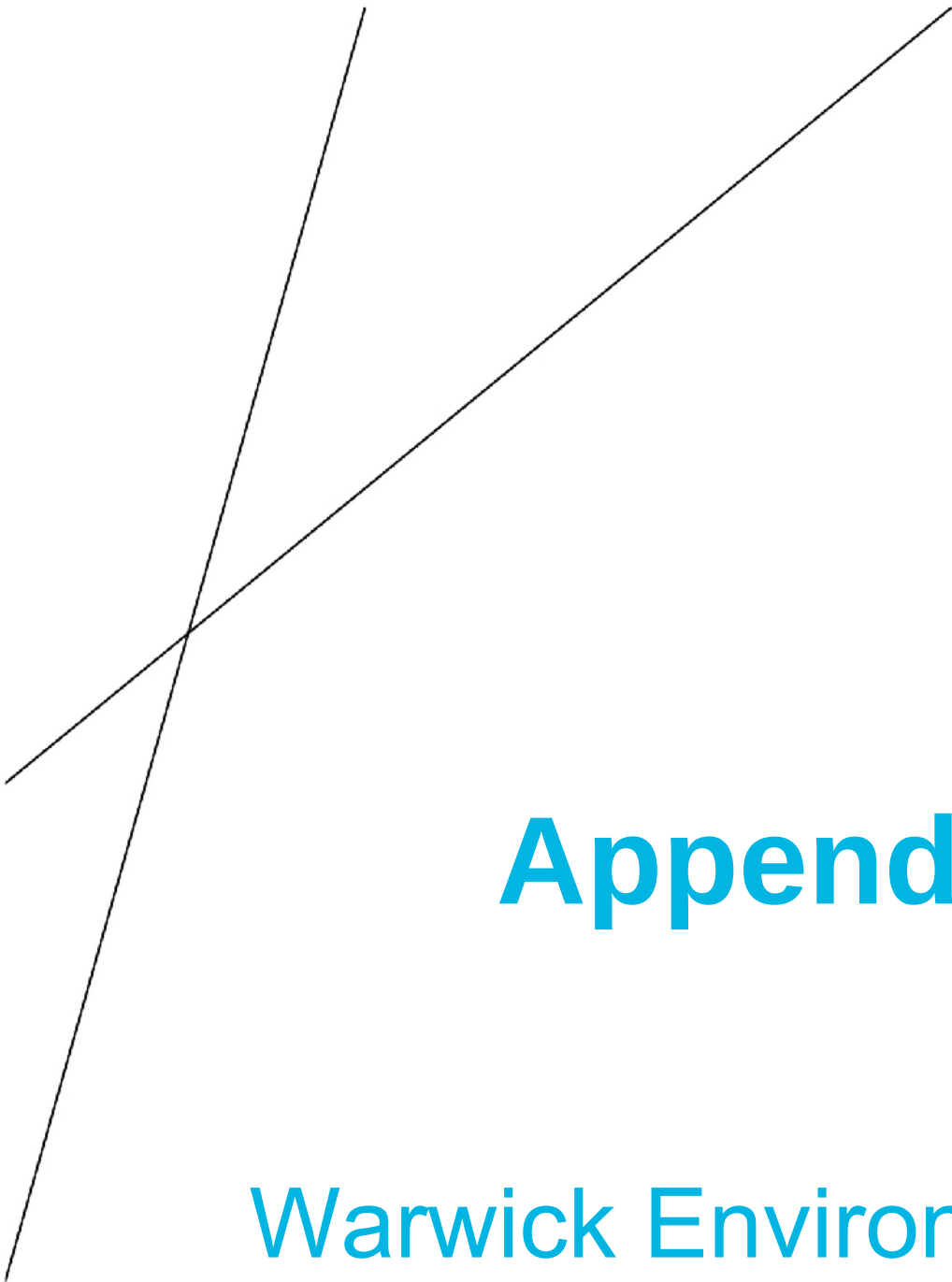
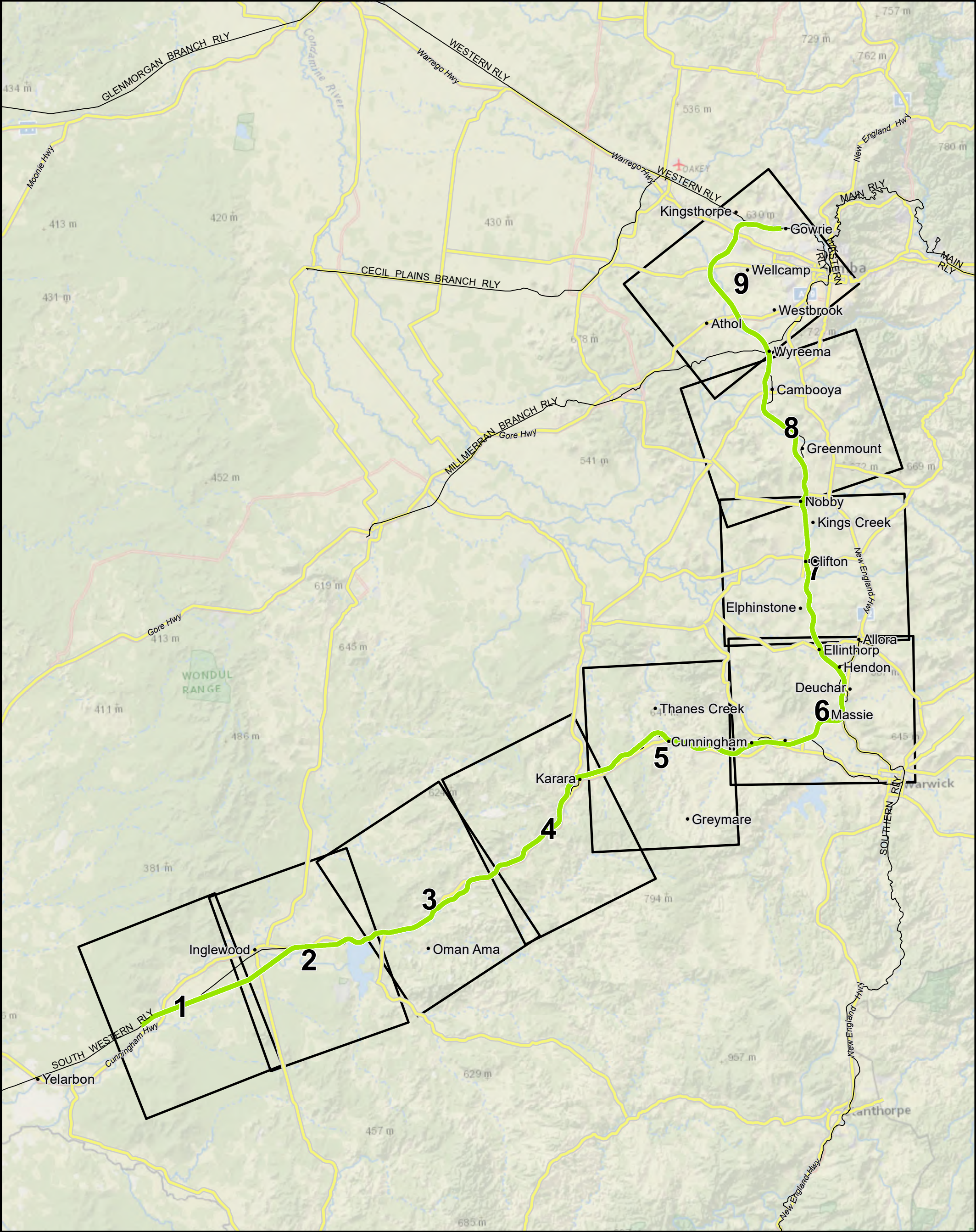




Appendix P

Warwick Environmental
Map Series



Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator

0 5 10 20
Kilometres
1:500,000 (when printed at A3)

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Legend

- Warwick
- Existing Railway
- Main Roads

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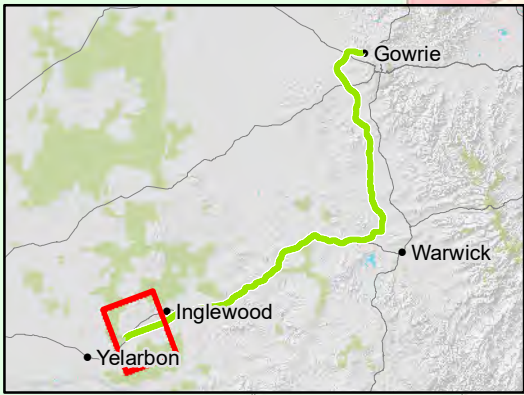
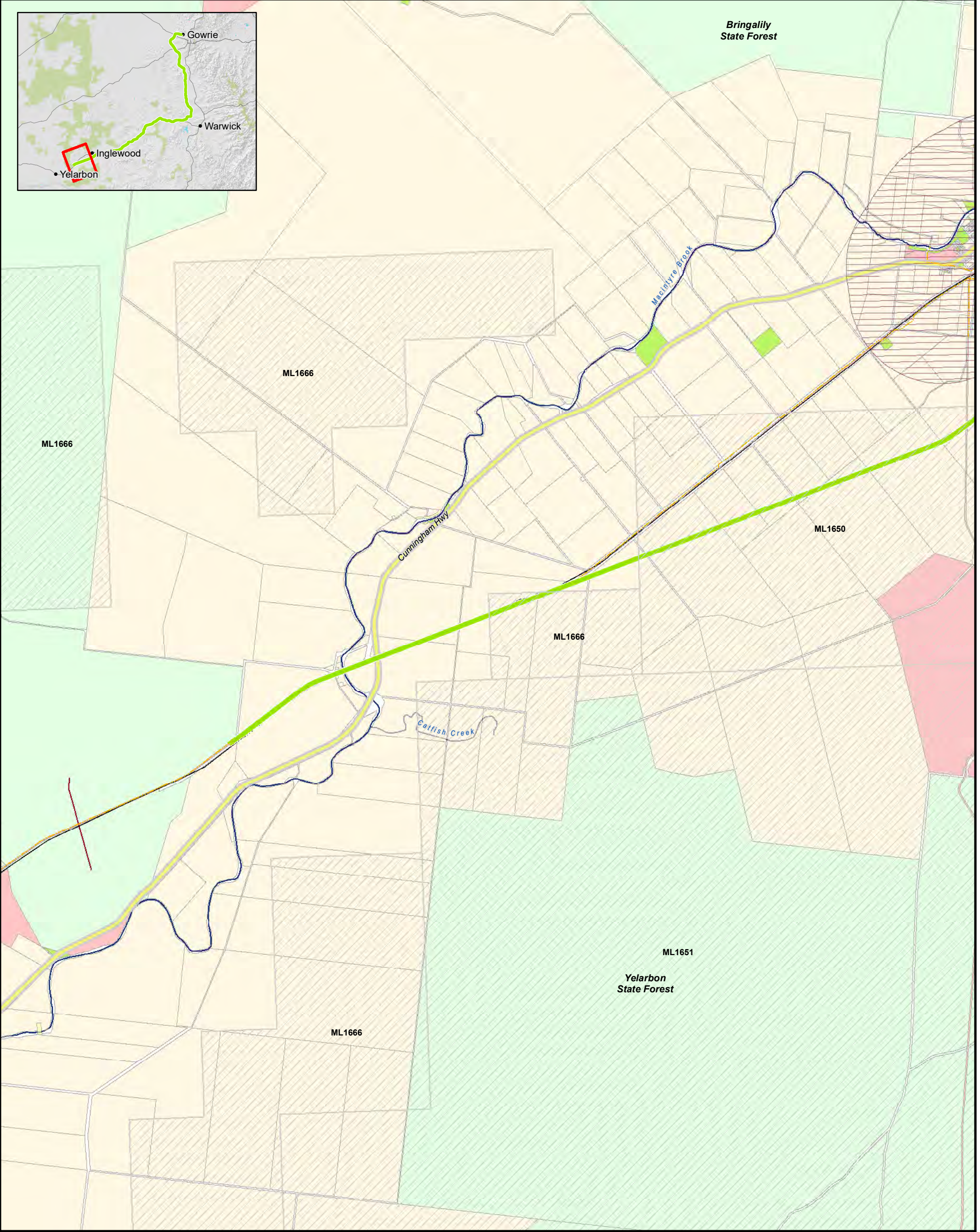
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**WARWICK ALIGNMENT
ENVIRONMENT OVERVIEW**

Yelarbon to Gowrie (Y2G) Project

PROJECT ID	60492124
CREATED BY	MF
LAST MODIFIED	FryM - 31/03/2017
VERSION:	1

**Map
KEY**



Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator

0 0.75 1.5 3
Kilometres
1:75,000 (when printed at A3)

www.aecom.com

Legend

- Warwick
- Existing Railway
- Cadastral Boundary and Land Tenure**
 - Freehold
 - Lands Lease
 - Reserve
 - State Land
 - State Forest
 - National Park

Community

- Residential Receptors within 200 m
- Other Receptor within 200 m
- Priority Living Area (PLA)

Electrical

- Ergon Overhead HV
- Powerlink Feeder
- Pipeline**
 - Oil Pipeline
 - Gas Pipeline
- Telecommunications**
 - Optic Fibre

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WARWICK ALIGNMENT

DCDB, LAND TENURE, RESIDENTIAL & SENSITIVE RECEPTORS AND UTILITIES

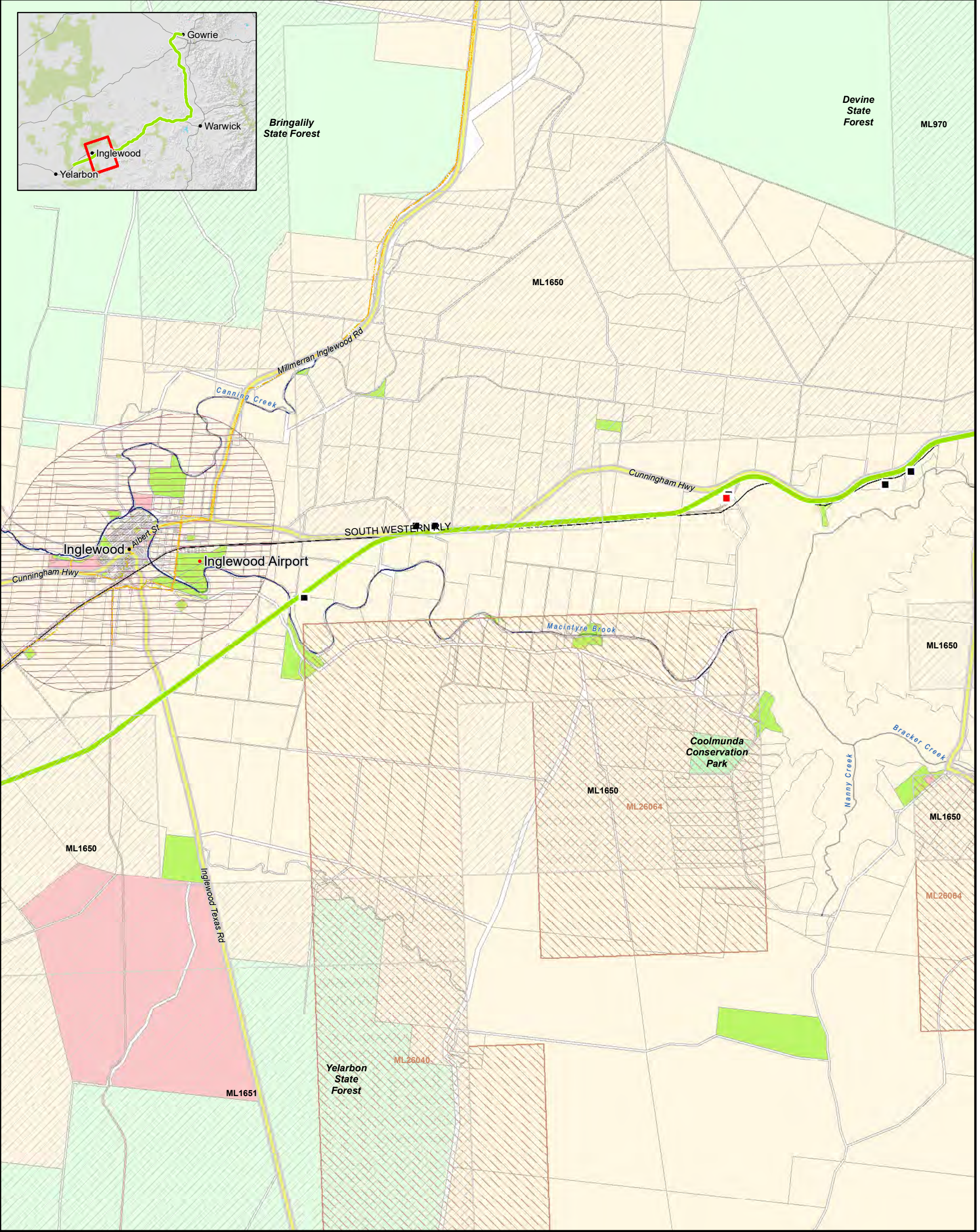
Yelarbon to Gowrie (Y2G) Project

PROJECT ID	60492124
CREATED BY	MF
LAST MODIFIED	frym - 30/03/2017
VERSION:	3

Map

1-1

A3 size



Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator

0 0.75 1.5 3
Kilometres
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Legend

- Warwick
- Existing Railway
- Cadastral Boundary and Land Tenure**
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 - Oil Pipeline
 - Gas Pipeline
- Telecommunications**
 - Optic Fibre

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WARWICK ALIGNMENT

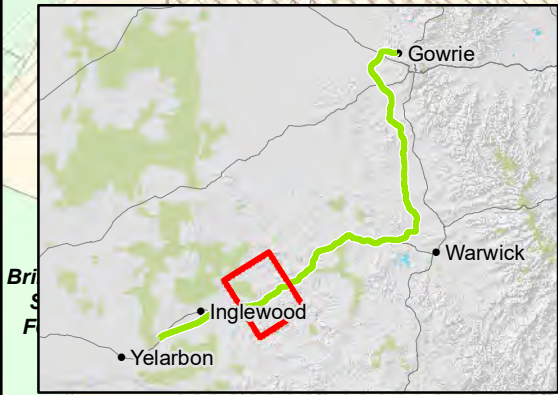
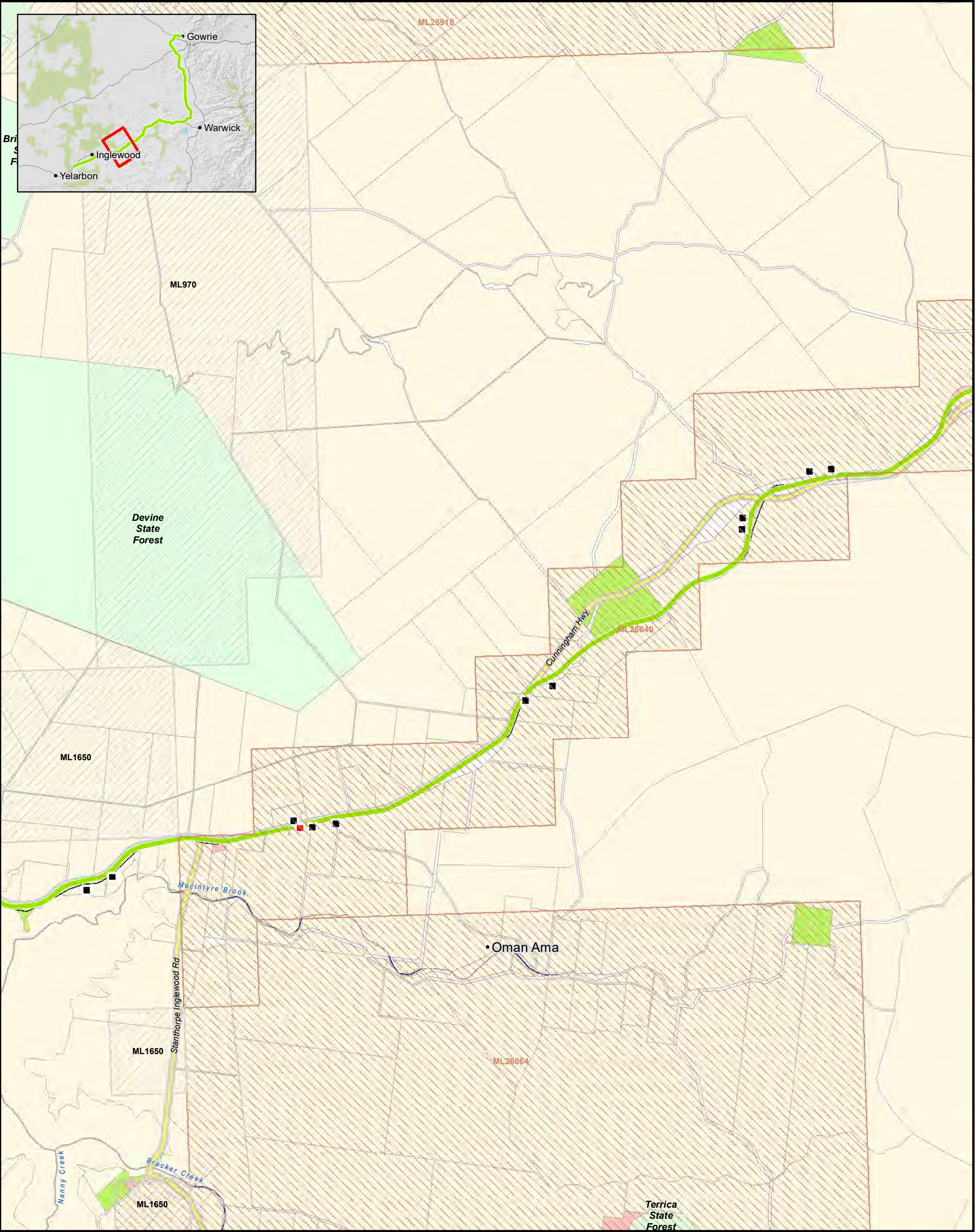
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Yelarbon to Gowrie (Y2G) Project

PROJECT ID: 60492124
CREATED BY: MF
LAST MODIFIED: frym - 30/03/2017
VERSION: 3

Map
1-2

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Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator

0 0.75 1.5 3
Kilometres
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Legend

- Warwick
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ARTC

WARWICK ALIGNMENT

DCDB, LAND TENURE, RESIDENTIAL & SENSITIVE RECEPTORS AND UTILITIES

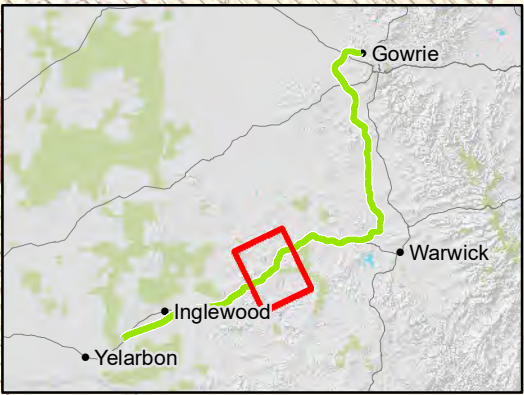
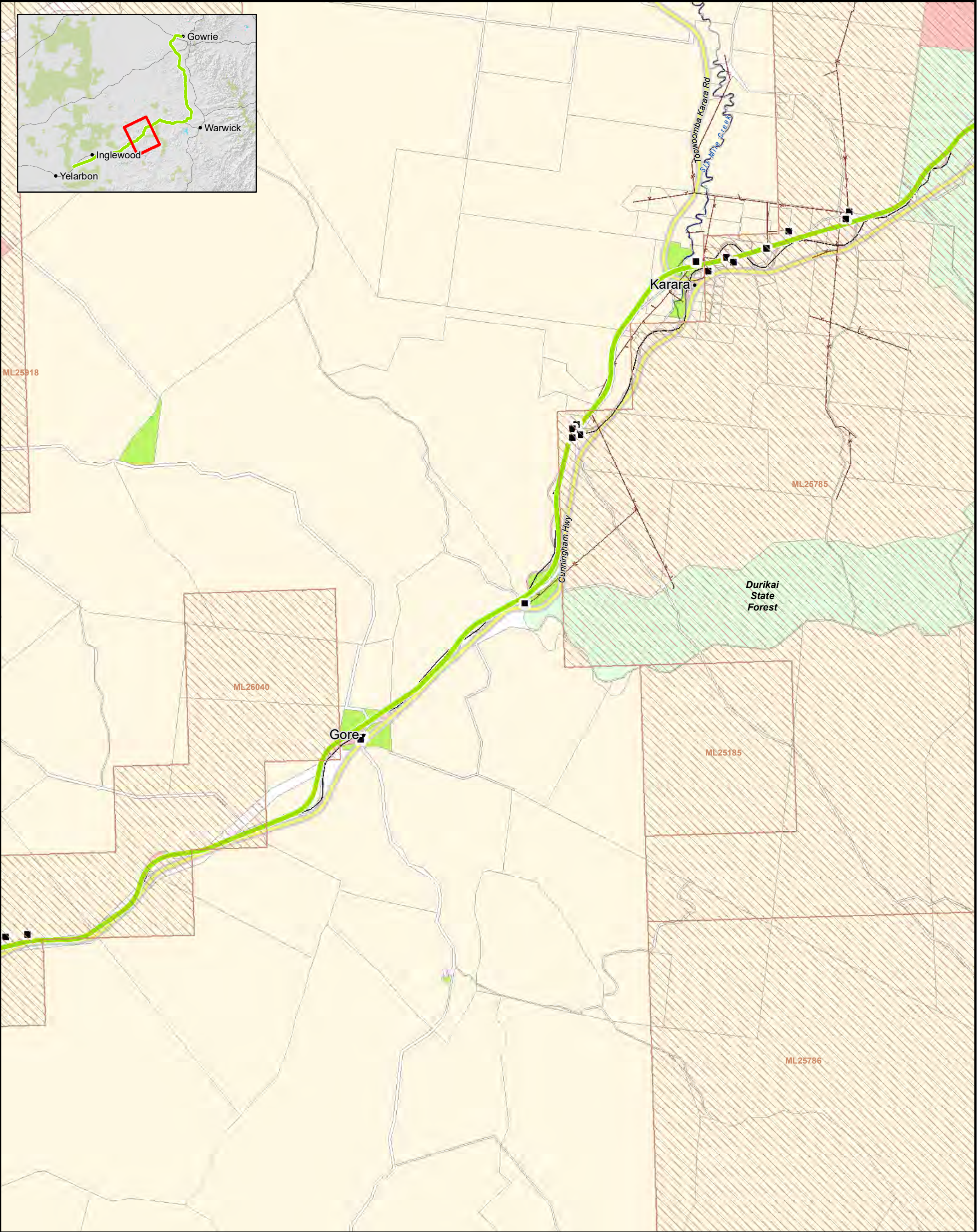
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VERSION:	3

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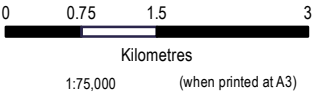
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Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator



Legend

- Warwick
- Existing Railway
- Cadastral Boundary and Land Tenure**
 - Freehold
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- Powerlink Feeder

Pipeline

- Oil Pipeline
- Gas Pipeline

Telecommunications

- Optic Fibre

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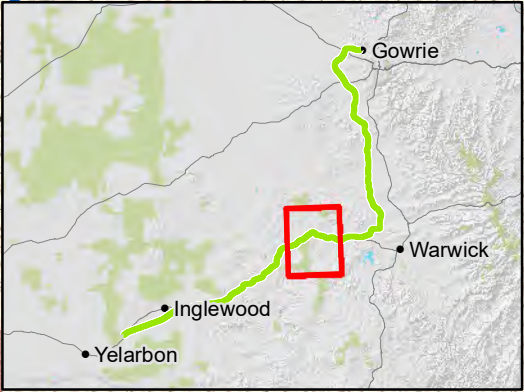
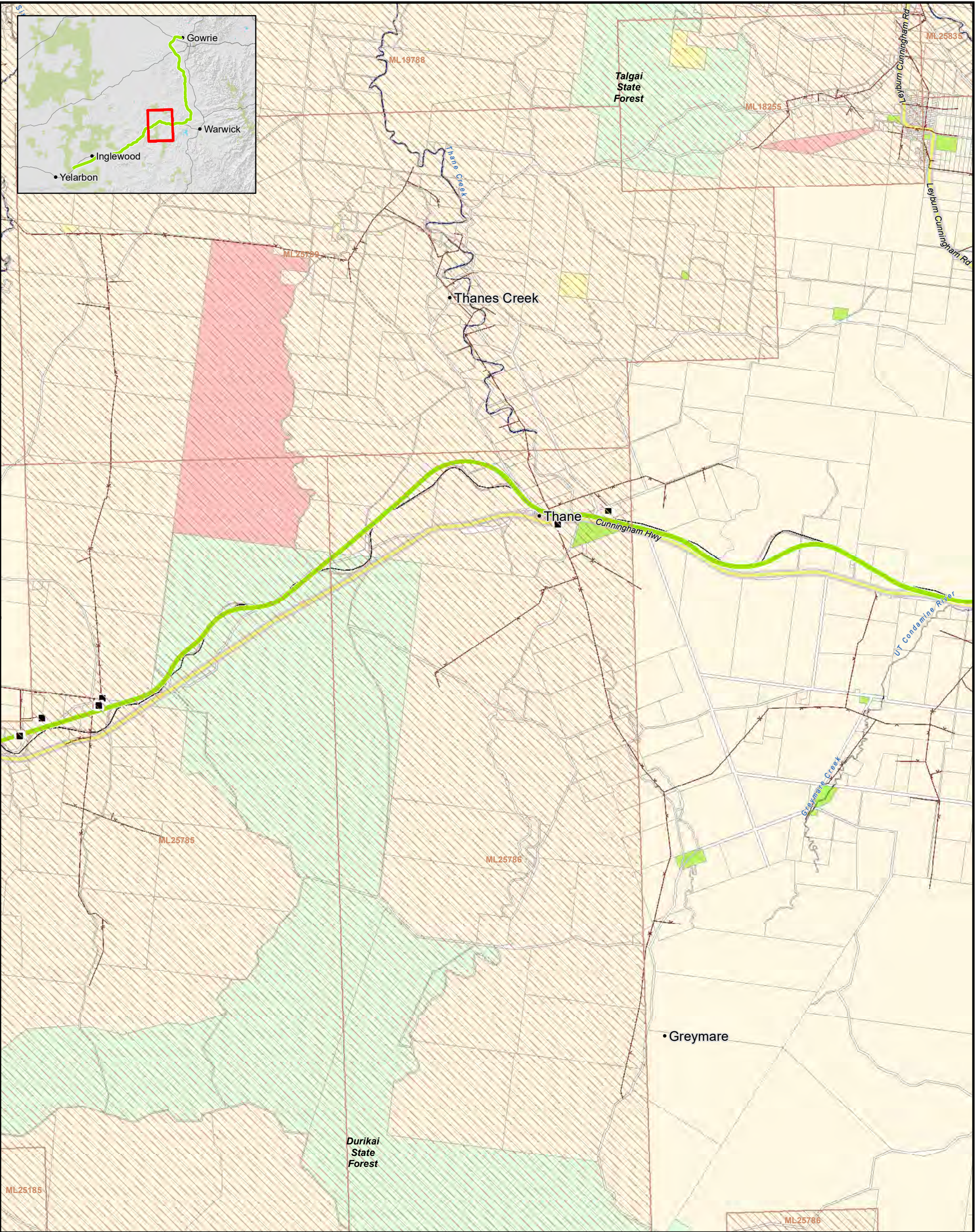
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Yelarbon to Gowrie (Y2G) Project**

PROJECT ID: 60492124
CREATED BY: MF
LAST MODIFIED: frym - 30/03/2017
VERSION: 3

Map

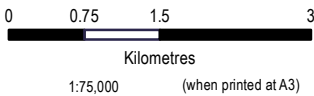
1-4

A3 size



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Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator



Legend

- Warwick
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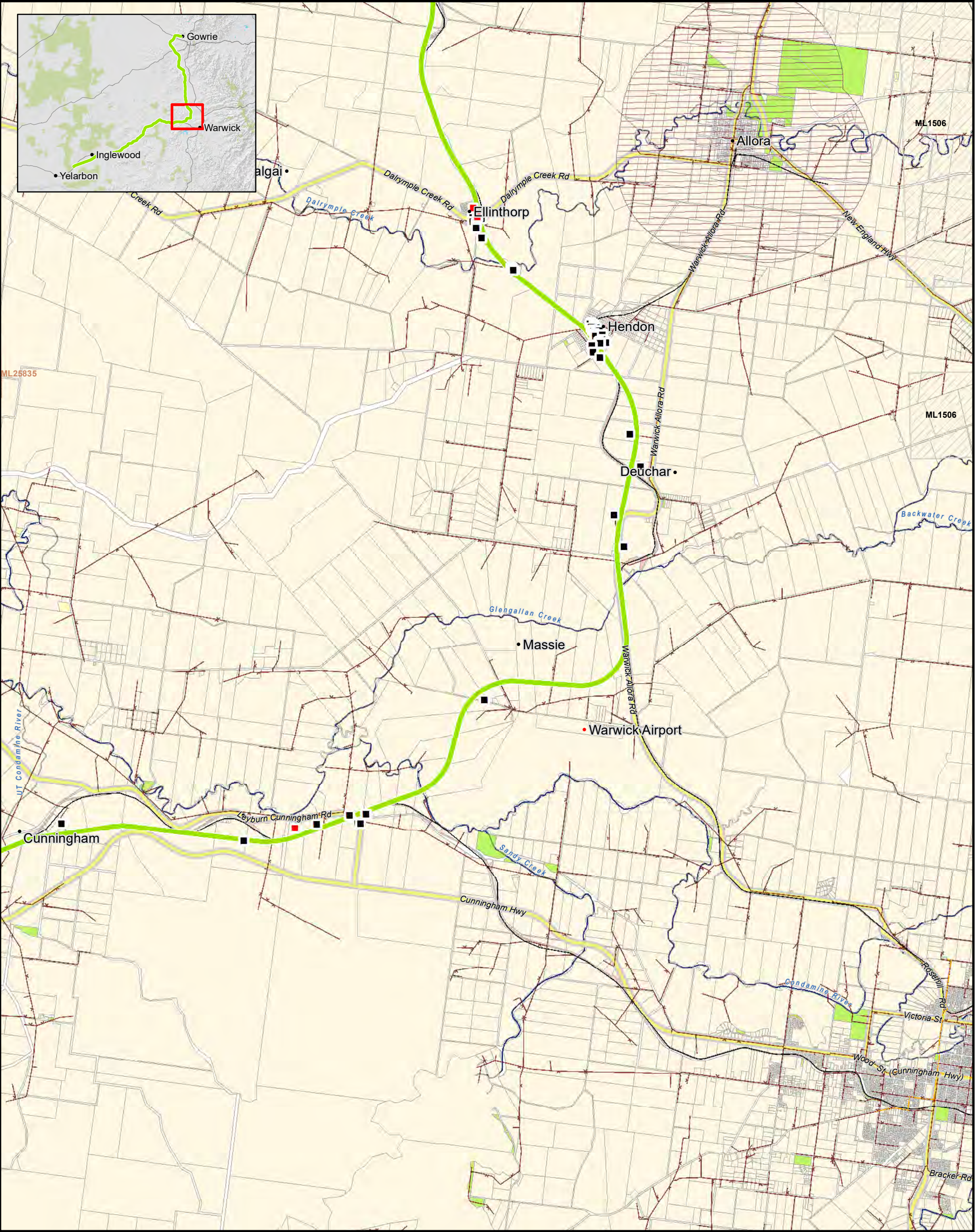
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Yelarbon to Gowrie (Y2G) Project

PROJECT ID: 60492124
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LAST MODIFIED: frym - 30/03/2017
VERSION: 3

**Map
1-5**

A3 size



Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator

0 0.75 1.5 3
Kilometres
1:75,000 (when printed at A3)

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Legend

- Warwick
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- Gas Pipeline

Telecommunications

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ARTC

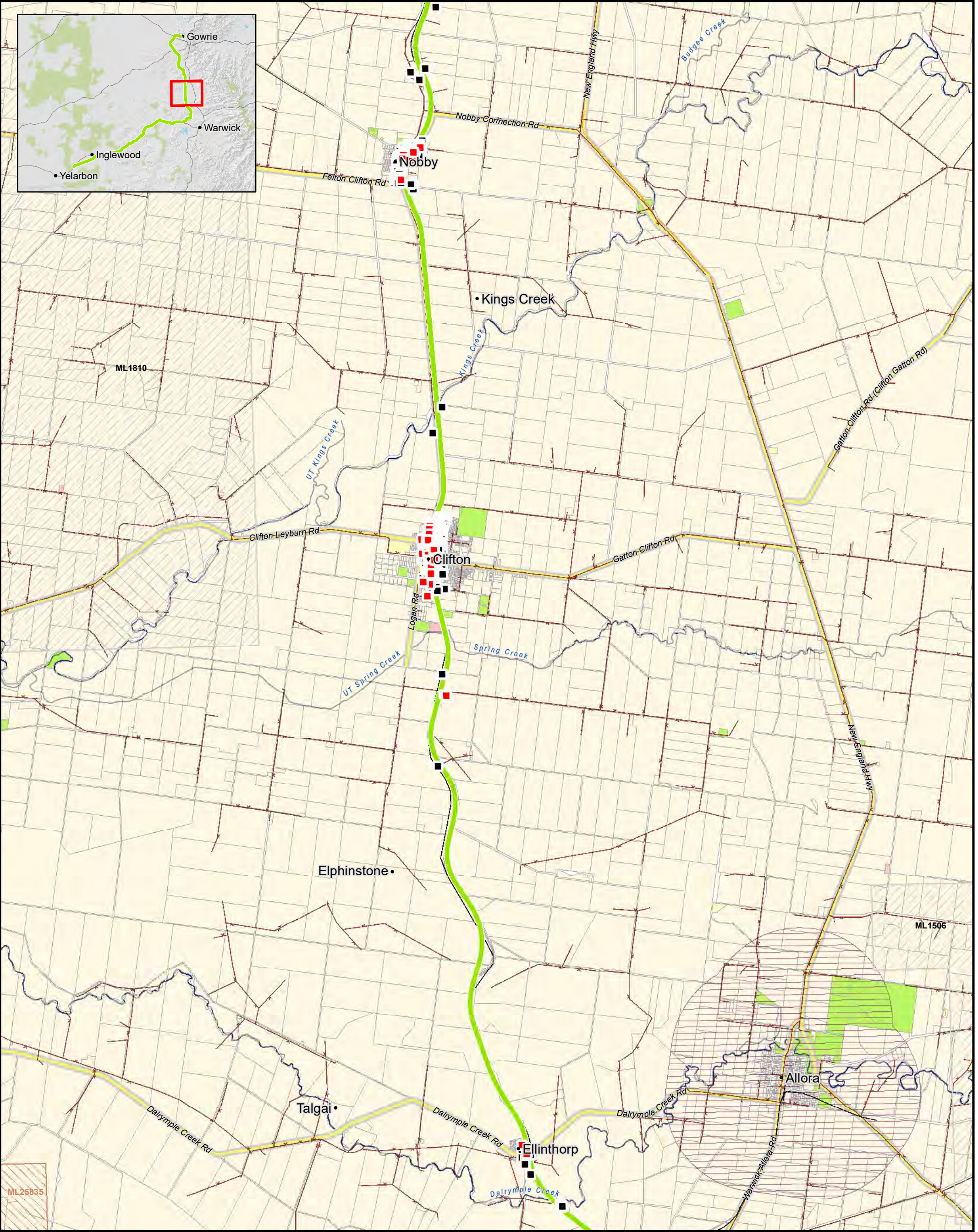
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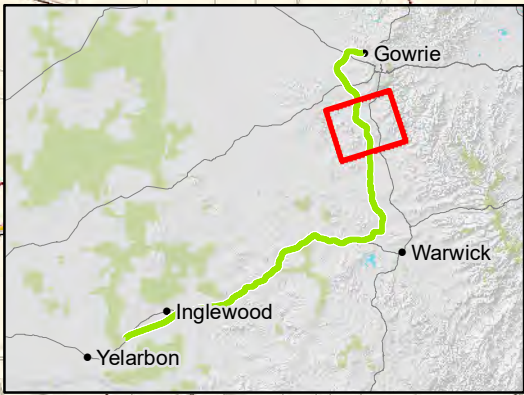
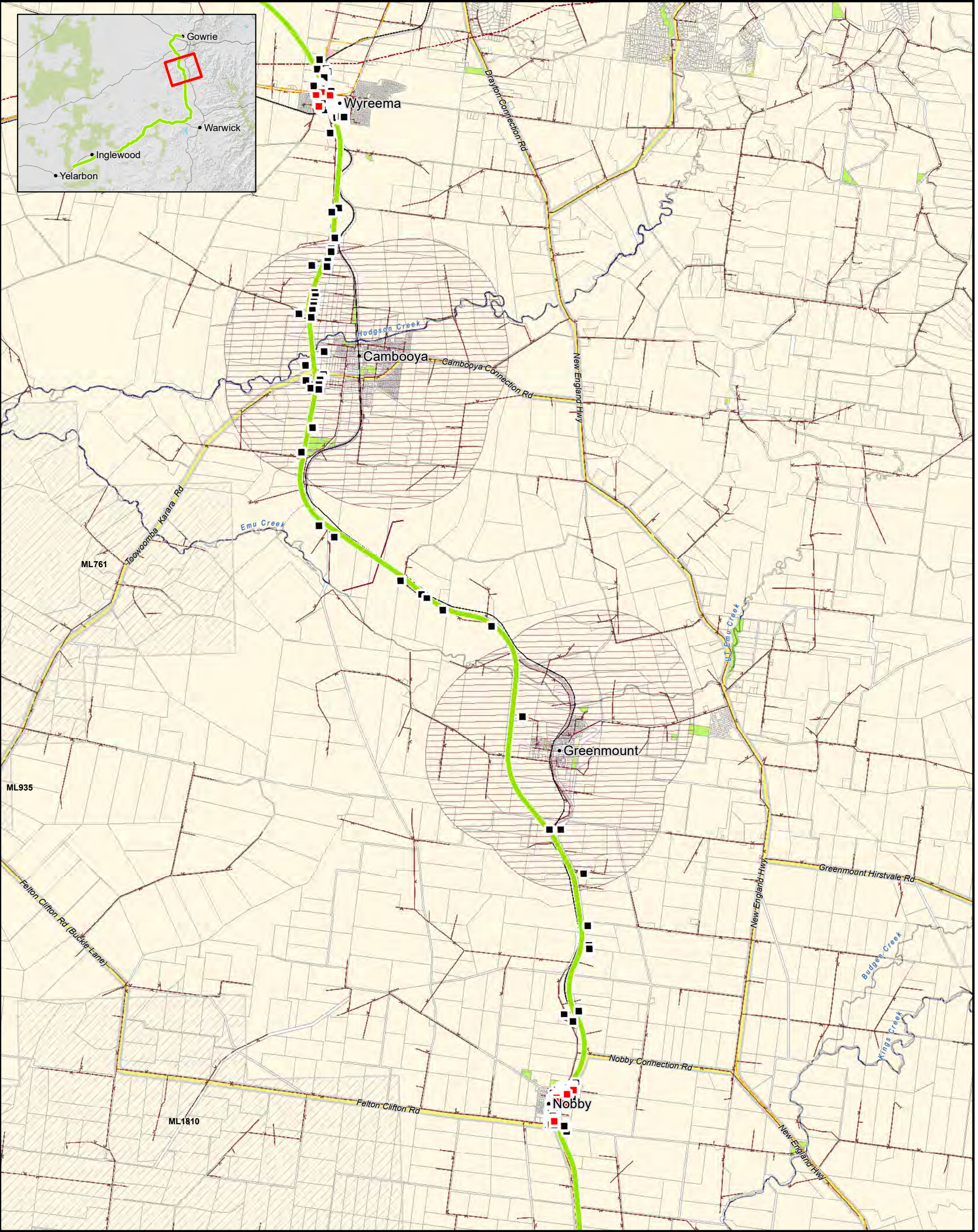
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1-7

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Legend

- Warwick
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- Powerlink Feeder

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- Gas Pipeline

Telecommunications

- Optic Fibre

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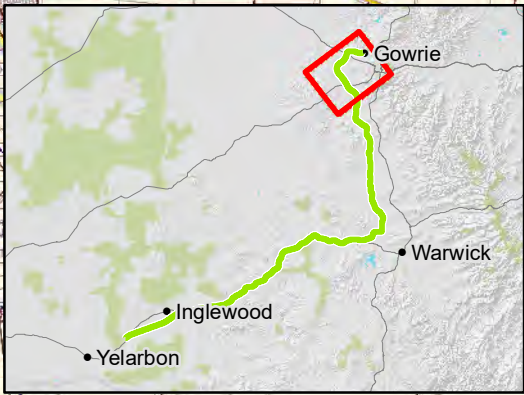
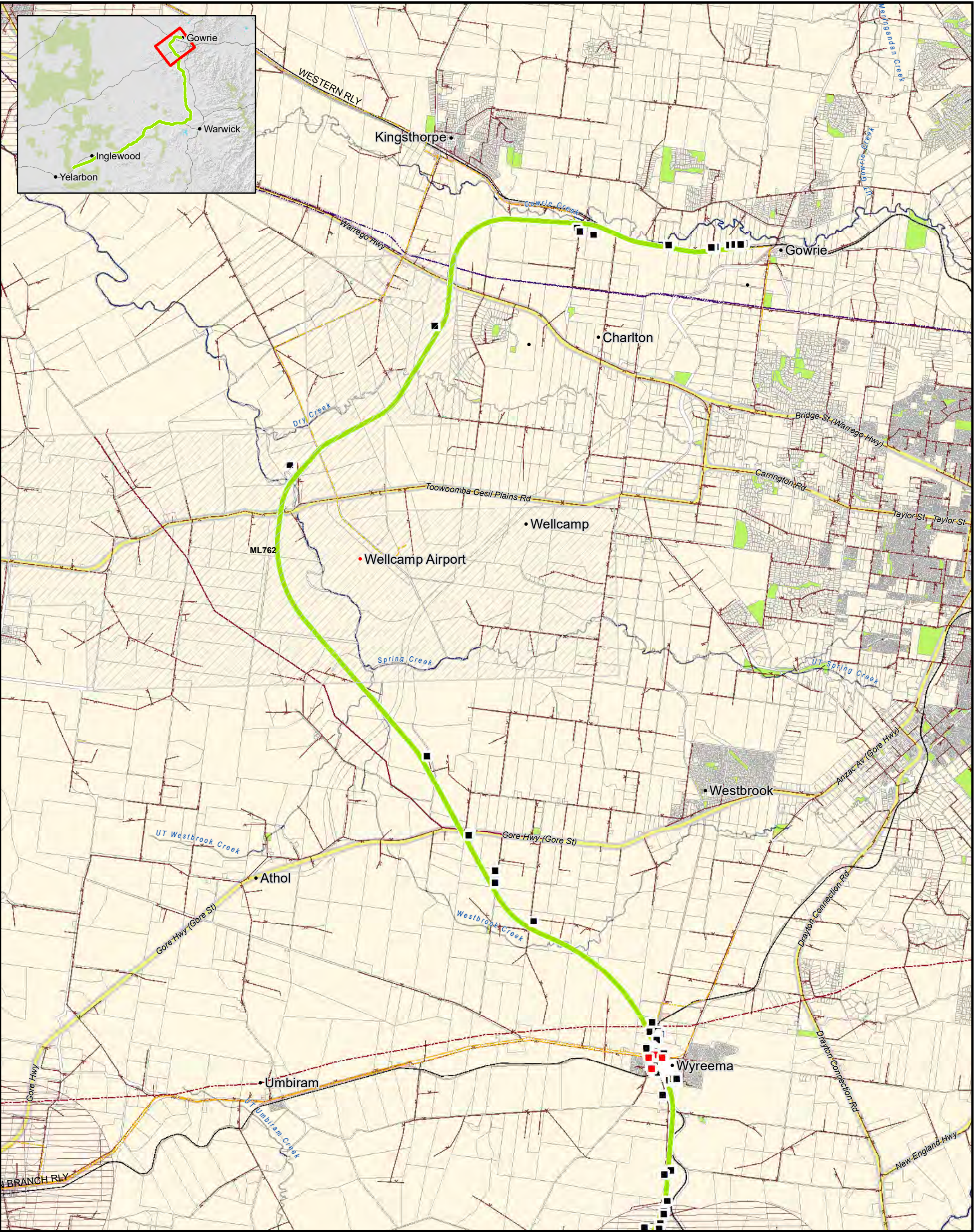
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Map

1-8

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Legend

- Warwick
- Existing Railway
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- Gas Pipeline

Telecommunications

- Optic Fibre

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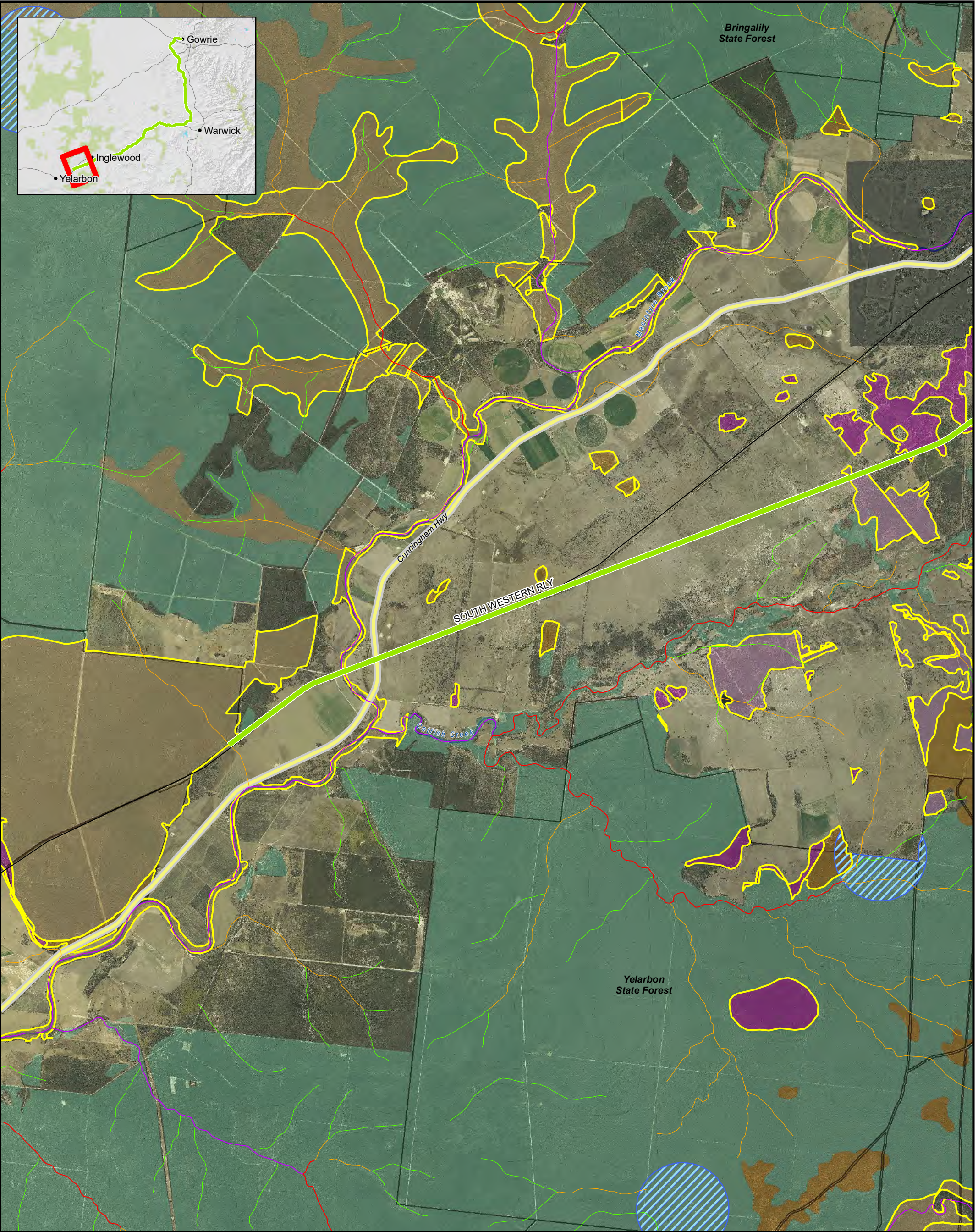
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Yelarbon to Gowrie (Y2G) Project

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CREATED BY	MF
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VERSION:	3

Map

1-9



Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator

0 0.75 1.5 3
Kilometres
1:75,000 (when printed at A3)

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Legend

Warwick
Toowoomba Second Range Crossing
Waterway Risk Classification (DAF)
1 - Low
2 - Moderate
3 - High
4 - Major

Regional Ecosystem

Endangered - Sub-dominant
Endangered - Dominant
Of Concern - Sub-dominant
Of Concern - Dominant
Least Concern
Plantation forest
Threatened Ecological Community
Essential Habitat

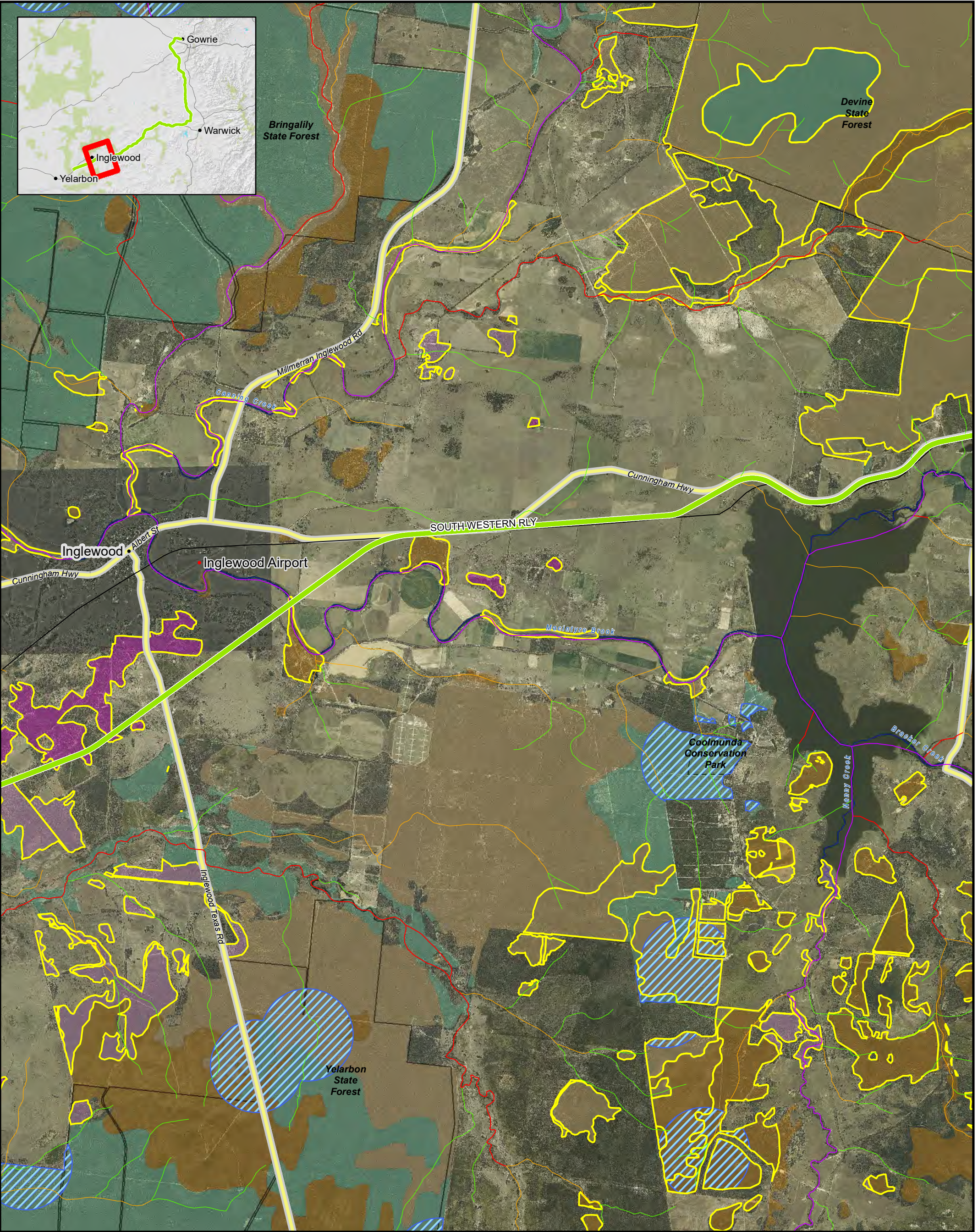
Heritage

Indigenous Cultural Heritage Location
Queensland Heritage Register Place
Local Heritage Location

ARTC
WARWICK ALIGNMENT
REGIONAL ECOSYSTEMS AND
CULTURAL HERITAGE LOCATIONS
Yelarbon to Gowrie (Y2G) Project

PROJECT ID	60492124
CREATED BY	MF
LAST MODIFIED	FryM - 31/03/2017
VERSION:	3

Map
2-1



Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator

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Kilometres
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Legend

Warwick

Toowoomba Second Range Crossing

Waterway Risk Classification (DAF)

1 - Low

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3 - High

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Regional Ecosystem

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Of Concern - Dominant

Least Concern

Plantation forest

Threatened Ecological Community

Essential Habitat

Heritage

Indigenous Cultural Heritage Location

Queensland Heritage Register Place

Local Heritage Location

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REGIONAL ECOSYSTEMS AND

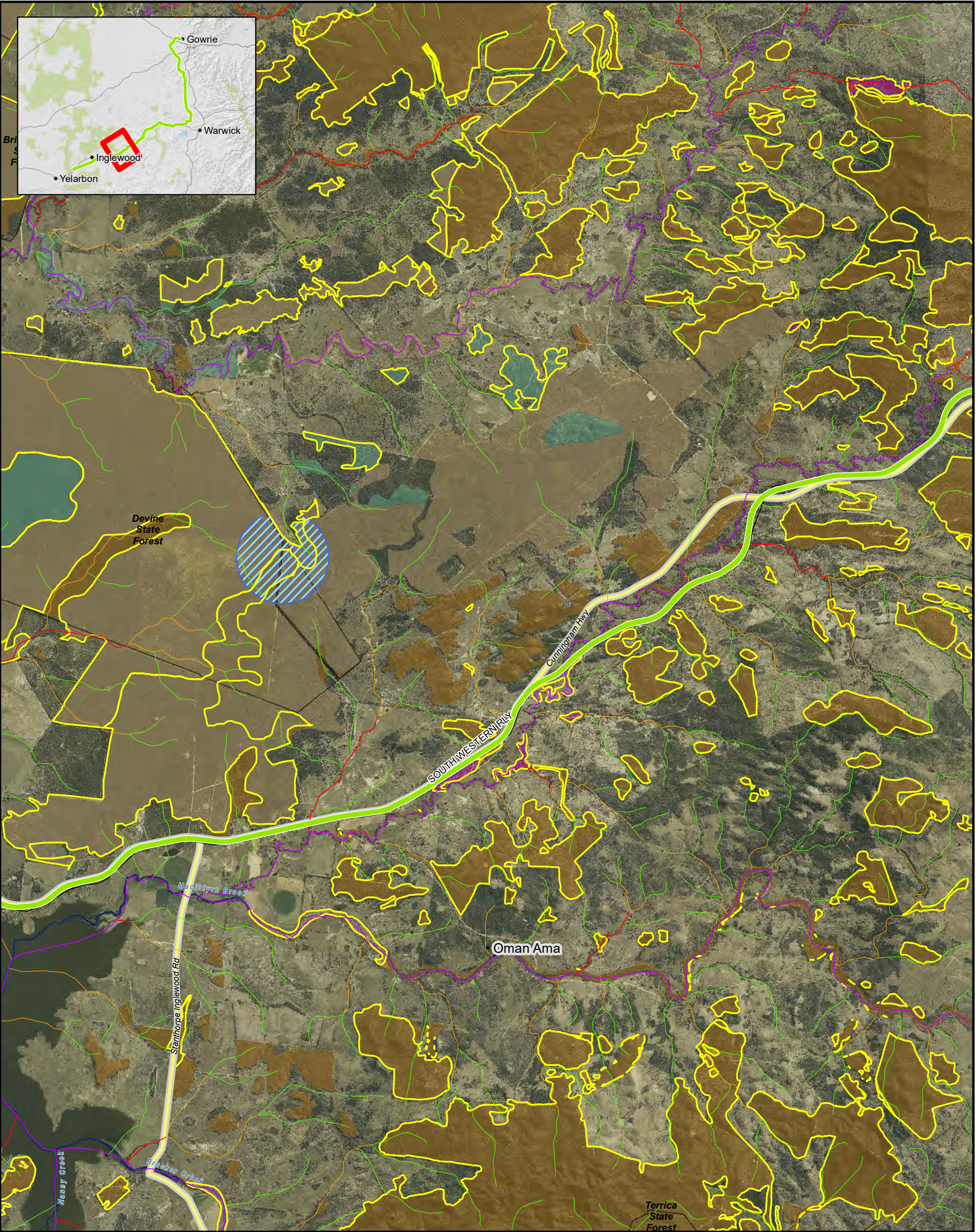
CULTURAL HERITAGE LOCATIONS

Yelarbon to Gowrie (Y2G) Project

PROJECT ID	60492124
CREATED BY	MF
LAST MODIFIED	FryM - 31/03/2017
VERSION:	3

Map

2-2



Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator

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Kilometres
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Legend

Warwick

Toowoomba Second Range Crossing

Waterway Risk Classification (DAF)

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3 - High

4 - Major

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Endangered - Sub-dominant

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Of Concern - Dominant

Least Concern

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Essential Habitat

Heritage

Indigenous Cultural Heritage Location

Queensland Heritage Register Place

Local Heritage Location

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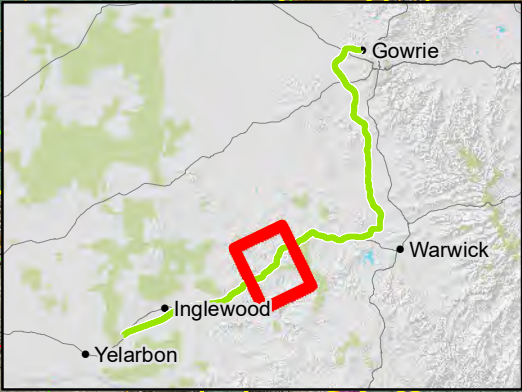
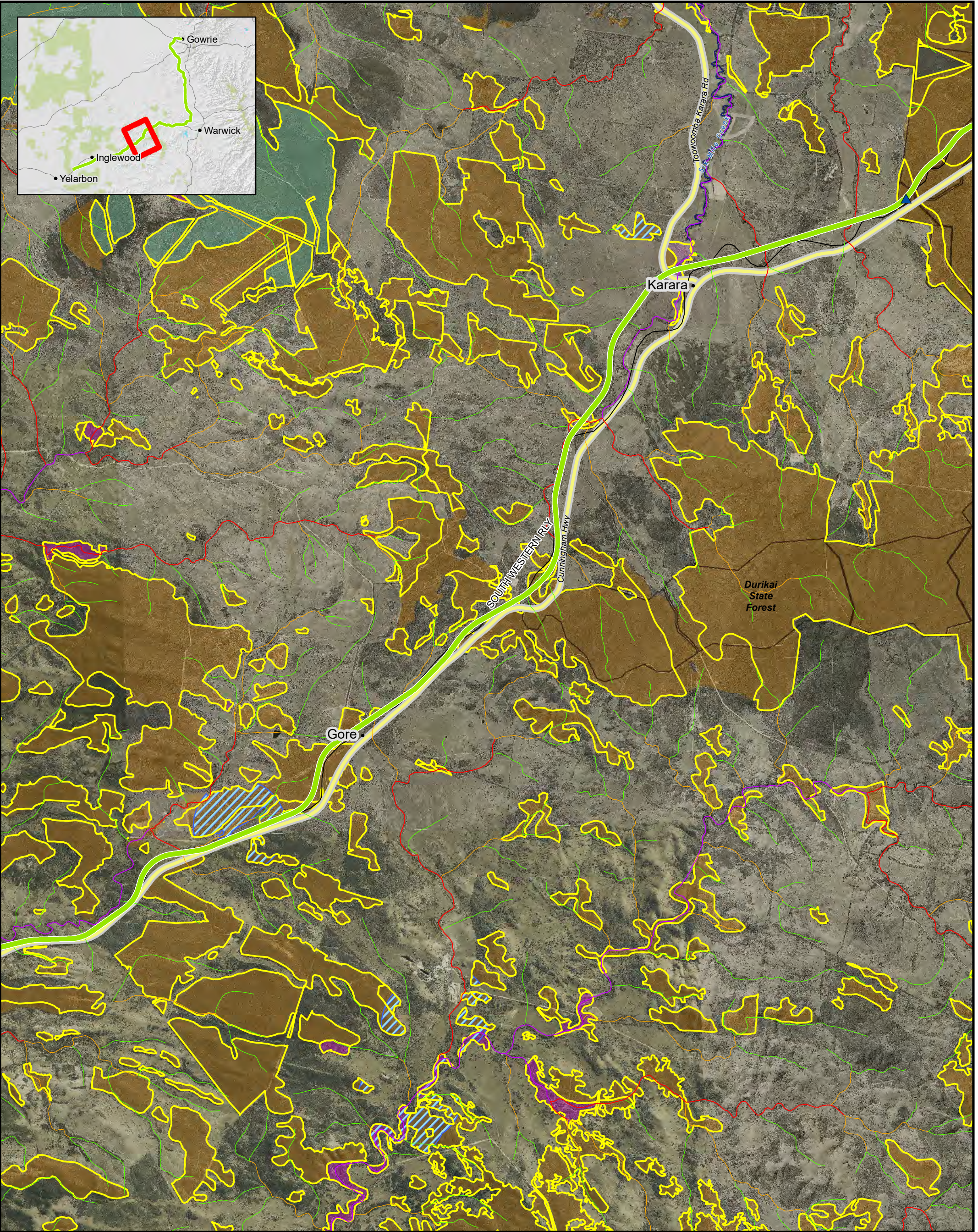
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REGIONAL ECOSYSTEMS AND

CULTURAL HERITAGE LOCATIONS

Yelarbon to Gowrie (Y2G) Project

PROJECT ID	60492124	Map 2-3
CREATED BY	MF	
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Projection: Transverse Mercator



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Legend

- Warwick
- Toowoomba Second Range Crossing
- Waterway Risk Classification (DAF)**
- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major

- Regional Ecosystem**
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 - Plantation forest
 - Threatened Ecological Community
 - Essential Habitat

- Heritage**
- Indigenous Cultural Heritage Location
 - Queensland Heritage Register Place
 - Local Heritage Location

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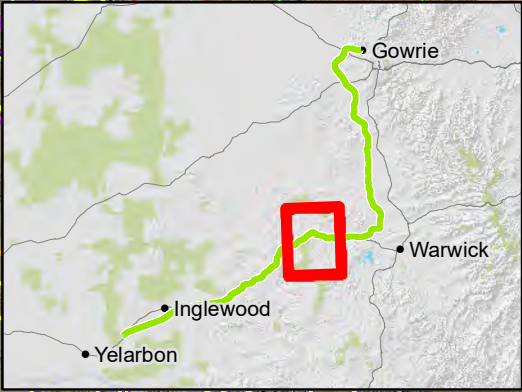
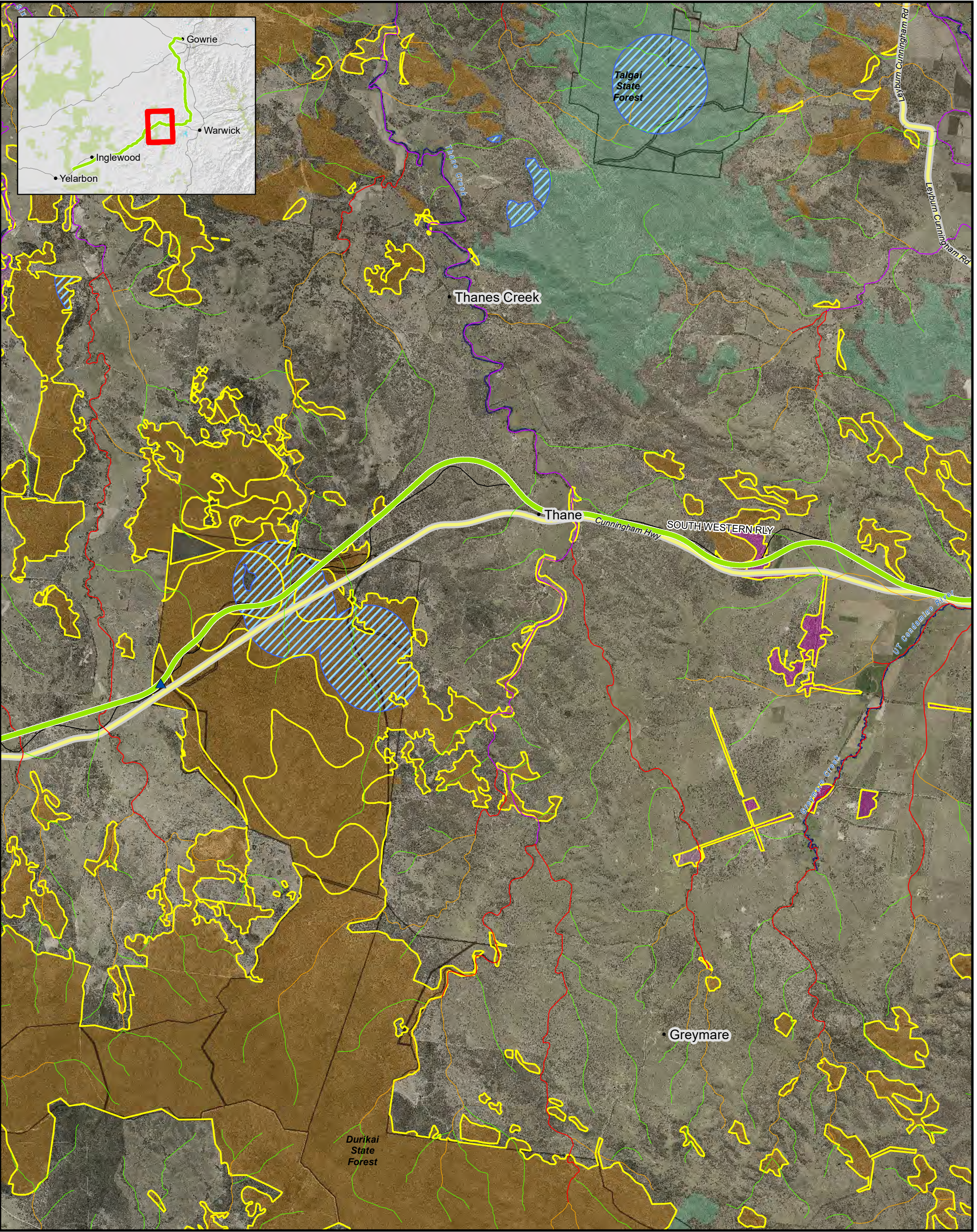
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REGIONAL ECOSYSTEMS AND
CULTURAL HERITAGE LOCATIONS**

Yelarbon to Gowrie (Y2G) Project

PROJECT ID: 60492124
CREATED BY: MF
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VERSION: 3

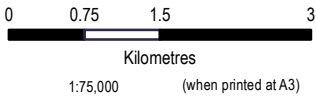
**Map
2-4**

A3 size



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Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator



Legend

- Warwick
- Toowoomba Second Range Crossing
- Waterway Risk Classification (DAF)**
- 1 - Low
- 2 - Moderate
- 3 - High
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- Local Heritage Location

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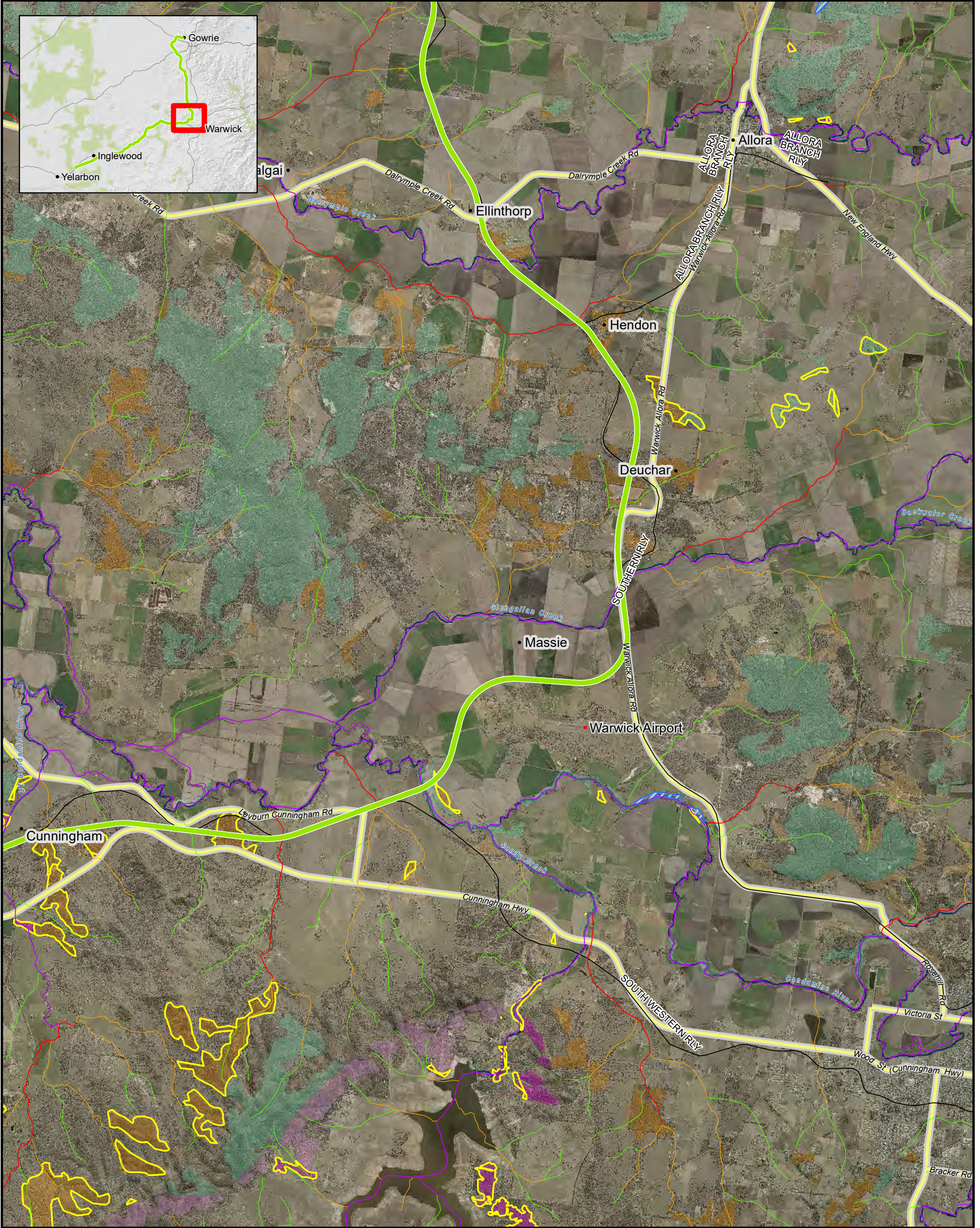
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REGIONAL ECOSYSTEMS AND
CULTURAL HERITAGE LOCATIONS**

Yelarbon to Gowrie (Y2G) Project

PROJECT ID: 60492124
CREATED BY: MF
LAST MODIFIED: FryM - 31/03/2017
VERSION: 3

**Map
2-5**



Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator

0 0.75 1.5 3
Kilometres
1:75,000 (when printed at A3)

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Legend

Warwick

--- Toowoomba Second Range Crossing

Waterway Risk Classification (DAF)

1 - Low

2 - Moderate

3 - High

4 - Major

Regional Ecosystem

Endangered - Sub-dominant

Endangered - Dominant

Of Concern - Sub-dominant

Of Concern - Dominant

Least Concern

Plantation forest

Threatened Ecological Community

Essential Habitat

Heritage

Indigenous Cultural Heritage Location

Queensland Heritage Register Place

Local Heritage Location

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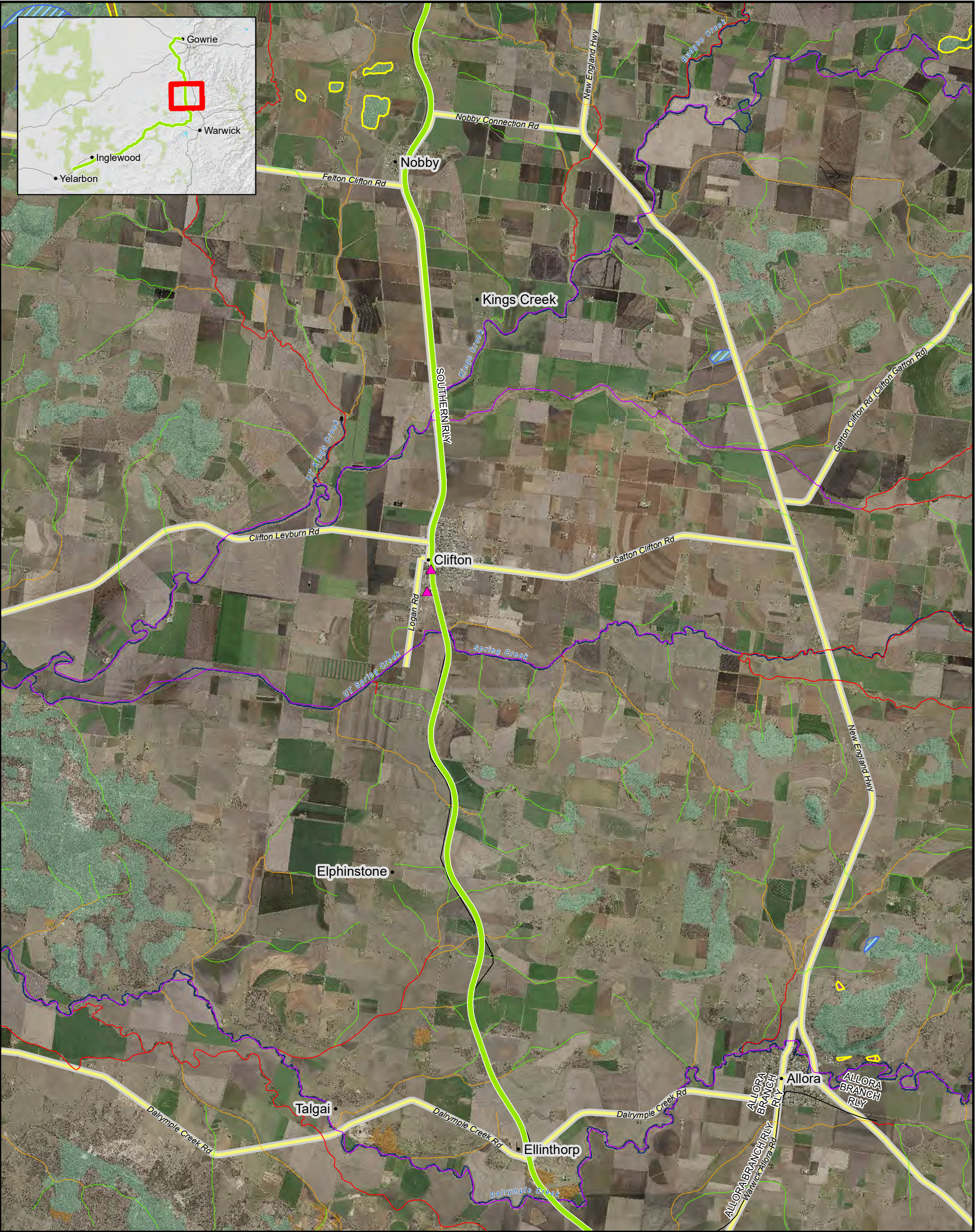
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REGIONAL ECOSYSTEMS AND

CULTURAL HERITAGE LOCATIONS

Yelarbon to Gowrie (Y2G) Project

PROJECT ID	60492124	Map 2-6
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LAST MODIFIED	FryM - 31/03/2017	
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Projection: Transverse Mercator

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Kilometres
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Legend

Warwick

Toowoomba Second Range Crossing

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Essential Habitat

Heritage

Indigenous Cultural Heritage Location

Queensland Heritage Register Place

Local Heritage Location

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REGIONAL ECOSYSTEMS AND

CULTURAL HERITAGE LOCATIONS

Yelarbon to Gowrie (Y2G) Project

PROJECT ID 60492124

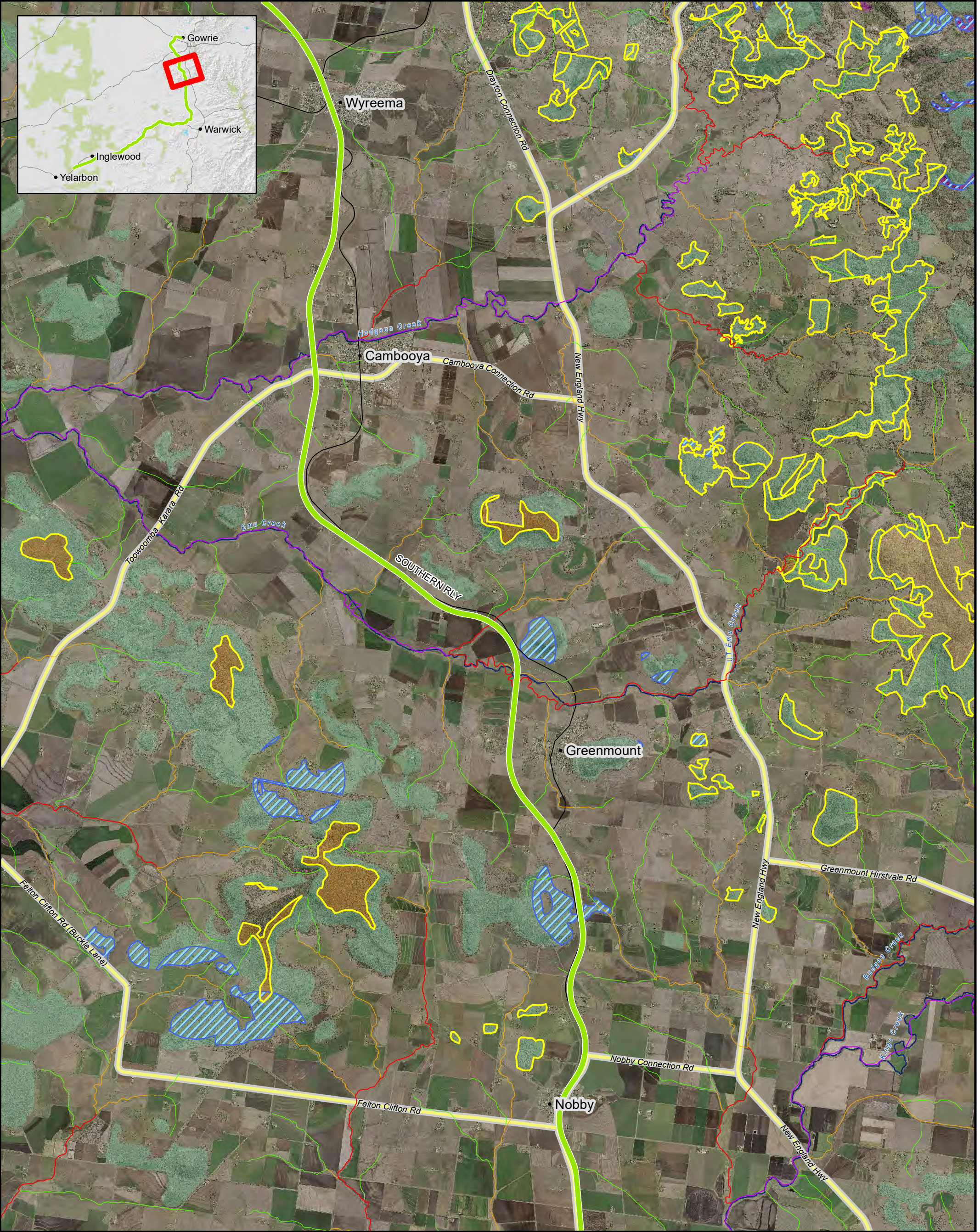
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Map

2-7



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Legend

Warwick

Toowoomba Second Range Crossing

Waterway Risk Classification (DAF)

1 - Low

2 - Moderate

3 - High

4 - Major

Regional Ecosystem

Endangered - Sub-dominant

Endangered - Dominant

Of Concern - Sub-dominant

Of Concern - Dominant

Least Concern

Plantation forest

Threatened Ecological Community

Essential Habitat

Heritage

Indigenous Cultural Heritage Location

Queensland Heritage Register Place

Local Heritage Location

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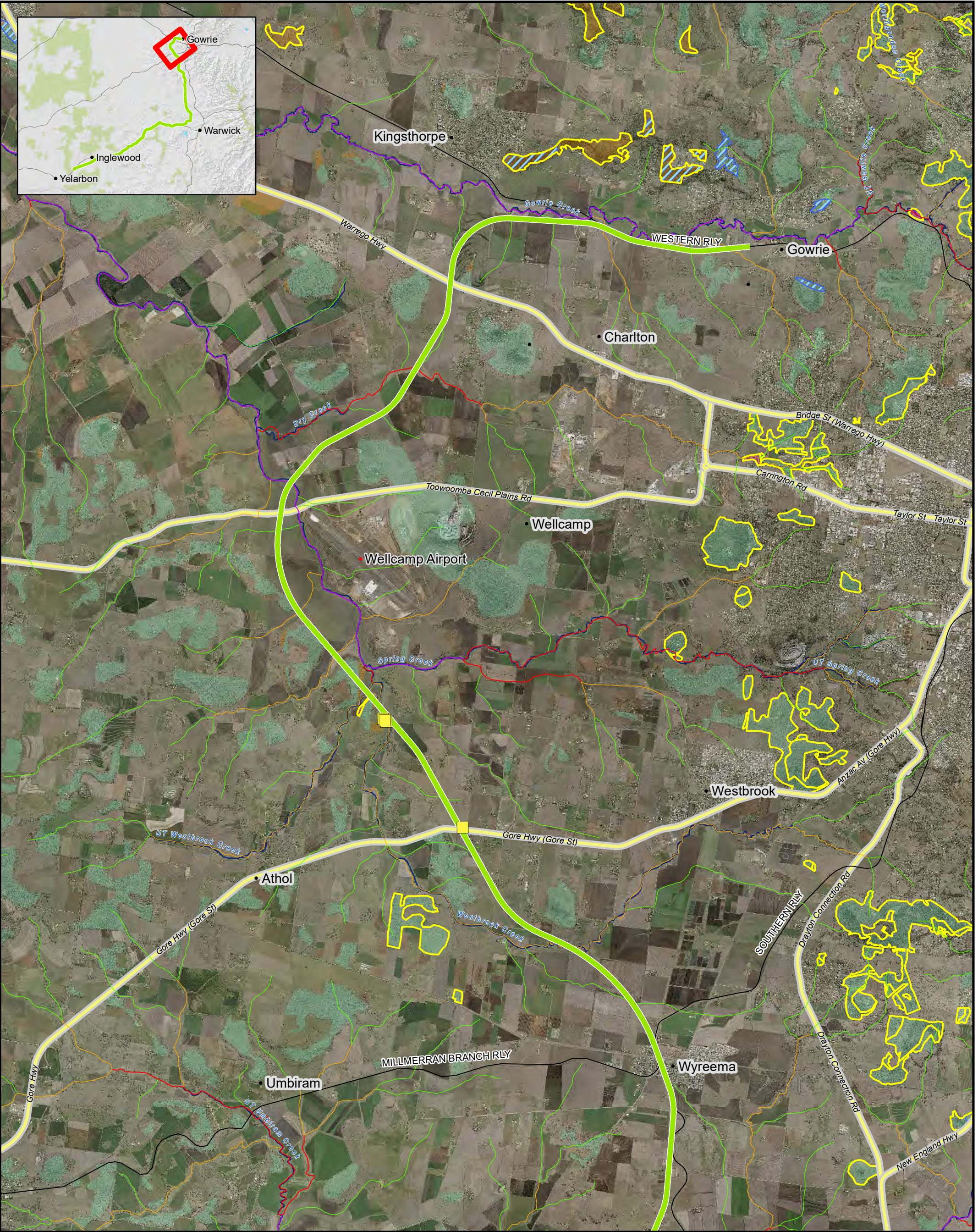
CULTURAL HERITAGE LOCATIONS

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Map

2-8





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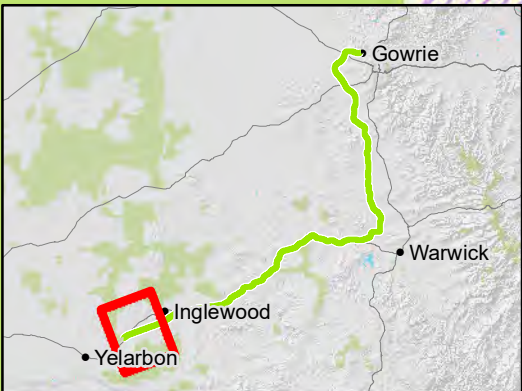
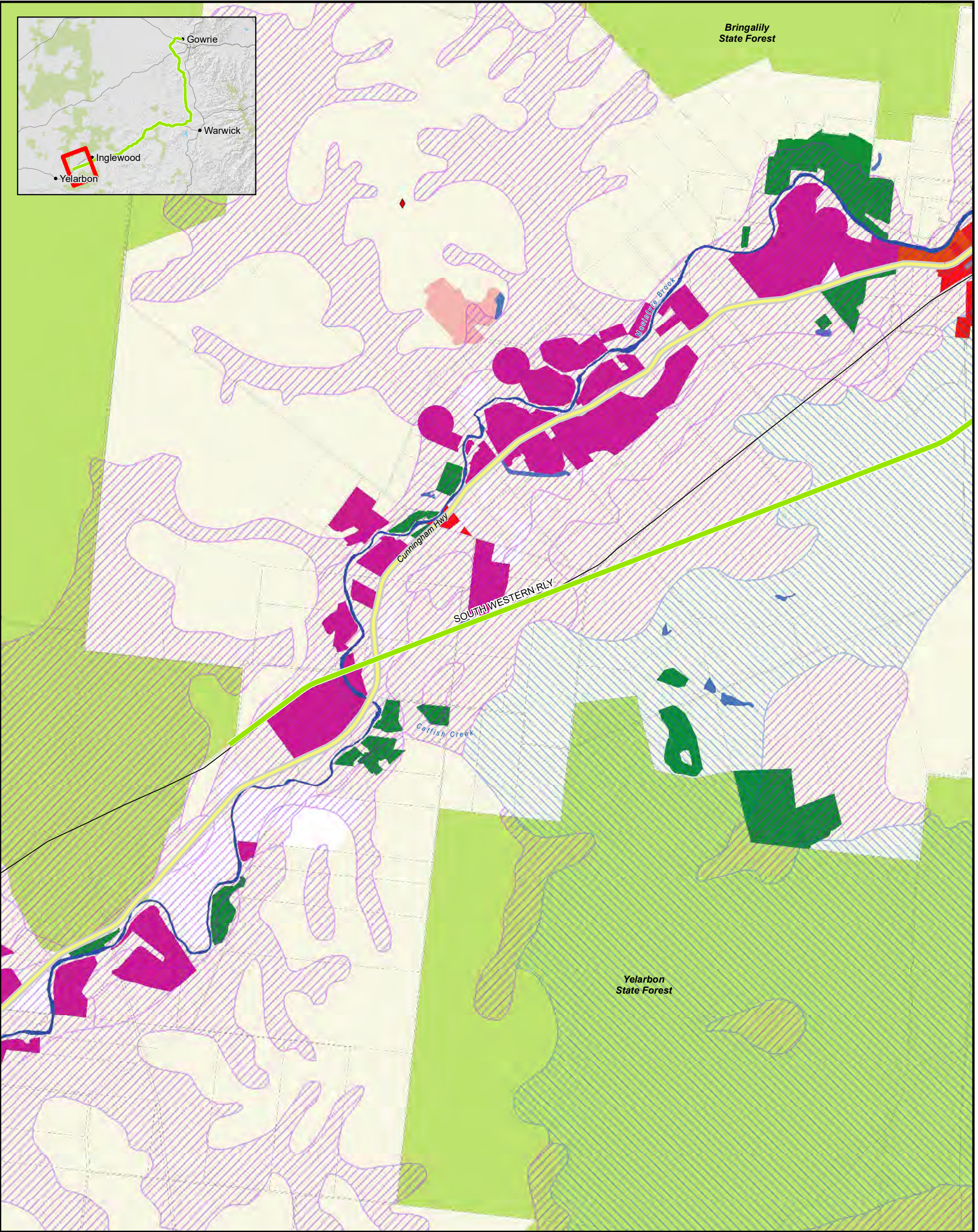
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2-9



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Legend

Warwick

- Current cattle feedlots
- Current piggeries
- Current poultry farms
- Current sheep feedlots

Cadastre

Agricultural Land Class

- A
- B

Land Use (QLUMP)

- Grazing native vegetation
- Production forestry
- Cropping
- Irrigated cropping

- Intensive animal husbandry
- Manufacturing and industrial
- Residential
- Services
- Transport and communication
- Reservoir/dam
- River

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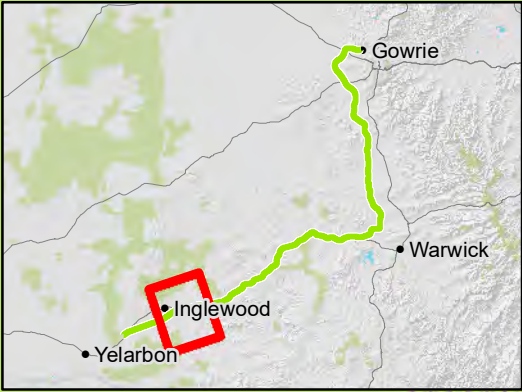
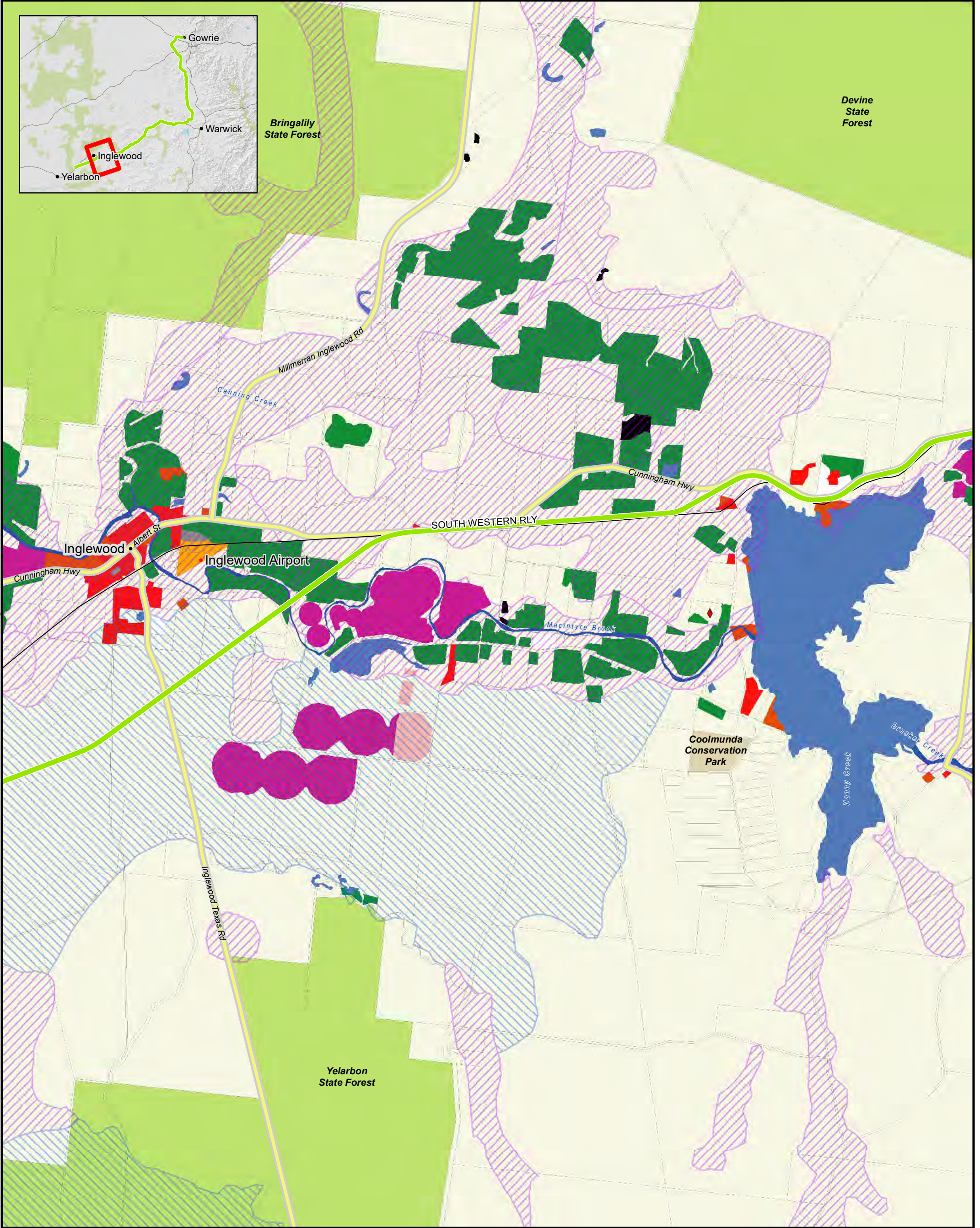
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3-1

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Legend

Warwick
Cadastral

Current agriculture

- Current cattle feedlots
- Current piggeries
- Current poultry farms
- Current sheep feedlots

Agricultural Land Class

- A
- B

Land Use (QLUMP)

- Nature conservation
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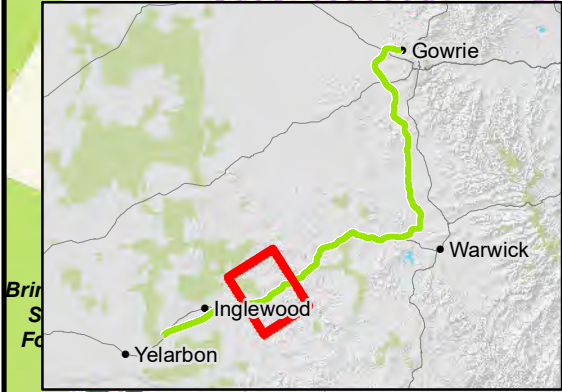
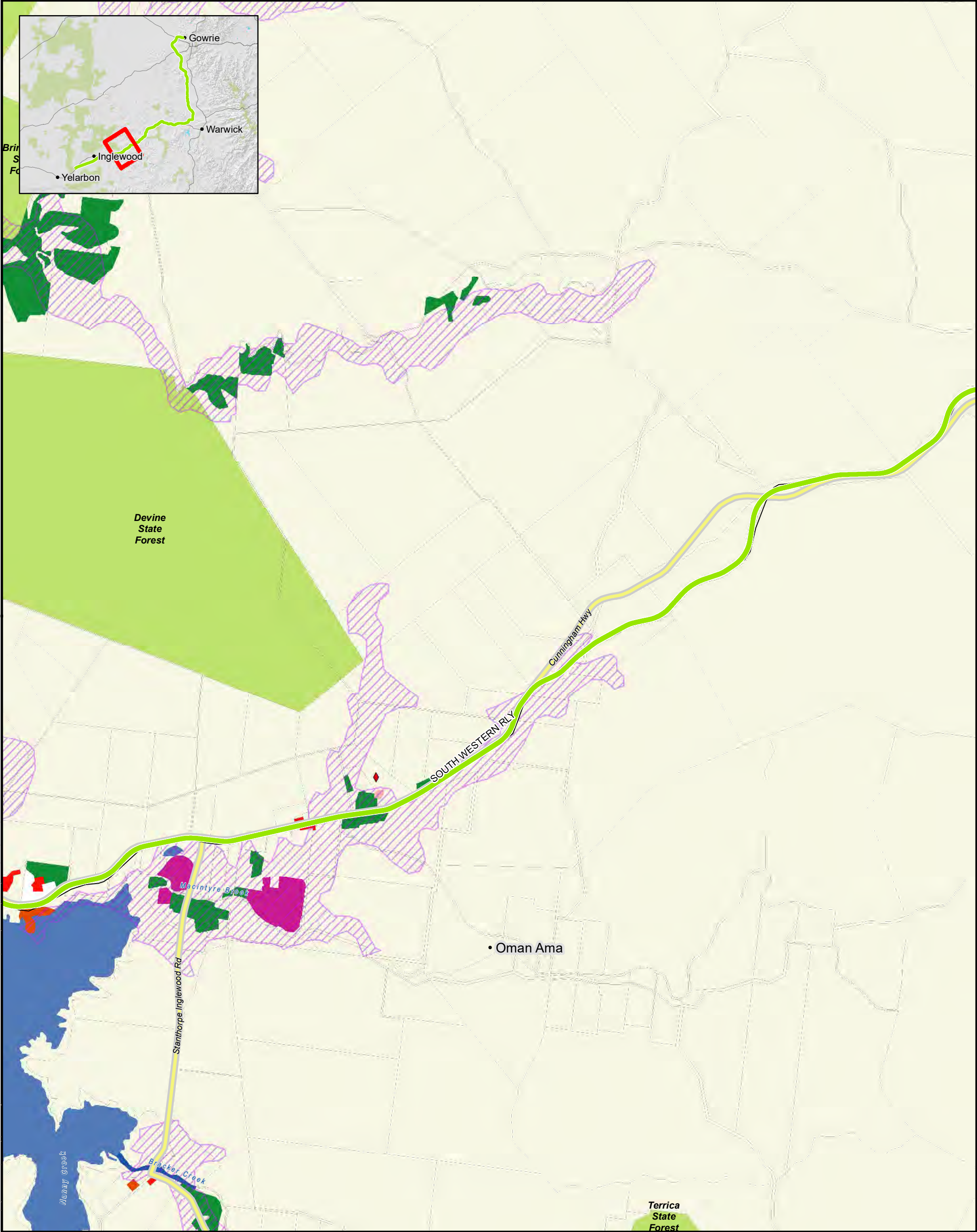
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Legend

Warwick

Cadastre

Current agriculture

- Current cattle feedlots
- Current piggeries
- Current poultry farms
- Current sheep feedlots

Agricultural Land Class

- A
- B

Land Use (QLUMP)

- Grazing native vegetation
- Production forestry
- Cropping

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- Intensive animal husbandry
- Residential
- Services
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- River

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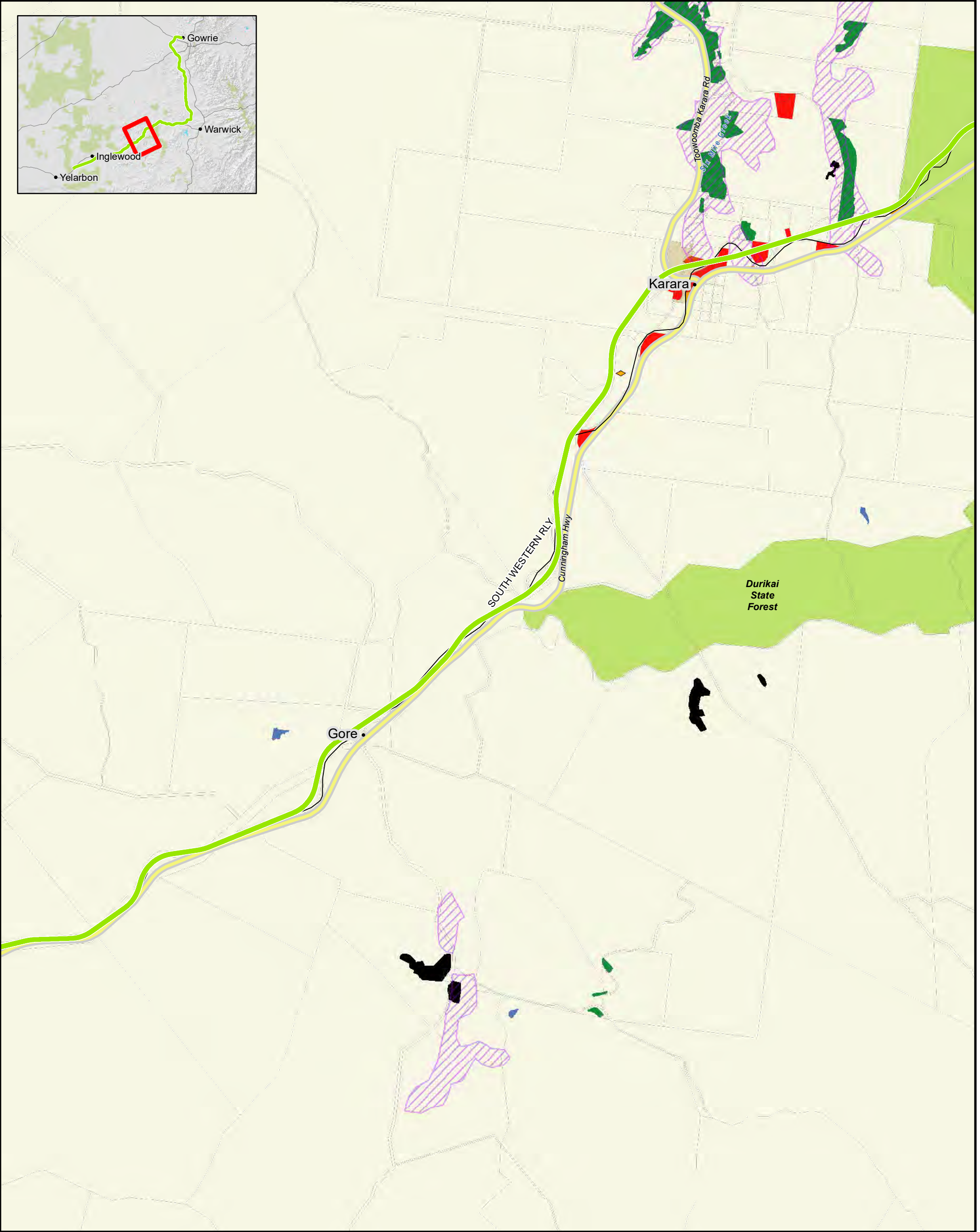
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**Map
3-3**

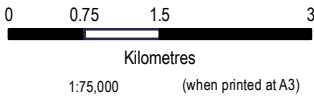


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Legend

- Warwick
- Cadastre
- Current agriculture**
 - Current cattle feedlots
 - Current piggeries
 - Current poultry farms
 - Current sheep feedlots

- Agricultural Land Class**
 - A
 - B
- Land Use (QLUMP)**
 - Nature conservation
 - Grazing native vegetation
 - Production forestry

- Cropping
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- Services
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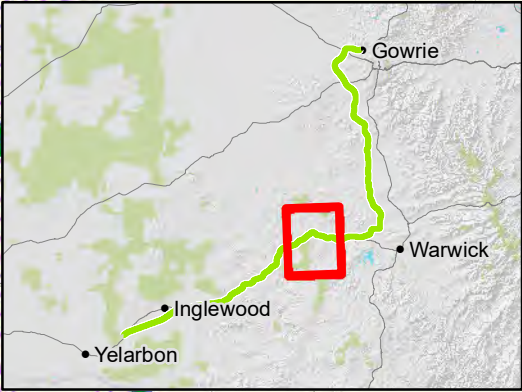
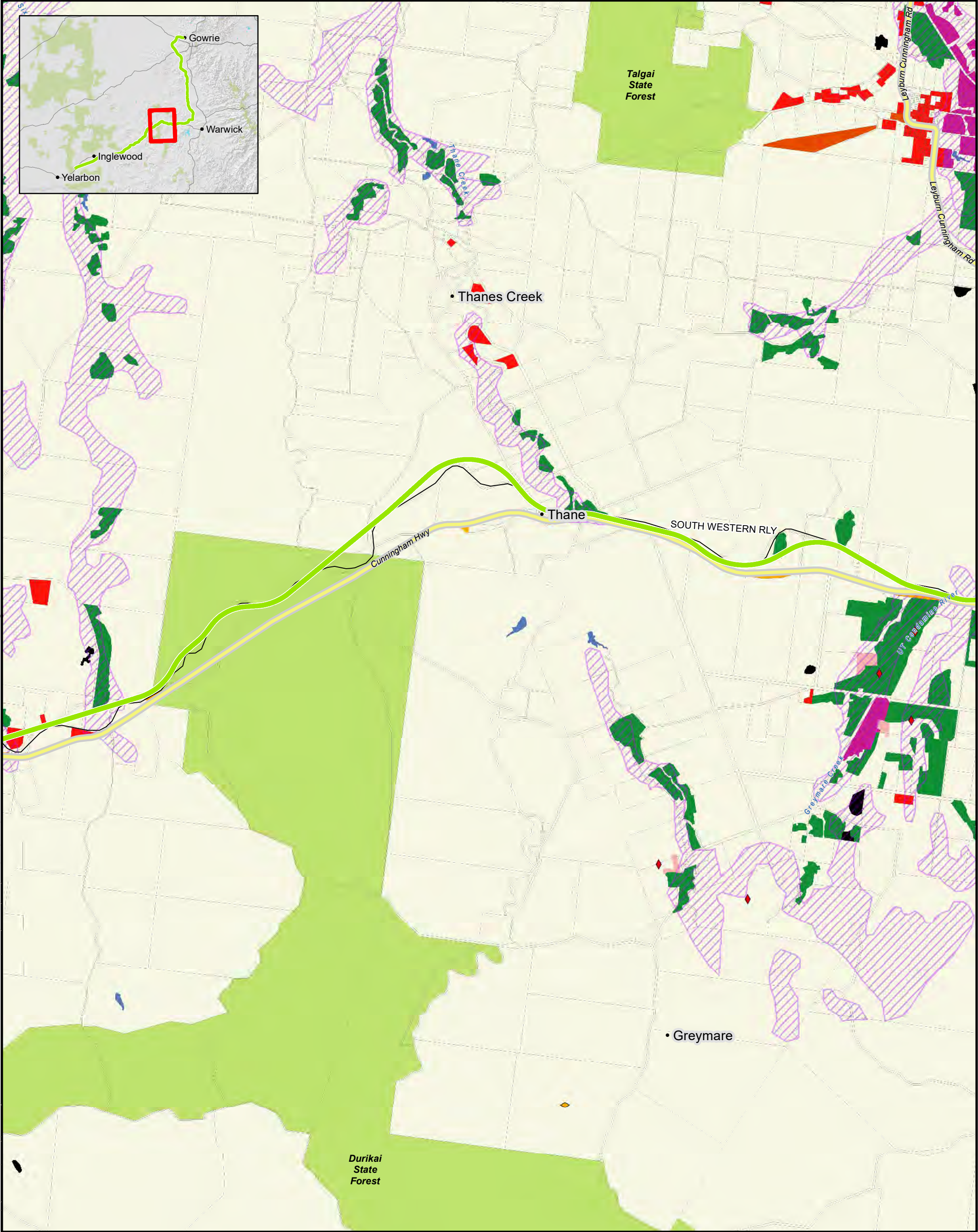
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Legend

Warwick
 Cadastre

Current agriculture

- Current cattle feedlots
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- Current sheep feedlots

Agricultural Land Class

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Land Use (QLUMP)

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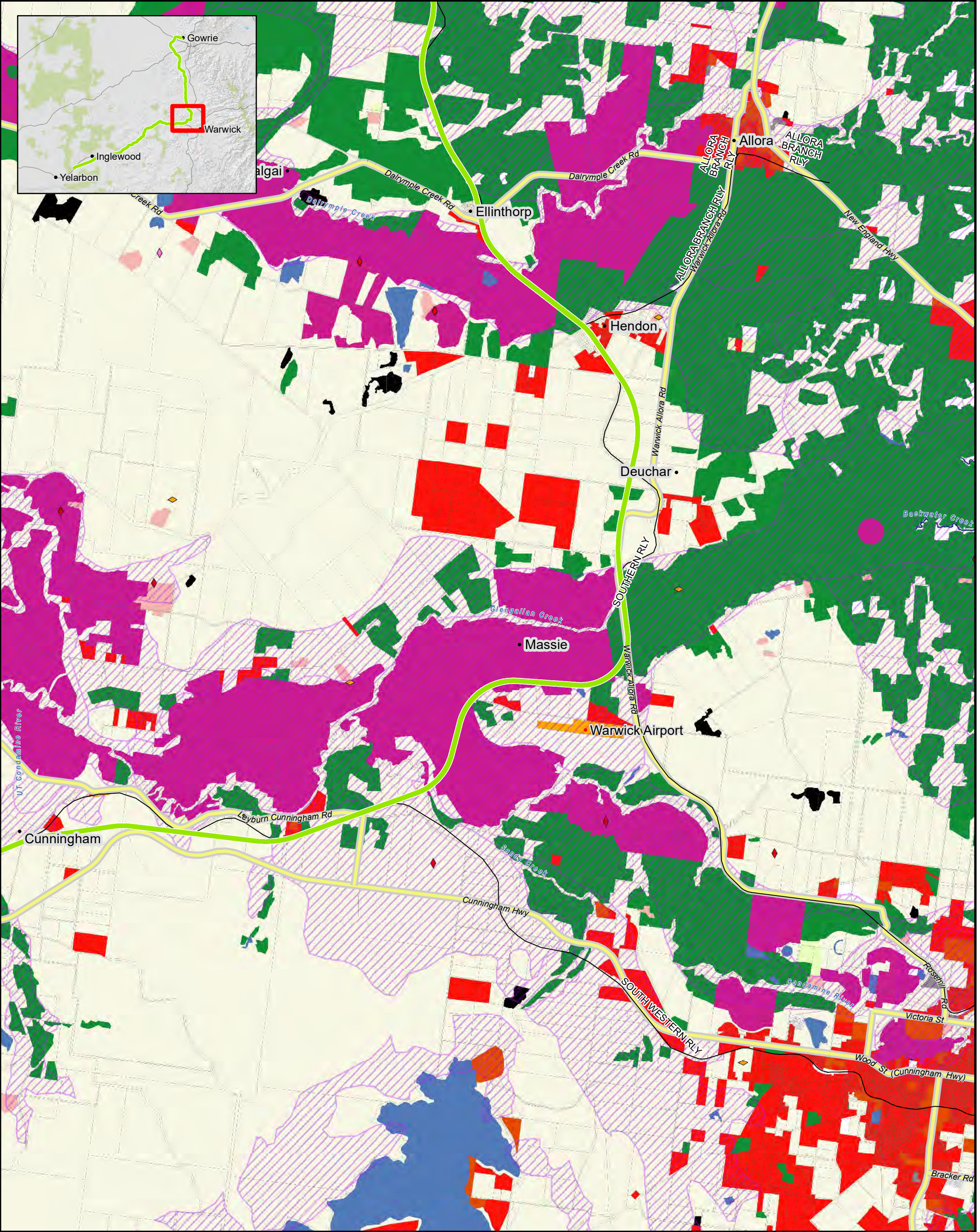
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Legend

Warwick
Cadastral

Current agriculture

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Agricultural Land Class

A
B

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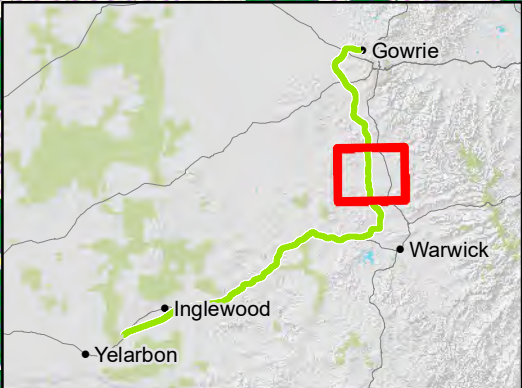
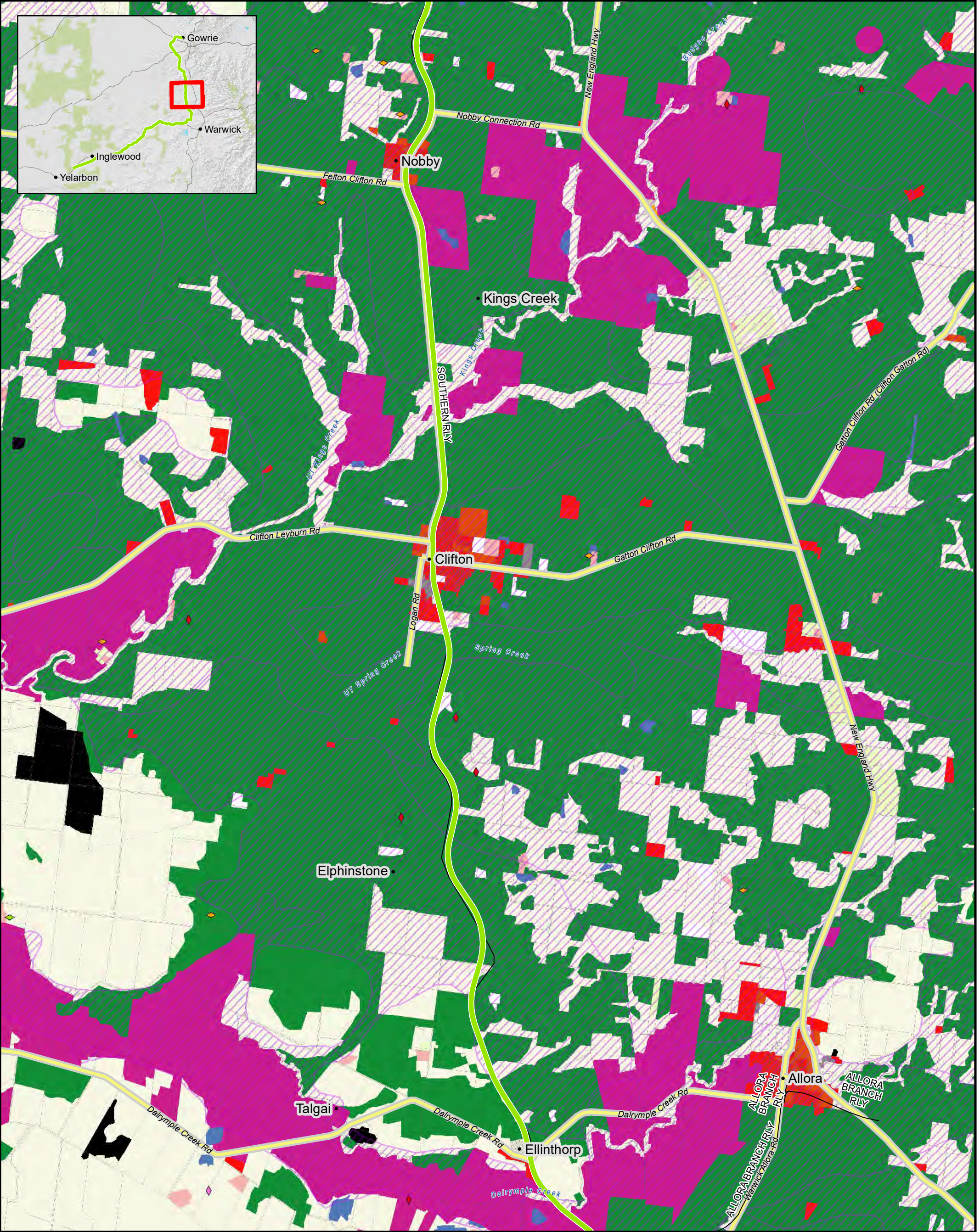
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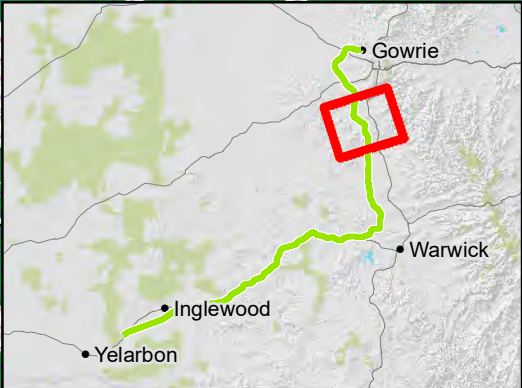
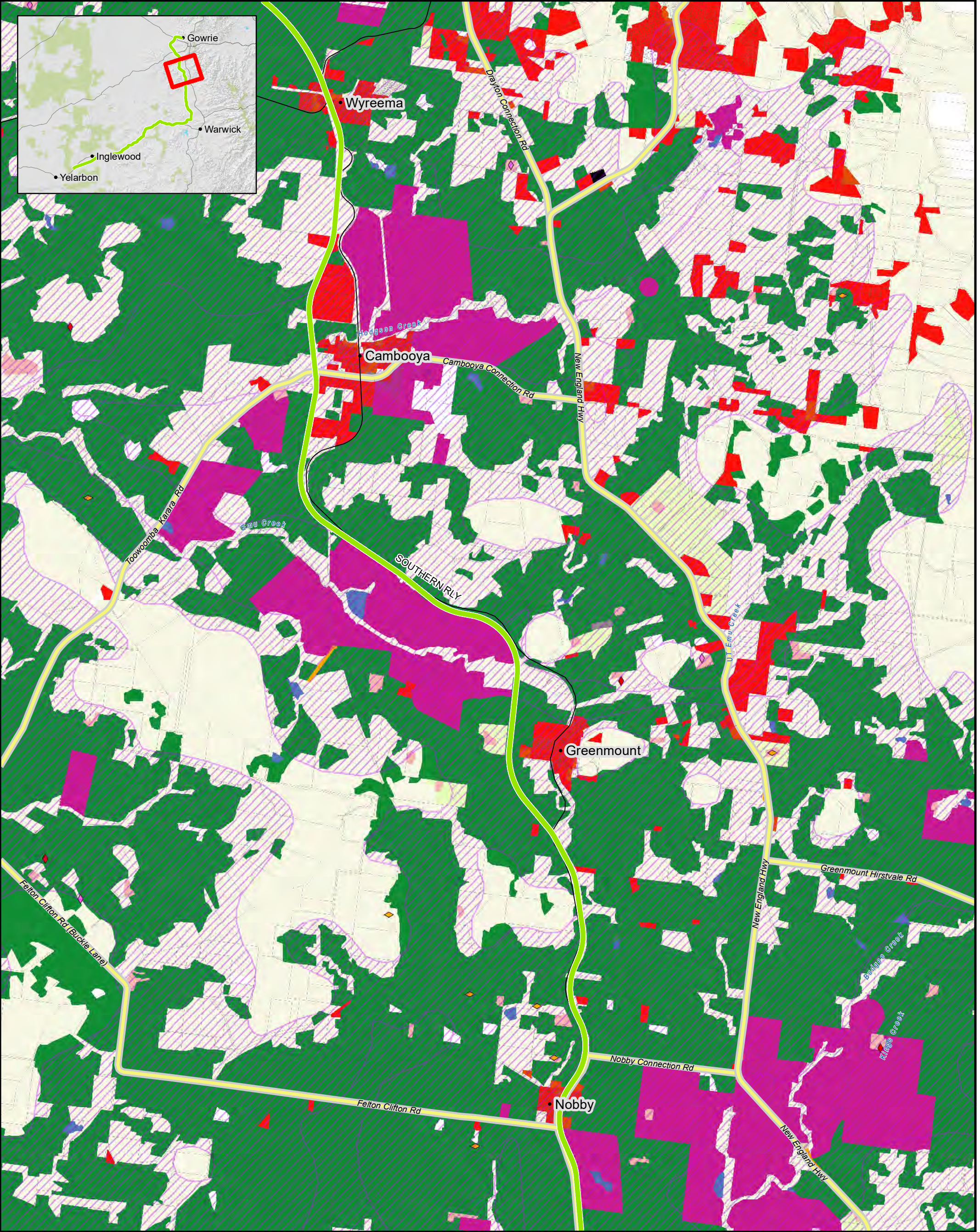
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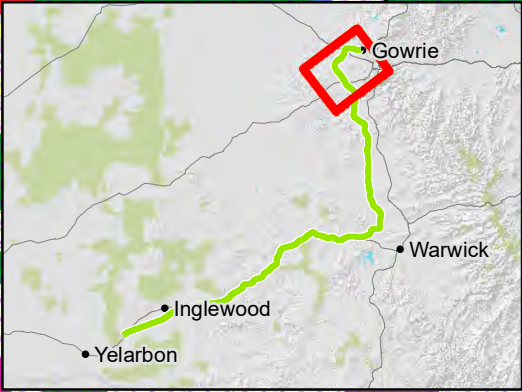
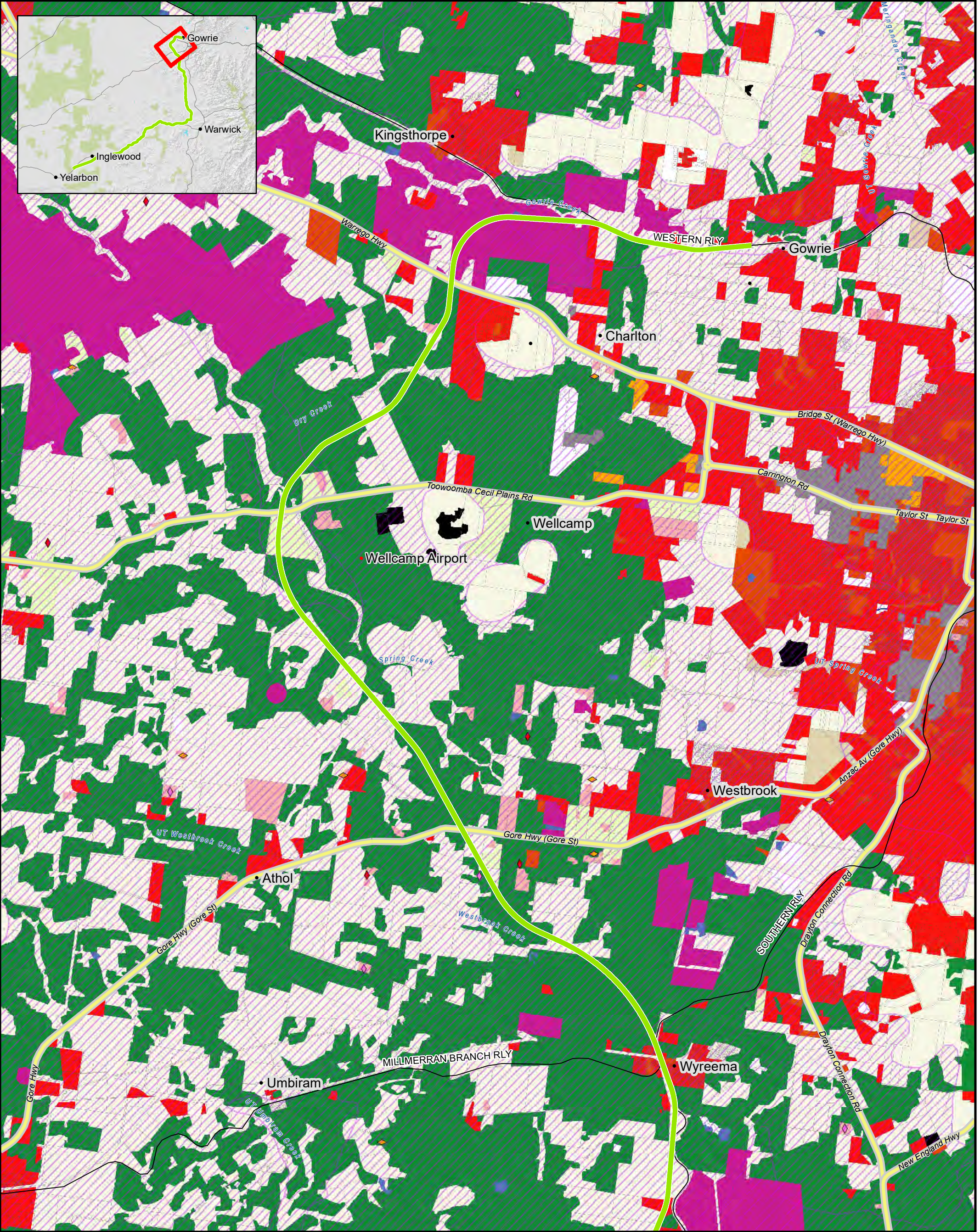
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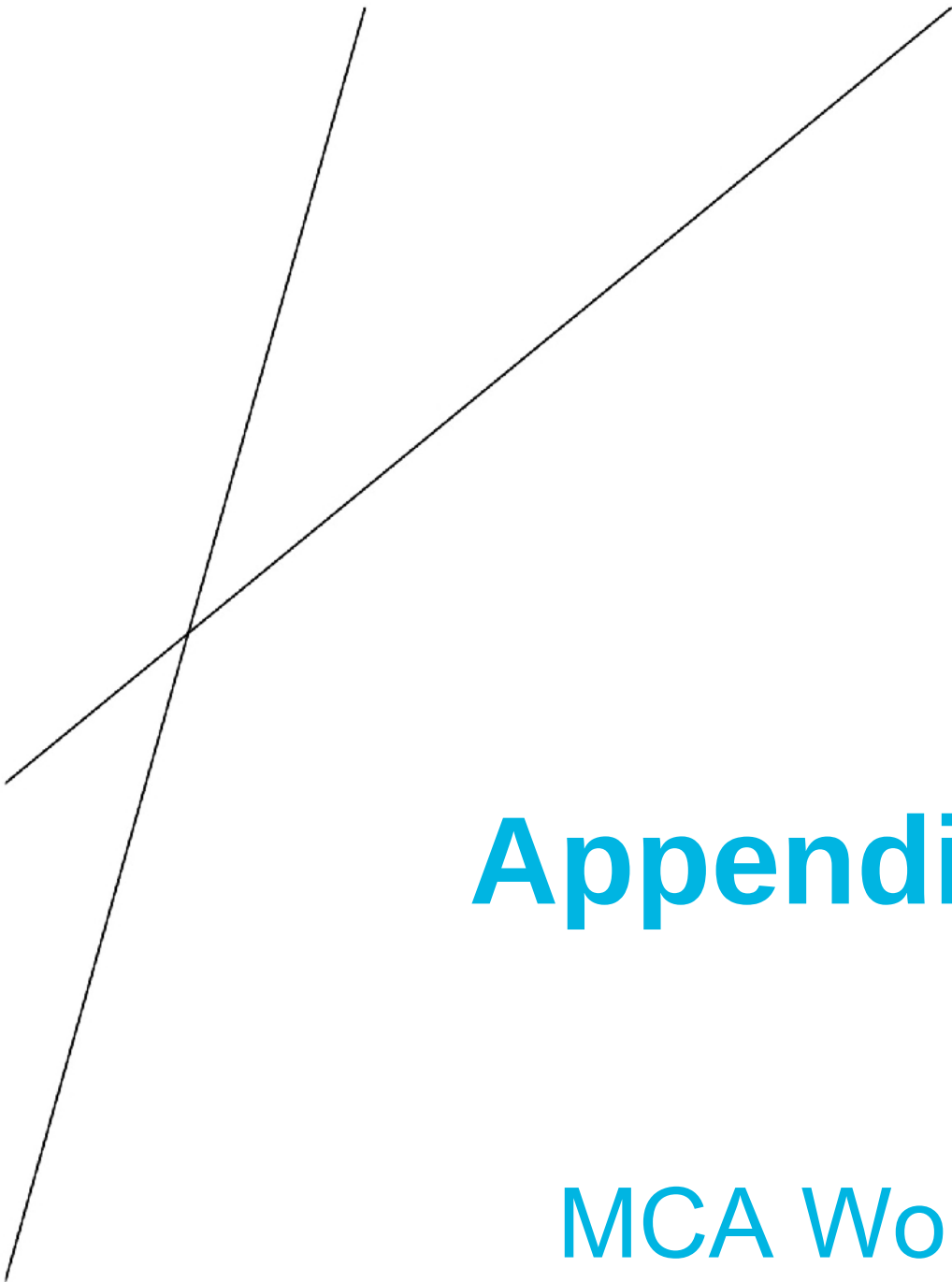
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Two thin black lines intersect diagonally on the left side of the page. One line slopes upwards from left to right, and the other slopes downwards from left to right.

Appendix Q

MCA Worksheet

Melbourne to Brisbane Inland Rail

Option Assessment

Provide information in the pale blue cells

Adjustments for local areas of importance can be added with confirmation by ARTC eg tunnels

PackageY2G

Option ReferencePRG Corridor Assessment Options
Drawing/ sketch referenceNA

Option DescriptionBase Case Modified, Wellcamp-Charlton, Karara-Leyburn, Warwick

Criteria	Criteria Weighting	Sub-criteria	Sub Criteria Weighting	Wellcamp - Charlton				Karara - Leyburn				Warwick											
				Sub criteria Score	Unweighted sub criteria score	Weighted sub criteria score	Weighted score	Sub criteria Score	Unweighted sub criteria score	Weighted sub criteria score	Weighted score	Sub criteria Score	Unweighted sub criteria score	Weighted sub criteria score	Weighted score								
Technical viability	17.0%	Alignment	20%	5	-5	-0.25	-0.0425	-5	20	3.50	0.595	-10	-10	-1.75	-0.2975								
		Impact on PUP and other assets	15%	-5				10				5											
		Geotechnical conditions	20%	-5				5				5											
		Impacts on existing road and rail networks	15%	0				10				0											
		Flood immunity/ hydrology	20%	5				5				-5											
		Future proofing	10%	-5				-5				-5											
Safety assessment of the proposed alignment	16.5%	Operational safety	25%	0	0	0.25	0.04125	-5	-10	-1.75	-0.28875	-10	-25	-4.75	-0.78375								
		Public safety	10%	0				0				-10											
		Road safety interfaces	25%	5				10				-5											
		Emergency response	20%	0				-5				10											
		Construction safety	20%	-5				-10				-10											
Operational approach, including opex	16.5%	Above rail opex	0%	-5	0	0.00	0	-5	-25	-4.95	-0.81675	-10	-30	-3.30	-0.5445								
		Below rail opex	0%	5				-5				-10											
		Effect/ Impact on travel time	33%	5				-5				-10											
		Effect on reliability and availability	33%	0				0				-10											
		Network interoperability and connectivity	33%	-5				-10				10											
Constructability and schedule	12.5%	Construction duration	20%	-10	-5	-1.00	-0.125	-10	5	0.75	0.09375	-10	-5	-1.50	-0.1875								
		Construction access	15%	0				0				5											
		Construction complexity	15%	-5				-10				-10											
		Resources/ material sources	15%	0				10				10											
		Interface with operational railway	20%	5				10				-5											
		Staging opportunities	15%	5				5				5											
Environmental and heritage Impacts	12.5%	Ecological impacts (flora, fauna and habitats)	20%	0	5	0.75	0.09375	-5	15	2.25	0.28125	-10	-40	-6.75	-0.84375								
		Visual impacts	15%	-10				0				5											
		Noise and vibration impacts	15%	5				10				-10											
		Flooding and waterway impacts	20%	0				5				-5											
		Effect on air quality	15%	5				10				-10											
		Effect on greenhouse gas emissions	15%	5				-5				-10											
Community and property impacts	12.5%	Property impacts	20%	5	-10	-2.00	-0.25	5	25	5.00	0.625	-5	-15	-3.00	-0.375								
		Heritage	20%	-5				0				-10											
		Impact on community e.g. road	20%	0				5				-5											
		Community response (community stakeholder risk)	20%	-5				5				-5											
		Current and future land use impacts	20%	-5				10				10											
Approvals and stakeholder risk	12.5%	Planning and approval timescale	20%	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0								
		State/ Federal agency buy in	20%	0				0				0											
		Local government buy in	20%	0				0				5											
		Other statutory and regulatory approvals	20%	0				0				-5											
		Service authorities (utilities/ other)	20%	0				0				0											
TOTAL SCORE				-0.28				TOTAL SCORE				0.49				TOTAL SCORE				-3.03			

Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
1) Technical viability	1.1) Alignment	<i>Comparison of changes to the alignment geometry (grade, curves, ability to provide consistency of operation speed etc.)</i>	Length of corridor	km	181	168	172	208		5	-5	-10
			Length of horizontal curves (including transitions):									
			• < R1200	km	11	8	20	18				
			• ≥ R1200	km	40	44	33	67				
			Length of straight track	km	130	116	119	123				
			Number of segments:									
			• < R1200	no.	18	13	36	31				
			• ≥ R1200	no.	62	59	41	79				
			• Straight	no.	80	72	77	112				
			Total number of segments	no.	160	144	154	222				
			Length of alignment with:									
			• grades ≥ 1% (1 in 100)	km	36	44	30	54				
			• grades < 1% (1 in 100) and ≥ 0.5% (1 in 200)	km	49	44	35	54				
			• grades < 0.5% (1 in 200) and > 0%	km	76	62	97	99				
			• grade = 0%	km	20	18	10	2				
			Length of uphill grade	km	96	92	105	105				
			Climb > 0.5% (1 in 200) grade	m	470	500	376	567				
			Total climb	m	563	575	506	689				
	1.2) Impact on PUP and other assets	<i>Assessment of the impact on public utility providers for the alignments</i>	Gas or Oil Pipeline	no.	8	7	5	5		-5	10	5
			Total residential and commercial receptors within 200m of the corridor	no.	225	148	69	576				
			Overhead Electrical Crossings									
			• 110kV and greater	no.	20	45	43	65				
			• Less than 110kV	no.	48	62	7	22				
			Telecommunications & Optic Fibre U/G	no.	14	19	6	6				
	1.3) Geotechnical conditions	<i>Assessment of geotechnical conditions (e.g. bulk earthwork, material sources and structural foundations)</i>	Length of alignment in soil type:							-5	5	5
			• Chromosols	km	0	0	12	15				
			• Dermosols	km	11	11	36	44				
			• Kandosols	km	7	7	15	15				
			• Kurosols	km	0	0	3	1				
			• Sodosols	km	50	50	45	48				
			• Vertosols	km	113	100	61	85				
			Soil cut quantities (cross sectional area impacted):									
			• Chromosols	m ²	-	-	39,878	49,413				
			• Dermosols	m ²	8,928	8,928	73,961	62,617				
			• Kandosols	m ²	10,986	10,986	20,698	21,068				
			• Kurosols	m ²	-	-	1,571	-				
			• Sodosols	m ²	101,099	101,099	66,034	72,554				
			• Vertosols	m ²	182,038	248,557	222,886	229,105				
			Rock cut quantities (cross sectional area impacted):									
			• Qa - Alluvium	m ²	114,100	89,700	86,700	64,500				
			• Czs - Alluvium	m ²	87,000	87,000	21,500	21,700				
			• Jlb - Sedimentary	m ²	19,000	19,900	39,700	23,800				
			• Ctx - Sedimentary	m ²	-	-	113,200	139,600				
			• R5 - Igneous	m ²	-	-	-	2,300				
			• Ji - Sedimentary	m ²	18,200	14,300	24,100	11,300				
			• Tv - Volcanic (Basalt)	m ²	64,600	158,400	139,900	171,600				
			• JKb - Sedimentary	m ²	100	100	-	-				
			Total Rock Cut	m ²	303,000	369,400	425,100	434,800				
			Soil fill quantities (cross sectional area impacted):									

Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
			• Chromosols	m ²	-	-	5,050	7,177				
			• Dermosols	m ²	5,901	5,901	47,259	115,346				
			• Kandosols	m ²	5,469	5,469	8,851	8,524				
			• Kurosols	m ²	-	-	10,111	4,392				
			• Sodosols	m ²	15,536	15,536	46,436	75,033				
			• Vertosols	m ²	98,846	234,066	192,011	64,747				
			Length of cut: - Assessment for residual Stability									
			• 0-5m	km	39	37	37	55				
			• 5-10m	km	6	12	13	13				
			• 10-15m	km	2	5	7	5				
			• 15-20m	km	0	2	2	2				
			• 20-25m	km	-	1	1	-				
			Length of fill: - Assessment for Slope Stability									
			• 0-5m	km	119	87	81	104				
			• 5-10m	km	13	16	22	21				
			• 10-15m	km	3	7	6	8				
			• 15-20m	km	-	1	2	1				
	1.4) Impacts on existing road and rail networks	Assessment of the impact on road and rail networks (note that road and rail crossings are included in safety below)	Grade Separations	no.	2	2	5	4		0	10	0
			Active Crossings:									
			• Total	no.	49	39	15	22				
			• Major (Boom gates)	no.	5	5	5	10				
			• Minor (Lights only)	no.	44	34	10	12				
			Passive Crossings:									
			• Total	no.	79	81	81	101				
			• Public	no.	21	26	32	51				
			• Private	no.	58	55	49	50				
			Total active and passive public crossings	no.	70	65	47	73				
	1.5) Flood immunity/hydrology	Assessment of the ability for the alignments to deliver flood immunity and the associated hydraulic impacts								5	5	-5
			Length of 1% AEP floodplain crossed:									
			• Condamine	km	13	13	6	2				
			• Major	km	9	7	10	16				
			• Minor	km	7	8	7	8				
			• Total	km	29	27	23	26				
			Stream crossings:									
			• Major (stream order 3 & greater)	no.	20	15	17	25				
			• Minor (stream order 1 & 2)	no.	55	69	62	66				
			• Total	no.	75	84	79	91				
			Length of bridges:									
			• Type 1 (0 to 6m high)	m	1375	350	275	2575				
			• Type 2 (6 to 11m high)	m	800	650	1075	1150				
			• Type 3 (11 to 18m high)	m	300	575	1800	1275				
			• Viaduct (0 to 3m high and longer than 250m)	m	1800	1800	3315	4395				
			• Total bridge length	m	4275	3375	6465	9395				
			Number of bridges:									
			• Type 1 (0 to 6m high) No.	no.	11	4	3	16				
			• Type 2 (6 to 11m high) No.	no.	5	5	7	7				
			• Type 3 (11 to 18m high) No.	no.	2	3	7	4				
			• Viaduct (0 to 3m high and longer than 250m) No.	no.	3	3	4	8				
			• Total number of bridges	no.	21	15	21	35				

Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
			Waterway crossing culverts:									
			• Total number of cells (box and pipe)	no.	195	250	198	426				
			Flood balancing culverts:									
			• Total number of cells (box and pipe)	no.	950	950	590	93				
			Length of alignment in soil type:									
			• Sodosols	km	50	50	45	48				
			• Vertosols	km	113	100	61	85				
			• Total	km	164	150	106	133				
	1.6) Future proofing	Assessment of the potential for upgrades to the rail infrastructure in the future (e.g. extend loops for 3600m trains)	Passing loops	no.	5	5	5	6		-5	-5	-5
			Existing sidings	no.	7	6	3	10				
			Length of grades 0% to < 0.5%	km	96	80	107	100				
			Total earthworks	Mm3	10	20	21	20				
2) Safety assessment of the proposed alignment	2.1) Operational safety	Track geometry Height of rail above natural surface Conflict points	Connections to existing rail networks	no.	13	11	7	17		0	-5	-10
			Passing loops	no.	5	5	5	6				
			Length of horizontal curves (including transitions) < R1200	km	11	8	20	18				
			Number of segments < R1200	no.	18	13	36	31				
			Length of fill:									
			• 0-5m	km	119	87	81	104				
			• 5-10m	km	13	16	22	21				
			• 10-15m	km	3	7	6	8				
			• 15-20m	km	0	1	2	1				
			Total bridge length	m	4275	3375	6465	9395				
			Total number of bridges	no.	24	15	21	35				
			Active Crossings:									
			• Total	no.	49	39	15	22				
			• Major (Boom gates)	no.	5	5	5	10				
			• Minor (Lights only)	no.	44	34	10	12				
			Passive Crossings:									
			• Total	no.	79	81	81	101				
			• Public	no.	21	26	32	51				
			• Private	no.	58	55	49	50				
			Total Road Crossings (active and passive)	no.	128	120	96	123				
	2.2) Public safety	Risk of trespass (e.g. rural locations are considered to have lower occurrence of trespass and vandalism)	Interfaces with towns/public spaces within 2km	no.	6	5	5	11		0	0	-10
	2.3) Road safety interfaces	Assessment of crossings including * highway/ motorway crossings * distribution of road crossings * local and property access crossings	Active Crossings:							5	10	-5
			• Total	no.	49	39	15	22				
			• Major (Boom gates)	no.	5	5	5	10				
			• Minor (Lights only)	no.	44	34	10	12				
			Passive Crossings:									
			• Total	no.	79	81	81	101				
			• Public	no.	21	26	32	51				
			• Private	no.	58	55	49	50				
			Total Road Crossings (active and passive)	no.	128	120	96	123				
	2.4) Emergency response	Access to site (e.g. ease of access for emergency services)	Hospitals/major towns in vicinity of alignment	no.	2	2	2	3		0	-5	10

Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
			Length of road within 500m of the rail corridor:									
			• Major Arterial Road (type 1,2,3)	km	61	66	69	68				
			• Minor Road (type 4 and 5)	km	20	12	10	45				
			Total Road Crossings (active and passive)	no.	128	120	96	123				
	2.5) Construction safety	Assessment of high risk construction activities (e.g. large cuttings, waterway areas, road interfaces, bridges)	Length of cut:							-5	-10	-10
			• 0-5m	km	39	37	37	55				
			• 5-10m	km	6	12	13	13				
			• 10-15m	km	2	5	7	5				
			• 15-20m	km	0	2	2	2				
			• 20-25m	km	0	1	1	0				
			Length of fill:									
			• 0-5m	km	119	87	81	104				
			• 5-10m	km	13	16	22	21				
			• 10-15m	km	3	7	6	8				
			• 15-20m	km	0	1	2	1				
			Total earthworks	Mm ³	10	20	21	20				
			Length of 1% AEP floodplain crossed:									
			• Condamine	km	13	13	6	2				
			• Major	km	9	7	10	16				
			• Minor	km	7	8	7	8				
			• Total	km	29	27	23	26				
			Length of bridges:									
			• Type 1 (0 to 6m high)	m	1375	350	275	2575				
			• Type 2 (6 to 11m high)	m	800	650	1075	1150				
			• Type 3 (11 to 18m high)	m	300	575	1800	1275				
			• Viaduct (0 to 3m high and longer than 250m)	m	1800	1800	3315	4395				
			• Total bridge length	m	4275	3375	6465	9395				
			Number of bridges:									
			• Type 1 (0 to 6m high) No.	no.	11	4	3	16				
			• Type 2 (6 to 11m high) No.	no.	5	5	7	7				
			• Type 3 (11 to 18m high) No.	no.	2	3	7	4				
			• Viaduct (0 to 3m high and longer than 250m)	no.	3	3	4	8				
			• Total number of bridges	no.	21	15	21	35				
			Length of road within 500m of the rail corridor:									
			• Major Arterial Road (type 1,2,3)	km	61	66	69	68				
			• Minor Road (type 4 and 5)	km	20	12	10	45				
			Total Road Crossings (active and passive)	no.	128	120	96	123				
			PUP Crossings:									
			• Gas or Oil Pipeline	no.	8	7	5	5				
			• Overhead electrical - 110kV and greater	no.	20	45	43	65				
			• Overhead electrical - less than 110kV	no.	48	62	7	22				
			• Telecommunications & Optic Fibre U/G	no.	14	19	6	6				
3) Operational approach, including opex	3.1) Above rail opex	Comparison of above rail operational costs (e.g. fuel costs, wear on rollingstock)	Length of grade impacting speed	km	26	39	35	45		-5	-5	-10
			Length of uphill grade	km	96	92	105	105				
			Total climb	m	563	575	506	689				
			Transit time (northbound)	hh:mm:ss	2:09:23	2:05:20	2:14:44	2:33:48				
			Horizontal Curves < R1200	no.	18	13	36	31				

Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
	3.2) Below rail opex	<i>Comparison of below rail operational costs (e.g. complexity, structural elements, ability to continue train movements whilst maintaining sections)</i>	Length of alignment in soil type:							5	-5	-10
			• Sodosols	km	50	50	45	48				
			• Vertosols	km	113	100	61	85				
			• Total	km	164	150	106	133				
			Length of corridor	km	181	168	172	208				
			Total bridge length	m	4275	3375	6465	9395				
			Total number of bridges	no.	24	15	21	35				
			Waterway crossing culverts:									
			• Total number of cells (box and pipe)	no.	195	250	198	426				
			Flood balancing culverts:									
			• Total number of cells (box and pipe)	no.	988	988	590	84				
			Length of alignment with:									
			• grades ≥ 1% (1 in 100)	km	36	44	30	54				
			• grades < 1% (1 in 100) and ≥ 0.5% (1 in 200)	km	49	44	35	54				
			Horizontal Curves < R1200	no.	18	13	36	31				
			Number of turnouts:									
			• Dual gauge	no.	10	10	10	12				
			• Dual to narrow gauge	no.	9	7	4	13				
			Total Road Crossings (active and passive)	km	128	120	96	123				
	3.3) Effect/ Impact on travel time	<i>Comparison of travel time between base case and proposed option</i>	Transit time (northbound)	hh:mm:ss	2:09:23	2:05:20	2:14:44	2:33:48		5	-5	-10
			Transit time (southbound)	hh:mm:ss	1:56:02	1:48:51	1:53:34	2:18:04				
	3.4) Effect on reliability and availability	<i>Comparison of reliability between the base case and proposed option</i>	Length of alignment in soil type:							0	0	-10
			• Sodosols	km	50	50	45	48				
			• Vertosols	km	113	100	61	85				
			Length of corridor	km	181	168	172	208				
			Total bridge length	m	4275	3375	6465	9395				
			Waterway crossing culverts:									
			• Total number of cells (box and pipe)	no.	195	250	198	426	not very relevant			
			Flood balancing culverts:									
			• Total number of cells (box and pipe)	no.	988	988	590	84				
			Length of alignment with:									
			• grades ≥ 1% (1 in 100)	km	36	44	30	54				
			• grades < 1% (1 in 100) and ≥ 0.5% (1 in 200)	km	49	44	35	54				
			Number of turnouts:									
			• Dual gauge	no.	10	10	10	12				
			• Dual to narrow gauge	no.	9	7	4	13				
			• Total		19	17	14	25				
			Total Road Crossings (active and passive)	no.	128	120	96	123				
	3.5) Network interoperability and connectivity	<i>Qualitative assessment of interoperability and connectivity to the existing network and effect on existing/new customers</i>	Connections to existing rail networks	no.	4	4	3	4		-5	-10	10
			Connections to existing sidings on QR network	no.	9	7	4	13				
4) Constructability and schedule	4.1) Construction duration	<i>Assessment of the comparative difference in construction duration between the option and base case</i>	Length of bridges							-10	-10	-10
			• Type 1 (0 to 6m high)	m	1375	350	275	2575				
			• Type 2 (6 to 11m high)	m	800	650	1075	1150				

Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
			• Type 3 (11 to 18m high)	m	300	575	1800	1275				
			• Viaduct (0 to 3m high and longer than 250m)	m	1800	1800	3315	4395				
			• Total bridge length	m	4275	3375	6465	9395				
			Total corridor length	km	181	168	172	208				
			Length of alignment in soil type:									
			• Sodosols	km	50	50	45	48				
			• Vertosols	km	113	100	61	85				
			Total earthworks	Mm ³	10	20	21	20				
			Waterway crossing culverts:									
			• Total number of cells (box and pipe)	no.	195	250	198	426				
			Flood balancing culverts:									
			• Total number of cells (box and pipe)	no.	988	988	590	84				
			Grade Separations	no.	2	2	5	4				
			Active Crossings:									
			• Total	no.	49	39	15	22				
			• Major (Boom gates)	no.	5	5	5	10				
			• Minor (Lights only)	no.	44	34	10	12				
			Passive Crossings:									
			• Total	no.	79	81	81	101				
			• Public	no.	21	26	32	51				
			• Private	no.	58	55	49	50				
			Total Road Crossings (active and passive)	no.	128	120	96	123				
			Stock Route Crossings	no.	9	9	12	11				
	4.2) Construction access	<i>Assessment of locations for site access during construction including: * adjacent road access * access from existing railway corridors * access from properties</i>	Length of road within 500m of the rail corridor:							0	0	5
			• Major Arterial Road (type 1,2,3)	km	61	66	69	68				
			• Minor Road (type 4 and 5)	km	20	12	10	45				
			• Total %		45%	46%	45%	54%				
			Length of existing rail corridor (within 50m)	km	38	34	52	114				
	4.3) Construction complexity	<i>Assessment of the construction complexity and specialisation of workforce and equipment</i>								-5	-10	-10
			Total public road crossings	no.	70	65	47	73				
			Grade Separations	no.	2	2	5	4				
			Length of cut:									
			• 0-5m	km	39	37	37	55				
			• 5-10m	km	6	12	13	13				
			• 10-15m	km	2	5	7	5				
			• 15-20m	km	0	2	2	2				
			• 20-25m	km	0	1	1	0				
			• Total (10-25m)		2	7	10	7				
			Length of fill:									
			• 0-5m	km	119	87	81	104				
			• 5-10m	km	13	16	22	21				
			• 10-15m	km	3	7	6	8				
			• 15-20m	km	0	1	2	1				
			• Total (5-20m)	km	16	24	31	29				
			Length of 1% AEP floodplain crossed:	km	29	27	23	26				
			Earthworks:									
			• Cut	Mm ³	4.4	10.1	11.3	10.2				

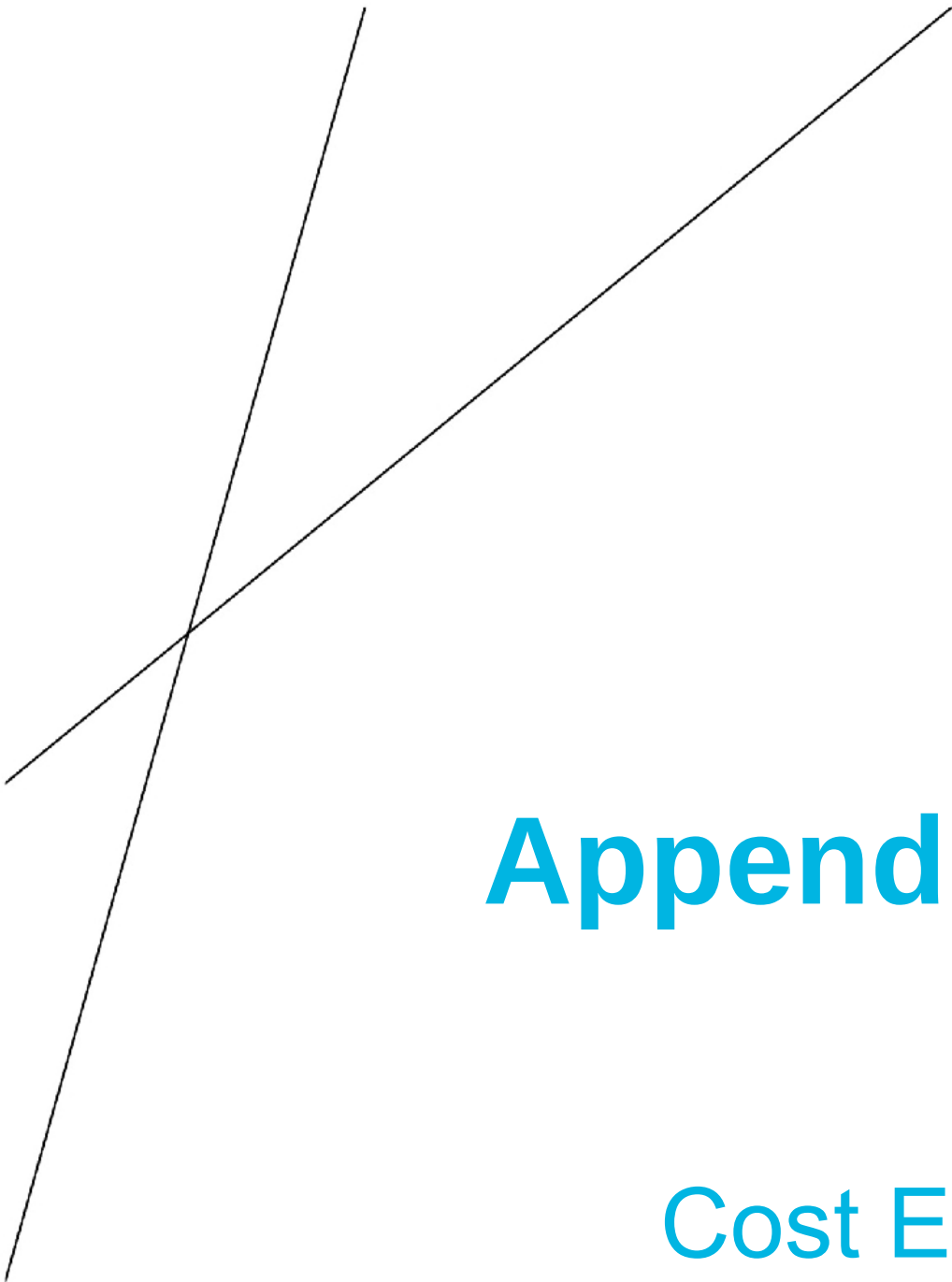
Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
			• Fill	Mm ³	5.3	9.5	9.8	9.3				
			• Balance	Mm ³	0.9	0.5	1.6	0.9				
			• Total	Mm ³	10	20	21	20				
			Length of bridges:									
			• Type 1 (0 to 6m high)	m	1375	350	275	2575				
			• Type 2 (6 to 11m high)	m	800	650	1075	1150				
			• Type 3 (11 to 18m high)	m	300	575	1800	1275				
			• Viaduct (0 to 3m high and longer than 250m)	m	1800	1800	3315	4395				
			• Total bridge length	m	4275	3375	6465	9395				
			Waterway crossing culverts:									
			• Total number of cells (box and pipe)	no.	195	250	198	426				
			Flood balancing culverts:									
			• Total number of cells (box and pipe)	no.	988	988	590	84				
	4.4) Resources/ material sources	Assessment of material sources for granular materials	Earthworks:							0	10	10
			• Cut	Mm ³	4.4	10.1	11.3	10.2				
			• Fill	Mm ³	5.3	9.5	9.8	9.3				
			• Balance	Mm ³	0.9	0.5	1.6	0.9				
			• Total	Mm ³	10	20	21	20				
			Length of alignment in soil type:									
			• Chromosols	km	0	0	12	15				
			• Dermosols	km	11	11	36	44				
			• Kandosols	km	7	7	15	15				
			• Kurosols	km	0	0	3	1				
			• Sodosols	km	50	50	45	48				
			• Vertosols	km	113	100	61	85				
			Length of alignment in rock type:									
			• Qa - Alluvium	km	62	44	34	28				
			• Czs - Alluvium	km	43	43	18	18				
			• Tv - Volcanic (Basalt)	km	39	52	33	51				
			• Jkb - Sedimentary	km	2	2	0	0				
			Total Sedimentary	km	37	29	87	107				
	4.5) Interface with operational railway	Qualitative assessment to the number of interfaces with existing operational railways	Connections to existing rail networks	no.	4	4	3	4		5	10	-5
			Connections to existing sidings on QR network	no.	9	7	4	13				
	4.6) Staging opportunities	Assessment of staging opportunities	Potential new stage siding to Wellcamp	no.	0	1	1	1		5	5	5
5) Environmental Impacts	5.1) Ecological impacts (flora, fauna and habitats)	Assessment of the impact on: * flora * flora * remnant vegetation and habitats * Reserves, state forest, national park	Threatened Ecological Community (EPBC Act):							0	-5	-10
			• Total	ha	19.7	18.8	52.5	64.4				
			• Greenfield	ha	19.2	18.3	47.7	60.9				
			• Brownfield	ha	0.5	0.5	4.8	3.5				
			Remnant vegetation within the construction corridor:									
			• Endangered (total)	ha	4.3	4.3	10.1	12.9				
			• Greenfield	ha	4.3	4.3	9.9	12.7				
			• Brownfield	ha	0	0.0	0.2	0.2				
			• Of Concern (total)	ha	22.8	20.3	42.1	79.5				
			• Greenfield	ha	20.1	19.2	37.6	71.2				
			• Brownfield	ha	2.7	1.1	4.5	8.3				
			• Least Concern (total)	ha	65.1	85.6	25.2	11.9				
			• Greenfield	ha	62.7	84.8	25.0	11.8				
			• Brownfield	ha	2.4	0.8	0.2	0.1				
			Essential habitat within the construction corridor	ha	3.8	16.8	2.4	15.0				

Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
			Non-remnant vegetation within the construction corridor	ha	843	885	983	1093				
			State forest	ha	39.8	39.8	0.1	19.5				
	5.2) Visual impacts	<i>Total qualitative extent to which the option would result in a landscape or visual change to sensitive receptors/ viewers (generally residential properties, conservation areas or open space)</i>	Greenfield alignment length	km	126	137	122	115		-10	0	5
			Brownfield alignment length	km	55	30	49	93				
			Total length of high embankments (10m+)	km	3	8	8	9				
			Total length of bridge	m	4275	3375	6465	9395				
			Residential receptors within 200m of the corridor:									
			• Total	no.	203	126	67	508				
			• Greenfield	no.	24	61	38	46				
			• Brownfield	no.	179	65	29	462				
	5.3) Noise and vibration impacts	<i>Total number of: * residential receptors within 200m of the corridor * sensitive receptors within 200m of the corridor * commercial/ industrial receptors within 200m of the corridor</i>	Residential receptors within 200m of the corridor:							5	10	-10
			• Total	no.	203	126	67	508				
			• Greenfield	no.	24	61	38	46				
			• Brownfield	no.	179	65	29	462				
			Other sensitive receptors within 200m of the corridor	no.	2	2	0	6				
	5.4) Flooding and waterway impacts	<i>Qualitative assessment of the impact of: * flooding * waterway crossings and impacts</i>	Stream crossings:							0	5	-5
			• Major	no.	20	15	17	25				
			• Minor	no.	55	69	62	66				
			• Total	no.	75	84	79	91				
			Waterway Barrier Works mapped watercourses crossed by the alignment centre line:									
			• Purple (Major)	no.	15	10	9	17				
			• Red (High)	no.	8	8	12	16				
			• Amber (Moderate)	no.	26	27	25	23				
			• Green (Low)	no.	33	46	46	53				
			• Total purple and red	no.	23	18	21	33				
			Length of 1% AEP floodplain crossed	km	29	27	23	26				
	5.5) Effect on air quality	<i>Total number of: * residential receptors within 200m of the corridor * sensitive receptors within 200m of the corridor * commercial/ industrial receptors within 200m of the corridor</i>	Residential receptors within 200m of the corridor:							5	10	-10
			• Total	no.	203	126	67	508				
			• Greenfield	no.	24	61	38	46				
			• Brownfield	no.	179	65	29	462				
			Other sensitive receptors within 200m of the corridor	no.	2	2	0	6				
	5.6) Effect on greenhouse gas emissions	<i>Estimated Tonnes of GHG emissions based on: * consideration of construction emissions and other operational factors such as lighting and ventilation Note: It is considered that the differences between options for GHG emission factors for road transport with consideration of the extent to which options allow for modal shift from road to rail is generally considered neutral, if this is different include in the</i>	Commercial/ industrial receptors within 200m of the corridor	no.	22	22	2	68		5	-5	-10
			Earthworks:									
			• Cut	Mm ³	4.4	10.1	11.3	10.2				
			• Fill	Mm ³	5.3	9.5	9.8	9.3				
			• Balance	Mm ³	0.9	0.5	1.6	0.9				
			• Total	Mm ³	10	20	21	20				
			Transit time (northbound)	hh:mm:ss	2:09:23	2:05:20	2:14:44	2:33:48				
			Transit time (southbound)	hh:mm:ss	1:56:02	1:48:51	1:53:34	2:18:04				
6) Community and property impacts	6.1) Property impacts	<i>Total number of: * residential properties impacted</i>	No. of land parcels traversed, by tenure:							5	5	-5
			• Freehold	no.	297	260	191	330				

Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
		<i>* rural properties impacted</i> <i>* commercial/ industrial properties impacted</i> <i>* civic/other properties impacted</i> <i>* severance of properties</i>	• Total	no.	339	291	215	382				
			Residential Receptors within 500m upstream and 200m downstream within floodplain:	no.	49	49	24	67				
				no.								
			Other receptors within 500m upstream and 200m downstream within floodplain:	no.	67	66	103	161				
				no.								
			Property types (Valuer General) crossed by alignment:									
			• Cropping (total)	no.	153	113	58	88				
			• Pastoral/Animal Husbandry (total)	no.	89	90	98	131				
			• Cattle Breeding & Fattening	no.	50	52	41	68				
			• Industrial (total)	no.	4	2	0	10				
			• Residential (total)	no.	35	42	69	170				
			• Urban (total)	no.	16	8	1	11				
			• Resources (total)	no.	8	6	2	7				
			• Vacant Land (total)	no.	115	78	17	33				
			• Other (total)	no.	28	5	6	27				
	6.2) Heritage	<i>Assessment of the impact on:</i> <i>* Indigenous heritage</i> <i>* non indigenous heritage</i>	DATSIP Register places within the construction corridor	no.	0	0	0	4		-5	0	-10
			QLD Heritage Register places within the construction corridor	no.	0	0	0	0				
			Local heritage places within the construction corridor	no.	0	0	2	7				
			Register of National Estate (within 200 m of construction corridor)	no.	0	0	1	0				
			Accepted Native Title Claims	no.	1	1	1	1				
			Native Title Determinations	no.	1	1	1	1				
			Total stream crossings	no.	75	84	79	91				
	6.3) Impact on community e.g. road	<i>Assessment of the impact on changes to the community including:</i> <i>* accessibility through changes to the road network or town/ business/ suburb centres</i> <i>* impact on community and civic facilities and businesses</i>	Grade Separations:							0	5	-5
			• 2 lanes or less	no.	2	2	5	4				
			Active Crossings:									
			• Total	no.	49	39	15	22				
			• Major (Boom gates)	no.	5	5	5	10				
			• Minor (Lights only)	no.	44	34	10	12				
			Passive Crossings:									
			• Total	no.	79	81	81	101				
			• Public	no.	21	26	32	51				
			• Private	no.	58	55	49	50				
			Total Road Crossings (active and passive)	no.	128	120	96	123				
			Interfaces with towns/public spaces within 2km	no.	6	5	5	11				
			Stock Route Crossings	no.	9	9	12	11				
			Greenfield alignment length	km	126	137	122	115				
	6.4) Community response (community stakeholder risk)	<i>Overall qualitative assessment of:</i> <i>* Supports long term development of region</i> <i>* community stakeholder risk</i> <i>* community resistance and perception of environmental risk</i>	Potential broadacre cropping land	ha	698	732	601	663		-5	5	-5
			Greenfield alignment length	km	126	137	122	115				
			Brownfield alignment length	km	55	30	49	93				
			Residential Receptors within 500m upstream and 200m downstream within floodplain:	no.	49	49	24	67				
			Other receptors within 500m upstream and 200m downstream within floodplain:	no.	67	66	103	161				
			Residential receptors within 200m of the corridor:									
			• Total	no.	203	126	67	508				
			• Greenfield	no.	24	61	38	46				
			• Brownfield	no.	179	65	29	462				
			Other sensitive receptors within 200m of the corridor	no.	2	2	0	6				

Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
	6.5) Current and future land use impacts	Overall qualitative assessment of: * supports long term assessment of region * impact on existing development * impact on future development	Freehold	no.	297	260	191	330		-5	10	10
			Current land use (QLUMP, secondary level) crossed by alignment:									
			• Cropping (total)	ha	407	409	301	271				
			• Cropping	ha	376	373	263	222				
			• Irrigated cropping	ha	22	27	38	50				
			• Irrigated cropping - Cotton	ha	8	8	0	0				
			• Animal production (total)	ha	463	509	745	851				
			• Intensive animal production	ha	2	8	0	0				
			• Grazing native vegetation	ha	460	488	734	842				
			• Grazing modified pastures	ha	0	13	11	9				
			• Production forestry	ha	40.0	40.0	0.1	33.4				
			• Residential	ha	1.1	12.6	6.0	11.0				
			• Manufacturing and industrial	ha	0.1	0.0	0.0	0.3				
			• Services	ha	2.8	1.2	0.0	3.2				
			• Transport and communication	ha	5.8	11.0	1.3	17.4				
			• Water	ha	4.9	4.2	2.1	1.8				
			• Conservation and natural environments	ha	10.1	7.7	0.5	7.6				
			Potential agricultural land (Agricultural Land Audit):									
			• Broadacre cropping	ha	684	726	583	644				
			• Annual horticulture	ha	691	750	630	657				
			• Perennial horticulture	ha	144	133	201	213				
			• Intensive livestock	ha	714	766	676	680				
			Strategic Cropping Land	ha	698	732	601	663				
			Agricultural Land Class A	ha	721	783	651	698				
			Agricultural Land Class B	ha	49	49	35	35				
			Resource Tenures:									
			• EPC	ha	202	210	311	159				
			• EPM	ha	0	0	267	246				
			• MDL	ha	107	107	99	0				
			• ML	ha	45	45	36	0				
			• PPL	no.	2	2	2	2				
7) Approvals and stakeholder risk	7.1) Planning and approval timescale	Assessment of likely planning approvals and duration	Primary approval process		SDWPO Act & EPBC Act EIS	Same as Base Case	Same as Base Case	Same as Base Case		0	0	0
					Approx. 24 months							
	7.2) State/ Federal agency buy in	Assessment of agency support for the option			N/A - no State or Federal preference to influence this MCA	N/A - no State or Federal preference to influence this MCA	N/A - no State or Federal preference to influence this MCA	N/A - no State or Federal preference to influence this MCA		0	0	0
	7.3) Local government buy in	Assessment of local government support for the option	Cropping (total):	ha	407	409	301	271		0	0	5
			Potential broadacre cropping land:	ha	684	726	583	644				
			Goondiwindi Regional Council		Bypass of Inglewood. 17.8 ha cropping land in GRC	Same as Base Case	Bypass of Inglewood. More cropping land (22.4 ha)	Bypass of Inglewood. More cropping land (22.4 ha)	neutral on alignment			
			Southern Downs Regional Council		Not via Warwick	Same as Base Case	Closer to Warwick	Via Warwick	mayor supporting of Warwick route			
			Toowoomba Regional Council		327.3 ha cropping land in TRC	Less cropping land (306.1 ha)	Less cropping land (232.3 ha)	Less cropping land (115.8 ha)	minimisation of cropping land			
	7.4) Other statutory and regulatory approvals	Assessment of other approvals required	State Forest properties	no.	4	4	1	7		0	0	-5
			Waterway Barrier Works (Major + High)	no.	23	18	21	33				

Criteria	Sub-criteria	ARTC Criteria Information	Item	Units	Base Case Modified	Wellcamp-Charlton	Karara-Leyburn	Warwick	Comments	Sub criteria Score Wellcamp-Charlton	Sub criteria Score Karara-Leyburn	Sub criteria Score Warwick
	7.5) Service authorities (utilities/ other)	<i>Assessment of</i> <i>* changes to significant (HV/ trunk/ distribution) utilities changes</i> <i>* changes to local utilities networks</i>	Gas or Oil Pipeline	no.	8	7	5	5	no change to base case	0	0	0
									all have pups impacts requiring approval			
			Overhead Electrical Crossings:						all will be approved, timeframe covered in construction section			
			• 110kV and greater	no.	20	45	43	65				
			• Less than 110kV	no.	48	62	7	22				
			Telecommunications & Optic Fibre U/G	no.	14	19	6	6				

Two thin black lines intersect diagonally on the left side of the page. One line slopes upwards from left to right, and the other slopes downwards from left to right.

Appendix R

Cost Estimate

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Item	Description	Unit	Quantity	Unit rate	Amount
	MBIR				
	Y2G Options Assessment				
	Base Case Modified 3100 Alignment Option				
	DRAFT - 22/03/2017				
	Preliminary Only, Information Only - Not to be used for Construction or Tendering Purposes				
	SUMMARY				
	CONSTRUCTION VALUE/COSTS				
	011 Environmental				22,245,138
	031 Earthworks				261,055,168
	033 Capping				51,619,495
	043 Fencing				14,124,411
	050 Trackworks				132,186,002
	061 Culverts				82,431,140
	062 Bridges				137,975,797
	064 Grade Separations				5,732,638
	065 Crossing				32,351,148
	022 PUP's				1,783,630
DJC	Direct Job Costs				741,504,567
	Contractors Overheads				318,846,965
CV	Total Construction Value/Costs				1,060,351,532
	OWNERS COSTS				
	200 Clients Supply				150,852,486
	Property Cost (Land value and Crop assessment only)				21,539,875
CE	Base Construction Cost Estimate				1,232,743,893
	CONSTRUCTION COSTS				
	011 Environmental				
3100.011.01	Environmental Controls Management	item	1	22,245,138.00	22,245,138
	Sub Total Environmental				22,245,138
	031 Earthworks				
3100.031.01	Clear & Grub rail footprint - low density - including respreading mulch on embankments	sq m	9,038,953.00	0.45	4,067,529
3100.031.02	Clear & Grub rail footprint - high density - including respreading mulch on embankments	sq m	1,117,174.00	1.50	1,675,761
3100.031.03	Strip Topsoil to stockpile at 1km intervals - including respreading topsoil on embankments	m3	1,181,837.00	20.00	23,636,740
3100.031.04	Excavate common Cut to Fill	m3	4,339,701.00	22.00	95,473,422
3100.031.05	Excavate Bulk borrow to Fill	m3	0.00		
3100.031.06	Excavate Bulk borrow to Fill External	m3	806,000.00	24.00	19,344,000
3100.031.07	Import Bulk Fill - From Quarry	m3	0.00		
3100.031.08	Cut to Waste	m3	0.00		
3100.031.09	Excavate Select borrow to Fill - Within project site (Typically 30km max haul)	m3	0.00		
3100.031.10	Excavate Select borrow to Fill External	m3	0.00		
3100.031.11	Import Select Fill - From Quarry	m3	610,000.00	84.00	51,240,000
3100.031.12	Preparation of Subgrade in Cut	sq m	327,915.00	2.80	918,162
3100.031.13	Preparation of Area under Fills	sq m	2,595,166.00	2.70	7,006,948
3100.031.14	Remove unsuitable materials (Remove & replace with structural fill)	m3	110,288.00	162.00	17,866,656
3100.031.15	Access Road (unsealed)	m	163,830.00	215.00	35,223,450
3100.031.16	Access Road (sealed)	m	17,500.00	263.00	4,602,500
	Sub Total Earthworks				261,055,168
	033 Capping				
3100.033.01	Capping in Cut	m3	81,979.00	155.00	12,706,745
3100.033.02	Capping in Embankment	m3	251,050.00	155.00	38,912,750
	Sub Total Capping				51,619,495
	043 Fencing				
3100.043.01	Rural fence to ROW	km	399.00	17,501.00	6,982,899
3100.043.02	Gates to ROW	ea.	249	451.00	112,299
3100.043.03	Cattle Grids	ea.	213	33,001.00	7,029,213
	Sub Total Fencing				14,124,411

Item	Description	Unit	Quantity	Unit rate	Amount
	050 Trackworks				
3100.050.01	Install Class 1C track structure dual gauge	km	192.83	672,722.00	129,720,983
3100.050.02	Install Class 1C track structure standard gauge				
3100.050.03	Install turnout, dual to narrow gauge	ea.	9	135,001.00	1,215,009
3100.050.04	Install turnout, dual gauge	ea.	10	125,001.00	1,250,010
3100.050.05	Install turnout, standard gauge				
	Sub Total Trackworks				132,186,002
	#NP				
	061 Culverts				
3100.061.01	Culverts 1 Cell Fauna Crossing - 1 / 2.1m x 2.1m RCBC x 15.6m long	ea.	20	97,531.00	1,950,620
3100.061.02	Culvert Pipe, 1 Cell - 1 / 1.5m RCP (14.64m long per cell)	ea.	1	59,046.00	59,046
3100.061.03	Culvert Pipe, 2 Cell - 2 / 1.5m RCP (14.64m long per cell)	ea.	4	88,682.00	354,728
3100.061.04	Culvert Pipe, 4 Cell - 4 / 1.5m RCP (14.64m long per cell)	ea.	1	143,379.00	143,379
3100.061.05	Culvert Pipe, 5 Cell - 5 / 1.5m RCP (14.64m long per cell)	ea.	1	173,135.00	173,135
3100.061.06	Culvert Pipe, 7 Cell - 7 / 1.5m RCP (14.64m long per cell)	ea.	1	233,817.00	233,817
3100.061.07	Culvert Pipe, 9 Cell - 9 / 1.5m RCP (14.64m long per cell)	ea.	1	289,036.00	289,036
3100.061.08	Culvert Box Shallow, 1 Cell - 1 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	6	82,294.00	493,764
3100.061.09	Culvert Box Shallow, 2 Cell - 2 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	5	135,098.00	675,490
3100.061.10	Culvert Box Shallow, 3 Cell - 3 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	11	194,841.00	2,143,251
3100.061.11	Culvert Box Shallow, 4 Cell - 4 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	3	250,008.00	750,024
3100.061.12	Culvert Box Shallow, 5 Cell - 5 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	2	307,288.00	614,576
3100.061.13	Culvert Box Shallow, 8 Cell - 8 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	1	514,344.00	514,344
3100.061.14	Culvert Box Standard, 3 Cell - 3 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	2	226,964.00	453,928
3100.061.15	Culvert Box Standard, 4 Cell - 4 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	5	292,954.00	1,464,770
3100.061.16	Culvert Box Standard, 5 Cell - 5 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	3	356,481.00	1,069,443
3100.061.17	Culvert Box Standard, 6 Cell - 6 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	3	419,033.00	1,257,099
3100.061.18	Culvert Box Standard, 7 Cell - 7 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	2	485,022.00	970,044
3100.061.19	Culvert Box Standard, 8 Cell - 8 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	1	546,399.00	546,399
3100.061.20	Culvert Box Standard, 9 Cell - 9 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	1	611,473.00	611,473
3100.061.21	Culvert Box Standard, 30 Cell - 30 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	1	1,863,731.00	1,863,731
3100.061.22	Floodway RCP, 1 cell - 1.2m dia RCP x 19.52m long	ea.	50	36,404.00	1,820,200
3100.061.23	Floodway RCP, 1 cell - 1.8m dia RCP x 19.52m long	ea.	590	61,574.00	36,328,660
3100.061.24	Floodway RCP, 1 cell - 2.1m dia RCP x 19.52m long	ea.	310	73,530.00	22,794,300
3100.061.25	Flow dissipation structure - Apron 10m2 + Rock Protection 20m2	ea.	950	3,061.00	2,907,950
3100.061.26	Stock route crossing - 2 / 3.6m x 2.4m RCBC x 15.6m long	ea.	9	216,437.00	1,947,933
	Sub Total Culvert				82,431,140
	#NP				
	062-Bridges				
3100.062.01	Type 1 bridge, 50m long - 25m spans (0-6m)	ea.	2	2,274,616.00	4,549,232
3100.062.02	Type 1 bridge, 75m long - 25m spans (0-6m)	ea.	2	2,929,345.00	5,858,690
3100.062.03	Type 1 bridge, 100m long - 25m spans (0-6m)	ea.	1	3,582,164.00	3,582,164
3100.062.04	Type 1 bridge, 125m long - 25m spans (0-6m)	ea.	2	4,236,894.00	8,473,788
3100.062.05	Type 1 bridge, 175m long - 25m spans (0-6m)	ea.	2	5,546,353.00	11,092,706
3100.062.06	Type 1 bridge, 200m long - 25m spans (0-6m)	ea.	1	6,199,172.00	6,199,172
3100.062.07	Type 1 bridge, 225m long - 25m spans (0-6m)	ea.	1	6,853,902.00	6,853,902
3100.062.08	Type 2 bridge, 25m long - 25m spans (6-11m)	ea.	2	1,561,107.00	3,122,214
3100.062.09	Type 2 bridge, 75m long - 25m spans (6-11m)	ea.	1	3,351,066.00	3,351,066
3100.062.10	Type 2 bridge, 100m long - 25m spans (6-11m)	ea.	1	4,244,135.00	4,244,135
3100.062.11	Type 2 bridge, 150m long - 25m spans (6-11m)	ea.	1	6,034,094.00	6,034,094
3100.062.12	Type 2 bridge, 175m long - 25m spans (6-11m)	ea.	1	6,929,074.00	6,929,074
3100.062.13	Type 2 bridge, 250m long - 25m spans (6-11m)	ea.	1	9,612,102.00	9,612,102
3100.062.14	Type 3 bridge, 150m long - 25m spans (11-18m)	ea.	2	11,653,862.00	23,307,724
3100.062.15	Floodway bridge, 300m long - 15m spans (0-3m)	ea.	1	6,073,752.00	6,073,752
3100.062.16	Floodway bridge, 750m long - 15m spans (0-3m)	ea.	2	14,345,991.00	28,691,982
	Sub Total Bridges				137,975,797
	#NP				
	064 Grade Separations				
3100.064.01	Grade Separation, Major (4 lanes or less)				
3100.064.02	Grade Separation, Minor (2 lanes or less)	ea.	2	2,866,319.00	5,732,638
	Sub Total Grade Separations				5,732,638
	065 Crossings				
3100.065.01	Active Level Crossings Major	ea.	4	885,369.00	3,541,476
3100.065.02	Active Level Crossings Minor	ea.	36	585,369.00	21,073,284
3100.065.03	Passive Level Crossings	ea.	66	117,218.00	7,736,388
	Sub Total Crossings				32,351,148
	022 PUP's				
3100.022.01	Gas or Oil Pipeline - 4m wide x 0.3m thick x 40m long	ea.	1	43,572.00	43,572
3100.022.02	Overhead Electrical lines 110kV crossings				
3100.022.03	Overhead Electrical lines 11kV & 33kV crossings	ea.	58	30,001.00	1,740,058
	Sub Total PUP's				1,783,630
DJC	Total Direct Job Costs				741,504,567

Item	Description	Unit	Quantity	Unit rate	Amount
	Contractors Overheads				
3100.097.01	Contractors Onsite Overheads - 30% of DJC	LSum	1	222,451,371.00	222,451,371
3100.098.01	Contractors Offsite Overhead and Margin - 10% of (DJC + OO/H)	LSum	1	96,395,594.00	96,395,594
	Sub Total Contractors Overheads				318,846,965
CV	Total Construction Value				1,060,351,532
	#NP				
	OWNERS COSTS				
	200 Client Supply				
3100.200.01	Supply Class 1C standard gauge rail and sleepers				
3100.200.02	Supply Class 1C dual gauge rail and sleepers	km	192.83	746,992.00	144,042,467
3100.200.03	Supply, dual to narrow gauge turnout	ea.	9	350,001.00	3,150,009
3100.200.04	Supply dual gauge turnout	ea.	10	366,001.00	3,660,010
3100.200.05	Supply standard gauge turnout	ea.	0		
	Sub Total Client Supply				150,852,486

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Item	Description	Unit	Quantity	Unit rate	Amount
	MBIR				
	Y2G Options Assessment				
	Karara - Leyburn 1001				
	DRAFT - 22/03/2017				
	Preliminary Only, Information Only - Not to be used for Construction or Tendering Purposes				
	SUMMARY				
	CONSTRUCTION VALUE/COSTS				
	011 Environmental				28,502,198
	031 Earthworks				385,132,697
	033 Capping				47,123,720
	043 Fencing				13,622,180
	050 Trackworks				124,898,323
	061 Culverts				58,373,510
	062 Bridges				255,948,910
	064 Grade Separations				14,331,595
	065 Crossing				20,712,937
	022 PUP's				1,427,188
DJC	Direct Job Costs				950,073,258
	Contractors Overheads				408,531,502
CV	Construction Value/Costs				1,358,604,760
	OWNERS COSTS				
	200 Clients Supply				141,694,585
	Property Cost (Land value and Crop assessment only)				17,830,040
CE	Base Construction Cost Estimate				1,518,129,385
	CONSTRUCTION COSTS				
	011 Environmental				
1001.011.01	Environmental Controls Management	item	1	28,502,198.00	28,502,198
	Sub Total Environmental				28,502,198
	031 Earthworks				
1001.031.01	Clear & Grub rail footprint - low density - including respreading mulch on embankments	sq m	10,082,813.00	0.45	4,537,266
1001.031.02	Clear & Grub rail footprint - high density - including respreading mulch on embankments	sq m	876,766.00	1.50	1,315,149
1001.031.03	Strip Topsoil To Stockpile at 1km intervals - including respreading topsoil on embankments	m3	1,611,045.00	20.00	32,220,900
1001.031.04	Excavate common Cut to Fill	m3	9,682,195.00	22.00	213,008,290
1001.031.05	Excavate Bulk borrow to Fill				
1001.031.06	Excavate Bulk borrow to Fill External				
1001.031.07	Import Bulk Fill - From Quarry				
1001.031.08	Cut to Waste	m3	1,556,436.00	20.00	31,128,720
1001.031.09	Excavate Select borrow to Fill - Within project site (Typically 30km max haul)	m3	366,620.00	28.00	10,265,360
1001.031.10	Excavate Select borrow to Fill External				
1001.031.11	Import Select Fill - From Quarry				
1001.031.12	Preparation of Subgrade in Cut	sq m	421,330.00	2.80	1,179,724
1001.031.13	Preparation of Area under Fills	sq m	2,899,275.00	2.80	8,117,970
1001.031.14	Remove unsuitable materials (Remove & replace with structural fill)	m3	282,728.00	162.00	45,801,936
1001.031.15	Borrow to Fill				
1001.031.16	Access Road (unsealed)	m	155,913.00	214.00	33,365,382
1001.031.17	Access Road (sealed)	m	16,000.00	262.00	4,192,000
	Sub Total Earthworks				385,132,697
	033 Capping				
1001.033.01	Capping in Cut	m3	105,333.00	155.00	16,326,615
1001.033.02	Capping in Embankment	m3	198,691.00	155.00	30,797,105
	Sub Total Capping				47,123,720
	043 Fencing				
1001.043.01	Rural fence to ROW	km	378.00	17,501.00	6,615,378
1001.043.02	Gates to ROW	ea.	243	451.00	109,593
1001.043.03	Cattle Grids	ea.	209	33,001.00	6,897,209
	Sub Total Fencing				13,622,180
	050 Trackworks				
1001.050.01	Install Class 1C track structure dual gauge	km	183	672,723.00	123,108,309
1001.050.02	Install Class 1C track structure standard gauge				
1001.050.03	Install turnout, dual to narrow gauge	ea.	4	135,001.00	540,004
1001.050.04	Install turnout, dual gauge	ea.	10	125,001.00	1,250,010
1001.050.05	Install turnout, standard gauge				
	Sub Total Trackworks				124,898,323
	#NP				
	061 Culverts				

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Item	Description	Unit	Quantity	Unit rate	Amount
1001.061.01	Culverts 1 Cell Fauna Crossing - 1 / 2.1m x 2.1m RCBC x 15.6m long	ea.	14	97,531.00	1,365,434
1001.061.02	Culvert Pipe, 2 Cell - 2 / 1.5m RCP (14.64m long per cell)	ea.	3	88,682.00	266,046
1001.061.03	Culvert Pipe, 3 Cell - 3 / 1.5m RCP (14.64m long per cell)	ea.	1	213,897.00	213,897
1001.061.04	Culvert Pipe, 4 Cell - 4 / 1.5m RCP (14.64m long per cell)	ea.	1	269,732.00	269,732
1001.061.05	Culvert Pipe, 6 Cell - 6 / 1.5m RCP (14.64m long per cell)	ea.	2	276,620.00	553,240
1001.061.06	Culvert Box Shallow, 1 Cell - 1 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	6	82,294.00	493,764
1001.061.07	Culvert Box Shallow, 2 Cell - 2 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	4	138,265.00	553,060
1001.061.08	Culvert Box Shallow, 3 Cell - 3 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	15	201,174.00	3,017,610
1001.061.09	Culvert Box Shallow, 4 Cell - 4 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	5	262,673.00	1,313,365
1001.061.10	Culvert Box Standard, 3 Cell - 3 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	4	245,961.00	983,844
1001.061.11	Culvert Box Standard, 4 Cell - 4 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	8	318,284.00	2,546,272
1001.061.12	Culvert Box Standard, 5 Cell - 5 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	6	384,977.00	2,309,862
1001.061.13	Culvert Box Standard, 6 Cell - 6 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	2	457,028.00	914,056
1001.061.14	Culvert Box Standard, 9 Cell - 9 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	1	808,914.00	808,914
1001.061.15	Floodway RCP, 1 cell - 1.5m dia RCP x 19.52m long				
1001.061.16	Floodway RCP, 1 cell - 1.8m dia RCP x 19.52m long	ea.	420	61,574.00	25,861,080
1001.061.17	Floodway RCP, 1 cell - 2.1m dia RCP x 19.52m long	ea.	170	73,530.00	12,500,100
1001.061.18	Flow dissipation structure - Apron 10m2 + Rock Protection 20m2	ea.	590	3,061.00	1,805,990
1001.061.19	Stock route crossing - 2 / 3.6m x 2.4m RCBC x 15.6m long	ea.	12	216,437.00	2,597,244
	Sub Total Culvert				58,373,510
	#NP				
	062-Bridges				
1001.062.01	Type 1 bridge, 75m long - 25m spans (0-6m)	ea.	2	2,929,345.00	5,858,690
1001.062.02	Type 1 bridge, 125m long - 25m spans (0-6m)	ea.	1	4,236,894.00	4,236,894
1001.062.03	Type 2 bridge, 25m long - 25m spans (6-11m)	ea.	3	1,561,107.00	4,683,321
1001.062.04	Type 2 bridge, 50m long - 25m spans (6-11m)	ea.	2	2,456,086.00	4,912,172
1001.062.05	Type 2 bridge, 75m long - 25m spans (6-11m)	ea.	1	3,351,066.00	3,351,066
1001.062.06	Type 2 bridge, 100m long - 25m spans (6-11m)	ea.	2	4,244,135.00	8,488,270
1001.062.07	Type 2 bridge, 125m long - 25m spans (6-11m)	ea.	1	5,139,114.00	5,139,114
1001.062.08	Type 2 bridge, 500m long - 25m spans (6-11m)	ea.	1	18,556,166.00	18,556,166
1001.062.09	Type 3 bridge, 100m long - 25m spans (11-18m)	ea.	2	7,921,128.00	15,842,256
1001.062.10	Type 3 bridge, 125m long - 25m spans (11-18m)	ea.	1	9,787,495.00	9,787,495
1001.062.11	Type 3 bridge, 150m long - 25m spans (11-18m)	ea.	1	11,653,862.00	11,653,862
1001.062.12	Type 3 bridge, 275m long - 25m spans (11-18m)	ea.	1	20,983,787.00	20,983,787
1001.062.13	Type 3 bridge, 350m long - 25m spans (11-18m)	ea.	1	26,580,978.00	26,580,978
1001.062.14	Type 3 bridge, 700m long - 25m spans (11-18m)	ea.	1	52,702,476.00	52,702,476
1001.062.15	Floodway bridge, 360m long - 15m spans (0-3m)	ea.	1	7,176,626.00	7,176,626
1001.062.16	Floodway bridge, 405m long - 15m spans (0-3m)	ea.	1	8,004,121.00	8,004,121
1001.062.17	Floodway bridge, 750m long - 15m spans (0-3m)	ea.	1	14,345,991.00	14,345,991
1001.062.18	Floodway bridge, 1800m long - 15m spans (0-3m)	ea.	1	33,645,625.00	33,645,625
	Sub Total Bridges				255,948,910
	#NP				
	064 Grade Separations				
1001.064.01	Grade Separation, Major (4 lanes or less)				
1001.064.02	Grade Separation, Minor (2 lanes or less)	ea.	5	2,866,319.00	14,331,595
	Sub Total Grade Separations				14,331,595
	065 Crossings				
1001.065.01	Active Level Crossings Major	ea.	5	885,369.00	4,426,845
1001.065.02	Active Level Crossings Minor	ea.	10	585,369.00	5,853,690
1001.065.03	Passive Level Crossings	ea.	89	117,218.00	10,432,402
	Sub Total Crossings				20,712,937
	022 PUP's				
1001.022.01	Gas or Oil Pipeline - 4m wide x 0.3m thick x 40m long	ea.	2	43,572.00	87,144
1001.022.02	Overhead Electrical lines 110kV crossing	ea.	1	50,001.00	50,001
1001.022.03	Overhead Electrical lines 11kV & 33kV crossings	ea.	43	30,001.00	1,290,043
	Sub Total PUP's				1,427,188
DJC	Total Direct Job Costs				950,073,258
	Contractors Overheads				
1001.097.01	Contractors Onsite Overheads - 30% of DJC	LSum	1	285,021,978.00	285,021,978
1001.098.01	Contractors Offsite Overhead and Margin - 10% of (DJC + OO/H)	LSum	1	123,509,524.00	123,509,524
	Sub Total Contractors Overheads				408,531,502
CV	Total Construction Value				1,358,604,760
	#NP				
	OWNERS COSTS				
	200 Client Supply				
1001.200.01	Supply Class 1C standard gauge rail and sleepers				
1001.200.02	Supply Class 1C dual gauge rail and sleepers	km	183	746,637.00	136,634,571
1001.200.03	Supply, dual to narrow gauge turnout	ea.	4	350,001.00	1,400,004
1001.200.04	Supply dual gauge turnout	ea.	10	366,001.00	3,660,010
1001.200.05	Supply standard gauge turnout	ea.			
	Sub Total Client Supply				141,694,585

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Item	Description	Unit	Quantity	Unit rate	Amount
	MBIR				
	Y2G Options Assessment				
	Warwick 4102				
	DRAFT - 22/03/2017				
	Preliminary Only, Information Only - Not to be used for Construction or Tendering Purposes				
	SUMMARY				
	CONSTRUCTION VALUE/COSTS				
	011 Environmental				30,010,678
	031 Earthworks				377,621,309
	033 Capping				56,596,080
	043 Fencing				17,099,892
	050 Trackworks				152,599,531
	061 Culverts				23,621,102
	062 Bridges				312,916,719
	064 Grade Separations				11,465,276
	065 Crossing				29,240,970
	022 PUP's				2,547,222
DJC	Direct Job Costs				1,013,718,779
	Contractors Overheads				435,899,075
CV	Total Construction Value/Costs				1,449,617,854
	OWNERS COSTS				
	200 Clients Supply				174,667,689
	Property Cost (Land value and Crop assessment only)				23,200,429
CE	Base Construction Cost Estimate				1,647,485,972
	#NP				
	CONSTRUCTION COSTS				
	011 Environmental				
4102.011.01	Environmental Controls Management	item	1	30,010,678.00	30,010,678
	Sub Total Environmental				30,010,678
	031 Earthworks				
4102.031.01	Clear & Grub rail footprint - low density - including respreading mulch on embankments	sq m	11,646,259.00	0.45	5,240,817
4102.031.02	Clear & Grub rail footprint - high density - including respreading mulch on embankments	sq m	1,294,029.00	1.50	1,941,044
4102.031.03	Strip Topsoil To Stockpile at 1km intervals - including respreading topsoil on embankments	m3	1,683,620.00	20.00	33,672,400
4102.031.04	Excavate common Cut to Fill	m3	9,199,785.00	22.00	202,395,270
4102.031.05	Excavate Bulk borrow to Fill	m3	0.00		
4102.031.06	Excavate Bulk borrow to Fill External	m3	728,661.00	24.00	17,487,864
4102.031.07	Import Bulk Fill - From Quarry	m3	0.00		
4102.031.08	Cut to Waste	m3	915,880.00	20.00	18,317,600
4102.031.09	Excavate Select borrow to Fill - Within project site (Typically 30km max haul)	m3	34,579.00	28.00	968,212
4102.031.10	Excavate Select borrow to Fill External	m3	0.00		
4102.031.11	Import Select Fill - From Quarry	m3	0.00		
4102.031.12	Preparation of Subgrade in Cut	sq m	521,850.00	2.80	1,461,180
4102.031.13	Preparation of Area under Fills	sq m	3,355,048.00	2.80	9,394,134
4102.031.14	Remove unsuitable materials (Remove & replace with structural fill)	m3	253,864.00	162.00	41,125,968
4102.031.15	Access Road (unsealed)	m	189,908.00	215.00	40,830,220
4102.031.16	Access Road (sealed)	m	18,200.00	263.00	4,786,600
	Sub Total Earthworks				377,621,309
	033 Capping				
4102.033.01	Capping in Cut	m3	130,463.00	155.00	20,221,765
4102.033.02	Capping in Embankment	m3	234,673.00	155.00	36,374,315
	Sub Total Capping				56,596,080
	043 Fencing				
4102.043.01	Rural fence to ROW	km	458.00	17,501.00	8,015,458
4102.043.02	Gates to ROW	ea.	313	451.00	141,163
4102.043.03	Cattle Grids	ea.	271	33,001.00	8,943,271
	Sub Total Fencing				17,099,892
	050 Trackworks				
4102.050.01	Install Class 1C track structure dual gauge	km	222	672,723.00	149,344,506
4102.050.02	Install Class 1C track structure standard gauge				
4102.050.03	Install turnout, dual to narrow gauge	ea.	13	135,001.00	1,755,013
4102.050.04	Install turnout, dual gauge	ea.	12	125,001.00	1,500,012
4102.050.05	Install turnout, standard gauge				
	Sub Total Trackworks				152,599,531
	#NP				
	061 Culverts				

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Item	Description	Unit	Quantity	Unit rate	Amount
4102.061.01	Culverts 1 Cell Fauna Crossing - 1 / 2.1m x 2.1m RCBC x 15.6m long	ea.	21	97,531.00	2,048,151
4102.061.02	Culvert Pipe, 2 Cell - 2 / 1.5m RCP (14.64m long per cell)	ea.	5	59,046.00	295,230
4102.061.03	Culvert Pipe, 4 Cell - 4 / 1.5m RCP (14.64m long per cell)	ea.	1	143,379.00	143,379
4102.061.04	Culvert Pipe, 5 Cell - 5 / 1.5m RCP (14.64m long per cell)	ea.	1	173,135.00	173,135
4102.061.05	Culvert Pipe, 6 Cell - 6 / 1.5m RCP (14.64m long per cell)	ea.	1	202,771.00	202,771
4102.061.06	Culvert Pipe, 7 Cell - 7 / 1.5m RCP (14.64m long per cell)	ea.	2	233,817.00	467,634
4102.061.07	Culvert Box Shallow, 1 Cell - 1 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	6	82,294.00	493,764
4102.061.08	Culvert Box Shallow, 2 Cell - 2 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	7	135,098.00	945,686
4102.061.09	Culvert Box Shallow, 3 Cell - 3 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	12	194,841.00	2,338,092
4102.061.10	Culvert Box Shallow, 4 Cell - 4 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	5	250,008.00	1,250,040
4102.061.11	Culvert Box Shallow, 5 Cell - 5 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	1	307,288.00	307,288
4102.061.12	Culvert Box Standard, 3 Cell - 3 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	3	226,964.00	680,892
4102.061.13	Culvert Box Standard, 4 Cell - 4 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	5	292,954.00	1,464,770
4102.061.14	Culvert Box Standard, 5 Cell - 5 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	1	356,481.00	356,481
4102.061.15	Culvert Box Standard, 6 Cell - 6 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	1	419,033.00	419,033
4102.061.16	Culvert Box Standard, 7 Cell - 7 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	3	485,022.00	1,455,066
4102.061.17	Culvert Box Standard, 8 Cell - 8 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	4	546,399.00	2,185,596
4102.061.18	Floodway RCP, 1 cell - 1.2m dia RCP x 19.52m long				
4102.061.19	Floodway RCP, 1 cell - 1.8m dia RCP x 19.52m long	ea.	93	61,582.00	5,727,126
4102.061.21	Floodway RCP, 1 cell - 2.1m dia RCP x 19.52m long				
4102.061.22	Flow dissipation structure - Apron 10m2 + Rock Protection 20m2	ea.	93	3,077.00	286,161
4102.061.23	Stock route crossing - 2 / 3.6m x 2.4m RCBC x 15.6m long	ea.	11	216,437.00	2,380,807
	Sub Total Culvert				23,621,102
	#NP				
	062-Bridges				
4102.062.01	Type 1 bridge, 50m long - 25m spans (0-6m)	ea.	2	2,274,616.00	4,549,232
4102.062.02	Type 1 bridge, 75m long - 25m spans (0-6m)	ea.	2	2,929,345.00	5,858,690
4102.062.03	Type 1 bridge, 100m long - 25m spans (0-6m)	ea.	2	3,582,164.00	7,164,328
4102.062.04	Type 1 bridge, 125m long - 25m spans (0-6m)	ea.	3	4,236,894.00	12,710,682
4102.062.05	Type 1 bridge, 150m long - 25m spans (0-6m)	ea.	1	4,891,623.00	4,891,623
4102.062.06	Type 1 bridge, 175m long - 25m spans (0-6m)	ea.	2	5,546,353.00	11,092,706
4102.062.07	Type 1 bridge, 200m long - 25m spans (0-6m)	ea.	1	6,199,172.00	6,199,172
4102.062.08	Type 1 bridge, 225m long - 25m spans (0-6m)	ea.	1	6,853,902.00	6,853,902
4102.062.09	Type 1 bridge, 275m long - 25m spans (0-6m)	ea.	1	8,163,361.00	8,163,361
4102.062.10	Type 1 bridge, 550m long - 25m spans (0-6m)	ea.	1	15,359,655.00	15,359,655
4102.062.11	Type 2 bridge, 25m long - 25m spans (6-11m)	ea.	3	1,561,107.00	4,683,321
4102.062.12	Type 2 bridge, 75m long - 25m spans (6-11m)	ea.	3	3,351,066.00	10,053,198
4102.062.13	Type 2 bridge, 100m long - 25m spans (6-11m)	ea.	2	4,244,135.00	8,488,270
4102.062.14	Type 2 bridge, 250m long - 25m spans (6-11m)	ea.	1	9,612,102.00	9,612,102
4102.062.15	Type 2 bridge, 400m long - 25m spans (6-11m)	ea.	1	14,978,158.00	14,978,158
4102.062.16	Type 3 bridge, 150m long - 25m spans (11-18m)	ea.	2	11,653,862.00	23,307,724
4102.062.17	Type 3 bridge, 275m long - 25m spans (11-18m)	ea.	1	20,983,787.00	20,983,787
4102.062.18	Type 3 bridge, 700m long - 25m spans (11-18m)	ea.	1	52,702,476.00	52,702,476
4102.062.19	Floodway bridge, 255m long - 15m spans (0-3m)	ea.	3	5,247,612.00	15,742,836
4102.062.20	Floodway bridge, 300m long - 15m spans (0-3m)	ea.	1	6,073,752.00	6,073,752
4102.062.21	Floodway bridge, 345m long - 15m spans (0-3m)	ea.	1	6,901,247.00	6,901,247
4102.062.22	Floodway bridge, 420m long - 15m spans (0-3m)	ea.	1	8,279,501.00	8,279,501
4102.062.23	Floodway bridge, 765m long - 15m spans (0-3m)	ea.	1	14,621,371.00	14,621,371
4102.062.24	Floodway bridge, 1800m long - 15m spans (0-3m)	ea.	1	33,645,625.00	33,645,625
	Sub Total Bridges				312,916,719
	#NP				
	064 Grade Separations				
4102.064.01	Grade Separation, Major (4 lanes or less)				
4102.064.02	Grade Separation, Minor (2 lanes or less)	ea.	4	2,866,319.00	11,465,276
	Sub Total Grade Separations				11,465,276
	065 Crossings				
4102.065.01	Active Level Crossings Major	ea.	10	885,369.00	8,853,690
4102.065.02	Active Level Crossings Minor	ea.	12	585,369.00	7,024,428
4102.065.03	Passive Level Crossings	ea.	114	117,218.00	13,362,852
	Sub Total Crossings				29,240,970
	022 PUP's				
4102.022.01	Gas or Oil Pipeline - 4m wide x 0.3m thick x 40m long	ea.	2	43,572.00	87,144
4102.022.02	Overhead Electrical lines 110kV crossings	ea.	6	50,001.00	300,006
4102.022.02	Overhead Electrical lines 11kV & 33kV crossings	ea.	72	30,001.00	2,160,072
	Sub Total PUP's				2,547,222
DJC	Total Direct Job Costs				1,013,718,779
	Contractors Overheads				
4102.097.01	Contractors Onsite Overheads - 30% of DJC	LSum	1	304,115,634	304,115,634
4102.098.01	Contractors Offsite Overhead and Margin - 10% of (DJC + OO/H)	LSum	1	131,783,441	131,783,441
	Sub Total Contractors Overheads				435,899,075
CV	Total Construction Value				1,449,617,854
	#NP				

CONFIDENTIAL

Item	Description	Unit	Quantity	Unit rate	Amount
	OWNERS COSTS				
	200 Client Supply				
4102.200.01	Supply Class 1C standard gauge rail and sleepers				
4102.200.02	Supply Class 1C dual gauge rail and sleepers	km	222	746,512.00	165,725,664
4102.200.03	Supply, dual to narrow gauge turnout	ea.	13	350,001.00	4,550,013
4102.200.04	Supply dual gauge turnout	ea.	12	366,001.00	4,392,012
4102.200.05	Supply standard gauge turnout	ea.	0	0.00	0
	Sub Total Client Supply				174,667,689

CONFIDENTIAL

Item	Description	Unit	Quantity	Unit rate	Amount
	MBIR				
	Y2G Options Assessment				
	Wellcamp - Charlton				
	DRAFT - 22/03/2017				
	Preliminary Only, Information Only - Not to be used for Construction or Tendering Purposes				
	SUMMARY				
	CONSTRUCTION VALUE/COSTS				
	011 Environmental				24,611,175
	031 Earthworks				373,052,643
	033 Capping				46,929,505
	043 Fencing				13,883,596
	050 Trackworks				123,016,068
	061 Culverts				83,115,058
	062 Bridges				119,338,854
	064 Grade Separations				5,732,638
	065 Crossing				28,555,728
	022 PUP's				2,137,205
DJC	Direct Job Costs				820,372,470
	Contractors Overheads				352,760,164
CV	Total Construction Value/Costs				1,173,132,634
	OWNERS COSTS				
	200 Clients Supply				140,168,306
	Property Cost (Land value and Crop assessment only)				21,648,901
CE	Base Construction Cost Estimate				1,334,949,841
	CONSTRUCTION COSTS				
	011 Environmental				
2201.011.01	Environmental Controls Management	item	1	24,611,175.00	24,611,175
	Sub Total Environmental				24,611,175
	031 Earthworks				
2201.031.01	Clear & Grub rail footprint - low density - including respreading mulch on embankments	sq m	9,467,318.00	0.45	4,260,293
2201.031.02	Clear & Grub rail footprint - high density - including respreading mulch on embankments	sq m	1,290,998.00	1.50	1,936,497
2201.031.03	Strip Topsoil To Stockpile at 1km intervals - including respreading topsoil on embankments	m3	1,472,597.00	20.00	29,451,940
2201.031.04	Excavate common Cut to Fill	m3	9,607,998.00	22.00	211,375,956
2201.031.05	Excavate Bulk borrow to Fill	m3	0.00		
2201.031.06	Excavate Bulk borrow to Fill External	m3	0.00		
2201.031.07	Import Bulk Fill - From Quarry	m3	0.00		
2201.031.08	Cut to Waste	m3	449,219.00	20.00	8,984,380
2201.031.09	Excavate Select borrow to Fill - Within project site (Typically 30km max haul)	m3	0.00		
2201.031.10	Excavate Select borrow to Fill External	m3	0.00		
2201.031.11	Import Select Fill	m3	366,620.00	84.00	30,796,080
2201.031.12	Preparation of Subgrade in Cut	sq m	388,535.00	2.80	1,087,898
2201.031.13	Preparation of Area under Fills	sq m	2,851,819.00	2.70	7,699,911
2201.031.14	Remove unsuitable materials (Remove & replace with structural fill)	m3	251,295.00	162.00	40,709,790
2201.031.15	Access Road (unsealed)	m	152,607.00	214.00	32,657,898
2201.031.16	Access Road (sealed)	m	15,500.00	264.00	4,092,000
	Sub Total Earthworks				373,052,643
	033 Capping				
2201.033.01	Capping in Cut	m3	97,134.00	155.00	15,055,770
2201.033.02	Capping in Embankment	m3	205,637.00	155.00	31,873,735
	Sub Total Capping				46,929,505
	043 Fencing				
2201.043.01	Rural fence to ROW	m	370.00	17,501.00	6,475,370
2201.043.02	Gates to ROW	ea.	255	451.00	115,005
2201.043.03	Cattle Grids	ea.	221	33,001.00	7,293,221
	Sub Total Fencing				13,883,596
	050 Trackworks				
2201.050.01	Install Class 1C track structure dual gauge	km	179.6	672,723.00	120,821,051
2201.050.02	Install Class 1C track structure standard gauge				
2201.050.03	Install turnout, dual to narrow gauge	ea.	7	135,001.00	945,007
2201.050.03	Install turnout, dual gauge	ea.	10	125,001.00	1,250,010
2201.050.04	Install turnout, standard gauge				
	Sub Total Trackworks				123,016,068
	#NP				
	061 Culverts				
2201.061.01	Culverts 1 Cell Fauna Crossing - 1 / 2.1m x 2.1m RCBC x 15.6m long	ea.	20	97,531.00	1,950,620

CONFIDENTIAL

Item	Description	Unit	Quantity	Unit rate	Amount
2201.061.02	Culvert Pipe, 1 Cell - 1 / 1.5m RCP (14.64m long per cell)	ea.	1	59,046.00	59,046
2201.061.03	Culvert Pipe, 2 Cell - 2 / 1.5m RCP (14.64m long per cell)	ea.	3	88,682.00	266,046
2201.061.04	Culvert Pipe, 3 Cell - 3 / 1.5m RCP (14.64m long per cell)	ea.	2	113,742.00	227,484
2201.061.05	Culvert Pipe, 4 Cell - 4 / 1.5m RCP (14.64m long per cell)	ea.	5	143,379.00	716,895
2201.061.06	Culvert Pipe, 5 Cell - 5 / 1.5m RCP (14.64m long per cell)	ea.	3	173,135.00	519,405
2201.061.07	Culvert Pipe, 6 Cell - 6 / 1.5m RCP (14.64m long per cell)	ea.	2	304,156.00	608,312
2201.061.08	Culvert Pipe, 7 Cell - 7 / 1.5m RCP (14.64m long per cell)	ea.	1	233,817.00	233,817
2201.061.08	Culvert Pipe, 9 Cell - 9 / 1.5m RCP (14.64m long per cell)	ea.	1	289,036.00	289,036
2201.061.09	Culvert Box Shallow, 1 Cell - 1 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	6	82,294.00	493,764
2201.061.10	Culvert Box Shallow, 2 Cell - 2 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	7	135,098.00	945,686
2201.061.11	Culvert Box Shallow, 3 Cell - 3 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	11	194,841.00	2,143,251
2201.061.12	Culvert Box Shallow, 4 Cell - 4 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	6	250,008.00	1,500,048
2201.061.13	Culvert Box Shallow, 5 Cell - 5 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	2	307,288.00	614,576
2201.061.14	Culvert Box Shallow, 8 Cell - 8 / 3.0m x 0.9m RCBC (15.6m long per cell)	ea.	1	514,344.00	514,344
2201.061.15	Culvert Box Standard, 3 Cell - 3 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	6	226,964.00	1,361,784
2201.061.16	Culvert Box Standard, 4 Cell - 4 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	2	292,954.00	585,908
2201.061.17	Culvert Box Standard, 5 Cell - 5 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	2	356,481.00	712,962
2201.061.18	Culvert Box Standard, 6 Cell - 6 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	5	419,033.00	2,095,165
2201.061.19	Culvert Box Standard, 7 Cell - 7 / 3.0m x 1.5m RCBC (15.6m long per cell)	ea.	3	485,022.00	1,455,066
2201.061.20	Floodway RCP, 1 cell - 1.2m dia RCP x 19.52m long	ea.	50	36,412.00	1,820,600
2201.061.21	Floodway RCP, 1 cell - 1.8m dia RCP x 19.52m long	ea.	590	61,582.00	36,333,380
2201.061.22	Floodway RCP, 1 cell - 2.1m dia RCP x 19.52m long	ea.	310	73,538.00	22,796,780
2201.061.23	Flow dissipation structure - Apron 10m2 + Rock Protection 20m2	ea.	950	3,077.00	2,923,150
2201.061.24	Stock route crossing - 2 / 3.6m x 2.4m RCBC x 15.6m long	ea.	9	216,437.00	1,947,933
	Sub Total Culvert				83,115,058
	#NP				
	062-Bridges				
2201.062.01	Type 1 bridge, 50m long -25m spans (0-6m)	ea.	1	2,274,616.00	2,274,616
2201.062.02	Type 1 bridge, 75m long -25m spans (0-6m)	ea.	1	2,929,345.00	2,929,345
2201.062.03	Type 1 bridge, 100m long -25m spans (0-6m)	ea.	1	3,582,164.00	3,582,164
2201.062.04	Type 1 bridge, 125m long -25m spans (0-6m)	ea.	1	4,236,894.00	4,236,894
2201.062.05	Type 2 bridge, 25m long - 25m spans (6-11m)	ea.	1	1,561,107.00	1,561,107
2201.062.06	Type 2 bridge, 50m long - 25m spans (6-11m)	ea.	1	2,456,086.00	2,456,086
2201.062.07	Type 2 bridge, 75m long - 25m spans (6-11m)	ea.	1	3,351,066.00	3,351,066
2201.062.08	Type 2 bridge, 100m long - 25m spans (6-11m)	ea.	1	4,244,135.00	4,244,135
2201.062.09	Type 2 bridge, 150m long - 25m spans (6-11m)	ea.	1	6,034,094.00	6,034,094
2201.062.10	Type 2 bridge, 250m long - 25m spans (6-11m)	ea.	1	9,612,102.00	9,612,102
2201.062.11	Type 3 bridge, 150m long - 25m spans (11-18m)	ea.	2	11,653,862.00	23,307,724
2201.062.12	Type 3 bridge, 275m long - 25m spans (11-18m)	ea.	1	20,983,787.00	20,983,787
2201.062.13	Floodway bridge, 300m long - 15m spans (0-3m)	ea.	1	6,073,752.00	6,073,752
2201.062.14	Floodway bridge, 750m long - 15m spans (0-3m)	ea.	2	14,345,991.00	28,691,982
	Sub Total Bridges				119,338,854
	#NP				
	064 Grade Separations				
2201.064.01	Grade Separation, Major (4 lanes or less)				
2201.064.02	Grade Separation, Minor (2 lanes or less)	ea.	2	2,866,319.00	5,732,638
	Sub Total Grade Separations				5,732,638
	065 Crossings				
2201.065.01	Active Level Crossings Major	ea.	5	885,369.00	4,426,845
2201.065.02	Active Level Crossings Minor	ea.	25	585,369.00	14,634,225
2201.065.03	Passive Level Crossings	ea.	81	117,218.00	9,494,658
	Sub Total Crossings				28,555,728
	022 PUP's				
2201.022.01	Gas or Oil Pipeline - 4m wide x 0.3m thick x 40m long	ea.	2	43,572.00	87,144
2201.022.02	Overhead Electrical lines 110kV crossings	ea.	11	50,001.00	550,011
2201.022.03	Overhead Electrical lines 11kV & 33kV crossings	ea.	50	30,001.00	1,500,050
	Sub Total PUP's				2,137,205
DJC	Total Direct Job Costs				820,372,470
	Contractors Overheads				
2201.097.01	Contractors Onsite Overheads - 30% of DJC	LSum	1	246,111,742.00	246,111,742
2201.098.01	Contractors Offsite Overhead and Margin - 10% of (DJC + OO/H)	LSum	1	106,648,422.00	106,648,422
	Sub Total Contractors Overheads				352,760,164
CV	Total Construction Value				1,173,132,634
	#NP				
	OWNERS COSTS				
	200 Client Supply				
2201.200.01	Supply Class 1C standard gauge rail and sleepers				
2201.200.02	Supply Class 1C dual gauge rail and sleepers	km	179.6	746,427.00	134,058,289
2201.200.03	Supply, dual to narrow gauge turnout	ea.	7	350,001.00	2,450,007
2201.200.04	Supply dual gauge turnout	ea.	10	366,001.00	3,660,010
2201.200.05	Supply standard gauge turnout	ea.	0		0
	Sub Total Client Supply				140,168,306