

6 October 2020

The Hon. Rob Stokes MP
Minister for Planning and Public Spaces
Department of Planning, Industry and Environment
Locked Bag 5022
PARRAMATTA NSW 2124

Associate Georgia Appleby
Direct Line (02) 8083 0425
Email Georgia.Appleby@holdingredlich.com
Partner Breellen Warry
Our Ref GJA 19750214

Submitted via the Planning Portal

Dear Minister Stokes

**Letter of objection to the EIS for State significant infrastructure application SSI-9371
Inland Rail – North Star to NSW/Queensland Border**

1. We act for an un-constituted group of landholders who own properties along part of the proposed alignment for the Inland Rail Project, being that part known as the North Star to Border Project (**NS2B Project**) which is the subject of State significant infrastructure application SSI-9371 (**NS2B SSI**).
2. The Australian Rail Track Corporation (**ARTC**) is the proponent for the NS2B Project.
3. The Environmental Impact Statement (**EIS**) for the NS2B SSI was placed on exhibition on 26 August 2020.
4. The purpose of this letter is to outline our clients' vehement objections to the EIS for the NS2B SSI, including on the basis that:
 - (a) the **flooding and hydrology** modelling used in the EIS is grossly inadequate and illustrates impacts that are patently contrary to the lived experiences of the landholders in the area, meaning that there is a significant threat of serious or irreversible environmental damage, and risks to people and property arising from the NS2B Project;
 - (b) insufficient consideration has been paid to the impacts of **erosion** on the clay soils which are unique to the region and critical to farming operations;
 - (c) the failure to carry out a proper **cost benefit analysis** in the determination of the proposed alignment, in favour of a multi-criteria analysis and computable general equilibrium analysis which is both contrary to best practice and entirely misleading;
 - (d) the significant risks to the NSW Government of determining an application which would see the construction of permanent and significant infrastructure over Crown land that is currently subject to **undetermined Aboriginal land claims**;
 - (e) the **ecological assessment** that has been undertaken is highly deficient and does not adequately identify the ecological communities that will be impacted by the NS2B Project,

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Level 65 MLC Centre 19 Martin Place Sydney NSW 2000 DX 529 Sydney
GPO Box 4118 Sydney NSW 2001 T +61 2 8083 0388 www.holdingredlich.com

ABN 15 364 527 724

both within and beyond the development footprint, and also critically fails to adequately consider the impacts on identified threatened and endangered ecological communities, including native grasses which are of high conservation value;

- (f) significant concerns remain regarding the adequacy of the **noise and vibration assessment**, including the failure to adequately consider the impact of the development on sleep disturbance and commit to appropriate attenuation treatments to mitigate acoustic impacts at properties along the alignment;
 - (g) the failure to carry out a proper **visual impact** assessment, particularly at Toomelah and North Star, and identify appropriate impact mitigation strategies;
 - (h) the refusal to acknowledge and therefore address **access issues** that will arise for stock and vehicle movements particularly for properties that are severed by the proposed alignment, thereby significantly adversely impacting existing farming operations and rendering some parcels landlocked;
 - (i) the failure to address existing **contamination** and the need to **rehabilitate** the land forming part of the existing rail line which should reasonably be addressed as part of the NS2B Project; and
 - (j) the proponent's misguided approach to **compulsory acquisition** and the nature of the impacts that can be appropriately compensated and those that cannot.
5. Each of these objections will be made in more detail below.
6. This letter of objection is made on behalf of the following landowners:
- (a) Richard and Janet Doyle, who own "Malgara" at 22742 Bruxner Highway, Boggabilla NSW 2409;
 - (b) Andrew Mackay, who owns "Merawah" at Boggabilla NSW 2409;
 - (c) Robert, Greg and Lori Mackay, who own "Budleigh" at Boggabilla NSW 2409; and
 - (d) Ian Uebergang, who owns "Oakhurst", "Ohmi", "Bibilah" and other properties in and around North Star NSW 2408,
- (collectively, the **Landholders**).
7. A map identifying where the location of the landholders properties are relative to the proposed alignment is included at **Attachment A**, as well as a map identifying the names of the various farms along the alignment.
8. At the outset, we wish to make clear that the Landholders do not object to the Inland Rail project itself and would support a version of the NS2B Project which appropriately mitigated and managed the impacts of the development and provided key benefits to the communities along the proposed alignment. However, the Landholders have serious and enduring concerns regarding the quality, accuracy and depth of the analysis which has been used as the basis of the EIS.
9. Until such time as the proponent provides a more thorough and detailed assessment, and engages with the issues raised in this objection, then the Landholders consider that it is only appropriate that the Minister proceed by:
- (a) refusing consent to the NS2B SSI; or

- (b) requiring the ARTC to withdraw and substantially amend their application (with the amended application to be the subject of further public exhibition) before any determination is made.

Duties of the proponent and the consent authority in the application of ecologically sustainable development and the precautionary principle

10. The power to determine an application in respect of State significant infrastructure is contained in s 5.19(1) of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*.
11. In determining the NS2B SSI, the Minister is to have regard to the objects in s 1.3 of the EP&A Act, including object (b) which states that the object of the EP&A Act is to facilitate ecologically sustainable development (**ESD**) by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment.
12. Object (e) is also particularly relevant in the context of the NS2B Project and refers to the object to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.
13. The reference to ESD in object (b) adopts the definition of ESD found in s 6(2) of the *Protection of the Environment Administration Act 1991*, namely that ESD requires the effective integration of economic and environmental consideration in decision-making processes and that ESD can be achieved through the implementation of:
 - (a) the precautionary principle;
 - (b) inter-generational equity;
 - (c) conservation of biological diversity and ecological integrity; and
 - (d) improved valuation, pricing and incentive mechanisms.
14. The precautionary principle requires that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.¹ In applying the precautionary principle, decisions should be guided by careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and an assessment of the risk-weighted consequences of various options.²
15. The application of the precautionary principle was given significant judicial consideration in *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 113. Here, Chief Justice Preston found that the precautionary principle will apply where two conditions precedent are triggered:
 - (a) there is a threat of serious and irreversible environmental damage; and
 - (b) there is scientific uncertainty as to the nature and scope of the threat of environmental damage.³
16. Once both of these thresholds are satisfied, the precautionary principle will be activated, and there is a shift in the burden of proof. At this point, the decision maker must assume that the

¹ *Protection of the Environment Administration Act 1991*, s 6(2)(a).

² *Protection of the Environment Administration Act 1991*, s 6(2)(a).

³ *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 113 per Preston J at [128].

threat of serious or irreversible environmental damage is no longer uncertain, but is a reality. The burden of then showing that this threat does not in fact exist, or is negligible, then reverts to the proponent.⁴

17. In our view, the EIS for the NS2B Project is so deficient in its rigour that the Minister, as consent authority, cannot be reasonably satisfied that there is not a serious and/or irreversible threat to the environment, as well as human life and property, as a result of the construction of the proposed development.
18. As this letter will explain, the construction of the rail line (as proposed in the EIS) poses numerous significant and enduring environmental impacts that have the potential to irreversibly change the shape of the landscape, destroy the unique environmental features of the floodplain, including the vertisol soils which are supremely valuable to those that farm the land, and in the process permanently change the lives and businesses of the communities in the surrounding areas.
19. We would strongly urge the Minister to take these impacts seriously and require the ARTC, as the proponent, to provide sufficiently rigorous environmental assessment so that the Minister and the community can be sure that these impacts can be managed and mitigated to the greatest extent possible.

Objection 1: Inadequate flooding and hydrology assessment

20. Critically, the NS2B Project crosses the Macintyre River Floodplain which is part of the Border Rivers Catchment which is a 450km section of the Dumaresq, Macintyre and Barwon rivers which form the border between Queensland and NSW. There are also a number of significant creeks which are intersected by the proposed alignment, including Whalan Creek, Forest Creek, Back Creek and Mobbindry Creek.
21. The floodplain is a particularly sensitive environment. The local saying is that the floodplain falls one foot a mile from the north east to the south west. The flatness of the landscape combined with the highly erodible but very productive black vertisol soils mean that structures built within the floodplain have the capacity to redirect the flow of water, increase the depth of water upstream of the structures (afflux) and increase the speed of water downstream (causing scouring to the landscape).
22. The Border Rivers Catchment has experienced numerous flood events, including significant flood events in 1956, 1976, 1996 and 2011.
23. This context differentiates the NS2B Project from other parts of the Inland Rail project in NSW and interstate. It is therefore essential that the ARTC establish, and the Minister be satisfied, that the impacts of the proposed development on flooding and hydrology are acceptable.
24. Item 8 of the Secretary's Environmental Assessment Requirements (**SEARs**) requires that:

The project minimises adverse impacts on property, public safety and the environment resulting from alteration of the water flow characteristics of watercourses and overland flowpaths.
25. In our view, the EIS is negligently deficient in this regard, and given the particularly sensitive environmental context of the development, significantly further investigation and independent

⁴ *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 113 per Preston J at [150].

assessment needs to be undertaken to ensure that the flooding and hydrology impacts are effectively managed.

26. To that end, we have engaged a highly experienced consultant hydrologist, Stephen Webb, to undertake an independent review into the flooding and hydrology analysis in the EIS. The Landholders seek to rely on the report prepared by Mr Webb for the purpose of this objection, and note that the Department has agreed to accept submission of that report 2 weeks from the date of the submission of this objection.
27. In addition to this, we also wish to raise the following key issues with the flooding and hydrology analysis used in the EIS.

Assessment against a 1% annual exceedance probability (AEP)

28. The proposal has been designed by the ARTC to achieve a 1% AEP flood immunity. We take issue with this for three reasons.
29. Firstly, we consider that the ARTC has unreasonably sought to characterise the 1996 event as the 1 in 100 year event, making the case that the 1976 event was a much larger event and is therefore an outlier for the purpose of assessment (a 1 in 200 or 1 in 500 year event).⁵ This is despite the fact that the 1976 event has always been understood to be the 1 in 100 year event for this part of the catchment, as was recognised most recently in the *Background document to the floodplain management plan for the Border Rivers Valley Floodplain 2018* (November 2017). We also understand that the 1976 event has been used as the planning reference point for other development in the valley, including by Goondiwindi Regional Council for hydrological modelling on the Queensland side of the border.
30. Therefore, significant questions arise as to the appropriateness of the assumptions which underpin the analysis in the EIS because if the ARTC are wrong and the 1996 event is not the 1 in 100 year event, then the selection of the alignment and the reference designs will all be out by a significant margin, necessitating significant changes to the proposal. This is because, as the EIS acknowledges, the 1976 event was a substantially larger event than the 1996 event. So, if the 1976 event was modelled with reference to development in the floodplain as it exists now, the construction of the NS2B Project would undoubtedly result in higher volumes and velocities of flows.
31. For example, the reference design for bridges across the floodplain show a variance in flood height for the ARTC's 1% AEP event and a 1976 scale event of almost 1m, a substantial increase in volume right across the floodplain. That is assuming that the ARTC's modelling of the 1976 event is accurate and not underestimated, as we understand that it is (see discussion below), in which case the impacts could be far worse.
32. Secondly, we consider that planning strictly in accordance with the 1% AEP alone, while failing to consider and assess the proposal against other known flood events for which ample information is available, is short sighted and bad practice. This much is admitted in the report from BMT Commercial Australia Pty Ltd dated 12 May 2020 which was commissioned by the ARTC which repeatedly states that it would be "*prudent*" to use the current estimates for the 1976 flood event as a sensitivity analysis/check in subsequent designs.⁶

⁵ Environmental Impact Statement, Appendix H – Hydrology and Flooding Technical Report 1, p 30.

⁶ BMT Commercial Australia Pty Ltd, 'Independent Hydrology & Flooding Review' dated 12 May 2020, p 3 and 6.

33. In this regard, we agree that it would be prudent and, on the application of the precautionary principle, necessary for the ARTC to:
- (a) demonstrate why it considers that it is now appropriate to disregard the 1976 event as the 1 in 100 year event, despite it having been accepted as the 1 in 100 year event by local Government and private landholders since 1976; and
 - (b) outline why it has not considered it appropriate to assess the NS2B Project by reference to known historical flood events in the region, including the 1976 event as well as against the 1% AEP (if they maintain that this is the 1996 event).

Discrepancies in the modelled peak flow rates for a 1976 event

34. The ARTC has produced some modelling illustrating what they say would be the impacts of a 1976 event in the context of the proposal. However, we consider that this modelling is significantly flawed and does not account with the lived experience of those on the land at the time.
35. In particular, we point to long-time resident Edward Billing whose property is situated upstream of the Landholders at the junction of the Dumaresq River and Macintyre River and is therefore uniquely positioned to observe the movement of flood waters in the catchment. Mr Billing has been involved with monitoring flood events for many years, and has been critical in providing detailed and accurate information during flood events to Goondiwindi Regional Council, the State Emergency Services and the Bureau of Meteorology.
36. For the purpose of this objection, the Landholders seek to rely on an Affidavit from Edward James Billing sworn 1 October 2020 which is included at **Attachment B**.
37. In this affidavit, Mr Billing swears to his recollection of the 1956, 1976, 1996 and 2011 flood events and his views regarding the inadequacies and inaccuracies in the ARTC's modelling. Ultimately, Mr Billing concludes that:
- (a) the ARTC model does not accurately reflect the nature and scale of the historical flood events as they were experienced on the ground;
 - (b) the model uses the 1996 flood event as the bench mark for assessment of the NS2B Project, rather than the 1976 flood event which was the most significant flood event in living memory for those currently living in the region;
 - (c) the model does not account for water in other watercourses that contribute to flows and flood events in the region, including Back Creek, Forest Creek, Strayleaves Creek and Ottleys Creek;
 - (d) the model does not accurately reflect the actual development of the land, particularly on the floodplain. It does not accurately depict how flows will move and be redirected in future flood events;
 - (e) the model predicts little to no change in velocities as a result of the construction of the new line which cannot be the case because it is proposed to be constructed in the middle of the floodplain and will naturally redirect flows (either through culverts constructed in the levy or under bridges);
 - (f) using a 1% AEP rather than the 1976 flood event significantly underestimates the volume and velocity of water and the impact of the proposed construction across the floodplain; and

- (g) the construction of the proposed embankment will cause severe erosion on the black soil plain along the embankment and further downstream along the Whalan Creek floodplain.
38. This raises significant concerns regarding the reliability of the impact assessment in the EIS and suggests the likelihood that the modelling greatly underestimates the impacts if a 1976 style event occurred following the construction of the NS2B Project.
39. We consider that the first-hand knowledge and lived experience of residents such as Mr Billing, as well as the Landholders, should be given considerable weight when assessing the adequacy of the current flooding and hydrology impact assessment.
40. The ARTC should be required, at a minimum, to address why such significant discrepancies exist regarding the modelled and actual flow rates, and justify why their desktop analysis is to be preferred over the real experiences of the community.

Projected afflux caused by the proposal

41. Chapter 13 of the EIS identifies at Table 13.7 the *"flood impact objectives"* which have been used by the ARTC to quantify and compare the impact of the proposal against the existing conditions.
42. These flood impact objectives are stated as having been developed to *"address the requirements of the SEARs and have been used to guide the proposal design."*
43. We note that it is entirely unclear to us where these objectives have come from, what information was considered when determining that the degree of impact was acceptable and why these objectives should form the basis for the appropriateness of the reference design.
44. Further to this, we note that even if we agreed that the flood impact objectives proposed by the ARTC are appropriate (which we do not), we say that compliance with the objectives cannot be ascertained on the basis of the existing modelling.
45. As noted above, we have serious concerns regarding the accuracy of the existing modelling and in particular, the modelling for the anticipated afflux for a 1976 event. The primary concern is that the estimated afflux may be substantially underestimated due to low estimated flow rates for a 1976 event.
46. Afflux is a particularly sensitive issue in this area because of the predominant use of the land as grazing country. In the past, a 1976 scale flood would overtop the existing rail line which allowed livestock to not only seek refuge along the top of the track, but to continue to move further west towards higher ground. However, the proposed embankment of between 3-8m and associated fencing eliminates that survival option for livestock trapped on the south eastern side of the track. Up to 2,000 head of cattle can be in the afflux area of the track at any one time depending on seasonal conditions.
47. The ARTC's own hydrology modelling predicts depths of up to 2m in this area, which would result in a catastrophic loss of livestock. The actual depths in the event of a 1976 event would be far greater again.
48. Further to this, we consider that the modelled afflux could also cause significant and irreversible damage to the structure and health of the soils being inundated, substantially effecting its productivity and the profitability of the agricultural enterprises on the land.
49. These impacts, in our view, trigger the application of the precautionary principle, particularly given the spatial scale of the threat, and the magnitude and irreversibility of these impacts.

50. Accordingly, the ARTC should be required to amend the proposed design to ensure that the NS2B Project meets the desired performance outcomes in Item 8 of the SEARs, including that:
- (a) the project minimises adverse impacts on property, public safety and the environment resulting from alteration of the water flow characteristics of watercourses and overland flowpaths; and
 - (b) the construction and operation of the project avoids or minimises the risk of, and adverse impacts from, infrastructure flooding, flooding hazards, geomorphological impacts or dam failure.

Durability and safety

51. We know from the economic analysis that the construction of the rail line at what the ARTC says is the 1% AEP, and the desire to build across the floodplain on the basis of levies and culverts rather than bridges and viaducts, is largely driven by a desire on the part of the ARTC to reduce the capital costs of the construction of the rail line and to use money from other sources to repair the rail line once the rain comes and damages the track.
52. The ARTC's own policies would require the construction of the track, in a location known to be subject to flooding, to be determined having regard to records of actual flood events.⁷
53. We are also concerned that the proposal (and reference designs) only calls for the culverts to be designed to the 2% AEP (noting that we dispute the ARTC's calculation of the 1% AEP as being too conservative and not reflective of the 1976 flood event, as discussed earlier).⁸ Such design parameters are said to be justified because the ARTC have a policy of clearing waterways blocked due to debris or rubbish greater than 20% in area within 28 days.⁹
54. We know from experience from communities like those around Bogan Gate that such maintenance does not occur. We also know from a variety of Australian Transport Safety Bureau reports looking at derailments on the freight network that derailments are not uncommon.¹⁰ From this information, we understand that the likely course of events is that: (1) there will be a rainfall event, (2) the culverts will block, and (3) the water will scour the track stripping away the ballast and rendering the track unserviceable until repairs are carried out.¹¹
55. We also know that there is a 40.8% chance of a 2% AEP flood event occurring at least twice during a 70 year period.¹² On that basis, we must conclude that it is likely at least twice over the next 70 years that the culverts in the reference design will fail and damage will occur that could result in a derailment.
56. Clearly such an approach to the design of the rail line on the floodplain is unacceptable and inconsistent with a precautionary approach to building on the floodplain. Building infrastructure that is likely to fail simply cannot and should not be accepted as satisfactory by the Minister.

⁷ Engineering (Track and Civil) Code of Practice Section 10 Flooding.

⁸ General Appendix to ARTC Track and Civil Code of Practice ETG-10-01 – Flooding.

⁹ General Appendix to ARTC Track and Civil Code of Practice ETG-10-01 – Flooding.

¹⁰ ASTB Transport Safety Report - Derailment of Train 7SP3 Roto, 4 March 2012; ASTB Transport Safety Report - Derailment of freight train 3MP9, 10 April 2014.

¹¹ ASTB Transport Safety Report - Derailment of Train 7SP3 Roto, 4 March 2012; ASTB Transport Safety Report - Derailment of freight train 3MP9, 10 April 2014.

¹² Table K1 to Appendix K to the Floodplain Development Manual (2005).

Objection 2: Unacceptable impact on soils and erosion

57. The soil makeup of the Macintyre floodplain is characterised by large areas of highly productive cracking clay soils, including black vertisol soils.
58. These soils are used extensively to grow grains and cotton, and are highly valuable due to their benefits for agricultural development.¹³
59. Similar soils also appear on the Condamine river floodplain in Queensland where Dr Rob Loch, a certified professional soil scientist, identified that soils of this kind behave uniquely when wetted and dried and are highly erodible:

When wetted, smectite clays swell, and when dried, they shrink and crack. Surface soil, where wetting and drying is greatest, tends to fragment into small aggregates, creating a loose and easily-detached layer at the soil surface by a process known as self mulching.

Much of the volume change with water content is 3-dimensional, so the soil surface rises and falls with wetting and drying, making these soils difficult foundations...

Cracking clay soils typically erode as small aggregates, that – because of swelling when wetted – are of particularly low density, and extremely easily transported by overland flows. Consequently, they are among the most erodible agricultural soils in the world.¹⁴

60. It is therefore noteworthy that the EIS fails to consider or even acknowledge the specific impacts of the NS2B Project on these highly erodible soils in the Macintyre floodplain, including whether the construction of the rail line will impact upon the long term productivity of that land.
61. Further to this, the impacts of the NS2B Project on these soils will be made worse by the proposed current alignment and reference design which see the rail line constructed in the heart of the floodplain, with a notable lack of bridging and instead a heavily reliance on culverts. This design will concentrate flows and increase the velocity of flood waters along the elevated rail line embankment, causing extensive scouring, erosion and gulying of the landscape.
62. The use of culverts will also create what is known as ‘shadowing’ in small and mid-sized flood events, which is where lines of concentrated flows discharged from culverts across long distances gradually remove soil and overtime, create deep pronounced flow lines that become more prone to accelerated erosion.
63. Evidence of damage from scouring and gulying caused by flow concentrations around culverts is already evident in the floodplain as a result of the existing rail line. These impacts will be increased tenfold if the NS2B Project is permitted to proceed as currently designed.
64. This not only constitutes a failure to consider a key impact of the proposal, but demonstrates that the ARTC has failed to adequately meet requirement 1(f) at Item 8 of the SEARs which requires the proponent to carry out investigations to assess the propensity for scour, erosion and

¹³ Carey, B.W., Stone, B., Normal, P.L., and Shilton, P. (2015) Soil Conversation Guidelines for Queensland, Department of Science, Information Technology and Innovation, Brisbane.

¹⁴ Dr Rob Loch, Submission 33 on the Management of the Inland Rail Project by the Australian Trail Track Corporation and the Commonwealth Government: ARTC flood plain modelling and design for crossing the Condamine River floodplain between Millmerran and Brookstead, 12 November 2019, p 3.

geomorphological changes to occur within any watercourses or overland flowpaths affected by the project.

65. This again, in our view, triggers the application of the precautionary principle and the ARTC should be required to prove why unacceptable impacts on soils from erosion and scouring will not occur.

Objection 3: Failure to carry out a proper cost benefit analysis

66. Item 2 of the SEARs requires the proponent to sufficiently particularise the proposal to enable:

...a clear understanding that the project has been developed through an iterative process of impact identification and assessment and project refinement to avoid, minimise or offset impacts so that the project, on balance, has the least adverse environmental, social and economic impacts, including its cumulative impacts.

67. Compliance with Item 2 of the SEARs requires the EIS to provide an analysis of the feasible alternatives to the project, describe how these alternatives were analysed in the selection process, and how the project has been designed to avoid or minimise likely adverse impacts.¹⁵
68. In our view, the analysis provided by the ARTC in Chapter 3 and the Economic Assessment Technical Report at Appendix I of the EIS falls far short of being sufficiently rigorous to satisfy these requirements.
69. For the purpose of this objection, the Landholders have sought advice from a highly qualified Economist with significant experience in Australian heavy rail and other large infrastructure projects. The Landholders seek to rely on this advice, a copy of which is included at **Attachment C**.
70. This advice confirms that the ARTC has not undertaken a proper cost benefit analysis (**CBA**) for the NS2B Project. Rather, the ARTC have engaged in optimism bias and relied on a multi-criteria analysis (**MCA**) and computable general equilibrium (**CGE**) methodology that has enabled them to ignore costs, important assumptions and unbiased economic modelling in order to generate skewed results.
71. CBA is accepted as being best practice by Infrastructure Australia (**IA**) and NSW Treasury, with both MCA and CGE being sub-optimal methodologies in comparison.
72. To date, the only explanation that has been provided by the ARTC regarding why they have elected not to undertake a CBA for the NS2B Project in accordance with accepted best practice principles is a throw-away line in the Economic Assessment Technical Report at Appendix I which states that:

*A Project-specific CBA has not been undertaken as the results will not capture the full economic impact that is expected to be delivered upon completion of the Inland Rail Program.*¹⁶

73. This statement is reflective of a deliberate intention by the ARTC to focus on the overstated benefits of the project as a whole, without consideration of the specific risks and costs. This includes, for example, an unwillingness to acknowledge risks associated with changes in demand, which might lead to a reduction in freight flows in the Melbourne-Brisbane corridor, or increases

¹⁵ Secretary's Environmental Assessment Requirements, Item 2, Requirements (e), (f), (g), (h) and (i).

¹⁶ Environmental Impact Statement, Appendix I - Economic Assessment Technical Report, p vii.

in project costs beyond the estimates included in the business case which could significantly impact the final benefit cost ratio (BCR).

74. The economic justification for the Inland Rail project was only marginal at the outset. This is reflected in Infrastructure Australia's Project Business Case Evaluation (May 2016) which states that:

*Infrastructure Australia notes that the options assessment undertaken by the proponent **did not robustly consider the value for money and deliverability of the full range of options**. Infrastructure Australia would prefer if the proponent could present a more complete, transparent and objective assessment of the options considered, with greater detail of the relative costs and benefits of alternative options. **A full cost-benefit analysis** comparing the preferred option with the principal alternative option – increased road capacity between Melbourne and Brisbane – **would facilitate greater scrutiny of the relative merits of the two alternative options**.¹⁷*

75. In addition to this, the advice we have obtained confirms that there are numerous other significant flaws which call into question the economic justification for the Inland Rail project and the accuracy of the ARTC's claim that the NS2B Project has a BCR of 1.02 and 1.1 including wider economic benefits (**WEBS**). For example:
- (a) the 1.02 BCR includes the Western Line which is not part of the scope of the NS2B Project and is not funded;
 - (b) the ARTC have applied a 7% discount rate, rather than a 10% discount rate as required by NSW Treasury;
 - (c) the exclusion of significant project costs from the scope of the analysis;
 - (d) a failure to carry out quantitative and Monte Carlo risk assessments;
 - (e) a failure to include a comparison to road transport alternatives;
 - (f) inflated anticipated employment results, which are not tied to actual ARTC employment numbers or salaries even though such data would be available in relation to other components of the Inland Rail project;
 - (g) the assumptions regarding the price of oil are unreasonable, using an assumed oil price of USD\$120 a barrel which is far in excess of the current USD\$40 prices; and
 - (h) the criteria for the MCA is heavily weighted towards travel time, meaning that the shortest route was always going to win.
76. We understand that had the economic analysis actually captured all of these factors, the real BCR would be less than 1.00 (BCA<1.00) and the project would have a negative net present value (**NPV**) (NPV<0.00), which is unacceptable given that there are better alternative uses of the resources that are certain to bring net benefits to the community.
77. This failure to undertake a transparent and fulsome economic analysis is critical to the assessment of the NS2B SSI and is a grounds for refusing the application.

¹⁷ Infrastructure Australia, 'Project Business Case Evaluation: Inland Rail', May 2016, p 4.

78. This was the case in *Gloucester Resources Limited v Minister for Planning* [2019] NSWLEC 7 where the court refused consent to the Rocky Hill Coal Project on the basis that the economic benefits of the project would be small, that the NPV used inflated figures that were unreliable and unproven,¹⁸ and that the economic cost benefit analysis was incorrect and substantially overstated.¹⁹
79. We consider that these same criticisms can be levelled at the ARTC in relation to the economic analysis used in the EIS to justify the NS2B Project, and we would contend that this justifies the refusal of the NS2B SSI.
80. Notwithstanding this, we consider that there are options available to the ARTC to recast the NS2B Project to generate real benefits and drive up the actual BCR (rather than the overstated BCR) to over 1.00. This includes principally re-considering a more western alignment such as Option A which would:
- (a) see an intermodal, rail car depot, train wash, and co-located repair and storage facility constructed near Boggabilla at the RMI Cotton Gin, generating local synergies through the ability load grain, cotton, coal and other products onto the alignment;
 - (b) result in greater use of the existing rail line which will reduce projects costs, including costs associated with the acquisition of land for the rail corridor; and
 - (c) significantly improve flooding and hydrology impacts in the catchment.
81. However, to do so would require the NS2B SSI to be refused in its current formulation, with more detailed analysis required to be undertaken adopting a cost-benefit problem shifting analysis approach to drive up the real and enduring benefits to the community, thereby generating a stronger BCR.

Objection 4: The proposal concerns Crown land the subject of undetermined Aboriginal land claims

82. Chapter 22 of the EIS identifies that there are 5 parcels of Crown land within the project study area that have been identified as being subject to an Aboriginal Land Claim under the *Aboriginal Land Rights Act 1983 (Aboriginal Land Rights Act)*, including:
- (a) Lot 1 DP 1124486;²⁰
 - (b) Lot 39 DP 756010;²¹
 - (c) Lot 112 DP 756029;²²
 - (d) Lot 7013 DP 1069656;²³ and

¹⁸ *Gloucester Resources Limited v Minister for Planning* [2019] NSWLEC 7 per Preston CJ at [636].

¹⁹ *Gloucester Resources Limited v Minister for Planning* [2019] NSWLEC 7 per Preston CJ at [664]-[665].

²⁰ We understand that this lot is located in North Star and is outside the current NS2B Project area.

²¹ We understand that this lot is located in North Star and is outside the current NS2B Project area.

²² We understand that this lot is located approximately half way up the alignment at the intersection between Oakhurst Road and North Star Road. The parcel sits either side of the proposed development footprint as was the location of a former siding to support the disused railway.

²³ We understand that this lot is located immediately to the east of the alignment between Tucka Tucka Road and the Macintyre River.

- (e) Lot 7314 DP 1137535.²⁴
83. Aside from identifying the relevant lots, the EIS provides no further information regarding the nature or status of these claims, where the lots lie along the alignment, or critically, the impact of the determination of a successful claim on the alignment or design of the NS2B Project.
84. In our view, this is yet another critical shortcoming of the EIS.
85. This is because the operation of the Aboriginal Land Rights Act is such that if land is vested in Her Majesty and, at the time that a claim is made:
- (a) is able to be lawfully sold or leased, or is reserved or dedicated for any purpose, under the *Crown Lands Consolidation Act 1913* or the *Western Lands Act 1901*;
 - (b) is not lawfully been used or occupied;
 - (c) does not comprise lands which, in the opinion of a Crown Lands Minister, is needed or is likely to be needed as residential land;
 - (d) is not needed, nor likely to be needed, for an essential public purpose;
 - (e) does not comprise land that is the subject of an application for a determination of native title; or
 - (f) does not comprise lands that is the subject of an approved determination of native title,
- then it will be “*claimable Crown land*”²⁵ and the Crown Lands Minister *must* grant the claim over those parts of the land that are claimable Crown lands.²⁶
86. We understand from the title searches and from talking to the Landowners that parts of those lands were reserved as travelling stock routes and for the purpose of sidings which support the existing disused rail line. Importantly, there is nothing in the Aboriginal Land Rights Act that precludes land claims from being granted over this land.
87. While we have lodged a request for a search of the Aboriginal Land Claims Register in an attempt to seek further information regarding the status of these claims, no information has been provided as at the date of this letter.
88. This means that we are unable to determine whether the dates of lodgement of any of these claims pre-date the Inland Rail project such that the NS2B Project cannot be relied upon as a “*public purpose*” basis for the land being found not to be claimable Crown lands.
89. What we do know is that the lodgement of an undetermined land claim creates an inchoate right to have the application determined. It is also NSW Government policy not to approve capital works that would:
- (a) prevent the lands from being transferred to an Aboriginal Land Council in the event the claim is granted; or
 - (b) impact or change the physical condition of the land,

²⁴ We understand that this lot is located immediately south of Tucka Tucka Road and to the north of Whalan Creek.

²⁵ *Aboriginal Land Rights Act 1983*, s 36(1).

²⁶ *Aboriginal Land Rights Act 1983*, s 36(5).

pending the final outcome of the determination of the claim (or the withdrawal of the claim by the relevant Land Council).²⁷

90. This means that, on our understanding, there are at least 3 parcels of land (of the 5 identified by the ARTC in the EIS) that may directly impact the NS2B Project if the relevant Land Claim is successful.
91. In particular, Lots 7013 and 7314 concern land at the very north of the NSW alignment where the line crosses the Macintyre River and enters Queensland. The current proposal would see Bridge 270-BR11 (a 1,750m viaduct) constructed on and sever Lot 7314 in half, and otherwise immediately adjoin the entire western boundary of Lot 7013.
92. This means that if the Minister determines to approve the NS2B Project prior to the determination of these Land Claims, and the ARTC constructs Bridge 270-BR11 as per the current alignment and reference designs, and the Crown Lands Minister subsequently grants the Claims, then any part of the rail infrastructure that is constructed on Lots 7013 and 7314 is transferred to and owned by the relevant Aboriginal Land Council.
93. Once the land is transferred to the Aboriginal Land Council, it cannot then be subsequently acquired through compulsory process.²⁸
94. Therefore, the implications of the grant of Land Claims over these two parcels could be significant for the viability of the NS2B Project as it currently stands.
95. The Minister should not determine the NS2B SSI until such time as all of the identified Aboriginal Land Claims have been determined.

Objection 5: Inadequate ecological assessment

96. The impact of the NS2B Project on ecology is significant and has the potential to create serious and irreversible impacts on the environment. It is therefore imperative that the Minister, as consent authority, assesses these impacts with a critical eye and is satisfied that these impacts have been adequately identified and can be appropriately managed and offset.
97. If the Minister is unable, based on the information provided in the EIS, to reasonably form this state of satisfaction, then it must refuse the NS2B SSI.
98. Numerous provisions in the SEARs require the ARTC to identify and assess the impact of the proposal on biodiversity. This includes:
 - (a) Item 1 which requires an assessment of the impacts on matters of national environmental significance (**MNES**) protected under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (**EPBC Act**); and
 - (b) Item 5 which requires the proponent to establish that the project design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity.
99. At the outset, the Landholders strongly dispute the ARTC's characterisation of the existing landscape as having been "*extensively modified... with the overwhelming majority cleared for grazing and/or cropping.*"²⁹ In their view, the floodplain has unique and valuable ecological

²⁷ Licensing of Crown land-guidelines.

²⁸ *Aboriginal Land Rights Act 1983*, s 42B.

²⁹ Environmental Impact Statement, Chapter 3 – Executive Summary, p 5.

characteristics, including native perennial grasslands predominated by Mitchell grasses for which there is very little left in the upper catchment of the Macintyre floodplain.

100. For the purpose of this objection, the Landholders have sought advice from a suitably qualified ecologist and seek to rely on this advice, a copy of which is included at **Attachment D**.
101. As is noted in this advice, the approach to be adopted when considering impacts on biodiversity is to avoid, minimise, and offset. This is expressly reflected in s 1.3(k) of the *Biodiversity Conservation Act 2016* and also the operation of the EPBC Act.
102. The 'avoid, minimise, offset' approach operates as a hierarchy, with avoidance and mitigation measures being the preferred and primary strategies for managing the environmental impact of a proposal. This is because avoidance and mitigation directly reduces the scale and intensity of the potential impact, whereas offsets do nothing to reduce the impact and only compensate for any residual significant impact.³⁰
103. As is outlined in NSW Government policy regarding the application of offsets under the EPBC Act:

*Avoidance and mitigation measures can reduce and, in some cases, remove the need for offsets if the residual impact is not significant. **Offsets will not be considered until all reasonable avoidance and mitigation measures are considered**, or acceptable reasons are provided as to why avoidance or mitigation of impacts is not reasonably achievable.*³¹

104. The ARTC has clearly adopted an approach which is inconsistent with the 'avoid, minimise, offset' hierarchy.
105. Rather, the ARTC's position as reflected in the EIS, is that its preliminary investigations should be accepted for the purpose of determining whether to grant consent to the NS2B SSI and that further investigations to scope the actual impacts is to be undertaken later during the detailed design phase.
106. The ARTC allege that they have adopted a precautionary approach and say that they will assume for the current assessment purposes that the identified ecological receptors are present, and will carry out further investigations in this regard later. See for example:

*During Phase 2 of the proposal (detailed design, post-EIS), sensitive ecological receptors identified during the EIS will be subject to further investigation, so as to more accurately determine the magnitude of the significant adverse impacts upon the identified ecological receptors. The specific mitigation measures will then be applied to ensure that the significance ratings of any potential impacts are classified as low as reasonably practicable, and the more significant adverse impacts are offset.*³²

107. This demonstrates a deliberate intention on the part of the ARTC to avoid undertaking detailed analysis at the approval stage. We can only assume that this is because the discovery of

³⁰ Department of Sustainability, Environment, Water, Population and Communities, 'Environment Protection and Biodiversity Conservation Act 1999 – Environmental Offsets Policy', October 2012, p 7.

³¹ Department of Sustainability, Environment, Water, Population and Communities, 'Environment Protection and Biodiversity Conservation Act 1999 – Environmental Offsets Policy', October 2012, p 7.

³² Environmental Impact Statement, Chapter 11 – Biodiversity, p 117.

unacceptable impacts not capable of mitigation would be a factor weighed in favour of refusal of the application.

108. In our view, this approach is simply unacceptable. The ARTC, as proponent, has the burden of satisfying the Minister, as consent authority, that the impacts of the proposal are acceptable and that it has adequately investigated potential avoidance and mitigation strategies.
109. The advice we have obtained from the ecologist also identifies that there are numerous other deficiencies in the ecological analysis in the EIS, including in relation to the following:
- (a) the assessment has been limited to the study area only, being the temporary construction footprint plus buffer areas,³³ and does not consider any impacts beyond the immediate footprint which is an unreasonably narrow scope given the potential for direct and indirect impacts;
 - (b) the site assessments were undertaken during extended drought conditions which, as is admitted in the EIS, substantially impacted the conditions in the survey areas and made detailed assessments not feasible;³⁴
 - (c) the ecological surveys were conducted over a total of 30 days, with almost half (14 of the 30 days) being undertaken in winter. This is despite acknowledgements in the EIS that the optimal survey seasons are spring and autumn. This means that the timing of the surveys is likely to have impacted the identification of species present; and
 - (d) the assessment does not acknowledge or assess changes to surface hydrology on ecology due to the ARTC classifying these impacts as 'indirect', which is a major gap given the nature of a floodplain environment and the fact that the ARTC itself acknowledges that changes to natural flows are a Key Threatening Process for Natural Grasslands.
110. In our view, this inadequate assessment triggers the application of the precautionary principle and the Minister should not, in the circumstances, grant consent to the NS2B SSI. This is because the grant of consent could result in the serious and irreversible damage to the environment, including protected threatened ecological communities and conservation significant species.
111. Given the significant number of ecological receptors that have been identified within the narrow study area alone, which is stated as numbering 136 in the Executive Summary and 126 in Chapter 11,³⁵ we say that it is incumbent upon the Minister to refuse the NS2B SSI on the basis that:
- (a) the ARTC have not sufficiently investigated the ability of amendments to be made to the proposal to avoid or minimise the potential impacts, including by changing the proposed alignment;
 - (b) the ARTC have not undertaken a sufficiently rigorous assessment for the Minister to be satisfied about the scope and scale of the potential impacts and the ability to mitigate and offset these impacts; and

³³ Environmental Impact Statement, Chapter 11 – Biodiversity, p 11.

³⁴ Environmental Impact Statement, Chapter 11 – Biodiversity, p 12.

³⁵ Environmental Impact Statement, Chapter 0 – Executive Summary, p 6; Environmental Impact Statement, Chapter 11 – Biodiversity, p 115.

- (c) the ARTC should be required to undertake these investigations at the assessment stage so that appropriate conditions can be imposed on the grant of consent ensuring the avoidance of impacts wherever possible.

Objection 6: Failure to adequately consider impact on sleep disturbance and commit to appropriate acoustic attenuation treatment

112. The Landholders take issue with 3 aspects of the EIS as it relates to noise and vibration:

- (a) there is no analysis as to the impact of the development on sleep disturbance;
- (b) the report fails to identify all key sensitive receptors; and
- (c) the NS2B SSI does not commit the ARTC to the carrying out of appropriate acoustic attenuation treatments where necessary to mitigate acoustic and vibration impacts.

Failure to consider impact on sleep disturbance

113. Sleep disturbance is a critical impact arising from the construction and operation of Inland Rail, particularly because it is proposed to be built in an otherwise quiet environment which naturally enjoys high levels of acoustic amenity.
114. This is why Item 14 of the SEARs expressly requires the ARTC to assess the impacts of the NS2B Project on sensitive receivers, including consideration of sleep disturbance.
115. Despite this, the EIS and the Operational Railway Noise and Vibration Assessment at Appendix K critically fails to include any detailed assessment or even acknowledgement of the potential for significant impacts on sleep disturbance for properties within a 1km envelope either side of the alignment.
116. To this end, the Landholders have sought advice from an accredited acoustic consultant which identifies the deficiencies in the ARTC's acoustic analysis so far as they relate to sleep disturbance. The Landholders seek to rely on this advice for the purpose of this objection, a copy of which is included at **Attachment E**.
117. From this advice, we understand that the ARTC have failed to address the discrepancy regarding the criterion identified in the Rail Infrastructure Noise Guideline (**RING**) which has been applied for the purpose of the analysis (80dBA external) and the World Health Organisation's Night Noise Guidelines for Europe (**WHO Guideline**) criterion (49dBA external, windows open).
118. Several exceedances of the RING criteria have been identified in the EIS consistent with the setback from the rail corridor for each receiver. For example, the EIS admits that:

Based on the noise modelling, the noise levels from rolling stock could be above LAmax 49 dBA within approximately 1 km from the rail corridor.³⁶

119. However, the ARTC then seems to dismiss the significance of this non-compliance by stating:

Where sensitive residential land uses are proposed to be developed within 1 km of rail freight corridors, it would be expected that residential property, complying to Australian building codes and standards, would achieve façade

³⁶ Environmental Impact Statement, Appendix K – Operational Railway Noise and Vibration Assessment, p 49.

noise reductions greater than the conservative 7 dBA assumption applied in this assessment.

120. This, in our view, is simply unacceptable because it is unclear whether these exceedances can be mitigated by architectural or 'at property' treatments alone and therefore, it is not possible to conclude that these impacts are acceptable. In particular, we note that the EIS:
- (a) relies on an entirely unproven assumption which has no inherent credibility, particularly given that all of the houses in this area have been in existence for a considerable period of time and many are built of weatherboard construction;
 - (b) it fails to calculate the specific anticipated internal noise levels at each of the sensitive receptors and the extent of the numerical non-compliance;
 - (c) it assumes that it is feasible to implement high noise attenuating controls at these properties;
 - (d) it does not confirm that the implementation of high noise attenuating controls will result in compliance with the sleep disturbance criteria; and
 - (e) it does not commit to the moving of dwellings in the event that high noise attenuating controls cannot ensure compliance.
121. Conversely, we would suggest that in this area many (if not all) of the houses along the alignment are of older construction, dating from the 1950s and 1970s, and are typically fibro and timber construction (and not double-brick, for example, as appears to have been assumed in the EIS). Also, all houses, even new ones, in this climate tend to rely on fans, flyscreens and roof mounted evaporative cooling units for cooling during the hot summer months, rather than air conditioning which is expensive to run. Consequently, the usual architectural treatments that might be employed to manage these issues in an urban context, like double glazing and reticulated air-conditioning, either won't work or are not feasible in this environment. Further, any assumption relying on closed windows as a form of attenuation isn't realistic.
122. The impact of this is best demonstrated by reference to the dwelling on Mr Uebergang's property "Ohmi" which is located only 30m from the proposed alignment, near a level crossing. If we take the LAMax noise level predicted in the assessment for this residence, being 95dBA, and assume that this property is subject to the best possible noise attenuation design (which we do not think is possible), then this would reduce the noise level to 65dBA. This, as an LAMax noise level, is still 23dBA above the criteria prescribed in the WHO Guideline for sleep disturbance and makes very generous (and arguably unrealistic) assumptions about the ability to change the façade and glazing at the property to achieve a 30dBA reduction.
123. Even with the benefit of all of these assumptions, the analysis shows that sleep disturbance is likely at this property (based on the WHO Guideline) 8 times per night in 2025 and 10 times per night in 2040.
124. In our view, the failure to clearly acknowledge, investigate and mitigate these impacts is plainly unacceptable and warrants the refusal of the NS2B SSI.

Identification of all sensitive receivers

125. It is clear that the Operational Railway Noise and Vibration Assessment has been prepared based on a desktop analysis of aerial imagery to identify sensitive receptors.

126. Because the ARTC have not sought to ground truth this imagery, the ARTC has failed to identify a handful of sensitive receptors, including:
- (a) a cottage at Mr Uebergang's property "Bibilah"; and
 - (b) a homestead at Mr Mackay's property "Budleigh".
127. There is no doubt that there will also be various other sensitive receivers (on land that is not owned by my clients) that have also been missed by adopting such an inexact approach.
128. We would therefore seek for the Minister to require the ARTC to develop a more comprehensive Operational Railway Noise and Vibration Assessment which would include a mandatory requirement to ground truth aerial imagery to ensure that all impacts on sensitive receptors are identified, assessed and managed.

Commitment to undertake appropriate necessary impact mitigation measures

129. Part 14 of the Operational Railway Noise and Vibration Assessment identifies the ARTC's strategy for selecting feasible and reasonable noise mitigation. As we understand it, the approach essentially involves:
- (a) the use of noise barriers generally where there are 3 or more sensitive receptors in close proximity on the same side of the track; and
 - (b) reliance on at-property architectural treatments to a building, such as glazing or façade constructions, and upgrades to property boundary fencing, for isolated sensitive receptors.³⁷
130. It is noteworthy that the relocation of dwellings does not appear a possible mitigation strategy, and is only acknowledged briefly later in the report as an option to be assessed on a case by case basis.³⁸
131. This is despite the fact that there are a number of sensitive receptors located very close to the rail line, including on Mr Uebergang's properties "Ohmi" and "Bibilah", and that in many rural locations, the age and construction of residential properties can influence the practical implementation of modern architectural treatments. This much is expressly admitted in the EIS.³⁹
132. In our view, the ARTC must be required to implement all necessary acoustic attenuation treatments as per the *TfNSW Construction Noise and Vibration Strategy (ST-157/4.1)* so as to ensure that the properties comply with acceptable internal and external noise levels, including for sleep disturbance.
133. We would urge the Minister, if it were minded to grant consent to the NS2B SSI, to at a minimum impose a condition of consent requiring the ARTC to commit to relocating the premises at "Ohmi" and conduct detailed sleep disturbance analysis to investigate the effectiveness of the architectural treatments and/or the need to relocate additional sensitive receptors along the alignment.

³⁷ Environmental Impact Statement, Appendix K – Operational Railway Noise and Vibration Assessment, p 59.

³⁸ Environmental Impact Statement, Appendix K – Operational Railway Noise and Vibration Assessment, p 65.

³⁹ Environmental Impact Statement, Appendix K – Operational Railway Noise and Vibration Assessment, p 64.

Objection 7: Inadequate visual impact assessment

134. In our view, the EIS has adopted an extremely narrow scope of visual impact assessment, contrary to Item 18 of the SEARs.
135. This is evidenced by the fact that only 6 viewpoints have been selected for assessment over the entire NS2B alignment, only 3 photomontages were prepared and there was little to no consideration of the visual impact of the proposal when viewed from private property.
136. In particular, we note that of the viewpoints selected:
- (a) only 1 shows the development with an significant embankment height (in this case, 7.60m above ground level).⁴⁰ All other viewpoints are taken where the embankment height is 3m or less,⁴¹ or where the embankment is conveniently screened by selective placement of trees;⁴²
 - (b) half of the viewpoints show the development at a significant distance of between 400m to 1.5km from the proposed alignment;⁴³
 - (c) no viewpoints show the development as viewed from private property, with viewpoint 2 showing the view from the road reserve looking towards the alignment rather than from the homestead at “Ohmi”; and
 - (d) only 2 viewpoints include bridges, which are arguably the most visually impactful features of the development.⁴⁴
137. This very convenient selection of viewpoints, in our view, is not representative of the views and viewer settings across the proposal and is grossly inadequate to enable a reasonable assessment of the visual impact of the proposal.
138. We also question the reasonableness of some of the conclusions drawn regarding the significance of the effect from certain viewpoints. For example, the impact assessment from viewpoint 5, which is the view of the Bruxner Way Rail Over Road Bridge, concludes that there is a high magnitude of change for the construction and operation of the project in this location, but that the significance of effect is only considered to be moderate. This is despite the fact that the development incorporates 7.6m embankments on an otherwise flat landscape, and the assessment acknowledges that:
- ...the alignment and associated infrastructure will be **clearly evident**, and represent a **dominant change** to the visual character of the landscape by introducing new, dominant visual elements into the landscape.*⁴⁵
139. We therefore cannot see how the conclusion of only a moderate impact can be reasonably justified, and no explanation is offered in the EIS for this conclusion either.

⁴⁰ Environmental Impact Statement, Appendix P – Landscape and Visual Impact Technical Report, Viewpoint 5, p 79.

⁴¹ Environmental Impact Statement, Appendix P – Landscape and Visual Impact Technical Report, Viewpoint 1 at p 71, Viewpoint 2 at p 74, Viewpoint 3 at p 75, and Viewpoint 4 at p 77.

⁴² Environmental Impact Statement, Appendix P – Landscape and Visual Impact Technical Report, Viewpoint 6, p 81.

⁴³ Environmental Impact Statement, Chapter 21 Landscape and Visual Impact Assessment, p 16.

⁴⁴ Environmental Impact Statement, Appendix P – Landscape and Visual Impact Technical Report, Viewpoint 5, p 79, and Viewpoint 6, p 81.

⁴⁵ Environmental Impact Statement, Appendix P – Landscape and Visual Impact Technical Report, Viewpoint 5, p 79-80.

140. In our view, the above factors lead us to conclude that the visual impact assessment provided in the EIS is not sufficient for the Minister to assess the impacts of the development on the landscape and amenity of the area in accordance with Item 18 of the SEARs.
141. To address this, the Minister should require the ARTC to undertake a broader analysis from a genuinely representative number of viewpoints to show the impacts of the development from both public and private land.

Objection 8: Failure to address access issues

142. Loss of access remains a considerable concern to the Landholders. These concerns principally relate to:
- (a) how properties are to be accessed where they become landlocked as a result of the NS2B Project;
 - (b) how parts of properties are to be accessed and used where they are severed and sterilised by the proposed alignment;
 - (c) how access between paddocks and farms is to be maintained where existing access points will be impeded by the alignment (and its embankments);
 - (d) the extent to which these access points will be serviceable during flood events; and
 - (e) how access to travelling stock reserves will be impacted by the NS2B Project and the consequences of this on farming operations.
143. The patterns of ownership and the difficulty of accessing land in the black soil country after rain events mean that better access arrangements need to be put in place to ensure that the affected owners (including our clients) are not worse off as a consequence of the project.
144. To date, we understand that despite statements to the contrary in the EIS, the ARTC have engaged in little, if any, genuine discussions with the Landholders regarding how the NS2B Project will impede access to land and changes to the project that might be incorporated to minimise or mitigate these impacts. Rather, the ARTC's approach has been to unilaterally suggest proposed means of access, including easements and bridge underpasses, stating the "*the precise extent of impacts on properties will be determined during detailed design*",⁴⁶ thereby pushing the problem down the line.
145. This is an entirely inappropriate approach to adopt, in our view, and is inconsistent with Item 16 of the SEARs which requires the ARTC to assess agricultural land use impacts, including in relation to:
- (a) current and potential Important Agricultural Land within the project and surrounding locality, including land capability and agricultural productivity;
 - (b) division or fragmentation of property and changes to property management which could lead to the loss of viability;
 - (c) property access and the efficient and safe crossing of the rail corridor by machinery and livestock;

⁴⁶ Environmental Impact Statement, Chapter 22 – Land use and Property, p 66.

- (d) connectivity of property infrastructure severed by the rail corridor; and
 - (e) livestock exclusion/management to minimise harm and losses.
146. The significance of failing to carry out a rigorous assessment of access impacts is best illustrated through consideration of the impact of the proposed alignment on access to, and the productive use of, land owned by Andrew Mackay (shown cross-hatched in red on the map included at **Attachment A**).
147. As is shown on this map, Mr Mackay's land is not only severed by the proposed alignment, but is in places completely fragmented, effectively sterilising or significantly reducing the productivity of parts of this land.
148. These impacts will be exacerbated during flood events because of increased afflux in this area, and the fencing/rail line preventing farmers from accessing higher country as a safe area for livestock, produce storage, vehicles and machinery, and people during floods.
149. On the one hand, the EIS appears to acknowledge the reality of these impacts, stating that:
- The proposed greenfield permanent disturbance footprint deviation may also sever or isolate parcels of agricultural land, therefore prohibiting or limiting internal movements and leading to a further reduction and loss of access to agricultural land.*
- The fragmentation or alienation of properties may cause a disruption in farm operations due to impacts to essential farming infrastructure, utilities, or access routes... This potential fragmentation and alienation may impact on the economic viability of farming operations directly affected by the permanent disturbance footprint.⁴⁷*
150. Yet, despite these acknowledgements, the EIS goes on to state that the NS2B Project will not inhibit existing activities on either side of the alignment because of the inclusion of bridge structures which allow for connectivity between parcels of land, including for cattle access.⁴⁸ Note that it does not refer to specific bridges or how this access is to be provided where no bridge is currently proposed.
151. The EIS also states that it is clear that movements of large machinery and equipment across the rail corridor can be achieved,⁴⁹ but does not provide any explanation or justification for this conclusion.
152. In our view, and in light of the unambiguous acknowledgements in the EIS of the potential to greatly impact access to and use of agricultural land, the Minister must refuse the NS2B SSI until such time as the ARTC has:
- (a) undertaken detailed analysis regarding the properties most likely to experience access issues from the construction of the rail line;
 - (b) consulted with relevant land owners regarding appropriate measures to mitigate access issues where possible, including the location of easements for access, the placement of level crossings, and the location, height and width of under bridge access points; and

⁴⁷ Environmental Impact Statement, Chapter 22 – Land use and Property, p 66.

⁴⁸ Environmental Impact Statement, Chapter 22 – Land use and Property, p 66.

⁴⁹ Environmental Impact Statement, Chapter 22 – Land use and Property, p 66.

- (c) identified those parcels which are likely to be severed, fragmented or otherwise severely impacted by the proposal and commit to appropriately compensating these land owners for not only the acquisition of that land, but the loss of value of the businesses which rely on that land.
- 153. In the alternative, should the Minister be minded to grant consent to the NS2B SSI, then we would urge the Minister to include as part of that project approval a condition that would enable a mediator (nominated by the landowner, not the ARTC) to be appointed to mediate any disputes between the ARTC (or its contractors) and landowners relating to issues around access, the movement of stock and fencing.
- 154. The costs of the mediator should be borne by the ARTC and the mediator should be working on the basis that the affected landowners are to be no worse off as a consequence of the project.
- 155. Such matters may not be capable of being adequately compensated under the relevant compulsory acquisition legislation and the fear is that unless suitable arrangements are made through the project conditions, the somewhat ruthless approach to the management of costs will prevail leaving owners without all-weather access to their properties. This would be an entirely unacceptable outcome.

Objection 9: Need to address contamination and land rehabilitation of the existing rail line

- 156. The disused Boggabilla rail line which used to run between Moree and Boggabilla is proposed to be remediated as part of any approval for the NS2B Project.
- 157. The rail line was built in 1932 and was used to run goods (and the mail) three times a week. The line ceased to be used in 1987.
- 158. The existing rail line has caused considerable damage to adjoining farmland. The Landowners are also concerned that the existing line may be contaminated by creosote (used to preserve the sleepers), asbestos (from brake lining) and other fuel and oils used to run the diesel locomotives that used to ply the line.
- 159. The Landowners also have concerns that there is no concrete proposal at this stage for the ARTC to remove the existing rail line beyond those parts of the rail line that form part of the proposed project alignment. This is problematic because poorly placed culverts on the existing railway line have caused a considerable amount of shadowing and gullying of the landscape, as the water has found its way from culverts from the line to Whalan Creek. Also, parts of the existing line have been significantly blown out in places, scouring and severely eroding the land.
- 160. As part of the NS2B Project, the ARTC should be reasonably required to remove *all* of the existing rail line and rehabilitate the land which has been adversely impacted by that rail line.
- 161. This is because, amongst other reasons, the existence of the existing rail line will exacerbate the impacts of the new rail line. For example, gullying caused by erosion from the existing line may be made worse by the changes in volumes and velocities of flows following the construction of the NS2B line, further eroding and changing the shape of the landscape. Therefore, to the extent that these impacts can be mitigated, they should.
- 162. Also, requiring the rehabilitation of this land will result in direct benefits to the landowners and communities which are otherwise burdened by the NS2B Project, providing a stronger economic justification for the project as a whole.

163. In our view, the rehabilitation of the existing disused rail line forms part of the NS2B Project and conditions that require the removal and rehabilitation of the land subject to the existing disused rail line (that will not form part of Inland Rail project) can and should be addressed through the imposition of conditions on any approval.

Objection 10: Misguided approach to compulsory acquisition

164. Overall, the NS2B SSI reflects a misguided understanding of the NSW compulsory acquisition legislation, including the *Land Acquisition (Just Terms Compensation) Act 1991 (Just Terms Act)*.
165. The Just Terms Act states that compensation is only payable when land is acquired and even then, that compensation must be directly referable to one or more of the heads of compensation under s 55 of that Act, including:
- (a) the market value of the land;
 - (b) any special value of the land;
 - (c) any loss attributable to severance;
 - (d) any loss attributable to disturbance;
 - (e) the disadvantage resulting from relocation; and
 - (f) any increase or decrease in the value of any other land which adjoins or is severed from the acquired land by reason of the carrying out of the public purpose for which the land was acquired.
166. It is clear to us that under the current arrangements, not all of the landowners that will be impacted by the NS2B Project will need to have land acquired as part of the project. This is because the impacts of the NS2B Project extend far beyond the rail corridor footprint, particularly so far as they relate to flooding and hydrology, ecology, noise and vibration, and visual impact, for example.
167. However, absent any acquisition, it is not possible for these landowners to make a claim for compensation and consequently, there is no capacity for redress for the impacts of the development on their properties.
168. Given this, the Just Terms Act cannot be used as a justification to address impacts of the proposal, in our view.
169. The task of a consent authority determining an application is clear. They are to balance the public interest in approving or refusing the project, having regard to the competing economic and other benefits, and the potential negative impacts the project would have if approved.⁵⁰
170. As was held by the Chief Judge of the Land and Environment Court in *Gloucester Resources Limited v Minister for Planning* [2019] NSWLEC 7, if the impacts of a proposed development are unacceptable and they cannot be mitigated by conditions of approval, then it follows that the project must not be approved.

⁵⁰ *Warkworth Mining Ltd v Bulga Milbrodale Progress Association Inc* [2014] NSWCA 105 per Bathurst CJ, Beazley P and Tobias AJA at [171].

171. In the case of the NS2B Project, impacts arising from additional afflux, scouring, erosion and shadowing of the landscape, impacts to the productivity of the vertisol soils, loss of access to land, and delays on the movement of grains and crops to market will not of themselves give rise to a claim for compensation.
172. Our view is that if these impacts are not acceptable (which we say that are not) and cannot be mitigated through conditions (which we say they cannot), then it follows that the NS2B SSI must be refused.
173. If the impacts are said to be acceptable (and we say they are not), then the Minister, as consent authority, should impose conditions similar to those imposed for State significant mining, petroleum and extractive industry developments, seeking to mitigate the negative impacts arising from the NS2B Project.
174. Such conditions have been held to be enforceable by the Court and the benefit for our clients and other land owners is that they will not be forced into an argument with the ARTC (or Transport for NSW) about whether such impacts are compensable.
175. Further, it seems to us that if the ARTC's position is that such impacts are compensable (as has been stated by the ARTC in its communications with the Landholders), then we see that they should have no objection to any conditions being imposed on the project approval that make that plain.

Need to refuse the NS2B SSI

176. In light of the above, we consider that the Minister is compelled to refuse the NS2B SSI as currently formulated.
177. This is because the adverse impacts of the NS2B Project, including in relation to hydrology, acoustics, ecology, visual impact, and on access to and use of land, far outweigh the marginal (at best) economic and other public benefits of the development.
178. Balancing all of these relevant factors, and applying the precautionary principle, means that the Minister must find that the NS2B Project is contrary to the public interest and should be determined by refusal.
179. The Landholders also wish to note that if the Minister proceeds with approving the NS2B SSI in its current form, and the impacts identified in this submission come to fruition (which we say is likely), then the NSW Government opens itself to a potential claim for negligence on the basis that the harm suffered by the Landholders was reasonably foreseeable at the time the approval was issued.
180. In the alternative, it is open to the Minister to invite the ARTC to withdraw the application and request that detailed consideration be paid to the following:
 - (a) a thorough and transparent assessment of the viability of the NS2B Project following an Option A alignment or similar, including on the basis of a properly formulated cost benefit analysis;
 - (b) a significant increase in the number and length of bridges across the floodplain to ensure that wherever possible the proposal does not disrupt the natural flows of water across the floodplain, thereby reducing potential for unacceptable afflux, erosion, scouring and flooding risks at Goondiwindi;

- (c) a reduction in the reliance on culverts on the floodplain, and particularly in areas of highly erodible vertisol soils;
 - (d) amending the noise and vibration assessment to include an assessment of sleep disturbance impacts, ground-truthing aerial imagery to pick up additional sensitive receptors and investigating the viability of acoustic attenuation treatments;
 - (e) expanding the biodiversity impact assessment including to improve site surveys to better understand the existing ecology, and to consider the impact of surface hydrology on relevant species;
 - (f) review the minimum standards for access to ensure that no land owners are worse off as a result of the project and are able to effectively and safely access higher ground during flood events;
 - (g) review the impact of the proposed alignment in the creation of land locked sites and consult with landowners regarding the best options of maintaining access given the use of the land;
 - (h) undertake a more thorough visual impact assessment, selecting a broader range of viewpoints and incorporating viewpoints on both private and public land; and
 - (i) investigate the minimum requirements to rehabilitate the land following the decommissioning of the existing rail line, including to address contamination issues and scouring/gullyng of the landscape from breakouts and erosion around bridges and culverts.
181. Finally, we would like to thank the Minister for considering our submission on the EIS for the NS2B Project.
182. We understand that the North Star to Border section of Inland Rail gives rise to important issues of principle around impact assessment, not least the application of the precautionary principle to this sort of development in the floodplain.
183. The Landholders feel that you would greatly benefit from the opportunity to visit Boggabilla and travel along the proposed alignment, and that this would give you a much clearer understanding of why they take the position they do. The Landholders would be willing to facilitate such a visit, including access to their properties, on your request and at a time that suits you.

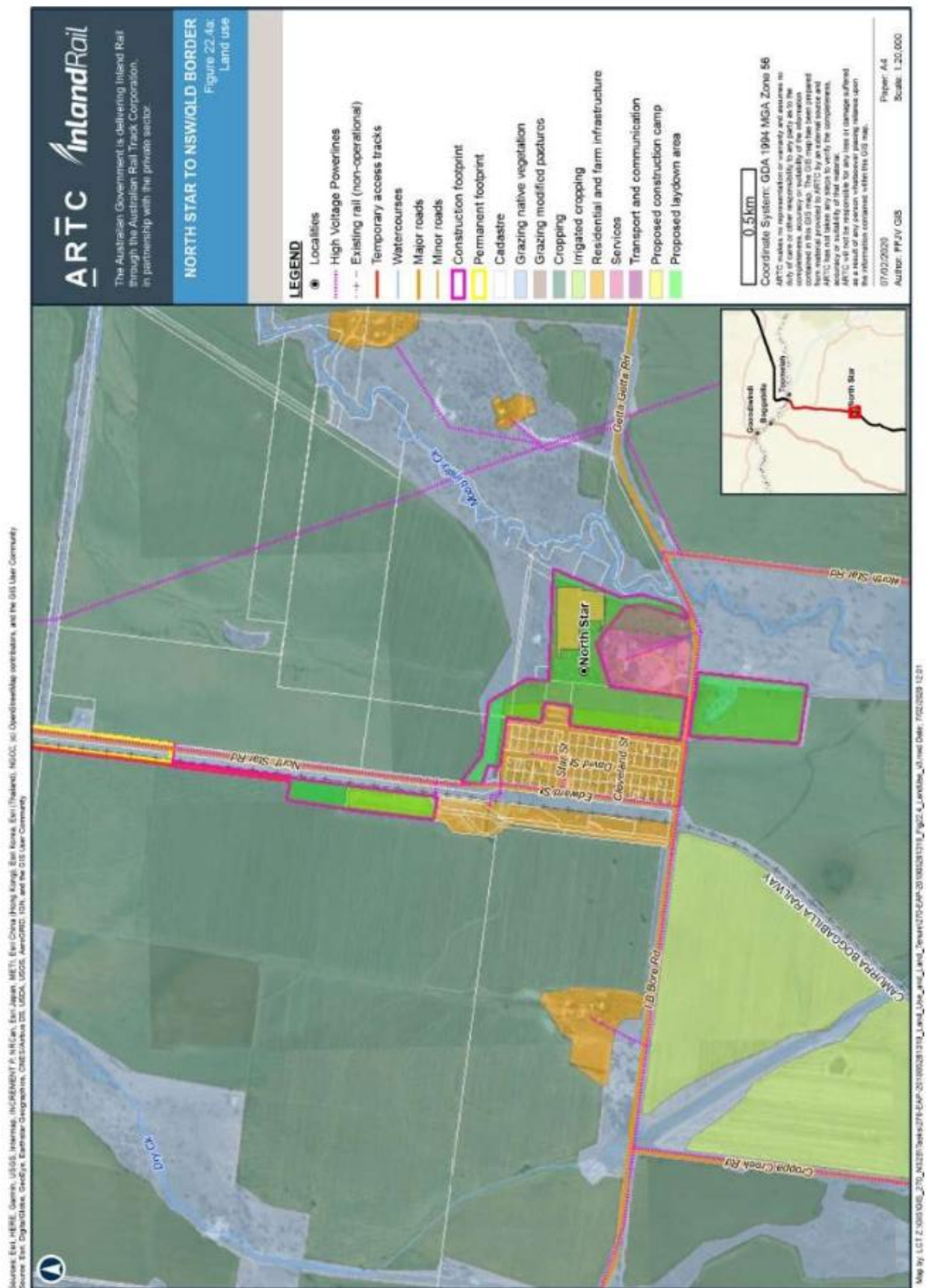
Should you have questions regarding the above, please contact Peter Holt, Special Counsel on (02) 8083 0421 or Peter.Holt@holdingredlich.com.

Yours sincerely

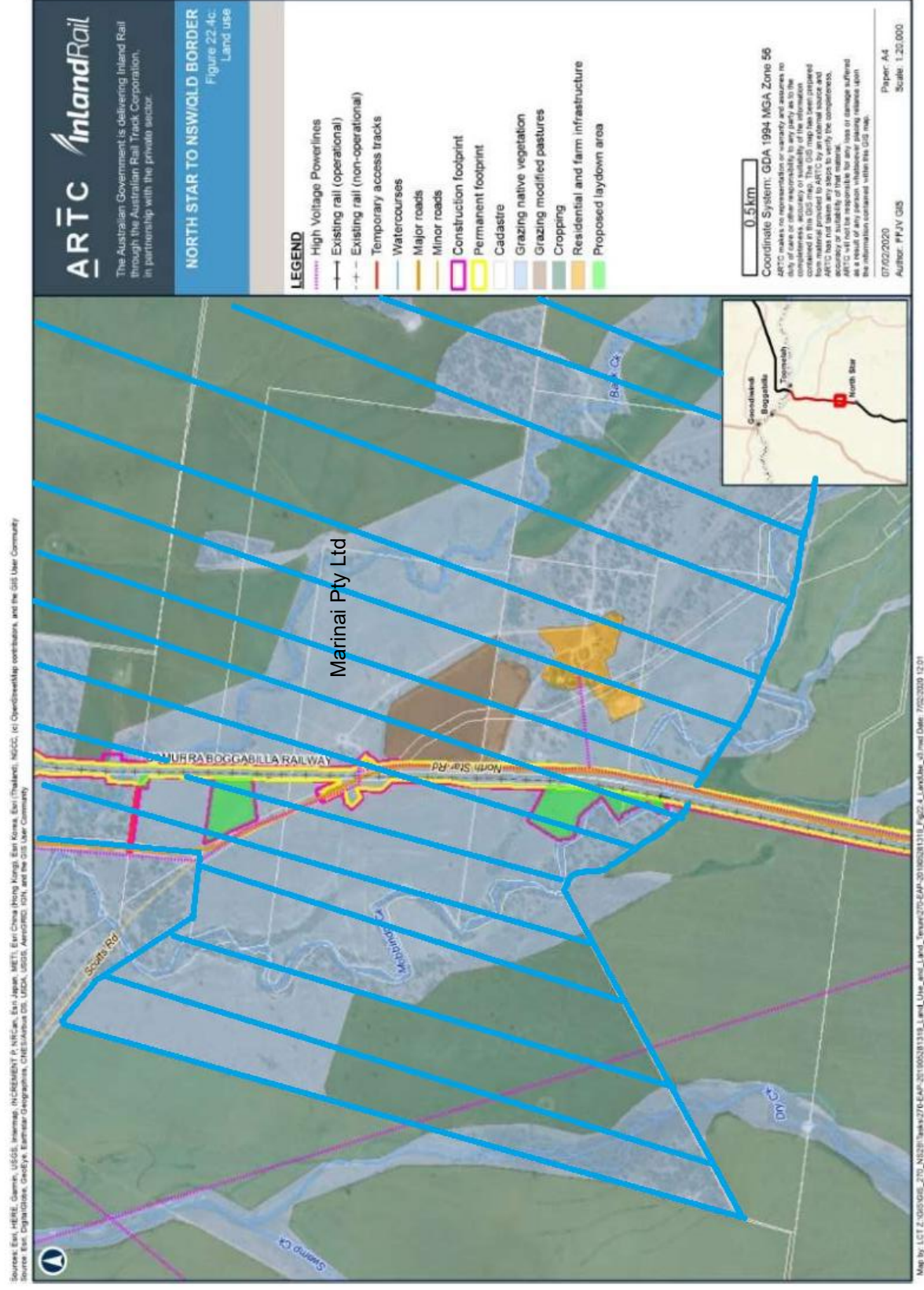


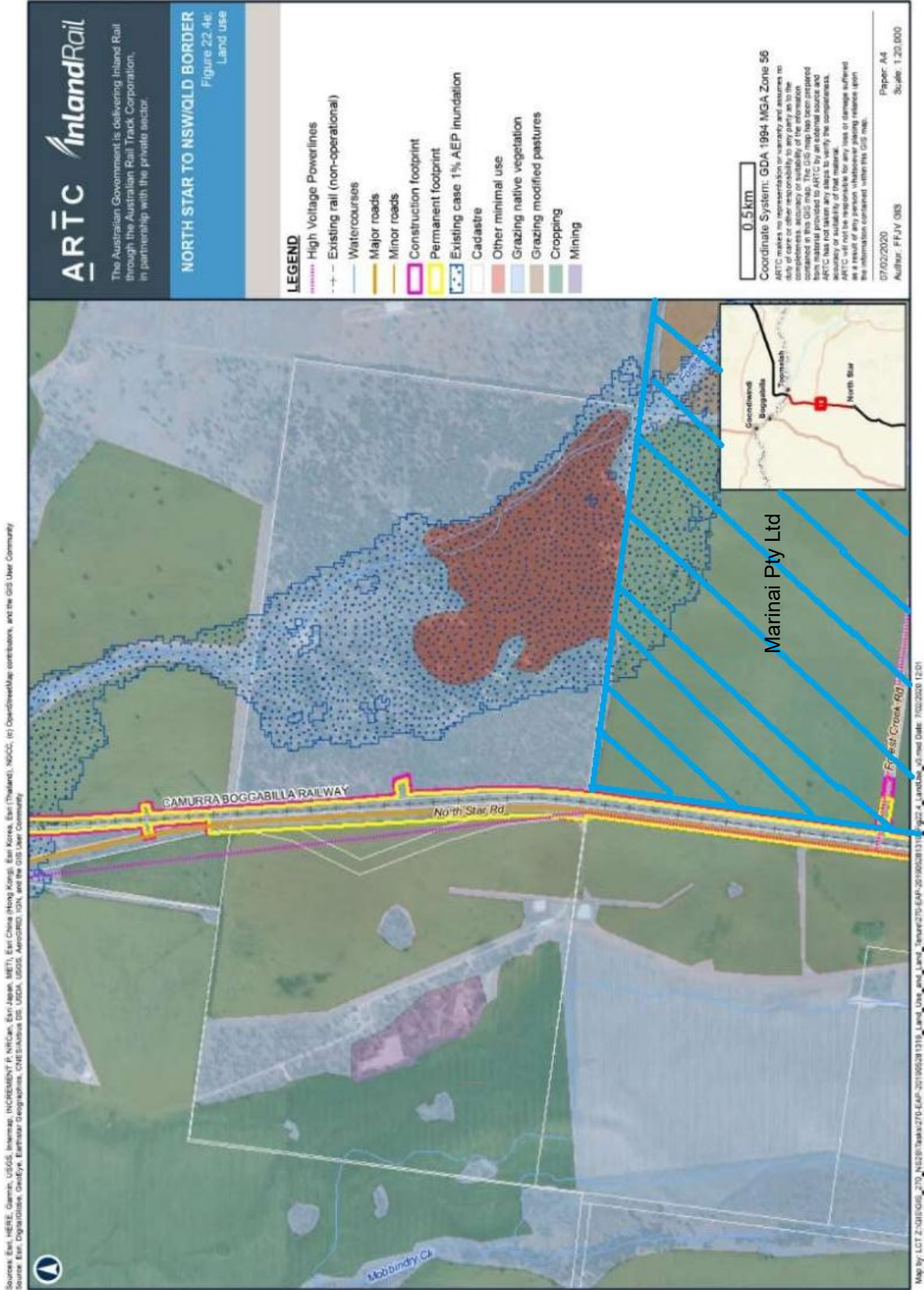
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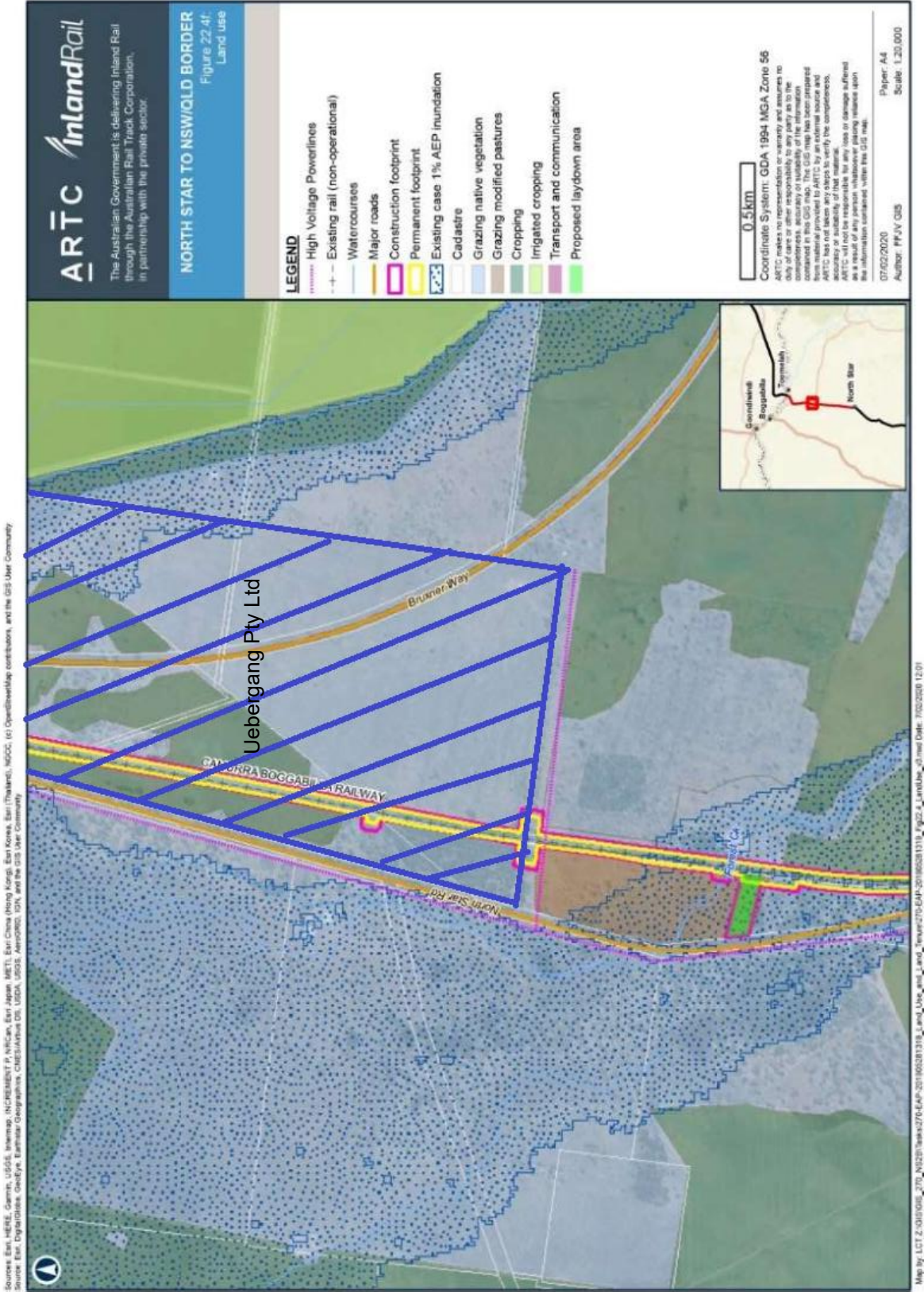
Attachment A to letter of objection dated 6 October 2020

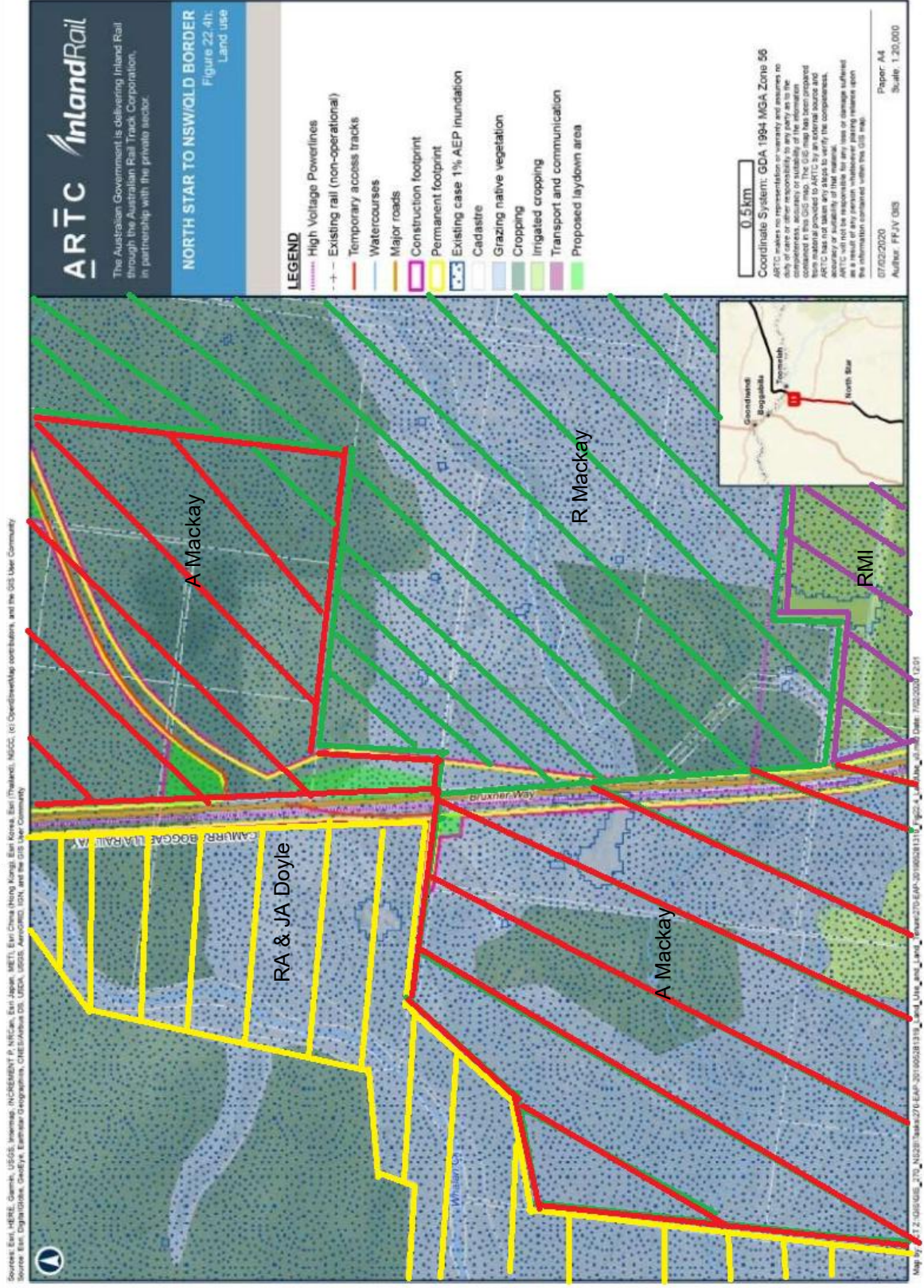




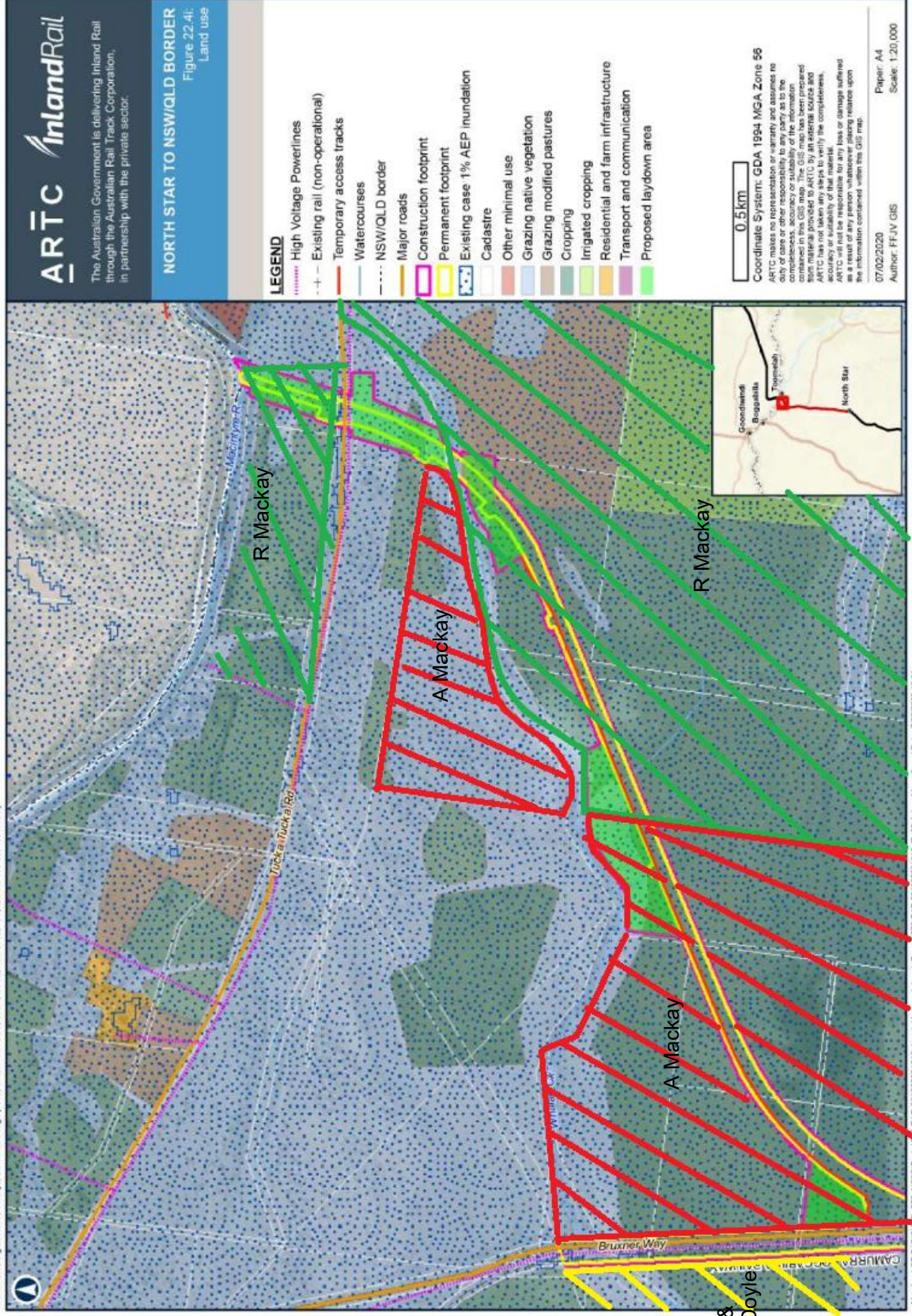






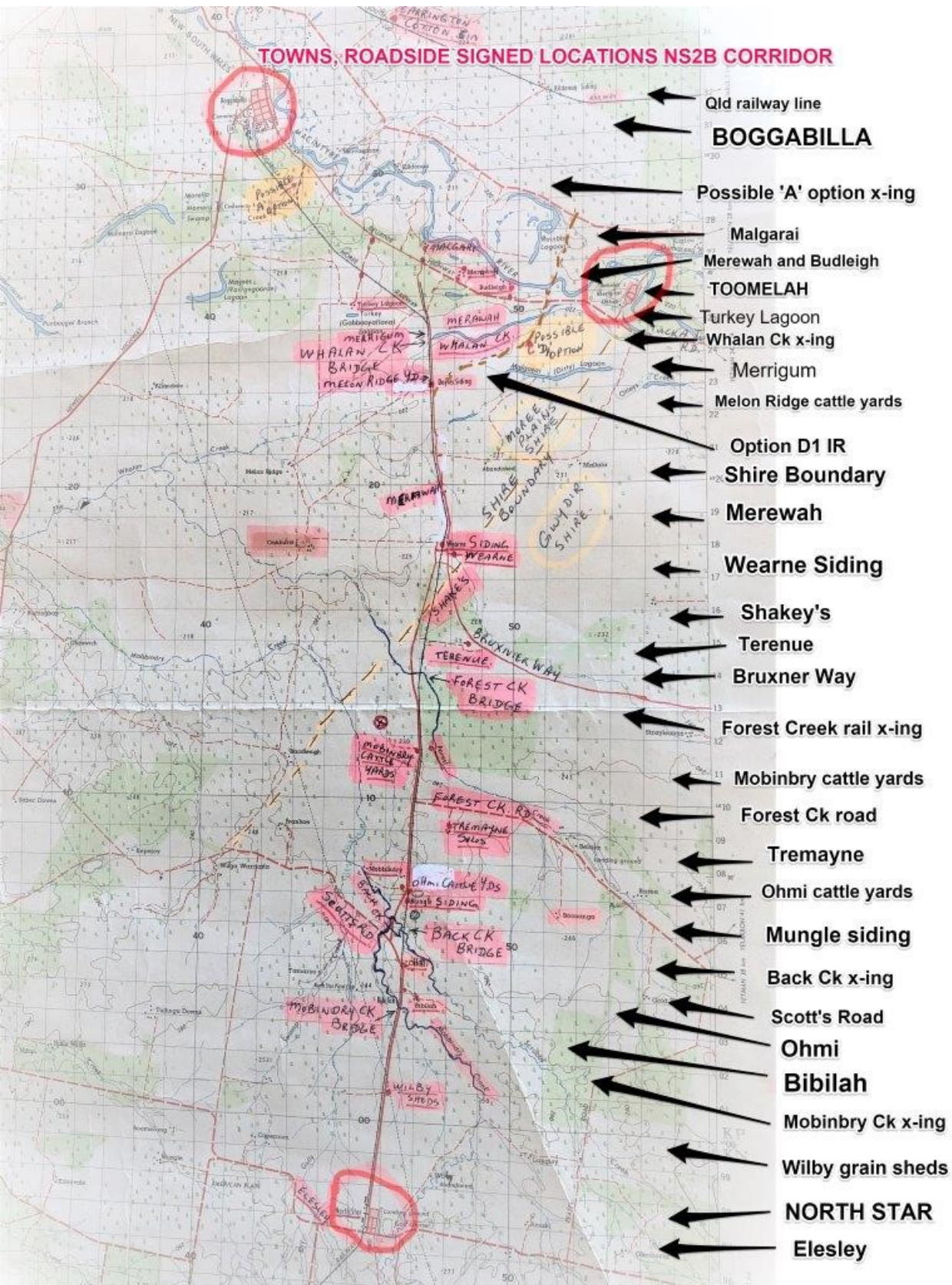


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NBCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



RA &
JA Doyle

TOWNS, ROADSIDE SIGNED LOCATIONS NS2B CORRIDOR



Attachment B to letter of objection dated 6 October 2020

Form 40 (version 6)
UCPR 35.1

AFFIDAVIT OF EDWARD JAMES BILLING 1 OCTOBER 2020

AFFIDAVIT

Name Edward James Billing
Address "Bridgewater", 1548 Boonal Keetah Rd Yetman 2410 NSW
Occupation Farmer
Date 1 October 2020

I, Edward James Billing, say on oath:

- 1 I own and operate a farm known as "Bridgewater", at 1548 Boonal Keetah Rd Yetman 2410 NSW (**Property**). This is also my residential address.
- 2 I have lived on the Property since 1940. My family has owned the Property since approximately 1924.
- 3 The property is run as a mixed farming operation comprising grain and livestock.
- 4 The Property is a unique position because it is situated between the Dumaresq River and the Macintyre River. This positioning has allowed me to monitor water height and flow rates at both rivers, and provide detailed and accurate information regarding flood events to downstream property owners as well as Goondiwindi Regional Council, the State Emergency Services and local farmers along the Whalan floodplain during major flood events. I understand that this information has been used to forewarn communities of the magnitude of flood events and to provide authorities and farmers with the opportunity to prepare for significant flood events and implement appropriate safety strategies.
- 5 I have also been a volunteer with the State Emergency Services since 1976. In this role, I provide emergency assistance to residents in the area during flood events, including by driving boats along the flood waters to visit property owners who are trapped by flood waters and to give access for school children to meet school buses and to move stranded stock to higher ground.
- 6 I have first-hand lived experience of numerous significant flood events including the floods in 1956, 1976, 1996 and 2011.
- 7 To the best of my knowledge and belief, I record my experience of these flood events below.

The 1956 flood event

- 8 The 1956 flood was created by strong flows in the Dumaresq River, with no flooding in the Macintyre River. The township of Inglewood had a flow of 476,000 ML/day inundating the township to a depth of 2 metres in places.
- 9 At that time, the town of Goondiwindi was unprotected from flood waters and did not have any banks or levies to prevent flood waters from reaching the town.
- 10 The development on the land at that time was limited to grazing activities, and there was no significant development that impacted the movement of flood waters across the floodplain. For example, there was no irrigated cotton farming and few significant on-farm storages, meaning that there were no significant earthen bunds or levies on private properties that would redirect flood waters across the floodplain.
- 11 The 1956 flood event resulted in significant stock losses, particularly for sheep and cattle.
- 12 The flood waters lasted for approximately the whole month of February peaking 4 times before the river returned to the normal height.
- 13 From that point onwards, the 1956 flood event was used as the flood planning reference point for all development constructed within or around the floodplain.
- 14 Also, following the 1956 flood event, Goondiwindi Town Council constructed a levy bank to protect the town from future flood events. That levy bank was constructed by reference to the 1956 flood event.

The 1976 flood event

- 15 The 1976 flood event was a more significant event than the 1956 flood event.
- 16 Unlike the 1956 flood event, the 1976 flood event was the result of significant local flooding, as well as upstream flooding from both the Dumaresq and Macintyre Rivers.
- 17 Before the upstream flood water arrived, there was already significant local flooding which had saturated and soaked the land on the floodplain. The expanse of the local flooding was caused by up to 250mm of rain in 12 hours isolating properties and stock before the main flooding commenced from upstream flows.
- 18 My experience is that due to the topography of the land, the Macintyre River falls faster than the Dumaresq River. This is why, as occurred in 1976, the flood waters in the Macintyre River arrived first, a few hours before the flood waters in the Dumaresq River reached my Property.
- 19 The flood waters spread across the whole floodplain and flowed in a south west direction along Whalan Creek, Ottleys Creek and Malgarai Lagoon. The volume of

E. P. Billing *APR 1976*

floodwaters from the Dumaresq and Macintyre Rivers using NSW Water Resources calculations added to approximately 830,000 ML/day which would not include Ottleys Creek water or local runoff.

- 20 The flood waters lasted for approximately 7 days before dispersing.
- 21 The town of Goondiwindi did not experience any inundation due to the construction of the Levy around the town following the 1956 flood.
- 22 The 1976 flood event then replaced the 1956 flood event as the benchmark for flood planning in the region.
- 23 I understand that it has been used by landholders, Goondiwindi Regional Council and other agencies as the relevant reference point for measuring the design parameters of structures built on in and around the floodplain since then.

The 1996 flood event

- 24 By 1996, significant development had been constructed in the floodplain. This included numerous large irrigated cotton farms with large earthen bunds.
- 25 The 1996 flood event was caused following rainfall along both the Dumaresq and Macintyre Rivers.
- 26 The 1996 flood event was different to the 1976 flood event because despite significantly less rainfall, the flood waters travelled in a much more north-westerly direction towards Boggabilla and Goondiwindi.
- 27 During the peak of this flood at Goondiwindi the SES rescue boat was used to travel to Goondiwindi to get supplies for a stranded family who resided on the Macintyre River upstream of the Boonal Bridge. From my recollection during this trip the flood water was restricted from normal overland flows by the Newell Highway and the Boggabilla Weir forcing the flood water towards Goondiwindi.
- 28 My understanding is that this volume of water likely reached Boggabilla in part because the construction of the Newell Highway and the Boggabilla Weir in the early 1990s re-directed flows towards the township.

The 2011 flood event

- 29 The 2011 flood event was the result of significant rainfall further upstream resulting from 18 inches of rainfall at Tenterfield.
- 30 That water flowed downstream through the Dumaresq River but did not result in significant flooding at our Property. The peak was at least 0.5 metres lower than the peak of the 1976 flood at "Bridgewater".

S. P. Billing

- 31 Notwithstanding this the flood hit Goondiwindi hard. The impact from flooding from this event was significant as the levy bank was nearly breached at several locations which required urgent action by Goondiwindi Regional Council to maintain the integrity of the Levy bank.
- 32 From my lived experience I understand that the unusual movement of water through the region and across the floodplain was likely caused by development in the area narrowing the throat of the floodplain, directing water north west towards Boggabilla and Goondiwindi, rather than south west along the Whalan Creek which has acted as a natural relief valve taking flood water away from the Macintyre River to the south west.
- 33 This would have been exacerbated by significant development along the Queensland border which has prevented water moving further north and instead pushes it north-west towards the townships.

Adequacy of the ARTC modelling

- 34 I initially became involved with ARTC when I attended an information day in Goondiwindi in April 2019. At this meeting it became apparent that ARTC knew little about the effects of floodwater in the area.
- 35 I have serious concerns regarding the adequacy and accuracy of the ARTC's flooding and hydrology modelling. This is because the modelling does not accord with my lived experience which comes from having spent 65 years living and working on the land. Specifically, I have concerns regarding the following:
- a. the model does not accurately reflect the nature and scale of the historical flood events as they were experienced on the ground. For example, it shows certain land as being dry when I know that it was wet because I travelled along that land in a boat during the flood event. For example, Map A26, Appendix H, Chapter 46 shows land south of the junction of Boonal-Keetah Rd and Tucka Tucka Rd as being dry when it was 200 to 300 mm under water in 1976;
 - b. the model uses the 1996 flood event as the bench mark for assessment of the NS2B Project, rather than the 1976 flood event which was the most significant flood event in living memory for those currently living in the region (although not the largest flood event on record);
 - c. the model does not account for water in other watercourses that contribute to flows and flood events in the region, including Back Creek, Forest Creek and Strayleaves Creek;

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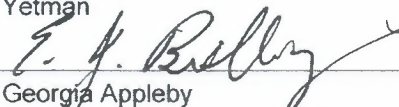
- d. the model does not accurately reflect the actual development of the land, particularly on the floodplain. It does not accurately depict how flows will move and be redirected in future flood events;
- e. the model predicts little to no change in velocities as a result of the construction of the new line which cannot be the case because it is proposed to be constructed in the middle of the floodplain and will naturally redirect flows (either through culverts constructed in the levy or under bridges);
- f. using a 1% AEP (annual exceedance probability) rather than the 1976 flood event significantly underestimates the volume and velocity of water and the impact of the proposed construction across the floodplain; and
- g. I believe the construction of the proposed embankment will cause severe erosion on the black soil plain along the embankment and further downstream along the Whalan Creek floodplain.

- 36 It is my opinion that these failures mean that the current modelling is wholly unreliable and should be disregarded when assessing the impacts of the NS2B Project.
- 37 In my opinion, it is possible, based on my lived experience, that if the NS2B Project proceeds and the rail line is constructed as per the current alignment and in accordance with the current reference designs, that water might pool in the L bend just south of Whalan Creek towards Bridge 270-BR11, it will then be pushed back in a north easterly direction and will then move rapidly north west through bridge 270-BR11 at the top of the Whalan Creek and head towards Goondiwindi. This is the natural consequence of a large structure being built in this location redirecting natural flows, and in the context of significant on-farm development which will narrow the throat of the floodplain.
- 38 In my opinion, the ARTC should reconsider the alignment of the rail line, and particularly reinvestigate Option A which would see the rail line constructed to the west of the current alignment over land which experiences significantly lower volumes and speed of flood water during flood events.
- 39 Alternatively, the ARTC should consider amending the design to significantly increase bridging to allow water to move in the usual south west direction, or otherwise construct large bridges or viaducts in that L bend to allow water to move north west (for example, between proposed culvert C24-86 and bridge 270-BR11) and avoid it being funnelled towards Toomelah and Goondiwindi.

E. J. Billy
Applying

- 40 Failure to take either of these actions will mean that there is a significant risk that a large number of properties along the east of the proposed alignment will experience significant flooding and higher afflux than is currently the case, increasing the effects of erosion and inundation. This will lead to significant stock losses as stock will be trapped by the earthen levies of the rail line and will drown because they are being blocked from access to higher ground.
- 41 It will also result in heavy scouring of the land, particularly where there is black vertisol soils which are particularly susceptible to erosion, which will ultimately change the shape of the landscape and impact the viability of farming operations in the area.
- 42 It also means that in future flood events, towns such as Toomelah and Goondiwindi are at a very significant risk of serious flooding which will threaten harm to both people and property.
- 43 I believe that it is unreasonable that residents along the rivers downstream of, and including, Toomelah should be exposed to the risks imposed by the current proposed development of Inland Rail.

E. J. Billington
Appendix

SWORN at Yetman
 Signature of deponent 
 Name of witness Georgia Appleby
 Address of witness Level 65, MLC Centre, 19 Martin Place, Sydney
 Capacity of witness Solicitor

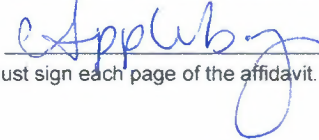
And as a witness, I certify the following matters concerning the person who made this affidavit (the deponent):

- 1 I saw the face of the deponent via audio visual link.
- 2 I confirmed the signature of the deponent was witnessed via signing a copy of the affidavit as signed and scanned to me by the deponent in accordance with clause 3(b) of the *Electronic Transactions Amendment (COVID-19 Witnessing of Documents) Regulation 2020 NSW*.
- 3 I am reasonably satisfied that the affidavit I have signed as the witness is an accurate copy of the affidavit signed by the deponent.
- 4 The affidavit was witnessed in accordance with the *Electronic Transactions Amendment (COVID-19 Witnessing of Documents) Regulation 2020 NSW*
- 5 I have confirmed the deponent's identity using the following identification document:

DRIVERS LICENCE 6053KV

Identification document relied on (may be original or certified copy)

Signature of witness



Note: The deponent and witness must sign each page of the affidavit. See UCPR 35.7B.

["Identification documents" include current driver licence, proof of age card, Medicare card, credit card, Centrelink pension card, Veterans Affairs entitlement card, student identity card, citizenship certificate, birth certificate, passport or see [Oaths Regulation 2011](#) or refer to the guidelines in the NSW Department of Attorney General and Justice's "[Justices of the Peace Handbook](#)" section 2.3 "Witnessing an affidavit" at the following address: <http://www.jp.nsw.gov.au/Documents/jp%20handbook%202014.pdf>]

Attachment C to letter of objection dated 6 October 2020

Economic Analysis – Inland Rail – North Star to Border

About me

I have a background in both farming and economics. From 1970 until 2005 I farmed and worked part-time on a number of farming operations including wheat, sheep, cotton, and cattle operations.

I have been a qualified economist since 1983. In 1985 I was awarded prizes for teaching cost benefit analysis, agricultural economics and marketing at Curtin University in Western Australia.

I have worked as a cost controller on major infrastructure projects both here and in the United States.

When I came home to Australia I was the cost controller on \$3 billion heavy rail (and electrification) upgrade project in South Australia. Before that, in the United States, I was responsible for managing infrastructure costs associated with US \$500 million in light rail, road, street, and drainage projects.

In the States I was also responsible for securing US \$2 billion to fix poorly designed and built bridges (some were cracking and in a dangerous state).

Based on that experience I feel that I know something about poorly designed and constructed infrastructure projects and how difficult it is to fix them.

I am at a loss for words about Inland Rail

From an economic perspective Inland Rail is a train wreck waiting to happen. In my view radical steps need to be taken now to put this project back on track (if that is possible).

There are so many important weaknesses in some proponent's reports and that there is enough to throw every facet of this project: the conclusions, assumptions, methodologies, viability, timing, route and probity; into question.

The lack of transparency is breath-taking. I have had a chance to review the 2015 report, the 2016 Infrastructure Australia Report, the Multi Criteria Analysis (MCA) for the route selection, the latest economic analysis that supports the project application for North Star to the New South Wales/Queensland Border, and all publically available consultant reports and related documents that I could readily access.

This project was always marginal

From the beginning this project was always marginal at best. Even Infrastructure Australia's May 2016 review said so publically:

*"Infrastructure Australia notes that the options assessment undertaken by the proponent did not robustly consider the value for money and deliverability of the full range of options. Infrastructure Australia would prefer if the proponent could present a more complete, transparent and objective assessment of the options considered, with greater detail of the relative costs and benefits of alternative options. **A full cost-benefit analysis comparing the preferred option with the principal alternative option – increased road capacity between Melbourne and Brisbane – would facilitate greater scrutiny of the relative merits of the two alternative options.**"*

What is astounding is that we are now here, some for years later, and the kind of assessment called for by Infrastructure Australia still has not been done.

Inland Rail now has a negative net present value

Based on what I have read at this point, in October 2020, I am confident that the project now has a negative net present value ($NPV < 0.00$) and benefit-cost ratio of less than one ($BCR < 1.00$).

In the ordinary course of things this project should have been stopped before now and the money put toward other projects that will bring net benefits to the community.

There are many alternative capital and biodiversity projects with much higher BCR's and NPV's that could be undertaken using the money that will go into Inland Rail.

As it stands this project is a train wreck waiting to happen. We may all (as a society) be worse off for our part in this project.

In my report I have identified several reasons the project should be stopped and the elements recast to identify a project that will work from a net present value and economic perspective. At a minimum it should have followed NSW 2017 Treasury guidelines. The NSW Treasury has had and still has clear procedures and transparency standards for what is acceptable or not. NSW Treasury recognises the importance of using cost-benefit analysis to assess projects of this kind:

*"The purpose of this Treasury policy and guidelines paper is to provide guidance and promote a consistent approach to appraisal and evaluation of public projects, programs and policies across the NSW Government. Agencies should use this NSW Government Guide to Cost-Benefit Analysis (Guide) **when assessing all significant government projects, programs, policies and regulations.**"*

*"Cost-benefit analysis (CBA) is an evidence based method for systematically organising and presenting information to help government understand **all the impacts of policies and projects, including economic, social and environmental impacts.** CBA helps decision makers **identify the best means to improve social welfare and assess competing proposals.**"*

There is a strong possibility those investing in this project will lose their money

Again my research concludes that the overall standard of work is so poor that it throws into question the economic justification for such a project and leaves open the very real possibility that those investing in this project down the track will lose their money.

Almost everything I have looked at lacks transparency. Much of what is said is either false or misleading or contains significant omissions.

In order to fix the project and get the BCR over 1.00, the Western line, an intermodal, secure storage on land or similar that was offered up to the ARTC and other obvious low-cost benefits should be considered as part of the scoping and design of the project.

The decision to use a MCA to select the route was flawed

Using a MCA to select the best route is not acceptable. My review of the most recent MCA on route selection was that the process was flawed. A MCA should not be used as a tool for such significant decisions. Given the significant weighting on time saving – shortest route was always going to win out. A proper Cost Benefit Analysis (**CBA**) of route selection would have come to the conclusion that route A would be the optimal route – having regard to the costs, benefits, risks and 100 year sustainable net win-win improvements.

The economic impact assessment that accompanied the project application should be withdrawn

As for the economic impact assessment—the approach, correspondence, and related issues are so unprofessional that the report must be withdrawn and completely reworked.

It was clearly obvious in May 2016 or so from Infrastructure Australia that a proper CBA as recommended by Infrastructure Australia, and one using required March 2017 NSW Treasury guidelines were needed.

This is still the case today, and NSW Treasury checks the quality of CBA's. Treasury and agencies normally reject sub-standard CBA's and analyses that are not-fit-for-purpose.

Even though this is a federally funded project, it is being built in NSW and the NSW Government or private parties may be the owner of the track in NSW, with the ARTC holding the leasehold or use interest. Both the Federal and State Governments' due to COVID-19 have had unanticipated large expenditures and falls in revenues and so are looking at privatisation solutions.

For those reasons, and because there is \$10 billion in taxpayers' money the project, and parts of the project, it must be justified on the basis of a properly formulated, unbiased and transparent CBA.

Briefly the economic impact assessment must transparently and honestly address the following matters for it to have any validity as a robust decision-making tool:

- (a) the Infrastructure Australia assumptions, sensitivity tests, road alternatives, the price of oil, ways to save lives, level crossing delays, and the importance of the Western Line using cost benefit analysis must all be properly considered;
- (b) the exclusion of the Western Line upgrade must be considered and justified;¹
- (c) the case for the project should not be based on CGE methods. Such methods have been widely discredited. Their only value is in generating job figures – such figures cannot be double-counted using a CBA. Most economists avoid using CGE because it is not cost benefit analysis, not reliable, not unbiased, not compliant and not best practice; and
- (d) similarly, as with CGE, most leading economists avoid using MCA methods because it is not cost benefit analysis, not reliable, not unbiased, is easily skewed, not compliant and not best practice.

The critical difference between CBA and the economic benefits assessment approach

Critically, the key difference between the complete CBA approach, and the economic benefits assessment approach adopted in this analysis, is **the exclusion of costs**.

As a consequence, the estimation of economic indicators is not applicable to this analysis, rather the discounted present values of the benefits is the focus of the assessment.

Plus when there are so many excluded costs, omissions and obsolete assumptions that credibility and transparency are damaged.

¹ It is the understanding of KPMG that in the absence of the Western Line upgrade to the existing Queensland Rail network ... per cost benefit analysis results for Inland Rail by beneficiary (incremental to the base case, discounted 2014-15 dollars) from Appendix B: Treatment of coal demand for the Inland Rail EIS which reveals a BCR of 0.96 (and is less than 1.02), ...and highlights that the identified benefits accruing to coal trips are a direct result of the Inland Rail Program with complementary investment in Western Line Upgrades, which do not form part of the scope of the Inland Rail Program as it stands currently, and are not funded.

Even the forecast jobs figures in the CGE are dubious

*“The importance of the CGE labour market assumption is reflected in the employment results. In the scenario with slack labour markets, the construction phase of NS2B generates an additional **448 jobs per annum** in the region (direct and indirect employment).*

*With tight labour markets, the increase in jobs is significantly less at just **75 jobs per annum**. Under tight labour markets, the labour market response is dominated by workers moving from their current job to a higher paying job. With slack labour markets there are sufficient unemployed and underemployed workers to accommodate the increase in demand for labour without increasing real wages.”*

That large, wild range (75-448 per annum) is presented with no statistical R-squared, no transparency about the treatment of imports that should have been excluded, and no reference to actual employment numbers, turn-out costs, imported procurements, a Western Line intermodal, rail car depot, or option A. On that basis it is clear that the forecast number of jobs relied upon of 448 jobs per annum significantly overstates the number of jobs that will be created by the project.

Parts of the Inland Rail project are currently underway. At this point actual ARTC employment numbers, salaries and flow-on impacts should have been used. ARTC have already completed billions in works and some parts of this Project.

Route A is a better route

From all that I have read at this point I recommend Route A (the more Western alignment) is a better route because of connections through Queensland and the Queensland Rail networks, the use of the old track which saves costs, the creation of local synergies via ability to load grain, cotton, coal and other products, and a rail car depot, safe storages (less theft) and it likely having less flooding, derailment and environmental impacts. It is likely that an optimal configuration of net benefits can get the Inland Rail BCR above 1.00 considering it is subsidised.

Assumptions and other deficiencies that must be addressed and considered by the proponent

There are a number of unexplained assumptions and other deficiencies that I have identified as part of my review of the material that must be addressed honestly and completely by the proponents as part of any CBA to advance this stage of the projects, and the project as a whole. These are:

- (a) overall which benefits were overstated and which costs ignored and how much do each and all change the net present value and benefit cost ratio;
- (b) assumptions around price of fuel being so unreasonable – future oil prices US\$120 a barrel compared with US\$40 now, and the effects of \$40 oil on Inland Rail and door to door trucking and couriers;
- (c) assumptions around costs including the use of P50 instead of mean-centred expected values, and log normal probability distributions for costs and unbiased values;
- (d) why some tables omit the 10% sensitivity test (and a BCR<1.00) and only show 4% and 7%;
- (e) why no proper sensitivity analysis of all assumptions and alternatives and excluding imports;
- (f) address optimism bias and inclusion of recommended Green Book adjustments for that problem;

- (g) why the impacts of the upgrade of the Newell Highway and the duplication of other highways between Melbourne and Brisbane were not considered;
- (h) why no rigorous comparison has been made with road transport as an alternative to Inland Rail;
- (i) why no Monte Carlo with and without log normal cost distributions per Infrastructure Australia's best practices;
- (j) why some cumulative effects of costs were excluded and some benefits have been double counted;
- (k) why part of Qld rail integration is dropped off – Western Line and the importance of cotton, coal, grain and regional freight and Goondiwindi are obscured from the analysis;
- (l) why the impact for each sub-region is not shown separately and in total for all scenarios;
- (m) proper consideration of deaths, accidents and delays at level crossings;
- (n) consideration of cost of flood repairs and upfront mitigation to a 1% AEP or better standard;
- (o) consideration of the impacts of derailments and accidents over the next 100 year life of the project;
- (p) why there is a deliberate concealment of analysis, words, and assumptions that would show BCR less than 1.00;
- (q) that since COVID-19 there is a preference for trucking and couriers and owner-drivers so there is less likely to be substitution of roads and no reduction of trucks unless Inland Rail refuses to put in grade-separations and unnecessarily clogs roads with such long trains;
- (r) why was the flawed MCA approach to use to justify route selection and flood immunity;
- (s) why were major project decision not made on the basis of a CBA;
- (t) why there are missing benefits and subsidised costs excluded from the consideration of option A as a route;
- (u) why there are missing benefits and environmental costs;
- (v) where are the contamination clean-up costs;
- (w) where are the missing noise and vibration costs;
- (x) why advance the project on the basis of jobs forecast estimates to be generated when actuals are now available;
- (y) why are there so few real benefits to the region apart from some from four small teams of people working from the camp;
- (z) where are the cost of repairs or for designs susceptible to flooding when culverts block and the line gets unsafe as is likely elsewhere on Inland Rail;
- (aa) where are the costs for removing level crossings; and

- (bb) why would the Department of Planning, Industry and Environment allow the project to be advanced on the basis of a CGE when a CBA was required (Department's letter of 29 October 2018).

Conclusions

Infrastructure Australia's 2016 report made it clear to everyone involved in the project (including KPMG, ARTC, the Department of Planning, Industry and Environment) that there were from the outset real problems with the project's viability in terms of BCR and NPV.

A MCA should not have been used as the tool to formulate decision on route selection. If a CBA were used Option A which included a co-located Queensland Rail and ARTC rail car depot, train wash, secure maintenance and repair facility, intermodal facility and offices co-located at the RMI Cotton Gin or similar as offered up at minimal cost to proponents would have been the preferred route.

The application for the North Star to Border section of the project should not have been justified on the basis of a CGE. Even the suggestion that it was appropriate should have been a serious red-flag. Other reliable unbiased economic models are preferred.

The models, assumptions and data which underpin the economic analysis in the environmental impact statement are all inadequate, real data and actuals from completed ARTC works should have been used to inform a proper CBA to support the application.

Given the billions of dollars at stake, the ARTC (and KPMG) should withdraw and fix their sub-optimal reports before any decision is made on this stage of the project.

There are Inland Rail actuals, employment numbers, salaries, procurement costs, imported items, cost variance reports, contracts, and past rail and road projects back to 2008 to get CBA data from.

This project was always marginal at best. Given what we know about it, it probably now has a large negative NPV, a BCR of less than 1.00. There are much better uses for this \$10 Billion despite what KPMG and ARTC infer in the report. The other astounding thing is that the project probably always had a negative NPV given that the Western line is unfunded. That alone should have seen the project canned.

All consultant reports should be unbiased, or as necessary re-done then certified as evidence, planning approvals based on those reports need to be reassessed.

Cumulatively over 100 years these are significant costs and risks that can be avoided with some benefits realised immediately, but the proponents have overlooked some inconvenient costs and risks.

The selected route with its short viaduct, small culverts, and unsafe level crossings does not have the least adverse environmental, human and idle time costs, cumulative 100 year, detrimental and irreversible impacts, plus the project as currently designed does not maximise benefits for the next 100 years.

ARTC have a 'black box' flood multiple criteria analysis (**FMCA**) model they use and it appears that flood immunity varies along the entire Inland Rail track as a result of the FMCA black box. Instead final immunity levels should be subject to PMF and pre-European floods, the type, positions, width and depth of structures, height, numbers, new velocities and the easy blockages of low culverts.

There are so many important weaknesses in some proponents' reports and that there is enough to throw the conclusions, assumptions, methodologies, viability, timing, route, ethics, probity and its legality into question.

On balance, the benefits of the project do **not** outweigh its potential impacts, costs and risks and it is therefore in the public interest that the Project does **not** proceed unless significantly improved.

The Project **must not proceed as is**; it really must be delayed immediately and must be significantly improved by addressing multiple deficiencies honestly and properly, if not it must be canned now.

Otherwise Inland Rail is a train wreck waiting to happen. We will all be worse off because of this project.

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Holding Redlich
Level 65, MLC Centre, 19 Martin Place, Sydney
NSW 2000 Australia
Attention: Georgia Appleby, Associate

The Environmental Factor
P.O. Box 268
Bathurst NSW 2795

4 October 2020

Dear Georgia,

Re: ARTC Ecological Assessment Peer Review

As detailed in the 'Brief to Emily Cotterill – Ecology 2020.09.18' received, The Environmental Factor (TEF) Director Emily Cotterill (BAAS 20011) and Senior Ecologist Josephine Dessmann (BAAS 18128) have reviewed the documentation provided (Tabs 1-10) in order to complete the following:

- Desktop review to determine whether the assumptions and approach of the ecological assessment are appropriate.
- Consideration of whether the minimum criteria for the Biodiversity Assessment Method (BAM) as required under the *Biodiversity Conservation Act 2016* (BC Act) has been undertaken.

As part of the review process, the level of assessment of Matters of National Environmental Significance (MNES), as listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), has also been considered.

Accordingly, the abovementioned review process has enabled us to develop an opinion as to whether the assumptions underpinning the EIS, and the resulting conclusion that the proposed impacts area is acceptable, is justified. The outcome of this review is that the current level of assessment is not adequate to justify the project moving to primary approval.

The constraints of the current assessment, including severe drought conditions and timing of surveys, are openly acknowledged within the EIS reports prepared by ARTC, which cite that further assessment and consideration of ecological impacts would be completed after approval is granted as part of the detailed design phase of the project:

During detailed design, sensitive ecological features identified in the EIS will be subject to further investigation to more accurately determine the magnitude of the significant adverse impacts on the identified ecological receptors. The specific mitigation measures will then be applied to ensure that the significance ratings of any potential impacts are classified as low as reasonably practical and more significant adverse impacts are offset. (Executive Summary, Biodiversity pp 5 – 6).

However, as primary approval of the project would essentially 'lock in' the current proposed rail alignment and impact footprint, within which ARTC acknowledges ecological impacts, including threatened species, ecological communities and their habitats, have not been fully catalogued, it is considered that the approach of delaying this assessment is not in keeping with the principles of the

current environmental legislation, including s 1.3 Part 1 of the BC Act, s3 Part 1 of the *Fisheries Management Act 1994* (FM Act), and s3 Part1 of the EPBC Act, which promote ecologically sustainable development.

The following paragraphs outline the assumptions that underpin the above conclusion.

Justification

Hydrology

TAB 7 Biodiversity Technical Report (BTR) Appendix B details the various forms of construction and operational impact to ecological values via the following mechanisms:

- Habitat loss and degradation from vegetation clearing/removal
- Fauna species injury or mortality
- Reduction in biological viability of soil to support growth due to soil compaction
- Displacement of flora and fauna species by invasion of weed and pest species
- Reduction in the connectivity of biodiversity corridors assessed as a result of the proposal to ecological values.
- Edge effects
- Habitat fragmentation
- Barrier effects
- Noise, dust, and light impacts
- Increase in litter (waste)
- Erosion and sedimentation
- Disturbance to specialists breeding and foraging habitat
- Trampling of threatened species
- Fallen timber and bush rock collection and removal
- Fertiliser drift
- Increased fire risk.

The Biodiversity Technical Report (BTR) Appendix B has not considered the mechanism of altered surface hydrology as a result of re-direction of flood and flood waters during and following construction. The altered flood waters are highly likely to impact on the Native Perennial Grasslands identified on site. Table 6-7 states that altered surface hydrology will occur, however that the impacts to flow regimes will be considered as part of the detailed design process.

Native Perennial Grasslands, dominated by Mitchell grasses (*Astrebla spp*) and *Panicum spp*, *Paspalidium spp*, and *Entropogan spp* form part of the alluvial floodplain grassland listed as a Threatened Ecological Community (TEC) (Critically Endangered Ecological Community (CEEC) EPBC Act listed).

Natural Grasslands on Basalt and Fine-textured Alluvial Plains of Northern New South Wales and Southern Queensland are listed as a CEEC under the EPBC Act.

Appendix C EPBC Act– criteria and condition thresholds indicates Natural Grasslands on Basalt and Fine-textured Alluvial Plains of Northern NSW and Southern QLD as occurring on site. However, Section 7.1.2 of Appendix C Initial Significant Impact Assessment (pp190 – 193) states:

It is important to note that the initial impact assessment does not assess impacts against the MNES significant impact criteria and only considers direct impacts and not indirect impacts. Impacts that

resulted in an initial significance rating of moderate or above, were then quantitatively processed using the AIAM to confirm the likelihood of significant impacts in accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance (DotE 2013). Impacts with a significance level of ‘high’ or ‘major’ were considered to constitute a significant residual impact. These impacts are offsettable under the MNES Offset Policy.

This suggests that hydrological impacts, not considered a ‘direct impact’ were therefore not considered as part of the current assessment, in spite of ‘changed flood regimes’ being listed as a Key Threatening Process for Natural Grasslands (Appendix B Species resilience questionnaires, within Appendix J of the EIS).

Survey effort and timing

It is acknowledged that during the time of the surveys during 2018-2019 that the subject land and broader landscape had been currently experiencing drought to extreme drought conditions (s3.4.1.): *Given the existing drought conditions during the survey period, the results of flora surveys are not considered sufficient to determine species-credit species to be absent (s3.4.4).*

It is also acknowledged that given the extensive breadth of the subject land, targeted survey for species credit species was not able to be completed for the full extent of the subject land. The BTR asserts that the precautionary approach has therefore been adopted and therefore that threatened species known or predicted to occur within the region have been assumed present (s3.4.1).

Ecological surveys were completed over five (5) discrete survey periods during 2018 and 2019 to cover the entire Inland Rail North Star to NSW / QLD corridor and associated Borrow Pits subject land. The subject land for the North Star rail alignment measures a total area of **327.21 ha** while the borrow pit locations measure **195.04 ha**. The total subject land to be surveyed therefore has a combined total area of **522.25 ha** (as described in BTR Table 4-1).

The BTR authors have calculated that a minimum of 142 plots were needed to be completed in order to meet the minimum requirements of the BAM; 155 plots were completed.

The BTR acknowledges that the optimal survey seasons for this region are spring and autumn. A total of 30 days of surveys were completed to obtain vegetation plot data from 2018 to 2019 during spring (16 days) and winter (14 days). These were completed over the following dates / seasons:

Dates	Duration (days)	Season	Surveys completed
21 August – 27 August 2018	7	Winter	Rapid Data Points
1 October to 9 October 2018	9	Spring	Vegetation Plots
31 October to 6 November 2018	7	Spring	Plots
18 June to 24 June 2019	7	Winter	Plots
19 June 2019	1	Winter	Rapid Data Points
1 July to 7 July 2019	7	Winter	Plots
23 October to 30 October 2019	7	Spring	Targeted fauna for species credit species

It is considered that while the number of plots completed was adequate based on the number of Plant Community Types and vegetation zones the authors recognised, the timing of the surveys is not optimal, as surveys completed outside the optimal season limits the diversity of species that will be encountered and hinders the identification of other species i.e. grasses where seed head is not available. Given the already reduced survey conditions being undertaken during a severe drought, completing 46% (14/30) of vegetation surveys days during winter when identification of species present is reduced is expected to further compromise the quality of data obtained.

Additionally, the BTR does not list the survey effort expended as a measure of person hours or provide detail on the survey effort expended across the alignment and borrow pits; notably, Section 11.4.3 of the BTR states *to date, detailed habitat assessments have not occurred within the borrow pit locations. These surveys form part of the future planned ecological investigations for the proposal.*

Threatened Ecological Communities

The Biodiversity Technical Report (BTR) states:

With regard to the natural grasslands TEC potentially present in the study area (Natural grasslands on basalt and fine-textured alluvial plains of northern NSW and southern Queensland), site assessments were completed as per the EPBC Act thresholds. However, extended drought conditions were present at the time of the site assessments, impacting the condition of these areas substantially. Detailed assessment of species diversity and composition indicated that several plots were within the benchmark conditions for the TEC while some were lacking indicator species present in plots nearby. As such, the grassland TEC has been assumed as present for the purposes of this report until such time as further detailed site assessment is possible during non-drought conditions (p52 s3.4.5).

and

the grassland TEC has been assumed as present for the purposes of this report until such time as a detailed site assessment is possible (s3.4.6).

The BRT identifies PCT 52 to be analogous with the CEEC (under the precautionary principle) with an impact area of **41.95 ha** associated with the North Star alignment. The borrow pit locations were not identified as impacting on this PCT (Table 4-5 of the BTR).

A total of **161.7 ha** has been described as non-native vegetation, and was therefore not assessed under the BAM. It is stated that the definition of native vegetation has been based on the meaning of native vegetation provided within the *Local Land Services Act 2013* (LLS Act). The following meaning is provided in s60B LLS Act which states:

(1) For the purposes of this Part,

"native vegetation" means any of the following types of plants native to New South Wales--

(a) trees (including any sapling or shrub or any scrub),

(b) understorey plants,

(c) groundcover (being any type of herbaceous vegetation),

(d) plants occurring in a wetland.

Based on the LLS Act definition above, any native plant to NSW satisfies the definition of native vegetation and should be assessed under the BAM if present. As these areas of non-native vegetation have not been systematically surveyed using plots or rapid data collection, it is not conclusive that they do not support any native vegetation.

Of note, an adjacent property has been recognised as holding high ecological values which have been entered into a Conservation Agreement with the Biodiversity Conservation Trust (BCT). This suggests that ecological values extend beyond the current proposed impact footprint, and further survey effort to exclude areas as non-native under the BAM would be appropriate.

Conclusion

In summary, to date ARTC have completed significant survey effort and assessment of potential direct impacts arising to ecological values identified, and presumed to exist, on site. However, due to the constraints identified within the relevant chapters of the EIS, notwithstanding the volume of work completed to date, the current level of assessment is deemed inadequate for the following reasons:

1. Hydrological impacts arising as part of the proposal have not been fully considered, nor mitigation measures proposed, despite 'changed flood regimes' being listed as a Key Threatening Process for the Natural Grasslands on Basalt and Fine-textured Alluvial Plains of Northern New South Wales and Southern Queensland (listed as a Critically Endangered Ecological Community under the EPBC Act) identified on site;
2. While the number of floristic plots completed for the estimated impact area was in line with the BAM (as calculated by the BTR authors), a significant proportion of survey days undertaken were completed outside the optimal season which may have negatively impacts on the results obtained; and, habitat assessments were not completed at all for borrow pit locations; and
3. The full extent of Threatened Ecological Communities occurring on site has not been ascertained, due to application of the precautionary principle; and, no floristic surveys have been completed on up to 161.7 ha of land deemed non-native vegetation, which is not considered best practice, as the BAM should be applied to these areas to determine this is the case.

It is considered that deferring full assessment of the above factors until after primary project approval is granted is not in keeping with the principles of ecologically sustainable development as promoted by the BC, EPBC and FM Acts. This is due to the fact that the project footprint would then be locked-in, meaning that the first principle of avoidance of impacts will be harder to implement, potentially resulting in further Significant and Irreversible Impacts and loss of biodiversity for future generations. Full assessment and cataloguing of ecological assets on site, and therefore corresponding impacts on these arising from the proposal, should be completed prior to approval being granted so that detailed design may be completed with these aspects in mind.

We trust that this advice provides assistance with your submission to the Department of Planning, Industry and Environment to ensure that the project is given due ecological consideration prior to proceeding in line with a comprehensive, best practice approach.

Best regards

Emily Cotterill

Director & Principal Consultant
The Environmental Factor





5 October 2020

WM Project Number: 20374

Our Ref: HR051020 BL

Email: georgia.appleby@holdingredlich.com

Georgia Appleby
Holding Redlich
Level 65, MLC Centre, 19 Martin Place
SYDNEY NSW 2000

Dear Georgia

Re: North Star to NSW/QLD Border - Review of Noise and Vibration Assessment

Wilkinson Murray have been engaged by Holding Redlich to conduct a desktop review of the noise and vibration assessment for the North Star to New South Wales/Queensland border section (NS2B) of the Inland Rail project. The purpose of this review relates to potential noise and vibration exposure at properties and residences that are near to the rail corridor. During the course of this assessment, receivers within a radius of 2km of the alignment were considered.

It should be noted that the EIS was based on a desktop study performed by SLR Consulting (Report: 2-0021-270-EMN-00-RP-0002, March 2020) and based on a geospatial dataset containing buildings from 2018. It does not appear that any on-site land use surveys or ground proving of receivers was conducted. A search radius of 2 km from the alignment was used, resulting in a total of 85 buildings identified for assessment.

Missing Receivers

It is possible that some receivers have been overlooked due to the technique used in identifying appropriate buildings to be assessed, which we understand has likely been taken from aerial imagery. Landholders have advised that certain dwellings have not been considered (a cottage at "Bibilah" owned by Ian Uebergang; the homestead at "Budleigh" owned by Robert Mackay). These missing receivers should be included and the assessment updated accordingly. For example, ground-truthing of aerial imagery is likely to pick up other sensitive receivers that were not identified from the aerial imagery.

Construction Noise

Construction noise is likely to occur only during normal daytime construction hours. It may be suitable to impose a condition on any approval for the project requiring construction noise to be limited to normal daytime construction hours to ensure that the impacts on sensitive receivers are acceptable. Mitigation of impacts from construction noise, even at distances as close as 30m, is possible using conventional techniques and mitigation strategies. Mitigation techniques and management strategies should be applied as per the *TfNSW Construction Noise and Vibration Strategy (ST-157/4.1)*, again this should be conditioned as part of any approval or the project. It should be noted that construction equipment would only be located at this close distance for a very short period of time with respect to the overall project.

Operational Noise

Input assumptions and modelling techniques are consistent with the Secretaries Environmental Assessment Requirements (SEARs). Predicted noise levels in accordance with the Kilde 130 method are considered reasonable without repeating the modelling calculations. Several exceedances of the Rail Infrastructure Noise Guideline (RING) criteria have been identified consistent with the setback from the rail corridor for each receiver. However, it is unclear whether these exceedances can be mitigated by architectural or 'at property' treatments alone as the report concludes (Section 16). This is because architectural or 'at property' treatments can only result in a maximum facade noise reduction of 30dBA. However, the location of some sensitive receivers and traditional rural residential construction techniques means that it is unlikely that such a significant reduction is achievable. It is therefore unclear whether architectural or 'at property' treatments will be sufficient to ensure acceptable acoustic amenity at all sensitive receiver locations.

Sleep Disturbance

As per Key Issue 14 of the SEARs:

*"The Proponent must assess construction and operational noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to sensitive receivers including small businesses, and include **consideration of sleep disturbance** and, as relevant, the characteristics of noise and vibration (for example, low frequency noise)."*

Section 10.4 of the SLR report discusses the potential for sleep disturbance. As correctly pointed out by SLR:

"Railway noise has the potential to be audible at sensitive land uses, both externally and internally, even where the noise management criteria are achieved."

The concern with night time sleep disturbance is that unlike the daytime noise impacts which at the predicted levels can amount to an annoyance, night time sleep disturbance can lead to a range of adverse health outcomes.

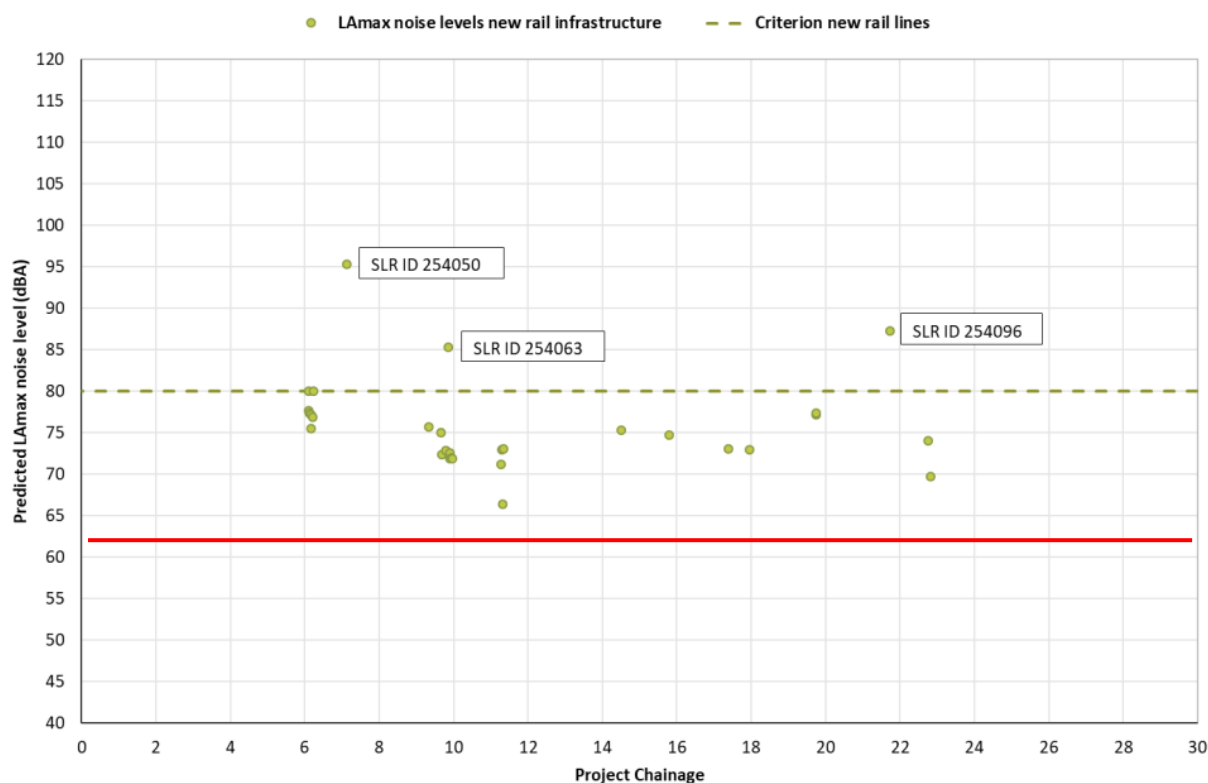
The SLR report refers to the World Health Organisation guideline *Night Noise Guidelines for Europe* (2009). This recommends an internal (indoor) noise criterion of $L_{A_{Max}}$ 42dBA. The SLR report goes on to assume a conservative 7dBA difference between indoor and outdoor noise levels where windows are left partially open for ventilation. Under this assumption, this results in all properties within 1 km of the rail corridor potentially being exposed to noise levels high enough to result in sleep disturbance. The section of the report is concluded by saying:

"Where sensitive residential land uses are proposed to be developed within 1 km of rail freight corridors, it would be expected that residential property, complying to Australian building codes and standards, would achieve facade noise reductions greater than the conservative 7 dBA assumption applied in this assessment."

Whilst this statement is true, the report does not go on to illustrate how more typical facade noise reductions would affect exposure to noise levels that may cause sleep disturbance. For example, a more typical reduction of 20dBA would be representative of good quality glazing remaining closed an alternative ventilation been provided (for example air-conditioning or acoustic ventilators). This is typical of 'architectural noise mitigation' and likely better than what currently exists. This would correspond to an external noise criteria of $L_{A_{Max}}$ 62dBA.

Figure 1 below has been extracted from Figure 14 of the SLR Report. Superimposed is an external noise criteria of L_{Amax} 62dBA (shown in red). This illustrates that all receivers shown in this figure would exceed the WHO recommended internal noise guideline if architectural treatments alone were applied. In the worst-case scenario of receiver 254050 (which I understand is on land owned by your client Ian Uebergang), more than 30dB of additional noise attenuation would be required to achieve the WHO recommendation. This is more than any typical noise barrier could provide and any residual exceedance would possibly result in sleep disturbance.

Figure 1 Predicted Daytime and Night Time Railway Noise Levels (Year 2040)



We also question whether a facade reduction of 20dBA is appropriate because we understand that residences in the region tend to be of traditional rural residential construction (1950s and 1970s fibro and timber construction) and that all houses tend to rely on fans, fly screens and roof mounted evaporative cooling units for cooling in the summer months, rather than air conditioning which would be required if windows are required to remain closed to provide acceptable acoustic amenity. This is likely to limit the feasibility of traditional architectural or at property treatments that would ordinarily be used in an urban context. Even if this assumption was applied, the worst affected receiver is still 33dBA above the sleep disturbance criterion.

On the basis of the guideline included in the SLR report, I would suggest that the potential for sleep disturbance, particularly at the worst affected residences, requires further consideration. This is because sleep disturbance has the potential to be the biggest issue in this assessment and require the highest levels of noise mitigation to resolve. This analysis should be provided by ARTC as part of the EIS in order to assess whether the impacts are reasonable. Given the levels of exceedance determined at the worst affected receivers up to 10 times per night in 2040 (based on their assumption), it should be demonstrated how the WHO guideline will be achieved. Some weight should also be given to the fact that this is a 'new' rail development and residences are not currently exposed to noise levels such as this and would otherwise enjoy a high level of acoustic amenity.

We trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully

WILKINSON MURRAY

A handwritten signature in black ink, appearing to read 'Ben Lawrence', written over the company name.

Ben Lawrence

Director