INLAND RAIL PROJECT - NARRABRI TO NORTH STAR (N2NS)

SSI 7474 – 6 Monthly Construction Monitoring Report (November 2022 – April 2023)

Date:	17.08.2023
To:	Alexander Scott Assistant Director - Freight Team Planning and Assessment Level 17, 12 Darcy Street | 4 Parramatta Square | Parramatta NSW 2150
From:	Trans4m Rail Joint Venture 64 – 68 Balo Street Moree, NSW 2400
Project:	Inland Rail | Narrabri to North Star SP1 (the "N2NS Project")
Distribution:	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
Attachments:	Attachment A: N2NS Project - Water Usage Results (November 2022 – April 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 Attachment E: Non-conformance Report (DDG Exposure Period) Attachment F: Noise Monitoring Results Attachment G: Noise Monitoring Locations Attachment H: Calibration Certificates Attachment I: Vibration Monitoring Report – Bellata Silos and Platform

Construction works on the Narrabri to North Star SP1 Project (N2NS Project) commenced on the 10th April 2021 following the NSW Environment Protection Authority (NSW EPA) issuing the full Environment Protection Licence (EPL) on the 1st 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 7th 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 November 2022 – April 2023 period.

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

- Review and update of the Project's CEMP and Sub-plans (i.e. Construction Biodiversity Management Sub-Plan, Construction Soil and Water Management Sub-Plan and the Construction Noise and Vibration Management Sub-Plan).
- Development and implementation of the N2NS Project's Environment Protection Licence (EPL) Relinquishment Process including incorporation of the process into the Project's CEMP.
- Preparation of environmental deliverables, including but not limited to: Certified Professional in Erosion and Sediment Control (CPESC) Certified Erosion and Sediment Control Plans, Site Environmental Plans, Clearing and Dewatering Permits and Out of Hours Works Applications for works within Stages 1, 2 and 3 of the N2NS Project.
- Establishment and maintenance of Erosion and Sediment Controls in accordance with the CPESC Certified Erosion and Sediment Control Plan within Stages 1, 2B and 3.
- Suitably licenced Spotter-catchers overseeing vegetation clearing activities within Stages 1, 2 and 3.
- Vegetation clearing, slashing and weed management works through Stages 1, 2 and 3.
- Trans4m Rail Environmental 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 13 locations. In addition to this, airborne particulate (PM10) matter monitoring occurred at North Star township during this reporting period.
    - Attended noise monitoring occurred adjacent the sensitive receivers on Burrington Road, Moree to support an OOHW application and approval.
- Landscaping and stabilisation of disturbed areas progressed across the alignment (Stages 1, 2B and 3) during the reporting period.
- Investigation and management of environmental incidents and events on the project.

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

Noise and Vibration Monitoring Program	<u>Vibration Monitoring</u> Section 11.4 of the CNVMP and the Project's *Environmental Protection Licence* (EPL) identifies various situations where vibration monitoring is / or may be required on the N2NS Project. These situations typically include: - 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 proposed to be used on the Project, with an indicative minimum working distance of 10 metres for a sound structures and 20 metres for an unsound structures. - Vibration generating activities that have the potential to impact on heritage items. - Works occurring where vibration sensitive locations occur within the minimum working distances for the N2NS Project. - Where determined by a vibration assessment and reported in the relevant CNVIS. - Where vibration related complaint(s) are received. - Where directed to undertake monitoring by an authorised officer of the NSW EPA. During the November 2022 to April 2023 monitoring period, unattended vibration monitoring was undertaken at the Bellata Station and Silos. The monitoring event can be summarised as: **Bellata Station and Silos** – Two unattended vibration monitors were installed at Bellata; one on the Bellata Station and another on the Bellata Silos to monitor the period between 28th July and 18th November 2022. Vibration monitors were installed on the existing railway platform and the footings of the silo to monitor the vibration experienced by these structures during the construction phase of the project. The results of the unattended vibration monitoring were typically below the established vibration screening criteria. There were events that resulted in an instantaneous vibration level of above the vibration screening criteria which have been deemed not characteristic of the construction works taking place at the time (i.e. no works occurring in proximity of the monitor OR non-vibration generating activities occurring only) or deemed not related to the construction works (i.e. setting up, battery replacement and / or removing the vibration monitor/s or construction works occurring at the GrainCorp Grain Receival Facility). NOTE: These events were visually verified by T4MR Environmental personnel. Refer to Attachment I for the full Vibration Monitoring Report. Noise Monitoring 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: - Attended construction-phase noise monitoring will be carried out (6 monthly during possession) 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; - 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; - 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; - Where appropriate, in response to a noise related complaint(s) (determined on a case-by- case basis) and in accordance with the OOHW Protocol or EPL; - As directed by an authorised officer of the EPA; - As otherwise required by the CNVIS, OOHW Protocol or EPL; - Following the implementation of mitigation measures or noise attenuation as a result of an exceedance of predicted noise levels; and - 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. 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. During the November 2022 – April 2023 monitoring period, attended noise monitoring was undertaken associated with the Burrington Road Traffic Detour. This monitoring can be summarised as the following: 1st Feb 2023 (7:59am) – Background monitoring to inform the Out of Hours Application. 2nd Feb 2023 (6:48am) – Background monitoring to inform the Out of Hours Application. 2nd Feb 2023 (11:07am) – Background monitoring to inform the Out of Hours Application. 15th Mar 2023 (10:44am) – Noise monitoring during traffic detour. 20th Mar 2023 (5:26pm) - Noise monitoring during traffic detour. 22nd Mar 2023 (4:54pm) - Noise monitoring during traffic detour. 24th Mar 2023 (5:52am) - Noise monitoring during traffic detour. 30th Mar 2023 (8:15am) - Noise monitoring during traffic detour. 31st Mar 2023 (5:49am) - Noise monitoring during traffic detour. 07th Apr 2023 (10:56am) - Noise monitoring during traffic detour. 08th Apr 2023 (9:31am) - Noise monitoring during traffic detour. This attended noise monitoring was undertaken in accordance with Sections 11.3.2 – 11.3.4 of the CNVMP, using a calibrated Class 1 Sound Level Meter (Rion NL-52) and performed by suitably qualified and trained Environmental Professionals. Refer to Attachments F and G for noise monitoring results, locations and further information. This monitoring identified the following: - All L_{AEQ} observed during all monitoring events exceeded the Noise Management Levels (NML) adopted on the Project (35dB for OOHW and 40dB for Standard Construction Hours). This

<table>
<tr><td></td><td>included both the background monitoring (used to inform the Out of Hours Application) and the noise monitoring undertaken with the traffic detour in place. The predominant noise source during all monitoring events was from traffic on the Newell Hwy (approx. 100m to the west), traffic on Burrington Road and through the level crossing and other residential noises (i.e. children playing, dogs barking, cutting / grinding metal, cars entering / leaving properties, etc) from the properties on Burrington Road.
- No significant impact was observed (the average background L_{AEQ} > average traffic detour L_{AEQ}) to the sensitive receivers on Burrington Road as a result of the traffic detour.

NOTE: No complaints were received from the residents of Burrington Road as a result of the noise associated with the traffic detour.</td></tr>
<tr><td>Water Usage Monitoring Program</td><td>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 Trans4m Rail suggest that this will be significantly reduced. The aforementioned SSI monitoring seeks to establish the water usage volume by measuring the water usage on the N2NS Project.

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 captured stormwater (from numerous floods and rain events since the commencement of construction) has also been used during the construction process.

The construction water usage for the November 2022 – April 2023 reporting period include:

<table>
<tr><td>Potable Water</td><td>5,062.7kL</td></tr>
<tr><td>Non-Potable Water</td><td>11,594.0kL</td></tr>
<tr><td>Total Water Use</td><td>16,656.7kL</td></tr>
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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 only.

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</td></tr>
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	non-potable and individual entries are recorded for each provider to ascertain any trends that may be occurring. 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. The results of this monitoring are provided in Attachment A.
Air Quality Physical	The locations of these DDGs were generally selected based on the requirements of Appendix D of the Project's CSWMP, the *A/NZS3580.1.1:2007: Methods for sampling and analysis of ambient air, Part 1.1: Guide to siting air monitoring equipment* and the EPL for the Project. The locational criteria considered during the selection of the monitoring locations included: - 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. - The local meteorological data and wind roses provided in the Project EIS. - The selected DDG locations are considered representative of the surrounding locations, taking into account all environmentally sensitive areas in the receiving environment. Locations were selected to avoid the following (where possible): - Where airflow is restricted, such as behind trees or structures. DDG's should have a minimum clear sky angle of 120º. - Surrounding and / or overhanging objects that might alter the dust deposition rate, such as leafy vegetation, buildings and other structures. - Interference that may occur from surrounding land uses i.e. farming, industry or unsealed access roads, etc. - Locations that are visible and accessible by the public to avoid DDGs being tampered with. 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 "*Adjacent to the most affected sensitive receivers nearby construction works*". 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

proximity (typically <200m) to surrounding land uses (i.e. large scale agriculture) that may interfere with the 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.

The adopted air quality criteria for depositional dust gauge monitoring is shown below:

Pollutant	Averaging period	Criteria
Dust Deposition[c]	Annual	2 g/m^2/month[a] 4 g/m^2/month[b]

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).

The full results of the DDG monitoring are provided in Attachment B.

The DDG monitoring during this period identified that the annual average dust deposition rate for all monitoring locations was <4g/m^2/month with the exception of the Crooble (9.0g/m^2/month) and Croppa Creek (6.9g/m^2/month) monitoring locations. NOTE: These levels are largely attributable to the Oct 22 dust deposition results, of 39.3 and 41.1 g/m^2/month for the Crooble and Croppa Creek sites, respectively. Considering the high rainfall experienced during the month of Oct 22, these results are considered abnormally high and it's suspected these elevated levels are a result of one or more of the following:

- DDG's may potentially have been tampered with; and / or
- The unsealed road adjacent the Crooble and Croppa Creek DDG locations; and / or
- Commencement of the harvest season and stockpiling / movement of grain into the laydown area directly adjacent the Crooble location and into the silos at Croppa Creek; and / or
- Mowing / slashing of the area surrounding the sensitive receiver (and DDG) at Crooble and at Croppa Creek.

Section 13.2.2 (Local Meteorology) of the Project's Environmental Impact Statement (Main Report), states that:

- "*Climate data was obtained from the Bureau of Meteorology (BoM) Narrabri Airport site (site number 054038) and the Moree Aero site (site number 053115). The data indicates that the study area has a warm temperate climate, with significant*

	temperature variations between summer and winter". - "*Wind speeds, which are of particular importance when determining the potential for dust impacts, are typically greater in spring and summer*". - "*The five year wind rose for Moree Airport shows that calm, light, and gentle winds occur for nearly 75 per cent of the time, with 25 per cent of winds above 19.8 kilometres per hour. This is a level that could cause nuisance dust. Most high winds occur from the north-east quadrant, meaning that dust impacts would be more likely to occur opposite to these directions*". NOTE: Both Crooble and Croppa Creek DDG monitoring locations have extensive agriculture activities, a grain loading facility and / or an unsealed road located to the north-east. Regardless, following the results identified above, the below actions have been taken by the Project: – Additional dust management measures (i.e. increased watercarts and stabilisation of exposed soils) have been undertaken at these (and other) locations on-site. – The Project workforce has been toolboxed regarding dust generating activities and where required, adjusting activities to suit. This includes slowing down light and heavy vehicles where excessive dust is being generated. – Landscaping of the alignment has occurred in the vicinity of these locations. – The Minor Ancillary Facility at Croppa Creek has been decommissioned. – DDG monitoring will continue at these locations. During a recent review of the depositional dust gauge monitoring results for the Project it was identified that some monitoring occasions were outside the typical exposure period detailed in AS3580.1 and Appendix D (Air Quality Monitoring Program (incl. Depositional Dust Monitoring Procedure)) of the Project's Soil and Water Management Sub-Plan. These non-compliance events occurred in the following instances: Nov 2022: - Sample exposure period for the Wongabindie, Croppa North Star LX, North Star, Croppa Creek, Milguy, Crooble and Royden Rd DDG monitoring locations was 33 days which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1. - Sample exposure period for Pad 2 is 35 days which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1.

- Sample exposure period for The Clump (Pan Creek) and Edgeroi and Pad 6 is 36 days which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1.

Dec 2022:

- Sample exposure period is 33 days for all DDGs which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1

Feb 2023:

- Sample exposure period is 42 days for all DDGs which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1.

Mar 2023:

- Sample exposure period is 38 days for all DDGs which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1.

The root cause for these non-compliances include:

- T4MR resource constraints.
- A Non-Conformance Report has been generated and attached for additional information.

To avoid recurrence of this, two (2) additional Environmental Resources commenced on the Project (Apr and May 2023).

Airborne Particulate Matter (PM10) monitoring continued to be undertaken during the reporting period.

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

Pollutant	**Averaging period**	**Criteria[1]**
PM10	24 Hours	50 µg/m^3

1. Based on the Air NEPM and the Approved Methods

During the reporting period, the PM10 air quality monitoring equipment was deployed to North Star (adjacent sensitive receivers) prior to the upcoming signalling and associated earthworks commencing (i.e. trenching, stockpiling of material, excavation and backfilling of pits, etc).

During the reporting period, PM10 airborne air quality monitoring was undertaken at North Star during the following periods:

23rd March 2023 (18:05) – 29th March 2023 (17:00)
30th March 2023 (18:05) – 30th March 2023 (20:30)
20th April 2023 (16:02) – 27th April 2023 (16:00)
27th April 2023 (17:02) – 28th April 2023 (13:58)

The adopted assessment criteria for air quality (PM10) on the N2NS Project is 50µg/m^3 – 24hr averaging period (Source: Table 11,

	Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW EPA, 2022)). 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. NOTE: Additional works have also been undertaken to the airborne air quality monitoring equipment to address some of the legacy issues previously experienced (i.e. repeated loss of power). These additional works includes: - Complete re-wiring of the DusTrak Environmental Enclosure to simplify the 12volt arrangement and remove any redundant wiring / connections; - Replacement of the power source for the DusTrak to include a larger deep-cycle battery; and - Increased size of the solar panel to ensure the battery remains well charged.
Local Road Condition Monitoring Report	During the November 2022 – April 2023 reporting period, the condition of the local roads were inspected on the following occasions. These inspections are captured via dashcam with any observations / actions recorded on the *T4MR Local Road Maintenance Register*. November 2022: - Maules Rd Pit NSC-Dilap Drive Thru-Old Gunnedah Rd, Maules Ck Rd-24th Nov 2022 - NSC-Dilap Drive Thru-Old Gunnedah Rd, Maules Ck Rd, Wave Hill Rd-12th Nov 2022 - Stage 1 & 2-SB & NB-8th Nov 2022 Penney's Rd contraflow first day and 12-11 - Stage 1 & 2-SB & NB-9th Nov 2022 Mille Rd High rail mounting & Penney's Rd aftercare - Stage 1-Detour Option-Homestead Dr + Galathera Lane-5th Nov 2022 - Stage 1-SB & NB & Wave Hill Road-19th Nov 2022 - Stage 1 - SB & NB-1st Nov 2022 (Newell Hwy) - Stage 1 - SB & NB-2 x Rural Headers in convoy together-5th Nov 2022 (Newell Hwy) - Stage 1 - SB & NB-7th, 8th, 13th, 14th, 18th 20th, 21st, 23rd, 24th, 25th and 29th Nov 2022 (Newell Hwy) - Stage 1-SB & NB-Gate 7-Road Trains Stacking on Newell Hwy SB-4th Nov 2022 - Stage 1-SB & NB-Grader Observation Gate 2B-3rd Nov 2022 - Stage 1-SB & NB-Gurley to Bellata-22nd Nov 2022 - Stage 1-Wads set up NB-28th Nov 2022 - Newell Hwy - Stage 3 Gwydir joint insp-Croppa Ck-North Star Rd - Stage 3 Gwydir joint insp-North star Rd-Baroma Rd - Stage 3-All Roads-18th Nov 2022 - Stage 3-All sealed roads-MPSC & GSC-2nd Nov 2022 - Stage 3-Gwydir joint insp-Croppa Ck to Gil Gil via Yamboon Ln - Stage 3-Gwydir joint insp-Gil Gil Ck, County Boundary Rd and Croppa Moree Rd

	- Stage 3-IB Bore Road and Buckie Road-6th Nov 2022 - Stage 3-MPSC joint insp-Back Pally Rd to Roydon Rd both ways - Stage 3-MPSC joint insp-Back Pally Rd to Wongabindie Rd, Calimpa to Stanester Rd - Stage 3-MPSC joint insp-Croppa Moree Rd - Stage 3-MPSC joint insp-Mosquito Ck Rd-County Boundary Rd, Calimpa East - Stage 3-MPSC joint insp-Stanester Rd - Stage 3-Yamboon Rd-LGA Pre-Harvest Rehab-18th Nov 2022 During this period, no items were identified on the *T4MR Local Road Maintenance Register* for rectification. December 2022: - 2022 Final Drive Thru-Stage 1 & 2-Newell Highway SB & NB & ALL Level Crossings-21st Dec 2022 - NSC-Maules Creek Road-Quarry-15th Dec 2022 - NSC-Wave Hill Rd, Maules Ck Rd & Old Gunnedah Rd-NSC ARTC T4MR Joint Inspection-6th Dec 2022 - Stage 1 & 2-RSA & Post construction Dilap drive Thru-Roadnet-13th Dec 2022 - Stage 1-ALL Side Roads-NSC-Stage 1 & Newell Hwy SB & NB-2nd Dec 2022 - Stage 1-Joint Christmas Inspection-T4MR & TfNSW-16th Dec 2022 - Stage 1-NSC Signage Re-Installed-All Locations-17th Dec 2022 (Newell Hwy) - Stage 1-SB & NB-1st, 3rd, 4th and 6th Dec 2022 (Newell Hwy) - Stage 1-SB & NB-Line Marking for WADS-8th Dec 2022 Newell Hwy) - Stage 1-SB & NB-Wave Hill Road-5th Dec 2022 - Stage 3 -7th, 16th, 17th and 18th Dec 2022 - Stage 3-All Roads-Pre Xmas Shutdown-21st December 2022 - Stage 3-Croppa Moree Rd, Buckie Rd, IB Bore Rd, North Star Rd-1st Dec 2022 - Stage 3-Level Crossings-Croppa Moree, Buckie rd, Croppa North star, North Star, Yamboon, Crooble, Gil Gil, County Boundary-14th Dec 2022 - Stage 3-MPSC T4MR Joint Inspection-8th Dec 2022 - Stage 3-Roydon Rd, Stanester Rd, Calimpa Ln, Wonga Bindi, County Boundary-4th Dec 2022 - Stage1-SB & NB-19th Dec 2022 During this period, no items were identified on the *T4MR Local Road Maintenance Register* for rectification. January 2023: - NSC-Wave Hill, Maules Ck Rd & Old Gunnedah Rd-Drive Thru-15th Jan 2023 - Proposal for Detour & Closure of Tapscott Rd-13th Jan 2023 - Stage 1-All Level Crossings-LX3054-LX552-15th Jan 2023 - Stage 1-Drive Thru-24th January 2023

	- Stage 1-Post Xmas Drive through-SB + NB + WAD Level Crossings-13th Jan 2023 - Stage 3-Calimpa Lane-Post Spray Seal-20th Jan 2023 - Stage 3-Croppa Moree, I-B-Bore Rd & New Sealed Intersection by T4MR, Yamboon, Crooble, Alma & County Boundary-19th Jan 2023 - Stage 3-Drive thru-24th Jan 2023 - Stage 3-Mosquito Ck Rd-16th Jan 2023 - Stage 3-MPSC Joint Drive Thru Inspection-25th Jan 2023 - Stage 3-Post Spray Seal-County Boundary, Alma Lane-17th Jan 2023 - Stage 3-Post Xmas Drive through-All Roads-14th Jan 2023 During this period, no items were identified on the *T4MR Local Road Maintenance Register* for rectification. February 2023: - Stage 1-Bobbiwa Widening-25th Feb 2023 - Stage 1-Bobbiwa Widening-24th Feb 2023 - Stage 1-LX3057 & LX3058 Widening-SB & NB-26th Feb 2023 - Stage 1-Post .20mm Rain Event Drive thru-SB + NB-3rd Feb 2023 - Stage 3-MPSC Joint Inspection-25th Feb 2023 - Stage 3-North Star-24th Feb 2023 - Stage 3-Post GSC & T4MR Pothole Instillation-4th Feb 2023 March 2023: - MPSC Oval car Park Dilap-2nd March 2022 - Stage 3-LX's-Croppa Moree, Buckie Road, Croppa North Star, I-Bore Road - Tapscott Road Closure & Detour-15th March 2023 - Tapscott Road Closure & Detour-16th March 2023 April 2023: - 24-25th Feb 2023 Stage 3 & 1-Drive Thru - Completed Stockpiles + Gates-7, 11 & Waterloo-25th April 2023 - Stage 1 + 2-SB & NB-All Wads + Stockpiles-4th April 2024 - Stage 1-Courada Road Edgeroi-Post NSC Council letter to Inland Rail-25th April 2023 - Stage 1-LX3057 + LX3058-SB + NB-25th April 2023 - Stage 1-SB & NB Drive Thru-15th Feb 2023 - Stage 2-Post Road Opening-Tapscott + Burrington + SB + NB Newell Hwy-9th April 2023 - Stage 2-Tapscott Road Closure & Detour-4th April 2023 - Stage 3-Croppa Moree Road-EB + WB-4th April 2023 NOTE: Footage of these inspections is available upon request.

The environmental focus for the next reporting period includes:

- Completion works, waste removal and landscaping works through Stages 1 and 3. This includes resource recovery and re-use in line with the Excavated Natural Material and Recovered Aggregate Resource Recovery Order/s and Exemption/s 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.
- Progressive removal of the environmental controls (i.e. erosion and sediment controls, no-go zone signage and flagging, etc) through Stage 1, 2B and 3.
- Post-construction weed management activities through Stages 1, 2A, 2B and 3.
- Commence the Project's EPL relinquishment process (i.e. groundcover assessments, waste and contamination inspections, etc).

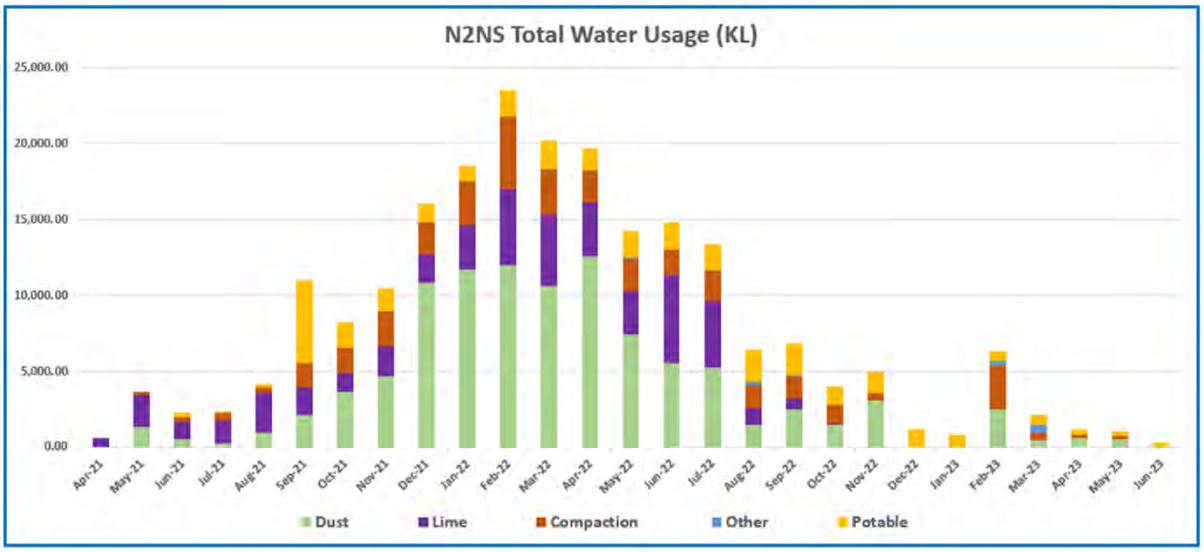
Please don't hesitate to contact me should you have any further questions in relation to this report.

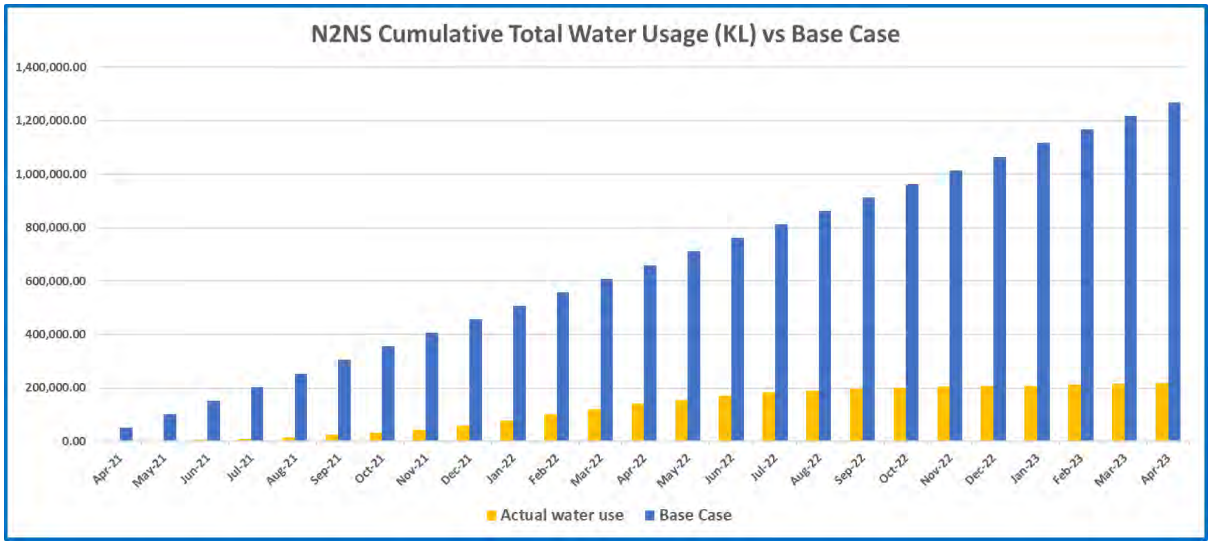
Yours sincerely

Adam Playne
Senior Environmental Advisor
Trans4m Rail

ATTACHMENTS

Attachment A: N2NS Project - Water Usage Results (November 2022 – April 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^2/month)													
Criteria	4 g/m^2/month - Annual Averaging Period													
Nov-22	5.0	-	Decom.	2.5	2.5	2.3	0.8	2.4	2.8	15.4	NOTE D	5.8	1.6	1.3
Dec-22	1.2	2.6	Decom.	2.5	2.8	24.6	0.8	0.8	2.5	2.6	NOTE D	1.2	1.1	2.2
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	0.4	0.7	Decom.	7.2	2.9	1.4	1.1	4.4	3.0	2.5	4.5	NOTE D	1.9	2.6
Mar-23	0.4	0.5	Decom.	9.5	3.5	0.6	0.6	14.5	2.6	1.3	1.1	<0.1	1.6	0.7
Apr-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
Annual Average	1.0	1.9	N/A	**9.0**	**6.9**	3.6	0.9	3.5	2.0	3.5	2.7	2.6	2.7	1.5

Pollutant	Averaging period	Criteria
Dust Deposition[c]	Annual	2 g/m^2/month[a] 4 g/m^2/month[b]

a. Maximum increase in deposited dust level.

b. Maximum total deposited dust level.

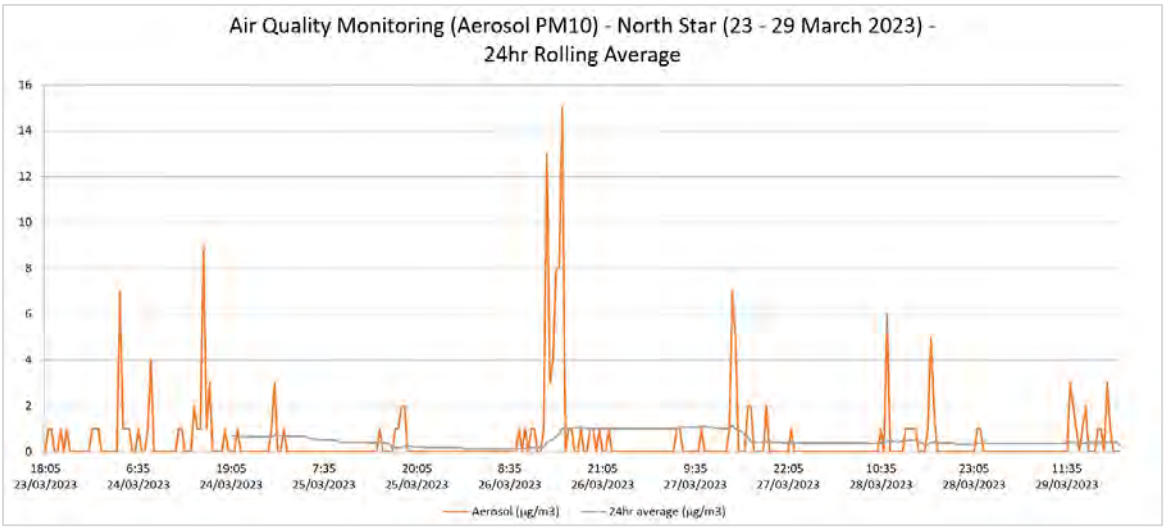
c. Dust is assessed as insoluble solids as defined by AS 3580.10.1–1991 (AM-19).

Underlined data is non-compliant with typical exposure period of 30 +/- 2 days as per AS3580.10.1

d. DDG stolen / removed by others.

Attachment C: Airborne Air Quality (PM10) Monitoring Results

Attachment C1:

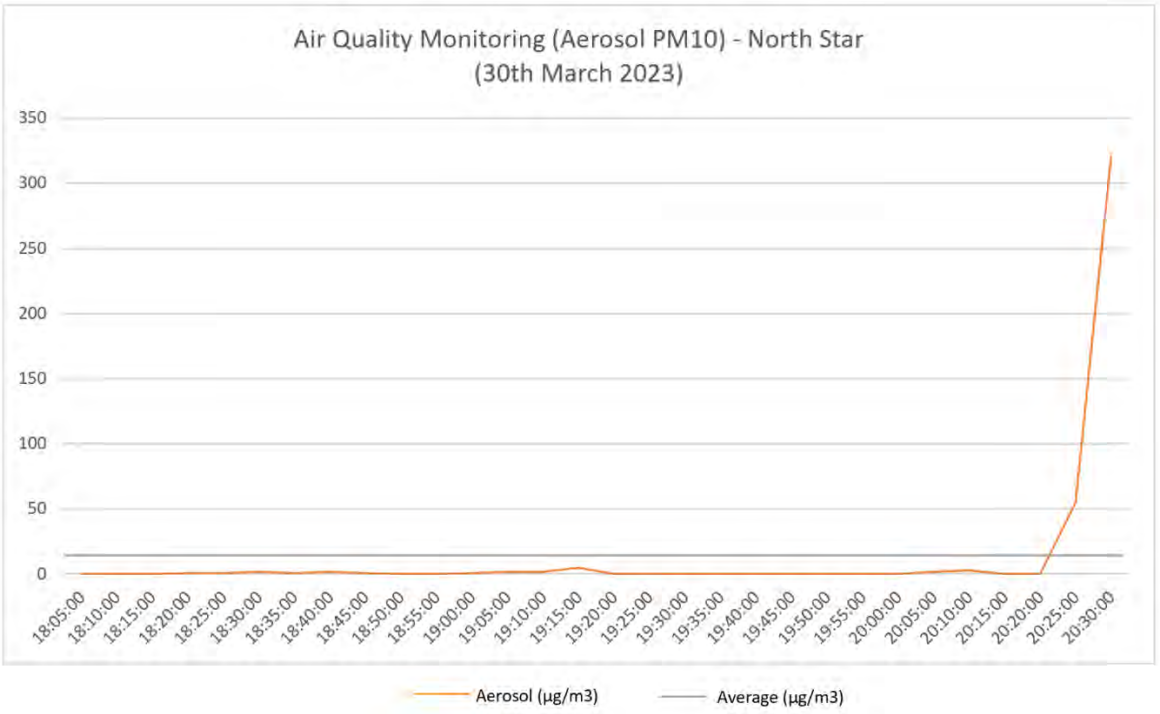


NOTES:

Criteria includes:

Pollutant	Averaging period	Criteria
PM10	24 Hours	50 µg/m^3

Attachment C2:

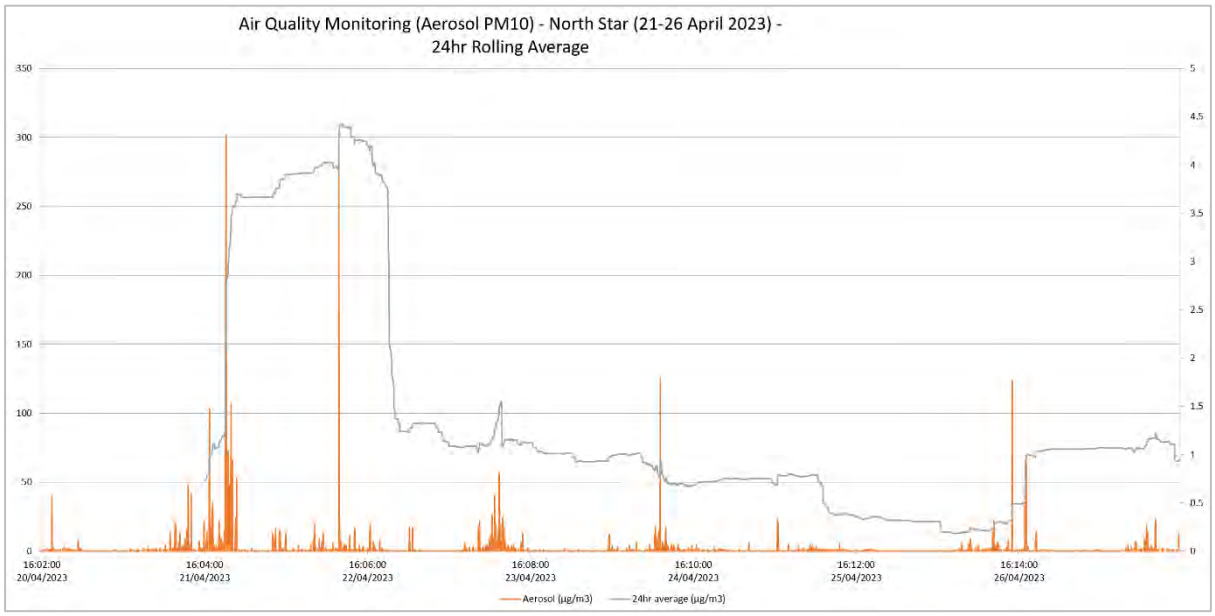


NOTES:

Criteria includes:

Pollutant	Averaging period	Criteria
PM10	24 Hours	50 µg/m^3

Attachment C3:

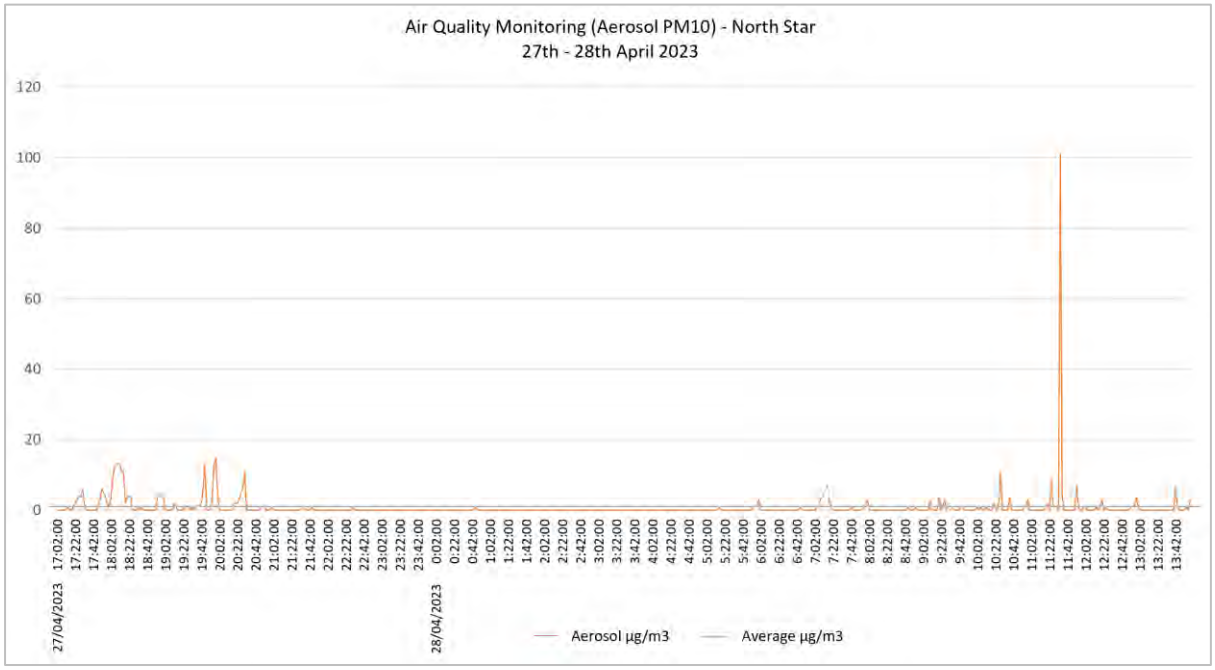


NOTES:

Criteria includes:

Pollutant	Averaging period	Criteria
PM10	24 Hours	50 µg/m^3

Attachment C4:



NOTES:

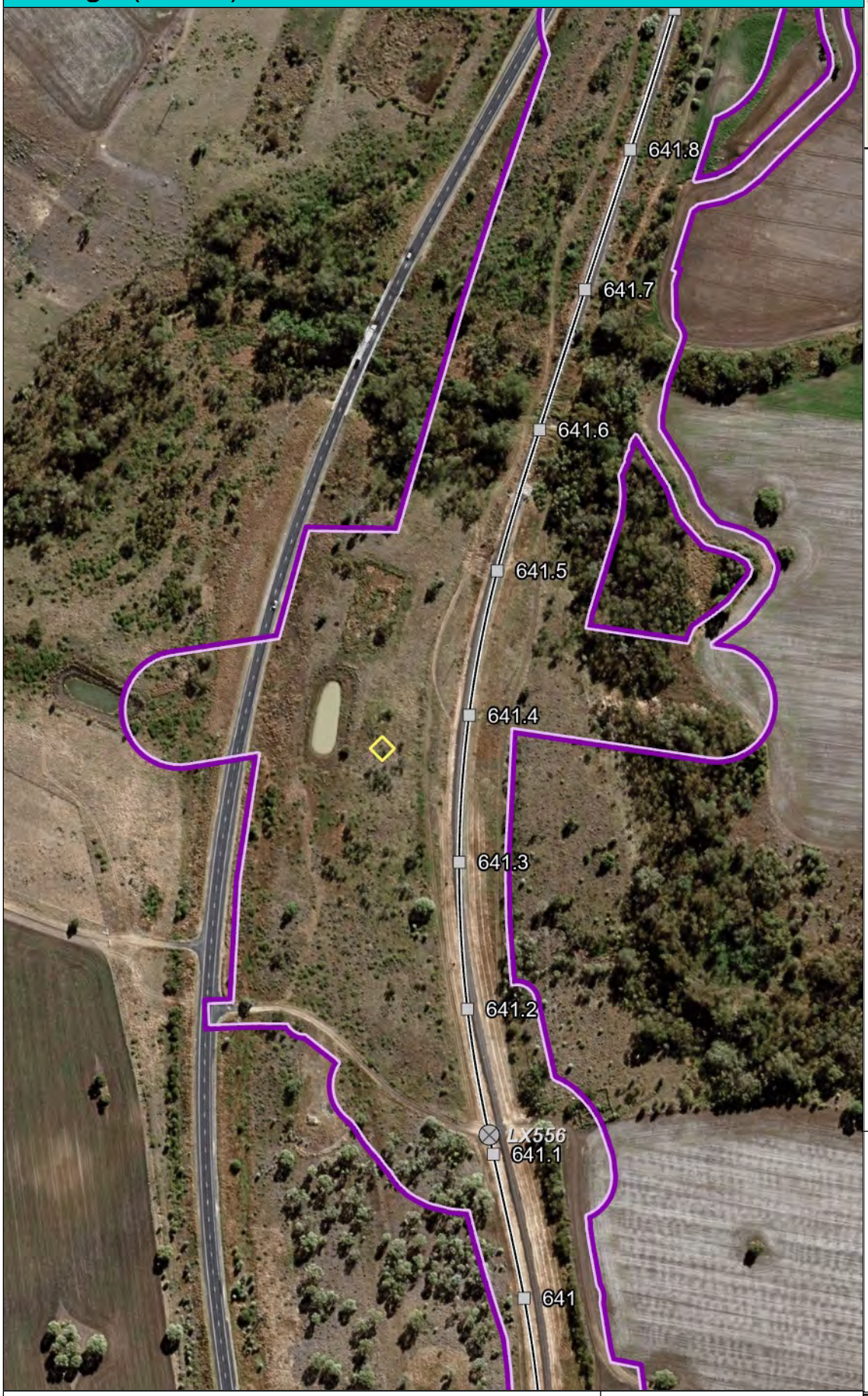
Criteria includes:

Pollutant	Averaging period	Criteria
PM10	24 Hours	50 µg/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
  - Religous

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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

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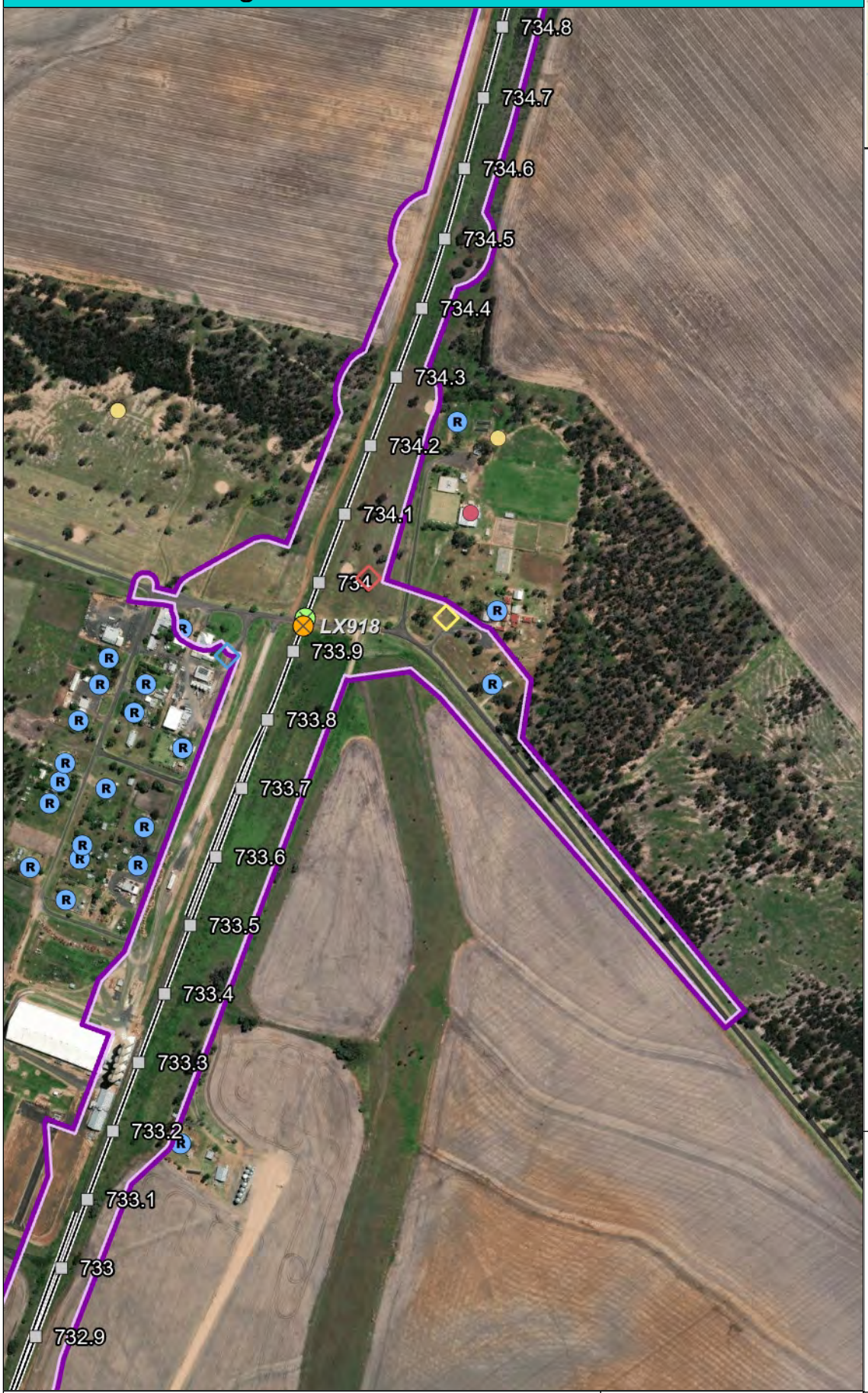
Croppa Creek - PM10 & DDG Monitoring Location

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
  - Religous

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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 (Active)

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection maximises 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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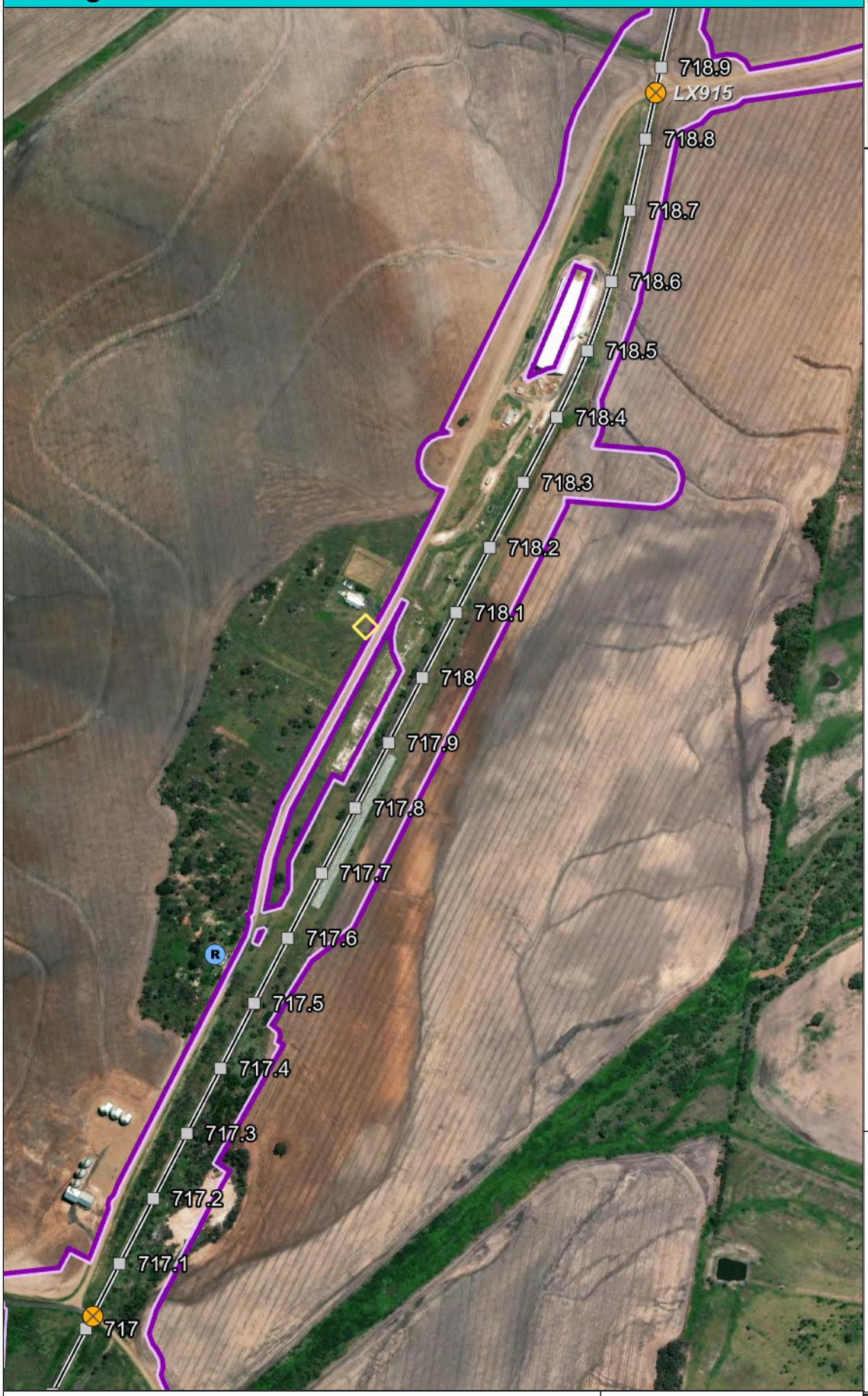
Crooble Depositional Dust Gauge

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
  - Religous

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

Notes:

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

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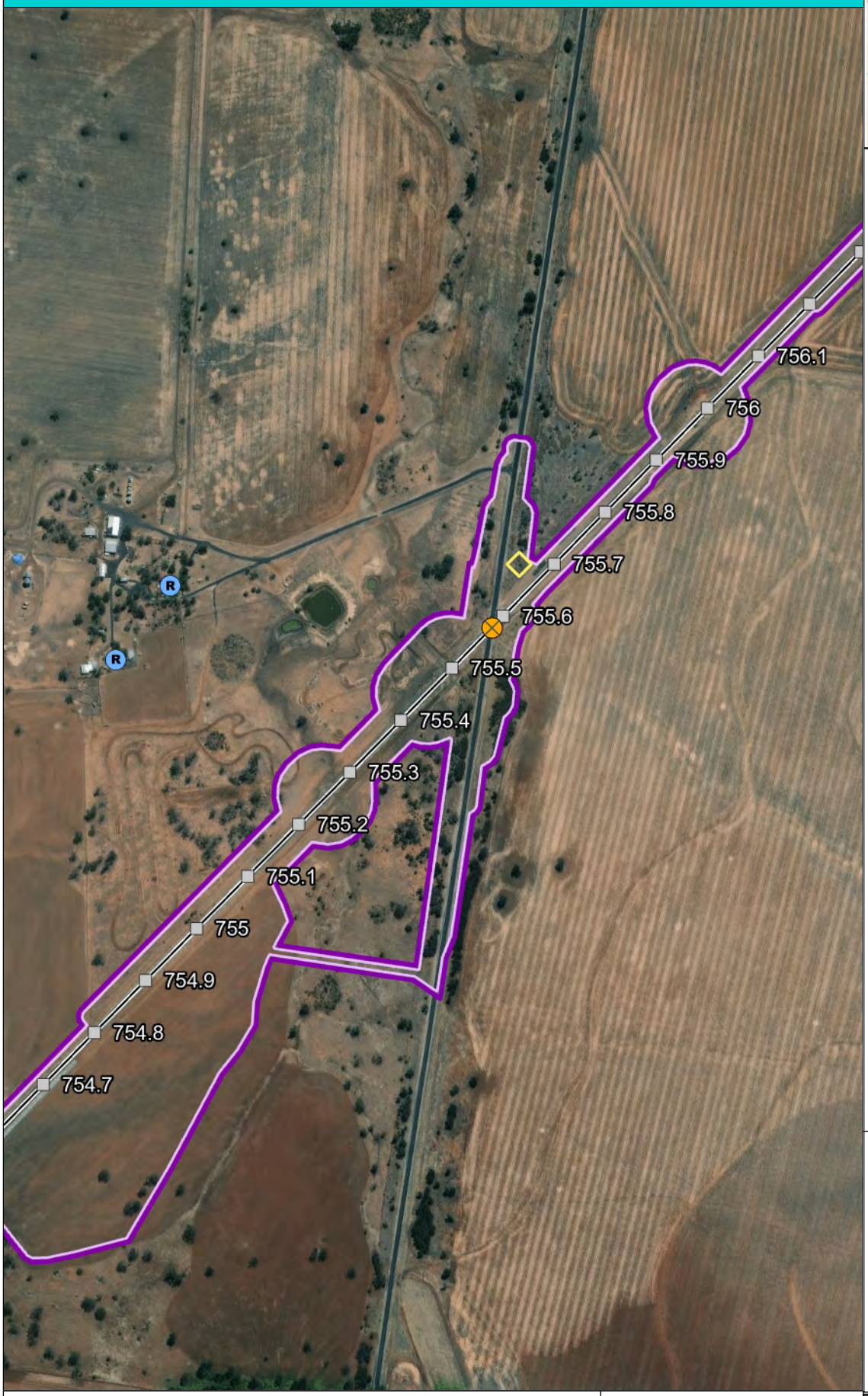
Croppa - North Star Rd
DDG Location

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
  - Religous

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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

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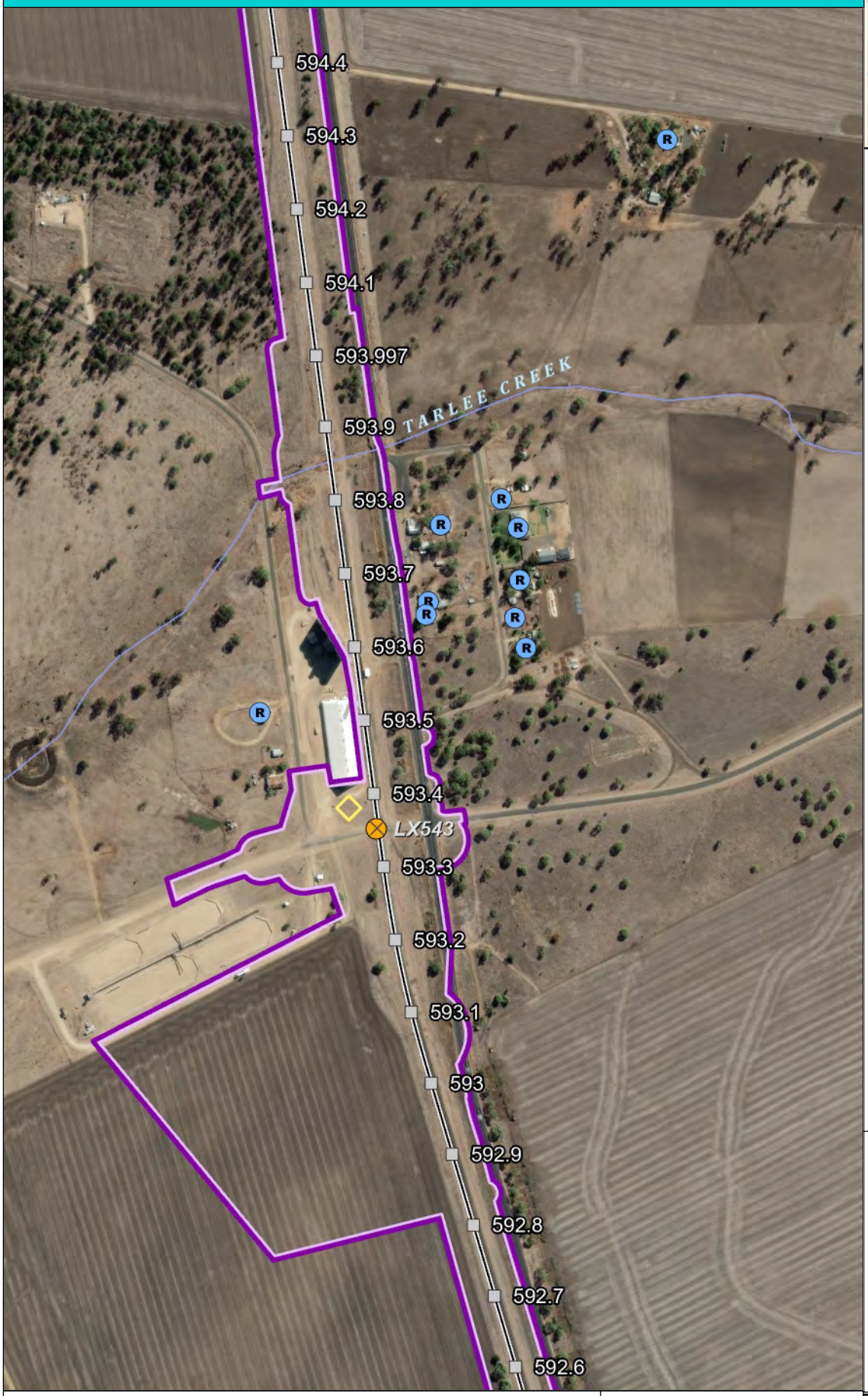
Edgeroi DDG Location

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
  - Religous
- Named Watercourse LS
  - <all other values>
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
  - 9

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

Notes:

Yellow Diamond - Edgeroi DDG Monitoring Location (Active)

Purple - EPL Premise Boundary

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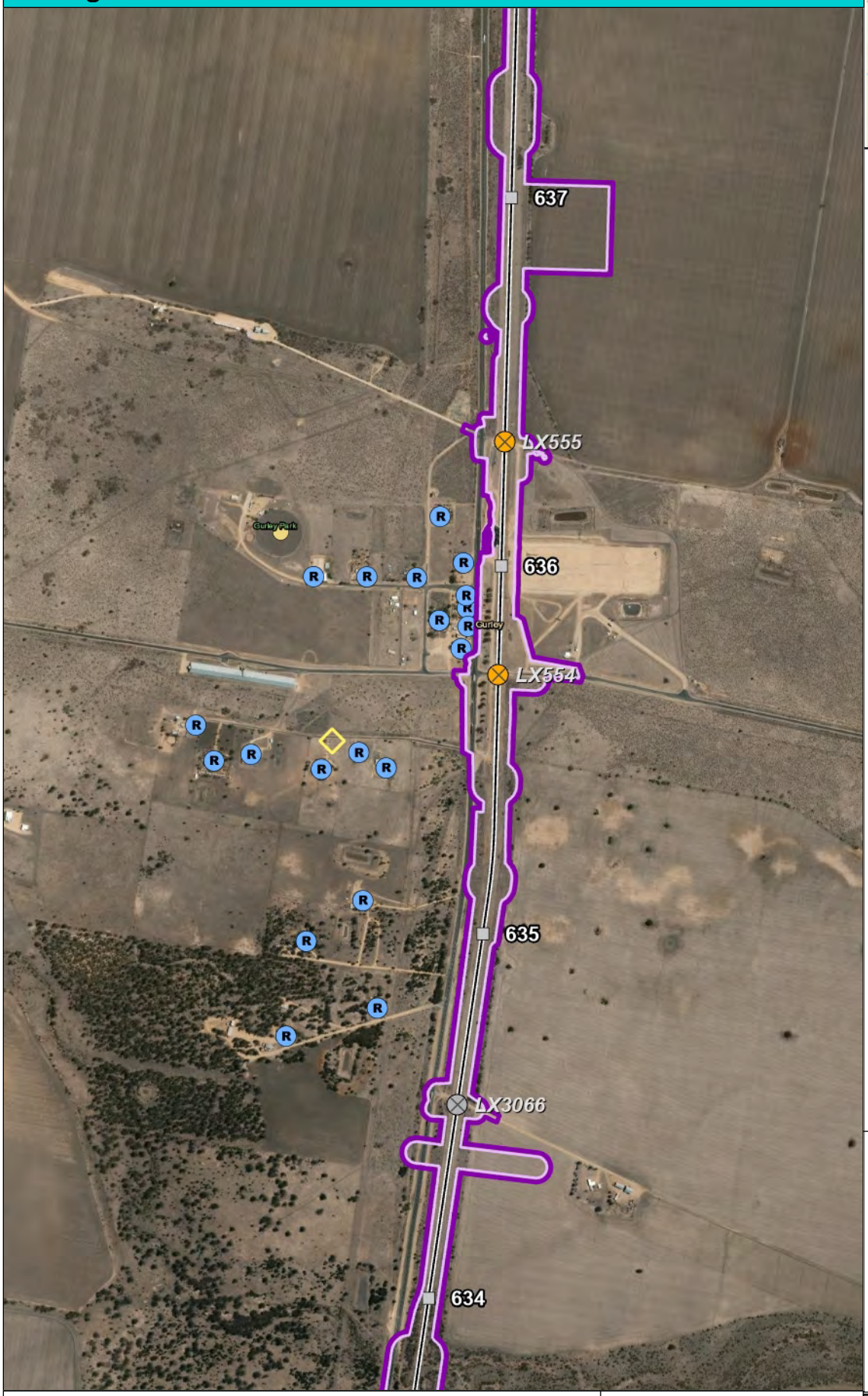
Gurley Depositional Dust Guage

INTERNAL USE ONLY



Legend

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

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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)

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Milguy Depositional Dust Gauge

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
  - Religous

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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

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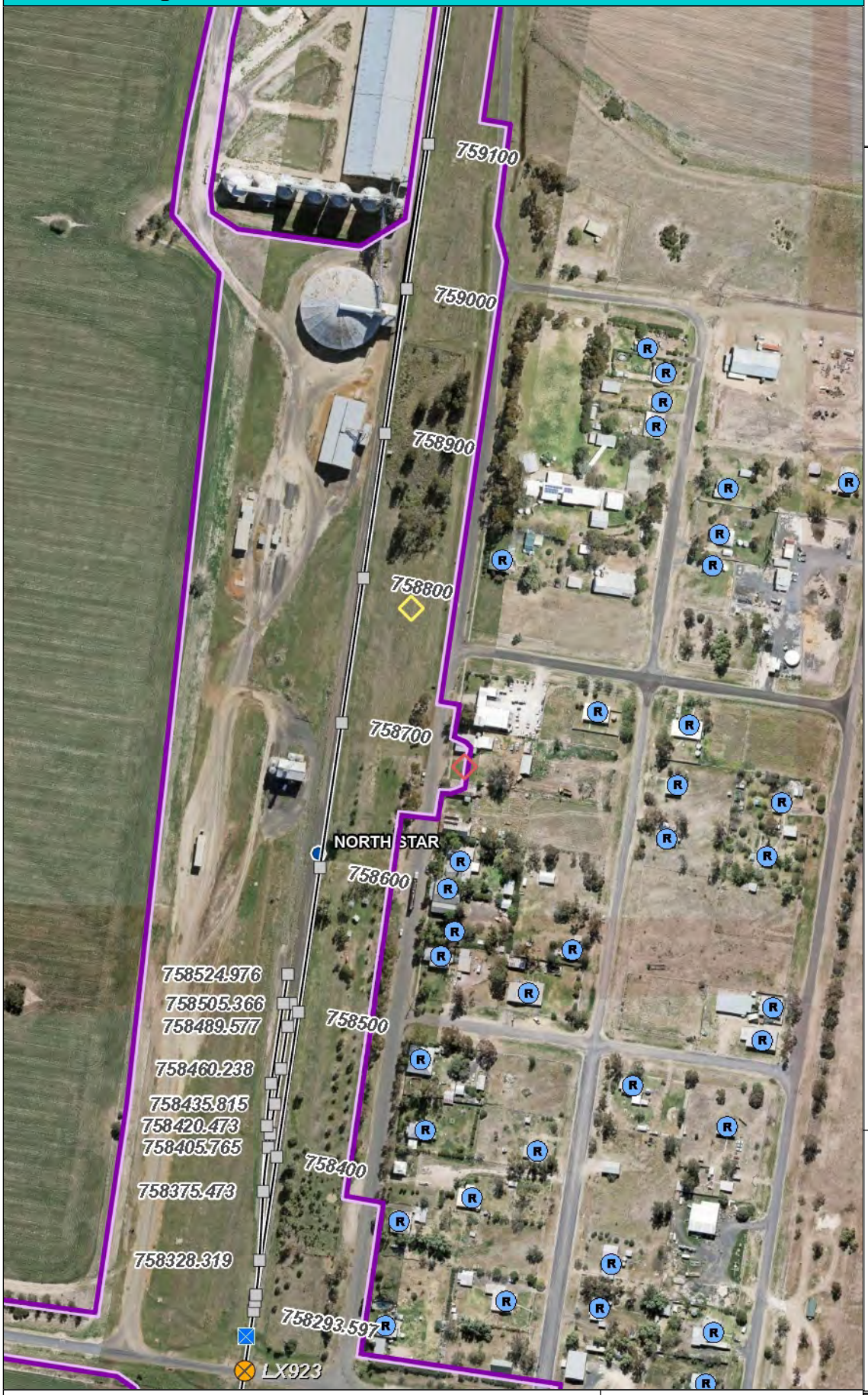
North Star - Dust Monitoring Locations

INTERNAL USE ONLY



Legend

- CIZ (SPIR)
- Bridges
- Level Crossings
  - Public
  - Private
  - Pedestrian
- Culverts
- 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:

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 maximises 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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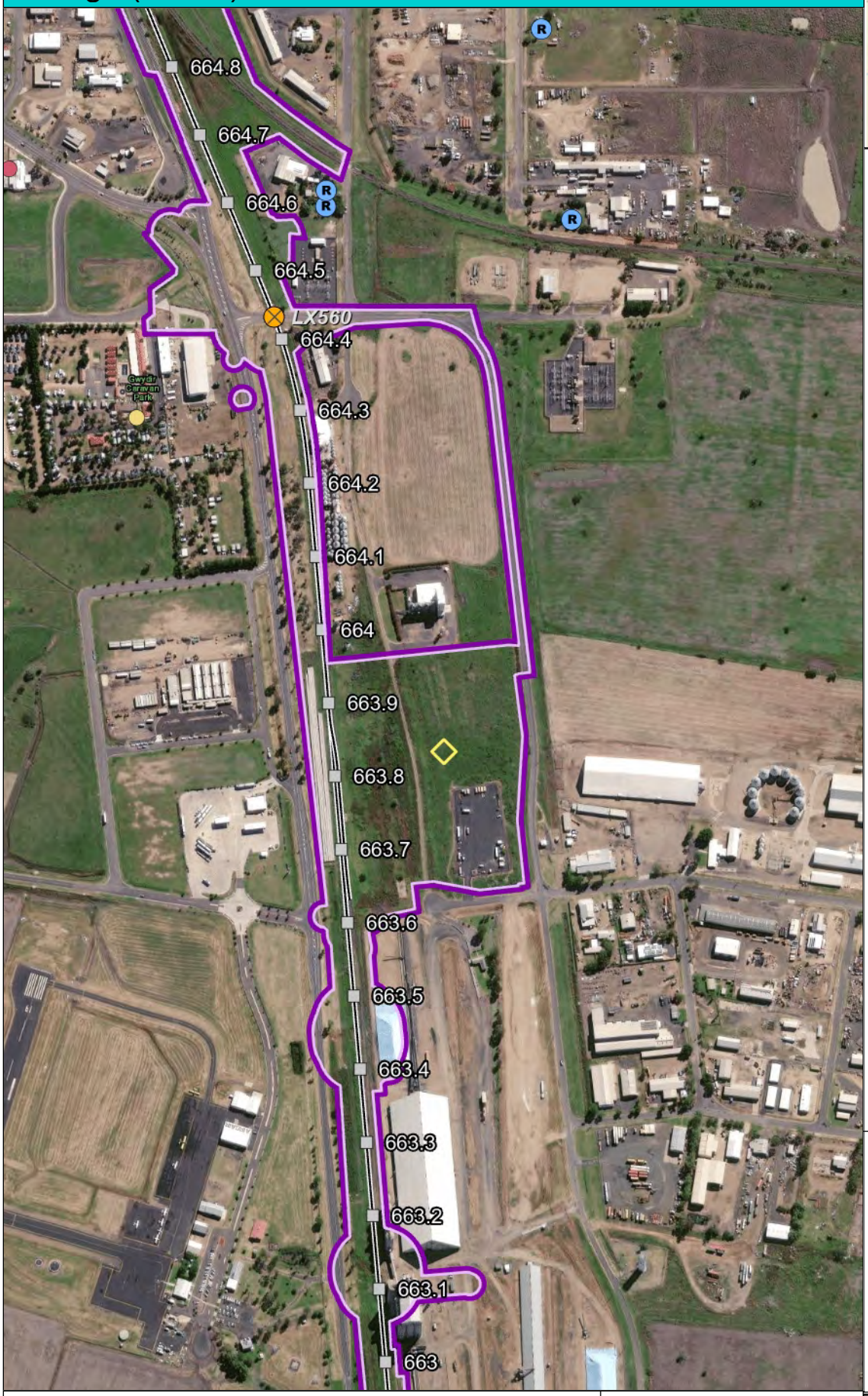
PAD 4 - Depositional Dust Gauge (Active)

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
  - Religous

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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

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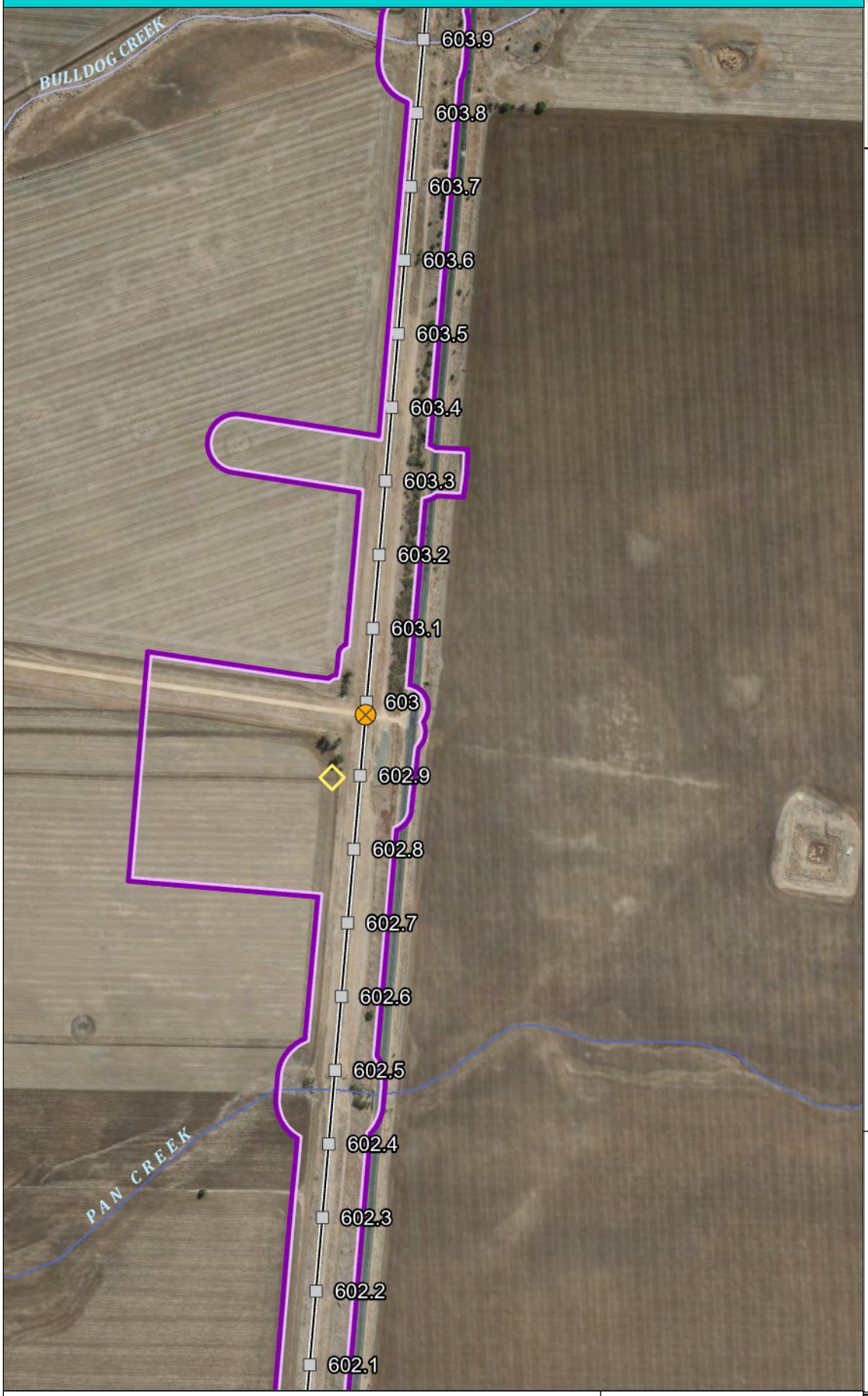
Pan Creek DDG Location

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
  - Religous
- Named Watercourse LS
  - <all other values>
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
  - 9

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

Notes:

Yellow Diamond - Pan Creek DDG Monitoring Location (Active)

Purple - EPL Premise Boundary

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection maximises 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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Roydon Rd DDG 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
  - Religous

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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

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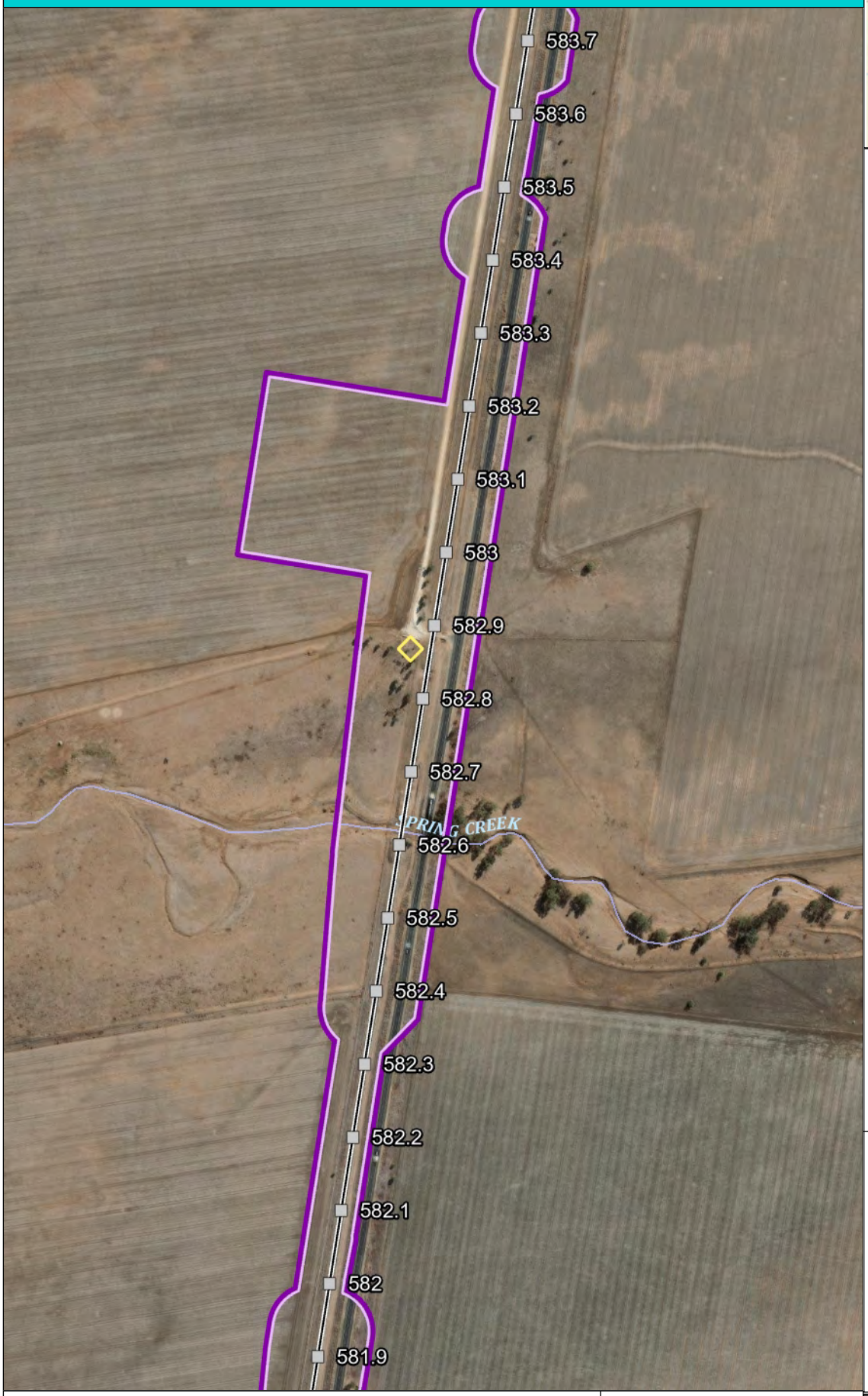
Spring Creek DDG Location

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
  - Religous
- Named Watercourse LS
  - <all other values>
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
  - 9

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

Notes:

Yellow Diamond - Spring Creek DDG Monitoring Location (Active)

Purple - EPL Premise Boundary

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection maximises 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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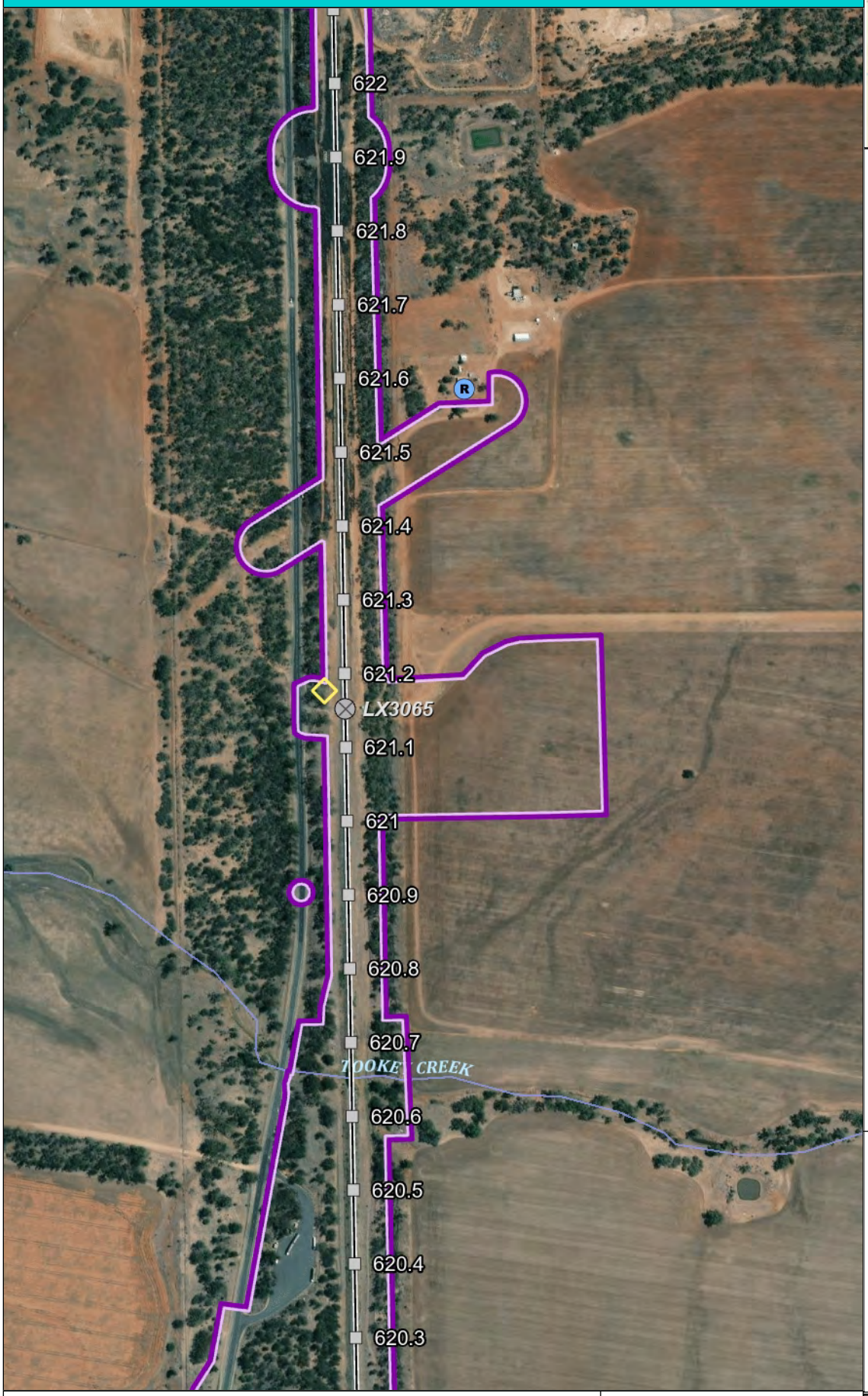
Tookey Creek DDG Location

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
  - Religous
- Named Watercourse LS
  - <all other values>
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
  - 9

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0 0.11 0.2 Kilometers

Scale: 1: 9,028

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

Notes:

Yellow Diamond - Tookey Creek DDG Monitoring Location (Active)

Purple - EPL Premise Boundary

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Wongabindie Rd DDG Location

INTERNAL USE ONLY

Legend

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

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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 maximises 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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Bellata PM10 Location

INTERNAL USE ONLY

Legend

- CIZ (SPIR)
- Bridges
- Level Crossings
  - Public
  - Private
  - Pedestrian
- Culverts
- 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:

Purple - EPL Premise Boundary
Red Diamond - Bellata PM10 Monitoring Location (Decommissioned).

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Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection maximises 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.

Attachment E: Non-conformance Report (DDG Exposure Period)

Entered By	Date Raised	NCR No	NCR Date	Discipline
Adam Playne	17/05/2023	SNC/N2NS/00049	21/03/2023	Environment

Description	Status	NCR Initiated By	Location
During a review of the depositional dust gauge monitoring results for the Project it was identified that the monitoring period for the month of February 2023 exceeded the typical exposure period detailed in AS3580.1 and Appendix D (Air Quality Monitoring Program (incl. Depositional Dust Monitoring Procedure)) of the Project's Soil and Water Management Sub-Plan. NOTE: Sample exposure period was 42 days which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1 for all DDG Sample locations in the month of February / March 2023.	Closed	Adam Playne	Narrabri to North Star (N2NS)

Root Cause	Project Phase/Stage	Exact Location	External Reference Number
Insufficient Planning - Inadequate resourcing	Construction	Multiple Locations (All DDG Monitoring Sites)	N/A

NCR Raised Against	Company	System Contributing	System Process	Cause of System NCR	NCR Contact Person
				T4MR Resource constraints during this period, noting that T4MR site-based Environmental Personnel left the Project in late February 2023 and DDG replacement did not occur until the remaining T4MR Environmental Personnel returned to site.	
Project		Failure to follow procedure	Environment management		Adam Playne

Has 3rd party approval been sought?	Commen	Name	Date	Closed By	Closed Date	Attachments	Proposed Remedy
N/A				Adam Playne	17/05/2023	EN2302949_0_COA.pdf	To address this, an additional field-based Environmental resource commenced on the Project in early April 2023.

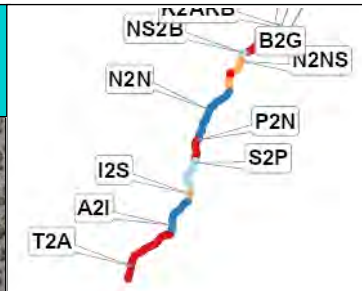
Attachment F: Noise Monitoring Results

Burrington Road Noise Monitoring Data (Traffic Detour)											
Sampler	CD	CD	CD	CD	AP	AP	AP	AP	AP	HR	HR
Date	01/02/2023	02/02/2023	02/02/2023	15/03/2023	20/03/2023	22/03/2023	24/03/2023	30/03/2023	31/03/2023	07/04/2023	08/04/2023
Time	07:59am	6:48am	11:07am	10:44am	5:26pm	4:54pm	5:52am	8:15am	5:49am	10:56am	09:31am
Site	No. 1 Burrington Road	No. 1 Burrington Road	No. 1 Burrington Road	No. 1 Burrington Road	No. 2 Burrington Road	No. 9 Burrington Road	No. 2 Burrington Road	No. 8 Burrington Road	No. 2 Burrington Road	No. 4 Burrington Road	Adj. No. 2 Burrington Road
Co-ords	29.525, 149.8507	29.525, 149.8506	29.525, 149.8506	29.525, 149.8506	29.525243, 149.851087	29.525226, 149. 851856	29.525243, 149.851087	29.525298, 149.851767	29.525243, 149.851087	29.52543, 149.851087	29.525269, 149.850646
Sensitive Receivers	Residences on Burrington Road	Residences on Burrington Road	Residences on Burrington Road	Residences on Burrington Road	Residences on Burrington Road	Residences on Burrington Road	Residences on Burrington Road	Residences on Burrington Road	Residences on Burrington Road	Residences on Burrington Road	Residences on Burrington Road
Chainage	CH659.81	CH659.81	CH659.81	CH659.81	CH659.81	CH659.81	CH659.81	CH659.81	CH659.81	CH659.81	CH659.81
LAEQ	58.0dB	62.1dB	58.8dB	63.9dB	54.5dB	59.7dB	54.5dB	61.3dB	55.5dB	59.0dB	56.8dB
LAFmax	82.4dB	83.0dB	82.7dB	86.5dB	79.0dB	83.3dB	67.9dB	81.6dB	78.8dB	81.0dB	73.9dB
LAFmin	43.3dB	47.8dB	42.1dB	41.3dB	35.3dB	37.3dB	52.1dB	37.5dB	50.2dB	40.7dB	44.3dB
LAF05	59.8dB	66.9dB	59.4dB	66.3dB	58.0dB	60.9dB	56.1dB	65.9dB	58.9dB	61.4dB	60.8dB
LAF10	56.1dB	62.4dB	56.6dB	60.5dB	56.3dB	55.4dB	55.0dB	62.4dB	56.4dB	57.5dB	59.5dB
LAF50	47.9dB	53.7dB	49.7dB	50.9dB	50.7dB	45.7dB	53.8dB	51.6dB	53.0dB	50.7dB	55.1dB
LAF90	44.9dB	49.9dB	45.1dB	45.7dB	40.9dB	40.2dB	53.2dB	42.9dB	51.6dB	45.4dB	51.2dB
LAF95	44.5dB	49.3dB	44.2dB	44.8dB	39.5dB	39.4dB	53.0dB	41.0dB	51.3dB	43.9dB	50.2dB
Construction Noise Source	Background Noise Monitoring. No N2NS construction works within vicinity of Burrington Road. Fulton Hogan project works occurring on Newell Highway. Traffic detour not in place during monitoring event.	Background Noise Monitoring. No N2NS construction works within vicinity of Burrington Road. Fulton Hogan project works occurring on Newell Highway. Traffic detour not in place during monitoring event.	Background Noise Monitoring. No N2NS construction works within vicinity of Burrington Road. Fulton Hogan project works occurring on Newell Highway. Traffic detour not in place during monitoring event.	Traffic Detour Noise Assessment (detour in place) No N2NS construction works within vicinity of Burrington Road. Fulton Hogan project works occurring on Newell Highway.	Traffic Detour Noise Assessment (detour in place) No N2NS construction works within vicinity of Burrington Road. Fulton Hogan project works occurring on Newell Highway.	Traffic Detour Noise Assessment (detour in place) No N2NS construction works within vicinity of Burrington Road. Fulton Hogan project works occurring on Newell Highway.	Traffic Detour Noise Assessment (detour in place) No N2NS construction works within vicinity of Burrington Road. Lighting Tower in place at LX. Fulton Hogan project works occurring on Newell Highway.	Traffic Detour Noise Assessment (detour in place) No N2NS construction works within vicinity of Burrington Road. Fulton Hogan project works occurring on Newell Highway.	Traffic Detour Noise Assessment (detour in place) No N2NS construction works within vicinity of Burrington Road. Lighting Tower in place at LX. Fulton Hogan project works occurring on Newell Highway.	Traffic Detour Noise Assessment (detour in place) No N2NS construction works within vicinity of Burrington Road. Traffic Control in place and manned. Fulton Hogan project works occurring on Newell Highway.	Traffic Detour Noise Assessment (detour in place) No N2NS construction works within vicinity of Burrington Road. Traffic Controllers present but inactive. Fulton Hogan project works occurring on Newell Highway.
Non-construction Noise Source	1.Public LV through LX. 2. Dog Barking. 3. Resident closing gate. 4. Highway Traffic. 5. Nature Sounds. 6. Local traffic.	1.Public LV through LX. 2. Dog Barking. 3. Resident closing gate. 4. Highway Traffic. 5. Nature Sounds. 6. Local traffic. 7. Generator running. 8. People talking.	1.Public LV through LX. 2. Dog Barking. 3. Resident closing gate. 4. Highway Traffic. 5. Nature Sounds. 6. Local traffic. 7. Wind	1.Public LV through LX. 2. Dog Barking. 3. Resident closing gate. 4. Highway Traffic. 5. Nature Sounds. 6. Local traffic.	1. Children playing. 2. Birds calling. 3. Grinding at No.3. 4. Traffic on highway. 5. Traffic on Burrington Hwy. 6. Car passing on Burrington Road - 69.4dB. 7. Dogs barking - 70.5dB. 8. Banging (steel on steel) noise at No. 1. 9. 9 LV's passed during the monitoring period. No HV's.	1. Traffic on Burrington Road 2. Traffic on Newell Highway. 3, Plane overhead. 4. Dogs barking at No. 2 and No. 4. 5. 10 LV's on Burrington Road during the monitoring event. 6. 3 LV's on Burrington Road during the monitoring event.	1. Traffic on Burrington Road 2. Traffic on Newell Highway. 3. 7 LV's on Burrington Road during the monitoring event. 4. No HV's on Burrington Road during the monitoring event.	1. Tractor slashing on Burrington Road, directly opposite monitoring location. 2. Traffic on Burrington Road. 3. Traffic on the Newell Highway. 4. Children talking, shouting and leaving for School. 5. Dogs barking. 6. Bus on Burrington Road. 7. 11 LV's on Burrington Road during the monitoring period. 8. 2 HV's on Burrington Road during the monitoring period.	1. Traffic on Burrington Road. 2. Traffic on Newell Highway. 3. 1 HV on Burrington Road during the monitoring period. 4. 8 LV's on Burrington Road during the monitoring period.	1. Resident pruning garden. 2. DIY, drilling occurring. 3. Radio playing in yard. 4. Small dogs barking. 5. Birds calling. 6. Traffic on Newell Hwy. 7. 3 HV's on Burrington Road during the monitoring period. 8. 4 LV's on Burrington Road during monitoring period.	1. Highway traffic. 2. Wind in trees. 3. Bird life calling. 4. Residents making noise. 5. Car door closing. 6. 9 LV's on Burrington Road. No HV's on Burrington Road during the monitoring period.

Attachment G: Noise Monitoring Locations

Noise Monitoring Locations

INTERNAL USE ONLY



Legend

- CIZ (20230323) - In Review
- Bridges
- Level Crossings
  - Public
  - Private
  - Pedestrian
- Chainage 100m (Post IFC)
- Rail Alignment (Post IFC)
- Design Alignment - IFC 2020 (
- Railway Location
- ARTC Network
- Other Railways

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0 0.03 0.1 Kilometers

Scale: 1: 2,257

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

Notes:

Blue - No. 1 Burrington Road
Green - No. 2 Burrington Road
Purple - No. 4 Burrington Road
Orange - No. 8 Burrington Road
Red - No. 9 Burrington Road

Note: ARTC web applications use the Web Mercator (EPSG:3857) coordinate system. This modified Mercator projection maximises 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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Attachment H: Calibration Certificates

RION CO., LTD.

3-20-41 Higashimotomachi Kokubunji Tokyo 185-8533
Phone:042(359)7888, Facsimile:042(359)7442

Certificate of Calibration

Name : **Sound Level Meter, Class 1**

Model : **NL-52** **S/No.** : **00710356**

Date of Calibration : **August, 03, 2021**

We hereby certify that the above product was tested and calibrated according to the prescribed Rion procedures, and that it fulfills specification requirements.
The measuring equipment and reference devices used for testing and calibrating this unit are managed under the Rion traceability system and are traceable according to official Japanese standards and official standards of countries belonging to the International Committee of Weights and Measures.

RION CO., LTD.

K. Ikeda

Manager, Quality Control Department

Acoustic Research Labs Pty Ltd
Unit 36/14 Loyalty Rd
North Rocks NSW AUSTRALIA 2151
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter
IEC 61672-3.2013
Calibration Certificate

Calibration Number C21675

Client Details	T4MR 64-68 Balo Street Moree NSW 2400
Equipment Tested/ Model Number :	Rion NL-52EX
Instrument Serial Number :	00710356
Microphone Serial Number :	19630
Pre-amplifier Serial Number :	10898

Pre-Test Atmospheric Conditions		**Post-Test Atmospheric Conditions**	
Ambient Temperature :	23.5°C	**Ambient Temperature :**	24.6°C
Relative Humidity :	50.3%	**Relative Humidity :**	47.9%
Barometric Pressure :	99.8kPa	**Barometric Pressure :**	99.7kPa

Calibration Technician :	Lucky Jaiswal	**Secondary Check:**	Harrison Kim
Calibration Date :	14 Oct 2021	**Report Issue Date :**	14 Oct 2021

Approved Signatory : Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	*Pass*	17: Level linearity incl. the level range control	*Pass*
13: Electrical Sig. tests of frequency weightings	*Pass*	18: Toneburst response	*Pass*
14: Frequency and time weightings at 1 kHz	*Pass*	19: C Weighted Peak Sound Level	*Pass*
15: Long Term Stability	*Pass*	20: Overload Indication	*Pass*
16: Level linearity on the reference level range	*Pass*	21: High Level Stability	*Pass*

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1 2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Least Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.13dB*	*Temperature*	*±0.2°C*
1kHz	*±0.13dB*	*Relative Humidity*	*±2.4%*
8kHz	*±0.14dB*	*Barometric Pressure*	*±0.015kPa*
Electrical Tests	*±0.10dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172
Accredited for compliance with ISO/IEC 17025 - calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to SI units

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

Acoustic Research Labs Pty Ltd
Unit 36/14 Loyalty Rd
North Rocks NSW AUSTRALIA 2151
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Calibrator

IEC 60942-2017

Calibration Certificate

Calibration Number C21676

Client Details T4MR
64-68 Balo Street
Moree NSW 2400

Equipment Tested/ Model Number : Rion NC-75
Instrument Serial Number : 34813438

Atmospheric Conditions
Ambient Temperature : 23.3°C
Relative Humidity : 51.3%
Barometric Pressure : 100.2kPa

Calibration Technician : Lucky Jaiswal
Calibration Date : 13 Oct 2021
Secondary Check: Harrison Kim
Report Issue Date : 14 Oct 2021

Approved Signatory : Ken Williams

Characteristic Tested	Result
Generated Sound Pressure Level	*Pass*
Frequency Generated	*Pass*
Total Distortion	*Pass*

Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
94	1000	94.05	1000.00

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed.

Least Uncertainties of Measurement -

Specific Tests		Environmental Conditions	
Generated SPL	*±0.11dB*	*Temperature*	*±0.2°C*
Frequency	*±0.18%*	*Relative Humidity*	*±2.4%*
Distortion	*±0.50%*	*Barometric Pressure*	*±0.015kPa*

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

* The tests <1000 kHz are not covered by Acoustic Research Labs Pty Ltd NATA accreditation

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - calibration.

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Attachment I: Vibration Monitoring Report – Bellata Silos and Platform

8 December 2022
TM815-05D01 Bellata Station vibration monitoring (r1)

Trans4m Rail Joint Venture
Adam Playne
Adam.Playne@t4mr.com.au

From: Angus Hannelly [Angus.Hannelly@renzotonin.com.au]

Narrabri To North Star (N2NS) Inland Rail - Bellata Vibration Monitoring Report

1 Introduction

Renzo Tonin & Associates was engaged by Trans4m Rail to conduct vibration monitoring during track construction works at Bellata Station for Narrabri to North Star Inland Rail project. The vibration monitoring was undertaken to monitor and assist with vibration impact management of potentially affected structures. This report provides a summary of the monitoring results.

2 Vibration monitoring details

Both attended and unattended monitoring were undertaken at Bellata Station.

Attended monitoring was undertaken during excavation works to determine the likely vibration levels on the station platform when works were occurring in close proximity.

For compaction works adjacent to the station platform, it is understood that a post dilapidation inspection would be undertaken, with comparison then made to the pre-construction dilapidation survey, in order to manage vibration impacts along the station platform, as vibratory roller compaction works were required.

Long term unattended monitoring was undertaken for the Bellata Station's Communication Building and Bellata Grain Receival Facility during the vibration intensive periods of works. Unattended monitors with alerts were installed to assist within management of vibration levels generated from the construction works.

2.1 Attended monitoring

Attended vibration monitoring was conducted on 28th July 2022. The vibration monitor was mounted on the edge of the station platform during excavation works, which then were undertaken in close proximity to the monitoring location representative of the likely excavation works.

2.2 Unattended monitoring

Two unattended vibration monitors were installed at Bellata Station and monitored for the period between 28th July and 18th November 2022. Vibration monitors were installed either side of the train line, one at the Bellata Station's Communication Building and another on the Bellata Grain Receival Facility side of the tracks to monitor the vibration levels potentially impacting these structures throughout the duration of the construction works.

Table 1 below presents the instrumentation used and monitoring locations. Photos indicating vibration monitoring locations are included in APPENDIX A.

Table 1 - Equipment and measurement details

Monitoring ID	Equipment	Assessment point (Refer to APPENDIX A)	Date	Vibration intensive equipment in use by the project during monitoring period	Approx. distance to nearest point on tracks
M1 (Appendix A.1)	Sigicom C12 – S/N: #61870	Bellata Grain Receival Facility	20th July 2022 and 18th November 2022	Vibratory roller, excavator with bucket attachment, rail tamper	10-15m
M2 (Appendix A.2)	Sigicom C22 – S/N: #102478	Bellata Station Communication Building	20th July 2022 and 18th November 2022	Vibratory roller, excavator with bucket attachment, rail tamper	5-10m

The vibration criteria for cosmetic damage for the project is detailed in the Narrabri to North Star Construction Noise and Vibration Management Sub-Plan (CNVMP) (T4MR Ref: 7632-T4MR-PL-PES-001-04, Rev 1, dated 18/8/2021). Consistent with the CNVMP, appropriate vibration criteria were adopted to manage the construction vibration from the works based upon consideration of the sensitivity of the potentially affected sensitive structures.

3 Vibration monitoring results

3.1 Bellata Rail Station

Based on information provided within the Dilapidation report for the Bellata Rail Station (Ref: 22-57-Bellata Rail Station, SMK Consultants, survey date 4th March 2022), the key structures the make up the Bellata Rail Station are a concrete waiting area and shelter, signalling/control/ communication shed,

overhead lighting, safety fencing, and a ramp between the adjoining public carpark area and the station platform.

Even though the station is noted as heritage, the station structures were identified as sound. The rail platform and foundations were classified as heavy commercial structures, while the shelter and adjoining infrastructure, including the communication building adjacent were classified as light commercial type buildings. The rail station shelter and light poles were constructed of materials considered to be sufficiently flexible to withstand vibrations.

It was confirmed with ARTC that the Communication Building contains no signalling equipment and only a public announcement system.

3.1.1 Station Platform – attended monitoring

The established vibration criteria for cosmetic damage for the platform was established as 25mm/s PPV based upon a heavy commercial structure.

Attended trial vibration measurements were undertaken on the station platform to confirm the expected site-specific vibration levels at various distances from the vibration intensive works in the rail corridor from excavation activities. The outcomes of this trial were as follows:

- When the operator conducted a typical excavation activity at 1m away from the monitoring location, the excavator with bucket attachment produced vibration levels around 0.5mm/s PPV on the platform.
- When the operator slammed the bucket attachment into the ground at 1m away from the monitoring location (assessing worst case scenario), the excavator with bucket attachment produced vibration levels around 2mm/s PPV on the platform.
- Based on the vibration monitoring results above, the excavator with bucket attachment produced vibration levels substantially lower than the established vibration limit of 25mm/s.

Therefore, further vibration monitoring of the excavation works was not recommended. However, a vibration monitor was installed in front of the Communication building on the platform concrete slab to monitor for the duration of the construction works at the more sensitive receiver location on the platform. This monitor measured during the entire excavation works and future vibratory rolling works (managing vibration levels for both the station platform and the Communication building).

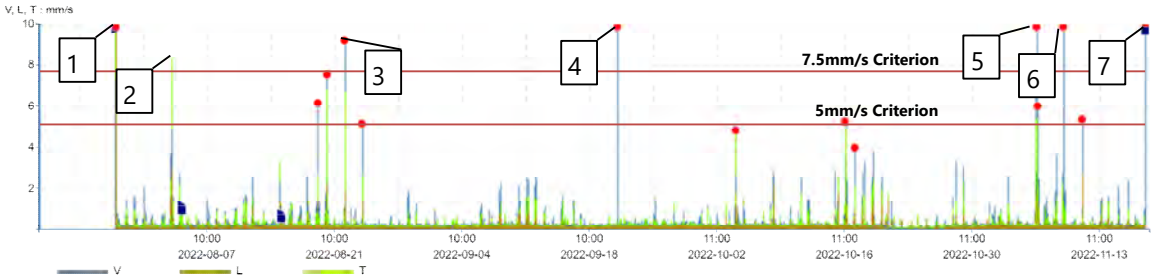
3.1.2 Bellata Station – Communication Building – unattended monitoring

Based upon the dilapidation report, the building was be classified as a light commercial structure for the purpose of setting vibration management limits. The established vibration criteria for cosmetic damage for the Bellata Station Communication building are given below:

- Stop works trigger has been set to 7.5mm/s PPV.
- Amber trigger has been set to 5mm/s PPV.

The results of the unattended vibration monitoring are presented in Figure 2 below.

Figure 1 - Unattended vibration monitoring results at location M2 (PPV, mm/s)



The discussion of the M2 vibration monitoring results is summarised in Table 3-2.

Table 3-2: Bellata Communication Building vibration monitoring summary

Exceedance ID	Date and Time	Cause of exceedance
1	28.07.2022 07:33am	At this time, the vibration monitor was mounted to the ground. The exceedance was caused by the RTA engineer setting up the vibration monitor. As a result, the exceedance deemed not related to the construction works.
2	03.08.2022 11:45am	The vibration monitor recorded an instantaneous vibration level over 7.5mm/s. It is noted that during the time of exceedance, it was confirmed that no compaction works were occurring. An extraneous event such as a worker inadvertently nudging the monitor was likely the cause of the exceedance. The exceedance was deemed not related to the construction works.
3	22.08.2022 11:39pm	The vibration monitor recorded an instantaneous vibration level over 7.5mm/s. It is noted that during the time of exceedance, it was confirmed that a roller was tracking past the platform and not conducting any construction works. An extraneous event such as a worker inadvertently nudging the monitor was likely the cause of the exceedance. As a result, the exceedance was deemed not related to the construction works.
4	21.09.2022 09:19am	An RTA engineer was replacing the batteries of the vibration monitor at this time. The exceedance was caused by the RTA engineer replacing the batteries of the vibration monitor. As a result, the exceedance was deemed not related to the construction works.
5	06.11.2022 11:56am	The vibration monitor recorded an instantaneous vibration level over 7.5mm/s. Given that the exceedance is not characteristic of the construction works taking place, an extraneous event such as a worker inadvertently nudging the monitor was likely the cause of the exceedance.
6	09.11.2022 10:17am	The vibration monitor recorded an instantaneous vibration level over 7.5mm/s. Given that the exceedance is not characteristic of the construction works taking place, an extraneous event such as a worker inadvertently nudging the monitor was likely the cause of the exceedance.
7	18.11.2022 10:39am	At this time, the vibration monitor was retrieved from the ground at the end of monitoring. Construction works have finished at the time of exceedance. As a result, the exceedance was deemed not related to the construction works.

It can be seen in Figure 1 that the vibration levels produced from the construction works were typically below 7.5 mm/s. Note that there were events that resulted in an instantaneous vibration level of above 7.5 mm/s which have been deemed not characteristic of the construction works taking place or deemed not related to the construction works.

3.2 Bellata Station – Bellata Grain Receival Facility – unattended monitoring

Based on information provided within the Dilapidation report for the GrainCorp Bellata facility (Ref: 22-57- GrainCorp Bellata, SMK Consultants, survey date 4th and 5th March 2022), the key structures the make up the GrainCorp Bellata facility include concrete silos, grain pits and out-loading equipment, concrete bulk grain shed, switch/electrical room, and a large bulk shed. All of the grain storages have extensive concrete foundations and aprons.

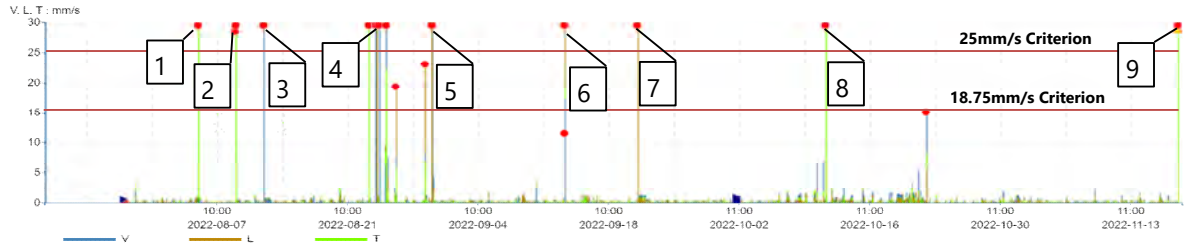
It was noted that the critical issue was the preservation of the outer concrete drainage system around the silos. As such, monitoring was undertaken in proximity to the drainage system nearby to the works.

The established vibration criteria for cosmetic damage for the affected receiver type are given below:

- Stop works trigger has been set to 25mm/s PPV.
- Amber trigger has been set to 18.75mm/s PPV.

The results of the unattended vibration monitoring are presented in Figure 1 below.

Figure 2 - Unattended vibration monitoring results at location M1 (PPV, mm/s)



The discussion of the M1 vibration monitoring results is summarised in .

Table 3-1: Bellata Grain Receival Facility vibration monitoring summary

Exceedance ID	Date and Time	Cause of exceedance
1	05.08.2022 10:08am	The vibration monitor recorded an instantaneous vibration level over 25mm/s. It was confirmed with project personnel that at the time of exceedance no construction works occurring on the Bellata Grain Receival Facility side. An extraneous event such as a worker inadvertently nudging the monitor was likely the cause of the exceedance. The exceedance was deemed not related to the construction works.

Exceedance ID	Date and Time	Cause of exceedance
2	09.08.2022 08:46am	The vibration monitor recorded an instantaneous vibration level over 25mm/s. It was confirmed with project personnel that at the time of exceedance no construction works occurring. However, it can be noted that GrainCorp personnel were seen undertaking construction works near to the monitor, including using a concrete saw adjacent to the monitor. As a result, the exceedance was deemed not related to the construction works and was likely caused by GrainCorp construction works.
3	12.08.2022 07:59am	The vibration monitor recorded an instantaneous vibration level over 25mm/s. Given that the exceedance is not characteristic of the construction works taking place, an extraneous event such as a worker inadvertently nudging the monitor was likely the cause of the exceedance. As a result, the exceedance was deemed not related to the construction works.
4	23.08.2022 03:15pm - 24.08.2022 09:04am	The vibration monitor recorded an instantaneous vibration level over 25mm/s. It was confirmed with project personnel that no construction works were occurring. However, it can be noted that GrainCorp personnel were observed drilling adjacent to the monitor. As a result, the exceedance was deemed not related to the construction works and were likely caused by GrainCorp construction works.
5	30.08.2022 09:40am	The vibration monitor recorded an instantaneous vibration level over 25mm/s Given that the exceedance is not characteristic of the construction works taking place, an extraneous event such as a worker inadvertently nudging the monitor was likely the cause of the exceedance. As a result, the exceedance was deemed not related to the construction works.
6	13.09.2022 02:33pm	The vibration monitor recorded an instantaneous vibration level over 25mm/s. Given that the exceedance is not characteristic of the construction works taking place, an extraneous event such as a worker inadvertently nudging the monitor was likely the cause of the exceedance. As a result, the exceedance was deemed not related to the construction works.
7	21.09.2022 07:50am	An RTA engineer was replacing the batteries of the vibration monitor at this time. The exceedance was caused by the RTA engineer replacing the batteries of the vibration monitor. As a result, the exceedance was deemed not related to the construction works.
8	11.10.2022 04:25pm	The vibration monitor recorded an instantaneous vibration level over 25mm/s. It is noted that during the time of exceedance, it was confirmed that no construction works were occurring in close proximity to the silos. As a result, the exceedance was deemed not related to the construction works and was likely caused by an extraneous event such as a worker inadvertently nudging the monitor.
9	18.11.2022 11:18am	At this time, the vibration monitor was retrieved from the ground at the end of monitoring. Construction works have finished at the time of exceedance. As a result, the exceedance was deemed not related to the construction works.

It can be seen in that the vibration levels produced from the construction works were typically below 25 mm/s. Note that there were events that resulted in an instantaneous vibration level of above 25 mm/s which have been deemed not characteristic of the construction works taking place or deemed not related to the construction works .

4 Conclusion

Renzo Tonin and Associates undertook vibration monitoring during the construction works at Bellata Station. Attended trial vibration measurements were used to manage potential impacts from excavation of the Bellata Station Platform.

Unattended monitoring was undertaken throughout the construction works to manage impacts on Bellata Station Platform structures and the Bellata Grain Receival Facility. The results of the unattended vibration monitoring were typically below the established vibration screening criteria. There were events

that resulted in an instantaneous vibration level of above the vibration screening criteria which have been deemed not characteristic of the construction works taking place or deemed not related to the construction works following further investigation.

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Reviewed / Authorised
08.12.2022	Initial issue	0	1	A. Hannelly	R. Zhafranata	A. Leslie

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APPENDIX A Vibration monitoring locations

A.1 Bellata Station (Silo side) - Vibration monitoring location and equipment setup

A.2 Bellata Station (Communication Building side) - Vibration monitoring location and equipment setup

A.3 Bellata Station (Aerial Imagery) - Vibration monitoring locations