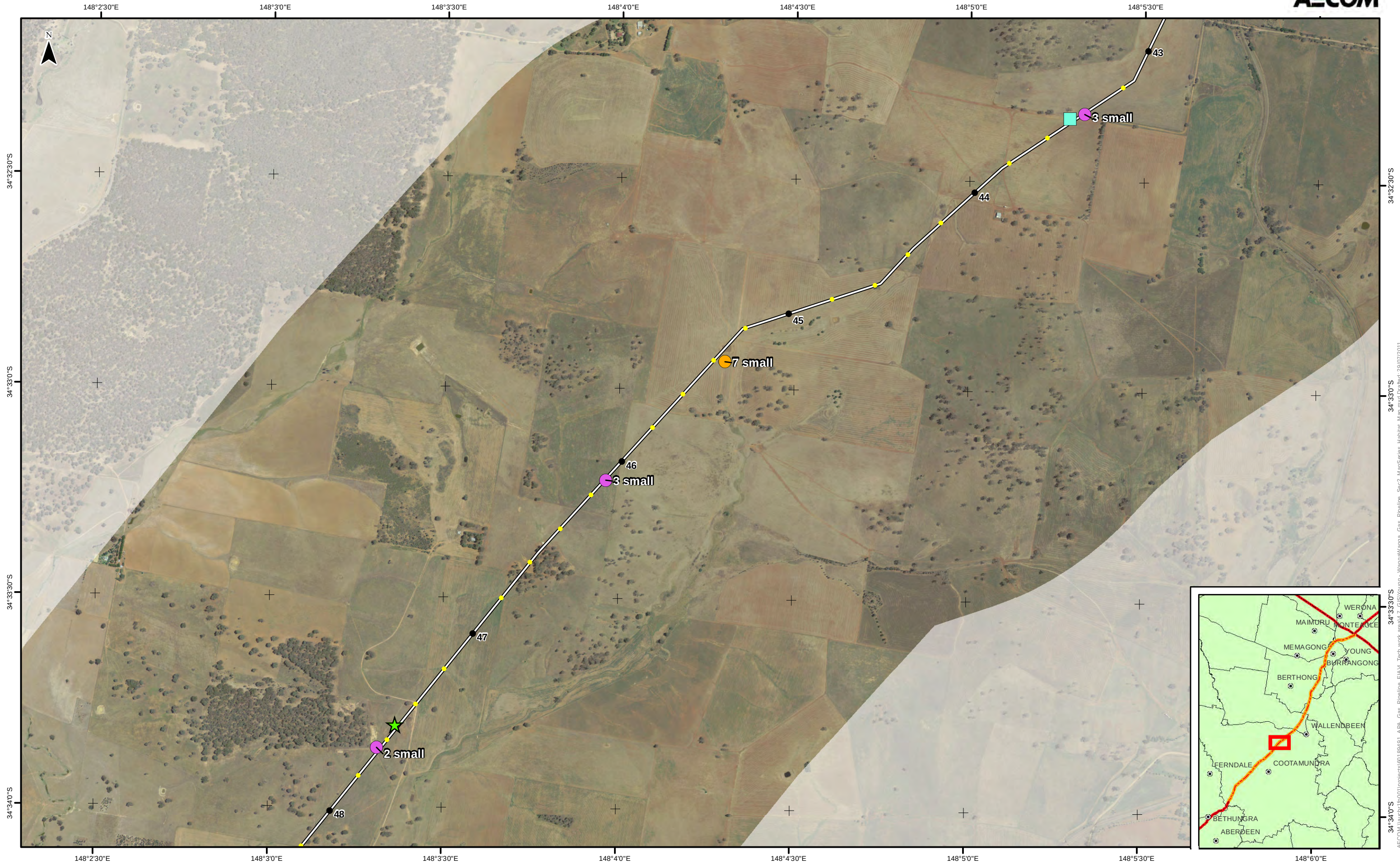




- 1km KP marker
- 200m marker
- Gas Pipeline Section 2
- ★ Fallen logs
- Hollow-bearing tree
- Hollow-bearing tree and Fallen logs
- Hollow-bearing tree and Rock outcrop
- ▲ Nest
- Rock outcrop
- Stag

YOUNG - WAGGA WAGGA PIPELINE SECTION 2
Weeds Map

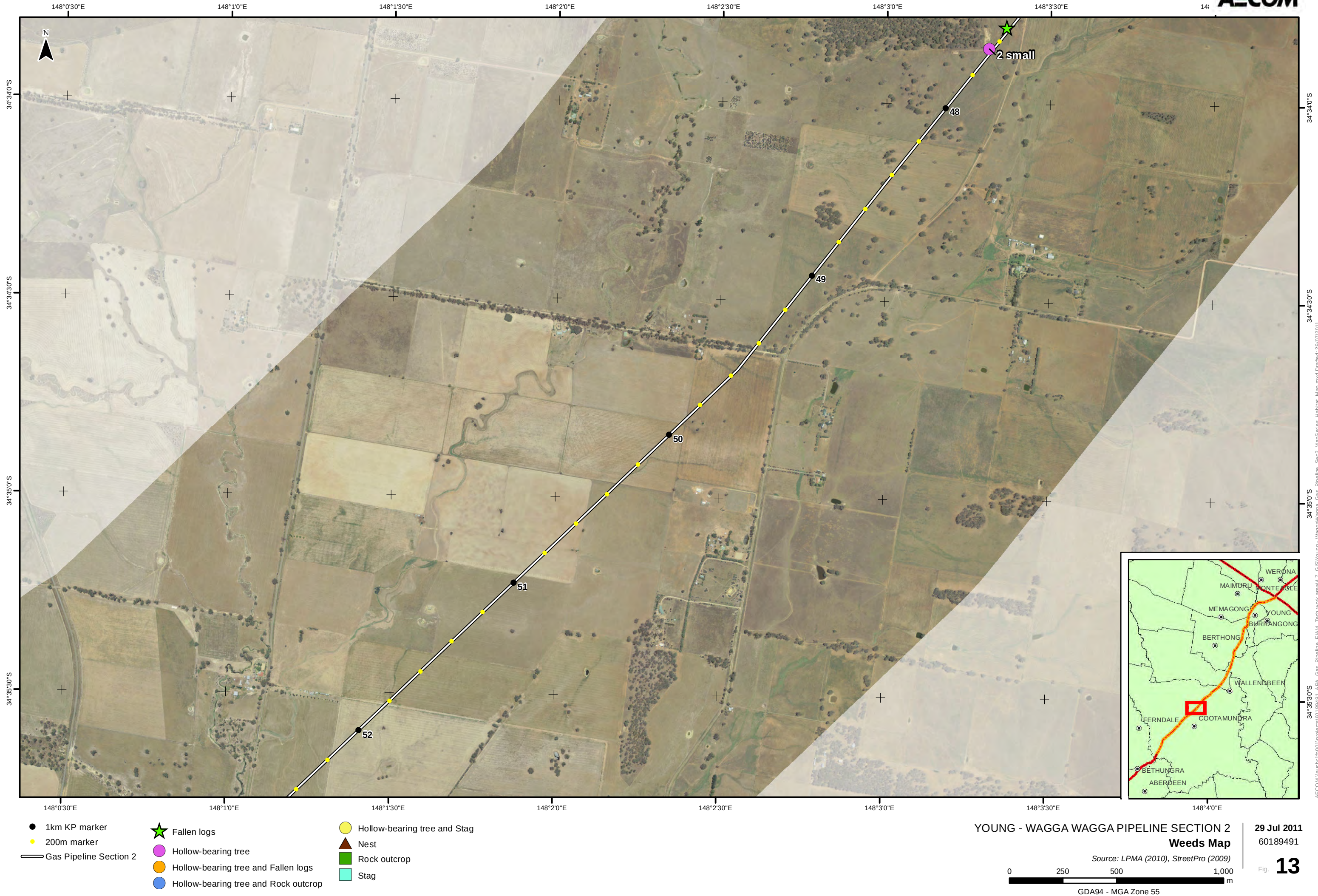
Source: LPMA (2010), StreetPro (2009)



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Fig. **12**





- | | | |
|--------------------------|--|--------------------------------|
| ● 1km KP marker | ★ Fallen logs | ● Hollow-bearing tree and Stag |
| ● 200m marker | ● Hollow-bearing tree | ▲ Nest |
| — Gas Pipeline Section 2 | ● Hollow-bearing tree and Fallen logs | ■ Rock outcrop |
| | ● Hollow-bearing tree and Rock outcrop | ■ Stag |

YOUNG - WAGGA WAGGA PIPELINE SECTION 2
Weeds Map

Source: LPMA (2010), StreetPro (2009)



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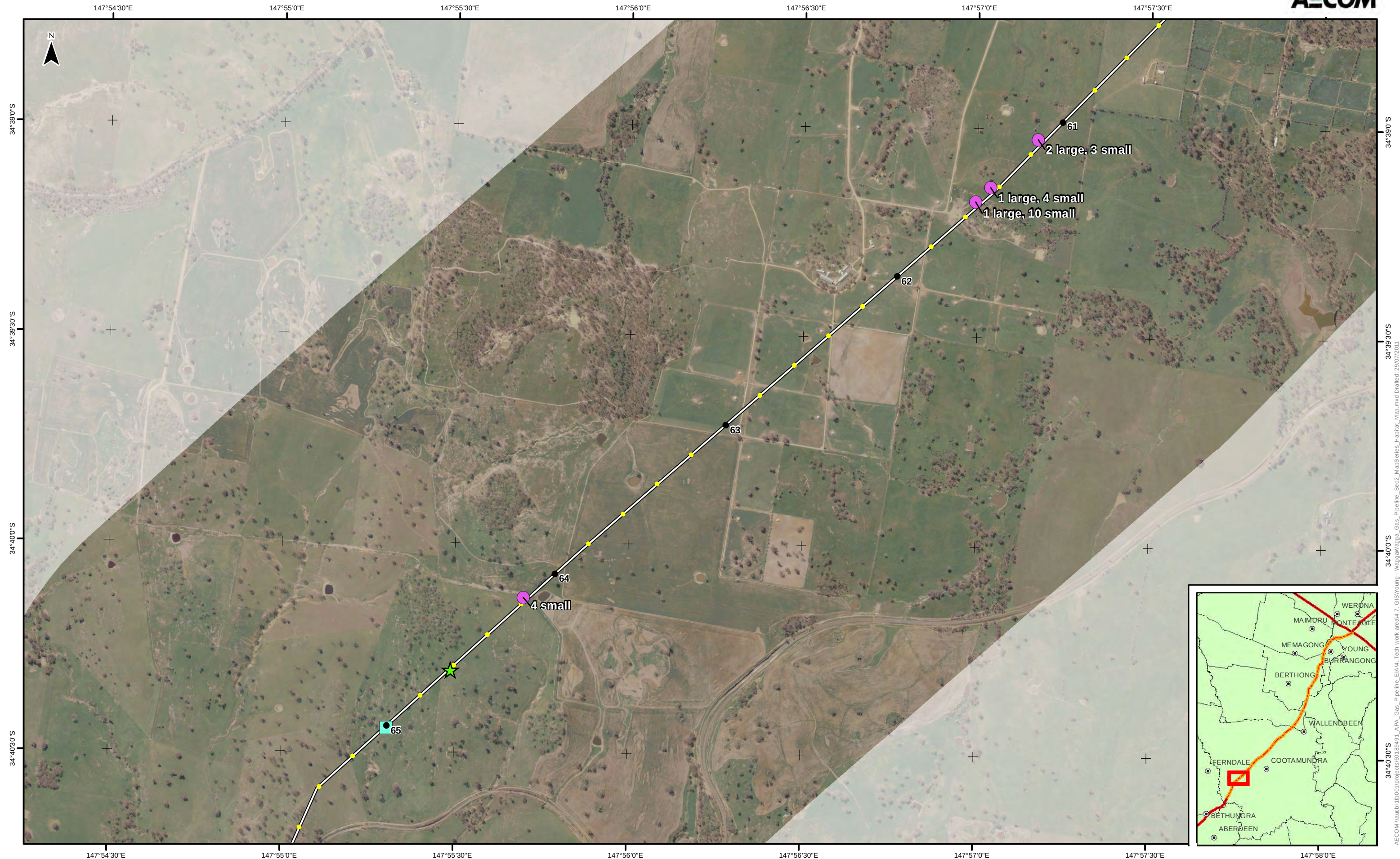
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Fig. **14**



- 1km KP marker
- 200m marker
- Gas Pipeline Section 2
- ★ Fallen logs
- Hollow-bearing tree
- Hollow-bearing tree and Fallen logs
- Hollow-bearing tree and Rock outcrop
- Hollow-bearing tree and Stag
- ▲ Nest
- Rock outcrop
- Stag

YOUNG - WAGGA WAGGA PIPELINE SECTION 2
Weeds Map
Source: LPMA (2010), StreetPro (2009)
0 250 500 1,000 m
GDA94 - MGA Zone 55

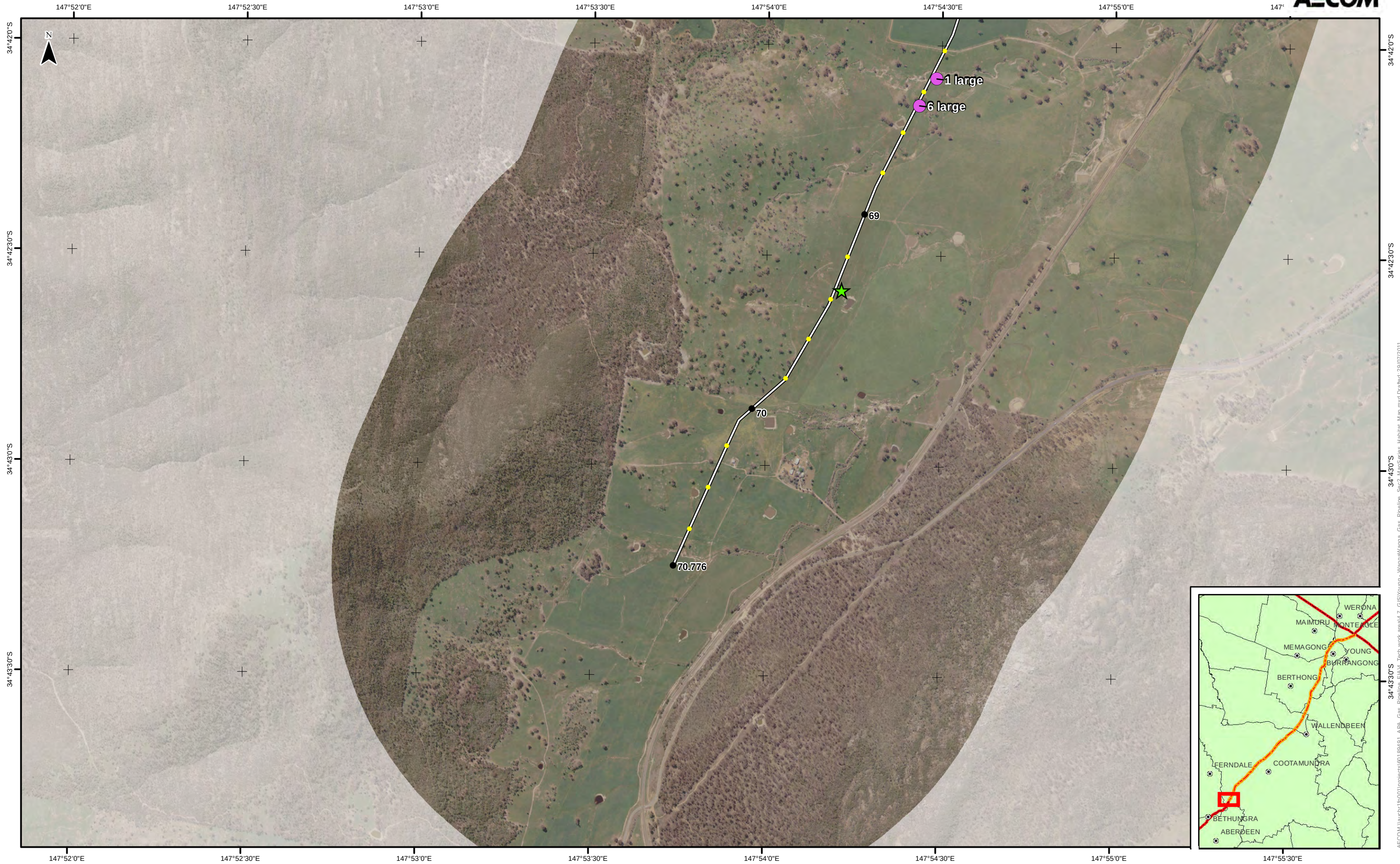


- 1km KP marker
- 200m marker
- Gas Pipeline Section 2
- ★ Fallen logs
- Hollow-bearing tree
- Hollow-bearing tree and Fallen logs
- Hollow-bearing tree and Rock outcrop
- ▲ Nest
- Rock outcrop
- Stag
- Hollow-bearing tree and Stag



- 1km KP marker
- 200m marker
- Gas Pipeline Section 2
- ★ Fallen logs
- Hollow-bearing tree
- Hollow-bearing tree and Fallen logs
- Hollow-bearing tree and Rock outcrop
- Hollow-bearing tree and Stag
- ▲ Nest
- Rock outcrop
- Stag

YOUNG - WAGGA WAGGA PIPELINE SECTION 2
Weeds Map
Source: LPMA (2010), StreetPro (2009)
0 250 500 1,000 m
GDA94 - MGA Zone 55



- 1km KP marker
- 200m marker
- Gas Pipeline Section 2
- ★ Fallen logs
- Hollow-bearing tree
- Hollow-bearing tree and Fallen logs
- Hollow-bearing tree and Rock outcrop
- Hollow-bearing tree and Stag
- ▲ Nest
- Rock outcrop
- Stag

YOUNG - WAGGA WAGGA PIPELINE SECTION 2
Weeds Map

Source: LPMA (2010), StreetPro (2009)



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Fig. **18**

Appendix B-F

EPBC Migratory Species

Appendix B-F EPBC Migratory Species

EPBC Assessment for Significant Impact on Migratory Species

Nine species listed as Migratory under the EPBC Act, and identified through the EPBC Act Protected Matters Search Tool, had potential habitat along the proposed corridor alignment. These species area assessed below using the guidelines in the EPBC Act Policy Statement *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance* (EPBC Act 1999).

Species Name	Scientific Name	Recorded within the study site	Is there a significant proportion of a population in the study area?	Is there important habitat for a population in the study area?	Will the action substantially modify, destroy or isolate important habitat?	Will the action result in the introduction of invasive species?	Will the action disrupt the lifecycle of a population?
<i>Apus pacificus</i>	Fork-tailed swift	No	No	No	No	No	No
<i>Ardea alba</i>	Great egret	No	No	No	No	No	No
<i>Ardea ibis</i>	Cattle Egret	No	No	No	No	No	No
<i>Anthochaera phrygia</i>	Regent honeyeater	No	No	No	No	No	No
<i>Gallinago hardwickii</i>	Latham's snipe	No	No	No	No	No	No
<i>Haliaeetus leucogaster</i>	White-bellied sea-eagle	No	No	No	No	No	No
<i>Hirundapus caudacutus</i>	White-throated needletail	No	No	No	No	No	No
<i>Merops ornatus</i>	Rainbow bee-eater	No	No	No	No	No	No
<i>Rostratula australis</i> (formerly <i>benghalensis</i>)	Australian painted snipe	No	No	No	No	No	No

Appendix C

Heritage Specialist Report

Young to Wagga Wagga Looping Pipeline Stage 2 (Bethungra to Young)

Specialist Report - Heritage Assessment



Young to Wagga Wagga Looping Pipeline Stage 2 (Bethungra to Young)

Specialist Report - Heritage Assessment

Prepared for

APA Group Pty Ltd

Prepared by

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Quality Information

Document Young to Wagga Wagga Looping Pipeline Stage 2 (Bethungra to Young)

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Reviewed by Ruth Baker and Guillaume Prudent-Richard

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			Name/Position	Signature
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2.0	12-Oct-2011	Final	Guillaume Prudent-Richard Senior Environmental Scientist	Original signed.
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List of Abbreviations

AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
CMA	Catchment Management Authority
DECCW	Department of Environment, Climate Change and Water
DGR	Director General's Requirements
EA	Environmental Assessment
EIS	Environmental Impact statement
EPBC	Environment Protection and Biodiversity Conservation
HMP	Heritage Management Plan
IHO	Interim Heritage Orders
GSV	Ground Surface Visibility
LEP	Local Environmental Plan
LGA	Local Government Area
NPW	National Parks and Wildlife
NSW	New South Wales
REPs	Regional Environmental Plan
RNE	Register of the National Estate
SHR	State Heritage Register
WLALC	Wagga Local Aboriginal Land Council
YLALC	Young Local Aboriginal Land Council

1.0 Introduction and Background

AECOM Australia Pty Ltd (AECOM) was commissioned by Eastern Australian Pipeline Pty Ltd, a wholly owned subsidiary of APA Group Pty Ltd (APA) to prepare an Environmental Assessment (EA) for the construction of a natural gas pipeline between Young and Wagga Wagga. The pipeline project was divided into two stages:

- Stage 1: Wagga Wagga to Bethungra; and
- Stage 2: Bethungra to Young.

An assessment of Aboriginal and historic heritage was conducted to inform the EA. This report provides the results of the Aboriginal and historic heritage assessment for Stage 2 of the pipeline project from Bethungra to Young.

The heritage assessment involved the survey and inspection of lands directly impacted by the project, that is, lands within the existing 20 m wide pipeline easement. Lands outside the pipeline easement were generally not assessed, except along major creek lines where both banks were more intensively surveyed.

Relevant legislation, summarised in Section 2.0 and relevant to this assessment, is the *Environmental Planning and Assessment Act 1979*, *Heritage Act 1977* and the *National Parks and Wildlife Act 1974*. Relevant guidelines include the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW 2010*, draft *Part 3A EP&A Act Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC/DoP 2007), the *Heritage Manual* (NSW Heritage Office) and the *Burra Charter* (Australia ICOMOS 1999). The Aboriginal consultation process for this project followed the Department of Environment, Climate Change and Water's (DECCW) *Aboriginal Heritage Consultation Requirements for Proponents 2010*.

1.1 Project Background

AECOM has been commissioned by APA to prepare an EA for Stage 2 of the Young to Wagga Wagga Looping Gas Pipeline Project (the Proposal).

Stage 2 of the Proposal would involve the installation of a new 18-inch natural gas transmission 'looping pipeline' between the townships of Young and Bethungra (see Figure 1). The new pipeline would be installed adjacent to an existing 12-inch pipeline over a distance of approximately 70 km to provide additional gas distribution capacity, and would be constructed within the existing 20 m wide gas pipeline easement. Stage 1 of this project covered a total distance of 61 km of the pipeline route between Wagga Wagga and Bethungra, and was conducted between 2009 and 2010.

Construction of the proposed pipeline would involve clearing and grading the entire pipeline easement, except in limited areas where alternative pipe trenching techniques, such as directional drilling would potentially be used. Such clearing would result in total surface disturbance over the areas where it is employed, which would likely consist of the majority of the route. It is worth noting that the study area has already been subject to such an impact in 1980 when the original pipeline was constructed, and subsequently in 2006 when an optical fibre cable was constructed in part of the study area.

The pipeline trench is constructed by mechanical trenching plant which excavates a (1.2 m deep x 0.65 m wide) trench, moving the spoil to one side. This method is used everywhere except for major road and watercourse crossings where directional drilling would be employed.

Following the placement of the pipe in the trench, the site would be backfilled, levelled and revegetated.

Director General's Requirements (DGRs) have been issued for the project (Application Number: 10_0163) and, for the heritage assessment, require sufficient information to demonstrate:

- Effective consultation with Aboriginal communities;
- The likely impacts to Aboriginal heritage values/items;
- An outline of proposed mitigation measures; and
- Any impacts to non-indigenous heritage sites should they occur along the pipeline route.

This report provides the results of the heritage assessment component of Stage 2 Bethungra to Young of the EA.

1.2 Assessment Aims & Objectives

The overall aim of this assessment was to identify the Aboriginal and historic heritage values of the project land, identify potential development impacts on those values and provide suitable management commitments. To achieve these aims the following objectives were established:

- To consult with the relevant local Aboriginal community groups regarding the specific social value of land in the study area;
- To understand the regional research context of any Aboriginal sites or objects, and any historic sites or items, in the study area.
- To identify documented Aboriginal heritage sites/objects and/or historic heritage sites within the study area;
- To identify and record any undocumented Aboriginal sites and objects, and any historic sites or items within the study area;
- To assess the cultural significance of Aboriginal sites and objects in the study area in consultation with the Aboriginal stakeholders;
- To assess the cultural significance of historic heritage sites and items in the study area; and
- To prepare recommendations and commitments on the management of Aboriginal and historic heritage values within the study area, when compared with the proposed development footprint.

1.3 Study Area

The overall area for the pipeline construction project consists of an existing 20 m wide gas pipeline easement commencing at the Young Control Station and terminating at the Bomen Meter Station, north east of Wagga Wagga. The easement has been previously disturbed by the construction of an existing 12 inch pipeline in 1980. The study area covered by this report (Stage 2) includes the 20 m wide easement between the Young Control Station and a point approximately 8 km north east of Bethungra, and is hereafter referred to as the study area. The total length of Stage 2 of the pipeline is 70 km. The easement mainly traverses private landholdings, the majority of which have been cleared of native vegetation and are either under pasture or crops.

1.4 Project Team

The Project Team consists of archaeologists and other specialists from AECOM, and representatives of the local Aboriginal community. Luke Kirkwood (AECOM Archaeologist) managed the project, conducted the fieldwork and co-wrote this report. Luke Atkinson (AECOM Geomorphologist) assisted with field survey. Andrew McLaren (AECOM Archaeologist) provided background review and co-wrote the report. Ruth Baker (AECOM Associate Director) provided QA review of this report. Tim Osbourne provided drafting support.

1.5 Report Structure

The report is structured as follow:

- **Section 2.0** describes legislation guiding Aboriginal and historic heritage management;
- **Section 3.0** describes the results of consultation with the Aboriginal community;
- **Section 4.0** provides environmental and archaeological contextual information;
- **Section 5.0** describes the ethno history and historical context for the study area;
- **Section 6.0** describes the known archaeological context for the study area;
- **Section 7.0** lists the Aboriginal sites and objects and historic heritage sites and items identified in the study area, and discusses the results of the field survey;
- **Section 8.0** provides the significance assessment for Indigenous & Historical archaeological sites identified; and
- **Section 9.0** discusses the potential impacts associated with the development on both historic and Aboriginal sites, describes the heritage mitigation measures which would be used for the project, and provides succinct management recommendations regarding the Aboriginal and historic heritage values of the study area.