CHAPTER 22

Land Use and Property

NORTH STAR TO NSW/QUEENSLAND BORDER ENVIRONMENTAL IMPACT STATEMENT

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

Contents

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22. Land Use and Property

22.1 Scope of chapter

The purpose of this chapter is to provide enough information for an informed decision on the potential impacts of the proposed North Star to NSW/Queensland Border project (the proposal) on land use and tenure. The chapter will also identify appropriate mitigation measures to address such impacts. The study area (the identified proposal impact areas) is defined in Section 22.4.1.

This chapter identifies the land use and tenure aspects relevant to the proposal and addresses the following:

- The relevant legislative context for land use and tenure for the proposal
- The existing land tenure for properties within the study area, including those required for access
- The existing land use environment within the study area
- The likely and planned future land use environment within the study area
- Potential impacts of the proposal on tenure within, adjacent to, and in the immediate vicinity of the study area
- Potential impacts of the proposal on existing and future land uses within, adjacent to, and in the immediate vicinity of the study area
- Mitigation measures relevant to land use and tenure issues
- Assessment of consistency with the provisions of the relevant land-use planning instruments
- Potential cumulative impacts of the proposal on land use and tenure
- Summary of land tenure and land-use impacts.

This report addresses the criteria of the Secretary's Environmental Assessment Requirements (SEARs) as detailed in Section 22.2.

22.2 Secretary's Environmental Assessment Requirements

This chapter has been prepared to address the SEARs as shown in Table 22.1

TABLE 22.1 SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS COMPLIANCE

Desired performance outcome	**Item 16: Socioeconomic, Land Use and Property** The project minimises impacts to property and business and achieves appropriate integration with adjoining land uses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement existing land-use activities, dwellings and infrastructure.
Current guidelines	*Infrastructure proposals on rural land* (Department of Primary Industries (DPI), 2013) *Land Use Conflict Risk Assessment Guide* (DPI, 2011) *New England North West Regional Plan 2036* (Department of Planning and Environment, 2017)

SEARs requirement	EIS section
Item 16.2 The Proponent must assess agricultural land-use impacts in accordance with the current guidelines, including:	–
(a) Current and potential Important Agricultural Land within the Project and surrounding locality, including land capability and agricultural productivity	Section 22.5.3.1, Section 22.5.4.1, Section 22.6.2.1, and Section 22.7.2.1
(b) Division or fragmentation of property and changes to property management which could lead to the loss of viability	Section 22.6.2.1 and Section 22.7.2.1
(c) Property access and the efficient and safe crossing of the rail corridor by machinery and livestock	Section 22.6.2.1, Section 22.6.3, Section 22.7.2.2 and Section 22.7.3
(d) Connectivity of property infrastructure severed by the rail corridor	Section 22.6.2.1, Section 22.6.4, Section 22.7.2 and Section 22.7.4
(e) Livestock exclusion/management to minimise harm and losses.	Section 22.6.2.1 and Section 22.7.2.1

SEARs requirement	EIS section
Item 16.3 The Proponent must undertake an assessment of biosecurity risks and management measures relating to the potential for the spread of pests, diseases or weeds along the length of the Project alignment, in accordance with the 'general biosecurity duty' under the *Biosecurity Act 2015*.	Section 22.7.2.1
Item 16.6 Where the Project may impact on significant mineral resources, the Proponent must assess the impact of the Project on these resources, including:	–
a) Any operating mines, extractive industries or known mineral petroleum resources	Section 22.5.3.4
b) Exploration activities in the vicinity of the proposed development	Section 22.5.3.4
c) Access for future exploration in the area.	Section 22.6.5
Item 16.7 The Proponent must identify encroachments into adjoining road reserves, travelling stock routes and Crown land and roads affected by the Project.	Section 22.5.1, Section 22.5.3.1, Section 22.6.1, Section 22.6.2.1, Section 22.7.1 and Section 22.7.2.2

22.3 Legislation, policies, standards and guidelines

The Commonwealth, state and local approvals required for the proposal are outlined in Chapter 5: Planning and Assessment Process. The Commonwealth, state and local legislation, policies, plans and guidelines in Table 22.2 provide the regulatory context for land-use planning and tenure.

TABLE 22.2 SUMMARY OF LEGISLATION, POLICIES, STANDARDS AND GUIDELINES

Legislation, policy, strategy or guideline	Relevance to the proposal
Commonwealth	
Native Title Act 1993 (Cth) Native Title (Prescribed Bodies Corporate) Regulation 1999 (Cth)	The Act provides the legal principles for the recognition of native title and the integration of this form of property right into the existing land title system. The Act establishes the processes involved in having native title recognised, and the role and responsibilities of the different bodies involved in this process. It establishes the ways in which future development affecting native title may proceed. The Act establishes the National Native Title Tribunal, which governs how native title is dealt with across Australia. Native title interests and rights may exist within the proposal's land-use study area over land that is unallocated state land or Crown land, some state forests, national parks and public reserves, waters that are not privately owned and/or some leases such as non-exclusive pastoral and agricultural leases, or on land held by or for Aboriginal people or Torres Strait Islander peoples. The Act prescribes a statutory process to allow the parties to reach agreement and for the state and territory governments to grant interest over that land to native title claimants.
State (NSW)	
Environmental Planning and Assessment Act 1979 (NSW) Environmental Planning and Assessment Regulation 2000 (NSW)	The Act and regulation provide the framework for development assessment in NSW. The Act provides for environmental planning instruments that establish the controls to regulate agriculture, aquaculture and other rural development land uses. Part 3 of the Act deals with the following planning instruments for planning in NSW: ▸ Strategic plans (comprising regional strategic plans and district strategic plans) and local strategic planning statements ▸ Environmental planning instruments (comprising state environmental planning policies and local environmental plans) ▸ Development control plans. Part 5 of the Act relates to infrastructure and environmental assessment, including the declaration of state significant infrastructure (SSI) by a state environmental planning policy. The proposal is subject to the provisions of the Act and the regulation.

Legislation, policy, strategy or guideline	Relevance to the proposal
Aboriginal Land Rights Act 1983 (NSW) Aboriginal Land Rights Regulation 2014	The Act recognises the traditional ownership and occupation of the land by Aboriginal peoples and the importance of their connection to land. The purposes of the Act are outlined in section 3 of the Act and include: a) To provide land rights for Aboriginal persons in NSW b) To provide for representative Aboriginal Land Councils in NSW c) To vest land in those councils d) To provide for the acquisition of land, and the management of land and other assets and investments, by or for those councils and the allocation of funds to and by those councils e) To provide for the provision of community benefit schemes by or on behalf of those councils. The Act provides that the NSW Aboriginal Land Council and Local Aboriginal Land Councils may make claims to claimable Crown lands. Provisions for claimable Crown land is within Part 2, Division 2 of the *Aboriginal Land Rights Act 1983*. The proposal may require the acquisition of parcels of Crown land. The proposal is located within the North Western region of the NSW Aboriginal Land Councils. The Toomelah Local Aboriginal Land Council is the respective land council for the proposal site. Further information on the consultation undertaken with the Toomelah Local Aboriginal Land Council is in Chapter 12: Heritage and Chapter 23: Socio-economic Impact Assessment.
Land Acquisition (Just Terms Compensation) Act 1991 (NSW)	The Act provides the framework for acquisition of all land within NSW. Compulsory acquisition must be carried out by an authority of the state in accordance with the Act. An 'authority of the state' is defined in section 4 as: a) A minister of the Crown b) A statutory body representing the Crown c) A council, county council or a joint organisation within the meaning of the *Local Government Act 1993* d) Any other authority authorised to acquire land by compulsory process. The proposal will involve the acquisition of parcels of privately owned and Crown land. ARTC has capacity to acquire land. Under the acquisition protocol, Transport for New South Wales (TfNSW) could be called on by ARTC to act as the acquiring authority to compulsorily acquire land under the *Land Acquisition (Just Terms Compensation) Act 1991*. The acquisition protocol is currently being negotiated between ARTC and TfNSW.
Crown Land Management Act 2016 (NSW) Crown Land Management Regulation 2018 (NSW)	The Act provides for the way Crown reserves are managed and facilitates decision-making about the future use of Crown land. The objectives of the Act include providing for the ownership, use and management of Crown land; requirements that environmental, social, cultural heritage and economic considerations be taken into account in decision-making about Crown land; facilitating the use of Crown land by the Aboriginal people of NSW; and providing for the management of Crown land while having regard to the principles of 'Crown land management'. The Act also reserves parcels of crown land for use by travelling stock. The proposal may involve the acquisition of parcels of Crown land.
Local Land Services Act 2013 (NSW)	In addition to the *Crown Land Management Act 2016* principles for management of Crown land, Part 6 of the Act prescribes the management of travelling stock reserves (TSRs) and public roads in relation to permissible uses, removal of timber, stock movement, boundary fencing and other miscellaneous issues. Pursuant to the Act, local land services manage TSRs and issue permits allowed under this legislation.
Land-use planning frameworks, strategies and statutory guidelines	
State Environmental Planning Policy (Infrastructure) 2007	The policy assists the NSW Government with facilitating the delivery of infrastructure across NSW. The policy clarifies the consent arrangements for infrastructure projects, including rail infrastructure. Rail infrastructure is defined in clause 78 of the policy as 'railway tracks, associated track structure, rail freight terminals, sidings and freight intermodal facilities'. The proposal meets the definition of rail infrastructure.

Legislation, policy, strategy or guideline	Relevance to the proposal
State Environmental Planning Policy (State and Regional Development, 2011)	The policy identifies development that is: ▸ State significant development ▸ SSI and critical SSI ▸ Regionally significant development. The proposal meets the requirements for SSI under the policy.
Infrastructure Proposals on Rural Land Guideline (DPI, 2013)	The guideline outlines the potential impacts relating to infrastructure proposals to be considered by consent authorities, including: ▸ Resource use and fragmentation ▸ Impacts on farming operations and livestock ▸ Increased weed, biosecurity and bushfire risks ▸ Site rehabilitation. These potential issues were considered as part of the assessment of potential impacts on rural land.
Land Use Conflict Risk Assessment Guide (DPI, 2011)	The guide provides guidance on the practical measures to use when conducting a Land Use Conflict Risk Assessment. The assessment can be used to identify the effects of proposed land use on neighbouring land uses, and how these effects can be minimised. Given that most of the proposal will involve work within the existing, non-operational Boggabilla rail corridor, an assessment was not considered necessary. Where the proposal will result in a change in the existing land use, consideration has been given to the impacts and appropriate mitigations for the change in land use.
New England North West Regional Plan 2036 (Department of Planning and Environment, 2017)	The plan is a 20-year blueprint for the future of the New England North West region. The plan guides the NSW Government's land-use planning priorities and decisions for the region, providing an overarching framework to guide subsequent and more detailed land-use plans, development proposals and infrastructure funding decisions. The proposal is located within the New England North West region, of which the *New England North West Regional Plan 2036* is the relevant statutory regional plan.
Gwydir Local Environmental Plan 2013 (Gwydir Shire Council (GSC), 2013)	The plan provides the local environmental planning provisions for land within the Gwydir local government area, through which the proposal traverses. As the proposal is SSI, the provisions of the plan do not apply. Notwithstanding this, the zoning intent for the area as determined by the plan has been taken into consideration when determining impacts of the proposal on future land uses in the area.
Moree Plains Local Environmental Plan 2011 (Moree Plains LEP) (Moree Plains Shire Council (MPSC), 2011) *Moree Plains Development Control Plan 2013* (Moree Plains Shire Council, 2013)	The *Moree Plains Local Environmental Plan* (LEP) provides the local environmental planning provisions for land within the Moree Plains local government area, through which the proposal traverses. The *Moree Plains Development Control Plan* provides specific and more comprehensive guidelines for certain types of development, or area-specific requirements for localities. As the proposal is SSI, the provisions of the *Moree Plains LEP* and *Moree Plains Development Control Plan* do not apply. The zoning intent for the area as determined by the plan has been taken into consideration when determining impacts of the proposal on future land uses in the area.
Gwydir Shire Council Community Strategic Plan 2017–2027 (GSC, 2017)	The purpose of the *Gwydir Shire Council Community Strategic Plan 2017–2027* is to provide information on the strategic direction, goals and related outcomes and strategies for the Gwydir Shire community. The community strategic plan identifies 'Building the business base' as a goal for the Gwydir Shire, with an outcome to support this goal involving growing and supporting the shire's economy. Furthermore, the plan recognises that the Inland Rail project is of interest to the community.
Moree Plains Shire Council Community Strategic Plan 2017 (Moree Plains Shire Council, 2017)	The purpose of *Moree Plains Shire Council Community Strategic Plan 2027* is to identify the community's main priorities and aspirations for the future and formulate strategies to achieve them. The strategic plan identifies the vision for the Moree Plains Shire to be a community that works together to achieve a balance between quality of life, enterprising business, agricultural pursuits and looking after natural resources.

Legislation, policy, strategy or guideline	Relevance to the proposal
Land and Soil Capability Assessment Scheme (Office of Environment and Heritage (OEH), 2012)	The *Land and Soil Capability Assessment Scheme* developed by the Office of Environment and Heritage in 2012 provides guidance on the physical capability of land to support different agricultural land uses.

22.4 Methodology

The following tasks were undertaken to describe the existing and future land use and tenure environment within the study area:

- Review the reference design to obtain an understanding of the location, scale, timing and process of the construction and operation of the proposal
- Determine the study area, to clearly define the area of assessment relating to land use and tenure
- Identify, review and map the existing tenure of the study area through title searches, the Department of Planning, Industry and Environment Planning (DPIE) Portal and review of the Department of Finance, Services and Innovation Digital Cadastre Database mapping
- Undertake a land-use assessment to review, identify and map existing land uses including:
  - Land uses based on the NSW Land-use 2013 Mapping and the land-use zoning provided by zoning maps within the Gwydir and Moree Plains LEPs
  - Agricultural uses, including any areas of regionally significant farmland; areas of current and potential important agricultural land; areas used for cropping, grazing and/or horticulture; TSRs; and agricultural infrastructure
  - Crown land and roads
  - Protected and sensitive lands, including conservation and forests reserve, national parks, conservation areas, state forests etc.
  - Exploration and mining leases and licences
- Review of key strategic planning and land-use planning provisions of the relevant regional and local plans and strategies to identify the future land-use planning intent
- Identify current planned development activity and approved development plans over the last five years for the study area and the wider Gwydir Shire and Moree Plains Shire local government areas (LGAs)
- Review of landowner and community consultation to gain their feedback on the potential impacts and issues associated with the proposal
- Consult with relevant state and local government agencies including:
  - DPIE
  - GSC in relation to planning provisions and proposed new developments
  - MPSC in relation to planning provisions and proposed new developments
- Assess the potential impacts to land use and tenure, including an assessment of the proposal's consistency with the relevant future land-use planning intent for the study area
- Assess the potential for impacts on agricultural land uses during construction and operation
- Feedback the findings of this report into the concept design to ensure relevant provisions are addressed in the design of the proposal where possible
- Identify mitigation measures to minimise impacts to land use and tenure.

The assessment of potential impacts to land use and tenure has been undertaken using the assessment methodology as detailed in Section 22.4.2 and illustrated in Figure 22.2.

22.4.1 Study area

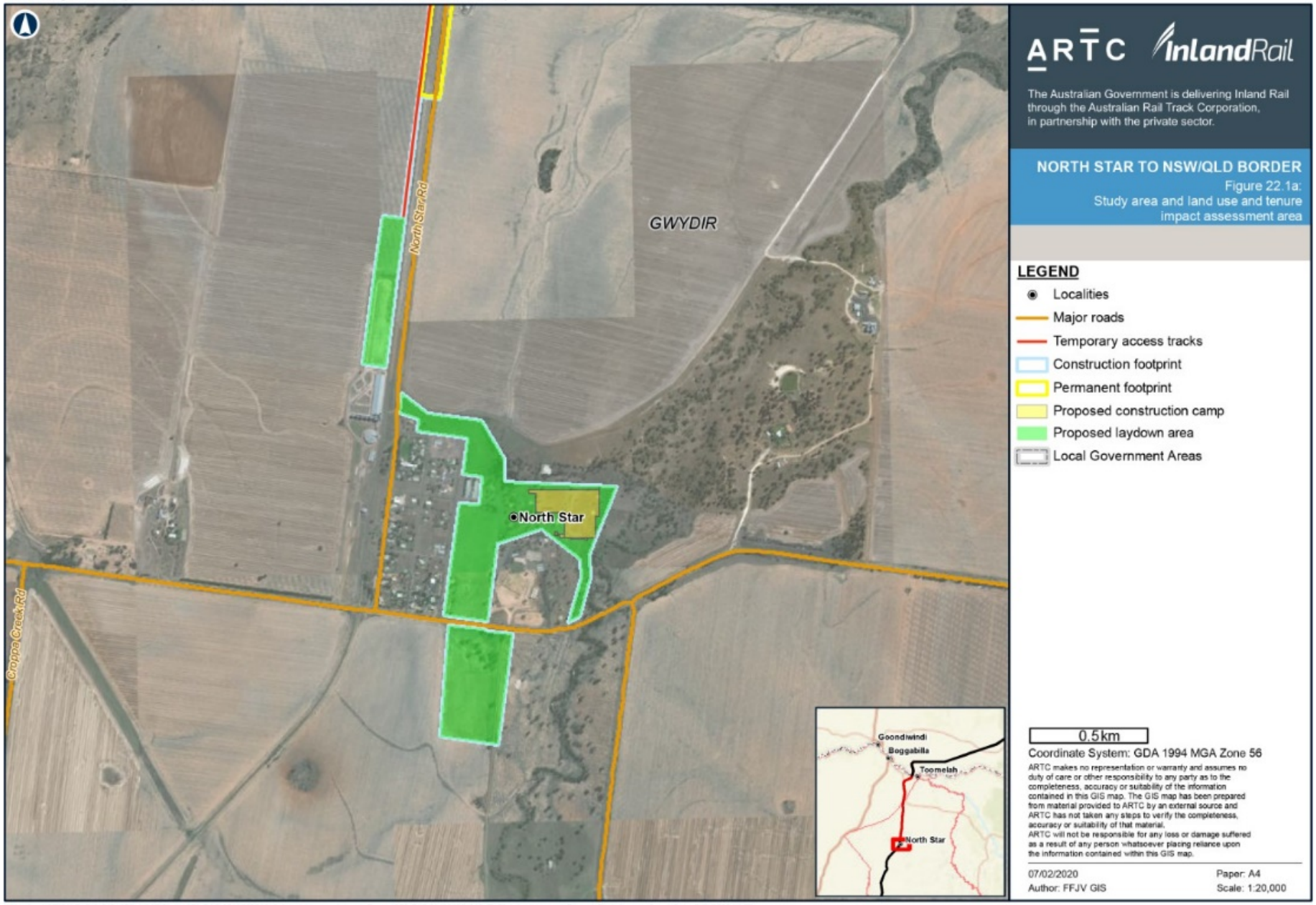
The proposal's study area for land use and tenure is the proposal site as this encompasses all areas where works are proposed, including both permanent and temporary works.

The proposal site is the area that will be directly affected by construction works. It includes the location of proposal infrastructure, the area that will be directly disturbed by the movement of construction plant and machinery, and the location of the storage areas/compound sites etc. that will be used to construct that infrastructure. The proposal site includes approximately 25 km of new track within existing, non-operational Boggabilla rail corridor and 5 km of new track within a greenfield corridor. The width of the proposal site varies along the alignment; however, a minimum width of 40 m has been adopted.

The permanent and temporary disturbance footprints include the following works:

- Permanent disturbance footprint: the rail corridor which includes the rail tracks and associated infrastructure as well as other permanent works associated with the proposal (e.g. where changes to the road network are required)
- Temporary disturbance footprint: temporary disturbance footprint where only temporary disturbance is proposed (e.g. laydown areas and construction camps).

The land use and tenure study area are depicted on Figure 22.1. A description of the proposal is in Chapter 6: The Proposal and Chapter 7: Construction of the Proposal.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NORTH STAR TO NSW/QLD BORDER
Figure 22.1a:
Study area and land use and tenure impact assessment area
LEGEND
Localities
Major roads
Temporary access tracks
Construction footprint
Permanent footprint
Proposed construction camp
Proposed laydown area
Local Government Areas
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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Figure 22.1b:
Study area and land use and tenure impact assessment area

LEGEND

- Major roads
- Temporary access tracks
- Construction footprint
- Permanent footprint
- Proposed laydown area
- Local Government Areas

0.5km

Coordinate System: GDA 1994 MGA Zone 56

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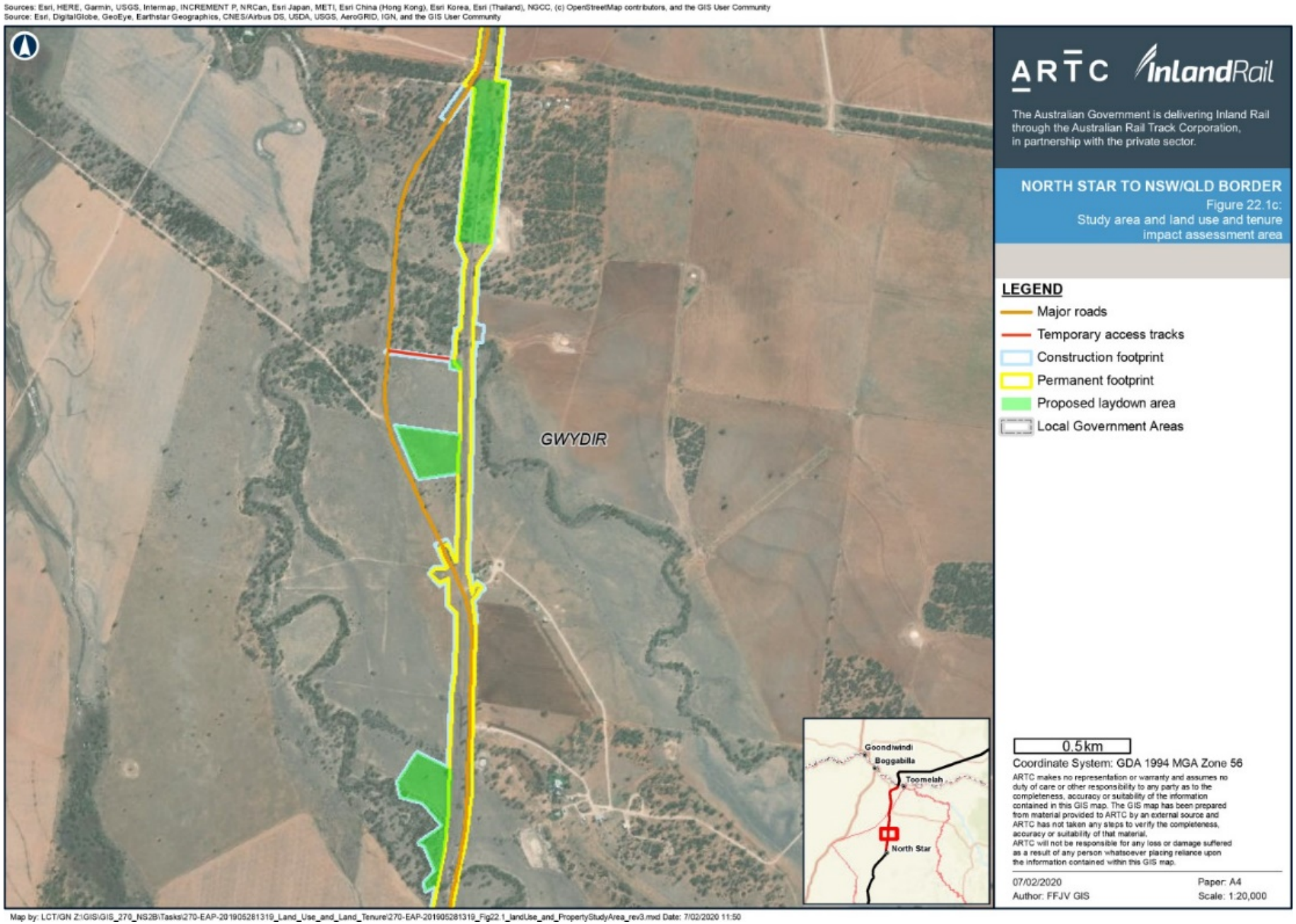
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Figure 22.1c:
Study area and land use and tenure impact assessment area
LEGEND
Major roads
Temporary access tracks
Construction footprint
Permanent footprint
Proposed laydown area
Local Government Areas
0.5km
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Figure 22.1d:
Study area and land use and tenure impact assessment area

LEGEND

- Major roads
- Temporary access tracks
- Construction footprint
- Permanent footprint
- Local Government Areas

0.5km

Coordinate System: GDA 1994 MGA Zone 56

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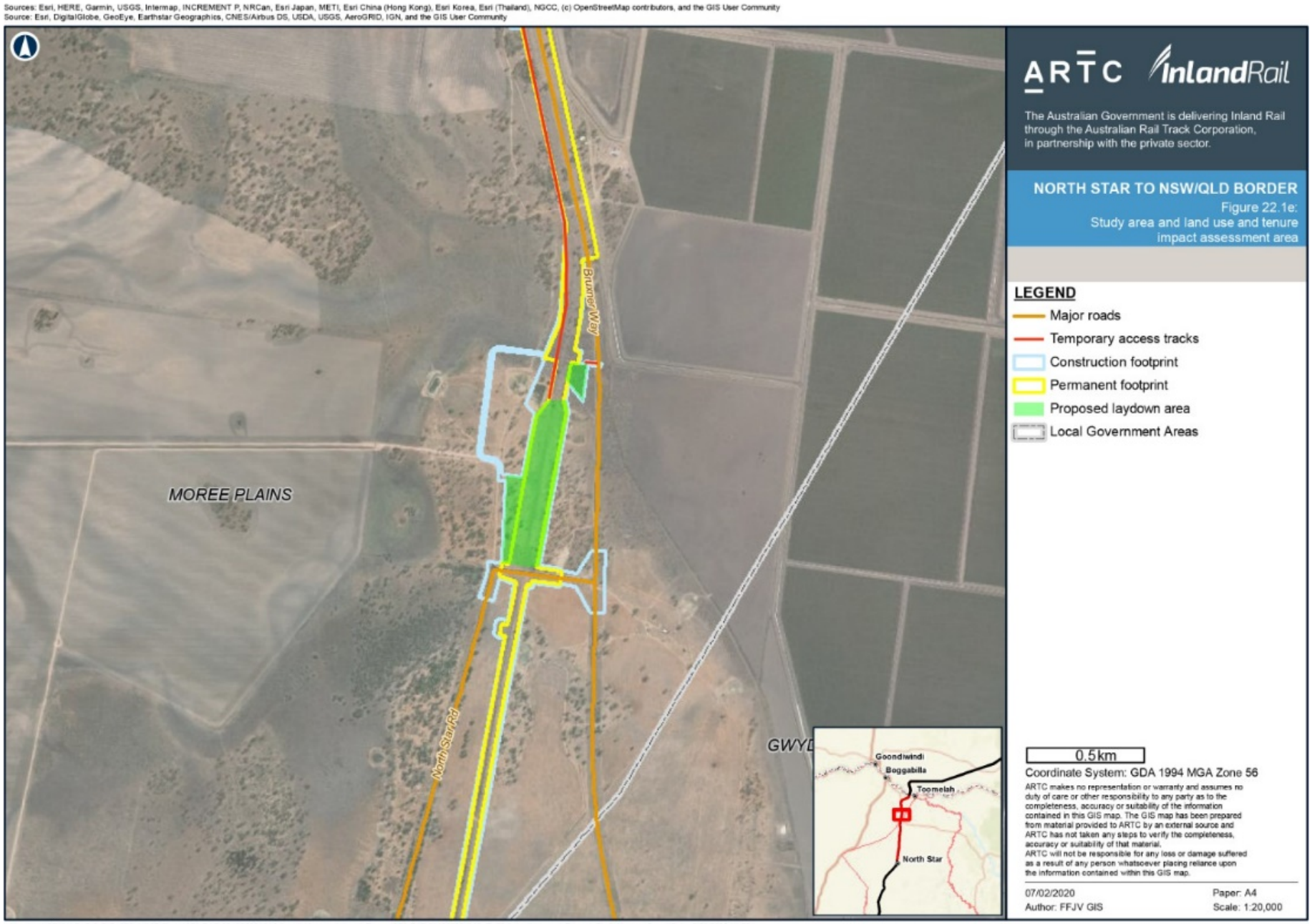
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Figure 22.1e:
Study area and land use and tenure impact assessment area
LEGEND
Major roads
Temporary access tracks
Construction footprint
Permanent footprint
Proposed laydown area
Local Government Areas
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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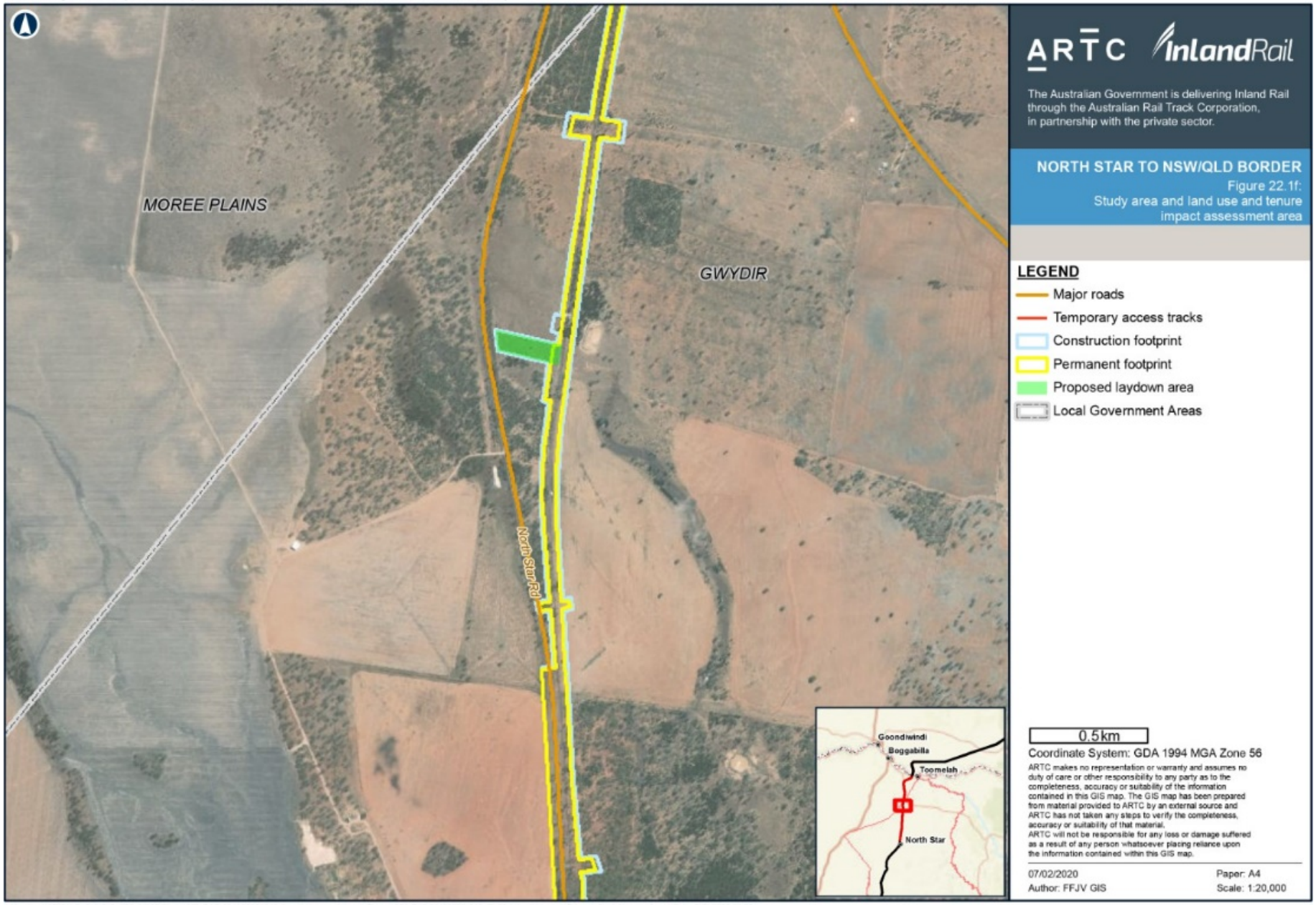
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Figure 22.1f:
Study area and land use and tenure impact assessment area
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Major roads
Temporary access tracks
Construction footprint
Permanent footprint
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Local Government Areas
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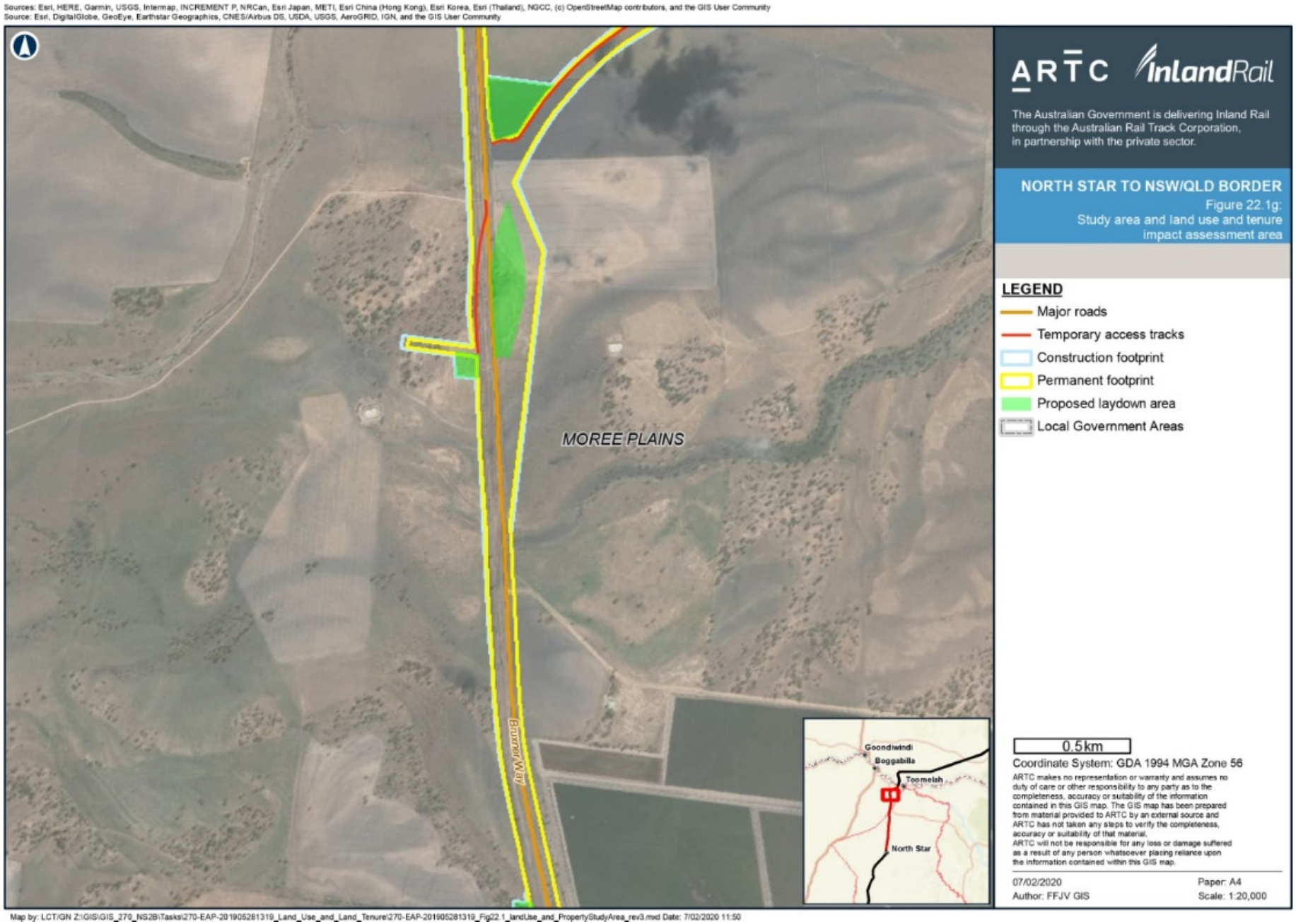
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Figure 22.1g:
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Major roads
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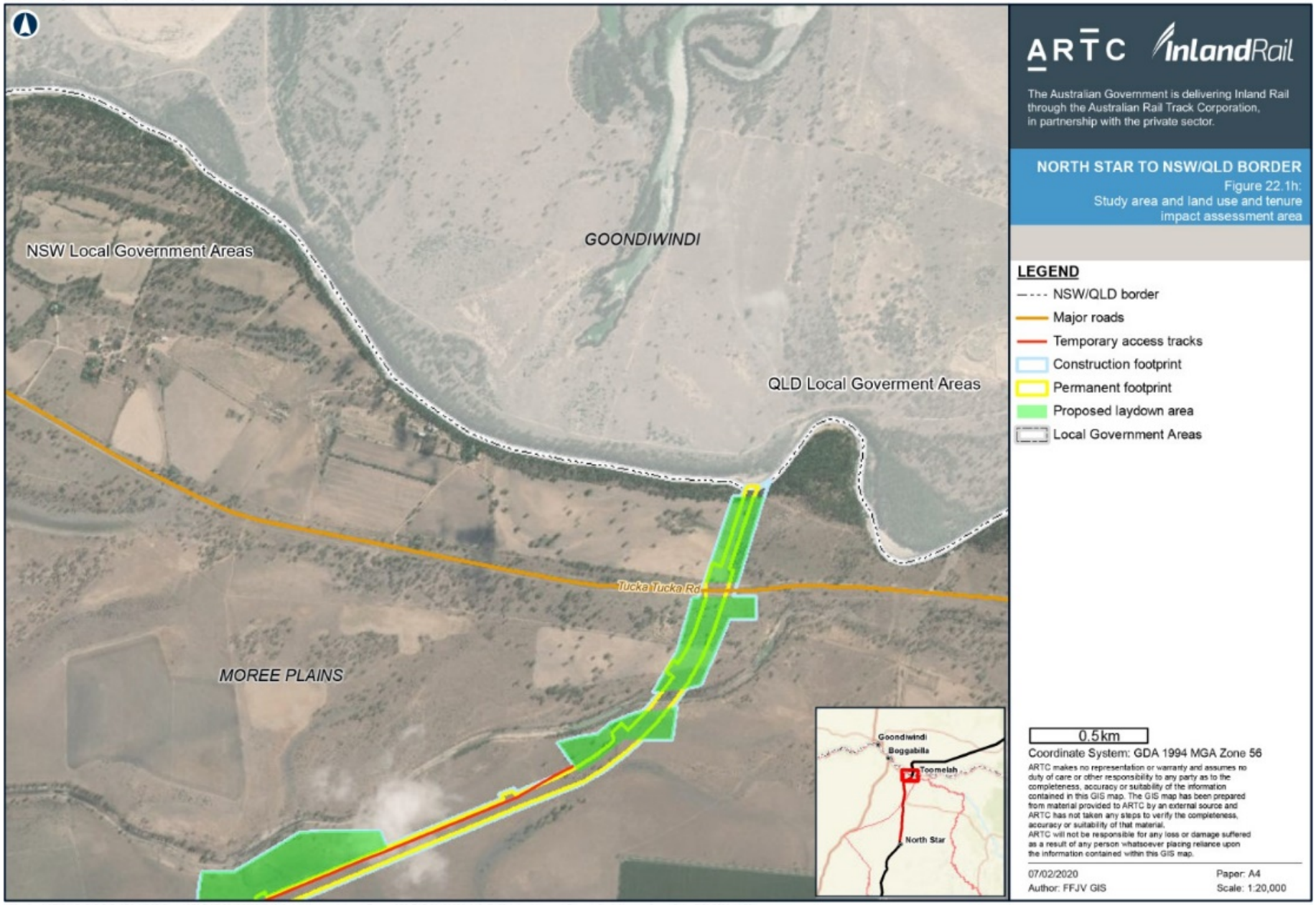
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NSW Local Government Areas
GOONDIWINDI
QLD Local Goverment Areas
Tucka Tucka Rd
MOREE PLAINS
Goondiwindi
Boggabilla
Toomelah
North Star
ARTC
InlandRail
The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation, in partnership with the private sector.
NORTH STAR TO NSW/QLD BORDER
Figure 22.1h:
Study area and land use and tenure impact assessment area
LEGEND
NSW/QLD border
Major roads
Temporary access tracks
Construction footprint
Permanent footprint
Proposed laydown area
Local Government Areas
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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22.4.2 Impact assessment methodology

To assess and appropriately manage the potential impacts on land use and tenure as a result of the proposal, an impact assessment process has been implemented (refer Figure 22.2). The impact assessment focuses on assessing the extent of consistency with the land use and planning instruments relevant to the land use and tenure study area and proposal activities.

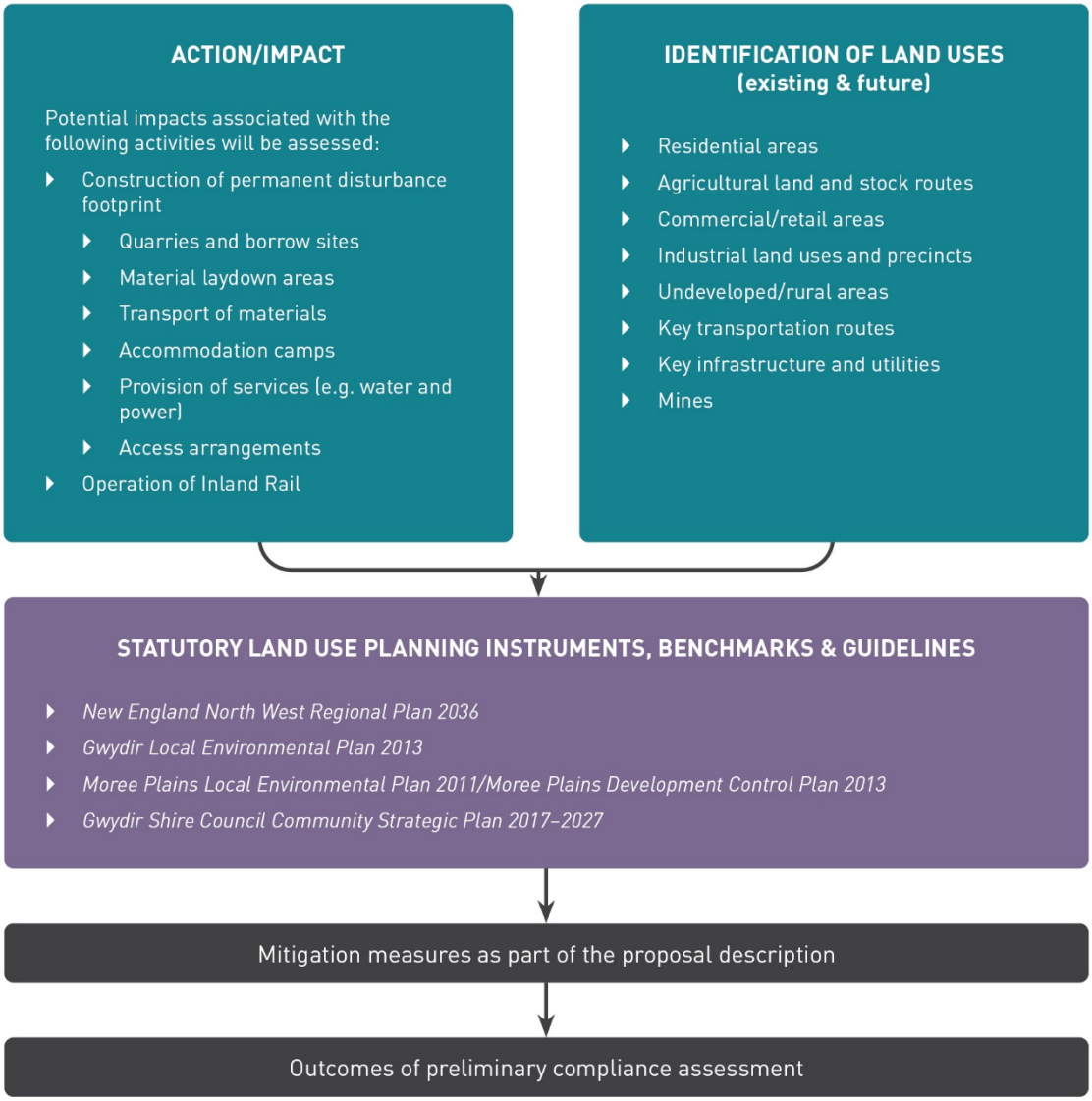


FIGURE 22.2 LAND-USE IMPACT ASSESSMENT METHODOLOGY

22.4.3 Data sources

This section details the methodology undertaken during the desktop analysis undertaken to identify existing land uses and constraints related to land use. Details of the relevant database sources, search dates, and type of information considered for the desktop study are summarised in Table 22.3.

TABLE 22.3 DATABASE AND DOCUMENT REVIEW SUMMARY

Database name	Database search date	Data type
Native Title Tribunal Register	31 January 2020	▸ Future Act Determination Applications ▸ Current Indigenous Land-use Agreements ▸ Native Title Determination Outcomes ▸ Native Title Determinations ▸ Register of Native Title Claims ▸ Schedule of Native Title Determination Applications.
Department of Planning, Industry and Environment datasets	31 January 2020	▸ Local Environmental Plan ▸ Land zoning ▸ Heritage conservation ▸ Major Projects Register.
NSW Office of Environment and Heritage datasets	31 January 2020	▸ Land use ▸ NSW National Parks and Wildlife Service Estate ▸ NSW Wetlands ▸ State Heritage Register (Centroids) ▸ State Heritage Register (Curtilage) ▸ Travelling stock reserves (TSR) ▸ Conservation Values ▸ Land and Soil Capability Mapping for NSW.
NSW Department of Finance, Service and Innovation—Spatial Services	31 January 2020	▸ NSW Cadastre web service.
Survey Accurate Cadastral Model	13 June 2019	▸ NS2B—*Survey Accurate Cadastral Model (SACM)* with lot, address and ownership details produced by ARTC.
Document		**Reference**
Gwydir Local Environmental Plan 2013 (GSC, 2013)		**legislation.nsw.gov.au/#/view/EPI/2013/507**
Gwydir Shire Council Community Strategic Plan 2017–2027 (GSC, 2017)		**gwydirshire.com/wp-content/uploads/2015/06/1 Community-Strategic-Plan-2017.pdf**
Land and Soil Capability Assessment Scheme (second approximation) (OEH, 2012)		**environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Land-and-soil/land-soil-capability-assessment-scheme-120394.pdf**
Moree Plains Local Environmental Plan 2011 (MPSC, 2011)		**legislation.nsw.gov.au/#/view/EPI/2011 /646/ historical2016-03-11/full**
Moree Plains Shire Council Community Strategic Plan 2017 (MPSC, 2017)		**mpsc.nsw.gov.au/index.php/hot-topics/docman/ strategic-planning/226-community-strategic-plan-2017-2027/file**
New England North West Regional Plan 2036 (Department of Planning and Environment, 2017)		**planning.nsw.gov.au/plans-for-your-area/regional-plans/new-england-north-west**

22.5 Existing environment

The proposal is located within the New England North West region with the proposal passing through the LGAs of GSC and MPSC.

The proposal starts approximately 1 km north of North Star, comprising approximately 25 km of new track within the existing, non-operational Boggabilla rail corridor. The proposal then deviates northeast from the existing rail corridor at Whalan Creek, traversing for approximately 5 km before crossing the Macintyre River at the NSW/QLD border. Outside of the existing, non-operational Boggabilla rail corridor and existing road corridors, the proposal traverses 31 properties within the permanent disturbance footprint and 48 properties within the temporary disturbance footprint (located outside of the permanent disturbance footprint). These properties are detailed in Table 22.4.

The land tenure, existing land uses and future land-use intent and development activity within the proposal's land use and tenure study area is described within this section.

TABLE 22.4 PROPERTIES TRAVERSED BY THE PROPOSAL FOOTPRINT

Lot/Plan	Area of lot (ha)	Area of lot within permanent disturbance footprint (ha)	% of lot within permanent disturbance footprint	Area of lot within temporary disturbance footprint[1] (ha)	% of lot within temporary disturbance footprint	Tenure	Predominant land-use[2]
Properties within Gwydir Shire local government area traversed by the proposal							
1011DP1173424	1.43	1.38	96.7	0.02	1.7	NSW Government	Grazing native vegetation
10DP1151556	2.59	–	–	2.44	94.5	Crown	Grazing native vegetation
12DP756010	259.16	0.31	0.1	0.83	0.3	Freehold	Grazing native vegetation
14DP756011	488.24	1.57	0.3	1.71	0.4	Freehold	Grazing native vegetation
18DP756011	81.51	0.80	1.0	2.75	3.4	Freehold	Grazing native vegetation
19DP756011	1.33	–	–	0.03	2.4	Freehold	Grazing native vegetation
1DP1124486	2.16	–	–	2.16	100.0	Crown	Services
1DP621082	4.51	–	–	3.81	84.4	Freehold	Residential and farm infrastructure
22DP1238729	18.30	–	–	0.82	4.5	Freehold	Cropping
24DP756010	1692.05	0.15	0.0	4.76	0.3	Freehold	Cropping
28DP1074891	184.54	0.68	0.4	1.36	0.7	Freehold	Grazing native vegetation
2DP1124486	2.08	–	–	1.09	52.5	Freehold	Services
2DP621082	443.94	–	–	3.62	0.8	Freehold	Cropping
2DP622557	286.07	–	–	12.53	4.4	Freehold	Grazing modified pastures
2DP850372	426.43	1.09	0.3	1.31	0.3	Freehold	Grazing native vegetation
31DP756010	202.29	–	–	0.77	0.4	Freehold	Grazing native vegetation
39DP756010	0.93	–	–	0.93	100.0	Crown	Grazing native vegetation
3DP1124486	9.17	–	–	9.14	99.7	Crown	Services
3DP850372	937.40	1.83	0.2	2.71	0.3	Freehold	Cropping
47DP847049	22.19	–	–	9.64	43.5	Freehold	Grazing modified pastures
4DP756010	73.98	0.77	1.0	5.51	7.4	Freehold	Grazing native vegetation
6DP756010	122.89	1.33	1.1	1.58	1.3	Freehold	Grazing native vegetation
7301DP1158745	0.49	–	–	0.07	15.1	Crown	Residential and farm infrastructure
7DP756010	131.40	0.29	0.2	4.88	3.7	Freehold	Grazing native vegetation
7DP756011	1237.37	3.95	0.3	7.31	0.6	Freehold	Grazing native vegetation
9DP756010	39.37	–	–	0.98	2.5	Freehold	Grazing native vegetation

Lot/Plan	Area of lot (ha)	Area of lot within permanent disturbance footprint (ha)	% of lot within permanent disturbance footprint	Area of lot within temporary disturbance footprint[1] (ha)	% of lot within temporary disturbance footprint	Tenure	Predominant land-use[2]
Properties within Moree Plains Shire local government area traversed by the proposal							
100DP756029	8.46	0.26	3.1	2.17	25.6	Crown	Grazing native vegetation
111DP756029	29.73	0.22	0.7	2.80	9.4	Crown	Grazing native vegetation
112DP756029	6.69	–	–	0.08	1.2	Crown	Grazing native vegetation
117DP756029	126.20	1.71	1.4	2.81	2.2	Freehold	Cropping
14DP756009	196.38	0.69	0.4	0.64	0.3	Freehold	Grazing native vegetation
1DP1165811	233.65	4.30	1.8	0.74	0.3	Freehold	Grazing native vegetation
2DP1117152	50.22	0.04	0.1	0.06	0.1	Freehold	Cropping
2DP1165811	295.44	5.38	1.8	3.53	1.2	Freehold	Grazing native vegetation
3DP1117152	35.78	1.97	5.5	0.54	1.5	Freehold	Cropping
3DP1181234	144.96	0.86	0.6	2.08	1.4	Freehold	Grazing native vegetation
4DP1117152	28.57	7.41	26.0	5.71	20.0	Freehold	Cropping
50DP756029	36.17	4.28	11.8	1.38	3.8	Freehold	Cropping
52DP756009	71.00	6.56	9.2	5.21	7.3	Freehold	Cropping
57DP756029	104.30	3.59	3.4	4.78	4.6	Unknown	Cropping
58DP756029	78.66	3.13	4.0	10.24	13.0	Freehold	Grazing native vegetation
59DP756029	93.52	–	–	0.07	0.1	Unknown	Grazing native vegetation
5DP1117152	10.22	9.12	89.2	0.48	4.7	Freehold	Grazing native vegetation
6DP1117152	74.26	1.86	2.5	1.54	2.1	Freehold	Cropping
7001DP1028812	0.63	0.07	10.5	0.83	132.3	Crown	Grazing native vegetation
7013DP1069656	26.50	0.09	0.3	1.62	6.1	Crown	Grazing native vegetation
7314DP1137535	107.14	2.69	2.5	3.81	3.6	Crown	Grazing native vegetation
99DP756029	15.74	–	–	0.60	3.8	Freehold	Grazing native vegetation
Total	**–**	**68.38**	**–**	**134.48**	**–**	**–**	**–**

Table notes:

1. Area within temporary disturbance footprint, located outside of the permanent disturbance footprint
2. *NSW Land Use Mapping 2013* (DPIE, 2016).

22.5.1 Land tenure

As identified by the *NSW Digital Cadastral Database* and the *Survey Accurate Cadastral Model*, the proposal is predominantly located within existing railway and road corridors, where there is no defined lot or tenure.

The existing, non-operational Boggabilla rail corridor is dedicated railway land, identified by the *NSW Digital Cadastral Database* as a 'railway corridor'. The *NSW Digital Cadastral Database* road corridor dataset also identifies public roads in use, undefined roads, private roads and proposed roads.

Properties outside of the existing Boggabilla rail and road corridors that are traversed by the permanent disturbance footprint include freehold, one parcel of NSW Government tenure (Lot 1011 on DP1173424), one parcel of unknown tenure type (Lot 57 on DP756029), four parcels of Crown land used for TSR (Lot 100 on DP756029, Lot 111 DP756029, Lot 1 on DP1218820, Lot 7013 on DP1069656 and Lot 7314 on DP1137535), and one parcel of Crown land used for irrigated cropping (Lot 1 on DP1218820).

Land tenure types within the permanent and temporary disturbance footprints are summarised in Table 22.5 and shown in Figure 22.3.

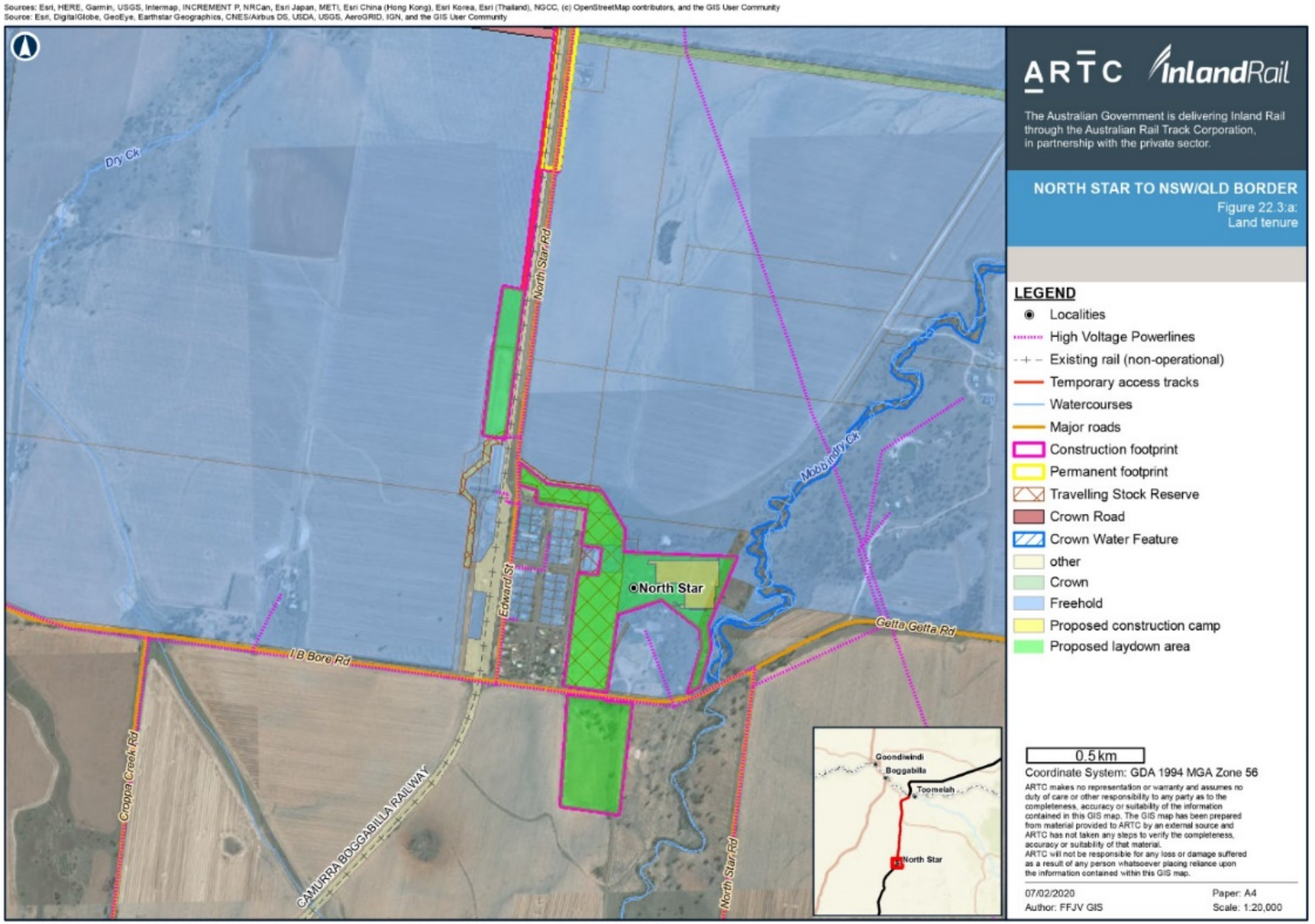
TABLE 22.5 TENURE WITHIN THE PERMANENT AND TEMPORARY DISTURBANCE FOOTPRINTS

	Land use and tenure study area			
Land tenure	Area within permanent disturbance footprint (ha)	% of land within permanent disturbance footprint	Area within temporary disturbance footprint (ha)	% of land within temporary disturbance footprint
Railway corridor	118.52	42.2	0.24	0.2
Road corridor	93.67	33.4	11.55	7.9
Freehold	60.10	21.4	103.60	70.5
Unknown	3.59	1.3	4.86	3.3
Crown	3.32	1.2	26.22	17.8
NSW Government	1.38	0.5	0.02	Less than 0.1%
Watercourse	0.25	0.1	0.56	0.4
Total	**280.83**	**100.0**	**147.04**	**100.0**

22.5.1.1 Native title

Where the proposal is located within existing rail and road corridors, native title rights have already been extinguished through the establishment of public works. 'Public works' includes a 'road, railway or bridge that is constructed or established by or on behalf of the Crown, or a local government body or other statutory authority of the Crown, in any of its capacities', in accordance with section 253 of the *Native Title Act 1993* (Cth). Native title rights are also extinguished on parcels of land with freehold tenure.

The land parcel intersected by the proposed permanent disturbance footprint identified as NSW Government tenure (Lot 1011 on DP1173424), the parcel of unknown tenure type (Lot 57 on DP756029), the four parcels of Crown land used for TSR (Lot 100 on DP756029, Lot 111 DP756029, Lot 7013 on DP1069656 and Lot 7314 on DP1137535), and one parcel of Crown land used for irrigated cropping (Lot 1 on DP1218820) may be subject to native title rights.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Dry Ck
North Star Rd
Mobbindry Ck
North Star
Edward St
Gette Getta Rd
I B Bore Rd
Croppa Creek Rd
CAMURRA BOGGABILLA RAILWAY
North Star Rd
ARTC
InlandRail
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NORTH STAR TO NSW/QLD BORDER
Figure 22.3:a:
Land tenure
LEGEND
Localities
High Voltage Powerlines
Existing rail (non-operational)
Temporary access tracks
Watercourses
Major roads
Construction footprint
Permanent footprint
Travelling Stock Reserve
Crown Road
Crown Water Feature
other
Crown
Freehold
Proposed construction camp
Proposed laydown area
Goondiwindi
Boggabilla
Toomelah
North Star
0.5 km
Coordinate System: GDA 1994 MGA Zone 56
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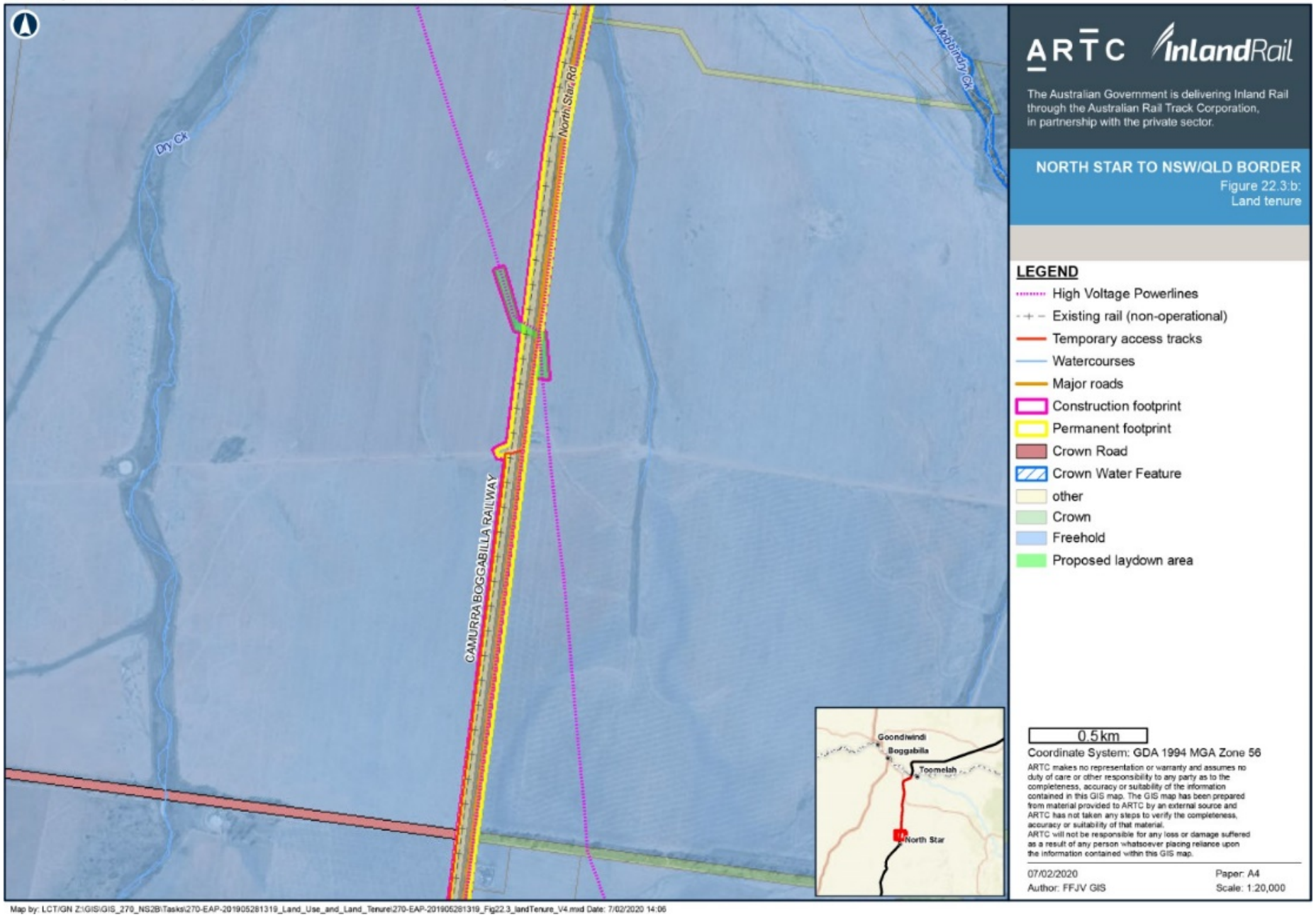
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Dry Ck
North Star Rd
Mobbindry Ck
CAMURRA BOGGABILLA RAILWAY
ARTC
InlandRail
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NORTH STAR TO NSW/QLD BORDER
Figure 22.3:b:
Land tenure
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Temporary access tracks
Watercourses
Major roads
Construction footprint
Permanent footprint
Crown Road
Crown Water Feature
other
Crown
Freehold
Proposed laydown area
Goondiwindi
Boggabilla
Toomelah
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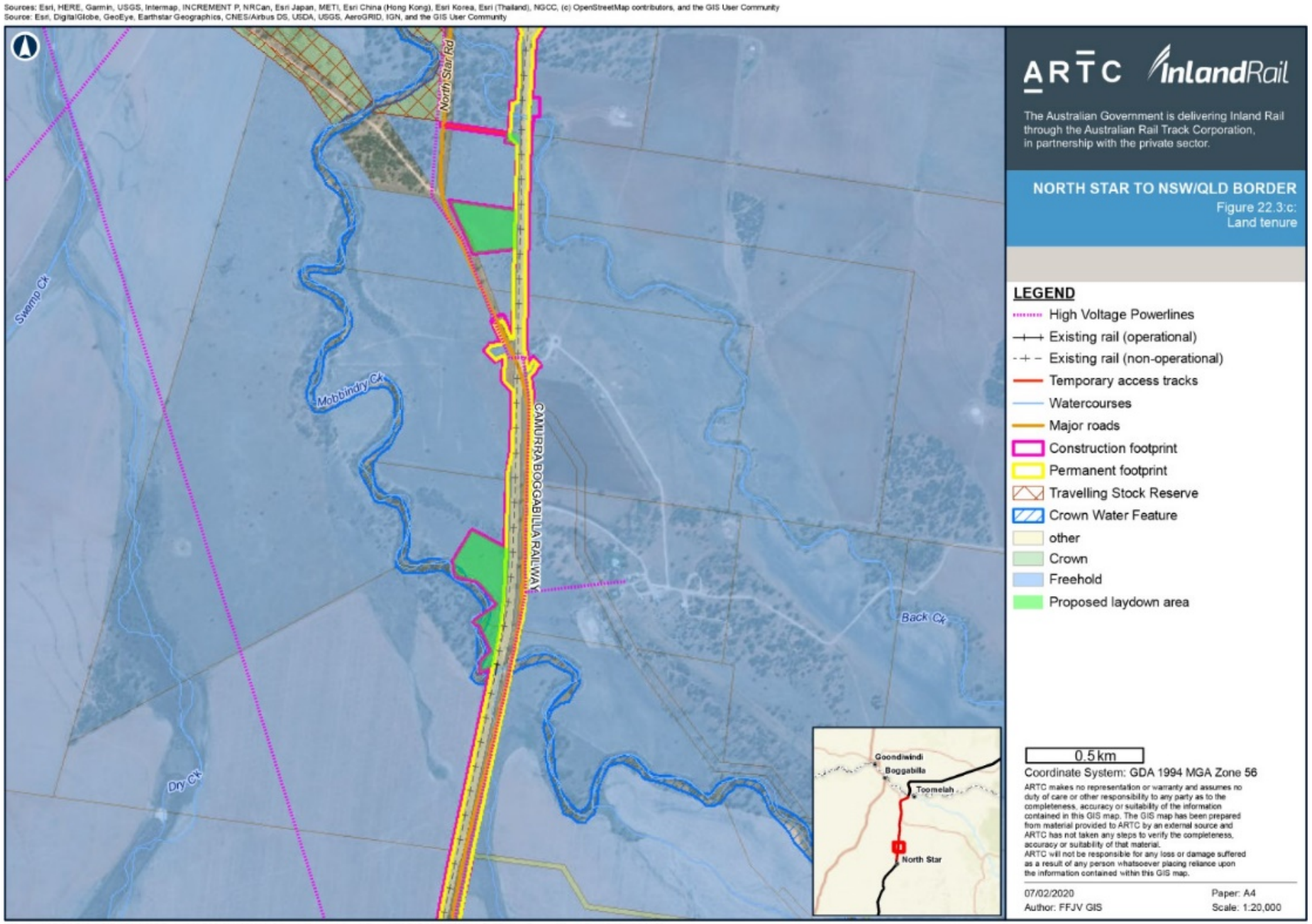
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North Star Rd
Swamp Ck
Mobbindry Ck
CAMURRA BOGGABILLA RAILWAY
Back Ck
Dry Ck
Goondiwindi
Boggabilla
Toomelah
North Star
ARTC
InlandRail
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NORTH STAR TO NSW/QLD BORDER
Figure 22.3:c:
Land tenure
LEGEND
High Voltage Powerlines
Existing rail (operational)
Existing rail (non-operational)
Temporary access tracks
Watercourses
Major roads
Construction footprint
Permanent footprint
Travelling Stock Reserve
Crown Water Feature
other
Crown
Freehold
Proposed laydown area
0.5 km
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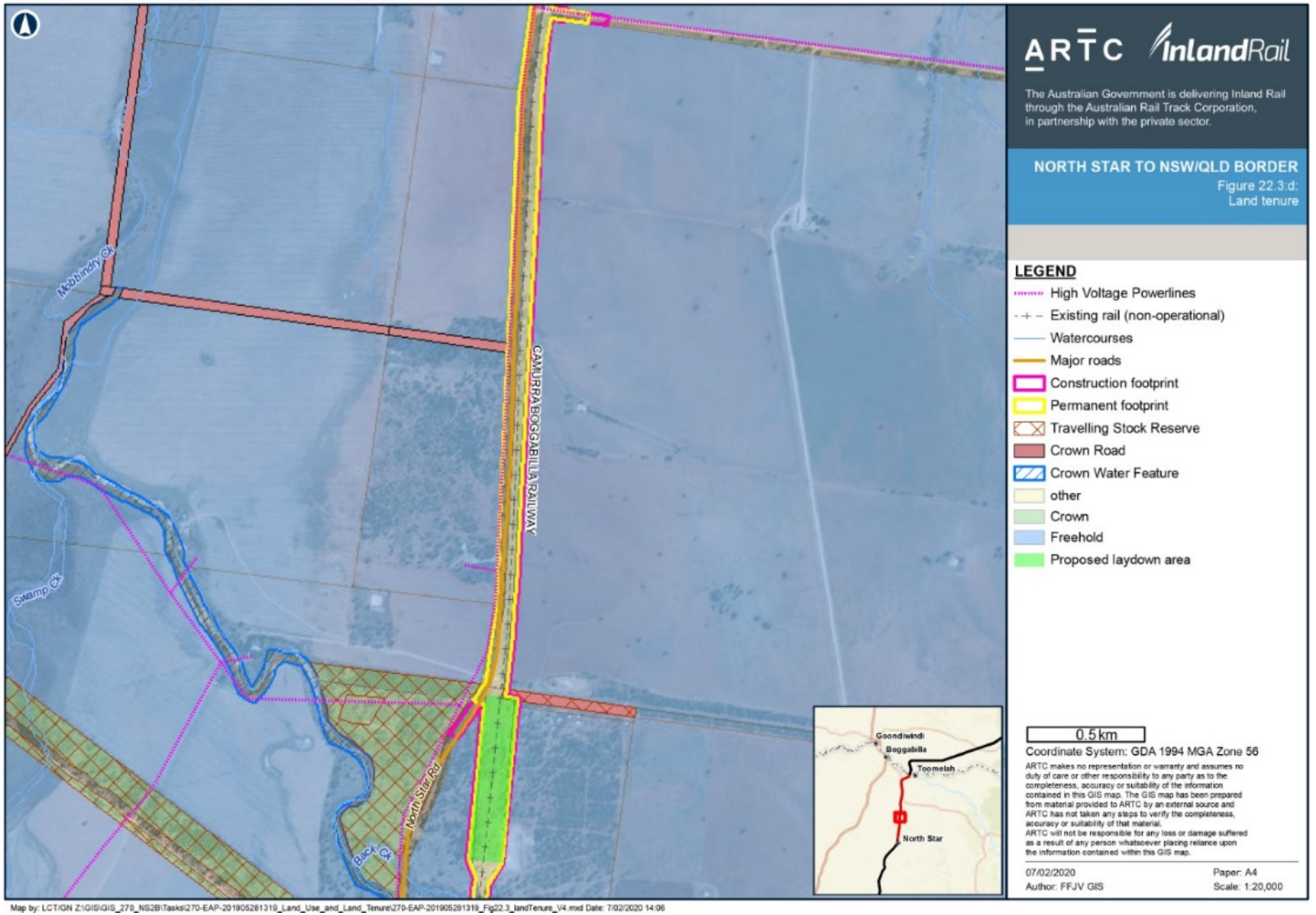
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Moobindry Ck
Swamp Ck
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North Star Rd
CAMURRA BOGGABILLA RAILWAY
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NORTH STAR TO NSW/QLD BORDER
Figure 22.3:d:
Land tenure
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Watercourses
Major roads
Construction footprint
Permanent footprint
Travelling Stock Reserve
Crown Road
Crown Water Feature
other
Crown
Freehold
Proposed laydown area
Goondiwindi
Boggabilla
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North Star
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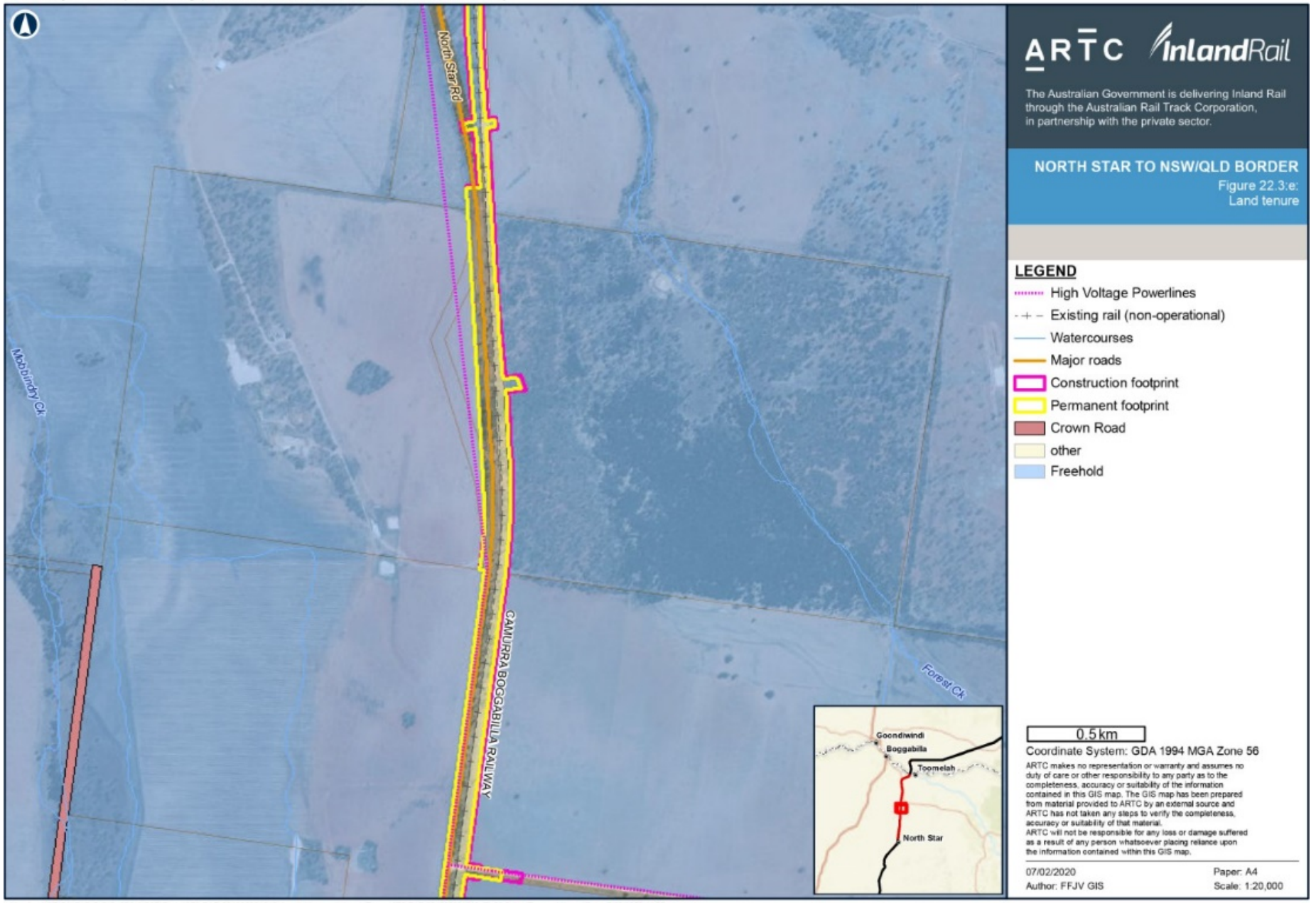
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Toomelah
North Star
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NORTH STAR TO NSW/QLD BORDER
Figure 22.3:e:
Land tenure
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Watercourses
Major roads
Construction footprint
Permanent footprint
Crown Road
other
Freehold
0.5 km
Coordinate System: GDA 1994 MGA Zone 56
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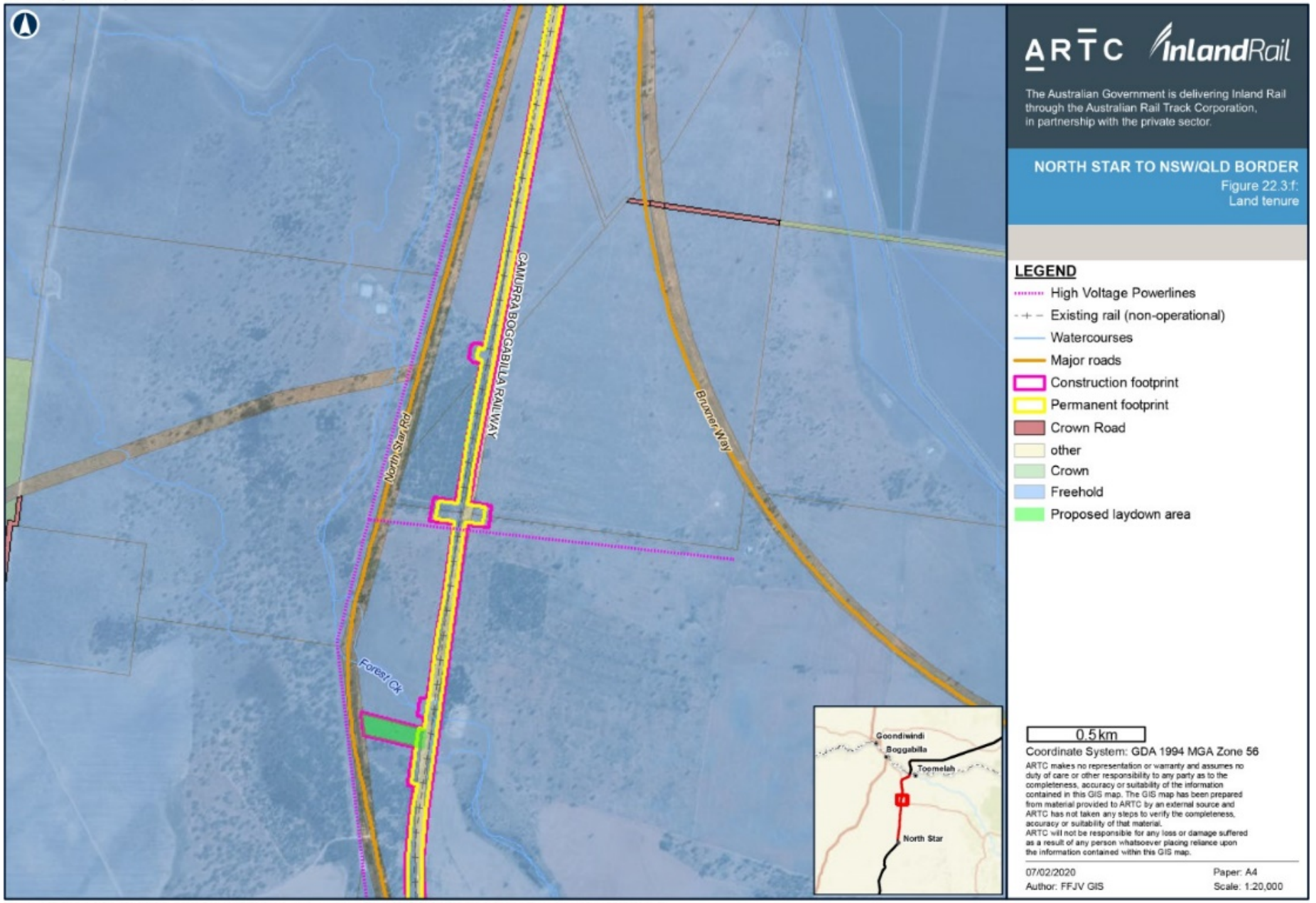
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The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation, in partnership with the private sector.
NORTH STAR TO NSW/QLD BORDER
Figure 22.3:f:
Land tenure
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Watercourses
Major roads
Construction footprint
Permanent footprint
Crown Road
other
Crown
Freehold
Proposed laydown area
Goondiwindi
Boggabilla
Toomelah
North Star
0.5 km
Coordinate System: GDA 1994 MGA Zone 56
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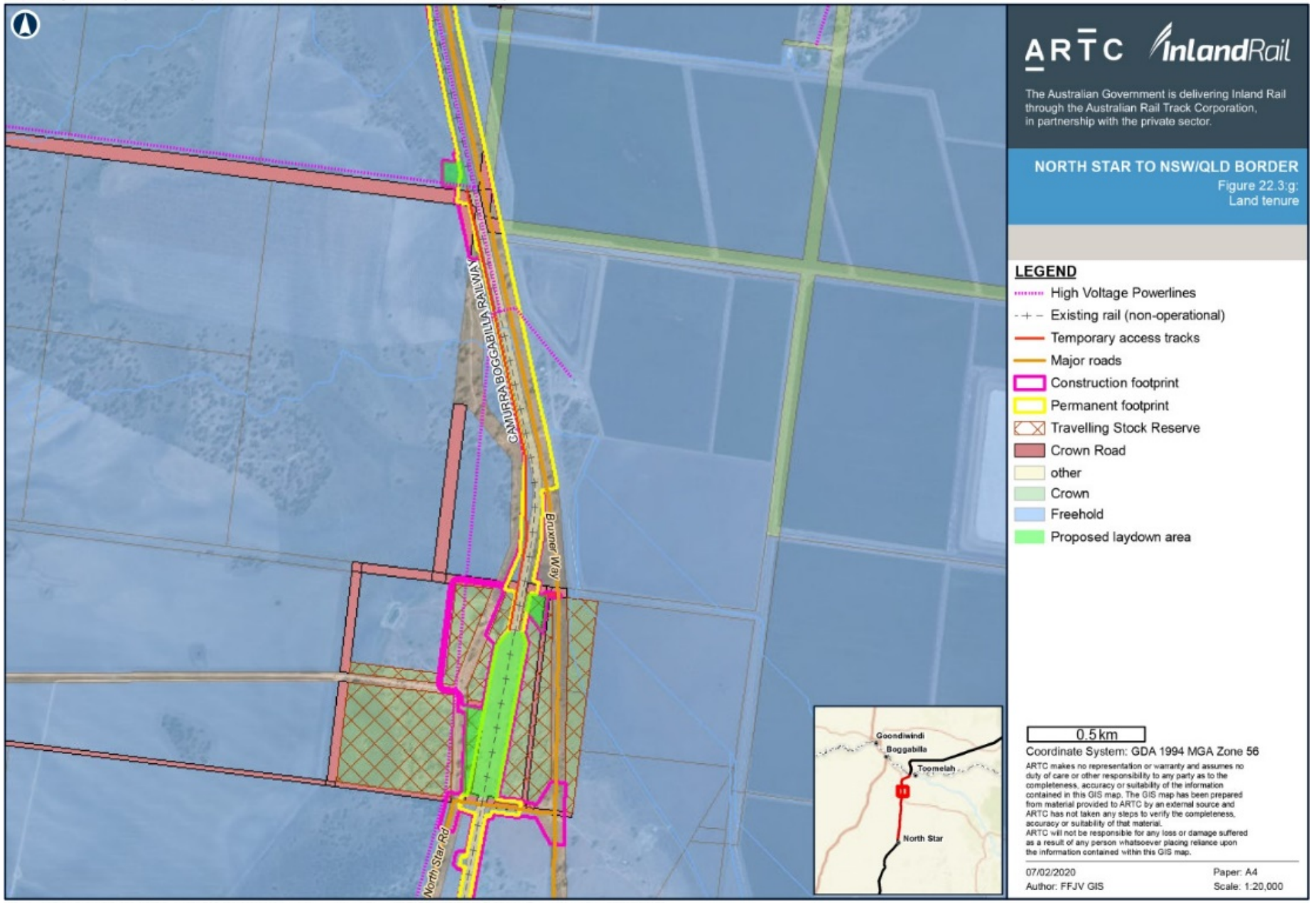
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CAMURRA BOGGABILLA RAILWAY
Bruxner Way
North Star Rd
ARTC
InlandRail
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NORTH STAR TO NSW/QLD BORDER
Figure 22.3:g:
Land tenure
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Temporary access tracks
Major roads
Construction footprint
Permanent footprint
Travelling Stock Reserve
Crown Road
other
Crown
Freehold
Proposed laydown area
Goondiwindi
Boggabilla
Toomelah
North Star
0.5 km
Coordinate System: GDA 1994 MGA Zone 56
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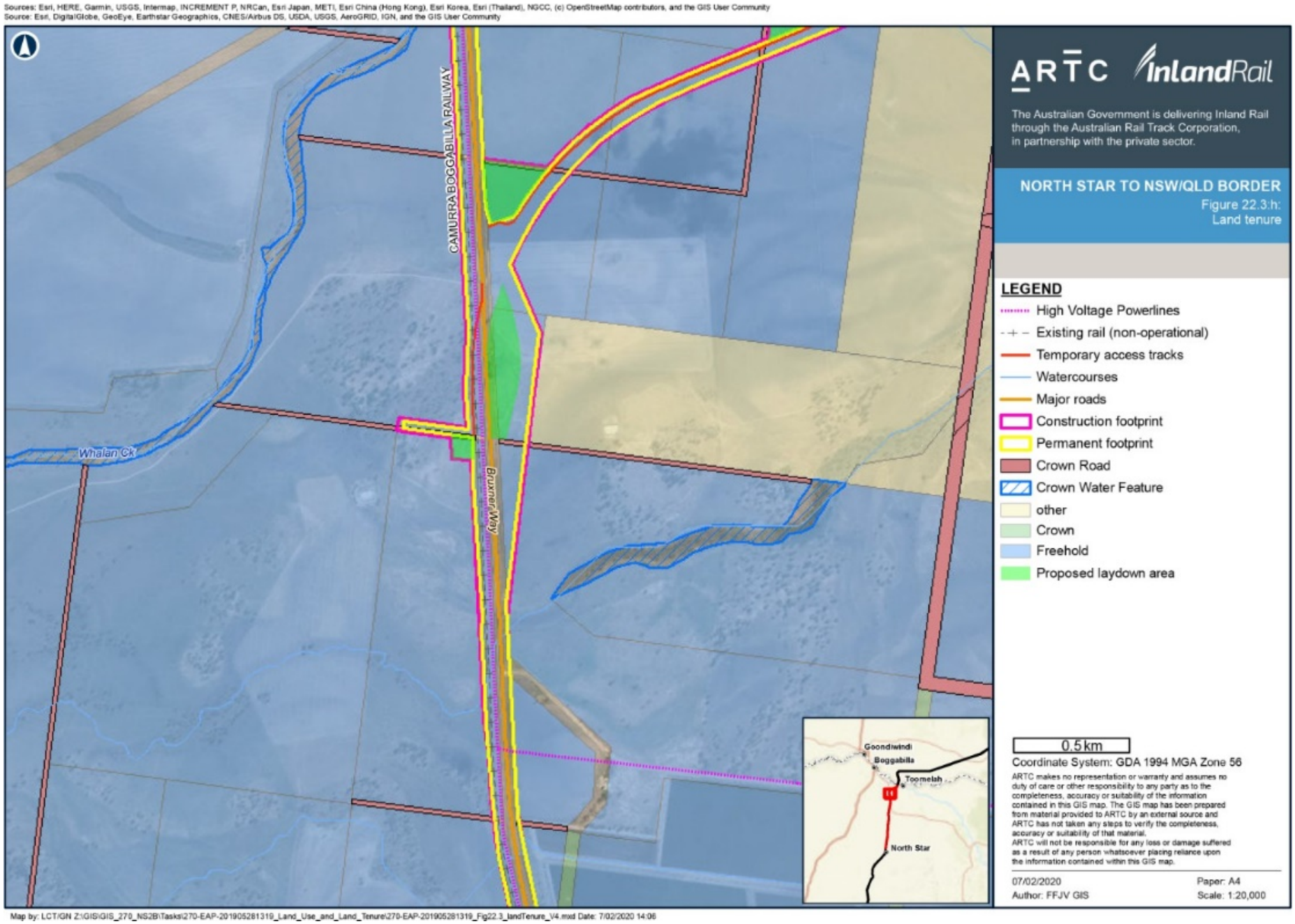
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
CAMURRA BOGGABILLA RAILWAY
Whalan Ck
Bruxner Way
ARTC
InlandRail
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NORTH STAR TO NSW/QLD BORDER
Figure 22.3:h:
Land tenure
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Temporary access tracks
Watercourses
Major roads
Construction footprint
Permanent footprint
Crown Road
Crown Water Feature
other
Crown
Freehold
Proposed laydown area
Goondiwindi
Boggabilla
Toomelah
North Star
0.5 km
Coordinate System: GDA 1994 MGA Zone 56
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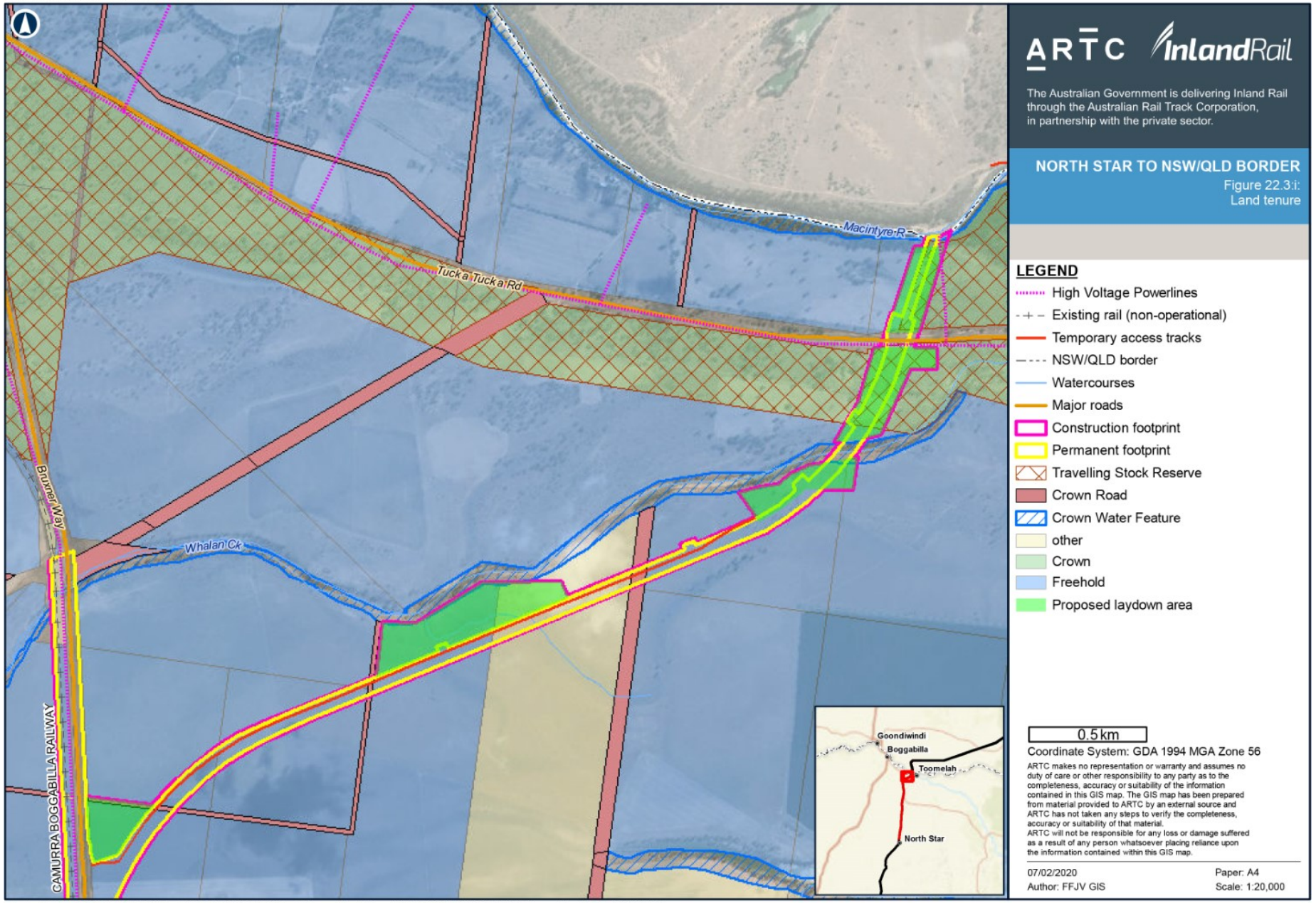
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Macintyre R
Tucka Tucka Rd
Whalan Ck
Bungeel Way
CAMURRA BOGGABILLA RAILWAY
Goondiwindi
Boggabilla
Toomelah
North Star
ARTC
InlandRail
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NORTH STAR TO NSW/QLD BORDER
Figure 22.3:i:
Land tenure
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Temporary access tracks
NSW/QLD border
Watercourses
Major roads
Construction footprint
Permanent footprint
Travelling Stock Reserve
Crown Road
Crown Water Feature
other
Crown
Freehold
Proposed laydown area
0.5 km
Coordinate System: GDA 1994 MGA Zone 56
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Searches of the *National Native Title Register* and *Register of Native Title Claims*, administered by the National Native Title Tribunal, identified one native title claim relevant to the study area for the Bigambul People. The study area crosses this native title claim at the proposed Macintyre River Bridge. One registered native title claim for the Gomeroi People, which is yet to be determined, covers the entire study area. Details of the native title claim are in Table 22.6.

TABLE 22.6 CURRENT NATIVE TITLE CLAIMS WITHIN THE STUDY AREA

Native title status	Name	Tribunal file number	Summary
In effect—finalised	Bigambul People Part A	QCD2016/012	Native title was determined to exist within the entire determination area on 1 December 2016 and came into effect 5 June 2017. This claim area is in the study area at the Macintyre River.
Accepted for registration	Gomeroi People	NC2011/006	This active Native title claim has been accepted as a registered claim by the Native Title Tribunal. The claim has not yet been determined by the courts. The claim area covers the entire study area.

22.5.1.2 Aboriginal Land Claims

A search of the *Register of Aboriginal Land Claims* was undertaken to identify any land parcels subject to an Aboriginal Land Claim within the land-use study area. The following five Crown land parcels were identified to be subject to an Aboriginal Land Claim, pursuant to the *Aboriginal Land Rights Act 1983* (NSW):

- Lot 1 on DP1124486
- Lot 39 on DP756010
- Lot 112 on DP756029
- Lot 7013 on DP1069656
- Lot 7314 on DP1137535.

22.5.2 Land tenure processes

As outlined in this section, the permanent disturbance footprint is predominantly located within the existing, non-operational rail corridor and existing road corridors. The existing rail corridor is owned by the NSW Government (Transport for NSW) and will be leased by ARTC. If required, the existing, non-operational Boggabilla rail corridor will be expanded to encompass the crossing loop, maintenance siding, bridges and other proposal infrastructure.

Full or partial acquisition will be required where the proposal deviates from the existing rail corridor, which is to be determined once the property impacts are known. The acquisition of freehold land will be undertaken in consultation with landowners and in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW) acquisition and compensation process.

Where the permanent disturbance footprint requires Crown land, acquisition will be undertaken in consultation with the state and, where appropriate, in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW). There is the potential for Crown land to be acquired through the compulsory acquisition by agreement process, where the landowner and acquiring authority agree the acquisition is to occur via the compulsory acquisition process.

Where Crown land designated for TSRs is required, ARTC will liaise with local land services.

22.5.2.1 Native title

Sections 24JA and 24JB of the *Native Title Act 1993* (Cth) are relevant for the proposal. Under these sections, if the grant of a statutory approval or of land tenure is to be made in relation to land subject to native title dedicated as a reserve before 23 December 1996, the Act will be valid from a native title perspective, provided it fits within the purpose of the reserve (or would have no greater impact on native title than acts that fit within the purpose of the reserve).

Further, if the Act consists of the construction or establishment of a public work, which includes a road, railway or bridge that is constructed or established by or on behalf of the Crown, or a local government body or other statutory authority of the Crown, in any of its capacities, the Act will extinguish native title in relation to the area on which the public work is situated. In such cases, the Australian Government minister would need to notify all affected representative bodies and registered native title claimants of the work and give them an opportunity to comment.

The relevant parties to be notified for the proposal are the registered native title claimants for the Bigambul People Part A, and Gomeroi People claims.

Where it is determined native title has not been extinguished within the permanent disturbance footprint, ARTC will seek the extinguishment of the native title rights and interests in question before construction of the proposal. This will be either voluntarily (by the surrender of native title under an Indigenous land-use agreement) or by compulsory process, to enable the grant of the necessary interests in Crown lands required to construct the proposal.

22.5.3 Land use

The proposal will predominantly follow the existing, non-operational Boggabilla rail corridor, with 75 per cent of the proposed permanent disturbance footprint within existing rail and road corridors. Despite the gazettal of these existing corridors, land use within these corridors continues to be mapped as the adjoining land use under *NSW Land Use Mapping 2013* (DPIE, 2016).

The land uses mapped within the proposed permanent disturbance footprint are predominantly agricultural. This consists of grazing native vegetation (78 per cent), cropping land (16 per cent) and a small portion of grazing modified pastures (1 per cent). The remaining land (4 per cent) is mapped as roads and is where the permanent disturbance footprint intersects existing roads.

Of the properties located within the proposed permanent disturbance footprint, but outside of the existing, non-operational Boggabilla rail corridor, land uses are mapped entirely as agriculture. This consists of grazing land, cropping land and a small portion of grazing modified pastures. Where the permanent disturbance crosses the Macintyre River into Queensland, the land uses are also of a predominantly rural nature.

The existing, non-operational Boggabilla rail corridor is not separated from adjoining properties and is currently used by some landowners in the area for agricultural purposes, including transportation and cropping uses. However, this rail corridor is owned by the NSW Government and is dedicated railway land.

The temporary disturbance footprint is also predominantly rural, with approximately 48 per cent of the footprint mapped as grazing native vegetation, 24 per cent as cropping and 16 per cent as grazing modified pastures. Additionally, the footprint includes land uses mapped as farm buildings and infrastructure, and services where workforce accommodation is proposed in North Star, south of the permanent disturbance footprint. The proposed workforce accommodation and laydown areas are located near facilities associated with the North Star Sporting Club.

The study area does not pass through any major towns between North Star and the NSW/QLD border. However, it does cross Mobbindry Creek, Back Creek, Forest Creek, Whalan Creek and the Macintyre River between North Star and the NSW/QLD border.

Land uses within the study area, including land uses mapped over the existing rail and road corridors, are summarised in Table 22.7 and shown in Figure 22.4.

TABLE 22.7 LAND USE WITHIN THE STUDY AREA

Land use[1]	Land use and tenure study area			
	Area within permanent disturbance footprint (ha)	% of land within permanent disturbance footprint	Area within temporary disturbance footprint (ha)	% of land within temporary disturbance footprint
Grazing native vegetation	220.29	78.4	70.56	48.0
Cropping	45.10	16.1	34.90	23.7
Transport and communication	12.07	4.3	0.56	0.2
Grazing modified pastures	3.37	1.2	23.43	15.9
Farm buildings/infrastructure	–	–	9.08	6.2
Services	–	–	8.21	5.6
Irrigated cropping	–	–	0.31	0.2
Total	**280.83**	**100.0**	**147.04**	**100.0**

Table note:
1 *NSW Land Use Mapping 2013.*

22.5.3.1 Agricultural uses and activities

Crops grown in the northern areas of Gwydir Shire and within Moree Plains Shire consist mainly of either cereal crops including wheat, barley, oats and maize, or non-cereal crops including cotton, canola, chickpeas and other legumes (Australian Bureau of Statistics (ABS), 2012).

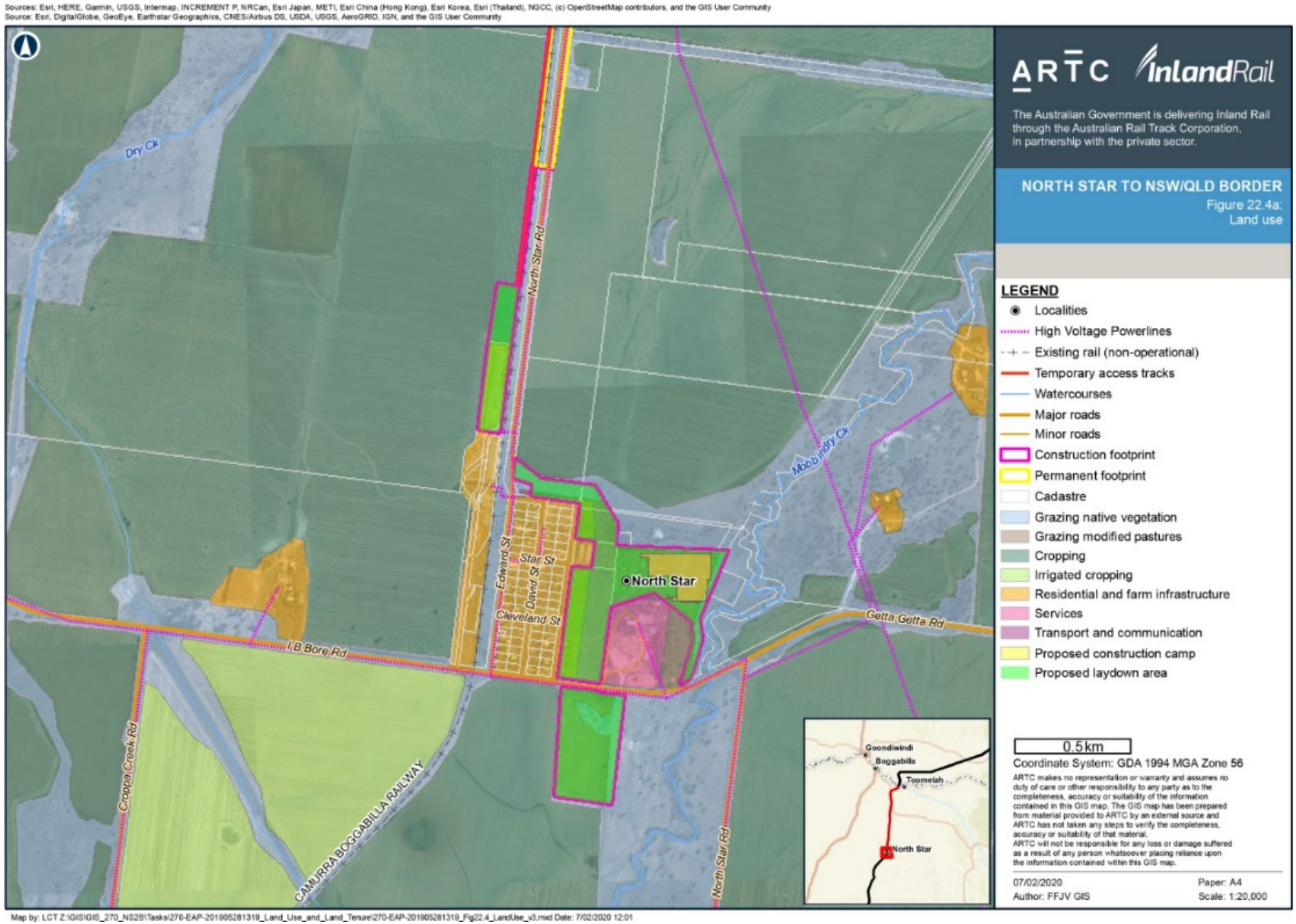
The crop varieties grown within both Moree Plains Shire and Gwydir Shire LGAs are summarised in Table 22.8.

TABLE 22.8 CROPS GROWN WITHIN MOREE PLAINS SHIRE AND GWYDIR SHIRE LOCAL GOVERNMENT AREAS

Crop variety	Moree Plains (ha)	Gwydir (ha)
Cereal crops	518,982	123,686
Non-cereal crops	480,693	56,247
Fruit (excluding grapes)	1,183	32
Grapes	1	0
Cultivated turf (no. of farms)	19	0
Vegetables	0	6

Source: *Agricultural Commodities Small Area Data* (ABS, 2012)

In addition to cropping activities, livestock grazing for sheep, cattle and cattle feedlots occurs in both Moree Plains Shire and Gwydir Shire LGAs. However, the study area does not traverse any known feedlots.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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Dry Ck
North Star Rd
Mobbindry Ck
Edward St
Star St
David St
Cleveland St
North Star
Getta Getta Rd
I.B.Bore Rd
Croppa Creek Rd
CAMURRA BOGGABILLA RAILWAY
North Star Rd
ARTC
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NORTH STAR TO NSW/QLD BORDER
Figure 22.4a:
Land use
LEGEND
Localities
High Voltage Powerlines
Existing rail (non-operational)
Temporary access tracks
Watercourses
Major roads
Minor roads
Construction footprint
Permanent footprint
Cadastre
Grazing native vegetation
Grazing modified pastures
Cropping
Irrigated cropping
Residential and farm infrastructure
Services
Transport and communication
Proposed construction camp
Proposed laydown area
Goondiwindi
Boggabilla
Toomelah
North Star
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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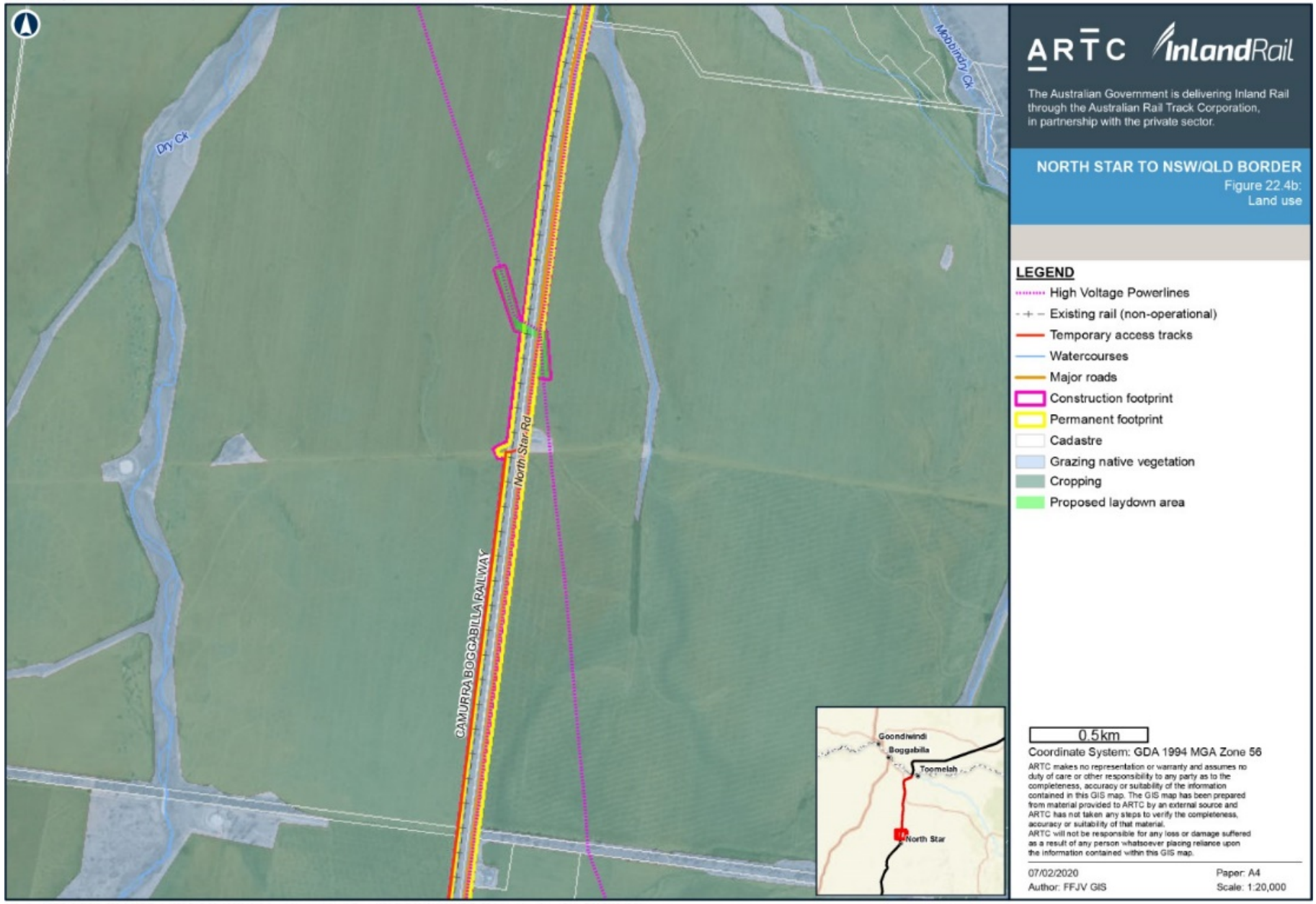
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Dry Ck
Mobbindry Ck
North Star Rd
CAMURRA BOGGABILLA RAILWAY
Goondiwindi
Boggabilla
Toomelah
North Star
ARTC
InlandRail
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NORTH STAR TO NSW/QLD BORDER
Figure 22.4b:
Land use
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Temporary access tracks
Watercourses
Major roads
Construction footprint
Permanent footprint
Cadastre
Grazing native vegetation
Cropping
Proposed laydown area
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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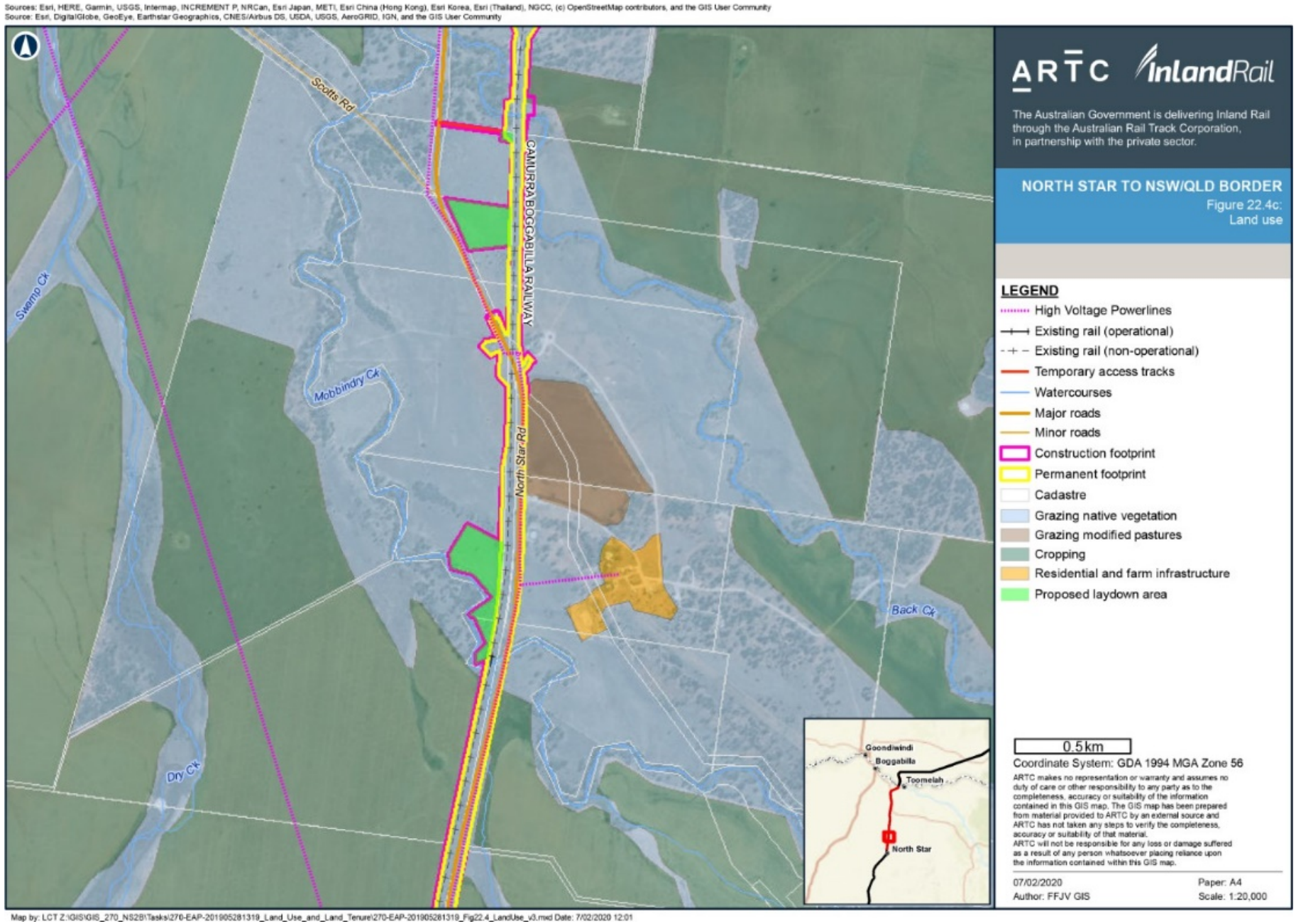
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Scotts Rd
CAMURRA BOGGABILLA RAILWAY
North Star Rd
Swamp Ck
Mobbindry Ck
Back Ck
Dry Ck
Goondiwindi
Boggabilla
Toomelah
North Star
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NORTH STAR TO NSW/QLD BORDER
Figure 22.4c:
Land use
LEGEND
High Voltage Powerlines
Existing rail (operational)
Existing rail (non-operational)
Temporary access tracks
Watercourses
Major roads
Minor roads
Construction footprint
Permanent footprint
Cadastre
Grazing native vegetation
Grazing modified pastures
Cropping
Residential and farm infrastructure
Proposed laydown area
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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NORTH STAR TO NSW/QLD BORDER
Figure 22.4d:
Land use

LEGEND

- High Voltage Powerlines
- Existing rail (non-operational)
- Watercourses
- Major roads
- Minor roads
- Construction footprint
- Permanent footprint
- Cadastre
- Grazing native vegetation
- Grazing modified pastures
- Cropping
- Channel/aqueduct
- Proposed laydown area

0.5km

Coordinate System: GDA 1994 MGA Zone 56

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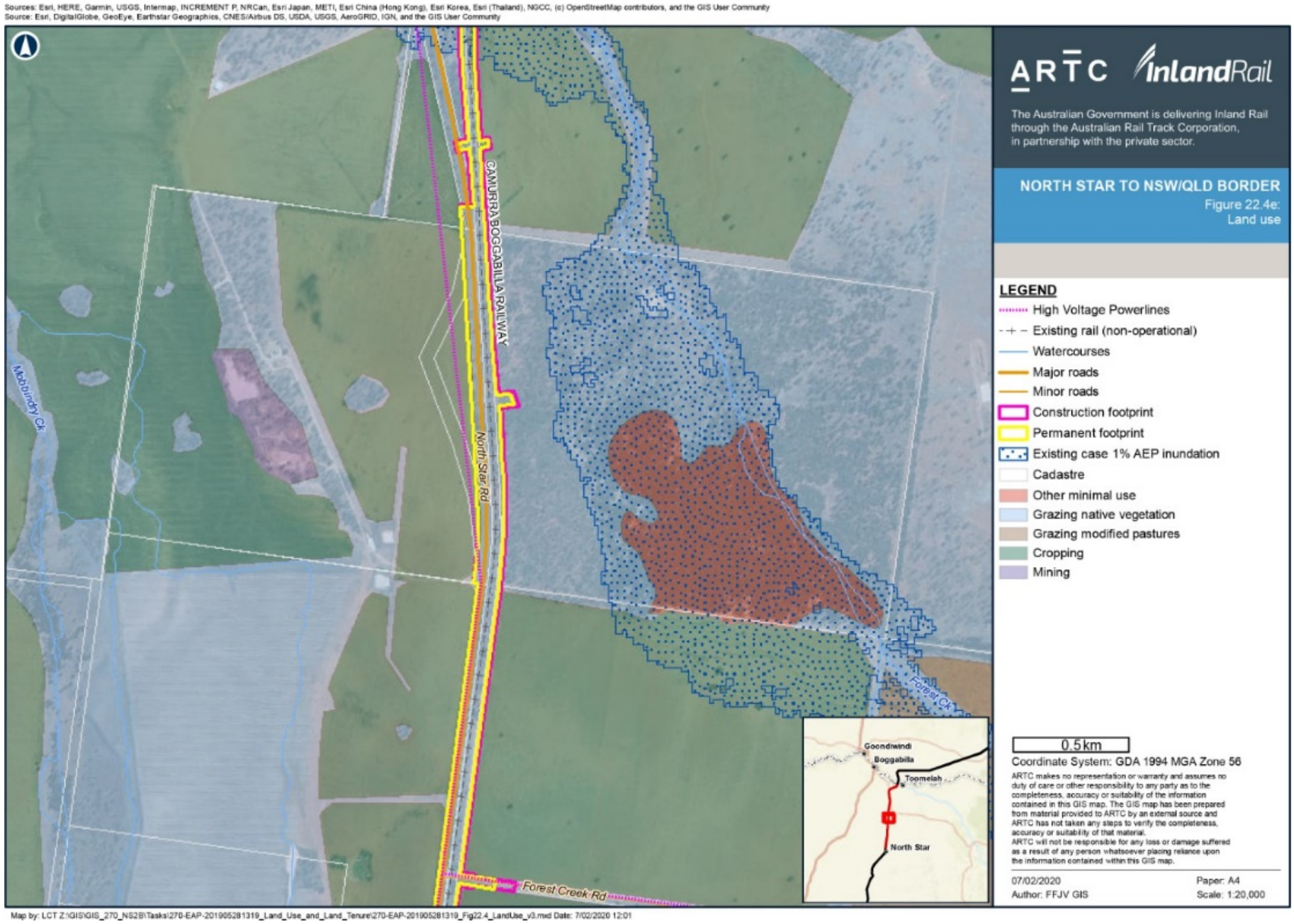
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CAMURRA BOGGABILLA RAILWAY
North Star Rd
Mobbindry Ck
Forest Ck
Forest Creek Rd
Goondiwindi
Boggabilla
Toomelah
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NORTH STAR TO NSW/QLD BORDER
Figure 22.4e:
Land use
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Watercourses
Major roads
Minor roads
Construction footprint
Permanent footprint
Existing case 1% AEP inundation
Cadastre
Other minimal use
Grazing native vegetation
Grazing modified pastures
Cropping
Mining
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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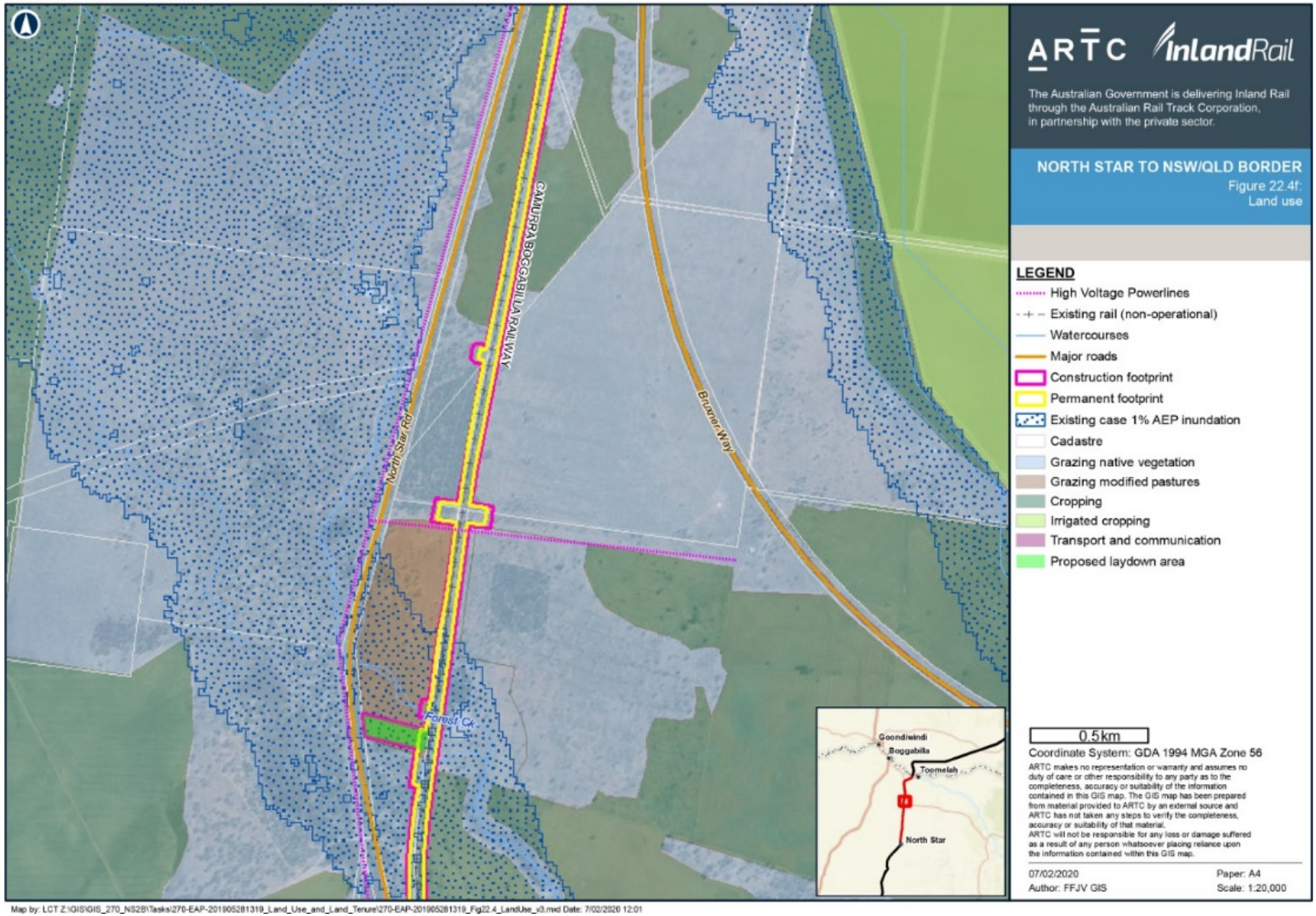
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North Star Rd
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NORTH STAR TO NSW/QLD BORDER
Figure 22.4f: Land use
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Watercourses
Major roads
Construction footprint
Permanent footprint
Existing case 1% AEP inundation
Cadastre
Grazing native vegetation
Grazing modified pastures
Cropping
Irrigated cropping
Transport and communication
Proposed laydown area
Goondiwindi
Boggabilla
Toomelah
North Star
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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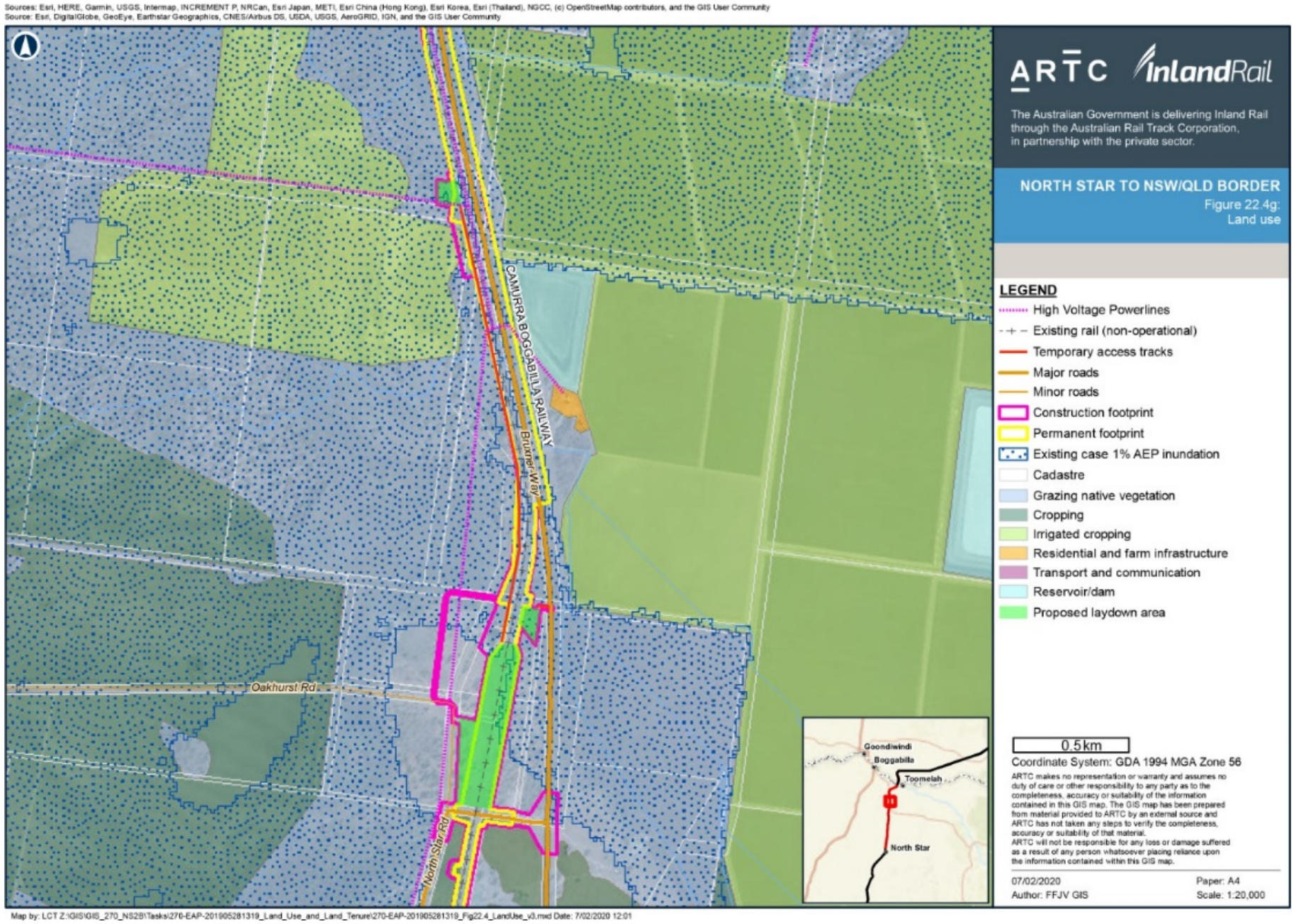
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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Brunner Way
Oakhurst Rd
North Star Rd
ARTC
InlandRail
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NORTH STAR TO NSW/QLD BORDER
Figure 22.4g:
Land use
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Temporary access tracks
Major roads
Minor roads
Construction footprint
Permanent footprint
Existing case 1% AEP inundation
Cadastre
Grazing native vegetation
Cropping
Irrigated cropping
Residential and farm infrastructure
Transport and communication
Reservoir/dam
Proposed laydown area
Goondiwindi
Boggabilla
Toomelah
North Star
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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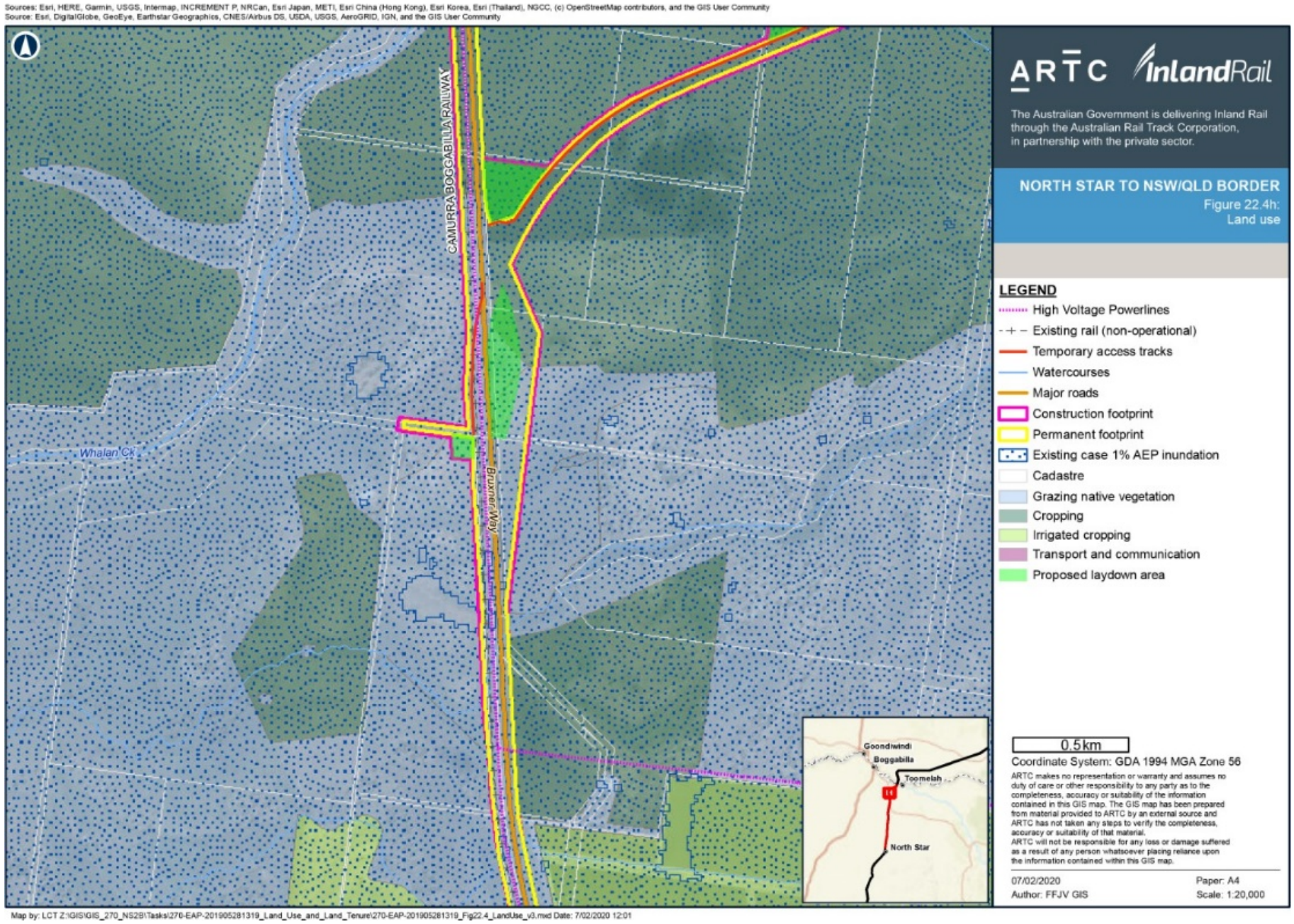
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CAMURRA BOGGABILLA RAILWAY
Whalan Ck
Bruxner Way
ARTC
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NORTH STAR TO NSW/QLD BORDER
Figure 22.4h:
Land use
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Temporary access tracks
Watercourses
Major roads
Construction footprint
Permanent footprint
Existing case 1% AEP inundation
Cadastre
Grazing native vegetation
Cropping
Irrigated cropping
Transport and communication
Proposed laydown area
Goondiwindi
Boggabilla
Toomelah
North Star
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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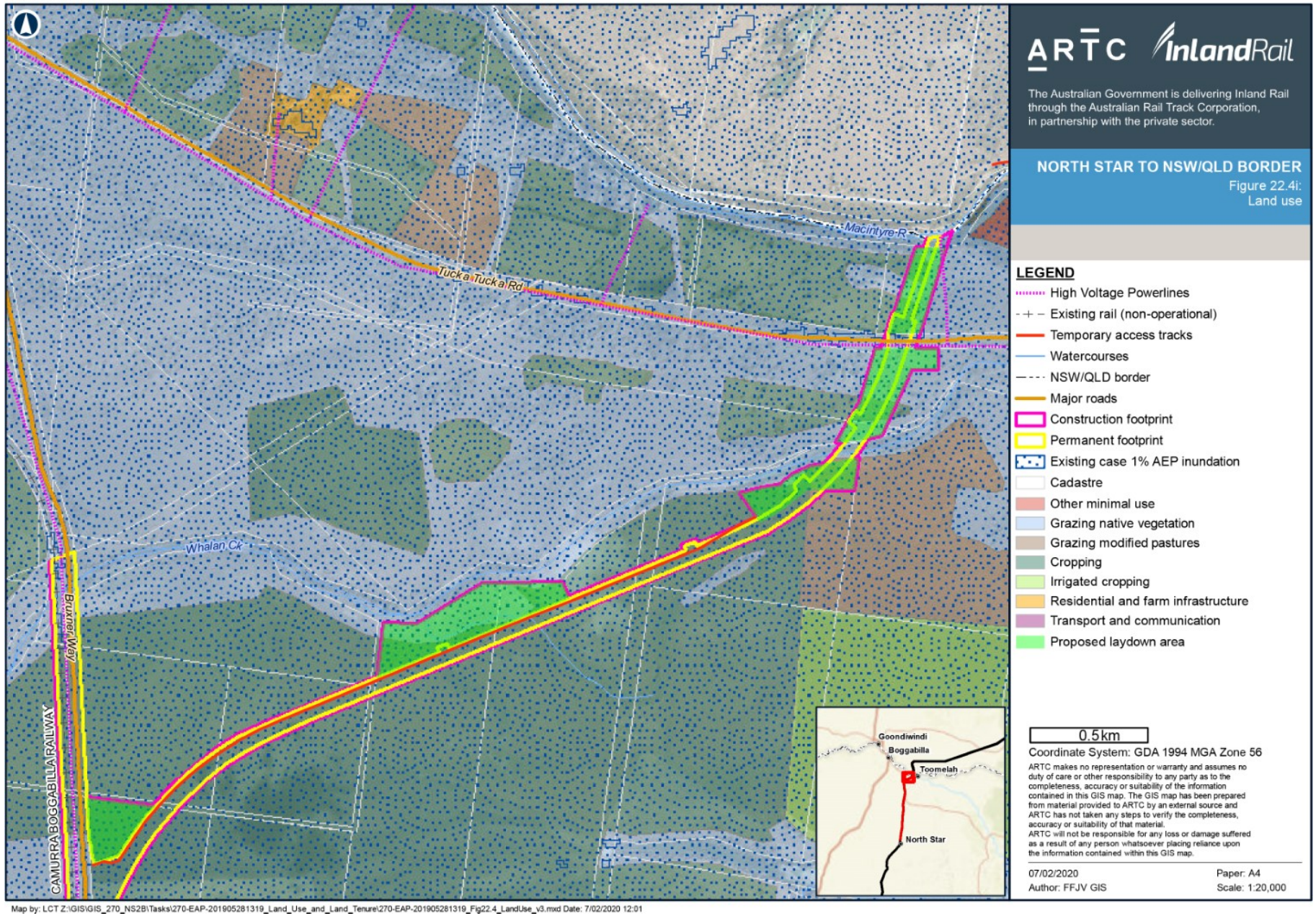
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Macintyre R
Tucka Tucka Rd
Whalan Ck
Bruxner Way
CAMURRA BOGGABILLA RAILWAY
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NORTH STAR TO NSW/QLD BORDER
Figure 22.4i:
Land use
LEGEND
High Voltage Powerlines
Existing rail (non-operational)
Temporary access tracks
Watercourses
NSW/QLD border
Major roads
Construction footprint
Permanent footprint
Existing case 1% AEP inundation
Cadastre
Other minimal use
Grazing native vegetation
Grazing modified pastures
Cropping
Irrigated cropping
Residential and farm infrastructure
Transport and communication
Proposed laydown area
Goondiwindi
Boggabilla
Toomelah
North Star
0.5km
Coordinate System: GDA 1994 MGA Zone 56
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Paper: A4
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Land and soil capability

A land and soil capability assessment scheme was developed by the NSW Office of Environment and Heritage in 2012 which provides guidance on the physical capability of land to support different agricultural land uses. The scheme defines eight land and soil capability classes of rural land using the biophysical features of the land and soil to derive ratings for a range of land and soil hazards. Biophysical features ~~which~~ determine the onsite and offsite limitations and hazards of the land includes, soil type, slope, landform position, acidity, salinity, drainage, rockiness and climate.

General definitions of the land and soil capability classes are outlined in Table 22.9.

TABLE 22.9 GENERAL DEFINITION OF LAND AND SOIL CAPABILITY CLASSES

Class	Description
Land capable of a wide variety of land uses (cropping, grazing, horticulture, forestry, nature conservation)	
1	**Extremely high capability land:** Land has no limitations. No special land management practices required. Land capable of all rural land uses and land management practices.
2	**Very high capability land:** Land has slight limitations. These can be managed by readily available, easily implemented management practices. Land is capable of most land uses and land management practices, including intensive cropping with cultivation.
3	**High capability land:** Land has moderate limitations and can sustain high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.
Land capable of a variety of land uses (cropping with restricted cultivation, pasture cropping, grazing, some horticulture, forestry, nature conservation)	
4	**Moderate capability land:** Land has moderate-to-high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can be managed only through specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.
5	**Moderate-low capability land:** Land has high limitations for high impact-land uses. Will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation.
Land capable of a limited set of land uses (grazing, forestry and nature conservation, some horticulture)	
6	**Low capability land:** Land has high limitations for high-impact land uses. Land use is restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation.
Land generally incapable of agricultural land use (selective forestry and nature conservation)	
7	**Very low capability land:** Land has severe limitations that restrict most land uses and generally cannot be overcome. On-site and offsite impacts of land management practices can be extremely severe if limitations are not managed. There should be minimal disturbance of native vegetation.
8	**Extremely low capability land:** Limitations are so severe that the land is incapable of sustaining any land use apart from nature conservation. There should be no disturbance of native vegetation.

Source: *The Land and Soil Capability Assessment Scheme* (OEH, 2012).

Approximately 62 per cent of land within the permanent disturbance footprint is classified as Class 4: Moderate capability agricultural land, with the remaining land classified as:

- Class 3: High capability (32 per cent)
- Class 5: Moderate-low capability (3 per cent)
- Class 2: Very high capability (2 per cent)
- Class 6: Low capability (1 per cent).

Land within the temporary disturbance footprint reflects a similar breakdown of soil classifications to land within the permanent disturbance footprint.

Agricultural land classifications within the study area are outlined within Table 22.10 and shown in Figure 22.5.

TABLE 22.10 AGRICULTURAL LAND CLASS WITHIN THE PERMANENT AND TEMPORARY DISTURBANCE FOOTPRINTS

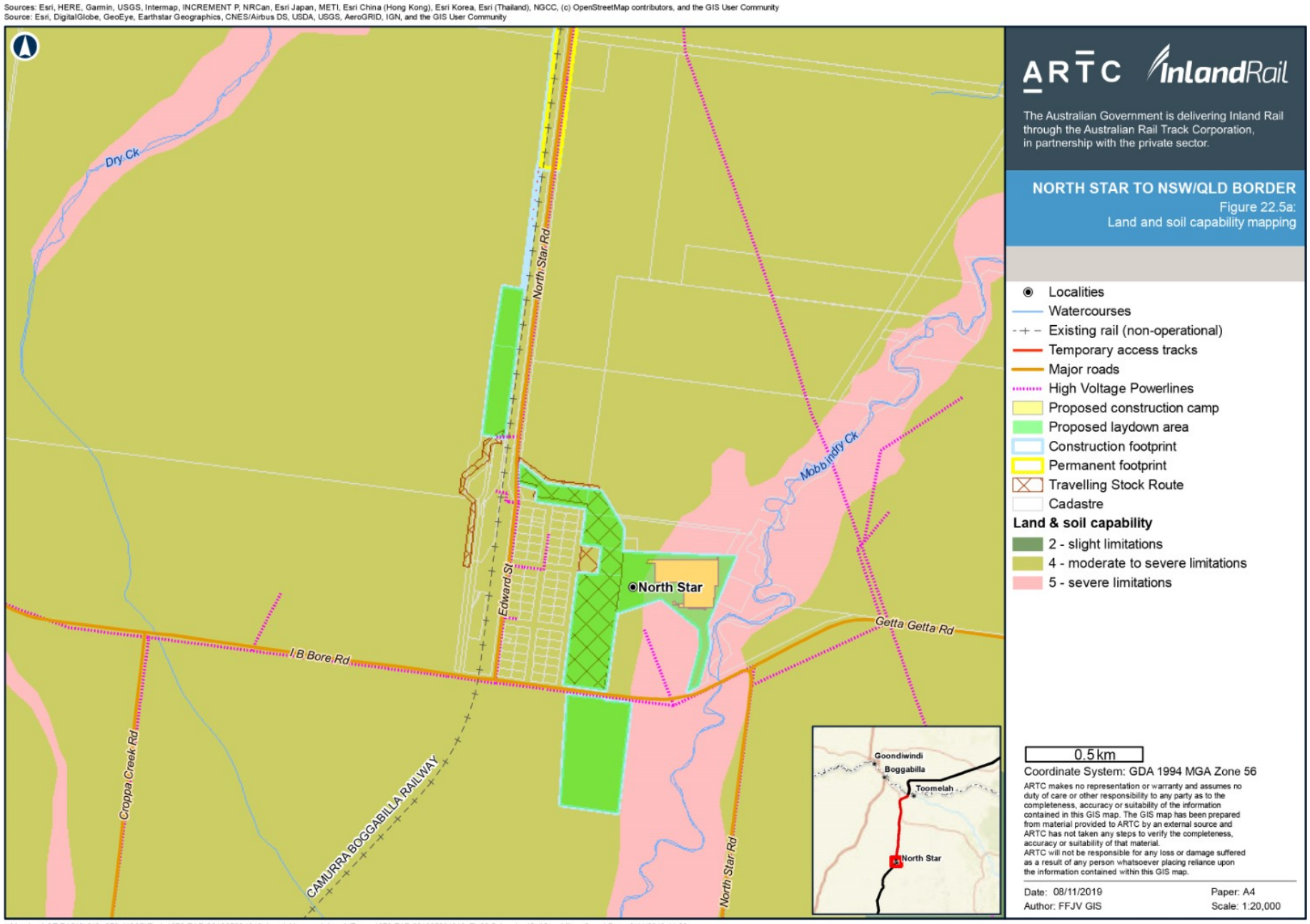
	Land use and tenure study area			
Agricultural Land Class	**Area within permanent disturbance footprint (ha)**	**% of land within permanent disturbance footprint**	**Area within temporary disturbance footprint (ha)**	**% of land within temporary disturbance footprint**
Class 1–Extremely high capability land	–	–	–	–
Class 2–Very high capability land	5.01	1.8	5.07	3.4
Class 3–High capability land	90.83	32.3	44.94	30.6
Class 4–Moderate capability land	173.81	61.9	77.22	52.5
Class 5–Moderate-low capability land	8.41	3.0	16.54	11.2
Class 6–Low capability land	2.76	1.0	3.27	2.2
Class 7–Very low capability land	–	–	–	–
Class 8–Extremely low capability land	–	–	–	–
Total	**280.83**	**100.0**	**147.04**	**100.0**

Class 4 agricultural land can generally be used for grazing, is suitable for pasture improvement, and can be cultivated for sowing of pastures and crops. However, it has cropping limitations because of erosion hazard, weak structure, salinity, acidification, shallowness of soils, climate, wetness, stoniness or a combination of these factors.

Class 3 agricultural land is further described within the assessment scheme as being capable of sustaining cultivation on a rotational basis and can be readily used for a range of crops including cereals, oilseeds and pulses. Productivity will vary with soil fertility.

Land classified as Class 2 is good cropping land with often fertile soils and is suitable for a variety of agricultural uses that involve cultivation. These include vegetable and horticultural production, and a range of crops including cereals, oilseeds and pulses.

The land and soil classification within the permanent and temporary disturbance footprints is consistent with the land uses identified in Table 22.7, where the predominant land uses are grazing and cropping.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Dry Ck
North Star Rd
Mobbindry Ck
Edward St
North Star
Getta Getta Rd
I/B Bore Rd
Croppa Creek Rd
CAMURRA BOGGABILLA RAILWAY
North Star Rd
Goondiwindi
Boggabilla
Toomelah
North Star
ARTC
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NORTH STAR TO NSW/QLD BORDER
Figure 22.5a:
Land and soil capability mapping
Localities
Watercourses
Existing rail (non-operational)
Temporary access tracks
Major roads
High Voltage Powerlines
Proposed construction camp
Proposed laydown area
Construction footprint
Permanent footprint
Travelling Stock Route
Cadastre
Land & soil capability
2 - slight limitations
4 - moderate to severe limitations
5 - severe limitations
0.5 km
Coordinate System: GDA 1994 MGA Zone 56
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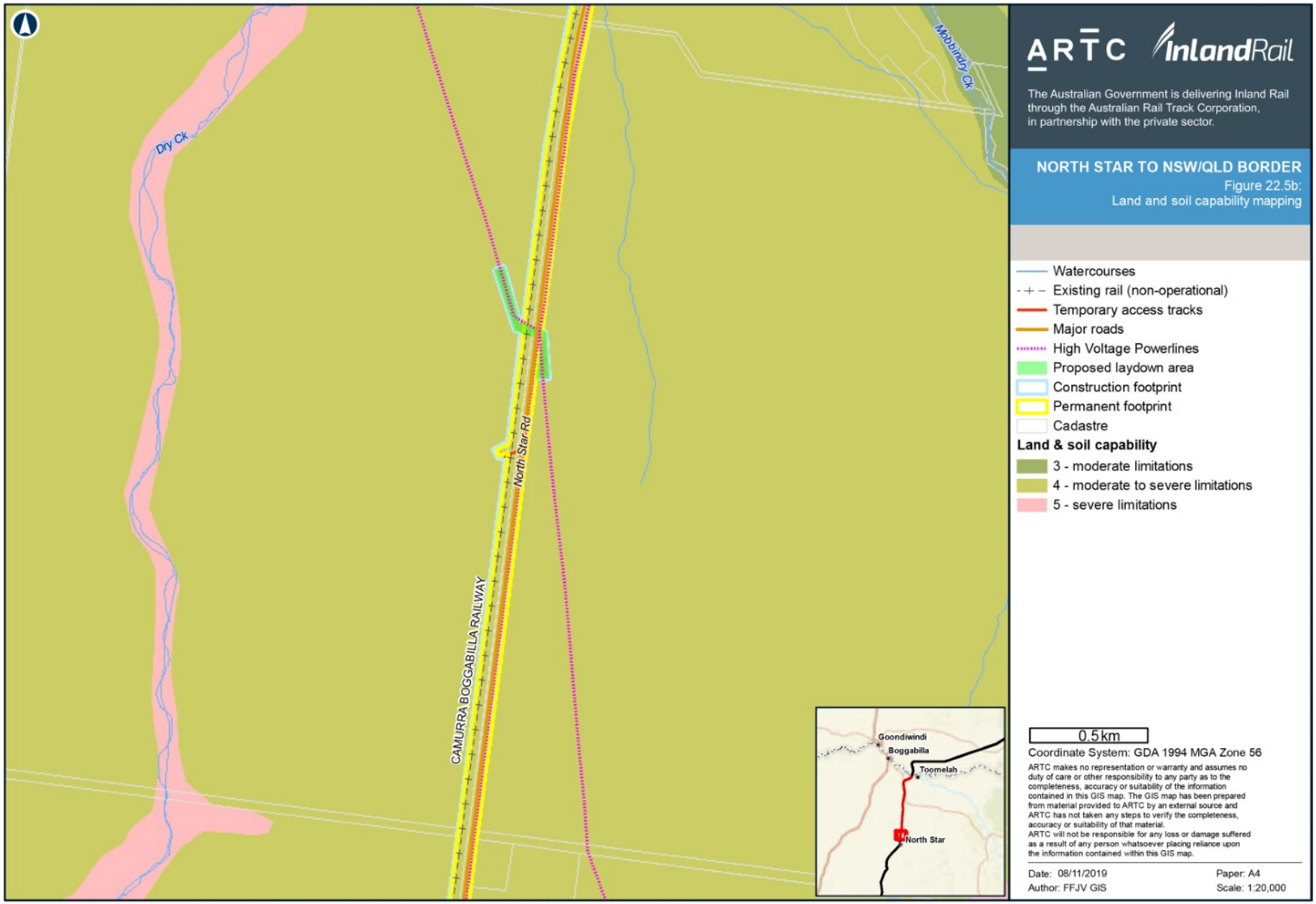
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Dry Ck
Mobbindry Ck
North Star Rd
CAMURRA BOGGABILLA RAILWAY
Goondiwindi
Boggabilla
Toomelah
North Star
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NORTH STAR TO NSW/QLD BORDER
Figure 22.5b:
Land and soil capability mapping
Watercourses
Existing rail (non-operational)
Temporary access tracks
Major roads
High Voltage Powerlines
Proposed laydown area
Construction footprint
Permanent footprint
Cadastre
Land & soil capability
3 - moderate limitations
4 - moderate to severe limitations
5 - severe limitations
0.5 km
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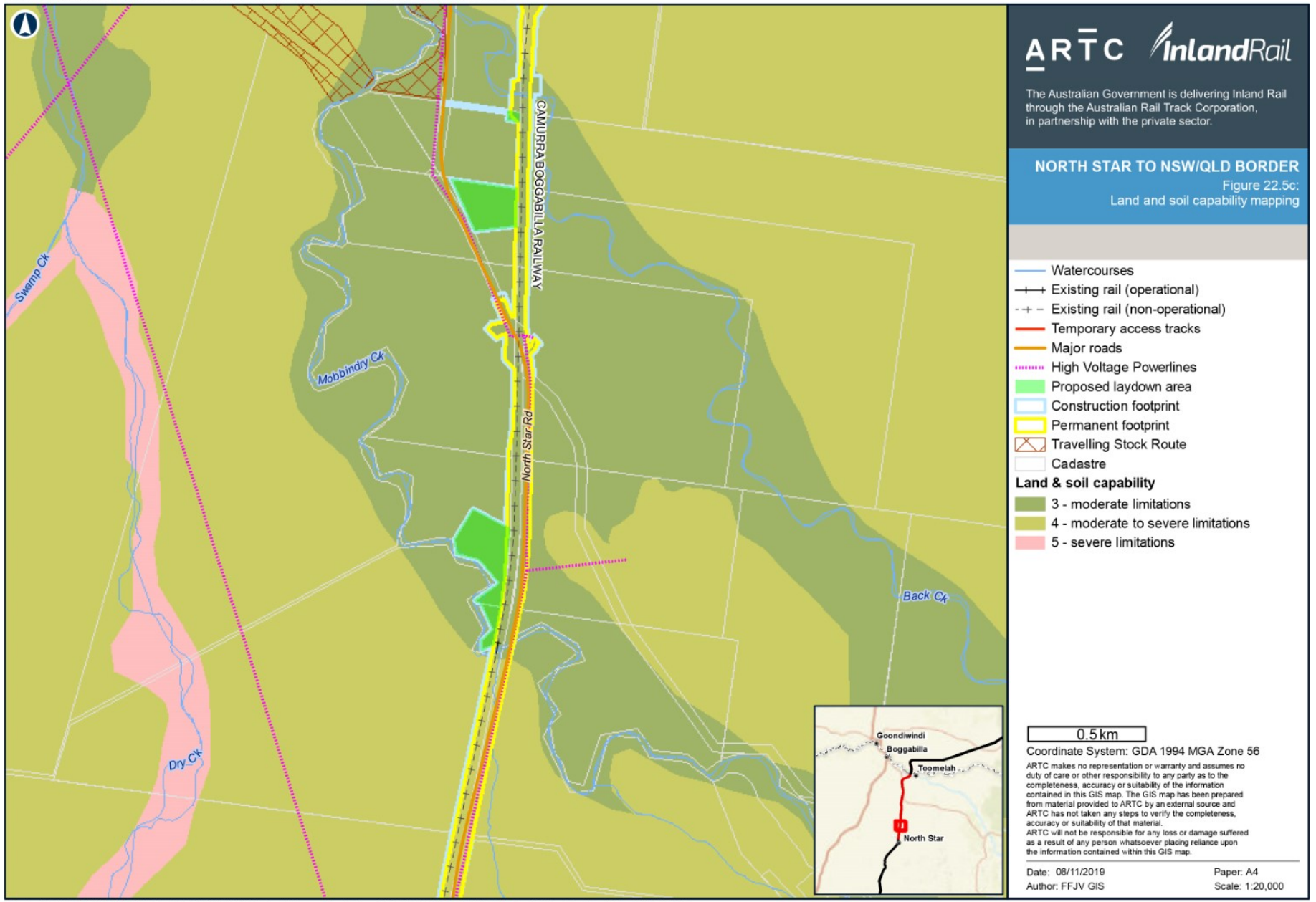
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North Star Rd
Swamp Ck
Mobbindry Ck
Back Ck
Dry Ck
Goondiwindi
Boggabilla
Toomelah
North Star
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NORTH STAR TO NSW/QLD BORDER
Figure 22.5c:
Land and soil capability mapping
Watercourses
Existing rail (operational)
Existing rail (non-operational)
Temporary access tracks
Major roads
High Voltage Powerlines
Proposed laydown area
Construction footprint
Permanent footprint
Travelling Stock Route
Cadastre
Land & soil capability
3 - moderate limitations
4 - moderate to severe limitations
5 - severe limitations
0.5 km
Coordinate System: GDA 1994 MGA Zone 56
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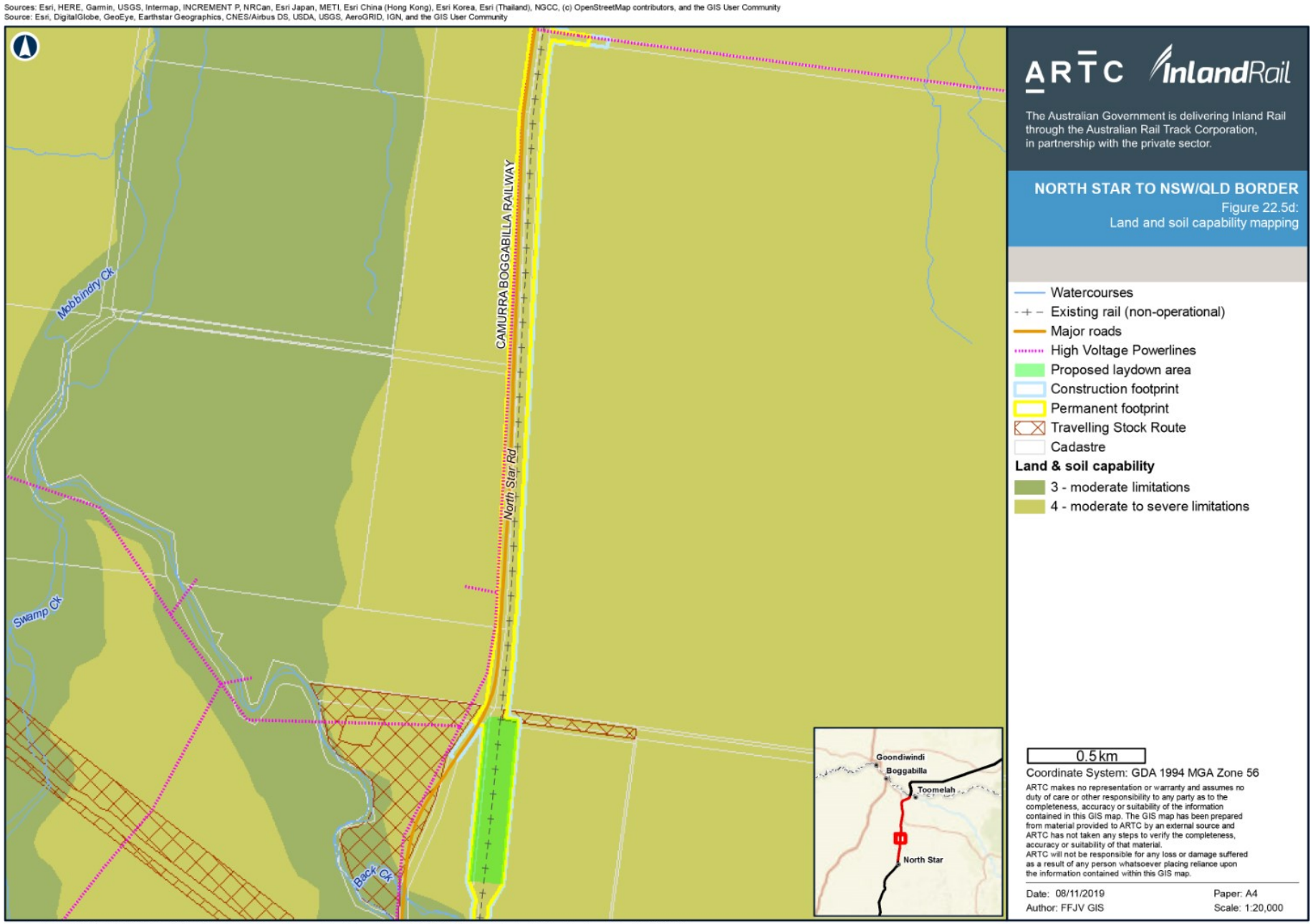
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CAMURRA BOGGABILLA RAILWAY
North Star Rd
Mobbindry Ck
Swamp Ck
Back Ck
Goondiwindi
Boggabilla
Toomelah
North Star
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NORTH STAR TO NSW/QLD BORDER
Figure 22.5d:
Land and soil capability mapping
Watercourses
Existing rail (non-operational)
Major roads
High Voltage Powerlines
Proposed laydown area
Construction footprint
Permanent footprint
Travelling Stock Route
Cadastre
Land & soil capability
3 - moderate limitations
4 - moderate to severe limitations
0.5 km
Coordinate System: GDA 1994 MGA Zone 56
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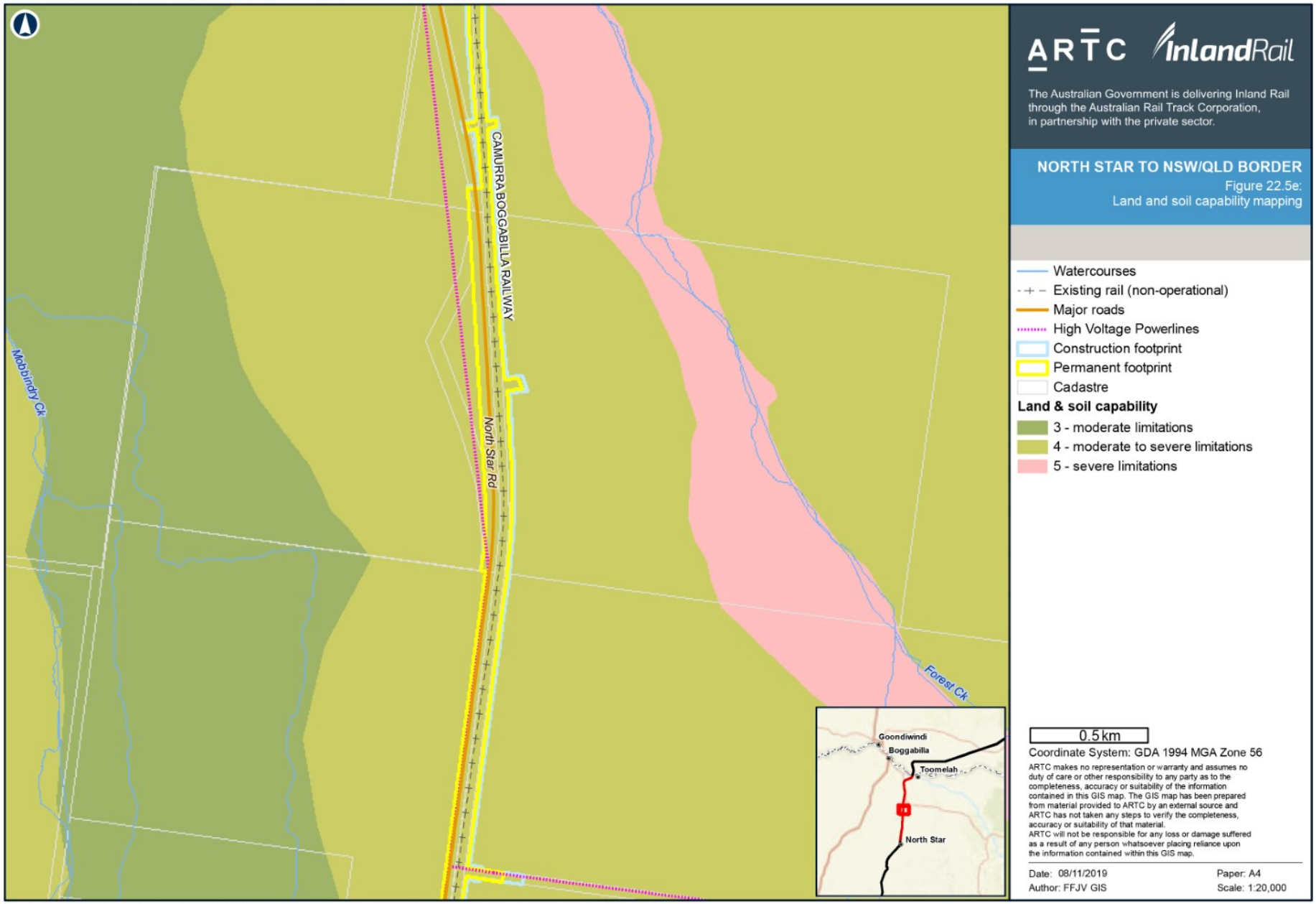
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CAMURRA BOGGABILLA RAILWAY
North Star Rd
Mobbindry Ck
Forest Ck
Goondiwindi
Boggabilla
Toomelah
North Star
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NORTH STAR TO NSW/QLD BORDER
Figure 22.5e:
Land and soil capability mapping
Watercourses
Existing rail (non-operational)
Major roads
High Voltage Powerlines
Construction footprint
Permanent footprint
Cadastre
Land & soil capability
3 - moderate limitations
4 - moderate to severe limitations
5 - severe limitations
0.5 km
Coordinate System: GDA 1994 MGA Zone 56
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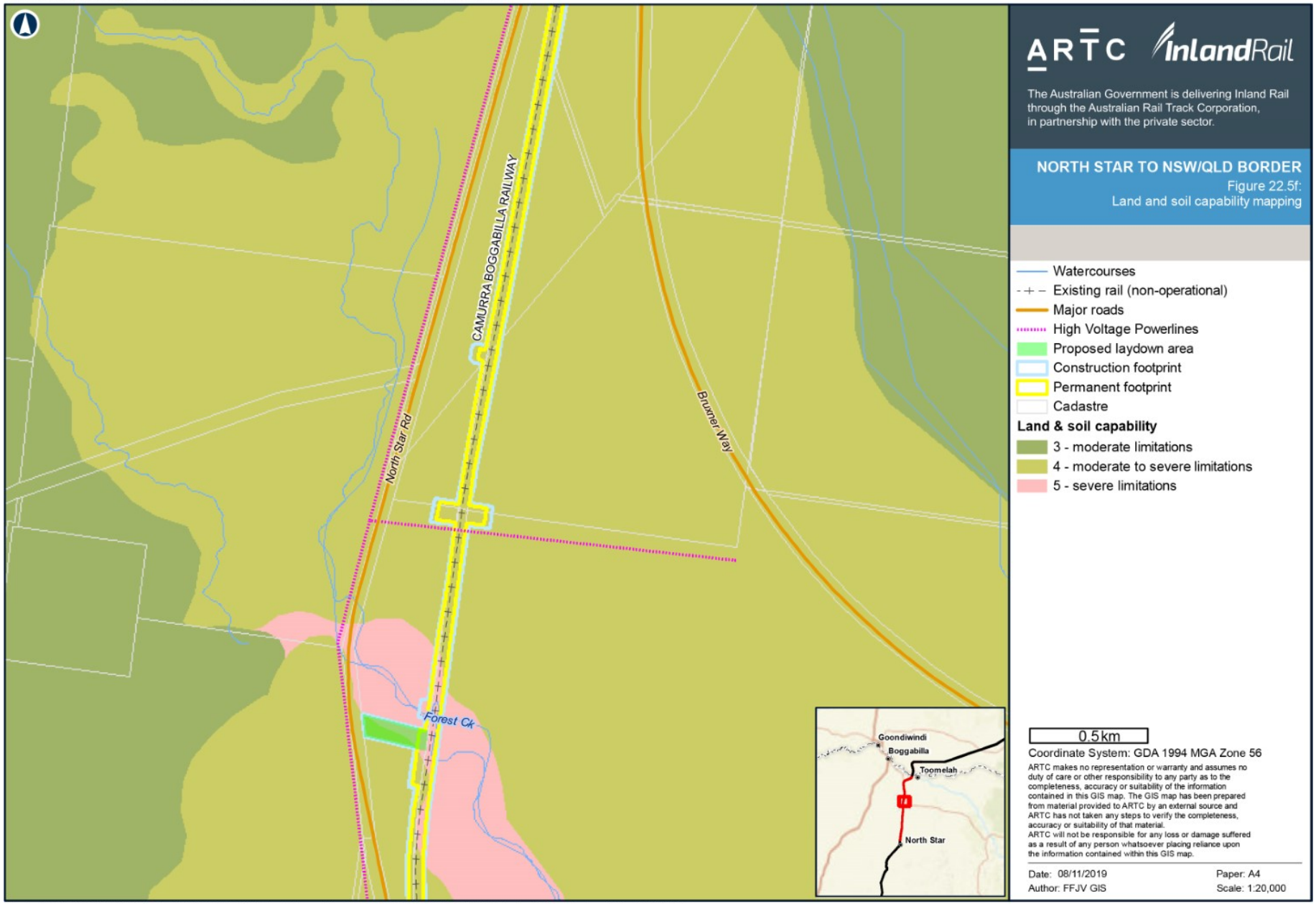
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CAMURRA BOGGABILLA RAILWAY
North Star Rd
Bruxner Way
Forest Ck
Goondiwindi
Boggabilla
Toomelah
North Star
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NORTH STAR TO NSW/QLD BORDER
Figure 22.5f:
Land and soil capability mapping
Watercourses
Existing rail (non-operational)
Major roads
High Voltage Powerlines
Proposed laydown area
Construction footprint
Permanent footprint
Cadastre
Land & soil capability
3 - moderate limitations
4 - moderate to severe limitations
5 - severe limitations
0.5km
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NORTH STAR TO NSW/QLD BORDER
Figure 22.5g:
Land and soil capability mapping

- Existing rail (non-operational)
- Temporary access tracks
- Major roads
- High Voltage Powerlines
- Proposed laydown area
- Construction footprint
- Permanent footprint
- Travelling Stock Route
- Cadastre

Land & soil capability

- 3 - moderate limitations
- 4 - moderate to severe limitations
- 5 - severe limitations

0.5 km

Coordinate System: GDA 1994 MGA Zone 56

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Date: 08/11/2019 Paper: A4
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Map by: LCT Z:\GIS\GIS_270_NS2B\Tasks\270-EAP-201905281319_Land_Use_and_Land_Tenure\270-EAP-201905281319_Fig22.5_LandandSoilCapability_v3.mxd Date: 8/11/2019 11:03

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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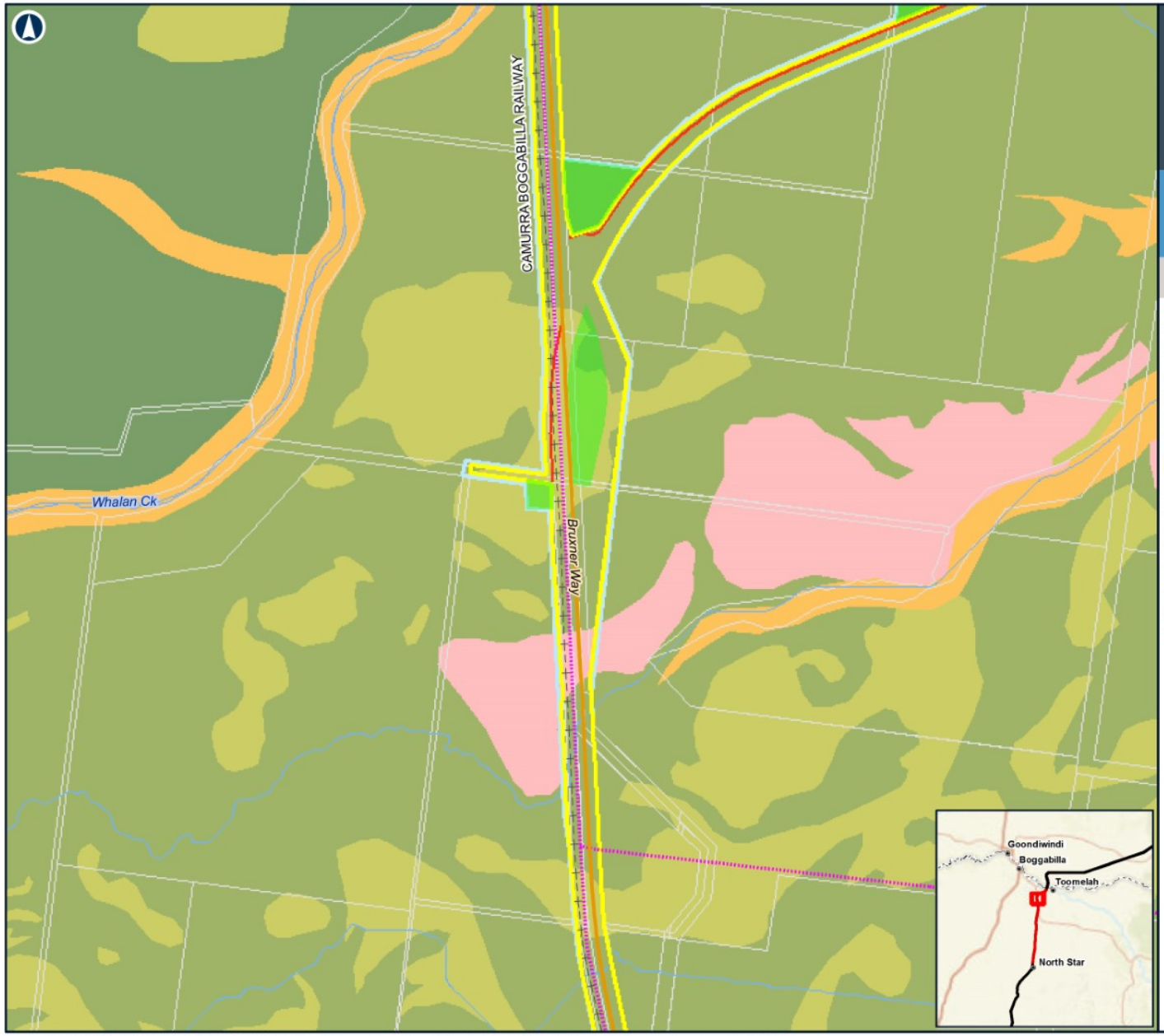

ARTC InlandRail

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

NORTH STAR TO NSW/QLD BORDER

Figure 22.5h:
Land and soil capability mapping

- Watercourses
- Existing rail (non-operational)
- Temporary access tracks
- Major roads
- High Voltage Powerlines
- Proposed laydown area
- Construction footprint
- Permanent footprint
- Cadastre

Land & soil capability

- 2 - slight limitations
- 3 - moderate limitations
- 4 - moderate to severe limitations
- 5 - severe limitations
- 6 - very severe limitations

0.5 km

Coordinate System: GDA 1994 MGA Zone 56

Date: 08/11/2019 Paper: A4
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Map by: LCT Z:\GIS\GIS_270_NS2B\Tasks\270-EAP-201905281319_Land_Use_and_Land_Tenure\270-EAP-201905281319_Fig22.5_LandandSoilCapability_v3.mxd Date: 8/11/2019 11:03

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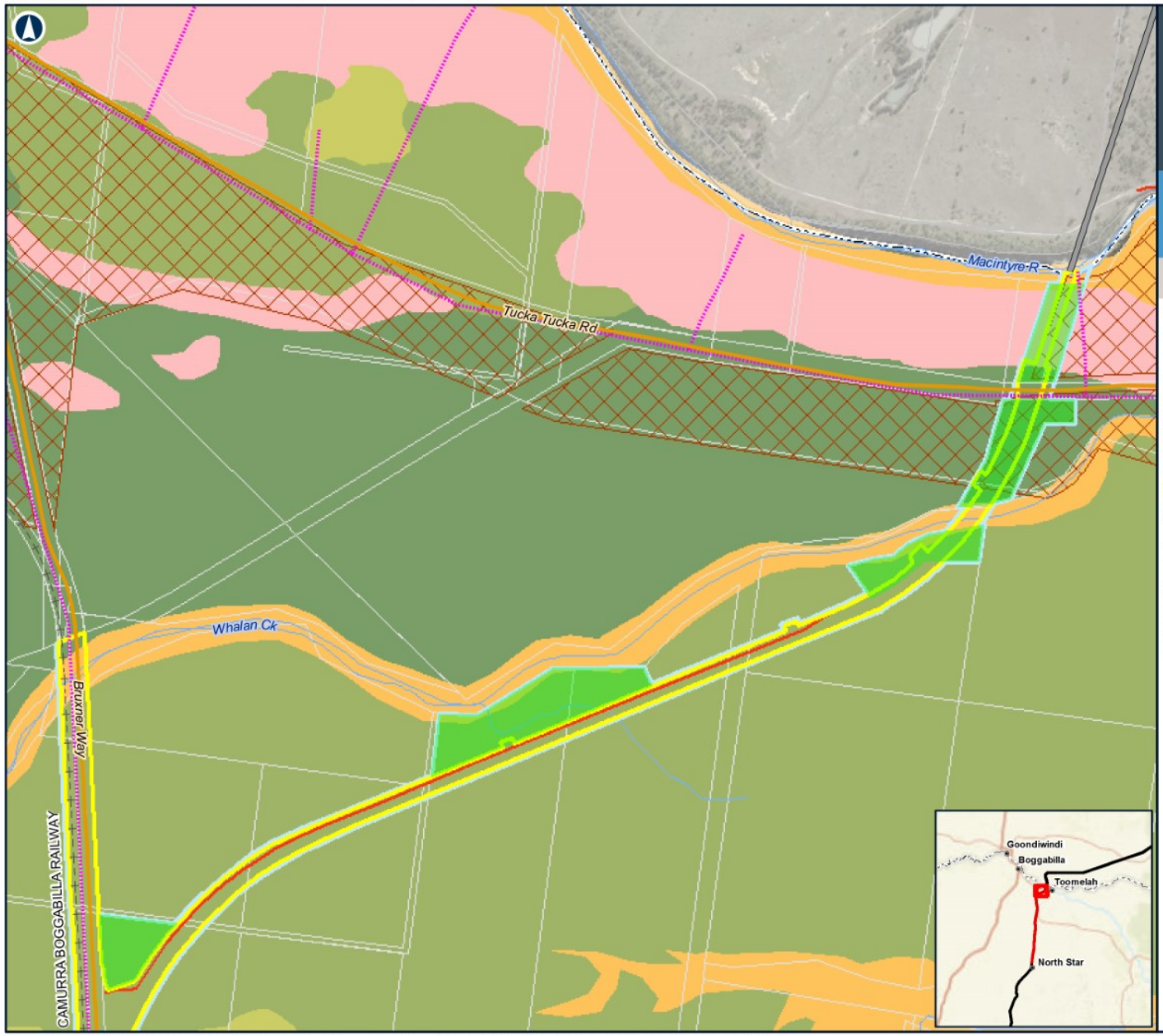

ARTC InlandRail

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

NORTH STAR TO NSW/QLD BORDER

Figure 22.5i:
Land and soil capability mapping

- NSW/QLD border
- Watercourses
- Existing rail (non-operational)
- Temporary access tracks
- Major roads
- High Voltage Powerlines
- Proposed laydown area
- Construction footprint
- Permanent footprint
- Travelling Stock Route
- Cadastre

Land & soil capability

- 2 - slight limitations
- 3 - moderate limitations
- 4 - moderate to severe limitations
- 5 - severe limitations
- 6 - very severe limitations

0.5 km

Coordinate System: GDA 1994 MGA Zone 56

Date: 08/11/2019 Paper: A4
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Travelling stock reserves

TSRs are parcels of Crown land reserved under the *Crown Land Management Act 2016* (NSW) for the use by travelling stock. TSRs provide pasture for travelling or grazing stock.

The permanent disturbance footprint and temporary disturbance footprint crosses and aligns with four parcels identified as TSRs in Table 22.11 and shown in Figure 22.3.

TABLE 22.11 TRAVELLING STOCK RESERVES WITHIN PERMANENT DISTURBANCE FOOTPRINT

Location	Approximate chainage	Description
North Star Road	Ch 9.3 km	This is an isolated TSR parcel. It is separated from the balance of the TSR, which is located to the west of North Star Road. The existing, non-operational rail corridor and North Star Road separates this TSR parcel with the TSRs located to the west.
Oakhurst Road	Ch 19.9 km to Ch 20.8 km	This TSR comprises a series of lots on either side of the permanent disturbance footprint, covering an area of approximately 900 m^2. It is an isolated TSR, not connected to any linear TSRs that could be used for transporting stock overland.
South of Tucka Tucka Road	Ch 29.7 km to Ch 30.1 km	This TSR runs adjacent to Tucka Tucka Road and is approximately 300 m wide where it meets the proposed permanent disturbance footprint. The adjacent landowner uses the TSR for grazing and moving stock overland.
Between Tucka Tucka Road and Macintyre River	Ch 30.1 km to Ch 30.5 km	This TSR is located between Tucka Tucka Road and the Macintyre River. The proposed permanent disturbance footprint runs along the western boundary of this TSR for approximately 400 m.

22.5.3.2 Infrastructure and utilities

In the GSC LGA, the study area crosses and aligns with North Star Road and Forest Creek Road, both of which are managed by the GSC. In the MPSC LGA, the study area crosses and aligns with North Star Road, Bruxner Way and Tucka Tucka Road, all of which are managed by the MPSC . The proposal has seven public road–rail interfaces in total. The proposal also intersects private access and unformed roads.

The study area crosses 40 services, comprising 24 communications utilities (Telstra), 14 overhead electrical transmission lines (Essential Energy), one potable water pipe (MPSC) and one groundwater bore (privately owned).

Consultation with respective infrastructure providers has occurred and will continue throughout the detailed design phase.

22.5.3.3 Protected and sensitive lands

There are no protected areas located within the study area.

22.5.3.4 Resource interests

There are no mining, mineral exploration or petroleum exploration leases within the study area.

22.5.4 Future land-use intent and development activity

22.5.4.1 Future land-use intent

A review of the relevant statutory land-use planning instruments has been undertaken to identify the planned future land-use intent and preferred pattern of development within the study area. As the proposal is SSI, the provisions of the Gwydir and Moree Plains LEPs do not apply. Notwithstanding this, the zoning intent for the area as determined by the LEPs has been taken into consideration when determining future land uses in the area. As such, the relevant instruments are:

- *New England North West Regional Plan 2036* (Department of Planning and Environment, 2017)
- *Gwydir Local Environmental Plan 2013* (GSC, 2013)
- *Gwydir Shire Council Community Strategic Plan 2017–2027* (GSC, 2017)
- *Moree Plains Local Environmental Plan 2011/Moree Plains Development Control Plan 2013* (MPSC, 2011)
- *Moree Plains Shire Council Community Strategic Plan 2017* (MPSC, 2017).

New England North West Regional Plan 2036

The *New England North West Regional Plan* (Department of Planning and Environment, 2017) was released in August 2017 and is the NSW Government's 20-year plan for the New England North West region. The plan guides the land-use planning priorities and decisions for the region, providing a strategic direction for the region's economy, environment, infrastructure and communities.

Gwydir is identified as having a strong and growing economy based on agriculture that is supported by the 'Golden Triangle' area around North Star, an area known for its high yielding crops. Moree Plains is identified within the plan as one of the top agricultural producing areas in Australia, producing large-scale cereal and chickpea crops as well as cotton, pecan nuts, sheep and cattle. Moree is also identified as a key location for the potential Inland Rail.

Priorities identified for the Gwydir and Moree Plains LGAs include the promotion of development contributing to the unique character of local towns, the support of the development of employment lands, encouragement of diversification and growth in agriculture, horticulture and agribusinesses and the promotion of a vibrant, youthful and mobile workforce.

In summary, the plan recognises that:

- New England North West region is strategically located between Sydney and Brisbane. High-quality transport networks between Newcastle, Sydney and South East Queensland will provide ready access to domestic and international markets and services
- Upgrades to transport infrastructure, including the development of the Inland Rail and intermodal freight terminals, are making it easier for goods, services and people to move across the region and beyond
- Moree is one of the top agricultural producing areas in Australia and one of the key locations for the Inland Rail.

Relevant goals, direction and actions within the plan include:

- Strong infrastructure and transport networks for a connected future
- Expand emerging industries though freight and logistics connectivity
- Work with the Australian Government and councils as the Inland Rail Program progresses.

Moree Plains Shire Local Environmental Plan, Moree Plains Development Control Plan and Gwydir Shire Local Environmental Plan

The Gwydir LEP, Moree Plains LEP and Moree Plains Development Control Plan provide the LEP provisions for land within the Gwydir and Moree Plains LGA respectively. The study area is zoned for rural–primary production under both environmental plans. The intent for this zone is to encourage rural and primary industry production land uses. Objectives for the zone within both LEPs is outlined within Table 22.12.

TABLE 22.12 OBJECTIVES OF THE RU1–PRIMARY PRODUCTION ZONE WITHIN GWYDIR LOCAL ENVIRONMENTAL PLAN AND MOREE PLAINS LOCAL ENVIRONMENTAL PLAN

Zone RU1–Primary Production	Gwydir LEP	Moree Plains LEP
Objectives	▸ To encourage sustainable primary industry production by maintaining and enhancing the natural resource base ▸ To encourage diversity in primary industry enterprises and systems appropriate for the area ▸ To minimise the fragmentation and alienation of resource lands ▸ To minimise conflict between land uses within this zone and land uses within adjoining zones.	▸ To encourage sustainable primary industry production by maintaining and enhancing the natural resource base ▸ To encourage diversity in primary industry enterprises and systems appropriate for the area ▸ To minimise the fragmentation and alienation of resource lands ▸ To minimise conflict between land uses within this zone and land uses within adjoining zones ▸ To permit development for certain purposes if it can be demonstrated that suitable land or premises are not available elsewhere.

Gwydir Shire Council Community Strategic Plan 2017–2027

The purpose of the *Gwydir Shire Council Community Strategic Plan 2017–2027* (GSC, 2017) is to provide information on the strategic direction, goals and related outcomes and strategies for the Gwydir Shire community. The plan does not provide specific information on the potential future land uses within Gwydir Shire. Rather, the plan identifies an overarching vision for the shire and council's goals to achieve this vision. The vision for the Gwydir Shire is to be the leader in local government through continuous learning and sustainability, with the following goals:

- A healthy and cohesive community
- Building the business base
- An environmentally responsible shire
- Proactive regional and local leadership
- Organisational management.

When discussing the 'healthy and cohesive community' goal, the plan recognises that the Inland Rail Program is of interest to the Gwydir Shire community.

Moree Plains Shire Council Community Strategic Plan 2027

The purpose of the *Moree Plains Shire Council Community Strategic Plan 2027* (MPSC, 2017) is to identify the community's main priorities and aspirations for the future and identifying strategies to achieve them. The strategic plan identifies the vision for the Moree Plains Shire as a community that works together to achieve a balance between quality of life, enterprising business, agricultural pursuits and caring for natural resources. To achieve this vision, the plan outlines the following key themes:

- An inclusive, caring community
- Sustainable spaces and places
- A vibrant regional economy
- A leading organisation.

A key strategy identified for achieving a 'vibrant regional economy' is to capitalise on the shire's location on the Inland Rail Project's route and support local businesses in doing the same. The council's plan recognises the MPSC's role as an advocate partner, partnering with the ARTC, Australian and state government and private enterprise.

22.5.4.2 Development activity

A review of current and planned future development activity has been undertaken to identify recent development approval decisions, current proposed development, and the status of key major projects. This has included undertaking a review of the GSC's and MPSC's planning and development online records, together with the Department of Planning, Industry and Environment Major Projects Register. The review aims to identify any recently granted development approvals or lodged applications for any development of note to the proposal, as well as a desktop investigation of the status of several major projects within the region. Development approvals within the last six years have been reviewed. This accounts for developments approved under the EP&A Act with a currency period of five years, with an additional year for robustness.

A summary of activity in Table 22.13.

TABLE 22.13 DEVELOPMENT ACTIVITY WITHIN PROXIMITY OF THE PROPOSAL

Project name and Proponent	Locality	Description	Development stage	Relationship to proposal
Gwydir Shire Council LGA				
No significant development activity was identified.				
Moree Plains Shire Council LGA				
No significant development activity was identified.				
Department of Planning, Industry and Environment's 'Major Projects'				
Narrabri to North Star–Inland Rail (ARTC)	Gwydir, Moree Plains and Narrabri	ARTC are seeking approval to construct and operate the Narrabri to North Star section of Inland Rail. The Narrabri to North Star Project is generally located in the existing, non-operational Boggabilla rail corridor between the town of Narrabri and the village of North Star in NSW.	Proponent reviewing submissions to EIS.	The proposal is the proceeding alignment from the Narrabri to North Star alignment.
Infrastructure Australia's Infrastructure Priority List				
There are no projects on the Infrastructure Priority List located within the study area.				
NSW Government—Premier's Priorities (Delivering Infrastructure)				
There are no major or local infrastructure projects identified as a Premier's Priority for delivery infrastructure within the study area.				

22.6 Potential impacts

The construction and operation of the proposal has the potential to result in direct and permanent impacts to land use and tenure within the study area. Potential impacts to land use and tenure associated with the proposal in both the construction and operation phase are related to:

- Change in tenure and loss of property:
  - Native title
- Change in land use:
  - Sterilisation of agricultural land and disruption to agricultural practices
  - Alterations to TSRs and informal stock routes
  - Impacts on future development
- Accessibility:
  - Impacts on road network
  - Impacts to property access
- Impacts on utilities
- Opportunities to support future industry development.

22.6.1 Change in tenure and loss of property

The proposed permanent disturbance footprint will directly impact on approximately 280 ha of land, traversing 31 properties and the existing rail and road corridors.

As the proposal was deliberately designed to use the existing non-operational rail corridor where possible, the extent of 'new' properties to be acquired has been minimised. In total, there are 31 'new' properties which may require full or partial acquisition. Of these 31 properties, 20 are near the existing, non-operational Boggabilla rail corridor. The remaining 11 are within the greenfield segment of the proposal, where Inland Rail proposes to deviate the permanent disturbance footprint at Whalan Creek to the northeast before crossing the Macintyre River.

Properties required for the greenfield section of the permanent disturbance footprint comprise eight parcels of freehold tenure, two parcels of Crown land and one parcel with unknown tenure. Properties along the existing, non-operational Boggabilla rail corridor include 16 parcels of freehold tenure, three parcels of Crown land and one parcel of NSW Government tenure.

Properties to be acquired by ARTC will be acquired either in full, or partially acquired where feasible and appropriate.

Additional properties may also be acquired in other situations, such as where certain impacts cannot be avoided or appropriately mitigated, in consultation with affected landowners.

Some properties will also have a temporary use throughout construction (the temporary disturbance footprint). Where Inland Rail proposes to use land temporarily for construction, the proposal has the potential to disrupt existing operations on and surrounding these properties for the duration of construction and rehabilitation. In identifying the properties, consideration was given to minimising the potential impacts, including but not limited to:

- Properties within the existing, non-operational Boggabilla rail corridor owned by NSW Government
- Use of properties which will already be severed or alienated by the proposed permanent disturbance footprint
- Access to public roads
- Avoidance of TSRs, intensive livestock or cropping land uses
- Avoidance of environmentally sensitive areas
- Use of existing borrow pits.

These properties will be used to provide access, laydown areas, borrow pits and workforce accommodation.

During construction, laydown areas will be used to store infrastructure, equipment and materials. If required, laydown areas at bridge locations may also include crane pads. Laydown areas may also be used for storing diesel fuel, prefabricated site offices and portable amenities. Properties required for laydown areas and the temporary workforce accommodation are mostly freehold and are identified in Table 22.14.

Eleven existing borrow pits are proposed to be used to provide general and/or structural fill for embankments. These borrow pits are also mostly located on freehold land and are detailed in Table 22.15.

TABLE 22.14 TEMPORARY LAYDOWN AREAS AND WORKFORCE ACCOMMODATION FOR LAND OUTSIDE OF PERMANENT DISTURBANCE FOOTPRINT

Approximate Chainage	Size of the laydown area (ha)	Location (Lot/Plans)	Tenure	Use
–	22.27	2DP1124486	Freehold	Temporary workforce accommodation
		3DP1124486	Crown	
		47DP847049	Freehold	
–	12.54	2DP622557	Freehold	General laydown
Ch 0.1 km	5.69	10DP1151556	Crown	Plant and material laydown
		1DP1124486	Crown	
		2DP1124486	Freehold	
		39DP756010	Crown	

Approximate Chainage	Size of the laydown area (ha)	Location (Lot/Plans)	Tenure	Use
Ch 0.2 km	6.32	1DP621082	Freehold	Will be used to offload construction materials transported to the site via rail and the storage and maintenance of construction equipment.
		2DP621082	Freehold	
		7301DP1158745	Crown	
Ch 3.6 km	2.37	22DP1238729	Freehold	Utility relocations
		24DP756010	Freehold	
Ch 5.8 km	6.48	4DP756010	Freehold	Bridge laydown
		9DP756010	Freehold	
Ch 7.6 km	4.69	12DP756010	Freehold	Road interface and track works
		7DP756010	Freehold	
Ch 8.1 km	0.26	12DP756010	Freehold	Bridge laydown
		18DP756011	Freehold	
Ch 9.2 km	9.89	1011DP1173424	NSW Government	General laydown
Ch 16.3 km	2.45	7DP756011	Freehold	Bridge laydown
Ch 20.0 km	11.62	100DP756029	Crown	General laydown
		111DP756029	Crown	
		7001DP1028812	Crown	
Ch 20.8 km	1.01	100DP756029	Crown	Bridge laydown
Ch 22.6 km	1.10	2DP1165811	Freehold	Crossing loop
Ch 25.0 km	1.09	2DP1165811	Freehold	Crossing loop
Ch 25.4 km	7.15	4DP1117152	Freehold	Bridge laydown
		5DP1117152	Freehold	
Ch 26.0 km	5.00	4DP1117152	Freehold	Bridge laydown
Ch 27.8 km	13.63	57DP756029	Unknown	Bridge laydown
		58DP756029	Freehold	
Ch 29.3 km	5.59	52DP756009	Freehold	Bridge laydown
Ch 29.8 km	7.86	14DP756009	Freehold	Bridge and track work
		6DP1117152	Freehold	
		7314DP1137535	Crown	
Ch 30.5 km	4.98	6DP1117152	Freehold	Bridge laydown
		7013DP1069656	Crown	

TABLE 22.15 PROPOSED BORROW PITS

Borrow Pit ID	Size of borrow pit (ha)	Lot/Plan	Tenure	LGA	Approximate distance from permanent disturbance footprint (km)
Site 1	5.26	11DP755984	Freehold	Gwydir Shire	8.5
Site 2	18.8	8DP755984	Freehold	Gwydir Shire	11.3
Site 4	10.0	2DP1158789	Freehold	Gwydir Shire	2.7
		5DP755983			
Site 5	27.8	16DP756015	Freehold	Gwydir Shire	10.6
Site 7	66.9	1011DP1173424	NSW Government	Gwydir Shire	0.0 (Laydown area adjoins permanent disturbance footprint)
		18DP756011	Freehold		
		3DP850372	Freehold		
Site 8	23.9	14DP756011	Freehold	Gwydir Shire	0.6
Site 9	54.9	12DP755983	Freehold	Gwydir Shire	14.4
Site 11	22.6	2DP1037530	Freehold	Gwydir Shire	15.1
Site 13	18.8	1DP630301	Freehold	Moree Plains Shire	14.4
		9DP756031			
Site 25	25.7	18DP755983	Freehold	Gwydir Shire	12.0
Site 26	8.3	14DP755993	Freehold	Moree Plains Shire	9.9
		15DP755993			

Potential impacts as a result of land acquisitions include:

- Temporary or permanent loss of property
- Forced relocation of residents
- Severance of land parcels and potential fragmentation of property infrastructure
- Disruption to access and use of property where temporarily acquired.

Land acquisition for the proposal will be in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW) where appropriate. Land required for temporary purposes, such as construction access or to enable construction, will likely be leased or licensed from landowners.

Consultation with affected landowners and communities has been paramount in obtaining an understanding of individual property operational arrangements and where these may be impacted on as a result of the proposal.

Where the permanent disturbance footprint deviates from the existing, non-operational Boggabilla rail corridor, it has been designed to align with cadastral boundaries where possible to reduce the severance of land parcels. Inland Rail also hopes to reduce other potential property impacts, particularly in relation to access, utilities or farm operational arrangements. Consultation with the affected landowners is ongoing and recorded and is in Chapter 23: Socio-economic Impact Assessment.

Impacts related to social impacts of the proposal are also in Chapter 23: Socio-economic Impact Assessment.

As impacts to tenure relate to the direct acquisition or use of land, there are unlikely to be any impacts outside of the land use and tenure study area.

22.6.1.1 Native title

The proposal traverses one native title claim area. This claim is yet to be determined.

The proposal was deliberately designed to use the existing, non-operational Boggabilla rail corridor and freehold land where possible, where native title has been extinguished. However, the permanent disturbance footprint does traverse six properties: on Crown land, NSW Government land or where tenure is unknown. As such, native title may exist on these properties, with potential for the proposal to impact on native title rights and interests, and consistency with the *Native Title Act 1993* (Cth) will therefore be required. Native title may either be extinguished or suppressed prior to construction of the proposal.

Details on consultation undertaken with the native title claimants are in Chapter 12: Heritage, and Chapter 23: Socio-economic Impact Assessment.

22.6.2 Change in land use

The proposal has been designed to be located within the existing, non-operational Boggabilla rail corridor for approximately 25 km. While the proposal has been designed to remain within the existing boundaries where possible, the permanent disturbance footprint will extend from the existing boundaries in some locations to accommodate proposed infrastructure.

Despite proposed extensions beyond the existing cadastral boundaries, approximately 75 per cent of the proposed permanent disturbance footprint is within the existing, non-operational Boggabilla rail corridor, minimising the need to traverse other land uses. As the rail corridor is existing and rail operations have previously been undertaken in the study area, the proposal is regarded as generally compatible within the corridor.

The use of this non-operational rail corridor for heavy freight will result in the reintroduction and increased frequency of train movements in the area. Potential impacts associated with an increase in train movements, access, amenity and safety are considered, respectively, in:

- Chapter 20: Traffic and Transport
- Chapter 16: Noise and Vibration
- Chapter 21: Landscape and Visual Impact Assessment
- Chapter 24: Hazard and Risk.

Land use within the area of the proposed permanent disturbance footprint, outside of the existing, non-operational Boggabilla rail corridor and road corridors, is mostly grazing and cropping land. In these areas, the proposal will involve a cumulative shift from primarily rural and agricultural land use to the infrastructure of a heavy freight rail corridor. Potential impacts as a result of this change in land use include:

- Loss of rural and agricultural land uses
- Loss of rural amenity
- Severance of agricultural properties
- Disruption to agricultural practices/farm operations.

Potential impacts to agricultural land and operations are discussed in Section 22.6.2.1.

Potential impacts associated with amenity on sensitive land uses, including from noise, vibration, dust, light and visual amenity, are further discussed in their respective chapters:

- Chapter 16: Noise and Vibration
- Chapter 17: Air Quality
- Chapter 21: Landscape and Visual Impact Assessment.

Potential impacts due to the change of land use of land north of the Macintyre River located in Queensland is addressed in a separate EIS under the *State Development and Public Works Organisation Act 1971* (Qld). The strategic context of the proposal is further discussed in Chapter 2: Strategic Context.

22.6.2.1 Impacts on agricultural uses and activities

Loss of agricultural land

The Project has the potential to permanently and temporarily sterilise productive agricultural land within the proposal footprint. It also has the potential to sterilise and fragment additional productive agricultural land adjoining the permanent disturbance footprint, leading to a further reduction and loss of access to agricultural land. When determining potential land sterilisation, it is understood that productive land which is mapped to be within existing rail and road corridors has already been sterilised. Therefore, for the purposes of this assessment, only the areas within the proposal footprint that are located outside of the existing rail and road corridors have been considered.

In accordance with the land and soil capability scheme, where the permanent disturbance footprint is located outside of existing rail and road corridors, the permanent disturbance footprint, as shown in Table 22.16, traverses approximately:

- 4 ha of Class 2 land
- 38 ha of Class 3 land
- 22 ha of Class 4 land
- 3 ha of Class 5 land
- 1 ha of Class 6 land.

Where the temporary disturbance footprint is located outside of existing rail and road corridors, the footprint, as shown in Table 22.17, traverses approximately:

- 5 ha of Class 2 land
- 43 ha of Class 3 land
- 70 ha of Class 4 land
- 14 ha of Class 5 land
- 3 ha of Class 6 land.

TABLE 22.16 LAND CLASSIFICATION WITHIN THE PERMANENT DISTURBANCE FOOTPRINT (OUTSIDE OF THE EXISTING RAIL AND ROAD CORRIDORS)

Land classification	Area of land (ha)	% of land
Class 1—Extremely high capability land	–	–
Class 2—Very high capability land	3.87	5.6
Class 3—High capability land	38.26	55.9
Class 4—Moderate capability land	22.52	32.9
Class 5—Moderate–low capability land	2.81	4.1
Class 6—Low capability land	0.92	1.4
Class 7—Very low capability land	–	–
Class 8—Extremely low capability land	–	–
Total	**68.39**	**100.0**

TABLE 22.17 LAND CLASSIFICATION WITHIN THE TEMPORARY DISTURBANCE FOOTPRINT (OUTSIDE OF THE EXISTING RAIL AND ROAD CORRIDORS)

Land classification	Area of land (ha)	% of land
Class 1—Extremely high capability land	–	–
Class 2—Very high capability land	4.65	3.5
Class 3—High capability land	43.43	32.2
Class 4—Moderate capability land	70.05	52.0
Class 5—Moderate–low capability land	13.74	10.2
Class 6—Low capability land	2.83	2.1
Class 7—Very low capability land	–	–
Class 8—Extremely low capability land	–	–
Total	**134.70**	**100.0**

To assist in identifying the significance of the potential impact on agricultural land within the region, Table 22.18 and Table 22.19 identify the percentage of agricultural land that the proposal traverses relative to the total area of land classes within each LGA.

TABLE 22.18 PERCENTAGE OF LAND TYPE IDENTIFIED BY THE LAND AND SOIL CAPABILITY SCHEME WITHIN GWYDIR SHIRE LOCAL GOVERNMENT AREA IMPACTED BY THE PROPOSAL

	Gwydir Shire LGA		
Agricultural land class	Area of land within footprint (ha)	Total area within LGA (ha)	% of land traversed by footprint within LGA
Permanent			
Class 2—Very high capability land	–	86,580.23	–
Class 3—High capability land	3.29	112,144.68	Less than 0.1
Class 4—Moderate capability land	10.04	207,699.18	Less than 0.1
Class 5—Moderate–low capability land	0.78	187,016.16	Less than 0.1
Class 6—Low capability land	–	227,472.44	–
Temporary			
Class 2–Very high capability land	–	86,580.23	–
Class 3–High capability land	14.70	112,144.68	Less than 0.1
Class 4–Moderate capability land	58.97	207,699.18	Less than 0.1
Class 5–Moderate-low capability land	9.20	187,016.16	Less than 0.1
Class 6–Low capability land	–	227,472.44	–

TABLE 22.19 PERCENTAGE OF LAND TYPE IDENTIFIED BY THE LAND AND SOIL CAPABILITY SCHEME WITHIN MOREE PLAINS SHIRE LOCAL GOVERNMENT AREA IMPACTED BY THE PROPOSAL

	Moree Plains Shire LGA		
Agricultural land class	Area of land within footprint (ha)	Total area within LGA (ha)	% of land traversed by footprint within LGA
Permanent			
Class 2—Very high capability land	3.87	664,017.56	Less than 0.1
Class 3—High capability land	34.97	630,494.08	Less than 0.1
Class 4—Moderate capability land	12.49	310,070.33	Less than 0.1
Class 5—Moderate–low capability land	2.03	75,288.42	Less than 0.1
Class 6—Low capability land	1.17	99,211.36	Less than 0.1
Temporary			
Class 2—Very high capability land	4.65	664,017.56	Less than 0.1
Class 3—High capability land	28.73	630,494.08	Less than 0.1
Class 4—Moderate capability land	11.08	310,070.33	Less than 0.1
Class 5—Moderate–low capability land	4.55	75,288.42	Less than 0.1
Class 6—Low capability land	2.83	99,211.36	Less than 0.1

As identified in the above tables, both the permanent and temporary disturbance footprints will traverse significantly less than one per cent of agricultural land within the LGAs.

Land fragmentation and disruption to access and infrastructure

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. In particular, the proposal may hinder essential access to water through impacts to drainage lines, diversions, or cutting off water to or from dams. This potential fragmentation and alienation may impact on the economic viability of farming operations directly affected by the permanent disturbance footprint.

The proposal's design does not inhibit existing activities on either side of the alignment, which features raised bridge structures to ensure connectivity between these parcels of land, including cattle access points. This has also addressed the potential for cattle yards to be stranded. Fences to be removed for the proposal, affecting cell grazing, will be addressed as part of the compensation agreements with the relevant landowners.

Consultation undertaken with landowners also identified the potential for the proposal to affect machinery movements between land parcels and properties. The proposal design team were then able to appreciate the widths of crossings needed to move large machinery across the rail corridor. From a feasibility perspective, it is clear that movements of large machinery and equipment across the rail corridor can be achieved. Therefore, during the detailed design phase, the design treatments for crossings will be developed in consultation with affected landowners.

Within the brownfield section, loss of connectivity though a reduction in rail crossings may also affect the management of properties. ARTC has consulted with landowners in developing the design for level crossings to reduce impacts on cross-corridor connectivity. Landowners noted that fencing the rail line will prevent farmers from using the high country in the corridor as a safe area for vehicles, stock and people during floods. The precise extent of impacts on properties will be determined during detailed design.

Furthermore, the Gwydir LEP and Moree Plains LEP outline requirements for minimum subdivision lot sizes for properties within the RU1–Primary Production zone to prevent the fragmentation of rural lands.

The objective of minimum lot sizes is to ensure land is not fragmented by subdivisions that would create additional dwelling entitlements. As the proposal is SSI, the provisions of the Gwydir LEP and Moree Plains LEP do not apply. However, if the proposal results in fragmentation of land parcels to be below the minimum lot size outlined within the LEPs, landowners of fragmented land parcels may be constrained in the development potential of the residual lot. Individual property agreements will be made with landowners if it is determined historical or current development entitlements are lost as a result of the proposal.

Alterations to travelling stock reserves and informal stock routes

The permanent disturbance footprint traverses four land parcels designated as TSRs. Details of these TSRs and the potential impacts of the proposal are in Table 22.20.

TABLE 22.20 POTENTIAL IMPACTS OF THE PROPOSAL ON TRAVELLING STOCK RESERVES TRAVERSED BY THE PERMANENT DISTURBANCE FOOTPRINT

Location	Approximate chainage	Potential impacts
North Star Road	Ch 9.3 km	Access to this TSR parcel is already restricted by the existing, non-operational Boggabilla rail corridor and North Star Road and is located between the TSR parcels located to the west of North Star Road. It is therefore considered that the proposal will not impact the use of the balance of this TSR, as there is little value in moving stock across the permanent disturbance footprint at this location.
Oakhurst Road	Ch 19.9 km to Ch 20.8 km	This TSR is isolated and not connected to any linear TSRs that could be used for transporting stock overland. As access to this TSR is already restricted by the existing, non-operational Boggabilla rail corridor, it is not considered that the proposal will impact on the use of this TSR.
South of Tucka Tucka Road	Ch 29.7 km to Ch 30.1 km	The permanent disturbance footprint will traverse this TSR, potentially permanently impacting the access and use of the TSR.
Between Tucka Tucka Road and Macintyre River	Ch 30.1 km to Ch 30.5 km	The proposed alignment runs adjacent to this TSR for approximately 400 m. During construction, the proposal has the potential to temporarily restrict access and use of this TSR.

Consultation is ongoing with local land services and landowners to determine potential impacts of the proposal on these TSRs.

It is understood that there may also be informal stock routes that may be used to transfer stock to various grazing paddocks and holding yards within or across the study area. Consultation is ongoing with landowners to identify impacts, if any, to informal stock routes.

Other indirect impacts on agricultural land

The proposal may also have the potential to indirectly impact on productive agricultural land within, and adjacent to, the study area through impacts from:

- Contamination during construction
- Biosecurity risks during construction
- Changes in water surface hydrology as a result of the proposal
- Erosion and sedimentation.

There will also be a growth of vehicle movements within and around the temporary disturbance footprint and on the surrounding road network. The growth of vehicle movements will have the potential to increase biosecurity risks relating to the spread of weeds. This risk has the potential to impact on agricultural activities within, and adjacent to, the study area, with potential effects of the spread of invasive species including reduced productivity, loss of markets and increase in costs to agricultural operations.

Potential indirect impacts of the proposal on agricultural land is further discussed in:

- Chapter 13: Surface Water and Hydrology
- Chapter 15: Land Resources and Contamination
- Chapter 24: Hazard and Risk
- Appendix B: Biodiversity Technical Report.

While it is acknowledged that the proposal will impact on current agricultural land and potential agricultural land, these impacts have been avoided and minimised where possible through the deliberate use of the existing, non-operational Boggabilla rail corridor.

The proposal will involve creation of a new greenfield rail corridor for approximately 5 km, or approximately 19 per cent of the proposal alignment. This successfully and significantly minimises direct and permanent impacts on existing and future potential agricultural land. Furthermore, using an existing rail corridor significantly minimises fragmentation of existing agricultural land.

22.6.2.2 Development activity

Development activity located within the study area is the Narrabri to North Star Inland Rail Project, which is a Department of Planning, Industry and Environment (DPIE) 'Major Project'. Potential impacts to this development activity are outlined in Table 22.21.

TABLE 22.21 IMPACT OF PROPOSAL ON FUTURE DEVELOPMENT WITHIN THE STUDY AREA

Project name and Proponent	Relationship to proposal	Impact to proposal
Department of Planning, Industry and Environment's 'Major Projects'		
Narrabri to North Star—Inland Rail (ARTC)	The proposal is the proceeding alignment from the Narrabri to North Star alignment.	The proposal will connect with the Narrabri to North Star Inland Rail Project to the NSW/QLD border.

22.6.3 Accessibility

22.6.3.1 Impacts on road network

As the permanent disturbance footprint will be largely within the existing, non-operational Boggabilla rail corridor, the number of new road–rail interfaces are minimised. However, as the proposal will involve an increase in train movements within this disturbance footprint, both existing and new road–rail interfaces have been considered when assessing the proposal's impacts on the surrounding road network.

The proposed permanent disturbance footprint has seven public road–rail interface points on five public roads, which are managed by local governments. Where the footprint traverses these roads, potential impacts include traffic disruption, increase in travel time, and decrease in accessibility to community utilities, facilities and key destinations within the area through changes to access road arrangements.

Careful consideration to the type of crossing at each of the road–rail interfaces has been given to avoid, or minimise where possible, impacts to the surrounding road network. The type of crossing proposed at each of these roads has been determined based on several factors. These include access to properties, traffic volumes, land use, nearby interfaces, adjoining properties, the Australian Level Crossing Assessment Model (ALCAM) and the vertical geometry of the rail alignment.

ARTC's grade separation policy includes implementing grade separations because of the topography and other engineering requirements and where the permanent disturbance footprint intersects freeways and highways of four or more lanes, or limited access roads.

Where the proposed permanent disturbance footprint crosses Bruxner Way and Tucka Tucka Road, grade separations have been proposed in these road–rail interface points in accordance with ARTC's grade separation policy. Grade separation is proposed at Bruxner Way to ensure the proposal will not result in any disruption to traffic on this high-traffic volume road. Grade separation is proposed at Tucka Tucka Road for topographical reasons.

Level crossings have also been proposed at certain road–rail interface points. In total, the proposal has two active level crossings and one passive level crossing along the alignment. Where level crossings are proposed, disruption to traffic can be expected with each passing train movement. Surrounding land uses, including farming operations, will likely be impacted from the associated vehicle delay times at level crossings. This will possibly disrupt the commercial operations of agricultural activities due to the potential delay in the transportation of water, feed and stock to and from these properties.

In addition to level crossings, road diversions will be provided where appropriate.

Disruption to traffic can also be expected during construction as equipment, materials and people are transported to and along the proposal alignment.

Further details are in Chapter 20: Traffic and Transport.

22.6.3.2 Impacts to property access

The proposed permanent disturbance footprint may result in cutting off driveways and informal private access roads to individual properties. Private access to properties has been considered when determining the location and type of road–rail interface. Legal access to properties will be retained through the provision of alternative access roads or level crossings where appropriate.

Consultation with affected landowners is ongoing to identify where impacts to private property access and private stock crossings occurs and to determine appropriate measures to mitigate these impacts. The potential for cattle movements to be affected and cattle yards to be stranded was identified though consultation with one landowner. ARTC has met with the affected landowner to discuss private stock crossings of the rail alignment.

The proposal's design includes proposed stock underpasses under the bridges, with ongoing consultation with landowners to occur.

Further details on impacts to property access are in Chapter 20: Traffic and Transport.

22.6.4 Impacts on utilities

The proposal impacts on a total of 40 known utilities within the permanent disturbance footprint, comprising 14 electricity utilities, 24 communications utilities, one potable water pipe and one groundwater bore. Consultation has commenced with the various service providers regarding their requirements for relocation or protection of the utilities impacted by the proposal.

During construction, surrounding residences and businesses may experience temporary disruption to services from time to time as these are relocated or upgraded.

Once operational, the proposal will not impact on utilities within the area.

22.6.5 Opportunities to support future industry development

While the proposal has the possible adverse impacts identified above, it also has several potential beneficial impacts.

Inland Rail is a nationally significant transport initiative. It will provide a high-capacity freight link between Melbourne and Brisbane through regional Australia to better connect cities, farms, and mines via ports to domestic and international markets. The link will act as an enabler for regional economic development along the Inland Rail corridor.

The proposal is likely to support future industries, particularly the agricultural sector. It will provide a link to existing intermodal terminals of Narrabri and Moree to interstate markets, improving access to and from regional areas identified to be significant areas for outbound containerised freight. The proposal may be a significant catalyst for development within these areas, particularly in relation to rail- dependent industries and support industries associated with transport, freight handling, warehousing and logistics.

Furthermore, the proposal will improve road safety, ease congestion, and reduce environmental impacts by moving freight from road to rail, while also improving travel times, reducing the distance travelled by freight, and providing infrastructure to support an increased freight load.

Further discussion on the beneficial impacts of the proposal is in Chapter 2: Strategic Context, and Chapter 23: Socio-economic Impact Assessment.

22.7 Potential mitigations

Development of the reference design for the proposal has progressed along with the impact assessment process. Consequently, design solutions for avoiding, minimising or mitigating impacts have been incorporated into the reference design as appropriate and where possible.

The mitigation measures and controls presented in Table 22.22 have been factored into the design for the proposal. These design considerations are suggested to minimise the impacts of the proposal on land use and tenure.

TABLE 22.22 INITIAL MITIGATIONS OF RELEVANCE TO LAND USE AND PROPERTY

Aspect	Initial mitigation measures
Land use and tenure	▸ The proposal has been aligned to be co-located with existing, non-operational Boggabilla rail corridor and road infrastructure where possible, minimising the need to develop land that has not previously been subject to disturbance for transport infrastructure purposes. ▸ Refinement of the horizontal alignment considered placement of the rail corridor such that it traverses around or as close as possible to property boundaries to reduce potential fragmentation and sterilisation of agricultural land. ▸ The overall disturbance of construction areas has been limited where possible. ▸ Intensive livestock operations, including feedlots and poultry farms, have been avoided where possible. ▸ Where TSRs have been intersected by the proposal, an allowance for the continuity of movement of stock along the same route has been made. Consideration was also given to the movement of stock across the rail line.

In selecting the proposal alignment, impacts to land use and tenure have been avoided or minimised where possible. As in Chapter 3: Alternatives and Proposal Options, alignment options were previously considered that comprised entirely of greenfield land and did not use the existing, non-operational Boggabilla rail corridor.

The permanent disturbance footprint has been deliberately located within the existing, non-operational Boggabilla rail corridor for approximately 25 km, requiring only approximately 5 km of new track through greenfield land. Because of this, many of the potential land use impacts have been successfully avoided or minimised. Chapter 3: Alternatives and Proposal Options provides further detail on the benefits of the current proposal alignment.

Where impacts cannot be avoided, the extent of impacts will be carefully managed and mitigated. The following outlines the mitigation measures suggested to reduce and manage the remaining impacts.

22.7.1 Change in tenure and loss of property

Where possible, Inland Rail will use the existing rail corridor, where most of the properties are owned by the NSW Government. Where the proposal requires the permanent acquisition of properties in addition to those owned by the NSW Government, detailed management measures will be undertaken to reduce land-use impacts on land users and individual properties as a result of acquisition.

ARTC will compensate affected landowners appropriately when acquiring property and in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW). Compensation relating to the loss of property is subject to ongoing discussions and negotiations with affected landowners where appropriate.

All acquisitions of Crown land will be undertaken in consultation with the state and in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW) and the *Crown Land Management Act 2016* (NSW).

If it is determined land parcels fragmented by the proposal have a historical or current dwelling entitlement that is no longer applicable under the Gwydir Shire LEP or Moree Plains LEP as a result of the fragmentation, ARTC will consult with affected landowners, where appropriate.

For social impacts as a result of loss of property and acquisition, refer to Chapter 23: Socio-economic Impact Assessment and the Social Impact Management Plan for recommended mitigation strategies and management measures. These actions aim to reduce or appropriately manage social impacts during each phase of the proposal.

22.7.1.1 Native title

The proposal was deliberately designed to use the existing, non-operational Boggabilla rail corridor and road corridors and is located on predominantly freehold land where native title has been extinguished.

Where it is determined native title has not been extinguished within the permanent disturbance footprint, ARTC will seek the extinguishment of the native title rights and interests in question before construction of the proposal. This can occur either voluntarily, by the surrender of native title under an Indigenous land-use agreement, or through a compulsory process.

22.7.2 Change in land use

Land-use impacts to individual properties, including properties requiring partial acquisition or properties adjacent to the permanent disturbance footprint, may be identified through consultation with landowners through the detailed design and property acquisition process. If additional land-use impacts are identified, individual management measures will be developed in consultation with the landowner to reduce impacts to an acceptable level. Management measures will include:

- Individual property management agreements, where appropriate, developed in consultation with landowners with respect to the management of construction on or immediately adjacent to private properties. These will detail required adjustments to fencing, access, farm infrastructure, and relocation of any impacted structures, as required
- Consultation with landowners in accordance with the communication plan for the proposal, to ensure they are informed about the timing and scope of activities in their area. Consultation will also inform the landowners of any potential property impacts, particularly in relation to access, utilities, or farm operational arrangements. This consultation will be ongoing throughout construction
- Results of consultation will be incorporated in the individual property management agreements as appropriate.

During the construction phase, the construction of the rail corridor will be undertaken with construction moving progressively along the permanent disturbance footprint. Impacts from construction on the existing land uses will therefore be minimised to a relatively short period as the construction activities will be temporary and short-term.

Where land is required temporarily outside of the permanent disturbance footprint for laydown areas, workforce accommodation and borrow pits, the land will be rehabilitated in accordance with a rehabilitation strategy following construction and in consultation with the affected landowner. This will involve the implementation of a Reinstatement and Rehabilitation Sub-plan which will be developed as part of the Construction Environmental Management Plan (CEMP). The Reinstatement and Rehabilitation Sub-plan will include measures to reinstate and restore disturbed sites, as much as possible, to the pre-construction condition or better, or to the satisfaction of landowners.

22.7.2.1 Sterilisation of agricultural land and disruption to agricultural practices

Where agricultural land could not be avoided, the route selection process has considered (among other environmental, social, cultural, economic and technical constraints), placement of the permanent disturbance footprint so that it traverses around or as close as possible to property boundaries to reduce potential fragmentation and sterilisation of land. Intensive livestock operations, including feedlots and poultry farms have also been avoided.

Where partial acquisition will be required and internal or external access affected or infrastructure utilities relocated, appropriate property adjustments will be made or allowed for as part of the compensation to the landowner. This may include property adjustments for fencing, access tracks, access to water and other farm infrastructure, in consultation with the affected landowner. Where an agricultural property will be severed into two or more parcels, a suitable means of restoring access by connecting the fragmented portions of land may be provided to ensure the long-term viability of the property. ARTC will work with individual landowners to develop suitable solutions based on individual farm management practices.

On completion of construction and operation of the proposal, any surplus residual land will be rehabilitated and considered for sale, or transfer of ownership, to offset the loss of similar agricultural land. Also, to minimise the sterilisation and severance of land, severed parcels of land will be amalgamated where appropriate, with provision for road access.

When determining land temporarily required for construction activities, the overall disturbance areas have been limited where possible. On completion of construction, disturbed areas will be rehabilitated as much as possible to pre-construction conditions in accordance with the Reinstatement and Rehabilitation Sub-plan. To mitigate impacts on agricultural land used for construction ancillary sites, topsoils will be stripped and stockpiled during the preparation of these sites. Topsoils will then be reinstated, with any necessary soil improvements, as part of the rehabilitation of these areas. Construction will occur progressively along the permanent disturbance footprint and as such the need (time) for temporary laydown areas has been minimised at each location.

Weed management within the permanent disturbance footprint or at ARTC facilities will be undertaken in accordance with ARTC weed management procedures. Biosecurity risks within the permanent disturbance footprint or at ARTC facilities will be managed in accordance with the relevant regulatory requirements. A Biosecurity Management Sub-plan will be developed as part of the CEMP. The CEMP is expected to include weed surveillance and treatment during construction and rehabilitation activities, reducing the potential impacts from biosecurity risks to agricultural properties. The CEMP will also include an Erosion and Sediment Control Plan. Further details are in Chapter 11: Biodiversity, and Chapter 27: Environmental Management Plan.

The proposal will be designed to maintain surface drainage patterns through the design of culverts and cut/fill areas. Where changes in flows cannot be avoided, stabilisation of soils to prevent salinisation or other forms of soil degradation will be undertaken to minimise impact on downstream agricultural properties.

The future land uses for the residual land or severed land will be determined in consultation with the landowners or consolidated and considered for resale to maintain development or productivity viability.

22.7.2.2 Alterations to travelling stock reserves and informal stock routes

Where the proposal impacts on land designated as a TSR, the proposal will seek to maintain the connectivity of TSRs by either:

- Creating an Interface Agreement with the TSR landowners
- Implementing rail-over-road bridges where practicable
- Acquiring land and implementing TSR route deviations
- Co-using level crossings.

Proposed treatments for TSRs located within the permanent disturbance footprint are outlined in Table 22.23.

TABLE 22.23 PROPOSED TREATMENTS FOR TRAVELLING STOCK RESERVES

TSR location	Potential impacts	Proposed treatment
North Star Road (Ch 9.300 km)	Access to this TSR parcel is already restricted by the existing, non-operational Boggabilla rail corridor and North Star Road is located between the TSR parcels located to the west of North Star Road.	Combine with nearby level crossing
Oakhurst Road (Ch 19,900 to Ch 20,800 km)	The proposal has the potential to permanently restrict access to this TSR as the proposed alignment will traverse this TSR for approximately 885 m.	A stock underpass will be provided with the Unnamed Creek 2 Rail bridge (20.7 km)
South of Tucka Tucka Road (Ch 29,700 km to Ch 30,100 km)	The permanent disturbance footprint will sever this TSR, potentially permanently impacting the access and use of the TSR.	A stock underpass will be provided with the Macintyre River Viaduct (30,100 km)
Between Tucka Tucka Road and Macintyre River (Ch 30,100 to Ch 30,500 km)	The proposed alignment runs adjacent to this TSR for approximately 400 m.	This TSR will not be severed by the proposed alignment, therefore treatment is not required

ARTC will continue to liaise with local land services during detailed design to ensure TSRs are appropriately managed.

22.7.3 Accessibility

22.7.3.1 Impacts on road network

Where level crossings and road diversions are proposed, these were determined by several factors, including access to properties, potential traffic levels, land use, nearby interfaces, adjoined properties and the vertical geometry of the rail alignment. Vehicle wait time at level crossings as well as the anticipated changed travel time and distance due to road diversions have also been considered when determining appropriate crossings at road–rail interfaces. Further details on the mitigation measures for level crossings in Chapter 20: Traffic and Transport.

A Traffic Management Plan will be developed and implemented throughout construction of the proposal to address key safety and logistical issues that may arise during construction. Appropriate management measures will be put in place for each of the identified issues. Furthermore, consultation will be undertaken with GSC, MPSC, surrounding affected landowners and businesses to notify of any changes to traffic and access during construction.

Further details are in Chapter 20: Traffic and Transport.

22.7.3.2 Impacts to property access

When determining appropriate crossings and road diversions as a result of road–rail interface points, the proposal where possible ensured access to properties is retained. Where impacts remain to individual property access, ARTC will continue to consult with the affected landowner to ensure a suitable consultation outcome. Should a property become isolated and safe access is not possible, acquisition of land may be undertaken, and appropriate compensation provided.

Further details are in Chapter 20: Traffic and Transport.

22.7.4 Impacts on utilities

Consultation has commenced with the various utility providers regarding their requirements for relocation or protection of the utilities impacted by the proposal.

With respect to service disruptions during construction, procedures will be developed and implemented to minimise the potential for service interruptions. Affected businesses and residences will be notified in advance of any planned interruptions.

22.7.5 Summary

To manage and mitigate proposal risks, several mitigation measures have been proposed. These proposed mitigation measures incorporate ARTC's standard practices, as well as industry practice and legislative requirements.

Proposed mitigation measures outlined for each of the proposal delivery phases are included in Table 22.24. These measures have been incorporated into the draft EMP (refer to Chapter 27: Environmental Management Plan).

TABLE 22.24 ADDITIONAL LAND USE AND TENURE MITIGATION MEASURES

Delivery phase	Potential impacts	Mitigation measures

Detailed design	Property	▸ The overall disturbance of construction areas is to be limited where possible.
		▸ Where land is not purchased on the open market, it will be acquired for the construction of the works in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW). Acquisitions of Crown land will also be undertaken in accordance with the *Crown Land Management Act 2016* (NSW).
		▸ If it is determined land parcels fragmented by the proposal have a historical or current dwelling entitlement that is no longer applicable under the Gwydir Shire LEP or Moree Plains LEP as a result of fragmentation, ARTC will consult with affected landowners where appropriate.
		▸ Detailed management measures to reduce land-use impacts on individual properties and land users will be developed in consultation with the individual landowners concerned during the detailed design and property acquisition negotiations.
		▸ Individual property management agreements will be developed in consultation with landowners with respect to the management of construction on or immediately adjacent to private properties. These will detail any required adjustments to fencing, access, farm infrastructure, and relocation of any impacted structures as required:
		  ▸ Any impacts on operational farm requirements will be managed and reinstated as soon as possible
		  ▸ ARTC will work with individual landowners to develop suitable solutions based on individual farm management practices. Solutions may include the provision of crossing points or underpasses for access to fragmented or isolated properties. Or where disruption to water supply occurs, crossing points will be provided or the relocation of dams or irrigated systems will be undertaken
		▸ During the design process consideration will be given to the movement of stock across the rail line. If private stock routes are identified through consultation with landowners, appropriate mitigation measures will be agreed on with affected landowners. Mitigation measures may include the provision of alternative access arrangements developed in consultation with affected landowners.
		▸ Stock fencing must be in accordance with the Inland Rail fencing standards and be constructed before the removal of existing fencing or any works being carried out on the subject land, unless otherwise agreed with the landowner.

Detailed design	Access	▸ Where any legal access to a property is permanently affected and a property has no other legal means of access, alternative access to and from a public road will be provided to an equivalent standard where feasible and practicable. Where this is not feasible or practicable and a property is left with no access to a public road, negotiations will be undertaken with the relevant landowner for acquisition of the property in accordance with the provisions of the applicable land acquisition legislation and regulatory requirements. ▸ Detailed design aims to minimise the potential for impacts to the surrounding road and transport network and property access. ▸ For public crossings, ARTC will continue to undertake necessary consultation with Gwydir Shire and Moree Plains Shire councils and the local community in relation to the preferred road rail interface treatments for each location. ▸ Appropriate road rail interface will continue to be assessed on a case-by-case basis for design purposes, with consideration given to current and future usage of the existing asset, its location relative to other crossings of the rail corridor and the road and rail geometry at the crossing location. ▸ The proposal will seek to maintain connectivity of TSRs through appropriate mitigation measures that include consultation with the relevant managing authority and proposing certain treatments where practicable. ARTC will continue to liaise with local land services during detailed design.

Delivery phase	Potential impacts	Mitigation measures
Detailed Design	Utilities	▸ Utility providers will continue to be consulted during detailed design to identify possible interactions and develop procedures to minimise the potential for service interruptions and impacts on existing land uses. ▸ The location of utilities and other infrastructure will be identified prior to construction to determine requirements for access to, diversion, protection and/or support.
Construction	Stakeholder engagement	▸ Landowners will be consulted in accordance with the communication plan for the proposal, to ensure they are informed about the timing and scope of activities in their area, and about any potential changes, particularly in relation to potential impacts to access, utilities, or farm operational arrangements. ▸ The rehabilitation strategy will include measures to reinstate and restore disturbed sites, as much as possible, to the pre-construction condition or better, or, in consultation with the landowners.

22.8 Impact assessment

The impact assessment focuses on assessing the extent of consistency with the land use and planning documents relevant to the proposal activities, including:

- *New England North West Regional Plan 2036* (Department of Planning and Environment, 2017)
- *Moree Plains Shire Council Community Strategic Plan 2017* (MPSC, 2017)
- *Gwydir Shire Council Community Strategic Plan 2017–2027* (GSC, 2017).

22.8.1 New England North West Regional Plan 2036

The proposal is consistent with the intent of the *New England North West Regional Plan 2036* (Department of Planning and Environment, 2017) (the Regional Plan). The Regional Plan identifies strong infrastructure and transport networks as a goal for the region. A strategic direction for this goal is to expand emerging industries through freight and logistics connectivity, with an action for the NSW Government to work with ARTC and councils as the Inland Rail Project progresses.

The Regional Plan recognises that the growth in containerised freight of grain and meat products may require new intermodal terminals and identify Narrabri, Moree and Tamworth as localities which support existing and proposed terminals and will continue to be significant areas for outbound containerised freight. Further to this, the Regional Plan notes the Narrabri Shire Council's development of a transport and manufacturing hub masterplan that will take advantage of existing intermodal facilities and the investment in rail infrastructure.

22.8.2 Moree Plains Community Strategic Plan 2027

The proposal is consistent with the vision of the *Moree Plains Community Strategic Plan 2027* (MPSC, 2027) (the Community Strategic Plan) which includes a vibrant regional economy theme. Within this theme, the Community Strategic Plan developed a goal to keep the shire connected. A strategy to achieve this goal includes capitalisation on the shire's location on the Melbourne to Brisbane Inland Rail route and to support local businesses in this endeavour. The Community Strategic Plan recognises Moree Plains Council's role as an advocate partner of the Inland Rail Project, partnering with ARTC, the Australian Government, and state government and private enterprise.

The Community Strategic Plan contains further strategies to support the vision for a vibrant regional economy including for MPSC to provide skills necessary to maximise employment opportunities throughout the shire. ARTC is nominated as a partner in this strategy.

22.8.3 Gwydir Shire Council Community Strategic Plan 2017–2027

The proposal is consistent with the goals of the *Gwydir Shire Community Strategic Plan 2017–2027* (GSC, 2017) (the Community Strategic Plan). In particular, the Community Strategic Plan identifies 'Building the business base' as a goal for GSC, with an outcome to support this goal involving growing and supporting the GSC economy. The Inland Rail Project will generate significant employment and economic growth, especially providing support for the construction sector during the construction of the proposal. The proposal is also likely to be a significant catalyst for future industrial and agricultural industries in the region.

Furthermore, the Community Strategic Plan recognises that the Inland Rail Project is of interest to the Gwydir Shire community. ARTC will continue to consult with GSC to ensure the local community are informed of the status of the proposal.

22.9 Cumulative impact assessment

It is recognised that the proposal may contribute to cumulative impact on agricultural land, as the removal of agricultural land for the purposes of the rail corridor cannot be fully mitigated. However, as the proposal would be undertaken predominantly (81 per cent) within the existing, non-operational Boggabilla rail corridor, land-use impacts have been minimised. Furthermore, with the application of the identified mitigation measures, the residual land use and tenure impacts of the proposal are expected to be low.

The potential for the impacts of the proposal to interact with those of other development projects in the region is primarily based on their proximity and similarity of project activities, that is, the development projects require land acquisition and change in land use.

Projects considered for the CIA are detailed in Table 22.25.

TABLE 22.25 PROJECTS CONSIDERED IN THE CUMULATIVE IMPACT ASSESSMENT

Project and proponent	Location	Description	EIS status
Border to Gowrie (B2G)—Inland Rail (ARTC)[1]	Immediately north of NS2B. NSW/QLD border to Gowrie	Comprised of approximately 146 km of new dual gauge track and 78km of upgraded track from the NSW/QLD border, near Yelarbon, to Gowrie Junction, north west of Toowoomba in QLD.	Project Feasibility
Narrabri to North Star (N2NS)—Inland Rail (ARTC)[2]	Immediately south of NS2B. Narrabri (NSW) to the village of North Star in NSW	An upgrade to approximately 188 km of track within the existing rail corridor and construction of approximately 1.6 km of new rail corridor.	Project Assessment (late 2017—late 2018)
Moree Solar Farm[3]	10km south of Moree, off the Newell Highway in Northern NSW	Construction of a 56MWac / 70.1MWdc single axis tracking solar PV facility. Construction works currently involve the installation of the framing system, the photovoltaic modules, the DC and AC wiring of the electrical equipment, the 22/66kV onsite substation and the 66kV transmission line.	Project was approved by the NSW Major Projects Office on 17 July 2011.
Newell Highway Upgrade, Moree and North Moree[4]	Newell Highway, Narrabri to Moree and North Moree	The project includes planning for up to 30.2 km (made of three segments) of new road pavement, intersection improvements and widening of road shoulders.	Preliminary Environmental Investigation (November 2017)
Newell Highway Upgrade, Mungle Back Creek to Boggabilla[5]	8 to 15 km west of the NS2B project. Newell Highway, North of Moree	The project includes major work on 18 km of new road pavement, 3.5 m wide lanes in each direction, intersection improvements, widening of road shoulders and provision of two new overtaking lanes.	Environment Protection Licence acquired, construction contract awarded to Fulton Hogan Construction Pty Ltd, in August 2018
Hunter Gas Pipeline[6]	Newcastle to Narrabri	420 km gas pipeline to transport gas from the Narrabri Gas Project to Newcastle via, Gunnedah, Quirindi, Scone, Muswellbrook, Singleton and Maitland.	
White Rock Wind Farm[7]	20 km southwest of Glen lnnes, 40 km east of Inverell NSW	Stage 2 of White Rock Wind Farm upgrades will consist of up to 48 turbines, producing up to 202 MW of electricity.	
Sundown Solar Farm[8]	South of Gwydir Hwy, 30 km east of Inverell (NSW)	The project consists of a large-scale solar photovoltaic generation facility, including battery storage and associated infrastructure, with an estimated maximum capacity of up to 600 MW.	SEARs issued by Major Projects Office
Bonshaw Solar Farm[9]	Bruxner Highway, 16 km south of Bonshaw and 66 km north of Inverell (NSW)	GAIA Australia is proposing to develop a large scale solar photovoltaic generation facility and associated infrastructure with a capacity of 500 MW.	SEARs issued by Major Projects Office

Project and proponent	Location	Description	EIS status
Sapphire Solar Farm[10]	Located 30 km east of Inverell Access via Gwydir Highway near Waterloo Road	A 200 MW hybrid solar and battery power facility.	Approved by Major Projects Office on 16 August 2018.

Table notes:
1. inlandrail.artc.com.au/B2G
2. inlandrail.artc.com.au/N2NS
3. http://moreesolarfarm.com.au/news-and-events/
4. rms.nsw.gov.au/documents/projects/western-nsw/newell-highway/newell-hwy-narrabri-moree-heavy-duty-pavement-project-update-2018-06.pdf
5. rms.nsw.gov.au/projects/newell-highway/index.html
6. huntergaspipeline.com.au/hunter-gas-pipeline
7. whiterockwindfarm.com
8. sundownsolarfarm.com.au/project-description
9. planningportal.nsw.gov.au/major-projects/project/9936
10. sapphirewindfarm.com.au/sapphire-solar

The combined potential impact of these projects may further increase the land that is potentially affected by cumulative impacts. The projects across the region may have different land use and tenure impacts to the proposal, but may include:

- Loss of high capability agricultural land
- Disruption to agricultural operations
- Potential restriction to access to mineral resources
- Impacts on accessibility within the road network and to private properties
- Temporary disruptions to services and utilities.

Because of a lack of quantitative data on land use and tenure impacts for the development projects, a qualitative assessment method has been applied for assessing the cumulative impacts. The qualitative assessment assigns a relevance factor to the potential cumulative impact for the following aspects:

- Probability of impact
- Duration of the impact
- Magnitude/intensity of impact
- Sensitivity of receiving environment.

Assessment of these for the potential impacts identified above is in Table 22.26.

TABLE 22.26 CUMULATIVE IMPACT ASSESSMENT FOR LAND USE AND PROPERTY

Cumulative impact	Aspect	Relevant Factor	Sum of Relevant Factors	Impact significance	Comments
▸ Loss of high capability agricultural land ▸ Disruption to agricultural operations ▸ Potential restriction to access to mineral resources ▸ Impacts on accessibility within the road network and to private properties ▸ Temporary disruptions to services and utilities	Probability of the impact	1	6	Low	There is limited potential for cumulative impacts given the relatively limited land use and property impacts associated with the proposal and the separation distance between the proposal and other projects. Also, while the projects could potentially generate a cumulative impact, given the nature of land use and tenure impacts, these impacts are localised.
	Duration of the impact	3			
	Magnitude/intensity of the impact	1			
	Sensitivity of the receiving environment	1			

The significance of the overall cumulative impact on land use and property is assessed as low. Further information on the assessment of cumulative impacts is in Chapter 26: Cumulative Impacts.

22.10 Conclusions

This chapter has identified the land use and tenure aspects relevant to the proposal. This chapter has addressed the SEARs requirements through the identification of existing land uses, identification of the potential impacts of the proposal on land use and tenure, including the division and fragmentation of property, impacts to accessibility and the connectivity of property infrastructure and the potential disruption to agricultural practices in the area.

Where possible, these potential impacts have been avoided. Where impacts cannot be avoided, mitigation measures have been proposed to reduce and manage the potential impacts of the proposal.

In addition to the potential adverse impacts identified, the proposal has the potential to generate several beneficial impacts. Beneficial impacts of the Inland Rail Program include providing better connections to cities, farms, and mines via ports to domestic and international markets. Further to this, the proposal will provide a link to intermodal terminals and to interstate markets, improving access to and from regional areas identified to be significant areas for outbound containerised freight.

The proposal is considered to generally comply with the land-use intent within the relevant land use planning instruments.