



Hume Food and Garden Organics Facility

Landscape and Visual Impact Assessment

Transport Canberra and City Services

30 March 2023



→ The Power of Commitment

→ The Power of Commitment

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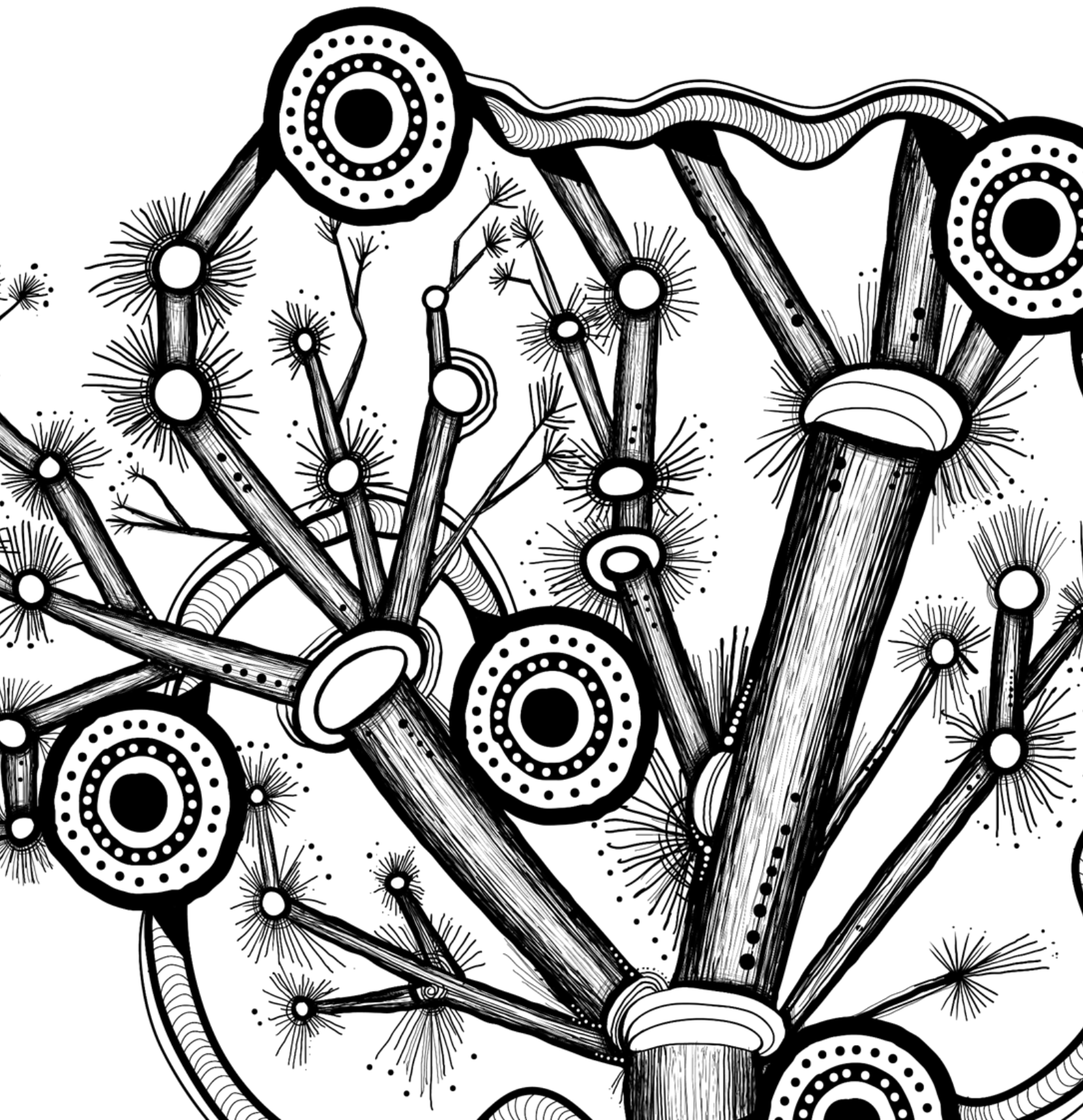
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Acknowledgement of Country

GHD acknowledges Aboriginal and Torres Strait Islander peoples as the Traditional Custodians of the land, water and sky throughout Australia on which we do business. We recognise their strength, [diversity, resilience and deep connections to Country.](#) [We pay our respects to Elders of the past, present and future,](#) as they hold the memories, knowledges and spirit of Australia. GHD is committed to learning from Aboriginal and Torres Strait Islander peoples in the work we do.



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Terminology

Terminology	Definition
Aesthetics	Relating to the sense of the beautiful or science of aesthetics, i.e. the deduction, from nature and taste, the rules and principles of beauty.
Impact	The effect of a project, which can be adverse or beneficial, when measured against an existing condition.
Landscape	All aspects of a tract of land, including landform, vegetation, buildings, villages, towns, cities and infrastructure.
Landscape character	The combined quality of built, natural and cultural aspects which make up an area and provide its unique sense of place.
Landscape character zone	An area of landscape with similar properties or strongly defined spatial qualities, distinct from areas immediately nearby.
Magnitude	The measurement of the scale, form and character of a development project when compared to the existing condition. In the case of visual assessment this also relates to how far the project is from the viewer. Combines with sensitivity, magnitude provides a measurement of impact.
Proposal	The construction and operation of the proposed food organics and garden organics waste facility in Hume, Australian Capital Territory.
Proposal site	The area within which all the Project construction and operational elements will be contained within.
Sensitivity	The sensitivity of a landscape character zone or view and its capacity to absorb change of the nature of the Project. In the case of visual impact this also relates to the type of viewer and number of viewers. Combined with magnitude, sensitivity provides a measurement of impact.
Significant	In the context of Environmental Impact Assessment, after analysing the extent (type, size, scope, intensity and duration) and nature (predictability, resilience of the environment, reversibility, ability to manage/mitigate, level of public interest) of a project, an expected level of impact of a project which requires an EIS to be undertaken. The term should be avoided in landscape character and visual impact assessments if the expected level of impacts is below the threshold.
Study area	Consists of land in the vicinity of, and including, the proposal site. The study area is a wider area surrounding the proposal site as defined in this assessment, including land that has the potential to be indirectly impacted by the proposal.
View	The sight or prospect of a landscape or scene.
Viewpoint	The point from which a view is observed that represents a visual receiver.
Viewshed	The area within which a project can be seen at eye level above ground. Its extent will usually be defined by a combination of landform, vegetation and built elements.
Visibility	The state or fact of being visible or seen.
Visual impact	The impact on the views from residences, workplaces and public places.
Visual receiver	Individuals and/or defined groups of people who have the potential to be affected by a proposal.
Zone of Theoretical Visibility	A map, usually digitally produced, showing areas of land within which, a development is theoretically visible.

¹ Partially adapted from: *Environmental impact assessment practice note EIA-N04 - Guideline for landscape character and visual impact assessment, Version 2.2* (Transport for New South Wales, 2020).

Abbreviations

Abbreviations	Definition
3D	Three dimensional
ACT	Australian Capital Territory
DCP	Development Control Plan
EIS	Environmental Impact Statement
FOGO	Food organics and garden organics
GHD	GHD Pty Ltd
GIS	Geographic Information System
km	Kilometre
LCZ	Landscape character zone
LVIA	Landscape and visual impact assessment
m	Metre
MRF	Materials Recovery Facility
NSW	New South Wales
NCOSS	National Capital Open Space System
NCP	National Capital Plan
tpa	tonnes per annum
VP	Viewpoint
ZTV	Zone of theoretical visibility

1. Introduction

The following sections provide an overview of the proposal, the purpose and scope, and the structure of the report.

1.1 Overview

The Australian Capital Territory (ACT) Government is working to reduce waste to landfill and increase resource recovery. The strategic direction for the management of waste in the Territory is set out in the 'ACT Waste Management Strategy 2011-25' (ACT Government, 2011). The strategy commits the ACT Government to minimise organic waste going to landfill and recovering organic waste resources. It also sets a target of increasing the rate of resource recovery to over 90 percent by 2025, with no recoverable waste sent to landfill.

The Federal Government also has a target of halving the amount of organic waste sent to landfill for disposal by 2030, as set out in the 'National Waste Policy Action Plan' (DEE, 2019).

A waste feasibility study was established in mid-2015 to identify a pathway towards achieving the ACT's waste management targets and examine options to drive better resource recovery. In 2018, the ACT Government released the final recommendations from the study as the 'Waste Feasibility Study: Roadmap and Recommendations Discussion Paper' (ACT NOWaste, 2018). Key recommendations from this were to identify a site and establish an organics progressing facility to process food organics and garden organics (FOGO) and the implementation of a kerbside FOGO collection.

The 'ACT Climate Change Strategy 2019 to 2025' (ACT Government, 2019) also identifies FOGO collection for all households and the investigation of organic waste processing as key priorities. An opt-in FOGO collection pilot is currently underway in the ACT (Belconnen), which has so far diverted more than 480 tonnes of material from landfill (ACT Government, 2022).

There is currently no processing facility within the ACT that can accept and process FOGO material. ACT NOWaste is therefore proposing to develop a new FOGO facility (the 'proposal') in Hume to strengthen the Territory's circular economy and help meet Territory and Federal Government landfill diversion and resource recovery targets.

The proposal is defined as the construction and operation of a new FOGO facility with the capacity to receive up to 70,000 tonnes per year of FOGO for in-vessel composting.

1.1.1 Approval and assessment requirements

This report has been prepared by GHD Pty Ltd (GHD) as part of the environmental impact statement (EIS) for the proposal. The EIS supports the application for approval of the proposal and to address the requirements provided by the ACT Department of Environment, Planning and Sustainable Development Directorate dated 7 June 2022.

The proposal is subject to approval by the planning and land authority within the Environment, Planning and Sustainability Development Directorate.

1.2 Purpose and scope of this report

GHD Pty Ltd (GHD) has been engaged by ACT NoWaste to prepare the Environmental Impact Statement (EIS) for the construction and operation of the proposal. This landscape and visual impact assessment (LVIA) report forms part of the EIS, under section 212(1) of the *Planning and Development Act 2007*.

The Scoping Document (Application Number: 202200016) for the proposal was issued on 19 July 2022 and provides requirements for information that is to be provided in the EIS to be submitted for planning approval. Specific Scoping Document requirements relating to landscape and visual impacts have been provided in Table 1.1, together with a cross reference to the relevant section within the report.

Table 1.1 ACT Government Scoping Document

Requirements – section 8.3.6 Landscape and Visual	Cross reference
– Undertake a visual assessment of the site and surrounds to describe the current landscape character of the area.	2.3 Existing landscape and visual environment
– Describe the predicted impacts the facility and its operations (such as incoming wastes, composting material, and potential stockpiling) may have on the landscape character of the site and surrounds.	2.4 Impact assessment
– Provide perspectives and/or visual analysis of the proposal from local vantage points.	2.4 Impact assessment
– Consider visual impact to the Monaro Highway and consistency with Development Control Plan 171/09/0001.	2.4 Impact assessment 9 Response to policy
– Consider lighting impacts in relation to pilot distraction.	Appendix B Consideration of possible lighting impacts

This LVIA assesses the landscape character and visual impacts of the proposal, with particular consideration for sensitive landscape and visual receivers, in the area surrounding the proposal. The report comprises the following:

- an understanding of the landscape and visual attributes of the study area.
- identification of sensitivities of landscape and visual receivers in the vicinity of the proposal.
- assessment of potential landscape and visual impacts associated with the proposal.
- provision of recommendations for mitigating or managing any identified landscape and visual impacts arising from the proposal.

1.3 Report structure

This report comprises of the following sections:

Section 1 – Introduction: provides background information and an overview of the proposal and assessment.

Section 2 – Methodology: describes the methodology used for the purpose of this report.

Section 3 – Proposal description: describes the proposed development, with emphasis on identifying the key sources of potential impacts relevant to this assessment.

Section 4 – Legislation and policy: provides an overview of relevant legislation and policy.

Section 5 – Existing Landscape and visual existing environment: provides an overview and describes the landscape and visual environment within the study area.

Section 6 – Landscape character impact assessment: landscape character zones are identified and assessed against the proposed development.

Section 7 – Visual impact assessment: representative viewpoint locations are identified and assessed against the proposed development.

Section 8 – Mitigation measures: recommendations and mitigation measures are provided in response to identified impacts as a result of the construction and operation of the proposal.

Section 10 – Conclusion: presents a summary of the Landscape and Visual Impact Assessment.

Section 11 – References

1.4 Scope and limitations

This report: has been prepared by GHD for Transport Canberra and City Services and may only be used and relied on by Transport Canberra and City Services for the purpose agreed between GHD and Transport Canberra and City Services as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Transport Canberra and City Services arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1.5 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Transport Canberra and City Services and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

1.5 Assumptions

The methodology includes the following assumptions and limitations:

- there is no national guidance on the assessment of landscape and visual impacts specific to Australia, however, the industry typically refers to the guidelines as outlined in section 2.1.
- the assessment aims to be objective and describe any changes factually. While potential changes resulting from the proposal are defined, the significance of these changes requires qualitative (subjective) judgements. This assessment's conclusion therefore combines objective measurement and professional interpretation. While this assessment aims to be objective, it is recognised that visual impact assessment can be subjective, and individuals are likely to associate different visual experiences to the study area.
- the assessment is based on the information provided to GHD at the time of writing.
- this assessment does not include landscape and visual impacts from lighting.
- Construction activities have not been provided at the time of writing. Standard construction practices have therefore been assumed to complete the assessment.

2. Methodology

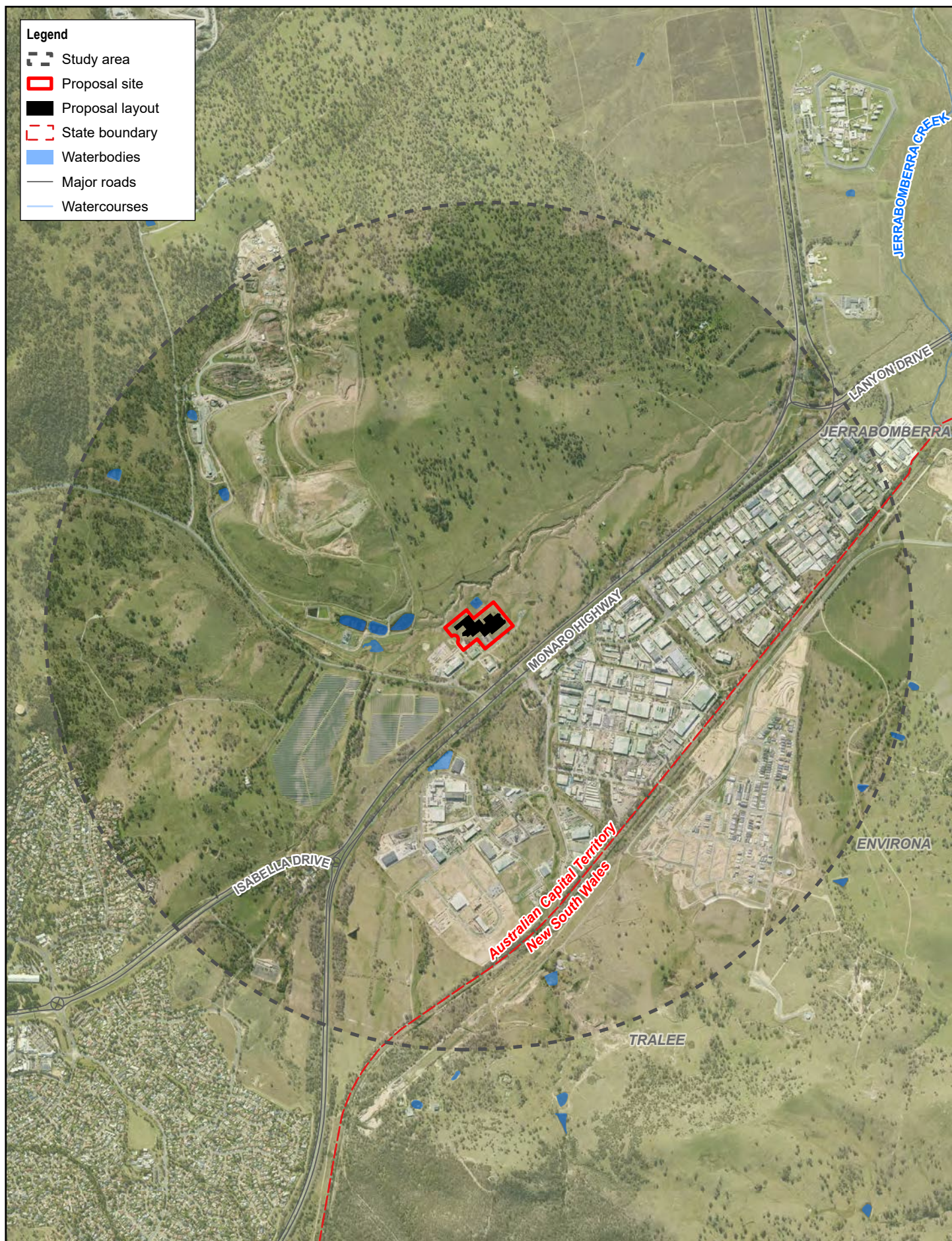
2.1 Standards and guidance

This landscape and visual impact assessment has been prepared in accordance with the following:

- *Guidelines for Landscape and Visual Impact Assessment, 3rd Edition* (Landscape Institute and Institute of Environmental Management & Assessment, 2013).

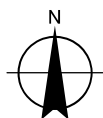
2.2 Study area

The study area is based on the proposal description, potential visual catchment of the proposal and a review of similar assessments. The study area used for this assessment was approximately two kilometres, with a focused area of two kilometres from the proposal boundary. Figure 2.1 shows the study area for this assessment.



Paper Size ISO A4
0 0.25 0.5
Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Transport Canberra and City Services
Hume Food Organics and Garden Organics Facility
Landscape and Visual Impact Assessment

Project No. 12540460
Revision No. 0
Date 23/11/2022

Study area

FIGURE 2.1

2.3 Existing landscape and visual environment

2.3.1 Review of legislation and policy

A review of key planning designations, policies and guidance was undertaken in relation to landscape and visual amenity within the study area. The emphasis of the review was to identify elements outlined within legislation, policy and planning documents relevant to the landscape and visual character and identity of the study area.

2.3.2 Desktop analysis landscape and visual resources

Existing data was gathered and reviewed, including:

- The proposal design information,
- Topography, land use, and vegetation maps,
- Google Earth and Google Street View.

Using this data, a preliminary assessment of the landscape and visual environment was undertaken to inform the site inspection.

2.3.3 Zone of theoretical visibility

Zone of theoretical visibility (ZTV) mapping is a computer-generated analysis which identifies land from which it is theoretically possible to view the components of the proposal. These have been used primarily to guide the area of site analysis and representative viewpoint selection.

ESRI ArcGIS software was used to model the ZTV of the proposal. A digital elevation model was produced using one metre contour intervals at a resolution of one metre. The ZTV was mapped using the following parameters:

- a viewing height of 1.7 metres, which is the average within the typical viewing level range of an adult.
- Proposed 12 metre building height for the following:
 - Product storage and truck parking.
 - Receival hall.
 - Maturation and refining building.

The GIS software then digitally determines the likely extent over which the feature would be visible or not visible. In interpreting the ZTV, the following issues must be considered:

- it only takes into account the landform and does not include land cover factors such as the presence of buildings and trees, therefore it represents the worst-case scenario of potential visual impact.
- it does not take into account the effect of distance. The greater the distance from the proposal, the lower the impact, as the development will take up a smaller portion of the view, and atmospheric conditions may reduce the visual prominence of the proposal.
- the ZTV is only accurate to the resolution of the elevation model

2.3.4 Site inspection

A site inspection was undertaken by Sophie Rae and Izzy David on the 11th and 12th of July 2022. The purpose of the inspection was to:

- Inspect the site and appreciate views to / from sensitive visual receivers.
- Inspect publicly accessible locations identified in the desktop study as likely to provide views of the proposal.
- Identify sensitive visual receiver locations.
- Assess the landscape character of the study area and identify landscape sensitivities.
- Undertake site photography suitable for viewpoint assessment and photomontage preparation.

The coordinates of each viewpoint were recorded during the site inspection.

2.3.5 Definition of existing landscape and visual environment

An assessment of the existing landscape and visual environment was undertaken to determine the existing natural, cultural and visual features within the study area. This includes determination of key landscape and spatial elements, features and values. Aspects considered include:

- Land use and built form.
- Landform, topography and hydrology.
- Vegetation.
- Historical features.
- Indigenous cultural values.
- Key visual features.
- The proposal's viewshed and sensitive receivers.

2.4 Impact assessment

2.4.1 Landscape character zones

Landscape character considers common landscape zones defined by typical features and characteristics identified during the desktop assessment and site inspection. Defining landscape character zones (LCZs) identifies areas sharing the same homogenous environmental or cultural qualities or pattern such as topography, vegetation, hydrology, land use and settlement, built form scale and character, cultural and recreational characteristics.

This approach has been used to establish the existing landscape character within the study area and to provide a framework for measuring the impact of the proposal. This assists in:

- Defining landscape elements that contribute to defining character.
- Defining landscape character attributes.
- Identifying landscape value.

The assessment of the existing environment also considers factors which have influenced landscape change in the past and those that are likely to do so in the future. The landscape character zones are defined in Section 6.

Landscape value

As part of the assessment of existing conditions, the value of the landscape is defined for each LCZ. Criteria for assessing the value of the landscape is defined in Table 2.1.

When defining LCZs, the value attached to the landscape also forms the baseline for which the significance of the impact is measured. Landscape value looks at designated and undesignated landscapes, and holistically at all the elements such as the environmental, cultural, historical and visual/sensory elements that form the landscape. The value of the landscape from an international, national, local and community level is considered when applying a landscape value. The following factors are taken into consideration when defining landscape value (Natural England, Scottish Natural Heritage and Countryside Council, 2011):

- Landscape quality (physical state of the landscape).
- Scenic quality (appeal of the landscape to the senses).
- Rarity (presence of rare elements).
- Representativeness (distinct character or features of landscape).
- Conservation value.
- Recreation value.
- Perceptual aspects/qualities.
- Associations (with particular people, artists, events in history).

The landscape values for each LCZ are described in section 6.

Table 2.1 Landscape value

Landscape value	Definition
High	Landscape character elements in good or above average condition and/or that make a strong positive contribution to landscape character. May include nationally important features.
Medium	Landscape character elements in reasonably good condition and/or that make an average contribution to the local character, which may include locally important landscape features.
Low	Landscape character elements in below average condition and/or that are not particularly distinctive local features.

2.4.2 Landscape character impacts

Assessment of landscape impacts deals with the effect of change and development on landscape as a resource. The concern is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. The consideration of potential impacts on landscape character is determined based on the sensitivity of the existing landscape and the magnitude of change that is likely to occur.

The sensitivity and magnitude of landscape effects address the following specific criteria:

- The sensitivity of a landscape is judged on a combination of the landscape value (refer Table 2.1)
- The landscapes susceptibility to change (refer Table 2.2) from the type of development proposed. A judgement on the level of sensitivity is made and a rating of high, moderate or low applied.
- The magnitude of change to landscape character (refer Table 2.3) depends on the nature, scale and duration of the change expected to occur. The magnitude of change also depends on the loss, change or addition of any feature to the existing landscape. It is based on the part of the landscape character zone which is likely to be impacted to the greatest extent by the proposal.

An assessment is made on the overall level of significance of the landscape impact in relation to the existing conditions.

Table 2.2 Landscape susceptibility to change

Landscape susceptibility	Definition
High susceptibility to change	The type of development proposed could have a detrimental effect on the landscape character, condition or value. Mitigation measures are unlikely to reduce the impacts of the change.
Moderate susceptibility to change	Any change caused by the type of development would be unlikely to have a significant adverse effect on the landscape character, condition or value that could not be mitigated.
Low susceptibility to change	Development of this type is unlikely to have an adverse effect on the landscape character, condition or value. Mitigation measures would be effective in neutralising adverse effects.

Table 2.3 Magnitude of change criteria (landscape)

Rating	Criteria
High	A substantial/obvious change to the landscape character due to total loss of, or change to, elements, features or characteristics of the landscape. Would cause a landscape to be permanently changed and its quality diminished.
Moderate	Discernible changes in the landscape character due to partial loss of, or change to elements, features or characteristics of the landscape, however, has potential to be partly mitigated. The change would be out of scale with the landscape character, and at odds with the local pattern and landform and would leave an adverse impact on the landscape character.
Low	Minor loss or alteration to one or more key landscape character elements, features or characteristics, or the introduction of components that may be new but may not be uncharacteristic within the existing landscape character.
Negligible	Almost imperceptible or no change in the landscape character as there is little or no loss of/or change to the elements, features or characteristics of the landscape.

2.4.3 Viewpoint selection

Assessment of visual impacts deals with the effects of change and development on the views available to people and their visual amenity. It assesses how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views as a result of the change or loss of existing elements of the landscape and/or the introduction of new elements.

Visual receivers have been considered in terms of the views they are likely to obtain from within the study area including consideration of any key vantage points, such as lookouts, where there is particular interest in the view. Visual receivers are identified based on:

- Proximity of the receivers to the proposal, as the most affected visual receivers are anticipated to be located closest to the proposal, unless located at an elevated vantage point.
- Type of receiver, as different viewer types would have different perceptions of the change.

Based on the analysis of the existing landscape and visual environment, viewpoint locations were selected for assessment as representative of sensitive visual receiver locations. To best illustrate the likely visual impacts of the proposal, where appropriate, viewpoint locations chosen for assessment aim to represent a balance of:

- Publicly accessible visual receivers.
- The most sensitive visual receivers.
- A range of visual receiver types.
- A range of distances from the proposal.
- A range of view directions towards the proposal within the study area.

2.4.4 Visual impacts

The evaluation of potential impacts on visual amenity is based on the sensitivity of the viewpoint (and the visual receiver it represents) to change, and the magnitude of change that is likely to occur. The assessment considers the likely impacts of the proposal. The level of effects on a view depends on factors such as the extent of visibility, degree of obstruction of existing features, degree of contrast with the existing view, angle of view, duration of view and distance from the proposal.

The sensitivity and magnitude of visual effects addresses the following specific criteria:

- The sensitivity of the viewpoint to proposed change considers the importance of the view, its existing scenic qualities and the presence of other existing man-made elements in the view; the type and sensitivity of visual receiver and their likely interest in the view; the susceptibility of visual receivers to change; and the value attached to views (refer Table 2.4).
- The magnitude of change to views and visual amenity considers the size or scale of change; geographical extent of effects, and duration and reversibility of the change expected to occur (refer Table 2.5). It also depends on the loss, change or addition of any feature in the field of view of the receiver including an

assessment of the level to which the change contrasts with the existing view or expected view of the landscape.

An assessment is made on the overall level of significance of the visual impact in relation to the existing view.

Table 2.4 Sensitivity criteria (visual)

Rating	Criteria
High	Occupiers of residential properties, at home or going to or from, with long viewing periods, within close proximity to the proposed development; Communities that place value upon the landscape and enjoyment of views of their setting.
Moderate	Outdoor workers who have a key focus on their work who may also have intermittent views of the study area; Viewers at schools, or similar, when outdoor play and recreation areas are located within close proximity but viewing periods are limited; Occupiers of residential properties with long viewing periods, at a distance from or screened from the study area.
Low	Road users in motor vehicles, trains or on transport routes that are passing through or adjacent to the study area and therefore have short term views; Viewers indoor at their place of work, schools or similar.
Negligible	Viewers from locations where there is screening by vegetation or structures where only occasional screened views are available and viewing times are short; Road users in motor vehicles, trains or on transport routes that are passing through/adjacent to the study area and have partially screened views and short viewing times.

Table 2.5 Magnitude of change criteria (visual)

Rating	Criteria
High	A substantial/obvious change to the existing view due to total loss of, or change to, elements, features or characteristics of the view. Would cause a view to be permanently changed and its quality diminished.
Moderate	Discernible changes in the existing view due to partial loss of, or change to elements, features or characteristics of the view, however, has potential to be partly mitigated. The change would be out of scale with the existing view and would leave an adverse impact on the view.
Low	Minor loss or alteration to one or more key view elements, features or characteristics, or the introduction of components that may be visible but may not be uncharacteristic within the existing view.
Negligible	Almost imperceptible or no change in the view as there is little or no loss of/or change to the elements, features or characteristics of the view.

2.4.5 Significance of impacts

The combination of sensitivity and magnitude determines the significance of the impact on the landscape character or representative viewpoint. Refer to Table 2.6 for the matrix used to determine the significance of impact.

Table 2.6 Significance of impact matrix

		Magnitude of impact			
		High	Moderate	Low	Negligible
Sensitivity	High	High	High-moderate	Moderate	Negligible
	Moderate	High-moderate	Moderate	Moderate-low	Negligible
	Low	Moderate	Moderate-low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

2.4.6 Panorama and photomontage

All photographic images were captured using a 50 millimetre fixed focal length lens on a 35 millimetre full frame format camera at a camera height of 1.7 metres. All photograph locations were recorded and mapped.

A series of six viewpoint locations were chosen and existing views represented using a panorama technique. This technique involves the stitching together of a number of adjoining images using the Adobe Photoshop software program.

Of the six viewpoint locations, two viewpoints were selected for the production of photomontage images to represent proposed views following the completion of the proposal. The software used to model and render the photomontages was Autodesk 3D Studio Max. In order to achieve an accurate photomontage of the proposal and surrounding landscape, 1 metre contours with a digital terrain model to a resolution of 1 metre were used to model the surrounding landform.

Once the 3D model incorporating both the landscape and new proposal elements were created, a virtual camera was placed in the software at the same location the photographs were taken. The film, focal lens and height of the virtual camera matches the real camera utilised to take the photographs. The photographs of the site were used in 3D Studio Max as a background to accurately match the 3D model with the proposal elements to the perspective of the photographs. From the camera view, rendered images of the proposal were produced to match the daylight exposure of the photographs. The rendered images were imported into Adobe Photoshop for post-production editing and collation of the photomontages.

The final result is the 3D model of the proposal shown in the correct 3D location in the photographs (refer Photo 7.2). The final images were produced to a high resolution, suitable for printing.

2.5 Mitigation measures

Mitigation measures were developed in response to the impacts identified within Section 6 and Section 7. Potential mitigation measures typically include:

- Adopting alternative designs or revisions to the basic engineering and architectural design to prevent and/or minimise negative impacts.
- Remedial measures such as colour and textural treatment of structural features.
- Compensatory measures such as landscape design to compensate for unavoidable negative impacts and to attempt to generate long-term positive impacts.

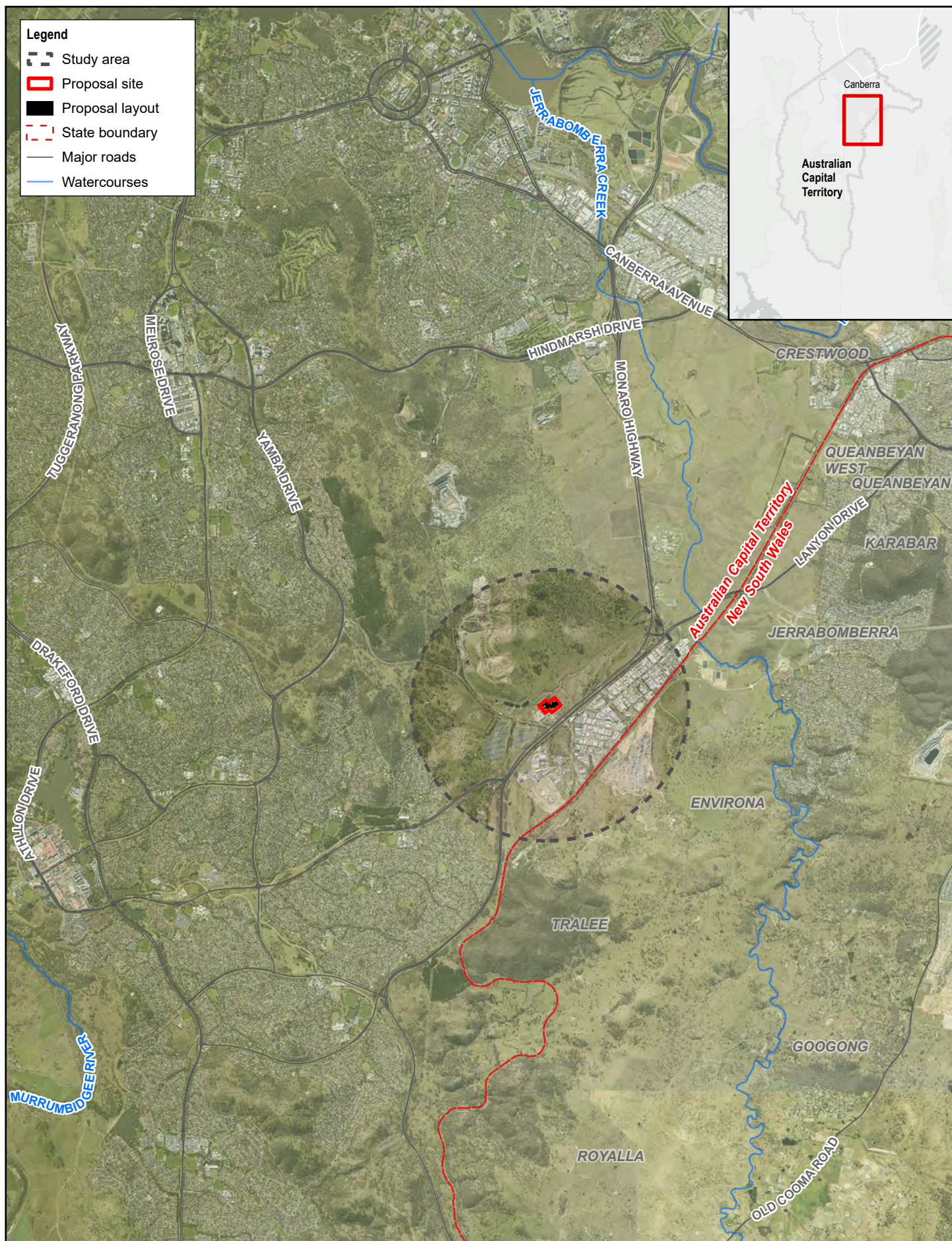
3. Proposal description

The following section provides a summary of the proposal and includes the detail relating to the main visual components that have potential to affect the landscape character and visual amenity of the study area.

3.1 The proposal site

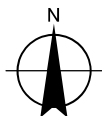
The proposal is located in the suburb of Hume of the southern urban fringe of Canberra (refer Figure 3.1 and Figure 3.2). Hume is a light-industrial suburb with minimal residential development. The proposal site is located on Block 5, Section 26 Hume, Recycling Road. The proposal site is currently a vacant block of land and the total site area is approximately 4 hectares.

Hume Materials Recovery Facility is west of the site across Recycling Road. The Mugga Lane Landfill is located approximately 200 metres north-west of the site. The nearest residential receiver is approximately two kilometres to the west of the proposal site. Monaro Highway is situated to the south, and the proposal site is visible from the highway; south and east across Monaro Highway is the Hume Industrial Estate. The proposal site is approximately one kilometre from the New South Wales (NSW) border.



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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Transport Canberra and City Services
Hume Food Organics and Garden Organics Facility
Landscape and Visual Impact Assessment

Project No. 12540460
Revision No. 0
Date 23/11/2022

Proposal location plan

FIGURE 3.1

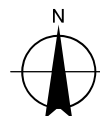


Legend

- ▬ Proposal site
- ▬ Cadastre
- ▬ Watercourses

Paper Size ISO A4
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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Transport Canberra and City Services
Hume Food Organics and Garden Organics Facility
Landscape and Visual Impact Assessment

Project No. 12540460
Revision No. 0
Date 30/08/2023

Proposal location

FIGURE 3.2

3.2 The proposal

The ACT Government has identified diversion of municipal FOGO waste from landfill as a key action to achieve resource recovery and emissions reduction targets.

In-vessel composting processing only FOGO wastes collected from households in the ACT has been selected as the preferred option for the process. In this process, composting is contained within a vessel or building, and aeration and temperature is controlled to optimise the composting process.

In-vessel composting technologies have been implemented in other Australian locations for FOGO waste processing, and a variety of technology providers and site configurations are possible. They all broadly involve an enclosed and odour-controlled waste receipt area, enclosed composting vessels or tunnels with forced aeration and process control, and maturation areas for compost (with or without).

Household FOGO waste will be delivered to the site by kerbside waste collection trucks. If commercial food waste is accepted at the facility, it will also potentially be delivered by food waste and/or liquid waste collection vehicles. Smaller vehicles such as staff and visitor cars and maintenance vehicles will also need to access the site.

The total site area is approximately four hectares and total buildings footprint (per conceptual layout) of 1.84 hectares results in an expected plot ratio of less than 0.4. Maximum allowable plot ratio for the site is 50%.

The main processing buildings would be of predominantly steel framed and metal-clad construction. The maximum height of all buildings would be 12 metres. The waste receipt and decontamination/pre-sort area (waste receipt hall) would be 12 metres high.

Stormwater collected from building rooftops would be captured for storage in onsite rainwater tanks and would be available for use within the facility.

No public access/drop off would be provided to the site or the Facility.

Figure 3.4 shows the proposed preliminary site layout for the composting Facility.

3.2.1 Biofilter stack

A stack diameter of 2.5 metres has been considered during this concept design stage, however other stack diameters and velocities may be appropriate (subject to confirmation at detailed design). A stack height of at least three metres taller than any other structure within a 20-metre radius of the stack is recommended (EPA Victoria, 2021). The receipt and maturation halls have an assumed roof height of 12 metres, therefore a stack of 15 metres in height is recommended.

3.2.2 Operation phase

It is intended that the facility will operate on a single shift basis with waste acceptance (opening hours) from Monday to Friday to coincide with and accommodate deliveries from municipal kerbside collection trucks, as well as bulk product load-out to wholesale offtake. Weekends are therefore available for carrying out planned (and unplanned) repairs and maintenance, thereby providing a high level of processing continuity assurance.

Active operation times for various mobile and fixed plant and equipment will be around six to seven hours per day. This includes decontamination and feedstock preparation, tunnel loading/unloading, compost maturation pile maintenance, product screening and refinement, and finished product load-out. Night-time operation and movements of mobile plant is not required.

The number of in-bound and outbound truck movements at full capacity for both the FOGO facility and Materials Recovery Facility (MRF) have been estimated at around 80 per day, and light vehicles around 30 per day, Monday to Friday. Vehicles delivering FOGO waste are assumed to be 23.5 tonne side loader trucks, and vehicles removing compost are assumed to be 28 tonne trucks. Trucks would enter the site via the main Facility entrance off Recycling Road and exit via a single exit point onto John Cory Road. Peak truck traffic times would be between 9:30 am and midday, and 1:30 pm to 5:00 pm Monday to Friday.

The key visual project elements during operation would include the below.

Buildings

The maximum height of all buildings would be 12 metres. In order of scale from largest to smallest, the key buildings proposed and their heights are outlined in Table 3.1.

Table 3.1 Key proposed buildings and heights

Building	Proposed height
Maturation and refining building	12 metres
Primary composting tunnels	10 metres (approximately)
Waste receival hall	12 metres
Product storage and truck parking (semi-enclosed)	12 metres
Biofilter and ancillary infrastructure	6 metres (approximately)
Administration building	5 metres (approximately)

Figure 3.3 shows the scale and height of proposed buildings. The main processing buildings would be of predominantly steel framed and metal-clad construction and may incorporate concrete tilt panels and cast-in-situ concrete structural elements, subject to detailed design. The design of building roof structures would include consideration of roof loads associated with installation of rooftop solar photovoltaic panels, where appropriate. The installation of these panels may form part of the initial construction of the facility or may be added at some time following commencement of operations, subject to commercial considerations.



Figure 3.3 Indicative east elevation showing the scale and height of proposed buildings

Roads and hardstand areas

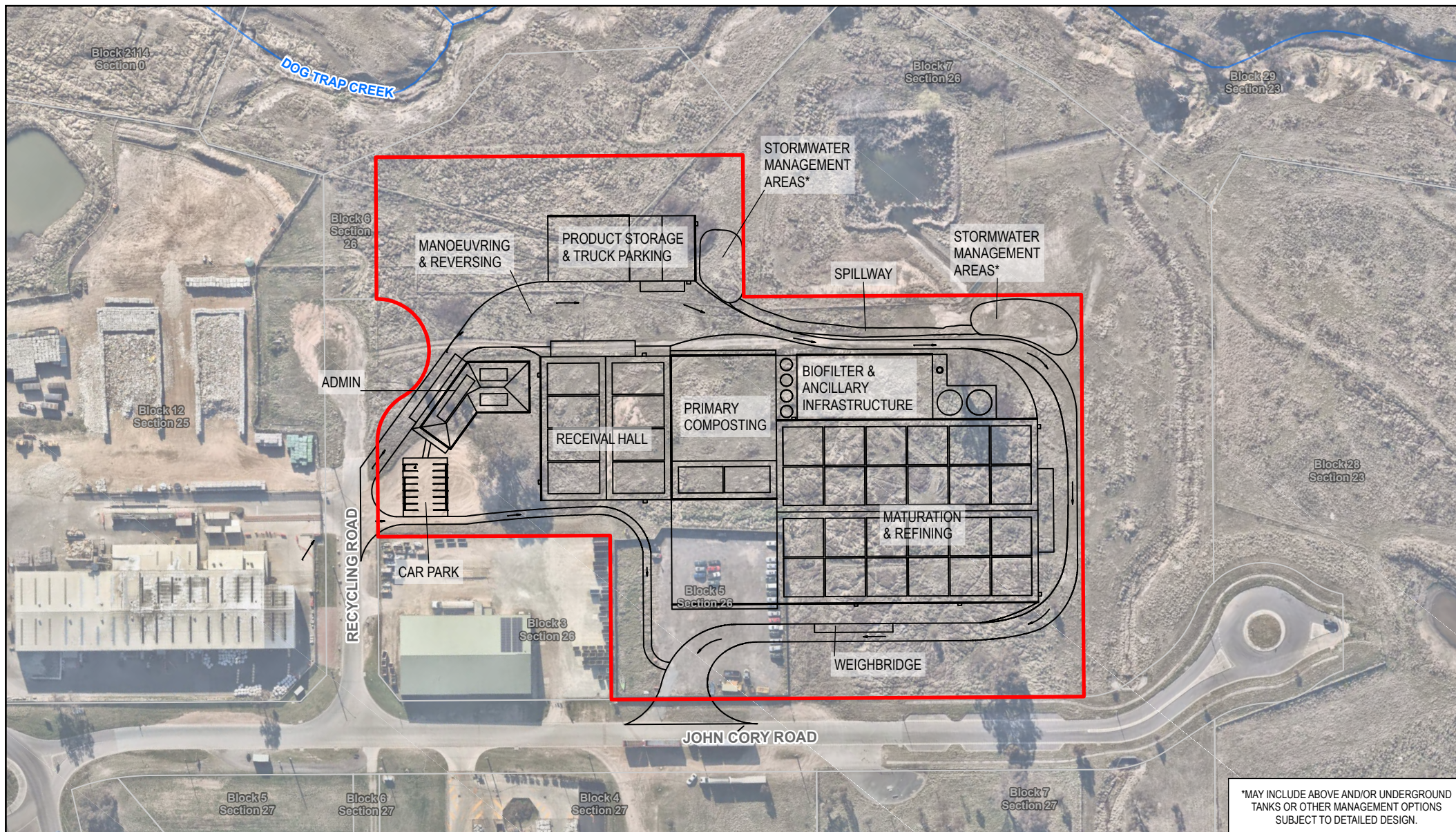
Roads and hardstand areas would be associated with the one-way traffic road for large scale commercial trucks and small-scale vehicles within the site; proposed weighbridges; processing areas adjacent to buildings; and a proposed carpark.

3.2.3 Construction phase

Standard construction practices have been assumed for the assessment.

The visual impact to sensitive receptors and landscape impacts to LCZs during the construction phase would most likely consist of the following elements and activities:

- the presence of fencing, barricades and lighting at construction zones, site compounds and administration buildings
- the temporary presence of work crew, vehicles and machinery at designated laydown areas and materials storage at designated stockpile areas
- construction vehicles moving along existing roads on route to the construction site
- in-situ concrete pouring and construction of new structures
- there may be additional dust generated as a result of construction works which may have a visual impact.



Legend

- Proposal site
- Proposal site layout
- Cadastre
- Watercourses

Paper Size ISO A4
 0 20 40
 Metres

Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 55



Transport Canberra and City Services
 Hume Food Organics and Garden Organics Facility
 Landscape and Visual Impact Assessment

Project No. 12540460
 Revision No. 0
 Date 17/10/2023

Indicative concept layout

FIGURE 3.2

4. Legislation and policy

A detailed review of government policies was undertaken to inform and identify key objectives for the landscape and visual impact assessment.

This is not intended to be a thorough review of the planning scheme, mechanisms and planning related triggers. The emphasis of the review was to identify designations, protections, values, and objectives relevant to the landscape and visual environment of the study area, including scenic amenity values.

Summary of findings

The assessment of relevant legislation, policies and guidelines described below has identified that the study areas existing landscape character and views are valued, and some areas are protected.

A key policy that relates to this assessment is the proposal site is identified under Development Control Plan (DCP) 171/09/0001 (ACT Government, 2009) for Section 23, 25, 26 and 27 Hume. The DCP establishes planning and urban design provisions including building scale, setback and landscape character. The design objectives within this policy have been reviewed and used to inform the mitigation section 8.

4.1 State legislation and policy framework

4.1.1 Planning and Development Act 2007

The *Planning and Development Act 2007* establishes a framework for planning the use, and development of the ACT to ensure sustainable and orderly development.

- Requirements have been met through proposal siting, design, landscape masterplan and retention of significant trees on site.

4.1.2 Nature Conservation Act 2014

The *Nature Conservation Act 2014* objective is to protect, conserve and enhance the biodiversity of the ACT. This includes the protection of landscapes of natural significance.

- Requirements have been met through landscape masterplan and retention of significant trees on site.

4.1.3 Heritage Act 2004

The *Heritage Act 2004* establishes a system for the recognition, registration and conservation of places and objects that have natural and cultural heritage significance and Aboriginal places and objects. The Act aims to provide 'a system integrated with land planning and development to consider development applications having regard to the heritage significance of places.'

- Requirements have been met through the assessment of views from heritage sites. Particularly the Tuggeranong Heritage Track.

4.1.4 Tree Protection Act 2005

The objective of the *Tree Protection Act 2005* is to protect individual trees in the urban area that contribute to the amenity of urban landscapes. The Act recognises the importance of the values of urban forest that contribute to the heritage significance of an area. The Act ensures that the value of trees are protected during periods of construction and activity and incorporated into the design and planning of development.

- Requirements have been met through landscape masterplan and retention of significant trees on site.

4.1.5 National Capital Plan 2019

The *National Capital Plan* (NCP) sets out the broad planning principles and policies for Canberra and the Territory to facilitate planning and development in accordance with Canberra's national significance.

The *National Capital Open Space System* (NCOSS) recognises the importance of the natural setting of the National Capital and is required to protect the nationally significant open-space framework, visual backdrop and landscape setting for the National Capital. The NCOSS aims to will blend city and country in a way that symbolises the character of the National Capital. The Inner Hills area is located within the LVIA study area. Relevant principles and policies include:

- *Hills, ridges and buffer spaces are to remain substantially undeveloped in order to protect the symbolic role and Australian landscape character of the hills and ridges as the scenic backdrop to the city and to maintain the visual definition and physical containment of the surrounding towns.*
- *The hill tops will continue to be used as key vantage points for viewing and understanding the National Capital. Development will be sited so as to minimise its visual impact on the Central National Area and any environmental impact on the hill tops.*
- *The environment and Australian landscape character of the hills and ridges will be protected and enhanced to provide a unified landscape setting for the National Capital.*

The Monaro Highway is an Approach Route as defined in the plan and the proposal site which fronts directly onto the route and is not more than 200 metres from their middle lines is subject to Special Requirements which seek to 'enhance the surrounding rural character and landscape outside urban areas.'

4.1.6 Development Control Plan (DCP) 171/09/0001

The proposal site is identified under Development Control Plan (DCP) 171/09/0001 (ACT Government, 2009) for Section 23, 25, 26 and 27 Hume. The DCP establishes planning and urban design provisions including building scale, setback, landscape character, access and parking for the site and states that:

'The National Capital Authority's primary interest is to ensure that an appropriate landscape character will be established on the Monaro Highway frontage, including extensive landscaping at the corner of the Highway and Mugga Lane. This will require effective landscaping both within the verge and on the sites of adjacent developments. Landscaping of roads and public spaces within the Estate is also required to both reinforce the Highway landscaping and break up the visual expanse of the Estate.'

Planning and urban design objectives with the DCP include:

- *Development along the Monaro Highway is required to contribute to the architectural quality and amenity of the industrial estate.*
- *Buildings shall be of a high standard in terms of building form, material and finishes.*
- *Building envelopes will be designed to enhance the visual amenity of the estate, particularly through the provision of generous landscaped external spaces.*
- *A consistency in architectural styles, colours and materials is required throughout the industrial estate.*

The DCP guidelines related to landscape and the proposal are:

14.1 *The National Capital Plan identifies the Monaro Highway corridor, which bisects the Hume Industrial Area, as a Designated Area. Development along this route should enhance the rural character and landscape of land adjoining the area before the road enters the urban area.*

14.2 *The objectives of the Landscape Master Plan are to:*

- *Minimise the visual impacts of buildings, car parking, open activities and storage areas viewed from the Monaro Highway and Mugga Lane;*
- *Retain existing trees wherever possible, in particular the yellow box and red gum communities and individual trees considered to have moderate to high conservation value;*
- *Ensure consistency of street planting and landscaping;*
- *Encourage appropriate on-site landscaping*

14.3 Landscaping on blocks fronting the Monaro Highway is to be carried out in accordance with an approved Landscape Master Plan. Existing trees, in particular the yellow box, red gum and other mature native trees are to be retained where possible. The areas between the buildings and the Monaro Highway and Mugga Lane are to be used generally for planting, as a part of an integrated on-site and off-site landscape screen. The minimum width of the combined on-site and off-site buffer is to be 25 metres.

14.7 Comprehensive implementation of the landscape screening and spine road plantings, as per the master plan, must be completed in conjunction with individual block developments.

Additional relevant DCP guidelines are:

6. Building Height

6.1 Building height should be appropriate for building function. To minimise visual impact of buildings on the highway, buildings will be limited to a maximum height of 30 metres (to the top of the roofline) above natural ground level and to a maximum height of 12 metres above natural ground level on blocks less than 5 hectares in area.

6.2 Minor building elements (such as lift overruns) extending above the roof line will only be permitted where a visual impact assessment demonstrates that these elements do not have an adverse impact on the surrounding character and landscape of the area.

7. Setbacks

7.1 Buildings should be located to reinforce the significance of the Monaro Highway, with a minimum setback of 10 metres from the property boundaries along the Monaro Highway. Building shall also be setback a minimum of 10 metres from the property boundaries along Mugga Lane.

8. Site Coverage

8.1 The area to be covered by building on any block created within the estate is not to exceed 50 per cent of the total block area.

9 Materials/Colours

9.1 External walls should be generally masonry or pre-coated metal-cladding of low reflectivity. The roof should be of pre-coated metal of low reflectivity.

9.2 Reflective window glass and coatings will not be permitted. Exposed air conditioning equipment will not be permitted unless screened to the satisfaction of the Territory.

9.3 All graphics and external colours are to be considered as an integral part of the appearance of the development and should be sympathetic to the area's rural landscape setting.

10. Fences

10.1 Fences built along the external road frontage are to be set back behind landscape screens. A consistent standard of fencing of black wire mesh, with a minimum height of 1.8 metres, is to be provided along the Monaro Highway and Mugga Lane frontages.

4.1.7 Territory Plan

As the proposal site is within Territory Land, development applications will be assessed against the requirements of the Territory Plan (ACT Government, 2008). The Territory Plan is used to manage land use change and development within the ACT in a manner that is consistent with government strategy and legislation.

Defined zones located within the study area are provided with associated objectives relating to the landscape and visual environment including:

NUZ3 – Hills, Ridges and Buffer Zone

- a) Conserve the environmental integrity of the hill system as a visual backdrop and a unified landscape setting for Canberra
- b) Provide opportunities for appropriate recreational uses

c) Conserve the significant cultural and natural heritage resources and a diversity of natural habitats and wildlife corridors

d) Provide predominantly open buffer spaces for the visual separation of towns and to provide residents with easy access to hills, ridges and buffer areas and associated recreation facilities

NUZ1 – Broadacre Zone

a) Make provision in a predominantly rural landscape setting for a range of uses which require larger sites and/or a location outside urban area

b) Make provision for activities requiring clearance zones or protection from conflicting development

c) Ensure that development does not adversely impact or visually intrude on the landscape and environmental quality of the locality

4.1.8 ACT Planning Strategy 2018

The ACT Planning Strategy aims to recognise and incorporate the social, economic and environmental changes occurring in the growing city. The strategy reflects the vision and directions of the community in housing, transport and climate change. The vision for the strategy is as follows;

The development of a city which both respects environmental values and reflects national concerns with the sustainability of Australia's urban areas.

Strategic directions relevant to this impact assessment are;

Sustainable and resilient territory

- *3.3 Integrate living infrastructure and sustainable design to make Canberra a resilient city with the landscape.*
- *3.5 Protect biodiversity and enhance habitat connectivity to improve landscape resilience.*

Liveable Canberra

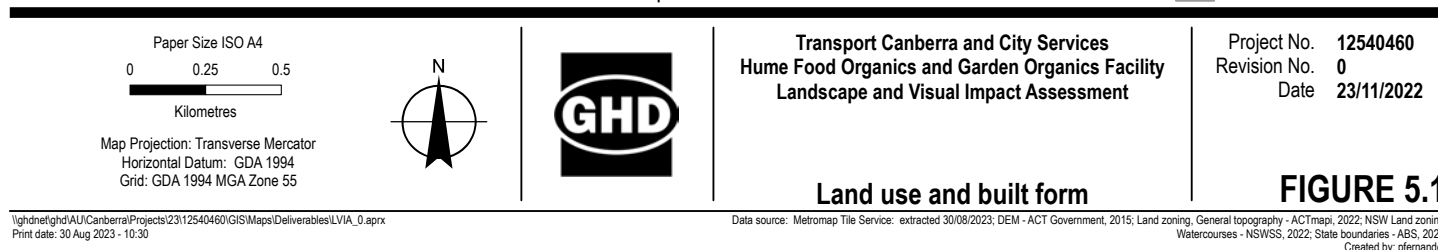
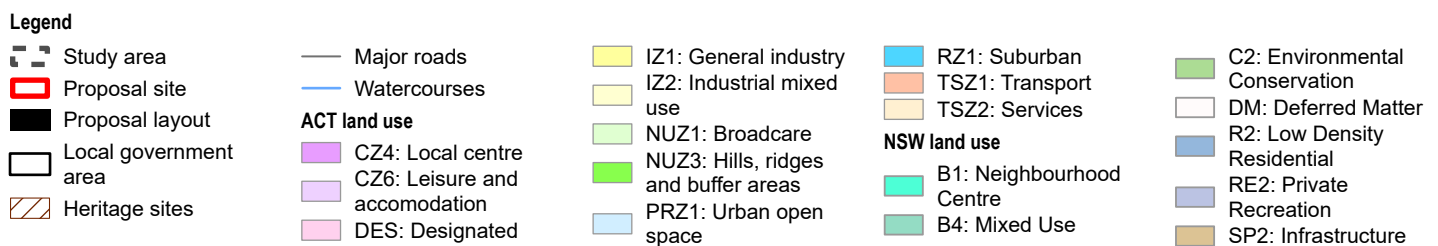
- *4.3 Strengthen neighbourhoods and support their diverse character by creating strong local activity hubs.*

Within the *ACT Planning Strategy*, the proposal is identified as the 'Eastern Broadacre Area'.

4.2 Other relevant policy

4.2.1 Eastern Broadacre, An Assessment of Visual Landscape Character (2008)

The ACT Planning and Land Authority commissioned an assessment of visual landscape character to identify land in the eastern broadacre area for future industrial growth and potential future employment nodes within the ACT. The study involves an assessment of existing environmental conditions (see Figure 4.1) in order to identify opportunities and constraints for development.



5. Existing landscape and visual environment

The following section provides a summary of the existing landscape and visual environment of the study area.

5.1.1 Land use and built form

The study area is located on the border of New South Wales (NSW) and the Australian Capital Territory (ACT) (refer Figure 3.1).

The proposal site is in the ACT, within the light-industrial suburb of Hume. It sits within the General Industry Zone (IZ1) with Broadacre open grassland to the north and east. The study area is made up of industrial and open space land uses, with smaller residential areas in the south and west. Residential development includes the existing suburb of MacArthur and the South Jerrabomberra Village development, currently under construction. North of the site, the West Jerrabomberra Nature Reserve covers almost half of the study area and is a popular destination for bushwalkers and birdwatchers.

The Monaro Highway bisects the industrial estate and is zoned as 'designated' land. In the west of the study area, Wanniasa Hill Nature Reserve and Wanniasa Hill Special Purpose Reserve are also zoned as 'designated' land.

Built form in the study area is mostly industrial including large sheds and warehouses within the Hume Industrial Estate. The Mugga Lane Solar Park is located 500 metres south-west of the site and a waste processing facility and landfill site also operate within close proximity. There are a few rural residential dwellings within the study area, most notably the Woden Homestead which is approximately 1.7 kilometres north-east of the site. The homestead was built in 1832 and was one of the earliest rural properties in the Canberra region.

John Cory Road (on which the site is located) is the starting place for the Tuggeranong Heritage Track (Refer to Figure 5.3) and is a popular destination among visitors.

5.1.2 Topography and hydrology

The study area is generally characterised by undulating plateaus with rounded hills and peaks. Meandering streams with a chain of ponds and tributaries drain the valley (See Figure 5.1).

The proposal site sits in a two-kilometre-wide, relatively flat valley bounded by Dog Trap Creek to the north and the Monaro Highway to the south. The elevation on the site ranges between 610-615 metres above sea level, and slopes downwards gently towards the north, where Dog Trap Creek has cut a deep but narrow channel along the side of the valley. There are multiple small fens and boggy patches in the site but no larger surface waterbodies. Within the study area north of the industrial estate, the hills of the West Jerrabomberra Nature Reserve reach peaks of 720 metres above sea level. Outside of the study area, the terrain rises to form a series of hills and mountains such as Isaac's Ridge, Mt Wanniasa, Tralee Hill and Environs Hills (Refer Figure 3.1), providing a scenic backdrop to the study area.

5.1.3 Vegetation

The study area falls within the South-Eastern Highlands bioregion and has been extensively cleared and disturbed since European settlement due to intermittent livestock grazing. This includes the proposal site, which features grassland in poor condition with scattered native trees and no mid-storey vegetation. Four mature trees are located on the site, and multiple small saplings. The trees consist of Yellow Box (*Eucalyptus melliodora*) and Blakely's Red Gum (*Eucalyptus blakelyi*). South of the site, rows of young and mature native trees provide a visual buffer along the Monaro Highway.

North of the site, the West Jerrabomberra Nature Reserve is protected due to its endangered status as a remnant Natural Temperate Grassland. It features areas of grassland and woodland in good condition.

5.1.4 Indigenous cultural values

The elevated terraces within the study area are known to contain many Aboriginal Places with high artefact densities (ACT Heritage Council, 2020). John Cory Road, on which the proposal is located, marks the start point of

the Tuggeranong Heritage Track, where an information plaque informs visitors of the history and Indigenous cultural significance of the area.

The proposal site (Block 5, Section 26) and the adjacent block of land to the north and east (Block 29, Section 23), have a heritage overlay due to their Indigenous cultural significance. Within the adjacent block are two registered Aboriginal Places; HA12 and HAC2. It has been noted by archaeologists and Representative Aboriginal Organisations that these Aboriginal Places contain 'intact, dense and diverse artefact assemblages and to have been intermittently used as campsites located along the broad Jerrabomberra Valley system' (ACT Heritage Council, 2020).

5.1.5 Key visual features

Based on the desktop review and site inspection, the key visual features in the study area were identified as:

- The Hume Industrial Estate is prominent within the landscape, characterised by many large sheds, warehouses, large buildings, storage areas and car parks.
- Extensive open plains and undulating hills containing native grassland and woodland vegetation.
- An information plaque at the start of the Tuggeranong Heritage Track on John Cory Road.
- Dog Trap Creek, which has cut a deep and narrow gully through the landscape.
- Meandering streams with chain of ponds tributaries.
- The Monaro Highway, a dual-lane asphalt road which is a key access route to Canberra from the south.
- The Mugga Lane Solar Park, with many rows of solar panels covering a large area.

Key views are typically achieved from elevated areas within the study area. Of particular note are the following:

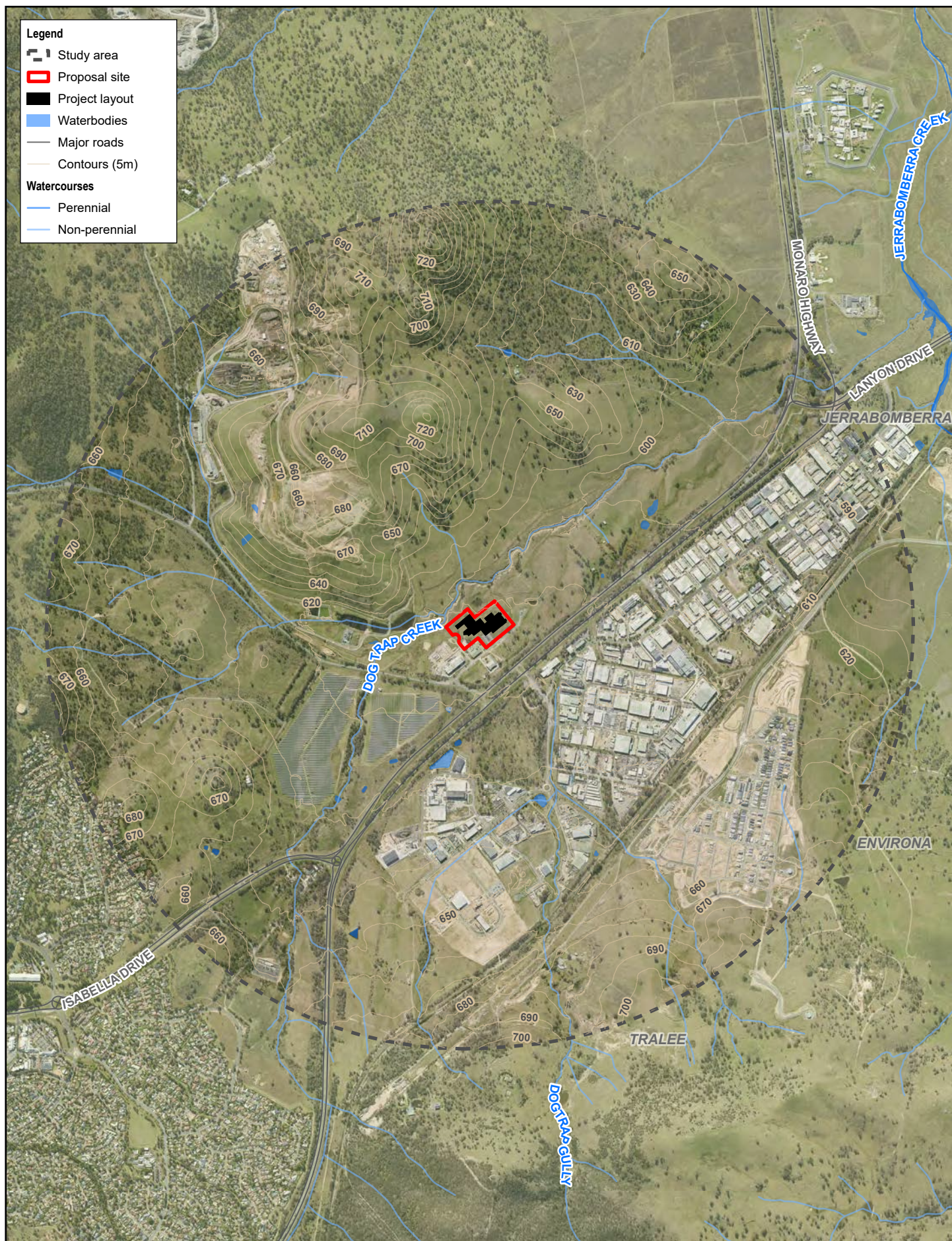
- Views from the West Jerrabomberra Nature Reserve across the surrounding landscape and distant ridgelines.
- Views from John Cory Road towards the gentle hills of the West Jerrabomberra Nature Reserve, rising to the north beyond Dog Trap Creek.
- Framed views of surrounding hills and mountains through trees and industrial buildings throughout the study area.
- Views from MacArthur towards the Hume Industrial Estate, surrounding broadacre land and distant ridgelines.

5.1.6 Proposal viewshed and sensitive visual receivers

ZTV mapping undertaken for the project revealed a high amount of theoretical visibility from the surrounding area to the proposal, as shown in Figure 5.2. As outlined in Section 2.3.3, this mapping does not take into consideration the presence of built form and vegetation. The presence of the Hume Industrial Estate to the south-east of the proposal would provide some screening of the project from this direction.

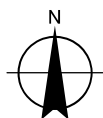
The site inspection revealed the likely viewshed for the proposal would primarily be confined to areas within close proximity to the proposal site, such as road users on John Cory Road and Mugga Lane, or elevated areas within the study area, such as West Jerrabomberra Nature Reserve to the north.

Based on the ZTV analysis, while views to the proposal are theoretically possible from the West Jerrabomberra nature Reserve, there is limited access for views within these areas due to screening vegetation, as shown in Section 7.



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Map Projection: Transverse Mercator
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Grid: GDA 1994 MGA Zone 55

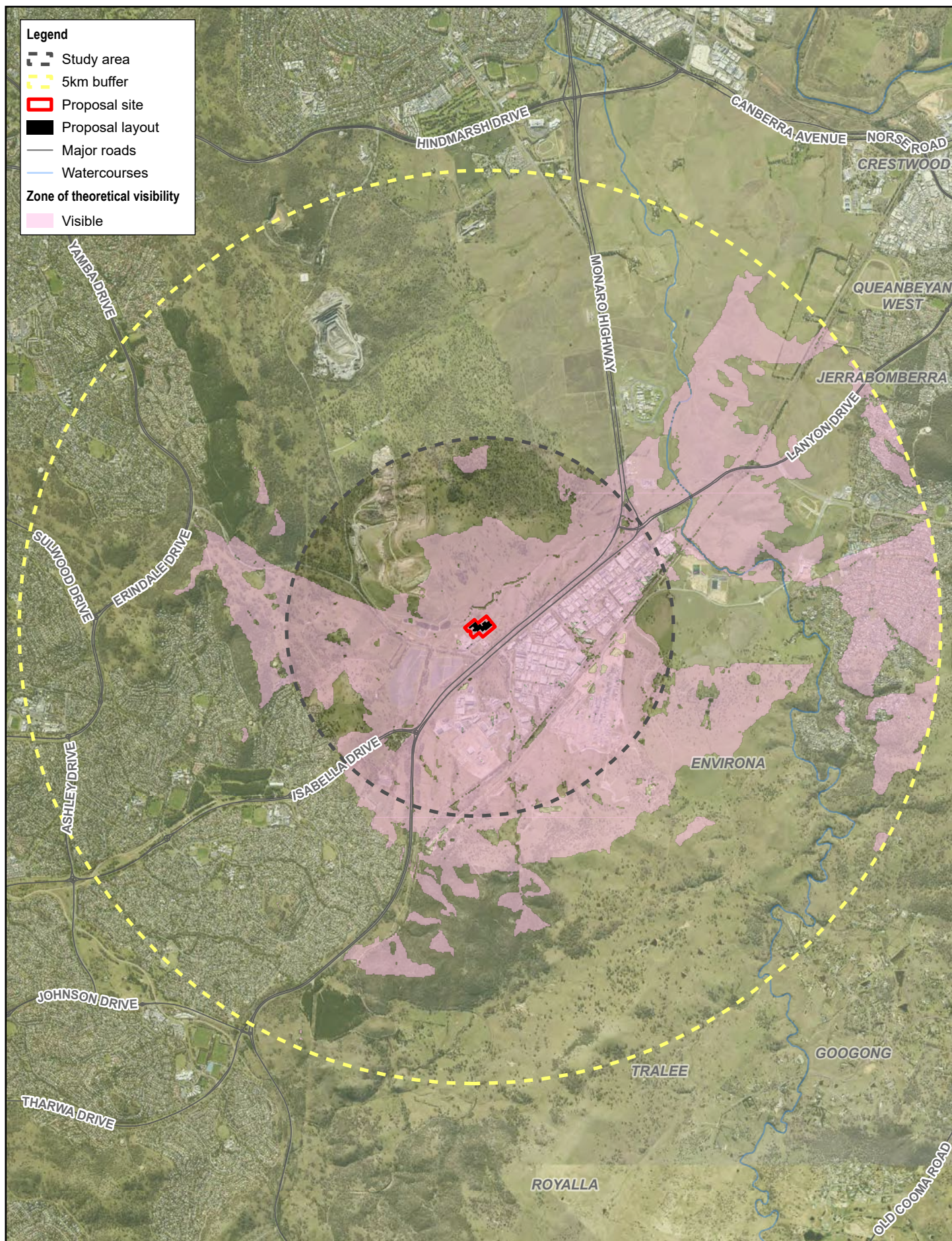


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Revision No. 0
Date 23/11/2022

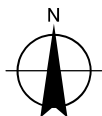
Topography and hydrology

FIGURE 5.1



Paper Size ISO A4
0 0.5 1
Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

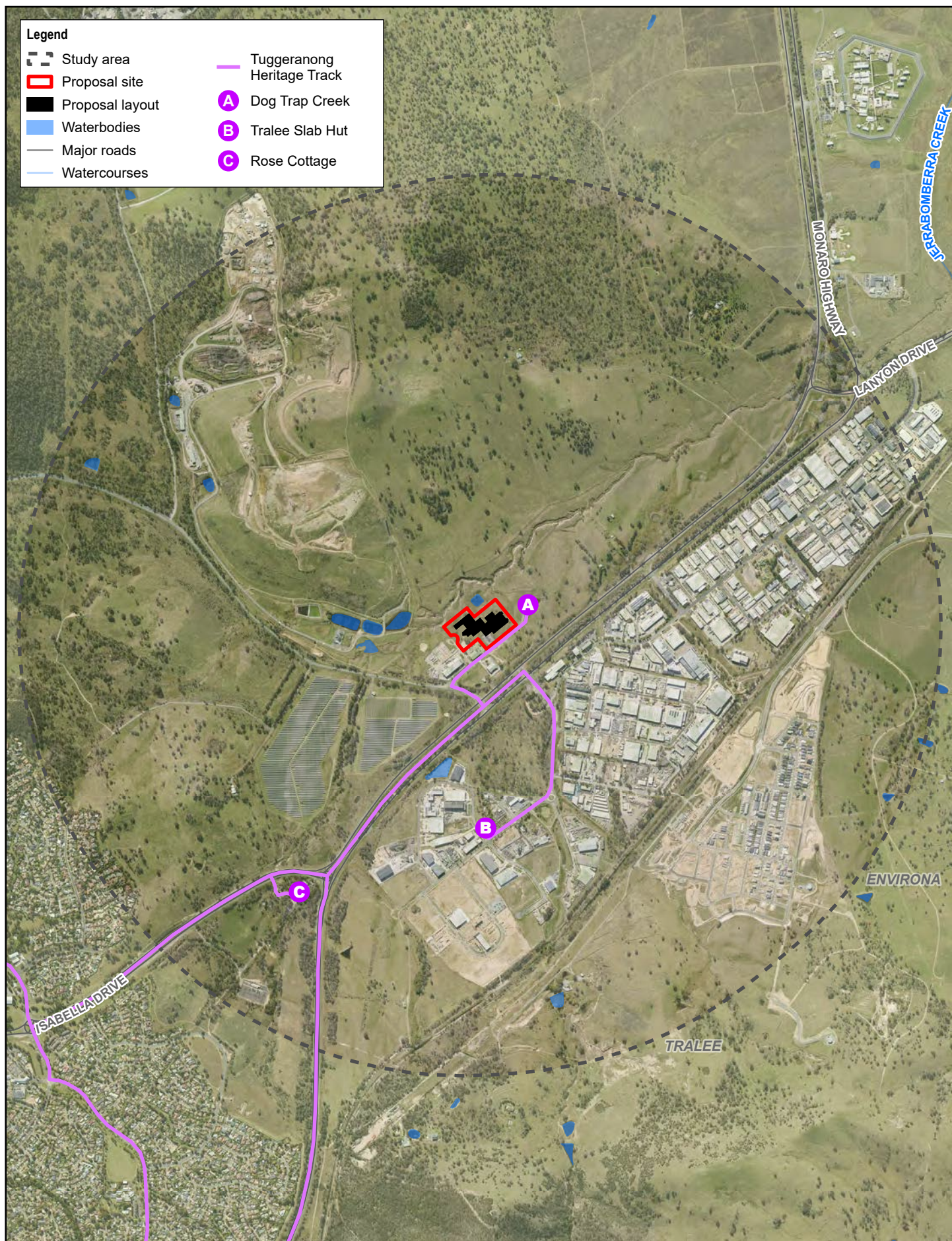


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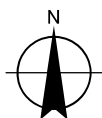
Zone of theoretical visibility

FIGURE 5.2



Paper Size ISO A4
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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



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Tuggeranong Heritage Track

FIGURE 5.3

6. Landscape character impact assessment

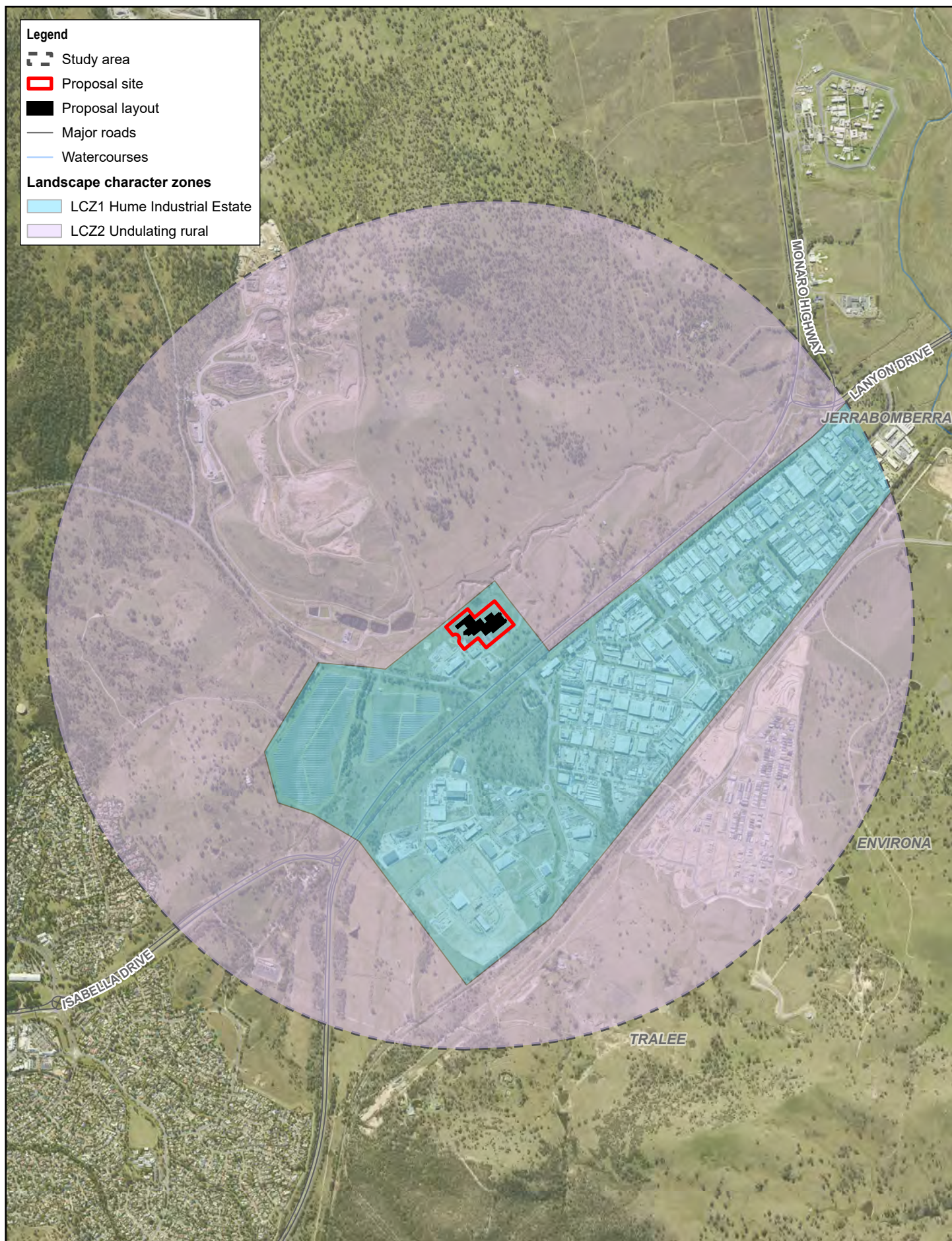
The study area has been classified into two LCZs.

These LCZs have different associated sensitivities to potential changes as a result of the proposal. The sensitivities are discussed below and have informed the landscape impact assessment.

The two LCZs identified are illustrated in Figure 6.1, and are as follows:

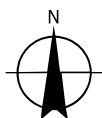
- LCZ1: Hume Industrial Estate.
- LCZ2: Undulating farmland.





Paper Size ISO A4
0 0.25 0.5
Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Transport Canberra and City Services
Hume Food Organics and Garden Organics Facility
Landscape and Visual Impact Assessment

Project No. 12540460
Revision No. 0
Date 14/09/2023

Landscape character zones

FIGURE 6.1

6.1 Landscape character zones

6.1.1 Landscape character zone 1: Hume Industrial Estate

The key features of LCZ1 are described below and illustrated in Photo 6.1 to Photo 6.6. The LCZ1 impact assessment is outlined in Table 6.1.



Photo 6.1 View of Sheppard Street, facing southwest



Photo 6.2 Typical built form within the Hume industrial estate



Photo 6.3 The dilapidated Hill Station cottage, Sheppard Street



Photo 6.4 View of Hume Café and Takeaway, Sheppard Street



Photo 6.5 View of the National Library of Australia Repository, Tralee Street



Photo 6.6 View of a typical loading bay within the industrial estate

LCZ1 is located in the centre and south-east of the study area. The NSW border forms the south-eastern boundary of LCZ1, and the Monaro Highway runs through the centre.

Key characteristics of LCZ1 include the following:

- Built form is characterised by large scale industrial buildings, the Mugga Lane Solar Park, bold signage and advertising, material stockpiles, car parks and loading bays.
- The Monaro Highway runs through the centre of the LCZ in a north-easterly direction.
- Vegetation consists of occasional rows of native and non-native trees on roadsides.
- Within the industrial estate, views are open due to wide roads and wide building setbacks.
- Between the industrial buildings, the surrounding hills and mountains provide a scenic backdrop.
- Businesses are typically building and construction suppliers, vehicle dealers, home furnishing suppliers, goods wholesalers and similar.
- In the centre of the estate is Hill Station Homestead which was built in around 1862. Most recently functioning as a restaurant, surrounding industrial growth has led it to be abandoned.
- Dog Trap Gully runs north-to-south through LCZ1 and is partially culverted under roads in sections. It is in a very degraded condition.

Values associated with LCZ1:

- Hill Station is heritage listed as it is a significant example of a 19th century rural station, with strong links to early settlement in the ACT and its later association with members of parliament. Despite its historical significance it is now in poor condition.
- The Tralee Slab Hut is also on the ACT heritage register as it is an example of a distinctive building technique from the late 1800s characterised by vertical and horizontal slab construction.
- The Monaro Highway is a recognised 'designated area' in the DCP, meaning '*development along this route should enhance the rural character and landscape of land adjoining the area before the road enters the urban area*' (ACT Government, 2009).

Landscape character elements are in a below average condition and make a limited contribution to the local landscape character. LCZ1 therefore has a **Low** landscape value.

Table 6.1 LCZ1 impact assessment

Landscape character zone 1: Hume Industrial Estate	
Anticipated change to landscape character	The proposal site is located within LCZ1. Anticipated changes to landscape character during construction works would include site compounds and administration buildings, the delivery of materials, in-situ concrete pouring and construction of new structures, as well as temporary storage areas, fencing and signage. During operation, enclosed and semi-enclosed buildings would be present including a maturation and refinement building, primary composting tunnels, a waste receival hall, semi-enclosed product storage and truck parking, a biofilter and ancillary infrastructure, and an administration building. The main processing buildings would be of predominantly steel framed and metal-clad construction and may incorporate concrete tilt panels and cast-in-situ concrete structural elements, subject to detailed design. The number of in-bound and out-bound truck movements for both the FOGO facility and MRF have been estimated at around 80 per day, and light vehicles 30 per day, Monday to Friday. Vehicles delivering FOGO waste are assumed to be 23.5 tonne side loader trucks, and vehicles removing compost are assumed to be 28 tonne trucks. Roads and hardstand areas would be associated with the one-way traffic road for commercial trucks and small-scale vehicles within the site; proposed weighbridges; processing areas adjacent to buildings; and a proposed carpark.
Susceptibility to change	LCZ1 has a Low susceptibility to change, as the industrial estate has low landscape value and change caused by the type of development would be unlikely to have an adverse effect on the landscape character, condition or value. The area includes existing examples of industrial infrastructure and heavy vehicle movements and therefore has capacity for the proposed changes. Mitigation measures would be effective in neutralising adverse effects.
Sensitivity to change	The sensitivity of a landscape is judged on a combination of the landscape value and the landscapes susceptibility to change from the type of proposed development. The sensitivity would be Low, as the landscape value is Low and the susceptibility to change is Low.
Magnitude of change	The magnitude of change would be Low, as the introduction of components may be new but would not be uncharacteristic within the existing landscape character. New movement of people and vehicles would be in keeping with existing industrial activities. Construction impacts are short-term and therefore do not significantly impact the magnitude.
Significance of impact	The significance of impact would be Low, as the sensitivity is Low and the magnitude is Low.

6.1.2 Landscape character zone 2: Undulating rural

The key features of LCZ2 are described below and illustrated in Photo 6.7 to Photo 6.12. The LCZ2 impact assessment is outlined in Table 6.2.



Photo 6.7 A typical stream within the West Jerrabomberra Nature Reserve



Photo 6.8 View of a typical driveway, post-and-wire fencing, rounded hills and scattered vegetation



Photo 6.9 View from Palmer Hill, Jerrabomberra, facing southwest



Photo 6.10 View from the West Jerrabomberra Nature Reserve, facing northeast



Photo 6.11 View of the Mugga Lane Solar Park and Environs Hills, facing southeast



Photo 6.12 View of the South Jerrabomberra Village construction site, facing southeast

LCZ2 undulating rural is the predominant landscape within study area. It features broad parcels of land which have historically been cleared for livestock grazing, resulting in a degraded landscape. However, its rural features and undulating hills provide a scenic backdrop that is typical on the outskirts of Canberra.

Key characteristics of LCZ2 include:

- Topography is characterised by undulating plateaus with rounded hills and peaks.
- Entrenched meandering streams with a chain of ponds and tributaries flow through the landscape, most significantly Dog Trap Creek which has cut a deep but narrow channel through the landscape.
- The West Jerrabomberra Nature Reserve and Wanniasa Hill Special Purpose Reserve reach peaks of approximately 720 metres above sea level, featuring grassland and woodland vegetation in good condition.
- Walking tracks meander through the nature reserves and provide recreational opportunities.
- Scattered rural residential properties, including Rose Cottage and the heritage-listed Woden Homestead.
- The local road network comprises bi-directional sealed roads, long gravel driveways and the Monaro Highway which runs in a north-easterly direction through the study area towards Canberra.
- Large plots are occupied by industrial and commercial activities, including the Mugga Lane Solar Park, the Mugga Lane landfill site and the Corkhill Bros landscaping supply store.
- The South Jerrabomberra Village development is currently under construction, occupying a large area east of the Hume Industrial Estate.
- Fencing is mostly standard post and wire fencing around paddocks and property boundaries.

Values associated with LCZ2 include:

- Nature reserves are protected by the Nature Conservation Act 2014.
- The Woden Homestead, Rose Cottage and Tralee and Couranga Homesteads are all heritage-listed sites significant for their cultural history and building styles.
- The Monaro Highway is a recognised ‘designated area’ in the DCP, meaning *‘development along this route should enhance the rural character and landscape of land adjoining the area before the road enters the urban area’* (ACT Government, 2009).
- In the west of the study area Wanniasa Hill Nature Reserve and Wanniasa Hill Special Purpose Reserve are also recognised as designated areas.
- Ecological values are associated with riparian vegetation along Dog Trap Creek Gully, as well grassland and woodland vegetation in nature reserves.
- A small area of zone ‘NUZ3: Hills, ridges and buffer areas’ occupies the west of the study area, policy states that such areas *‘are to remain substantially undeveloped in order to protect the symbolic role and Australian landscape character of the hills and ridges as the scenic backdrop to the city and to maintain the visual definition and physical containment of the surrounding towns’* (ACT Government, 2008).
- The area around Dog Trap Creek is on the ACT Heritage Register due to a number of artefacts found here from before and after European settlement, showing early evidence of interaction between Aboriginal and European people. It marks the start of the Tuggeranong Heritage Track.

Landscape character elements in reasonably good condition and/or that make an average contribution to the local character, which may include locally important landscape features, therefore LCZ2 has a **Medium** landscape value.

Table 6.2 LCZ2 impact assessment

Landscape character zone 2: Undulating farmland	
Anticipated change to landscape character	The proposal site is located adjacent to LCZ2. The anticipated change to the landscape character of LCZ2 would be indirect and relates to modifications of the landscape character within LCZ1. The undulating terrain within LCZ2 limits many views of the site, however close range views may be achieved from John Cory Road, Mugga Lane and the Monaro Highway. During operation, trucks and light vehicles would be present traveling to and from the site through LCZ2. The number of trucks have been estimated at around 80 per day, and light vehicles 30 per day, Monday to Friday. Vehicles delivering FOGO waste are assumed to be 23.5 tonne side loader trucks, and vehicles removing compost are assumed to be 28 tonne trucks. During construction, views of site compounds and administration buildings, storage areas, fencing, signage, cranes, and other machinery associated with construction may be achieved. During operation, views of buildings, vehicles and infrastructure associated with the proposal may be achieved.
Susceptibility to change	The susceptibility to change is Low, as it is unlikely that this development would have an adverse effect on the landscape character, condition or value. Mitigation measures such as appropriate screening and siting of storage areas would be effective in neutralising adverse effects, and impacts of construction would be short-term.
Sensitivity to change	The sensitivity of a landscape is judged on a combination of the landscape value and the landscape's susceptibility to change from the type of proposed development. The sensitivity would be Low, as although the landscape value is Medium, the susceptibility to change is Low and the development is not within LCZ2.
Magnitude of change	The magnitude of change would be Negligible, as there would be no change to existing landscape character as the proposal is outside of LCZ2. Any new movement of trucks and light vehicles in this character zone would be in keeping with existing activities and would not be out of character. Though views to the construction and operation of the proposal may be achieved, views to LCZ1 are not a key feature of LCZ2 and therefore the anticipated changes do not significantly impact the landscape character.
Significance of impact	The significance of impact would be Negligible, as the sensitivity is Low and the magnitude is Negligible.

7. Visual impact assessment

Based on the existing environment analysis, sensitive visual receivers were identified and viewpoint locations selected for assessment.

Sensitive visual receivers within the proposal viewshed include the following:

- Residents in dwellings with views to the proposal.
- Road users along the Monaro highway.
- Local road users along Mugga Lane, Tralee Street and John Cory Road.
- Nearby workers and patrons of businesses in the Hume industrial estate.
- Nearby workers and patrons of the solar farm, recycling centre and landscaping supplies store.
- Users of recreational areas such as parks and reserves.

7.1 Viewpoint locations

The following section provides a visual impact assessment of the proposal from the following selected representative viewpoint locations as shown in Table 7.1 and Figure 7.1. Refer to section 7.1 for an assessment of the visual impact for each viewpoint location.

Viewpoints have been selected to appropriately represent the above sensitive visual receivers.

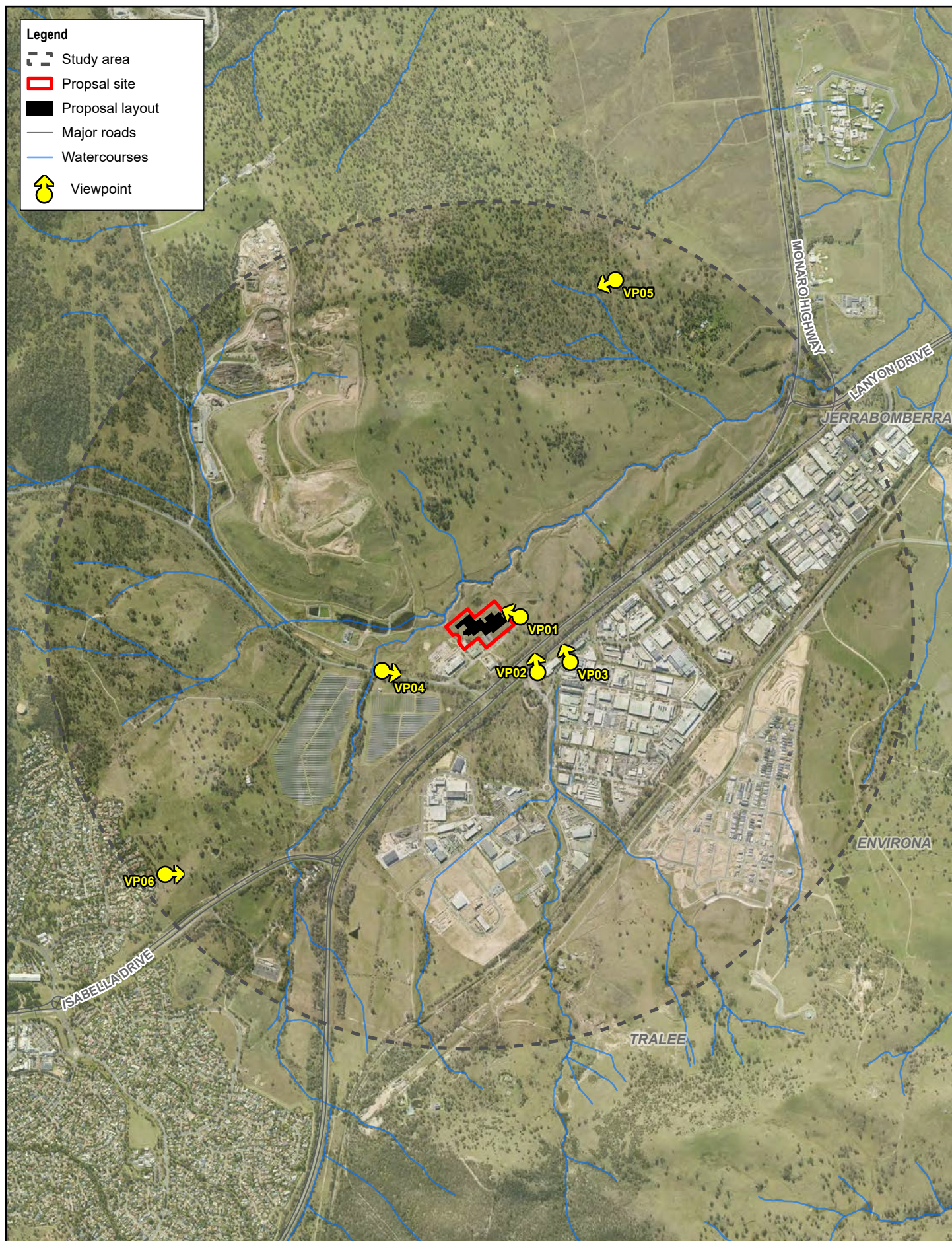
Table 7.1 Viewpoint locations

Viewpoint	Location
Viewpoint location 1 (VP01)	John Cory Road
Viewpoint location 2 (VP02)	Monaro Highway
Viewpoint location 3 (VP03)	Tralee Street
Viewpoint location 4 (VP04)	Mugga Lane
Viewpoint location 5 (VP05)	West Jerrabomberra Nature Reserve
Viewpoint location 6 (VP06)	MacArthur walking track

Two other viewpoint locations outside of the study area were initially considered due to their high elevations and sensitivity, however a full assessment was not completed due to the distance of the viewing location from the proposal site and limited viewing opportunity, therefore negligible visual effects were anticipated. Refer to Table 7.2 and Figure 7.1, which show the other viewing locations that have been selected. Refer to section 7.2 for photos and a brief description of other viewing locations.

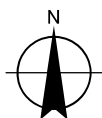
Table 7.2 Other viewing locations

Viewpoint	Location
Other viewing location 1 (OV01)	Isaac's Ridge
Other viewing location 2 (OV02)	Palmer Hill, Jerrabomberra



Paper Size ISO A4
0 0.25 0.5
Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



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Viewpoints

FIGURE 7.1

7.1.1 Viewpoint location 1: John Cory Road

VP01 is located on John Cory Road and is facing southwest, as shown in Figure 7.2 The existing view can be seen in Photo 7.1, and proposed view in Photo 7.2. Refer to Table 7.3 for assessment.

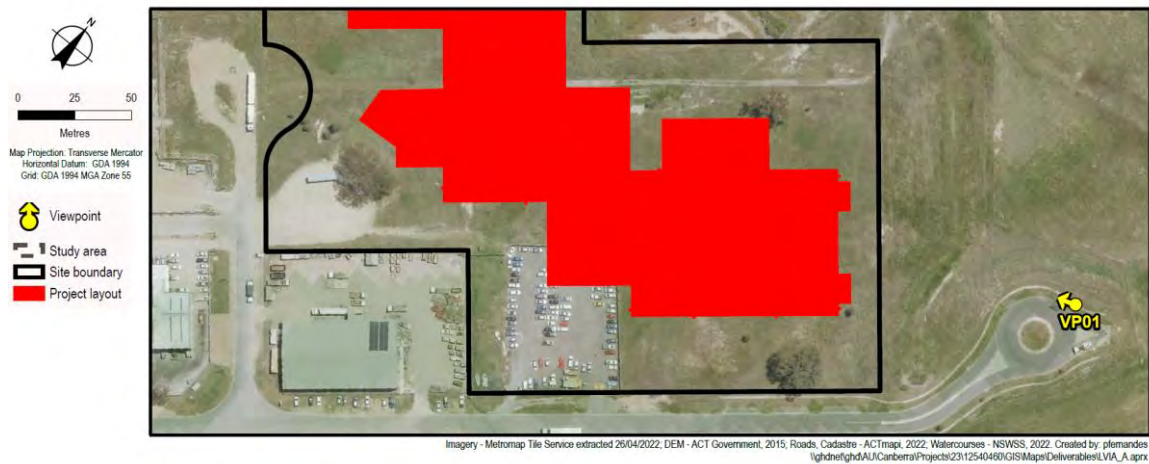


Figure 7.2 VP01 location map



Photo 7.1 Viewpoint location 1: John Cory Road - existing view



Photo 7.2 Photomontage showing proposed view from John Cory Road

Table 7.3 Viewpoint location 1 assessment

Criteria	Comments
Location and view direction	Location (MGA Zone 55); E: 695700.526 N: 6081166.79 Elevation: 621.8 m VP01 is situated 90 metres from the proposal and faces in a southwest direction. This viewpoint is representative of views experienced by road users on John Cory Road and users of the Tuggeranong Heritage Track.
Description of existing view	In the left of the foreground is a bitumen surfaced roundabout with a mown grassed verge. A concrete footpath runs parallel to the road, in the centre of view. In the left of the midground John Cory Road extends away from view, lined with tall streetlights and rows of mature native trees. In the centre of the midground is an open, grassy plain which gradually rises to the right of view, forming a gentle hill scattered with trees. Beyond the plain, the large green sheds of the ACT Skip Hire are visible in the centre of view, partially screened by vegetation. In the left of the background Tralee Hill is visible between the trees, and the densely vegetated Mount Wanniasa ridgeline is visible to the right.
Anticipated change to view	During construction, visual impacts may be associated with earthworks, in-situ concrete pouring and the establishment of new structures. Construction vehicles, machinery and a work crew may be temporarily visible travelling to and from the site. During this time, storage, stockpile and laydown areas, administration buildings, fencing, barricades and lighting may also be visible. There may be additional dust generated as a result of construction works which may also have a visual impact. During operation, in the centre of the midground, a group of large metal-clad buildings would be visible obscuring the view of the existing Materials Recovery Facility and Mount Wanniasa. In the midground, some earth mounding may be visible under the buildings due to levelling of the site. The 15 metre biofilter stack and other ancillary structures would be obscured from view by the building in view, though vehicles such as waste collection trucks and smaller vehicles would be within view. As the introduced components would have a similar materiality and character to the existing Materials Recovery Facility, they would not be uncharacteristic within the existing view. The proposal illustrated in the photomontage is at concept design stage. It will be reviewed during the detailed design stage and may be subject to change.
Sensitivity to change	The sensitivity is Moderate , as pedestrians on the Tuggeranong Heritage Track are located within close proximity to the proposal site but viewing periods are limited and the key focus is away from the site. Road users on John Cory Road have short-term, passing views of the site.
Magnitude of change	The magnitude of change is Moderate as although the introduced facility would not be entirely uncharacteristic within the existing view, it would occupy a large proportion of the view and partially obscure long, scenic views to Mount Wanniasa in the background. Construction impacts are short-term and therefore do not significantly impact the magnitude.
Significance of impact	The significance of impact is Moderate , as the sensitivity and magnitude are both moderate.

7.1.2 Viewpoint location 2: Monaro Highway

VO02 is located on the southern side of the Monaro Highway and is facing northwest, as shown in Figure 7.3. The existing view can be seen in Photo 7.3. Refer to Table 7.4 for assessment.

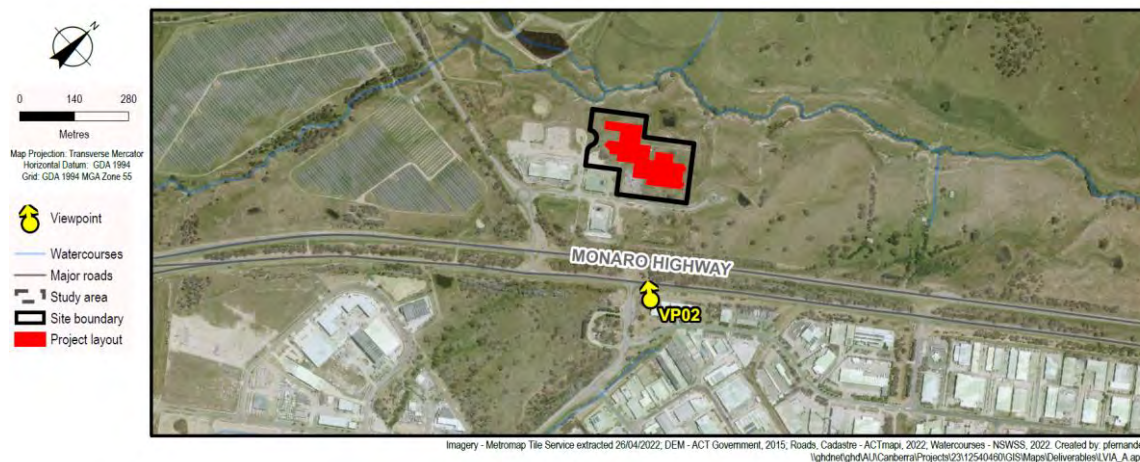


Figure 7.3 VP02 location map



Photo 7.3 Viewpoint location 2: Monaro Highway – existing view

Table 7.4 Viewpoint location 2 assessment

Criteria	Comments
Location and view direction	Location (MGA Zone 55) ; E : 695784.471 N : 6082166.697 Elevation : 631 m VP02 is situated 230 meters from the proposal and is facing in a northwest direction. This viewpoint is representative of views experienced by road users on the Monaro Highway
Description of existing view	The foreground shows a bitumen highway extending left to right across the field of view. In the left of view is a cross-intersection, where Mugga Lane meets the Monaro Highway. On the near side of the highway is mown grass, and on the far side is a wide median with a row of tall, native trees. The other lane of the highway and another row of buffer trees are visible through the trees.
Anticipated change to view	During construction, visual impacts may be associated with in-situ concrete pouring and the establishment of new structures. Construction vehicles, machinery and a work crew may be temporarily visible travelling to and from the site. During this time, filtered views of storage, stockpile and laydown areas, administration buildings, fencing, barricades and lighting may also be visible. There may be additional dust generated as a result of construction works which may also have a visual impact. During operation, filtered views of the large, metal-clad buildings of the new waste facility may be achieved in the centre of the background, as well as ancillary structures and vehicles including water tanks, waste collection trucks, and smaller vehicles. Views of new components would be significantly screened by two rows of trees. The concept design is mostly consistent with the Development Control Plan 171/09/0001 (DCP) requirements (refer to Section 4.1.6). The National Capital Authority have been consulted regarding the departure from the DCP, i.e. the height of the biofilter stack being 15 metres (3 metres higher than the 12 metre roofline).
Sensitivity to change	The sensitivity is Low , as road users on the Monaro Highway pass by at high speeds and have brief, indirect, screened views of the site.
Magnitude of change	The magnitude of change is Low , as the introduced structure would be a minor alteration to the existing view. Although the introduced facility would be partially visible, it would not be uncharacteristic within the existing view and would be significantly screened by the two rows of buffer vegetation. Construction impacts are short-term and therefore do not significantly impact the magnitude.
Significance of impact	The significance of impact is Low , as the sensitivity and magnitude are both low.

7.1.3 Viewpoint location 3: Tralee Street

VP03 is located on Tralee Street and is facing northwest as shown in Figure 7.4. The view can be seen in Photo 7.4. Refer to Table 7.5 for assessment.



Figure 7.4 VP03 location map



Photo 7.4 Viewpoint location 3: Tralee Street – existing view

Table 7.5 Viewpoint location 3 assessment

Criteria	Comments
Location and view direction	Location (MGA Zone 55) ; E : 695936.177 N : 6080906.576 Elevation : 623.9 m VP03 is situated 300 meters from the proposal and is facing in a northwest direction. This viewpoint is representative of views experienced by workers in and visitors to the Hume Industrial Estate.
Description of existing view	In the foreground a black woven wire fence, approximately two metres high, extends across the view. Behind the fence, in the midground is a flat area of lawn with a green and white warehouse to the left. To the right of the fenced area is long, dry grass and a small green shed. In the background, screened views of a small section of the Monaro Highway can be achieved in the centre of view, with multiple rows of native trees behind it.
Anticipated change to view	Since views towards the proposal site are filtered by multiple rows of trees, it is unlikely the proposal would be visible from this location. If visible, the introduced buildings and associated vehicles, structures and storage areas would be heavily screened by vegetation and almost imperceptible in the background. There may be additional dust generated as a result of construction works which could be visible above the tree line and through the trees.
Sensitivity to change	The sensitivity is Low , as road users on Tralee Street pass have brief, indirect, screened views towards the proposal site.
Magnitude of change	The magnitude of change is Negligible , as the introduced structure would be heavily screened by multiple rows of trees, making it almost imperceptible.
Significance of impact	The significance of impact is Negligible , as the magnitude is negligible.

7.1.4 Viewpoint location 4: Mugga Lane

VP04 is located on Mugga Lane and is facing northeast, as shown in Figure 7.5. The existing view can be seen in Photo 7.5 and the proposed view in Photo 7.6. Refer to Table 7.6 for assessment.



Figure 7.5 VP04 location map



Photo 7.5 Viewpoint location 4: Mugga Lane – existing view



Photo 7.6 Photomontage showing proposed view from Mugga Lane

Table 7.6 Viewpoint location 4 assessment

Criteria	Comments
Location and view direction	Location (MGA Zone 55) ; E : 694921.532 N : 6080870.025 Elevation : 621.6 m VP04 is situated 400 meters from the proposal and is facing in a northeast direction. This viewpoint is representative of views experienced by road users on Mugga Lane and workers at the nearby landfill site.
Description of existing view	In the centre and right of view, Mugga Lane and the grassed road reservation extend into the background, with rows of large, native trees on either side. Filtered views of the Mugga Lane Solar Park can be achieved through the trees, however long views to the right are restricted by the tree canopies. To the left of the road reservation on the other side of a wire fence is a large, grassy plain which extends into the background. Beyond the plain in the centre of the background, the Materials Recycling Facility is visible. In the left of the background are numerous trees, and behind them a faded ridgeline is visible in the distance.
Anticipated change to view	During construction, visual impacts may be associated with earthworks, in-situ concrete pouring and the establishment of new structures. Construction vehicles, machinery and a work crew may be temporarily visible on and travelling to and from the site. During this time, storage, stockpile and laydown areas, administration buildings, fencing, barricades and lighting may also be visible. There may be additional dust generated as a result of construction works which may also have a visual impact. In the background, to the left of the existing Materials Recovery Facility, a group of large metal-clad buildings would be visible. Waste collection trucks and smaller vehicles may also be visible on site and on Mugga Lane, travelling to and from the facility. As the introduced components would have a similar materiality, size and character to the existing Materials Recovery Facility, they would not be uncharacteristic within the existing view. As the proposal site is at a distance of 400 metres, the introduced structures would occupy a very small portion of the wider view and would not be prominent. The proposal illustrated in the photomontage is at concept design stage. It will be reviewed during the detailed design stage and may be subject to change.
Sensitivity to change	The sensitivity is Low , as road users have passing, distant, indirect views of the site.
Magnitude of change	The magnitude of change is Low , as although the introduced facility would be visible, it would occupy a very small portion of the wider view and not be uncharacteristic within the existing view. Construction impacts are short-term and therefore do not significantly impact the magnitude.
Significance of impact	The significance of impact is Low , as the sensitivity and magnitude are both low.

7.1.5 Viewpoint location 5: West Jerrabomberra Nature Reserve

VP05 is located within the West Jerrabomberra Nature Reserve and is facing southwest, as shown in Figure 7.6. The view can be seen in Photo 7.7. Refer to Table 7.7 for assessment.

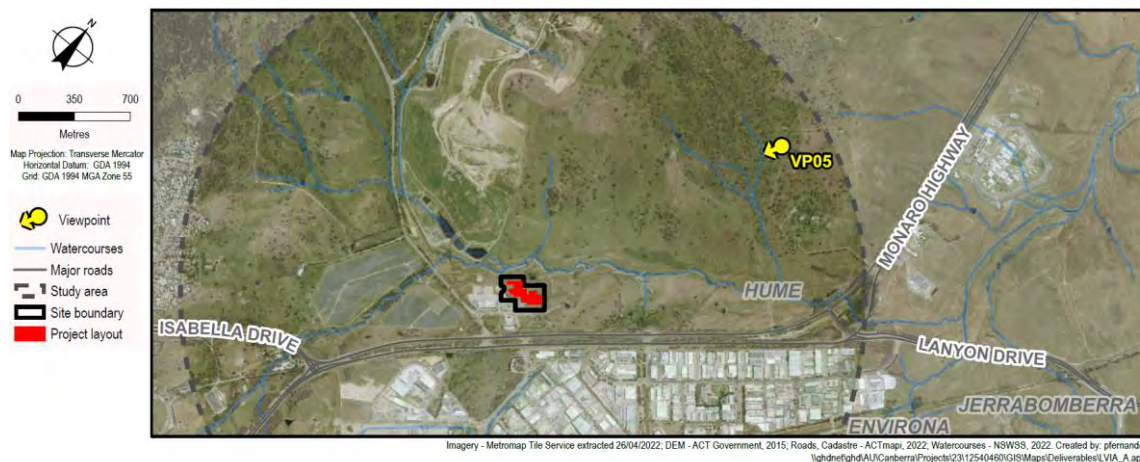


Figure 7.6 VP05 location map



Photo 7.7 Viewpoint location 5: West Jerrabomberra Nature Reserve - existing view

Table 7.7 Viewpoint location 5 assessment

Criteria	Comments
Location and view direction	Location (MGA Zone 55); E: 696172.315 N: 6082911.681 Elevation: 647.3 m VP05 is situated 1.8 kilometres from the proposal and is facing in a southwest direction. This viewpoint is representative of views experienced by visitors to the West Jerrabomberra Nature Reserve. Two private residences are located 550 and 750 metres south-east and south-west of this viewpoint, respectively. Although they could not be assessed, it is possible that similar views may be achieved from those properties.
Description of existing view	The foreground consists of an open plain covered in long, dry grass gently sloping away from view. In the midground the clearing transitions to woodland of mature trees and saplings. A powerline runs overhead, through a clearing in the woodland in the centre of view. Through the clearing, in the distance, the low-lying Hume Industrial Estate is visible as a small white cluster of buildings. The Environs Hills are visible in the background on the horizon.
Anticipated change to view	The proposal site is obscured by the midground vegetation and would not be visible from this location. Occasional glimpses of the proposal may be achieved, but they would be at a distance of almost two kilometres and would be almost imperceptible among the cluster of other buildings within the industrial estate.
Sensitivity to change	The sensitivity is Negligible , as from this location the site is entirely screened by vegetation and topography. Potential occasional views would be short-term, partially screened and at a significant distance.
Magnitude of change	The magnitude of change is Negligible as there is no change to the key elements, features or characteristics of the existing view.
Significance of impact	The significance of impact is Negligible , as the sensitivity to change and magnitude of impact are both negligible.

7.1.6 Viewpoint location 6: MacArthur hilltop

VP06 is located on a walking track on the eastern edge of MacArthur and is facing northeast as shown in Figure 7.7. The view can be seen in Photo 7.8. Refer to Table 7.8 for assessment.



Figure 7.7 VP06 location map



Photo 7.8 Viewpoint location 6: MacArthur - existing view

Table 7.8 Viewpoint location 6 assessment

Criteria	Comments
Location and view direction	Location (MGA Zone 55); E: 693826.42 N: 6080030.856 Elevation: 669.9 m VP06 is situated 1.8 kilometres from the proposal and is facing in a northeast direction. This viewpoint is representative of views experienced by residents of the suburb of MacArthur.
Description of existing view	The foreground consists of relatively flat plain covered in tall, dry grass with a post and wire fence running left to right across the view. In the midground the topography slopes downwards and the slope is scattered with mature, native trees. A dual set of powerlines runs through the midground, and rolling hills frame the view on both sides. Through the trees, a low-lying area with trees and shed roofs of the Hume Industrial Estate is visible in the background. The proposal site is located in this low-lying area in the centre of view, screened by the trees in the midground. Beyond the valley ridgeline is visible in the distance.
Anticipated change to view	It is unlikely the proposal would be visible from this location, due to the terrain and vegetation blocking the view. Occasional glimpses of the proposal may be achieved, but they would be at a distance of almost two kilometres and would be almost imperceptible among the cluster of other buildings within the industrial estate.
Sensitivity to change	The sensitivity is Negligible , as from this location the site is entirely screened by vegetation and topography. Potential, occasional views may be achieved, but they would be short-term, partially screened and at a significant distance.
Magnitude of change	The magnitude of change is Negligible as there is no change to the key elements, features or characteristics of the existing view.
Significance of impact	The significance of impact is Negligible , as the sensitivity to change and magnitude of impact are both negligible.

7.2 Other viewpoint locations

7.2.1 Other viewpoint 1: Isaac's Ridge



Photo 7.9 Other viewpoint location 1: Isaacs Ridge

OV01 is located on the southern edge of the Isaac's Ridge Nature Reserve as shown in Figure 7.1. OV01 is approximately 2.7 kilometres from the proposal and is facing in a southeast direction. Isaac's Ridge nature reserve is a popular visitor destination due to its many walking tracks with long, scenic views and high quality woodlands. The assessment deemed that the proposal will not be visible from Isaac's Ridge Nature Reserve, as seen in Photo 7.9. The magnitude and significance of change associated with the proposal would therefore be **Negligible**.

7.2.2 Other viewpoint 2: Palmer Hill, Jerrabomberra



Photo 7.10 Other viewpoint location 2: Palmer Hill, Jerrabomberra

OV02 is located on Palmer Hill, Jerrabomberra, as shown in Figure 7.1. OV02 is approximately four kilometres from the proposal and is facing west. Palmer Hill is a popular destination among locals due to its scenic views of Canberra city and surrounding hills and ridgelines. The assessment deemed that the proposal will not be visible from Palmer Hill, as seen in Photo 7.10. The magnitude and significance of change associated with the proposal would therefore be **Negligible**.

8. Mitigation measures

The following section recommends mitigation measures that respond to issues arising within the assessment that have potential to adversely impact on:

- The character of the landscape.
- Views from nearby sensitive visual receivers.

The following mitigation recommendations address the most visual elements of the proposal as well as referencing any relevant considerations drawn from the legislation and policy review, in particular the requirements of the DCP outlined in Section 4.1.6.

8.1 Mitigation recommendations

8.1.1 Design materiality

General considerations for the detailed design phase include:

- Ensure the proposal form, material and finishes are of high quality and are in keeping with the surrounding setting, contributing positively to the existing landscape character values.
- The DCP Guidelines states that *'The roof should be of pre-coated metal of low reflectivity'. This should be taken into consideration when specifying/locating the solar panels.*
- Avoid or minimise the use of shiny or reflective materials to minimise associated visual impacts on surrounding sensitive receivers.
- Consider specifying a custom-designed external cladding that complements the Indigenous cultural and rural landscape setting, for instance by printing imagery of native vegetation onto the façade, in order to mitigate visual impacts from the Tuggeranong Heritage Track. See Photo 8.2 for an example.
- If custom-designed cladding is not possible, consider using a green colour for the roof and external walls of the facility to ensure it is in keeping with nearby structures, reducing the landscape and visual impacts. See Photo 8.3 for an example.

8.1.2 Landscaping

- Screen planting along the northern property boundary, to preserve the landscape character of Dog Trap Creek and to minimise views from surrounding elevated areas.
- Increasing the density of planting along the site boundaries, to minimise visual impacts of the buildings, car parking, and ancillary structures and equipment.
- Planting screening vegetation within the site boundary along John Cory Road, to minimise visual impacts experienced from the Tuggeranong Heritage Track.
- Avoid the clearing of trees where possible, to retain the existing character values.
- Mature trees on site which contribute to the landscape character, including the four Blakely's Red Gum and Yellow Box trees identified within the biodiversity assessment are retained.

8.1.3 Signage and services

Considerations for the detailed design phase include:

- Where possible, minimise visual impacts of signage by:
 - Minimising signage dimensions.
 - Avoiding brightly illuminated signage.
 - Employing high quality signage design.
 - Locating signage on buildings rather than freestanding.

8.1.4 Construction activity and storage

General considerations for construction activity and storage include:

- Take all practical measures to ensure construction equipment, storage areas, and other visible elements are located away from key views to or from the sensitive visual receivers identified in this assessment.
- Ensure general tidiness of the site is maintained during construction.
- Avoid conducting works in evenings and nights where possible, to minimize impacts from lighting.
- Where works cannot be located away from trees, provide tree protection to ensure they are not damaged.
- All areas disturbed by construction and ancillary works are to be rehabilitated to their previous condition.
- During construction, employ screening measures to assist the site in blending into the surrounding area. Choice of screening is to be sympathetic to the existing rural setting (e.g. neutral colours or green depending on location). See Photo 8.1 for an example.



Photo 8.1 Sensitive screening in Flagstaff Gardens, Melbourne



Photo 8.2 Sensitive external cladding on a Brunswick utility building (Google Maps Street View)



Photo 8.3 Green, low-reflective cladding in a rural setting adjacent to the site

9. Response to policy

9.1 Development Control Plan 171/09/0001

The FOGO concept design is mostly consistent with the DCP 171/09/0001 requirements (refer to Section 4.1.6). The National Capital Authority have been consulted regarding the departure from the DCP, i.e. the height of the biofilter stack being 15 metres (3 metres higher than the 12 metre roofline). Photomontages in Section 7 demonstrate that the biofilter stack does not result in an adverse visual impact as it is obscured by the surrounding built-form when viewed from viewpoint 1 and viewpoint 4.

10. Conclusion

Table 10.1 and Table 10.2 below provide a summary of landscape and visual impacts for the proposal.

Table 10.1 Summary of landscape impacts

LCZ	Description	Sensitivity to change	Magnitude of change	Overall Rating
LCZ1	Hume Industrial Estate	Low	Low	Low
LCZ2	Undulating Rural	Low	Negligible	Negligible

Table 10.2 Summary of visual impacts

Viewpoint	Location	Sensitivity to change	Magnitude of change	Overall Rating
VP01	John Cory Road	Moderate	Moderate	Moderate
VP02	Monaro Highway	Low	Low	Low
VP03	Tralee Street	Low	Negligible	Negligible
VP04	Mugga Lane	Low	Low	Low
VP05	West Jerrabomberra Nature Reserve	Negligible	Negligible	Negligible
VP06	MacArthur walking track	Negligible	Negligible	Negligible

This landscape and visual impact assessment has been undertaken as part of the proposal EIS to assess the potential impacts to visual amenity from the construction and operational stages of the proposal.

The proposal site is within the light-industrial suburb of Hume. Key proposal components include a maturation and refining building, primary composting tunnels, waster receival hall, product storage and truck parking, biofilter and ancillary infrastructure and administration building. Proposed infrastructure heights above existing ground level range from 5 to 12 metres, which is the proposed maximum height of the maturation and refining building.

Additional proposal components include roads and hardstand areas associated with the one-way traffic road for large scale commercial trucks and small-scale vehicles within the site; proposed weighbridges; processing areas adjacent to buildings; and a proposed carpark.

The assessment study area extends up to 2 kilometres from the site, including parts of the Hume Industrial Estate, the Mugga Lane Solar Farm, Monaro Highway and the West Jerrabomberra Nature Reserve. The landscape character is a combination of industrial and semi-rural landscape. The topography is undulating plateaus with rounded hills and peaks and tributaries that flow through the landscape. Distant views can be achieved between high points across the landscape.

Six viewpoints were chosen for discussion within the proposal viewshed, incorporating a range of receptor types and distances from the proposal site. Viewpoint locations included John Cory Road, Monaro Highway, Tralee Street, Mugga Lane, West Jerrabomberra Nature Reserve and MacArthur walking track.

Of these locations, the proposal would be most visible from viewpoint location 1. The proposal would also be visible from viewpoint 2 and viewpoint location 4. However, receptors in these locations are considered to be of low sensitivity. Views assessed from other areas are partially or completely screened by existing built form, topography and/or vegetation.

Although the proposed biofilter stack would be 15 metres high, three metres higher than the height of the proposed building, the assessment confirmed that visual impacts of the stack would be considered negligible as it would be unlikely to be visible within the context of the surrounding proposed building.

Overall, the visual impacts of the proposal are anticipated to be **Low to Negligible**, with the exception of VP01, which has a **Moderate** rating due to its proximity to the Tuggeranong Heritage Track.

Overall, the site is well-screened by existing vegetation and built form along the Monaro Highway, within the Hume Industrial Estate and throughout the wider study area. Views of existing infrastructure adjacent to the site from sensitive receptor locations within the study area are limited. The proposed new infrastructure components are similar in scale, height and character to nearby existing infrastructure and within low lying ground.

Visual considerations should include appropriate built form mitigation and the retention of existing vegetation as recommended in Section 8 and the Development Control Plan 171/09/0001 requirements.

11. References

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Appendices

Appendix A

Photomontages

EXISTING VIEW



PROPOSED DESIGN



KEY PLAN



Concept Design illustrated.
The final design will be reviewed during the detailed design phase and is subject to change.

View Direction: 196° - 276°
Horizontal Field Of View: 80°
Camera Height: 1.7 m
Camera Type: Canon 6D
Lens Type: 50 mm
Photograph Time & Date: 15:36, 12th July 2022

Location: John Cory Road, Hume, A.C.T.
Coordinates: 695713, 6081166 (GDA 2020 MGA Zone 55)
Viewpoint Elevation: 614m
Date of Photomontage: 21st November 2021
Issue: v 01

ACT Food and Garden Organics Waste Facility
ACT NoWaste
Viewpoint 01 : Northern End of John Cory Road
GHD Pty Ltd
Level 8, 180 Lonsdale Street
Melbourne VIC 3000
T 61 3 8687 8000 E melmail@ghd.com.au W www.ghd.com

EXISTING VIEW



PROPOSED DESIGN



KEY PLAN



Concept Design illustrated.
The final design will be reviewed during the detailed design phase and is subject to change.

View Direction: 35° - 115°
Horizontal Field Of View: 80°
Camera Height: 1.7 m
Camera Type: Canon 6D
Lens Type: 50 mm
Photograph Time & Date: 13:08, 12th July 2022

Location: Mugga Lane, Hume, A.C.T
Coordinates: 694921, 6080870 (GDA 2020 MGA Zone 55)
Viewpoint Elevation: 618m
Date of Photomontage: 21st November 2021
Issue: v 01

ACT Food and Garden Organics Waste Facility
ACT NoWaste

Viewpoint 02 : Eastern End of Mugga Lane



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Appendix B

Consideration of possible lighting impacts

Consideration of possible lighting impacts

The following high-level consideration of *lighting impacts in relation to pilot distraction* has been provided by the GHD Hazard team on the 30th of March.

“The FOGO facility is similar to others in the area and would offer no significant extra lighting or have lighting that differs from other industrial buildings. Lighting may be used in the earlier hours and would be minimized once there is adequate daylight.”

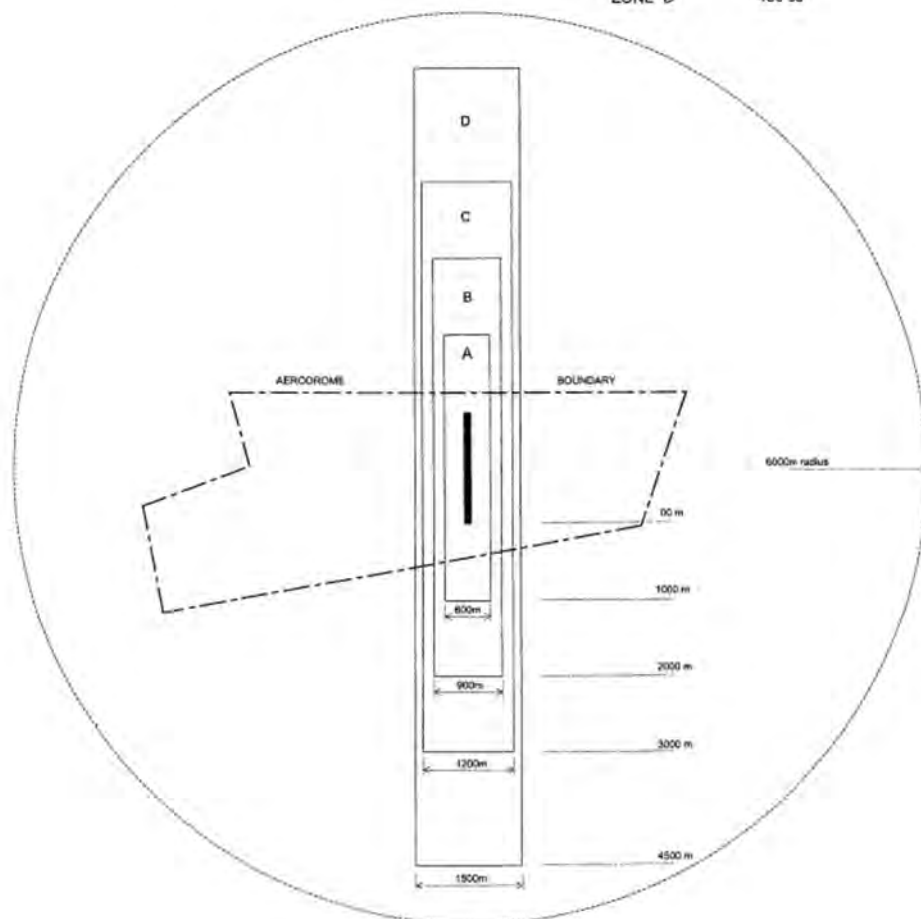
Canberra airport is 14km away, which is more than twice the 6km radius zone for lighting to be subject to the provisions of regulation 94 of CAR (Civil Aviation Regulations) 1988.

Finally, the light design in the facility is not expected to conflict with runway lighting in its configuration or pattern and therefore the risk of pilot distraction would be minimal/rare.”

Guideline E
Attachment 1 to Lighting Guidelines

MAXIMUM INTENSITY OF LIGHT
SOURCES MEASURED AT 3°
ABOVE THE HORIZONTAL

ZONE A	0 cd
ZONE B	50 cd
ZONE C	150 cd
ZONE D	450 cd



Reference

- Guideline E – National Airports Safeguarding Framework – Managing the Risk of Distraction to Pilots from Lighting in the vicinity of Airports.



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