

PEMBROKE

Olive Downs Coking Coal Project

Additional Information to the
Environmental Impact Statement

Section 16

Transport

16 TRANSPORT

1. *Provide further information on the proposed upgrades of Daunia and Annandale Roads, including maps, detailing the location and details of upgrades proposed, and clarity on the proponent's position regarding the responsibilities for undertaking and financing the road works.*

Pembroke is currently in the process of negotiating an Infrastructure Agreement with the IRC which would define the extent of the staged upgrades of Daunia and Annandale Roads, proposed timing and the associated costs. It is anticipated that the Infrastructure Agreement will be finalised in March 2019.

The Infrastructure Agreement will include the following commitments:

- Pembroke will be responsible for the cost of maintenance of Daunia and Annandale Roads prior to and following the upgrade works;
- Pembroke will be responsible for the cost of the upgrade works; and
- Pembroke will engage numerous contractors to complete the upgrade works.

At the time of writing, the IRC has engaged Projex Partners to undertake detailed designs for first 21 km of proposed upgrades. The proposed Daunia and Annandale Road upgrades have been designed with the following parameters:

- design speed of 110 km/h;
- 1% AEP flood immunity;
- 10 m wide sealed road comprising two 4 m wide traffic lanes with 1 m wide shoulders;
- pavement life of 20 years;
- certain sections of road will be realigned to accommodate the proposed design speed; and
- the road will be fully fenced on both sides to prevent stock entering.

Conceptual road upgrade designs developed by Projex Partners, and provided to the IRC, are shown on Figures 16-1 and 16-2.

Further to this, the IRC has also obtained a quote from Projex Partners for the remaining 9 km stretch of the proposed road upgrades.

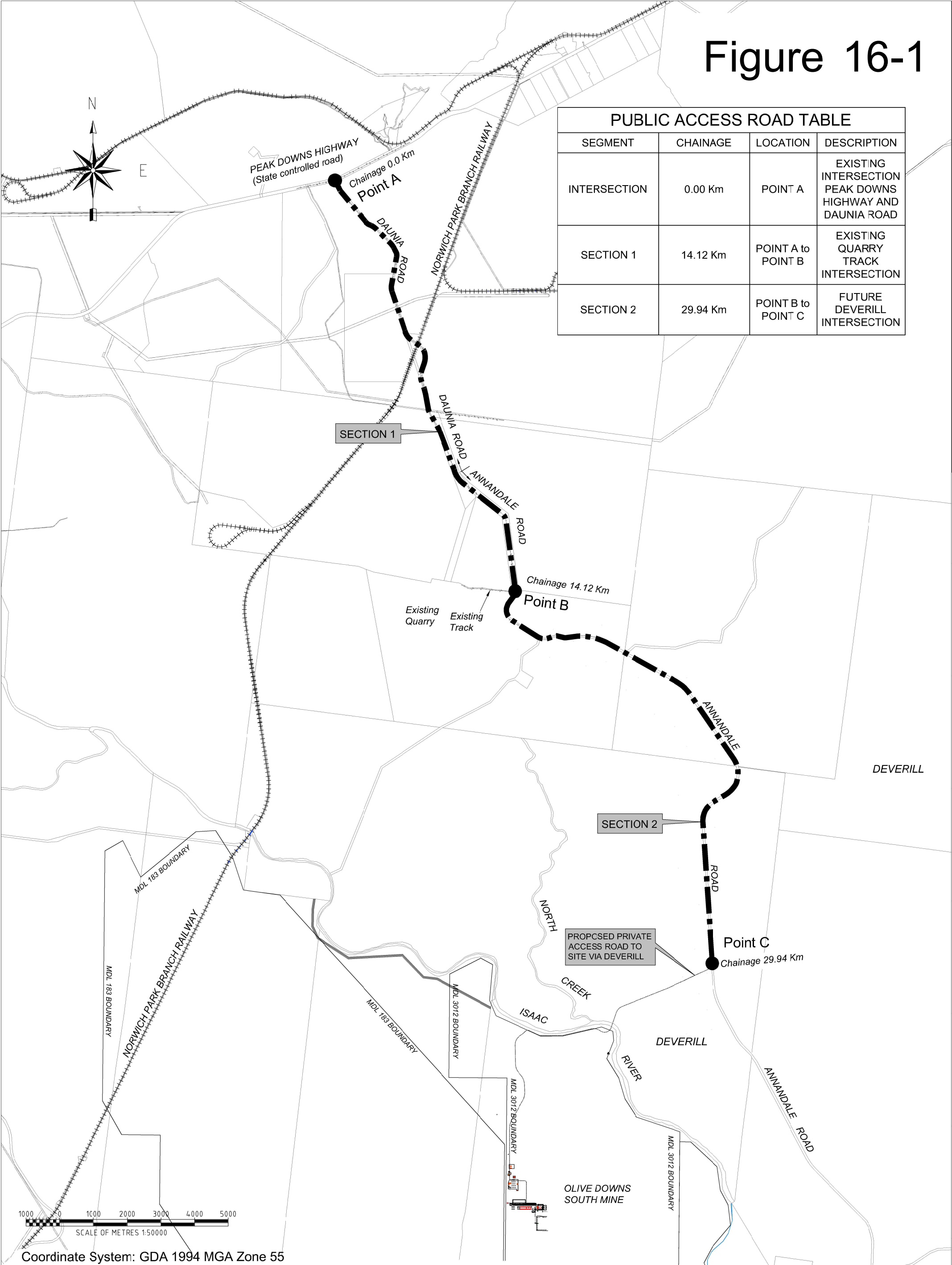
Once finalised, the Infrastructure Agreement will include the detailed designs (including additional maps) of the proposed road upgrades.

2. *Clarify the expected volume of traffic travelling to the site from the south and the impact of this traffic on affected roads (e.g. roads from Dysart/Middlemount).*

As outlined in Section 4.8.2 of the draft EIS, the Project workforce is assumed to approach the Project from, and depart the Project to the following locations to the south of the Project (Appendix J of the draft EIS):

- Dysart – 19%; and
- Middlemount – 11%.

Figure 16-1



PUBLIC ACCESS ROAD TABLE			
SEGMENT	CHAINAGE	LOCATION	DESCRIPTION
INTERSECTION	0.00 Km	POINT A	EXISTING INTERSECTION PEAK DOWNS HIGHWAY AND DAUNIA ROAD
SECTION 1	14.12 Km	POINT A to POINT B	EXISTING QUARRY TRACK INTERSECTION
SECTION 2	29.94 Km	POINT B to POINT C	FUTURE DEVERILL INTERSECTION

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PAVEMENT NOTE
Pavement designs are based on 1000 vehicles per day with 40% heavy vehicles. Geotechnical report prepared by Core Consultants.



The diagram illustrates a typical cross-section of a road. The top layer is labeled 'Clear and grub'. Below this is a 'Bitumen seal'. The road surface consists of a central 'Traffic lane' (4.0m wide) and two 'Shoulder' areas (1.0m wide each). The shoulders are flanked by 'Cut batter' (1.5m wide) and 'Fill batter' (1.0m wide) sections. A 'Table drain' is located on the left side. The bottom layer is labeled '75mm Topsoil and grass seed (Provisional quantity)'. The diagram also shows a 'Control Line MCOO' and a 'Pavement Type Refer Working Plans' label. Dimensions are given in meters (m). A scale of 1:50 is indicated.

Typical Section
Scale : 50



Figure 16-2

[illegible]

Based on these percentages, it is assumed that approximately 151 personnel would be travelling north from Dysart, and 87 personnel would be travelling north from Middlemount. It should be noted that no heavy vehicle movements associated with deliveries are expected to come from either Dysart or Middlemount (Appendix J of the draft EIS).

For those personnel travelling from Middlemount and Dysart, it is expected that the following roads would be utilised (Figure 16-3):

- Dysart Middlemount Road (for traffic travelling from Middlemount [i.e. 87 when the Project workforce reaches its maximum]);
- Golden Mile Road (for traffic travelling from Dysart [i.e. 151 persons when the Project workforce reaches its maximum]); and
- Fitzroy Developmental Road (for traffic travelling from Middlemount and Dysart [i.e. 238 persons when the Project workforce reaches its maximum]).

With respect to the Fitzroy Developmental Road, Section 4.8.2 of the draft EIS states (emphasis added):

Given that the Project workforce would not permanently reside in the mine camps, the “Project + Baseline” values identified in Table 4-32 also takes into consideration traffic movements associated with employees travelling to their usual place of residence at the completion of their roster. This would include road traffic to and from Mackay, Nebo, Dysart and Middlemount.

The forecast LOS as a result of baseline plus Project generated traffic is above the minimum operational LOS of D, as identified in DTMR’s Guide to Traffic Impact Assessment (DTMR, 2017), and GTA Consultants (2018) concludes that there would be no significant impact to the road network as a result of Project generated traffic (Appendix J).

...

A pavement impact assessment was prepared by GTA Consultants (2018) in accordance with the Guide to Traffic Impact Assessment (DTMR, 2017) and the Guide to Pavement Technology Part 2: Pavement Structural Design (Austroads, 2017) as part of the Road Transport Assessment (Appendix J).

Based on the predicted traffic movements associated with the Project, impacts greater than 5% have not been identified for any section of the ... Fitzroy Developmental Road. On this basis, and as per the methodology detailed in GTIA, assessment of contributions has not been undertaken, with the pavement impacts of the Project considered insignificant.

Further to this, GTA Consultants (2019) has conducted an additional assessment of the potential impacts associated with the Project on Golden Mile Road and Dysart Middlemount Road. GTA Consultant’s assessment is provided as Appendix G of this document.

Additional traffic surveys were undertaken in November 2018 at Golden Mile Road, Dysart Middlemount Road to determine the baseline conditions of these roads. These two roads both have an existing Level of Service (LOS) of ‘A’, as identified in the *Guide to Traffic Impact Assessment* (DTMR, 2017). The forecast LOS as a result of baseline plus Project generated traffic on Golden Mile Road and Dysart Middlemount Road remains as ‘A’ and GTA Consultants (2019) therefore concluded that there would be no significant impact to the road network as a result of Project generated traffic (Appendix G).

In addition, given these roads are not proposed to be utilised by Project heavy vehicles, it is not expected that there would be a significant impact to the pavement of these roads. As such, no further pavement impact assessment has been conducted (Appendix G).

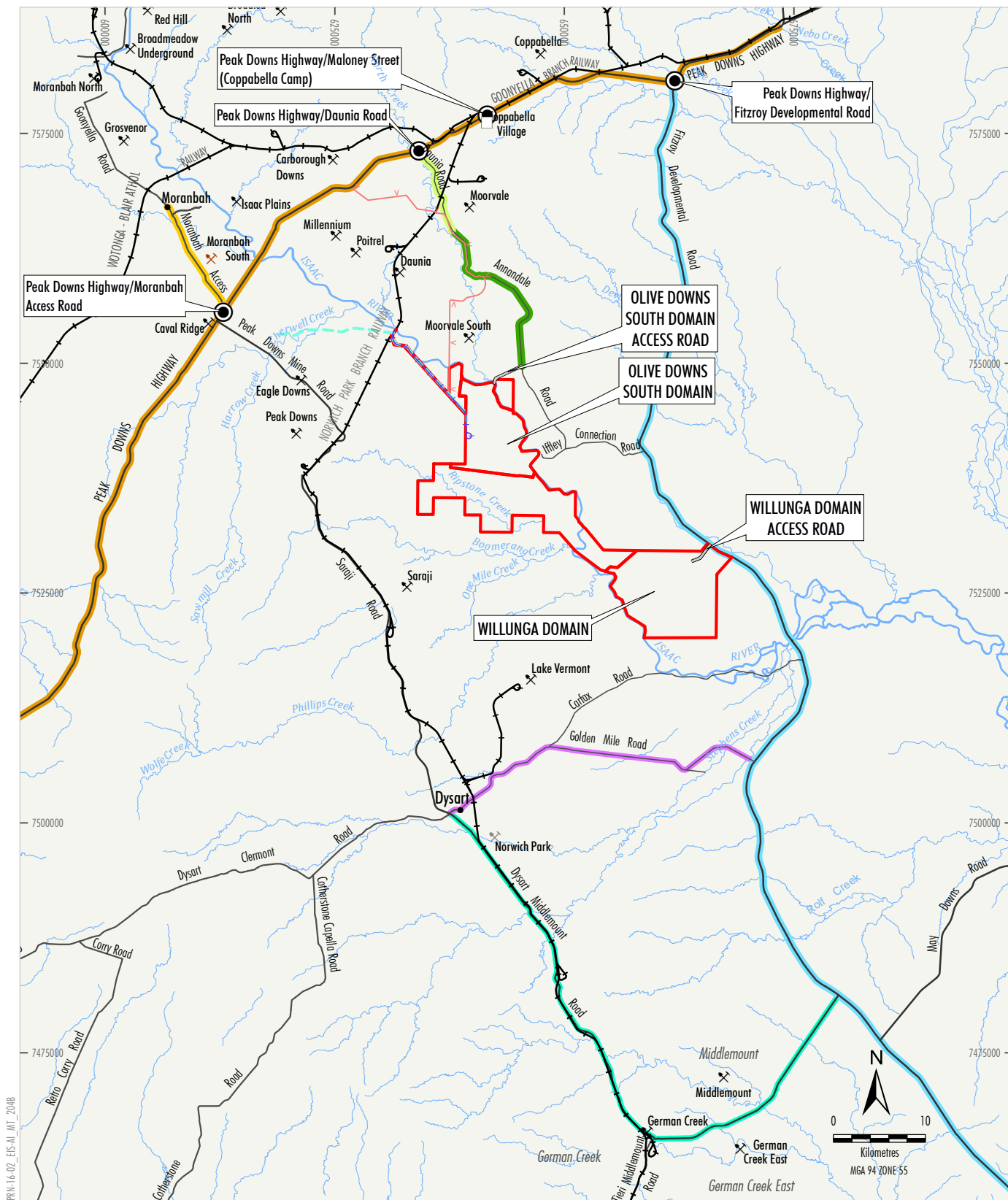


Figure 16-3

3. Provide an assessment of traffic impacts on Annandale Road (south of the proposed Olive Downs South Access Road), Iffley Connection Road and Vermont Park Road, considering IRC's advice that these roads are expected to be impacted by DIDO traffic.

As shown on Figure 16-3, Pembroke does not propose to utilise Annandale Road (south of the proposed Olive Downs South access road), Iffley Connection Road or Vermont Park Road for any Project related traffic.

Vermont Park Road provides access to the Vermont Park property from the Iffley Connection Road and terminates at the Isaac River (i.e. does not provide any through access). Vermont Park Road would not provide access to the Project site infrastructure areas. As described in Section 4.8 of the draft EIS, new access roads would be developed to allow Project personnel to access the Olive Downs South and Willunga domains.

Although Iffley Connection Road and the southern portion of Annandale Road, may provide a shorter travel distances for employees travelling from the north to the Willunga domain, it should be noted that operations at Willunga would not commence until 2028 and, as such, for the first nine years of the Project, there is expected to be minimal traffic travelling to the Willunga domain.

Pembroke has been in discussions with the Isaac Regional Council (IRC) regarding the potential use of these roads and has agreed to conduct ongoing monitoring of the usage of Iffley Connection Road, to determine whether there is an increase in traffic movement associated with the Project. If monitoring indicates that additional traffic is utilising these sections of road, and impacts are being generated, Pembroke would determine whether upgrades are required in consultation with the IRC.

Pembroke is currently in the process of negotiating an Infrastructure Agreement with the IRC which would define the extent of the staged external road infrastructure upgrades, timing and the associated costs.

4. Provide traffic modelling and an assessment of intersection performance under modelled scenarios for those intersections raised in the IRC submission (Carfax Rd/Golden Mile Rd, Carfax Rd/Fitzroy Developmental Rd, Fitzroy Developmental Rd/Iffley Connection Rd, Iffley Connection Rd/Annandale Rd).

As outlined in response to Item 3 above, Pembroke does not propose to utilise Iffley Connection Road for any Project related traffic (Figure 16-3). As such, anticipated traffic using the Fitzroy Developmental Road/Iffley Connection Road and Iffley Connection Road/Annandale Road intersections would only be related to through traffic (i.e. no Project traffic would be turning at these intersections).

Notwithstanding, Pembroke has agreed to conduct ongoing monitoring of the usage of Iffley Connection Road and if monitoring indicates that additional traffic is utilising this road, and impacts are being generated, Pembroke will determine whether upgrades are required in consultation with the IRC.

Similarly, with respect to the intersections along Carfax Road, Project traffic would be limited to through traffic as Pembroke does not propose to utilise Carfax Road for any Project related traffic (Figure 16-3). Carfax Road (an unsealed road) is approximately the same length as Golden Mile Road (along the route to the Project from Dysart), however, as Golden Mile Road is sealed, anyone travelling along this route is expected to use Golden Mile Road as it would allow for safer, more efficient travel compared to Carfax Road.

As outlined in response to Item 2, an additional assessment of potential impacts to Golden Mile Road has been undertaken in Appendix G. Given the small number of personnel expected to be travelling along Golden Mile Road, it was concluded that the Project is not expected to result in any significant impacts to this road, or its intersections with Carfax Road and/or Fitzroy Developmental Road (Appendix G).

5. *Provide information about the anticipated volume of traffic using the proposed Moorvale South haul Road (ML70355), assess the safety and efficiency of the intersection of the proposed haul road and Annandale Road, and identify management measures if required.*

The draft EIS was prepared giving consideration to the information publicly available within the Olive Downs North¹ Environmental Management Plan (EMP) and the Environmental Authority. The level of information within this documentation was insufficient to accurately assess the potential traffic impacts of the Moorvale South Project (e.g. the Moorvale South EMP did not include anticipated traffic movements, the number and frequency of haul trucks utilising the haul road or any management measures for the proposed intersection between the haul road and Annandale Road). Pembroke has been in consultation with Peabody and requested further information regarding the approved traffic impacts associated with the Moorvale South Project. No additional information, to allow the assessment of the Moorvale South Project traffic flow, was provided in Peabody's response on 18 December 2018.

Notwithstanding the above, additional information regarding the proposed design of the road upgrades is provided in Section 16.

In addition to the above, Pembroke will continue to consult with Peabody during the development of the Road Use Management Plan for the Project.

6. *Provide an assessment of the cumulative impacts of traffic from the project and the proposed Moorvale mine on Annandale Road.*

As stated in response to Item 5, the draft EIS was prepared on the information publicly available within the Olive Downs North EMP and the Environmental Authority. It is noted that this level of information was insufficient to accurately assess the potential traffic impacts of the Moorvale South Project (e.g. the Olive Downs North EMP did not include anticipated traffic movements or the number and frequency of haul trucks utilising the haul road) and no additional information has been provided by Peabody to allow the assessment to be undertaken.

Notwithstanding this, Pembroke is consulting with Peabody regarding Peabody's proposed use of the upgraded Annandale Road and this information will become the basis for Peabody's contribution to the cost of road upgrades.

7. *Provide an assessment of the impacts of project traffic (both road and rail) on level crossings using the ALCAM assessment undertaken by the rail operator.*

Aurizon has confirmed that an ALCAM assessment has been undertaken for the existing level crossing at Winchester Downs Road (Level Crossing ID 3240) which would be traversed as part of the connecting infrastructure. It should be noted that Winchester Downs Road is an unsealed road with infrequent traffic movements and only allows access to the travel stock reserves located to the north of the Project rail spur. These reserves form part of the Barada Barna People Native Title Determination Area (QC2016/007).

¹ The Olive Downs North Project is now referred to as the Moorvale South Project.

Given this, Aurizon has confirmed, the existing level crossing would be augmented from a single-track crossing to a duplicated-track crossing as part of the existing connecting infrastructure agreement, however the existing form of the level crossing (i.e. a passive crossing) would be sufficient to compensate for the connecting infrastructure (i.e. an active crossing is not required).

Aurizon also confirmed that a separate ALCAM assessment will need to be conducted for the additional level crossing required for Winchester Downs Road, as part of the proposed private rail spur. At the time of writing, Pembroke has not yet awarded the contract for the construction of the proposed private rail spur. With this in mind, Pembroke will make it a contractual agreement that the company which is awarded the private rail contract will undertake the ALCAM assessment to confirm the required design for the new level crossing.

The existing level crossing of Daunia Road (Level Crossing ID 3251) is a passive level crossing. Aurizon has confirmed that, given the increase in traffic volume (including heavy vehicles) proposed to utilise Daunia Road for Project access, it is likely that an active crossing would be required. Pembroke has confirmed with Aurizon that the following process will be followed with respect to the ALCAM assessment of the Daunia Road level crossing (Level Crossing ID 3251):

1. Pembroke will finalise the Infrastructure Agreement with the IRC relating to the proposed upgrades to Daunia Road (as outlined in response to Item 1).
2. Pembroke will then lodge an *Application for Use (or Change of Use) of an Aurizon Network Private Level Crossing* with Aurizon. This will trigger the ALCAM assessment process with Aurizon.
3. Aurizon will conduct the ALCAM assessment in consultation with Pembroke to confirm the required level crossing design.