growth areas AUTHORITY

Biodiversity Assessment Report (Native Vegetation)
PSP 37: Truganina Employment Area

September 2010

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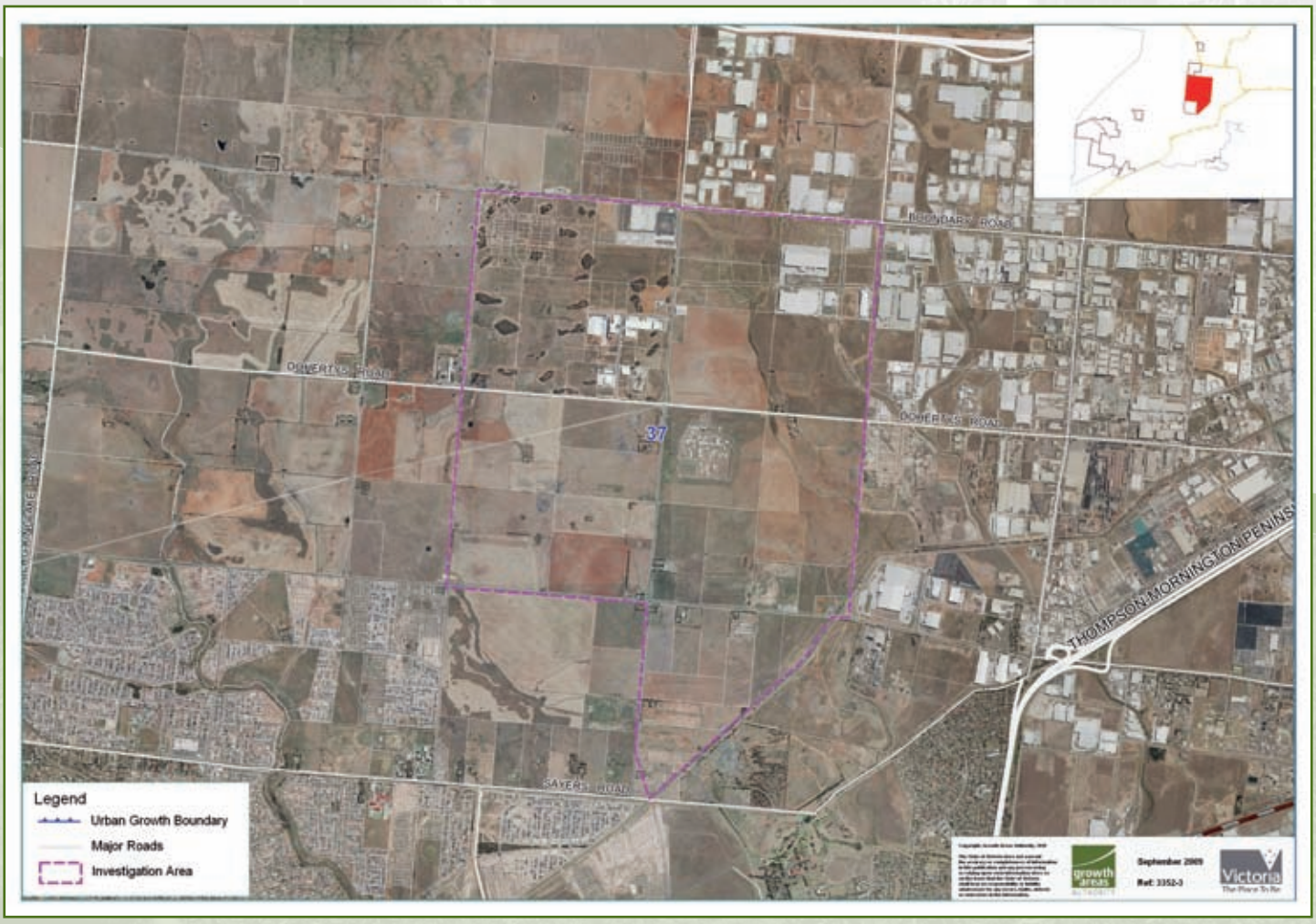
Biodiversity Assessment Report (Native Vegetation)
PSP 37 Truganina Employment Area

Growth Areas Authority

September 2010



MAP: PSP 37 - Truganina Employment Area

Biodiversity Assessment Project (Native Vegetation)
Quality Assurance - Verification Sheet
PSP 37: Truganina Employment Area

Document Title	Biodiversity Assessment Project (Native Vegetation)		
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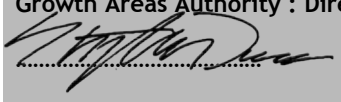
	Growth Areas Authority : Director, Policy and Strategy:  ..... **Date: …3…. / ……9…/ …2010…**
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Vegetation Assessment Reporting

Truganina Precinct Structure Area 37

Prepared for

Growth Areas Authority

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			Name/Position	Signature
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2	08/04/2010	Final Report	Alan Hunter / Associate Director	

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Glossary and Acronyms

EVC……Ecological Vegetation Class

GAA……Growth Area Authority

DSE……Department of Sustainability and Environment

DEWHA……Department of Environment, Water, Heritage and the Arts

VFSD……Victorian Flora Site Database

PDA……Personal Digital Assistant

GIS……Geographic Information System

EPBC Act…….. Environment Protection and Biodiversity Conservation Act

FFG Act……Flora and Fauna Guarantee Act

VROTS……Victorian, Rare or Threatened Species

CMA……Catchment Management Authority

CaLP Act……Catchment and Land Protection Act

VPP…… Victoria Planning Provisions

VVP…… Victoria Volcanic Plains

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Executive Summary

AECOM was engaged by the Growth Areas Authority to prepare a Vegetation Assessment Report for the Truganina Precinct Structure Area 37 (Truganina Precinct Area), for Task A.

AECOM completed a Vegetation and Mapping Assessment for the Truganina Precinct Area between 17 October 2008 and 27 April 2009. This Vegetation Assessment Report presents the results of the Vegetation and Mapping Assessment and incorporates the objectives of Victoria's Native Vegetation Management Framework.

The Truganina Precinct Area is located 24 km west of the Melbourne CBD (see **Figure i**), and falls within the Victorian Volcanic Plains bioregion. Truganina Precinct Area is characterised by flat to undulating plains with vast areas of open grasslands, small patches of open woodland and stony rises. The majority of properties have a history of agricultural landuse. Surrounding landuse includes light industrial and residential development.

The area assessed by AECOM covers 781 ha and includes 28 properties varying in size from 94 ha to 0.7 ha, all of which were privately owned. Of the 28 properties, AECOM was able to access and survey 22 properties. Drive-by assessments were undertaken of the six remaining properties.

The field survey included a Vegetation Quality Assessment (Habitat Hectares), with vegetation supported on each property mapped as either a remnant patch, scattered indigenous trees or degraded treeless vegetation. Results of the field assessments showed:

- A total of 38 remnant patches were recorded on 11 properties, covering 21 ha or 4 % of the Truganina Precinct Area.
- Four Ecological Vegetation Class communities were recorded, all of which are listed as Endangered in Victoria.
- The total Habitat Hectares score for remnant patches was 3.57. The Net Gain offset required for the loss of all native vegetation within remnant patches is at least 1.5 times the calculated loss in Habitat Hectares. Therefore the required offset for the removal of all vegetation is 5.38 Habitat Hectares.
- No scattered trees were recorded the Truganina Precinct Area.
- Degraded treeless vegetation was recorded on all properties, covering 554 ha or 96% of the Truganina Precinct Area assessed by field surveys.
- No threatened species or ecological communities were recorded during the assessment.

AECOM makes the following recommendation:

1. Undertake targeted surveys within the Truganina Precinct Area for threatened species listed as possible occurrence, likely occurrence or highly likely occurrence (see **Appendix A**).

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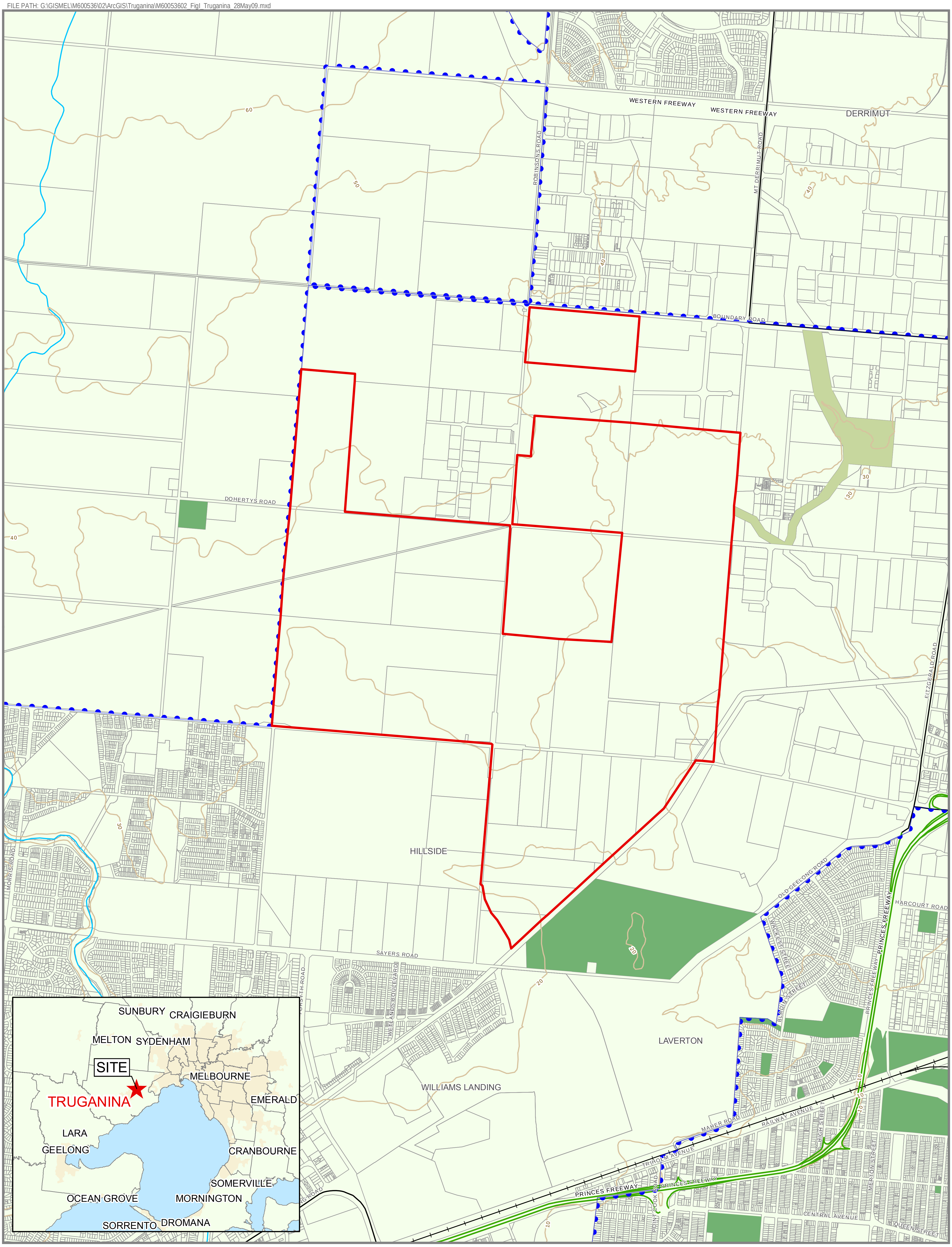
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SAYERS ROAD
FORSYTH ROAD
WETLANDS BOULEVARD
OLD GEELONG ROAD
HARCOURT ROAD
PRINCES FREEWAY
WACKETT STREET
BLADIN STREET
LAVERTON
WILLIAMS LANDING
MAHER ROAD
RAILWAY AVENUE
HIGH STREET
TRIHOLM AVENUE
POINT COOK ROAD
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LEGEND

- Truganina Precinct Area
- Urban Growth Boundary
- Green Wedge Zone
- Public Park and Recreation Zone
- Cadastre
- Railway
- Elevation Contours
- Major Watercourses
- Freeway
- Highway
- Arterial Road

LOCATION AND OVERVIEW MAP

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure
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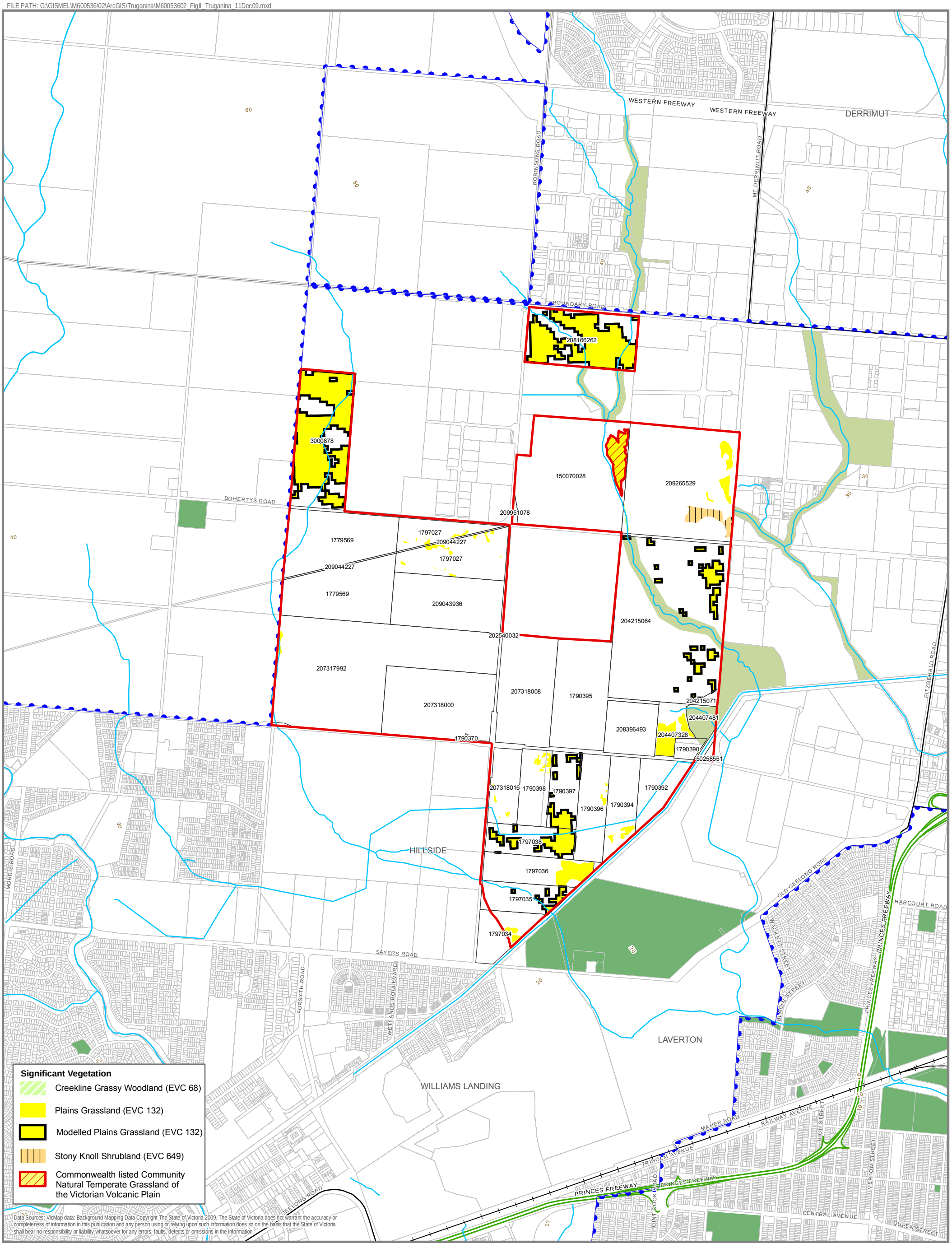

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LEGEND

- Urban Growth Area Boundary
- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Green Wedge Zone
- Public Park and Recreation Zone
- Major Watercourses
- Railway

SUMMARY OF VEGETATION ASSESSMENT

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

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1.0 In troduction

1.1 Background

ENSR Australia Pty Ltd was engaged by the Growth Areas Authority (GAA) to prepare a Vegetation Assessment Report for the Truganina Precinct Structure Area 37 (Truganina Precinct Area), for Task A.

AECOM was initially engaged by GAA on 26 August 2008 to undertake a Vegetation and Mapping Assessment for the Truganina Precinct Area. The project aim was to map and assess native vegetation within the Truganina Precinct Area. Project field work was undertaken between 17 October 2008 and 27 April 2009.

The Vegetation Assessment Report presents the results of the Vegetation and Mapping Assessment for the Truganina Precinct Area, and incorporates the objectives of Victoria's Native Vegetation Management Framework. This report has been prepared in accordance with the GAA Precinct Structure Planning Guidelines and the DSE Biodiversity Assessment Template.

1.2 Purpose

The Vegetation Assessment Report is required to inform GAA, Department of Sustainability and Environment (DSE) and local Councils of existing site values and assist in the precinct planning process. Information collected from each property is intended to be used for the preparation of Native Vegetation Precinct Plans / Precinct Structure Plans.

1.3 Description of Truganina Precinct Area

The Truganina Precinct Area is located 24 km west of the Melbourne CBD (see **Figure 1**), and falls within the Victorian Volcanic Plains bioregion. Truganina Precinct Area is characterised by flat to undulating plains with vast areas of open grasslands, small patches of open woodland and stony rises. A number of minor, ephemeral creeklines bisect the area. Annual rainfall is between 500 and 700 mm (BOM, 2009).

The area assessed by AECOM within the Truganina Precinct Area covers 781 ha and includes 28 properties varying in size from 94 ha to 0.7 ha, all of which were privately owned. The majority of properties have a history of agricultural landuse, several of which are currently used for agriculture (i.e. livestock grazing and cropping). Surrounding landuse includes light industrial and residential development.

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2.0 Methodology

2.1 Mapping and Assessment Training

AECOM staff undertook training with GAA and DSE from 27 to 29 August 2008. Training focused specifically on vegetation assessment and mapping, practical field assessment, recording data, using equipment and assessment programs, downloading and processing data, data requirements and quality control.

2.2 Data Collection

Data from the Truganina Precinct Area was obtained through desktop review and field surveys. Each property was assigned an individual identification number. Properties that contained separate lots or parcels were also assigned parcel numbers. Data was collected over a period of 13 days between October 2008 and February 2009 (see **Table 1**). Data collection included the following stages:

- Stage 1: Property data collected on a hardcopy proforma
  - Included information obtained from each property relating to historic and current land management issues.
- Stage 2: Vegetation mapping and assessment
  - Remnant vegetation assessments (Habitat Hectares) and associated spatial data were collected digitally in GIS shapefile format using DSE's 'Habitat Hectares for ArcPad' software.
  - Scattered Tree Assessments were assessed and mapped in GIS shapefile format using DSE's 'Scattered Tree Assessment for ArcPad' software.
  - Sites defined as Degraded Treeless Vegetation were assessed and mapped using DSE's 'Habitat Hectares for ArcPad' software.
- Stage 3: Mapping rare and threatened flora
  - Rare and threatened flora observed during field surveys were identified and mapped as a point location in GIS shapefile format.

Table 1: Survey dates and conditions

Date	Site Conditions	Properties Assessed
October		
16/10/2008	Mild mainly sunny	1790394
17/10/2008	Mild and sunny	207317992
		1790395
30/10/2008	Hot and windy. Overcast	1790396
		1790398
November		
10/11/2008	Fine and sunny	1790394
		1790396
		1790398
		207318000
		204407328
		1797036
		209265529
		1790390
		204407481
		207318008
		1790392
11/11/2008	Hot and sunny	209043936
12/11/2008	Very hot and sunny. Northerly winds	207318016

Date	Site Conditions	Properties Assessed
13/11/2008	Very hot and overcast. Northerly winds	1779569
		150070028
		207318016
		150070028
20/11/2008	Mild and overcast	1797034
28/11/2008	Mild and overcast	1797027
		208396493
February		
17/02/2009	Sunny and hot	209951078
		50258551

2.3 Desktop Assessment

The desktop assessment comprised a review of the following databases:

- The DSE Biodiversity Interactive Maps for the current and historical presence of Ecological Vegetation Classes (EVCs).
- The Department of Environment, Water, Heritage and the Arts (DEWHA) Protected Matters Search Tool for Matters of National Environmental Significance within 5 km of the Truganina Precinct Area.
- Victorian Flora Site Database (VFSD) (DSE, 2007) for historical records of threatened flora species within 5 km of the Truganina Precinct Area.

2.4 Field Assessment

Of the 28 properties, AECOM was able to access and survey 22 properties. Properties were assessed on foot by a team of two AECOM ecologists. Teams used a TDS Nomad Personal Digital Assistant (PDA) unit, which including a Global Positioning System (GPS) (accuracy +/- 5 m). Features on each PDA unit included a colour aerial map and cadastral layers of each property. Hard copies of aerial photographs for each property were also taken into the field as a backup. Time spent undertaking each field assessment varied in accordance with the size of the property, and the area of native vegetation.

2.4.1 Vegetation Quality Assessment

A Vegetation Quality Assessment (Habitat Hectares) was undertaken in accordance with the Vegetation Quality Assessment Manual Version 1.3. (DSE, 2004) and Field Assessment User Guide (DSE, 2008b). This involved each team undertaking an initial site reconnaissance to establish the presence and extent of native vegetation on the property. Assessments were undertaken in EVC vegetation following the Habitat Hectares methodology (DSE, 2004). Vegetation attributes assessed included:

- A remnant patch was defined as an area of vegetation where 25% of the understorey cover is indigenous; or a group of indigenous trees (i.e. three or more) where canopy cover is at least 20% (DSE, 2007a).
- Scattered indigenous trees were defined as canopy trees within an area where overall canopy cover for a group of trees is less than 20%.
- Degraded treeless vegetation was defined as areas containing less than 25% indigenous vegetation and dominated by exotic species. Degraded Treeless Vegetation did not require a Vegetation Quality Assessment (DSE, 2007a).

The Habitat Hectares assessment and associated spatial data was collected in GIS shapefile format using DSE's Habitat Hectares for ArcPad software (7.1.1 – Version 6).

2.4.2 Vegetation Mapping

Vegetation contained within each property was mapped as either a remnant patch, scattered indigenous trees or degraded treeless vegetation.

- Remnant Patches:
  - Polygons were mapped by establishing points along the boundary (or zone) of each remnant patch, showing the extent of vegetation. Each remnant patch was considered a separate habitat zone within the property and allocated a separate code.

- Scattered Indigenous Trees
  - Indigenous scattered trees were marked as point locations, and the number of trees in each size class was recorded according to the relevant EVC benchmark (DSE 2008a): Very Large Old Tree (VLOT); Large Old Tree (LOT); Medium Old Tree (MOT); Small Trees (ST).

- Degraded treeless vegetation:
  - Areas of Degraded Treeless Vegetation were mapped using polygons of the zone showing the extent of each area.

Additional information collected on the PDA unit included:

- Confirmation of EVC type.
- High threat weeds (including species and cover).

2.4.3 Threatened Flora Searches

The random meander technique (DEC, 2004) was used to search for threatened flora species considered likely to occur within each property, as this method allows for greater coverage. The technique involved each person traversing the site in no set pattern, searching for threatened flora. The location and identification of threatened species were mapped as a point location, along with the approximate population size. Searches for threatened flora were undertaken concurrently with vegetation quality assessments.

2.4.4 Threatened Fauna Searches

No targeted fauna surveys were undertaken as part of this contract.

2.5 Limitations

2.5.1 Field Assessment and Access

Spring is the preferred time of year to undertake flora and fauna assessments in Victoria. It is possible to undertake an assessment at other times of the year, however, the limitations of seasonal influence on the presence / absence of several species must be considered. AECOM was not able to commence field assessments until 10 October 2008 due to time delays with gaining access. As a result of ongoing issues with access many properties within the Truganina Precinct Area were surveyed during summer, which is outside the main flowering period for many native species that occur in grassland vegetation.

Detailed flora surveys (i.e. transects) were not undertaken, as this was beyond the scope of the assessment. Emphasis was placed on identifying the presence of remnant vegetation as well as determining the likely occurrence of threatened flora species. The assessment was limited to the sources of the desktop assessment and the field assessments. Notwithstanding the limitations outlined in this section, AECOM is of the opinion that the assessment methodology and the information obtained is sufficient to inform planning at the precinct scale and therefore can be relied upon for this purpose.

Of the 28 properties identified for survey, AECOM was only able to gain access to complete surveys for 22 of these properties.

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3.0 Resul ts

3.1 Remnant Patches

Remnant vegetation within the Truganina Precinct Area is restricted to small (< 5 ha) patches of native grassland, grassy woodland and stony knolls within a matrix of agricultural land. Remnant vegetation is generally distributed in a non-uniform pattern with relatively poor connectivity to extant vegetation outside the precinct area. Some properties were found to support several distinct remnant patches while other properties supported few or no areas of remnant vegetation.

Many of the properties within the Truganina Precinct Area have been subject to previous agricultural landuse, resulting in modification of the structure and composition of native vegetation. These modifications have resulted in reduced native species diversity and cover, and an increase in the diversity and cover of introduced flora species. In general, long-term agricultural landuse has simplified the composition of native vegetation, and while remnant elements remain, few areas represent the original flora of the area.

The assessment recorded a total of 38 remnant patches, on 11 properties, within the Truganina Precinct Area, covering 21 ha or 4 % of the area assessed by field surveys. The most common remnant vegetation type mapped by DSE within the Truganina Precinct Area is Plains Grassland EVC. Three different 'types' of Plains Grassland fall under this EVC category: Heavier-soils Plains Grassland (EVC 132_61), Lighter-soils Plains Grassland (EVC 132_62) and Low-rainfall Plains Grassland (EVC 132_63) (DSE 2008a) (see **Table 2**).

The most common type of Plains Grassland recorded during field assessments was Heavier-soils Plains Grassland (EVC 132_61). This vegetation was characterised by a dense, simplified cover of native Wallaby Grass *Austrodanthonia* spp. and Spear Grass *Austrostipa* spp., common species of native herbs and introduced pasture grasses, with no remnant trees or shrubs.

3.1.1 Ecological Vegetation Classes

The DSE Biodiversity Interactive Map (2009) indicates that the pre-1750 EVC's within the Truganina Precinct Area (see **Table 2**) consisted of:

- Plains Grassland (EVC 132)
- Creekline Grassy Woodland (EVC 68)

The current EVC's mapped by DSE (2009) (see **Table 2**) on the Truganina Precinct Area includes:

- Plains Grassland (EVC 132).
- Creekline Grassy Woodland (EVC 68).
- Stony Knoll Shrubland (EVC 649)
- A total of four EVC's were recorded during field surveys. A description of these EVC's and their extent within the Truganina Precinct Area are outlined in **Table 2** and presented in **Figures 2A – 2H**.

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Table 2: Description and Extent of EVCs Recorded in the Truganina Precinct Area.

EVC Number	EVC Name	Bioregion	Bioregional Conservation Status	Pre-1750 EVC	2005 EVC	Current Survey	Area (Ha)	Habitat Hectares of EVC	Description
EVC 132_61*	Heavier-soils Plains Grassland	Victorian Volcanic Plain	Endangered	✓	✓	✓	13.92	2.00	Treeless vegetation mostly less than 1 m tall dominated by largely graminoid and herb life forms. Occupies fertile cracking basalt soils prone to seasonal water-logging in areas receiving at least 500 mm annual rainfall.
EVC 132_62*	Lighter-soils Plains Grassland	Victorian Volcanic Plain	Endangered	✓	✓	✓	4.12	1.03	Treeless vegetation of less than 1 m tall dominated by largely graminoid and herb life forms. Occupies more freely draining red loamy basalt-derived soils and occasionally lighter sedimentary soils in areas receiving at least 500 mm annual rainfall.
EVC 132_63*	Low-rainfall Plains Grassland	Victorian Volcanic Plain	Endangered	✓	✓		0	N/A	Treeless vegetation mostly of less than 1 m tall dominated by largely graminoid and herb life forms. Occupies cracking basalt soils prone to seasonal waterlogging in areas receiving less than 500 mm annual rainfall.
EVC 068	Creekline Grassy Woodland	Victorian Volcanic Plain	Endangered			✓	0.17	0.01	Eucalypt-dominated woodland to 15 m tall with occasional scattered shrub layer over a mostly grassy/sedgy to herbaceous ground-layer. Occurs on low-gradient ephemeral to intermittent drainage lines, typically on fertile colluvial/alluvial soils.
EVC 649	Stony Knoll Shrubland	Victorian Volcanic Plain	Endangered			✓	2.85	0.69	Shrubland to 3 m tall or low non-eucalypt woodland to 8 m tall with a grassy understorey. Occurs on low stony rises on basalt flows. Soils are fertile and well drained but shallow without cropping rock, causing severe summer dryness.

* Mapped by DSE as EVC 132 Plains Grassland

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3.1.2 Conservation Significance of Remnant Patches

The Bioregional Conservation Status (BCS) of all EVC's recorded within the Truganina Precinct Area is Endangered (DSE, 2008a). Under Victoria's *Native Vegetation Management: A Framework for Action* (the Framework) (DNRE, 2002), the minimum conservation significance of Endangered EVC's is High. As all remnant patches recorded in the Truganina Precinct Area have a Habitat Hectares score of < 0.4, none qualify as vegetation of Very High conservation significance (Appendix 3 DNRE, 2002).

3.1.3 Vegetation Quality

Of the 38 remnant patches recorded within the Truganina Precinct Area, the average habitat score for Plains Grassland was 0.15 (out of 1), which is well below the average habitat score of 0.45 for grasslands on private land in Victoria (DSE 2007a). The vegetation quality for other EVC's was also below the average habitat scores in Victoria (DSE 2007a), as the range of habitat scores for remnant patches varied from 0.08 – 0.25 (out of 1) (see **Table 3**). The vegetation quality of habitat zones within the Truganina Precinct Area is presented in **Figures 3A – 3H**.

Table 3: Summary of Remnant Vegetation Patches Recorded within the Truganina Study Area

Property ID	EVC No.	No. of Remnant Patches	Total Area of Patches (ha)	Habitat Score (Range, out of 1)	Habitat Hectares	Offsets Required – Removal of all Vegetation*
150070028	VVP_0132_62	1	4.12	0.25	1.03	1.55
1790394	VVP_0132_61	2	0.66	0.11 – 0.15	0.10	0.15
1790396	VVP_0132_61	3	0.23	0.11 – 0.14	0.03	0.05
1790398	VVP_0132_61	3	0.69	0.10	0.07	0.10
1797027	VVP_0132_61	13	1.40	0.10 – 0.18	0.36	0.30
1797034	VVP_0132_61	2	0.71	0.19	0.14	0.21
1797036	VVP_0132_61	1	3.40	0.14	0.48	0.72
204407328	VVP_0132_61	2	4.12	0.10 – 0.11	0.44	0.66
207317992	VVP_0132_61	1	0.31	0.20	0.06	0.09
207318016	VVP_0132_61	4	0.21	0.13 – 0.17	0.03	0.05
	VVP_0132_61	3	2.19	0.13 – 0.15	0.29	0.44
	VVP_0649	2	2.85	0.24 – 0.25	0.69	1.04
209265529	VVP_0068	1	0.17	0.08	0.01	0.02
Total		**38**	**21.06**	**0.08 – 0.25**	**3.73**	**5.59**

*The bioregional conservation status of each EVC recorded is Endangered, with a conservation significance of High. Therefore a Net Gain offset multiplier of 1.5 applies to all remnant patches

3.2 Scattered Trees

No scattered trees were recorded in the Truganina Precinct Area.

3.3 Degraded Treeless

Degraded treeless vegetation was recorded on all properties, covering 554 ha or 96% of the Truganina Precinct Area assessed by field surveys (see **Appendix B**). Degraded treeless vegetation within the area is dominated by introduced grass and herb species, including Perennial Rye-grass *Lolium perenne*, Onion Grass *Romulea rosea*, Sweet Vernal Grass *Anthoxanthum odoratum*, Barley Grass *Hordeum l*eporinum, Wild Oat *Avena fatua*, Cat's Ear *Hypochoeris radicata*, Ribwort *Plantago lanceolata* and Capeweed *Arctotheca calendula*.

Several weeds listed as noxious under the CaLP Act were also recorded in this vegetation including Serrated Tussock *Nassella trichotoma*, Chilean Needle Grass *Nassella neesiana*, Artichoke Thistle *Cynara cardunculus*, and African Boxthorn *Lycium ferocissimum*.

Degraded treeless vegetation also included areas of 'native' but not indigenous vegetation such as Sugar Gum *Eucalyptus cladocaylix*, which has been widely planted on properties throughout the Truganina Precinct Area.

3.4 Significant Flora Species and Ecological Communities

The following section summarises ecological values for the Truganina Precinct Area identified through a review of the information identified in the desktop assessment. Threatened species recorded during field assessments are also described. The conservation significance of habitat zones the Truganina Precinct Area are presented in **Figures 5A – 5C**.

3.4.1 Ecological Communities

One Commonwealth listed community Natural Temperate Grassland of the Victorian Volcanic Plain (DEWHA, 2008a), listed as Critically Endangered under the EPBC Act, was recorded during the assessment and is listed as likely to occur within the Truganina Precinct Area (DEWHA, 2008b). No vegetation communities listed as Threatened under the FFG Act were recorded or are known to occur within the Truganina Precinct Area.

3.4.2 Protected Matters Search Tool

The Protected Matters Search Tool (DEWHA, 2008b) indicates that six threatened flora species and one threatened ecological community may potentially occur, or their habitat is predicted to occur within a 5 km radius of the Truganina Precinct Area (see **Appendix A**). No threatened species or communities were recorded within the Truganina Precinct Area during field assessments.

3.4.3 Victoria Flora Site Database Records

The VFSD (DSE, 2007b) (see **Appendix A**) contains records of 886 flora species, comprising 527 indigenous species and 359 exotic species within a 5 km radius of the Truganina Precinct Area. The VFSD contains records of the following listed threatened flora species:

- Button Wrinklewort *Rutidosis leptorhynchoides* listed as Endangered under the EPBC Act and listed as Threatened under the FFG Act.
- Large-headed Fireweed *Senecio macrocarpus* listed as Vulnerable under the EPBC act and listed as Threatened under the FFG Act.
- Small Golden Moths *Diuris basaltica* listed as Endangered under the EPBC act and listed as Threatened under the FFG Act.
- Spiny Rice-flower *Pimelea spinescens* subsp. s*pinescens* listed as Critically Endangered under the EPBC Act and listed as Threatened under the FFG Act.
- Small Milkwort *Comesperma polygaloides* listed as Threatened under the FFG Act.
- River Swamp Wallaby-grass *Amphibromus fluitans* listed as Vulnerable under the EPBC Act.
- Plump Swamp Wallaby-grass *Amphibromus pithogastrus* listed as Threatened under the FFG Act.
- Small Scurf-pea *Cullen parvum* listed as Threatened under the FFG Act.
- Sunshine Diuris *Diuris fragrantissima* listed as Endangered under the EPBC Act and listed as Threatened under the FFG Act.
- Tough Scurf-pea *Cullen tenax* listed as Threatened under the FFG Act.
- Buloke *Allocasuarina luehmannii* listed as Threatened under the FFG Act.
- Fragrant Leek-orchid *Prasophyllum suaveolens* listed as Endangered under the EPBC Act and listed as Threatened under the FFG Act.
- Swamp Diuris *Diuris palustris* listed as Threatened under the FFG Act.

The likelihood of threatened ecological communities or species occurring within the Truganina Precinct Area is assessed in **Appendix A**. It is recommended that targeted surveys are undertaken within the Truganina Precinct Area for threatened species listed as possible occurrence, likely occurrence or highly likely occurrence. The

locations of National and State listed flora recorded with the Truganina Precinct Area is presented in **Figures 5A – 5C**.

3.5 Drive-by Assessment Results

Drive-by assessments were undertaken on 20 May, 2009 of the six remaining properties within the Truganina Precinct Area where access could not be obtained during field assessments. Drive-by assessments were completed by an AECOM ecologist assessing visible vegetation on each property from the roadside. Further review of aerial photography was undertaken to ascertain the likely presence / absence of native vegetation on each property.

The decision-making criteria for interpreting field observations were based on the minimum requirement for undertaking a Vegetation Quality Assessment (DSE 2004):

- Highly Likely Native Vegetation – grassy (>25% native cover)
- Highly Likely Native Vegetation – structurally modified (loss of vegetative structure)
- Highly Likely Native Vegetation – woody (scattered indigenous trees or shrubs)
- Possible Native Vegetation (native species present with ≤ 25% native cover)
- Wetland habitat (area containing a waterway or wetland species)
- No native vegetation (no discernable native cover present).

Polygons for each identified zone were developed in GIS shapefile format.

Results of the drive-by assessment found four properties were highly likely to contain native vegetation; one property with possible native vegetation and one property with no native vegetation (see **Table 4**). The locations of drive-by assessments are presented in **Figures 2A - 2H** and **3A – 3H**.

Table 4: Results of Drive-by Assessments within the Truganina Precinct Area

Property	Zone	Area (ha)
1790397	No native vegetation	12.15
1797035	No native vegetation	12.59
1797038	No native vegetation	14.24
3000878	Possible native vegetation	21.62
	No native vegetation	18.36
	Total	39.98
150069914	Possible native vegetation	22.75
	No native vegetation	9.71
	Total	32.46
202415061	Possible native vegetation	14.45
	No native vegetation	80.01
	Total	94.47

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4.0 Environmental Legislation

Native Vegetation is principally addressed during the structure planning and rezoning process (Planning and Environment Act) and subsequent planning permits to subdivide and clear native vegetation are also required pursuant to the Planning and Environment Act. These approvals also satisfy requirements under the FFG Act and the Framework where referral to DSE is required. However, under the Precinct Structure Plan process, there is a requirement for a Native Vegetation Precinct Plan (NVPP) which negates the need for a permit under Clause 52.17 if removal of native vegetation is in line with the approved NVPP.

Where development is likely to have a significant impact on a matter listed under the EPBC Act referral and possible assessment and approval is required from the Commonwealth Minister for the Environment. Referral may not be required depending on the outcome of the strategic environmental assessment currently being undertaken by the GAA for land within the urban growth boundary.

The retention and enhancement of waterways and the establishment of water sensitive design will need to comply with the requirements of Melbourne Water and the Water Act.

The implications of relevant legislation, plans and policies for flora and ecological communities in the Truganina Precinct Area including:

- EPBC Act 1999.
- FFG Act 1988.
- Planning and Environment Act 1987.
- Victorian Native Vegetation Management Framework (the Framework).
- Wildlife Act 1975.
- Port Phillip and Westernport CMA Native Vegetation Plan.
- Water Act 1989.
- Environment Protection Act 1970: State Environmental Protection Policy (Waters of Victoria) 2003.
- Port Phillip and Western Port Regional Catchment Strategy.
- Port Phillip and Western Port Regional River Health Strategy.
- Local Government Planning Schemes.

An overview of environmental legislation relevant to the Truganina Precinct Area is provided in **Appendix D**.

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5.0 Conclusion and Recommendations

The assessment of the Truganina Precinct Area revealed a highly modified and fragmented landscape. In general, long-term agricultural landuse has removed and simplified the composition of native vegetation, and while remnant elements remain, few areas represent the original flora of the area.

There is a need to consider all the remnant patches in a larger landscape context and what opportunities and constraints exist and how they might relate to regional open space networks, landform, topography, urban water management and community amenity and recreation needs.

AECOM recommends the undertaking of targeted surveys within the Truganina Precinct Area for threatened species listed as possible occurrence, likely occurrence or highly likely occurrence (**Appendix A**).

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6.0 References

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Figures

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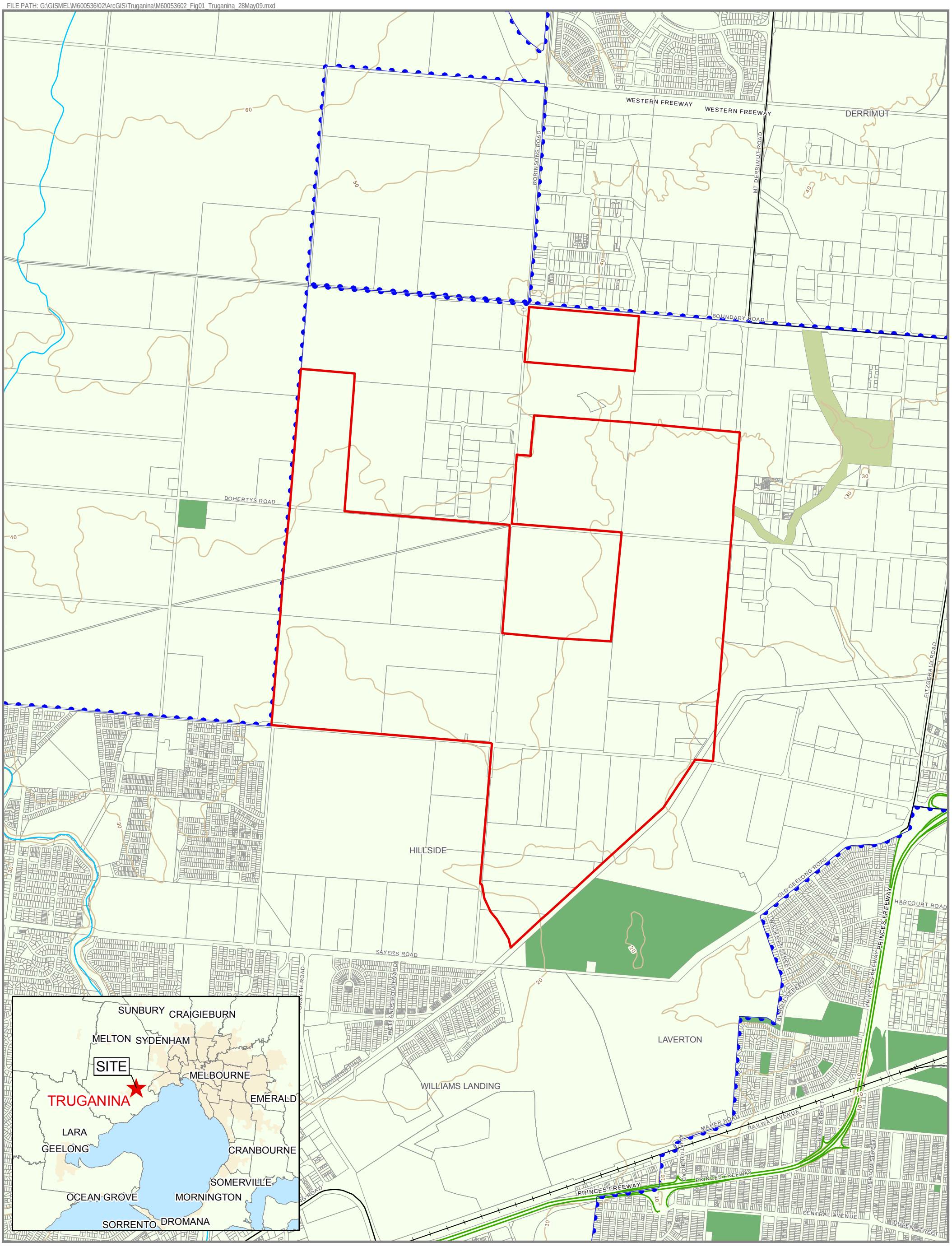

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LEGEND

- Truganina Precinct Area
- Urban Growth Boundary
- Green Wedge Zone
- Public Park and Recreation Zone
- Cadastre
- Railway
- Elevation Contours
- Major Watercourses
- Freeway
- Highway
- Arterial Road

CONTEXT MAP OF TRUGANINA PRECINCT AREA

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure
1

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LEGEND

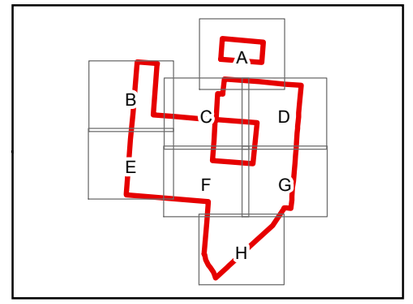
- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas Not Assessed (Drive-by/modelled)
- Multi-use Corridor 20m from Creek
- Multi-use Corridor 50m from Creek

Vegetation Communities

- Degraded Treeless Vegetation
- Plains Grassy Woodland (EVC 55)
- Plains Grassland (EVC 132)
- Stony Knoll Shrubland (EVC 649)
- Commonwealth listed Community Natural Temperate Grassland of the Victorian Volcanic Plain
- 1A *0.68 Ha* Habitat Zone ID *Habitat Area (Ha)*

DSE Modelled Native Vegetation

- Plains Grassland (EVC 132)
- 0.68 Ha DSE Supplied EVC Areas for properties assessed by drive-by



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SIGNIFICANT VEGETATION - KEY AREAS LIKELY FOR RETENTION

Growth Area Authority

Opportunities for Vegetation Retention and Biodiversity Management

Truganina, VIC

Figure

1A

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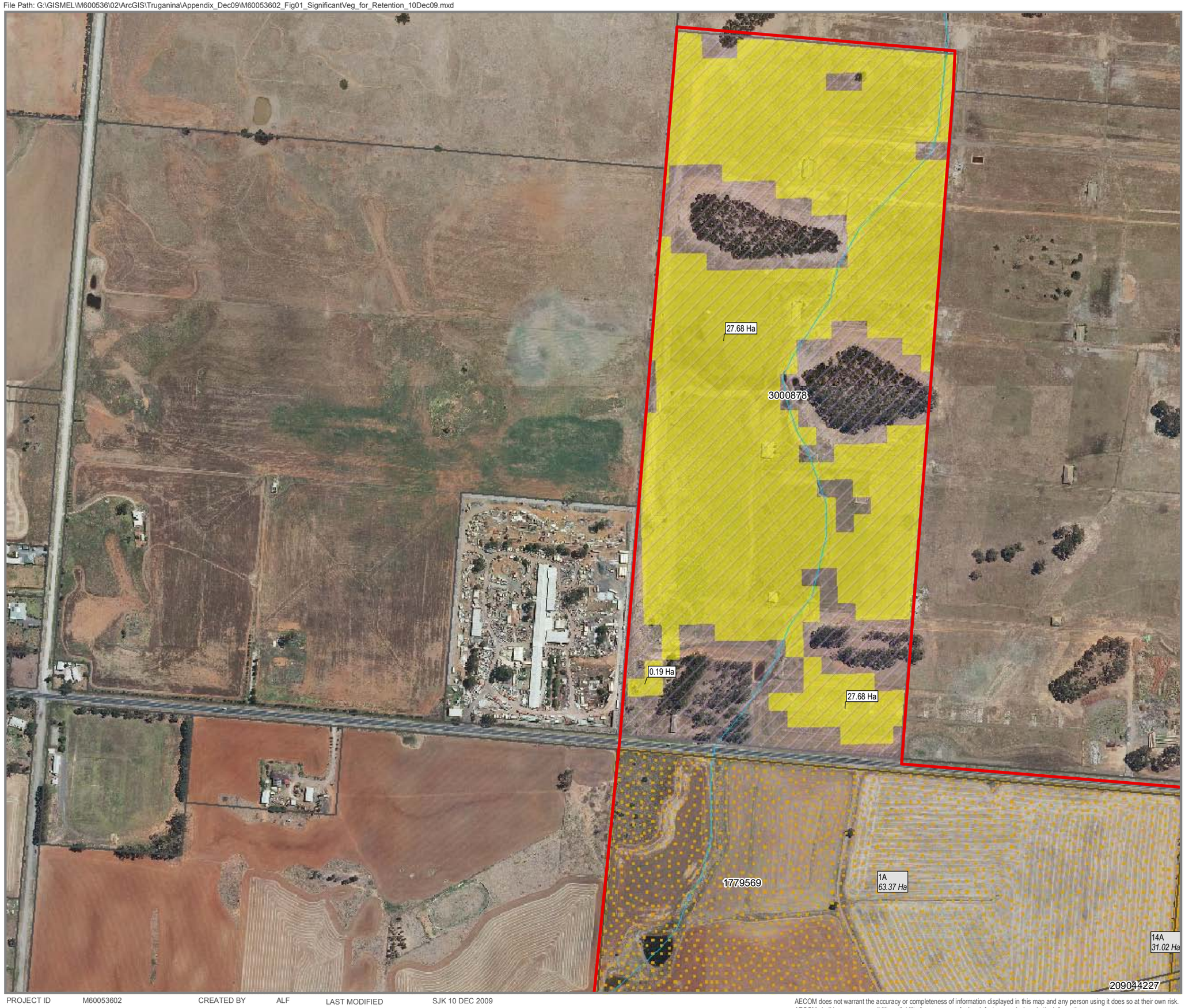

AECOM

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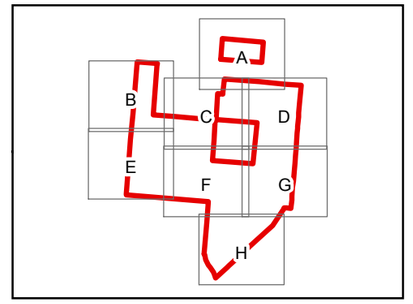

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SIGNIFICANT VEGETATION - KEY AREAS LIKELY FOR RETENTION

Growth Area Authority

Opportunities for Vegetation Retention and Biodiversity Management

Truganina, VIC

Figure **1B**

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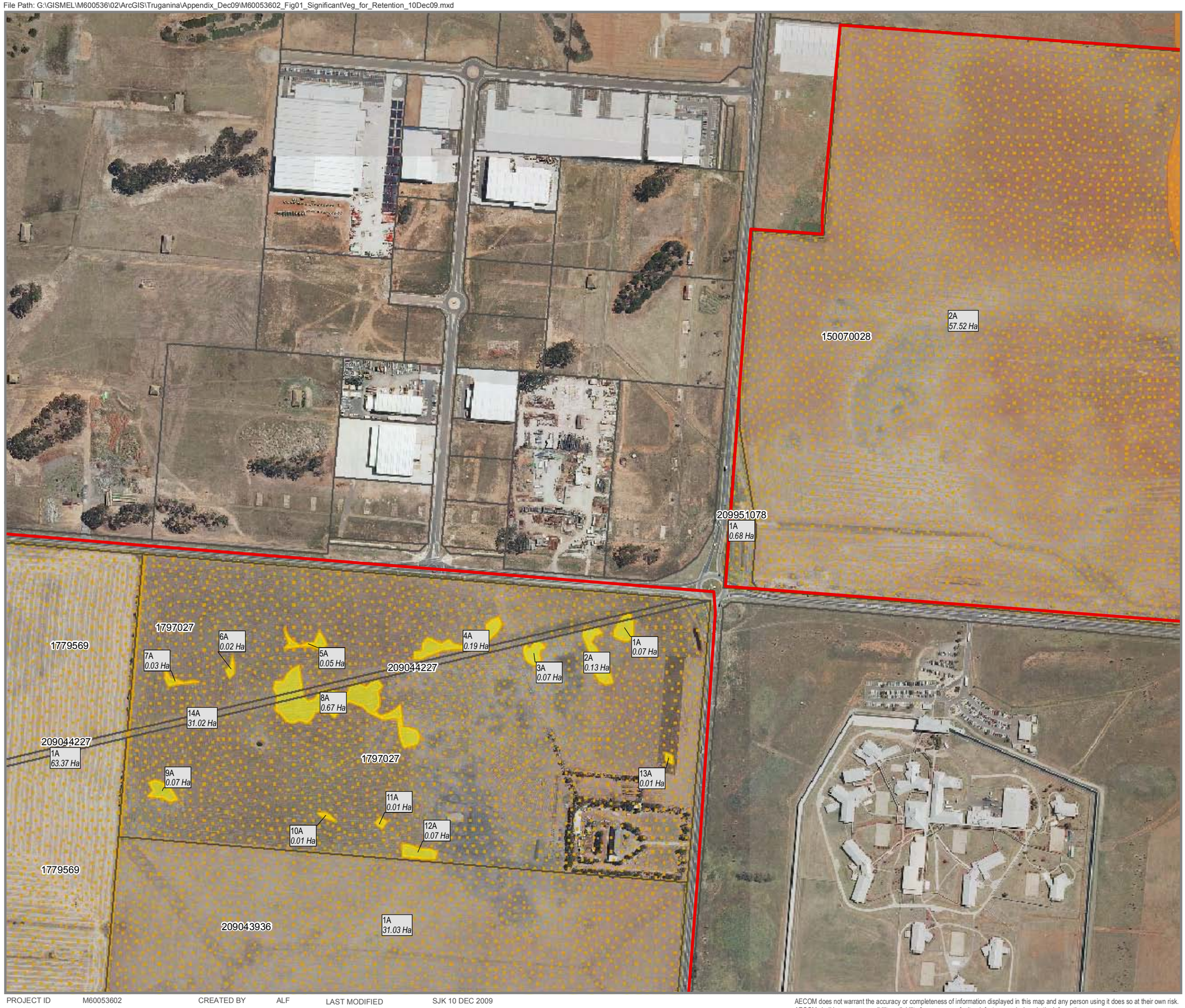

AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
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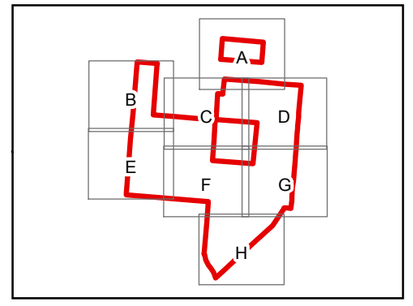

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SIGNIFICANT VEGETATION - KEY AREAS LIKELY FOR RETENTION

Growth Area Authority

Opportunities for Vegetation Retention and Biodiversity Management

Truganina, VIC

Figure **1C**

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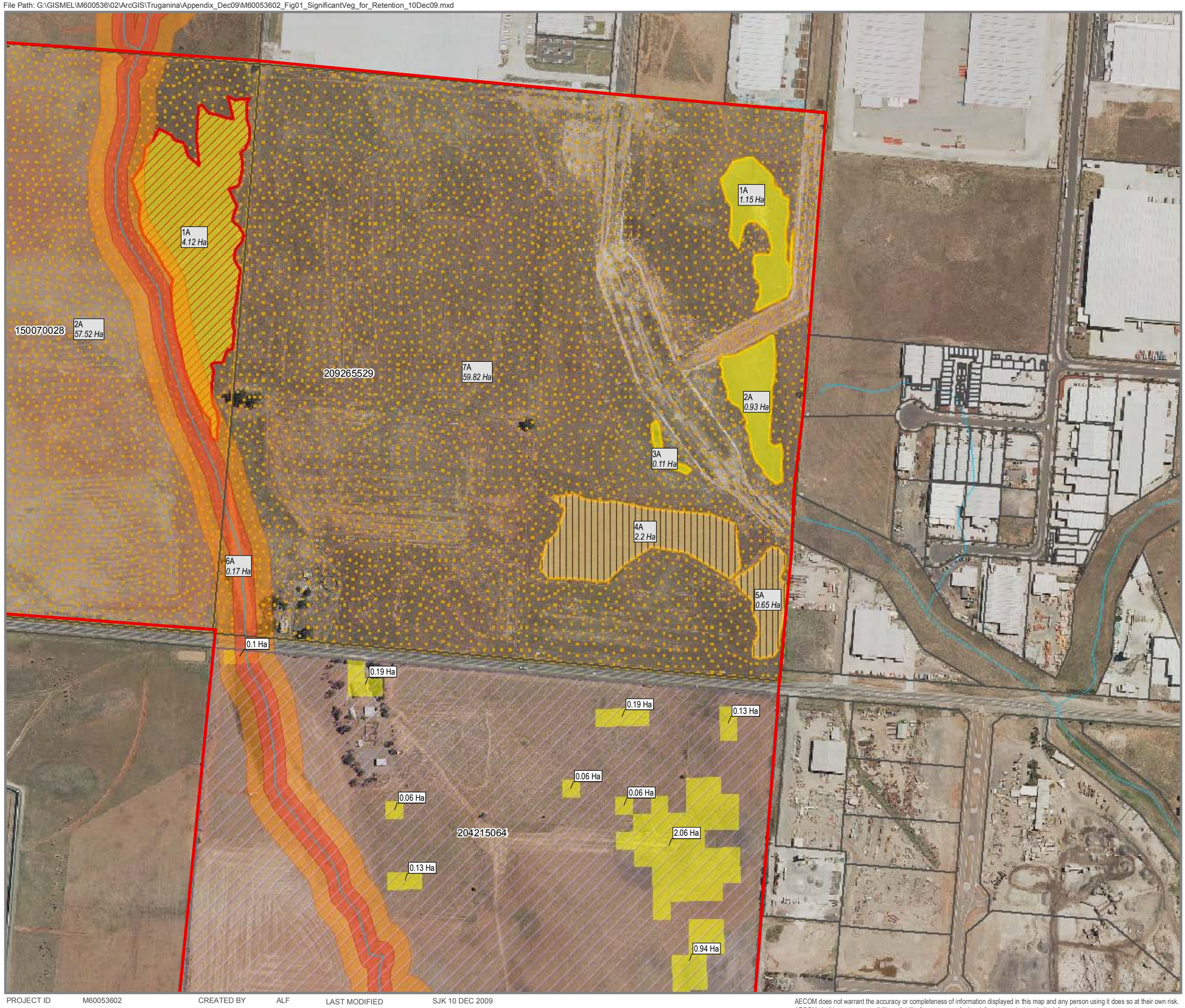

AECOM

LEGEND

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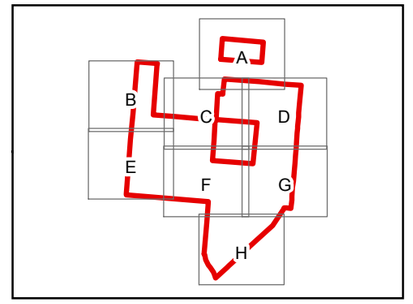

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SIGNIFICANT VEGETATION - KEY AREAS LIKELY FOR RETENTION

Growth Area Authority

Opportunities for Vegetation Retention and Biodiversity Management

Truganina, VIC

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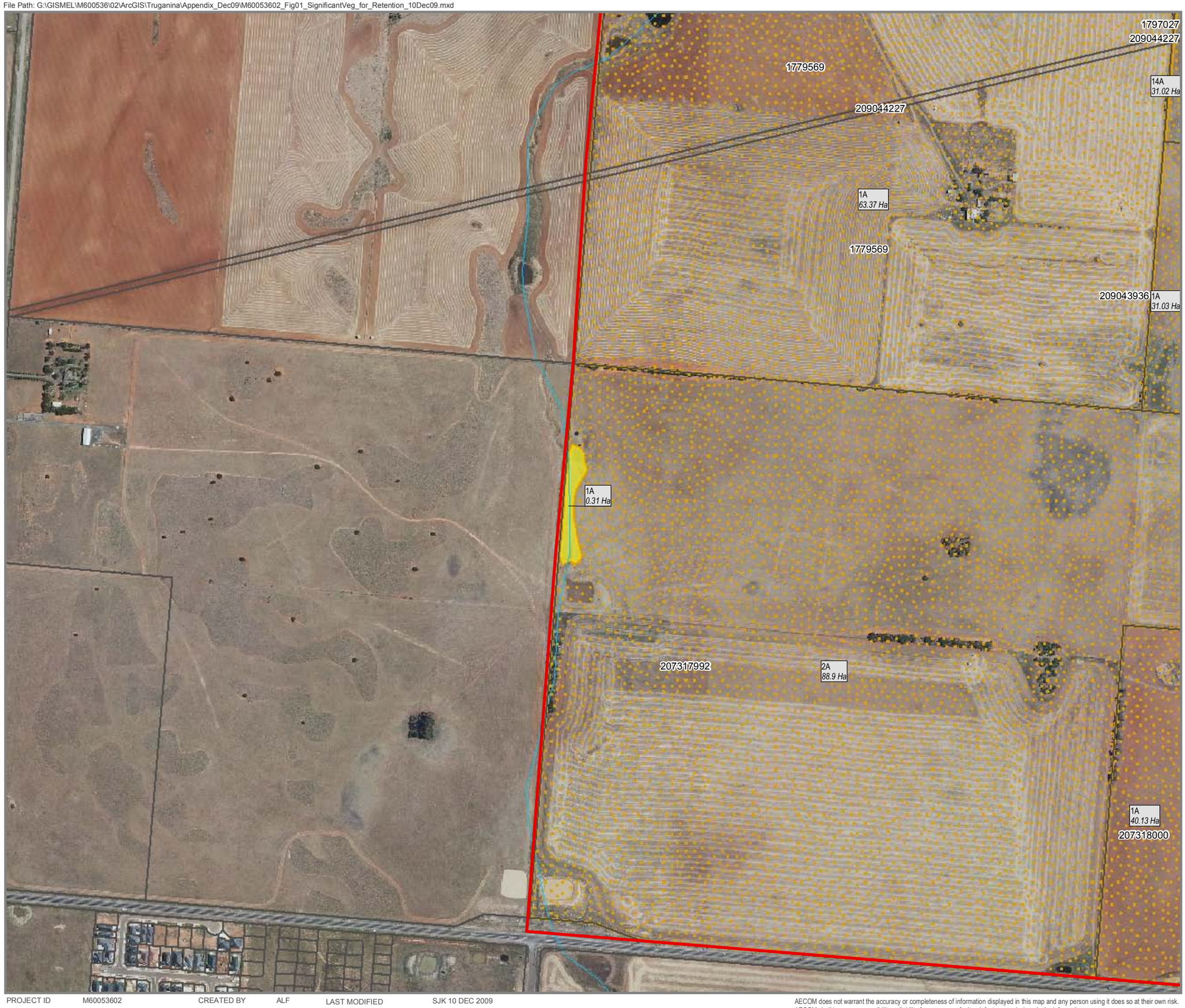

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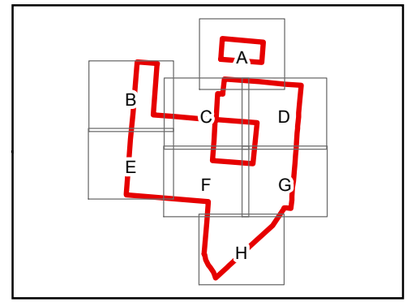

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SIGNIFICANT VEGETATION - KEY AREAS LIKELY FOR RETENTION

Growth Area Authority

Opportunities for Vegetation Retention and Biodiversity Management

Truganina, VIC

Figure

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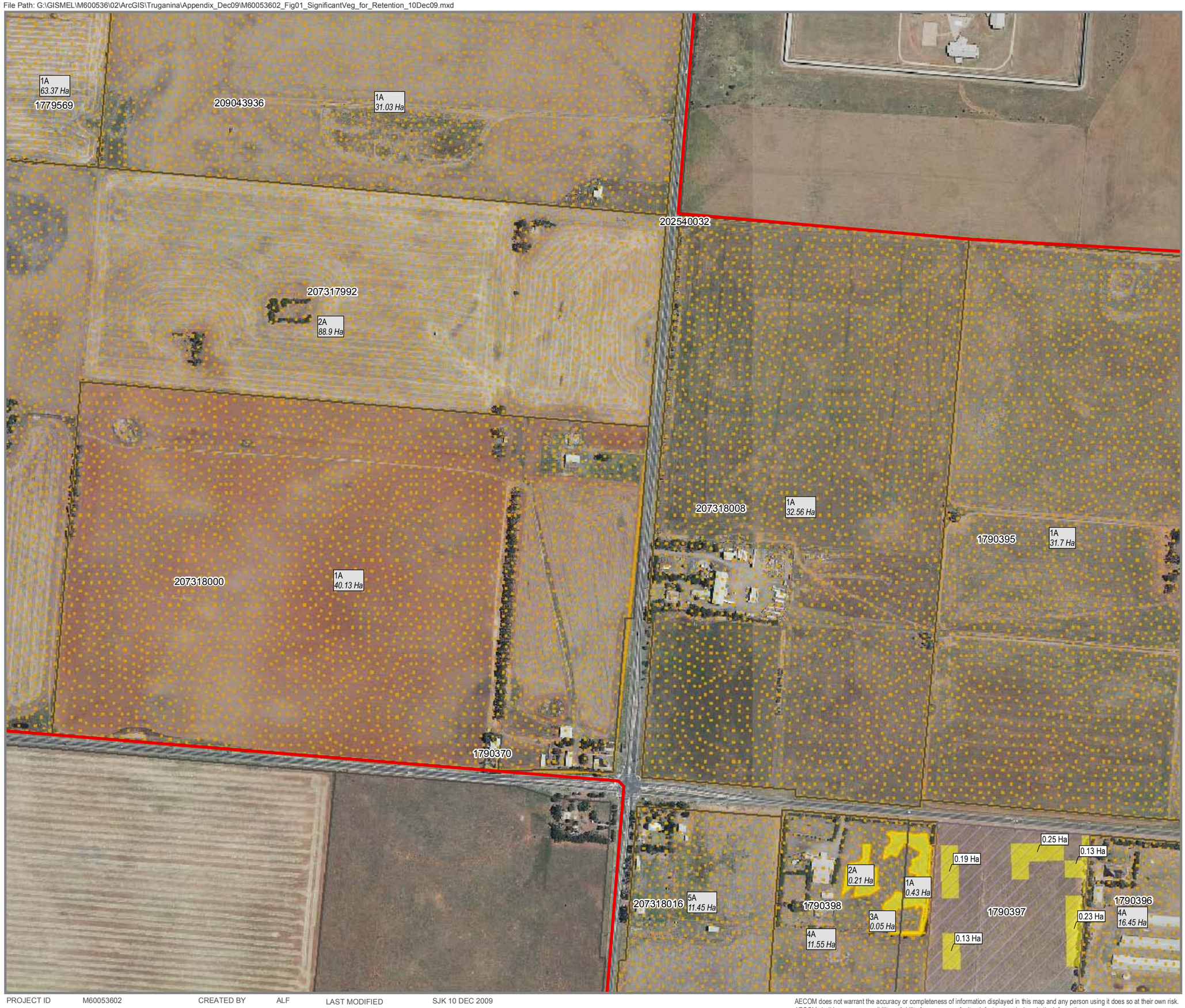

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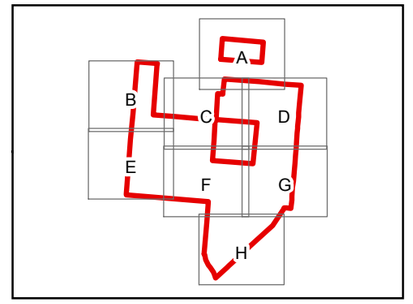

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SIGNIFICANT VEGETATION - KEY AREAS LIKELY FOR RETENTION

Growth Area Authority

Opportunities for Vegetation Retention and Biodiversity Management

Truganina, VIC

Figure

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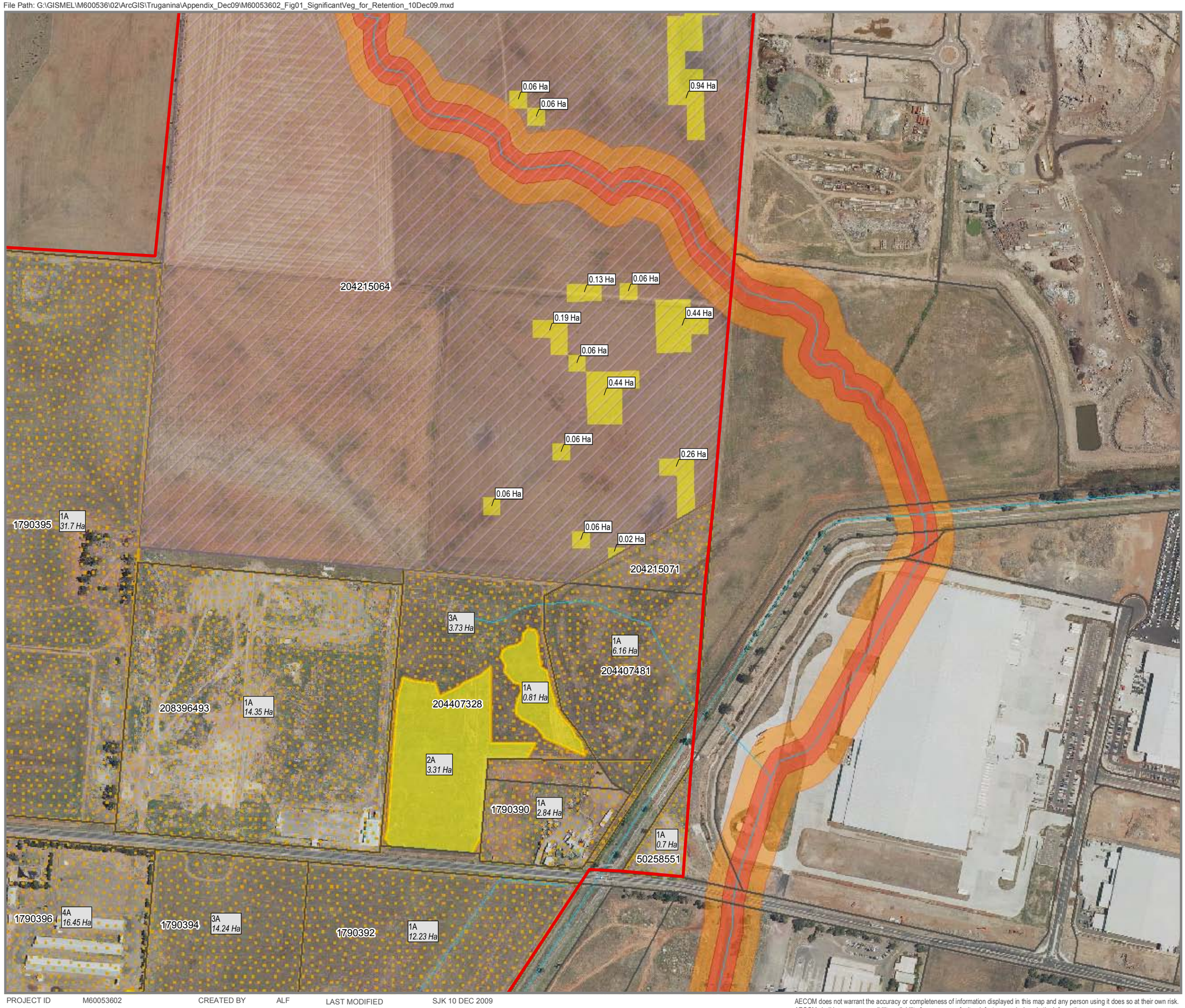

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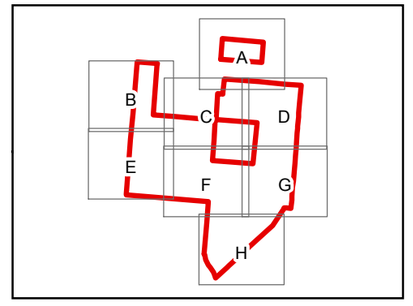

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SIGNIFICANT VEGETATION - KEY AREAS LIKELY FOR RETENTION

Growth Area Authority

Opportunities for Vegetation Retention and Biodiversity Management

Truganina, VIC

Figure

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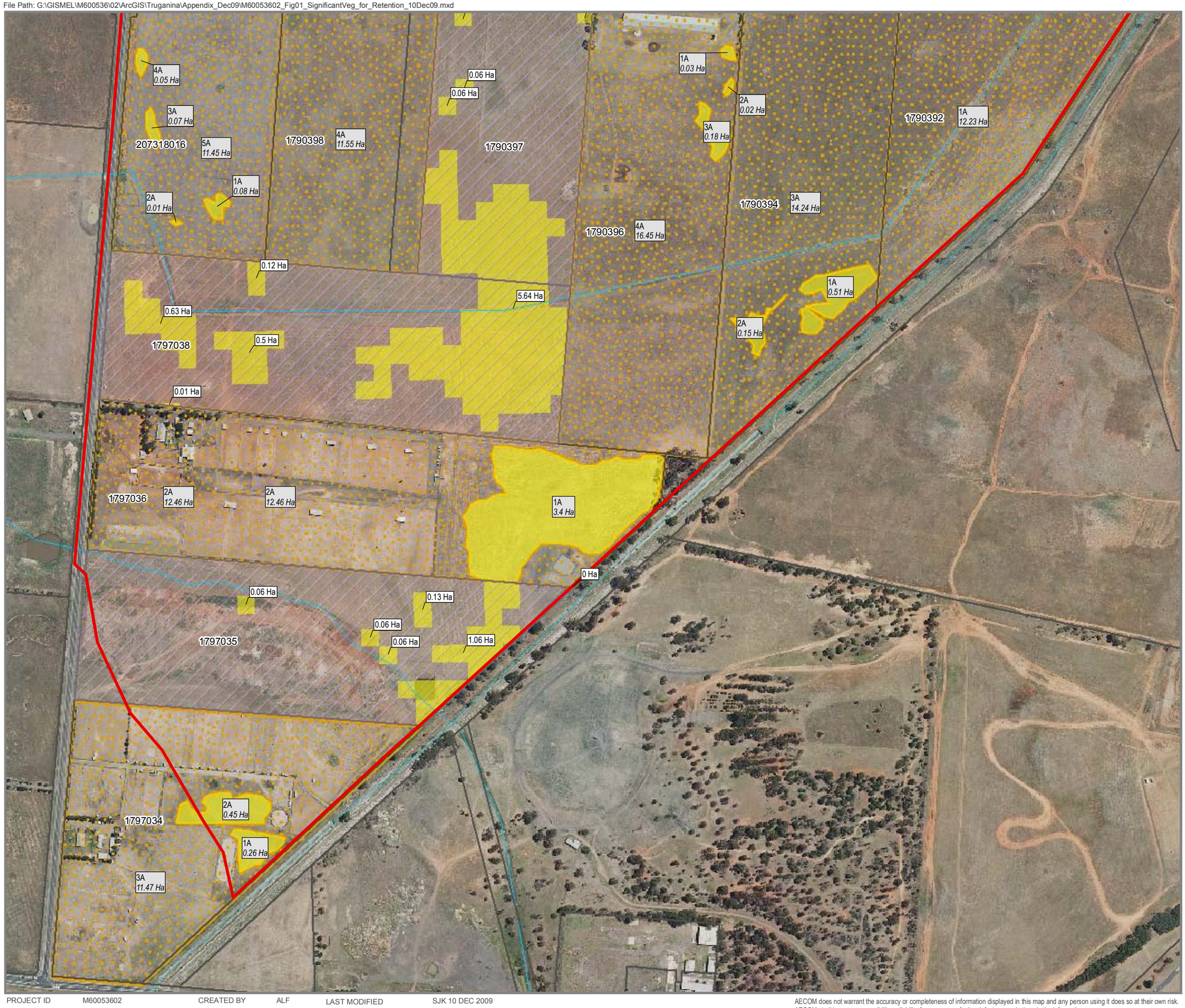

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LEGEND

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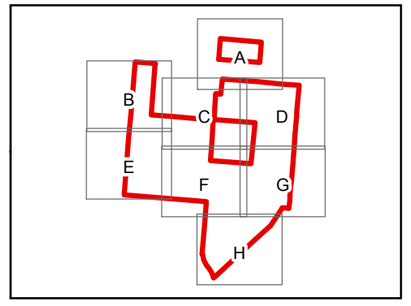

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SIGNIFICANT VEGETATION - KEY AREAS LIKELY FOR RETENTION

Growth Area Authority

Opportunities for Vegetation Retention and Biodiversity Management

Truganina, VIC

Figure **1H**

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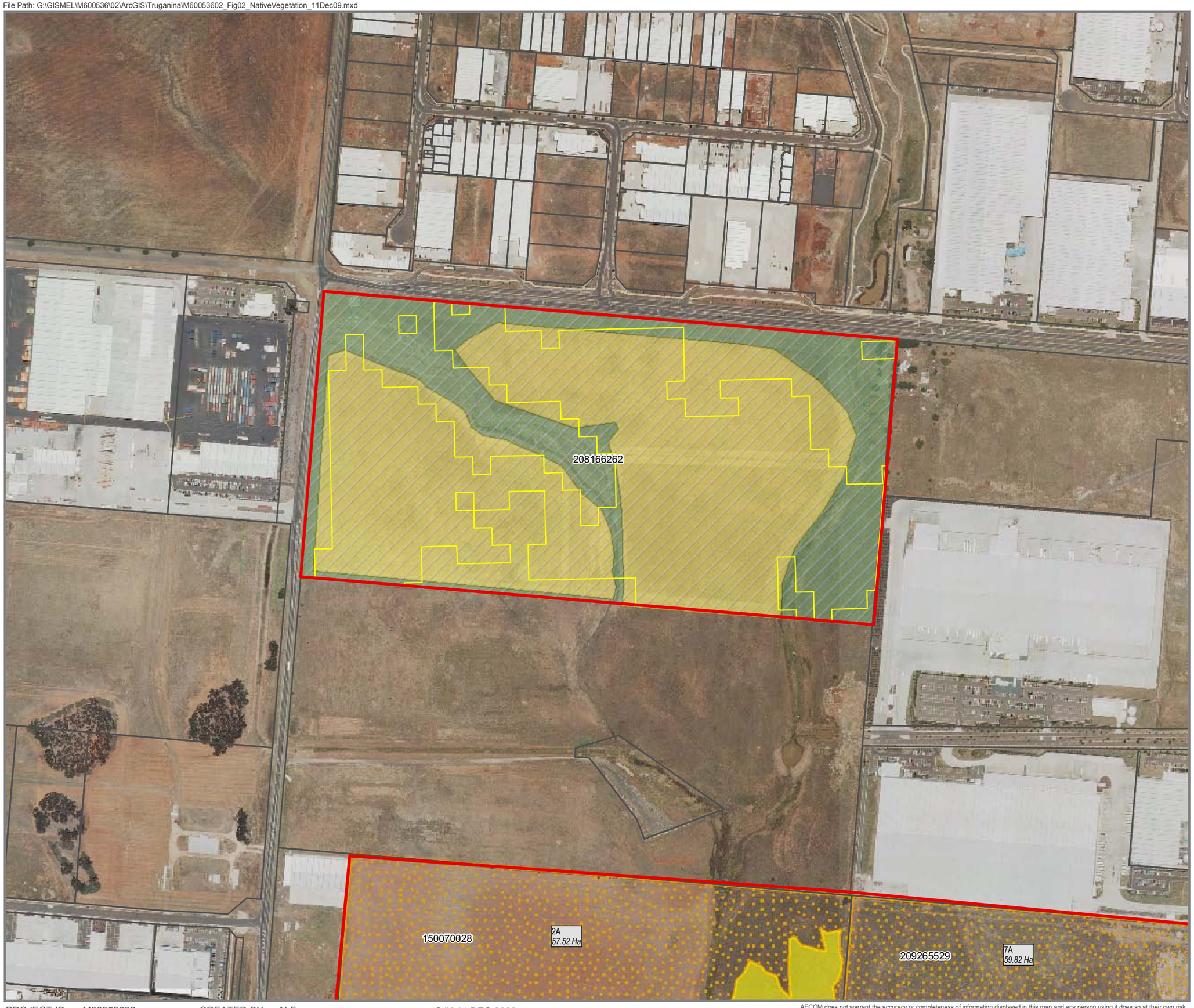


AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number

Vegetation Communities

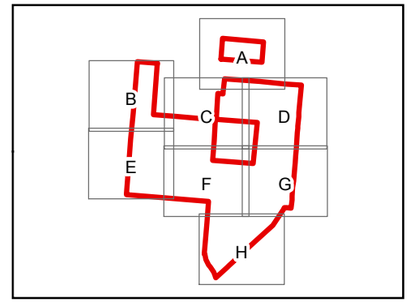
- Degraded Treeless Vegetation
- Creekline Grassy Woodland (EVC 68)
- Plains Grassland (EVC 132)
- Stony Knoll Shrubland (EVC 649)
- 1A / *0.68 Ha* — Habitat Zone ID / *Habitat Area (Ha)*

Drive-by Assessments

- Areas Not Assessed (Drive-by/modelled)
- Possible Native Vegetation
- No Native Vegetation

DSE Modelled Native Vegetation

- Plains Grassland (EVC 132)
- 0.68 Ha — DSE Supplied EVC Areas for properties assessed by drive-by



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NATIVE VEGETATION WITHIN THE STUDY AREA

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **2A**

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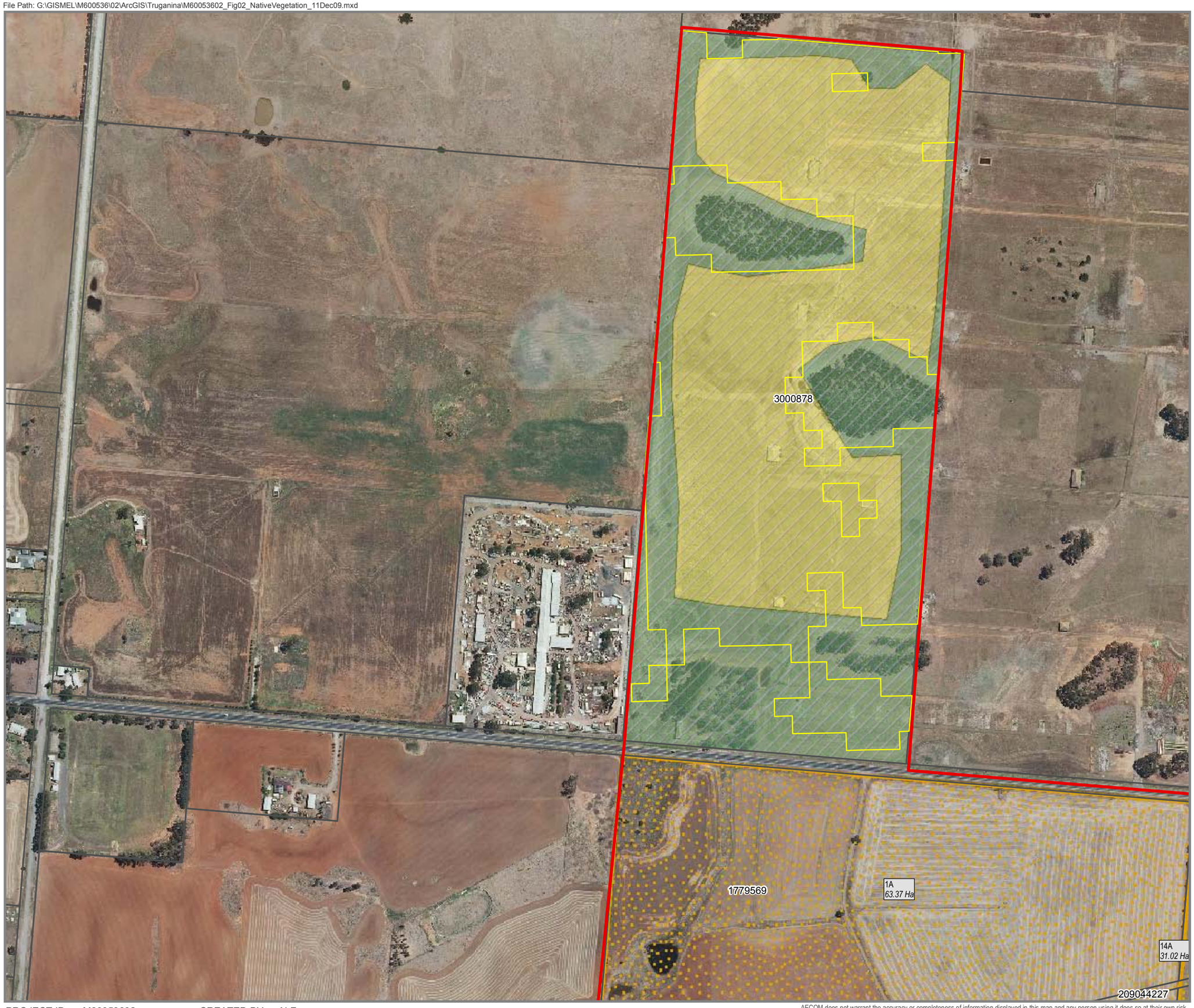

AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number

Vegetation Communities

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DSE Modelled Native Vegetation

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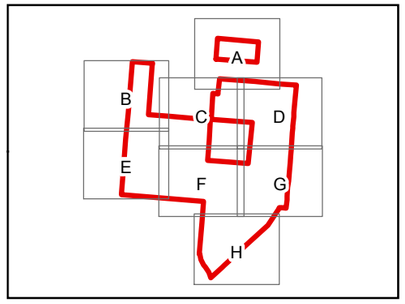

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NATIVE VEGETATION WITHIN THE STUDY AREA

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **2B**

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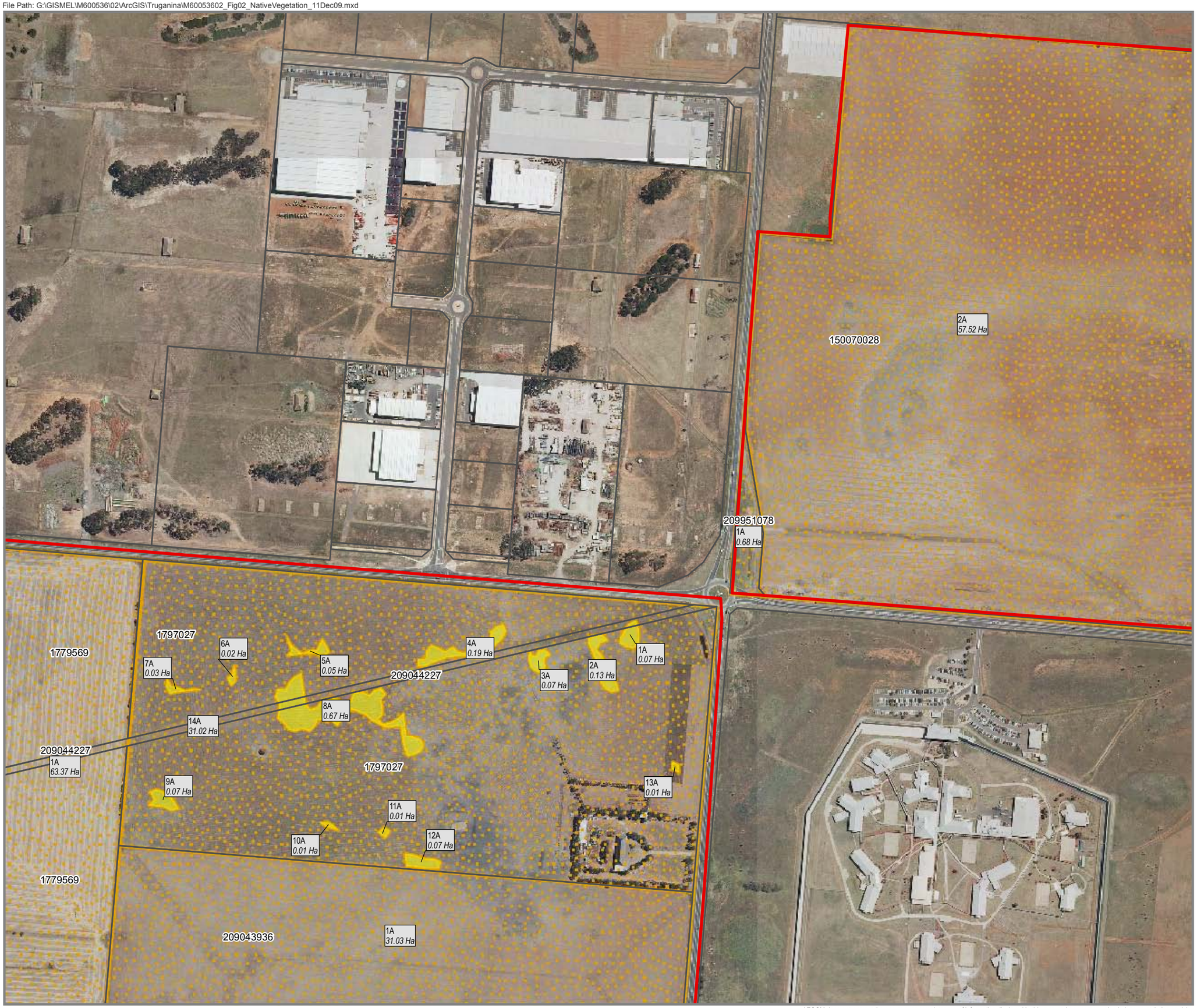

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number

Vegetation Communities

- Degraded Treeless Vegetation
- Creekline Grassy Woodland (EVC 68)
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- Stony Knoll Shrubland (EVC 649)
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Drive-by Assessments

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DSE Modelled Native Vegetation

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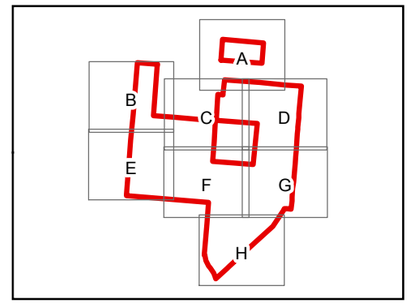
- 0.68 Ha DSE Supplied EVC Areas for properties assessed by drive-by



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NATIVE VEGETATION WITHIN THE STUDY AREA

Growth Area Authority
Vegetation
Assessment Report
Truganina, VIC

Figure **2C**

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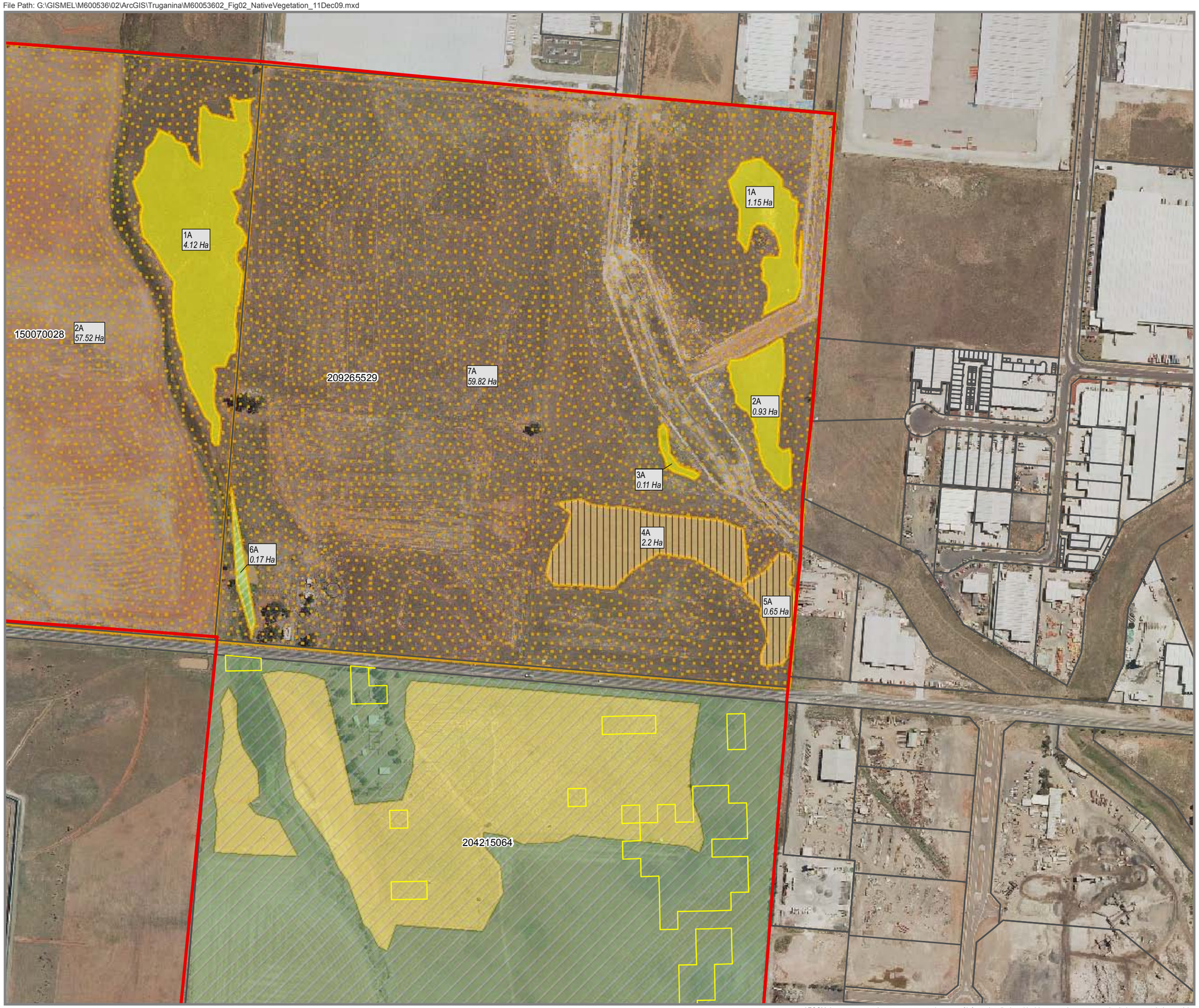

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number

Vegetation Communities

- Degraded Treeless Vegetation
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DSE Modelled Native Vegetation

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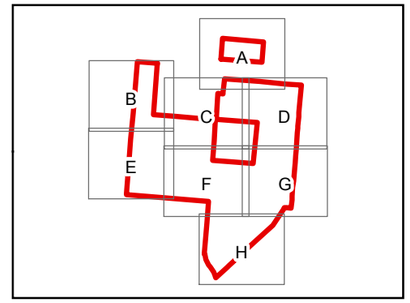

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NATIVE VEGETATION WITHIN THE STUDY AREA

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **2D**

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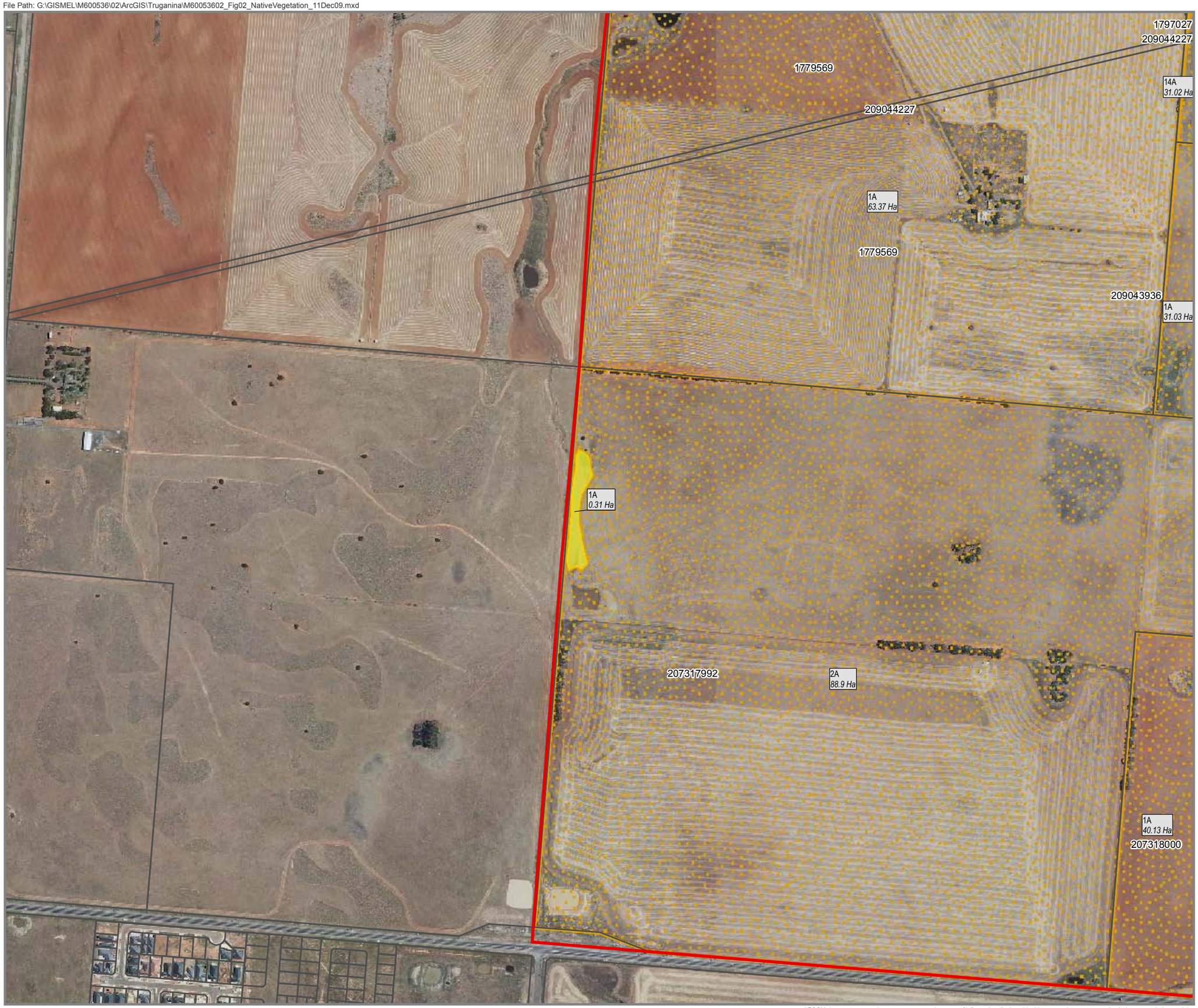

AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number

Vegetation Communities

- Degraded Treeless Vegetation
- Creekline Grassy Woodland (EVC 68)
- Plains Grassland (EVC 132)
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DSE Modelled Native Vegetation

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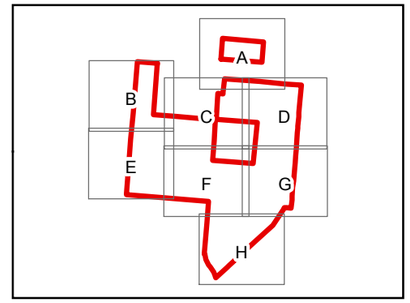

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NATIVE VEGETATION WITHIN THE STUDY AREA

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **2E**

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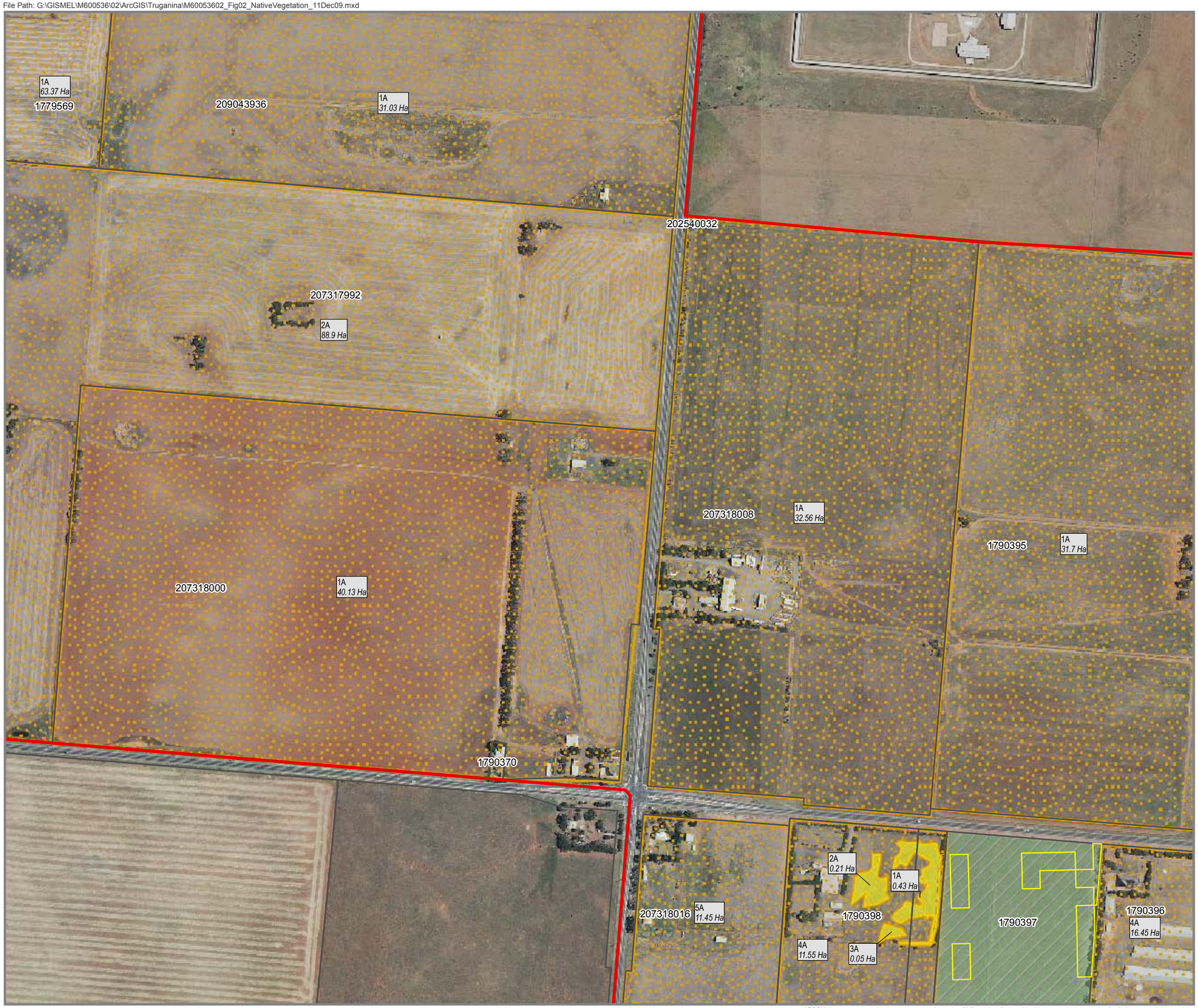

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number

Vegetation Communities

- Degraded Treeless Vegetation
- Creekline Grassy Woodland (EVC 68)
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Drive-by Assessments

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DSE Modelled Native Vegetation

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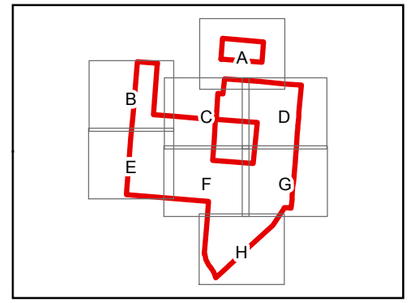
- 0.68 Ha — DSE Supplied EVC Areas for properties assessed by drive-by



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NATIVE VEGETATION WITHIN THE STUDY AREA

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **2F**

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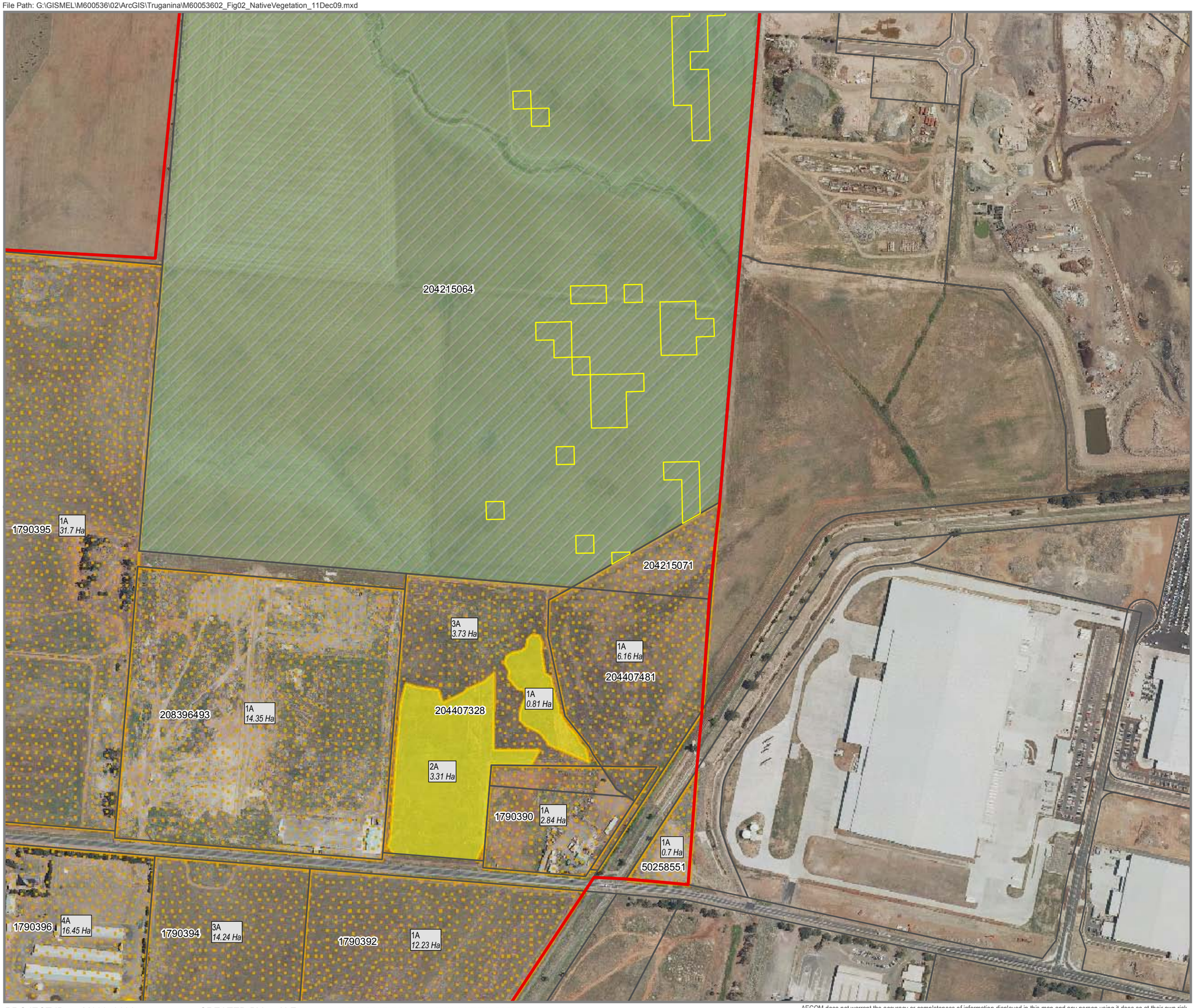

AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number

Vegetation Communities

- Degraded Treeless Vegetation
- Creekline Grassy Woodland (EVC 68)
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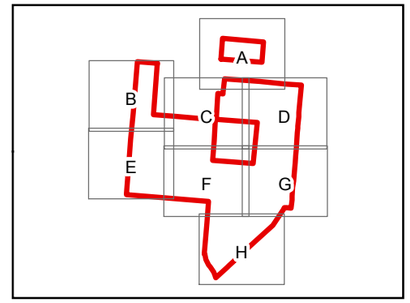

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NATIVE VEGETATION WITHIN THE STUDY AREA

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **2G**

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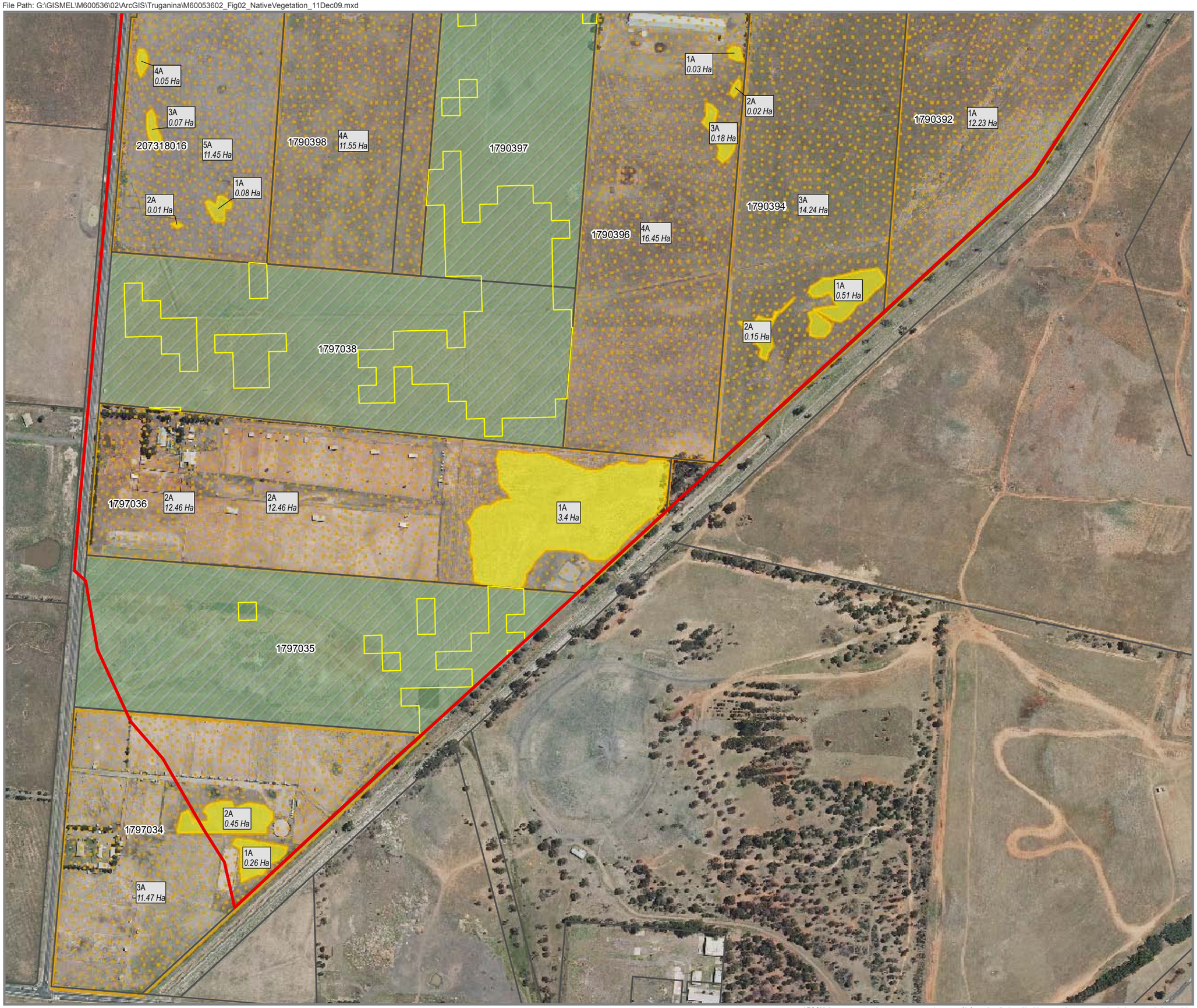

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number

Vegetation Communities

- Degraded Treeless Vegetation
- Creekline Grassy Woodland (EVC 68)
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DSE Modelled Native Vegetation

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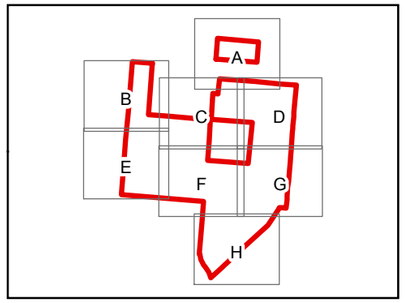
- 0.68 Ha — DSE Supplied EVC Areas for properties assessed by drive-by



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NATIVE VEGETATION WITHIN THE STUDY AREA

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **2H**

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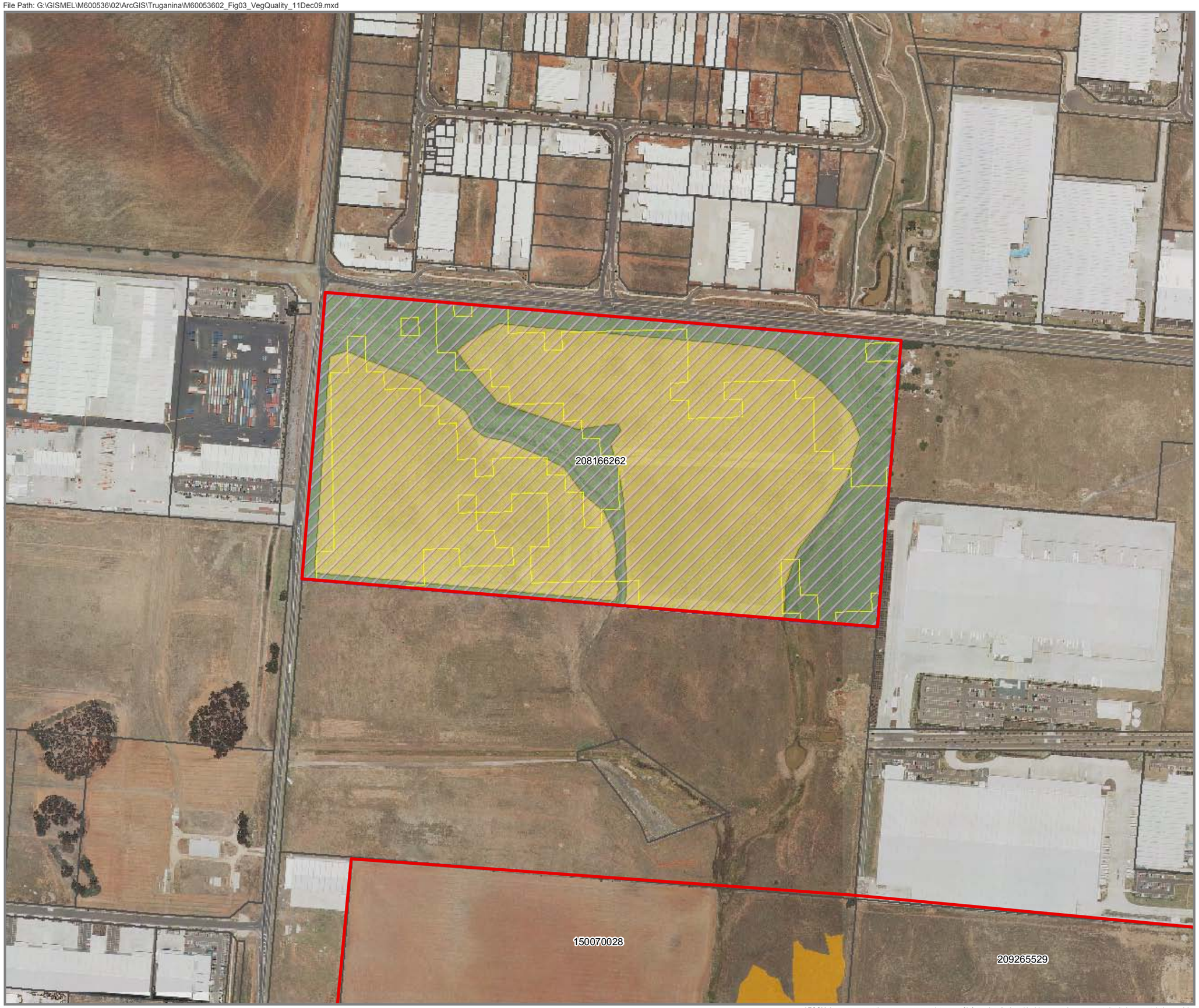

AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas of High Conservation Significance
- 1A *0.68 Ha* Habitat Zone ID *Habitat Area (Ha)*

Drive-by Assessments

- Areas Not Assessed (Drive-by/modelled)
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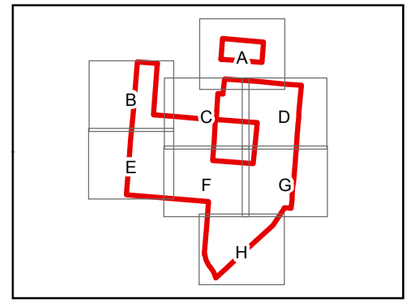
NOTE: Areas assessed by drive-by display DSE Modelled Native Vegetation data. Areas assessed by field survey display EVCs and Degraded Treeless Vegetation.



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VEGETATION QUALITY OF HABITAT ZONES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **3A**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

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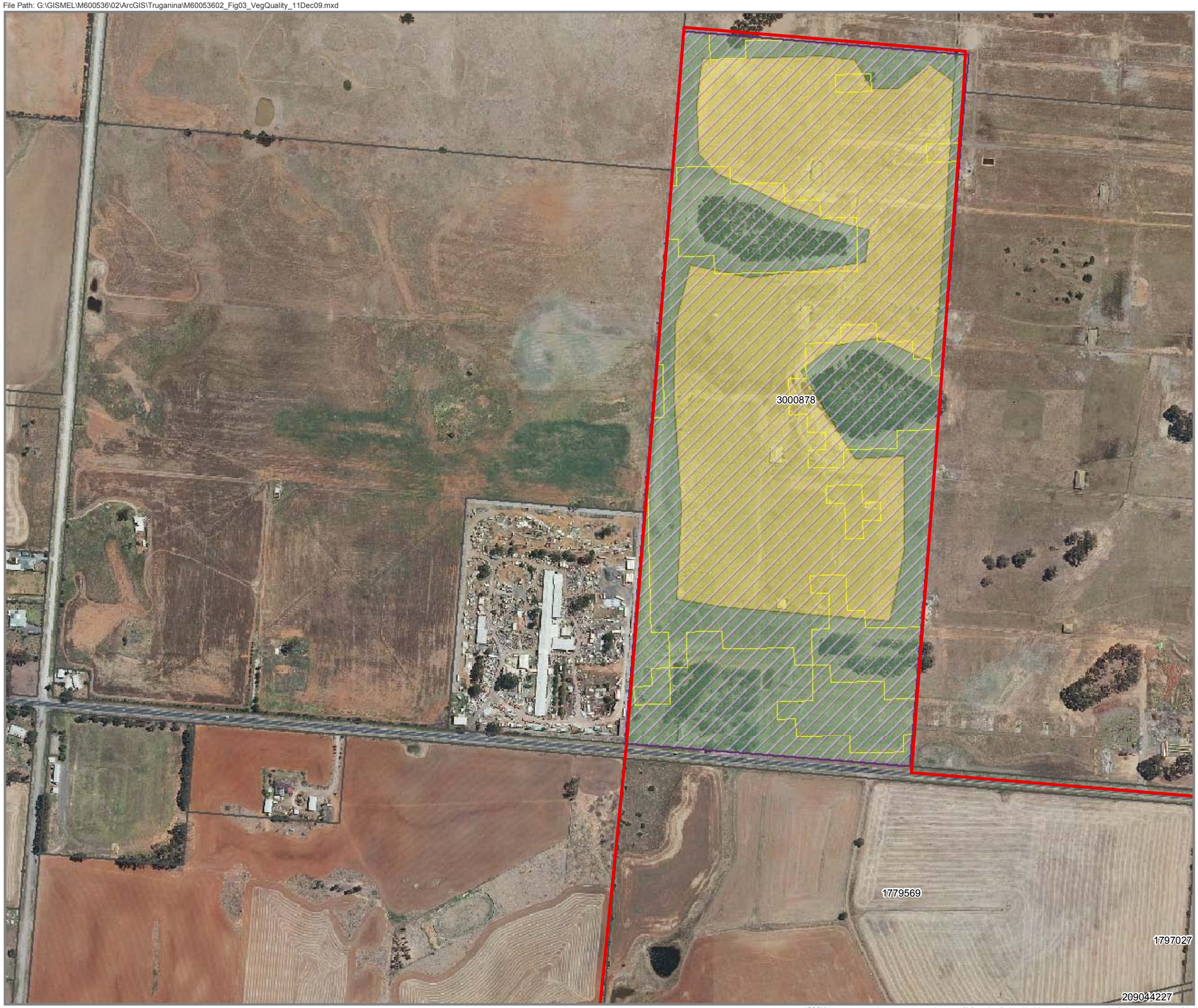

AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas of High Conservation Significance
- 1A *0.68 Ha* Habitat Zone ID *Habitat Area (Ha)*

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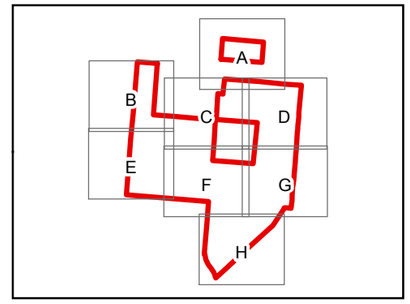

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VEGETATION QUALITY OF HABITAT ZONES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **3B**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

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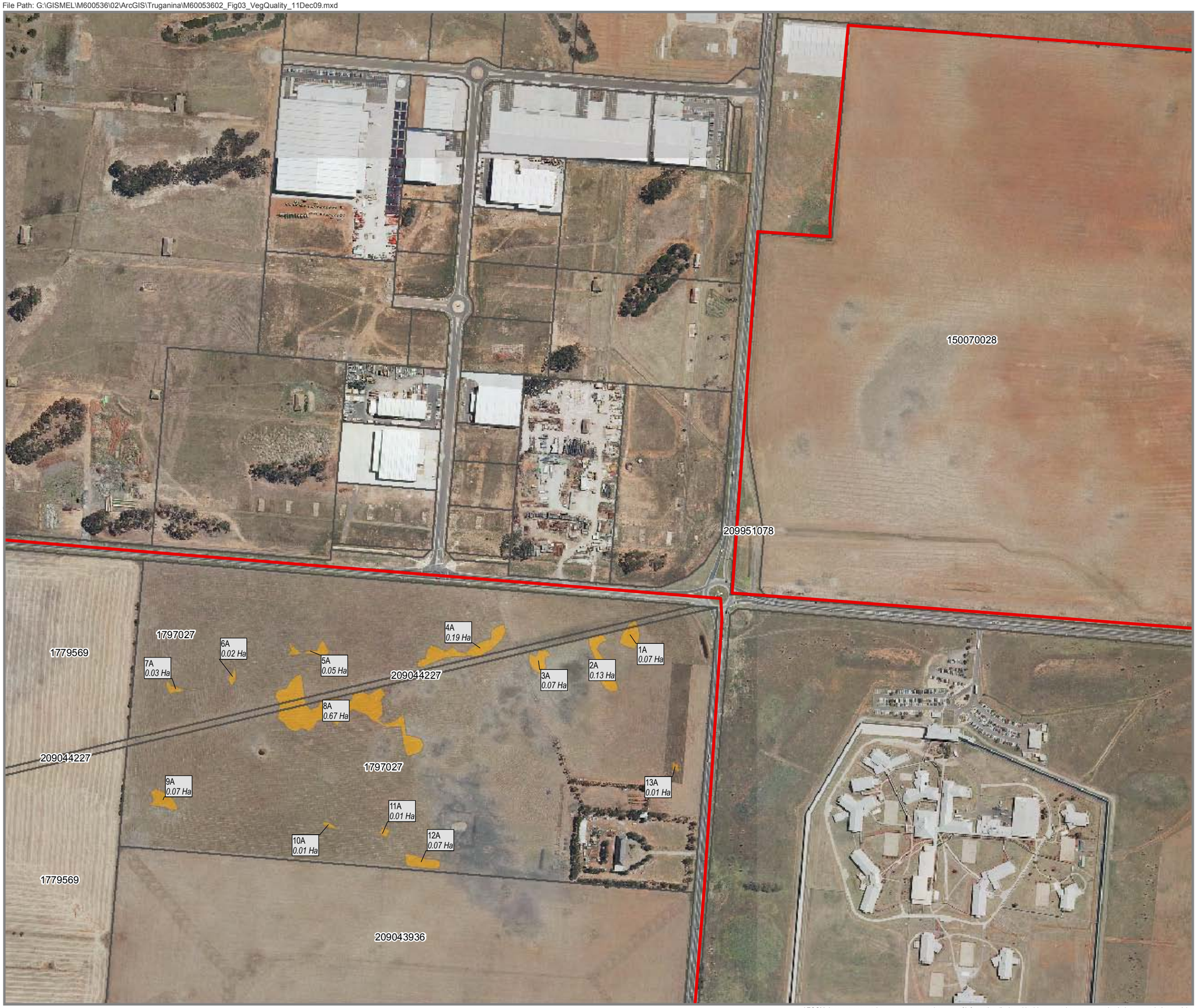

AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas of High Conservation Significance
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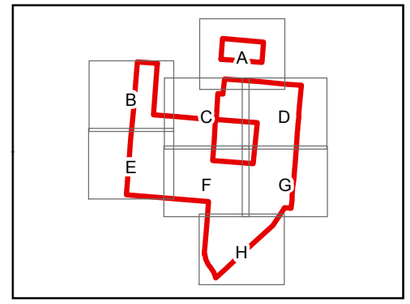

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VEGETATION QUALITY OF HABITAT ZONES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **3C**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

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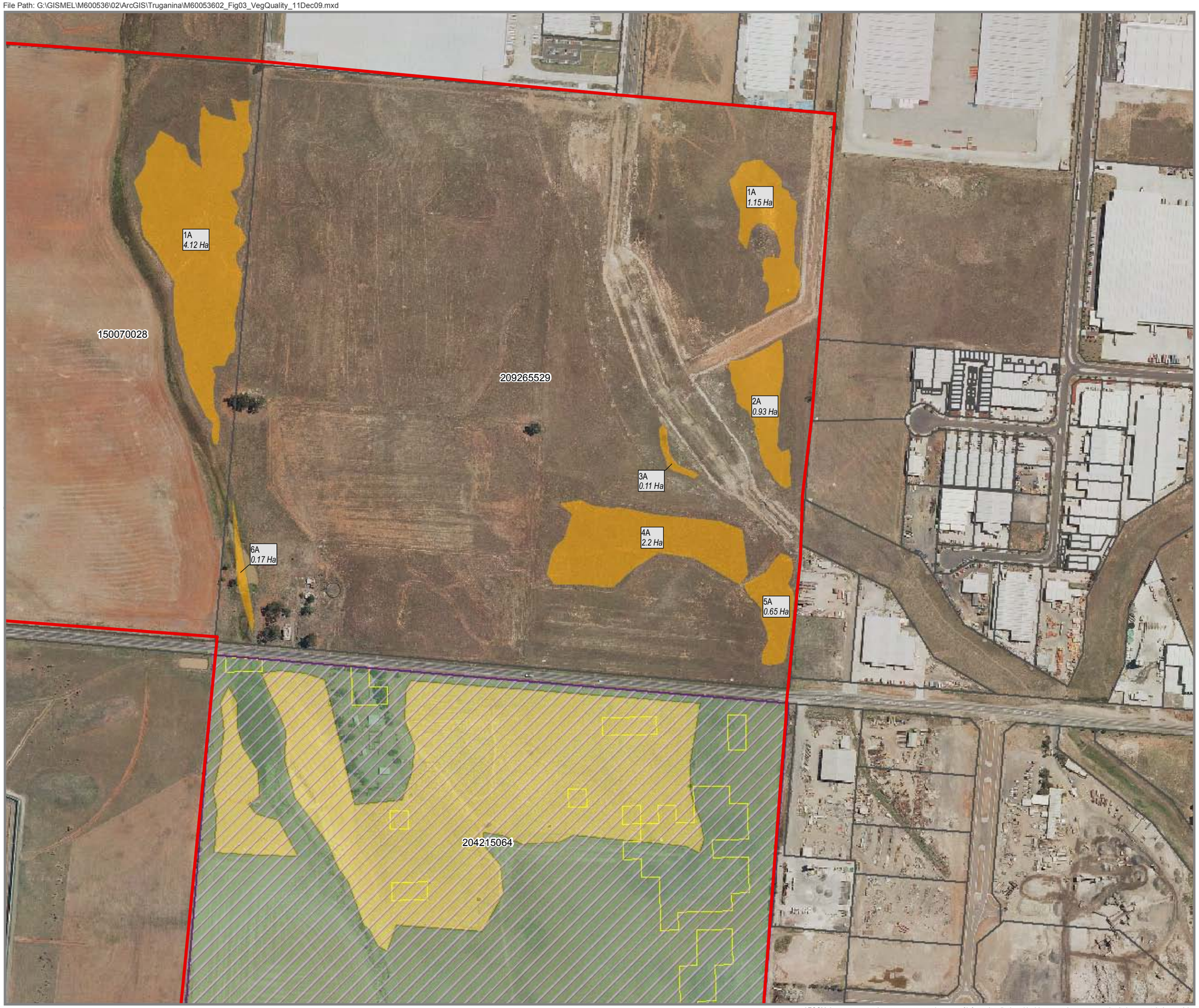

AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas of High Conservation Significance
- 1A 0.68 Ha — Habitat Zone ID / *Habitat Area (Ha)*

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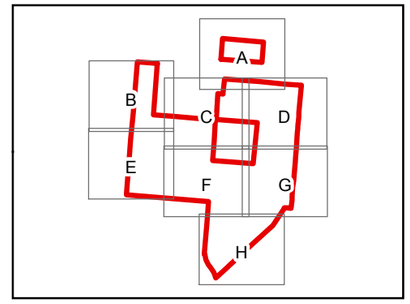

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VEGETATION QUALITY OF HABITAT ZONES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **3D**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

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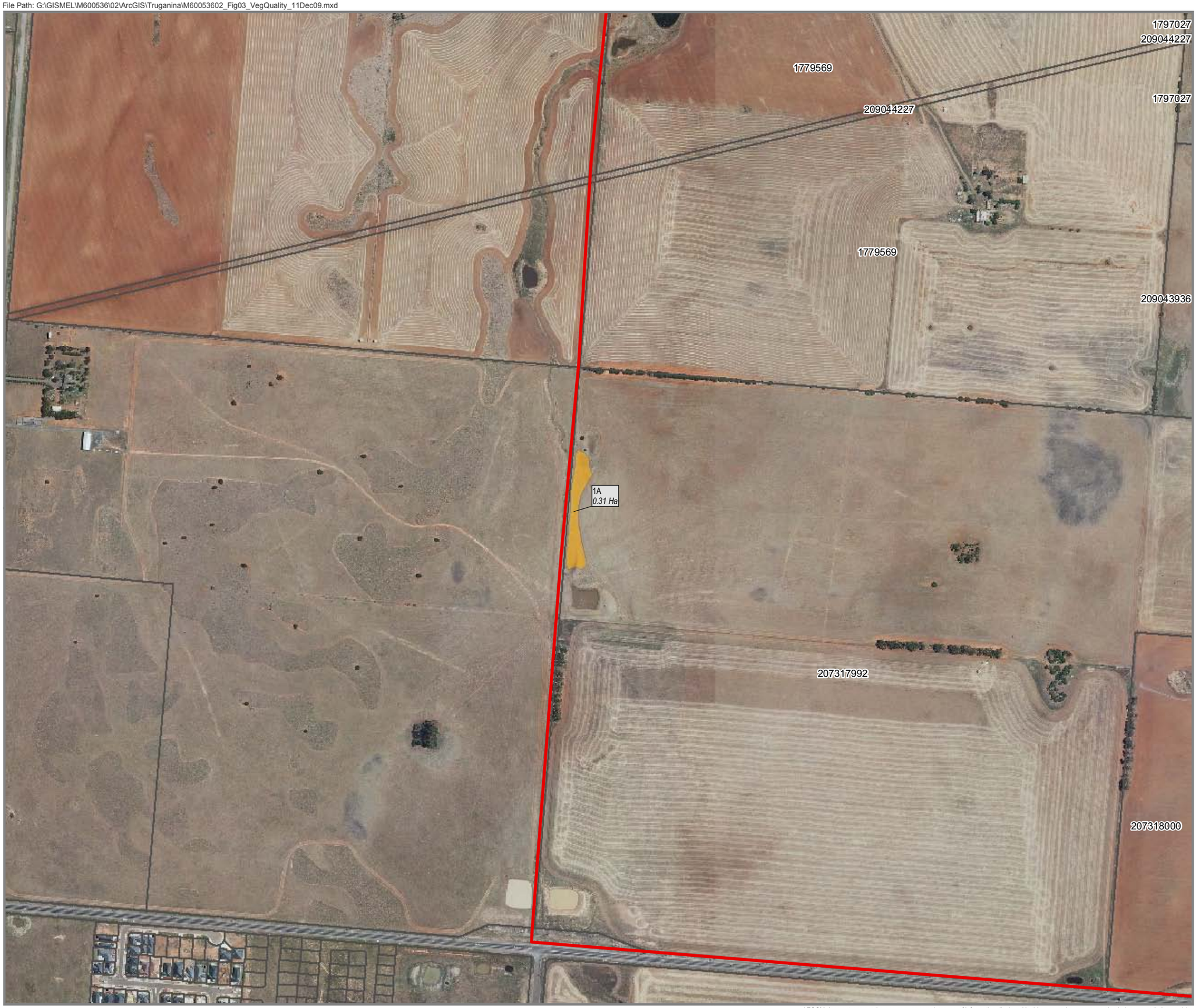


AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas of High Conservation Significance
- 1A / *0.68 Ha* — Habitat Zone ID / *Habitat Area (Ha)*

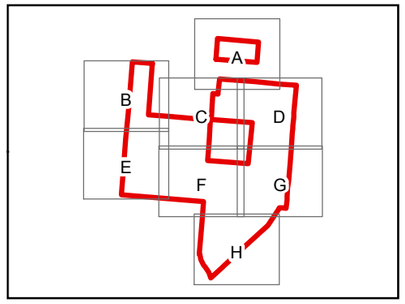
Drive-by Assessments

- Areas Not Assessed (Drive-by/modelled)
- Possible Native Vegetation
- No Native Vegetation

DSE Modelled Native Vegetation

- Plains Grassland (EVC 132)
- 0.68 Ha — DSE Supplied EVC Areas for properties assessed by drive-by

NOTE: Areas assessed by drive-by display DSE Modelled Native Vegetation data. Areas assessed by field survey display EVCs and Degraded Treeless Vegetation.



Data Sources: Incidental records collected by AECOM (formally ENSR Australia Pty. Ltd).
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DATUM GDA 1994, PROJECTION MGA ZONE 55

0 25 50 100 150 200

Metres

1:5,000 when printed at A3

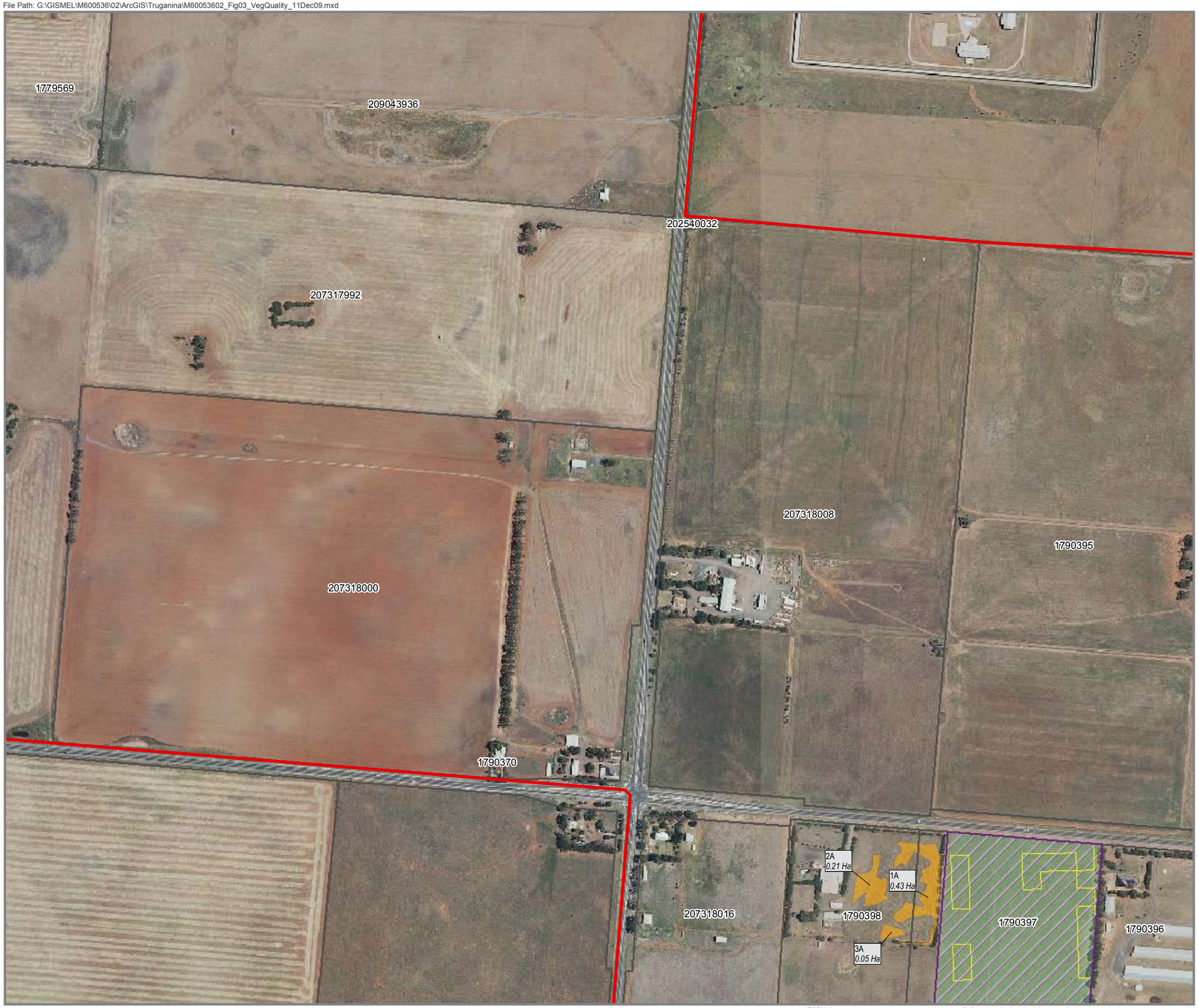
VEGETATION QUALITY OF HABITAT ZONES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **3E**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

File Path: G:\GISMEL\M600536\02\ArcGIS\Truganina\M60053602_Fig03_VegQuality_11Dec09.mxd



LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas of High Conservation Significance
- 1A / *0.68 Ha* — Habitat Zone ID / *Habitat Area (Ha)*

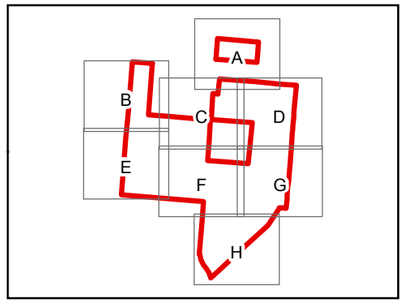
Drive-by Assessments

- Areas Not Assessed (Drive-by/modelled)
- Possible Native Vegetation
- No Native Vegetation

DSE Modelled Native Vegetation

- Plains Grassland (EVC 132)
- 0.68 Ha — DSE Supplied EVC Areas for properties assessed by drive-by

NOTE: Areas assessed by drive-by display DSE Modelled Native Vegetation data. Areas assessed by field survey display EVCs and Degraded Treeless Vegetation.



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DATUM GDA 1994, PROJECTION MGA ZONE 55

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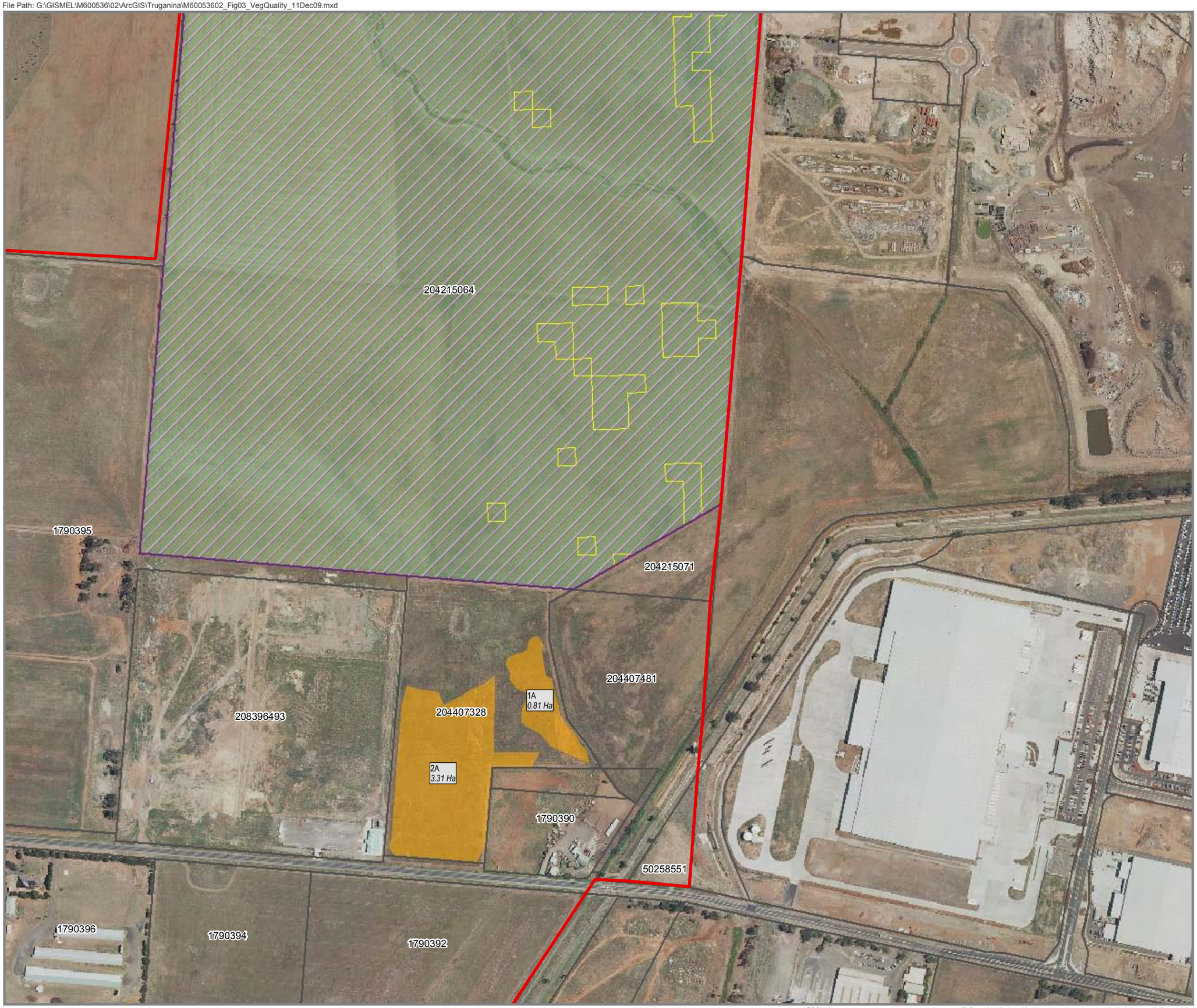
VEGETATION QUALITY OF HABITAT ZONES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **3F**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

File Path: G:\GISMEL\M600536\02\ArcGIS\Truganina\M60053602_Fig03_VegQuality_11Dec09.mxd



AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas of High Conservation Significance
- 1A / 0.68 Ha — Habitat Zone ID / *Habitat Area (Ha)*

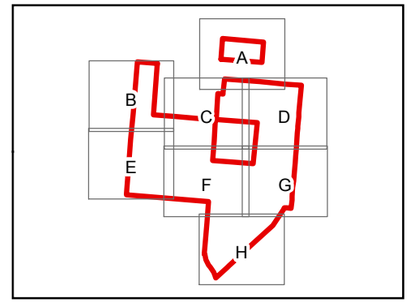
Drive-by Assessments

- Areas Not Assessed (Drive-by/modelled)
- Possible Native Vegetation
- No Native Vegetation

DSE Modelled Native Vegetation

- Plains Grassland (EVC 132)
- 0.68 Ha — DSE Supplied EVC Areas for properties assessed by drive-by

NOTE: Areas assessed by drive-by display DSE Modelled Native Vegetation data. Areas assessed by field survey display EVCs and Degraded Treeless Vegetation.



DATUM GDA 1994, PROJECTION MGA ZONE 55

0 25 50 100 150 200

Metres

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VEGETATION QUALITY OF HABITAT ZONES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **3G**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

File Path: G:\GISMEL\M600536\02\ArcGIS\Truganina\M60053602_Fig03_VegQuality_11Dec09.mxd

AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas of High Conservation Significance
- 1A 0.68 Ha Habitat Zone ID *Habitat Area (Ha)*

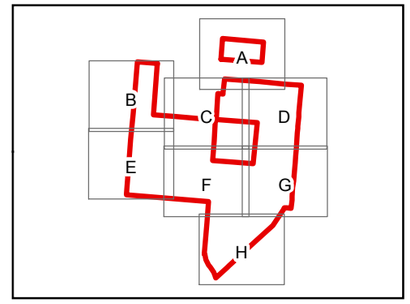
Drive-by Assessments

- Areas Not Assessed (Drive-by/modelled)
- Possible Native Vegetation
- No Native Vegetation

DSE Modelled Native Vegetation

- Plains Grassland (EVC 132)
- 0.68 Ha DSE Supplied EVC Areas for properties assessed by drive-by

NOTE: Areas assessed by drive-by display DSE Modelled Native Vegetation data. Areas assessed by field survey display EVCs and Degraded Treeless Vegetation.



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DATUM GDA 1994, PROJECTION MGA ZONE 55

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VEGETATION QUALITY OF HABITAT ZONES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **3H**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

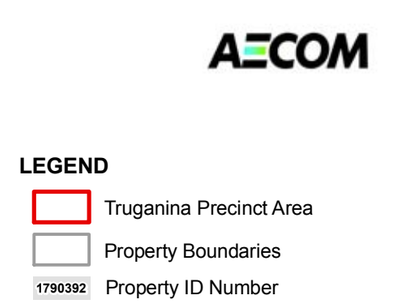
File Path: G:\GISMEL\M600536\02\ArcGIS\Truganina\M60053602_Fig04_Conservation_11Dec09.mxd

AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas Not Assessed (Drive-by/modelled)
- High Conservation Significance Remnant Patches
- Degraded Treeless Vegetation
- 1A 0.43 Habitat Zone ID / Habitat Area (Ha)

3000878
150070028
1A 0.68 Ha
209951078
4A 0.19 Ha
1A 0.07 Ha
1797027
5A 0.05 Ha
7A 0.03 Ha
1779569
8A 0.67 Ha
3A 0.07 Ha
2A 0.13 Ha
6A 0.02 Ha
14A 31.02 Ha
1797027
1A 63.37 Ha
11A 0.01 Ha
13A 0.01 Ha
9A 0.07 Ha
10A 0.01 Ha
12A 0.07 Ha
1779569
1A 31.03 Ha
209043936
202540032
1A 0.31 Ha
2A 88.9 Ha
207317992
207318008
1A 32.56 Ha
1A 40.13 Ha
207318000



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DATUM GDA 1994, PROJECTION MGA ZONE 55

0 50 100 200 300 400

Metres

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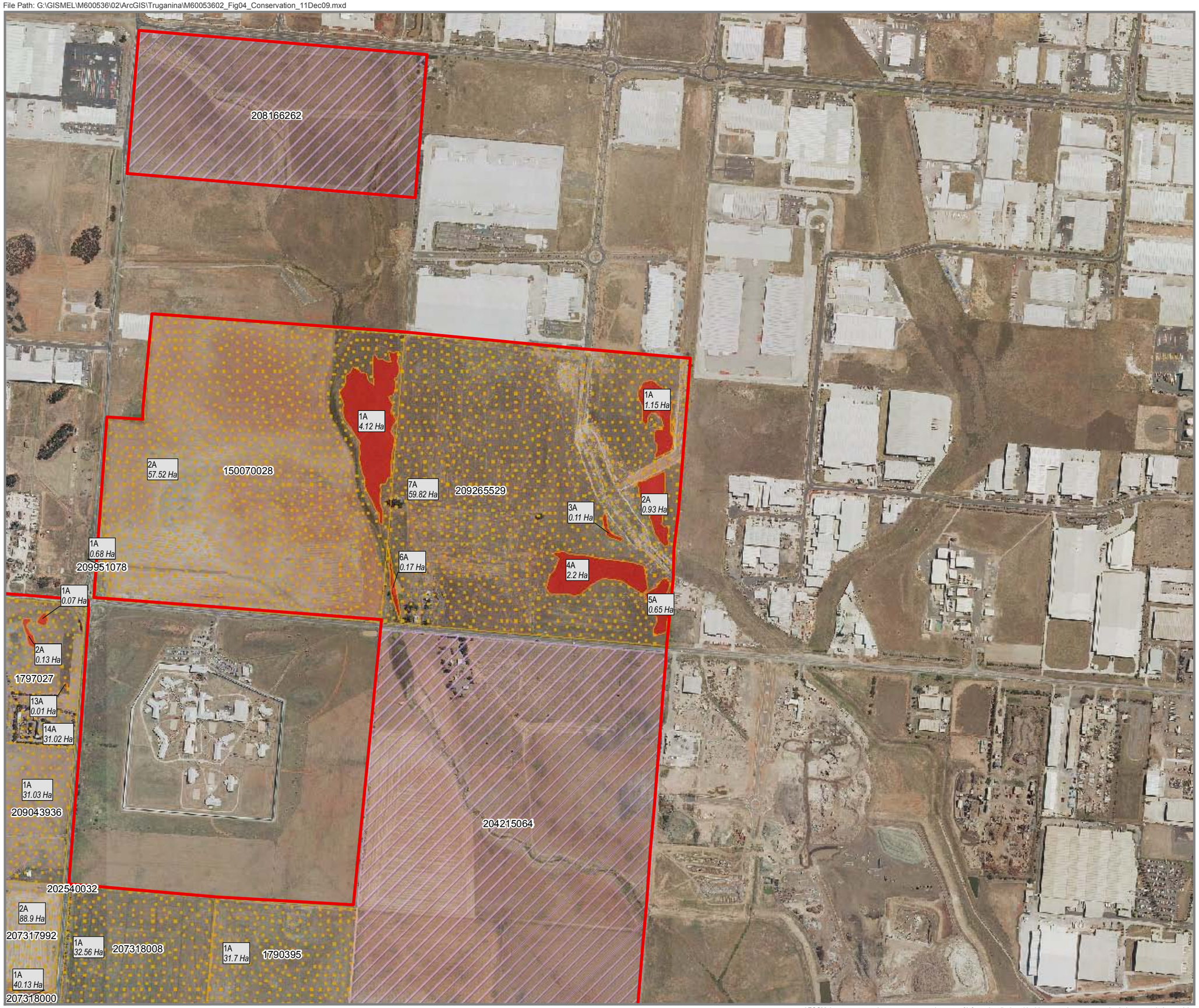
CONSERVATION SIGNIFICANCE OF HABITAT ZONES

Growth Area Authority
Vegetation
Assessment Report
Truganina, VIC

Figure **4A**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

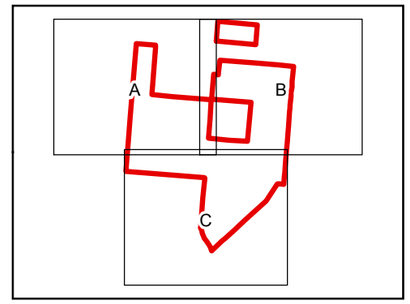
File Path: G:\GISMEL\M600536\02\ArcGIS\Truganina\M60053602_Fig04_Conservation_11Dec09.mxd



AECOM

LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas Not Assessed (Drive-by/modelled)
- High Conservation Significance Remnant Patches
- Degraded Treeless Vegetation
- 1A 0.43 Habitat Zone ID Habitat Area (Ha)



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DATUM GDA 1994, PROJECTION MGA ZONE 55

0 50 100 200 300 400

Metres

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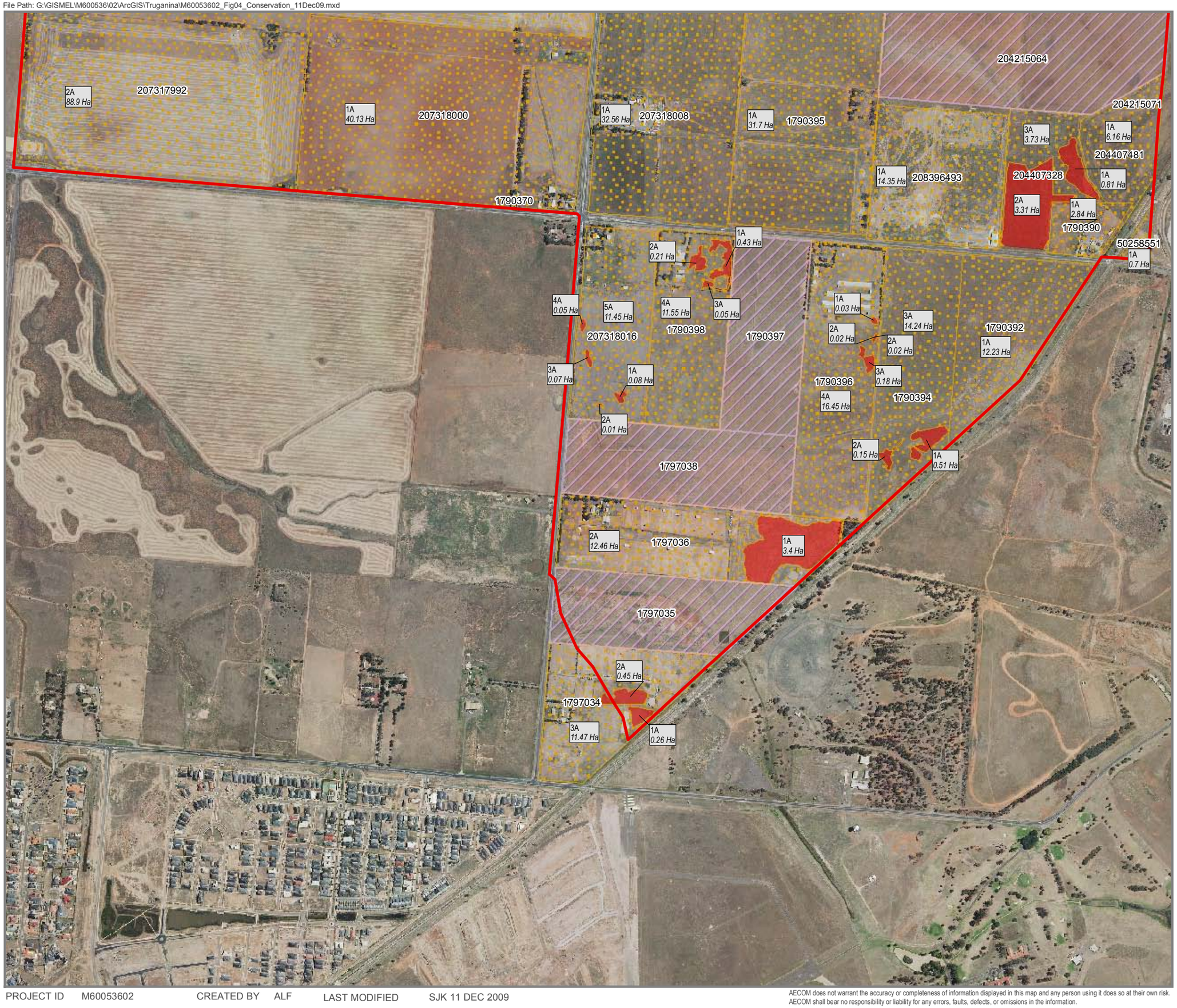
CONSERVATION SIGNIFICANCE OF HABITAT ZONES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **4B**

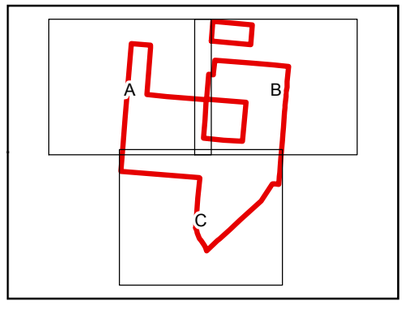
PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

File Path: G:\GISMEL\M600536\02\ArcGIS\Truganina\M60053602_Fig04_Conservation_11Dec09.mxd



LEGEND

- Truganina Precinct Area
- Property Boundaries
- 1790392 Property ID Number
- Areas Not Assessed (Drive-by/modelled)
- High Conservation Significance Remnant Patches
- Degraded Treeless Vegetation
- 1A 0.43 Habitat Zone ID / Habitat Area (Ha)



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DATUM GDA 1994, PROJECTION MGA ZONE 55

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Metres

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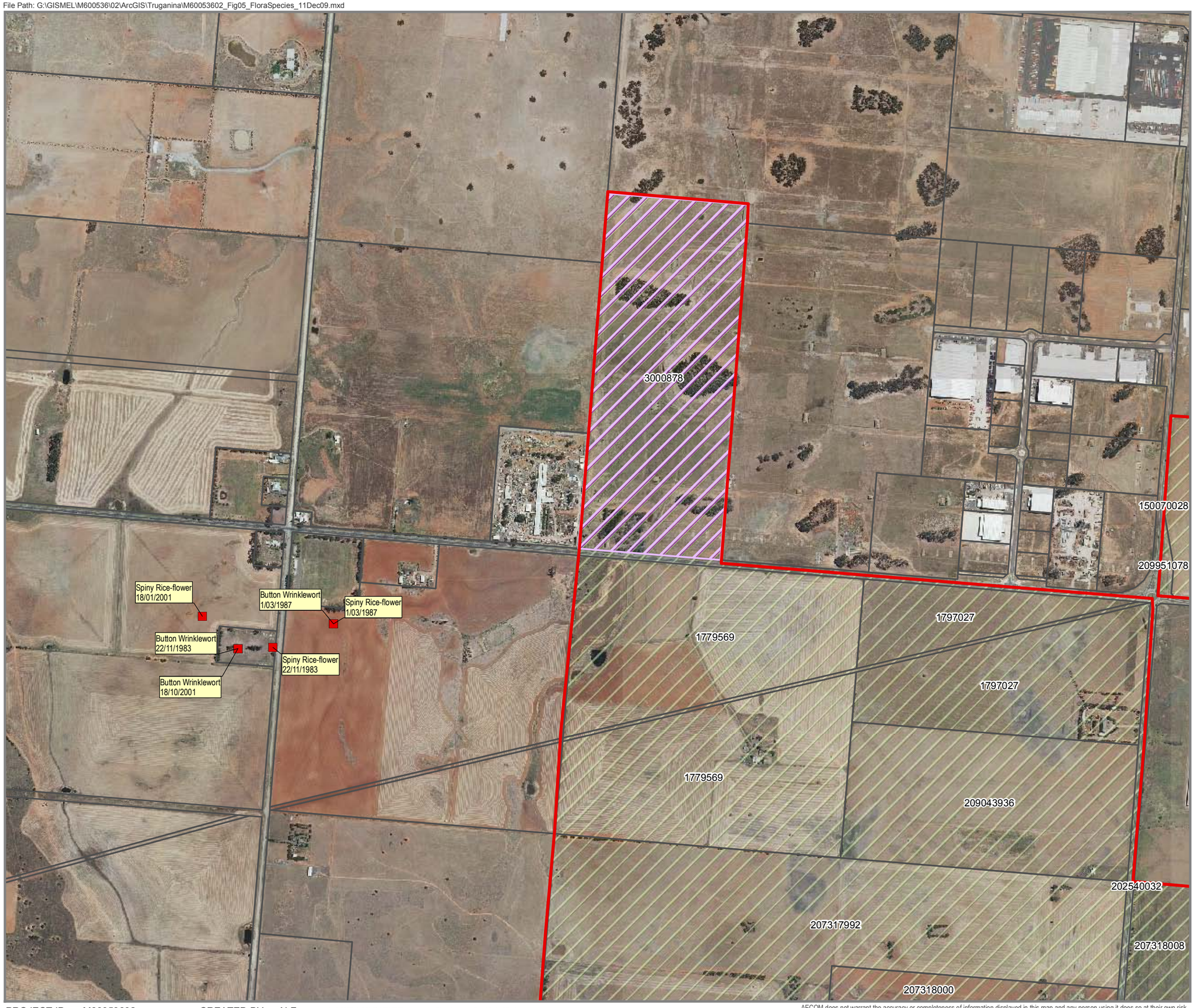
CONSERVATION SIGNIFICANCE OF HABITAT ZONES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **4C**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

File Path: G:\GISMEL\M600536\02\ArcGIS\Truganina\M60053602_Fig05_FloraSpecies_11Dec09.mxd



AECOM

LEGEND

- Truganina Precinct Area
- 1790392 Property ID Number
- Property Boundaries
- Areas Not Assessed (Drive-by/modelled)
- Assessed by field survey

Database Records

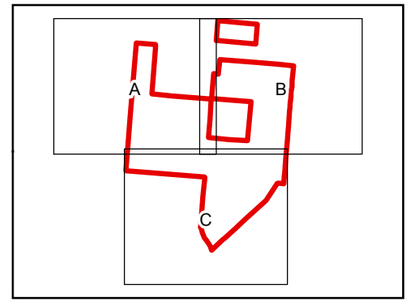
- Nationally Significant^
- State Significant*

Incidental Records for Current Assessment

- Nationally Significant^
- State Significant*

Small Scurf Pea 20/05/2006 * Species Common Name Date of Record

Button Winklewort 15/12/1986 ^ Nationally significant species Date of Record



* FFG listed and/or DSE VROT Advisory list

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 50 100 200 300 400

Metres

1:10,000 when printed at A3

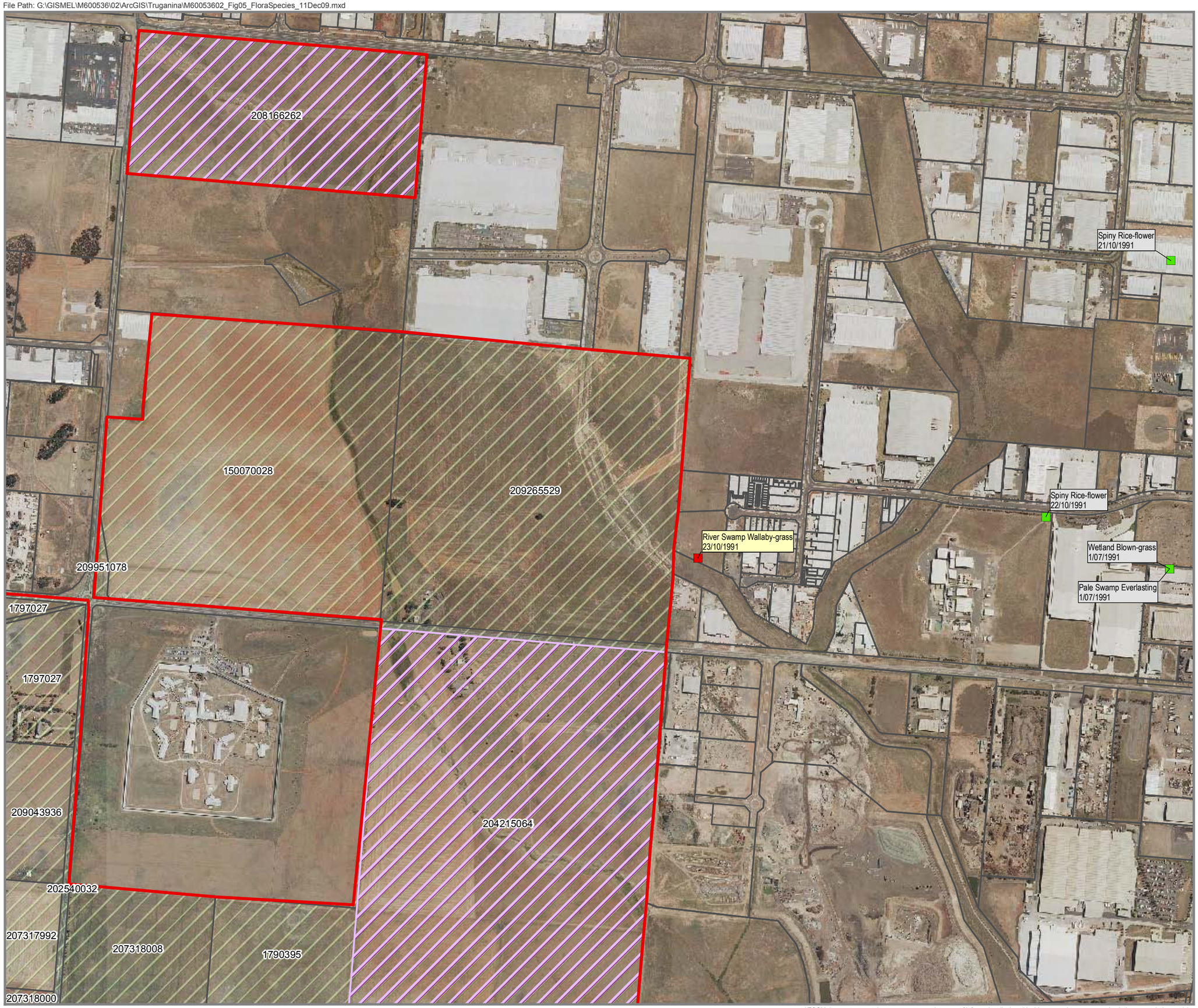
NATIONAL AND STATE SIGNIFICANT FLORA SPECIES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **5A**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

File Path: G:\GISMEL\M600536\02\ArcGIS\Truganina\M60053602_Fig05_FloraSpecies_11Dec09.mxd



AECOM

LEGEND

- Truganina Precinct Area
- 1790392 Property ID Number
- Property Boundaries
- Areas Not Assessed (Drive-by/modelled)
- Assessed by field survey

Database Records

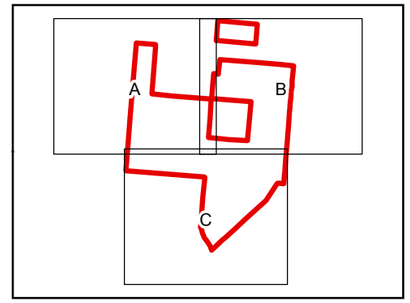
- Nationally Significant^
- State Significant*

Incidental Records for Current Assessment

- Nationally Significant^
- State Significant*

Small Scurf Pea 20/05/2006 * Species Common Name Date of Record

Button Winklewort 15/12/1986 ^ Nationally significant species Date of Record



* FFG listed and/or DSE VROT Advisory list

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DATUM GDA 1994, PROJECTION MGA ZONE 55

0 50 100 200 300 400

Metres

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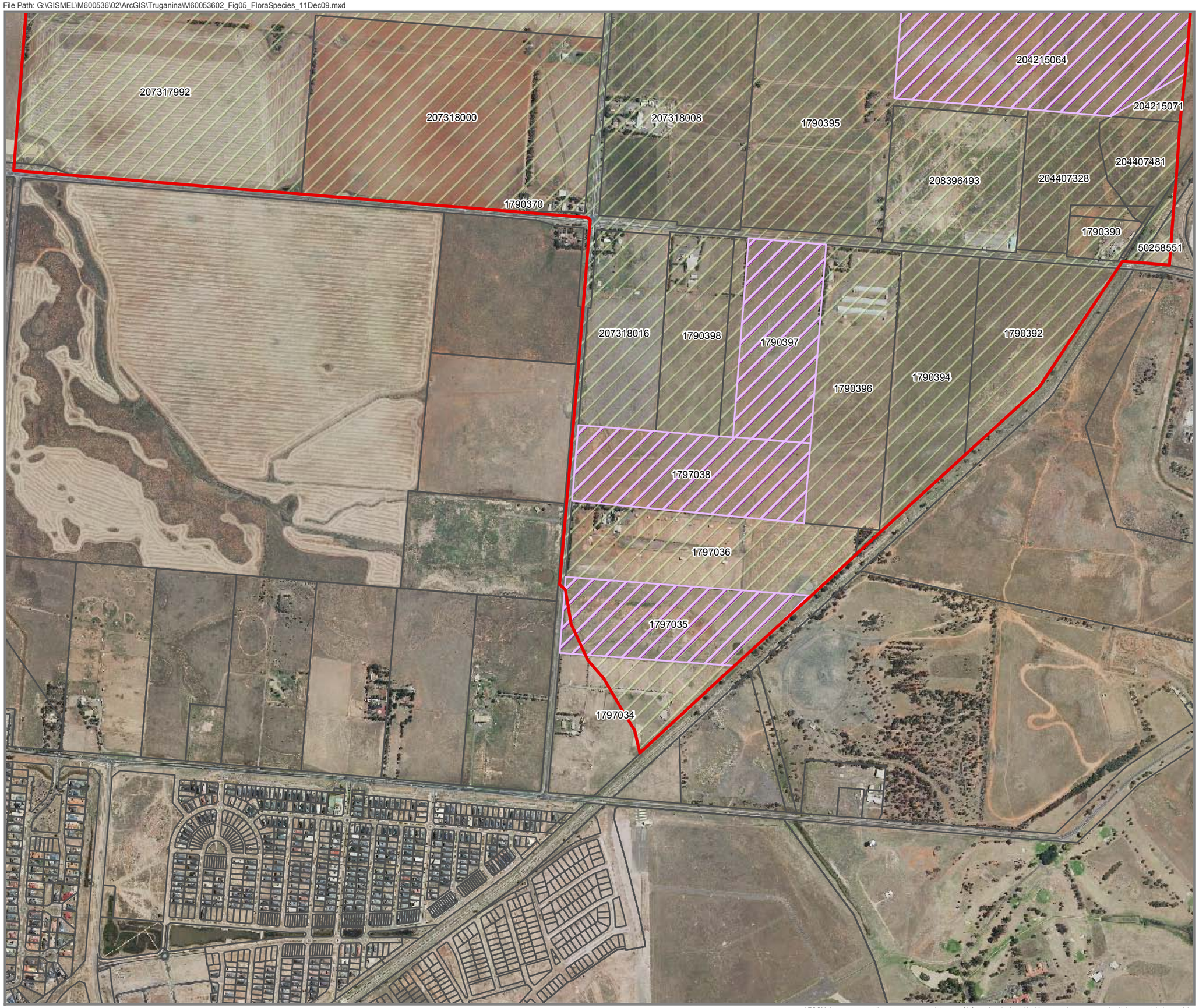
NATIONAL AND STATE SIGNIFICANT FLORA SPECIES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **5B**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

File Path: G:\GISMEL\M600536\02\ArcGIS\Truganina\M60053602_Fig05_FloraSpecies_11Dec09.mxd



AECOM

LEGEND

- Truganina Precinct Area
- 1790392 Property ID Number
- Property Boundaries
- Areas Not Assessed (Drive-by/modelled)
- Assessed by field survey

Database Records

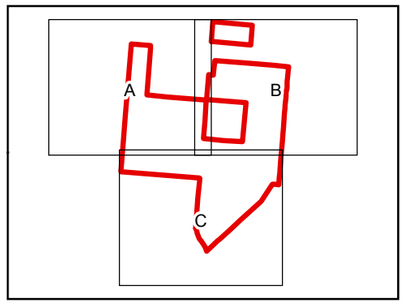
- Nationally Significant^
- State Significant*

Incidental Records for Current Assessment

- Nationally Significant^
- State Significant*

Small Scurf Pea 20/05/2006 * Species Common Name Date of Record

Button Winklewort 15/12/1986 ^ Nationally significant species Date of Record



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DATUM GDA 1994, PROJECTION MGA ZONE 55

0 50 100 200 300 400

Metres

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NATIONAL AND STATE SIGNIFICANT FLORA SPECIES

Growth Area Authority
Vegetation Assessment Report
Truganina, VIC

Figure **5C**

PROJECT ID M60053602 CREATED BY ALF LAST MODIFIED SJK 11 DEC 2009

Appendix A

Listed Flora Species Recorded Within 5 km of the Truganina Precinct Area

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Appendix A: Threatened Flora Species Recorded within 5 km of Truganina Project Area

Botanical Name	Common Name	EPBC	VROT	FFG	VFSD	PMST	Likelihood of Occurrence
Eleocharis macbarronii	Grey Spike-sedge		Poorly known		✓		Unlikely. Absence of suitable habitat.
Eleocharis pallens	Pale Spike-sedge		Poorly known		✓		Unlikely. Absence of suitable habitat.
Maireana aphylla	Leafless Bluebush		Poorly known		✓		Likely. Suitable habitat present within the area.
Desmodium varians	Slender Tick-trefoil		Poorly known		✓		Possible. Suitable habitat present within the area
Alternanthera sp. 1 (Plains)	Plains Joyweed		Poorly known		✓		Likely. Suitable habitat present within the area.
Lotus australis var. *australis*	Austral Trefoil		Poorly known		✓		Possible. Suitable habitat present within the area
Lachnagrostis filiformis var. 2	Wetland Blown-grass		Poorly known		✓		Highly likely as suitable habitat is present within the area. Recorded within the immediate vicinity.
Convolvulus angustissimus subsp. *omnigracilis*	Slender Bindweed		Poorly known		✓		Likely. Suitable habitat present within the area.
Tripogon loliiformis	Rye Beetle-grass		Rare		✓		Possible. Suitable habitat present within the area
Lawrencia spicata	Salt Lawrencia		Rare		✓		Unlikely. Absence of suitable habitat.
Juncus revolutus	Creeping Rush		Rare		✓		Unlikely. Absence of suitable habitat.
Atriplex paludosa subsp. *paludosa*	Marsh Saltbush		Rare		✓		Unlikely. Absence of suitable habitat.
Bromus arenarius	Sand Brome		Rare		✓		Unlikely. Absence of suitable

Botanical Name	Common Name	EPBC	VROT	FFG	VFSD	PMST	Likelihood of Occurrence
							habitat.
Geranium sp. 3	Pale-flower Crane's-bill		Rare		✓		Possible. Suitable habitat present within the area
Melaleuca armillaris subsp. *armillaris*	Giant Honey-myrtle		Rare		✓		Unlikely. Absence of suitable habitat.
Triglochin minutissima	Tiny Arrowgrass		Rare		✓		Possible. Suitable habitat present within the area
Senecio campylocarpus	Floodplain Fireweed		Rare		✓		Possible. Suitable habitat present within the area
Diuris X *fastidiosa*	Proud Diuris		Endangered		✓		Unlikely. Absence of suitable habitat.
Podolepis sp. 1	Basalt Podolepis		Endangered		✓		Possible. Suitable habitat present within the area
Comesperma polygaloides	Small Milkwort		Vulnerable	✓	✓		Possible. Suitable habitat present within the area
Amphibromus pithogastrus	Plump Swamp Wallaby-grass		Endangered	✓	✓		Possible. Suitable habitat present within the area
Cullen tenax	Tough Scurf-pea		Endangered	✓	✓		Possible. Suitable habitat present within the area
Cullen parvum	Small Scurf-pea		Endangered	✓	✓		Possible. Suitable habitat present within the area
Helichrysum aff. *rutidolepis* (Lowland Swamps)	Pale Swamp Everlasting		Vulnerable		✓		Highly likely as suitable habitat is present within the area. Recorded within the immediate vicinity.
Dianella sp. aff. *longifolia* (Benambra)	Arching Flax-lily		Vulnerable		✓		Possible. Suitable habitat present within the area
Geranium solanderi var.	Austral Crane's-bill		Vulnerable		✓		Possible. Suitable habitat present

Botanical Name	Common Name	EPBC	VROT	FFG	VFSD	PMST	Likelihood of Occurrence
solanderi							within the area
Diuris behrii	Golden Cowslips		Vulnerable		✓		Unlikely. Absence of suitable habitat.
Diuris palustris	Swamp Diuris		Vulnerable	✓	✓		Unlikely. Absence of suitable habitat.
Prasophyllum suaveolens	Fragrant Leek-orchid	Endangered	Endangered	✓	✓		Unlikely. Absence of suitable habitat.
Allocasuarina luehmannii	Buloke			✓	✓		Unlikely. Absence of suitable habitat.
Eucalyptus camaldulensis	River Red-gum			Nominated	✓		Likely. Suitable habitat present within the area.
Amphibromus fluitans	River Swamp Wallaby-grass	Vulnerable				✓	Highly likely as suitable habitat is present within the area. Recorded within the immediate vicinity.
Diuris basaltica	Small Golden Moths Orchid	Endangered	Vulnerable	✓	✓	✓	Unlikely. Absence of suitable habitat.
Diuris fragrantissima	Sunshine Diuris	Endangered	Endangered	✓	✓	✓	Unlikely. Absence of suitable habitat.
Carex tasmanica	Curly Sedge	Vulnerable	Vulnerable	✓		✓	Unlikely. Absence of suitable habitat.
Glycine latrobeana	Clover Glycine	Vulnerable	Vulnerable	✓		✓	Possible. Suitable habitat present within the area
Pimelea spinescens subsp. *spinescens*	Spiny Rice-flower	Critically Endangered	Vulnerable	✓	✓	✓	Highly likely as suitable habitat is present within the area. Recorded within the immediate vicinity.
Prasophyllum frenchii	Maroon Leek-orchid	Endangered	Endangered	✓		✓	Unlikely. Absence of suitable habitat.

Botanical Name	Common Name	EPBC	VROT	FFG	VFSD	PMST	Likelihood of Occurrence
Rutidosis leptorrhynchoides	Button Wrinklewort	Endangered	Endangered	✓	✓	✓	Highly likely as suitable habitat is present within the area. Recorded within the immediate vicinity.
Senecio macrocarpus	Large-fruit Fireweed	Vulnerable	Endangered	✓	✓	✓	Highly likely as suitable habitat is present within the area. Recorded within the immediate vicinity.
Natural Temperate Grassland of the Victorian Volcanic Plain		Critically Endangered				✓	Present. Suitable habitat is present within the area.

EPBC - Environment Protection and Biodiversity Conservation Act 1999; VROT - DSE Advisory List of Victorian Rare and Threatened Species; FFG - Flora and Fauna Guarantee Act 1988; VFSD – Victorian Flora Site Database; PMST – Protected Matters Search Tool.

Appendix B

Results of Habitat Hectare Assessments for Truganina Precinct Area

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Appendix B: Results of Habitat Hectare Assessments for Truganina Precinct Area.

Property ID	Habitat Zone	Vegetation Category	Total Area (ha)	EVC No.	EVC Conservation Status	Landscape Score (0 – 25)	Site Condition Score (0 – 75)	Habitat Score (0 – 1)	Habitat Hectares	Conservation Significance	Figure No.
150070028	1A	RP	4.12	VVP_0132_62	Endangered	3	22	0.25	1.03	High	3 C
150070028	2A	DT	57.52			0	0	0	0.00		3 D
1779569	1A	DT	63.37			0	0	0	0.00		3 B
1790390	1A	DT	2.84			0	0	0	0.00		3 G
1790392	1A	DT	12.23			0	0	0	0.00		3 G
1790394	1A	RP	0.51	VVP_0132_61	Endangered	1	14	0.15	0.08	High	3 H
1790394	2A	RP	0.15	VVP_0132_61	Endangered	1	10	0.11	0.02	High	3 H
1790394	3A	DT	14.24			0	0	0	0.00		3 H
1790395	1A	DT	31.70			0	0	0	0.00		3 F
1790396	3A	RP	0.18	VVP_0132_61	Endangered	1	13	0.14	0.03	High	3 H
1790396	2A	RP	0.02	VVP_0132_61	Endangered	1	10	0.11	0.00	High	3 H
1790396	1A	RP	0.03	VVP_0132_61	Endangered	1	10	0.11	0.00	High	3 H
1790396	4A	DT	16.45			0	0	0	0.00		3 H
1790398	3A	RP	0.05	VVP_0132_61	Endangered	1	9	0.10	0.00	High	3 H
1790398	1A	RP	0.43	VVP_0132_61	Endangered	1	9	0.10	0.04	High	3 H
1790398	2A	RP	0.21	VVP_0132_61	Endangered	1	9	0.10	0.02	High	3 H
1790398	4A	DT	11.55			0	0	0	0.00		3 H
1797027	1A	RP	0.07	VVP_0132_61	Endangered	1	17	0.18	0.01	High	3 C
1797027	2A	RP	0.13	VVP_0132_61	Endangered	1	17	0.18	0.02	High	3 C

Property ID	Habitat Zone	Vegetation Category	Total Area (ha)	EVC No.	EVC Conservation Status	Landscape Score (0 – 25)	Site Condition Score (0 – 75)	Habitat Score (0 – 1)	Habitat Hectares	Conservation Significance	Figure No.
1797027	3A	RP	0.07	VVP_0132_61	Endangered	1	16	0.17	0.01	High	3 C
1797027	4A	RP	0.19	VVP_0132_61	Endangered	1	12	0.13	0.02	High	3 C
1797027	5A	RP	0.05	VVP_0132_61	Endangered	1	16	0.17	0.01	High	3 C
1797027	8A	RP	0.67	VVP_0132_61	Endangered	1	16	0.17	0.11	High	3 C
1797027	6A	RP	0.02	VVP_0132_61	Endangered	1	12	0.13	0.00	High	3 C
1797027	7A	RP	0.03	VVP_0132_61	Endangered	1	9	0.10	0.00	High	3 C
1797027	9A	RP	0.07	VVP_0132_61	Endangered	1	12	0.13	0.01	High	3 C
1797027	10A	RP	0.01	VVP_0132_61	Endangered	1	12	0.13	0.00	High	3 C
1797027	11A	RP	0.01	VVP_0132_61	Endangered	1	12	0.13	0.00	High	3 C
1797027	12A	RP	0.07	VVP_0132_61	Endangered	1	12	0.13	0.01	High	3 C
1797027	13A	RP	0.01	VVP_0132_61	Endangered	1	16	0.17	0.00	High	3 C
1797027	14A	DT	31.02			0	0	0	0.00		3 C
1797034	1A	RP	0.26	VVP_0132_61	Endangered	7	12	0.19	0.05	High	3 H
1797034	2A	RP	0.45	VVP_0132_61	Endangered	7	12	0.19	0.09	High	3 H
1797034	3A	DT	11.47			0	0	0	0.00		3 H
1797036	1A	RP	3.40	VVP_0132_61	Endangered	2	12	0.14	0.48	High	3 H
1797036	2A	DT	12.46			0	0	0	0.00		3 H
204407328	2A	RP	3.31	VVP_0132_61	Endangered	2	9	0.11	0.36	High	3 G
204407328	1A	RP	0.81	VVP_0132_61	Endangered	1	9	0.10	0.08	High	3 G
204407328	3A	DT	3.73			0	0	0	0.00		3 G

Property ID	Habitat Zone	Vegetation Category	Total Area (ha)	EVC No.	EVC Conservation Status	Landscape Score (0 – 25)	Site Condition Score (0 – 75)	Habitat Score (0 – 1)	Habitat Hectares	Conservation Significance	Figure No.
204407481	1A	DT	6.16			0	0	0	0.00		3 G
207317992	1A	RP	0.31	VVP_0132_61	Endangered	1	19	0.20	0.06	High	3 E
207317992	2A	DT	88.90			0	0	0	0.00		3 E
207318000	1A	DT	40.13			0	0	0	0.00		3 F
207318008	1A	DT	32.56			0	0	0	0.00		3 F
207318016	1A	RP	0.08	VVP_0132_61	Endangered	1	12	0.13	0.01	High	3 H
207318016	2A	RP	0.01	VVP_0132_61	Endangered	1	12	0.13	0.00	High	3 H
207318016	3A	RP	0.07	VVP_0132_61	Endangered	1	16	0.17	0.01	High	3 H
207318016	4A	RP	0.05	VVP_0132_61	Endangered	1	13	0.14	0.01	High	3 H
207318016	5A	DT	11.45			0	0	0	0.00		3 H
208396493	1A	DT	14.35			0	0	0	0.00		3 G
209043936	1A	DT	31.03			0	0	0	0.00		3 F
209265529	1A	RP	1.15	VVP_0132_61	Endangered	1	12	0.13	0.15	High	3 D
209265529	3A	RP	0.11	VVP_0132_61	Endangered	3	12	0.15	0.02	High	3 D
209265529	2A	RP	0.93	VVP_0132_61	Endangered	1	12	0.13	0.12	High	3 D
209265529	5A	RP	0.65	VVP_0649	Endangered	1	24	0.25	0.16	High	3 D
209265529	4A	RP	2.20	VVP_0649	Endangered	2	22	0.24	0.53	High	3 D
209265529	6A	RP	0.17	VVP_0068	Endangered	1	7	0.08	0.01	High	3 D
209265529	7A	DT	59.82			0	0	0	0.00		3 D
209951078	1A	DT	0.68			0	0	0	0.00		3 C

Property ID	Habitat Zone	Vegetation Category	Total Area (ha)	EVC No.	EVC Conservation Status	Landscape Score (0 – 25)	Site Condition Score (0 – 75)	Habitat Score (0 – 1)	Habitat Hectares	Conservation Significance	Figure No.
50258551	1A	DT	0.70			0	0	0	0.00		3 G
Total	**206**		**575.42**					**0 – 0.25**	**0 – 1.03**		

DT – Degraded Treeless Vegetation; RP – Remnant Patch; VVP – Victorian Volcanic Plain Bioregion. Ecological Vegetation Classes (EVC): 0132_61 – Heavier-soils Plains Grassland; 0132_62 – Lighter-soils Plains Grassland; 0649 – Stony Knoll Shrubland; 068 – Creekline Grassy Woodland; 055_61 – Plains Grassy Woodland.

* The bioregional conservation status of each EVC recorded is Endangered, with each patch having a conservation significance of High. Therefore a Net Gain multiplier of 1.5 applies to offsets for all remnant patches.

Appendix C

Environmental Legislation and Policy

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Commonwealth Legislative Requirements

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) applies to the following Matters of National Environmental Significance:

- World Heritage properties;
- National Heritage Places;
- Ramsar wetlands of international significance;
- Nationally listed threatened species and ecological communities;
- Listed migratory species;
- Commonwealth marine areas; and
- Nuclear Actions.

Under Section 26 of the EPBC Act, actions that are likely to have a significant impact upon matters of national environmental significance require approval from the Federal Environment Minister. This is done by a referral to the Department of Environment, Water, Heritage and the Arts (DEWHA).

State Legislative Requirements

The *Victorian Flora and Fauna Guarantee Act 1988* (FFG Act) was established to provide a legal framework for enabling and promoting the conservation of all Victoria's native flora and fauna, and to enable management of potentially threatening processes. The Act provides a listing process, whereby native species and communities of flora and fauna, and the processes that threaten native flora and fauna are listed in the schedules of the Act. This process assists in identifying those species and communities that require management regimes to survive, and highlights the processes required to minimise the threat to native flora and fauna species and communities within Victoria.

A permit from Department of Sustainability and Environment (DSE) is required under the following circumstances:

- To 'take' listed flora species from listed communities or protected flora from public land.
- If the site is declared 'critical habitat' for the species.

Victorian Catchment and Land Protection Act 1994

The *Catchment and Land Protection Act 1994* (CaLP Act) is the principal legislation relating to the management of pest plants and animals in Victoria. Under this Act, landowners have a responsibility to avoid causing or contributing to land degradation, including taking all reasonable steps to conserve soil, protect water resources, eradicate regionally prohibited weeds, prevent the growth and spread of regionally controlled weeds and where possible, eradicate established pest animals, as declared as "noxious" under the Act.

The CALP Act is similar to the FFG Act as it may be used by DSE (or other bodies) to advise the Minister on the appropriateness of the development.

Victorian Planning and Environment Act 1987

The *Planning and Environment Act 1987* (P&E Act) is the primary legislation that provides the foundation of the planning schemes in Victoria. The planning schemes set out policies and provisions for the use and development of land. Each municipality in Victoria is covered by a planning scheme. The objectives of the Act are to establish a system of planning schemes and to integrate land use and development planning and policy with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels. The Act also establishes a clear procedure for public participation in decision making in amending planning schemes.

The *Planning and Environment Act 1996* (Planning Schemes) provides for the Minister for Planning to prepare a set of standard provisions for planning schemes called the Victoria Planning Provisions (VPP). The VPP is a State-wide reference document or template from which planning schemes are sourced and constructed. It is a statutory device to ensure that consistent provisions for various matters are maintained across Victoria and that the construction and layout of planning schemes is always the same.

State Policies

In addition to legislation, there are also a number of relevant State polices. These polices are not statutory but are used to further assess biological attributes. This information may also provide a conservation significance rating which allows proponents and regulators to make decisions on the appropriateness of the application.

Victoria's Native Vegetation Management – A Framework for Action

Victoria's *Native Vegetation Management - A Framework for Action* (The Framework) was incorporated into the Victorian Planning Schemes in July 2003. The main aim of The Framework for native vegetation in Victoria is '*a reversal across the entire landscape, of the long-term decline in the extent and quality of native vegetation, leading to a Net Gain*' (DNRE, 2002).

In terms of proposed native vegetation clearance, a three-step approach must be taken in order to apply the principles of Net Gain. These steps are:

a) Avoid adverse impacts, particularly by avoiding vegetation clearance;

a) Where these impacts cannot be avoided, exploring appropriate options to minimise those impacts; and

b) Identifying appropriate offset options in response to clearing (DNRE 2002).

The Framework also requires that native vegetation proposed to be modified or removed, be assessed for its conservation significance by determining the quality of the vegetation (based on the remaining area within the Bioregion) and associated habitat value.

DSE Advisory List of Threatened Species

The *Advisory List of Rare or Threatened Plants in Victoria – 2005* (DSE 2005) and the *Advisory List of Threatened Vertebrate Fauna in Victoria* (DSE 2007) provide a significance rating for flora and fauna species within Victoria. The purpose of these lists is to assist regulators (i.e. DSE) to make decisions regarding planning processes.

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