



RAIL SPUR MANAGEMENT PLAN

for the

WERRIS CREEK COAL MINE

June 2005



Rail Spur Management Plan
for the
Werris Creek Coal Mine

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1.0 INTRODUCTION AND OBJECTIVES

This Rail Spur Management Plan (RSMP) has been prepared by Werris Creek Coal Pty Ltd (WCC):

- in accordance with Condition 11 (Schedule 4) of DA 172-7-2004, viz:
 - “The Applicant shall prepare and implement a detailed Rail Spur Management Plan for shunting operations associated with the development, in consultation with the Australian Rail Track Corporation and the company providing rail freight services to the Applicant. The Applicant shall not carry out any shunting operations before the Director-General has approved this Plan. This plan must include:*
 - (a) a noise monitoring program for privately-owned residences in proximity to the spur line to the development’s rail load-out facilities;*
 - (b) measures to reduce noise and vibration impacts on impacted residences; and*
 - (c) measures to avoid or minimise impacts other than noise and vibration including, but not limited to, train headlights and interruption of public road access across the spur line,*
 - to the satisfaction of the Director-General”;* and
- incorporates the outcomes of extensive discussions / consultation / negotiations with representatives of Australia Rail Track Corporation (ARTC) and Pacific National. Pacific National (PN) is the company contracted to load and haul coal by rail from the Werris Creek Coal Mine.

The Plan primarily applies to Werris Creek Coal Siding area (Rail Spur) as described in Section 2. **Figure 1** places the Werris Creek Coal Mine and Siding area in their local context, centred approximately 4 km south-west of Werris Creek.

From the outset, the discussions, consultation and negotiations between WCC, ARTC and PN recognized the proximity of some residents and, in the absence of sympathetic planning or appropriate safeguards, the potential for the required activities to adversely and/or unnecessarily impact on these residents or local landusers, either directly or indirectly. Accordingly, the RSMP has been prepared with the following principal objectives.

- (i) To undertake all activities within the Werris Creek Coal Siding area in a manner which provides for the safety of WCC, ARTC and PN employees; local residents and landusers, and the general public.
- (ii) To minimize noise generation associated with train loading and shunting activities.
- (iii) To minimize vibration at adjacent residents as a consequence of the passage of trains on the siding.
- (iv) To minimize disruption to traffic on South Street.
- (v) To minimize disruption to stock movement across the spur line: a single, private level crossing is located on the spur line which enables cross-line stock movements on the “Cintra” property.
- (vi) Minimize other potential impacts on local residents and land users and the community in general.

Documented operational procedures will be provided to all relevant ARTC, PN and WCC personnel to ensure the achievement of each of the above objectives.

It should be recognised, however, that Werris Creek is a railway town and that south of Werris Creek, the Main Northern Railway line (and hence adjacent residents), experience an average of one train movement per hour throughout the year.

2.0 PLAN AREA AND RESIDENTIAL PROXIMITY

2.1 Plan Area

Figure 1 places the Werris Creek Coal Siding in its local setting, while **Figure 2** provides a schematic diagram of the Siding and its integration with the Werris Creek Rail Yard and Main Northern Railway Line.

The principal features identified on **Figure 2** and referred to in the description of shunting and loading procedures (Section 5) comprise the:

- Werris Creek Rail Yards;

- Werris Creek South Signal Box;
- South Street public level crossing;
- private level crossing on the “Cintra” property. This crossing is used for stock movement approximately five times per year and for light vehicle movements, approximately four times per week;
- Loading Bin Site within the Rail Load-out Facility and Product Coal Storage Area. The elevated loading bin, positioned above the spur line, will have a capacity of 1000 t and a train loading capacity of 2700 tph;
- two “stop” boards, one between the Loading Bin Site and South Street and the other, approximately 100 m north of South Street;
- “completion of loading point” to the south of the private level crossing; and
- current end of the rails with associated stop blocks. Subject to ARTC’s future modification of existing sidings on the Main Northern Railway line which may enable the use of longer trains on that line, the Rail Spur may be extended for a further distance of approximately 500 m. The existing “stop blocks” would then be relocated.

The Rail Spur formation rises from an elevation of approximately 386 m AHD adjacent to the South Street level crossing to a high point at approximately 387 m AHD approximately 750 m to the south west. From this point, the formation falls to approximately 383 m AHD at the private level crossing and to 375 m AHD adjacent to the loading bin. From the loading bin to the current end of the line, the elevation continues to fall to approximately 366 m AHD.

The Rail Spur incorporates welded track joints and is accredited as “fit for purpose” to the ARTC rail standard. Re-certification by an accredited rail maintenance provider will be undertaken on a three-monthly basis.

2.2 Residential Proximity

Figure 1 identifies the residences in the vicinity of the Rail Spur, the closest of which are located at distances of approximately 100m (Patterson), 30m (Sleight / Lewis), 100m (Maggs) and 150m (Woods). Each of these four residences is located towards the eastern end of the Rail Spur and at distances ranging from 50m to 400m from the Main Northern Railway Line. The

spur line formation is elevated from 0.2 m to 1 m above the surrounding natural landform in the vicinity of these residences.

Other residences in the vicinity of the Rail Spur and/or Rail Load-out Facility include Zeolite Australia (300m) and “Cintra” (1km), together with those within the southern areas of Werris Creek township.

Negotiated agreements are in place with the Pattersons and the residents of “Cintra” and the Zeolite Australia residence.

3.0 TRAIN CONFIGURATION

Based on advice from ARTC and Pacific National, trains operating on the Rail Spur will comprise:

- two 3000 hp 81/82 class type locomotives, one operating at the front and one at the rear of the waggons;
- 42 off waggons. Each waggon will have a nominal capacity of 75t coal giving a net load of 3150t / train.

The overall train length will be 753 m.

Subject to the required modifications of the Main Northern Railway line (see Section 2.1), longer trains with proportionally greater loads may be employed.

4.0 OPERATIONAL SCHEDULING

Scheduling of train arrivals and departures from the Rail Spur will be undertaken by Pacific National based on coal shipment requirements, coal storage capability at the Port Waratah Coal Services terminal at Newcastle and rail network optimisation.

At an annual production rate of 1.6 Mt, an average of 10 trains per week would be loaded at the siding (range 6 to 20 trains per week).

5.0 TRAIN SHUNTING / LOADING PROCEDURE

The following procedures will apply for all trains scheduled to load coal from the Werris Creek Coal Mine, ie from their arrival within the Werris Creek Rail Yards unloaded to their departure for Newcastle following coal loading on the Rail Spur. At all times the front of the leading locomotive will be oriented in the direction of travel.

Trains, with a crew of two, will arrive at the Werris Creek Rail Yards from Newcastle, with one locomotive at the front of the train pointing forwards (the leading locomotive) and the other unpowered locomotive (the trailing locomotive) at the rear of the train pointing backwards. The crew of two will comprise a driver, ie the person in control of the lead locomotive, and a co-driver, the person in control of the trailing locomotive. Depending on the direction of travel, each crew member will act as driver and co-driver at various times throughout the travel and loading cycles.

- (a) On receipt of authority to proceed, the train will depart the Werris Creek Rail Yard with the two locomotives operating in a push-pull mode.
- (b) The train will stop at the designated inbound “stop” point, approximately 100m north of South Street, where the leading locomotive driver will contact the WCC train loader operator and gain permission to access the Rail Spur.
- (c) On receipt of approval, the train will proceed towards the loading bin site at a speed of approximately 5 kph. A maximum train speed of 15 kph will apply on the Rail Spur.
- (d) The train whistle (“town horn”) will be sounded prior to crossing the South Street level crossing. The “town horn” emits a noise level of 35 dB(A) at 500 m. On approaching the private level crossing, the “town horn” will again be sounded if the gates to the “Escott” property are open indicating possible movement of stock across the Rail Spur.
- (e) On approaching the loading bin site, the driver will ensure the loading chute is in the up position and, on confirmation, the train will proceed towards the end of the rails, stopping when advised that the rear waggon is in the correct position to commence loading. The loading chute will then be lowered.
- (f) With the roles of driver and co-driver again reversed, train speed control and telemetry systems will be engaged and loading will commence, with the train moving forward, ie towards Werris Creek, at approximately 0.5 to 0.8 kph. Throughout the loading

operation, the train will be moving up hill. Train loading will take approximately 1 ½ hours.

Given the difference in train and loading bin capacities, a bulldozer or front-end loader will operate throughout the train loading phase, pushing coal onto the stockpile over the automatic reclaim hopper for transferral to the bin by conveyor.

On completion of loading the last waggon and prior to the trailing locomotive moving beneath the bin, the train will stop (at the “completion of Loading Point”) to allow the chute to be raised and locked in position. The train will then progress northwards, sounding the town horn at the private level crossing only in the event the gates to “Escott” are open. During this period, the driver will also contact the Werris Creek signal controller seeking approval to proceed directly to the Werris Creek Yard. If approval is granted, the train will continue past the outbound stop board located approximately 330m south of South Street, sounding the “town horn” on the approach to South Street. If approval is not received, the train will progress to and stop at the outbound stop board.

Dozer / loader operations will continue until the coal bin is refilled and ready for the arrival of the next coal train.

- (g) If required to stop, the train will remain at the stop board until authority is received to proceed to the Werris Creek Yard.
- (h) On subsequent receipt of the necessary authority, the train will proceed from the Werris Creek Yard towards Newcastle, still operating in the push-pull mode.

6.0 HOURS OF OPERATIONS

As noted in Section 4.0, train scheduling, including the movement of trains from Newcastle to Werris Creek, from Werris Creek along the Rail Spur and the movement of loaded trains to Werris Creek and then to Newcastle, will be undertaken by Pacific National in accordance with coal shipment requirements, storage capabilities at Port Waratah and rail network optimization.

Although train loading may be undertaken at any time of day, seven days per week (by virtue of a negotiated agreements with the potentially affected residents), Pacific National advise that the majority of train movements along the Rail Spur, and train loading operations, should occur during daylight hours.

In the absence of delays, eg at the stop boards, each train loading cycle will approximate 1 hour 50 minutes.

7.0 NOISE IMPACT ASSESSMENT CRITERIA

Table 1 identifies the differing noise impact assessment criteria which apply to activities on the Rail Spur depending on the nature of the activities being undertaken. The criteria apply to any residence on privately owned land which is not subject to a legally binding agreement between WCC and the occupant of that residential dwelling.

TABLE 1
Rail Noise Impact Assessment Criteria

Activity	Criteria (dB(A))					
	L_{Aeq} (15 minute) (Day)	L_{Aeq} (15 minute) (Evening)	L_{Aeq} (15 minute) (Night)	L_{A1} (1 minute) (Night)	L_{Aeq} (24 hours)	$L_{A(max)}$
Unloaded train movement on Rail Spur	N/A	N/A	N/A	N/A	55	80
Train loading	35	35	35	45	N/A	N/A
Loaded train movement on Rail Spur	N/A	N/A	N/A	N/A	55	80
N/A = Not Applicable. Day = 0700 hours to 1800 hours Monday to Saturday and 0800 hours to 1800 hours on Sundays and public holidays. Evening = 1800 hours to 2200 hours; seven days per week. Night = 0000 hours to 0700 hours and 2200 hours to 0000 hours Monday to Saturday and 0000 hours to 0800 hours and 2200 hours to 0000 hours on Sundays and public holidays.						

7.2 Vibration Cause and Impact Assessment Criteria

7.2.1 Cause

Ground vibration from the passing trains is a function by the rate of mass transfer between the wheels and the tracks and increases with increasing train velocity or speed.

7.2.2 Criteria

The EPA Noise Branch has advised that there are no specific criteria or policies which apply specifically to vibration from railways, but deferred to criteria with Section 174 of the Environmental (ECNM) Noise Control Manual “Noise Control Guidelines – Vibration in Buildings” which pertain to human comfort criteria.

Adopting these criteria and recognising that train-induced ground vibrations are typically of frequencies greater than 10Hz, a maximum allowable vibration velocity of 2.82 mm/s would apply to residences in the vicinity of the Rail Spur.

8.0 IMPACT MINIMIZATION

8.1 Introduction

As noted in Section 1.0, this RSMP has been developed recognising the potential for inappropriate operating procedures to adversely impact either directly or indirectly on nearby residents and landusers.

The following sub-sections identify the principal areas of potential impact identified during the preparation of the RSMP, together with the safeguards / procedures to be implemented to minimize impacts.

Monitoring programmes (if warranted), to verify the appropriateness of the safeguards and/or compliance with relevant criteria are described in Section 9.0 while Complaint Management and Dispute Resolution procedures are described in Section 10.

8.2 Noise

Locomotive engine noise, track / wheel interaction noise, train loading and warning horns represent the principal potential sources of noise associated with activities to be undertaken on the Rail Spur. Design and/or operational safeguards to be employed to minimize these noise impacts include the following.

- Routine maintenance of locomotives (including noise suppression equipment, eg mufflers) for compliance with EPA rail noise criteria.
- Routine track inspections / maintenance.
- Restricting speeds on the Rail Spur to a maximum of 15 kph.
- Loading trains when moving uphill with locomotive and waggon couplings under load. Telemetry control of train speeds would ensure train acceleration, slowing or stopping would be gradual and not a source of coupling slap. Approximately 800m north of the private rail crossing, the Rail Spur is downhill which will enable the train to idle towards Werris Creek with all couplings under compression. The change from tension to compression on couplings would occur at low speed and approximately 500m from the nearest residence (Patterson).
- Stop board positioning to maximize the distance from nearby residences.
- Welded rail joints.
- Minimizing the coal drop height into the waggon.
- Coal bin positioning in excess of 1 km from the nearest potentially affected resident.
- Maintaining coal within the loading bin, thereby minimizing the noise generated by coal falling onto the metal bin floor.
- Liaising with “Cintra” re train movements to avoid / minimize concurrent stock / train movements on the private level crossing which will necessitate sounding the horn.
- Train driver / signal controller contact once loaded to minimize the requirement to stop at the outbound stop board. When parked at stop boards the locomotive engine speeds will be in idle.
- Use of “town horns” at the private and public level crossings. It should be noted that there is also a public level crossing on the Werris Creek – Quirindi Road / Main Northern Railway Line adjacent to the Maggs and Woods residences and less than 200 m from the Sleight / Lewis residence.

8.3 Vibration

As noted in Section 7.2.1 vibration associated with rail usage is a function of train speed.

On the basis of extensive investigations undertaken by Wilkinson Murray in relation to vibration on the Jerrys Plains rail spur which showed no perceptible ground vibration at

residences in excess of 20 m from the rail line, vibration from activities on the Werris Creek Coal Spur line would also be imperceptible. This conclusion is also supported by recent investigations undertaken by Spectrum Acoustics which showed that at a distance of 20m, passing unladen and laden coal trains, and passenger trains, travelling at approximately 50 kph did not trigger a vibration monitor set at 0.5 mm/s.

Given the relationship between train speed and ground vibration and the restriction of speed on the Rail Spur to a maximum of 15 kph as defined in the “fit for purpose” accreditation, ground vibration would not be measurable at the nearest residence (30 m).

8.4 Visual Impact

Train headlights and lights operating on the train loader represent the principal potentially intrusive visual impact associated with Rail Spur operations and would be minimized by:

- restricting locomotives headlight use to low beam;
- lighting installation at the train loading facility consistent with AS 1680.2.4:1997 and safety requirements; and
- using loading facility lighting only when the facility is in operation.

8.5 Traffic Interruption

Use of the Rail Spur will necessitate the movement of trains across the South Street public level crossing which provides access to the Sleight / Lewis, Patterson and limited other residences, with associated interference to the free flow of any traffic on the level crossing for two periods of approximately four minutes duration per train.

The location of the stop boards either side of this crossing and movement of trains across it only when uninterrupted access to the Werris Creek Rail Yards is possible will limit traffic interference.

In the unlikely event of a coincidental train breakdown on the rail crossing and an emergency, access across the Rail Spur for the emergency vehicles would be via the private level crossing on “Cintra”.

8.6 Private Level Crossing Cross-line Stock and Personnel Movement

In order to minimize the potential for train movements on the Rail Spur to disrupt stock movement across the private level crossing on “Cintra”, WCC and the potentially affected landowners / land users will develop a train / stock movement notification procedure.

The location of the “completion of loading point” to the south of this crossing will limit restrictions to personnel movement across it to two periods of approximately four minutes duration per train.

8.7 Air Quality

As with all other activities at the Werris Creek Coal Mine, operation of the Rail Spur and associated activities have the potential to impact on local air quality through the generation of airborne dust of various particle sizes, NO₂, SO₂ and other greenhouse gases. Of the airborne dust particles, those with smaller than 10 µm have the potential to impact on health.

A range of controls would be employed at the Mine in general to minimize these emissions and any associated impacts.

Specific safeguards with respect to Rail Spur operations would include:

- maintaining stockpiled coal at the rail load-out facility and coal product storage area in a damp condition, ie not conducive to dust lift off and dispersal;
- minimizing the distance between the coal train loading chute and the waggon;
- regular locomotive maintenance by Pacific National to ensure compliance with exhaust emission standards;
- limitation of coal train speeds on the Rail Spur.

9.0 MONITORING

Formal monitoring of Rail Spur operational impacts will be limited to:

- monitoring of noise to verify compliance with the criteria identified in **Table 1**. The planned noise monitoring programme presented in Section 9.1 has been drawn directly from the previously approved Noise Management Protocol prepared for the Werris Creek Coal Mine; and
- air quality, ie deposited dust and PM₁₀ monitoring (see Section 9.2).

Response to any other issues arising from the operation of the Rail Spur, including additional monitoring requirements (if any), will be determined based on the outcomes of regular liaison between WCC personnel and local residents, landowners or land users and/or issues arising through the complaints management procedure (see Section 10) or by the Community Consultative Committee.

9.1 Noise Monitoring

Rather than being conducted at specific intervals, train noise will be measured by WCC personnel or other nominated person(s) as the opportunity arises. The main issues associated with train noise are:

- maximum noise levels as trains enter the spur line and pass by residence(s);
- maximum noise levels from shunting as received at the nearest residence in Werris Creek and the Zeolite Australia residence; and
- maximum noise levels from coal loading operations (ie, filling empty wagons).

Measurement of the above train noise sources will be conducted as follows.

1. All noise investigations will be carried out in accordance with NSW DEC's Industrial Noise Policy, 2000 (INP), Environmental Noise Control Manual (ENCM) and applicable Australian Standards.
2. Noise levels will be measured in one-third octave bands using an instrument with IEC Type 1 characteristics as defined in AS 1259-1990 "Sound Level Meters". The instrument

will have current calibration as per manufacturer's instructions and field calibration will be confirmed before and after measurements with a sound level calibrator.

3. The instrument will be set to A-weighting, "fast" response and sufficient 1-minute measurements will be taken at the relevant location to ensure capture of the noise source.
4. Field notes will be taken during each measurement recording the time and duration of noise events, noise sources, instantaneous noise levels and frequency range of identified train noise sources.
5. Extraneous noise sources will be filtered from the measured signal, using Bruel & Kjaer Evaluator Software and the LAeq (15 minute) noise level from the rail loading activities and advancing locomotive during loading activities will be identified and compared with the relevant criterion in Consent Condition 4(7). In the event that coal loading occurs at night, an LA1 (1 minute) noise level would also be measured and the recorded level compared with the criterion in Consent Condition 4(7).
6. Extraneous noise sources will be filtered from the measured signal, using Bruel & Kjaer Evaluator Software and the LA(max) noise level attributable to train movements beyond the rail load-out facility will be identified and compared with the relevant criterion in Consent Condition 4(8).
7. Details regarding measured LA1 (1 minute) noise levels, survey interval, weather conditions, extraneous noise sources, monitoring locations and times of measurement will be recorded for inclusion in the noise monitoring report.

At least three surveys of train noise will be conducted to determine compliance with the criteria. These surveys may coincide with attended surveys of site construction works, but need not do so. If, after three consecutive train noise surveys, it is found that noise compliance is achieved then no further train noise surveys will be necessary unless there is a change in train configuration or componentry. If noise criterion exceedances are measured, then a rail noise mitigation strategy will be formulated, presented to the relevant parties for approval and, once approved, will be implemented.

Following implementation of the rail noise mitigation strategy, one further train noise compliance survey will be conducted. This procedure will be followed iteratively until compliance of train noise criteria is achieved or other agreements are reached.

9.2 Air Quality Monitoring

In accordance with the requirements of DA 172-7-2004, Environment Protection Licence 12290, and the approved Air Quality Monitoring Programme, air quality monitoring in the vicinity of the Rail Spur comprises:

- Deposited Dust gauges positioned at the Patterson and “Cintra” residences;
- PM₁₀ sampling at the Patterson residence.

Details of these monitoring sites, applicable standards, sampling procedures, data management and compliance evaluation are described in the Air Quality Monitoring Programme document.

10.0 RAIL SPUR COMPLAINT MANAGEMENT PROCEDURES

Any general complaint received relating to Rail Spur operations will be managed in accordance with the complaints receipt and response procedures identified in the Werris Creek Coal Mine Environmental Management Strategy (Section 6.2) and summarized below.

- (i) Details of the complainant and complaint will be recorded in the complaints log.
- (ii) WCC representatives will liaise with the complainant to ascertain all details, to identify the nature and source of the complaint and provide supplementary information for the log.
- (iii) Investigations will be initiated to verify or otherwise the basis for the complaint.
- (iv) Results of the investigation will be provided to the complainant together with advice as to any changed management practices to be implemented as a consequence of the investigation.

If any landowner considers air quality criteria nominated in the Air Quality Monitoring Programme are being exceeded and such exceedances were not predicted in the EIS, he/she may request WCC in writing for an independent review of the air pollution impacts of the mine on his/her land. In the event of such a request, WCC will:

- (i) advise the Director-General (DIPNR); and

- (ii) if so directed by the Director-General, initiate an independent review (and respond to the findings) in accordance with the procedures identified in Conditions 4 to 9 of Schedule 5 of DA 172-7-2004.

Land acquisition, if initiated, would be undertaken in accordance with Conditions 10 to 12 of Schedule 5 of DA 172-7-2004.

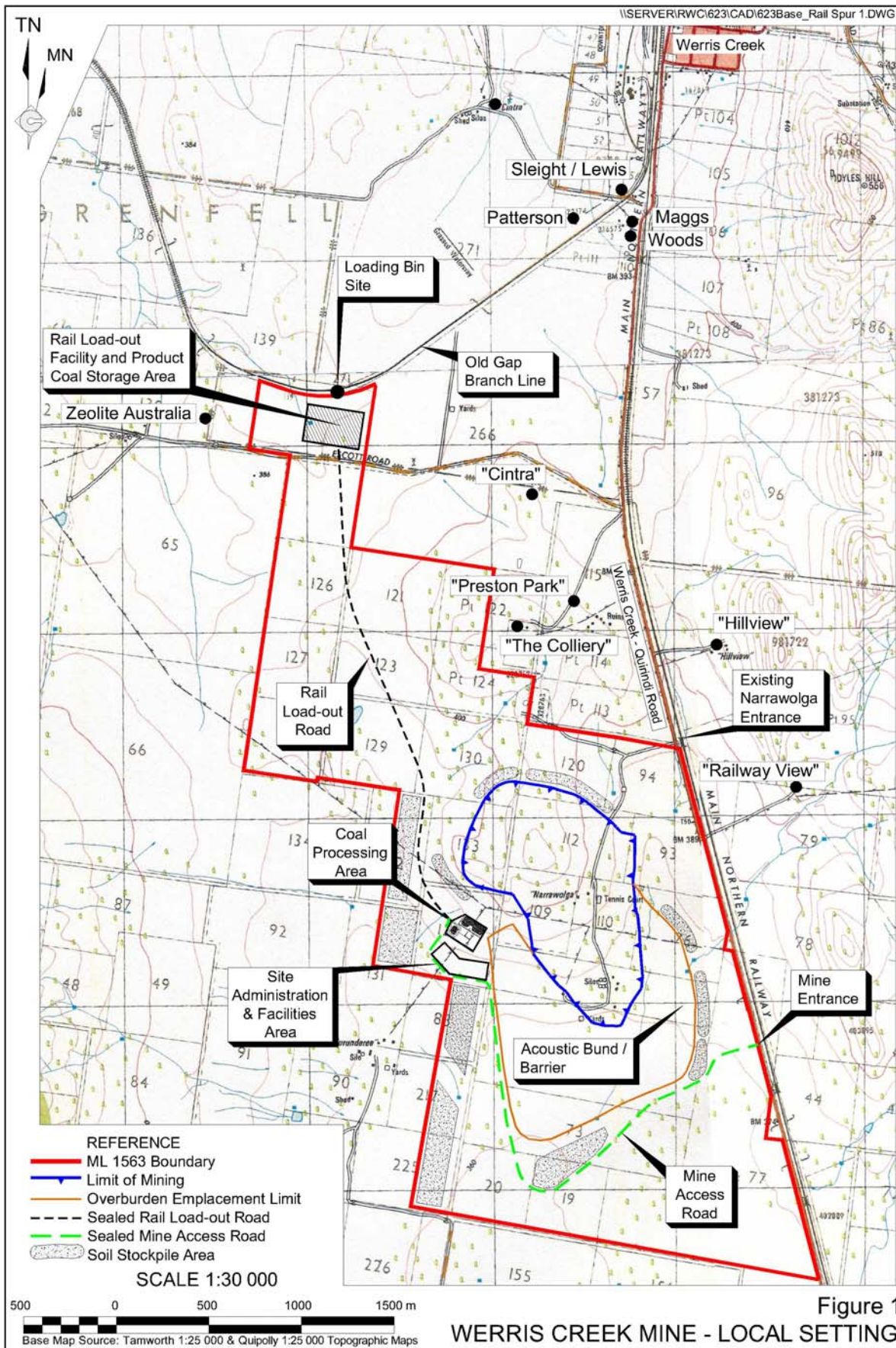
11.0 REPORTING

The frequency and nature of reporting on Rail Spur operations are presented in **Table 2**.

TABLE 2
Rail Spur Operations – Reporting

Aspect	Reporting Frequency	Forum
1. Useage	Annual	<ul style="list-style-type: none"> • AEMR
2. Noise	Annual Quarterly	<ul style="list-style-type: none"> • AEMR • Director-General (DIPNR); affected landowners / tenants *¹
3. Air Quality	Annual Annual Quarterly *1 At each CCC meeting Annual Annual	<ul style="list-style-type: none"> • AEMR • EPL return • Director-General; affected landowners / tenants *¹ • CCC • AEMR • EPL return
4. Complaints		<ul style="list-style-type: none"> • AEMR • EPL return
* ¹ in the event measured levels exceed criteria identified in DA 172-7-2004 and were not predicted in the EIS. Reporting to continue until compliance verified.		

Air quality and noise monitoring results will also be made publicly available at the mine.



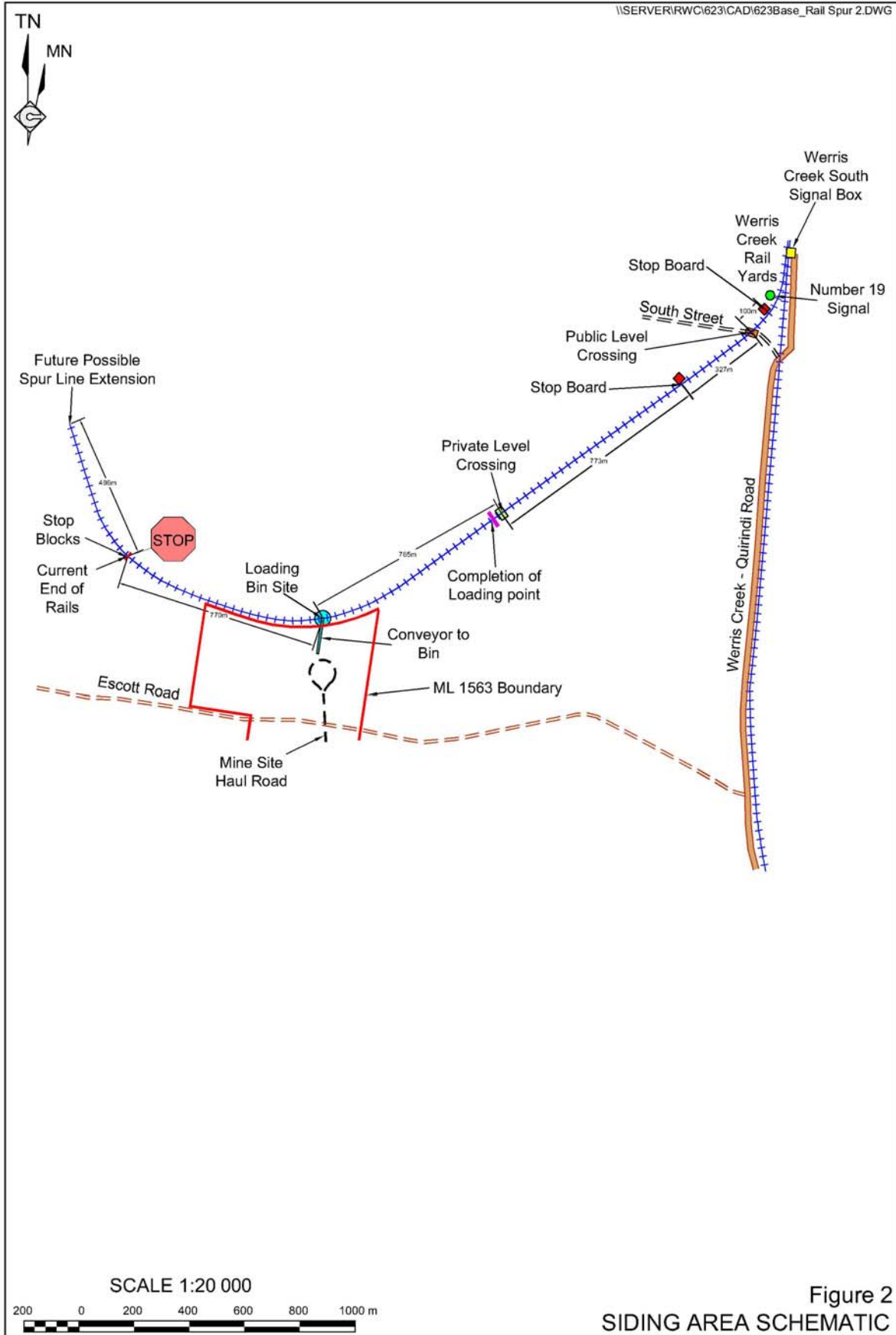


Figure 2
 SIDING AREA SCHEMATIC