

Figure 20.3a
Land and soil capabilities

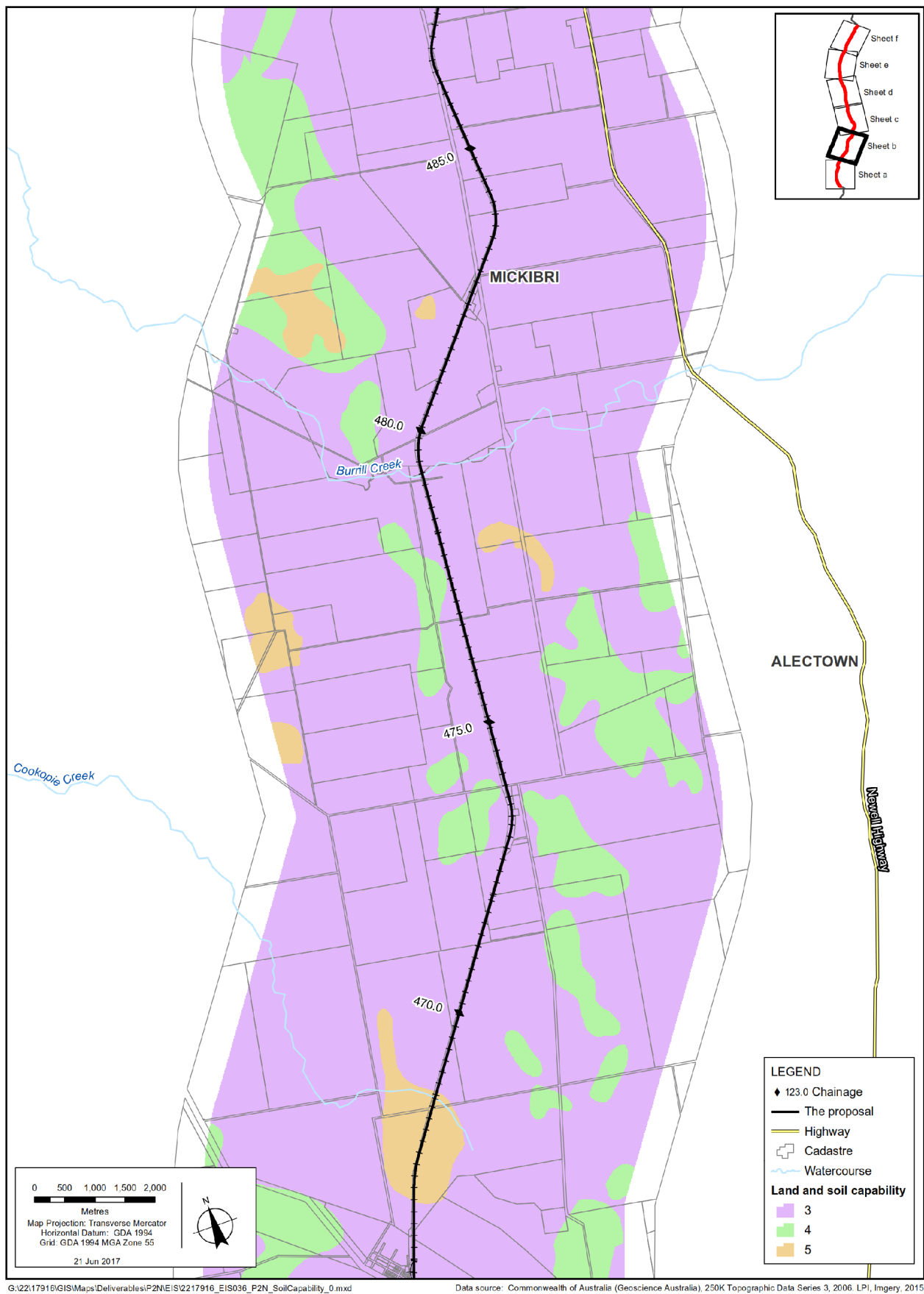


Figure 20.3b
Land and soil capabilities

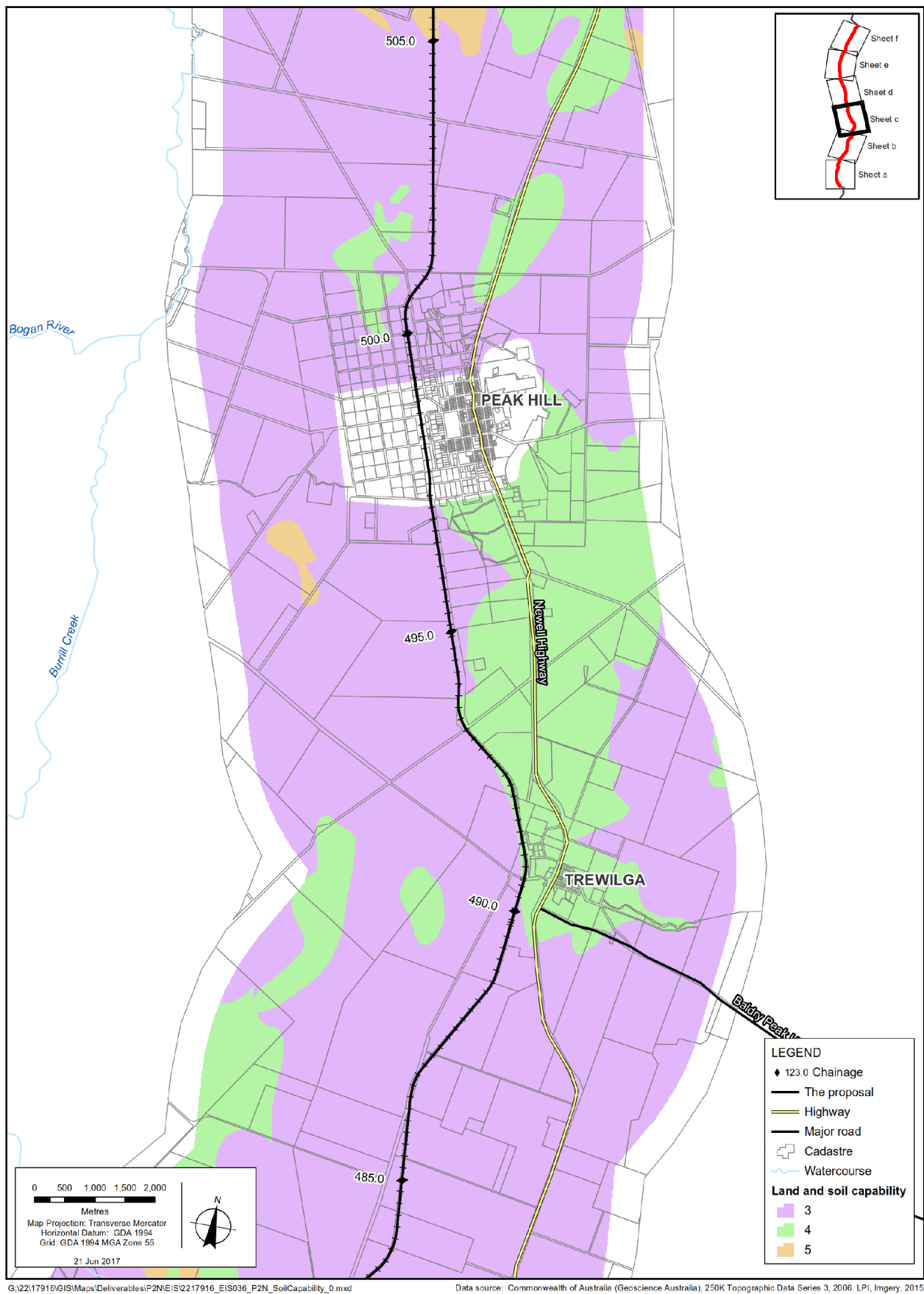


Figure 20.3c
Land and soil capabilities

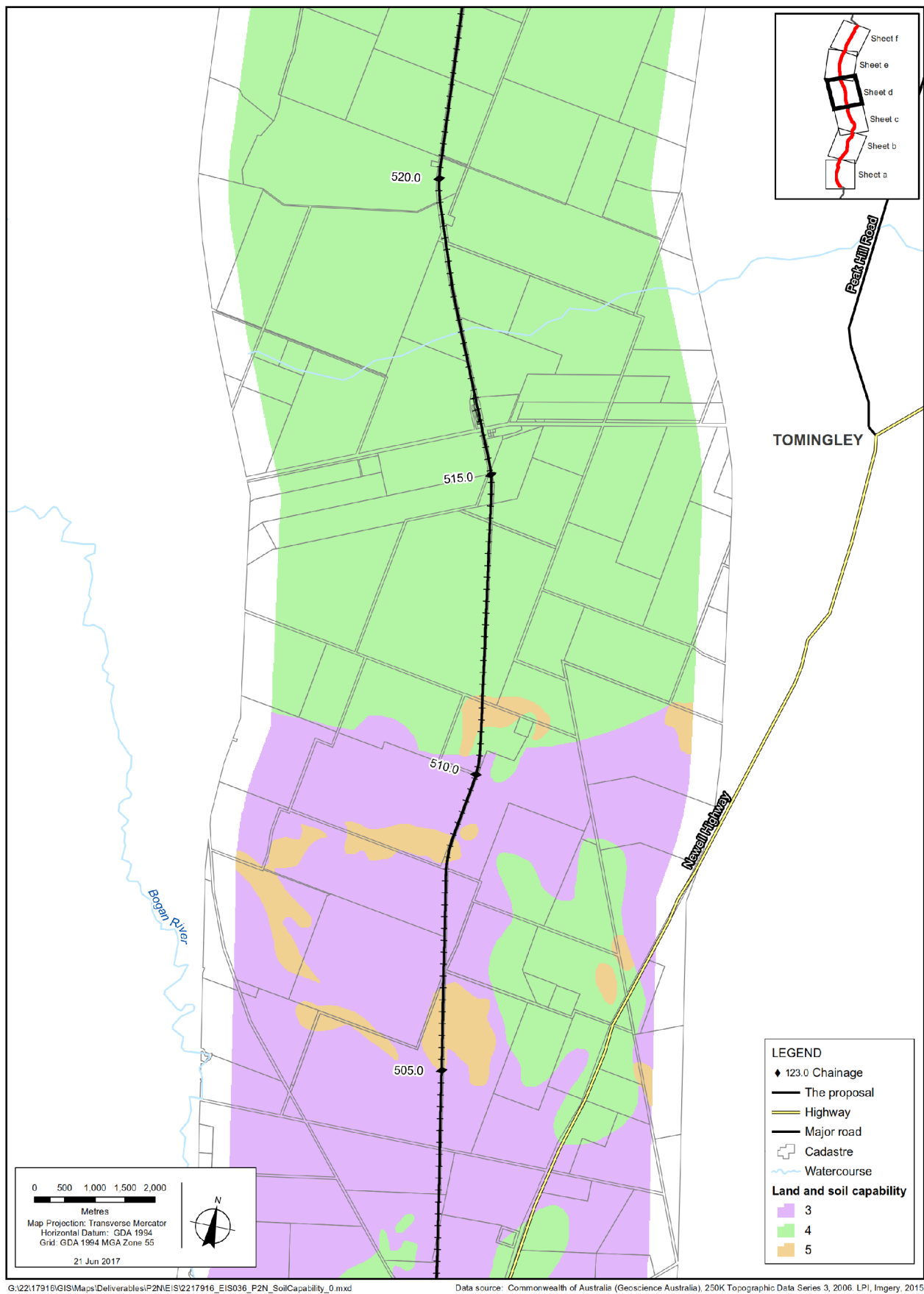


Figure 20.3d
 Land and soil capabilities

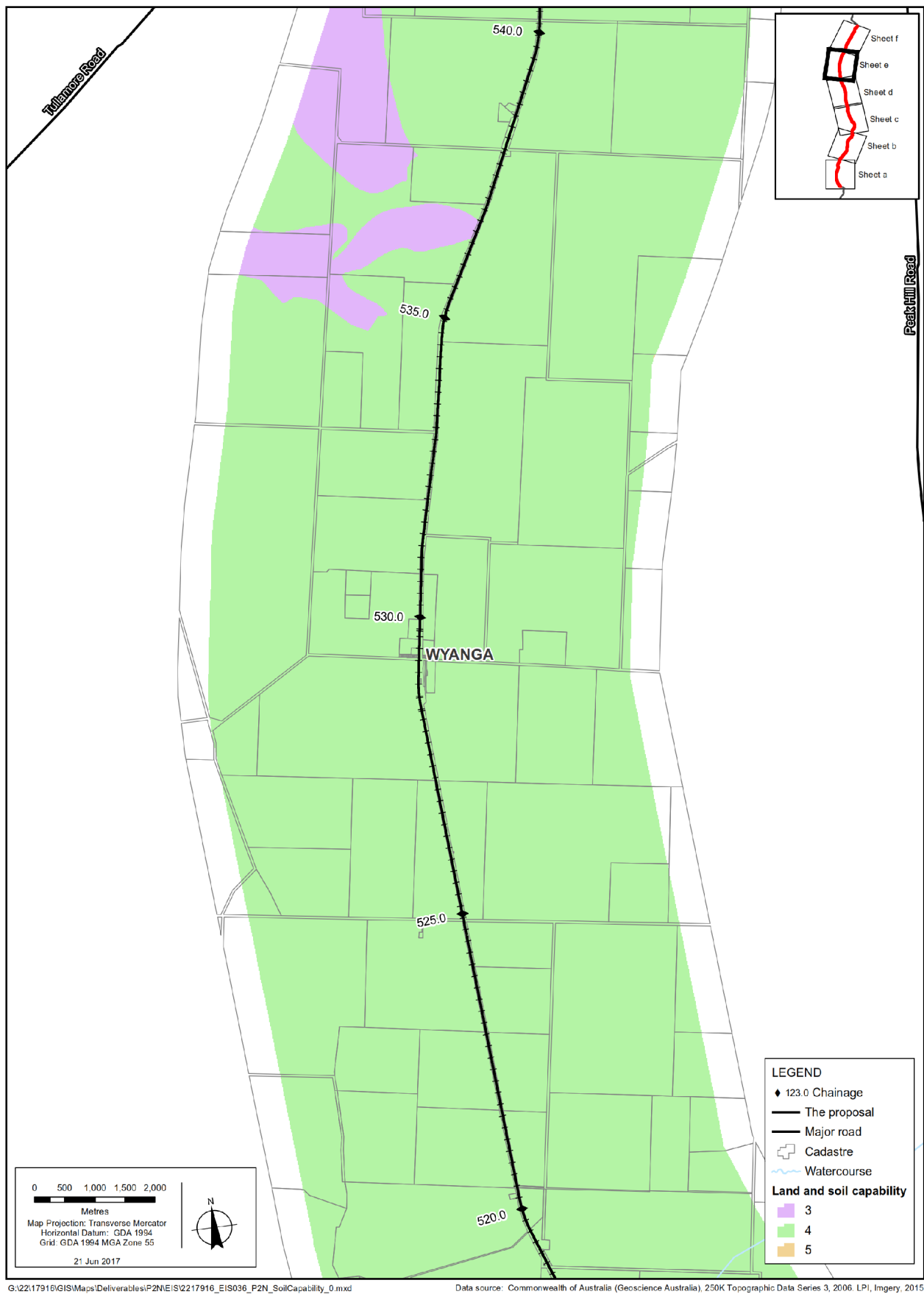
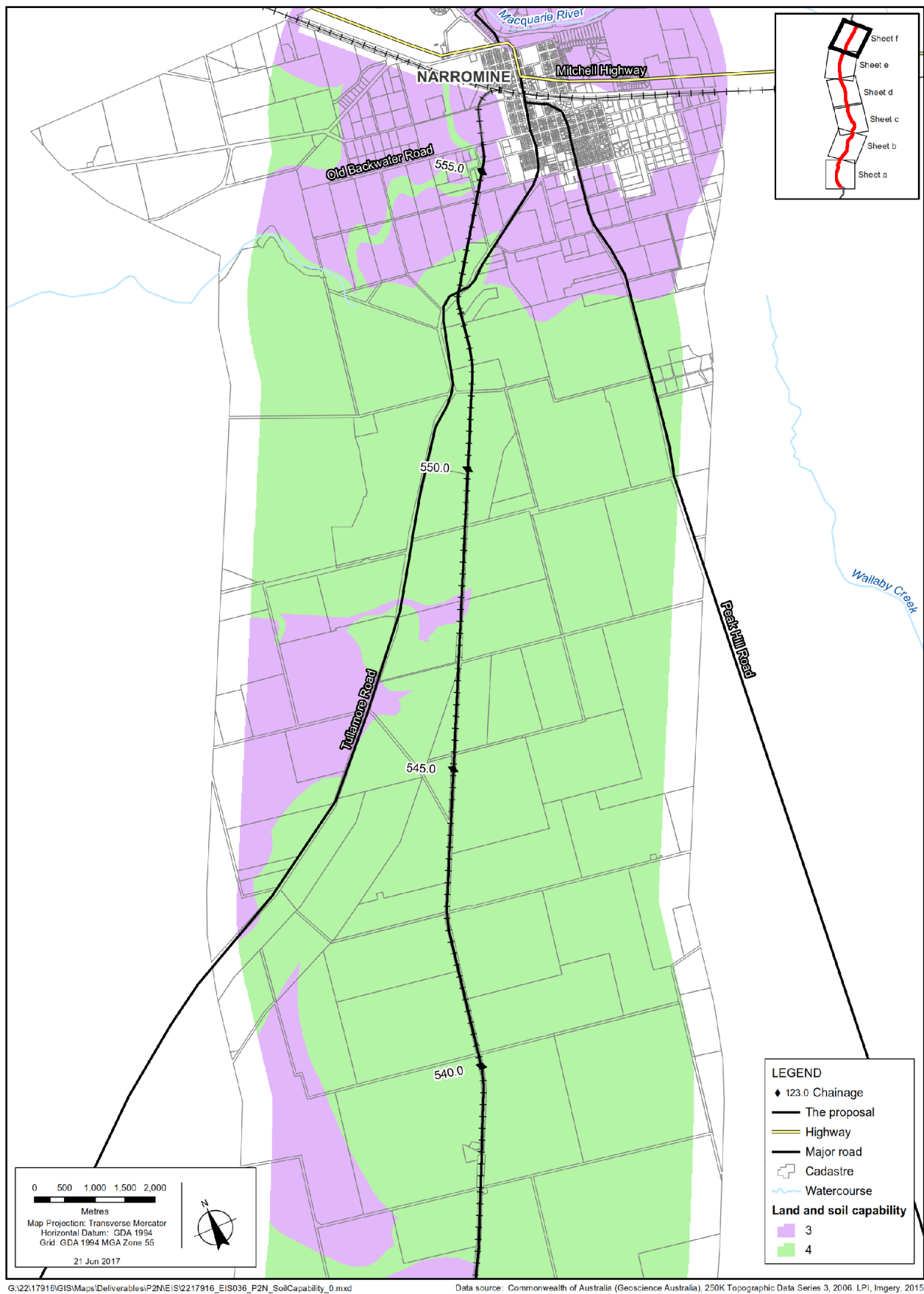


Figure 20.3e
Land and soil capabilities



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Data source: Commonwealth of Australia (Geoscience Australia), 250K Topographic Data Series 3, 2006. LPI, Imagery, 2015

Figure 20.3f
Land and soil capabilities

20.2.3 Reserves

There are no reserves close to the proposal site. The nearest reserve is Goobang National Park, which is located about nine kilometres to the east of the proposal site at the nearest point.

20.2.4 Mining leases

Active mines and areas subject to mining leases are listed in Table 20.5 and shown in Figure 20.2.

Table 20.5 Mining leases in the study area

Operator of mining lease	Size (ha)	Type of lease	Approx. distance from proposal site at the nearest point
Jandew Pty Ltd	32.2	Mineral (Agricultural Lime, Copper, Dimension Stone, Gold, Lead, Limestone, Silver, Zinc)	0.3 km to the west
Alkane Resources	163	Mineral (Alumina, Barite, Bismuth, Cadmium, Chlorite, Copper, Corundum, Feldspathic Materials, Gold, Kaolin, Mica, Phosphates, Pyrophyllite, Reef Quartz, Sele)	1.0 km to the east

20.2.5 Crown land and travelling stock reserves

Crown land within 100 metres of the proposal site comprises 51 Crown roads, which is inclusive of 16 shared Crown and council owned roads. Of these, 20 roads either cross or end at the proposal site. In addition, 18 parcels of Crown land are located directly adjacent to the proposal site.

Travelling stock reserves are parcels of Crown land reserved under legislation for use by travelling stock. They provide pasture reserves for travelling or grazing stock. Travelling stock reserves within 100 metres of the proposal site (shown in Figure 20.2) comprise:

- ▶ eight Crown roads (comprising three Crown and five shared Crown and council roads), six of which cross the proposal site
- ▶ six parcels of Crown land, of which three are directly adjacent to the proposal site.

The above summary and the Crown land shown on Figure 20.2 differentiates between Crown land that is travelling stock reserves and other Crown land.

No Native Title Claims or Indigenous Land Use Agreements have been registered or notified by the National Native Title Tribunal for Crown land in the study area. Additionally the Office of the Registrar and the National Native Title Tribunal did not identify any Registered Aboriginal Owners or Native Title parties that should be contacted regarding the proposal.

20.2.6 Land ownership/tenure

Land within the rail corridor is owned by various government agencies. Ownership of land within other areas of the proposal site comprises various government agencies, the Crown, and a number of private owners. Land ownership for land proposed for acquisition is listed in Appendix G.

20.3 Impact assessment

20.3.1 Risk assessment

Potential impacts

The environmental risk assessment for the proposal (summarised in Appendix B) included an assessment of the potential issues and risks associated with land use and property. The assessed risk level for the majority of potential land uses risks was medium to high. Risks with an assessed level of medium or above include:

- ▶ temporary impacts on land use during construction
- ▶ impacts on agricultural practices during construction activities as a result of changes to access, noise, and air pollution
- ▶ impacts on land use as a result of property acquisition.

How potential impacts have been avoided

The approach to avoiding land use and property impacts is similar to that for landscape and visual impacts, as described in section 19.3. For the proposal section in particular, the proposal minimises the potential for direct impacts to land use and properties, as the majority of works would be undertaken within the existing rail corridor. For works outside the corridor (particularly the Parkes north west connection), land use and property impacts were included in the list of selection criteria used for the analysis of options.

Potential impacts on land use and property would continue to be avoided by:

- ▶ designing, constructing, and operating the proposal to minimise the potential for land take outside the rail corridor
- ▶ implementing the mitigation measures provided in section 20.4.

20.3.2 Land acquisition and leasing

As noted in section 7.5, a limited amount of property acquisition would be required to construct the proposal. Initial and indicative land acquisition requirements are provided in Appendix G. At this stage of the design process, it is estimated that land acquisition would partially affect a total of 10 privately owned lots. All acquisitions of privately owned land would be undertaken in consultation with landowners and in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991*.

The land use for those areas acquired outside the existing rail corridor, such as for the Parkes north west connection, would change from the existing land use (the existing zoning is defined in Appendix G) to an active transport (rail) use. The total area of the privately owned lots that would be subject to acquisition for the Parkes north west connection is about 692 hectares, of which about 349 hectares is zoned RU1 (primary production). The exact area of the lots that would need to be acquired would be confirmed during detailed design. It is expected that acquisition would mainly affect land zoned for special activities/infrastructure (SP1 and SP2), with a lesser area of RU1 zoned land likely to be required (refer to Figure 20.1). Construction and operation of the Parkes north west connection is consistent with the objectives of the SP1 and SP2 zones as per the Parkes LEP, which are to provide suitable land for a national multi-modal freight and transport interchange, and provide for infrastructure and related uses.

Any land required for construction (for the location of construction compounds and site accesses) would be leased from landholders. Leasing requirements are unknown at this stage. Consultation regarding agreements would be undertaken with landowners prior to construction commencing.

Impacts to Crown land

At this stage of the design process, it is estimated that land acquisition would affect three parcels of Crown land (roads). All acquisition of Crown land would be undertaken in consultation with the Department of Primary Industries, and in accordance with the requirements of the *Crown Lands Act 1989* and the *Land Acquisition (Just Terms Compensation) Act 1991*.

20.3.3 Construction impacts

Land use

General land use impacts

During construction, temporary changes to the use of some land would occur. Impacts to the use of the land would be mainly related to a temporary change from the land uses summarised in section 20.2.1 to an active construction site.

For the majority of the rail corridor, the impacts would be temporary and short term as construction activities would move along the corridor progressively. This would minimise the impacts on existing land uses at any one point to a relatively short period of time.

Impacts to agricultural land uses and land capability

Potential impacts to agricultural land uses would also include the general property impacts described below. Construction activities that may involve temporary change in use of land outside the rail corridor would include access tracks and compounds. As the land surrounding the majority of the proposal site is subject to agricultural land uses, the main potential impact would be to land used for grazing or cropping purposes. It is expected that these would be short term in duration, and any removal of agricultural production would have a negligible effect on the overall value of agriculture within the region. It would be necessary to ensure that during construction phase a tailored, risk based framework approach to biosecurity is considered for each property.

Travelling stock reserves

As described in section 20.2.5, three travelling stock reserves cross the proposal site and five are located directly adjacent to the proposal site. Construction activities may temporarily impact access to/along travelling stock reserves at locations where the reserves cross the proposal site, as the proposal site would need to be fenced during construction and access restricted. The construction of infrastructure and placement of compounds could also affect access and use of reserves directly adjacent to the proposal site. ARTC has commenced discussions with Local Land Services to understand how and when the reserves with the potential to be impacted are used, and how impacts could be avoided. Alternative access arrangements would be made as required.

Reserves

The proposal would not impact any conservation or recreation reserves.

Mining leases

The proposal would not impact land subject to active mining leases.

Services and utilities

As noted in section 8.7, construction has the potential to impact on existing utilities and services, including underground services such as electricity, gas, and telecommunications; and overhead power lines. Impacts may include temporary disruption as a result of services relocation/upgrade (for example, power outages) or accidental damage. These impacts are considered to be minimal as the disruptions would be short-term, and affected residents and/or business owners would be notified in advance of any disruptions.

Utility and service providers would continue to be consulted during the detailed design process to identify possible interactions and develop procedures to be implemented to minimise the potential for service interruptions, which have the potential to impact on existing land uses.

Property impacts

Potential property impacts during construction are considered in Table 20.6.

Table 20.6 *Potential property impacts during construction*

Potential impacts	Comment
Damage to stock and property	<p>Construction on or immediately adjacent to private properties has the potential to damage or injure property, stock and/or crops if the movement of vehicles occurs on private property, or if stock were to cross the proposal site.</p> <p>Any property/stock disturbance or injury could have social and/or financial impacts, for example, by causing extra time to be expended doing additional tasks, moving stock etc.</p>
Land rehabilitation	Landowners would expect that construction sites are adequately restored to their original condition.
Biosecurity risks, including the spread of weeds and disease	There is the potential for weeds and disease to be transferred from one property to another via construction vehicles or machinery, or construction crew clothing and footwear. This potential impact is considered further below.
Disruption of services or utilities to individual properties	Impacts may include temporary disruption as a result of services relocation/upgrade (for example, power outages) or accidental damage. These impacts are considered to be minimal as the disruptions would be short-term, and affected residents and/or business owners would be notified in advance of any disruptions.
Change to property access	<p>Construction activities may temporarily block access to land. This could include paddocks being temporarily severed with the effect that grazing by livestock is temporarily constrained e.g. due to the unavailability of drinking water.</p> <p>Further information on the potential for access impacts is provided in chapter 9.</p>
Interrupted management	Construction and operation could cause a delay to land owners completing various crop and livestock husbandry operations (e.g. weed spraying, harvesting, animal health treatments etc).
Dust and noise	<p>Construction has the potential to generate dust and noise impacts. Dust could settle on crops and pastures, and noise could affect grazing patterns of livestock.</p> <p>Dust suppression would reduce the risk of dust settling on crops and pasture. Also, any dust accretions would be removed at each rainfall event resulting in negligible impact.</p> <p>Livestock generally become habituated to noise. Although grazing patterns may be altered, productivity is unlikely to be impacted.</p> <p>Further information on the potential for air quality and noise impacts is provided in chapters 11, 12 and 13.</p>

Increased in biosecurity risks – pests, diseases and weeds

The proposal would result in the increased movement of vehicles and people to, around and within the proposal site during construction. The main biosecurity risk relates to the spread of weeds that may result from the increased movement of vehicles. Weed seeds could be transported through and within the site on clothing and via vehicle wheels and undercarriages.

If a new pest or disease becomes established, it can affect agricultural properties through increased costs (for monitoring, production practices, additional chemical use and labour), reduced productivity (in yield and/or quality) or loss of markets.

Existing weed species, and mitigation measures to manage the potential spread are weeds, are described in chapter 10.

The construction compounds would include waste bins which could attract pest animals. This risk would be minimised by fencing compounds and appropriate management of waste as outlined in chapter 24.

20.3.4 Operation impacts

Land use

General land use impacts

For land within the existing rail corridor, the general land use would remain the same however use of the rail line would intensify once Inland Rail is operational, as described in section 7.6. Potential impacts associated with the increase in train movements, including safety, access and amenity impacts, are considered in chapters 9, 11 and 21, respectively.

Outside the existing rail corridor, acquisition of land for the Parkes north west connection would change the land use from the existing rural uses to an active transport (rail) use. As described in section 20.3.2, the majority of land to be acquired is zoned for a use which is consistent with the proposed transport use. Therefore, the impacts on existing land use would be minimal, and limited to land zoned for agricultural purposes (that is, RU1). The potential impacts to agricultural land use are described further below.

Future use and development potential

The acquisition of land for the proposal would potentially result in the reconfiguration of some partially impacted properties. In these cases, there may be potential impacts on future property development due to a reduction in the property size and amount of developable area on each property. This would be taken into account during the acquisition process.

The proposal would not directly impact any local urban release areas identified for future residential or employment land.

Agricultural impacts

As described in section 20.3.2 about 50 per cent of the lots that would be affected by acquisition for the Parkes north west connection are currently zoned RU1. Of this land, approximately 66 per cent is used for cropping and 34 per cent is used for grazing (refer to Figure 20.4). This is consistent with the agricultural land class of the majority of the land in this area (Class 4 – refer to Figure 20.3). If all of this land were to be acquired (which is considered unlikely) then this would relate to less than 0.001 per cent of the total land used in Parkes LGA for cropping and grazing, respectively. Therefore, any removal of agricultural production would have a negligible effect on the overall value of agriculture within the region.

No operational impacts to surrounding agricultural land uses are predicted. Potential impacts associated with the increase in train movements, including safety, access and amenity impacts, are considered in chapters 9, 11 and 21, respectively.

Travelling stock reserves

The proposal would have minimal impacts on travelling stock reserves, as access would be maintained during operation.

Flooding impacts on land use

As described in chapter 15, the hydrology and flooding assessment identifies that there would be some changes in flood levels upstream of the proposal site. These changes would largely be a result of the lifting of the level of the rail formation, with this in part being counteracted by the provision of culverts under the rail formation.

An assessment of land use impacts as a result of the predicted change in flooding has been undertaken. Figure 20.4 shows the changes in the one per cent AEP flood event extents due to the proposal and impacts on existing land use. Table 20.7 lists the areas of land uses affected by existing and predicted flood events.

Table 20.7 Land use impact by flood extents under existing and design conditions

Land use	Existing area impacted by a 1% AEP flood event (ha)	Area that would be impacted with the proposal (ha)	Increase/decrease (ha)	Increase/decrease (%)
Conservation area	1.3	1.3		
Cropping	288	332.4	44.4	15
Grazing	485	538.9	53.9	11
Mining and quarrying	1.6	1.6	0	0
River and drainage system	58	56	-2	-3
Special category	7.3	2.3	-5	-68
Transport	92.9	97	4.1	4
Urban	3.9	7	3.1	79
Total	938	1036.5	98.5	10

As shown in Table 20.7, the proposal would increase the impact of localised flooding in the study area by about 100 hectares, with increases in inundation mainly impacting (in terms of total area) cropping and grazing land uses. However, the duration of flooding in these additional areas under most flood events is likely to be in the order of a few hours, which would be insufficient to determinately affect crops, and flooding would generally only impact properties already affected by flooding (refer to Figure 20.4). The increased extent of flooding equates to about 0.01 per cent of the total land currently used for cropping and grazing in the Parkes and Narromine LGAs. As a result, the temporary removal of agricultural production in these areas, although considered unlikely to occur, would have a negligible effect on the overall value of agriculture within the region.

The increase in flood extent may temporarily affect access within the affected properties. Additional discussions would be undertaken with the landowners of the affected properties to determine the consequences of the expected impacts and, where necessary, further refine mitigation measures to reduce the impacts.

Further information on the potential for flooding impacts during operation is provided in chapter 15.

Property impacts

The proposal would not result in direct impacts to properties during operation. Potential impacts associated with the increase in train movements, including safety, access and amenity impacts, are considered in chapters 9, 11 and 21, respectively.

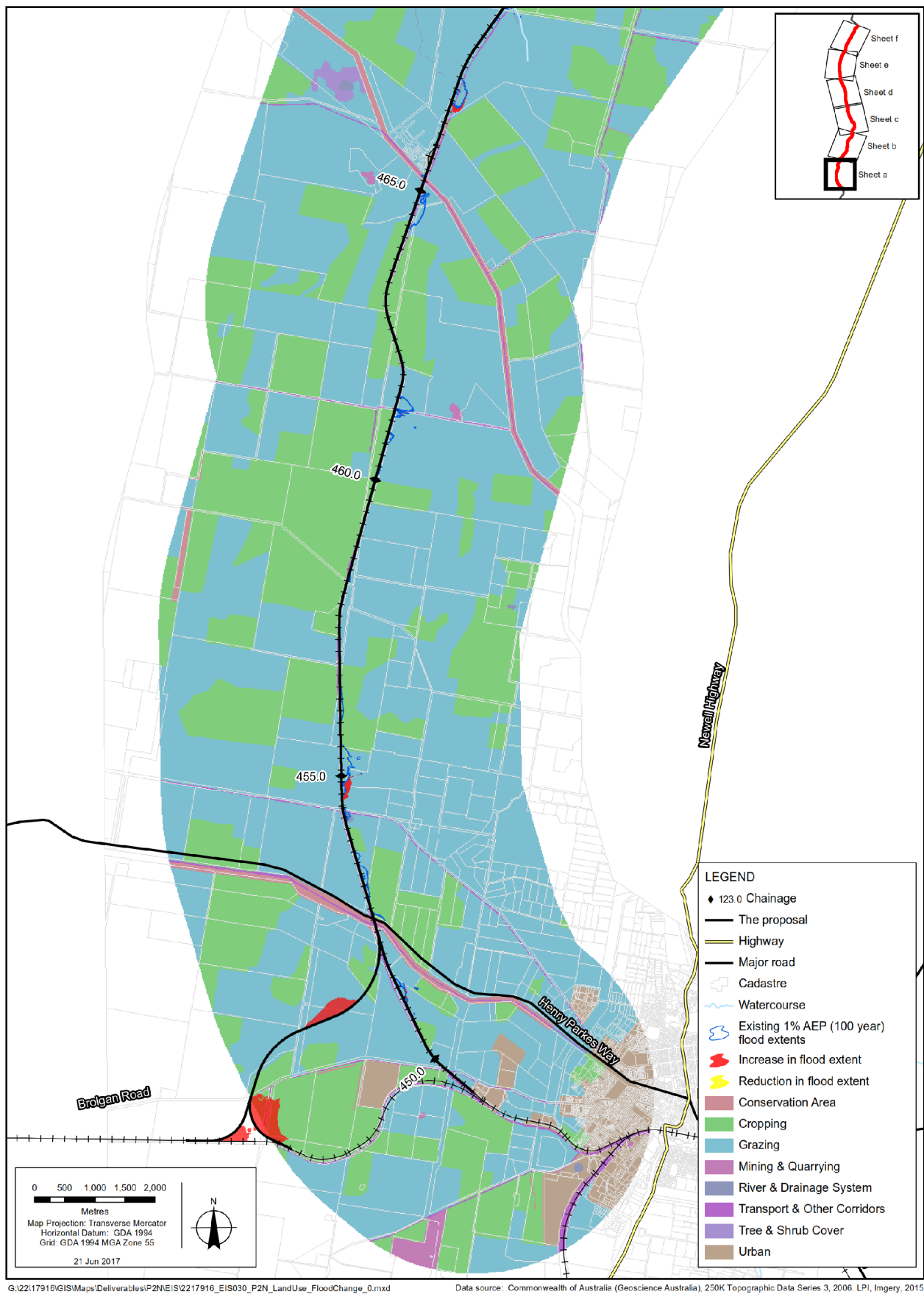


Figure 20.4a
Change in flood extents - land uses

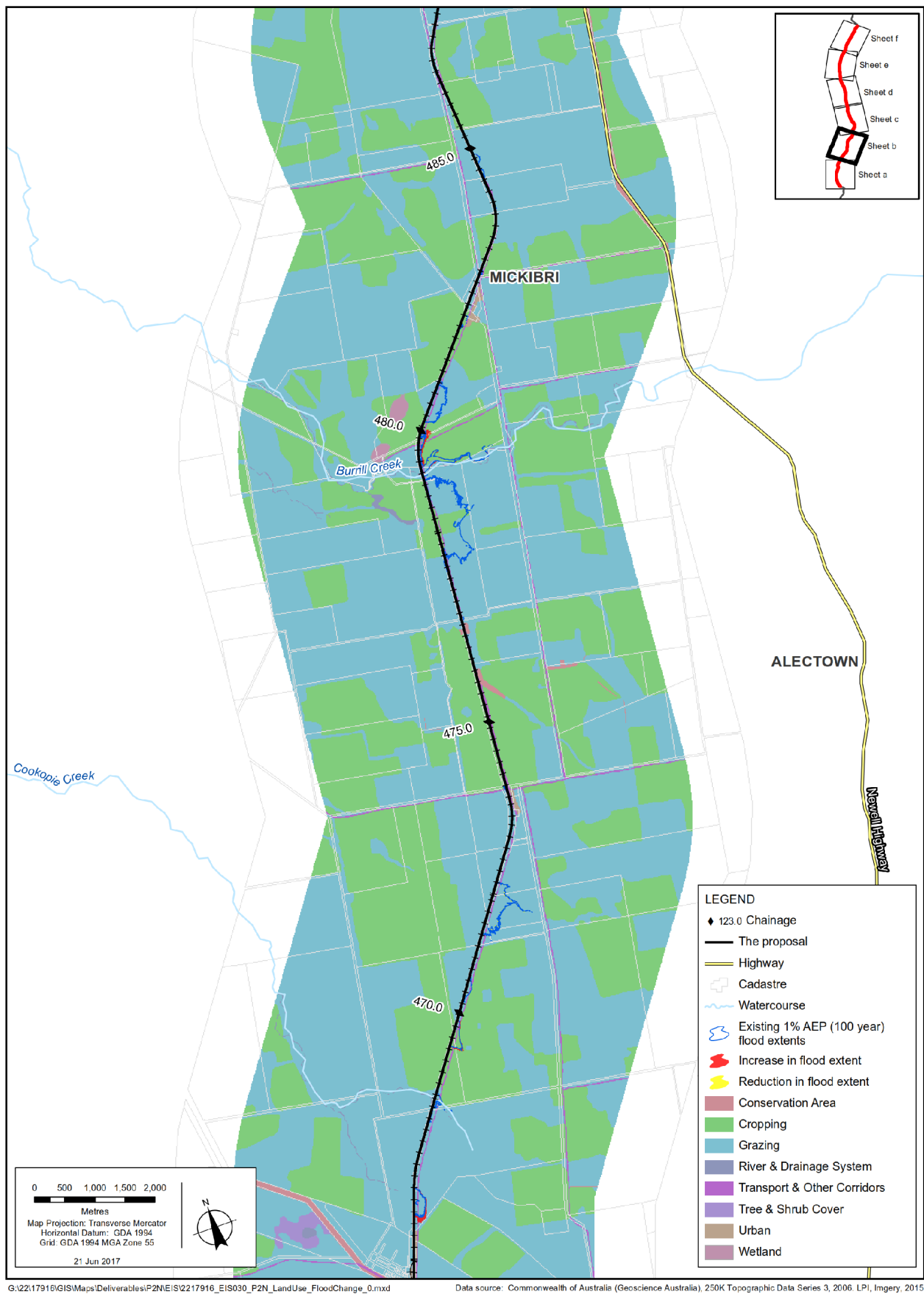


Figure 20.4b
Change in flood extents - land uses

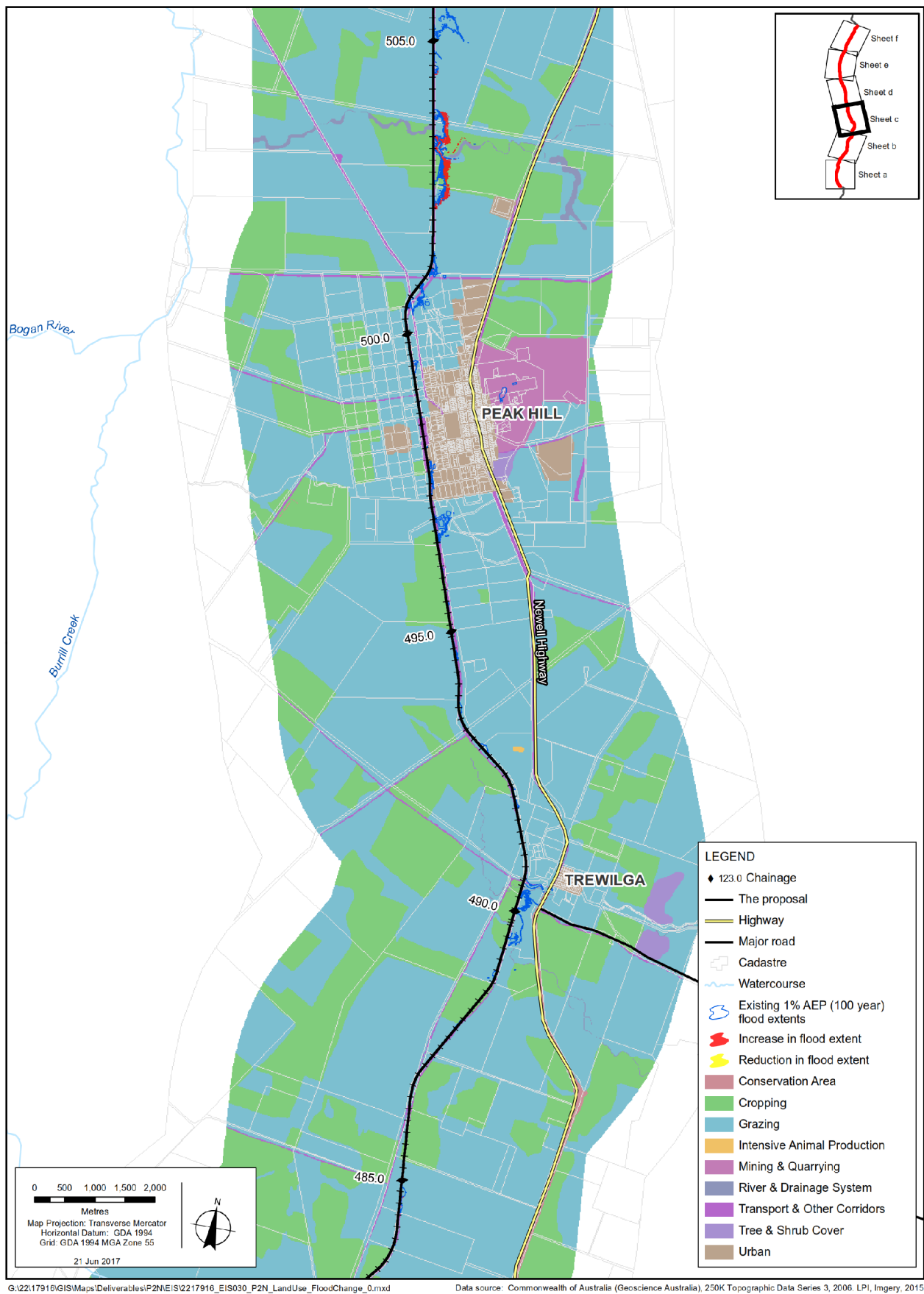


Figure 20.4c
Change in flood extents - land uses

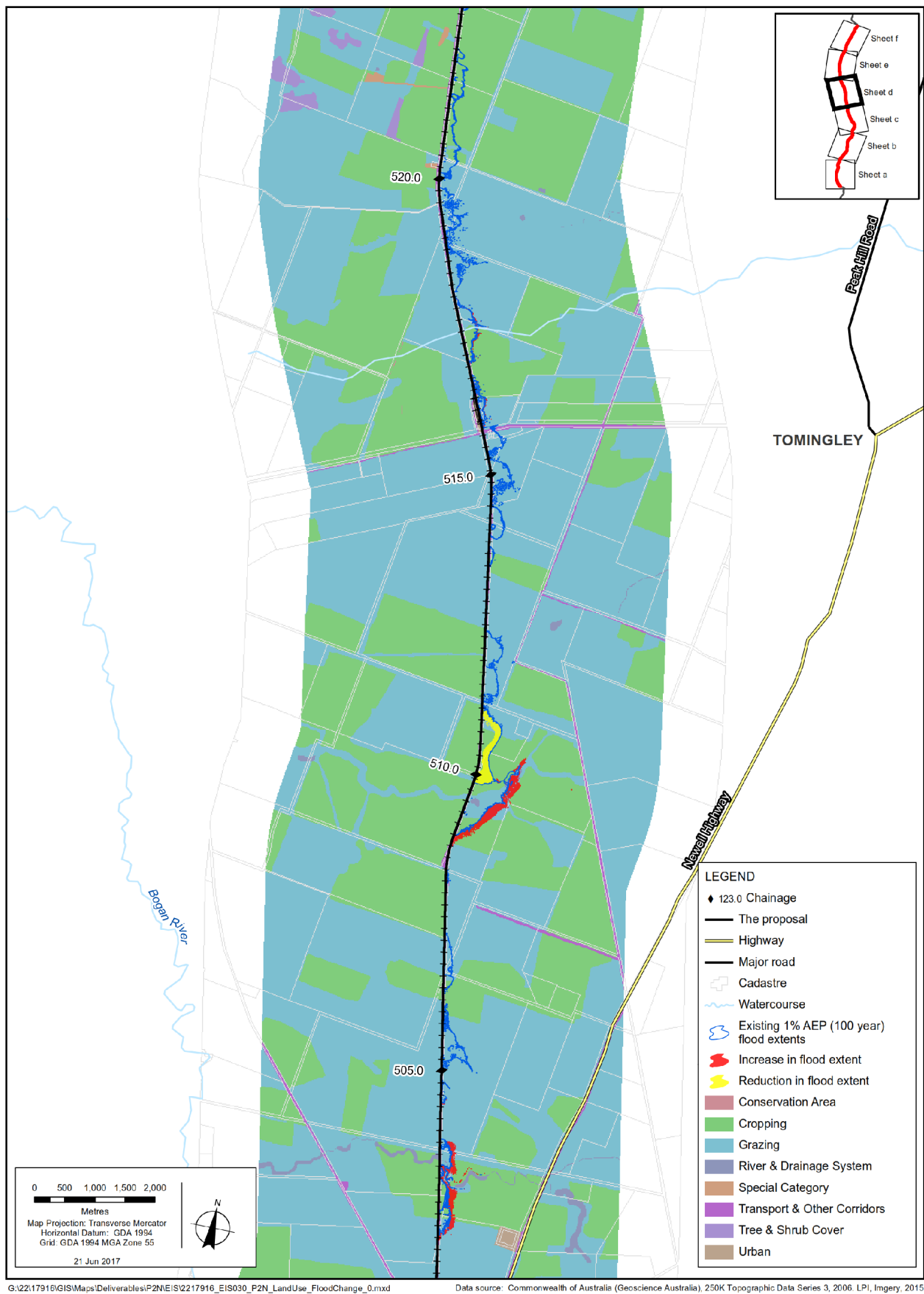


Figure 20.4d
Change in flood extents - land uses

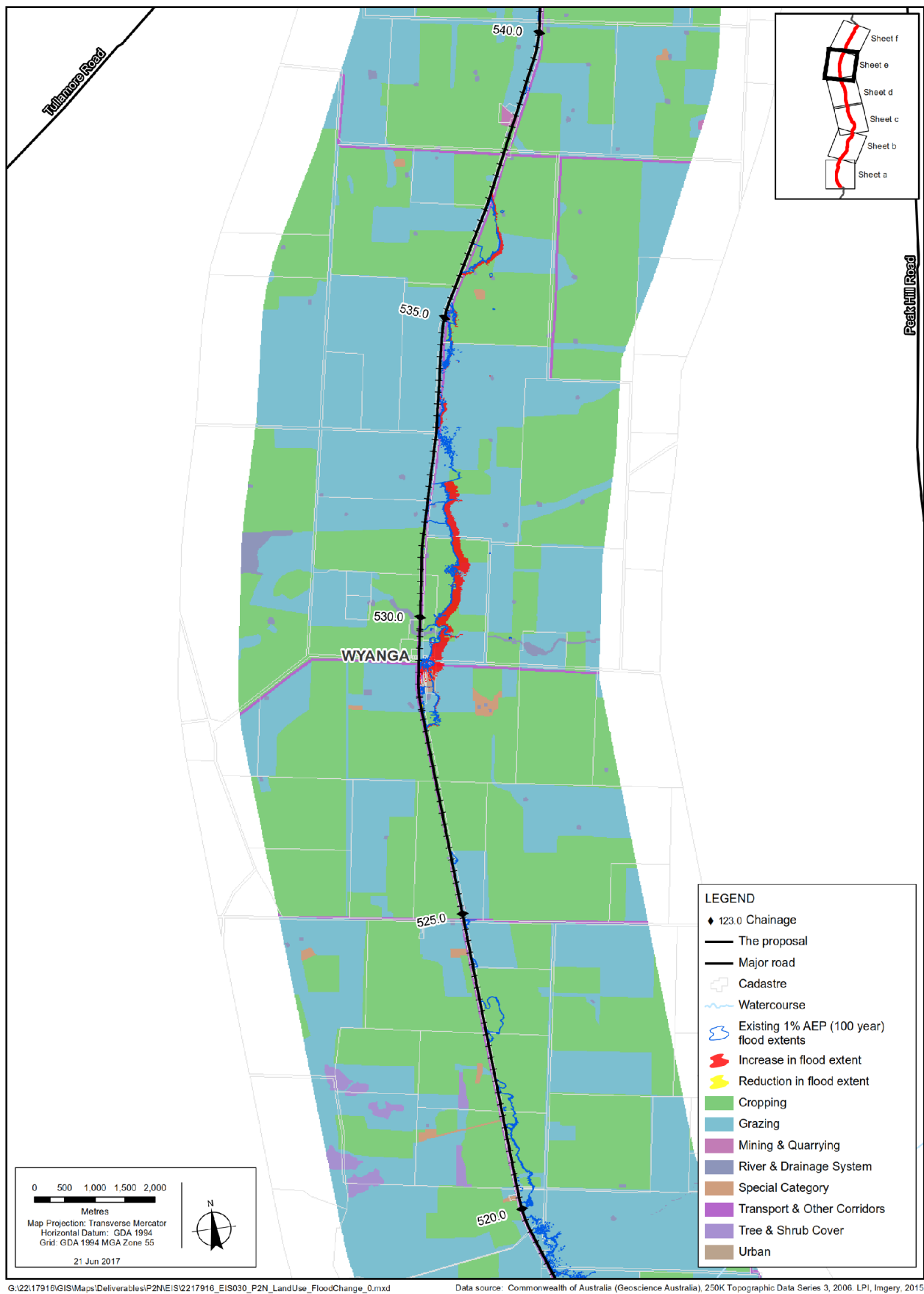


Figure 20.4e
Change in flood extents - land uses

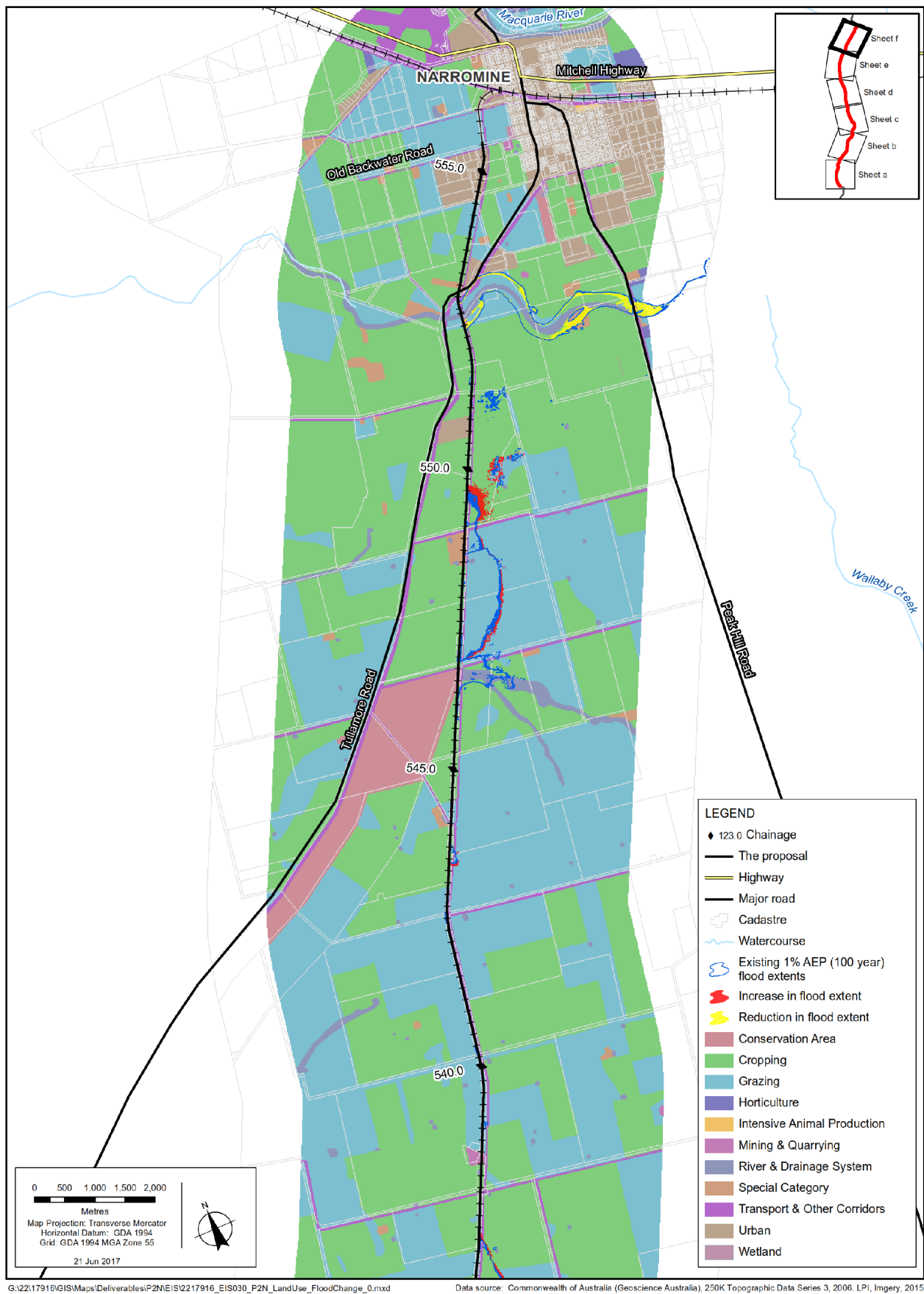


Figure 20.4f
Change in flood extents - land uses

20.4 Mitigation and management

20.4.1 Approach to mitigation and management

Overall, the majority of potential construction related impacts would be short term and temporary in nature. The potential for these impacts would be significantly reduced by:

- ▶ effective construction design and planning
- ▶ implementation of the mitigation measures provided below
- ▶ minimising the need for local road and access closures
- ▶ providing alternative access arrangements in the event that closures are necessary
- ▶ consultation with individual landowners to identify individual concerns, and develop and document strategies to address these concerns
- ▶ ongoing communication.

Key mitigation measures to minimise the potential for land use impacts during construction would be the rehabilitation strategy (included as a mitigation measure in chapter 10) and individual property management agreements. Areas disturbed during construction would be rehabilitated progressively in accordance with the rehabilitation plan.

Individual property management agreements would be developed in consultation with landowners/lessees who would be directly impacted during construction. These would define ARTC's commitments as to how construction would be managed as it impacts individual properties.

20.4.2 Consideration of the interactions between mitigation measures

Mitigation measures to manage the potential for air quality, noise, dust, socio-economic, waste, and health and safety impacts would also assist in minimising the potential for land use and property impacts.

The rehabilitation strategy would also assist in mitigating potential biodiversity, and landscape and visual impacts.

20.4.3 Summary of mitigation measures

To mitigate the potential impacts to land use and property, the following measures would be implemented.

Table 20.8 Land use and property mitigation measures

Stage	Impact	Mitigation measures
Detailed design/ pre-construction	Property impacts	Individual property management agreements would be developed in consultation with landowners/occupants, with respect to the management of construction on or immediately adjacent to private properties. These would detail any required adjustments to fencing, access, farm infrastructure, and relocation of any impacted structures, as required.
	Acquisitions	All acquisitions/adjustments would be undertaken in consultation with landowners and in accordance with the requirements of the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> .

Stage	Impact	Mitigation measures
	Access	Access to properties would be maintained and managed in accordance with the mitigation measures listed in section 9.4.
	Travelling stock reserves	Local Land Services would continue to be consulted during detailed design to understand how impacts to travelling reserves routes can be avoided during construction and operation. Alternative access arrangements would be made as required.
Detailed design/ pre-construction and construction	Impacts to services and utilities	Utility and service providers would 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.
	Consultation and communication	<p>Property owners/occupants would be consulted during the design and construction phases, in accordance with the communication plan for the proposal (described in chapter 4), to ensure that owners/occupants are informed about the timing and scope of activities in their area; and any potential property impacts/changes, particularly in relation to potential impacts to access, services, or farm operational arrangements.</p> <p>The results of consultation would be incorporated in the individual property management agreements as appropriate.</p> <p>Consultation would be undertaken with landowners affected by level crossing changes and agreement obtained, where required.</p>
	Biosecurity risks	The weed management plan included in the CEMP would detail measures to minimise the potential for biosecurity risks during construction.
Construction	Rehabilitation	<p>The rehabilitation strategy would include measures to restore disturbed sites as close as possible to the pre-construction condition or better, or to the satisfaction of landowners.</p> <p>Rehabilitation of disturbed areas would be undertaken progressively, consistent with the rehabilitation strategy and Individual property management agreements (where relevant).</p>