CHAPTER 1 – INTRODUCTION

PUBLIC ENVIRONMENT REPORT

AUGUST 2026

NEW LENTON COAL PTY LTD

NEW LENTON COAL PROJECT

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1. INTRODUCTION

1.1 Overview

New Lenton Coal Pty Ltd (NLC) is a wholly owned subsidiary of Bowen Coking Coal Ltd (BCC). BCC is a wholly owned subsidiary of Argo Holdings Qld Pty Ltd (Argo). Argo acquired BCC in July 2026, at which point BCC became an unlisted public entity. BCC originally acquired NLC from the New Hope Corporation (New Hope) in July 2022. The Lenton Joint Venture (LJV) is an unincorporated joint venture between New Lenton Coal Pty Ltd (ACN 095 390 079) and MPC Lenton Pty Ltd (MPC) (ACN 149 618 904). NLC and MPC own the LJV assets as tenants in common in the participating interests of 90% and 10% respectively. LJV is the holder of mining lease (ML) 70337, ML 700053 and ML 700054 (referred to as the New Lenton MLs or the Project area), on which the New Lenton Coal Project (the Project) is proposed. The New Lenton MLs are subject to an existing State approved environmental authority (EA) for all mining leases. The New Lenton MLs are located in the Bowen Basin of central Queensland, approximately 120 km south west of Mackay and 50 km north of Moranbah (refer to Figure 1-1).

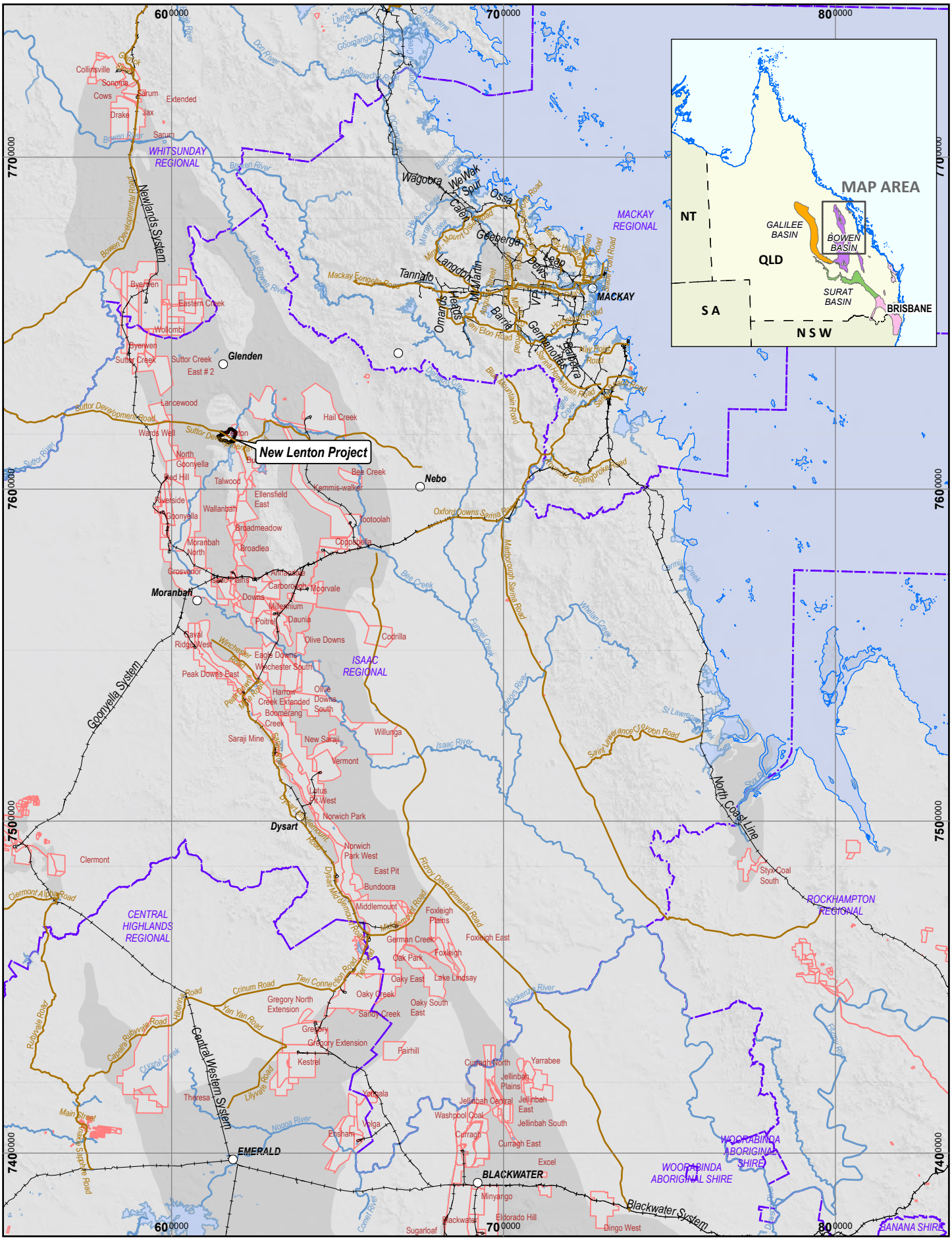
LJV is also the holder of ML 70109 and ML 70260, referred to as the Burton Mine MLs, which adjoin the New Lenton MLs, and which are subject to an existing State approved EA. Burton Mine commenced operations around 1996 (refer to Figure 1-2).

NLC is proposing to develop two open cut coal mining pits on the New Lenton MLs, with supporting infrastructure (refer to Figure 1-3). Approximately 1.9 million tonnes per annum (Mtpa) of metallurgical run of mine (ROM) coal[1] will be mined over a period of 18 years. Overburden will be placed in in-pit and out of pit waste rock dumps, with a final void remaining at the end of mine life. Supporting infrastructure includes a mine infrastructure area (MIA), haul roads, realignment of a public road and water management infrastructure (refer to Figure 1-3). ROM coal will be hauled to Burton Mine for washing in Burton Mine's coal handling and processing plant (CHPP). Product coal will be hauled to Burton Mine's train load out (TLO) facility (refer to Figure 1-2) and railed to Dalrymple Bay Coal Terminal (DBCT). Rejects from washing of Project ROM coal will be stored within Burton Mine's existing co-disposal areas within old mine voids.

1.2 Proponent

The designated proponent for the Project is NLC. Argo's postal address is Level 20, 324 Queen Street, Brisbane, QLD 4000.

[1] Metallurgical coal is used in the manufacture of steel.



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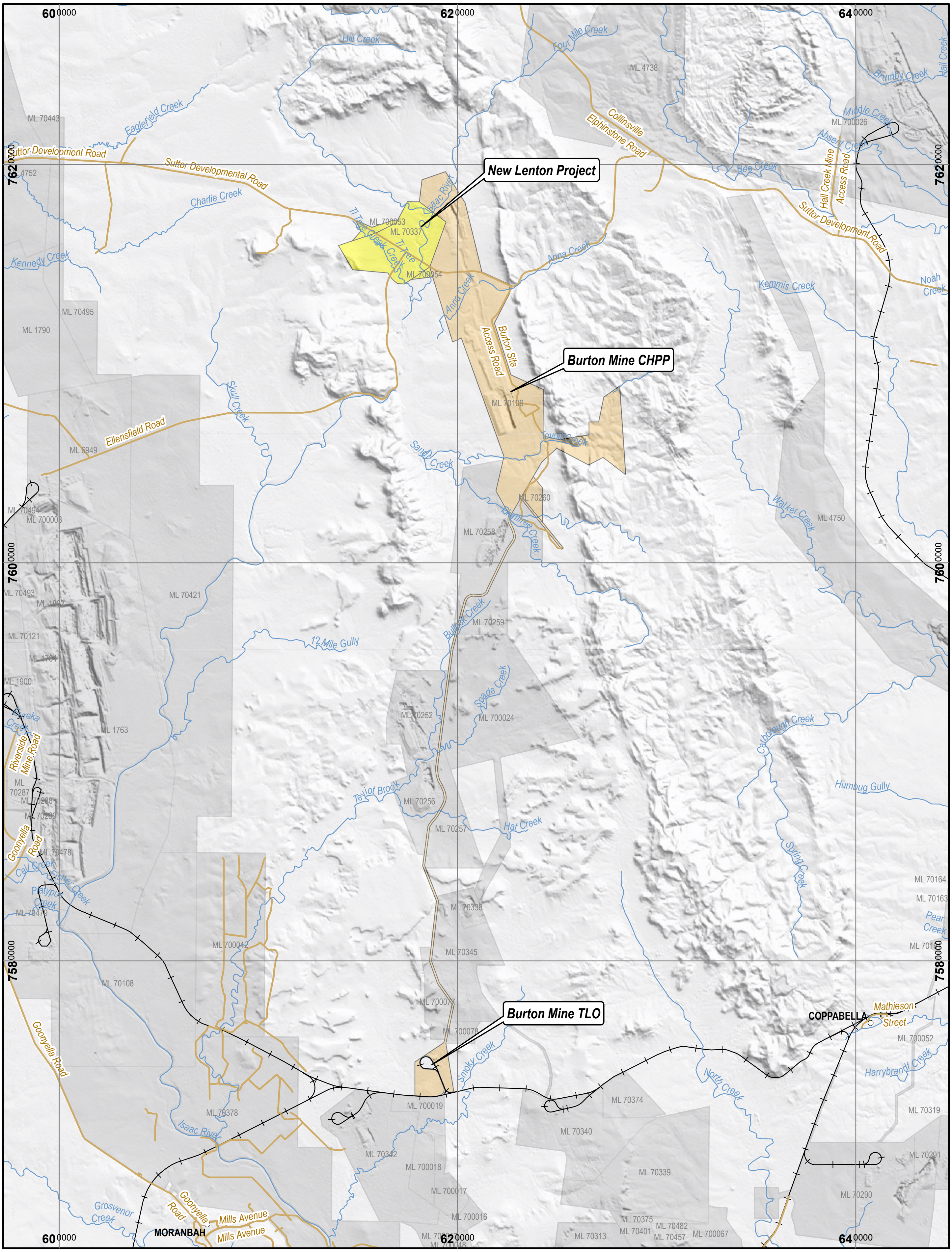
Regional Location

Figure | **1-1**



600000
620000
640000
7620000
7600000
7580000
New Lenton Project
Burton Mine CHPP
Burton Mine TLO
Suttor Development Road
Suttor Developmental Road
Collinsville Elphinstone Road
Hail Creek Mine Access Road
Burton Site Access Road
Ellensfield Road
Riverside Mine Road
Goonyella Road
Mills Avenue
Mathieson Street
MORANBAH
COPPABELLA
Hill Creek
Four Mile Creek
Eaglefield Creek
Charlie Creek
Kennedy Creek
Isaac River
Ti Tree Creek
Anna Creek
Skull Creek
Sandy Creek
Boomerang Creek
Bullock Creek
12 Mile Gully
Spade Creek
Carborough Creek
Humbug Gully
Teviot Brook
Hat Creek
Spring Creek
Walker Creek
Kemmis Creek
Noah Creek
Bee Creek
Middle Creek
Brumby Creek
Absent Creek
Hail Creek
Smoky Creek
North Creek
Harrybrandt Creek
Grosvenor Creek
Cerberus Creek
Platypus Creek
Eureka Creek
Pear Creek
ML 700053
ML 70337
ML 700054
ML 70109
ML 70260
ML 70258
ML 70259
ML 70252
ML 700024
ML 70256
ML 70257
ML 70338
ML 70345
ML 700077
ML 700078
ML 700019
ML 70342
ML 700018
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ML 70313
ML 4738
ML 700026
ML 70443
ML 4752
ML 70495
ML 1790
ML 6949
ML 70494
ML 700008
ML 70493
ML 70421
ML 70121
ML 1900
ML 1763
ML 70287
ML 70478
ML 70479
ML 700042
ML 70108
ML 70378
ML 4750
ML 70164
ML 70163
ML 700052
ML 70319
ML 70291
ML 70290

20230405 Regional Coal Tenements.aprx

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LEGEND

- New Lenton Project
- Burton Mine MLs
- ML
- Town Symbols
- Waterway
- Roads
- Railway

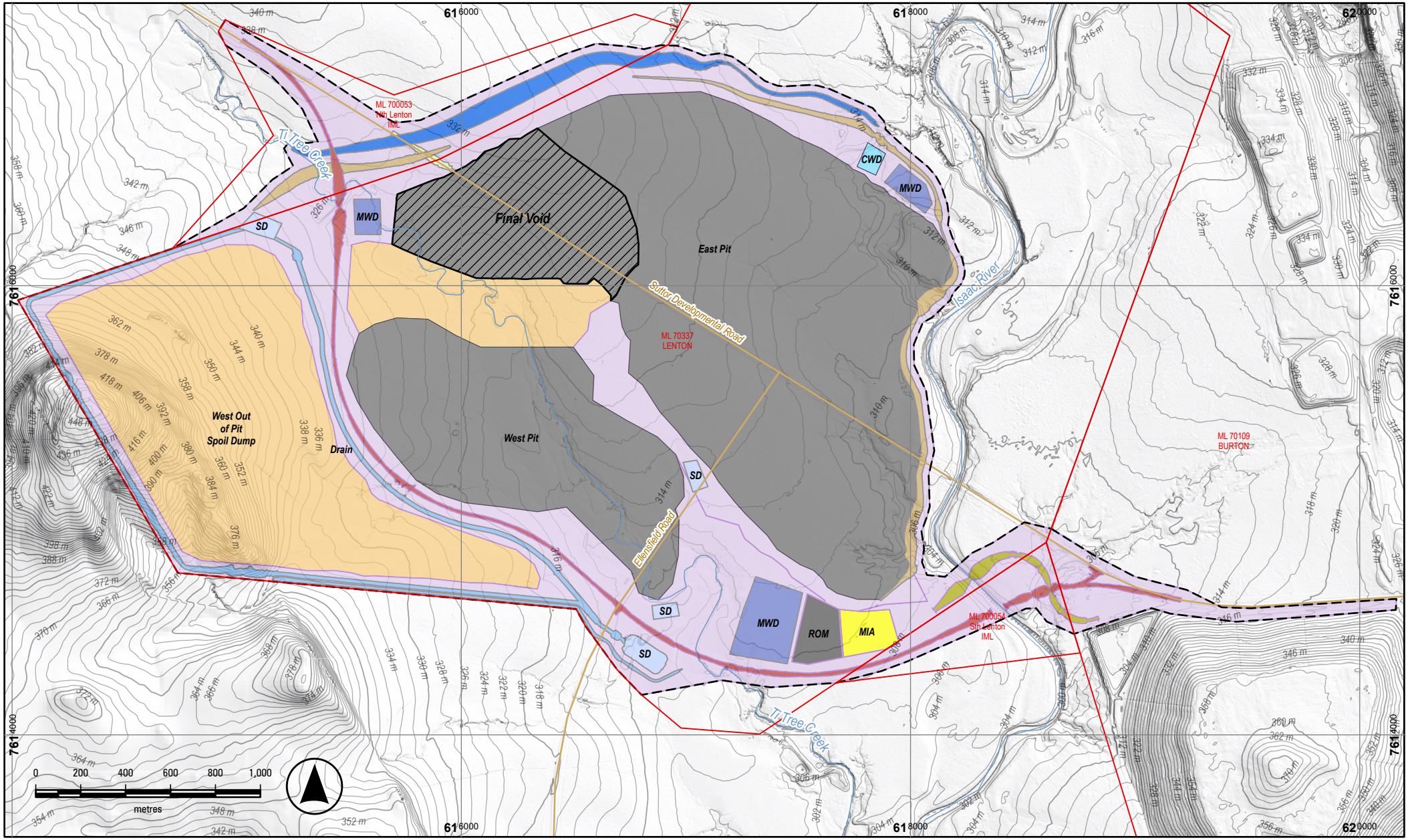
0 1 2 3 4 5
Kilometres

NEW LENTON COAL PROJECT
Public Environment Report 2026

ARGO NATURAL RESOURCES

New Lenton MLs and Burton Mine MLs

Figure | **1-2**



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Legend

- Mining Lease
- Proposed Disturbance Area
- Waterway
- Roads
- Contour Line, Intermediate
- Contour Line, Major
- Final Void
- Mine Infrastructure Area
- ROM
- Dump Footprint
- Suttor Developmental Road Realignment
- Haul Road
- Infrastructure and Construction Working Ares
- Pit Footprint
- Temp Road Diversion
- Operational Levee
- Drain
- Ti Tree Creek Diversion
- Mine Water Dam
- Clean Water Dam
- Sediment Dam

Project Overview

1.3 Proponent Record and Environmental Policy

Neither Argo, BCC, or its wholly owned subsidiary NLC (the designated proponent) have, since their respective acquisitions of NLC, been the subject of any past or present environmental legal proceedings under Commonwealth or State law for the protection of the environment or the conservation and sustainable use of natural resources.

The proponent operates under the Environmental Policy of its holding company Argo, provided at **Appendix 3**.

The proponent has environmental management systems across all operations/activities to track that all environmental management commitments and strategies are implemented, monitored and reviewed to continually improve environmental performance at the operations.

The proponent has a team of appropriately qualified environmental personnel to ensure compliance with approval conditions, legislation and environmental planning frameworks.

1.4 Statutory Context

1.4.1 Environmental Protection and Biodiversity Conservation Act 1999

A Referral for the Project, under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) was lodged on 23/09/2020 (EPBC 2020/8778). On 22/10/2020, the delegate for the Minister for the Environment determined that the Project was a controlled action and would be assessed by public environment report (PER), subject to the following controlling provisions for matters of national environmental significance (MNES):

- Listed threatened species and communities (sections 18 & 18A)
- A water resource, in relation to coal seam gas development and large coal mining development (sections 24D & 24E).

The Referral was supported by assessments of impacts to the relevant controlling provisions. At the time of the Referral the holding company for the proponent (NLC) was New Hope. Argo and BCC, the subsequent holding companies of the proponent (NLC) are independent of New Hope.

Guidelines for a draft PER for the Project were issued by the Department of Climate Change, Energy, the Environment and Water (DCCEEW)[2] on 19/12/2022.

The draft PER was submitted on 29/04/2025, with DCCEEW deciding to approve the publication of the draft PER under section 98(1)(b) of the EPBC Act on 14/05/2025.

The draft PER was published in early June 2025 on a website, in national and regional newspapers, and at local and regional libraries and State authorities for a period of 20 business days ending on 04/07/2025, with anyone able to provide written comments.

DCCEEW requested advice on the Project from the Independent Expert Scientific Committee (IESC) on 29/02/2024, with the IESC providing advice on relevant matters on 16/04/2024. The proponent updated the draft PER in response to the advice from the IESC, as reflected in the draft PER that was submitted on 29/04/2025 and published in June 2025.

[2] The *National Environmental Protection Agency Act 2025* resulted in the National Environmental Protection Agency (National EPA) coming into existence in July 2026. From July 2026, the National EPA is responsible for assessments under the EPBC Act. References to DCCEEW in this PER should be read as references to the National EPA when describing the regulator's role under the EPBC Act.

This document is the final PER, following responses to public submissions on the draft PER. A summary of the submissions and the responses to submissions is provided in **Chapter 2**.

1.4.2 Environmental Protection Act 1994

The proposed Project activities on the New Lenton MLs are subject to an existing State EA (EPML00475513), granted in January 2021 under the *Environmental Protection Act 1994* (EP Act) and a progressive rehabilitation and closure plan (PRCP) schedule granted in November 2023 under the EP Act. The grant of the EA followed a major EA amendment application assessing the impacts of the Project. The Referral in September 2020 utilised the information prepared for the major EA amendment application. The Project information and the assessment of impacts provided in the major EA amendment application and the Referral continues to provide the basis for the assessment of impacts described in this PER, further supplemented by additional information presented in this PER.

1.4.3 Other Legislation

Chapter 2 describes the relevant legislation and approvals for the Project.

1.5 The Project and Burton Mine

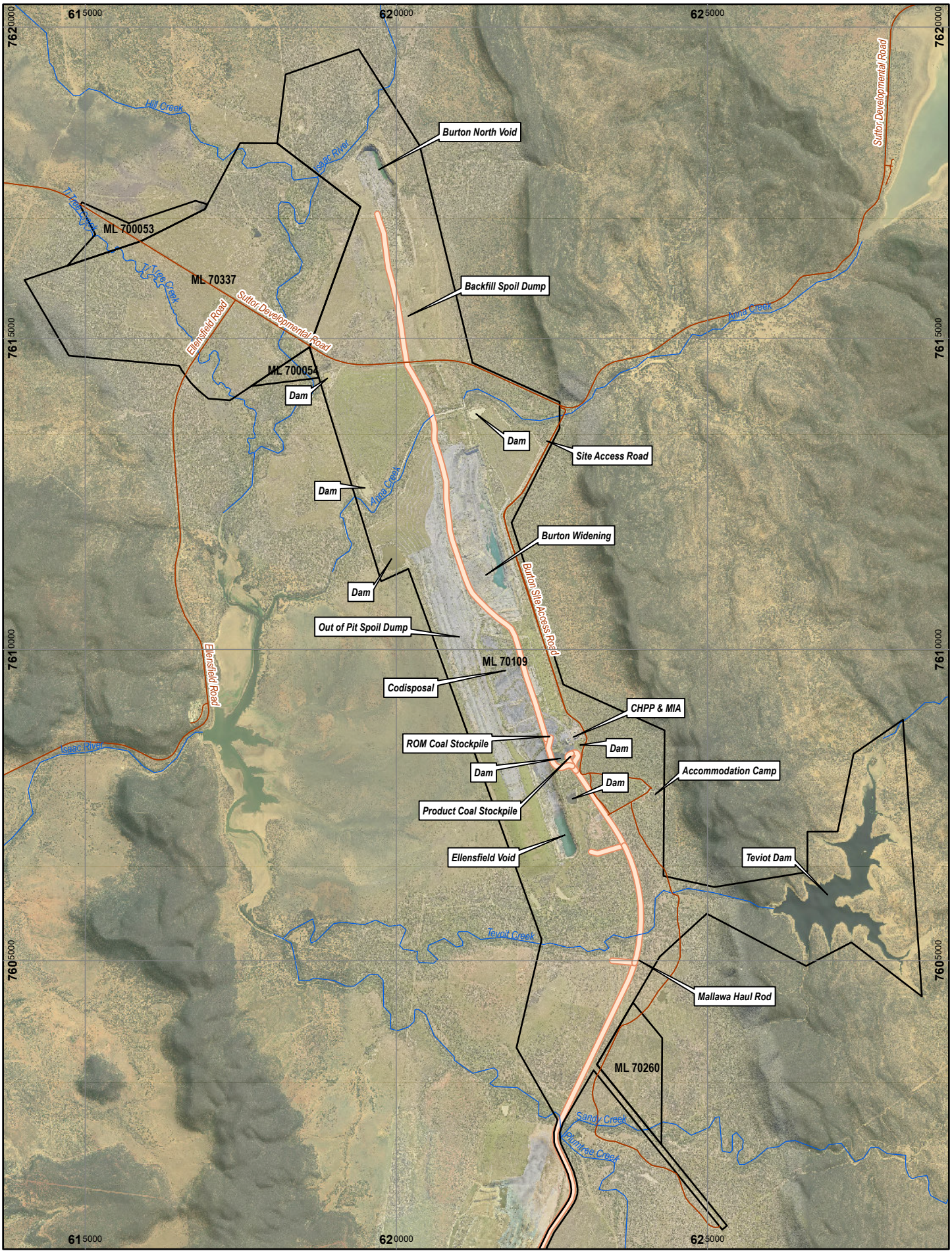
Mining operations at Burton Mine occur on ML 70109, granted 14/12/1995. Burton Mine has been operated by a number of proponents since around 1996, with Argo acquiring NLC in July 2026 with the intention of recommencing mining operations in mid to late 2026. Prior to Argo's acquisition of NLC, Burton Mine had been in temporary care and maintenance since May 2026. BCC originally acquired NLC in 2022 from the New Hope Corporation (New Hope). Burton Mine has existing mined pits including Burton North, Burton Widening and Ellensfield (refer to Figure 1-4). In-pit and out of pit overburden dumps in former mining areas have been rehabilitated, particularly between Burton North and Burton Widening Pits. Burton Mine has a CHPP, haul roads, access roads, TLO, clean (raw) water dam (Teviot dam), water management infrastructure (mine affected water dams, sediment dams, creek diversions, clean water drainage diversions and levees) and an accommodation camp (refer to Figure 1-4). Rejects and tailings from the CHPP are stored in the Ellensfield Pit.

Infrastructure at Burton Mine will support the development of the Project, thereby reducing the Project's impacts by not duplicating existing infrastructure. The CHPP has capacity for the washing of the Project's ROM coal. The TLO has capacity for railing of the Project's product coal. Ellensfield pit has capacity for the storage of rejects and tailings from the washing of the Project's ROM coal. It is intended that the water management systems at Burton Mine and the Project are integrated. In particular mine affected water will be piped from the Project to the Burton CHPP for use in coal washing and the Project will have the ability to source raw water or mine affected water from Burton Mine to meet site water demands (e.g. dust suppression). The integration of the water management systems will allow for balancing of water supply and demand.

The New Lenton MLs adjoin the north western part of the ML 70109. ROM coal from the Project will be hauled to the existing haul roads at Burton Mine which connect with the ROM coal pad at the CHPP.

Whilst the Project proposes to utilise infrastructure at Burton Mine, activities at Burton Mine are not the subject of the Referral. Never-the-less this PER assesses whether:

- Burton Mine's infrastructure has the capacity to support the Project
- there is any impact on Burton mine's water management system from integration with the Project.



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LEGEND

- New Lenton Coal Pty Ltd
- Waterway
- Roads
- Haul Roads

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Kilometres

NEW LENTON COAL PROJECT
Public Environment Report 2026

ARGO NATURAL RESOURCES

Burton Mine MLs

Figure | **1-4**

1.6 Purpose of this Report

DCCEEW issued tailored guidelines for the content of a draft PER on 19/12/2022 (the 'PER guidelines') (DCCEEW, 2022), provided in **Appendix 1**.

This final PER addresses the requirements of the PER guidelines. **Appendix 16** provides a cross reference table for the relevant sections of this PER which address the requirements the PER guidelines. This final PER has been informed by studies undertaken for the Referral, additional studies designed to meet the requirements of the PER guidelines, advice from the IESC and public submissions.

An overview of the PER process is provided in the DCCEEW Guideline "EPBC Act – Environment Assessment Process" (2010), with an extract shown in Figure 1-5, with the process relevant to a PER highlighted with a yellow box.

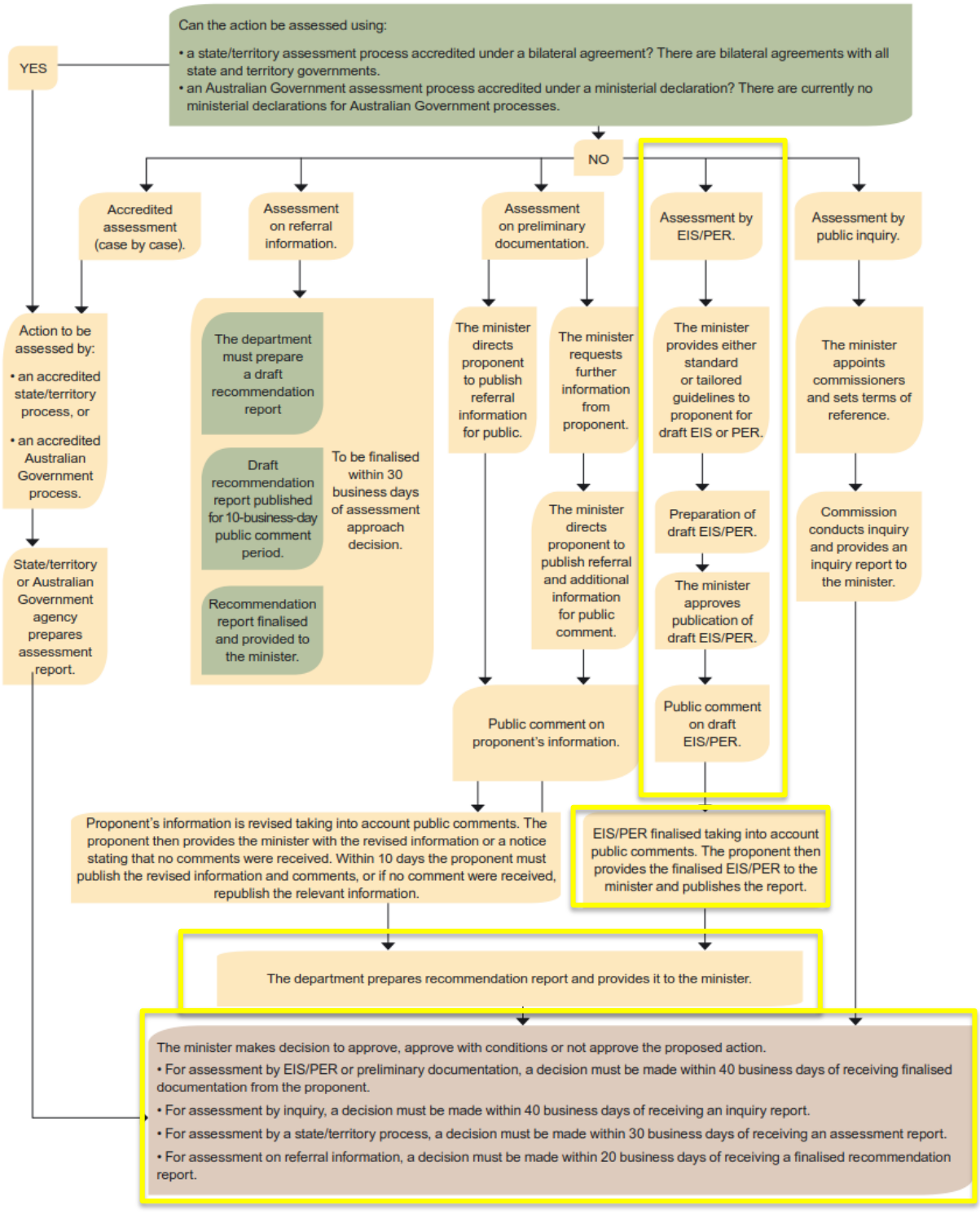

Figure 1-5 EPBC Act Assessment Process

1.7 Report Structure

This final PER has been structured into chapters with appendices to support the information provided in the chapters. The chapters generally follow the structure of the PER guidelines and are listed in Table 1-1. The appendices are listed in Table 1-2.

All appendices to the PER were prepared prior to Argo acquiring BCC and hence NLC, with specialists that prepared appendices engaged by BCC or NLC. References in appendices to BCC being the ultimate holding company for NLC were correct at the time of reporting and should now be read as Argo being the ultimate holding company. The proponent for the Project, NLC, as described in appendices to the PER, remains the proponent following Argo's acquisition of BCC.

Table 1-1 Final PER Chapters

Chapter Number	Chapter Name
	Executive Summary
1	Introduction
2	Approvals
3	Project Description
4	Surface Water and Water Management
5	Groundwater
6	Listed Threatened Species and Ecological Communities
7	Biodiversity Offsets
8	Consultation, Social and Economic Matters, and Sustainable Development

Table 1-2 Final PER Appendices

Appendix Number	Appendix Name
1	Guidelines for the Content of a Draft Public Environment Report
2	Glossary, Acronyms and Abbreviations
3	Environmental Policy
4	Environmental Authority
5	Progressive Rehabilitation and Closure Plan Schedule
6	Associated Water Licence
7	Surface Water and Flood Impact Assessment
8	PER Groundwater Assessment
9	Independent Peer Review of the New Lenton Project Numerical Groundwater Model
10	Groundwater Dependent Ecosystem Assessment
11	Stygofauna Pilot Study
12	Terrestrial Ecology Impact Assessment

13	Protected Matters Search Tool
14	Aquatic Ecology Assessment
15	Not Used
16	PER Guidelines Cross Reference Table
17	IESC Guidelines Checklist
18	Erosion and Sediment Control Plan
19	Groundwater Dependent Ecosystem Monitoring and Management Plan
20	Groundwater Dependent Ecosystem Habitat Quality Monitoring Program
21	Assessment of Potential for Stygofauna Retention and Operational Phase Stygofauna Monitoring Program
22	Groundwater Monitoring and Management Plan
23	MNES Species Impact Management Plan
24	Weed and Pest Management Plan
25	Receiving Environment Monitoring Program
26	Offset Area Management Plan
27	Aquatic Groundwater Dependent Ecosystem Field Assessment

1.8 Methodology for Assessments

The proposed Project has been subject to previous approval's processes requiring environmental assessments, in particular the:

- major EA amendment that supported the Project's approval under the State EP Act
- PRCP schedule under the EP Act
- associated water licence (AWL) under the State *Water Act 2000*.

These previous assessments have been used to inform the environmental assessments for the Project. Each impact assessment chapter of this PER describes the methodology for assessment, including the reliance placed on previous assessments. Where reliance is placed on previous environmental assessments the relevant information has been incorporated into the technical assessments provided as appendices with this PER. Table 1-3 provides an overview of the methodology of assessment for the technical reports.

Table 1-3 Overview of Methodology for Assessment

Technical Report	Assessment Methodology
Terrestrial ecology	Terrestrial ecology values of the Project area and surrounds have been informed by the following: • Terrestrial flora and fauna surveys conducted in spring 2004, autumn 2017, summer 2018, autumn 2018, spring 2018, autumn 2019 • Additional ecology surveys in autumn 2023 to cover any gaps from prior ecology surveys based on current survey requirements. In addition, desktop searches were undertaken to inform the assessment for the Project, including consideration of any uplisting of EPBC Act listed threatened species or ecological communities since the time of the Referral. Based on the identified environmental values and proposed Project activities, impact assessments were undertaken, including identifying whether the Project would have significant residual impacts on MNES. A MNES Species Impact Management Plan has been prepared.
Aquatic ecology	Aquatic ecology values of the Project area and surrounds have been informed by the following: • Aquatic ecology impact assessment for the Project's major EA amendment application. • Previous aquatic ecology surveys for other resource projects in the region. It is noted that the PER Guidelines do not specifically require assessment of aquatic species (e.g. fish and turtles) that are MNES. Based on the identified environmental values and proposed Project activities, impact assessments were undertaken, including identifying whether the Project would have significant residual impacts on aquatic MNES. A Receiving Environment Monitoring Program has been prepared.
Stygofauna	Stygofauna surveys were undertaken in 15 bores in December 2022 within and surrounding the Project area to inform the assessment of impacts. Potential impacts on stygofauna were assessed, based on fieldwork findings and consideration of potential changes to groundwater, based on the findings of the groundwater impact assessment. The assessment was undertaken in accordance with the *Guideline for the Environmental Assessment of Subterranean Aquatic Fauna* (DoSITIA 2015). A Stygofauna Monitoring Program has been prepared.

Technical Report	Assessment Methodology
Groundwater dependent ecosystems (GDEs)	Targeted GDE field surveys were undertaken over a six day period from 20 February to 25 February 2023.The survey focussed on vegetation along the Isaac River, tributaries of the Isaac River and other potential GDE areas. Surveys to identify GDEs included assessment of leaf water potential, soil moisture potential and comparison of relevant isotopes in groundwater bores, soils and leaves. Aquatic GDE field surveys were undertaken in September 2024. Potential impacts on GDEs were assessed, based on fieldwork and consideration of potential changes to groundwater, based on the findings of the groundwater impact assessment. A GDE Monitoring and Management Plan (GDEMMP) and a Groundwater Dependent Ecosystem Habitat Quality Monitoring Program (GDEHQMP) have been prepared.
Groundwater	A groundwater impact assessment for the Project was undertaken. The scope included: • gathering additional field data since previous studies and modelling • hydrogeological conceptual model • numerical groundwater model • final void water balance assessment • impact assessment and reporting. The existing three-dimensional numerical groundwater flow model for the Project and the adjoining Burton Mine was updated to the latest modelling standards, including model input parameters, model calibration and uncertainty analysis. The model was calibrated with site monitoring data to represent site conditions and provide the groundwater level input for predictive simulations during and post mining. The groundwater model was run with and without the Project to assess additional groundwater drawdown impacts from Project and cumulative impacts with Burton Mine. Groundwater impacts have been assessed, and proposed management and mitigation measures provided. The significance of residual impacts to groundwater resources and water dependent assets has been assessed. A Groundwater Monitoring and Management Plan has been prepared.

Technical Report	Assessment Methodology
Surface water and water management	A surface water impact assessment and water management plan for the Project was undertaken, and included the following: • Integration of the mine water from the Project with the existing Burton Mine water management system and modelling of the effectiveness of the whole system. • Mine water balance for the Project, including Burton Mine, using an operational simulation model. • Sediment water management. • Flood modelling included an assessment of site hydrology and hydraulic modelling for a suite of relevant flood events prior to the Project, during Project operations and post mining. • Geomorphology assessment based on hydraulic modelling. • Residual void water balance model. Surface water impacts have been assessed and proposed management and mitigation measures provided. The significance of residual impacts to surface water resources and water dependent assets has been assessed. An Erosion and Sediment Control Plan has been prepared.
Geochemistry	Geochemical data from sampling and laboratory analysis of rejects and overburden from previous assessments, has been summarised in the relevant sections.
Biodiversity Offsets Area Management Plan	A biodiversity offset area management plan (OAMP) has been prepared for EPBC Act listed threatened ecological communities and habitat for listed threatened species, where a significant residual impact from the Project was assessed as likely to occur.

1.9 Report Contributors

The persons and organisations involved in preparing the PER, and the work done by these persons and organisations is provided in Table 1-4.

Table 1-4 PER Report Contributors

Organisation	Company Experience	Persons	Contribution
Reach Environmental Pty Ltd	Reach Environmental has managed and prepared environmental impacts assessments for multiple resource projects. Reach Environmental's director has over 15 years' experience in managing approvals' processes for resource projects in the coal, coal seam gas and minerals industries.	Richard Oldham	Report management, authorship and regulatory liaison
WRM Water & Environment Pty Ltd (WRM)	WRM provides specialist consulting advice in the fields of surface water hydrology, hydraulics, water resource engineering, river engineering and environmental water management. WRM have demonstrated experience and expertise in mine site surface	David Newton, Matt Briody	Author of the Surface Water and Flood Impact Assessment (**Appendix 7**) Hydrobalance (author: Matt Briody, formerly of WRM) prepared the

Organisation	Company Experience	Persons	Contribution
	water assessment, stream rehabilitation, flood and flood mitigation studies. David Newton and Matt Briody (Principal Engineer/ Project Manager) each have 20+ years of experience in the Australian mining sector. They have either managed or undertaken numerous water balance and flood modelling assessments for resource projects.		Erosion and Sediment Control Plan (**Appendix 18**)
SLR Consulting Australia Pty Ltd (SLR)	SLR has a team of internationally experienced hydrogeologists and groundwater modellers providing groundwater services to the resources, agriculture and natural resource management sectors. Derwin Lyons has a Bachelor of Science with Honours in Hydrogeology and is a Technical Director within SLR's Hydrology and Hydrogeology group. Derwin has 18 years' experience in groundwater resource development and resource management, having been involved in a variety of mining, coal seam gas and underground water resource management projects in Queensland, South Australia, New South Wales and the Northern Territory. Dr Arash Mohajeri is a Principal Groundwater Modeller within SLR's Hydrology and Hydrogeology group. Arash is highly qualified, with a PhD in Earth Sciences (numerical modelling), Masters in Environmental Engineering and a Bachelor's Degree in Engineering. Arash has over 10 years' experience developing and calibrating numerical models using a range of platforms. Arash has experience developing numerical groundwater models (MODFLOW-SURFACT and MODFLOW-USG) suitable to address State and Commonwealth requirements for groundwater assessments across Australia.	Derwin Lyons, Dr Arash Mohajeri	Author of the PER Groundwater Assessment (**Appendix 8**) and Groundwater Monitoring and Management Plan (**Appendix 22**)
Manewell Groundwater Pty Ltd	Neil Manewell is a Principal Groundwater Modeller who has over 16 years' experience in numerical groundwater modelling. Historically Neil has simulated open cut and longwall depressurization for numerous high-profile mining projects in New South Wales and Queensland. Neil has been an Independent Peer Reviewer for several high-profile coal mining impact assessments in Queensland and New South Wales. He is well versed in best practice modelling approaches and the expectations of regulatory and independent agencies.	Neil Manewell	Author of the Independent Peer Review (**Appendix 9**)

Organisation	Company Experience	Persons	Contribution
3d Environmental Pty Ltd	3d Environmental commenced operations in 2006, dealing specifically with landscape scale ecological processes, particularly the relationship between geology and vegetation. David Stanton, the consultancy Principal, has 28+ years of industry experience where he has undertaken major resource and landscape interpretation projects on behalf of the conservation, resource and government sectors.	David Stanton	Author of the Groundwater Dependent Ecosystem Assessment (**Appendix 10**) and the Groundwater Dependent Ecosystem Monitoring and Management Plan (**Appendix 19**)
frc environmental (subsequently purchased by SLR)	frc environmental has operated since 1984, and offers specialist services solely in the field of aquatic ecology. Dr Ben Cook, Senior Principal Ecologist, heads up frc environmental's freshwater ecology team, having over 20 years of experience as a freshwater ecologist in academic, governance and consulting capacities, and a continuing Adjunct Research Fellow position with the Australian Rivers Institute at Griffith University.	Dr Ben Cook	Author of the Stygofauna Pilot Study (**Appendix 11**) and Assessment of Potential for Stygofauna Retention and Operational Phase Stygofauna Monitoring Program (**Appendix 21**)
AARC Environmental Solutions Pty Ltd	AARC is an industry leader in ecological assessment studies and approvals in Queensland. AAARC specialise in baseline assessment reports encompassing ecological surveys, monitoring, assessments and reporting. AARC has completed numerous baseline ecological assessments for new mining projects. Lucia Lopez is a Senior Ecologist with over eleven years of experience working as a professional ecologist. Over the past five years, Lucia has specialised in the survey and assessment Queensland flora and fauna. This work ranges from ecology baseline assessments, vegetation mapping, targeted threatened species surveys and monitoring to impact assessments. Lucia has previously undertaken several Weed surveys and Protected Plants Surveys in Queensland.	Lucia Lopez	Author of the Terrestrial Ecology Impact Assessment (**Appendix 12**), Groundwater Dependent Ecosystem Habitat Quality Monitoring Program (**Appendix 20**), MNES Species Impact Management Plan (**Appendix 23**), Weed and Pest Management Plan (**Appendix 24**) and Aquatic Groundwater Dependent Ecosystem Field Assessment (**Appendix 27**)
CO2 Australia Ltd	CO2 Australia participate and actively contribute to regular forums including Queensland environmental offset framework review and EPBC Act Environmental Offset Policy Offsets Assessment Guide review. CO2 have delivered and currently manage more than 30,000 ha of land on behalf of clients for biodiversity and carbon offset purposes. CO2 have developed over 30 offset management plans for more than 20 proponents in Queensland which have been approved by the Commonwealth and / or Queensland Government. Jarrad Cousins has 23 years' experience in scientific research and environmental practice throughout a diverse	Dr Jarrad Cousin; Tara D'Arcy-Evans; Dr Cath Bowler	Author of the Offset Area Management Plan (**Appendix 26**)

Organisation	Company Experience	Persons	Contribution
	set of Australian ecosystems, with his key area of expertise being fauna ecology. Jarrad has been involved in all facets of biodiversity offsets. Tara D'Arcy-Evans is an experienced environmental offset specialist with expertise in identification of offset requirements, development of offset strategies, offset packages, legally binding mechanisms, land access and offset agreements and offset area management plans (OAMPs) and application of the EPBC Act Offsets Assessment Guide. Dr Cath Bowler has wide-ranging experience in ecology, having worked in scientific research and the ecological industry since 2017, with key areas of expertise in vegetation identification and ecology.		
C&R Consulting (C&R)	C&R provide an extensive range of ecological, climatological, hydrological and geochemical assessments. In particular, C&R are active within the mining and energy industries for where they assess, evaluate and interpret environmental, geochemical and mineralogy data. Matt Knott is a principal aquatic ecologist with over 18 years research experience specialising in environmental impact assessments and monitoring, with particular focus on tropical freshwater and marine systems. He has an extensive knowledge of fieldwork techniques and environmental analytical procedures (water, sediment, air and biota). Matt has prepared aquatic ecology impact assessments and receiving environment monitoring programmes (REMPs), for large mining projects.	Matt Knott	Author of the Receiving Environment Monitoring Program (**Appendix 25**)

1.10 Information Sources

Within this PER the source of information used to inform the assessment of impacts to MNES is described, including the specialist environmental reports listed in Table 1-2.

The primary source of information has been through field surveys and field measurements within and surrounding the New Lenton MLs. Field surveys have been undertaken specifically to inform the Project's PER and for previous approvals and environmental management at the Project by the proponent, under the ownership of different holding companies. This includes:

- field surveys for terrestrial ecology, aquatic ecology, groundwater dependent ecosystems and stygofauna
- field measurements of groundwater levels and quality through the installation of groundwater bores for this purpose, with certified laboratory analysis of water quality
- field measurements of surface water quality and water levels, with certified laboratory analysis of water quality
- field data collection and certified laboratory analysis of geochemical data.

Field surveys and measurements have been collected over approximately 10 – 15 years and are reliable, having been collected by experienced professionals in the relevant disciplines. Field surveys and measurements provide information at a point in time, and are therefore supplemented by surveys or measurements at other times (e.g. multi-season ecology surveys, regular bore monitoring) to reduce uncertainty. Information from field surveys and measurements is therefore highly certain and reliable.

Field survey and measurements have been supplemented by publicly available data, including Commonwealth and State data on ecology and water; and data collected from the adjoining Burton Mine. This data is considered to be reliable and certain.

The assessment of impacts to water resources relies on modelling informed by field data and publicly available data. This includes modelling of:

- groundwater / hydrogeology
- hydrology and hydraulics (flooding)
- water balance and management.

These complex water models have been developed by experienced professionals in the relevant disciplines, and the technical reports (**Appendix 7** and **Appendix 8**) describe the reliability and certainty provided by these models. All models have been calibrated to available data collected from field measurements and / or publicly available data, including reliable government data sources (e.g. Bureau of Meteorology or State Department surface and groundwater records). All models have inherent uncertainty; however the relevant technical assessments conclude that the levels of uncertainty in the models are acceptable. The numerical groundwater model was subject to an independent peer review (**Appendix 9**) which found the model to be fit for purpose.

1.11 References

DCCEEW (formerly Department of Sustainability, Environment, Water, Population and Communities) 2010. *EPBC Act – Environment Assessment Process*. Australian Department of Climate Change, Energy, the Environment and Water. Accessed at http://www.environment.gov.au/system/files/resources/d60cdd6a-8122-473a-bbd0-d483662cef3e/files/assessment-process_1.pdf

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