

## **Submission in response to the EIS for Inland Rail NS2B**

### **1.0 Background**

My name is Richard Doyle. I am a 7<sup>th</sup> generation Australian farmer. With my wife Janet and son Nicholas I own and operate a beef cattle grazing business on our property “Malgarai”, Boggabilla NSW. We purchase young stock and grow them out to sell into the feedlot sector in southern Queensland.

We have a long association with the region in which we live. “Malgarai” was originally part of “Merawah” which was first settled by James Howe in the mid 1800’s not long after the Explorer Cunningham passed through the region heading north. At a similar time my Great-Great Grandfather Andrew Doyle was settling property further west along the river around the Talwood/Walgett/Brewarrina area. James and Andrew were neighbours in the Maitland district and well known to each other. Andrew would later marry James’s daughter Catherine. Howe sold “Merawah” to Richard Dines his second cousin, also from Maitland, and also well known to Andrew Doyle. Andrew called his 16<sup>th</sup> child Richard Dines Doyle. Dines and his partner Robert Cook owned several properties in the region and Cook acquired “Turkey Lagoon” next to “Merawah” in the 1870’s and settled there. The Cook family retained ownership of “Turkey Lagoon” until its sale in 2018.

The Doyle family purchased “Merawah” in 1926 under the direction of J Hilton Doyle (Andrew Doyles’ Grandson) and was held in its entirety until his death in the early 1950’s. Upon his death the property was split with Hilton’s daughter Judy and her husband Ken Mackay taking the eastern portion, what is now “Merawah” and “Budleigh”, and the Doyles retaining the western portion managed by my father Dick Doyle which they called “Malgarai”.

### **2.0 Landuse**

We operate our cattle grazing business under regenerative grazing principals. The property is divided into 85 small paddocks and cattle are run in a few large mobs and rotated regularly through the paddocks to allow an extended rest period so that pastures and grazing crops can recover and regrow between each graze. Ecological indicators are monitored including total groundcover, water infiltration rates, biodiversity, soil carbon levels and soil biological health. Our drought policies include decreasing stocking rates to match carrying capacity as grass growth slows due to lack of rainfall.

A key enterprise for our business includes conservation management. We have entered in to two agreements, one with the Federal Department of the Environment and one with the NSW Biodiversity Conservation Trust. The Agreements provide for Stewardship payments to be made to us for the management of the native grasslands of the alluvial floodplain; classified as a critically endangered ecological community under the Federal EPBC Act. We currently have in excess of 1200 ha managed under these programs, much of which is located within close proximity of and downstream from the proposed alignment.

### 3. Concerns regarding the proposed Project.

We have a number of areas of concern regarding the proposed construction of the NS2B Inland Rail project across the Macintyre river and Whalan Creek Floodplains.

#### 3.1 Flooding and Hydrology

##### 3.1.1 1% AEP

- \* ARTC have settled on a 1% AEP event, based on an internal assessment to approximate an event similar to the 1996 flooding event.
- \* Local landholders and community representatives have made repeated reference to the importance of the 1976 flood and their preference for its use in design yet it is virtually ignored by ARTC in the EIS and reference design.
- \* The 1996 event, and consequently ARTC's 1% AEP modelled event, are comparatively benign events by comparison to other flooding events that have occurred in this part of the floodplain in the last 65 years. Along the river in proximity to the location of the proposed viaduct across the Whalan Ck and Macintyre River the 1956, 1976, and 2011 flooding events posted higher flood heights than the 1996 event and, therefore the modelled 1% AEP. At "Malgarai" the 1956, 1976 and 2011 events all flowed under the homestead whereas the 1996 event barely made it into the garden. The 1976 event lapped under the floorboards and was approximately 300mm higher than any other event. Flood levels on the pump station in close proximity to the proposed viaduct over the river reflect similar outcomes as at "Malgarai".
- \* The 1976 Flood is the largest flood in living memory and is the benchmark event in the local community. Modelling conducted for Goondiwindi Regional Council by Cardnow Lawson and Treloar, and by NSW DPIE for the floodplain management plan use the 1976 Flood event as the reference large scale event. The following excerpt describes DPIE's decision to use the 1976 event as the large scale event for the purpose of planning in this part of the valley.

*Two design floods were selected for the draft Border Rivers Valley FMP: • large design flood – February 1976 (approximately 1% AEP @ Mungindi and 1.3% AEP @ Boggabilla), and • small design flood – 13% AEP flood (equivalent to the January/February 2013 flood at Mungindi)*

*The large design flood (February 1976) was used to delineate floodways with significant discharge and to determine the extent of the floodway network. The large design flood was selected because: Rural floodplain management plans: Background document to the floodplain management plan for the Border Rivers Valley Floodplain 2018 25 Department of Industry – Water, November 2017 • it is a recent large flood and therefore likely to be in the collective memory of floodplain users, • it is representative of large floods in the proposed Border Rivers Valley Floodplain, • there is a significant amount of information available for the event, and • it is the large design flood event recommended to be used in hydraulic analyses of the impact of new or modifications to existing flood works in the Lower Macintyre designated floodplain by the NSW Draft Interim Floodplain Management Policy – Macintyre Valley 2004.*

- The rationale as described seems to be a sensible one. Why was it therefore ignored by ARTC and why was a more inferior event used for the purpose of design and compensation? Could it be to cut costs?
- **I note the reference to this event being a 1.3% AEP event in Boggabilla, not a 0.5% AEP event as purported by ARTC. The 1976 event has always been described as a 1 in 100 year**

**event in this community and should be the benchmark for design and compensation for those impacted by this project.**

- The heavily qualified desktop study of the modelling by BMT also make repeated reference to the importance of the 1976 event and suggests strongly that it be considered in detailed design and for determination of compensation of effected landholders.
- You don't design houses on the north Queensland coast for a Category 2 cyclone event. Why would you design such significant infrastructure across a major floodplain based on a relatively moderate flood event?

### **3.1.2 Peak Flows for 1976 Event**

- Ch 45 Appendix H figure 7.21 pp 51. 1976 Event Flow extraction Locations per Community Feedback. We believe the model underestimates peak flows for the benchmark 1976 event at 745,000ML/day at the junction of the Macintyre and Dumaresqu Rivers at Location C. We do not accept this estimate which could be underestimated by as much as 30%. Mr Eddie Billing, an upstream landholder experienced in the nature and extent of major flooding in the region, has provided ARTC with credible NSW Departmental calculated flow rates based on three upstream gauges at Inglewood, Bonshaw and Yetman. When those flows are taken together with estimated flows down Ottleys creek of between 50,000 to 100,000 ML/day it would suggest peak flows of closer to 1,000,000 ML/day. We believe the considerable inflow from creeks and streams in the catchment have also been grossly underestimated.

### **3.1.3 Risk of Inundation of Houses**

We are gravely concerned that the location of ARTC's alignment on the floodplain, coupled with insufficient engineering of drainage under the embankment, will lead to significant diversion of flows in large flood events north into the Macintyre River and lead to increased flood peaks downstream. This could create the risk of flooding inundation to our house, cottage and outbuildings, and lead to more flooding downstream including Boggabilla and Goondiwindi where there is a risk of overtopping of the Levee around the town.

An affidavit provided by Eddie Billing outlines his concern of such a scenario playing out.

### **3.2 Scouring and Erosion**

We do not accept the meagre representations of changes in velocity and flows and the impact of erosion and likely scouring that would result from the proposed construction. The vast majority of stream and flood flows that occur throughout the project will impact on the vertisol soils of the valley. These soils are particularly erodible and yet there is scant attention paid to these soils and the possible impact on them by event flows.

We would draw your attention to Dr Rob Loch's submission (submission 33) to the Senate Inquiry into the Management of Inland Rail, available on the Inquiry website. Dr Loch is an eminent Soil Scientist with over 45 years experience in the field. He makes the following observations about the soils of the Condamine Floodplain which have very similar properties to the Vertisol soils of the Macintyre and Whalan Floodplain.

- *“The highly productive cracking clay soils in the area are also extremely erodible and pose difficulties for management of erosion that are generally not understood by most engineers who only consider rigid soils.*
- *The crossing of the floodplain by the Inland Rail project has not – despite claims to the contrary – addressed leading practice as spelt out in best practice engineering guidelines.*
- *Although the design attempts to consider impacts on flood levels, it does not consider the potential for flow concentration by culverts to initiate severe gullyng that, once initiated, will be virtually impossible to control.*
- *There are other concerns with the designs produced, including:*
  - *Failure to consider potential for culverts to cause flood shadowing (creating downstream lines of concentrated flow) that will impact on crop management and productivity;*
  - *Inadequate consideration of the potential for culvert blockage by hay bales, stubble, and other debris (as has been observed previously by landholders); and*
  - *Lack of consideration for mud pumping (liquefaction of wet soil leading to degradation of tracks) to occur as a result of prolonged saturation of the heavy clay soils on which the embankments will be constructed”*

Dr Loch goes on to conclude;

***“The only design option that could reduce the risk of significant economic and environmental damage to the adjoining high-value crop land is for the complete length of the crossing to be constructed as a bridge or viaduct.”***

Submission 47 to the same inquiry from 14 ex Queensland Government Soil conservationists also endorse Dr Loch’s findings and further state ;

*“Taking the rail line across floodplains, and in particular, the Condamine River and Macintyre River floodplains could, if not properly designed, constructed and maintained, create many soil erosion issues that could be difficult and expensive to control both on and off site”*

Scouring and erosion considerations must be considered in the context of larger and more vigorous flood events such as the 1976, 1 in 2000 yr, and the 2011 events rather than the more benign simulations made in ARTC’s modelled 1% AEP. There are also risks from small to moderate rainfall events and flows.

We are not aware of any studies on the characteristics of the soils of the floodplain during reference design phase. We have not seen any reference to soil specialists being used in reference design, and have not received any requests from such specialists to discuss possible impacts on our paddocks in immediate proximity to the project.

Our concerns are twofold;

- a) Breakout flows from the Whalan Creek, and floodwater directed north of the alignment from the Dumaresq and Macintyre Rivers, through Viaduct 270-BR11 in times of high flood, will flow south from the Whalan Creek until it hits the embankment cutting channels running parallel with the embankment southwest to the Bruxner Highway. From there it will flow west through our front paddock west of bridge 270-BR08 and cut its way into the Whalan Creek.

We already experience gully erosion emanating from inadequate structures under the old alignment which is part of the project footprint and is to be removed as indicated in the reference design (photo below – gully cutting back to old alignment culvert) .



This erosion has emanated from flood shadowing as described by Dr Loch. The paddock in which the erosion is occurring is native perennial grassland, classified as a critically endangered ecological community under the Federal EPBC Act. This erosion must be repaired by ARTC as part of this project or further significant and catastrophic erosion will occur in this paddock. (photo below Gully from Whalan Creek)



- b) Water accumulating on the southern side of the embankment will be directed south west along the floodplain and will be funnelled into the bridging or culverts under the alignment. The volume of water at this point will create significant afflux and be compressed through the structures at that point increasing the velocity of flow and leading to severe and irreversible scouring and erosion.

We have experienced rapid erosion on vertisol soils further west on our property. The following photograph shows gully erosion from one flooding event emanating from the effects of an embankment constructed approximately 8 kms upstream of our property and causing erosion and silt deposition on our neighbour's property before cutting a new path (depicted) into the Whalan creek in a location never previously eroded in this way.



It is noteworthy that there is no detailed consideration of this type of damage by ARTC. The EIS only refers to "scour protection" being installed at structures under the embankment without explaining what that will be.

ARTC also refers to compensation being paid to affected Landholders for afflux and erosion effects. We find it difficult to accept that such damage should be allowed and believe that this damage will be irreversible and ever expanding with each additional event. **This probable outcome is totally unacceptable to us and we believe that significant review of the reference design is required to address the risk of erosion and scouring.**



### 3.2.1 Removal of Old Alignment

In Ch 13 Surface Water and Hydrology, on pp 13-72 reference is made to SEAR 8.2(d) which requires the following to be considered;

*“ where the existing rail infrastructure has an adverse flood impact on property or people, the flood assessment must consider the extent to which the project alleviates or exacerbates these existing impacts”*

The proponent goes on to compare the effect of the removal of the non-operational line from the existing case for a 1% AEP event and, considering Figure 13.12 on pp 13-72 with Fig A22 (in Appendix H) and asserts

*“ Comparison of Figure 13.12 with Figure A22 (in Appendix H) shows that, under the 1% AEP event, the removal of the non-operational rail from the existing case leads to increased peak water levels upstream of the non-operational rail alignment north of Whalan Creek towards Boggabilla and Goondiwindi. This increased extent of impact is directly related to the removal of the non-operational line from the existing case and the proposal alignment does not exacerbate or alleviate these impacts. The changes in peak water levels along the proposal alignment are the same in both scenarios.”*

The conclusion that removal of the old alignment leads to increased peak water levels “upstream” is incorrect. The floodplain does not work in the manner described above. Boggabilla and Goondiwindi are both downstream from the area under the immediate impact of the old alignment. The removal of the old alignment will have the effect of reducing peak levels in Boggabilla and Goondiwindi as it will allow the natural drainage to occur to the south west through Maynes and Morella Lagoons. Indeed, ARTC’s own modelling appears to demonstrate this. Figure A23 (appendix H) appears to show peak flows following removal of the old alignment. It clearly shows reduced peaks further downstream towards Boggabilla and Goondiwindi and increased levels to the south west.

This is an important point for a number of reasons. We have always asserted that, if the floodplain is allowed to operate naturally, the Whalan Creek will carry the vast majority of water breaking out of the river from the junction of the Dumeresq and Macintyre Rivers through the Whalan off-take just upstream of the proposed alignments crossing point at the location of Viaduct 270-BR11.

Breakouts from the river downstream from that point occur between the “Budleigh” and “Merawah” houses, adjacent to the “Malgarai” house, and at the western end of “Malgarai” towards Boggabilla. The breakouts occur at higher river levels, are significantly smaller in volume, height and velocity, and flow naturally through Maynes and Morella lagoons. The existing rail line clearly impedes that natural flow to the south west. Figures 13.12, 13.21, 13.22, 13.23 and 13.24 show changes in peak levels for the range of events modelled and the majority clearly show increased levels north west of the Whalan creek. This is directly as a result of the proposed alignment having insufficient drainage to allow natural flows down the Whalan creek in large flood events. The existing rail line will ‘trap’ these flows and direct them towards Boggabilla and Goondiwindi.

### 3.2.2 Removal of old line from Bridge 270-BR06 to Whalan Creek

Section 13.8.2 Hydrology and flooding – Operation phase, indicates the proposed design required to achieve flood impact objectives. It is noteworthy that this assessment is predicated on a 1% AEP scale flood. These objectives are not met in larger scale flooding such as a 1976 or 1 in 2000 scale event.

The proposed design described includes removal of the old line up to the southern side of Whalan Creek. We think this will provide insufficient protection from the effects of the existing structure on flood flows and that the existing Whalan Creek bridge and the northern abutment need to be removed. Project Management have indicated verbally that the removal of the bridge and the northern abutment were part of the reference design. This needs to be confirmed with ARTC.

**Removal of the existing bridge and the northern abutment will substantially reduce afflux at Whalan Creek which, we contest, pushes breakouts from Whalan Creek north on to the existing rail line and compresses flows further west along the north side of the old line towards Boggabilla contributing to the afflux indicated in Figure A22.**

### **3.2.2 The Case for Option A**

We have always held that Option A offers a far safer and better route for Inland Rail. Appendix H, Figure A22 and Figure A23 clearly show that if impediments to natural flood flows are removed, that afflux towards Boggabilla and Goondiwindi is significantly reduced. Further, if adequate drainage is allowed under the alignment on the southern part of the floodplain between Wearne bridge 270-BR05 and bridge 270-BR06, and further north to the current Whalan creek bridge, afflux would be reduced as flows are allowed south west down the Whalan Creek. A properly designed alignment along the existing old line towards Boggabilla along the Option A alignment would provide a far safer route causing none of the issues that the proposed Option D1 will cause pushing up the floodplain parallel with the Whalan Creek and crossing the river so close to the junction of the Dumaresq and Macintyre Rivers and the Whalan Creek off-take.

Option A has never been adequately or objectively evaluated. The MCA process used in the initial selection process was flawed for a number of reasons. It failed to evaluate the relative flood risk of each option considered. Even though Option A rated best for flood amenity, it was factored out because flooding issues were only weighted at 2.5% of the final selection process in favour of commercial preference for the business case. After two years of constant lobbying by us and other community representatives ARTC produced an engineering comparison between Option A and Option D1 supposedly based on updated hydrological modelling. This was a poor effort on their behalf. To our knowledge not one Engineer or Hydrologist visited the Option A alignment. No independent verification of the analysis was sought. No consultation with local landholders or community groups was sought. The result was a piecemeal design that was clearly deficient. Bridging was obviously missing in areas where it was required, was located in areas where it was not. The resulting financial estimates concluded that costings were far greater than for Option D1 and that afflux was created pushing water downstream towards Boggabilla and Goondiwindi.

We do not accept the findings of this analysis and believe it to be an unfair and erroneous conclusion. Option A is preferred by the community.

### **3.3 Access**

Chapter 22 Land Use and Property pp 16 Figure 22.1g Land Use and Tenure map identifies a proposed resumption of a portion of a Crown Land enclosed road that runs west along the southern boundary of our property Lot 3 DP 1181234. The enclosed road extends beyond the proposed acquisition to join Lot 4 DP 1181234. This access was specifically retained when we undertook a subdivision in this area in 2010 (before Inland Rail was contemplated in the western alignment heading to Boggabilla) to provide us with access to lot 4 in the event that we chose to sell lot 3 which adjoins the Bruxner Highway and which provides access to our property, otherwise lot 4 would become landlocked by the sale.



We can see no reason that ARTC are proposing to permanently acquire this section of crown land other than to remove the need to provide access. This will significantly impact the value of our property unless access is provided.

### 3.4 Economic Assessment

The case against ARTC's Economic Assessment of this project, and their failure to conduct a proper cost-benefit analysis is outlined in our joint submission together with other landholders located on the alignment and residents of the Macintyre Floodplain. I would, however, make the following points. ARTC state in Ch 23 Socio-economic impact assessment, 23.1.5.1 Economic benefits assessment, pp 10

*'A large proportion of the benefits of the Inland Rail Program stem from improving the connection between producers and markets through both domestic markets in cities and international markets through ports. As such an incremental cost-benefit analysis assessing each link of the Inland Rail Program individually and in isolation of the whole Program will not capture the full impact which is expected to be delivered upon completion of the entire Melbourne to Brisbane connection. Put simply, the benefits of Inland Rail will outweigh the sum of the individual projects.'*

It is difficult to see how any of the purported benefits accrue to the NS2B Project in its current format. Option D1 takes the alignment 10 kms further away from Goondiwindi and renders the connection to Inland Rail for Goondiwindi and probably for South West Queensland, economically unviable. In any event such connection is not part of the Inland Rail remit and would have to stand up to its own cost-benefit analysis (unlike, it would seem, NS2B). That is unlikely as there is no effective connection to Brisbane Port planned within the scope of the Inland Rail project, a knock-out blow when the vast majority of product from this region is destined for export. Further, as identified in the Business case for Inland Rail, only 9% of the activity captured by Inland Rail is from Agriculture, 70% pertains to the inter capital city transfer of goods and services. We are under no illusion that, as one frustrated landholder described it during a meeting at Gilgandra in 2018, we are just collateral damage in a project designed largely to benefit large freight forwarders and supermarkets.

The only way that this project can proceed with any regard to us and our community is to ensure that it has the least impact possible, that those impacted by it are **MORE** than compensated for its impact, and that it is redirected to run where there can be some benefit to the community.  
Option A.

### 4.0 Conclusion

ARTC have failed to make a case for the approval of Inland Rail NS2B in its current form. We rely greatly on the good governance of the Minister and his Department to ensure that we, our land and our community are properly considered and protected from damage from this project. It is imperative that ARTC be made to look beyond their own commercial imperative and build the Project responsibility. Our experience to date, where our concerns and suggestions have been rejected or ignored, give us little faith that things will change for the better should the Project be approved without amendment or conditions applied.

Thank you for the opportunity to table our response and I wish you well in your deliberations.

Sincerely  
Richard Doyle