

## INLAND RAIL PROJECT - NARRABRI TO NORTH STAR (N2NS) – SP1

### SSI 7474 – 6 Monthly Construction Monitoring Report (May - October 2023) – Rev. 2

<b>Date:</b>	26/02/2024
<b>To:</b>	Peter Borelli Project Director N2NS Level 16 180 Ann Street Brisbane QLD 4000
<b>From:</b>	Trans4m Rail Joint Venture 108 Siganto Drive Helensvale QLD 4212
<b>Project:</b>	Inland Rail   Narrabri to North Star SP1 (the “N2NS Project”)
<b>Distribution:</b>	Australian Rail Track Corporation (ARTC) N2NS Project Environmental Representative (Project ER) NSW Department of Planning and Environment (NSW DPE) NSW Environment Protection Authority (NSW EPA) Transport for NSW (TfNSW) NSW Natural Resource Access Regulator (NRAR) Narrabri Shire Council Gwydir Shire Council Moree Plains Shire Council
<b>Attachments:</b>	Attachment A: N2NS Project - Water Usage Results (May – October 2023) Attachment B: Depositional Dust Gauge Monitoring Results (incl. Certificate(s) of Analysis) Attachment C: Airborne Air Quality (PM10) Monitoring Results Attachment D: Air Quality Monitoring Locations

Construction works on the Narrabri to North Star SP1 Project (N2NS Project) commenced on the 10<sup>th</sup> April 2021 following the NSW Environment Protection Authority (NSW EPA) issuing the full Environment Protection Licence (EPL) on the 1<sup>st</sup> April and the NSW Department of Planning and Environment (NSW DPE, formerly the Department of Planning, Industry and the Environment) approving the Project’s Construction Environmental Management Plan (CEMP) and Sub-Plans on the 7<sup>th</sup> April 2021.

As detailed in the N2NS Project’s Condition of Approval (CoA) C14, the following Construction Monitoring Programs have been developed for the N2NS Project and are contained within the relevant Sub-Plans to the CEMP:

- *Noise and Vibration Monitoring Program*; as per Section 11 and Appendix E of the Construction Noise and Vibration Management Sub-Plan (CNVMP);
- *Water Usage Monitoring Program*; as per Section 7.2.1 of the Construction Soil and Water Management Sub-Plan (CSWMP);
- *Air Quality Monitoring Program*; as per Section 7.2.2 and Appendix D of the CSWMP; and



- *Physical Condition of local roads Monitoring Program*; as per Section 5 of the Construction Traffic, Transport and Access Management Sub-Plan (CTTAMP).

As required under CoA C20, this 6 Monthly Construction Monitoring Report has been prepared to summarise the results of these Construction Monitoring Programs for the May – October 2023 period.

The environmental works undertaken during this reporting period included, but are not limited to, the following:

- Review and update of the Project’s CEMP (Rev. 4 – 14/06/2023) and Sub-plans (i.e. Construction Soil and Water Management Sub-Plan (Rev. 4 – 14/06/2023), Construction Traffic, Transport and Access Management sub-Plan (Rev. 5 – 07/09/2023), Construction Noise and Vibration Management sub-Plan (Rev. 3 – 16/06/2023), Construction Biodiversity Management sub-Plan (Rev. 6 – 16/06/2023), Construction Flood and Emergency Management sub-Plan (Rev. 3 – 15/06/2023) and the Construction Heritage Management sub-Plan (Rev. 3 – 14/06/2023)).
- Preparation of environmental deliverables, including but not limited to: CPESC Certified Erosion and Sediment Control Plans, Site Environmental Plans (SEP), Clearing and Dewatering Permits and Out of Hours Works Applications for works within Stages 1, 2 and 3 of the N2NS Project.
- Digitisation of the actual and final disturbance footprint for the Project, including the calculation of the vegetation clearing quantities by Plant Community Type (PCT).
- Vegetation clearing activities in accordance with the relevant Vegetation Clearing Permit and supervised by a suitably licenced Spotter-catcher/s. The CPESC Certified ESC Plans were implemented, inspected and maintained wherever ground disturbance activities were occurring.
- Integrated weed management activities (i.e. broadscale spraying, targeted spot spraying and slashing) through Stages 1, 2 and 3 on the N2NS Project.
- Trans4m Rail Environmental (and other) Personnel undertook numerous environmental inspections during the reporting period. This included Weekly Environmental / Sustainability Inspections, Pre and Post Rainfall Inspections and targeted inspections with the Project’s Environmental Representative (ER).
- Depositional Dust Gauge (DDG) Monitoring continued at selected locations on the N2NS Project. In addition to this, airborne particulate (PM10) matter monitoring occurred at the North Star township during this reporting period.
- Landscaping and stabilisation of disturbed areas progressed across the alignment (Stages 1, 2B and 3) in accordance with the relevant landscape treatment. In addition to this, temporary stabilisation of exposed soils (i.e. soil binder application over drill seeded areas) also occurred during the reporting period.
- Investigation and management of environmental incidents and events on the project.

Table 1: Results and / or findings of the CoA C14 Construction Monitoring Programs

<p><b>Noise and Vibration Monitoring Program</b></p>	<p><u>Vibration Monitoring</u> Section 11.4 of the CNVMP and the Project’s <i>Environmental Protection Licence</i> (EPL21494) identifies various situations where vibration monitoring is / or may be required on the N2NS Project. These situations typically include:</p> <ul style="list-style-type: none"> <li>- Work activities with the potential to generate significant vibration levels where the vibration screening criteria is likely to be exceeded. NOTE: The minimum working distances (vibration screening criteria) are based upon the vibration objectives in Section 7.4.1 (CNVMP) for “sound structures” being 7.5mm/s peak component particle velocity and in Section 7.4.2 (CNVMP) for “unsound structures” (i.e. unsound heritage building) 2.5mm/s peak component particle velocity. These include a 32 tonne compactor, being the most vibration-intensive plant or equipment proposed to be used on the Project, with an</li> </ul>
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	<p>indicative minimum working distance of 10 metres for a sound structures and 20 metres for an unsound structures.</p> <ul style="list-style-type: none"> <li>- Vibration generating activities that have the potential to impact on heritage items.</li> <li>- Works occurring where vibration sensitive locations occur within the minimum working distances for the N2NS Project.</li> <li>- Where determined by a vibration assessment and reported in the relevant CNVIS.</li> <li>- Where or when a vibration related complaint(s) is / are received.</li> <li>- Where directed to undertake monitoring by an authorised officer of the NSW EPA.</li> </ul> <p>During the May - October 2023 monitoring period, no attended or unattended vibration monitoring was triggered as per the above requirements and therefore no monitoring was undertaken.</p> <p><u>Noise Monitoring</u></p> <p>As per Section 11.3.2 of the Project’s Construction Noise and Vibration Management Sub-Plan, attended noise monitoring is to be undertaken on the following occasions:</p> <ul style="list-style-type: none"> <li>- Attended construction-phase noise monitoring will be carried out during activities for which a location and activity specific noise impact assessment has been prepared to confirm that actual noise levels are consistent with noise impact predictions and that the management measures that have been implemented are appropriate;</li> <li>- Prior to the applicable construction works, the noise levels of typical plant and equipment, including rental equipment, would be checked against the levels included in the CNVIS to ensure that equipment will operate at or below the assumed noise levels;</li> <li>- To verify high noise impact works (above 75 dB(A)) at the nearest sensitive receiver noted in the Land Use Survey in the NVMP to confirm if respite periods are required;</li> <li>- Where appropriate, in response to a noise related complaint(s) (determined on a case-by- case basis) and in accordance with the OOHV Protocol or EPL;</li> <li>- As directed by an authorised officer of the EPA;</li> <li>- As otherwise required by the CNVIS, OOHV Protocol or EPL;</li> <li>- Following the implementation of mitigation measures or noise attenuation as a result of an exceedance of predicted noise levels; and</li> <li>- 12 monthly spot checks for noise intensive plant and equipment will be undertaken throughout construction to ensure compliance with the assumed noise levels in the applicable CNVIS.</li> </ul> <p>In addition to the above list, noise monitoring can also be undertaken to assist in identifying and/or managing high risk noise events, such as during school examination periods, or as required by an EPL.</p>
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	<p>During the May - October 2023 monitoring period, no attended or unattended noise monitoring was triggered by the above requirements and therefore no noise monitoring was undertaken.</p>						
<p><b>Water Usage Monitoring Program</b></p>	<p>Environmental monitoring, in particular that of construction water usage, has been conducted for the duration of the construction phase of the Project as required under CoA C14 (b) and RMM C7.2. As per the Inland Rail Construction Water Plan Narrabri to North Star (Golder Associates, January 2020) a total of approximately 1,215ML of construction water was estimated to be used for the construction of the N2NS Project. However, the strategies developed by ARTC / Trans4m Rail have demonstrated that this will be significantly less. The aforementioned SSI monitoring seeks to establish the water usage volume by measuring the water usage on the N2NS Project.</p> <p>Trans4m Rail’s construction water strategy has been modified since the commencement of the Project. Construction water was initially proposed to be predominantly sourced from municipal supplies (both potable and non-potable); however Trans4m Rail has since developed contracts with numerous landholders along the alignment for the purchase of local farm dam water. In addition, a substantial amount of site - captured stormwater (from numerous floods and rain events since the commencement of construction) has also been used during the construction process.</p> <p>The construction water usage for the May – October 2023 reporting period include:</p> <table border="1" data-bbox="649 1134 1234 1239"> <tr> <td><b>Potable Water</b></td> <td>2,488.5 kL</td> </tr> <tr> <td><b>Non-Potable Water</b></td> <td>8,970.0 kL</td> </tr> <tr> <td><b>Total Water Use</b></td> <td><b>11,458.5 kL</b></td> </tr> </table> <p>The non-potable water is utilised for dust suppression, lime slacking and compaction and although at the outset of the project potable water was also used for these purposes it is now primarily used for on-site amenities and landscaping purposes only.</p> <p>Water consumption on the Project is collated from water cart data, which outlines a number of aspects regarding the water usage including: the provider, the load volume, the source or origin of the water, the number of loads and the final destination and use of the water. This information is further separated based on whether water is potable or non-potable and individual entries are recorded for each provider to ascertain any trends that may be occurring.</p> <p>Whilst the data collection occurs on a daily basis this information is also collated on a monthly basis to be reported against baseline data to ARTC. Furthermore, this monthly data is analysed to see emerging trends within the Project for water usage and determine if any additional mitigation measures are required. The data so far reveals an overwhelming usage of non-potable water as opposed to potable water primarily due to the significant rainfall experienced throughout the region.</p>	<b>Potable Water</b>	2,488.5 kL	<b>Non-Potable Water</b>	8,970.0 kL	<b>Total Water Use</b>	<b>11,458.5 kL</b>
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<b>Total Water Use</b>	<b>11,458.5 kL</b>						

	The results of this monitoring are provided in Attachment A.
<b>Air Quality Physical</b>	<p>Depositional Dust Gauges (DDGs) were established at 3 locations on the N2NS project in February 2021 in accordance with the Depositional Dust Monitoring Procedure in the Project’s Construction Soil and Water Management Sub-Plan (CSWMP). The intent of the gauges were to capture background air quality (deposited dust) prior to construction activities commencing and throughout the construction process. A further 6 DDG’s were installed in Stage 3 in December 2021 and another 5 DDG’s in Stages 1 and 3 in February / March 2022.</p> <p>The locations of these DDGs were generally selected based on the requirements of Appendix D of the Project’s CSWMP, the <i>A/NZS3580.1.1:2007: Methods for sampling and analysis of ambient air, Part 1.1: Guide to siting air monitoring equipment</i> and the EPL for the Project. The locational criteria considered during the selection of the monitoring locations included:</p> <ul style="list-style-type: none"> <li>- General dust catchment areas along the alignment based on the scale and nature of the construction activities occurring in the area and the density, location and proximity of surrounding sensitive receivers.</li> <li>- The local meteorological data and wind roses provided in the Project EIS.</li> <li>- The selected DDG locations are considered representative of the surrounding locations, taking into account all environmentally sensitive areas in the receiving environment.</li> </ul> <p>Locations were selected to avoid the following (where possible):</p> <ul style="list-style-type: none"> <li>- Where airflow is restricted, such as behind trees or structures. DDG’s should have a minimum clear sky angle of 120°.</li> <li>- Surrounding and / or overhanging objects that might alter the dust deposition rate, such as leafy vegetation, buildings and other structures.</li> <li>- Interference that may occur from surrounding land uses i.e. farming, industry or unsealed access roads, etc.</li> <li>- Locations that are visible and accessible by the public to avoid DDGs being tampered with.</li> </ul> <p>Monitoring locations have also been selected based on the requirements of the Project’s EPL. EPL Condition P1.1, states that depositional dust monitoring must be undertaken “<i>Adjacent to the most affected sensitive receivers nearby construction works</i>”.</p> <p>NOTE: The DDG locations selected on the Project comply with the locational criteria detailed above with the exception of the “interference criteria”. The entire N2NS alignment is in close</p>

	<p>proximity (typically &lt;200m) to surrounding land uses (i.e. large scale agricultural operations) that may interfere with the Project's dust deposition results. In addition to this, the DDG established at Croppa Creek and adjacent Crooble Road is in close proximity to the unsealed roads and a grain storage facilities on Crooble Road and at Croppa Creek. These locations were selected as it's adjacent 2 sensitive receivers on Crooble Road and the township of Croppa Creek as per the EPL (Condition P1.1) requirement.</p> <p>During the May – October 2023 reporting period the following changes were made to the <i>Project's Monitoring and Discharge Schedule</i> in accordance with EPL Condition P1.4.</p> <ul style="list-style-type: none"> <li>- May 2023 – Decommissioning of all 4 depositional dust gauge monitoring locations within Stage 1 (i.e. Spring Creek, Edgeroi, Tookey Creek and Pan Creek) due to the completion of major construction activities in Stage 1. The relocation of the Crooble DDG also occurred in May 23 to a more suitable location, presenting less interference from the adjacent unsealed Crooble Road.</li> <li>- September 2023 – Decommissioning of 6 depositional dust gauge monitoring locations within Stages 2/3 due to the completion of major construction activities in the vicinity of the locations. These locations include: PAD 2, PAD 4, Crooble A, Milguy, Wongabindie and Roydon.</li> </ul> <p>NOTE: Depositional dust monitoring ceased on the N2NS Project when the final 3 DDG's (Croppa Creek, North Star and Croppa – North Star LX) were decommissioned on the 13<sup>th</sup> Nov 2023.</p> <p>The adopted air quality criteria for depositional dust gauge monitoring is shown below:</p> <table border="1" data-bbox="630 1352 1312 1486"> <thead> <tr> <th>Pollutant</th> <th>Averaging period</th> <th>Criteria</th> </tr> </thead> <tbody> <tr> <td>Dust Deposition<sup>c</sup></td> <td>Annual</td> <td>2 g/m<sup>2</sup>/month<sup>a</sup> 4 g/m<sup>2</sup>/month<sup>b</sup></td> </tr> </tbody> </table> <p>a. Maximum increase in deposited dust level. b. Maximum total deposited dust level. c. Dust is assessed as insoluble solids as defined by AS 3580.10.1–1991 (AM-19).</p> <p>The results of the DDG monitoring are provided in Attachment B.</p> <p>The DDG monitoring during this period identified that the annual average dust deposition rate for all monitoring locations was &lt;4g/m<sup>2</sup>/month with the exception of the following:</p> <ul style="list-style-type: none"> <li>- Crooble – 6.5g/m<sup>2</sup>/month</li> <li>- Roydon Road – 8.2g/m<sup>2</sup>/month</li> </ul>	Pollutant	Averaging period	Criteria	Dust Deposition <sup>c</sup>	Annual	2 g/m <sup>2</sup> /month <sup>a</sup> 4 g/m <sup>2</sup> /month <sup>b</sup>
Pollutant	Averaging period	Criteria					
Dust Deposition <sup>c</sup>	Annual	2 g/m <sup>2</sup> /month <sup>a</sup> 4 g/m <sup>2</sup> /month <sup>b</sup>					

NOTE: These annual average dust deposition rates are largely a result of the following exceptionally high results;

- Apr 23 dust depositional results of 14.5g/m<sup>2</sup>/month at Roydon Road;
- Jun and Jul 23, dust deposition results of 21.3 and 22.8g/m<sup>2</sup>/month at Roydon Road; and
- Aug 23 dust deposition results of 16.8g/m<sup>2</sup>/month at Crooble A.

Considering that major construction activities had been completed adjacent these locations when these results were observed, it's suspected that these elevated levels are a result of one or more of the following:

- The DDG's may potentially have been tampered with.
- Increased non-project traffic (harvest-related) on the unsealed roads adjacent the Crooble and Roydon Road DDG locations.
- Commencement of the harvest season and the stockpiling / movement of grain into the laydown area directly adjacent the Crooble location.
- Mowing / slashing of the area surrounding the sensitive receiver (and DDG) at Crooble.
- Following the Oct 22 floods, the region experienced exceptionally dry periods from Dec 22 – Oct 23 contributing to elevated dust levels in the area.

Regardless, as a result of the above dust deposition levels, the below actions have been taken by the Project:

- Increased surveillance has occurred by the Project Team for the generation of airborne dust by the Project.
- Additional dust management measures (i.e. soil binder applied over drill seeded areas to stabilise exposed soils) have been undertaken at these (and other) locations on-site.
- The Project workforce has been toolboxed regarding any remaining activities that may generate dust and where required, adjusting activities to suit. This includes slowing down light and heavy vehicles where excessive dust is being generated.

Airborne Particulate Matter (PM10) monitoring continued to be undertaken at a private residence at North Star during the reporting period.

The adopted pollutant criteria for PM10 monitoring on the N2NS Project is detailed below.

Pollutant	Averaging period	Criteria <sup>1, 2</sup>
PM10	24 Hours	50 µg/m <sup>3</sup>

1. Based on the Air NEPM and the Approved Methods



	<p>2. The adopted assessment criteria for air quality (PM10) on the N2NS Project is 50µg/m3 – 24hr averaging period (Source: Table 11, Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW EPA, 2022)).</p> <p>During the previous reporting period, the PM10 air quality monitoring equipment was deployed to North Star (Private Residence) prior to the upcoming signalling and associated earthworks commencing (i.e. trenching, stockpiling of material, excavation and backfilling of pits, etc).</p> <p>During this reporting period, PM10 airborne air quality monitoring was undertaken during the following periods:</p> <ul style="list-style-type: none"> <li>- 07/06/2023 – 16/06/2023</li> <li>- 14/07/2023 – 18/07/2023</li> <li>- 29/09/2023 – 06/10/2023</li> </ul> <p>Note: Monitoring also commenced on the 29/07/2023, 13/10/2023 and the 27/10/2023, however on these occasions stopped recording within the first 24hrs on monitoring due to flow issues. Each time the pre-filter was cleaned prior to the DusTrak being redeployed.</p> <p>The monitoring during this period identified that PM10 levels recorded at North Star did not exceed the adopted air quality assessment criteria for the Project. Refer to Attachment C for the air quality monitoring data.</p>
<p><b>Local Road Condition Monitoring Report</b></p>	<p>During the May - October 2023 reporting period, the condition of the local roads (i.e. those utilised by construction vehicles) were inspected on the following occasions. These inspections are captured via dashcam with any observations / actions recorded on the <i>T4MR Local Road Maintenance Register</i>.</p> <p><u>July 2023</u></p> <ul style="list-style-type: none"> <li>- 4<sup>th</sup> July 2023 – Stage 1 Roads</li> <li>- 4<sup>th</sup> July 2023 – Stage 3 Roads</li> <li>- 6<sup>th</sup> July 2023 – Wave Hill Road (Narrabri Shire Council)</li> <li>- 6<sup>th</sup> July 2023 – Stage 1 Roads</li> <li>- 6<sup>th</sup> July 2023 – Stage 3 Roads</li> <li>- 11<sup>th</sup> July 2023 – Stage 3 Roads</li> <li>- 13<sup>th</sup> July 2023 – Stage 3 Roads</li> <li>- 19<sup>th</sup> July 2023 – Stage 3 Roads</li> <li>-</li> </ul> <p><u>August 2023</u></p> <ul style="list-style-type: none"> <li>- 26<sup>th</sup> &amp; 27<sup>th</sup> August 2023 – Stage 1 Roads</li> </ul> <p><u>September 2023</u></p> <ul style="list-style-type: none"> <li>- 9<sup>th</sup> September 2023 – Stage 3 Roads (incl. Stage 3 LXing Compliance Inspection)</li> </ul> <p><u>October 2023</u></p>





	<ul style="list-style-type: none"><li>- 27<sup>th</sup> October 2023 – Stage 3 Roads</li><li>- 26<sup>th</sup> October 2023 – Stage 3, all LX's</li></ul> <p>No project-related defects or actions were identified during the above inspections.</p>
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The environmental focus for the next reporting period includes:

- Completion works (site clean-up), waste removal and demobilisation activities through Stages 1 and 3. This includes resource recovery and re-use in line with the relevant resource recovery order and exemptions and discussions with the NSW EPA.
- Progressive stabilisation of the site via the implementation of the landscape treatment design for all disturbed areas within Stages 1 and 3.
- Continue with post-construction weed management activities through Stage 3.
- Continue the implementation of the Project's EPL relinquishment process (i.e. groundcover assessments, waste and contamination inspections, etc).

Please don't hesitate to contact me should you have any further questions in relation to this report.

Yours sincerely

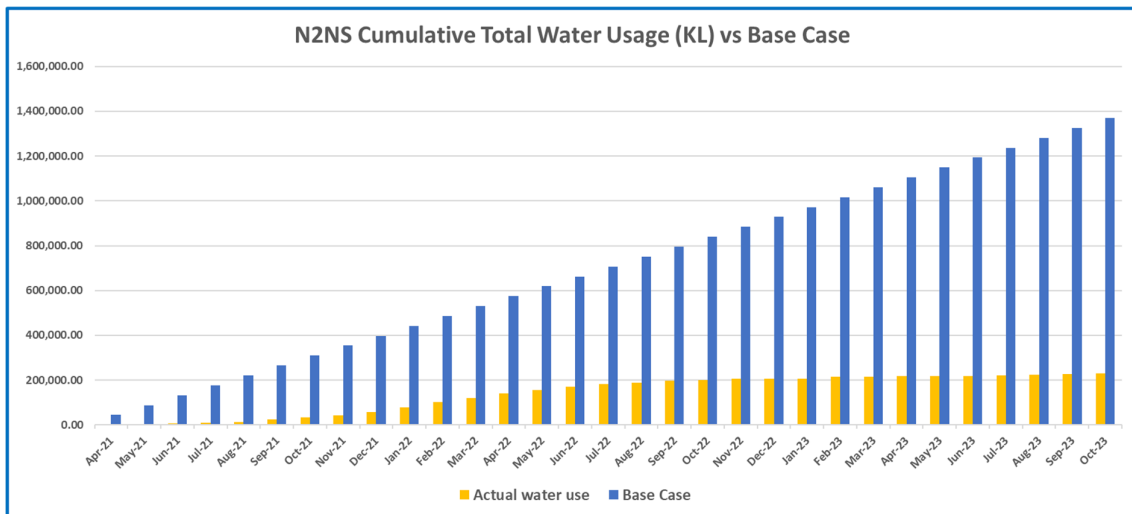
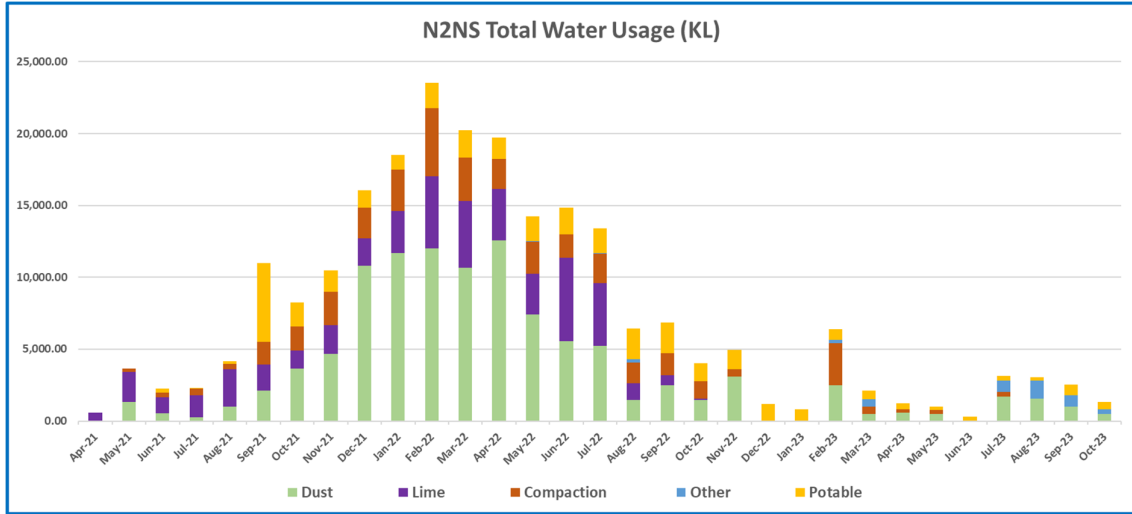
A handwritten signature in black ink that reads "A Playne".

Adam Playne  
Senior Environmental Advisor  
Trans4m Rail



**ATTACHMENTS**

**Attachment A: N2NS Project - Water Usage Results (May – October 2023)**



**Attachment B: Depositional Dust Gauge Monitoring Results (incl. Certificate(s) of Analysis)**

Monitoring Period	PAD 2	PAD 4	Gurley	Crooble	Croppa Creek	Croppa / North Star Int.	North Star	Roydon Road	Milguy	Wongabindi	Spring Creek	Edgeroi	Tookey Creek	Pan Creek
Units	Total Insoluble Matter (g/m <sup>2</sup> /month)													
Criteria	4 g/m <sup>2</sup> /month - Annual Averaging Period													
Feb-21	0.3	4.4	1.1	-	-	-	-	-	-	-	-	-	-	-
Mar-21	0.7	0.4	0.5	-	-	-	-	-	-	-	-	-	-	-
Apr-21	2.0	1.6	0.8	-	-	-	-	-	-	-	-	-	-	-
May-21	0.4	1.0	0.5	-	-	-	-	-	-	-	-	-	-	-
Jun-21	1.3	0.5	1.2	-	-	-	-	-	-	-	-	-	-	-
Jul-21	1.0	0.2	0.2	-	-	-	-	-	-	-	-	-	-	-
Aug-21				-	-	-	-	-	-	-	-	-	-	-
Sep-21	<u>1.5</u>	<u>2.9</u>	<u>0.8</u>	-	-	-	-	-	-	-	-	-	-	-
Oct-21				-	-	-	-	-	-	-	-	-	-	-
Nov-21				-	-	-	-	-	-	-	-	-	-	-
Dec-21	0.7	1.0	0.5	1.9	0.1	2.1	4.0	2.1	1.2	-	-	-	-	-
Jan-22	0.7	0.8	0.5	7.9	1.6	0.3	1.6	0.3	0.9	-	-	-	-	-
Feb-22	0.8	0.7	1.2	7.1	2.2	13.2	2.4	3.1	1.4	1.4	-	-	-	-
Mar-22	0.5	0.8	Decom.	4.7	4.0	4.7	2.2	1.2	1.5	5.4	3.6	3.8	2.5	1.8
Apr-22	0.2	0.4	Decom.	3.6	15.4	2.3	1.1	0.7	0.9	4.4	2.4	4.3	4.8	1.0
May-22	0.3	4.7	Decom.	10.7	-	2.3	1.5	5.6	0.9	1.9	2.5	3.3	6.4	0.3
Jun-22	<u>0.3</u>	<u>2.4</u>	Decom.	1.1	<u>2.9</u>	2.6	0.8	<u>2.4</u>	-	<u>2.6</u>	<u>4.1</u>	<u>3.7</u>	<u>4.4</u>	<u>0.8</u>
Jul-22	0.6	<u>2.8</u>	Decom.	8.4	1.4	1.6	0.9	3.3	<u>1.0</u>	1.3	2.9	3.2	4.4	1.5
Aug-22	1.4	<u>1.5</u>	Decom.	3.6	2.6	1.8	1.0	0.7	2.4	2.6	2.6	2.7	3.6	1.7
Sep-22	0.7	0.5	Decom.	6.9	2.3	2.7	0.7	1.1	2.0	0.5	5.2	2.9	2.3	1.3
Oct-22	0.3	4.3	Decom.	<u>39.2</u>	<u>41.1</u>	<u>1.2</u>	<u>0.6</u>	<u>3.8</u>	<u>1.2</u>	<u>1.0</u>	1.6	0.6	1.9	1.8
Nov-22	<u>3.0</u>	-	Decom.	<u>2.5</u>	<u>2.5</u>	<u>2.3</u>	<u>0.8</u>	<u>2.4</u>	<u>2.8</u>	<u>15.4</u>	NOTE E	3.8	1.6	1.3
Dec-22	<u>1.2</u>	<u>2.6</u>	Decom.	<u>2.5</u>	<u>2.8</u>	<u>24.6</u>	<u>0.8</u>	<u>0.8</u>	<u>2.5</u>	<u>2.6</u>	NOTE E	<u>1.2</u>	<u>1.1</u>	<u>2.2</u>
Jan-23	0.9	0.6	Decom.	9.5	2.3	1.5	0.8	0.4	3.3	5.0	1.2	0.5	2.7	2.5
Feb-23	NOTE D	NOTE D	Decom.	NOTE D	NOTE D	NOTE D	NOTE D	NOTE D	NOTE D	NOTE D	NOTE D	NOTE D	NOTE D	NOTE D
Mar-23	<u>0.4</u>	<u>0.7</u>	Decom.	<u>2.2</u>	<u>2.9</u>	<u>1.4</u>	<u>1.1</u>	<u>4.4</u>	<u>3.0</u>	<u>2.5</u>	<u>4.5</u>	NOTE E	<u>1.9</u>	<u>2.6</u>
Apr-23	0.4	0.5	Decom.	<u>9.5</u>	<u>3.5</u>	<u>0.6</u>	<u>0.6</u>	<u>14.5</u>	<u>2.6</u>	<u>1.3</u>	<u>1.1</u>	<0.1	<u>1.6</u>	<u>0.7</u>
May-23	0.1	1.2	Decom.	6.4	2.7	0.9	0.7	3.0	1.2	4.8	0.5	0.7	0.9	0.8
Jun-23	0.6	1.8	Decom.	1.5	1.2	0.7	0.4	21.3	1.2	6.7	2.3	1.9	2.2	2.9
Jul-23	0.1	0.3	Decom.	4.8	0.7	0.3	0.1	22.8	0.6	2.2	Decom.	Decom.	Decom.	Decom.
Aug-23	0.4	1.0	Decom.	16.8	0.8	0.5	0.2	5.5	0.8	2.5	Decom.	Decom.	Decom.	Decom.
Sep-23	0.7	0.2	Decom.	0.6	0.3	0.2	2.4	0.9	0.4	0.8	Decom.	Decom.	Decom.	Decom.
Oct-23	Decom.	Decom.	Decom.	Decom.	<u>1.0</u>	<u>1.1</u>	2.0	Decom.	Decom.	Decom.	Decom.	Decom.	Decom.	Decom.
Nov-23	Decom.	Decom.	Decom.	Decom.	<u>0.8</u>	<u>0.6</u>	<u>0.5</u>	Decom.	Decom.	Decom.	Decom.	Decom.	Decom.	Decom.
Annual Average	0.5	1.0	Decom.	6.5	1.7	2.9	0.9	8.2	1.7	3.2	1.9	1.1	1.7	2.0

Pollutant	Averaging period	Criteria
Dust Deposition <sup>1</sup>	Annual	2 g/m <sup>2</sup> /month <sup>a</sup>
		4 g/m <sup>2</sup> /month <sup>b</sup>

a. Maximum increase in deposited dust level.  
b. Maximum total deposited dust level.  
c. Dust is assessed as insoluble solids as defined by AS 3580.10.1-1991 (AM-19).  
d. Underlined data is non-compliant with typical exposure period of 30 +/- 2 days as per AS3580.10.1  
e. DDG stolen / removed by others.  
f. DDG's Decommissioned at the end of the Nov 23 monitoring period (13/12/23)  
NOTE: Feb - Mar 23 DDGs remained in the field for 42 days, therefore 1 dataset for the 2 months. Project NCR raised.

Trans4m Rail Joint Venture ABN: 84 996 025 181  
108 Siganto Drive, Helensvale QLD 4212 | PO Box 903, Oxenford QLD 4210  
T: 07 5671 9601



## CERTIFICATE OF ANALYSIS

Work Order	: EN2305424	Page	: 1 of 5
Client	: Trans 4 M Rail Joint Venture	Laboratory	: Environmental Division Newcastle
Contact	: Adam Playne	Contact	:
Address	: 64-68 Balo Street Moree 2400	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: Narrabri 2 North Star	Date Samples Received	: 01-Jun-2023 10:15
Order number	: PO/7632/006842	Date Analysis Commenced	: 02-Jun-2023
C-O-C number	: ----	Issue Date	: 13-Jul-2023 10:25
Sampler	: Adam Playne, HAMISH RUSSELL		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 13		
No. of samples analysed	: 13		



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- Analytical Results

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### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Zoran Grozdanovski	Team Leader - Chemistry	Newcastle - Inorganics, Mayfield West, NSW



## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- Analysis as per AS3580.10.1-2016. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m<sup>2</sup>.mth as sampling data was provided by the client.
- For dust analysis, the Limit of Reporting (LOR) referenced in the reports for deposited matter parameters represents the reporting increment rather than reporting limit.



### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

			Sample ID	Spring CK 27/04/23 - 25/05/23	Edgeroi 27/04/23 - 25/05/23	Pan Creek 27/04/23 - 25/05/23	Tookey Creek 27/04/23 - 25/05/23	Pad 2 27/04/23 - 25/05/23
			Sampling date / time	25-May-2023 00:00	25-May-2023 00:00	25-May-2023 00:00	25-May-2023 00:00	25-May-2023 00:00
Compound	CAS Number	LOR	Unit	EN2305424-001	EN2305424-002	EN2305424-003	EN2305424-004	EN2305424-005
				Result	Result	Result	Result	Result
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>0.5</b>	<b>0.7</b>	<b>0.8</b>	<b>0.9</b>	<b>0.1</b>
Total Insoluble Matter (mg)	----	2	mg	<b>9</b>	<b>12</b>	<b>14</b>	<b>15</b>	<b>2</b>



## Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: AIR)

Sample ID

			<b>Pad 4</b> 27/04/23 - 25/05/23	<b>Roydon Rd</b> 26/04/23 - 25/05/23	<b>Wongabindie</b> 26/04/23 - 25/05/23	<b>Milguy Silos</b> 26/04/23 - 25/05/23	<b>Crooble</b> 26/04/23 - 25/05/23	
Sampling date / time			25-May-2023 00:00	25-May-2023 00:00	25-May-2023 00:00	25-May-2023 00:00	25-May-2023 00:00	
Compound	CAS Number	LOR	Unit	EN2305424-006	EN2305424-007	EN2305424-008	EN2305424-009	EN2305424-010
				Result	Result	Result	Result	Result
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>1.2</b>	<b>3.0</b>	<b>4.8</b>	<b>1.2</b>	<b>6.4</b>
Total Insoluble Matter (mg)	----	2	mg	<b>20</b>	<b>52</b>	<b>82</b>	<b>20</b>	<b>110</b>



### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

			Sample ID	Croppa Creek 26/04/23 - 25/05/23	Croppa North Star 26/04/23 - 25/05/23	North Star 26/04/23 - 25/05/23	----	----
			Sampling date / time	25-May-2023 00:00	25-May-2023 00:00	25-May-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	EN2305424-011	EN2305424-012	EN2305424-013	-----	-----
				Result	Result	Result	----	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>2.7</b>	<b>0.9</b>	<b>0.7</b>	----	----
Total Insoluble Matter (mg)	----	2	mg	<b>46</b>	<b>15</b>	<b>12</b>	----	----





## CERTIFICATE OF ANALYSIS

Work Order	: EN2306800	Page	: 1 of 5
Client	: Trans 4 M Rail Joint Venture	Laboratory	: Environmental Division Newcastle
Contact	: HAMISH RUSSELL	Contact	:
Address	: 64-68 Balo Street Moree 2400	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: Narrabri 2 North Star	Date Samples Received	: 04-Jul-2023 09:20
Order number	: ----	Date Analysis Commenced	: 10-Jul-2023
C-O-C number	: ----	Issue Date	: 13-Jul-2023 16:22
Sampler	: HAMISH RUSSELL		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 13		
No. of samples analysed	: 13		



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Signatories	Position	Accreditation Category
Shane Merrell	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW



## General Comments

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Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- Dust analysis as per AS3580.10.1-2016. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in deposition units e.g. g/m<sup>2</sup>/month as sampling data was provided by the client.
- For dust analysis, the Limit of Reporting (LOR) referenced in the reports for deposited matter parameters represents the reporting increment rather than reporting limit.



### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

Sample ID

			Spring CK 25/05/23 - 26/06/23	Clump Rd 25/05/23 - 26/06/23	Edgeroi 25/05/23 - 26/06/23	Pad 6 25/05/23 - 26/06/23	Pad 2 25/05/23 - 26/06/23	
Sampling date / time			26-Jun-2023 00:00	26-Jun-2023 00:00	26-Jun-2023 00:00	26-Jun-2023 00:00	26-Jun-2023 00:00	
Compound	CAS Number	LOR	Unit	EN2306800-001	EN2306800-002	EN2306800-003	EN2306800-004	EN2306800-005
				Result	Result	Result	Result	Result
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>2.3</b>	<b>2.9</b>	<b>1.9</b>	<b>2.2</b>	<b>0.6</b>
Total Insoluble Matter (mg)	----	2	mg	<b>44</b>	<b>54</b>	<b>35</b>	<b>42</b>	<b>11</b>



### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: AIR)

			Sample ID	Pad 4 25/05/23 - 26/06/23	Roydon Rd 25/05/23 - 26/06/23	Wongabindie 25/05/23 - 26/06/23	Milguy Silos 25/05/23 - 26/06/23	Crooble 25/05/23 - 26/06/23
			Sampling date / time	26-Jun-2023 00:00	26-Jun-2023 00:00	26-Jun-2023 00:00	26-Jun-2023 00:00	26-Jun-2023 00:00
Compound	CAS Number	LOR	Unit	EN2306800-006	EN2306800-007	EN2306800-008	EN2306800-009	EN2306800-010
				Result	Result	Result	Result	Result
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>1.8</b>	<b>21.3</b>	<b>6.7</b>	<b>1.2</b>	<b>1.5</b>
Total Insoluble Matter (mg)	----	2	mg	<b>34</b>	<b>401</b>	<b>126</b>	<b>23</b>	<b>29</b>



### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

			Sample ID	Croppa Creek 25/05/23 - 26/06/23	Croppa / Northstar 25/05/23 - 26/06/23	North Star 25/05/23 - 26/06/23	----	----
			Sampling date / time	26-Jun-2023 00:00	26-Jun-2023 00:00	26-Jun-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	EN2306800-011	EN2306800-012	EN2306800-013	-----	-----
				Result	Result	Result	----	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>1.2</b>	<b>0.7</b>	<b>0.4</b>	----	----
Total Insoluble Matter (mg)	----	2	mg	<b>22</b>	<b>13</b>	<b>8</b>	----	----



## CERTIFICATE OF ANALYSIS

Work Order	: EN2307650	Page	: 1 of 4
Client	: Trans 4 M Rail Joint Venture	Laboratory	: Environmental Division Newcastle
Contact	: Adam Playne	Contact	:
Address	: 64-68 Balo Street Moree 2400	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: Narrabri 2 North Star	Date Samples Received	: 01-Aug-2023 12:50
Order number	: ----	Date Analysis Commenced	: 03-Aug-2023
C-O-C number	: ----	Issue Date	: 09-Aug-2023 13:56
Sampler	: Georgia Butler		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 9		
No. of samples analysed	: 9		



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Signatories	Position	Accreditation Category
Shane Merrell	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW



## General Comments

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LOR = Limit of reporting  
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ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- Analysis as per AS3580.10.1-2016. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m<sup>2</sup>.mth as sampling data was provided by the client.
- For dust analysis, the Limit of Reporting (LOR) referenced in the reports for deposited matter parameters represents the reporting increment rather than reporting limit.



### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

Sample ID

			Roydon Rd 26/06/23 - 27/07/23	Wongabindi 26/06/23 - 27/07/23	Milguy 26/06/23 - 27/07/23	Crooble 26/06/23 - 27/07/23	Croppa Creek (town) 26/06/23 - 27/07/23	
Sampling date / time			27-Jul-2023 00:00	27-Jul-2023 00:00	27-Jul-2023 00:00	27-Jul-2023 00:00	27-Jul-2023 00:00	
Compound	CAS Number	LOR	Unit	EN2307650-001	EN2307650-002	EN2307650-003	EN2307650-004	EN2307650-005
				Result	Result	Result	Result	Result
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>22.8</b>	<b>2.2</b>	<b>0.6</b>	<b>4.8</b>	<b>0.7</b>
Total Insoluble Matter (mg)	----	2	mg	<b>417</b>	<b>40</b>	<b>11</b>	<b>87</b>	<b>12</b>





### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

Sample ID

			Croppa North Star Rd 26/06/23 - 27/07/23	North Star 26/06/23 - 27/07/23	Pad 4 26/06/23 - 27/07/23	Pad 2 (Gurley Creek) 26/06/23 - 27/07/23	----	
Sampling date / time			27-Jul-2023 00:00	27-Jul-2023 00:00	27-Jul-2023 00:00	27-Jul-2023 00:00	----	
Compound	CAS Number	LOR	Unit	EN2307650-006	EN2307650-007	EN2307650-008	EN2307650-009	-----
				Result	Result	Result	Result	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>0.3</b>	<b>0.1</b>	<b>0.3</b>	<b>0.1</b>	----
Total Insoluble Matter (mg)	----	2	mg	<b>6</b>	<2	<b>6</b>	<b>2</b>	----



## CERTIFICATE OF ANALYSIS

Work Order	: EN2308985	Page	: 1 of 4
Client	: Trans 4 M Rail Joint Venture	Laboratory	: Environmental Division Newcastle
Contact	: Adam Playne	Contact	:
Address	: 64-68 Balo Street Moree 2400	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: Narrabri 2 North Star	Date Samples Received	: 07-Sep-2023 09:15
Order number	: ----	Date Analysis Commenced	: 13-Sep-2023
C-O-C number	: ----	Issue Date	: 25-Sep-2023 11:33
Sampler	: Georgia Butler		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 9		
No. of samples analysed	: 9		



Accreditation No. 825  
Accredited for compliance with  
ISO/IEC 17025 - Testing

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Signatories	Position	Accreditation Category
Zoran Grozdanovski	Team Leader - Chemistry	Newcastle - Inorganics, Mayfield West, NSW



## General Comments

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Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

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LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- Analysis as per AS3580.10.1-2016. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m<sup>2</sup>.mth as sampling data was provided by the client.
- Sample exposure period is 33 days which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1.
- For dust analysis, the Limit of Reporting (LOR) referenced in the reports for deposited matter parameters represents the reporting increment rather than reporting limit.



### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

Sample ID

			North Star 27/07/23 - 29/08/23	Croppa Creek 27/07/23 - 29/08/23	Croppa North Star 27/07/23 - 29/08/23	Crooble 27/07/23 - 29/08/23	Pad 2 27/07/23 - 29/08/23	
Sampling date / time			29-Aug-2023 00:00	29-Aug-2023 00:00	29-Aug-2023 00:00	29-Aug-2023 00:00	29-Aug-2023 00:00	
Compound	CAS Number	LOR	Unit	EN2308985-001	EN2308985-002	EN2308985-003	EN2308985-004	EN2308985-005
				Result	Result	Result	Result	Result
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>0.2</b>	<b>0.8</b>	<b>0.5</b>	<b>16.8</b>	<b>0.4</b>
Total Insoluble Matter (mg)	----	2	mg	<b>3</b>	<b>15</b>	<b>9</b>	<b>326</b>	<b>8</b>



### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

			Sample ID	Pad 4 27/07/23 - 29/08/23	Roydon Rd 27/07/23 - 29/08/23	Wongabindie 27/07/23 - 29/08/23	Milguy Silos 27/07/23 - 29/08/23	----
			Sampling date / time	29-Aug-2023 00:00	29-Aug-2023 00:00	29-Aug-2023 00:00	29-Aug-2023 00:00	----
Compound	CAS Number	LOR	Unit	EN2308985-006	EN2308985-007	EN2308985-008	EN2308985-009	-----
				Result	Result	Result	Result	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>1.0</b>	<b>5.5</b>	<b>2.5</b>	<b>0.8</b>	----
Total Insoluble Matter (mg)	----	2	mg	<b>20</b>	<b>106</b>	<b>49</b>	<b>16</b>	----



## CERTIFICATE OF ANALYSIS

Work Order	: EN2310029	Page	: 1 of 4
Client	: Trans 4 M Rail Joint Venture	Laboratory	: Environmental Division Newcastle
Contact	: Adam Playne	Contact	:
Address	: 64-68 Balo Street Moree 2400	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: Narrabri 2 North Star	Date Samples Received	: 04-Oct-2023 12:18
Order number	: T4MR	Date Analysis Commenced	: 06-Oct-2023
C-O-C number	: ----	Issue Date	: 16-Oct-2023 16:06
Sampler	: Adam Playne		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 9		
No. of samples analysed	: 9		



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Shane Merrell	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW



## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- Analysis as per AS3580.10.1-2016. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m<sup>2</sup>.mth as sampling data was provided by the client.
- For dust analysis, the Limit of Reporting (LOR) referenced in the reports for deposited matter parameters represents the reporting increment rather than reporting limit.



## Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

			Sample ID	Pad 2 29/08/23 - 28/09/23	Pad 4 29/08/23 - 28/09/23	Croppa Creek 29/08/23 - 28/09/23	Crooble 29/08/23 - 28/09/23	Milguy 29/08/23 - 28/09/23
			Sampling date / time	28-Sep-2023 00:00	28-Sep-2023 00:00	28-Sep-2023 00:00	28-Sep-2023 00:00	28-Sep-2023 00:00
Compound	CAS Number	LOR	Unit	EN2310029-001	EN2310029-002	EN2310029-003	EN2310029-004	EN2310029-005
				Result	Result	Result	Result	Result
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>0.7</b>	<b>0.2</b>	<b>0.3</b>	<b>0.6</b>	<b>0.4</b>
Total Insoluble Matter (mg)	----	2	mg	<b>12</b>	<b>3</b>	<b>6</b>	<b>10</b>	<b>7</b>





### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

Sample ID

			Wongabindie 29/08/23 - 28/09/23	Roydon 29/08/23 - 28/09/23	Croppa North Star 29/08/23 - 28/09/23	North Star 29/08/23 - 28/09/23	----	
Sampling date / time			28-Sep-2023 00:00	28-Sep-2023 00:00	28-Sep-2023 00:00	28-Sep-2023 00:00	----	
Compound	CAS Number	LOR	Unit	EN2310029-006	EN2310029-007	EN2310029-008	EN2310029-009	-----
			Result	Result	Result	Result	----	
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>0.8</b>	<b>0.9</b>	<b>0.2</b>	<b>2.4</b>	----
Total Insoluble Matter (mg)	----	2	mg	<b>15</b>	<b>16</b>	<b>4</b>	<b>42</b>	----



## CERTIFICATE OF ANALYSIS

Work Order	: EN2312655	Page	: 1 of 4
Client	: Trans 4 M Rail Joint Venture	Laboratory	: Environmental Division Newcastle
Contact	: Adam Playne	Contact	:
Address	: 64-68 Balo Street Moree 2400	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: Narrabri 2 North Star	Date Samples Received	: 19-Dec-2023 08:45
Order number	: T4MR	Date Analysis Commenced	: 20-Dec-2023
C-O-C number	: ----	Issue Date	: 10-Jan-2024 12:31
Sampler	: Adam Playne		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 4		
No. of samples analysed	: 4		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Thomas Regan	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW



## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- Analysis as per AS3580.10.1-2016. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m<sup>2</sup>.mth as sampling data was provided by the client.
- Sample exposure period is 27 days which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1.
- For dust analysis, the Limit of Reporting (LOR) referenced in the reports for deposited matter parameters represents the reporting increment rather than reporting limit.



### Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: AIR)

			Sample ID	North Star 16/11/23 - 13/12/23	Croppa Creek 16/11/23 - 13/12/23	Croppa North Star Rd 16/11/23 - 13/12/23	----	----
			Sampling date / time	13-Dec-2023 13:00	13-Dec-2023 11:00	13-Dec-2023 12:00	----	----
Compound	CAS Number	LOR	Unit	EN2312655-002	EN2312655-003	EN2312655-004	-----	-----
				Result	Result	Result	----	----
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>0.5</b>	<b>0.8</b>	<b>0.6</b>	----	----
Total Insoluble Matter (mg)	----	2	mg	<b>8</b>	<b>12</b>	<b>9</b>	----	----

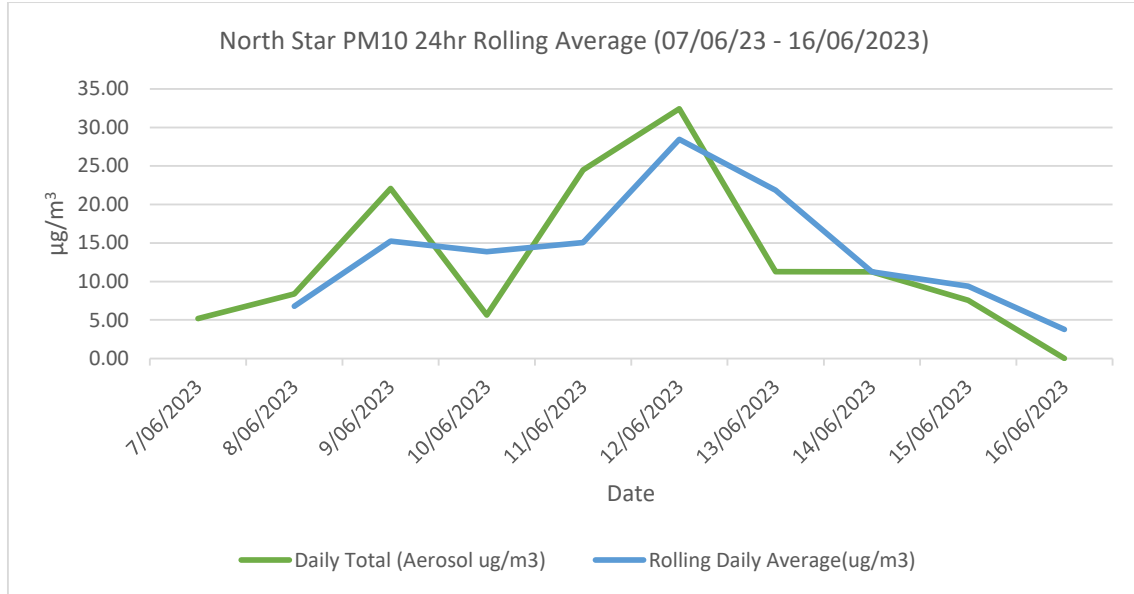


### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	MilCar01	----	----	----	----
Sampling date / time				14-Dec-2023 09:00	----	----	----	----	----
Compound	CAS Number	LOR	Unit	EN2312655-001	-----	-----	-----	-----	-----
				Result	----	----	----	----	----
<b>EA155: Foreign Material - Type III</b>									
Rubber	----	0.05	%	<0.05	----	----	----	----	----
Plastic	----	0.05	%	<0.05	----	----	----	----	----
Bitumen	----	0.05	%	<0.05	----	----	----	----	----
Paint	----	0.05	%	<0.05	----	----	----	----	----
Paper and Cardboard	----	0.05	%	<0.05	----	----	----	----	----
Cloth	----	0.05	%	<0.05	----	----	----	----	----
Wood	----	0.05	%	<0.05	----	----	----	----	----

**Attachment C: Airborne Air Quality (PM10) Monitoring Results**

Attachment C1:



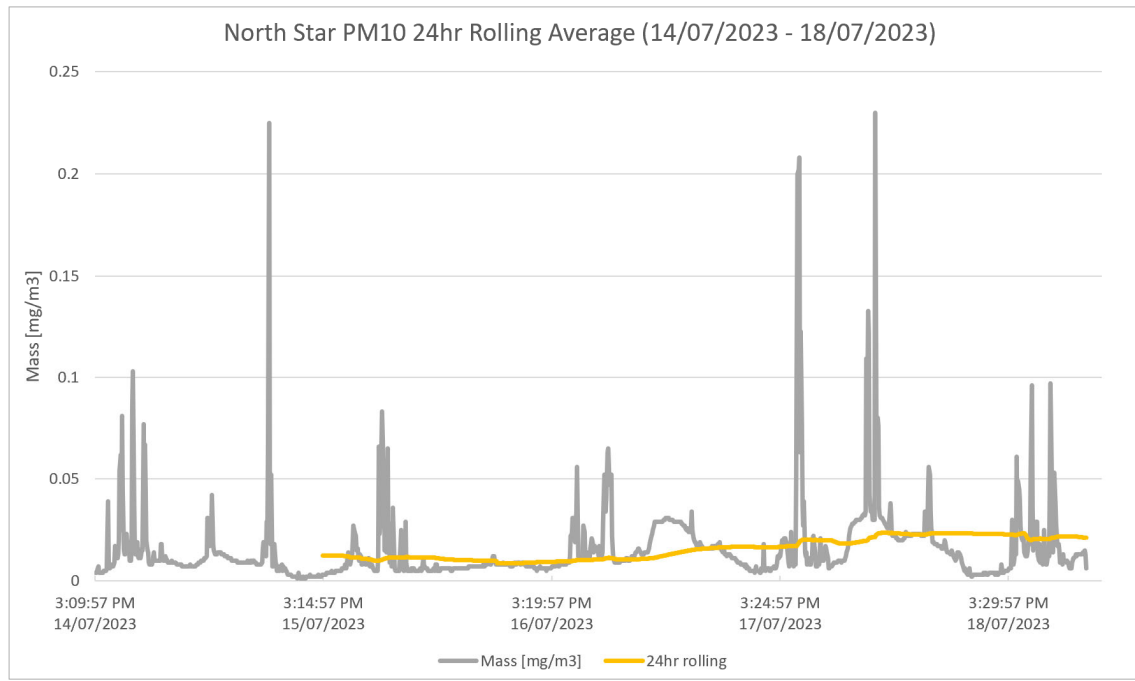
**NOTES:**

Criteria includes:

Pollutant	Averaging period	Criteria
PM10	24 Hours	50 µg/m <sup>3</sup>



Attachment C2:



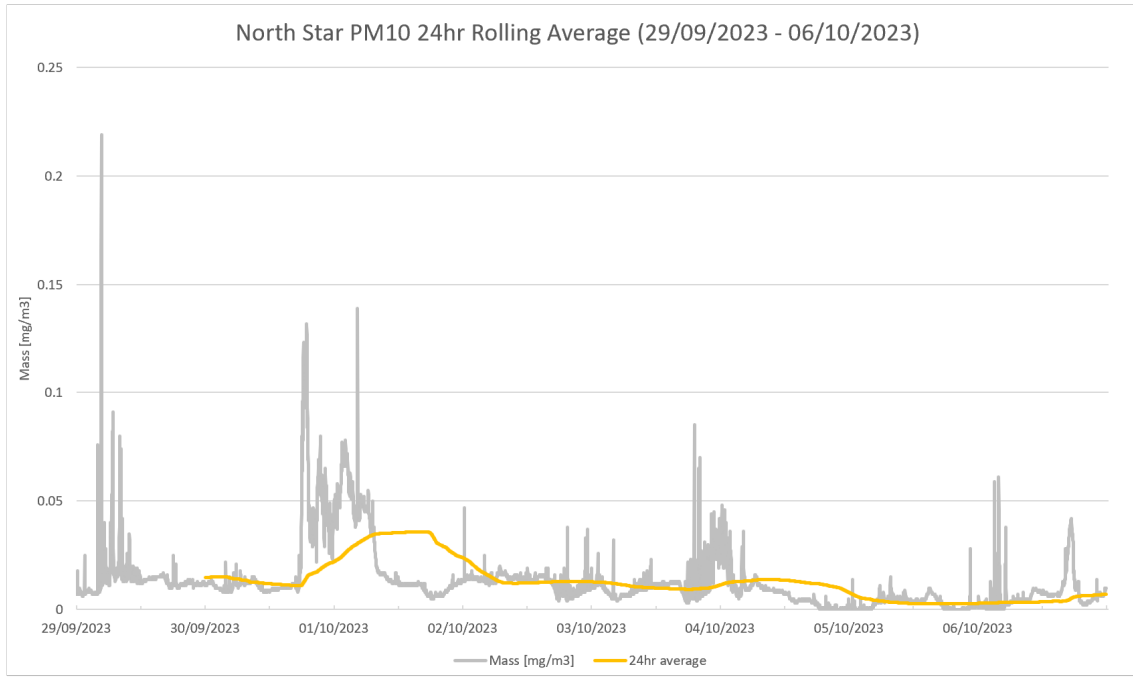
**NOTES:**

Criteria includes:

Pollutant	Averaging period	Criteria
PM10	24 Hours	50 $\mu\text{g}/\text{m}^3$ (0.05 $\text{mg}/\text{m}^3$ )



**Attachment C3:**



**NOTES:**

Criteria includes:

Pollutant	Averaging period	Criteria
PM10	24 Hours	50 $\mu\text{g}/\text{m}^3$ (0.05 $\text{mg}/\text{m}^3$ )

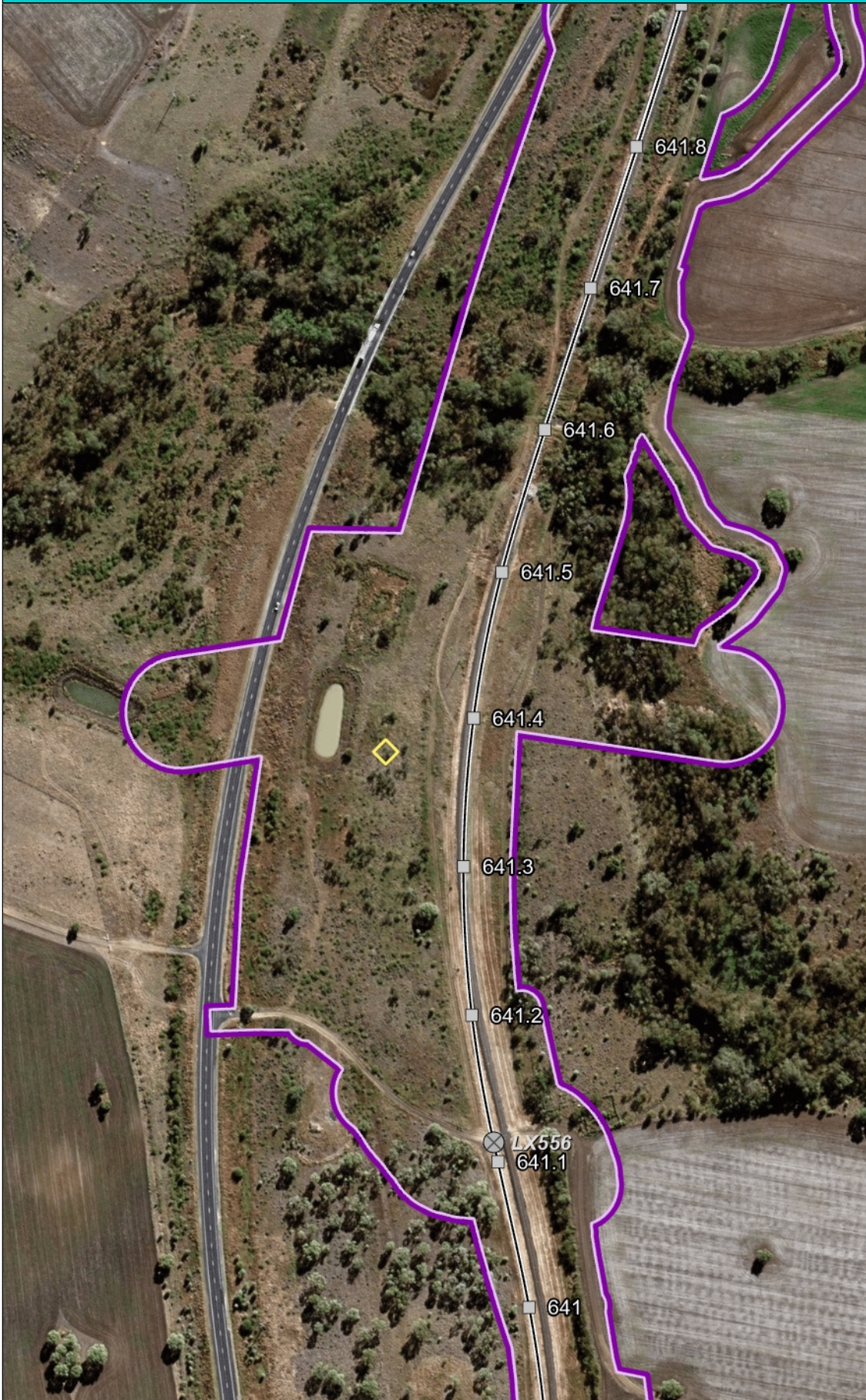
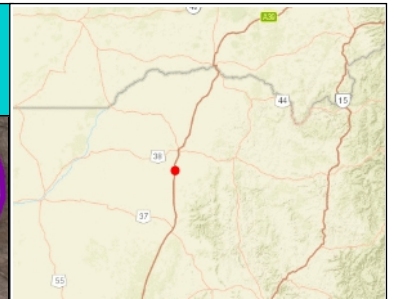




**Attachment D: Air Quality Monitoring Locations**

# PAD 2 - Depositional Dust Gauge (Active)

**INTERNAL USE ONLY**



## Legend

- World Boundaries and Places
- CIZ (SPIR)
- Level Crossings
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- Chainage 100m
- Rail Alignment
- ⊙ Residential Receivers
- Sensitive Receivers
  - Active recreation
  - Aged care
  - Education
  - Health
  - Passive recreation
  - Religious

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0 0.06 0.1 Kilometers



Scale: 1: 4,514

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

## Notes:

- Yellow Diamond - PAD 2 Depositional Dust Gauge Monitoring Location (Active)
- Purple - EPL Premise Boundary

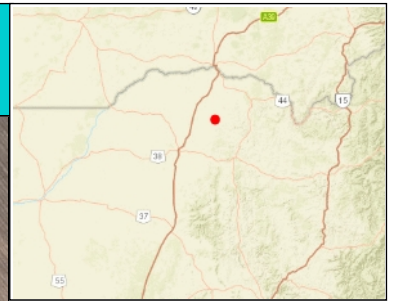
Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection optimises system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.



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# Croppa Creek - PM10 & DDG Monitoring Location

**INTERNAL USE ONLY**



## Legend

- CIZ (SPIR)
- Level Crossings**
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- Chainage 100m
- Rail Alignment
- ⊗ Residential Receivers
- Sensitive Receivers**
  - Active recreation
  - Aged care
  - Education
  - Health
  - Passive recreation
  - Religious

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

## Notes:

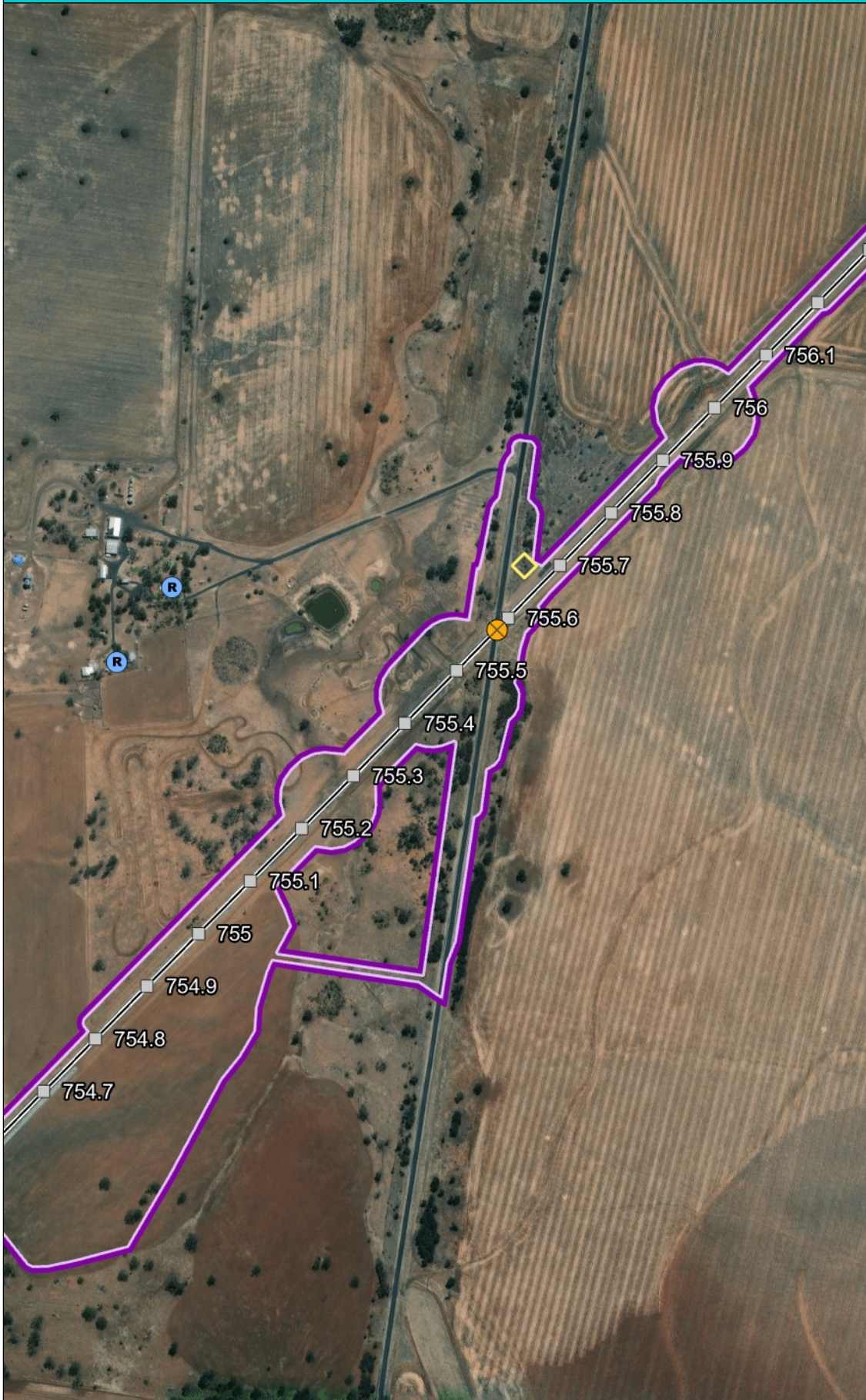
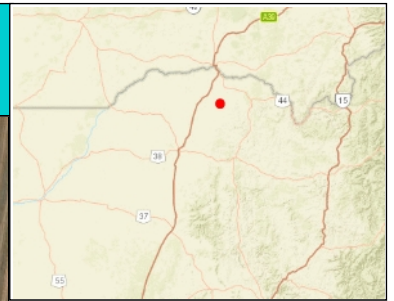
- Purple - EPL Premise Boundary
- Yellow Diamond - Croppa Creek DDG Monitoring Location (Active)
- Red Diamond - AQ01 PM10 Monitoring Location (Decommissioned)
- Blue Diamond - AQ02 PM10 Monitoring Location (Decommissioned)

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection optimises system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.

ARC Document Number: 5-0018-260-ESS-00-RP-0031



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Legend

- CIZ (SPIR)
- Level Crossings**
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- Chainage 100m
- Rail Alignment
- ⊗ Residential Receivers
- Sensitive Receivers**
  - Active recreation
  - Aged care
  - Education
  - Health
  - Passive recreation
  - Religious

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

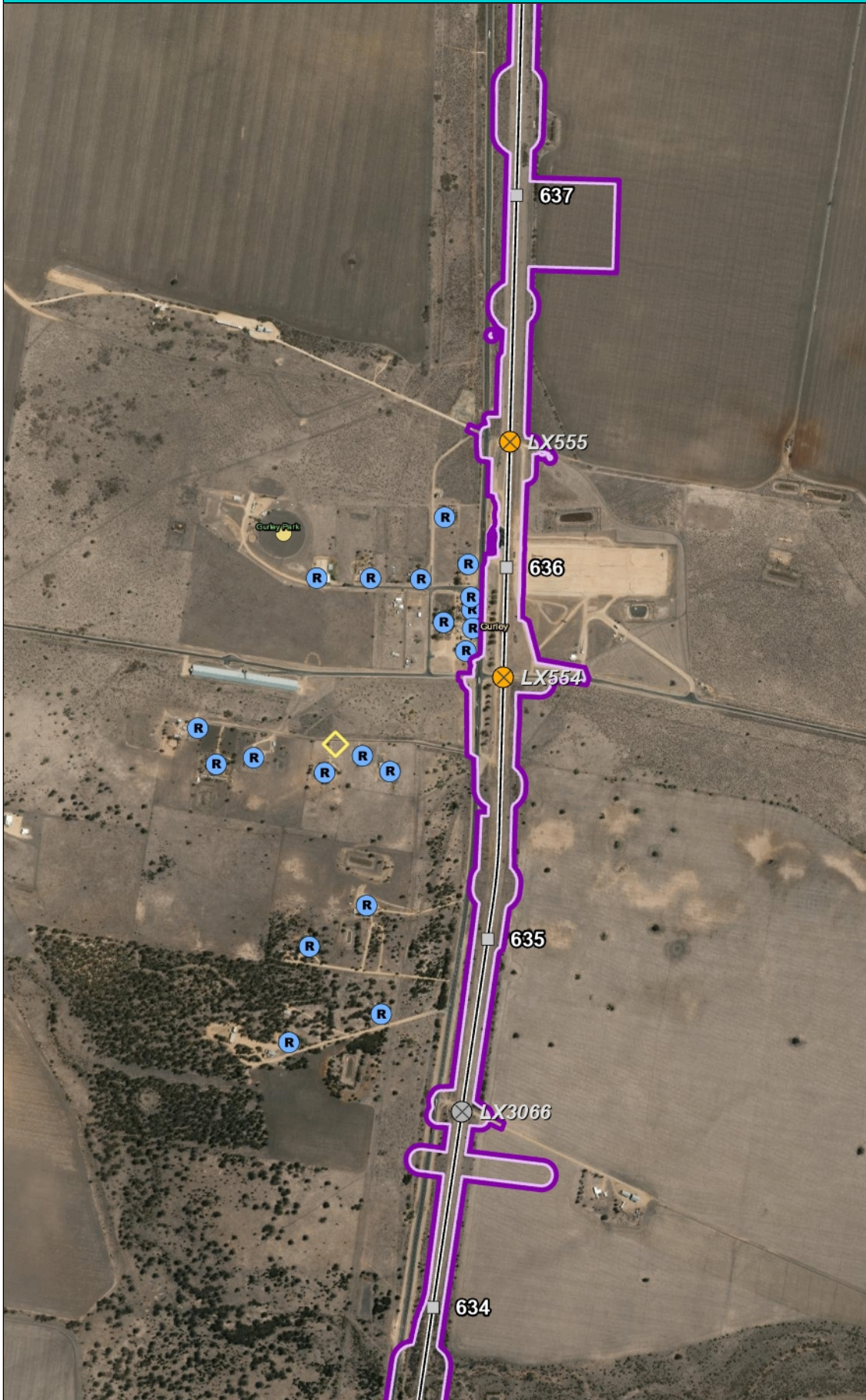
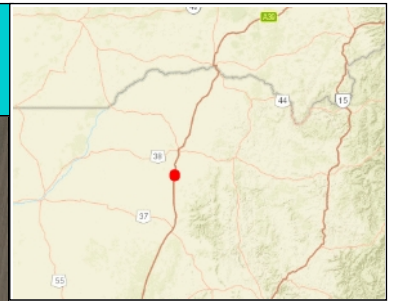
Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

Notes:

Yellow Diamond - Croppa - North Star  
Depositional Dust Gauge Location (Active)  
Purple - EPL Premise Boundary

# Gurley Depositional Dust Guage

**INTERNAL USE ONLY**



## Legend

- World Boundaries and Places
- CIZ (SPIR)
- Level Crossings
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- Chainage 1km
- Rail Alignment
- R Residential Receivers
- Sensitive Receivers
  - Active recreation
  - Aged care
  - Education
  - Health
  - Passive recreation
  - Religious

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0 0.23 0.5 Kilometers

Scale: 1: 18,056

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

## Notes:

Yellow Diamond - Gurley Depositional Dust Monitoring Location (Decommissioned)

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection may compromise system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.

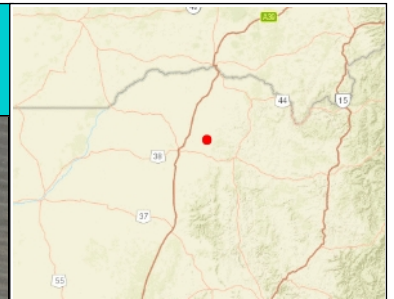
ARC Document Number: 7632-T4MR-RP-ESS-031  
 ARC Document Number: 5-0018-260-ESS-00-RP-0031



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# Milguy Depositional Dust Gauge

**INTERNAL USE ONLY**



## Legend

- CIZ (SPIR)
- Level Crossings**
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- Chainage 100m
- Rail Alignment
- R Residential Receivers
- Sensitive Receivers**
  - Active recreation
  - Aged care
  - Education
  - Health
  - Passive recreation
  - Religious

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

## Notes:

Yellow Diamond - Milguy Depositional Dust Gauge Monitoring Location (Active)  
Purple - EPL Premise Boundary

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection optimises system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.

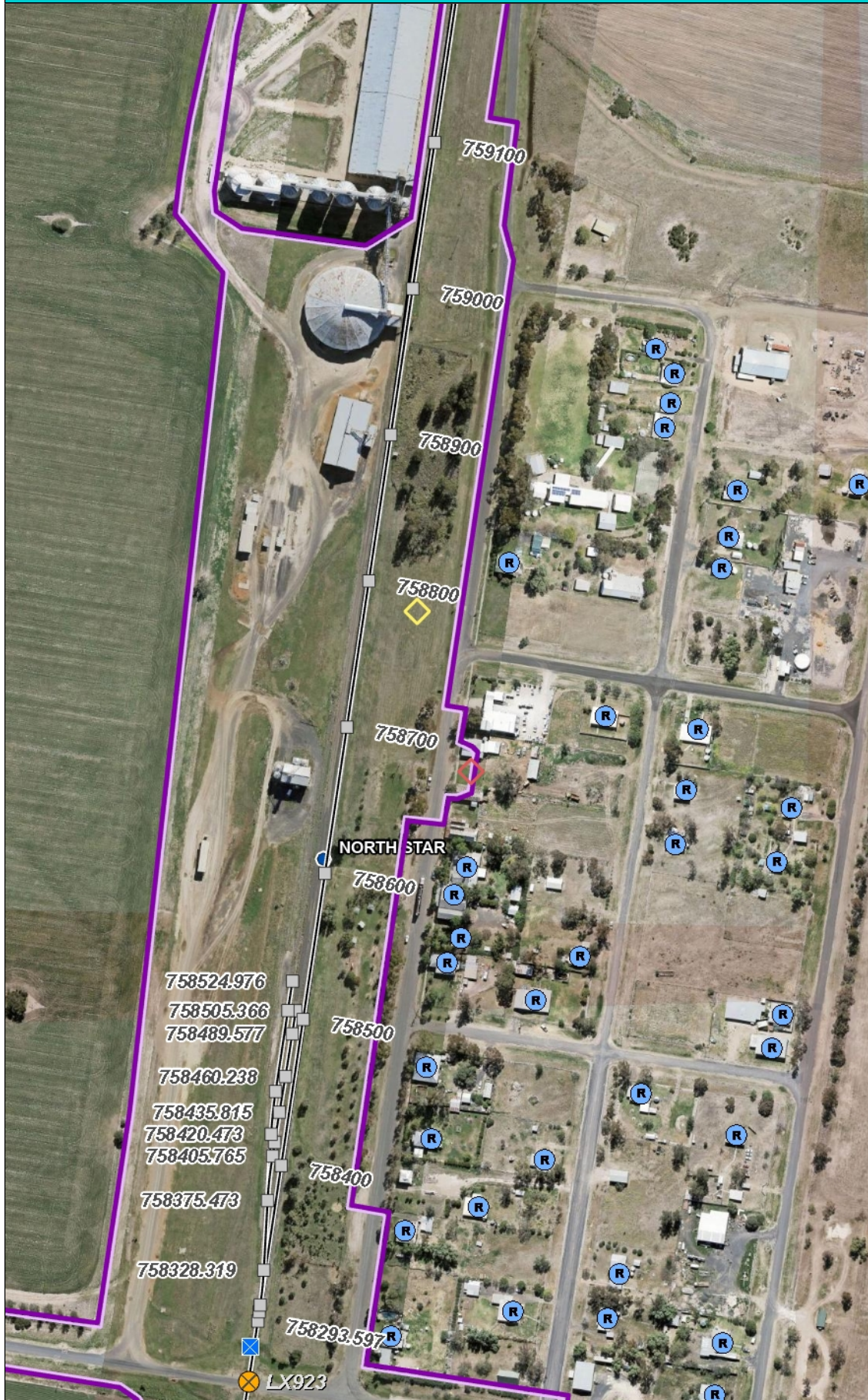
ARC Document Number: 7632-T4MR-RP-ESS-031  
ARC Document Number: 5-0018-260-ESS-00-RP-0031

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# North Star - Dust Monitoring Locations

**INTERNAL USE ONLY**



## Legend

- CIZ (SPIR)
- B Bridges
- Level Crossings
  - ◆ Public
  - ◆ Private
  - ◆ Pedestrian
- Culverts
- Chainage 100m (Post IFC)
- Rail Alignment (Post IFC)
- R Residential Receivers
- Railway Location
- ARTC Network
- Other Railways

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0 0.06 0.1 Kilometers

Scale: 1: 4,514

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

## Notes:

Purple - EPL Premise Boundary  
 Red Diamond - North Star PM10 Monitoring Location (Proposed).  
 Yellow Diamond - North Star DDG Location.

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection optimises system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.

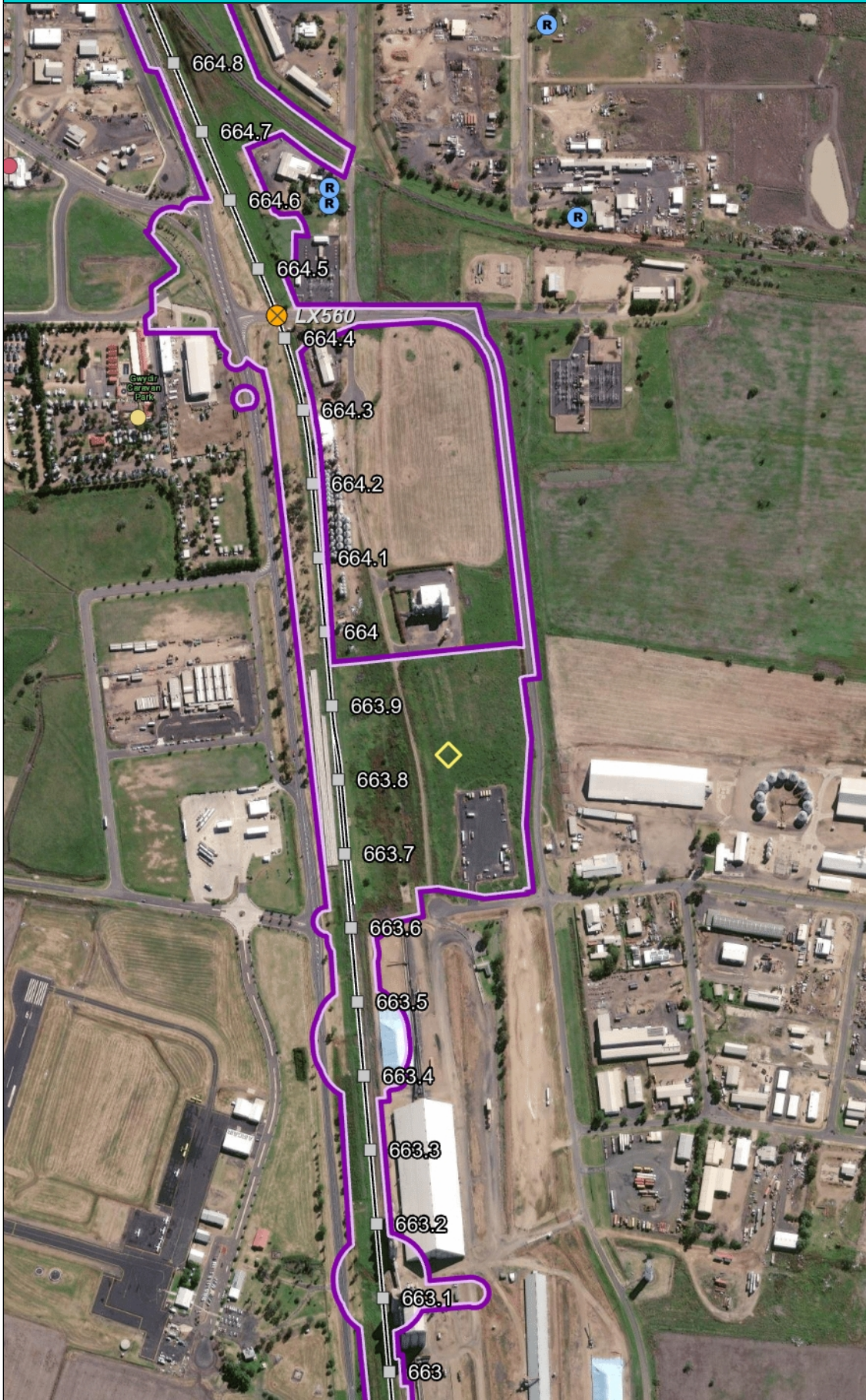
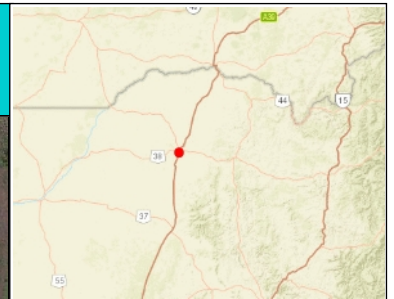
ARC Document Number: 5-0018-260-ESS-00-RP-0031

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# PAD 4 - Depositional Dust Gauge (Active)

**INTERNAL USE ONLY**



## Legend

- World Boundaries and Places
- CIZ (SPIR)
- Level Crossings
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- Chainage 100m
- Rail Alignment
- Ⓡ Residential Receivers
- Sensitive Receivers
  - Active recreation
  - Aged care
  - Education
  - Health
  - Passive recreation
  - Religious

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

## Notes:

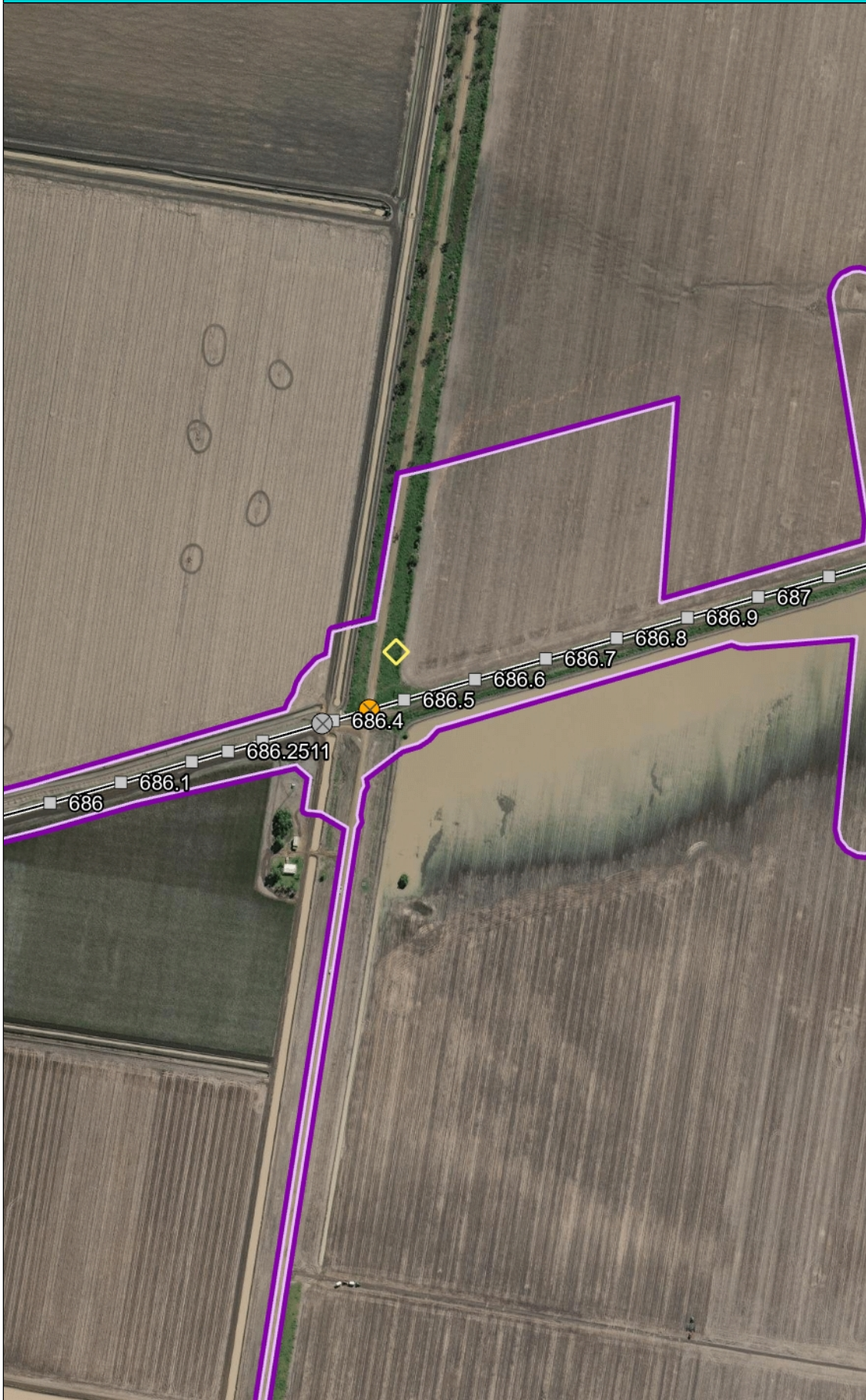
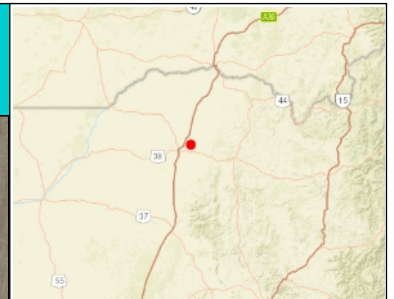
Yellow Diamond - PAD 4 Depositional Dust Gauge Monitoring Location (Active)  
Purple - EPL Premise Boundary

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection optimises system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.  
ARC Document Number: 7632-T4MR-RP-ESS-031  
ARC Document Number: 5-0018-260-ESS-00-RP-0031

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### Legend

- CIZ (SPIR)
- Level Crossings**
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- Chainage 100m
- Rail Alignment
- R Residential Receivers
- Sensitive Receivers**
  - Active recreation
  - Aged care
  - Education
  - Health
  - Passive recreation
  - Religious

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

### Notes:

Yellow Diamond - Roydon Rd Depositional Dust Gauge Location  
Purple - EPL Premise Boundary

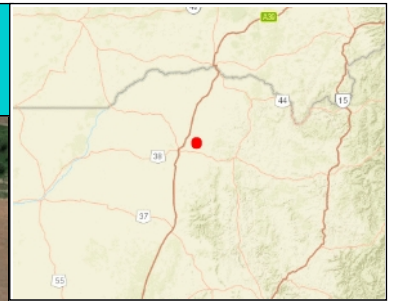
Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection optimises system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.

ARC Document Number: 7632-T4MR-RP-ESS-031

ARC Document Number: 5-0018-260-ESS-00-RP-0031



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Legend

- CIZ (SPIR)
- Level Crossings**
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- Chainage 1km
- Rail Alignment
- R Residential Receivers
- Sensitive Receivers**
  - Active recreation
  - Aged care
  - Education
  - Health
  - Passive recreation
  - Religious

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0 0.23 0.5 Kilometers

Scale: 1: 18,056

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

Notes:

Yellow Diamond - Wongabindie Rd  
Depositional Dust Gauge Location  
Purple - EPL Premise Boundary

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection optimises system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.

# Crooble & Crooble A DDG Locations

**INTERNAL USE ONLY**



## Legend

- CIZ (20230323) - In Review
- Bridges
- Level Crossings
  - Public
  - Private
  - Pedestrian
- Culverts
- Signalling Points - Post IFC
- Signalling Lines - Post IFC
- Signalling Polygons - Post IFC
- Chainage 100m (Post IFC)
- Rail Alignment (Post IFC)
- Residential Receivers
- Railway Location
- ARTC Network
- Other Railways

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

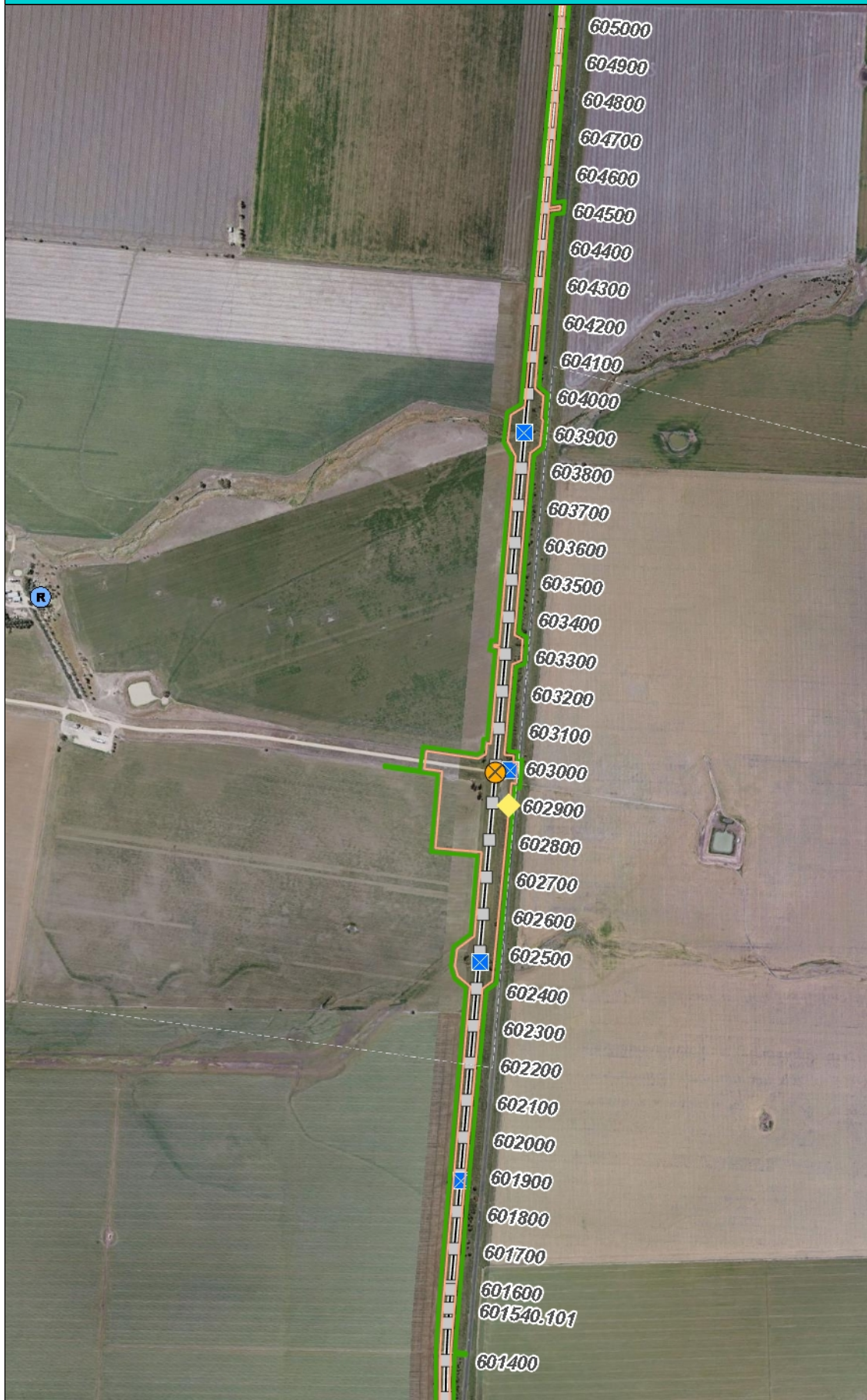
## Notes:

Yellow - Original (Crooble) DDG Monitoring Location (Decommissioned).  
 Green - Active (Crooble A) DDG Monitoring Location (Active).

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection optimises system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.  
 T4MR Document Number: 7632-T4MR-RP-ESS-031  
 ARC Document Number: 5-0018-260-ESS-00-RP-0031



The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.



Legend

- CIZ (20230323) - In Review
- Bridges
- Level Crossings
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- ⊗ Culverts
- ⊙ Signalling Points - Post IFC
- Signalling Lines - Post IFC
- Signalling Polygons - Post IFC
- Chainage 100m (Post IFC)
- Rail Alignment (Post IFC)
- Residential Receivers
- Railway Location
- ARTC Network
- + Other Railways

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0 0.23 0.5 Kilometers



Scale: 1: 18,056

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

Notes:

Yellow - Pan Creek DDG (Decommissioned).

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection optimises system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.



Legend

- CIZ (20230323) - In Review
- R Bridges
- Level Crossings
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- ⊗ Culverts
- S Signalling Points - Post IFC
- Signalling Lines - Post IFC
- Signalling Polygons - Post IFC
- Chainage 100m (Post IFC)
- Rail Alignment (Post IFC)
- R Residential Receivers
- Railway Location
- ARTC Network
- Other Railways

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0 0.06 0.1 Kilometers



Scale: 1: 4,514

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

Notes:

Yellow - Edgeroi DDG (Decommissioned).

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection optimises system performance, but at the expense of distortion and accuracy. As such, all measurements carried out in these applications are to be regarded as approximate.  
 ARC Document Number: 7632-T4MR-RP-ESS-031  
 ARC Document Number: 5-0018-260-ESS-00-RP-0031



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Legend

- CIZ (20230323) - In Review
- Bridges
- Level Crossings
  - ⊗ Public
  - ⊗ Private
  - ⊗ Pedestrian
- ⊗ Culverts
- ⊙ Signalling Points - Post IFC
- Signalling Lines - Post IFC
- Signalling Polygons - Post IFC
- Chainage 100m (Post IFC)
- Rail Alignment (Post IFC)
- Residential Receivers
- Railway Location
- ARTC Network
- + Other Railways

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0 0.06 0.1 Kilometers

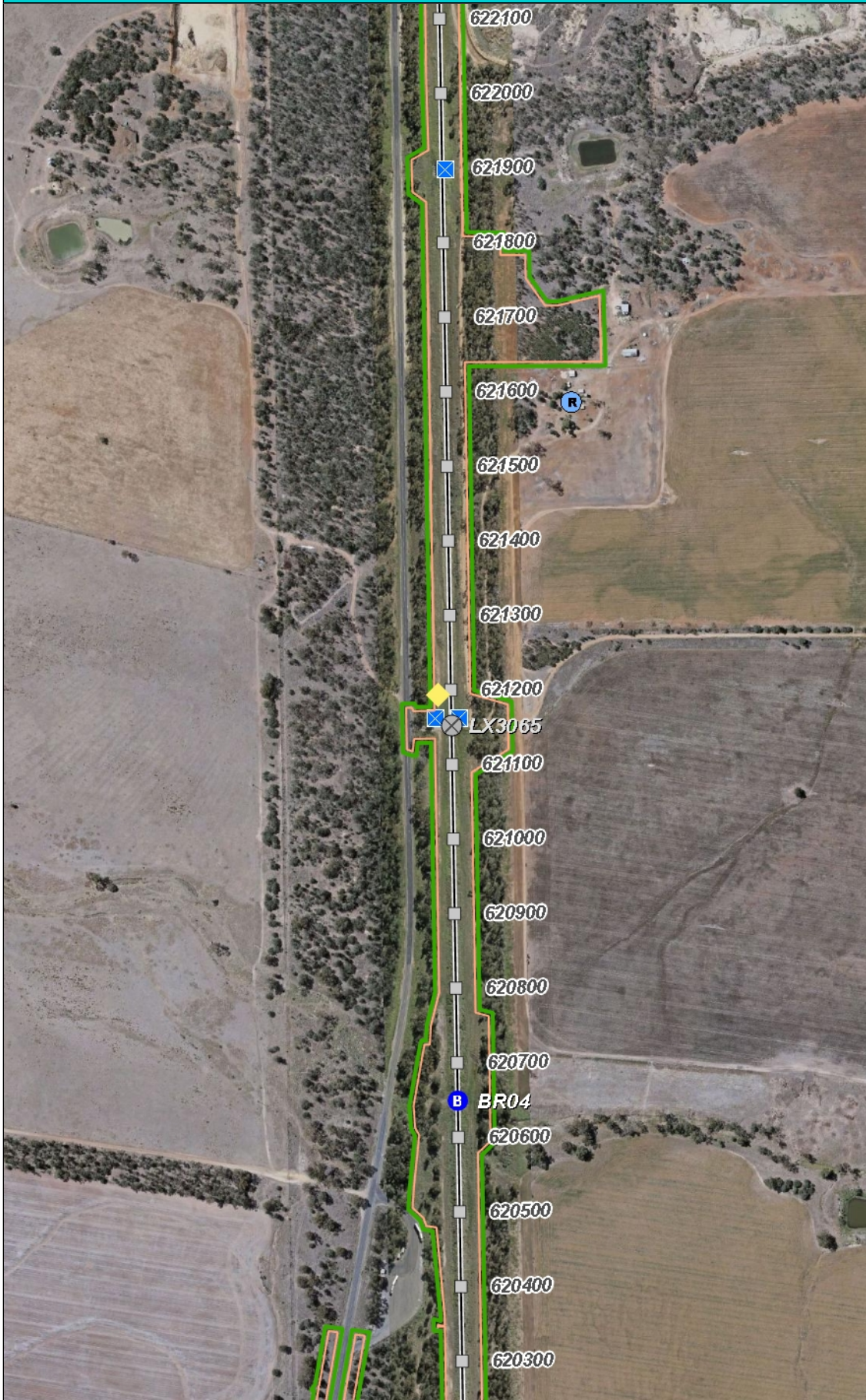


Scale: 1: 4,514

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

Notes:

Yellow - Spring Creek DDG  
(Decommissioned).



Legend

- CIZ (20230323) - In Review
- Bridges
- Level Crossings
  - Public
  - Private
  - Pedestrian
- Culverts
- Signalling Points - Post IFC
- Signalling Lines - Post IFC
- Signalling Polygons - Post IFC
- Chainage 100m (Post IFC)
- Rail Alignment (Post IFC)
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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere

Notes:

Yellow - Tookey Creek / Pad 6 - DDG (Decommissioned).