

4 November 2020

Stephen O'Donoghue
Director Resource Assessments
NSW Department of Planning, Industry and Environment
12 Darcy Street
Parramatta NSW 2124
Email: Stephen.ODonoghue@planning.nsw.gov.au

Tahmoor South Project: Response to Request for Information No. 3

Dear Stephen,

1. Introduction

This letter provides a response to the Request for Information No. 3 for the Tahmoor South Project (the Project). Each request is reproduced in the box and the response below.

2. General information

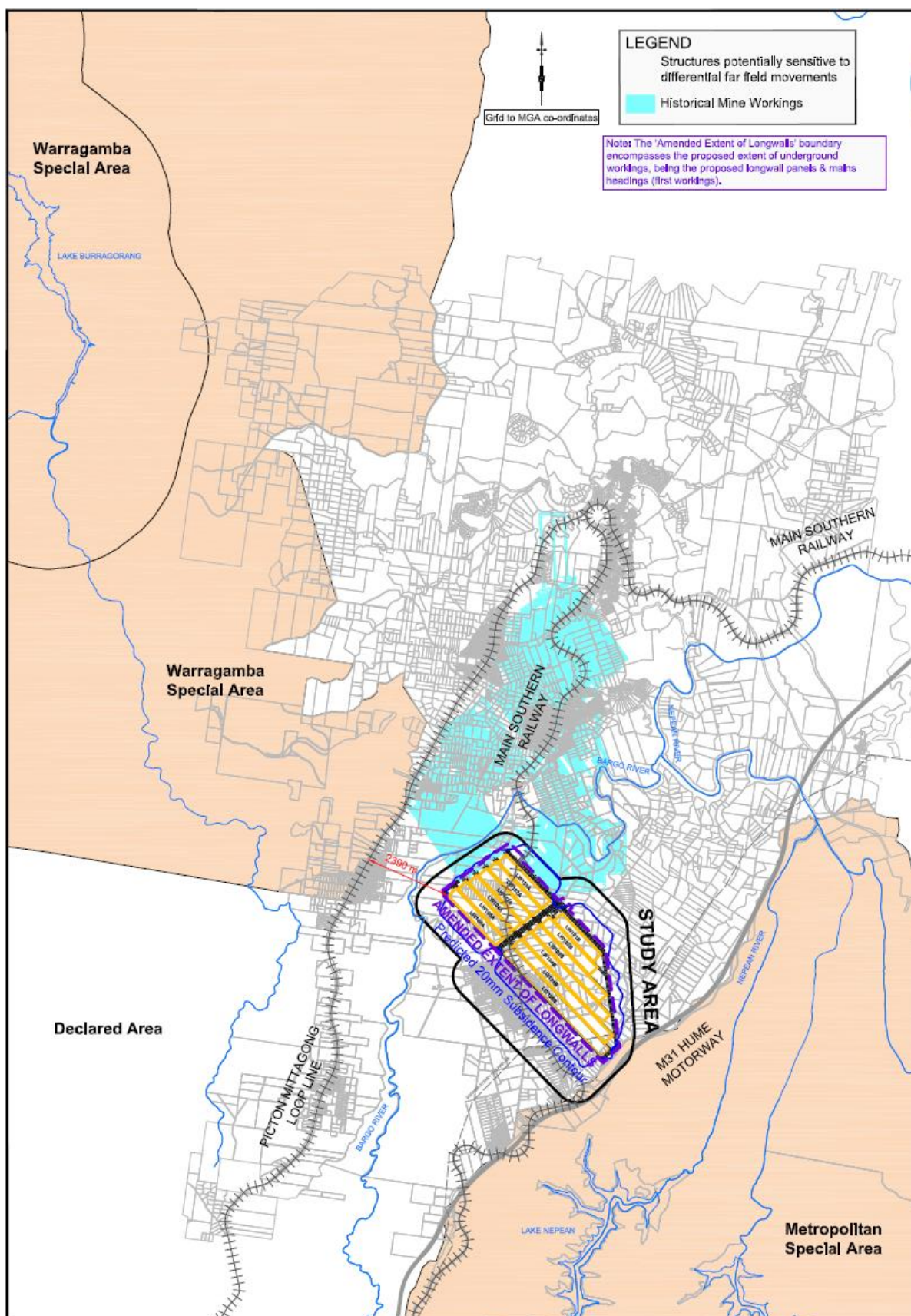
1. Project application area in hectares (ha).
2. Area (in ha) of the existing surface facilities site.
3. Distance between the Warragamba Special Area and the nearest proposed longwall panel.

1. The project application area is 6,490 hectares.
2. Mining Lease (ML) 1642 covers the surface facilities area, as shown on Figure 1.3 of the EIS (AECOM 2018). ML 1642 covers an area of 206.38 ha.
3. The distance between the Warragamba Special Area and the nearest longwall panel is 2,390 metres. A figure illustrating this distance is provided on the following page.

3. Surface water

1. Confirm the setback distance from Dog Trap Creek if LW103B is shortened by 400m.
2. Reproduce the table on page 15 of the *Response to Request for Information No. 2* to indicate the revised likelihood of subsidence induced fracturing to pools if LW103B is shortened by 400m.
3. Confirm how many Aboriginal heritage sites would be avoided if LW101B is removed from the mine plan.
4. Confirm the estimated volume and cost of sterilisation of coal if LW101B is removed from the mine plan.
5. Estimate of the volume of brine to be produced from operation of the proposed Waste Water Treatment Plant (WWTP) and an indication of the existing feasible options for storage, management and disposal of brine.

1. If LW103B is shortened by 400m, the closest distance from LW103B to Dog Trap Creek is 90 m.



2. If LW103B is shortened by 400 m, the potential for loss of surface water will reduce for pools that are not directly mined beneath. As LW104B continues to mine alongside these pools, the predicted maximum closure is 300 mm above LW103B. The table included in the second RFI has been updated to reflect the likelihood of subsidence fracturing to pools if LW103B was shortened by 400 m, and is produced below.

Likelihood of Subsidence induced Fracturing to Pools

Watercourse	Number of pools above or near longwalls**	Likelihood of "Type 3" Impact				
		<10% (<210mm*)	<20% (210-290mm*)	<30% (290-420mm*)	<40% (420-475mm*)	>40% (>475mm*)
Tea Tree Hollow	4	3	1	0	0	0
Teatree Hollow	5	2	1	2	0	0
Tributary 1						
Dog Trap Creek	41	14	14	13	0	0
Dog Trap Creek Tributary 1	9	0	1	0	1	7
Dog Trap Creek Tributary 2	3	0	1	0	2	0

* millimetres of predicted valley closure

** includes all pools except those more than 200m north-east of LW101A & B

3. If LW101B was removed from the mine plan, two Aboriginal heritage sites would not be directly mined beneath. They are 52-2-1533, and 52-2-1533, which are located above the last 170 m of the panel. The likelihood of impacts based on the Second Amended mine layout was around 10%. The likelihood would reduce if LW101B was removed. The removal of LW101B would also reduce the likelihood of impacts to 52-2-3971 and 52-2-1524; although as these sites are located beyond the footprint of LW101B, the potential for impacts is low regardless.
4. If LW101B was removed from the mine plan, there would be approximately 1,300,000 tonnes of product coal sterilised with revenue impact of approximately US\$175 million.
5. The WWTP is predicted to produce approximately 300 – 500 kL of brine per day. A range of options have been considered for storage, management and disposal of the brine and short-listed to the following:
 - a. Disposal of the brine to a newly built facility located at Port Kembla, with subsequent discharge into adjacent sea water.
 - b. Disposal of the brine to historical Tahmoor Mine underground works.

4. Aboriginal Cultural Heritage

It's been advised that impacts on two Aboriginal heritage sites would be avoided if Longwall 103B is shortened by 400m. Please confirm if any sites would have a reduced impact. If so, please reproduce the Table 32 on pages 86-88 of the *Aboriginal Cultural Heritage Assessment (Feb 2020)*. Otherwise, please advise which particular sites would be avoided.

Sites 52-2-1520 and 52-2-1521 are located directly above LW103B. The likelihood of impacts based on the Second Amendment mine layout was around 10%. If LW103B is shortened, the potential for impacts on this longwall would be reduced (not avoided).

If LW103B was shortened by 400m, the likelihood of impacts to sites 52-2-1522, 52-2-1523 and 52-2-3960 would also reduce but as these sites are located outside the footprint of LW103B, the potential for impacts is very low regardless.

5. Noise

1. Confirm if the 'Existing + Construction' scenario in Table 3 of the *Response to Request for Information No. 2* includes all activities that would occur on site prior to the implementation of the mitigation scenario. If additional activities are to occur under this scenario (ie increasing height of the Reject Emplacement Area), please update the table to reflect any changes in noise predictions.
2. Update Tables 3 and 4 of the *Response to Request for Information No. 2* to include LA max noise levels.
3. Confirm if the noise generated by the development would contribute to exceedances of the acceptable noise levels plus 5dB in Table 2.2 of the Noise Policy for Industry on more than 25% of any privately-owned land where there is an existing dwelling or where a dwelling could be built under existing planning controls. Please include a figure with worst-case noise level contours in your response.
4. Figures:
 - a. Update Figure 2 of the *Response to Request for Information No. 2* to include receiver numbers and noise level contours.
 - b. Consolidate Figures 3,4,5 of the *Response to Request for Information No. 2* into one figure that depicts the worst-case noise emissions for the project under the mitigated scenario. Please include receiver numbers and noise level contours.
 - c. Update Figure 7 of the *Response to Request for Information No. 2* to include the boundaries to each Noise Catchment Area.

1. The 'Existing + Construction' scenario in Table 3 of the Response to Request for Information No. 2 includes all activities that would occur on site prior to the implementation of the mitigation scenario. However, additional activities (ie increasing the height of the REA) are proposed to occur prior to the full implementation of the mitigated scenario. The REA activity would be limited to day and evening periods when operating above the currently approved height of the REA and construction activities are occurring on the ventilation shaft sites (TSC1 and TSC2); ie the REA will continue to operate under existing conditions (including night-time activities) prior to the implementation of mitigation measures as long as construction of the ventilation sites is not occurring at the same time. As such, noise levels from the additional activities on the REA would not increase construction noise levels further above those presented in Table 3. If construction of the ventilation shafts and operation of the REA were required to both occur during the night time period, noise modelling would be undertaken in consultation with the EPA to ensure noise criteria at receptors can be met, including the implementation of additional controls where required.

2. Table 3 provides noise emission predictions for the existing Tahmoor Colliery combined with worst-case construction noise levels associated with the Project. An assessment of noise from construction activity was provided in Section 7.4 of *Tahmoor South Project Amended Project – Noise and vibration impact assessment* (EMM 2020). Noise from the outside-of-standard-hours activity will generally be continuous in nature and therefore, given the magnitude of predicted LAeq construction noise levels, the maximum noise level (ie L_{Amax}) from this activity is predicted to be below the relevant sleep disturbance screening criteria at all nearby assessment locations. Further, maximum noise levels from existing night-time activity in the REA is predicted to be less than 50 dB and therefore below that which would trigger the need for a detailed assessment of maximum noise events at any residential assessment location.

Table 4 provides noise emission predictions for the mitigated stages of the Project. An assessment of maximum noise events associated with the Project was presented in Section 8.3 of the *Tahmoor South Project Amended Project – Noise and vibration impact assessment* (EMM 2020). It is expected that both the frequency and level of maximum noise events from the amended project will be lower compared to the existing operation due to the mitigation measures to be implemented; including as a result of restricting operation of equipment in the REA to day and evening only.

Maximum noise level predictions from activities such as dozer operation or rail loading are provided in Table 1 for all residential assessment locations where maximum noise levels are predicted to be higher than 50 dB. Results indicate that the maximum noise level is not predicted to be above that which would trigger the need for a detailed assessment of maximum noise events at any residential assessment location.

Table 1 Predicted maximum noise levels including mitigation from amended project

Receiver ID	Address	Predicted L _{Amax} noise level (dB)	Maximum trigger level (dB)
1426	2 Olive Lane	54	57
1427	4 Olive Lane	52	53
1425	6 Olive Lane	51	53
1429	7 Olive Lane	52	53
1421	3010 Remembrance Drive	52	53

3. Table 4 provides a comparison of predicted noise emissions for each stage to the relevant project amenity noise levels (PANL) which have been established with reference to Table 2.2 of the NPfI. There is only one location where the mine noise emission is predicted to be more than 5 dB above the PANL (ie receiver ID 1426, 2 Olive Lane). Based on predicted noise emissions this receptor has been categorised as experiencing a significant residual noise impact. This will be confirmed by provision of noise contours for each stage of operation.

4. Figures:

- An updated Figure 2 is included over the page, presenting receiver numbers.
- Figure 6 of the Response to Request for Information No. 2 provides the predicted, worst-case residual noise impacts of all stages under the mitigated scenario. This figure has been updated to include receiver numbers.
- Figure 7 has been updated to include noise catchment areas.

6. Road Noise

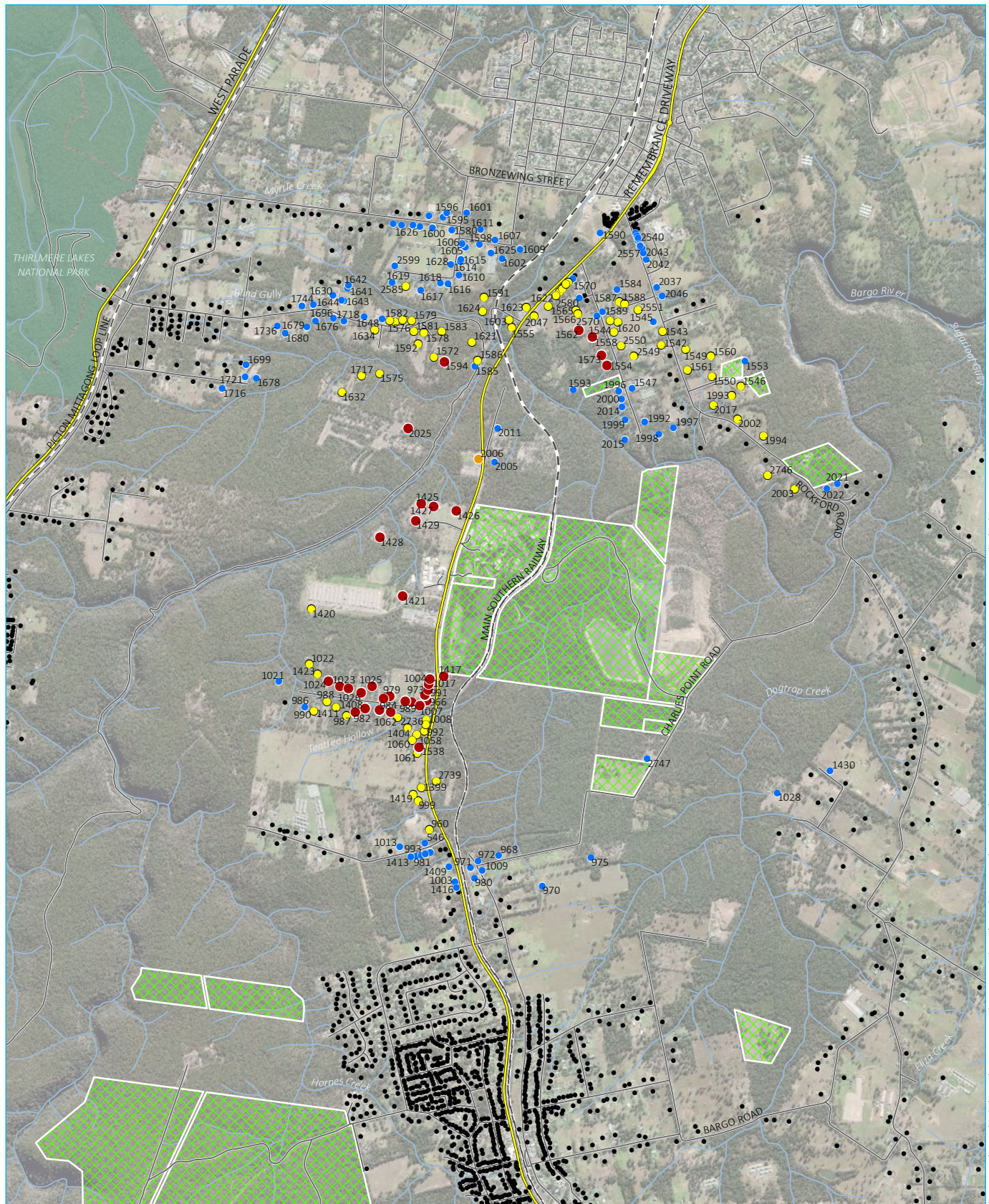
- Confirm the corresponding number of light vehicle and heavy vehicle movements that are assumed for the road noise predictions in Table 9.2 of the *Noise and Vibration Impact Assessment (November 2018)*.
- Table 9.2 indicates a relatively significant increase in road traffic noise on Charlies Point Road (ie 7 dB(A) $L_{Aeq\ 15\ hour}$ and 8 dB(A) $L_{Aeq\ 9\ hour}$). It is understood that there would be limited construction activity at night (mitigated drilling activity only), therefore further commentary is requested regarding this increase in road traffic noise and the road traffic activities that would occur, particularly during the night period.

- Road traffic volumes assumed for the noise predictions provided in Table 9.2 of the *Noise and Vibration Impact Assessment (EMM November 2018)* are provided in Table 2.

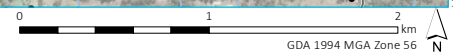
Table2 Road traffic volumes assumed for road noise predictions in Table 9.2

Road	Road section	Day	Night		
		Total volume	% Heavy vehicles	Total volume	% Heavy vehicles
Existing					
Remembrance Drive	North of site access road	8040	7.3%	1422	7.3%
	South of site access road	7530	7.5%	1332	7.5%
Rockford Road	North of Charlies Point Road	2355	6.2%	414	6.2%
Charlies Point Road ¹	North of TSC1/TSC2	105	7.5%	18	7.5%
Additional construction-related traffic					
Remembrance Drive	North of site access road	120	41%	72	10%
	South of site access road	75	23%	63	3%
Rockford Road	North of Charlies Point Road	45	76%	9	56%
Charlies Point Road ¹	North of TSC1/TSC2	45	76%	9	56%

Notes: 1. Site related traffic on this road only for construction-related activity.



Source: EMM (2020); DFSI (2017)



KEY

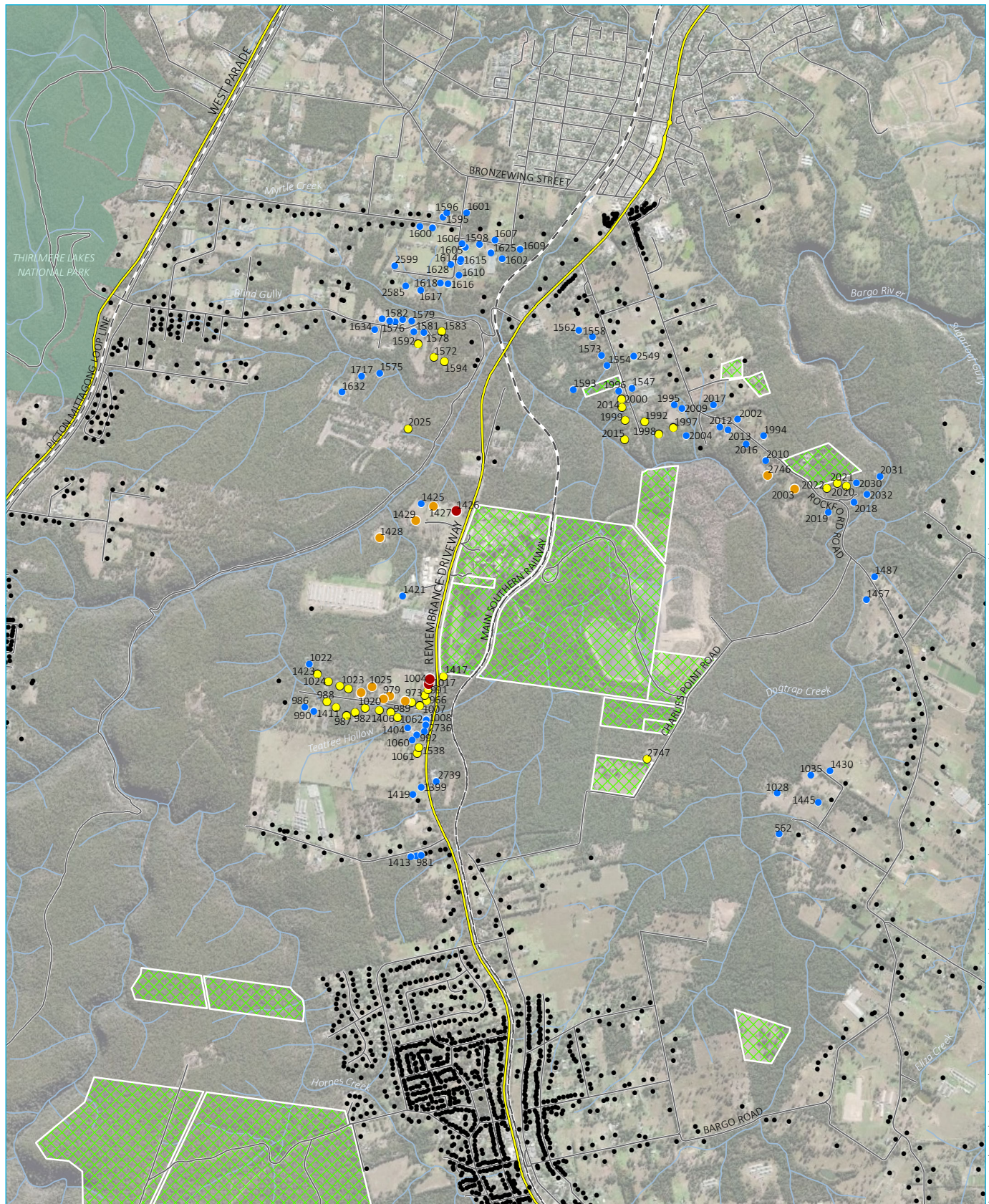
- Rail line
- Main road
- Local road
- Watercourse / drainage line
- ▨ Tahmoor-owned land
- NPWS reserve

Noise impact category

- None
- Negligible
- Marginal
- Moderate
- Significant

Modelled noise impact – existing Tahmoor Mine

Tahmoor South Project
Noise and vibration impact assessment
Figure 2



Source: EMM (2020); DFSI (2017)

KEY

- Rail line
- Main road
- Local road

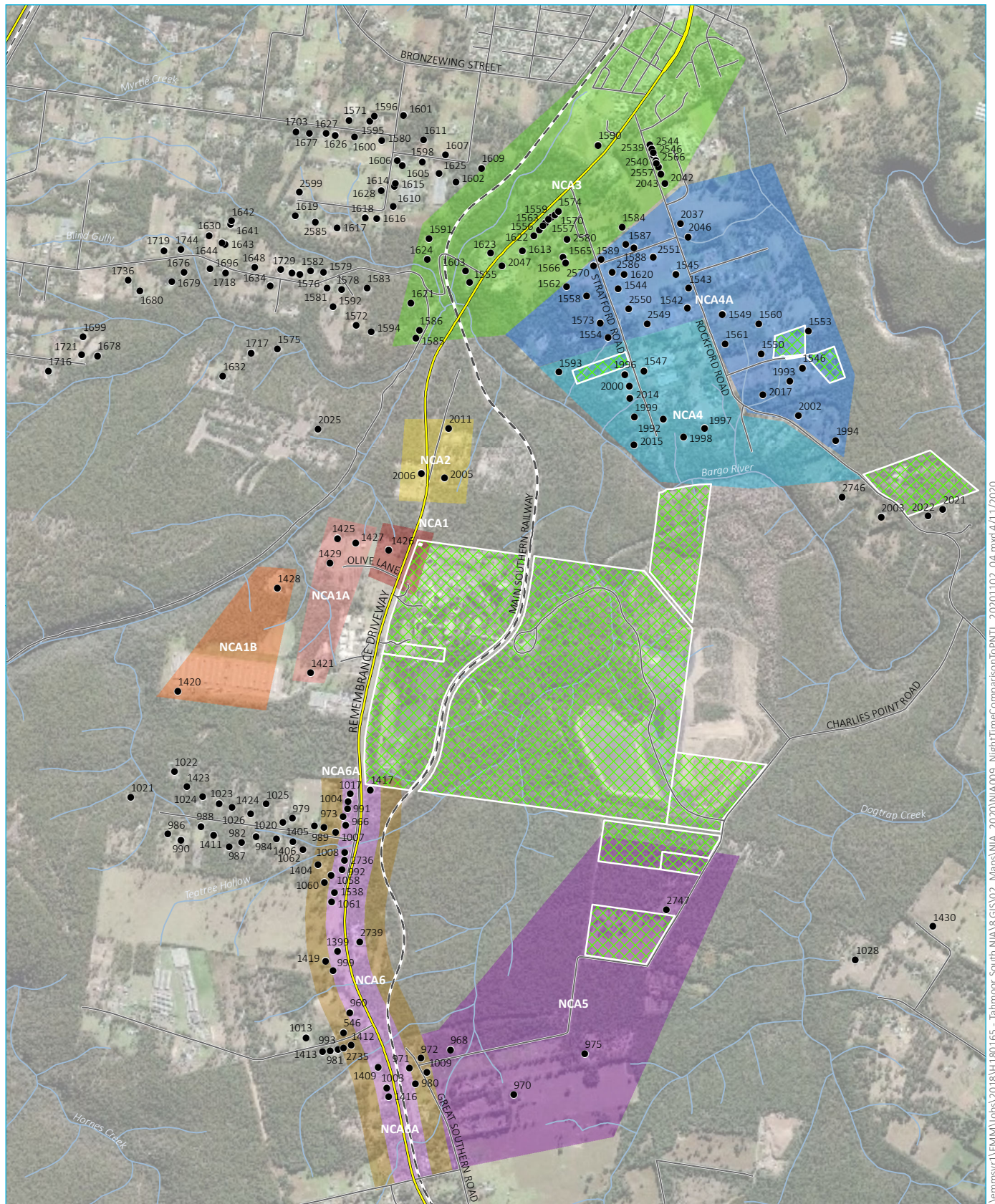
- Watercourse/drainage line
- ▨ Tahmoor-owned land
- NPWS reserve

Noise impact category

- None
- Negligible
- Marginal
- Moderate
- Significant

Predicted noise impact –
worst case of all stages

Tahmoor South Project
Noise and vibration impact assessment
Figure 6



Source: EMM (2020); DFSI (2017)

0 0.5 1 km
GDA 1994 MGA Zone 56

KEY

- Assessment location
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- XX Tahmoor-owned land
- Noise catchment area
- NCA1
- NCA1a
- NCA1b
- NCA2
- NCA3
- NCA4
- NCA4a
- NCA5
- NCA6
- NCA6a

Assessment locations where
existing mine noise is above PNTL

Tahmoor South Project
Noise and vibration impact assessment
Figure 7

2. A conservative approach was taken to predicting construction-related road traffic noise on Charlies Point Road. Four light vehicles and five heavy vehicles were assumed to travel on Charlies Point Road during the night-time period. Given the relatively low existing night-time traffic this does result in a significant increase; however, the predicted noise from total assumed night-time traffic on Charlies Point Road (inclusive of construction-related traffic) is below the relevant RNP criteria. Notwithstanding, it is expected that construction-related traffic will be minimal during the night-time period.

7. Voluntary Planning Agreement

Provide the general terms of agreement for the proposed Planning Agreement with Wollondilly Council, including the contribution amount, intended use and payment schedule.

Tahmoor Coal has been working with Wollondilly Shire Council to prepare a Voluntary Planning Agreement. While discussions are ongoing, the in-principle terms of this agreement are:

- Contribution amount to be based on 1% of the Development Capital profile for the Tahmoor South Project, which is currently forecast to be \$3.4 million.
- The intended use of the funds allocated is for upgrades to the Bargo Sportsground.
- The proposed payment schedule (based on the current Development Capital forecast and subject to further discussion) includes:
 - Funding of \$40,000 for development of the Bargo Sportsground Masterplan
 - Funding of \$45,000 for Playground upgrades
 - Funding of \$115,000 Wet-pour surfacing
 - Funding for implementation of Masterplan further stages with \$250,000 in Year 3 and \$975,000 in each of Years 5, 8 and 11

8. Biodiversity

The EIS indicated that there would be 0.1 ha of vegetation clearing associated with the new carpark. Table 20 of the *Biodiversity Assessment Report (February 2020)* advises that this is no longer proposed. Please confirm that there would be no vegetation clearing associated with the proposed carpark and provide commentary on why this has changed.

The additional carpark illustrated on Figure 4.10 of the EIS (AECOM 2018) is no longer proposed for the Project. The increased construction workforce required for the Project can be accommodated within existing car park areas at Tahmoor Mine, which have been reconfigured to account for the additional demand.

9. Aquatic Ecology

Provide the re-survey results for the Sydney Hawk Dragonfly, as requested by IESC.

Niche Environment and Heritage completed additional targeted surveys of the Sydney Hawk Dragonfly in February and March 2020. A summary of the survey results is included in Attachment A.

10. Greenhouse Gas

Advise why the predicted Scope 1 methane emissions (abated scenario) have increased from 8.8 to 18.7 Mt CO₂-e.

Previous greenhouse gas assessments for the Tahmoor South Project (i.e. for the EIS, First Amendment Report and Second Amendment Report) were based on estimated CO₂-e values. When updating the predicted Scope 1 emissions for the response to RFI Number 2, it became apparent that the CO₂-e values used were low compared with more recent NGERs data. ERM went back to first principles and applied the methane global warming potential value to the recent reported methane emissions from Tahmoor Mine. The intensity factor methodology was then used to calculate CO₂-e emissions for the Project.

An intensity factor, in this context, relates the total ROM coal mined in the year to the CO₂-e released in that same year to find the ratio between these two values. This factor is then applied to estimated annual ROM coal production for the life of the Project. In this case, intensity factors were calculated for 2018, 2019 and 2020 and the average of these was applied going forward from 2021 to 2032.

The Department understands that in 2018/19, Tahmoor Coal was able to capture and flare (or process in the WCMG Power Plant) approximately 20% of methane. The Department also understands that under the Project's 'abated' scenario, approximately 40% of the methane is predicted to be captured and flared. Please confirm whether these estimates are accurate (or provide alternative estimates), and if so, how/why methane flaring rates are predicted to significantly increase under a 'worst-case' abated scenario for the Tahmoor South Project.

Tahmoor Mine has captured between 31% to 38% of methane in the past three years, as shown by the table below.

Year	Total methane (drainage + ventilation) (t)	Total methane captured (flared or power) (t)	% captured
2018	65,187	20,464	31%
2019	64,091	24,038	38%
2020	64,984	24,015	37%

11. Figures

1. High resolution copy of the location of pools figure on page 14 of the *Response to Request for Information No. 2*.
2. Update of Figure ES2 of the Second Amendment Report to show the surface facilities site, REA and vent shaft sites.
3. A figure to show the existing and proposed layout of the surface facilities site (including all key infrastructure and proposed site entrance intersection upgrade), REA (including extension staging areas) and vent shaft sites (including associated transmission lines).

1. A high resolution copy of the location of pools figure is provided over the page.
2. A revised figure ES2 is included over the page.
3. The requested figures showing surface facilities are provided over the page.

LEGEND

- Creek
- Proposed Tahmoor South Mine
- - - - Wirrimbirra Sanctuary

Predicted Total Closure (mm):

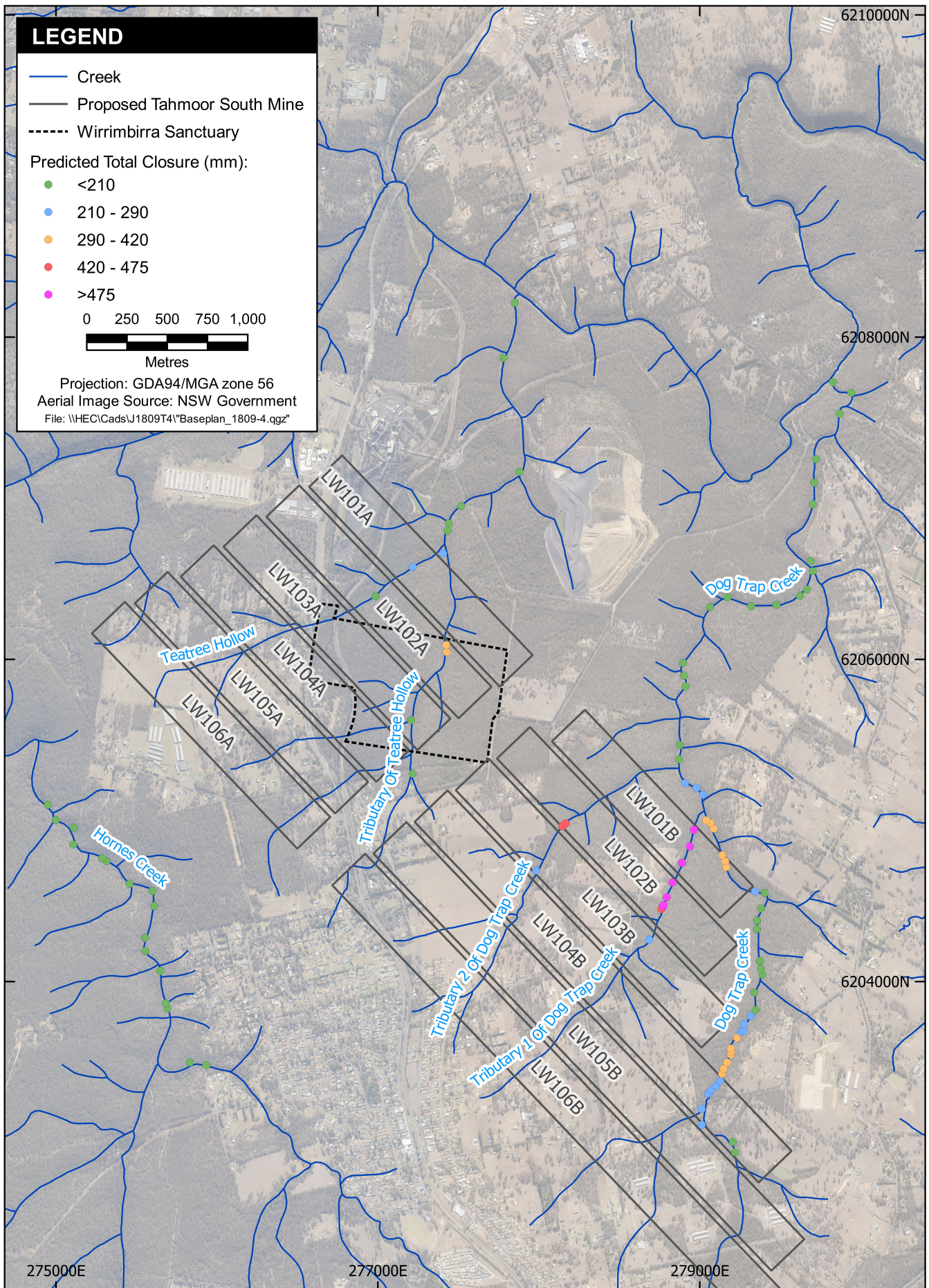
- <210
- 210 - 290
- 290 - 420
- 420 - 475
- >475

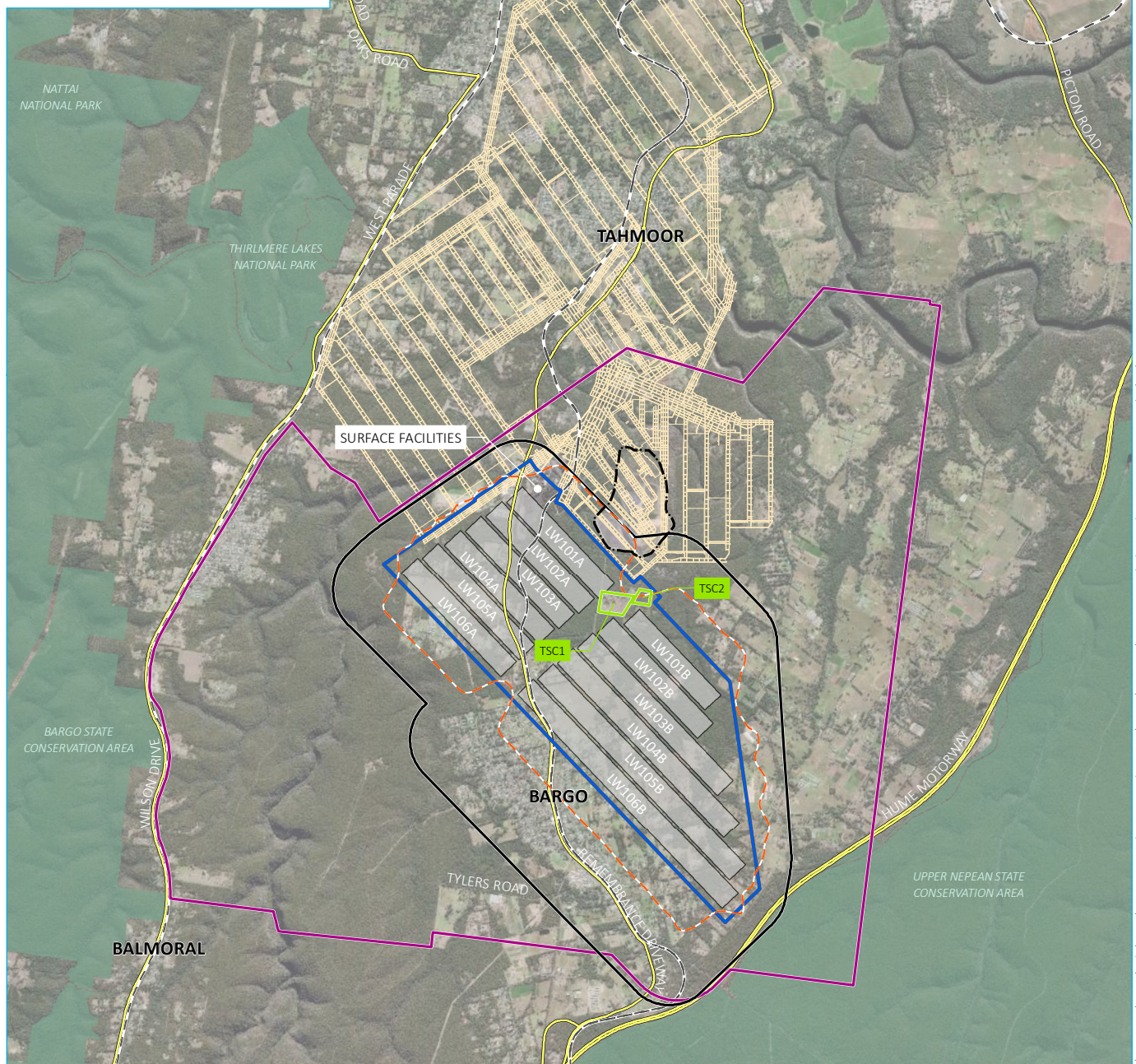
0 250 500 750 1,000



Metres

Projection: GDA94/MGA zone 56
Aerial Image Source: NSW Government
File: \\HEC\Cads\J1809T4\\"Baseplan_1809-4.qgz"





Source: EMM (2020); Glencore (2020); SIMEC (2020); ESRI (2020); DFSI (2017)

KEY

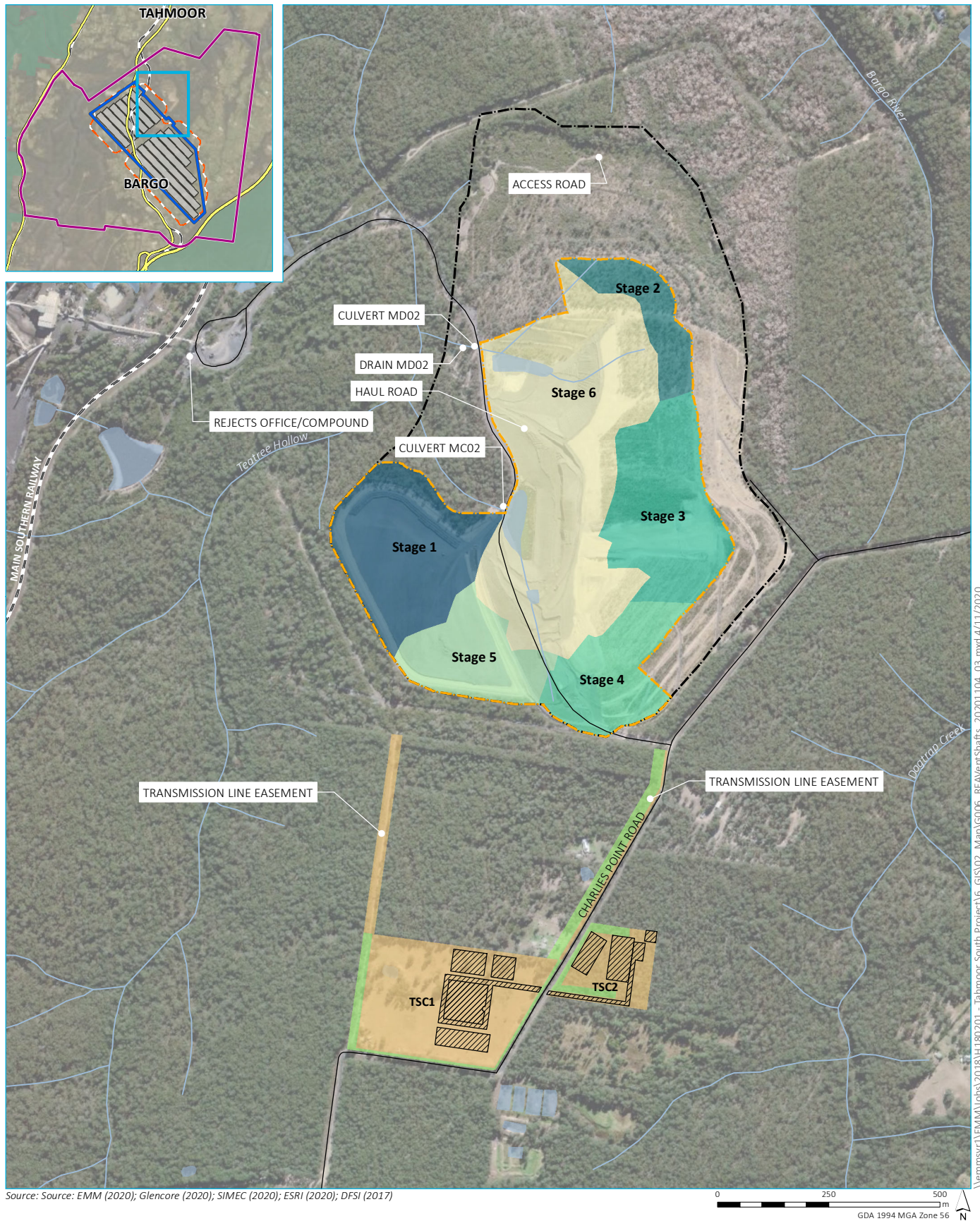
- Project area
- Extent of longwalls
- Longwall panel
- Subsidence study area
- Predicted 20 mm subsidence contour
- Vent shaft
- Approved reject emplacement area footprint
- Approved Tahmoor North underground working
- Rail line
- Major road
- NPWS reserve
- State forest

0 1 2 km
GDA 1994 MGA Zone 56

Amended mine plan

Tahmoor South Project





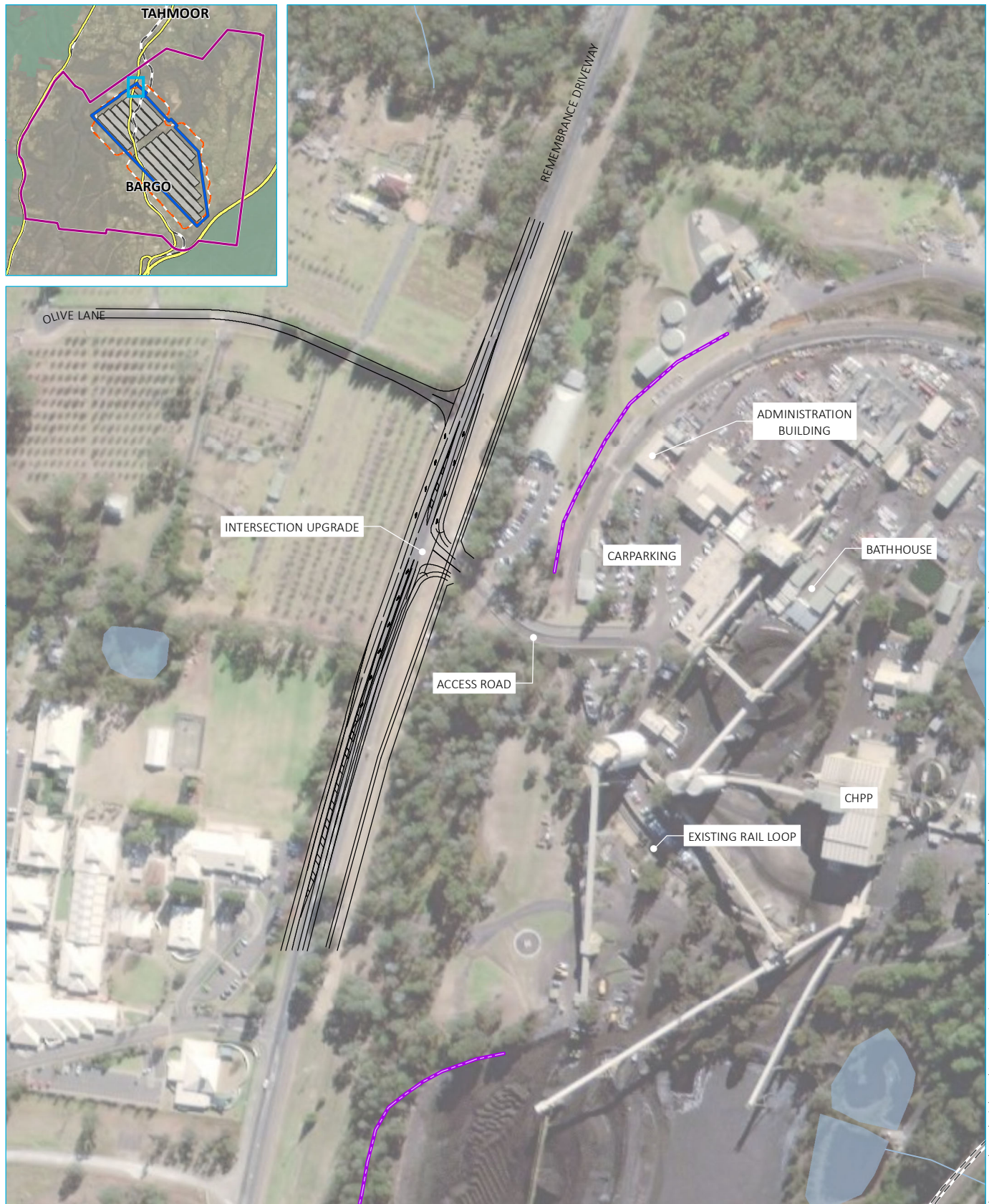
KEY

Project area (refer to inset)	Vent shaft layout	Rail line
Approved reject emplacement area footprint	Vegetation to be cleared	Major road
Amended reject emplacement extension area	Vegetation to be retained	Minor road
Extent of longwalls (refer to inset)	Stage 1	Watercourse/drainage line
Predicted 20 mm subsidence contour (refer to inset)	Stage 2	Waterbody
Longwall panel (refer to inset)	Stage 3	NPWS reserve (refer to inset)
	Stage 4	
	Stage 5	
	Stage 6	

Reject emplacement area and ventilation shaft sites



Tahmoor South Project



KEY

- | | |
|---|---------------------------------|
| — Intersection upgrade | - - Rail line |
| — Acoustic wall | — Watercourse/drainage line |
| — Project area (refer to inset) | — Waterbody |
| — Approved reject emplacement area footprint (refer to inset) | — NPWS reserve (refer to inset) |
| — Predicted 20 mm subsidence contour (refer to inset) | |
| — Extent of longwalls (refer to inset) | |
| — Longwall panel (refer to inset) | |

Surface facility upgrades

Conclusion

Should you have any queries regarding this letter, please do not hesitate to contact Zina Ainsworth, Environment and Community Manager, at zina.ainsworth@simecgfg.com, or Charlie Wheatley, Project Director, at charlie.wheatley@simecgfg.com.

Yours sincerely,



Zina Ainsworth
Environment and Community Manager
Tahmoor Coal

References

AECOM 2018, *Tahmoor South Project - Environmental Impact Statement*, prepared for Tahmoor Coal Pty Ltd by AECOM Australia Pty Ltd.

Attachment A – Sydney Hawk Dragon Survey Results (Niche Environment and Heritage)

•

9 April 2020

April Hudson
SIMEC Mining
2975 Remembrance Driveway
Bargo NSW 2574

Dear April,

Re: Threatened Sydney Hawk Dragonfly Targeted Surveys

Niche Environment and Heritage Pty Ltd (Niche) were commissioned by SIMEC Mining to conduct Sydney Hawk Dragonfly (SHD) (*Austrocordulia leonardi*) targeted surveys, as required for Tahmoor South Project.

The survey was conducted by Matthew Russell (Senior Aquatic Ecologist) and David Wilkinson (Junior Aquatic Ecologist) on the 4th of February, 6th March and 12th March 2020. Surveys could not be conducted in January because of bushfires in the area at the time. The survey targeted pool habitat in the Bargo River suitable for the SHD, including deep open river pools with cooler water and permanent flow and rock substrate. The area surveyed included:

- Up to 1.5km of Bargo River above Rockford Road Bridge and downstream to Mermaid Falls.
- 500m section of Bargo River near Stratford Road.
- 500m section of Bargo River near Remembrance Drive Bridge.

Survey methods involved:

- Searches for SHD adults.
- Sampling of dragonfly larvae with dipnet under rocks.
- Collection of exuviae (dragonfly moults) from the underside of rocks overhanging the waterway.

The results from the survey are as follows:

- Adult searches: No positive identification of *A. leonardi* was found.
- Larvae samples: Aeshnidae, Telephlebiidae, Gomphidae, Hemicordulidae and Libeluliidae sampled from several locations.
- Exuviae: Most exuviae were from the family Austrocorduliidae (36) near Rockford Road Bridge as well as other families Telephlebiidae and Hemicordulidae observed at all locations.

Exuviae were collected predominately from the underside of rocks overhanging the water, where the dragonflies crawl out of the water and start the adult phase of their lifecycle. However, the Austrocorduliidae exuviae were all from the species *Austrocordulia refracta* and no positive identification of *A. leonardi* (SHD) was found. These species coexist, therefore recording *A. refracta* suggests that the survey has targeted appropriate habitat for the SHD. This gives confidence that the survey effort was appropriate to detect the SHD if they occur.

In summary no SHD were observed despite potential habitat for the species being present. The rock overhanging the water at Rockford Road Bridge had high densities of exuviae and is considered a good location to resurvey for SHD as part of any ongoing aquatic monitoring.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'M. Russell', written in a cursive style.

Matthew Russell
Niche Environment and Heritage