



Australian Government



Transport for NSW

Newell Highway upgrade – Parkes Bypass

Naturally Occurring Asbestos - Frequently Asked Questions

What is Naturally Occurring Asbestos (NOA) and how does it form?

SafeWork NSW states that *asbestos* is a name given to group of naturally occurring fibrous silicate minerals found in rock, sediment, or soil, and the term *Naturally Occurring Asbestos (NOA)* distinguishes these natural occurrences from manufactured products that contain asbestos.

Asbestos minerals are commonly found around the world in certain types of rock including serpentinite (chrysotile [white]) and amphibole (actinolite, amosite [brown], anthophyllite, crocidolite [blue] and tremolite) as well as in the soils formed from these rock types.

What does NOA look like?



Where has NOA has been found on the project?

The first two sites (identified in September 2022 and October 2022) are on the new Newell Highway alignment, between Condobolin Road (Henry Parkes Way) and Painter Street. The third site (identified in November 2022) is on the new Hartigan Avenue Extension alignment, immediately north of Broilgan Road. These are the only locations of Naturally Occurring Asbestos that have been encountered through the earthworks on the project. Refer to the locations marked red on the Parkes Bypass Maps over the page.

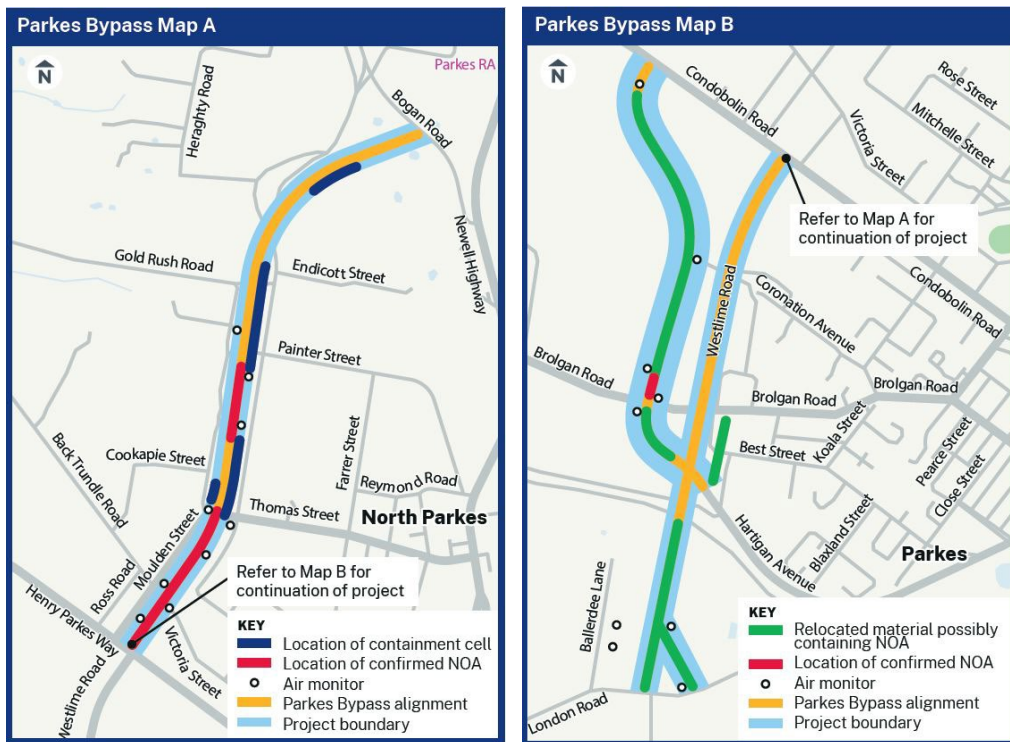
Following the discovery of NOA and subsequent investigations, NOA has been identified to potentially exist in the Parkes Volcanics which underlies most of the Parkes Bypass corridor.

Following the discovery of NOA at these sites, work was immediately stopped as a precautionary measure whilst an Asbestos Management Plan was finalised. The plan involves implementing controls that ensure the safety of workers and the public while conducting works in areas affected by NOA as well as ensuring that the site is remediated prior to completion of the project.

How much NOA has been found?

The NOA found on the Parkes Bypass is only present in small quantities but is spread throughout the material that needs to be excavated to enable construction of the Parkes Bypass.

To mitigate risk, all the material in each area where NOA has been identified is considered as affected. It is estimated that less than 10% of the material being excavated on site contains NOA.



How was the NOA identified?

The NOA was spotted visually onsite by project staff. Following this, a Hygienist was engaged to take samples and carry out testing to confirm the material was NOA. A number of different tests including microscopy, Transmission Electron Microscopy (TEM) and Petrological tests were undertaken and all provided confirmation of NOA being present.

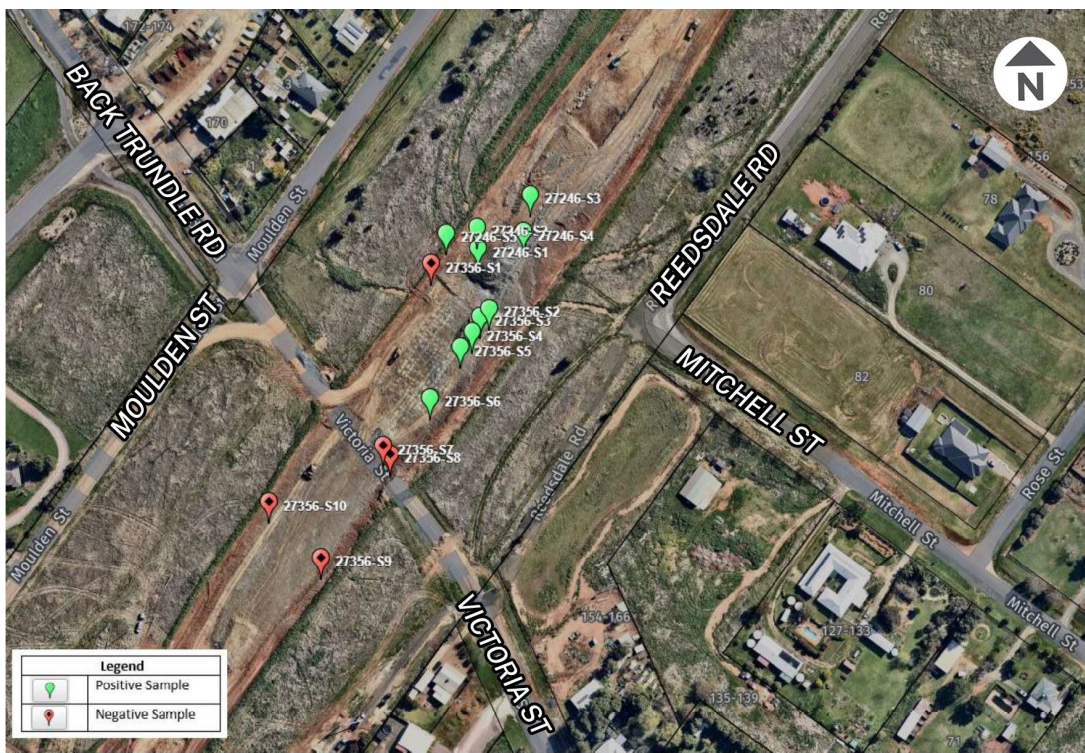
Further to this, specialist geologists were engaged to review the testing and inspect the site to provide advice on the material and the best way to manage it.

How many samples were tested?

Transport for NSW (Transport) engaged EnviroScience to assist in the NOA investigations. EnviroScience has taken 23 samples from across the project site since September 2022.

The table below details the sample locations and maps that identify positive samples (green) and negative samples (red) of NOA.

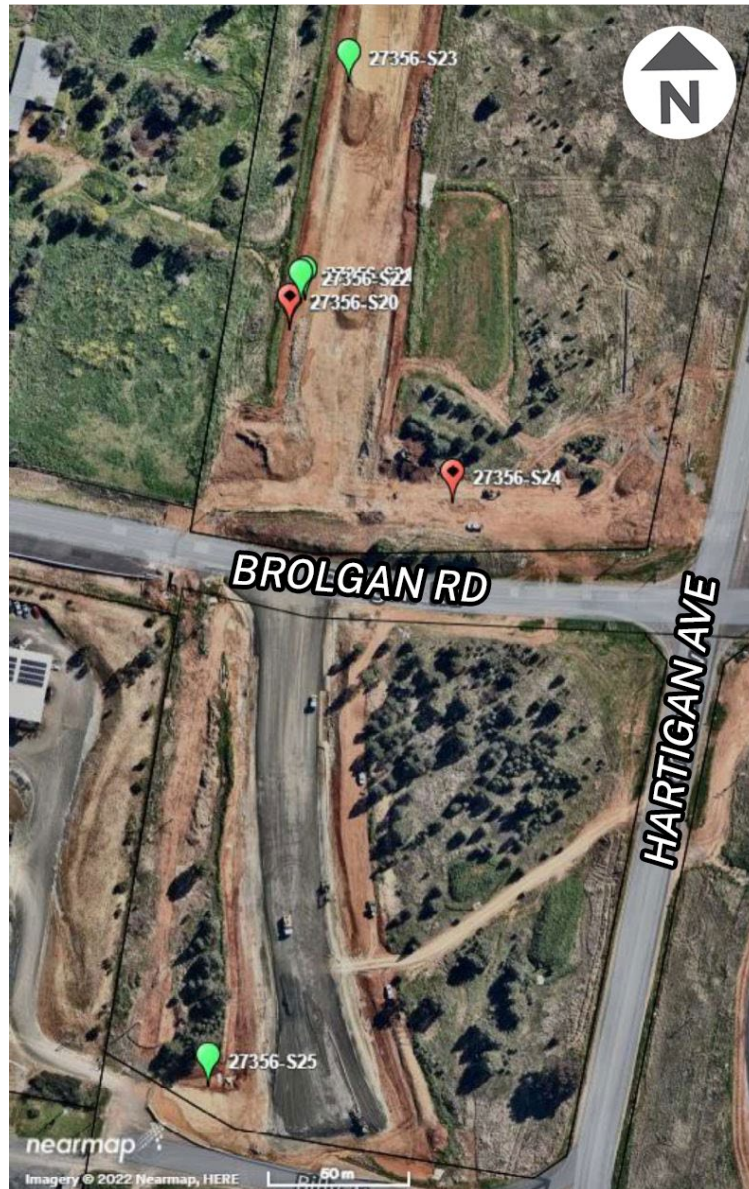
Locations of samples taken between Condobolin Road (Henry Parkes Way) and Thomas Street



Locations of samples taken from adjacent Reedsdale Road, near Painter Street



Location of samples taken from New Hartigan Avenue, Adjacent Brolgan Road



Why wasn't the NOA detected during the development phase of the Parkes Bypass project?

Extensive geotechnical investigations of the Parkes Bypass alignment involved a series of boreholes and test pits along the alignment in which no NOA was encountered. These boreholes have been inspected since the discovery of NOA on site and there is no visible presence in them.

Asbestos has not previously been recorded in the Parkes area and the NOA discovery in the project area is an unusual and unexpected occurrence. A search of Geological Survey of NSW Digital Imaging Geological System (DIGS) database and review of selected geological and mineral exploration reports has found no mention of previous NOA occurrences at Parkes. Based on the NSW Environmental Protection Agency (EPA) NOA map, the closest known occurrences of NOA are about 100 kilometres south of Parkes, in serpentinite rock south of Grenfell, and 90 kilometres east of Parkes, in ultramafic igneous rocks and serpentinite rocks near Orange.

The rock type within the project site (meta-andesite host rock), is not the usual host of asbestos mineralisation in NSW. The most common rocks to host asbestos in NSW are serpentinites and ultramafic igneous rocks.

How is the project safely managing NOA?

All works are being undertaken under **full asbestos management controls**, overseen by a Class A Asbestos Supervisor, Licensed Asbestos Assessor and Hygienist. Workers are dressed in appropriate protective clothing, including coveralls and masks. An exclusion zone of 10 metres for vehicles or plant equipment that involve NOA ground disturbing activities is in place.

Air monitors have been established around the worksite to ensure there is no migration of asbestos fibres beyond the site boundary. The air monitors capture data 24 hours per day and the results are uploaded onto the project website (nswroads.work/parkesbypass) at the end of every month.

In regards to the **removal and containment** of NOA within the project site, **there are two approaches** to safely manage this process.

Firstly, the NOA material that is required to be moved in order to construct the highway (refer to locations in red in the maps on page 2) needs to be excavated and relocated to the nominated containment cells that will be constructed within the road reserve, on the between Thomas Street and Bogan Road (refer to blue in the maps on page 2). During this process the NOA material is saturated utilising a watercart to minimise dust generation during transport. A stabilising agent will be used on disturbed surfaces as required to reduce generation of dust from wind.

On-site encapsulation of excavated material into containment cells is the preferred treatment for NOA contaminated material to deliver the best safety and environmental outcomes. This keeps the NOA material within the existing environmental approval boundary and prevents the material being classified as waste.

In addition, this method improves safety for the community as it minimises haulage distances of material. There is also sufficient space within the project site/future road boundary to fully encapsulate the material required.

In the areas where the NOA has been excavated, the exposed surfaces will be capped with marker layers over the exposed NOA, and the highway constructed over the top to ensure safety in future maintenance.

The second approach is to address the locations where NOA was moved across the project site before NOA was identified. This material has been relocated on the project for use in the low layers of pavement formation (refer to locations marked green in Parkes Bypass Map B).

A conservative approach is being taken where this material is being considered as possibly containing NOA and managed as such. The approach for this material is to retain it in its current location, place marker layers and warning tape over it, and continue to construct the rest of the highway and local roads over this material.

Detailed information on both approaches will be included in Transport’s ongoing maintenance plan in the road reserve. In addition, Transport is working with Parkes Shire Council to determine the long-term strategy for management and reporting of NOA in Parkes.

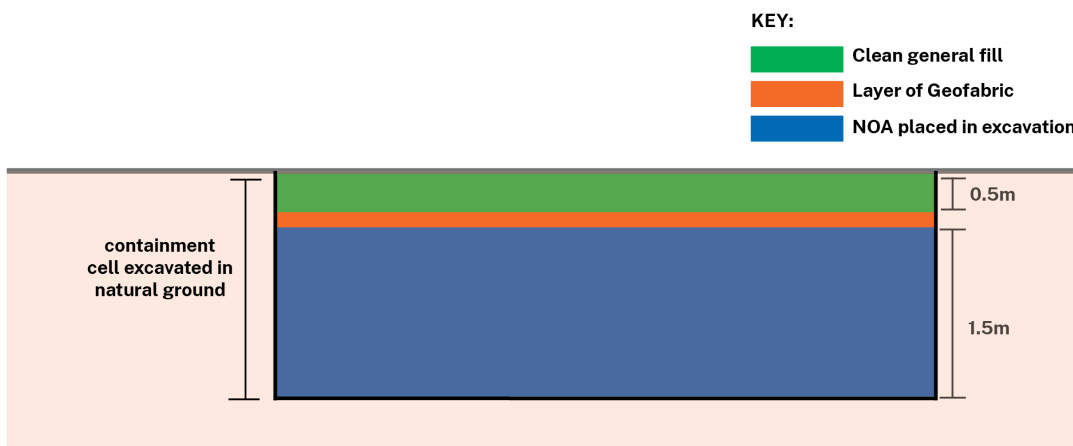
Why isn’t the NOA being removed off site?

The option to haul the NOA material off site could not be considered due to the material being classified waste and additional risks and controls to manage are introduced. Additionally, disposing of the NOA material at the Parkes Waste Facility was not considered feasible as the facility does not have sufficient capacity.

What is a containment cell?

Containment cells are engineered to fully encapsulate the potentially NOA affected material. The cells are two metres deep with 1.5 metres of NOA storage and 0.5 metres of clean capping to finish cells at existing ground level. The diagram below demonstrates an example of an encapsulation.

NATURALLY OCCURRING ASBESTOS (NOA) CONTAINMENT CELL EXAMPLE



A run of ‘Warning Asbestos’ tape is to be laid over the top of the containment cell. A layer of high visibility orange geo-fabric is to be laid over the surface of the entire cell to encapsulate the NOA containing material.

The orange geo-fabric will provide delineation to clean fill and function as a warning for any future works that there is hazardous material below. GPS location of the containment cell will need to be recorded and added to the Long-Term Environmental Management Plan (LTEMP) for the site.

How were the locations of the containment cells chosen?

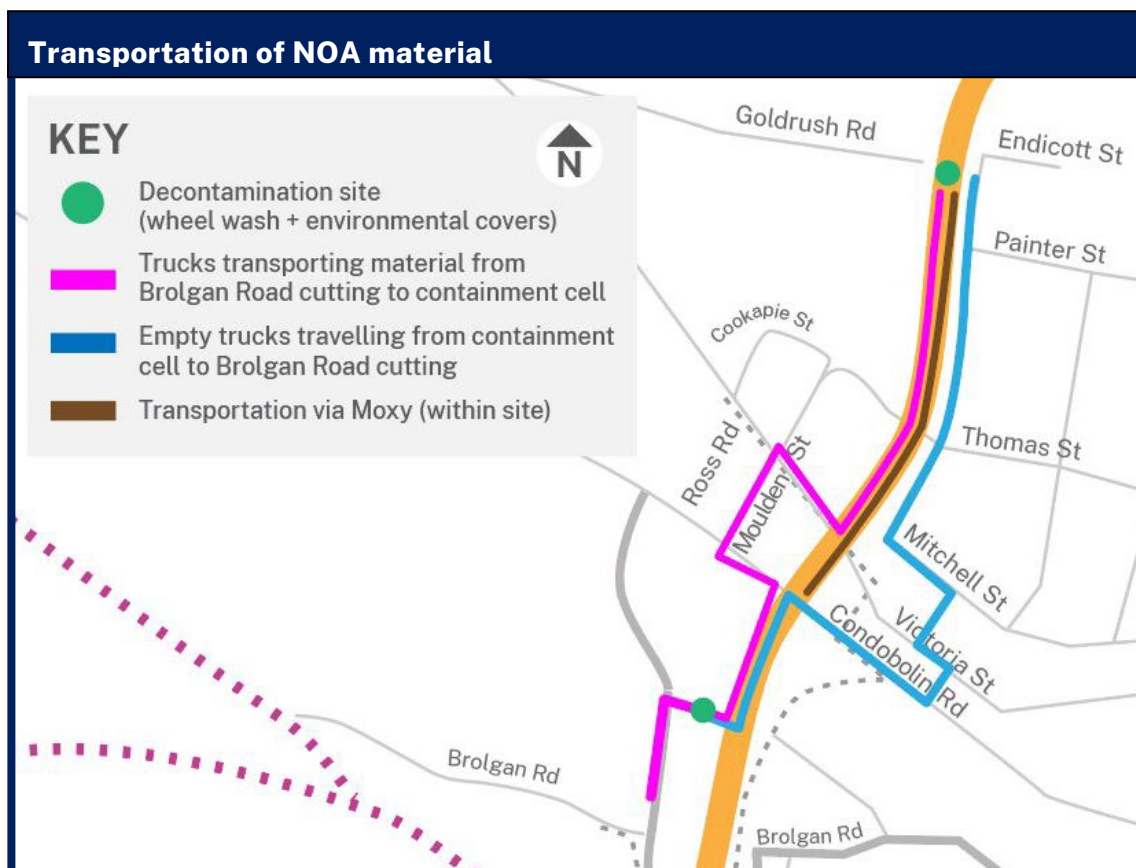
These locations were chosen as they are near the locations in which the NOA was discovered and sit within the area that NOA is expected to exist naturally from the investigations completed by Geologists. In addition, suitability of the locations was identified through test pitting as there was at least two metres depth before rock was encountered, hence extremely low risk for uncovering any further seams of NOA.

In addition, these locations provide sufficient space to encapsulate the amount of NOA containing material on site within the project site boundary. Locations within the project site were a key criterion as it is the preferred method of disposal by the EPA, prevents the material becoming a waste and minimises safety and environmental risks.

How are we transporting NOA material to the containment cells?

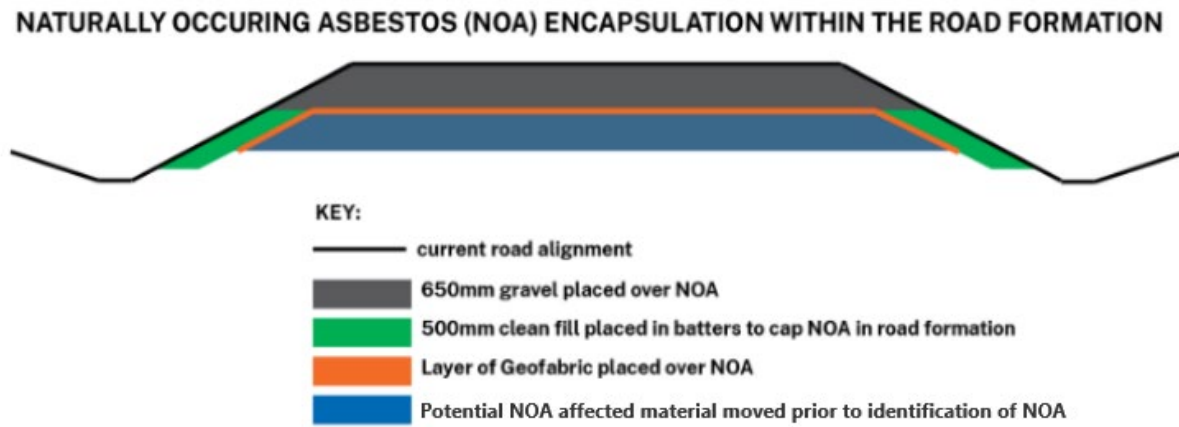
NOA material excavated from the two cuttings north of Condobolin Road is transported via Moxy (dump truck) and driven to locations within the project site (refer to brown line into map below). The material in the trucks is saturated with water prior to transportation.

Transportation of NOA material from the cutting adjacent to Brolgan Road to the containment cells is via the route illustrated in the below map (refer to pink and blue lines). Vehicles are decontaminated (wheel wash and sealed and covered with environmental covers) before entering the local road network.



How is material encapsulated in road formation?

The diagram below demonstrates an example of how this material will be encapsulated in the road formation.



How are trucks cleaned prior to leaving site?

It is a requirement that a decontamination process is undertaken prior to trucks leaving a zone where they are working with potential NOA contaminated material.

Decontamination is completed utilising an engineered wheel wash and asbestos trained labourers under the supervision of a Class A Asbestos Supervisor. The wheel wash is designed to capture sediment during the decontamination procedure, and is set up with associated environmental controls including geofabric lining to filter any water runoff. Following completion of the works the wheel wash is decontaminated with any captured sediment removed and stored within one of the onsite containment cells and all affected geofabric is disposed of at a suitable licensed facility.

The water runoff from the decontamination is not reused on the work site, it is filtered in a sediment basin and naturally released. Sampling of this water is being completed to ensure there is no presence of asbestos fibres leaving the site.

The water being used on project site is currently being sourced from the Parkes Brick Pit to a site storage dam.

Can NOA Asbestos infiltrate the watercourse?

NOA is not a soluble product that can dissolve into groundwater and migrate through the soil strata. This means that it cannot infiltrate the water table or migrate outside the project site and be drawn out of bores on adjacent properties. Notwithstanding, NOA does not cause harm through ingestion, it is only airborne fibres that are inhaled that pose a risk. The project is following strict guidelines to manage this in accordance with regulations of SafeWork NSW and the EPA.

Can NOA affect plants, animals & water?

The primary risk to health from NOA is when asbestos fibres become airborne, or settle on clothing, equipment or buildings and can later be disturbed and inhaled. As the NOA is being managed within the site, the works are not posing a risk to plants, animals or water.

Update: December 2023

Why are we removing material from containment cells?

Existing cells have been used to temporarily safely stockpile material with the potential to contain NOA and clean fill for a number of reasons:

- Achieved compaction levels of material potentially containing NOA was less than expected
- Delays in accessing an identified encapsulation cell
- One encapsulation cell was unable to be used because it is too close to existing NOA material

In line with the approved Asbestos Management Plan, remediation work to cap these cells at ground level will take place, which involves removing the excess material that is above ground level and transporting it to newly excavated containment cells approved within the project site.

How will remediation take place?

- Topsoil from the stockpiled cells will be removed and stored separately
- Capping material will be removed, ensuring the orange geo-fabric remains intact with no contamination from material containing NOA
- Once capping material is removed, NOA measures will be in place
- Excavation of NOA material will begin, loaded into trucks then transported to the final containment cell.

Work will occur progressively.

Where is the overfilled material being taken to?

A number of locations were identified within the project site as appropriate for NOA encapsulation (see [map above](#)).

This includes the cell under the sound mound located at Moulden Street near Cookapie Street.

Where are the air monitors located and how do you understand the results online?

20 long term air monitoring devices are installed in multiple locations around the boundary of the site. This allows us to ensure that there is no migration of asbestos fibres beyond the site boundary. To date there has been over 5000 individual readings taken with no exceedance of the fibre concentrations in air recommended by current legislative levels and industry best practice recommendations.

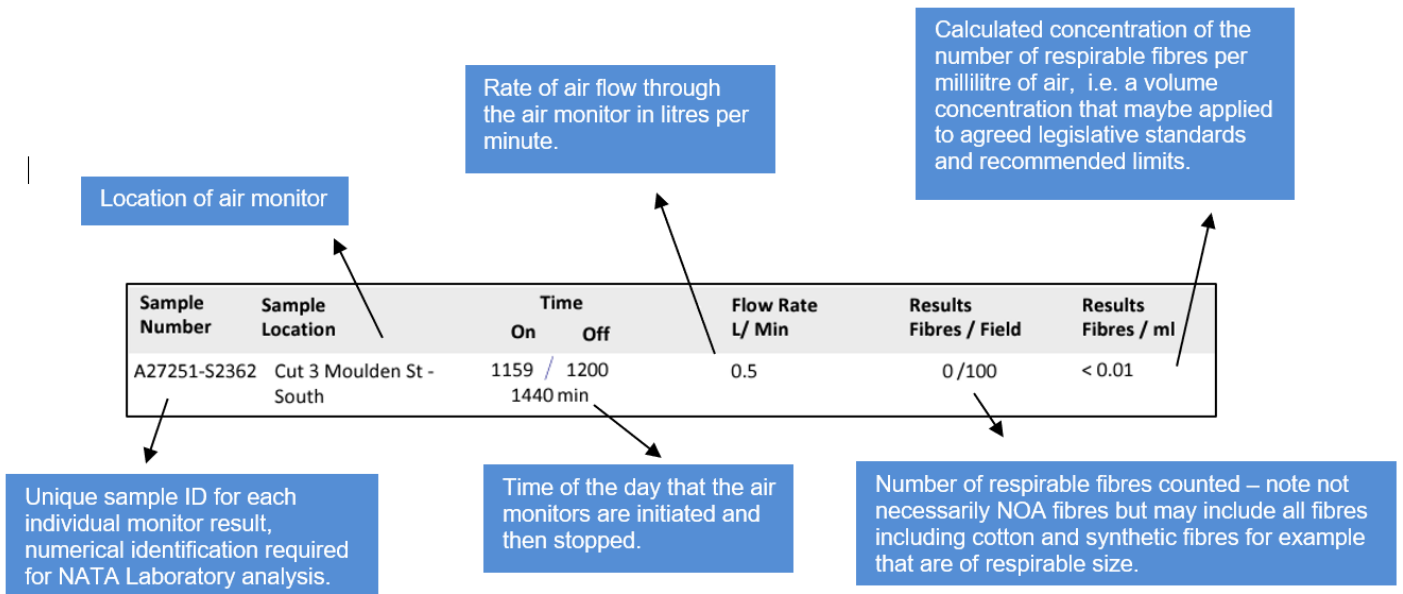
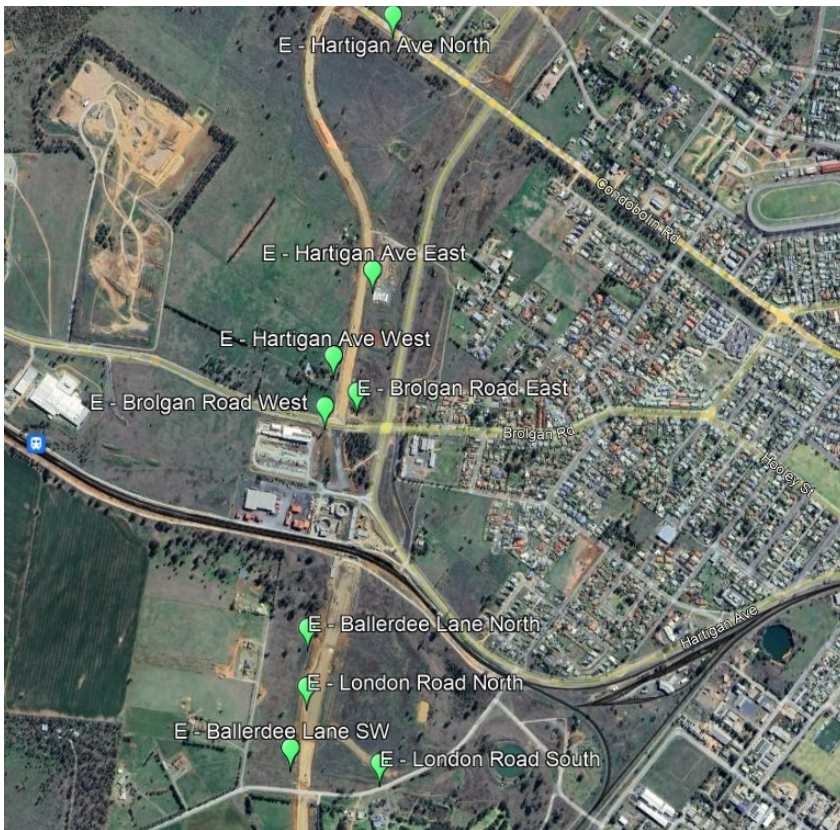
The monitors capture data 24 hours per day and the results are uploaded onto the project website at the end of every month. The results are available online at nswroads.work/parkesbypass.

We have included a diagram below of the air monitoring results for clarity, as well as maps with the locations of air monitors.

MAP A



MAP B



What happens next?

- After capping, all containment cells will be revegetated using hydromulch, which is a process of spraying a slurry of water, seeds, fertiliser, mulch, and a binder on soil to provide a fast and efficient revegetation of native grasses and shrubs which will ensure

stabilisation of the finished surface level against water run-off.

- Following completion of the NOA remediation, drainage and service installations are expected to take place within the remediated areas during the first half of next year.

How long until the NOA works are completed?

We expect that all NOA encapsulation and remediation works will be completed by mid 2024 and final service installation will be completed by July 2024, weather permitting.

Contact us

If you have any questions or would like more information, please contact our Parkes Bypass project team:



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nswroads.work/parkesbypass



If you need help understanding this information, please contact the Translating and Interpreting Service on 131 450 and ask them to call us on 1800 741 636 (option 4)/