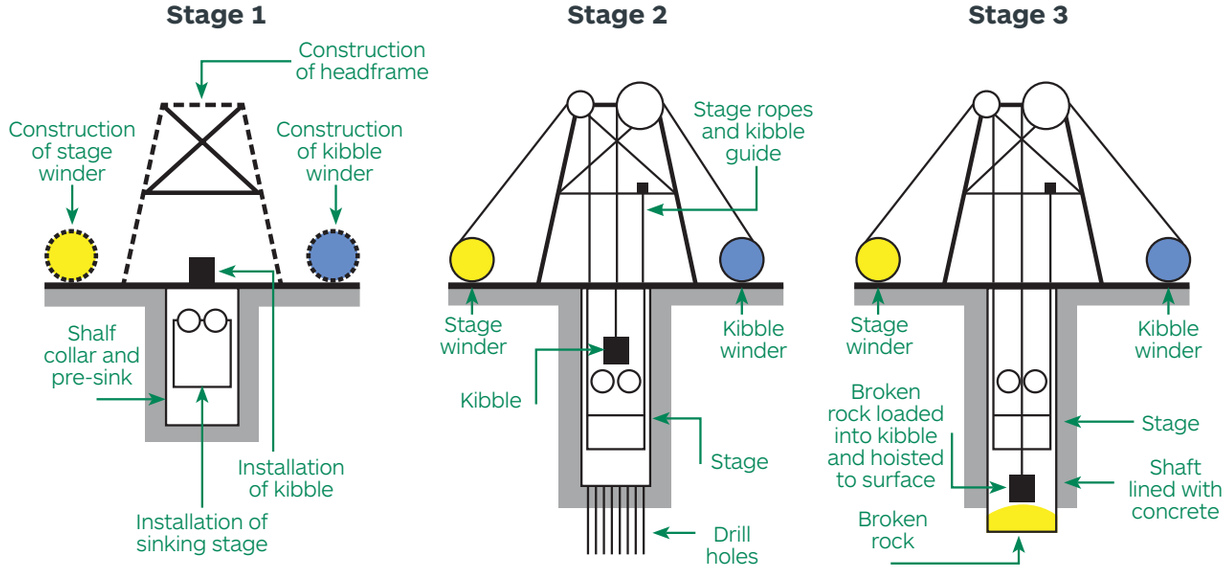
Ventilation Shaft 8 will be about 560m deep and 5.5m wide. This shaft will draw air out the mine.

Spoil management

Spoil excavated from the shafts will be primarily reused to build visual bunding around the site perimeter which will be re-vegetated.

The spoil is mostly comprised of sandstones, siltstones and claystones of the Wianamatta, Hawkesbury and Narrabeen Groups.

CONVENTIONAL SHAFT SINKING PROCESS



CONTACT US

More information about the Appin Mine Ventilation and Access Project is available at: https://community.s32illawarra.com.au

You can also follow us on Facebook to stay connected with our operations and community activities. Scan the QR code or go to Facebook and search: South32 Illawarra Metallurgical Coal

If you would like to speak with us about our activities, call our free Community Call Line 1800 102 210 or email illawarracommunity@south32.net