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Date: 17 June 2019

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Tonkin Highway Welshpool Road to Hale Road
Vegetation condition assessment

Background

A vegetation condition assessment was conducted on roadside vegetation, along Tonkin Hwy between Roe Highway (with a northern boundary aligned with Magma Road and Reynolds Road, Wattle Grove) and approximately 400 m north of Kelvin Road, Wattle Grove. The Survey Area is illustrated in Figure 1.

Methods

Vegetation condition was assessed by a Senior Botanist from Strategen on 28 May 2019. The Survey Area was traversed by vehicle and on foot. Data was collected at 25 sites throughout the overall Survey Area. Effort was made to survey as many sites throughout the Survey Area as possible, while considering safety of access. The survey was conducted in accordance with guidelines provided in *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016).

At each survey site, the following was recorded:

- GPS location
- photograph of vegetation characteristic of the survey site
- vegetation condition
- brief description of vegetation type.

Vegetation condition was assessed using vegetation condition scale for the South West Botanical Province (EPA 2016; Table 1). An additional category 'Cleared' was used for areas of infrastructure, or cleared areas of managed grassland or areas of non-native vegetation.

Table 1: Vegetation condition scale for South West and Interzone Botanical Provinces (EPA 2016)

Vegetation Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.

Results

Vegetation condition within the Survey Area ranged from Completely Degraded to Very Good (Table 2), and is illustrated in Figure 1. Photographs of vegetation condition ratings are presented in Plate 1 to Plate 5.

Table 2: Vegetation Condition

Vegetation condition	Application to Survey Area	Area (ha)	Percentage of Survey Area
Very Good	Vegetation rated as Very Good demonstrated the following characteristics: • structure similar to a native vegetation type, including an overstorey of trees and tall shrubs, a mid-storey of low to medium height shrubs and understorey of low shrubs and herbs • composition typical of a native vegetation type in the local bioregion • negligible weeds, or weeds in small localised infestations.	0.9	1.6
Good	Vegetation rated as Good demonstrated the following characteristics: • native vegetation structure present in two strata (e.g., understorey and mid-storey but overstorey absent) • composition typical of a native vegetation type • understorey heavily infested with weeds.	6.6	11.6
Degraded	Areas assessed as Degraded included: • understorey and mid-storey severely impacted by disturbance and replaced by weeds, with only overstorey species remaining • areas that were heavily vegetated, but appeared to have been subjected to rehabilitation, i.e., with some local native species in the overstorey and mid-storey, a suite of non-local species in the mid-storey, and complete absence of native mid- and understorey species.	18.4	32.2
Completely Degraded	Areas assessed as Completely Degraded included: • areas where only non-native species were present, or non-native species with infrequent native species.	2.4	4.2
Cleared	• areas where infrastructure (roads) were present • areas completely devoid of vegetation	28.8	50.4
Total		57.1	

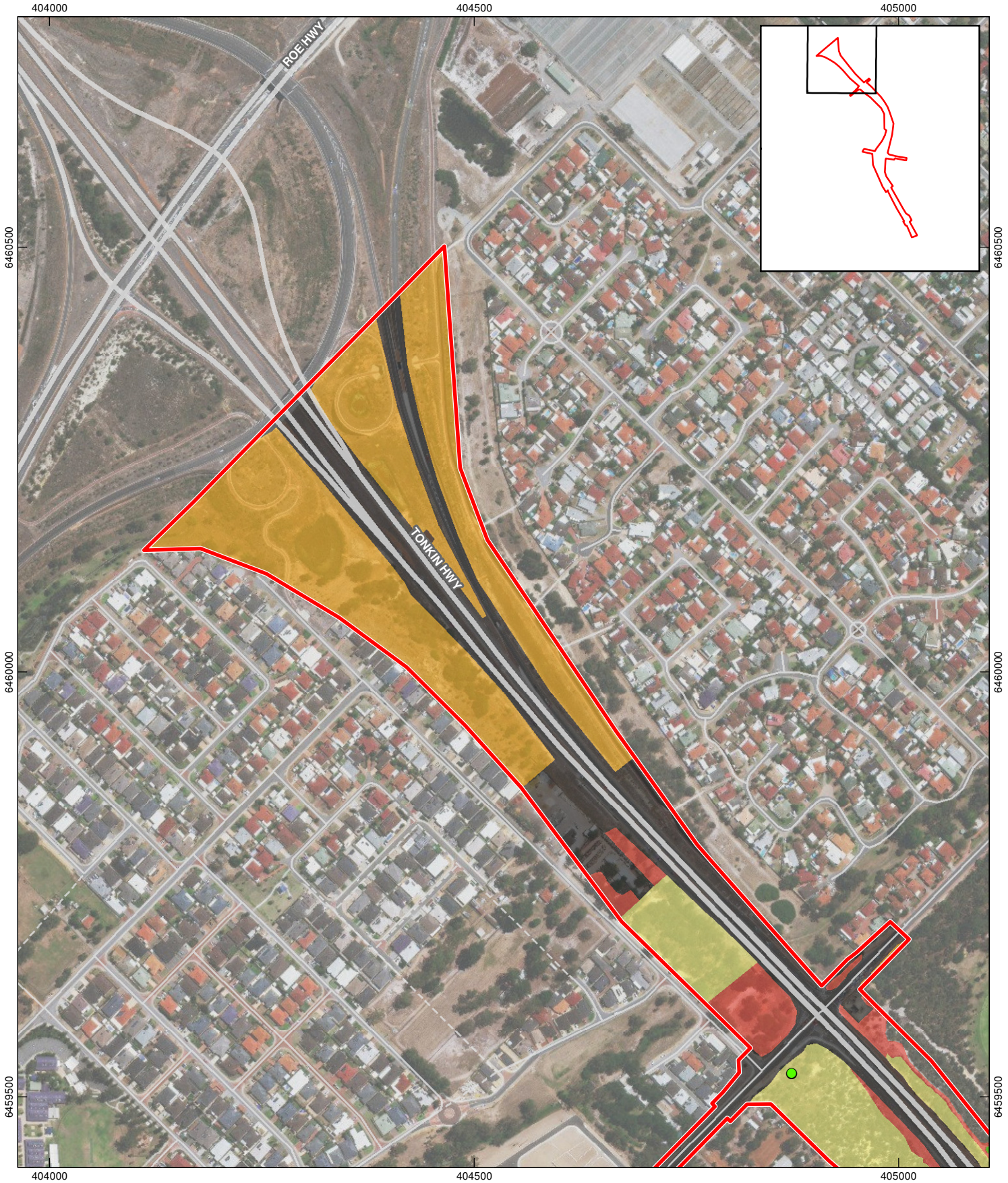

Figure 4: Vegetation condition

N

Scale 1:6,000 at A4

0 100 200 m

Coordinate System:
GDA 1994 MGA Zone 50

Date: 14/06/2019

Legend

- Development Envelope
- Sample site
- Major road
- Minor road
- Track

Vegetation condition

- Very good
- Good
- Degraded
- Completely degraded
- Cleared

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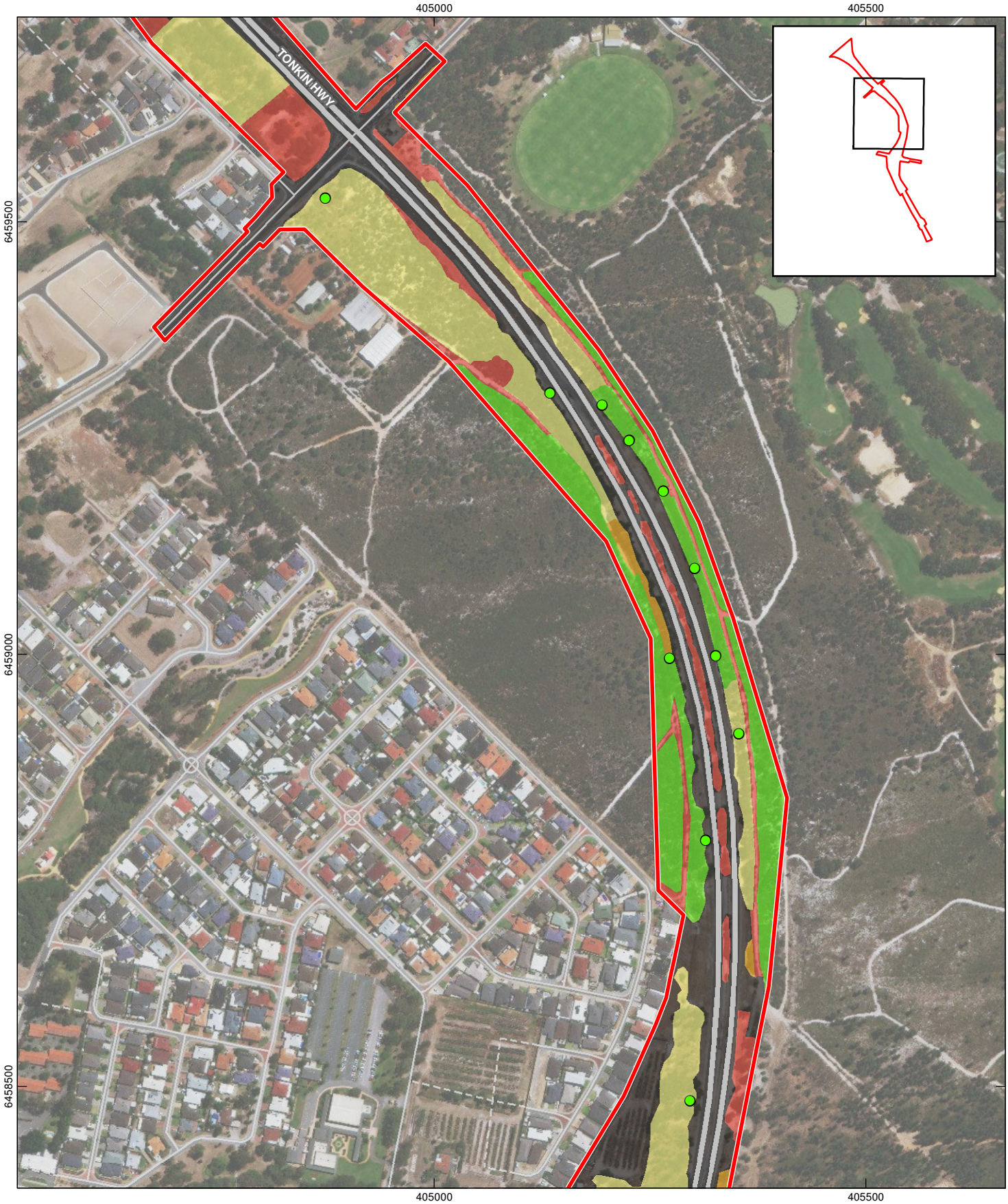
Service Layer Credits:Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Client: Main Roads. Site data 4/2019. Created by: c.thatcher



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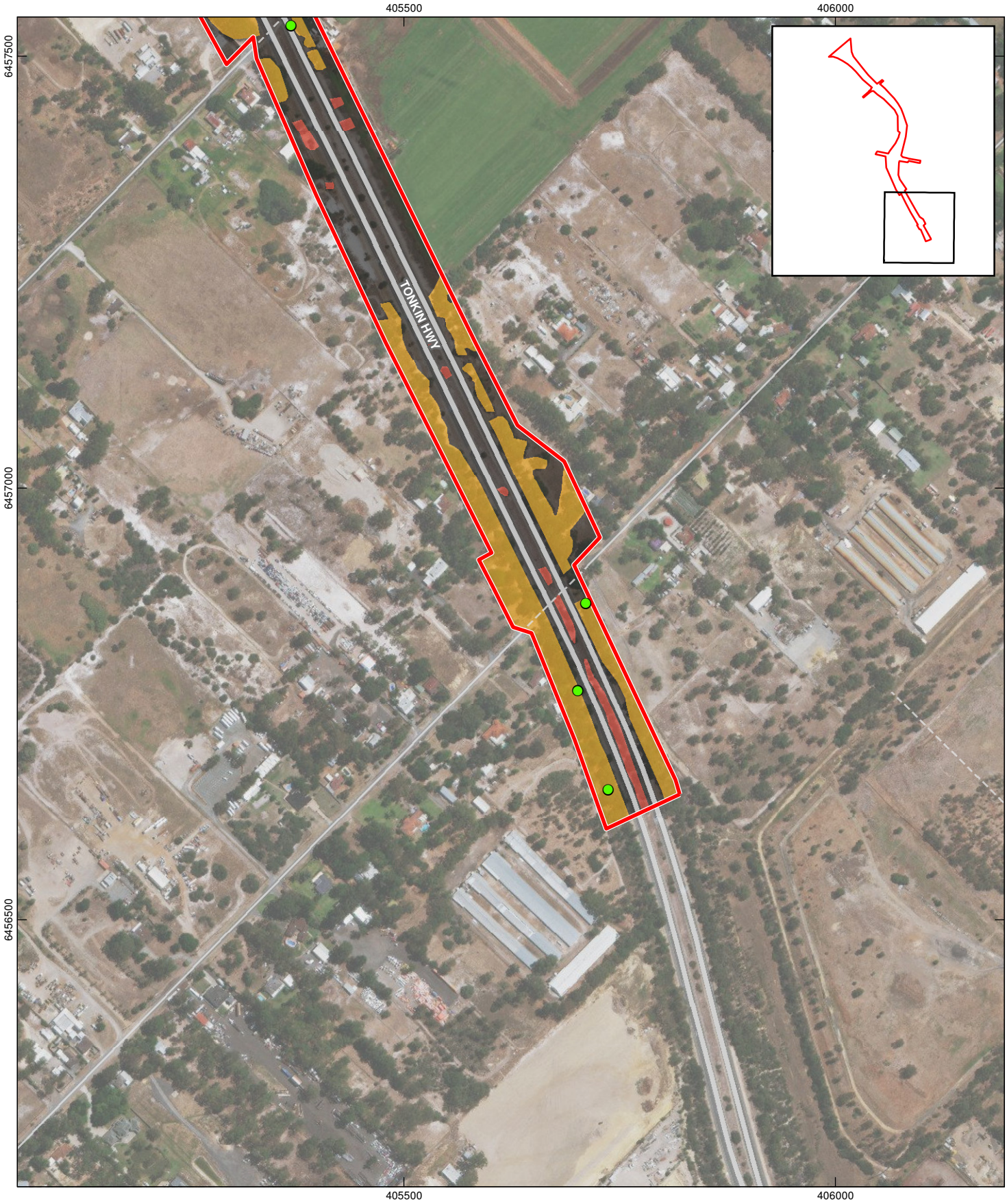

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Vegetation condition

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Plate 1: Vegetation rated in Very Good condition

Plate 2: Vegetation rated in Good condition

Plate 3: Vegetation rated in Degraded condition (foreground)

Plate 4: Vegetation rated in Degraded condition (foreground; rehabilitation with non-native species)

Plate 5: Vegetation rated in Completely Degraded and Degraded condition (at right)

Conclusion

Vegetation within the Survey Area was largely in Degraded – Completely Degraded condition.

Despite heavy disturbance to vegetation throughout the Survey Area including clearing, grazing and weed infestation, 7.5 ha of the Survey Area was rated in Good – Very Good condition, retaining structure and composition comparable to an undisturbed native vegetation type.

References

Environmental Protection Authority (EPA) 2016, *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*, [Online], Government of Western Australia, Available from: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf [30 November 2017].

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