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IP South

INITIAL ADVICE STATEMENT

Stanmore IP South Pty Ltd
Isaac Downs Project

May 2019

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1. INTRODUCTION

1.1 Background

Stanmore IP South Pty Ltd (IP South) proposes to develop the Isaac Downs Project (the Project), an open cut steel making coal project mining a total of approximately 35 million tonnes over 16 years, with a variable annual profile. The Project is located in the Bowen Basin coal field, Central Queensland, approximately 145 km south west of Mackay and 10 km south east of Moranbah. The proponent has applied for mining leases (MLs) and will apply for an environmental authority (EA) to enable the development of the Project.

1.2 Project Proponent

IP South, a wholly owned subsidiary of Stanmore Coal Ltd (Stanmore), is the proponent for the Isaac Downs Project (the Project). Stanmore is a publicly listed company, with interests in operational and prospective coal projects and mining assets within Queensland's Bowen and Surat Basins.

Stanmore IP Coal Pty Ltd (IP Coal), a subsidiary of Stanmore, operates the Isaac Plains Mine (IPM) on granted mining lease (ML) 70342, ML 700016, ML 700017, ML 700018 and ML 700019, subject to an existing environmental authority (EA).

The proponent (IP South) will, subject to agreement with IP Coal, utilise existing approved infrastructure at IPM for coal processing, rejects management, coal railing, power supply and water management. This will minimise the infrastructure required for the Isaac Downs Project and hence reduce Project impacts. As IPM coal production declines, mining will transition to Isaac Downs.

1.3 Project Need

The Project will:

- Contribute significantly to the State's economy and will provide employment opportunities through utilisation of a similar workforce to that at IPM for the Project.
- Employ approximately 250 people during the construction phase and approximately 300 people during operations. In addition, there will be opportunities for local employment in construction, transport and the supply of goods and services.
- Require capital investment to bring it to full production.
- Generate coal sales and exports over the life of the Project, with associated revenue benefits for the State and Commonwealth through coal royalties and other taxation.
- Provide a continuous and steady level of economic activity in Moranbah and the region, as Isaac Downs substitutes activities at IPM, with ongoing opportunities for engagement of local and regional suppliers.
- Capitalise on existing infrastructure and activities located at IPM, and reduce the Project's environmental footprint, by utilising existing:
    - coal processing and railing infrastructure
    - open-cut voids for disposal of rejects and storage of mine affected water
    - raw water supply and power supply.

1.4 Purpose of Initial Advice Statement

This Initial Advice Statement (IAS) has been prepared to inform an application for a voluntary environmental impact statement (EIS) under Sections 70 and 71 of the *Environmental Protection Act 1994*

(EP Act). The purpose of this IAS is to provide sufficient information to assist the Queensland Department of Environment and Science (DES) in assessing whether an EIS is required for the Project and to inform preparation of a draft Terms of Reference (ToR) for an EIS, if required. The IAS also provides information to stakeholders and the general public about the nature, scope and location of the Project. DES approved a voluntary EIS process on 05 April 2019.

2. PROJECT DESCRIPTION

2.1 Project Overview

The Isaac Downs Project is a proposed open cut steel making coal mine located approximately 10 km south east of Moranbah, central Queensland, within the Isaac Regional Council area (Figure 2-1).

The Project will extract approximately 3.2 Mtpa run of mine (ROM) coal over the first 9 years, with a steady state production profile of 3 - 4 Mtpa, and then approximately 1 Mtpa over the next 7 years, as the strip ratio increases. The Project comprises a single open cut mining pit, run of mine (ROM) coal haul road, linear infrastructure, access road, ROM coal pad, levee and mine infrastructure area (MIA). One or more new mining leases will be required for the Project, with an associated environmental authority.

ROM coal will be hauled on a purpose built, dedicated haul road to the adjoining IPM to the north, where it will be processed at the IPM coal handling and preparation plant (CHPP), before loading onto the IPM rail loop for railing to the Dalrymple Bay Coal Terminal for export. The Project will utilise approved capacity at the CHPP. Coal mined at Isaac Downs will transition from coal mined at IPM, with mining equipment and a similar workforce transferred from IPM to Isaac Downs. IPM operations will recommence once production from Isaac Downs declines in the later years of Isaac Downs operations.

The MIA will comprise workshops and offices. A levee will be constructed during operations to protect the open cut mining operations from flood inundation from the Isaac River. Post mining, overburden dumps will be rehabilitated and a residual void will remain outside of the floodplain of the Isaac River. Stanmore will investigate options for a post mining land use of the residual void area. A permanent levee will not be required post mining.

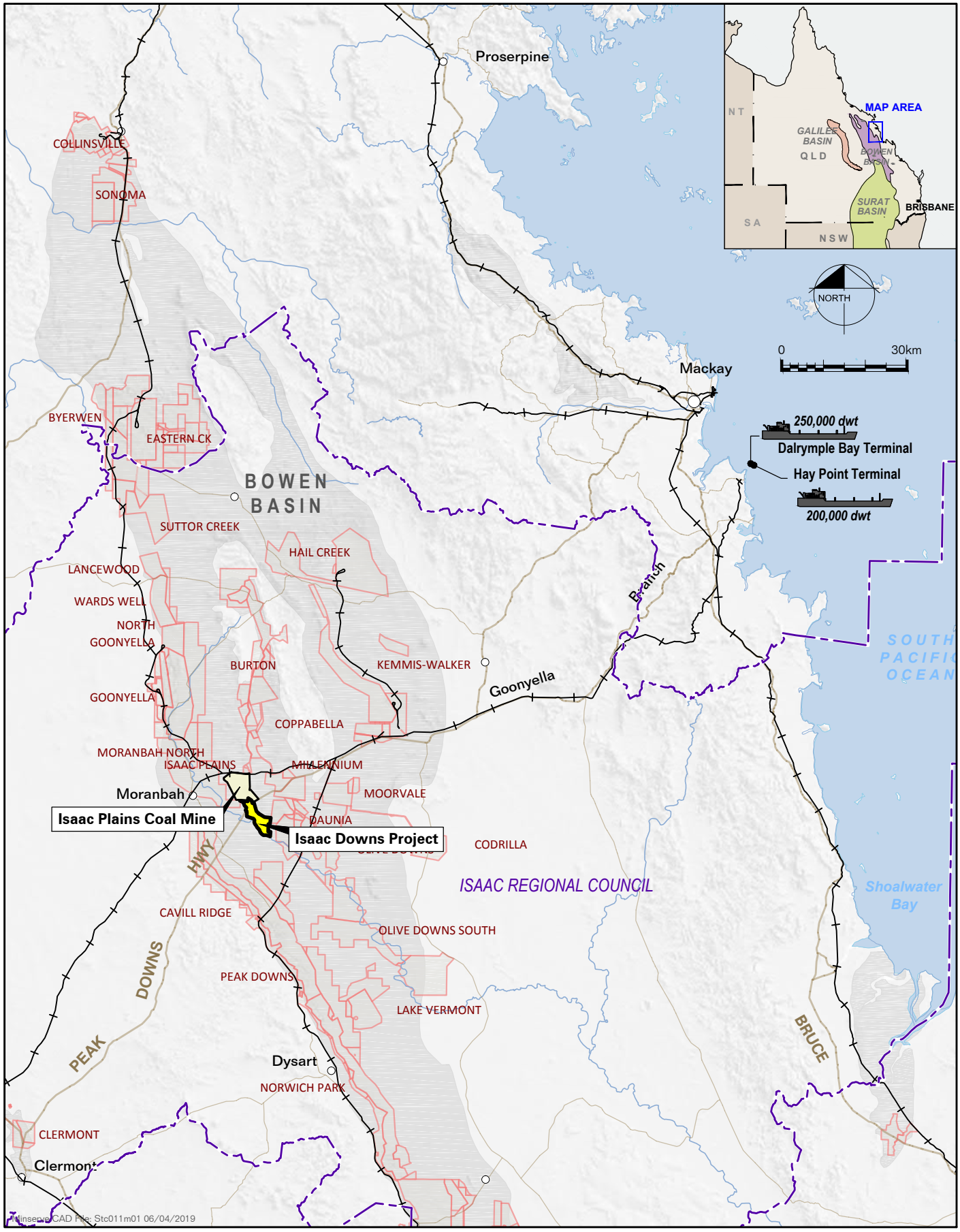
Should there be a shortfall of water at the Project, IPM will supply water to the Project from existing supplies such as the existing long term water supply from SunWater or water in mine voids. All rejects from the CHPP will be managed under the existing approved rejects management plan for IPM. Mine affected water from the Project will either be stored and released from the Project site or transferred to the existing, approved water management system at IPM.

The proposed Project layout is shown in Figure 2-2. The proposed Project footprint within the Project mining leases is approximately 1100 ha, although this may be subject to minor changes as Project mine planning and engineering is progressed.

The equipment being used for mining activities at IPM, and a similar workforce, is planned to be transitioned to Isaac Downs. Workforce accommodation arrangements will be similar to those for IPM, being a mix of mine accommodation villages and residences in Moranbah and other local or regional towns. The Project will continue to support local suppliers and contractors as is the case for operations at IPM, providing additional security and longevity of employment in the region.

The proponent intends to commence construction activities in early 2021, subject to obtaining all required approvals, with mining operations commencing mid 2021.

The Project is not proposing any novel or unproven resource extraction process, technology or activity.



LEGEND

- Isaac Downs Project
- Isaac Regional Council
- Coal Mining Lease
- Drainage
- Roads - Major; Minor
- Railway

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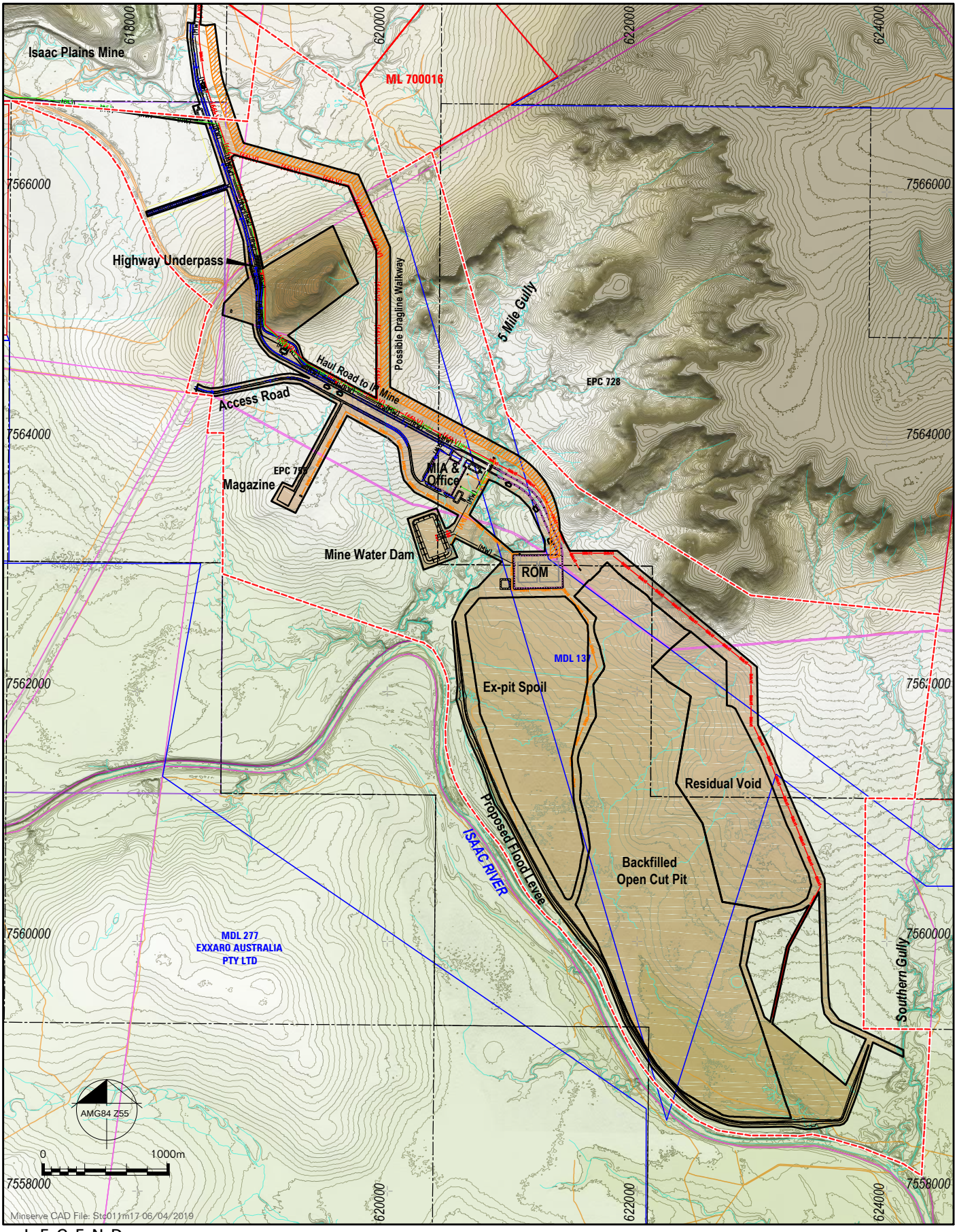
Project Location

Figure 2-1



LEGEND

- ML
- MDL
- EPC
- Proposed ID Project MLAs
- Project Footprint
- Drainage
- Roads - Major; Minor
- Railway
- Cadastral Boundary
- Topography 1m Contours

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Proposed Project Layout

Figure 2.2

2.2 Land and Tenure

2.2.1 Properties

The operational land for the Project is shown in Figure 2-3 and comprises:

- Lot 5 GV132, privately owned freehold
- Lot 17 SP261431, privately owned freehold
- Peak Downs Highway, Department of Transport and Main Roads (DTMR)
- Lot 8 GV196, Quarry Reserve, DTMR as Trustee

Project activities will predominantly occur on privately owned land, being Wotonga station (Lot 5 GV132) and Morambah stations (Lot 17 SP261431), operated as a single pastoral property. IPM mining leases are located on Wotonga and Morambah stations, and IP Coal has entered into compensation arrangements with the landholders for the IPM mining activities.

The ROM coal haul road will cross beneath the Peak Downs Highway, in a purpose built underpass. A site access road intersection with the Peak Downs Highway is proposed. The Department of Transport and Main Roads (TMR) will be consulted about approvals requirements for all activities that may affect the Peak Downs Highway.

An easement for a water pipeline, supplying water to the adjacent Millennium Mine, crosses Lot 5 GV132. This easement may require relocation for Project activities. The proponent will consult the easement owners and land owners about potential relocation.

The proponent will investigate opportunities to source quarry material, primarily for haul road construction, from Lot 8 GV196, a State Quarry Reserve, located adjacent the Peak Downs Highway. The haul road, access road and other linear infrastructure have potential to intersect Lot 8 GV196.

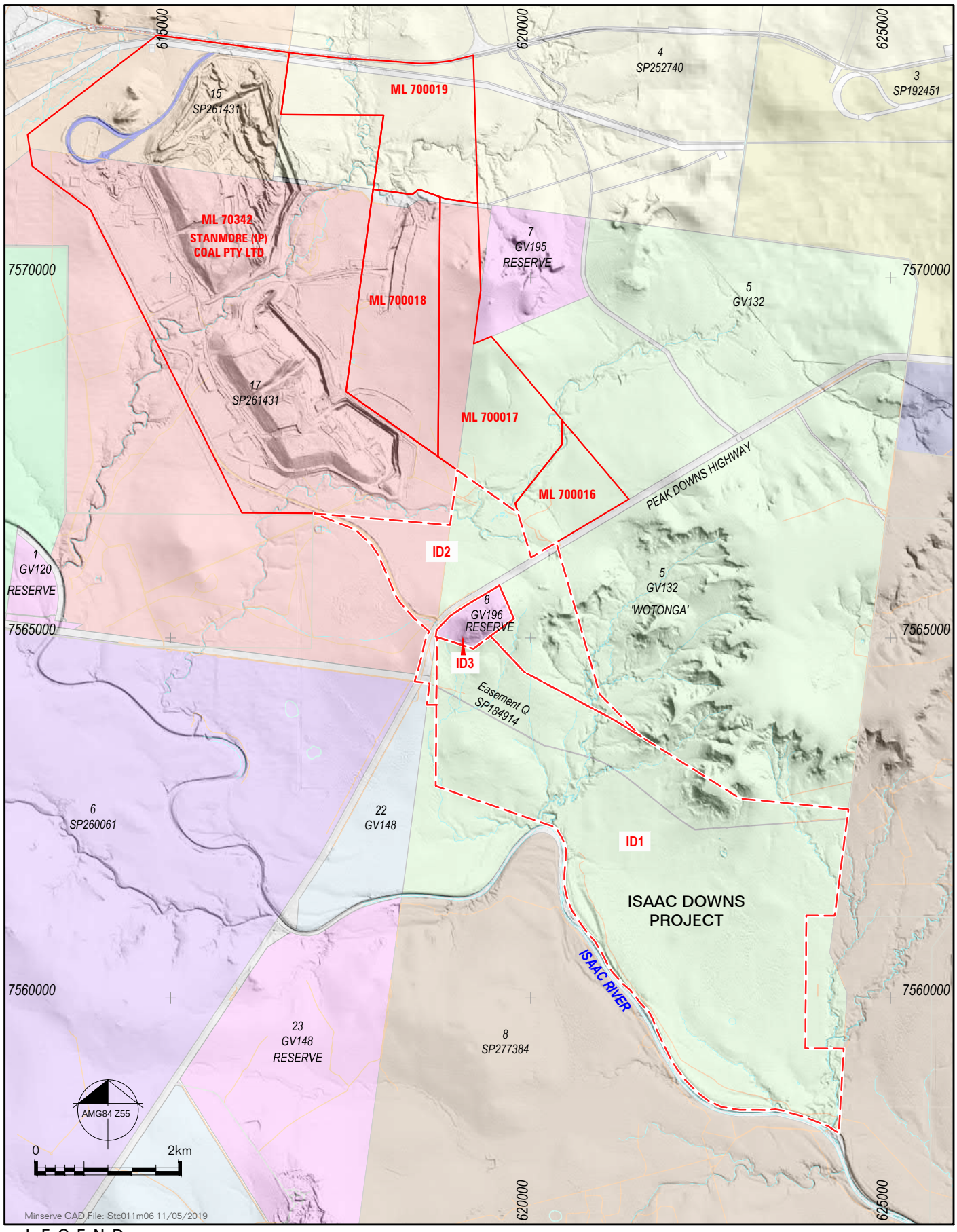
Native title has been extinguished on Lot 5 GV132, Lot 17 SP261431 and the Peak Downs highway. Native title has not been extinguished Lot 8 GV196, a State Quarry Reserve. Activities on Lot 8 GV196 are subject to further design and site investigations. The Barada Barna People are the Native Title party for land, subject to a native title determination in June 2016.

Properties in the Project area are shown in Figure 2-3. The land is used for grazing purposes with remnant vegetation along watercourses and creeks and other small patches of fragmented remnant vegetation. The Isaac River runs along the western side of the Project area. No mining activities are proposed in the Isaac River.

For the purposes of the proposed environmental surveys and studies, the proponent intends to access the above properties, the Isaac River, as well as Lot 8 SP277384 (Winchester Downs station, privately owned) to the south of the Isaac River. This study area will allow for the assessment of direct and potential indirect impacts of the Project.

The proponent has entered into the following to secure land access:

- Conduct and compensation agreement with the owners of Lot 5 GV132 and Lot 17 SP261431 for exploration activities
- Cultural Heritage Management Agreement with the Barada Barna People
- Notice of entry for Lot 8 SP277384 for surveys.



LEGEND

- IPM MLs
- Proposed ID Project MLAs
- Drainage
- Roads - Major; Minor
- Railway
- Cadastral Boundary

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Properties

Figure 2.3

2.2.2 Tenements

2.2.2.1 Underlying Tenements

Stanmore, through its subsidiaries, holds the following underlying coal tenements in the Project area, or has agreement with third party underlying tenement holders to lodge mining lease applications over:

- Exploration permit for coal (EPC) 755
- EPC 728
- Mineral development licence (MDL) 137
- EPC 548

Under Stanmore's exploration tenements and land access arrangements, Stanmore has commenced initial environmental studies including a dry season ecology survey and installation of groundwater monitoring bores.

The location of Project ML application boundaries (2,366 ha) and underlying tenements are shown in Figure 2-4.

2.2.2.2 Overlapping Tenements

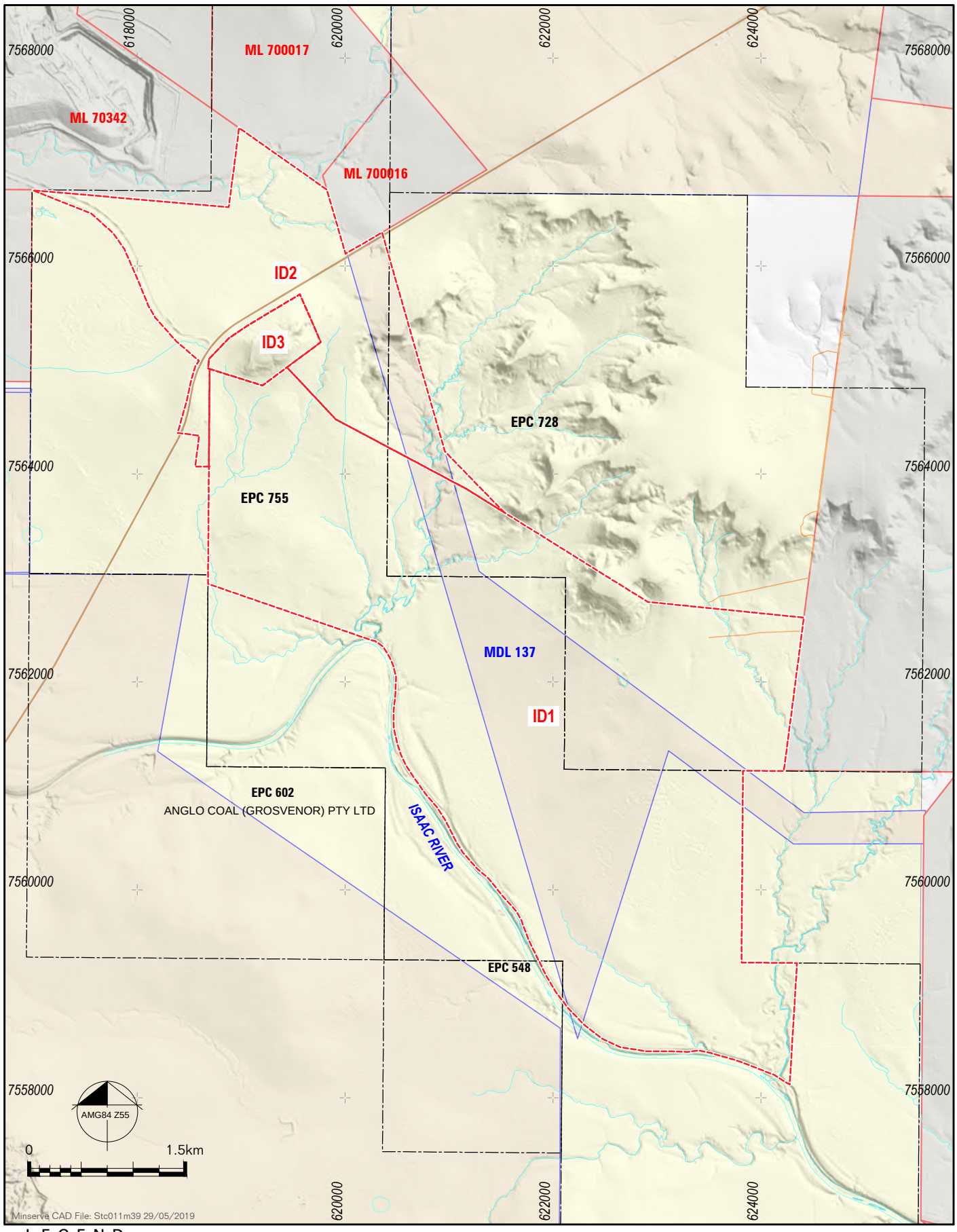
The following petroleum tenements overlap with the Project's ML applications (Figure 2-5):

- Authority to Prospect (ATP 1103), CH4 Pty Ltd (a subsidiary of Arrow Energy Ltd)
- Pipeline Licence (PPL) 135, CH4 Pty Ltd
- Petroleum Lease (PL) 196, CH4 Pty Ltd

The proponent will engage with the overlapping petroleum tenement holders in accordance with requirements of relevant resource legislation.

2.2.2.3 Other Mining Projects

Granted mining leases and proposed mining projects in the region are shown in Figure 2-6.



LEGEND

- ML
- MDL
- EPC
- Proposed ID Project MLAs
- Drainage
- Roads - Major
- Railway
- Cadastral Boundary

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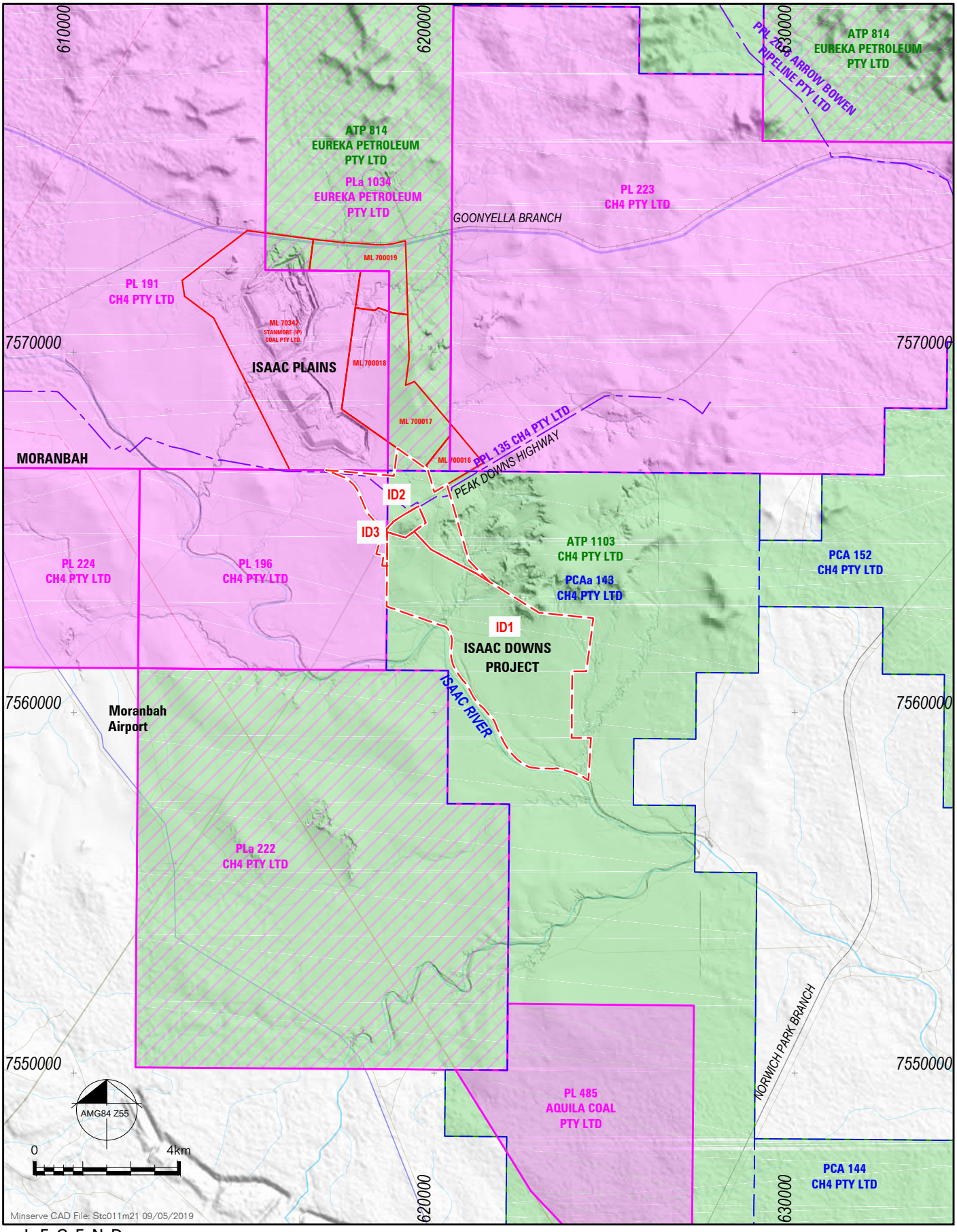
Underlying Tenements and Proposed Project Mining Leases

Figure 2.4



LEGEND

- IPM MLs
- PL
- ATP
- PCA
- PPL
- Proposed ID Project MLAs
- Drainage
- Roads - Major
- Railway

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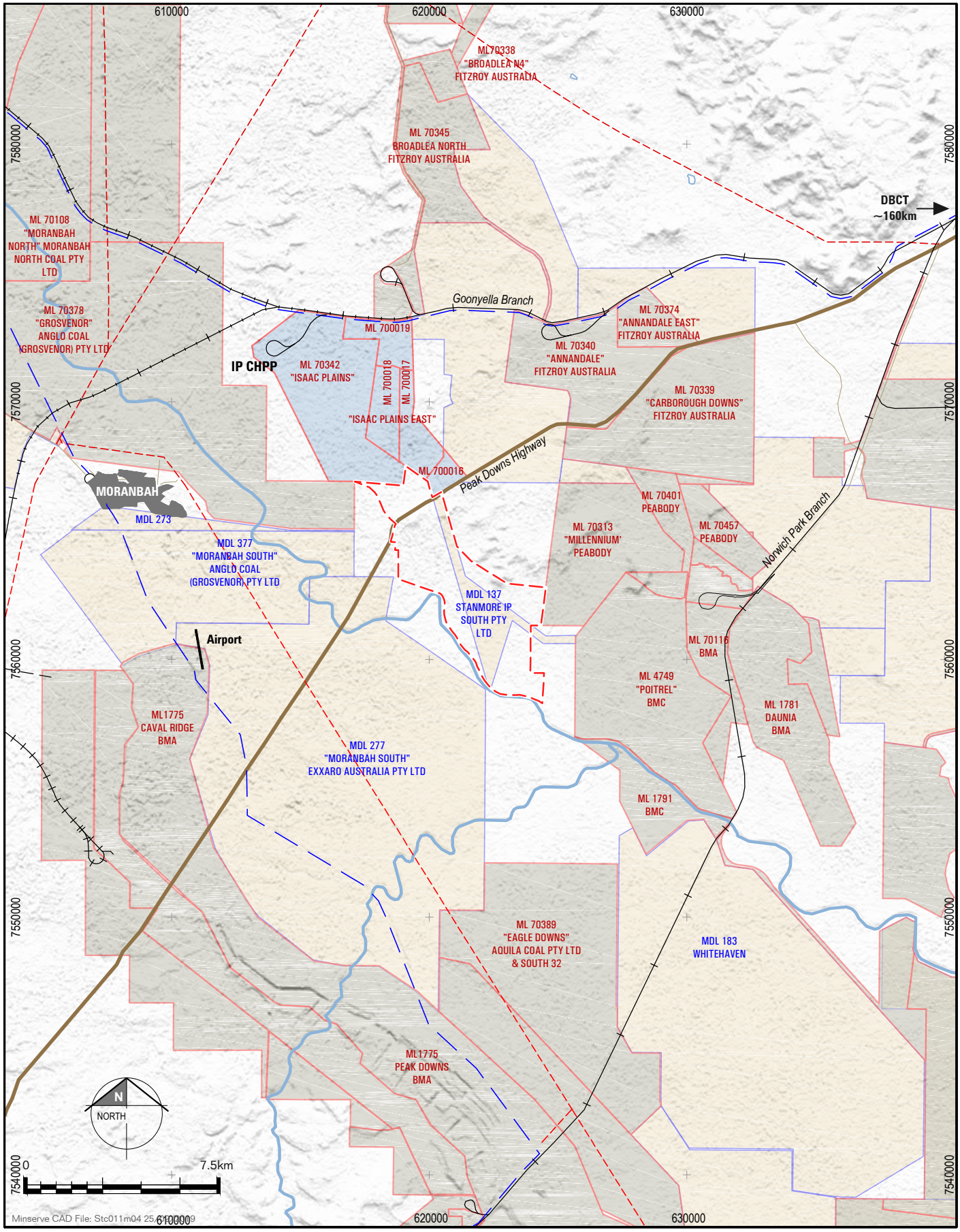
Overlapping Petroleum Tenements

Figure 2.5



LEGEND

- Drainage
- Roads - Major
- Railway
- Powerlines
- Pipeline
- Mining Lease
- MDL
- IPM MLs
- Proposed ID Project MLAs

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Regional Mining Projects

Figure 2-6

2.2.3 Regional Council and Planning

The Project site is located within the Isaac Regional Council (IRC) local government area (LGA). IRC consists of the former Nebo, Belyando and Broadsound Shire Council areas. The majority of the Project site is located within the former Nebo Shire Council with a small portion of the Project site within the former Belyando Shire Council. There is currently no consolidated planning scheme in force for IRC and the planning schemes of the former Councils remain in effect. Accordingly, any off tenement land use and planning aspects of the Project will be assessed against the relevant planning scheme.

The Mackay, Isaac and Whitsunday Regional Plan, will also be considered in assessing the land use impacts of the Project.

2.3 Relationship with Isaac Plains Mine

IPM is subject to an existing EA, which allows up to 4 Mtpa ROM coal extraction, which is the capacity of the CHPP. The CHPP will be fed by coal extracted from IPM MLs until coal from Isaac Downs is available. As coal from IPM will be substituted by coal from Isaac Downs, total coal feed to the CHPP will be within its approved capacity.

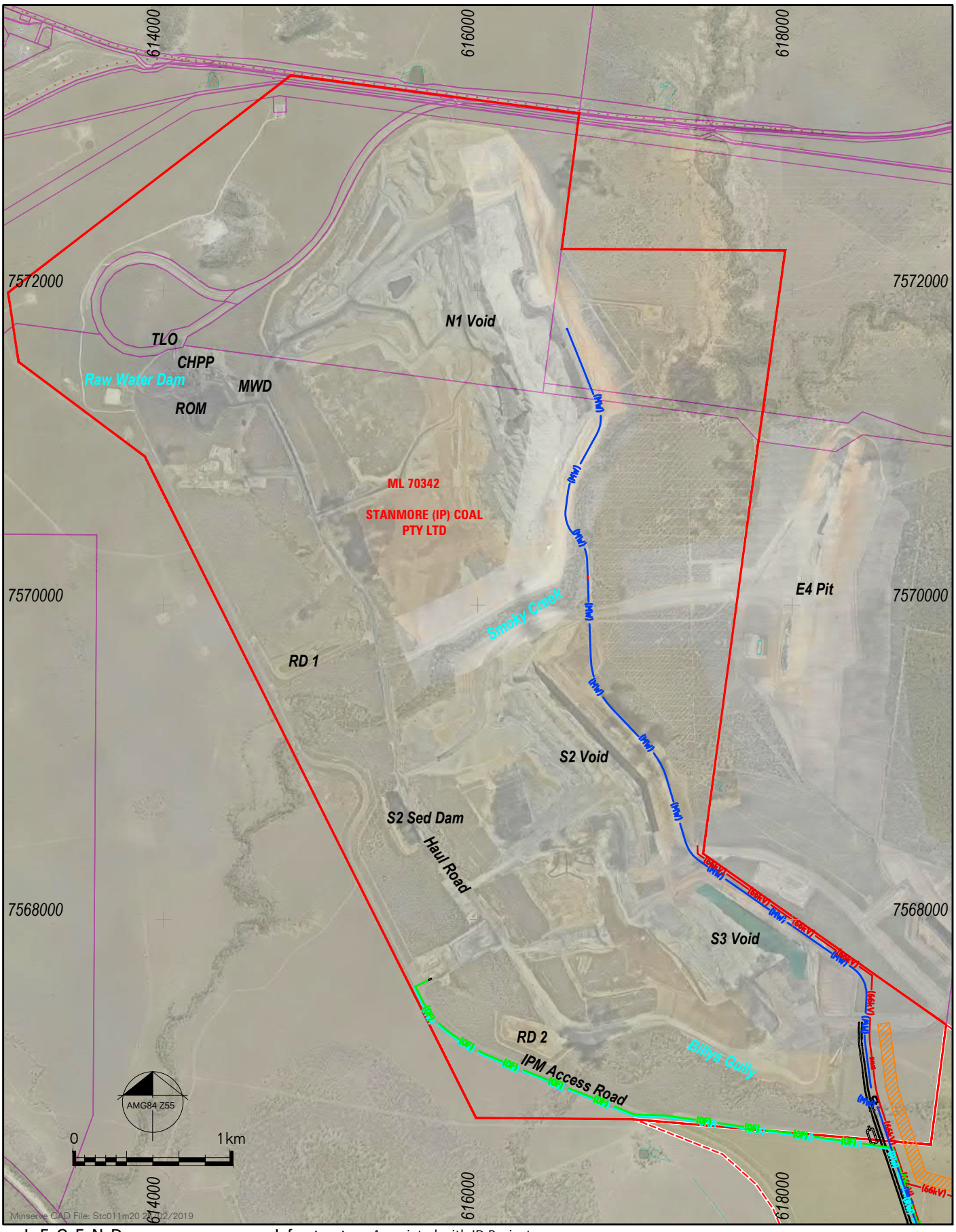
IPM manages rejects from the CHPP in accordance with the Mining Waste Management Plan required under the EA, including the Tailing and Rejects In-pit Disposal Management Plan, which is based on in-pit disposal (N1 void on Figure 2-7) of rejects from ROM coal processed through the CHPP at full capacity. Tailings and rejects from Isaac Downs will replace tailings and rejects from IPM, and will be within the volume of rejects described in the Mining Waste Management Plan and Tailing and Rejects In-pit Disposal Management Plan.

There is an existing rail loop at IPM which is connected to the Goonyella rail line to Dalrymple Bay Coal Terminal (DBCT). Coal from Isaac Downs will continue to use this rail loop at IPM.

IPM operates a water management system under the requirements of the EA, including a Water Management Plan, release criteria for mine affected water, water storage monitoring, Receiving Environment Monitoring Program (REMP), and stormwater and sediment controls. Mine affected water at IPM is stored in existing, approved final mining voids (refer Figure 2-7) and can be released subject to compliance with release criteria in the EA. Mine affected water from Isaac Downs will either be stored and released from Isaac Downs or transferred to these existing mine voids at IPM for management within the existing approved water management system at IPM.

The additional linear infrastructure proposed on IPM mining leases includes a raw water pipeline, mine water pipeline, haul road and powerline. A portion of the proposed dragline walk route is on IPM mining leases. The existing infrastructure on IPM, and infrastructure associated with the Isaac Downs Project on IPM (approximately 20 ha) is shown on Figure 2-7.

Any potential amendments to the IPM EA, as a result of interactions with the Isaac Downs Project, are expected to be minor, with an application made for EA amendment, as required. The proponent will enter into an arrangement with IP Coal for the provision of infrastructure and services (e.g. coal washing) for the Isaac Downs Project.



LEGEND

- IPM ML 70342
- Cadastral Boundary

Infrastructure Associated with ID Project

- Mine Water Pipeline
- Raw Water Pipeline
- 66kV Powerline
- Optic Fibre
- ROM Haul Road
- Possible Dragline Walk Route

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Existing and Proposed Infrastructure on IPM Mining Lease

Figure 2.7

2.4 Resource and Geology

Isaac Downs is a small deposit south of IPM and west of the Millennium mine. Total resources are estimated as 35 Mt. The Leichhardt and Upper Vermont plies of the Rangal Coal Measures form the principal economic coal resources in the lease area. The deposit is bound by a major (>50m) regional scale reverse structure (Isaac fault) in the north and east

Isaac Downs is located in the northern part of the Permo-Triassic Bowen Basin containing principally fluvial and some marine sediments. The economic seams are contained in the Late Permian Rangal Coal Measures which are approximately 100 m thick. The Rangal Coal Measures are underlain by the Fort Cooper Coal Measures and overlain by the Late Permian to Early Triassic Rewan Group. The transition from the Rangal Coal Measures to the Rewan Formation is 15 to 60 m above the first major seam of the Rangal Coal Measures. The Fort Cooper Coal Measures comprise typically tuffaceous sandstones, siltstones, mudstones and coal seams. The transition between the Rangal Coal Measures and the Fort Cooper Coal Measures is generally clearly marked by the Yarrabee Tuff - a basin-wide marker bed comprised of weak, brown tuffaceous claystone. The first coal seam of the Fort Cooper's is the Girrah Seam which is 25 metres or more below the Vermont Seam within the Project area. Regional stratigraphy of the Bowen basin is shown in Figure 2-8.

The Leichardt and Vermont coal seams of the Rangal Coal Measures dip to the east and will be mined within the open cut pit. The major geological units in the Project Area are, from shallowest to deepest:

- Tertiary sediment and river alluvium
- Permian age Rangal Coal Measures, including:
    - sandstone, siltstone, mudstone, tuff, conglomerate
    - Leichhardt (LHD) coal seam (~4.5 m thick)
    - Vermont (VER) coal seam (~2 m thick).

Alluvium occurs along the Isaac River. The alluvial sediments comprise a fining-upward sequence of unconsolidated sand, silt, clay, gravel, and lithic fragments. The alluvium may extend to a distance up to 750 m from water courses. However, the lateral extent of alluvium may be highly variable.

In the Project area, the Rangal Coal Measures dip to the east to north east (2 to 6 degrees) and include interbedded sandstone, siltstone, and lesser amounts of carbonaceous mudstones, coal, and tuff. A weathered zone extends to 15 m to 30 m below ground level. Typically, the Leichhardt Coal and Vermont Coal Seams occur as a singular package, in very close proximity, with splits in some areas up to 30 m.

Local stratigraphy of the Project area is typical of the regional stratigraphy and is outlined in Table 2-1, and shown in Figure 2-9.

The State mapped surface geology is shown in Figure 2-10 and comprises alluvium along the Isaac River and cover Quaternary colluvium/Tertiary weakly consolidated sediments overlying the Permian Rangal Coal Measures. The State mapped Isaac River alluvium is approximately 1 km to 1.5 km wide. Tertiary age basalt (associated with olivine lava flows) potentially occurs north-west of the Project mining area.

Figure 2-8 Regional Stratigraphy of the Bowen Basin

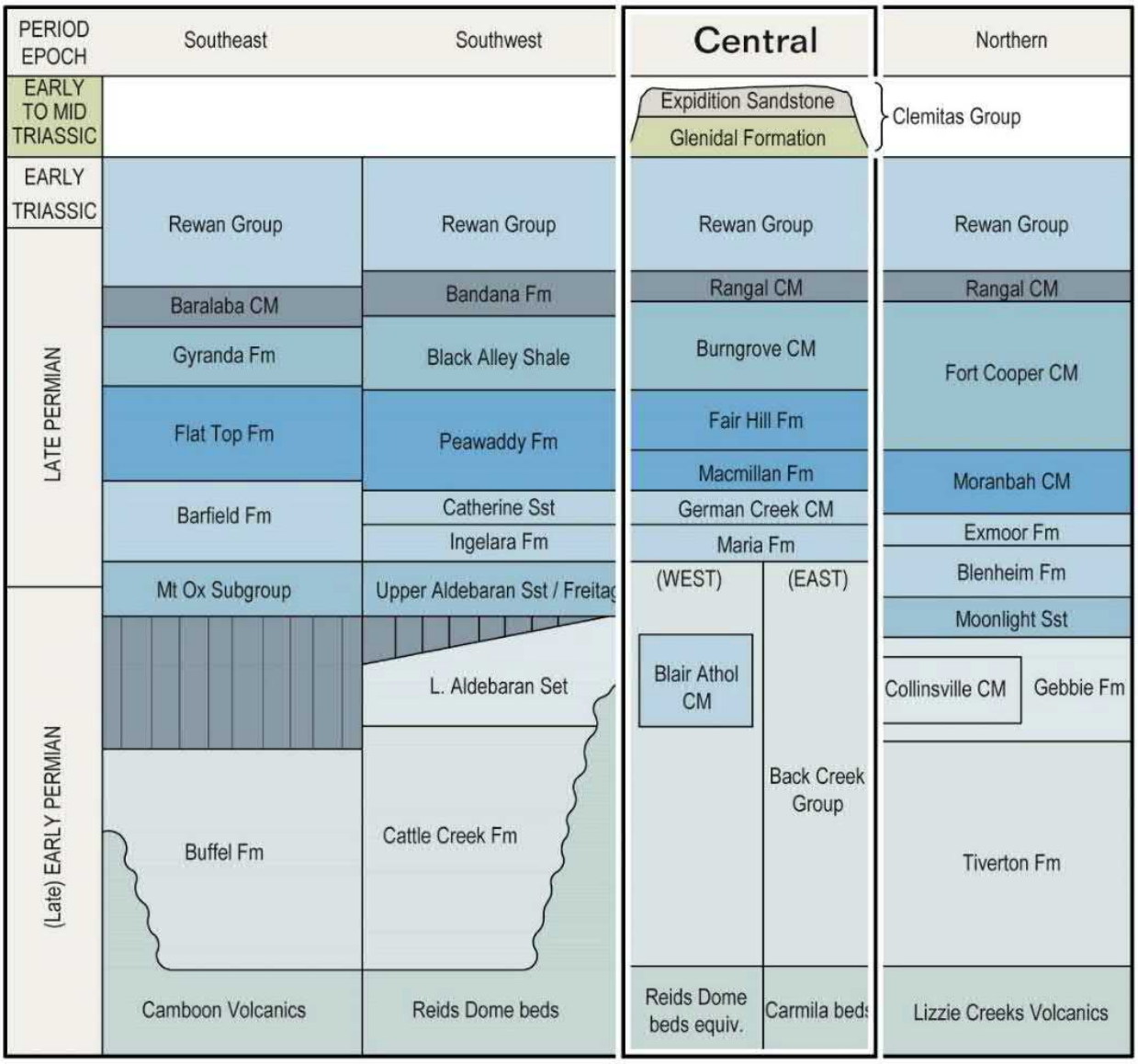
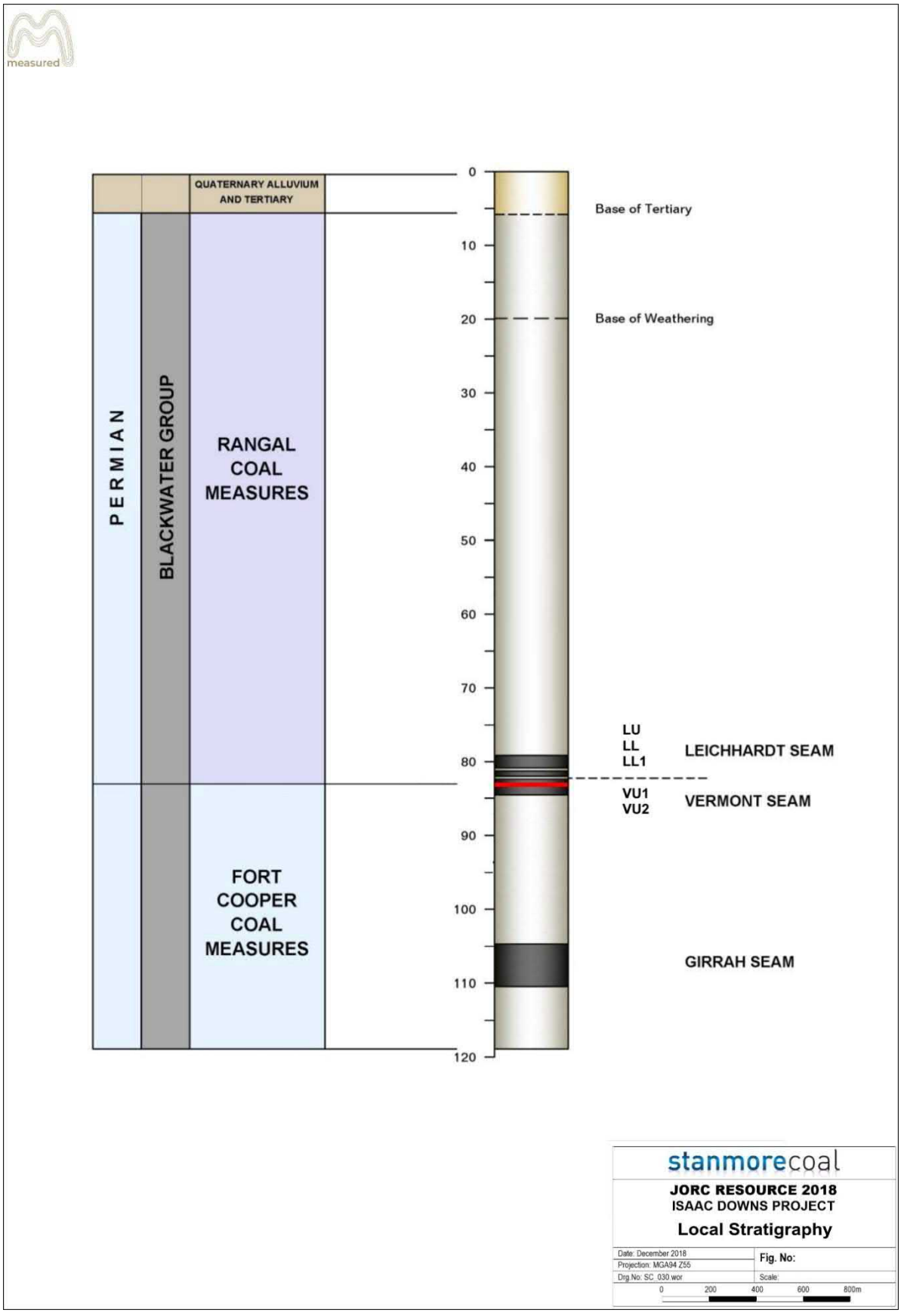
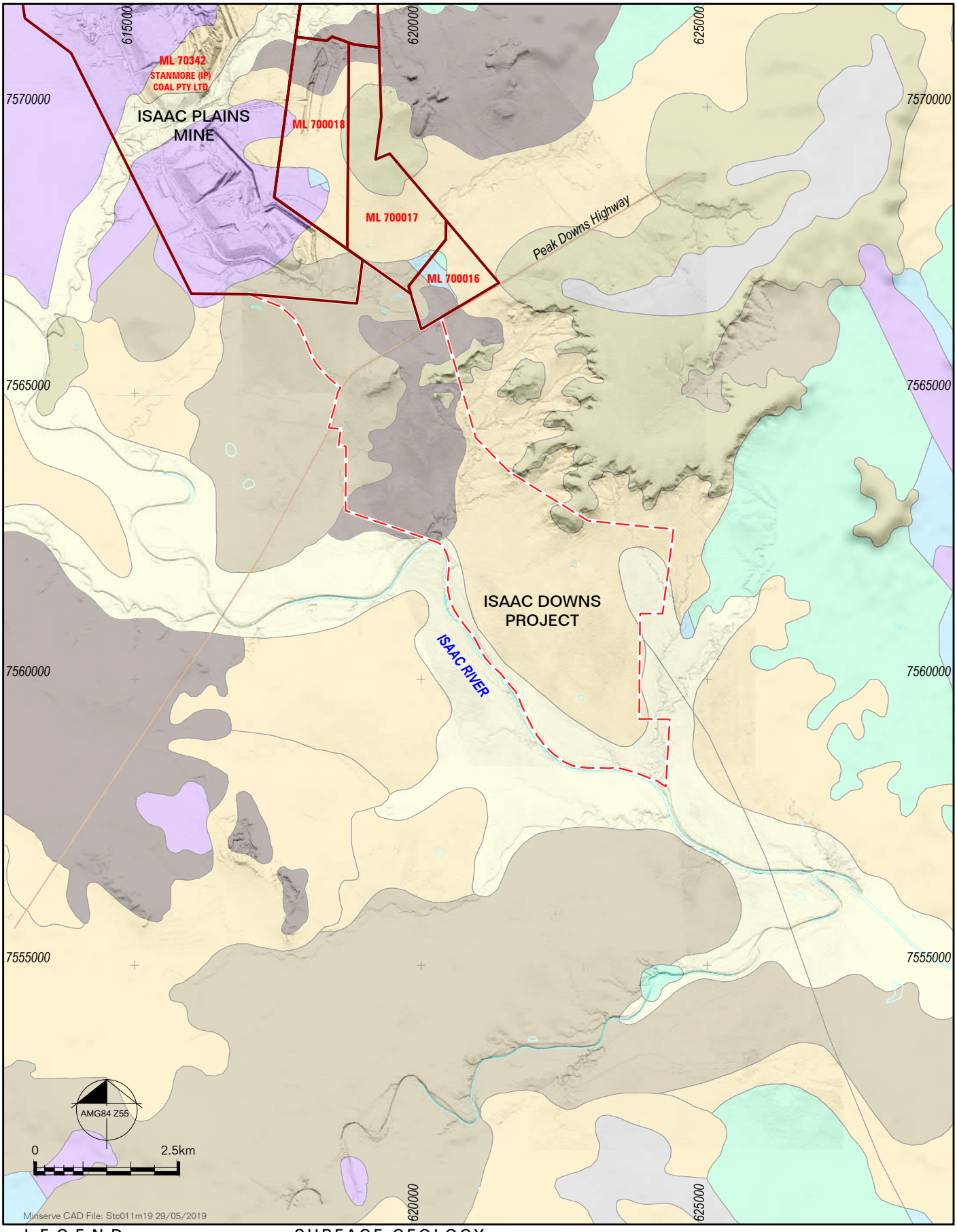


Table 2-1 Isaac Downs Local Stratigraphy

Unit	Description
Unconsolidated material (0-8m thick)	Tertiary soils and/or unconsolidated sand/silts derived from the underlying Permian sediments.
Rangal Coal Measures overburden	Dominantly medium grey siltstones and fine to medium grained light grey sandstones
Immediate coal roof (1-2m thick)	Dark grey carbonaceous siltstones with gradational contact to coal
Coal/s (5-6m thick)	Dull to bright coal plies (0.45-1.9m thick) separated by <0.5m siltstone or carbonaceous siltstone beds. Occasional tuffaceous siltstone
Immediate coal floor (3m)	Dark grey siltstone, occasionally tuffaceous
Fort Cooper Coal Measures overburden	Dominantly medium grey fine to medium grained sandstones with occasional siltstone beds
Fort Coopers coal	Dull to medium bright coal plies (0.5-2m) separated by <0.5m tuffaceous sandstones, siltstones, mudstones and tuffs

Figure 2-9 Local Stratigraphy





LEGEND

- IPM MLs
- Proposed ID Project MLAs
- Drainage
- Roads

SURFACE GEOLOGY

Qr	Quaternary
Qa	Quaternary Alluvium
TQa	Quaternary Colluvium
Tb	Basalt
Tu	Suttor Formation
Pwt	Foot Cooper Coal Measures
Rr	Rewan Group
Pwj	Rangal Coal Measures

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Surface Geology

Figure 2.10

2.5 Mining Process

2.5.1 Permits to Disturb

All ground disturbances will be subject to a disturbance permitting system which considers a number of factors, including:

- State and Commonwealth approvals
- need for the disturbance
- method of disturbance
- spotter catcher requirements
- drainage and sediment control requirements
- vegetation status
- cultural heritage matters
- vegetation and topsoil recovery; and
- rehabilitation.

2.5.2 Vegetation Clearing

Following cultural heritage clearances, progressive clearing of pasture grasses, tree and shrub regrowth, and remnant vegetation will be required ahead of topsoil stripping for the bulk of the mine areas, overburden dumps and infrastructure areas. Clearing will be undertaken progressively, as areas are required for mining, to minimise exposed areas. Ecology studies will involve the ground truthing of areas to accurately map the proposed disturbance areas for specific vegetation domains and fauna habitat.

2.5.3 Topsoil Stripping

Following vegetation clearing, topsoil will be recovered using available machinery. Topsoil will either be used directly on progressive rehabilitation or stockpiled for later use if no areas for rehabilitation are available at the time of stripping. Topsoil stockpiles will be appropriately located and sized to minimise loss of biological and physiochemical integrity. An inventory of topsoil will be maintained on site which records details such as stripping and stockpiling date, quantity, stabilisation treatments, analysis results and usage location. Appropriate topsoil stripping depths will be determined throughout the soils surveys of the Project area.

2.5.4 Levee Construction

A levee will be progressively constructed along the Isaac River to protect mining activities from flood events (Figure 2-2). The levee will be designed in accordance with The Manual for assessing consequence categories and hydraulic performance of structures (Queensland Government, 2016) with a flood immunity level for the 1:1000 annual exceedance probability (AEP) flood event. The levee will be designed and certified by a suitably qualified person (i.e. registered professional engineer Queensland (RPEQ)). Levee construction will occur prior to mining in 1:1000 AEP flood zone. The levee will be constructed from borrow material within the disturbance footprint and / or from suitable overburden material. The exact location of the levee will be determined through engineering and geotechnical studies, but will be located outside the high bank of the Isaac River and to minimise impacts on the zone of riparian vegetation identified through field ecology studies.

2.5.5 Overburden Removal

The mine will utilise an open cut mining technique where strips and blocks will be mined in succession, thus allowing waste from one strip or block to be dumped into a previously mined out area. Waste from an initial strip or boxcut will be dumped into a predetermined out of pit dump. Stripped topsoil and box

cut overburden will be stockpiled for later use in mine rehabilitation. Overburden may be utilised in the construction of associated infrastructure such as roads and water management structures.

After topsoil has been removed from a strip, the overburden waste material will be drilled and blasted and subsequently removed by a combination of dragline, truck/shovel, truck/excavator or dozer push methods in order to expose the top coal seam. Dozer ripping will be considered if the waste thickness is too thin for blasting.

2.5.6 Coal Recovery

Mining the top seam will continue along the length of a strip or terrace until the end of the strip or terrace is reached. Once the top seam has been mined out, successively deeper coal seams will be mined in a similar fashion through to the designated basal seam, whereupon the strip will become available as a dumping destination.

The coal will be mined using front end loaders and excavators and placed into rear dump trucks for haulage. The haul trucks will transport the coal along the strip or terrace, up a coal ramp out of the pit, then along a haul road to a ROM coal stockpile area located near the pit (Figure 2-13). The coal will be dumped onto a stockpile, from where it will be loaded onto road trains (or similar) for transport to the IPM CHPP.

The Project will extract approximately 3.2 Mtpa run of mine (ROM) coal over the first 9 years, with steady state production profile of 3 - 4 Mtpa, and then approximately 1 Mtpa over the next 7 years, as the strip ratio increases. Annual coal production will depend on resource depth and market conditions. Mining operations will occur on a continuous 24 hour, seven day a week cycle.

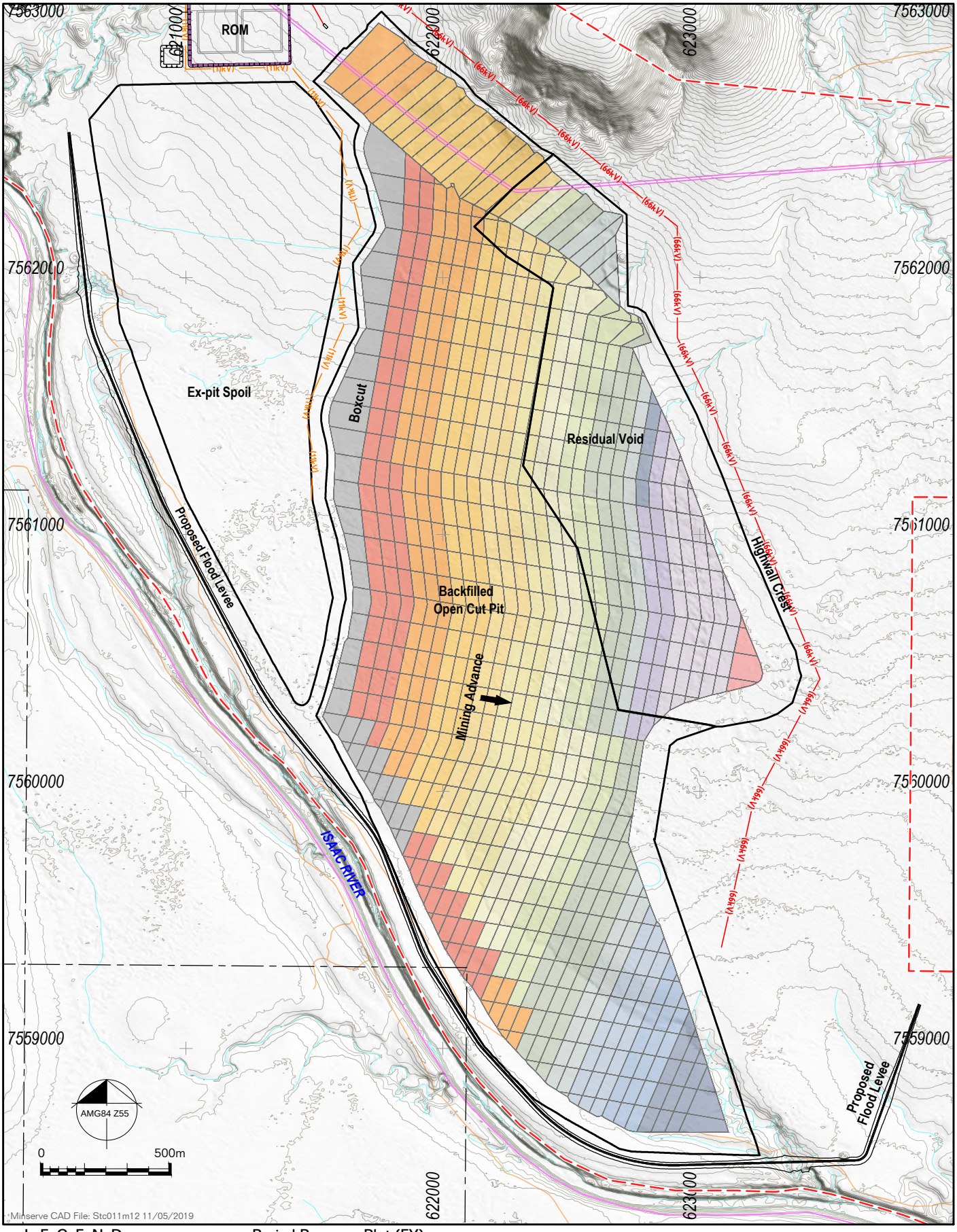
The indicative mining schedule sequence is shown in Figure 2-11.

2.5.7 Landform Reshaping and Drainage

Reshaping involves grading the surface of the disturbed area so that it conforms with the final landform and proposed post-mining land use design criteria. The most significant areas that will require reshaping are the overburden dumps. Areas will be reshaped as they become available following which the balance of the rehabilitation process will be undertaken. Once reshaping is completed, constructed drainage may be required to ensure protection from erosion.

A residual void will remain at mine closure and will not be located in a floodplain. Stanmore will investigate options for a post mining land use of the residual void area, which will include the benefits and costs of residual void use options. The residual void will be safe, structurally stable and non-polluting, and may have a post mining land use. The reshaped final landform will not require a levee to protect the residual void from flooding and the levee will be incorporated into the final landform.

The proposed final landform, with residual void area, is shown in Figure 2-12. The levee will be maintained until rehabilitation of the final landform is established; following which the levee will be graded into the adjoining landform area and rehabilitated.



L E G E N D

- Proposed ID Project MLAs
- Drainage
- Roads - Major; Minor
- Railway
- Cadastral Boundary

Period Progress Plot (FY)

1	7	13
2	8	14
3	9	15
4	10	16
5	11	
6	12	

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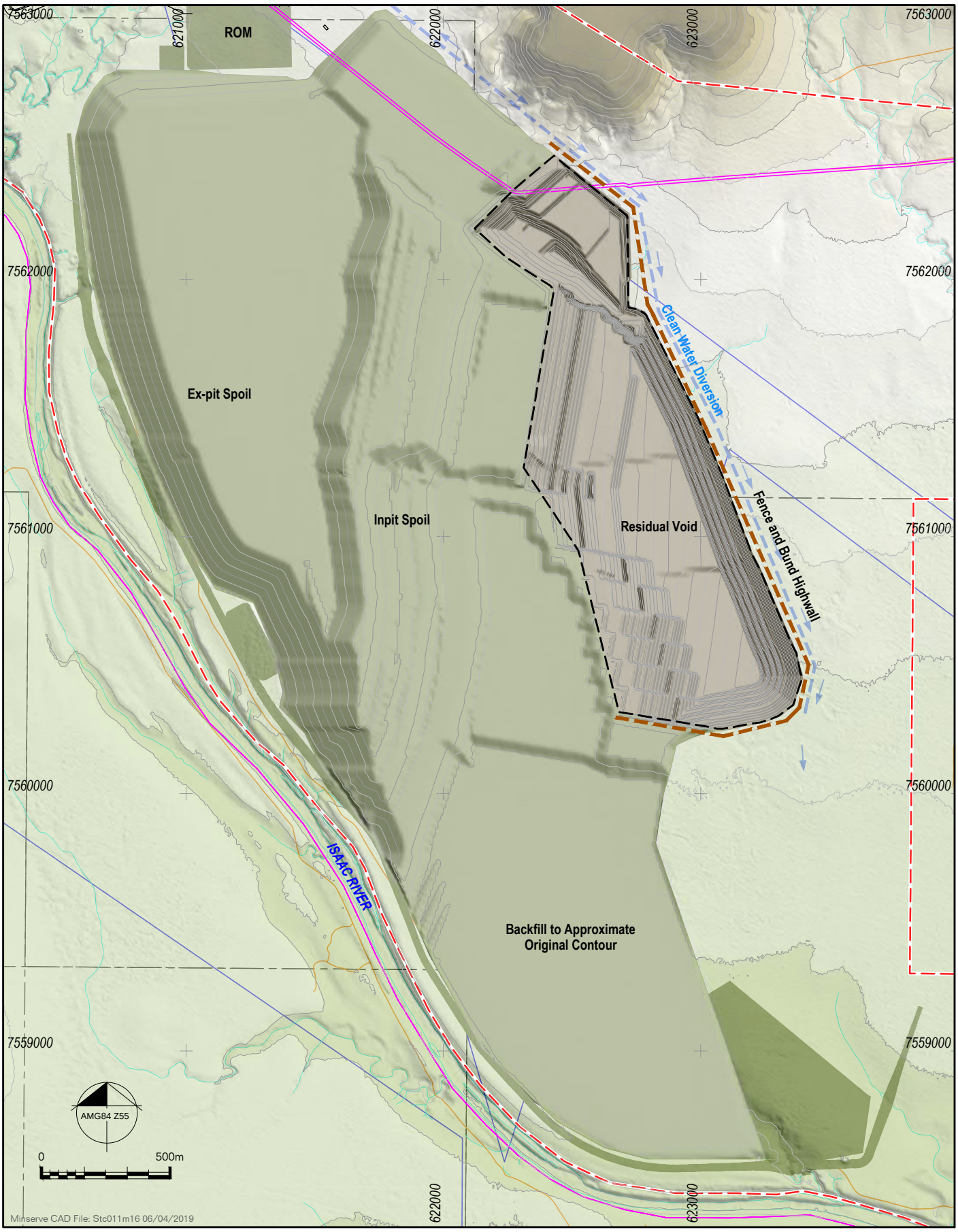
Indicative Mining Schedule

Figure 2.11



LEGEND

- Proposed ID Project MLAs
- Drainage
- Roads - Major; Minor
- Railway
- Cadastral Boundary

Mining Activity

- Residual Void
- Established Rehab
- Rehabilitated Infrastructure

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Proposed Final Landform

Figure 2.12

2.5.8 Topsoiling, Seeding and Revegetation

Following reshaping and the construction of drainage, topsoil will be spread over the surface of the final landform. The depth at which topsoil will be spread will be determined through soils surveys.

Seedbed preparation will typically involve ripping along the contour using a dozer with tynes mounted behind the machine. Ripping depth will generally be between 0.4 m and 1 m. Ripping along the contour reduces the potential for erosion by creating a key between the topsoil and underlying material, promoting infiltration and providing a barrier to down slope runoff. Seeding with the appropriate seed mix for the rehabilitation domain, fertilising and addition of any other soil ameliorants, if required, will be undertaken following the preparation of the seedbed. Timing will be dependent on the selected methodology, machinery availability, ground conditions and weather conditions.

2.5.9 Rehabilitation Maintenance and Monitoring

During the establishment of vegetation on areas of rehabilitation, erosion or other factors may result in the requirement for maintenance activities. Maintenance activities may include the following:

- repair of erosion areas
- reseeding
- fertiliser or other ameliorant application on areas of poor establishment; and
- repair of drainage structures.

Rehabilitation monitoring will be included in the site monitoring program. Monitoring of rehabilitation will commence when there are sufficient areas available which have successfully established. Monitoring will focus on key indicators relevant to the proposed post-mining land use.

2.5.10 Mining Equipment

The mining fleet will comprise conventional mining equipment, similar to the following list:

- dragline (5000 – 6000 t)
- approximately two excavators for waste removal (~ 10 million bank cubic metres per annum (bcmpa) each)
- one smaller (approximately 190 tonne) tonne excavator for waste and coal (~ 3.7 M bcmpa - 60% waste, 40% coal)
- one small excavator with straight blade for thin coal and scalping
- ten 240 tonne Rear Dump trucks for waste (approximately Cat 793 size for the large tonne excavators)
- four 140 tonne Rear Dump trucks for waste and coal (approximately cat 785D size for the smaller tonne excavator)
- three or four track dozers
- one rubber tyre dozer
- two graders
- two water trucks
- one overburden drill.

Equipment requirements will be further assessed during the Bankable Feasibility Study.

2.6 Haul Road, Access Road and Dragline Walk Route

A dedicated haul road will be constructed between the pit area and existing haul roads on the IPM MLs, approximately 5.5 km in length and 20 m wide. The haul road will be used for transport of ROM coal by off-road trains, or similar. Various route options are currently being assessed (subject to safety, environmental and tenure considerations), with the preferred route option shown in Figure 2-13. A haul

road underpass will be constructed beneath the Peak Downs Highway, based on designs previously approved by DTMR for another project that did not proceed. The design concepts for the underpass have been discussed with DTMR.

An access road will be constructed from the Peak Downs Highway to the site offices and MIA, approximately 2.5 km in length and 15 m wide. Various route options are being assessed (subject to safety, environmental and tenure considerations) with the preferred route option shown in Figure 2-13. DTMR will be consulted about the access road intersection with the Peak Downs Highway. The access road will cater for employee transport, freight deliveries, and other light vehicles.

The haul road will require a crossing of 5 Mile Gully on Isaac Downs and Billy's Gully (on ML 70342). The access road will cross 5 Mile Gully. The crossings will be subject to detailed design, which include environmental and engineering considerations. Crossings of the haul road and access road may be established to allow for the landholder to move vehicles and stock around the property.

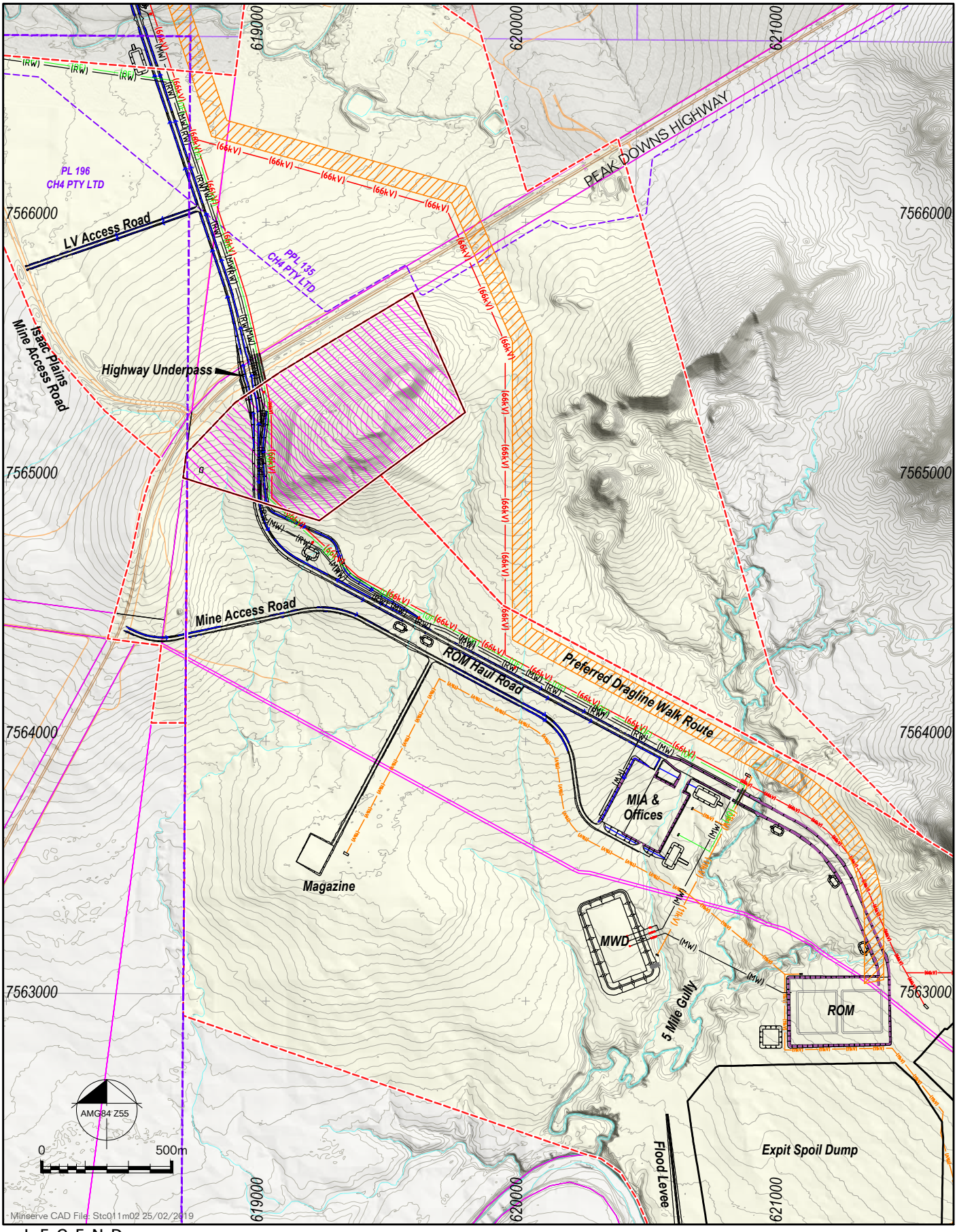
The dragline currently operating at IPM will be walked to Isaac Downs for commencement of mining and return to IPM once mining at Isaac Downs is completed. The walk route is likely to be different to the haul road and access road, but will be short duration (e.g. days to a few weeks), with temporary crossings of gullies and the Peak Downs Highway the only route modifications required. DTMR will be consulted about the temporary crossing of the Peak Downs Highway. The potential dragline walk route is shown in Figure 2-13.

2.7 Quarry Material

A State owned Quarry Reserve (DTMR as Trustee for the land) is located adjacent the proposed haul road. The proponent proposes to investigate the suitability of the quarry material, primarily for haul road and access road construction.

2.8 Power Supply

IPM is connected to the electricity supply grid through a substation at IPM. This substation has available capacity to supply power to the Isaac Downs Project for the MIA, offices and dragline. Overhead powerlines will follow the either the haul road route and make use of the Peak Downs Highway underpass, or follow the dragline walk route and be tunnelled beneath the Peak Downs Highway (Figure 2-13).



LEGEND

- Coal Mining Lease
- Proposed ID Project MLAs
- Quarry Reserve
- Petroleum Leases
- Petroleum Pipeline
- Drainage
- Roads - Major; Minor
- 1m Topography Contours
- Cadastral Boundary

ISAAC DOWNS PROJECT

stanmore IP South

Infrastructure Layout

Figure 2.13

2.9 Water Supply

Water demand at Isaac Downs will primarily be for dust suppression and vehicle washdowns. The initial estimate of the volume of water required for these purposes is 550 ML p.a.

Water for dust suppression will be obtained from mine affected and sediment affected water stored on site, in accordance with the water management plan that will be developed for the site. If water for dust suppression is not available at Isaac Downs it will be pumped from existing void and dam water storages at IPM. A pipeline will be constructed adjacent to the haul road, that allows for mine water to be pumped between Isaac Downs and IPM, under a general beneficial use approval.

Raw water is currently supplied to IPM via the Eungella Burdekin water supply pipeline under contract with SunWater. The requirement for raw water at Isaac Downs will be limited to vehicle washdowns and fire fighting water storage (approximately 40 ML p.a.). IPM does not currently utilise the full capacity of water available under contract with SunWater. Isaac Downs will have minimal impact on the volume of raw water required and additional capacity from SunWater supplies are not expected to be required.

Water pipelines will be located on surface alongside the haul road (including the Highway underpass) for the bulk of the route and will be buried at watercourse crossings and anywhere else required by landholders to allow for cattle/vehicle movement.

Potable water for the administration office facilities will be trucked to site, or a small potable water processing facility (treating SunWater raw water supplies) will be established.

2.10 Water Management

A water management plan will be developed for the Project. The conceptual water management strategy is for separation of mine affected water, sediment affected water and clean water. Clean water from upgradient of the mining activities will be diverted around the mine site into the 5 Mile Gully north of the mining activities or an unnamed gully (referred to as Southern Gully in this document), south of mining activities. Mine affected water will be collected in the pit before transfer to a turkey's nest mine water dam or transfer via a water pipeline to an existing void storing mine water at IPM. A mine water balance will be prepared for Isaac Downs, which integrates with water management at IPM. Mine water will be released in accordance with EA approved release criteria linked to flows and water quality in the Isaac River. Design and sizing of the mine water dam will be undertaken as part of the detailed water balance for the Project, and assessment will be made of whether the mine water dam is a regulated structure. Indicative sizing and location of the mine water dam is shown in Figure 2-13. Sediment affected water will be captured in sediment dams, designed in accordance with relevant engineering standards, to allow settlement of sediments before release of water. Water from site water storages will be used for dust suppression. No gully, creek or River diversions are proposed for the Project.

2.11 Mine Infrastructure Area and Offices

The proposed MIA and offices are shown in Figure 2-13. The MIA will include a workshop servicing mining equipment, fuel storage, lubricant storage, washdown pad, consumables storage, tyre storage, and heavy and light vehicle parking. Approximately 250,000 L of fuel will be stored in self bunded fuel tanks for use by heavy and light vehicles. Approximately 90,000 L of lubricants and oils will be stored onsite in bunded storage areas.

A mine administration office will be located near the MIA. An onsite sewage management system will be connected to the MIA and offices. The MIA will include controls for capture and treatment of runoff, and removal of potential contaminants, before transfer of water to the mine water dam.

A blast magazine (Figure 2-13) will be located at a safe separation distance from the MIA and mine operations.

2.12 Non-Mining Waste Management

Non-mining waste will include general waste from office and MIA, potentially regulated waste from the MIA, and potentially sludge from a sewage treatment plant. Treated effluent from the sewage treatment plant will be used for irrigation.

Non-mining waste will be managed in accordance with existing methodologies at IPM, including use of licensed waste contractors and disposal of tyres in the dumps. Non-mining waste will be collected onsite and transferred to an appropriately licensed waste disposal facility locally or regionally. Waste will be stored in a dedicated waste storage area, designed to separate waste types and prevent waste from being released to the environment.

2.13 Decommissioning and Rehabilitation

The *Mineral and Energy (Financial Provisioning) Act 2017* (MERFP Act) is expected to commence in 2019. The MERFP Act will require application for a Progressive Rehabilitation and Closure Plan (PRCP), which will describe the proposed rehabilitation milestones and criteria for the Project. Rehabilitation and mine closure planning will be undertaken based on the expected requirements for approval of a PRCP schedule. At the conceptual stage of mine planning and environmental assessment, the proposed rehabilitation and closure strategy is:

- No residual voids within a floodplain.
- Final landform shaping, including dump profiles, such that a levee is not required post mine life.
- Minimising the size of the residual void, having consideration for confinement of environmental harm to the relevant tenure, potential land use options, potential costs involved and the public interest.
- Investigating options for a post mining land use for the residual void, considering potential costs and benefits.
- Grazing final land use on post mining land use areas, which is the current primary land use.
- Infrastructure may be retained for the landholder, such as roads or dams, subject to agreement with the landholder.

The general goals for the Project decommissioning, rehabilitation and closure are to ensure the site is:

- safe to humans and wildlife
- non-polluting
- stable and
- able to sustain an agreed post-mining land use, other than, potentially, the residual void.

In informing post mining land use options for the residual void, an assessment of the residual void water levels and water quality will be conducted. It is anticipated that the residual void will create a localised groundwater sink which would prevent void water from migrating from the Project area.

The site specific objectives for rehabilitation and criteria for measuring rehabilitation success will be developed through the approvals process. The rehabilitation of mining disturbance will occur progressively as it is integrated with the mining process.

Infrastructure decommissioning and rehabilitation will occur as facilities are no longer required, but generally once Project operations have ceased. The process will include removal of structures, reshaping, topsoiling, seeding, soil amelioration, maintenance and monitoring. Infrastructure may be retained for the benefit of the landholder, subject to agreement with the landholder.

Land not impacted by mining activities will be retained as grazing land or remnant vegetation, including vegetation that will be retained within environmental buffers along waterways.

2.14 Workforce

Approximately 250 people will be employed during the construction phase, which is expected to last 6 – 12 months. Approximately 300 people will be employed during the operations phase. IPM employs approximately 230 people, and a similar workforce will be transitioned from IPM to Isaac Downs resulting in a near steady state workforce.

The accommodation strategy for the workforce is likely to be similar to the current strategy used by IPM, with the majority of the workforce residing in existing, local mining village accommodation and some workers residing in local towns, such as Moranbah.

2.15 Traffic and Transport

The Project is expected to result in insignificant changes to transportation requirements and existing traffic on public roads, when compared with traffic and transport generated by IPM, as Isaac Downs traffic and transport will be transitioned from IPM traffic and transport.

In addition, transport of equipment, vehicles and personnel from IPM to Isaac Downs will occur via the haul road or access road and therefore have very limited interaction with the Peak Downs Highway.

3. EXISTING ENVIRONMENT AND POTENTIAL IMPACTS

3.1 Climate

Central Queensland has a sub-tropical continental climate characterised by high variability in rainfall, temperature and evaporation. The region can experience droughts, floods, heatwaves and frosts. In general, winter days are warm and nights are cool, while summer days are hot and nights are warm. Rainfall is summer dominant with almost half of the average annual rainfall occurring from December to February due to storms and tropical lows associated with cyclones.

Based on data from the Bureau of Meteorology (BoM) weather station at the Moranbah water treatment plant (Katestone, 2016), the average maximum daily temperature at the Moranbah monitoring station is 33.6°C, recorded during summer. The average minimum daily temperature at the monitoring station is 10.7°C, recorded during winter. The annual average rainfall is 615 mm, with the maximum monthly average rainfall of 105 mm occurring in January. The annual pattern of rainfall illustrates the sub-tropical climate in the region where 50% of the annual precipitation occurs during the summer months of December to February.

Data on wind from IPM weather station shows: winds between 0 to 2 m/s were measured at the site 25.2% of the time, winds between 2 to 5 m/s were measured 55.9% of the time, strong winds (i.e. >5 m/s) occur 18.9% of the year, and calm conditions (i.e. winds of 0 m/s) occur for less than 1% of the year. Winds occur predominantly from the southeast, with moderate (2-5 m/s) and strong (> 5 m/s) winds occurring from these predominant wind directions (Katestone, 2016).

3.2 Land

3.2.1 Topography

The local topography in the vicinity of the Project is characterised by hills and outcrops in the east, that then drain gently sloping terrain to Isaac River (refer to Figure 2-2). The hills to the east of Project activities rise to approximately 310 m Australian Height Datum (AHD) from their base at approximately 250 m AHD. The terrain then slopes gently east to west from approximately 250 m AHD to 205 m AHD along the Isaac River. In the vicinity of the Project area, the Isaac River has a very shallow gradient, falling approximately 5 m over 5 km. The location of the Quarry Reserve is an outcrop rising to approximately 285 m AHD.

3.2.2 Soils

Based on publicly available data (Gunn et al. 1967) the major expected land systems and soil types, are:

- Gilgaied deep clays with acid subsoils
- Well-structured cracking clay with deep plant rooting depth (Vermont and Rolleston)
- Thin, hard setting texture contrast ‘uplands’- Taurus, Wyesby and Retro
- Alluvial texture contrast and uniform sands or loams - Springwood/Luxor and Clematis/Davy.

Soils survey will be undertaken to identify soils on site, stripping depths, any limitations, soils management and suitability for use in rehabilitation.

3.2.3 Land Use

The land use throughout the Project area is cattle grazing, with the majority of Project activities proposed in land that is already cleared. Grazing occurs in areas cleared of remnant vegetation, areas of regrowth, and remnant vegetation including the Isaac River and gullies feeding the Isaac River.

Within the local area, pastoral activities and coal mining are the primary land use. In this respect the Project is consistent with surrounding land uses.

It is intended that land will continue to be used for pastoral purposes until such time as it is required for operations. Non-operational land will remain available for pastoral uses throughout the life of the Project where safe.

3.2.4 Geochemical Characterisation

An overburden and rejects geochemical sampling program and analysis will be conducted. This will inform overburden management at the Project site, including any management required to achieve rehabilitation success criteria and manage runoff from overburden areas. Geochemical characterisation of overburden at IPM, which may be an indicator of geochemical characterisation at Isaac Downs, has demonstrated that the overburden is non-acid forming and would be regarded as posing a very low (negligible) risk of generating acidic run-off and/or seepage.

Rejects analysis will be used for comparison to existing geochemical information from rejects at IPM to confirm that the existing rejects managements plan at IPM is suitable for management of rejects from Isaac Downs coal.

3.2.5 Visual Amenity

The mining activities are located approximately 3.5 km from the nearest residence, and the transport corridor is approximately 1.5 km from the nearest residence. The Peak Downs Highway is approximately 3 km from mining activities and separated by hills and outcrops in places. There will be an underpass of the Peak Downs Highway with limited visual amenity impact on passing vehicles, in a landscape already characterised by mining activities. Moranbah is approximately 9 – 12 km from mining activities and therefore not subject to visual amenity impacts.

3.3 Surface Water

The Project is located in the Isaac River catchment, a sub-catchment of the upper Fitzroy Basin (refer to Figure 3-2). The Isaac River catchment covers an area of approximately 22,400 km^2, with the catchment to the Project area being approximately 2,700 km^2 (refer to Figure 3-3). The Isaac River commences some 69 km north of the Project area within the Denham Range. It drains in a south westerly direction through the Carborough and Kerlong Ranges before turning in a south easterly direction near the Goonyella Riverside Mine. It drains along the western boundary of the Project area, and eventually flows to the Mackenzie River some 190 km to the south east. There are several existing coal mines in the catchment including Burton, North Goonyella, Goonyella Riverside, Broadmeadow, Broadlea North, Isaac Plains, Caval Ridge, Poitrel, Daunia, Millennium and Moranbah North.

The dominant land uses within the Isaac River catchment include cattle grazing and coal mining. The Isaac River is a regionally significant watercourse located along the western side of the Project, flowing in a southerly direction. The Isaac River (and its tributaries) exhibit highly ephemeral, short duration, surface water flows that are typically restricted to the wet season (i.e. November to April). Surface water flows are typically non-saline to moderately saline and exhibit naturally elevated suspended sediment loads.

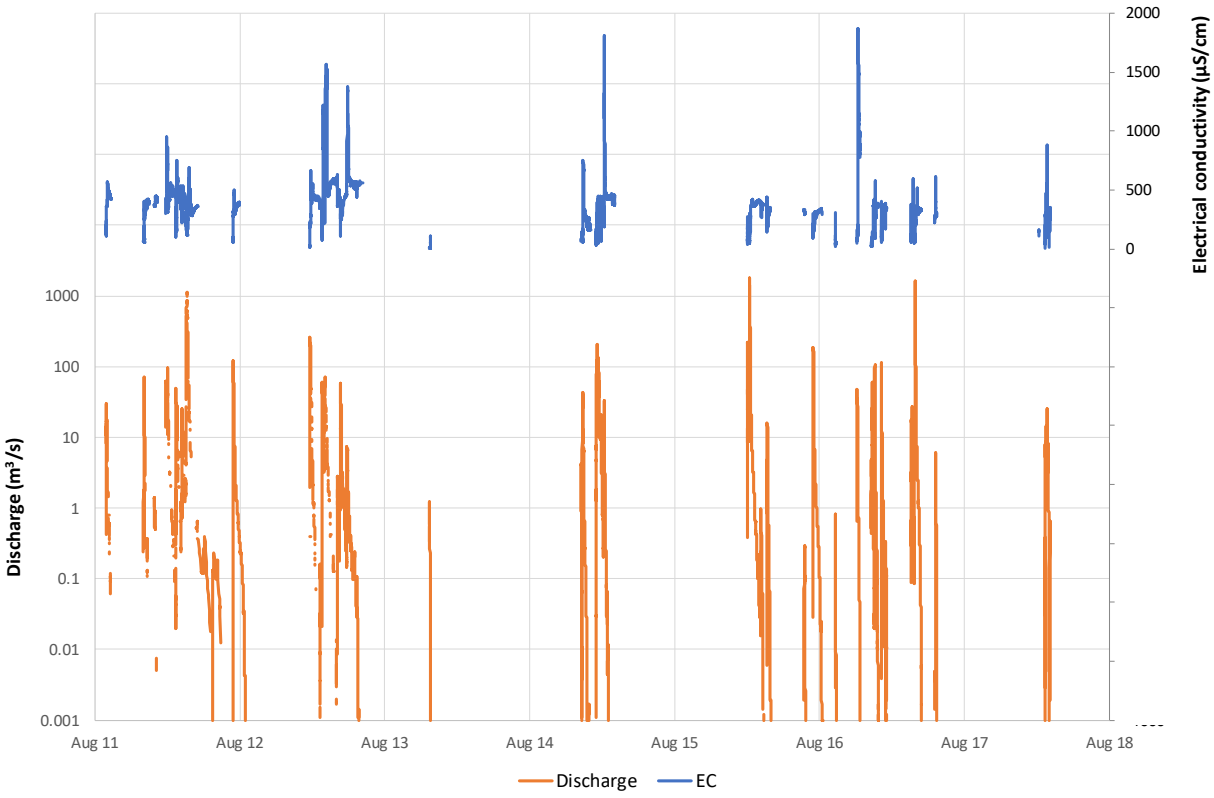
There are two local drainage features north and south of the proposed mining area; 5 Mile Gully to the north and an unnamed gully to the South, which is referred to in this document as ‘Southern Gully’ (refer to Figure 3-4). 5 Mile Gully has a very small catchment commencing in the hills immediately east of the Project area. Southern Gully is entirely downstream of the Millennium Mine, which forms the upper extent of this local catchment.

The catchments are slightly to moderately disturbed, with 5 Mile Gully being degraded due to pastoral activities and Southern Gully subject to potential impacts from Millennium Mine. The identified

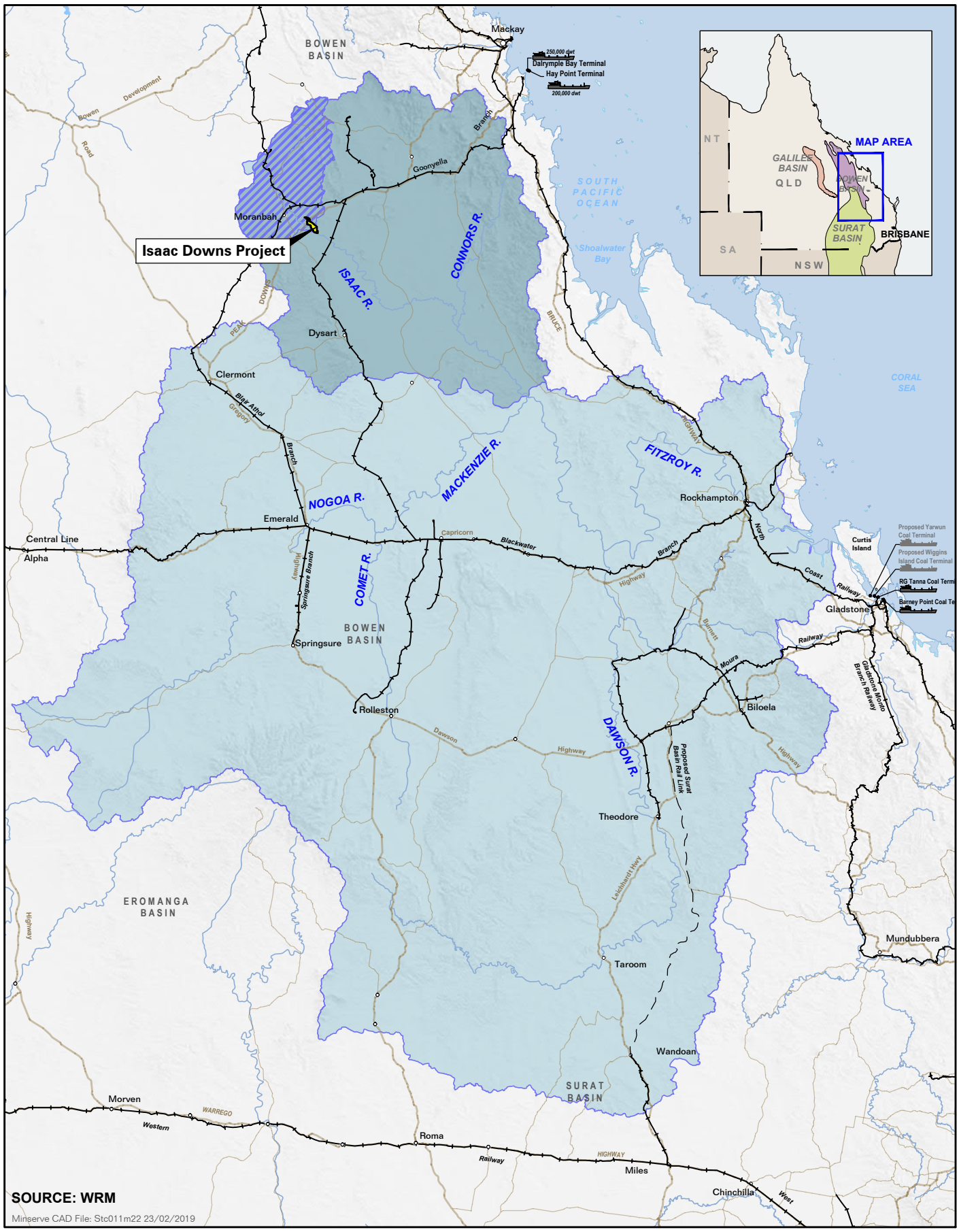
environmental values for the Isaac River in the Project area are aquatic ecosystems and limited use, being stock water and limited recreation. There is a State mapped palustrine wetland in the south east Project area (refer to Figure 3-7), located in an area subject to pastoral activities.

The Department of Natural Resources, Mines and Energy's (DNRME's) Deverill stream gauging station is located approximately 25 km downstream on the Isaac River and DNRME's Goonyella stream gauging station is located approximately 30 km upstream on the Isaac River. Figure 3-1 presents a time history of recorded instantaneous EC and stream flow for the Isaac River at Deverill gauging station between 2011 and 2018. The stream flows are highly ephemeral with baseflows ceasing within a few days or weeks of a runoff event.

Figure 3-1 Flow and Electrical Conductivity (Isaac River at Deverill Gauge)



The Project has the potential to impact surface waters through uncontrolled release of mine affected water, sediments or accidental release of contaminants. This will be managed through site water management controls. Crossings of 5 Mile Gully and Billy's Gully will be required, with potential for construction impacts, and changes to flow depending on design criteria. Cumulative impacts with other projects in the catchments will be assessed. The environmental values of surface waters will be identified and water quality objectives for the protection of environmental values will be determined. A surface water monitoring program will be developed and will be integrated with data available from existing flow gauges. Changes to surface water flows, resulting from permanent landform change, will be assessed.



SOURCE: WRM

Minserve CAD File: Stc011m22 23/02/2019

L E G E N D

- Isaac Downs Project
- Fitzroy River Catchment
- Isaac River Catchment
- Isaac River to ID Project
- Drainage
- Roads - Major; Minor
- Railway

NORTH

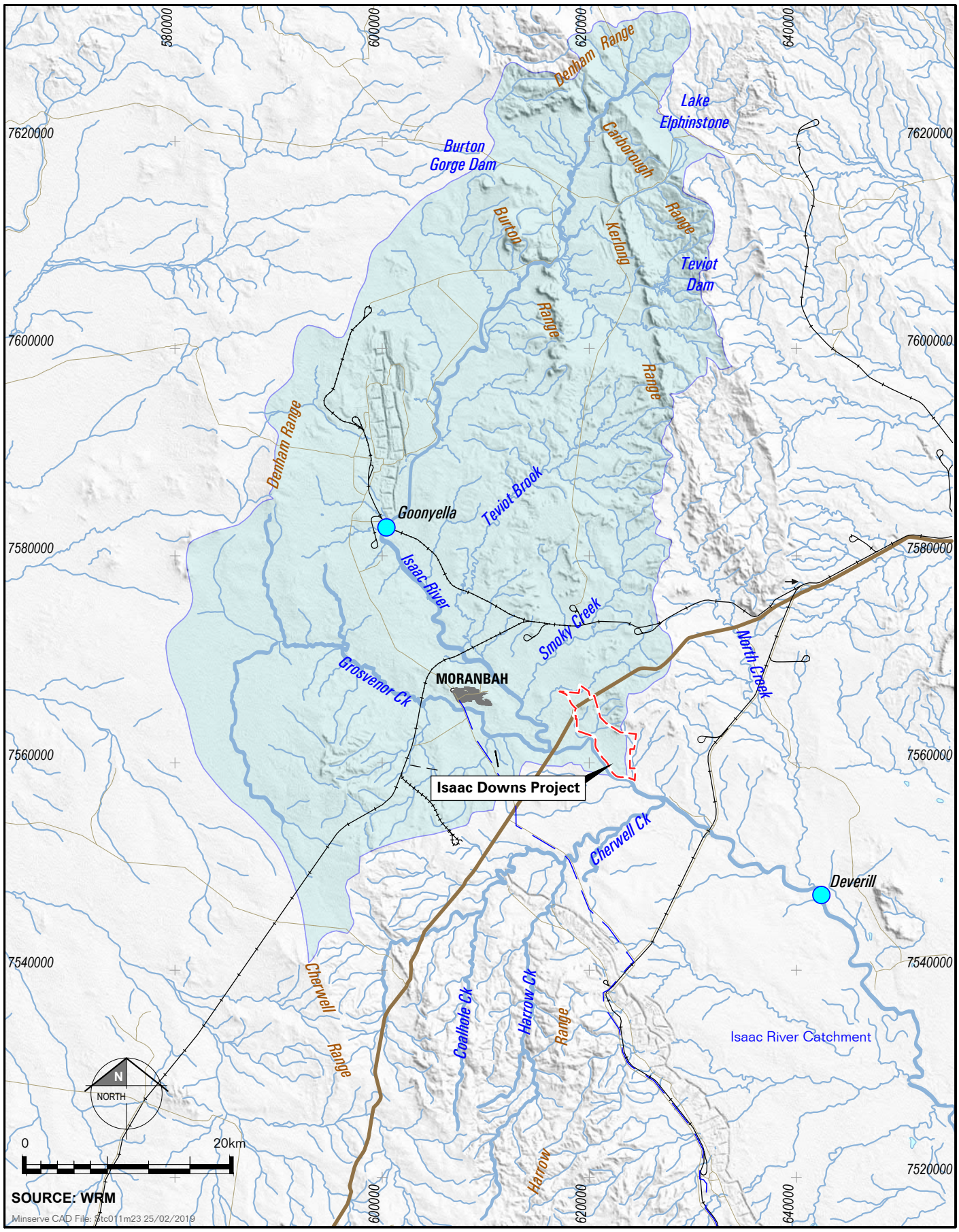
0 90km

ISAAC DOWNS PROJECT

stanmore IP South

Regional Catchments

Figure 3.2



L E G E N D

- Drainage
- Roads - Major; Minor
- Railway
- Proposed ID Project MLAs
- Isaac River to ID Catchment
- DES Stream Gauge
- Study Watercourse

ISAAC DOWNS PROJECT

stanmore IP South

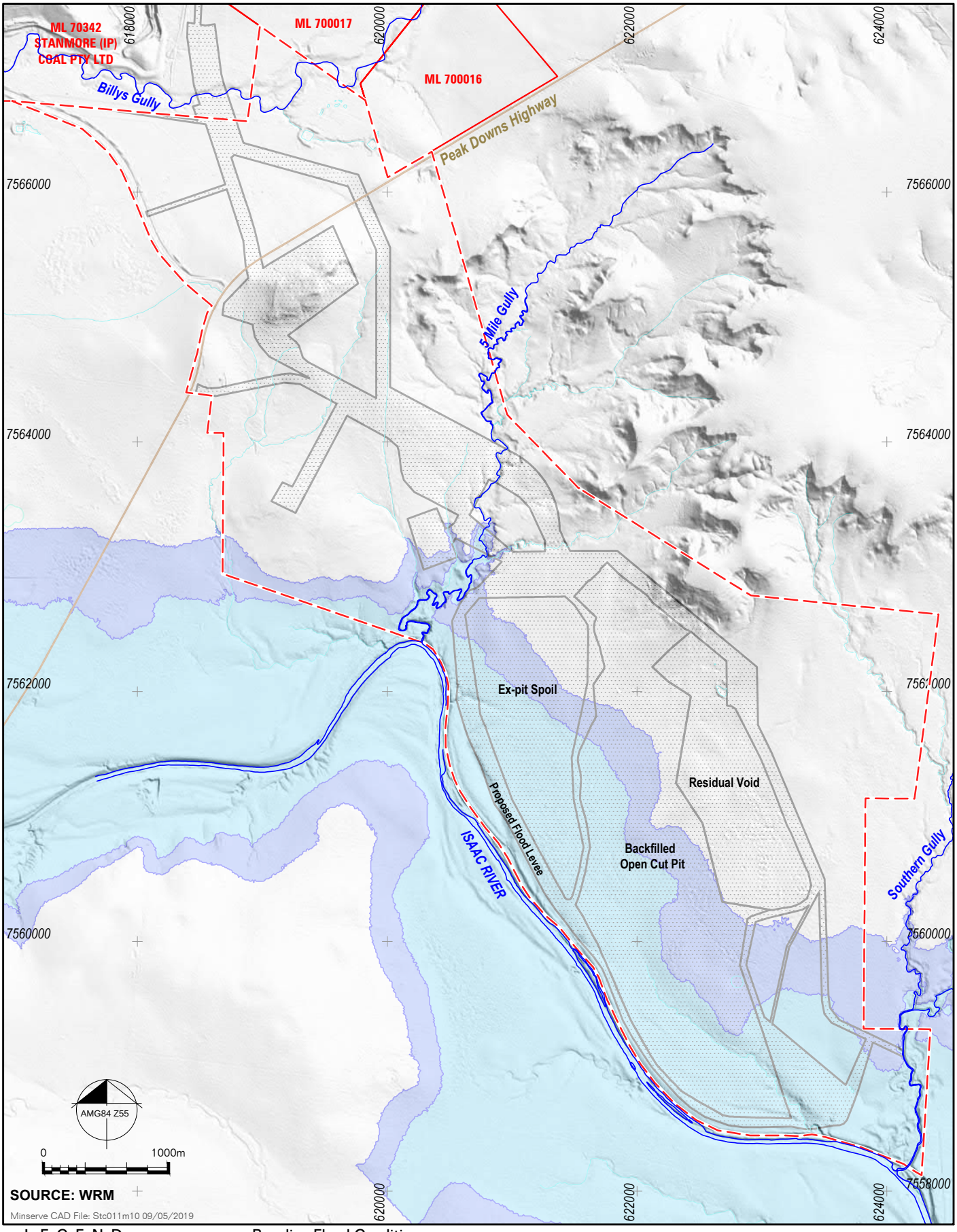
Local Catchments

Figure 3.3

3.4 Hydrology

The proponent has undertaken site specific baseline flood modelling for the Project (WRM, 2018). The results for the 1:1000 and probable maximum flood (PMF) events are shown in Figure 3-4. The residual void has been located outside of the pre-mining PMF zone. The influence of the levee on flood afflux and velocities will be modelled as part of impact assessment for the Project. The levee will be designed for the 1:1000 year flood event to protect operations. The MIA and office will be located outside of the 1:1000 year flood event.

Hydrological modelling will include third party infrastructure crossing the Isaac River (e.g. Peak Downs Highway bridge) and the influence of other resource projects. Potential impacts on the geomorphology of the Isaac River will be investigated as part of detailed hydraulic modelling. Levee design will consider measures to manage potential erosion.



L E G E N D

- IPM MLs
- Proposed ID Project MLAs
- Project Disturbance
- Drainage
- Roads - Major

Baseline Flood Conditions

- Probable Maximum Flood
- Q1000

ISAAC DOWNS PROJECT

stanmore IP South

Baseline Flood Conditions

Figure 3.4

3.5 Groundwater

The Rangal Coal Measures contain groundwater within the two coal seams. The interburden of the Rangal Coal Measures typically have a relatively low permeability and relatively low specific yield due to fine grained cemented sandstones, siltstones, and mudstones. Sedimentary rocks of the Rangal Coal Measures typically have a low average hydraulic conductivity because of inter-bedding with fine-grained siltstones and mudstones which have very low hydraulic conductivity. Higher hydraulic conductivity sedimentary rock may be encountered within the faulted and fractured zones. A decrease in permeability within coal seams typically occurs with increasing depth due to tightening of coal cleats from overburden pressure and transition from weathered to fresh rock.

Where they occur, coarser sediments of the Isaac River alluvium and paleo-channels are anticipated to have higher permeability and specific yield compared to finer grained sediments and the underlying Rangal Coal Measures. Exploration drilling into the alluvial sediments adjacent to the Isaac River has generally not intercepted significant groundwater supplies, although a small number of exploration holes have intercepted groundwater yields of up to 1 L/s. These groundwater yields suggest that the alluvial sediment at some locations is likely to function as a moderately productive unconfined aquifer. These drilling results confirm the sporadic occurrence of groundwater within the alluvium unit. The Isaac River is an incised and well defined river system. Groundwater levels within the alluvial aquifer are expected to fluctuate in response to seasonal recharge variability and flooding events.

Further information on groundwater levels, permeability and quality will be collected during and following establishment of the groundwater monitoring bore network.

In addition to existing bores in the local area, the proponent has installed network of groundwater monitoring bores to understand the hydrogeological regime and groundwater quality in the Project area. This monitoring bore network comprises:

- 3 test bores within the Tertiary basalt north of the mining area
- 12 new bores within the potential alluvium, along the Isaac River
- 6 new bores within the coal seam and overburden
- 4 existing bores within the coal seam
- 6 existing bores south of the Isaac River within the coal seam, developed as part of a mining project that did not proceed
- 1 existing bore south of the Isaac River within the alluvium, developed as part of a mining project that did not proceed
- 2 landholder bores, potentially within the alluvium
- additional landholder bores as identified with landholders.

Groundwater monitoring bores have been drilled in the Isaac River alluvium in locations identified as having potential for groundwater dependent ecosystems (GDEs). Fieldwork will be undertaken to establish the potential presence of GDEs, which involves collection and comparison of isotope samples from vegetation and groundwater, and an assessment of the moisture content in vegetation and shallow soils. Sampling for potential stygofauna will be undertaken from the network of monitoring bores.

The Project has the potential to result in localised drawdown to aquifers affected by open cut mining. A numerical groundwater model will be developed for the Project to assess potential impacts on the hydrogeological regime, including potential connections between alluvium and the Isaac River. The model will be informed by data from the network of groundwater monitoring bores. The numerical groundwater model will assess cumulative impacts with other resource projects in the region.

Water quality objectives for different aquifers will be established through the network of groundwater monitoring bores.

There is potential that vegetation dependent on groundwater may be impacted by drawdown from Project activities. This potential will be determined through a combination of groundwater modelling and fieldwork to identify GDEs. Potential impacts on stygofauna, if identified, will be assessed.

There are 5 landholder bores within 5 km of the proposed mining activities, although some of these bores are not expected to be operational. The proponent will conduct a bore census on these bores and proposes to monitor all relevant bores. Should modelling predict the potential to impact landholder bores, the proponent will enter make good agreements for alternative water supplies should impacts to bores be demonstrated to result from Project activities.

3.6 Ecology

The Project area occurs within the Brigalow Belt bioregion. State mapped regional ecosystems in the Project area shown in Figure 3-5, which shows a mosaic of remnant vegetation is mapped for the study area, the majority of which is associated with the Isaac River. Mapped remnant vegetation within the study area has been identified by the Queensland Government as supporting endangered regional ecosystems (EREs), of concern regional ecosystems (OCREs) and least concern regional ecosystems (LCREs).

An *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) protected matters search of a 20 km radius of the Project area was conducted, which identifies the potential for:

- 3 listed threatened ecological communities
- 22 listed threatened species comprising 6 birds, 1 fish, 5 mammals, 4 plants and 6 reptiles.
- 11 listed migratory species.

A search of the Queensland Wildlife Online database within a 20 km radius of the Project area was conducted, which identifies species records for:

- 5 vulnerable fauna species, all of which are included in the EPBC Act protected matter search
- 1 vulnerable flora species, which is included in the EPBC Act protected matter search
- 1 near threatened fauna species
- 2 near threatened flora species
- 1 special least concern fauna species

A dry season terrestrial ecology survey was conducted between 25/09/2018 and 05/10/2018. A wet season terrestrial and aquatic ecology survey is planned for the 2019 wet season (circa February to April 2019). The dry season ecology survey identified within or adjacent to the Project activities:

- Small fragments of ERE, being regional ecosystems associated with brigalow.
- OCRE near the Isaac River and in patches to the west of the proposed transport corridor.
- LCRE along the Isaac River, in the southern portion of the Project area, in the Quarry Reserve and north of the Peak Downs Highway near the transport corridor.
- Small patches of threatened ecological communities (TECs), being:
    - brigalow EREs
    - natural grasslands associated with OCRE west of the proposed transport corridor (not mapped within the Project footprint).
- Potential habitat for the following threatened fauna species:
    - koala, within remnant eucalypt woodland
    - squatter pigeon, within remnant vegetation near permanent and temporary water sources
    - greater glider, within remnant mature riparian eucalypt woodland
    - ornamental snake, within riparian vegetation areas and gilgais
    - Australian painted snipe within gilgais and wetland areas.
- potential habitat for the following threatened flora species:

- king blue grass (*Dichanthium spp*) associated with the natural grasslands TEC
- *Kelita uncinella, Cerbera dumicola* and *Bertya pedicellate*, associated with the Quarry Reserve lateritic jump up areas.

Preliminary field mapped regional ecosystems, based on the dry season survey, are shown in Figure 3-6. The wet season ecology survey will further delineate regional ecosystems, TECs and potential habitat for threatened species, and describe aquatic habitats and function associated with the Isaac River, tributaries and any wetlands.

The Atlas of Groundwater Dependent Ecosystems (Bureau of meteorology) identifies potential for groundwater interaction with terrestrial and aquatic ecosystems. Near the Project area, the Isaac River has been identified as having (refer Figure 3-8 and Figure 3-9):

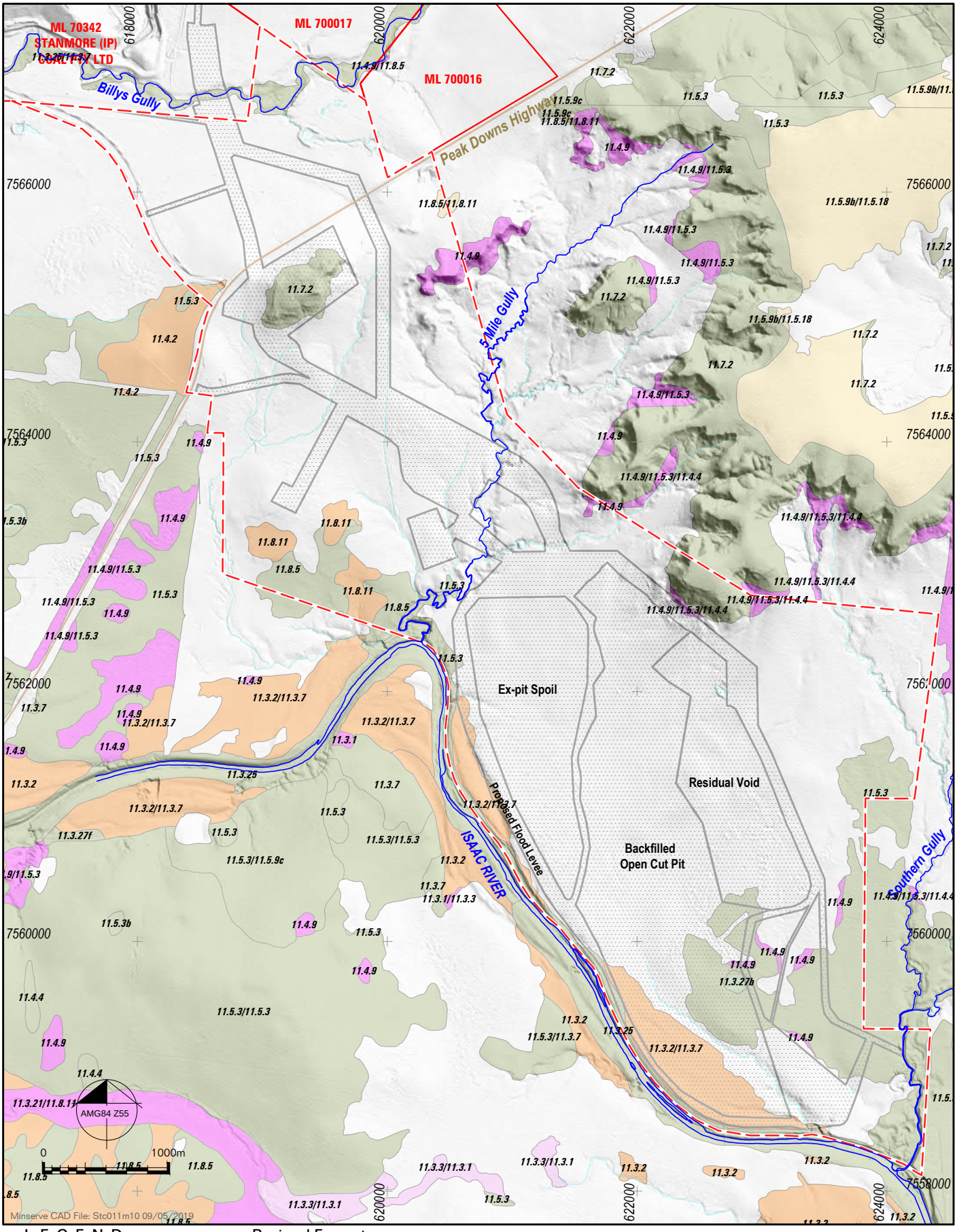
- High potential for groundwater interaction with terrestrial and aquatic ecosystems along a zone generally coinciding with the bed and banks of the River, and which is outside the proposed Project footprint
- High potential for groundwater interaction with an aquatic ecosystem associated with a small (approximately 200m diameter) palustrine wetland (i.e. field-validated RE 11.5.3b) on the eastern side of the Project area
- Moderate and low potential for groundwater interaction with terrestrial ecosystems in vegetation areas alongside the Isaac River and Billy's Gully
- Low potential for groundwater interaction with terrestrial ecosystems in other areas of remnant vegetation.

State Mapped MSES in the Project area are shown in Figure 3-7, these being:

- regulated vegetation associated with EREs and OCREs
- regulated vegetation intersecting a watercourse
- regulated vegetation 100m from a wetland.

The Project will impact ecology through direct clearance of remnant vegetation and potentially through indirect impacts such as groundwater drawdown. The Project footprint is approximately 1100 ha, of which approximately 160 ha is located within State mapped regional ecosystems and approximately 145 ha within preliminary field mapped regional ecosystems. There are approximately 2 ha of regional ecosystem on the IPM mining leases that will be disturbed. Connectivity of vegetation along the Isaac River will be retained. Impacts on vegetation along 5 Mile Gully, which is degraded, will be limited to the haul road crossing. A pest and weed management plan will be implemented by the proponent to minimise the potential for increased abundance of weeds and pests as a result of the Project.

An assessment will be made of the likelihood of significant impacts on matters of national environmental significance (MNES) and matters of State environmental significance (MSES). Should the Project have significant residual impacts (i.e. impacts after mitigation measures) on threatened species or ecosystems, an offsets strategy will be prepared.



L E G E N D

- IPM MLs
- Proposed ID Project MLAs
- Project Disturbance
- Drainage
- Roads - Major

Regional Ecosystems

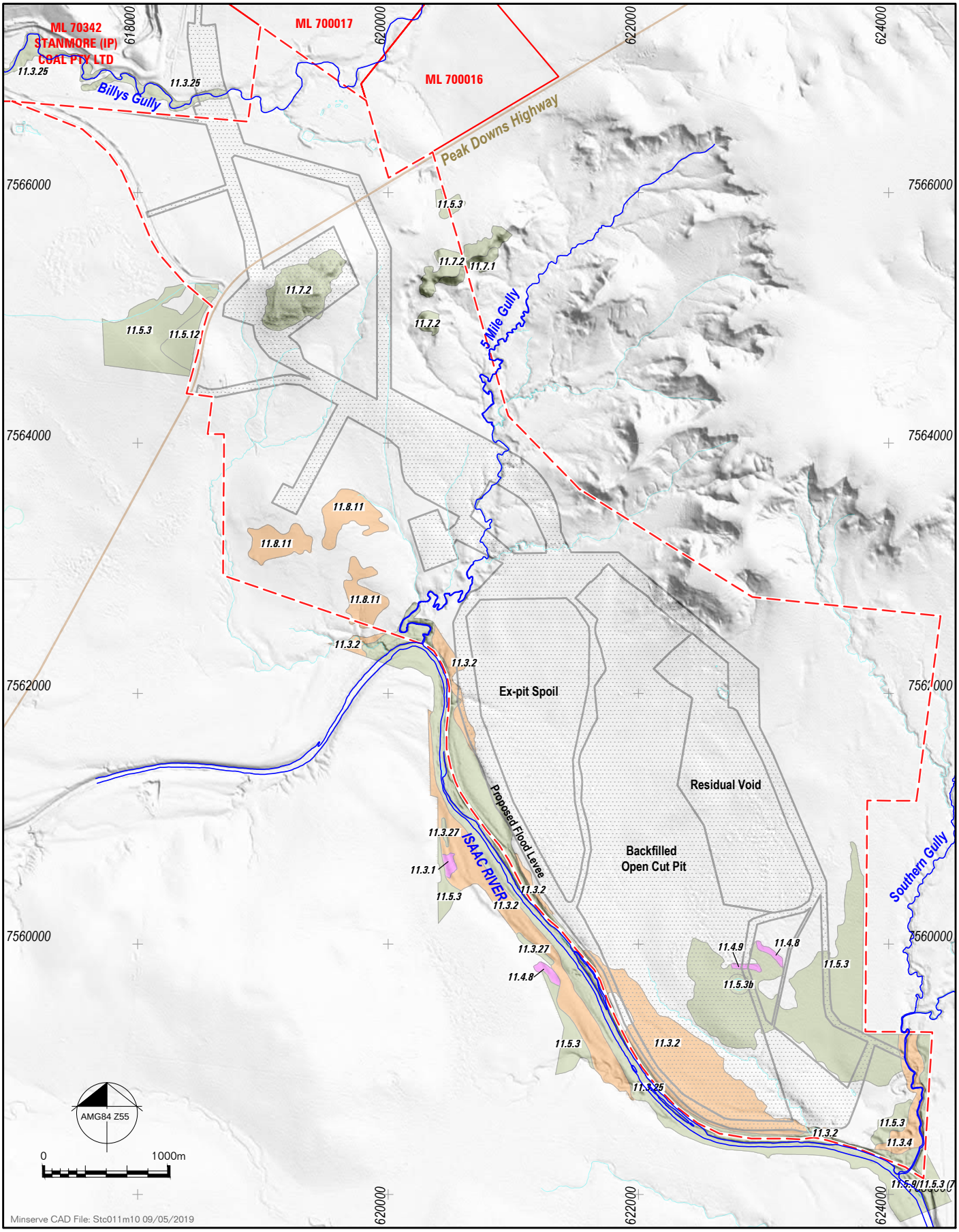
- Endangered; Dominant Vegetation
- Endangered; Sub-dominant
- Of Concern; Dominant
- Of Concern; Sub-dominant
- Of Least Concern

ISAAC DOWNS PROJECT

stanmore IP South

State Mapped Regional Ecosystems

Figure 3.5



LEGEND

- IPM MLs
- Proposed ID Project MLAs
- Project Disturbance
- Drainage
- Roads - Major

Regional Ecosystems

- Endangered; Dominant Vegetation
- Endangered; Sub-dominant
- Of Concern; Dominant
- Of Concern; Sub-dominant
- Of Least Concern

ISAAC DOWNS PROJECT

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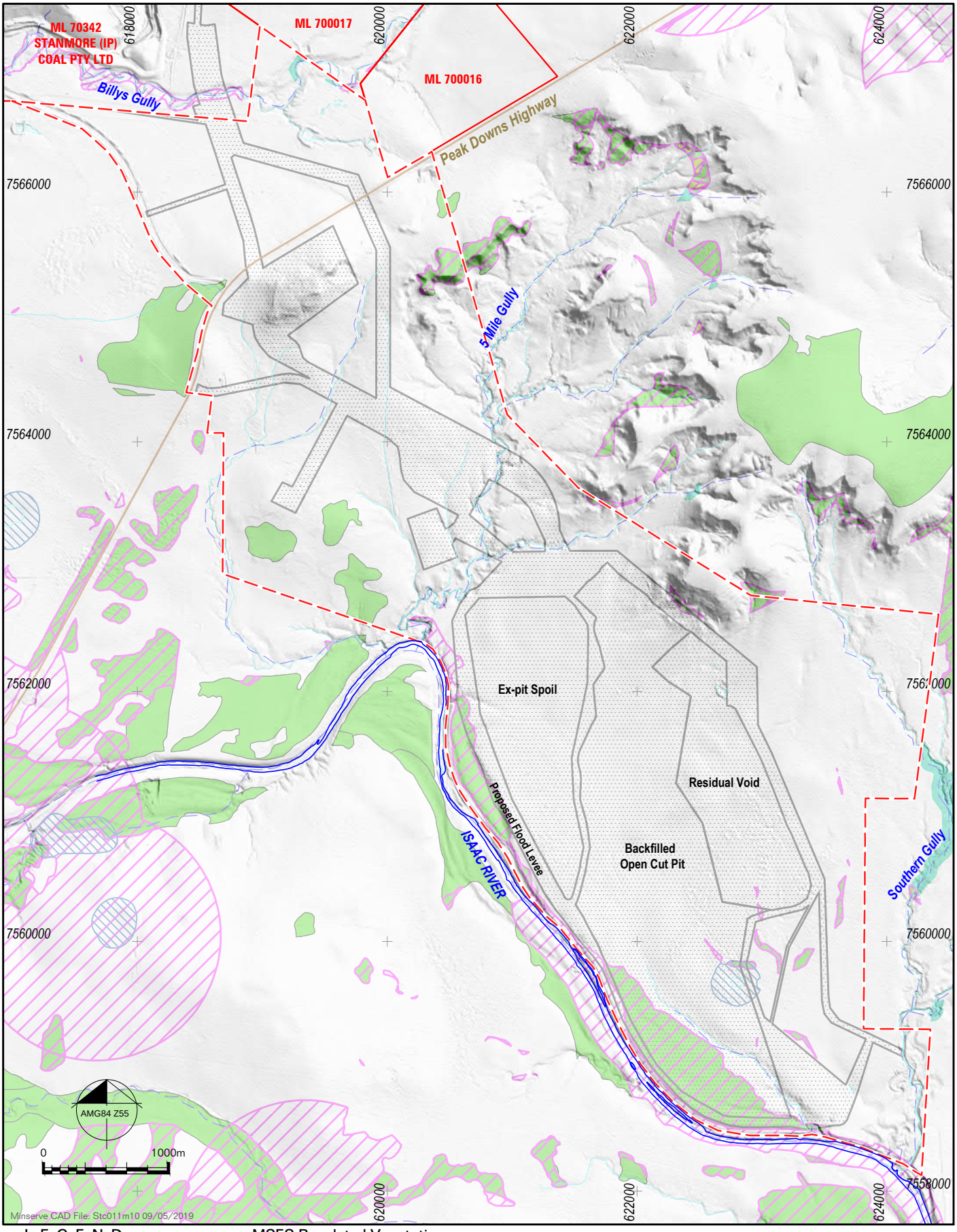
Preliminary Field Mapped Regional Ecosystems

Figure 3.6



L E G E N D

- IPM MLs
- Proposed ID Project MLAs
- Project Disturbance
- Drainage
- Roads - Major

MSES Regulated Vegetation

- Cat B
- Cat C
- Cat R
- Essential Habitat
- 100m from Wetland
- Intersecting a Watercourse

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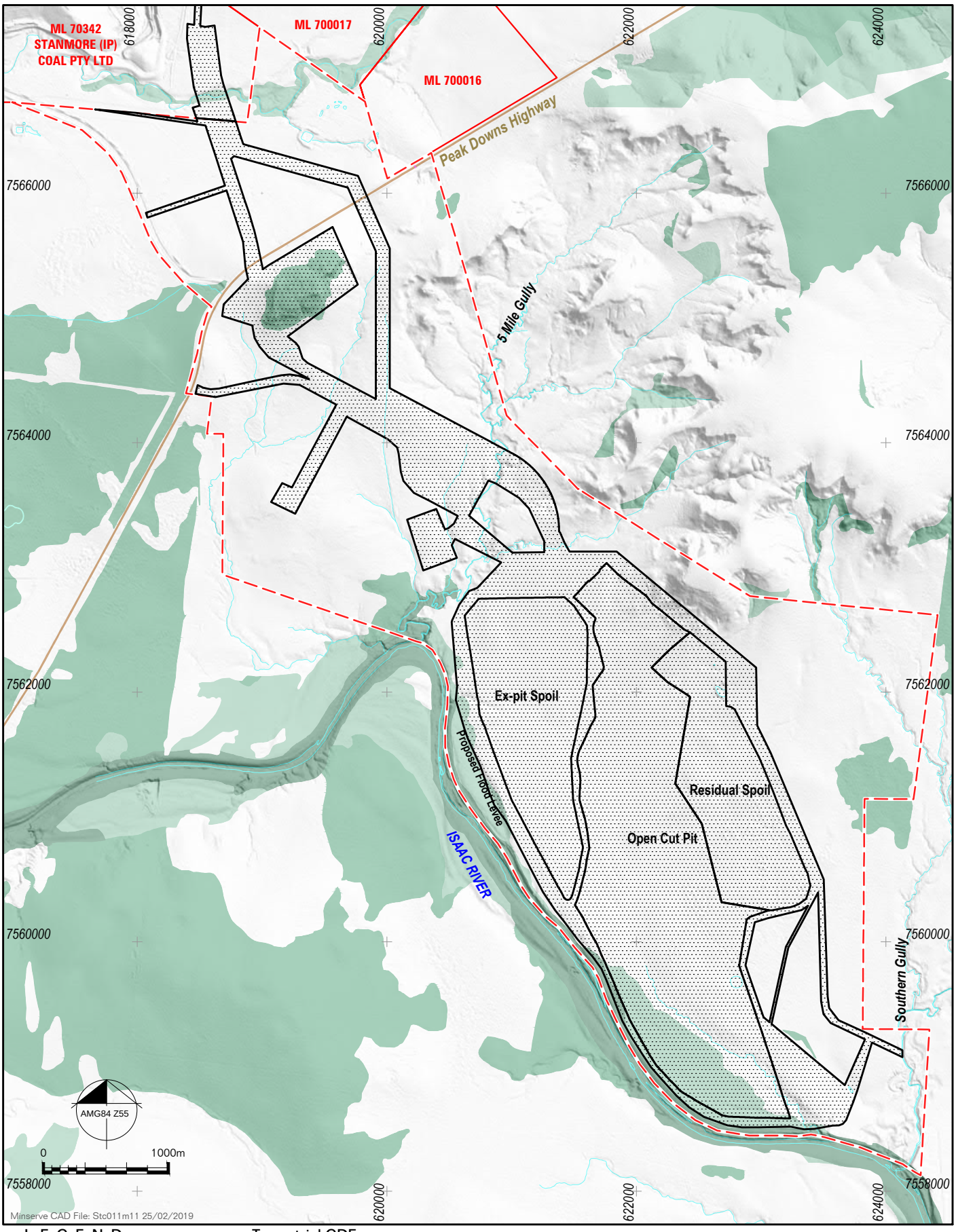
Matters of State Environmental Significance

Figure 3.7



L E G E N D

- IPM MLs
- Proposed ID Project MLAs
- Project Disturbance
- Drainage
- Roads - Major

Terrestrial GDE

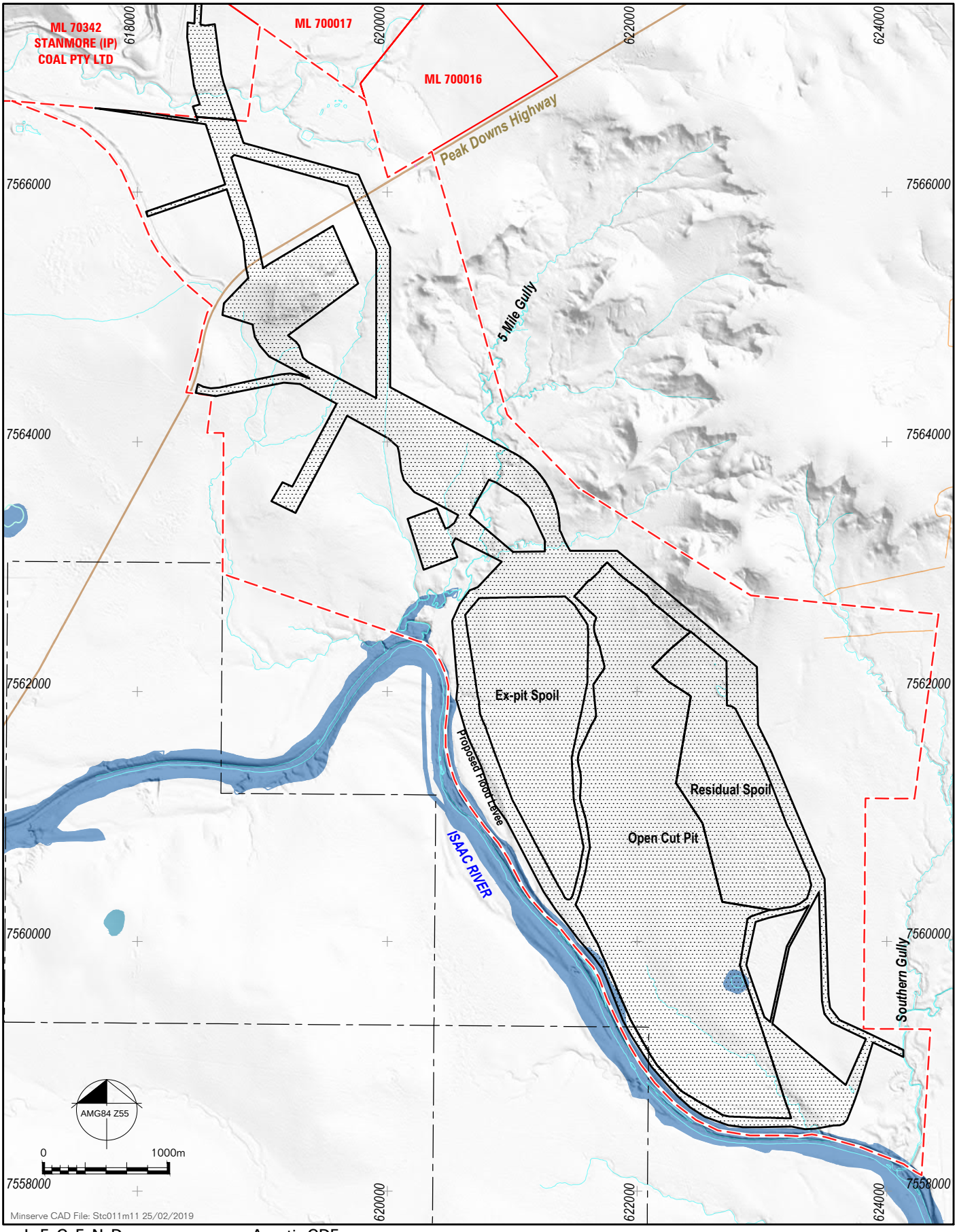
- High potential GDE - From national assessment
- Moderate potential GDE - From national assessment
- Low potential GDE - From national assessment

ISAAC DOWNS PROJECT

stanmore IP South

Atlas of Potential Terrestrial Groundwater Dependent Ecosystems

Figure 3.8



LEGEND

- IPM MLs
- Proposed ID Project MLAs
- Project Disturbance
- Drainage
- Roads - Major

Aquatic GDE

- High potential GDE - From national assessment
- Moderate potential GDE - From national assessment
- Low potential GDE - From national assessment

ISAAC DOWNS PROJECT

stanmore IP South

Atlas of Potential Aquatic Groundwater Dependent Ecosystems

Figure 3.9

3.7 Air Quality, Noise and Vibration

There is one residence within 5 km radius of proposed Project mining activities, and with whom Stanmore has existing compensation agreements. There are 2 potential dwellings between 5 and 9 km of mining activities. Moranbah township is approximately 9 - 12 km north west of mining activities. Receptors will be identified as part of impact assessments.

The principal air quality impact expected from the Project will be dust generated by mining activities. The principal dust sources will include the dragline, heavy mining equipment movements, topsoil stripping, quarrying, coal handling and coal haulage. Dust generation will be managed by the use of water carts for road watering, progressive rehabilitation, limiting disturbance to that required for safe operations, use of a disturbance permit system and, if appropriate, changing work practices during adverse meteorological conditions. Air quality objectives will be established for the Project. Air quality modelling will be undertaken to assess the Project's impacts on air quality and to develop suitable mitigation methods. Cumulative air quality impacts with other projects, including IPM, will be assessed.

Noise and vibration in the region of the Project area is affected by rural activities, Peak Downs Highway traffic, and the activities at surrounding mines. Baseline noise levels will be obtained from previous studies in the region or from monitoring conducted for the Project. Noise sources from the Project will be from mining equipment (e.g. dragline, excavators, dump trucks, drill rigs and dozers), ROM coal handling, and coal transport vehicles. The level of noise at a given receptor will vary depending on the type of machinery in use, traffic in the area and prevailing meteorological conditions. Noise level objectives for receptors will be developed using baseline noise data. Noise modelling will be conducted to predict noise levels at receptors under various metrological conditions and during day, evening and night. Cumulative noise impacts with other projects will be assessed. Noise management measures will be developed, if required, including compensation agreements with landholders.

Vibration limits and airblast overpressure limits will be established for the Project. A blast management plan will be developed, depending on the predicted impacts from blasting.

3.8 Planned Environmental Studies

The proponent has commenced, or is planning to commence, the following environmental assessments to understand the environmental values of the Project area:

- Terrestrial ecology dry season and wet season surveys
- Aquatic ecology wet season surveys
- Groundwater dependent ecosystem surveys to assess potential linkages between groundwater aquifers and vegetation
- Groundwater bore installation in all aquifers that may impacted by the Project, and collection of hydrogeological data from bores
- Development of a numerical groundwater model.
- Stygofauna sampling from installed bores
- Surface water quality monitoring, dependent on flows in the Isaac River
- Soils surveys and land capability assessments
- Geochemical analysis of overburden and coal
- Noise, air quality and visual amenity baseline assessments
- Development of hydraulic models and hydrology / flood modelling
- Mine water balance and water management plan
- Rehabilitation and closure plan, designed to meet the expected requirements of a Progressive Rehabilitation and Closure Plan (PRCP).

All assessments will be supported by publicly available desktop information from government sources and from other projects in the region, as well as site specific data and studies. Impact assessments will be undertaken to assess potential impacts to the environment and propose management measures to mitigate and / or offset impacts. Cumulative impacts with other projects in the region will be assessed.

3.9 Native Title and Cultural Heritage

Native title has been extinguished on all properties on which Project activities will occur, except for Lot 8 GV196 (Quarry Reserve). The Barada Barna People are the Native Title party for land, subject to a native title determination in June 2016.

The proponent has entered into a Cultural Heritage Management Agreement with the Barada Barna People, which sets out the requirements for management of Indigenous cultural heritage in the Project area.

3.10 Social and Economic

IPM is approved to operate coal mining activities on ML 70342, ML 700016, ML 700017, ML 700018 and ML 700019. Open cut mining on ML 70342 commenced in approximately 2005 and is expected to cease in 2019, subject to coal price. Activities such as coal washing, processing, transport and railing, rejects management and water management will continue on ML 70342. Mining on the other MLs commenced in 2018, with an expected operational life of 7 to 8 years, mining approximately 1.5 – 3 Mtpa ROM coal.

Stanmore proposes to commence activities at Isaac Downs once approval is granted, with equipment and a similar workforce progressively transitioned from IPM to Isaac Downs. IPM open cut mining will be put on hold whilst mining at Isaac Downs progresses, recommencing once production from Isaac Downs is declining in the later years of Isaac Downs operations. Ongoing employment opportunities will be provided through Isaac Downs. There is expected to be a minor increase in the labour force required for Isaac Downs compared to IPM, with similar arrangements for worker accommodation, and a similar distribution of places of residence.

Due to the stability of the workforce, there is not expected to be a material change in the socio-economic environment of the local and regional area as a result of Project activities.

The accommodation strategy for the workforce is likely to similar to the current strategy used by IPM:

- Majority of the workforce residing in existing, local mining village accommodation.
- Approximately 15% of workers living locally in Moranbah and potentially Nebo.

No additional housing stock is expected to be required for the Project. Stanmore provides incentives for the uptake of local accommodation. The majority of the workforce is expected to permanently reside in the region (i.e. Mackay, Whitsundays, Emerald) and drive in drive out (DIDO) on a roster basis.

The proponent will implement workforce management, including recruitment hierarchy, standards of behaviour, code of conduct for community interactions, rostering and training. Opportunities will be sought for use of local suppliers and contractors to support the Project.

There is not expected to be material impact on social services and infrastructure, and the health and well-being of communities, as an equivalent workforce will be transitioning from IPM to Isaac Downs. Worker health and safety will be fundamental to Project development and an emergency response plan will be developed.

Traffic generated by the Project is likely to be similar to, and replace, traffic generated by IPM. TMR will be consulted about traffic and transport management for any interactions with the Peak Downs Highway.

As described in Section 2.2 and Section 5, Stanmore has established relationships with existing landholders and indigenous groups who may be directly or indirectly affected by the Project. Further consultation is planned, and compensation agreements are required with landholders within the Project's mining leases.

The Project will result in economic benefits to the region and State through, approximately:

- 250 jobs during construction
- 300 jobs during operations
- indirect jobs
- $90 million development capital
- $80 million sustaining capital & closure costs
- $1.5 billion operational expenditure (ex. royalties)
- $208 million of Royalties.

4. ENVIRONMENTAL MANAGEMENT

As part of the process of conceptual mine and infrastructure design the following measures have been adopted to avoid, minimise and mitigate impacts:

- A flood protection levee will be designed for the 1:1000 year flood event to prevent floodwater from entering the mine workings.
- The MIA and office will be located outside of the 1:1000 year flood event.
- The residual void has been located outside of the probable maximum flood (PMF) zone, which means it is not at risk of being flooded at any time during or post mine life.
- The void will be designed so that it is safe, stable and non-polluting, and the proponent will investigate options for a post mining land use of the residual void area, having consideration for the benefits and costs of residual void use options.
- A buffer between the levee and high bank of the Isaac River has been adopted to protect riparian vegetation in this corridor.
- There will be no direct impacts on the Isaac River or Southern Gully, thereby retaining connectivity of this habitat.
- Mined areas will be backfilled and progressively rehabilitated, except for a residual void, subject to investigations into residual void use options.
- Overburden dumps will be designed with shallow external slopes to improve rehabilitation outcomes.
- The levee will be incorporated into overburden dump design so that ongoing management is not required post mine life.
- The intended final landform is grazing, which mirrors the current land use.
- Existing infrastructure at IPM (e.g. CHPP, rail loop) will be used, removing the need for additional disturbance and impacts associated with new infrastructure.
- The existing, approved in-pit rejects management system at IPM will be used for management of rejects from washing of Isaac Downs coal.
- Mine water generated at Isaac Downs will be transferrable to existing voids at IPM, thereby minimising the risk of uncontrolled releases of mine affected water.
- A mine water dam will be constructed in accordance with recognised regulatory standards to allow for releases from Isaac Downs in accordance with environmental authority approved release criteria.
- Erosion and sediment control structures will be installed to capture runoff from disturbed areas, allowing for sediment to settle before release.
- Clean water will be separated from mine affected water and sediment affected water, through installation of a clean water drainage diversion.
- Haul road and linear infrastructure crossings of 5 Mile Gully and Billy's Gully will be designed and constructed in accordance with recognised standards. Crossing locations have been selected for areas where crossing length and vegetation clearance is minimised.
- The haul road and linear infrastructure routes have been selected to minimise vegetation clearance.
- A haul road underpass of the Peak Downs Highway will be constructed.

As part of the process of assessment of environmental impacts and detailed mine design, additional measures will be developed to avoid, minimise and mitigate impacts. This will include site environmental management such as:

- Weed and pest management
- Erosion and sediment control
- Topsoil management plan

- Rehabilitation management and monitoring plan
- Permits to disturb, authorising the boundaries of all disturbance activities and inclusive of requirements for a spotter catcher, species management, clearing methods, erosion control and topsoil management
- Clearing of potential habitat for conservation significant species will include engagement of a spotter catcher
- Species management plans
- Dust suppression
- Blast management
- Water management plan, including site water balance
- Surface water and groundwater monitoring plans
- Receiving environment monitoring program.

An assessment will be made of the likelihood of significant impacts on MNES and MSES. Should the Project have significant residual impacts (i.e. impacts after mitigation measures) on threatened species or ecosystems, an offsets strategy will be prepared.

The proponent will have appropriately qualified environmental personnel to ensure compliance with approval conditions, legislation and environmental planning frameworks.

5. STAKEHOLDERS

5.1 Consultation

Community consultation and stakeholder engagement forms an integral component of the assessment process for the Project. The proponent has and will continue to build strong, lasting relationships with stakeholders, with the objective of providing accurate and timely environmental, social and economic Project information.

The objectives of community and stakeholder consultation will be to:

- initiate and maintain open and honest communication with affected and interested stakeholders on all aspects of the Project
- identify stakeholder issues and concerns in the relation to the Project via a range of engagement methods
- address stakeholder issues and concerns throughout the approvals process
- provide feedback to stakeholders on their issues or concerns and how their comments have been considered.

Accordingly, the proponent will prepare a consultation plan that is flexible and will take full account of stakeholder input, respond to feedback and incorporate new stakeholders who may be identified as the EIS process evolves.

The consultation plan will involve:

- identifying key stakeholders and determine their level of interest in the Project
- determining stakeholder level of impact on the Project
- development of a communication and consultation model
- selection of appropriate stakeholder communication and consultation tools
- development of a schedule of activities
- ongoing maintenance of documentation of community and stakeholder comments and issues of concern.

Communication and consultation tools will be applied consistent with the level of interest and logistics relative to the individual or group. Communication and consultation tools will include the following options:

- face to face meetings
- phone meetings
- written notices and communications
- information on the proponent's website; and
- media releases.

To date the proponent has consulted with:

- State departments, including DES, DNRME, DAF, DTMR and Department of State Development Manufacturing, Infrastructure and Planning (DSDMIP)
- Commonwealth Department of Environment and Energy (DoEE)
- Isaac Regional Council
- all directly affected landholders
- adjoining landholders
- the Barada Barna
- other resource companies with interests in the Project area.

5.2 Affected and Interested Persons

Affected and interested persons will be identified by the proponent. The proponent proposes to consult directly with affected and interested persons, and has already engaged with landholders for the operational land, adjoining landholders, the relevant Native Title party, regulators and other resource companies. Consultation is through face to face meetings, provision of Project information and statutory processes. Stanmore has had a positive working relationship with the landholders through existing mining activities on Wotonga and Morambah stations, and proposes to continue this working relationship. A compensation agreement, under the *Mineral Resources Act 1989* (MR Act) will be required with all landholders within the mining lease areas.

Affected and interested stakeholders to be included in consultation include:

- Property owners within and adjoining the project
- Mining and petroleum tenement holders within and adjoining to the Project
- Local and regional service providers
- Isaac Regional Council
- State government agencies
- Commonwealth government agencies
- Community interest groups and non-government organisations
- Emergency service groups
- Industry groups
- Infrastructure and service providers
- Barada Barna.

6. APPROVALS

6.1 Primary Approvals

The primary approvals for the Project are:

- ML(s) under the MR Act
- EA under the EP Act
- Potentially a PRCP under the EP Act (dependent on timing of commencement of the MERFP Act)
- Controlled action decision under the EPBC Act.

6.2 Mineral Resources Act 1989 and Other Resource Legislation

The proponent has made application for MLs under the MR Act, which will be publicly notified.

Overlapping tenements with other resource authority holders will be subject to the provisions of the resource legislation including the MR Act and the *Mineral and Energy Resources (Common Provisions) Act 2014* (MERCP Act).

6.2.1 Native Title Act 1993

Native title is not extinguished on Lot 8 GV196 (Quarry Reserve). A mining lease application is proposed to be made over the Quarry Reserve, and a permit may be required for extracting quarry material in the Quarry Reserve. A native title process under the *Native Title Act 1993* (NT Act) will be required for these approvals.

6.3 Environmental Protection Act 1994

6.3.1 Environmental Authority

An EA under the EP Act is a pre-requisite to the grant of the MLs. An EIS is required for the Project and therefore the EIS provides the information stage and public notification stage of the EA application. An application for a voluntary EIS was made under Sections 70 and 71 of the EP Act and precedes the EA application. DES approved a voluntary EIS process on 05 April 2019.

6.3.2 Progressive Rehabilitation and Closure Plan

The MERFP Act will, on commencement, require application for a PRCP, which will describe the proposed rehabilitation milestones and criteria for the Project. The timing of commencement is not known at the time of this Initial Advice Statement, but no later than 1 November 2019.

6.3.3 Environmentally Relevant Activities

The following environmentally relevant activities (ERAs) under the *Environmental Protection Regulation 2008* (EP regulation) are proposed or potential for the Project:

- Schedule 2A, ERA 13 Mining black coal.
- Schedule 2, ERA 38(1)(b) Surface coating – anodising, electroplating, enamelling or galvanising using, in a year, the following quantity of surface coating materials - more than 100t but not more than 1000t.
- Schedule 2, ERA 63(1)(b)(i) Sewage treatment - operating sewage treatment works, other than no-release works, with a total daily peak design capacity of - more than 100 but not more than

1500EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme.

The indicative location of these activities is shown Figure 2-13, with the MIA the location for the potential surface coating and office area the likely location for the sewage treatment plant.

6.4 Environment Protection and Biodiversity Conservation Act 1999

A Referral for the Project was submitted under the EPBC Act. DoEE determined that the Project was a controlled action on 14 May 2019. The controlling provisions for the Project are:

- Listed threatened species and ecosystems.
- A water resource, in relation to large coal mining development.

As the Project requires an EIS, the Referral will be assessed under a bilateral agreement with the State.

6.5 Other Approvals

6.5.1 Aboriginal Cultural Heritage Act 2003

The proponent has entered into a Cultural Heritage Management Agreement with the Barada Barna People.

6.5.2 Coal Mining Safety and Health Act 1999

The object of the *Coal Mining Safety and Health Act 1999* (CMSH Act) is to protect the health and safety of people at, or who may be impacted by, a coal mine and to monitor and ensure that the risk of injury or illness is at an acceptable level. The Proponent is required to comply with the obligations and approvals of the CMSH Act.

6.5.3 Environmental Offsets Act 2014

Under the *Environmental Offsets Act 2014* (EO Act), if the Project results in significant residual impacts to MSES, offsets will be required. To avoid duplication, if the same, or substantially the same, impact and environmental matter have been assessed under the EPBC Act, then offsets will be conditioned by the Commonwealth only.

6.5.4 Fisheries Act 1994

Approval under the *Fisheries Act 1994* for waterway barrier works within waterways is not required as mining activities on a mining lease are exempt from the Act.

6.5.5 Nature Conservation Act 1992

Under the *Nature Conservation Act 1992* (NC Act), permits for the movement of protected animals and the clearing of protected plants are required and a Species Management Program must be approved when interfering with native fauna habitat and breeding places.

6.5.6 Regional Planning Interests Act 2014

Under the *Regional Planning Interests Act 2014* (RPI Act), areas of regional interest include strategic cropping areas (SCAs), priority living areas (PLAs), priority agricultural areas (PLAs) and strategic environmental areas (SEAs). There are no areas of regional interest that will be impacted by the Project and therefore a Regional Interests Development Authority (RIDA) is not required.

6.5.7 Strong and Sustainable Resource Communities Act 2017

The Project is likely to be a large resource project under the *Strong and Sustainable Resource Communities Act 2017* (SSRC Act) as it requires an EIS, or it will hold a site-specific EA and have 100 or more workers. A social impact assessment will be prepared in accordance with the Coordinator-General's social impact assessment guideline (March, 2018). The Project does not propose the use of a 100% fly in fly out (FIFO) workforce.

6.5.8 Transport Infrastructure Act 1994

The *Transport Infrastructure Act 1994* (TI Act) encourages effective integrated planning and efficient transport infrastructure management for the planning and management of road, rail and air infrastructure. Approvals under this Act will be required for any upgrades to State Controlled Roads (SCR) and SCR intersections.

6.5.9 Water Act 2000

The *Water Act 2000* (Water Act) regulates the taking and use of surface water and groundwater. The proponent does not propose to take surface water or groundwater, other than associated water (groundwater inflows into the pit area). The investigation into potential post mining land uses for the residual void may include options for take of surface water or groundwater. If these options are progressed, then the relevant water licences will be sought.

ML holders are able to take or interfere with underground water in the area of the licence or lease where the taking or interference happens during the course of, or results from, the holder's authorised activities (associated water). The environmental impacts of the take of associated water will be assessed as part of the EA application.

There are no watercourse diversions proposed for the Project.

Placing fill or excavating in a watercourse, as required for works associated with construction of haul road crossings of 5 Mile Gully and Billy's Gully, or with the temporary crossing required for the dragline walk, will require a Riverine Protection Permit (RPP) if they do not comply with guidelines for Riverine protection permit exemption requirements.

6.6 Off Tenement Approvals

6.6.1 Planning Act 2016

If any activities are proposed off the Project's mining leases, a development approval under *Planning Act 2016* may be required. No off tenement activities are currently proposed. The proponent will engage with DSDMIP, IRC, DAF, DTMR, DES and any other relevant agencies to determine, where relevant, the approvals and permits required.

6.6.2 Vegetation Management Act 1999

The *Vegetation Management Act 1999* (VM Act) regulates the conservation and management of vegetation communities and provides protection for regional ecosystems classified as 'endangered', 'of concern' or 'least concern' under the VM Act. The clearing of native vegetation for the Project will be exempt from the provisions of the VM Act where clearing occurs within the Project's mining lease areas for a mining activity. Clearing of vegetation outside of the mining lease (not currently proposed) will not be exempt.

6.6.3 Forestry Act 1959

Under the provisions of the *Forestry Act 1959*, a sales permit may be required for extraction of quarry material on State land, where ownership of the quarry material is reserved to the State. DAF are responsible for issuing a sales permit, subject to lodgement of an Expression of Interest by the proponent.

6.6.4 Environmental Protection Act 1994

Approval may be required for ERA 16, Extractive and screening activities – extracting a total of 5,000t or more of material, in a year from an area, if this activity occurs outside the Project's mining leases; however this is not currently proposed.

7. REFERENCES

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