



Mandalong Southern Extension Project

MOD 10

Submissions Report

December 2021

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DOCUMENT CONTROL

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1 INTRODUCTION

Centennial Mandalong Pty Ltd (Centennial Mandalong) owns and operates the Mandalong Mine located near Morisset in the Central Coast and Lake Macquarie local government areas.

Ongoing geological constraints have continued to impact the Mandalong Mine operations. Since the approval of MOD 9 in April 2021, Centennial Mandalong has made the decision to shorten LW30 and remove LW33 from the mine plan. The length of LW30 was reduced through the Extraction Plan process to avoid mining through a high strength igneous dyke. LW33 will not be extracted due to the extent of an igneous sill intrusion which reduces the minable panel length, making it uneconomic.

To improve the financial viability of the Mandalong Mine and maintain longwall continuity, Centennial Mandalong proposes to modify its State significant development consent (SSD-5144) under section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The modification (MOD 10) proposes to include an additional longwall (LW34) which, if approved, will ensure continuity of longwall mining until longwall equipment for mining in the eastern area of the mining lease can be procured and development for longwall extraction can be achieved.

In addition to the inclusion of an additional longwall, two updates to Appendix 8 of the SSD-5144 development consent are also proposed to:

1. Allow greater flexibility when exploration drilling activities are undertaken on total fire ban days.
2. Change the way Mandalong's annual contributions are distributed to the local community.

The MOD 10 Modification Report was placed on public exhibition by the NSW Department of Planning, Industry & Environment (the Department) for a period of two weeks ending on 8 November 2021.

On 9 November 2021, the Department requested a written response to issues raised in the submissions received during the public exhibition period. This Submissions Report has been prepared to satisfy the request under clause 82(2) of the *Environmental Planning and Assessment Regulation 2000*. This Submissions Report has been prepared having regard to Appendix C of the State Significant Development Guidelines (2021) the Preparing a Submissions Report Guideline.

2 ANALYSIS OF SUBMISSIONS

During the public exhibition period, eighteen (18) submissions were received as summarised in **Table 1** below.

Table 1 – Summary of Submissions

Submissions	Submission Type			Total
	Support	Object	Comment	
Individuals	1	3	0	4
Organisations	0	1	0	1
Government agency	0	0	13	9
Total	1	4	13	18

Figure 1 summarises the source of submissions received with **Figure 2** summarising the type of submission received.

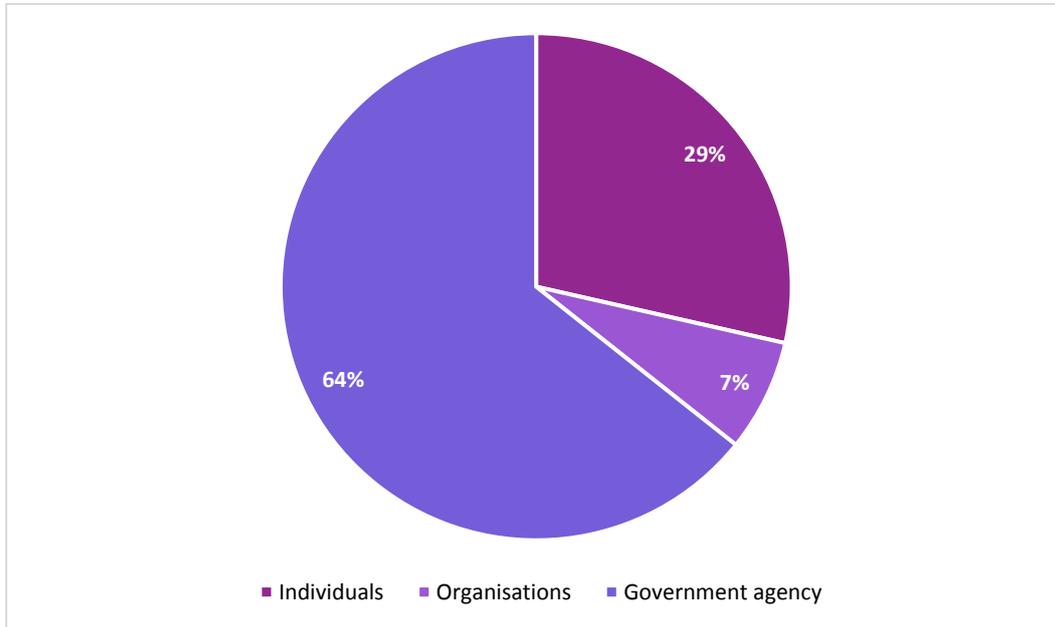


Figure 1 – Source of Submissions

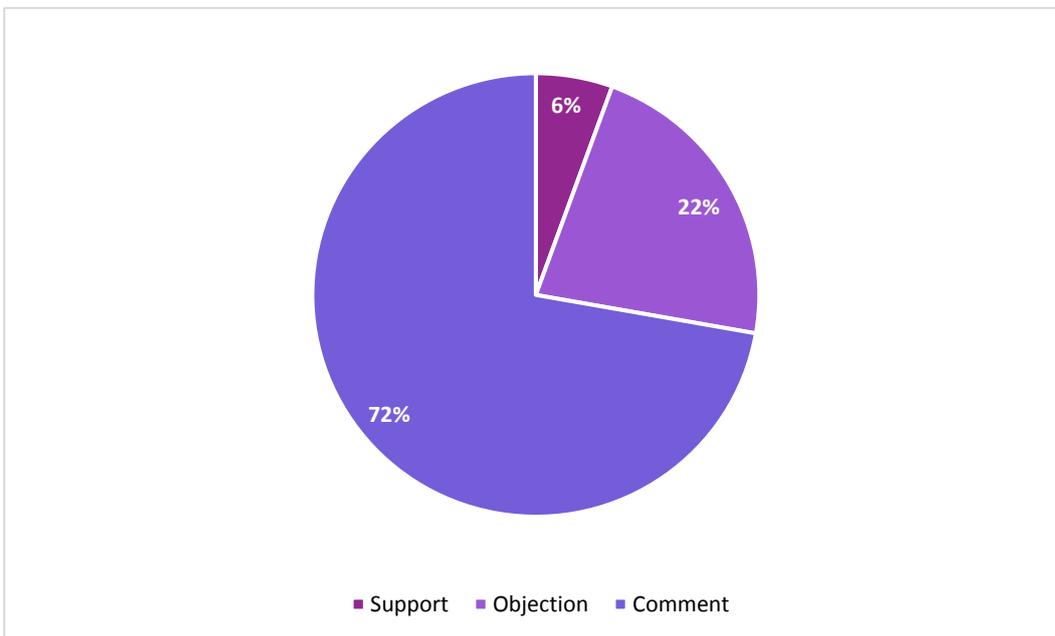


Figure 2 – Submission Type

The three (3) individual objections received during the public exhibition period were from local community individuals residing in the Mandalong area in which Mandalong Mine operates. The single organisation objecting to the modification was from a local community organisation being the Mandalong Community Association.

Thirteen (13) submissions providing comment on MOD10 were received from government organisations being:

- Resources Regulator
- Department of Planning, Industry & Environment (Crown Lands) (DPIE – Crown Lands)
- Department of Planning, Industry & Environment (Water) (DPIE – Water)
- Biodiversity and Conservation Division (BCD)
- Lake Macquarie City Council
- Central Coast Council
- Forestry Corporation of NSW
- NSW Environment Protection Authority (EPA)
- Mining, Exploration & Geoscience (MEG)
- Heritage NSW*
- Subsidence Advisory NSW
- NSW Rural Fire Service

**Two separate submissions from Heritage NSW were received. One relating to European heritage dated 27 October 2021 and one relating to Aboriginal heritage dated 10 November 2021.*

Of the thirteen submissions from government agencies:

- Subsidence Advisory noted that no additional properties were going to be impacted by the incorporation of LW34 into the mine plan and had no further comment on, or objection to, the proposed modification.
- Forestry Corporation of NSW noted no objections to the project and had no further comment on the proposed modification.
- The NSW EPA advised that the impacts of the proposed modification could be managed by the current Environment Protection Licence (EPL) and consent conditions with respect to noise, air and water quality impacts and had no further comment on, or objection to, the proposed modification.
- MEG considered that the modification is an efficient use of resources given the constraints encountered and that without the modification, approximately 80% of the up to 660 full time equivalent staff would be stood down and \$8.3 million in total royalties would not be realised. No further comments or recommendations relevant to the proposed modification were raised in the MEG submission.

3 CATEGORISATION OF ISSUES

Issues, concerns and recommendations raised in submissions have been categorised into the following broad categories.

- **Project Issues** (i.e. issues with the project design)
- **Procedural Matters** (i.e. compliance of the project or assessment with statutory requirements)

- **Project Impacts and Management** (issues associated with the impacts of the project or how impacts are managed)
- **Project Justification and Evaluation** (issues associated with the projects consistency with government plans, policies or guidelines)
- **Beyond Project Scope Issues** (broader policy issues not relevant to the project)

Figure 3 depicts the number of issues raised in relation to the five (5) categories above.

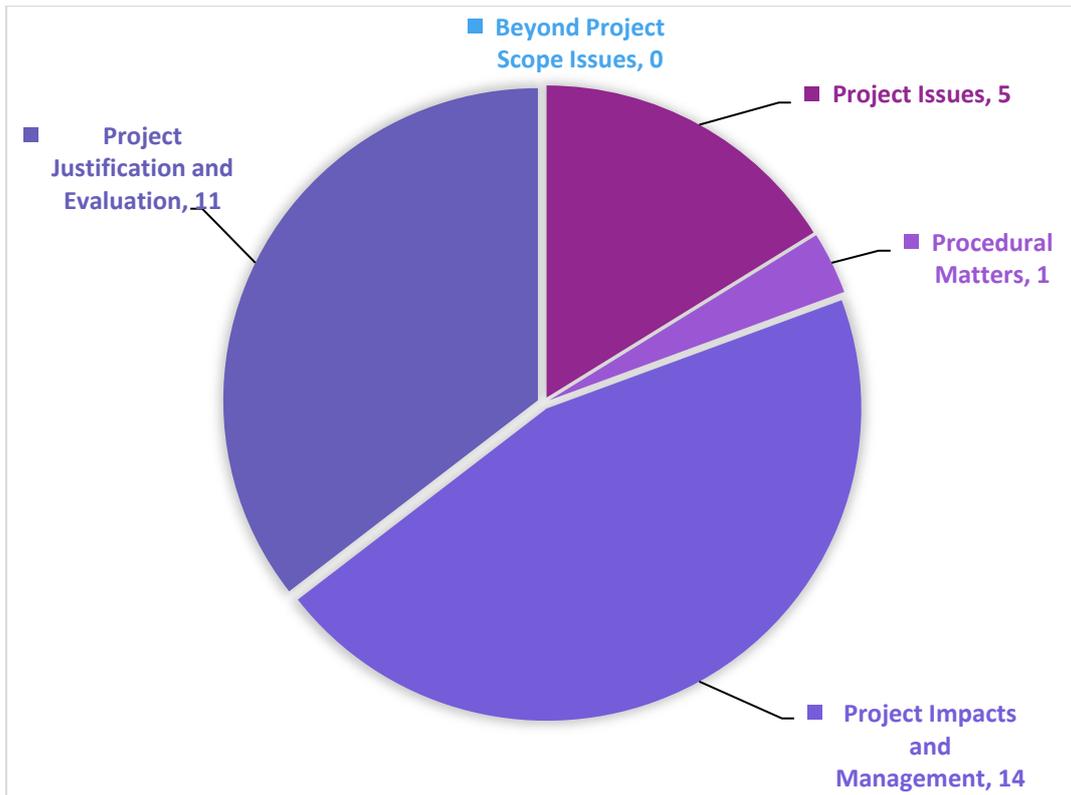


Figure 3 – Submission Categories

The issues raised have been summarised in Table 2 below.

Table 2 – Summary of Issues

Issue Category	Total Number of Issues Raised	Issue Summary	Submission
Project Issues	5	Exploration Drilling	<ul style="list-style-type: none"> • Individual submissions • Organisation submission
Procedural Matters	1	Substantially the same development	<ul style="list-style-type: none"> • Central Coast Council
	1	European Heritage	<ul style="list-style-type: none"> • Heritage NSW

Issue Category	Total Number of Issues Raised	Issue Summary	Submission
Project Impacts and Management	1	Aboriginal Heritage	<ul style="list-style-type: none"> • Lake Macquarie City Council
	1	Surface Water Impacts	<ul style="list-style-type: none"> • Central Coast Council
	1	Surface Water Demand	<ul style="list-style-type: none"> • DPIE Water
	4	Biodiversity	<ul style="list-style-type: none"> • Central Coast Council • Lake Macquarie City Council
	1	Groundwater	<ul style="list-style-type: none"> • DPIE Water
	2	Subsidence	<ul style="list-style-type: none"> • Central Coast Council
	1	Community	<ul style="list-style-type: none"> • Lake Macquarie City Council
	2	Bushfire	<ul style="list-style-type: none"> • NSW Rural Fire Service • Resources Regulator
Project Justification and Evaluation	4	Crown Lands	<ul style="list-style-type: none"> • (DPIE – Crown Lands)
	4	Biodiversity Assessment	<ul style="list-style-type: none"> • BCD
	1	Aboriginal Heritage Assessment	<ul style="list-style-type: none"> • Heritage NSW
	2	Water Licencing	<ul style="list-style-type: none"> • DPIE Water
Beyond Project Scope Issues	0		

4 RESPONSE TO SUBMISSIONS

The below sections outline Centennial Mandalong's response to the issues raised in the submissions to MOD 10.

4.1 Project Issues

4.1.1 Exploration Drilling on Total Fire Ban Days

A significant concern from the three (3) local community individuals and the one (1) community organisation was the proposal by Centennial Mandalong to amend the current commitment to not undertake any exploration drilling activities on total fire ban days. Centennial Mandalong proposed to amend the commitment to better define the activities that can and cannot be undertaken on a total fire ban day and introduce a risk assessment process that could be undertaken prior to the commencement of exploration drilling activities on total fire ban days.

There are a number of exploration activities undertaken by Centennial Mandalong that do not involve the act of drilling itself and could continue safely and efficiently on total fire ban days without increasing bushfire risk. Greater flexibility around what exploration drilling activities are able to be undertaken on total fire ban days would improve the continuity of exploration activities during fire danger periods.

In accordance with the advice from Resources Regulator and NSW Rural Fire Service, the sites Bushfire Management Plan and Exploration Activities Management Plan will be updated to include the risk assessment process for exploration drilling and have consideration to Section 8.3.6 of the NSW Rural Fire Service Planning for Bush Fire Protection 2019. With these controls in place, Centennial Mandalong consider there will be no increase risk of bushfire resulting from the proposed exploration drilling activities in total fire ban periods.

4.2 Procedural Matters

4.2.1 Substantially the Same Development

Ten (10) modifications to the Mandalong Southern Extension Project have been pursued since development consent (SSD-5144) was granted in October 2015. Five modifications are associated with changes to the mine design (MOD 2, MOD 4, MOD 5, MOD 9 and MOD 10). The figures provided as **Attachment 1** show the evolution of mine design changes through the modification process. The changes to the mine design have been necessary to adapt to updated geological information not available at the time the EIS was submitted. Centennial Mandalong consider the changes to the mine design, as shown by the figures provided in **Attachment 1**, to be substantially the same development as originally approved.

4.3 Project Impacts and Management

4.3.1 European Heritage

Recommendation: *Heritage NSW recommended a condition be included in the development consent that, if during the course of development works, significant European cultural heritage material is identified, works should cease in that area immediately. In the event that this occurred, it was recommended by Heritage NSW that Heritage NSW be notified and works recommenced only when an appropriate and approved management strategy is implemented.*

Response: Mandalong Mine operates in accordance with the approved Northern Region Historic Heritage Management Plan. Section 6.7 of the Northern Region Historic Heritage Management Plan deals with unexpected European cultural heritage finds. The process within the Northern Region Historic Heritage Management Plan is consistent with the requirements outlined in the Heritage NSW submission. No additional condition of consent is considered necessary to manage newly identified European cultural heritage material. In accordance with the requirements of the Mandalong Southern Extension Project SSD-5144 development consent, all environmental management plans will be

reviewed within three months should the project be approved and updated if necessary. This will include a review of the Northern Region Historic Heritage Management Plan to ensure that the recommendations from Heritage NSW is adequately considered.

4.3.2 Aboriginal heritage

Recommendation: *Lake Macquarie City Council were supportive of the recommendations specified in the Aboriginal Cultural Heritage Impact Assessment submitted however recommended the consent ensure the management and mitigation strategies and recommendations contained in the report are observed and adhered to.*

Response: Mandalong Mine operates in accordance with the approved Northern Region Aboriginal Cultural Heritage Management Plan (ACHMP) which has been developed in accordance with the requirements of the Mandalong Southern Extension Project SSD-5144 development consent. The Northern Region ACHMP details Centennial's commitments to monitoring and management of Aboriginal heritage. Should MOD 10 be determined, the ACMP will be reviewed and if necessary updated, to include any additional commitments identified in the MOD 10 Modification Report. Centennial Mandalong do not consider any further conditions of consent are necessary to manage Aboriginal heritage.

4.3.3 Surface Water Impact

Recommendation: *Central Coast Council requested that the potential impacts on Buttonderry Creek be considered by the Department in their assessment of MOD 10.*

Response: The Modification Report prepared for MOD 10 considered the potential for impacts on Buttonderry Creek. As is detailed within the Modification Report, a first order tributary of Buttonderry Creek is located within the potential area of influence of LW34. The tributary of Buttonderry Creek falls outside of the LW34 Angle of Draw and won't be directly subsided or impacted by the proposed modification. The assessment of impacts from LW34 on Buttonderry Creek indicated:

- No change to watercourse stability.
- Only a minor potential increase in remnant ponding.
- No material change to the Buttonderry Creek flood regime impacts (ie depth, extent, velocity, duration or hazard) compared to approved mining activities under SSD-5144.
- Downstream ecological impacts due to the proposed modification are expected to be negligible.

4.3.4 Surface Water Demand

Recommendation: *DPIE Water requested confirmation on if there will be any changes to site water demand due to the modification and provide details of where the water will be sourced, should there be a change.*

Response: There will be no change to site water demands as a result of the project. Water demands will continue to be primarily sourced from potable water sources with on-site water recycling undertaken where practical.

4.3.5 Biodiversity

Recommendation: *Central Coast Council recommended the proposed modification not significantly vary the ecological impacts of the originally approved mine layout.*

Response: MOD 10 is expected to lead to a negligible increase in remnant ponding (i.e. ponding that occurs after prolonged rainfall and/or flooding). Modelling undertaken by Umwelt (2021) suggests an increase of <math><10\text{ m}^2</math> of ponding (i.e. <math><1\%</math> change in ponding), which is to be confined to existing flow paths. Moreover, Umwelt (2021) attribute much of this change in remnant ponding to modelling artifacts (i.e. use of different LiDAR datasets for approved and proposed mining landforms). As such, Umwelt concluded that MOD 10 proposed landform remnant ponding is essentially unchanged relative to the approved SSD-5144 MOD 9. Furthermore, MOD 10 as proposed is likely to lead to an overall net reduction in potential impacts relative to the approved Mandalong Southern Extension Project since LW33 will no longer be extracted. Hence, the potential impacts on biodiversity associated with LW 33 would be avoided.

Recommendation: *Lake Macquarie City Council recommended approval be sort from the Biodiversity Conservation Division with regard to the adequacy of the Biodiversity Development Assessment Report (BDAR).*

Response: A copy of the BDAR was provided to BCD during the public exhibition period. A submission from BCD was received providing comment on the BDAR. A response to the recommendations made in the BCD submission is provided in **Section 4.4.2**. A revised BDAR addressing the BCD recommendations is enclosed.

Recommendation: *Lake Macquarie City Council recommended a condition be adopted identifying the Biodiversity Conservation Division as an approval authority for subsidence annual monitoring statements and any associated offset liability reports.*

Response: The MOD 10 Modification Report identifies that <math><10\text{ m}^2</math> of ponding is predicted which represents <math><1\%</math> change in ponding compared to current approved operations. The predicted ponding is to be confined to existing flow paths and impacts on biodiversity values are considered to be negligible. As such, Centennial Mandalong considers that the Biodiversity Offset Scheme (BOS) is not applicable in the Mandalong MOD 10 case, as MOD 10 is not likely to increase impact on biodiversity values and the performance criteria in the consent is expected to be achieved.

Recommendation: *Lake Macquarie City Council recommended a condition be added to any consent to indemnify Lake Macquarie City Council against any loss or damages to Olney State Forest from any potential impacts caused from subsidence, cracking, sinkholes or ponding.*

Response: Management of Impacts to Olney State Forest are addressed through Land Management Plans prepared to support the Extraction plan process.

4.3.6 Groundwater

Recommendation: *DPIE Water requested Centennial Mandalong provide an independently reviewed numerical groundwater model to confirm if there will be additional water take or groundwater interference from the proposed modification.*

Response: The hydrogeological model was last independently reviewed in 2017 by HydroAlogrithmics as required by Schedule 4 Condition 6A of the SSD 5144 development consent. The review was in response to mine plan changes proposed following the Mandalong Southern Extension Project. Since this review, the model has been revised for Modification 9 and now Modification 10. The revisions have only required manipulation of model drain cells to reflect changes to the mine plan and schedule. There

has been no requirement to revise or recalibrate the model to account for unexpected groundwater monitoring variability.

The model is fit for purpose and consistent with the outcomes of the 2017 independent review.

4.3.7 Subsidence

Recommendation: *Central Coast Council recommend the proposed longwall should not impact upon the current or future operations of Buttonderry Waste Management Facility.*

Response: The Buttonderry Waste Management Facility is located to the south east and outside of the proposed modification area. The proposed modification will have no additional impact on the operations of the Buttonderry Waste Management Facility.

Recommendation: *The additional works should not impact (increase in subsidence impact or similar) on Central Coast Council's local road network or built drainage infrastructure.*

Response: There are two unsealed, public Crown roads (Toepfers Road and Kiar Ridge Road) within the area of influence of the proposed LW34 (Figure 7.1). Impacts on these roads due to predicted subsidence effects associated with the proposed modification include:

- tensile crack widths of between 10 mm and 20 mm;
- compressive shearing or heaving between 10 mm and 30 mm;
- increase of super-elevation in the road of 0.2%–1.3%; and
- cracking of culverts and fill embankments.

The predicted subsidence effects and impacts due to the proposed modification are consistent with the approved mining layout.

Impacts to these portions of Toepfers Road and Kiar Ridge Road will be managed by the Public Roads Management Plan supporting the LW34 Extraction Plan. This plan will be developed in consultation with Crown Lands-DPIE.

4.3.8 Community

Council has no objections to the proposed change to the commitment from Centennial to allocate funding to the Mandalong Community Consultative Committee (CCC) instead of the Lake Macquarie Foundation and were supportive of removing the \$500,000 limit previously prescribed.

Recommendation: *Lake Macquarie City Council recommended that to ensure the funding is allocated with the greatest community benefit, the Mandalong CCC has appropriate governance process and procedures in place, and the funding is allocated on a needs basis. LMCC recommended they be included in this process to provide insight and expertise into the community needs and benefits, and assist with the funding allocations.*

Response: Centennial Mandalong will review the governance processes that oversee the management of community contributions and ensure appropriate governance processes and procedures are in place and adequate involvement and input from LMCC. It is noted that a Council representative is invited to attend each CCC.

4.3.9 Bushfire

Recommendation: NSW Rural Fire Service recommended that a bush fire emergency management and operations plan must be prepared in accordance with section 8.3.6 of Planning for Bush Fire Protection (PBP) 2019 and must include the following:

- detailed measures to prevent or mitigate fires igniting;
- work that should not be carried out during total fire bans;
- availability of fire-suppression equipment, access and water;
- storage and maintenance of fuels and other flammable materials;
- notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and
- appropriate bush fire emergency management planning.

Response: Centennial Mandalong has an existing Bushfire Management Plan. Following approval, the Bushfire Management Plan will be reviewed, and where necessary updated, to ensure general consistency with Section 8.3.6 of the NSW Rural Fire Service 2019 Planning for Bush Fire Protection document and consideration of the above requirements.

Recommendation: The Resources Regulator recommend that if the project conditions are to be modified to allow exploration drilling on total fire ban days, that the following should apply:

- a) The Bush Fire Management Plan Risk Assessment be reviewed to assess the risks associated with drilling on total fire ban days.
- b) The Bush Fire Management Plan be suitably updated to provide guidance if this activity is to be undertaken and additional controls that are to be implemented.

Response: Centennial Mandalong has an existing Bushfire Management Plan and Exploration Activities Management Plan. Following approval, these management plans will be reviewed, and where necessary updated, to include the risk-based approach to exploration drilling and any additional controls that will be implemented to manage the risk of bushfire.

4.4 Project Justification and Evaluation

4.4.1 Crown Lands

Recommendation: All Crown Land and Crown Roads within a Mining Lease (with surface rights), subject to mining or mining related activity, must be subject to a Compensation Agreement issued under Section 265 of the Mining Act 1992, to be agreed and executed prior to any mining activity taking place. The Compensation Agreement may include conditions requiring the Mining Lease Holder to purchase Crown land impacted on by mining activity.

Response: Centennial Mandalong acknowledge the requirements for a Compensation Agreement issued under Section 265 of the Mining Act 1992 where any Crown Land or Crown Road is subject to mining within a Mining Lease with surface rights. This requirement is not applicable to the modification.

Recommendation: *All Crown Land and Crown Roads located within an Exploration Licence, subject to exploration activity, must be subject to an Access Arrangement issued under Section 141 of the Mining Act 1992, to be agreed and executed prior to any exploration activity taking place.*

Response: Centennial Mandalong acknowledge the requirements for a Compensation Agreement issued under Section 141 of the Mining Act 1992 where any Crown Land or Crown Road is subject to exploration activity within an Exploration Licence. This requirement is not applicable to the modification.

Recommendation: *All Crown Land and Crown Roads within a Mining Lease (with sub-surface rights only) must be subject to a Section 81 Consent under the Mining Act 1992 where surface activities are proposed, to be agreed and executed prior to any surface activity taking place.*

Response: Centennial Mandalong acknowledge the requirements for Section 81 Consent under the Mining Act 1992 for any surface activities within a sub-surface mining lease. This requirement is not applicable to the modification.

Recommendation: *All Crown Roads within a Mining Lease or Exploration Licence must be subject to a works consent approval under s138 and or s71 of the Roads Act 1993 where exploration, mining or mining related activity impact on these roads.*

Response: Centennial Mandalong acknowledge the requirements for a works consent approval under s138 and or s71 of the Roads Act 1993 where exploration, mining or mining related activity impact on these roads. Any required repair works to Toepfers Road and Kiar Ridge Road will be subject to this requirement and included in the Public Roads Management Plan for LW34 that will be developed in consultation with Crown Lands.

4.4.2 Biodiversity

Recommendation: *BCD recommends that nominal area of native vegetation likely to be affected by ponding following longwall mining is considered to be fully cleared and treated as such in the Biodiversity Assessment Method Calculator.*

Response: The nominal 0.01 hectares of vegetation considered to be directly impacted (Table 6-1 'Impacts to native vegetation') in the BDAR is now considered to be fully cleared and a revised BDAR has been enclosed. BAM Calculator (BAM-C) was rerun with the future vegetation integrity scores set to zero (addressing Recommendation 1 of BCD's detailed comments). Section 6.1 of BDAR was updated to reflect this and future vegetation scores in Appendix B removed. Note that zeroing the future vegetation integrity scores did not change the ecosystem or species credit offset requirements. This update is despite monitoring of groundwater dependent ecosystems and threatened flora, before and after mining at Mandalong failing to detect more than a negligible change in biodiversity to date.

The Mandalong Southern Extension Project SSD-5144 outlines the requirement for offsets to be secured should the relevant performance criteria not be met (Schedule 4 Condition 6). The performance criteria for threatened species, threatened populations and endangered ecological communities is negligible impact. Centennial Mandalong considers that the Biodiversity Offset Scheme (BOS) is not applicable in the Mandalong MOD 10 case, as MOD 10 is not likely to increased impact on biodiversity value because:

- MOD 10 is expected to lead to a negligible increase in remnant ponding (i.e. ponding that occurs after prolonged rainfall and/or flooding). Modelling undertaken by Umwelt (2021) suggests an increase of <10 m² of ponding (i.e. <1% change in ponding), which is to be confined to existing flow paths. Moreover, Umwelt (2021) attribute much of this change in remnant ponding to

modelling artifacts (i.e. use of different LiDAR datasets for approved and proposed mining landforms). As such, Umwelt concluded that MOD 10 proposed landform remnant ponding is essentially unchanged relative to the approved SSD-5144 MOD 9; and

- MOD 10 as proposed is likely to lead to an overall net reduction in potential impacts relative to the approved Mandalong Southern Extension Project since LW33 will no longer be extracted. Hence, the potential impacts on biodiversity associated with LW 33 would be avoided.

Recommendation: *BCD recommends that further information is provided to show how targeted flora surveys met ‘Surveying threatened plants and their habitats: NSW survey guide for the Biodiversity Assessment Method’ (DPIE, 2020).*

Response: More information on survey effort undertaken for threatened plant species is now provided in Table 3-2 (addressing Recommendation 2a within BCD’s detailed comments). A description of whether multi-species surveys were conducted, and how they complied with Section 5.1 of ‘Surveying threatened plants and their habitats: NSW survey guide for the Biodiversity Assessment Method’ (DPIE, 2020) is now provided in Section 3.4.2.4 of the BDAR (addressing Recommendation 2b of BCD’s detailed comments). Figure 3-1 ‘Targeted Flora Searches’ was revised to show targeted survey effort in relation to each threatened plant species (addressing Recommendation 2c within BCD’s detailed comments). This involved creating Figures 3-1 to 3-4, with threatened species grouped where they share exactly the same area of suitable habitat (i.e. same associated PCTs within Project Area).

Recommendation: *BCD recommends that further information is provided to show how targeted fauna surveys met BCD’s survey guidelines.*

Response: More information on survey effort undertaken for fauna surveys now provided in Tables 3-4 and Table 3-5 (addressing Recommendation 3a of BCD’s detailed comments). Previous Figure 3-2 ‘Fauna Survey Effort’ was revised to show targeted survey effort in relation to each threatened fauna species (addressing Recommendation 3b of BCD’s detailed comments). This involved creating Figures 3-5 to 3-7, with threatened species grouped where they share exactly the same area of suitable habitat (i.e. associated PCTs within Project Area).

Recommendation: *BCD recommends that further information is provided to show how on-ground vegetation was matched to a Plant Community Type, and the degree of confidence in the match.*

Response: Section 4.2.1 of BIR and Section 3.3 of BDAR now discusses how on-ground vegetation was matched to a PCT, and the degree of confidence of the match. This summary was previously provided in the BIR and has now been adapted to provide a clearer summary of process by which on-ground vegetation was matched to a PCT based on key species, geographic location, landscape position and other relevant physical attributes (such as soil type). Additionally, the results of the BioNet Vegetation Classification Database search are also now provided given key search criteria (i.e. IBRA subregion, characterising species, vegetation formation). Based on this search result, a short-list listing the top two to five options, the reason for the final match, and the degree of confidence in the final match is now provided for each PCT (addressing Recommendation 4 of BCD’s detailed comments).

4.4.3 Aboriginal Heritage Assessment

Recommendation: *Omissions regarding project consultation with the Registered Aboriginal Parties be included, specifically documents reference in Section 8.2 and 10.1 of the Aboriginal Cultural Heritage Assessment.*

Response: Appendix 1 of the Aboriginal Cultural Heritage Assessment includes all the correspondence relevant to the Aboriginal Cultural Heritage Assessment.

4.4.4 Water Licencing

Recommendation: *DPIE Water requested Centennial Mandalong demonstrate that the required surface water entitlements can be obtained from an appropriately authorised and reliable supply in accordance with the operating rules of the relevant Water Sharing Plan.*

Response: As part of the technical assessments prepared for the modification, GHD predicted that changes in depth within alluvial groundwater sources were equal to the limit of accuracy present within the model of 0.1m (Section 6.2.2.1; GHD 2021). The models alluvial predictions, in addition to the ephemeral nature of the creeks within the modification area, support that there is no measurable baseflow loss as a result of the modification (Section 6.5.1; GHD 2021).

Centennial has 114 ML of allocation within the Dora Creek Water Source. Centennial has no existing allocation within the South Lake Macquarie or Wyong River water source. In the event that surface water allocation is required to meet predicted take as a result of the project, water volumes will be sought from existing users on the water market.

Recommendation: *DPIE Water requested Centennial Mandalong ensure sufficient water entitlement is held in a water access licence/s to account for the maximum predicted take for each water source prior to take occurring.*

Response: Where water take is predicted to occur as a result of mining, water access licences will be held up to the predicted volume prior to when the take is predicted to occur.

5 CONCLUSION

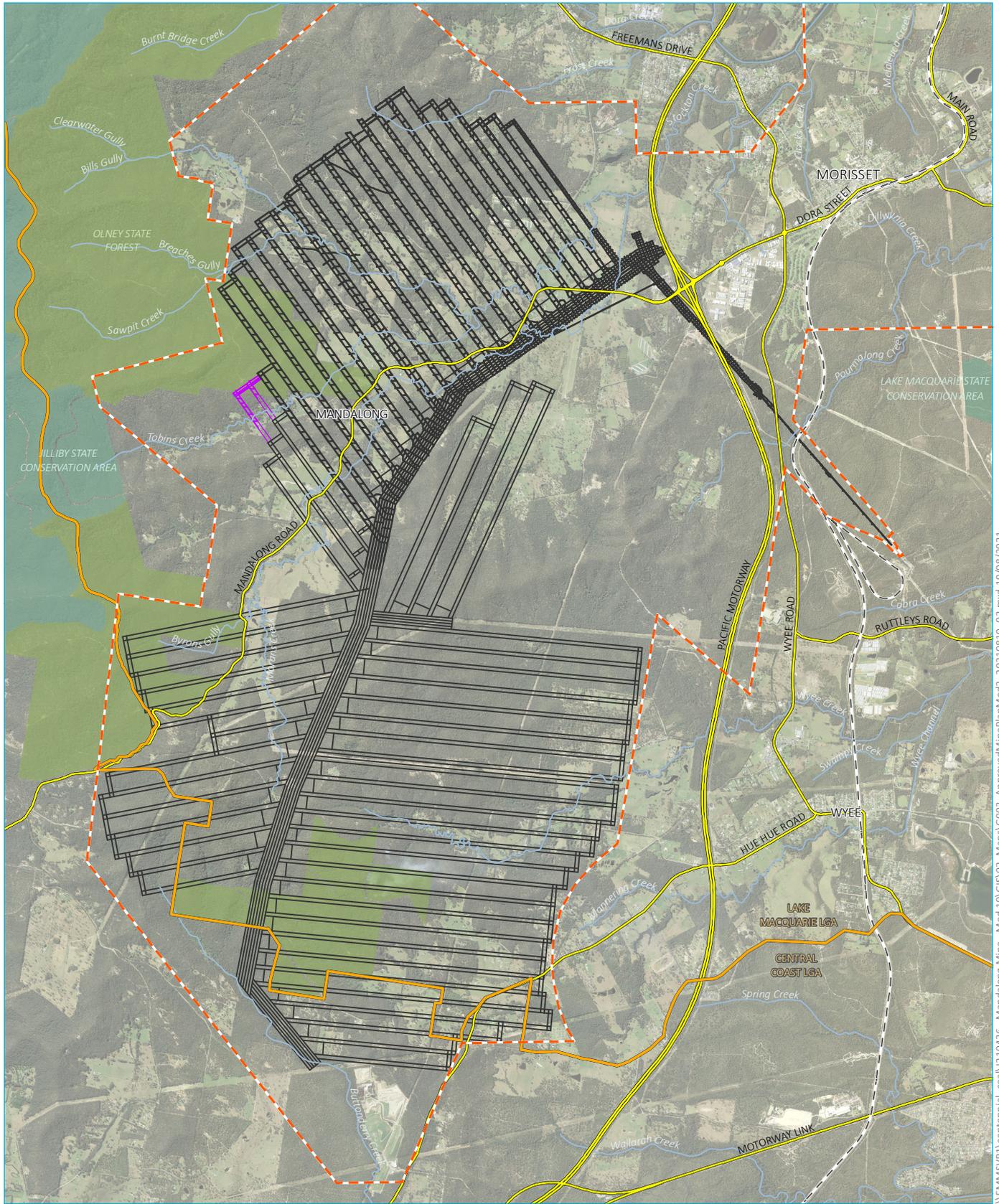
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As detailed in the Modification Report, the impacts of the proposed modification are negligible and do not substantially change the project as originally approved. Centennial Mandalong considers that the issues raised in the various submissions can be adequately addressed with the current and proposed mitigation measures in place and any risks associated with the proposed exploration drilling activities on Total Fire Ban Days can be adequately managed through a risk assessment processes.

Should the modification be approved, management plans will be reviewed and, where necessary updated, to incorporate any additional mitigation measures identified in both the Modification Report and this Submissions Report.

A revised BDAR has been provided to address feedback from BCD.

Attachment 1 – Mine Design Changes Since Original Approval



Source: EMM (2021); Centennial (2021); LPI (2021); DFSI (2017)

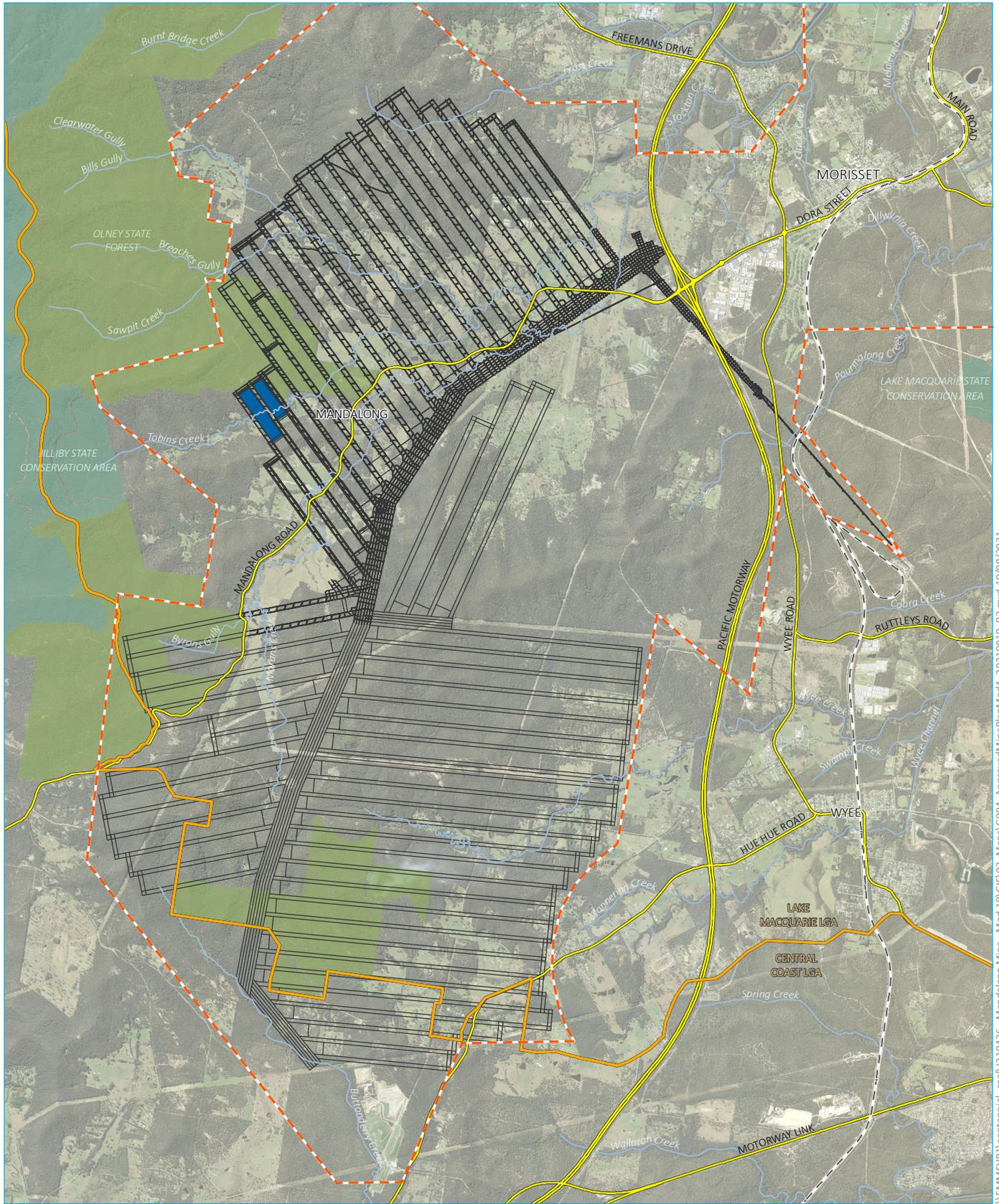
- KEY**
- Development consent boundary
 - Approved mine plan
 - Mod 2 amendment
 - Rail line
 - Main road
 - Named watercourse
 - Local government area
 - NPWS reserve
 - State forest

Approved mining layout compared with proposed layout under MOD 2

Mandalong Mine Evolution
Figure 2



\\EMMSVR1\centennial_coal\12.10436 - Mandalong Mine - Mod 10\GIS\02_Maps\G003_AprovedMinePlanMod2_20210819_03.mxd 19/08/2021



Source: EMM (2021); Centennial (2021); LPI (2021); DFSI (2017)

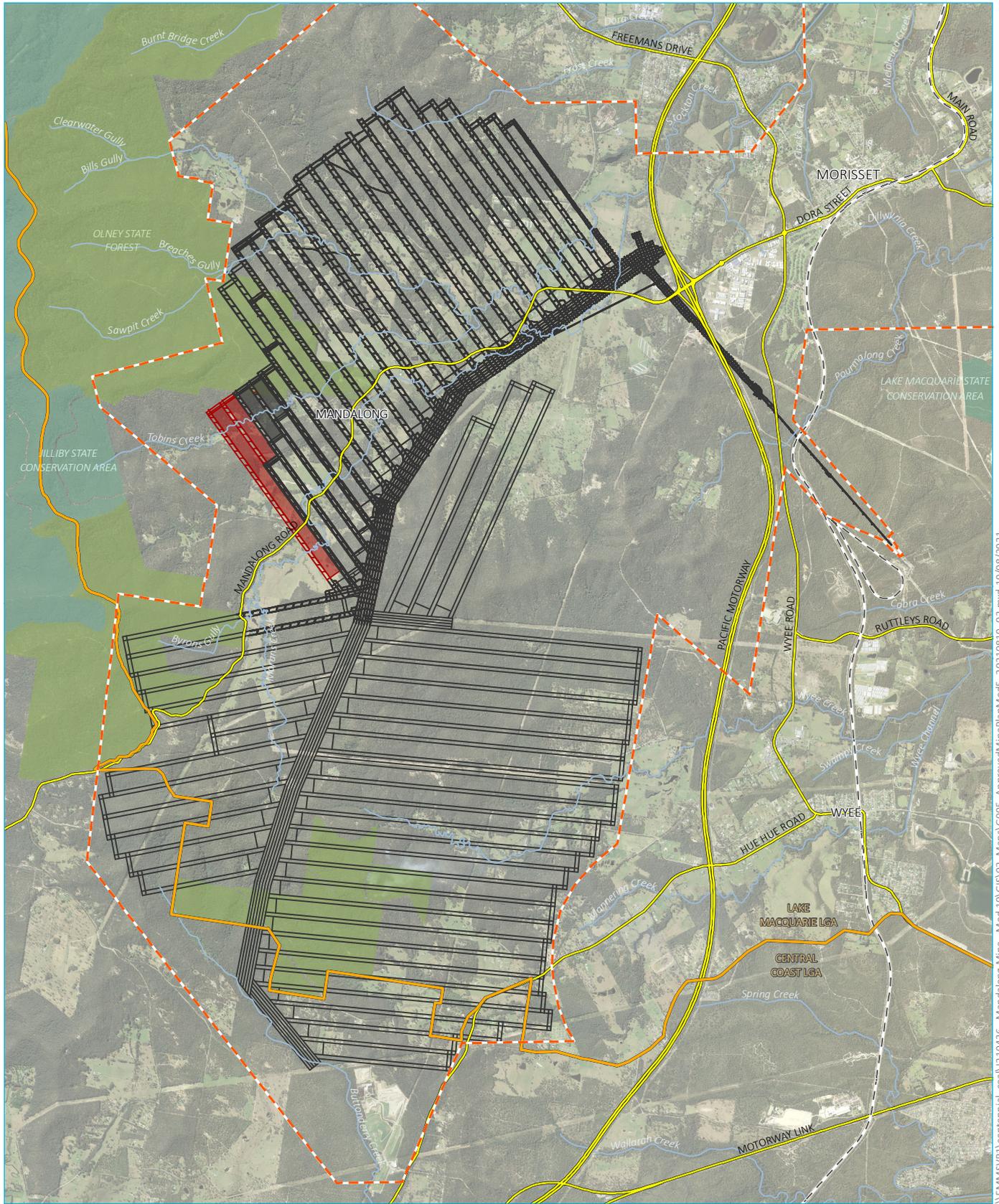
- KEY**
- Development consent boundary
 - MOD 4 amendment (secondary extraction of LW22-LW23)
 - Approved mine plan
 - Rail line
 - Main road
 - Named watercourse
 - Local government area
 - NPWS reserve
 - State forest

MOD 2 mining layout compared with proposed layout under MOD 4

Mandalong Mine Evolution
Figure 3



\\EMMSVR1\centennial_coal\12.10436 - Mandalong Mine - Mod 10\GIS\02_Maps\G004_ApprovedMinePlanMod4_2_02.108.19_02.mxd 19/08/2021



Source: EMM (2021); Centennial (2021); LPI (2021); DFSI (2017)

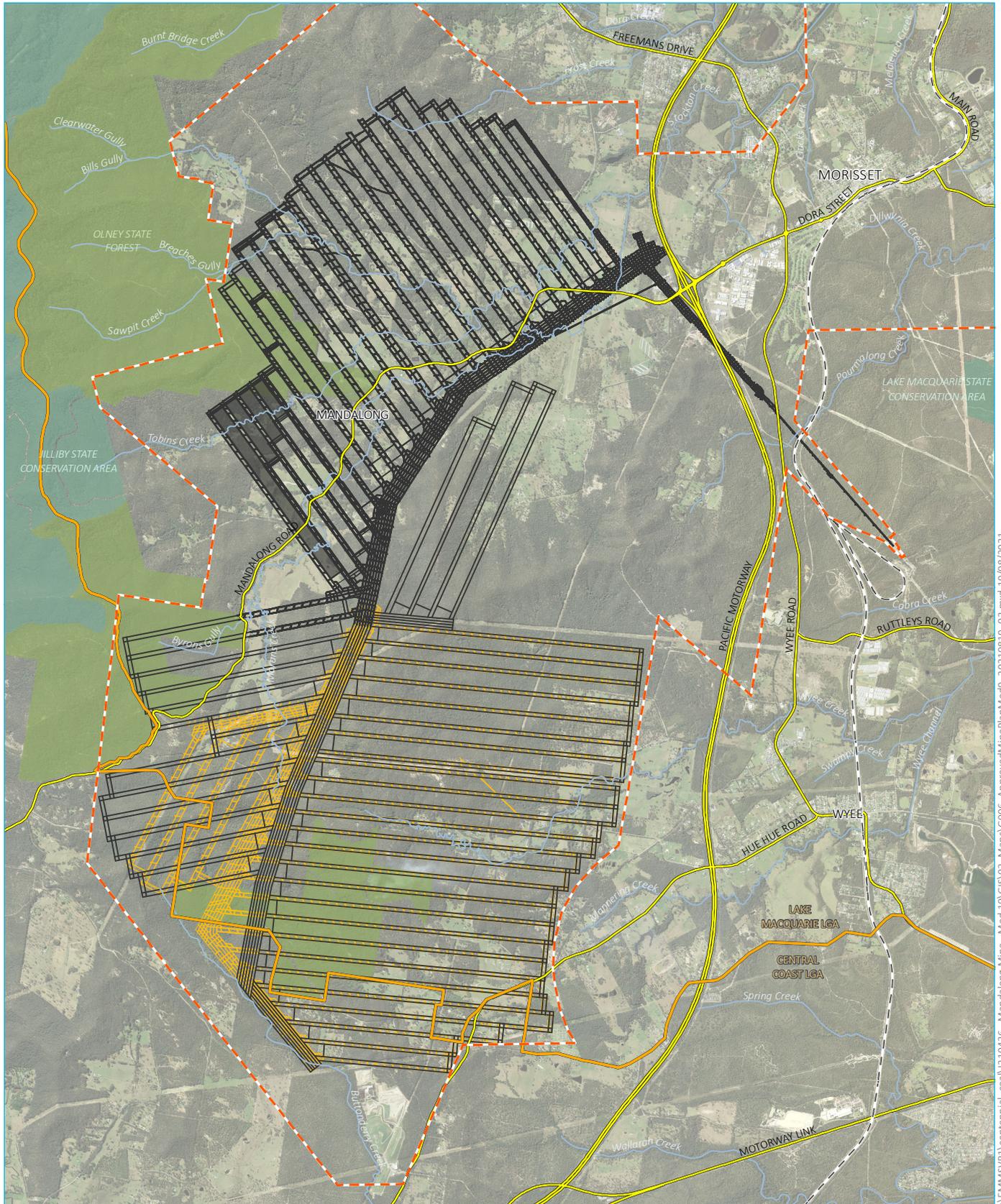
- KEY**
- Development consent boundary
 - Local government area
 - Approved mine plan
 - NPWS reserve
 - Mod 5 amendment
 - State forest
 - Rail line
 - Main road
 - Named watercourse

MOD 4 mining layout compared with proposed layout under MOD 5

Mandalong Mine Evolution
Figure 4



\\EMMSVR1\centennial_coal\12.10436 - Mandalong Mine - Mod 10\GIS\02_Maps\G005_AprovedMinePlanMod5_20210819_03.mxd 19/08/2021



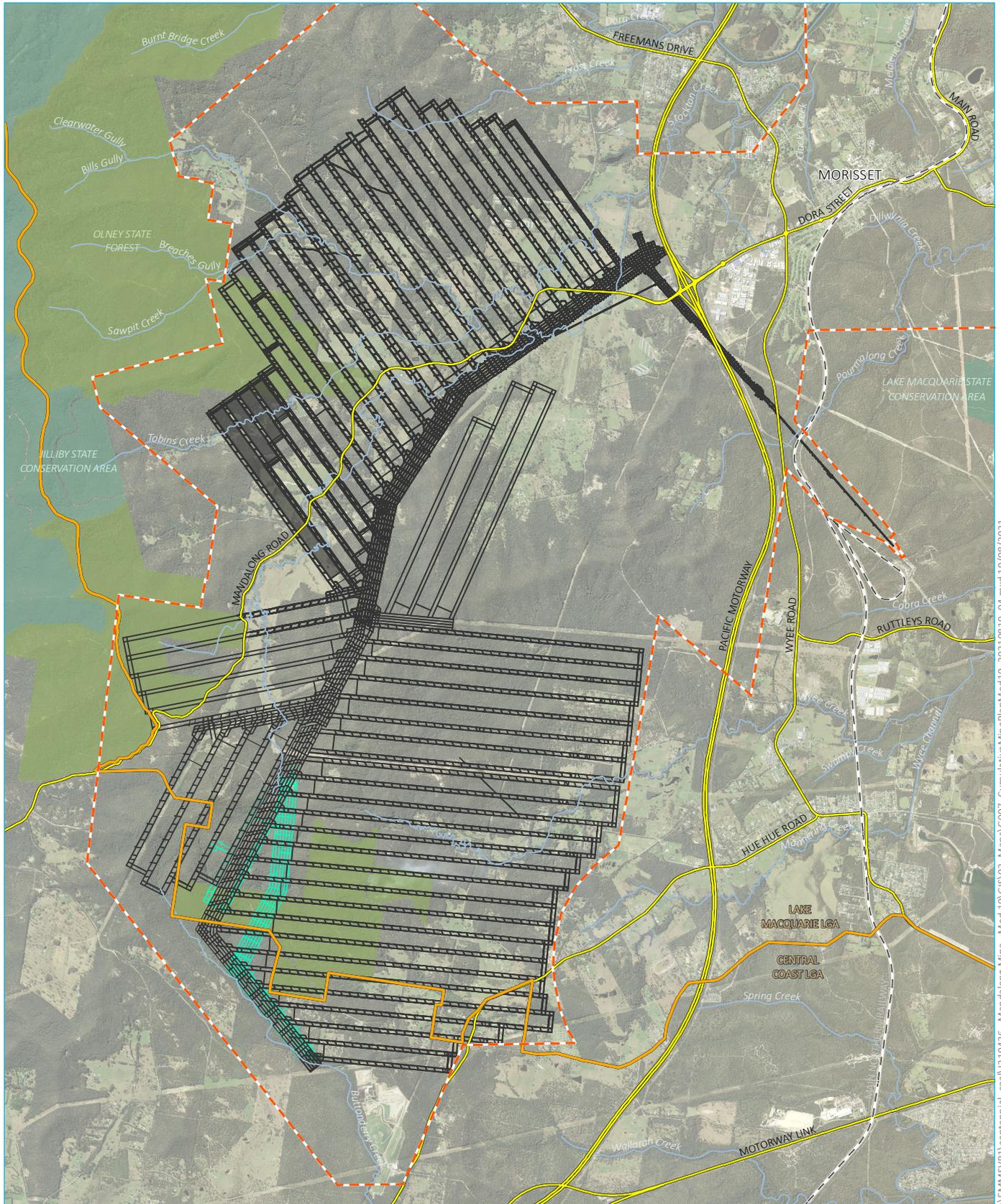
Source: EMM (2021); Centennial (2021); LPI (2021); DFSI (2017)

- KEY**
- Development consent boundary
 - Approved mine plan
 - Proposed Mod 9 amendment
 - Rail line
 - Main road
 - Named watercourse
 - Local government area
 - NPWS reserve
 - State forest

MOD 5 mining layout compared with proposed layout under MOD 9

Mandalong Mine Evolution
Figure 5

\\EMMSVR1\centennial_coal\12.10436 - Mandalong Mine - Mod 10\GIS\02_Maps\G006_AprovedMinePlanMod9_20210819_03.mxd 19/08/2021



Source: EMM (2021); Centennial (2021); LPI (2021); DFSI (2017)

- KEY**
- Development consent boundary
 - Approved mine plan
 - Proposed Mod 10 amendment
 - Rail line
 - Main road
 - Named watercourse
 - Local government area
 - NPWS reserve
 - State forest

MOD 9 mining layout compared with proposed layout under MOD 10

Mandalong Mine Evolution
Figure 6

\\EMMSVR1\centennial_coal\2.10436 - Mandalong Mine - Mod 10\GIS\02 - Maps\G007 - Cumulative Mine Plan Mod10_20210819_04.mxd 19/08/2021