



ENVIRONMENT
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Arboriculture Assessment

Location: Croskell PSP

Completed for: Victorian Planning Authority

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☎ +613 9755-6799

☎ +613 9755-6788

💻 admin@enspec.com

HEAD OFFICE & LABORATORY
UNIT 2 - 13 VIEWTECH PLACE
ROWVILLE. 3178

STATE OPERATIONAL OFFICES

QUEENSLAND
39 VERNON TERRACE,
TENERIFFE.

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Attachments –

- ENSPEC - Croskell PSP Arboriculture Assessment Data 20220914.xlsx
- ENSPEC - Croskell PSP Arboriculture Assessment Data points 20220914.shp
- ENSPEC - Croskell PSP Arboriculture Assessment Data polygons 20220914.shp
- ENSPEC - Croskell PSP 37 Brocker aerial image assessment 20221118.xlsx
- ENSPEC - Croskell PSP 1450 Thompsons aerial image assessment 20221118.xlsx

Reference documents –

- VPA_Precinct_Boundaries.geojson (file date 22/07/2022)
- City of Casey Vision for Remaining Growth Areas
- Site Assessment Wagstaff Cranbourne Abattoir, July 2010

1. EXECUTIVE SUMMARY

The Victorian Planning Authority (VPA) have engaged ENSPEC to undertake an arboriculture assessment of trees on and around the land within the Croskell Precinct Structure Plan (PSP).

600 individual trees and 33 groups were assessed for a total of 988 trees. A substantial number of trees at 1500 & 1550 Thompsons Road could not be accessed for assessment so the total number of trees in the project area will exceed 1000 and could be up to ~1500. Assessment of these trees and vegetation for their retention and biodiversity values is a high priority.

Assessment of aerial imagery at 37 Bocker Street identified 46 potential additional trees likely to be of indigenous origin. Similarly, 12 trees likely to be native ornamental species and a young conifer hedge at 1450 Thompsons Road outside the original PSP boundary have been identified. As these have not been verified, they are not included in the statistical analysis, but are shown on the corresponding maps. The trees at 1450 Thompsons Road are considered likely to be of lower retention values so further assessment is not a high priority. The trees at 37 Bocker Street are considered highly likely to be indigenous and therefore of high retention value. Further assessment of the trees at 37 Bocker Street is strongly recommended.

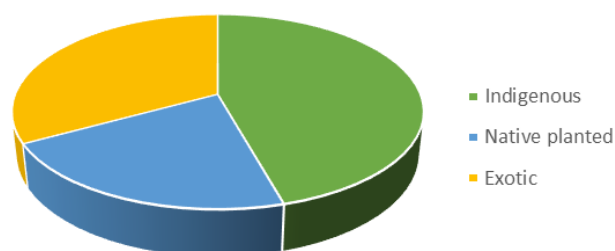
The likely origin of the tree has been evaluated based on species, location and context.

Retention Rating	Description
Indigenous	Locally indigenous species that is self-seeded from nearby remnant vegetation or revegetated areas.
Native planted	Australian native species that has been purposefully planted. This may include planted examples of locally indigenous species.
Exotic	Species from outside Australia. This may include weed species.

A summary of the likely origin of the trees is provided in the following table.

Table 1

Origin	No of trees	% of total
Indigenous	451	56.87%
Native planted	211	29.54%
Exotic	326	13.59%
Grand Total	988	100.00%



Given the trend of recent development in nearby areas, and Council's vision for the area as 'business with residential', it is assumed that the area will predominantly be developed as relatively high density residential, with large dwellings on relatively small parcels. As such, retention of existing trees will likely be limited to public open space.

Given community trends towards increasing urban tree canopy cover to deal with the effect of the urban heat island and climate change, providing adequate public open space and appropriate streetscape design to allow for large canopy trees will be critical as the private residential and commercial land is unlikely to support significant tree canopy.

For any trees retained it will be essential to design the sites and provide adequate space to ensure their Structural Root Zones and 90% of their Tree Protection Zones are adequately protected as stipulated by AS4970-2009 *Protection of trees on development sites*.

Remnant and indigenous vegetation is concentrated in two areas, at 1520 Thompsons Road and a patch just north of Donahue Street. It is considered likely that high value indigenous trees will also be present at the rear of 1500 Thompsons Road that was not accessible. As such, these areas are key for conserving the local biodiversity. Maintaining biodiversity links between them and connecting them to other remnants should be a primary goal in the development of the area.

As it appears that rezoning will be required for most of the area containing high value trees, there is an opportunity to reflect this in the revised zoning with a goal to retain as many higher value trees as possible. Otherwise, most of the existing trees are at high risk of being lost.

Clause 52.17 of the Planning Scheme (net gain provisions) will apply to the removal of any indigenous flora.

Heritage Overlay tree controls (HO137) apply to Tree IDs 3, 4, 5, 6, 9 & 11 at "Springmont" 1450 Thompsons Road.

The Environmental Audit Overlay (EAO) applies immediately to the north of Donahue and Brocker Streets requiring an investigation for land contamination.

A Public Acquisition Overlay (PAO) affects part of 585 Berwick-Cranbourne Road. Other overlays are also in effect on parts of the land.

Key recommendations –

- Ensure the trees and vegetation at 1500 & 1550 Thompsons Road are assessed for their retention and biodiversity values
- Ensure the trees at 37 Brocker Street are assessed for their retention and biodiversity values
- Preserve and protect the 21 Critical Retention value and 285 High Retention value trees.
- Where practical preserve other existing trees that are in good condition.
- For any trees retained, design the sites with adequate space to ensure their Tree Protection Zones are adequately protected as stipulated by AS4970-2009 *Protection of trees on development sites*.
- Show trees to be retained and their Tree Protection Zones on all planning and design documentation to ensure adequate planning for their preservation and protection.
- Require strict adherence to AS4970 for trees to be retained and ensure this requirement is included in all documentation.
- Provide public land, wide road reserves and public open space with sufficient unpaved areas to accommodate the number and size of mature trees to meet Council's tree canopy cover and biodiversity goals.
- Design drainage and water flow to enhance the growing environment for trees by ensuring adequate water permeability in the landscape.

3. INTRODUCTION

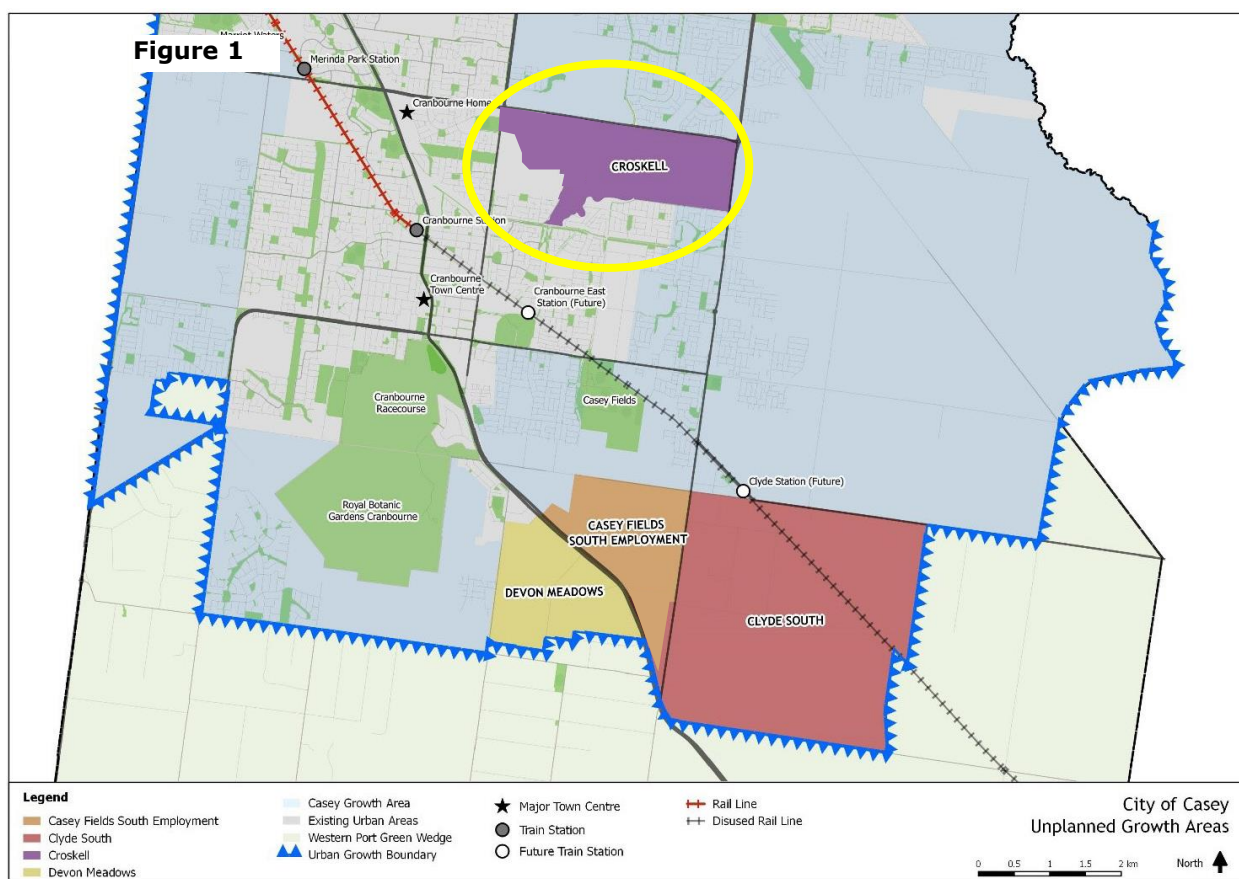
The Victorian Planning Authority (VPA) is preparing an Amendment to the Casey Planning Scheme for the Croskell Precinct Structure Plan and Infrastructure Contributions Plan. The VPA will prepare these plans in consultation with the City of Casey, government agencies, service authorities, and landowners.

Croskell Precinct Structure Plan covers 319 hectares south of Thompsons Roads and west of Berwick-Cranbourne Road in Clyde North. The precinct provides for a regionally significant commercial area, and will include land for employment and residential uses, drainage, open space, transport and community infrastructure.

City of Casey - Vision for Croskell Precinct

The Croskell precinct is approximately 319 hectares and is identified as 'business with residential' in the South East Growth Corridor Plan.

- The Croskell PSP will integrate business investment with high quality residential development.
- Water will become a key feature of this precinct, as the Croskell PSP will celebrate and use the existing waterway in the landscape and achieve best practice integrated water management.
- The Croskell PSP will take advantage of the site's strategic location along the Thompsons Road Business Corridor and optimise exposure for business to Thompsons Road.
- The precinct will be supported by high amenity open space that serves the recreation needs of both future residents and workers, provides a point of difference for the employment area and contributes towards best practice integrated water management.
- The Croskell PSP will proactively manage the interface between business and residential land (both within the PSP area and to surrounding development) through planning, design and built form guidelines, transitional land use areas, as well as the strategic placement of parkland, drainage reserves and key roads.



4. BRIEF & INSPECTION METHODOLOGY

The Victorian Planning Authority (VPA) have engaged ENSPEC to undertake an arboriculture assessment of trees on and around private land within the Croskell Precinct Structure Plan (PSP).

4.a. Scope

The scope of the assessment is to determine the health, type and integrity of the trees within the precinct. The assessment will also determine their arboriculture value, landscape value and their likelihood of survival in an urban environment.

Parcels and roadsides within the precincts (as well as roadsides adjacent to but outside the precincts) that have not previously been assessed will be required to be surveyed. If access is not possible then a visual assessment from the property boundary must be undertaken to obtain a basic understanding of the value of any visible trees.

The assessment must comprise a survey of all scattered trees within the precinct greater than 15cm in diameter at breast height (DBH).

4.b. Methodology

Site methodology involved a visual inspection each tree's present health and growing environment and recording of data electronically in the field.

Where accessible, the trunk diameter at breast height (DBH) and basal diameter were measured using a forestry tape measure for the calculation of the Tree Protection and Structural Root Zones in accordance with AS4970-2009 *Protection of trees on development sites*. To comply with native vegetation requirements, the DBH of each tree was measured at 1.3m above ground. This measurement is used for AS4970 calculations and is considered to make no material difference to the effectiveness of AS4970 zones. Other dimensions were visually estimated.

5. DATE OF INSPECTION

The trees were assessed between August 2nd and September 12th, 2022.

6. ARBORISTS CONDUCTING ASSESSMENT

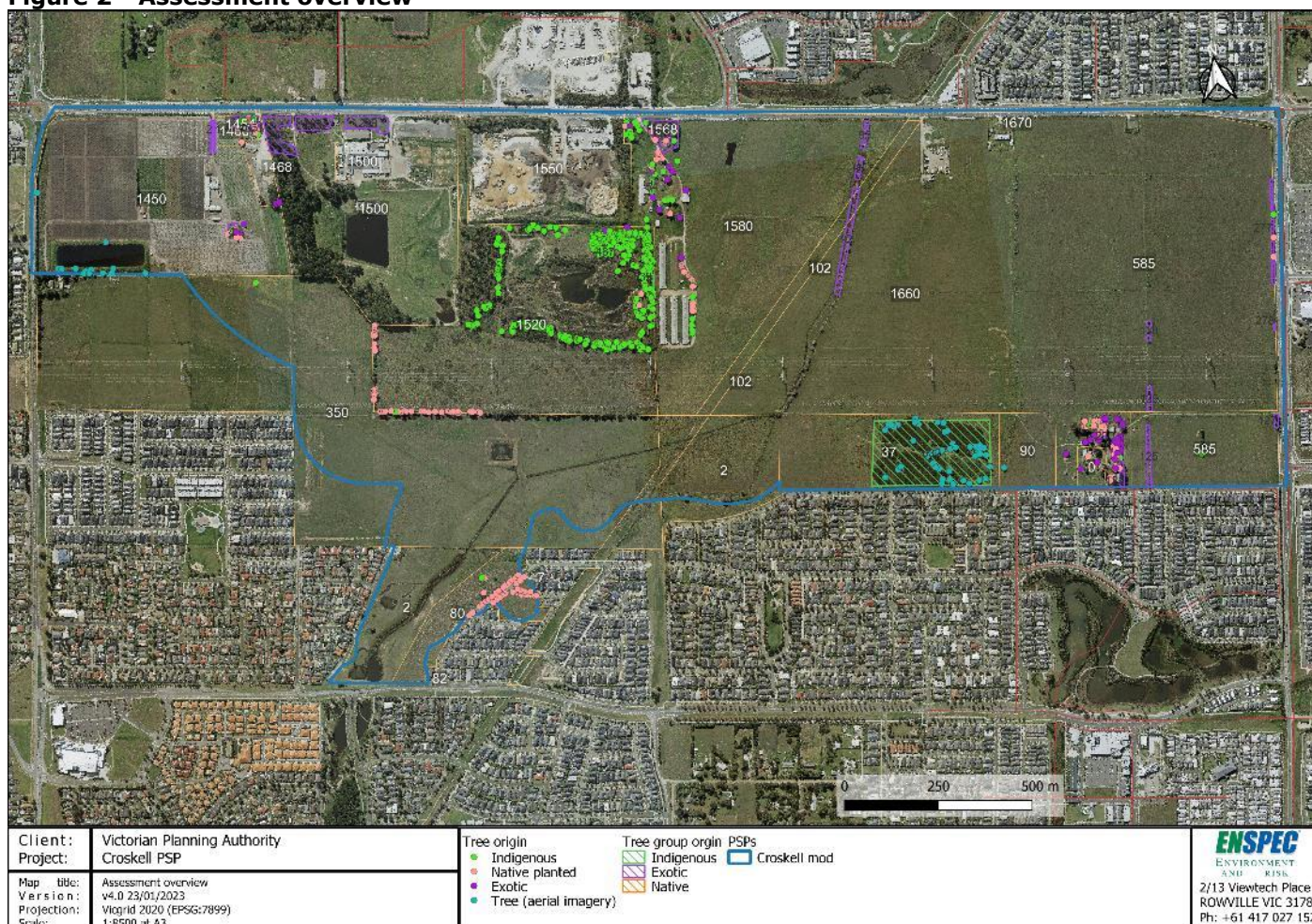
Name of Arborist	Hayden Egan-Connelly
Qualifications	Diploma of Arboriculture Quantified Tree Risk Assessment (QTRA) #6809
Name of Arborist	Michele Dengo
Qualifications	Diploma of Arboriculture Quantified Tree Risk Assessment (QTRA) #7646

7. OVERVIEW MAP

The following figure shows an overview of the individual trees and groups assessed across the project site with labelling for groups and rows shown. Some areas of the site were not accessible and were not able to be assessed. There are also patches of shrubby vegetation visible on the aerial imagery that are outside the scope of the assessment.

It is notable that a large number of trees at 1500 & 1550 Thompsons Road could not be accessed for assessment.

Figure 2 - Assessment overview



Detail maps are provided in the appendices. Note, the PSP boundary has been modified to incorporate the remainder of 1450 Thompsons Road as requested by VPA.

8. TREE POPULATION SUMMARY

A summary of the general tree data for the surveyed population is provided in the following section. 600 individual trees and 33 groups were assessed, for a total of 988 trees. For groups, factors such as life expectancy have been rated as a typical rating for individuals within the group although there will be variation within a given group.

Assessment of aerial imagery at 37 Brocker Street identified 46 potential additional trees likely to be of indigenous origin. Similarly, 12 trees likely to be native ornamental species and a young conifer hedge at 1450 Thompsons Road outside the original PSP boundary have been identified. As these have not been verified they are not included in the statistical analysis, but are shown on the corresponding maps.

8.a. Species

600 individual trees and 33 groups were assessed, of a total of 988 trees. It is noted that a large number of trees at 1500 & 1550 Thompsons Road could not be accessed for assessment so the total number of trees in the project area will exceed 1000 and could be up to ~1500.

Table 2

Species	Common name	No of trees	% of total
<i>Acacia dealbata</i>	Silver Wattle	24	3.79%
<i>Acacia floribunda</i>	Gossamer Wattle	2	0.32%
<i>Acacia mearnsii</i>	Black Wattle	3	0.47%
<i>Acacia melanoxylon</i>	Blackwood	30	0.95%
<i>Acacia</i> sp.	Wattle Tree	3	0.47%
<i>Acer rubrum</i>	Red Maple	2	0.32%
<i>Acer</i> sp.	Maple Tree	1	0.16%
<i>Agonis flexuosa</i>	Willow Myrtle	10	1.58%
<i>Allocasuarina littoralis</i>	Black She-oak	4	0.63%
<i>Alnus jorullensis</i>	Evergreen Alder	1	0.16%
<i>Angophora costata</i>	Smooth-barked Apple	23	3.63%
<i>Betula pendula</i>	Silver Birch	2	0.32%
<i>Brachychiton populneus</i>	Kurrajong	1	0.16%
<i>Casuarina cunninghamiana</i>	River She-oak	2	0.32%
<i>Casuarina glauca</i>	Swamp She-oak	2	0.32%
<i>Cedrus deodara</i>	Deodar Cedar	2	0.32%
<i>Citrus limon</i>	Lemon Tree	1	0.16%
<i>Corymbia ficifolia</i>	Red Flowering Gum	4	0.63%
<i>Corymbia maculata</i>	Spotted Gum	27	4.27%
<i>Cupressocyparis leylandii</i>	Leyland Cypress	84	1.11%
<i>Cupressus macrocarpa</i>	change to <i>Hesperocyparis</i>	1	0.16%
<i>Cupressus</i> sp.	<i>Cupressus</i> species	71	0.79%
<i>Erythrina speciosa</i>	Ivory Coral Tree	1	0.16%
<i>Eucalyptus botryoides</i>	Southern Mahogany	6	0.95%
<i>Eucalyptus camaldulensis</i>	River Red Gum	26	4.11%
<i>Eucalyptus cladocalyx</i>	Sugar Gum	5	0.79%
<i>Eucalyptus macrorhyncha</i>	Red Stringybark	2	0.32%
<i>Eucalyptus mannifera</i>	Brittle Gum	6	0.95%
<i>Eucalyptus melliodora</i>	Yellow Box	33	3.16%
<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	3	0.47%
<i>Eucalyptus ovata</i>	Swamp Gum	76	12.01%
<i>Eucalyptus perriniana</i>	Spinning Gum	9	1.42%
<i>Eucalyptus pryoriana</i>	Gippsland Manna Gum	109	14.22%
<i>Eucalyptus pulchella</i>	White Peppermint	9	1.42%
<i>Eucalyptus radiata</i>	Narrow-leafed Peppermint	15	2.37%
<i>Eucalyptus scoparia</i>	Wallangara White Gum	1	0.16%
<i>Eucalyptus sideroxylon</i>	Red Iron Bark	24	3.79%
<i>Eucalyptus</i> sp.	Gum Tree	8	1.26%
<i>Eucalyptus viminalis</i>	Manna Gum	98	15.48%
<i>Exocarpos cupressiformis</i>	Cherry Ballart	3	0.47%
<i>Fraxinus angustifolia</i> ssp. <i>angustifolia</i>	Desert Ash	1	0.16%
<i>Fraxinus oxycarpa</i>	Desert Ash	7	1.11%
<i>Fraxinus</i> 'Raywood'	Claret Ash	2	0.32%
<i>Fraxinus</i> sp.	Ash Tree	1	0.16%
<i>Grevillea robusta</i>	Silky Oak	8	1.26%
<i>Grevillea</i> sp.	<i>Grevillea</i> species	1	0.16%
<i>Leptospermum laevigatum</i>	Coastal Tea-tree	5	0.79%
<i>Liquidambar styraciflua</i>	Liquidambar or Sweetgum	1	0.16%
<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark	1	0.16%
<i>Olea europaea</i>	Common Olive	1	0.16%
<i>Phoenix canariensis</i>	Canary Island Date Palm	1	0.16%
<i>Pinus radiata</i>	Monterey Pine	101	2.53%
<i>Pittosporum undulatum</i>	Sweet Pittosporum	37	0.47%

Species	Common name	No of trees	% of total
<i>Populus nigra</i>	Black Poplar	2	0.32%
<i>Pyrus communis</i>	Common Pear	1	0.16%
<i>Quercus canariensis</i>	Algerian Oak	1	0.16%
<i>Quercus palustris</i>	Pin Oak	2	0.32%
<i>Quercus robur</i>	English Oak	19	3.00%
<i>Salix alba</i>	White Willow	2	0.32%
<i>Salix babylonica</i>	Weeping Willow	1	0.16%
<i>Salix fragilis</i>	Crack Willow	5	0.79%
<i>Salix sp.</i>	willow	13	0.16%
<i>Syzygium forte</i>	White Apple	1	0.16%
<i>Syzygium smithii</i>	Lilly Pilly	18	0.63%
dead tree	dead tree	1	0.16%
Mixed natives	Mixed natives	20	1.42%
Mixed exotics	Mixed exotics	1	0.16%
Grand Total		988	100.00%

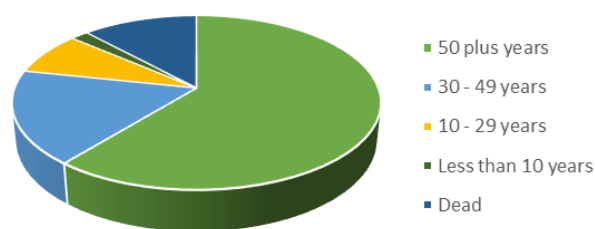
8.b. Life expectancy

An estimate of the life expectancy for each tree was made based on the tree's current health, condition, and growing environment. Any significant change in these factors in the future will affect the life expectancy of the tree.

A summary of the life expectancy of the trees on the site is provided in the following table.

Table 3

Life expectancy	No of trees	% of total
50 plus years	600	63.82%
30 - 49 years	173	17.54%
10 - 29 years	79	7.58%
Less than 10 years	18	2.84%
Dead	118	8.21%
Grand Total	988	100.00%



8.c. Life stage

The life stage of each tree was assessed and is expressed as described in the following descriptions. Life stage is based on species characteristics and the rate at which the individual tree is growing in its local environment. As such, Life Stage can be quite independent of the chronological age of the tree.

Table 4

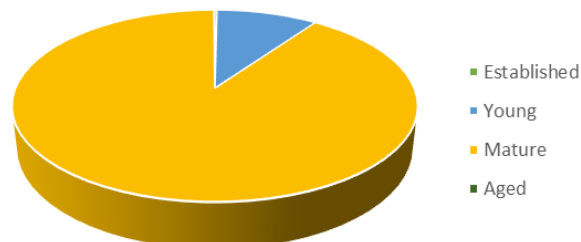
Life stage	Description
New	<ul style="list-style-type: none"> Planting hardware present and under maintenance (watered) Self-seeded sapling
Established	<ul style="list-style-type: none"> Planting hardware absent/unmaintained Not being watered Susceptible to casual vandalism
Young	<ul style="list-style-type: none"> Established Rapid vertical growth phase Too big to be damaged by casual vandalism
Mature	<ul style="list-style-type: none"> Vertical growth slowed Canopy spreading or stable
Aged	<ul style="list-style-type: none"> Older specimen Self-retrenchment may have started Likely to have habitat hollows Large dead or broken branches may be present in upper canopy
Veteran	<ul style="list-style-type: none"> Very old specimen for the species in the local area Usually has started to shed limbs with age, develop hollows High value habitat Generally, requires target management in well used areas Not suitable for short-lived species e.g. most <i>Acacia</i> spp., <i>Hakea</i> spp.

Senescent	<ul style="list-style-type: none"> • Old tree in terminal decline • Majority of canopy is dead wood • A stag with limited canopy
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A summary of the life stage of the trees on the site is provided in the following table.

Table 5

Life stage	No of trees	% of total
Established	2	0.32%
Young	95	11.22%
Mature	890	88.31%
Aged	1	0.16%
Grand Total	988	100.00%



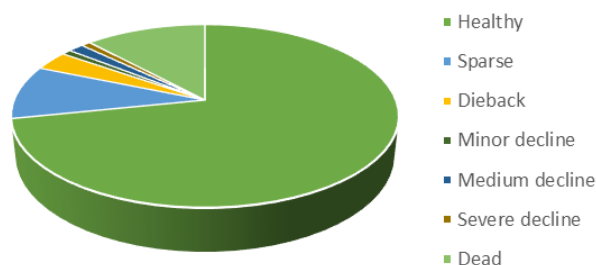
8.d. Health / Canopy condition

The health of the tree was assessed based on visual factors including foliage colour, canopy density, shoot extension growth, the presence of deadwood and dieback.

A summary of the health of the trees on the site is provided in the following table.

Table 6

Health	No of trees	% of total
Healthy	709	70.14%
Sparse	94	11.06%
Dieback	34	5.37%
Minor decline	9	1.42%
Medium decline	15	2.37%
Severe decline	9	1.42%
Dead	118	8.21%
Grand Total	988	100.00%



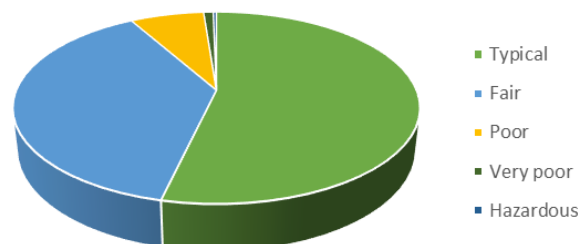
8.e. Structure

An overall assessment of the mechanical structure of the tree was made based on observable factors including tree form, branch attachment and taper, wood decay and cavities, previous pruning, and any damage the tree has suffered. A tree with factors that fall within the expected range for the species and size, and that do not significantly increase the risk posed by the tree, will be rated as Typical.

A summary of the structure of the trees on the site is provided in the following table.

Table 7

Structure	No of trees	% of total
Typical	530	60.35%
Fair	377	30.02%
Poor	69	7.74%
Very poor	9	1.42%
Hazardous	3	0.47%
Grand Total	988	100.00%



8.f. Origin

The likely origin of the tree has been evaluated based on species, location and context.

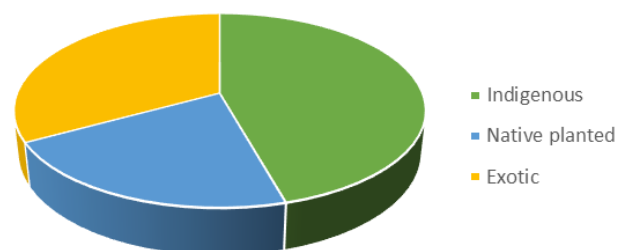
Retention Rating	Description
Indigenous	Locally indigenous species that is self-seeded from nearby remnant vegetation or revegetated areas.
Native planted	Australian native species that has been purposefully planted. This may include planted examples of locally indigenous species.

Exotic	Species from outside Australia. This may include weed species.
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A summary of the likely origin of the trees is provided in the following table.

Table 8

Origin	No of trees	% of total
Indigenous	451	56.87%
Native planted	211	29.54%
Exotic	326	13.59%
Grand Total	988	100.00%

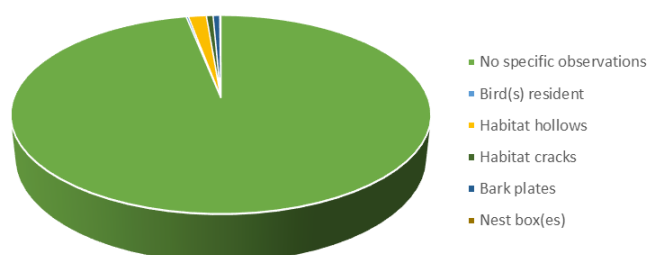


8.g. Ecological features

Notable ecological tree features were noted when observed. This is not a comprehensive ecological study.

Table 9

Ecology	No of trees	% of total
Bird(s) resident	2	0.32%
Habitat hollows	16	2.53%
Habitat cracks	6	0.95%
Bark plates	6	0.95%
Nest box(es)	1	0.16%
No specific observations	957	95.10%
Grand Total	988	100.00%



8.h. Retention value

Each tree has been given a retention rating. The ratings and general descriptions are provided in the following table. When applying a Retention rating within the same species some relativity is applied taking into account size and condition to assist in prioritising preservation. Individual Retention ratings for each tree are provided in the accompanying data tables.

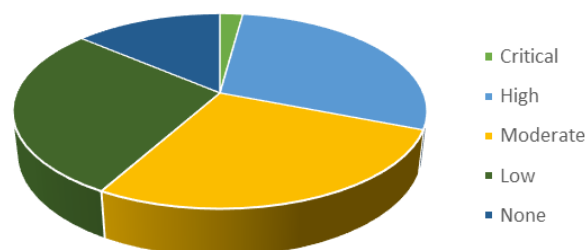
Table 10

Retention Rating	Description
Critical	Protected/significant/specimen tree/patch in good condition
High	Mature/rare/indigenous/habitat/landscape specimen tree/patch in good condition
Moderate	Mid-sized tree, other landscape specimens
Low	Small / miscellaneous planted trees in good condition
None	Small, dead, poor condition or weed species

A summary of the Retention rating for individual trees is provided in the following table. Many of the trees occur in rows or groups where the overall Retention rating of the group may be higher or lower than the individuals within the group.

Table 11

Retention	No of trees	% of total
Critical	21	3.32%
High	285	42.02%
Moderate	268	34.60%
Low	278	16.27%
None	136	3.79%
Grand Total	988	100.00%



8.i. Summary by address

A summary of tree occurrence is provided in the following table. It is noted that a large number of trees at 1500 & 1550 Thompsons Road could not be accessed for assessment.

Table 12

Address	No of trees	% of total
585i Berwick-Cranbourne Road Clyde North 3978	25	0.63%
2/585 Berwick-Cranbourne Road Clyde North 3978	18	0.79%
outside 585 Berwick-Cranbourne Road Clyde North 3978	2	0.32%
37 Bocker Street Clyde North 3978	159	14.85%
80s Linsell Boulevard Cranbourne East 3977	3	0.47%
102w Linsell Boulevard Cranbourne East 3977	39	0.16%
350 Narre Warren Road Cranbourne East 3977	1	0.16%
1450 Thompsons Road Cranbourne East 3977	60	1.58%
1454 Thompsons Road Cranbourne East 3977	28	0.16%
1460 Thompsons Road Cranbourne East 3977	38	3.16%
1468 Thompsons Road Cranbourne East 3977	2	0.32%
1500 Thompsons Road Cranbourne East 3977*	26	0.47%
1520 Thompsons Road Cranbourne East 3977	433	57.50%
1550t Thompsons Road Cranbourne East 3977*	1	0.16%
1568 Thompsons Road Cranbourne East 3977	10	1.58%
1580 Thompsons Road Cranbourne East 3977	111	12.64%
street tree Ballymena Crescent Cranbourne East 3977	9	1.42%
street tree Tangemere Way Cranbourne East 3977	23	3.63%
Grand Total	988	100.00%

A summary of tree Retention value for each property is provided in the following table. Full assessment details for each tree or group are provided in the accompanying data tables. It is noted that a large number of trees at 1500 & 1550 Thompsons Road could not be accessed for assessment.

Table 13

Retention	Address	No of trees	% of total
Critical	1520 Thompsons Road Cranbourne East 3977	17	2.69%
	1580 Thompsons Road Cranbourne East 3977	4	0.63%
High	37 Bocker Street Clyde North 3978	31	1.90%
	1450 Thompsons Road Cranbourne East 3977	4	0.63%
	1460 Thompsons Road Cranbourne East 3977	3	0.47%
	1520 Thompsons Road Cranbourne East 3977	228	36.02%
	1568 Thompsons Road Cranbourne East 3977	2	0.32%
	1580 Thompsons Road Cranbourne East 3977	17	2.69%
	585i Berwick-Cranbourne Road Clyde North 3978	11	0.32%
Low	2/585 Berwick-cranbourne Road Clyde North 3978	17	0.63%
	outside 585 Berwick-Cranbourne Road Clyde North 3978	1	0.16%
	37 Bocker Street Clyde North 3978	62	4.27%
	80s Linsell Boulevard Cranbourne East 3977	3	0.47%
	350 Narre Warren Road Cranbourne East 3977	1	0.16%
	1450 Thompsons Road Cranbourne East 3977	53	0.47%
	1454 Thompsons Road Cranbourne East 3977	28	0.16%
	1460 Thompsons Road Cranbourne East 3977	22	0.63%
	1468 Thompsons Road Cranbourne East 3977	2	0.32%
	1500 Thompsons Road Cranbourne East 3977*	24	0.16%
	1520 Thompsons Road Cranbourne East 3977	39	6.16%
	1580 Thompsons Road Cranbourne East 3977	10	1.58%
	street tree Ballymena Crescent Cranbourne East 3977	3	0.47%
	street tree Tangemere Way Cranbourne East 3977	2	0.32%

Retention	Address	No of trees	% of total
Moderate	585i Berwick-Cranbourne Road Clyde North 3978	1	0.16%
	outside 585 Berwick-Cranbourne Road Clyde North 3978	1	0.16%
	37 Bocker Street Clyde North 3978	50	7.90%
	1450 Thompsons Road Cranbourne East 3977	2	0.32%
	1460 Thompsons Road Cranbourne East 3977	13	2.05%
	1500 Thompsons Road Cranbourne East 3977*	2	0.32%
	1520 Thompsons Road Cranbourne East 3977	110	11.85%
	1550t Thompsons Road Cranbourne East 3977	1	0.16%
	1568 Thompsons Road Cranbourne East 3977	8	1.26%
	1580 Thompsons Road Cranbourne East 3977	54	6.32%
	street tree Ballymena Crescent Cranbourne East 3977	6	0.95%
	street tree Tangemere Way Cranbourne East 3977	20	3.16%
None	585i Berwick-Cranbourne Road Clyde North 3978	13	0.16%
	2/585 Berwick-cranbourne Road Clyde North 3978	1	0.16%
	37 Bocker Street Clyde North 3978	16	0.79%
	102w Linsell Boulevard Cranbourne East 3977	39	0.16%
	1450 Thompsons Road Cranbourne East 3977	1	0.16%
	1520 Thompsons Road Cranbourne East 3977	39	0.79%
	1580 Thompsons Road Cranbourne East 3977	26	1.42%
	street tree Tangemere Way Cranbourne East 3977	1	0.16%
Grand Total		988	100.00%

9. DISCUSSION

9.a. AS4970-2009 *Protection of trees on development sites*

The Tree Protection Zone and Structural Root Zone for each of the trees has been calculated in accordance with AS4970-2009 *Protection of trees on development sites*. The radius of the nominal zones in metres is provided in the tree data.

9.b. The value of the trees to the landscape

There are few trees remaining in this landscape. The bulk of the trees are concentrated in groups or patches around 1500-1520 Thompsons Road, although many of these have not been assessed owing to lack of access. The existence of this vegetation and the dams on these properties make them key targets for use as open space.

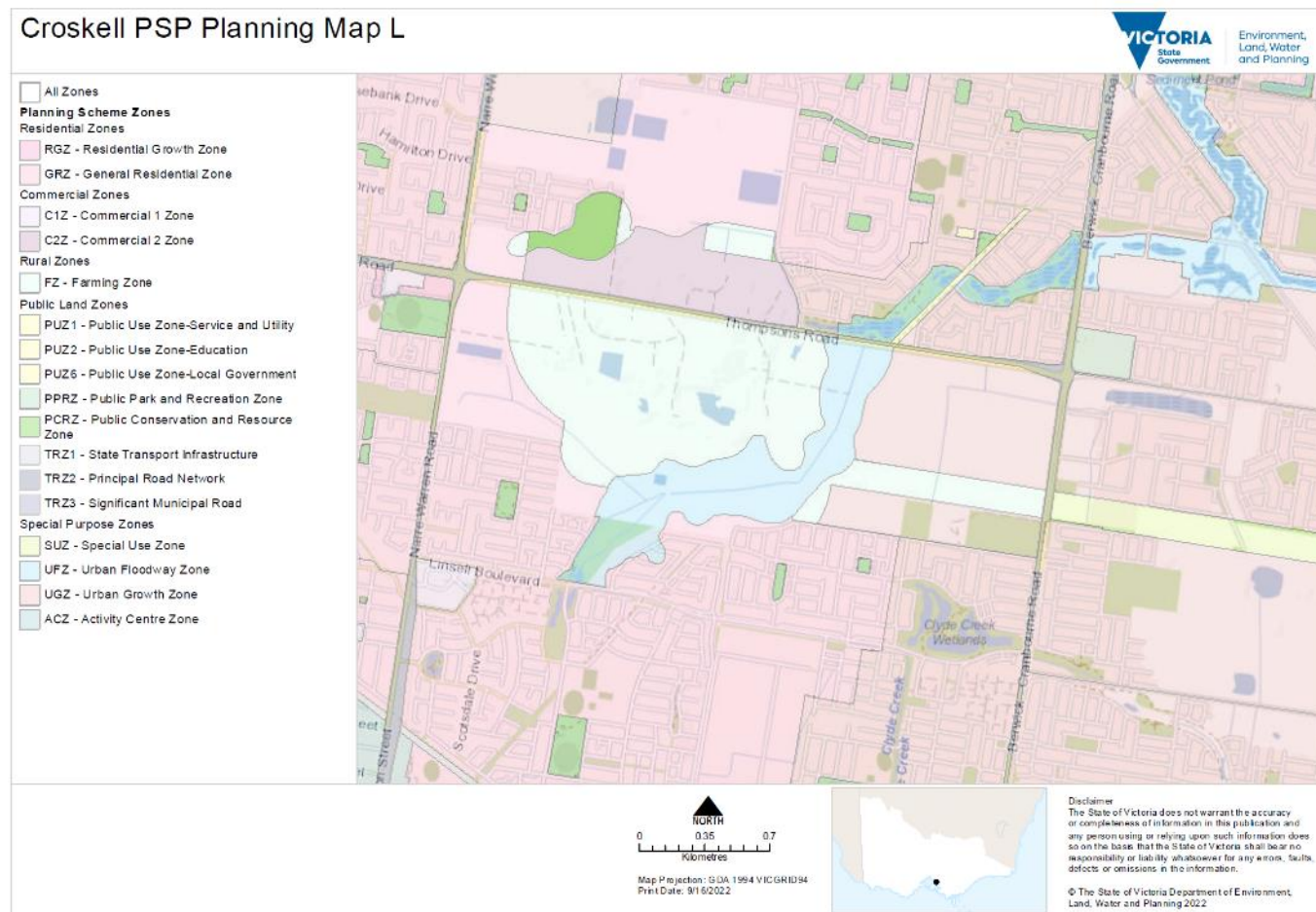
9.c. Key biodiversity issues and implications

Of the assessed areas, remnant and indigenous vegetation is concentrated in two areas at 1520 Thompsons Road and a patch just north of Donahue Street. It is considered likely that high value indigenous trees will also be present at the rear of 1500 Thompsons Road. As such, these areas are key for conserving the local biodiversity and maintaining biodiversity links between them and connecting them to other remnants should be a primary goal in the development of the area.

As it appears that rezoning will be required for most of the area containing high value trees, there is an opportunity to reflect this in the revised zoning with a goal to retain as many higher value trees as possible.

9.d. Relevant policy and legislation

The project area has multiple zones including Farming Zone, Residential Growth Zone, Public Conservation and Resource Zone and Urban Floodway Zone (Figure 3).

Figure 3 - Planning Zones

Clause 52.17 of the Planning Scheme (net gain provisions) will apply to the removal of any indigenous flora.

HO137 applies to part of "Springmont" 1450 Thompsons Road. Tree controls apply under HO137 to Tree ID 3, 4, 5, 6, 9 & 11.

The Environmental Audit Overlay (EAO) applies immediately to the north of Donahue and Brocker Streets requiring an investigation for land contamination.

A Public Acquisition Overlay (PAO) affects part of 585 Berwick-Cranbourne Road.

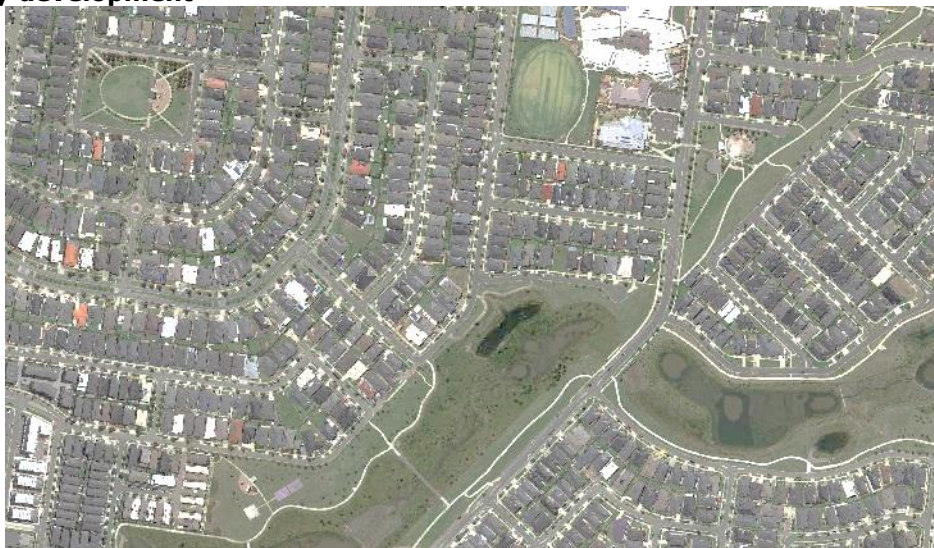
Other overlays are also in effect on parts of the land. A more detailed planning map is provided in the appendices.

9.e. Implications of urban development on the health and structural condition of trees

Given the current development of the surrounding areas and Council's vision for the area as 'business with residential', it is assumed that the area will predominantly be developed as relatively high density residential, with large dwellings on relatively small parcels. As such, retention of existing trees will likely be limited to public open space (Figure 4).

Given community trends towards increasing urban tree canopy cover to deal with the effect of the urban heat island and climate change, providing adequate public open space and appropriate streetscape design to allow for large canopy trees will be critical as the private residential and commercial land is unlikely to support significant tree canopy.

For any trees retained it will be essential to design the sites and provide adequate space to ensure their Structural Root Zones and 90% of their Tree Protection Zones are adequately protected as stipulated by AS4970-2009 *Protection of trees on development sites*.

Figure 4 - Nearby development

10. REMEDIAL WORK

Remedial maintenance recommendations have been provided for specific trees based on their retention and incorporation into an urban development. These works are not necessary while the trees are part of the existing rural landscape. Please see the accompanying data tables for work recommendations.

10.a. Pruning

Any pruning work must be carried out by appropriately qualified arborists working to AS4373-2007 *Pruning of amenity trees*, Minimum Industry Standard *MIS308 Tree pruning* and Minimum Industry Standard *MIS312 Environmental arboriculture*.

11. CONCLUSION

600 individual trees and 33 groups were assessed, of a total of 988 trees. It is noted that a large number of trees at 1500 & 1550 Thompsons Road could not be accessed for assessment so the total number of trees in the project area will exceed 1000 and could be up to ~1500. Additionally, 46 likely indigenous trees have been identified from aerial imagery at 37 Brocker Street within the PSP. Aerial imagery was used to identify 12 likely native ornamentals and a young conifer hedge at 1450 Thompsons Road outside the original PSP boundary.

Of the assessed areas, remnant and indigenous vegetation is concentrated in two areas at 1520 Thompsons Road and a patch just north of Donahue Street. It is considered likely that high value indigenous trees will also be present at the rear of 1500 Thompsons Road. As such, these areas are key for conserving the local biodiversity and maintaining biodiversity links between them and connecting them to other remnants should be a primary goal in the development of the area.

As it appears that rezoning will be required for most of the area containing high value trees, there is an opportunity to reflect this in the revised zoning with a goal to retain as many higher value trees as possible. Otherwise most of the existing trees must be considered at high risk of being lost.

Given the current development of the surrounding areas and Council's vision for the area as 'business with residential', it is assumed that the area will predominantly be developed as relatively high density residential, with large dwellings on relatively small parcels. As such, retention of existing trees will likely be limited to public open space.

Given community trends towards increasing urban tree canopy cover to deal with the effect of the urban heat island and climate change, providing adequate public open space and appropriate streetscape design to allow for large canopy trees will be critical as the private residential and commercial land is unlikely to support significant tree canopy.

12. DISCLOSURE STATEMENT

ENSPEC Pty Ltd and their employees are specialists who use their knowledge, training and education (qualifications), infield learning experiences, personal experiences research, diagnostic tools, scientific equipment to examine trees, recommend measures to enhance the beauty, health and preservation of trees, to reduce the risk of living near trees.

Trees are living organisms that can be affected by pests, diseases, and natural events outside of ENSPEC control. ENSPEC and their employees cannot detect every condition that affects a trees health, condition, and structural integrity. Conditions are often hidden within trees and below ground where humans cannot naturally see. Unless otherwise stated, ENSPEC's employee's observations have been visually made from ground level.

In the event that ENSPEC recommends retesting or inspection of trees at stated intervals, or ENSPEC recommends the installation engineering solutions, ENSPEC must inspect the engineering solution at intervals of not greater than 12 months, unless otherwise specified in writing. It is the client's responsibility to make arrangements with ENSPEC to conduct re-inspections.

Intervention treatments of trees may involve considerations beyond the scope of ENSPEC's service, such as property boundaries and ownership, disputes between neighbours, sight lines, landlord-tenant matters, and other related incidents. ENSPEC cannot take such issues into account unless complete and accurate information is given prior or at the time of the site inspection. Likewise, ENSPEC Pty Ltd cannot accept responsibility for the authorisation or non-authorisation of any recommended treatment or remedial measures undertaken.

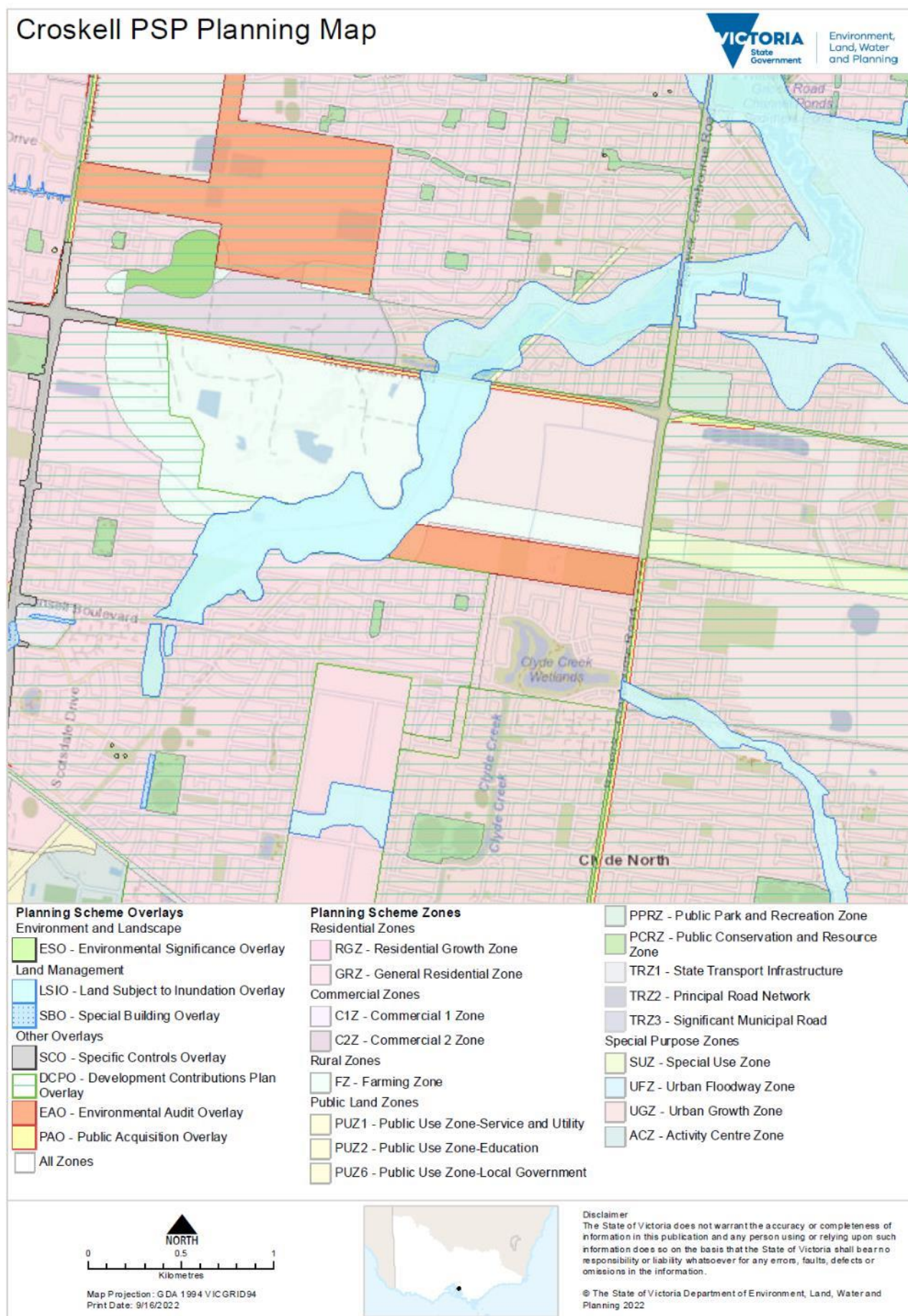
ENSPEC Pty Ltd cannot guarantee that a tree will be healthy or safe under all circumstances or for a specified period of time after our initial inspection and recommendations.

If this written report is to be used in a court of law, or any other legal situation, or by other parties ENSPEC must be advised in writing prior to the written report being presented in any form to any other party. All written reports must be read in their entirety. At no time shall part of the written assessment be referred to unless taken in full context with the whole written report.

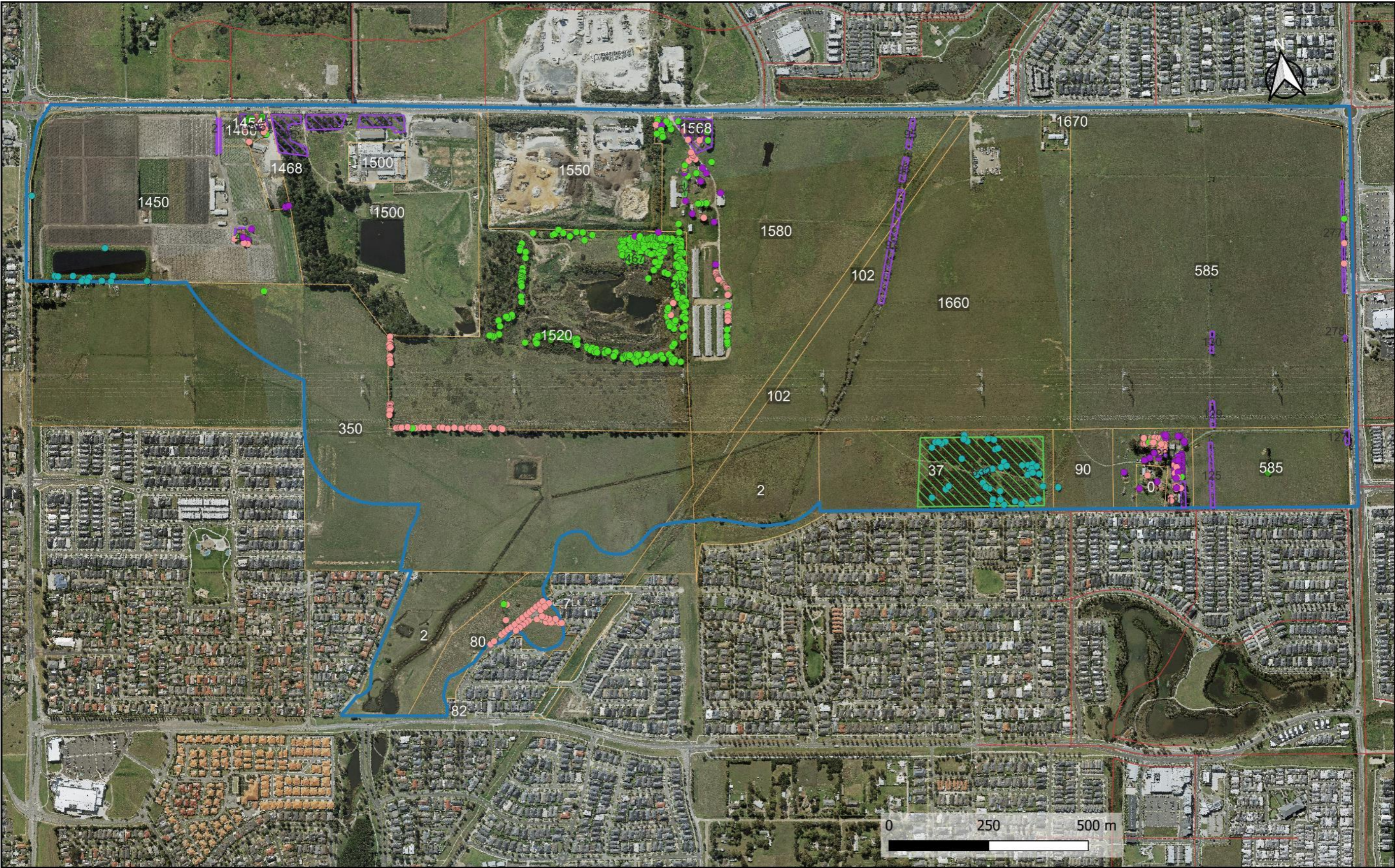
Clients may choose to accept or disregard the recommendations of the assessment and written report.


Notwithstanding anything in the report, express or implied, the client is not entitled to recover from ENSPEC Pty Ltd, its employees, agents and/or subcontractors any damages for business interruption or loss of actual or anticipated revenue, income or profits or any consequential, special, contingent or penal damage, whatsoever, and the client releases ENSPEC Pty Ltd from any such liability. Without limitation of the foregoing, a party shall at all times be limited (to the extent permitted by law) damages in the amount paid by the Client to ENSPEC Pty Ltd for ENSPEC Pty Ltd services. The limitation applies whether the claim is based on warranty, contract, statute, tort (including negligence) or otherwise.

13. PLANNING MAP

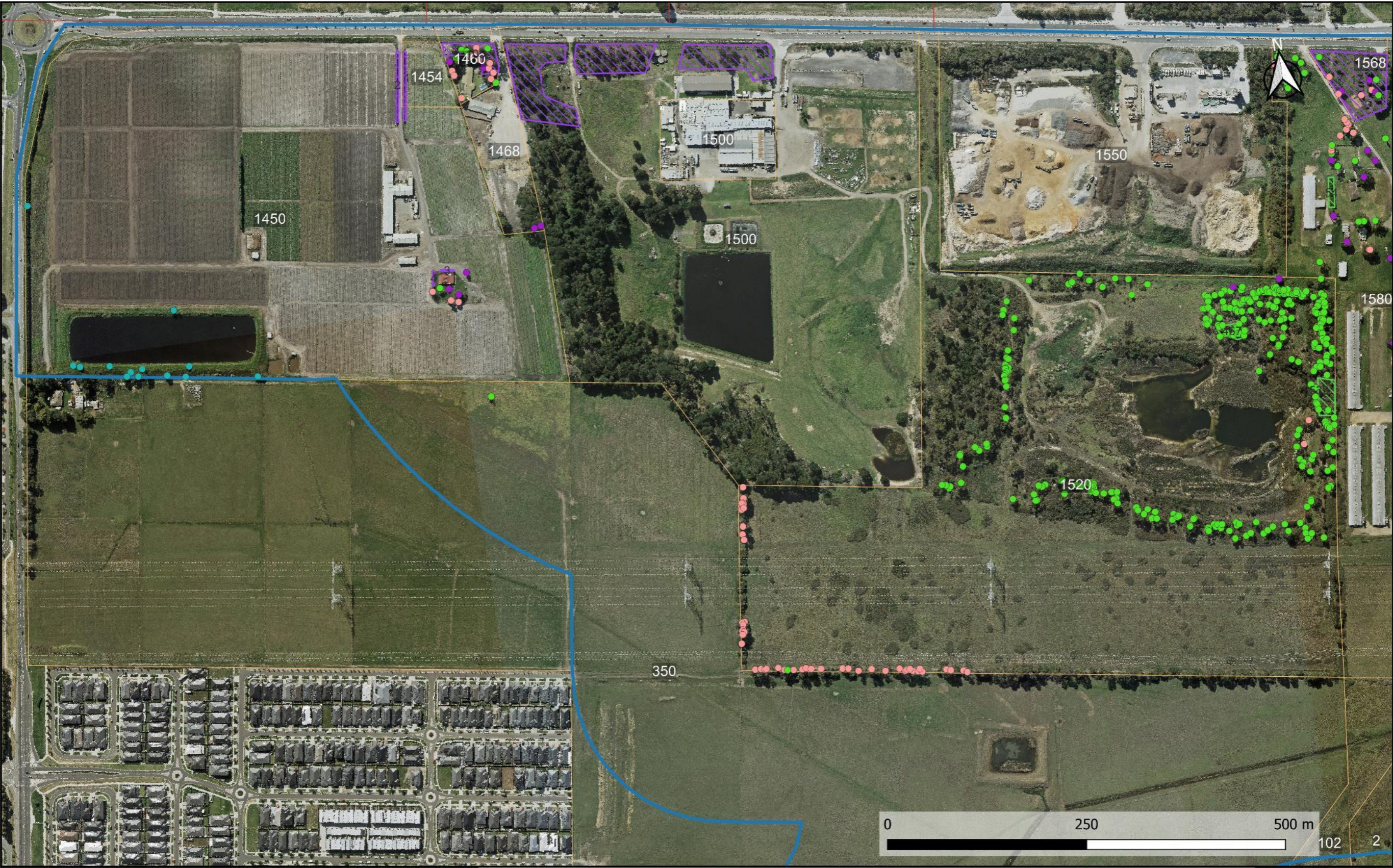







14. APPENDIX 1 – OVERVIEW MAP



Client:	Victorian Planning Authority	Tree origin <ul style="list-style-type: none">IndigenousNative plantedExoticTree (aerial imagery)	Tree group origin <ul style="list-style-type: none">IndigenousExoticNative	PSPs <ul style="list-style-type: none">Croskell mod	 2/13 Viewtech Place ROWVILLE VIC 3178 Ph: +61 417 027 152
Project:	Croskell PSP				
Map title:	Assessment overview				
Version:	v4.0 23/01/2023				
Projection:	Vicgrid 2020 (EPSG:7899)				
Scale:	1:8500 at A3				

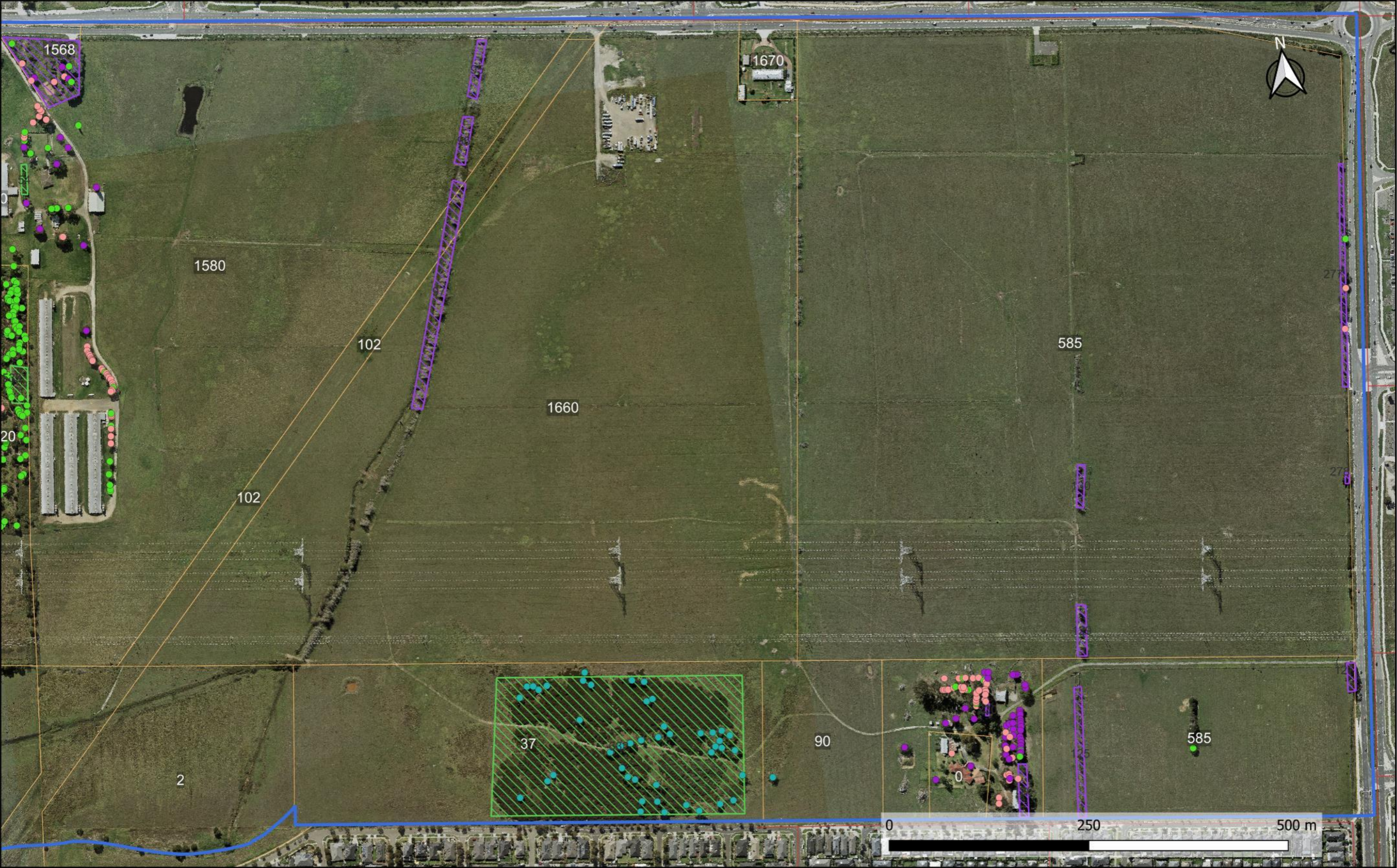
15. APPENDIX 2 – DETAIL MAPS



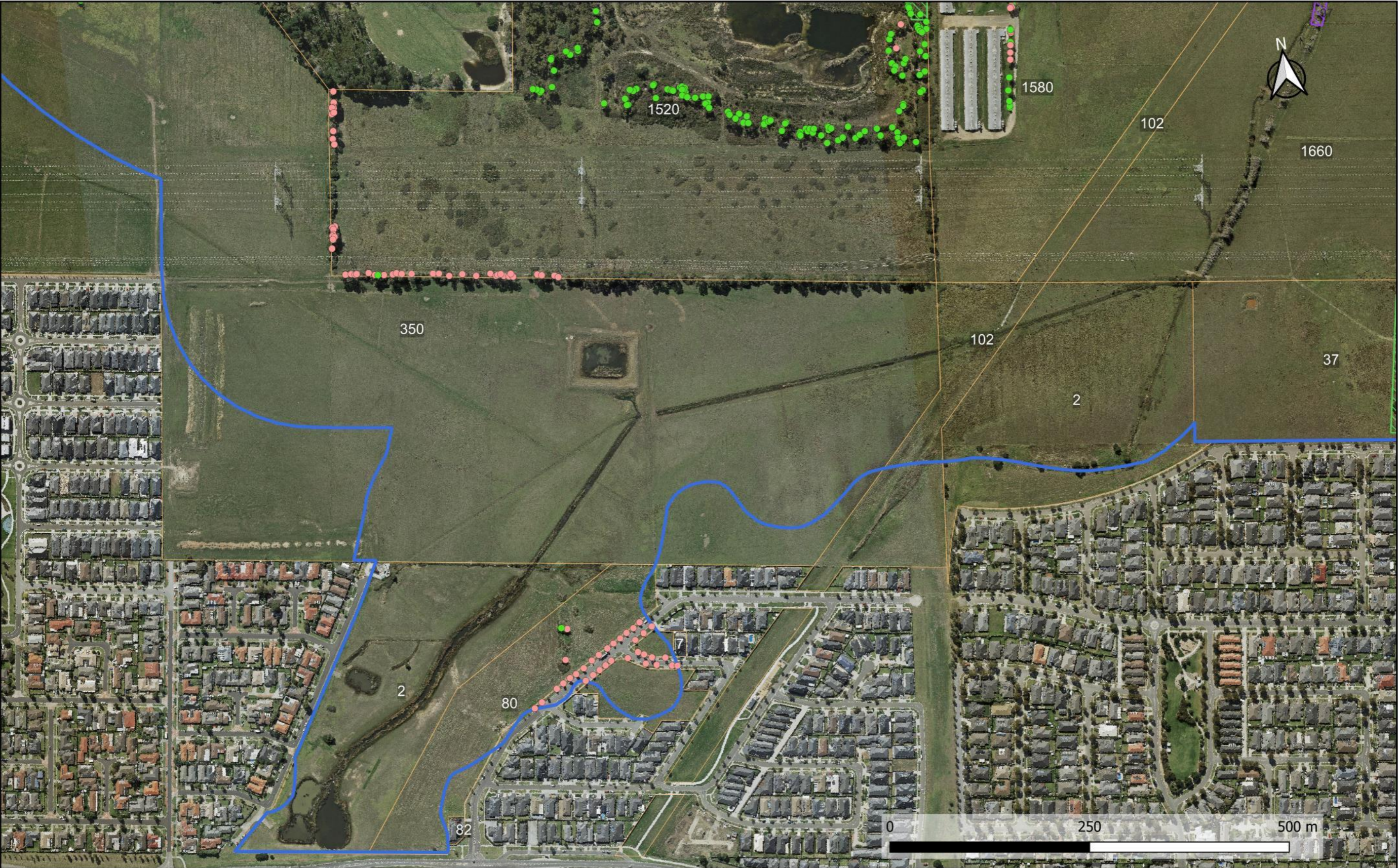
Client:	Victorian Planning Authority	Tree origin	Tree group origin	PSPs	
Project:	Croskell PSP				
Map title:	Project detail 1	● Indigenous	 Indigenous	 Croskell mod	2/13 Viewtech Place ROWVILLE VIC 3178 Ph: +61 417 027 152
Version:	v4.0 23/01/2023	● Native planted	 Exotic		
Projection:	Vicgrid 2020 (EPSG:7899)	● Exotic	 Native		
Scale:	1:4250 at A3	● Tree (aerial imagery)			


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AND
RISK

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ROWVILLE VIC 3178
Ph: +61 417 027 152



Client:	Victproian Planning Authority	<div>Tree origin</div> <div><div>● Indigenous</div><div>● Native planted</div><div>● Exotic</div><div>● Tree (aerial imagery)</div></div> <div>Tree group origin</div> <div><div><div></div> Indigenous</div><div><div></div> Exotic</div><div><div></div> Native</div></div> <div>PSPs</div> <div><div></div> Croskell</div>	<div><div>ENSPEC</div><div>ENVIRONMENT AND RISK</div></div> <div>2/13 Viewtech Place ROWVILLE VIC 3178 Ph: +61 417 027 152</div>
Project:	Croskell PSP		
Map title:	Project detail 2		
Version:	v3.0 21/12/2022		
Projection:	Vicgrid 2020 (EPSG:7899)		
Scale:	1:4250 at A3		



Client:	Victroian Planning Authority	Tree origin ● Indigenous ● Native planted ● Exotic ● Tree (aerial imagery)	Tree group origin ■ Indigenous ■ Exotic ■ Native	PSPs □ Croskell	 ENVIRONMENT AND RISK 2/13 Viewtech Place ROWVILLE VIC 3178 Ph: +61 417 027 152
Project:	Croskell PSP				
Map title:	Project detail 3				
Version:	v3.0 21/12/2022				
Projection:	Vicgrid 2020 (EPSG:7899)				
Scale:	1:4250 at A3				