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Traffix Group

Transport Impact Assessment

Waste-to-Energy Facility

510 Summerhill Road, Wollert

Prepared for
Cleanaway Operations Pty Ltd

March 2023

G30331R-02-0

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Transport Impact Assessment

510 Summerhill Road, Wollert

Executive Summary

Cleanaway Operations Pty Ltd (Cleanaway) is developing a waste-to-energy (WtE) facility in Victoria known as the Melbourne Energy and Resource Centre (MERC). The project area for the proposed WtE facility is located at 510 Summerhill Road, Wollert. Traffix Group was engaged by Cleanaway to undertake a Transport Impact Assessment for the proposed WtE facility.

The methodology undertaken for the Transport Impact Assessment included a review of background documents and plans, an inspection of the site and its surrounds, a review of traffic volume data for nearby roads, a traffic engineering review of the project plans and provision of associated advice, review of truck routes and road upgrade requirements along the chosen route, preparation of truck swept path diagrams and preparation of a report.

Based on a previous assessment of several truck access route options undertaken by Traffix Group, the chosen route truck route between the site and the freeway network was determined to be via Summerhill Road, and Amaroo Road to access the Hume Freeway. This route was chosen because it was shorter and quicker than a potential route to/from the east along Summerhill Road, and was more feasible than another potential route via Brickmakers Drive.

With consideration of the level and type of traffic projected to be generated by the proposed facility, the existing Summerhill Road (to the west of Merri Creek) and Amaroo Road configurations are adequate to accommodate the development anticipated traffic. However, the existing unsealed section of Summerhill Road between Merri Creek and the eastern site access is recommended to be upgraded to a sealed standard with a pavement width of approximately 6.5m to be consistent with the existing arrangement to the west of Merri Creek. Furthermore, given the Merri Creek bridge has a single width carriageway and restricted sightlines on the approaches, some form of traffic management will be required to manage vehicle movements across it in one direction at a time.

A range of heavy vehicles are expected to visit the proposed facility, with the largest being up to a 36.5 metre long A-Double. The main vehicle access with Summerhill Road and internal roadways have been designed to accommodate this vehicle. Furthermore, key intersections along the truck route were reviewed for swept paths and it found that the Amaroo Road and Summerhill Road T-intersection does not currently accommodate A-Doubles. Accordingly, localised widening works will be required at this intersection as part of the proposed development.

Car parking demands are expected to comprise of staff and occasional visitors including some arrivals by buses. The anticipated car parking demands are expected to be adequately accommodated within the proposed car parking areas with a total of 73 car spaces, including 58 staff spaces and 15 visitor spaces. Although bicycle parking is not considered necessary given the site's location and lack of bicycle routes in the surrounding area, the development has allocated an indicative zone for future bicycle parking and end-of-trip facilities.

Overall, the proposed design of the WtE facility at 510 Summerhill Road, Wollert is appropriate from a traffic engineering perspective, subject to the recommendations for road and intersection upgrade works as outlined above.

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Transport Impact Assessment

510 Summerhill Road, Warragul

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1. Proposal Overview

Cleanaway Operations Pty Ltd (Cleanaway) is an Australian waste management, recycling, and industrial services company. Cleanaway is developing a waste-to-energy (WtE) facility in Victoria known as the Melbourne Energy and Resource Centre (MERC) (the Proposal).

The MERC has been designed to thermally treat a design capacity of 380,000 tonnes per annum (tpa) of waste feedstock, consisting of residual Municipal Solid Waste (MSW) and residual commercial waste, which is waste that would otherwise be sent to landfill. Waste feedstock processed by the MERC will be subject to a Waste Acceptance Protocol to determine eligibility and suitability for processing both prior to arrival and upon arrival on-site. The Proposal will also incorporate maturation and processing of bottom ash to recover recyclable metals, with the intent to utilise the remaining ash as an aggregate in construction.

Residual waste is waste that is left over from recycling and resource recovery operations and waste from source separated collections. Source separation involves separating waste into common material streams or categories for separate collection. Waste processed at the site will be subject to a Waste Acceptance Protocol to ensure only appropriate waste is used as feedstock.

The WtE process would generate approximately 46.3MW gross of electricity, 4.7MW of which would be used to power the facility itself and the associated on-site by-product and residue handling processes, with 41.6MW (328,700 MWh/year) exported to the grid as base load electricity. In addition to supplying electricity to the grid, there is also potential to supply energy in the form of heat and/or process steam to local industrial users.

Some residual materials are produced because of the WtE process, including Incinerator Bottom Ash (IBA), boiler ash and flue gas treatment residue. The boiler ash and flue gas treatment residue are typically combined and together are referred to as Air Pollution Control residue (APCr). Overall, the WtE process typically leads to about 90% reduction in the volume, or 80% reduction in mass (tonnes), of waste that would otherwise go to landfill. If IBA is reused as an alternative construction product to virgin materials, this percentage increases further to approximately 95% reduction in volume and mass of waste that would otherwise go to landfill. The final volume of waste diverted from landfill is dependent on the classification and market for the residues and by-products generated by the WtE facility.

The Proposal includes the construction and operation of an IBA maturation and processing facility on site. The purpose of this facility is to store the IBA to mature (stabilise) it, before mechanically processing IBA from the WtE facility into an aggregate for reuse. As part of this process, both ferrous and non-ferrous metals will be recovered from the IBA for recycling and sale to market.

The Proposal also includes a stabilisation facility for APCr, a necessary treatment step to immobilise leachable components of the APCr prior to removal from site by vehicle and disposal at an appropriately licenced landfill.

The Proposal will use best available techniques and technologies in the engineering design, operation, maintenance and monitoring activities associated with the MERC. Moving grate

technology has been chosen as the means to thermally treat incoming waste to recover energy and other resources. Current international best-practice techniques, including automated combustion controls and advanced flue gas treatment technology will be applied so that air emissions meet stringent emission standards. The moving grate combustion system is a common form of thermal WtE technology in which the waste is fed through the combustion chamber on a travelling grate. This enables efficient and complete combustion of the waste, with primary combustion air introduced from below the grate and secondary combustion air introduced directly into the combustion zone above the grate. Moving grate technology has been used globally for over 100 years, and in that time the technology has been subject to continual improvement responding to regulatory, industry and public demands. There are approximately 500 similar operational examples across Europe alone, the majority of which use the moving grate-type technology being proposed for the MERC.

The Proposal involves the building of all onsite infrastructure required to support the WtE facility, including site utilities, internal roads, weighbridges, parking and hardstand areas, stormwater infrastructure, fencing and landscaping. The Proposal will also include a visitor and education centre to help educate and inform the community on the circular economy, recycling, resource recovery, the benefits of landfill diversion and the WtE process. The intent behind this education is to drive a shift in community thinking and actions around waste management.

The Victorian Waste to Energy Framework (2021) recognises the role of WtE to divert waste from landfills, helping Victoria transition to a circular economy. *Recycling Victoria* recognises a role for WtE investment and supports WtE facilities where they meet best-practice environment protection requirements. This includes reducing waste to landfill, supporting waste avoidance, reusing and recycling, and demonstrating social license with affected communities. The Victorian Environment Protection Authority (EPA) Energy from Waste Guideline (Publication 1559, 1 July 2017) also notes that efficient recovery of energy from the thermal processing of waste is considered a resource recovery as opposed to a waste disposal option.

The EPA VIC Guideline: Energy from Waste stipulates that *'Proponents of EfW proposals...will be expected to demonstrate that the siting, design, construction and operation of EfW facilities will incorporate best practice measures for the protection of the land, water and air environments as well as for energy efficiency and greenhouse gas emissions management. Facilities should be able to provide evidence of how they minimise and manage emissions (including pollutants, odour, dust, litter, noise and residual waste) in accordance with relevant statutory requirements.'*

The WtE facility has been designed to meet the European Industrial Emissions Directive (IED) (2010) and the associated Best Available Techniques Reference (BREF) Document for Waste Incineration published December 2019, which sets the European Union environmental standards for waste incineration. The facility will also comply with the technical criteria set out in the EPA Victoria Guideline: Energy from Waste publication 1559.1.

The purpose of this specialist assessment is to demonstrate compliance with the various authority requirements, develop community support and social license.

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2. Introduction

Traffix Group has been engaged by Cleanaway Operations Pty Ltd (Cleanaway) to undertake a Transport Impact Assessment for the Waste-to-Energy Facility at 510 Summerhill Road, Wollert.

This report provides a detailed traffic engineering assessment of the traffic, vehicle access, loading and parking arrangements associated with the proposed development.

In the course of undertaking this assessment, the Project area was inspected, development plans and background material reviewed, and the traffic engineering aspects of the Proposal were assessed.

Our assessment is as follows.

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3. Proposal

The Proposal is for the development of a waste-to-energy facility at 510 Summerhill Road, Wollert that is to be known as the Melbourne Energy and Resource Centre (MERC).

A 'waste-to-energy facility' is defined under Clause 73.03 of the Planning Scheme as follows:

'Land used for the combustion, treatment or bio-reaction of waste to produce energy for use off site. It includes the activities to collect, temporarily store, process, or transfer waste materials for energy production.'

The facility is being designed to process approximately 380,000 tonnes per annum (tpa).

The plant will operate 24 hours per day, 7 days per week (365 days per year). The delivery hours will be 12 hours per day between 6am to 6pm. The delivery days will be 6 days per week (Monday to Saturday). This equates to approximately 312 delivery days per year.

Vehicle access is proposed via three (3) connections with Summerhill Road as follows:

- A primary vehicle access near the eastern boundary of the site.
- Two (2) access connections for the visitor car park, located approximately midway along the site's frontage to Summerhill Road.

A range of heavy vehicles are expected to visit the proposed facility, with the largest being up to a 36.5 metre long A-Double. An A-Double comprises of a prime mover towing two trailers. The first trailer is connected to the prime mover by a roll coupled connection, and the second trailer is a dog trailer.

Trucks depositing materials at the site are expected to arrive from and return to various locations across Greater Melbourne. We have been advised that trucks are expected to travel to/from some of the following locations:

- Cleanaway, Dandenong South.
- Boral Cement, Somerton.
- Port of Melbourne.
- Omega Chemicals, Laverton North.
- Various municipalities across the Metropolitan Melbourne waste catchment area.

Accordingly, trucks are expected to mostly travel to/from the south via the Hume Freeway.

There will be up to a total of 50 operational staff, with a maximum of 34 operational staff on site at any one time.

A total of 73 car spaces are proposed throughout the site. A visitor car park with 15 spaces (including two (2) disabled spaces) is located near the visitor centre in the southern part of the site. The main staff car park is located adjacent to the administration centre and comprises 30 spaces including two (2) disabled spaces. In addition, there are three (3) smaller car parking areas in other locations, including four (4) disabled spaces.

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4. Existing Conditions

4.1. Project Location

The Project area is located on the north side of Summerhill Road in Wollert and has an area of approximately 82 hectares.

The Project area is generally rectangular in shape and has a frontage of approximately 810 metres to Summerhill Road along the southern boundary of the site. Vehicle access is afforded via a connection with Summerhill Road, located approximately central to the Summerhill Road frontage.

A locality plan and aerial photograph are provided at Figure 1 and Figure 2, respectively.

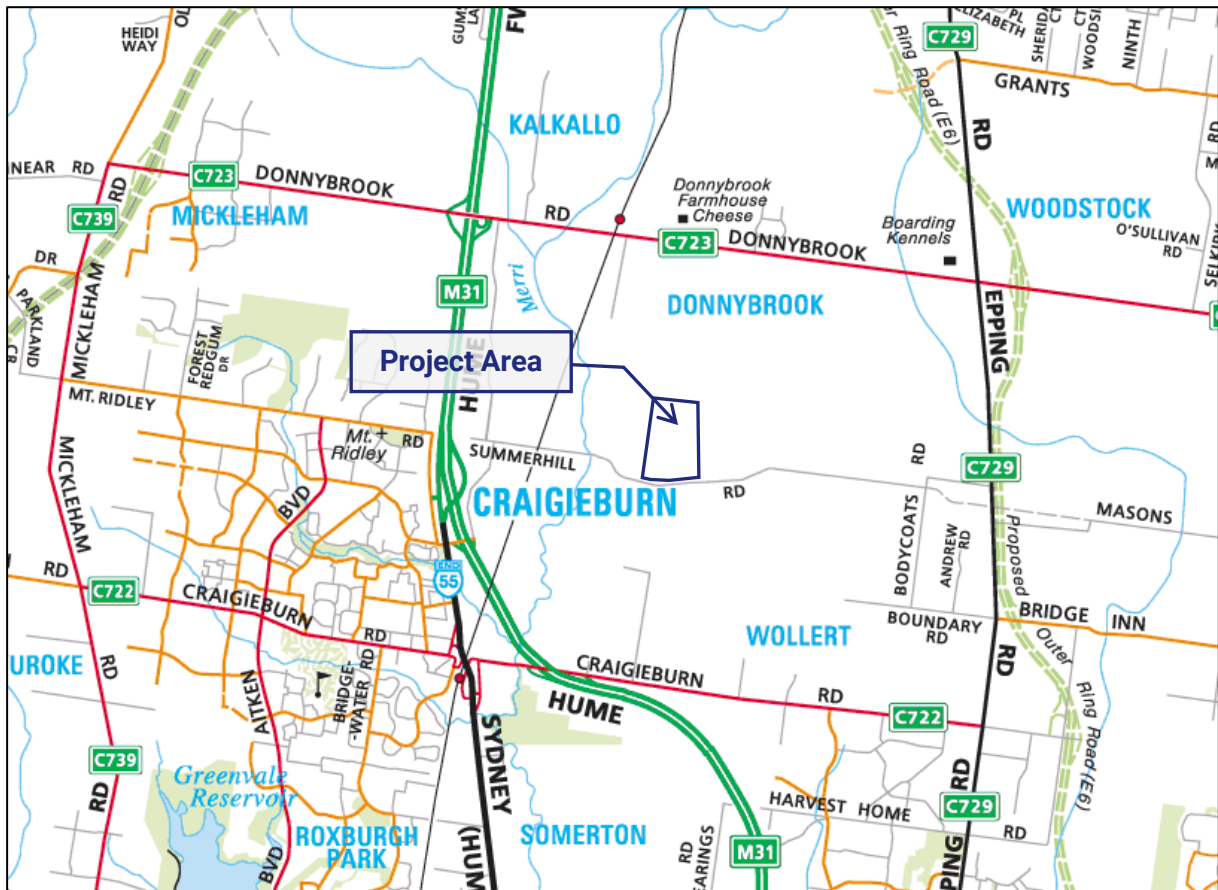


Figure 1: Locality Map

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Figure 2: Aerial Photograph – Approximate Project Location

Source: Nearmap

The Project area is predominantly within a 'Farming Zone (FZ)' under the Whittlesea Planning Scheme. Near the north-eastern boundary, a small part of the project area is zoned as 'Rural Conservation Zone – Schedule 1 (RCZ1)'.

Surrounding land zoning comprises a mixture of Farming Zone (FZ), rural conservation (RCZ1) and special use zoning (SUZ4).

A planning zone map is provided at Figure 3.

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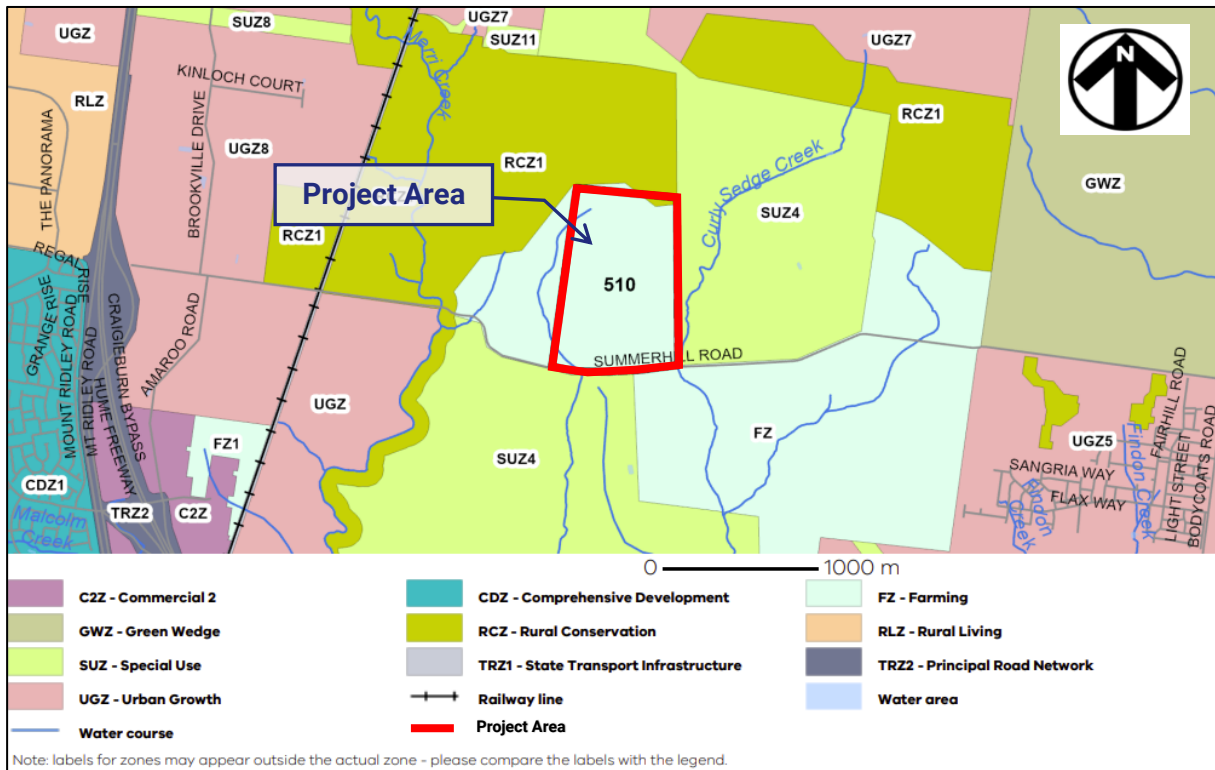


Figure 3: Planning Zone Map – Whittlesea Planning Scheme

Source: Vicplan

4.2. Road Network

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4.2.1. Summerhill Road

Summerhill Road is a local rural road under the management of Hume and Whittlesea Councils. Between Amaroo Road and Merri Creek, the road is managed by Hume Council and between Merri Creek and Epping Road, the road is managed by Whittlesea Council.

In relation to the subject application, Summerhill Road has a general east-west alignment that provides a connection between Amaroo Road in the west and Epping Road in the east. Summerhill Road has a default speed limit of 100km/h.

Summerhill Road (Amaroo Road to Merri Creek)

The western section of Summerhill Road has a sealed pavement of approximately 6.5 metres with grass verges, centrally located within a reservation of approximately 20 metres. This section has a straight alignment and is relatively flat. It provides for a single lane in each direction, and has a broken centreline. Summerhill Road crosses the Melbourne to Sydney railway line, which is managed by a level crossing with boom gate control.

Summerhill Road crosses Merri Creek as a single lane bridge, with an approximate width of 3.7 metres. There is no posted load limit on the bridge. Sight distance on the approach to the bridge is somewhat restricted by existing vegetation and to a lesser extent by the curvilinear alignment of Summerhill Road.

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Photographs of the western section of Summerhill Road and the Merri Creek bridge are provided at Figure 4 to Figure 7.



Figure 4: Western Section of Summerhill Rd - View West



Figure 5: Western Section of Summerhill Rd - View East



Figure 6: Merri Creek Bridge – View East



Figure 7: Merri Creek Bridge – View West

Summerhill Road (Merri Creek to Bodycoats Road)

The central section of Summerhill Road, between Merri Creek and Bodycoats Road, operates as a gravel road with a varying width formation that is generally around 6 metres, with grass verges. It is set within a reservation of approximately 20 metres.

Summerhill Road at its intersection with Bodycoats Road is arranged as a staggered T-intersection.

Photographs of the central section of Summerhill Road are provided at Figure 8 and Figure 9.

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Figure 8: Central Section of Summerhill Rd - View West



Figure 9: Central Section of Summerhill Rd - View East

Summerhill Road (Bodycoats Road to Epping Road)

The eastern section of Summerhill Road (between Bodycoats Road and Epping Road) has a sealed pavement (approximately 6.5 metres wide) with grass verges, located centrally within a 20-metre reservation.

Photographs of the eastern section of Summerhill Road are provided at Figure 10 and Figure 11.



Figure 10: Eastern Section of Summerhill Rd - View West



Figure 11: Eastern Section of Summerhill Rd - View East

4.2.2. Amaroo Road

Amaroo Road is classified as 'Access Street' under Hume Council's Road Register and is aligned in a general north-south direction. Amaroo Road has a sealed carriageway with an approximate width of 6.3 metres and grass verges, accommodating simultaneous two-way traffic.

Photographs of Amaroo Road are provided at Figure 12 and Figure 13.

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Figure 12: Amaroo Rd - View North



Figure 13: Amaroo Rd - View South

4.3. Existing Traffic Volumes

To ascertain existing traffic volumes on the surrounding road network, Traffix Group requested traffic volume data from Hume Council and Whittlesea Council, and was provided with the following:

- Amaroo Road between Summerhill Road (to the north) and the Freeway Interchange (to the south), collected in 2018.
- Brookville Drive between Kinlock Court (to the north) and Summerhill Road (to the south), collected in 2018.
- Summerhill Road, 150 metres east of Merri Creek Bridge, collected between 04/05/2021 and 06/05/2021.
- 200 Summerhill Road, Wollert collected between 04/05/2021 and 06/05/2021.

A summary of the existing daily and peak hour traffic volumes provided by Hume City Council and the City of Whittlesea are presented at Figure 14. It is expected current traffic volumes (2022) on Summerhill Road would be similar to the data recorded in 2021.

Traffic on the eastern section of Summerhill Road is expected to grow as residential developments in this area progress.

In summary Summerhill Road has a daily two-way traffic volume in the order of 600-700 vehicles, as does Amaroo Road.

This level of traffic is relatively low for the function of these roads.

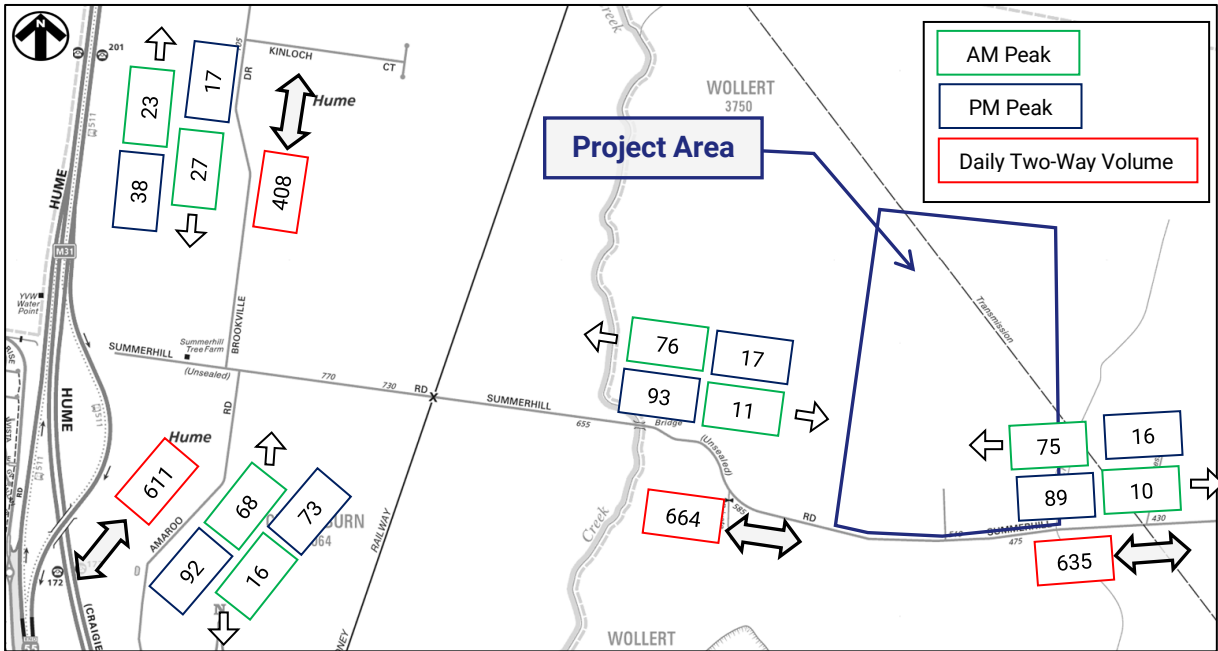
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Figure 14: Summary of Hume and Whittlesea Council's Traffic Volume Data

4.4. B-Double Road Network

A B-Double is defined as a combination of a prime mover with two semi-trailers. Class 2 B-Doubles can only travel on roads approved by the relevant state road authority.

Victoria's B-Double network map (extract near to the project area) is illustrated at Figure 15. It sets out roads that are approved for Class 2 B-Double use. In the vicinity of the project area, roads that are designated B-double routes include: Summerhill Road (between Epping Road and Bodycoats Road); Bodycoats Road; Hume Freeway; and Craigieburn Road.

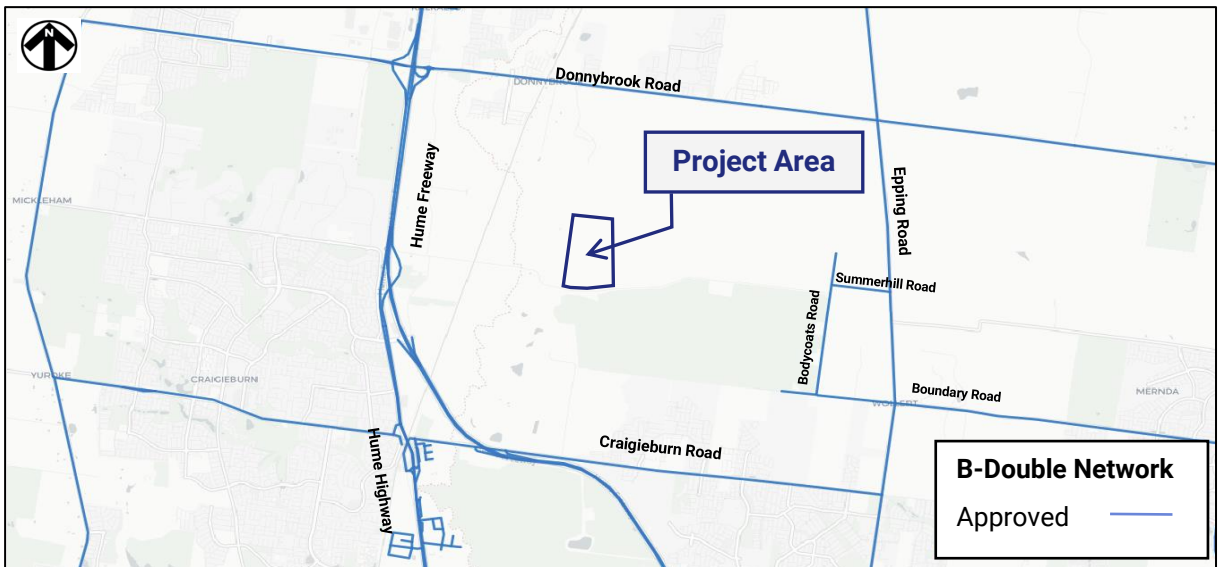


Figure 15: Department of Transport B-Double Network Map

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4.5. A-Double Road Network

In the vicinity of the project area, the Hume Freeway is the only road that is part of VicRoads High Productivity Freight Vehicle (HPFV) network. This network allows for A-Doubles of up to 36.5 metres length and a gross combination mass (GCM) limit of 85.5t.

4.6. Road Safety Review

State Road Accident Records (VicRoads *Crashstats*, *Internet Database*) for the past five years of available data (01/01/2015 to 31/04/2020)¹ for the review area illustrated in Figure 16 has been sourced.

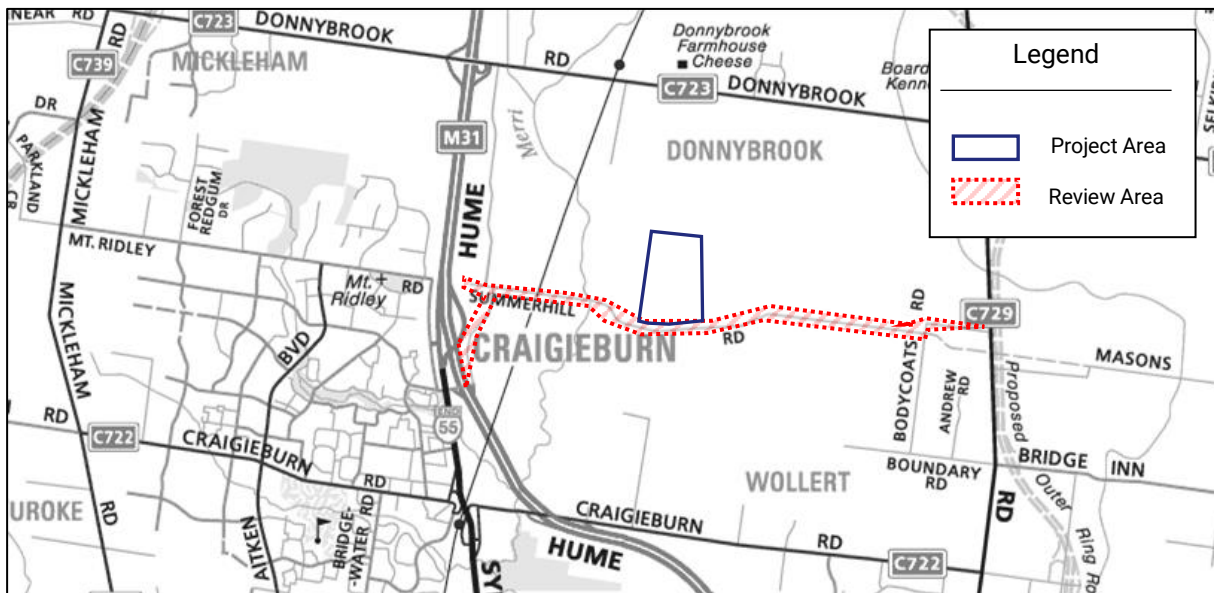


Figure 16: Crash History Investigation Area

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A summary of the recorded crashes is presented in Table 1.

The review indicates there have been five (5) crashes reported within the review area over this period. Two (2) crashes occurred at dusk/dawn, one (1) in dark conditions and two (2) during the day.

All crashes involved vehicles only.

Based on the review of the crashes, types, conditions and locations, there are no specific trends within the review area.

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¹ Casualty crash data is contained in the VicRoads' *Crashstats Internet Database* and includes all reported casualty crashes (excluding property damage only or non-injury crashes), which are classified into Fatal Injury, Serious Injury and Other Injury (i.e. minor injury) crashes. Property damage only or non-injury crashes are not included in the database. Data is not currently publicly available after April 2020 and crashes occurring within the last 6 months is considered preliminary as investigations into crashes can take months to finalise, approve and load in RCIS (Source: <https://data.vicroads.vic.gov.au/Metadata/Interactive%20Crashstats.html>)

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Table 1: Casualty Crash History

Location	Date	Time	Severity	Conditions	DCA Code	Type
Summerhill Rd 1721m east of Amaroo Rd	Mon 22/05/17	4:50pm	SI	Dusk/Dawn, Dry	120	Head on (not overtaking)
Summerhill Rd 806m west of Bodycoats Rd	Fri 26/10/2018	7:50pm	OI	Dusk/Dawn, Dry	173	Right off carriageway into object/parked vehicle
Summerhill Rd 37m east of Amaroo Rd	Sat 4/07/2015	8:43pm	SI	Dark no street lights, Wet	171	Left off carriageway into object/parked vehicle
Amaroo Rd 75m south of Summerhill Rd	Tues 25/10/2016	7:15am	SI	Day, Clear	120	Head on (not overtaking)
Amaroo Rd 406m south of Summerhill Rd	Tues 24/07/2018	3:50pm	OI	Day, Wet	181	Off right bend into object/parked vehicle

LEGEND:

OI: Other Injury	SI: Serious Injury	F: Fatality
(B): Bicyclist	(M): Motorcyclist	(P): Pedestrian
(C): Bus/Coach	(RT): Rigid Truck	(ST): Semi-trailer
DCA: Definition for Classifying Accident		

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5. Background Plans

5.1. North Growth Corridor Plan

The Victorian Planning Authority (VPA) has produced Growth Corridor Plans as a guide for the delivery of key housing, employment and transport infrastructure in Melbourne's new suburbs over the next 30 – 40 years.

The area covered by the Growth Corridor Plans will accommodate a population of at least 260,000 people and provide for over 83,000 jobs. The majority of the new industrial land for the northern metropolitan region will be located within the North Growth Corridor.

The project area is located within the area covered by the North Growth Corridor Plan, as illustrated in the excerpt provided at Figure 17. The project area is predominantly located in an area identified for non-urban/utilities.

On the south side of Summerhill Road, opposite the site, part of the land is identified as having biodiversity values.

The Project area is located within the future Northern Quarries Precinct Structure Plan (PSP) area. The VPA status map identifies planning for the Northern Quarries PSP is not part of the current program of works.

The North Growth Corridor Plan has the length of Summerhill Road identified as an arterial road.

Summerhill Road, between Amaroo Road and Epping Road, will be progressively upgraded and funded in an interim arrangement via Development / Infrastructure Contribution Plans (DCPs / ICPs) associated with adjacent PSPs.

Ultimately, Summerhill Road is planned as a divided carriageway, with funding to be provided by State Government. These works will not happen until such time as traffic volumes warrant the duplication. This is unlikely to be within the next 10 years.

5.2. Craigieburn North Employment Area PSP

Summerhill Road, between Amaroo Road (to the west) and Merri Creek (to the east), is within the Craigieburn North Employment Area PSP.

This section of Summerhill Road is nominated as a 'Secondary Arterial' to operate as a divided road with 2 x 7 metre carriageways within a 34 metre reservation. Land to the south of the existing Summerhill Road reservation is identified for the widening. The land and an interim upgrade of the existing carriageway to a single sealed carriageway of 7 metres with kerb and channel will be funded through a DCP / ICP.

The PSP also nominates a future signalised intersection at Amaroo Road/Summerhill Road. The interim arrangement will be funded via a DCP / ICP.

The ultimate arrangements will be funded by State Government.

Amaroo Road between Summerhill Road (to the north) and the Hume Freeway (to the south) is also located within the Craigieburn North Employment Area PSP.

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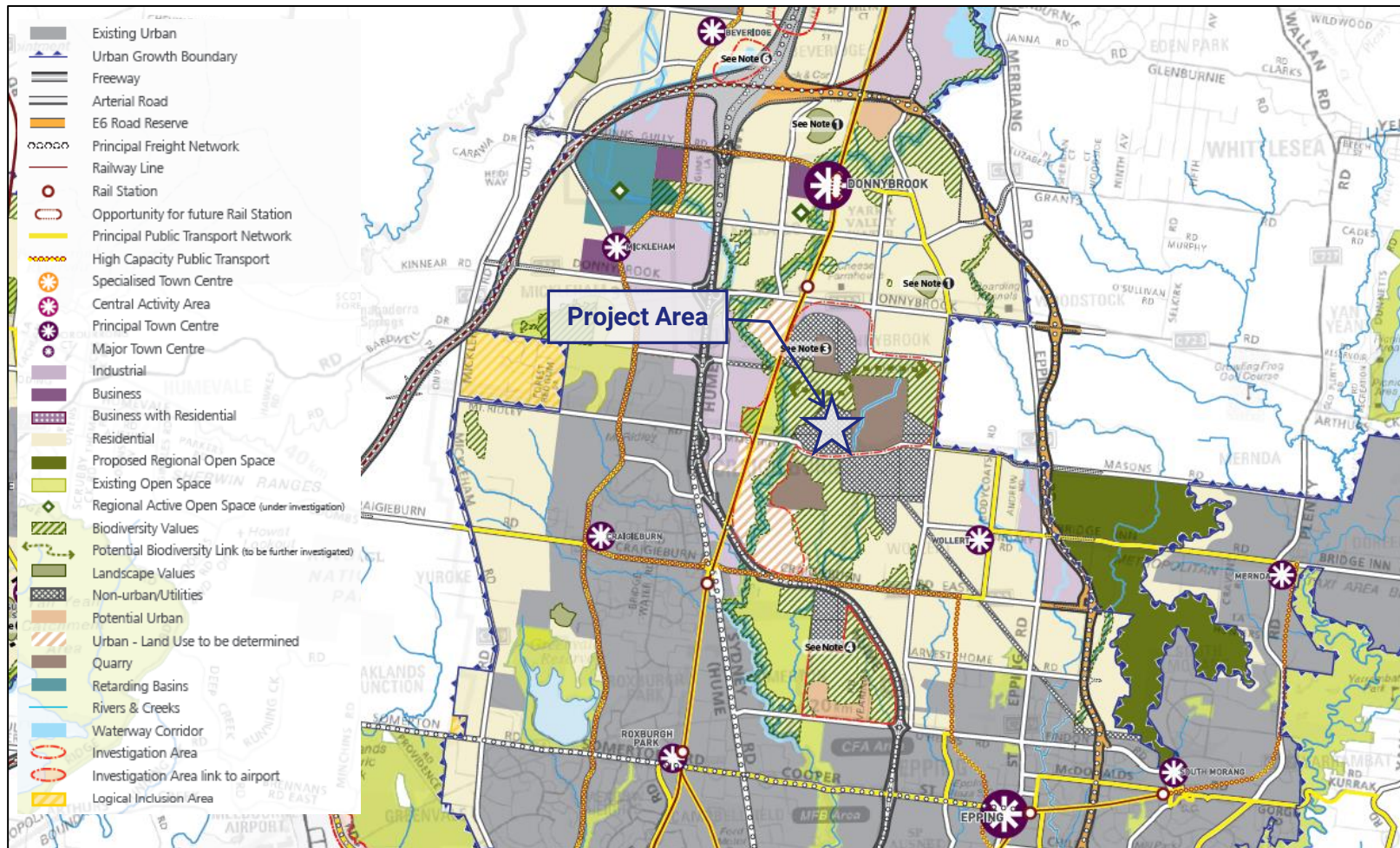


Figure 17: Project Area in context of North Growth Corridor Plan

6. Car Parking Considerations

6.1. Statutory Requirements – Clause 52.06

The proposed use falls within the land-use category of 'waste-to-energy facility' under Clause 73.03 of the Planning Scheme.

The car parking requirements for the proposed development are outlined under Clause 52.06 of the Planning Scheme.

Clause 52.06-5A states the following:

Where a use of land is not specified in Table 1 or where a car parking requirement is not specified for the use in another provision of the planning scheme or in a schedule to the Parking Overlay, before a new use commences or the floor area or site area of an existing use is increased, car parking spaces must be provided to the satisfaction of the responsible authority.

A 'waste-to-energy (WtE) facility' is not a specified land-use under Table 1 of Clause 52.06 and therefore car parking must be provided to the satisfaction of the Responsible Authority (in this case the Minister for Planning).

The project car parking demands will comprise of staff, maintenance contractors and occasional visitors to the education centre. The visitor centre is also expected to attract tour groups including some arrivals via charter buses.

The project is anticipated to have up to 34 employees on-site at any one time. If all staff drive, a demand for up to 34 vehicles could be expected.

Visitor car parking demands are projected to be no more than 10-15 vehicles at peak times.

The plans illustrate 30 car spaces within the main staff administration car park, 15 car spaces within the visitor car park, and 38 staff car spaces spread between three (3) other car parking areas within the overall site. These provisions will exceed both the anticipated peak staff and visitor car parking demands.

6.2. Car Parking Layout & Access Arrangements

Vehicle access is proposed via three (3) connections with Summerhill Road as follows:

- A primary vehicle access near the eastern boundary of the site.
- Two (2) access connections for the visitor car park, located approximately midway along the Summerhill Road frontage.

Car parking is to be provided in five (5) main areas as follows:

- A visitor car park with 15 spaces (including two (2) disabled spaces).
- A main staff car park is located adjacent to the administration centre with 30 spaces (including two (2) disabled spaces).

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510 Summerhill Road, Wollert

- A staff car park with 11 spaces (including two (2) disabled spaces) adjacent to the IBA admin building.
- A staff car park with 5 spaces (including two (2) disabled spaces) adjacent to the APCR store.
- A staff car park with 12 spaces located near the articulated truck parking area.

Bus parking bays are to be provided within the visitor centre car park accessed directly via Summerhill Road. In addition, a bus parking bay is proposed adjacent to the administration centre car park for drop-off/pick-up of visitors.

An articulated truck parking area with 8 bays is identified in the northeast part of the site.

The proposed car parking layout and access arrangements have been developed with design advice provided to the project designer (ARUP) and have been reviewed against the relevant requirements of Clause 52.06 of the Planning Scheme, and the Australian Standard for Off-Street Car Parking (AS2890.1:2004) and Off-street Parking for People with Disabilities (AS2890.6:2009), where applicable.

A review of the car park layout reveals:

- Car spaces are to be provided with minimum dimensions of 2.6 metres width and 4.9 metres length, accessible from 6.4 metre wide aisles, as per the requirements of Clause 52.06-9 (Design Standard 2).
- Disabled car spaces are to be provided with minimum dimensions of 2.4 metres width and 5.4 metres length, with an adjacent shared area of the same dimensions in accordance with AS2890.6:2009. The adjacent accessways are to be at least 5.9 metres width, noting that Clause 52.06-9 (Design Standard 2) states that disabled spaces may encroach into the required access width (i.e., 6.4 metres) by 500mm.
- All vehicles can enter and exit the site in a forward direction in accordance with Clause 52.06-9 (Design Standard 1).
- All proposed accessway exceed the minimum width requirement of 3 metres under Clause 52.06-9 (Design Standard 1).
- Grades within standard car parking spaces are to be no steeper than 1 in 20 measured parallel to the angle of parking and no steeper than 1 in 16 in any other direction, in accordance with AS2890.1:2004).
- Grades within disabled car parking spaces are to not exceed 1 in 40, or 1 in 33 if the surface is a bituminous seal.

Based on the foregoing, the car park layout and access arrangements are considered satisfactory and can accord with the requirements of Clause 52.06-9 of the Planning Scheme and relevant Australian Standards.

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7. Internal Road Layout

Traffix Group provided design advice during preparation of the plans.

The plans, prepared by ARUP, (dated 10/11/22), have been reviewed in relation to vehicle accessibility.

A plan showing the proposed vehicle access connections and internal road network is presented at Figure 18.

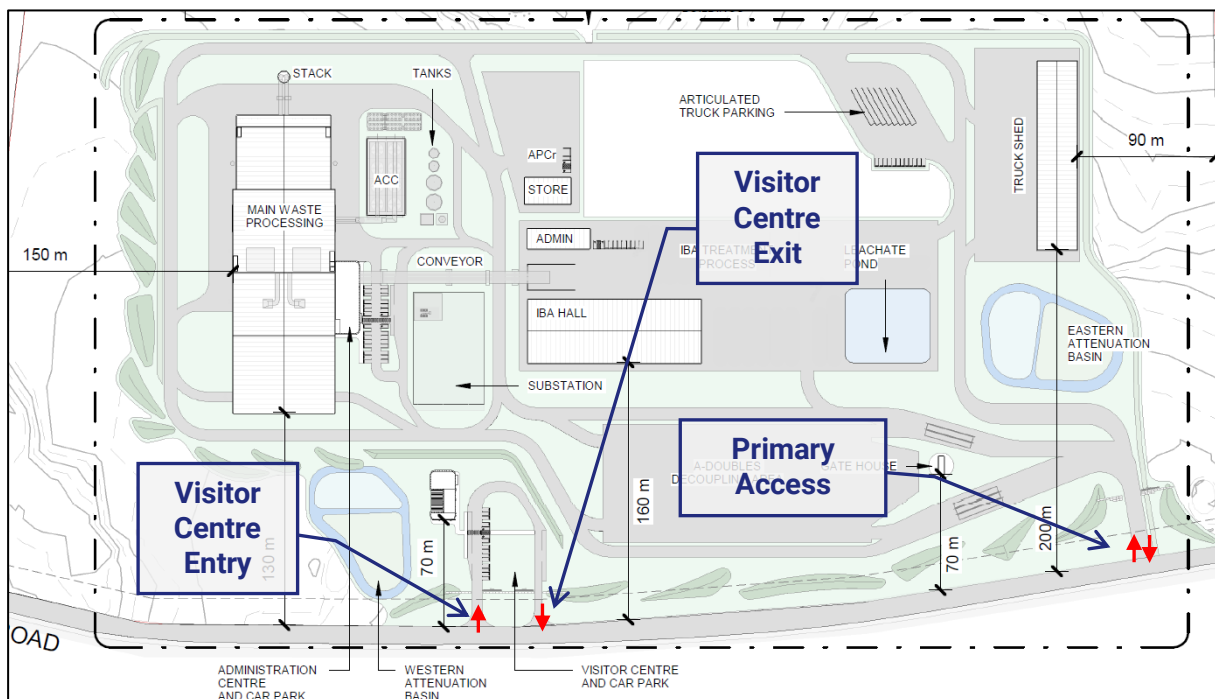


Figure 18: Vehicle Access Arrangements

A summary of the review follows.

- Primary vehicle access is proposed via a crossover to Summerhill Road, near the southeast corner of the site. This crossover will accommodate ingress and egress movements for up to A-Double trucks.
- The visitor centre is proposed with separate entry and exit connections with Summerhill Road in the southwest part of the site.
- The internal road design has largely been premised on one-way circulation.
- The internal roads are generally show minimum carriageway widths of 5 metres for one-way sections and approximately 10 metres for two-way sections.
- The layout includes an A-Double truck decoupling area (approximately 1.4 hectares), located within the southern part of the site. In this area, A-Double trucks detach the rear trailer before continuing to the tipping hall.

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- The layout includes a waste reception hall in the southwest part of the site. It is understood the internal layout of the hall will be designed at a later stage and accommodate standard semi-trailers (19-20m long) reversing to bunkers.
- Roads with bends and corners have been widened where necessary to accommodate the swept paths of a A-Double truck (up to 36.5 metre length). We note that we have adopted the standard 36.2 metre long A-Double vehicle template from the *Austrroads Design Vehicles and Turning Path Templates (2013)* for the purposes of our swept path assessment which is considered appropriate as there would be negligible difference when compared to a slightly longer 36.5 metre length A-Double truck.
- Swept path diagrams have been prepared, and are attached at Appendix A, to demonstrate A-Double truck (36.2 metre length) accessibility for access to Summerhill Road and throughout the site.
- All vehicles can enter and exit the site in a forward direction in accordance with Clause 52.06-9 (Design Standard 1) of the Whittlesea Planning Scheme.
- All canopies and halls that are to accommodate trucks are to be provided with a height clearance of at least 4.5m which is in accordance with the requirement at Table 2.1 of the Australian Standard for Off-street Commercial Vehicle Facilities (AS2890.2:2018).

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8. Loading Considerations

A summary of the key types of trucks that are anticipated are as follows

- Council Compactor Truck: A rigid truck that is approximately 11.6 metres long.
- Front Load Truck: A rigid truck that is approximately 11 metres long.
- A-Double Truck: An articulated truck with an overall length of up to 36.5 metres. An A-Double comprises of a prime mover towing two trailers. The first trailer is connected to the prime mover by a roll coupled connection, and the second trailer is a dog trailer.
- Semi-trailer: An articulated truck with an overall length of approximately 19-20 metres. A semi-trailer comprises of a prime mover towing a single trailer with a coupled connection.

Clause 65.01 of the Planning Scheme states the responsible authority must consider a number of matters as appropriate including:

The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.

The following loading arrangements are proposed:

- **Internal Circulation (A-Double Truck):** The A-Double truck enters the site in a forward direction and travels to the decoupling/re-coupling area, where it decouples the rear trailer. The truck then continues with a single trailer to the tipping hall to unload. Following this, the truck circulates the site and returns to the decoupling/re-coupling area to reconnect the unloaded rear trailer, before exiting the site in a forward direction. It is noted, the decoupled trailer is circulated around the site via a Terberg Dolly truck (approx. 19m long) and is then returned to the decoupling/re-coupling area. Swept path diagrams that demonstrate A-Double truck movements are attached at Appendix A.

Figure 19 shows the A-Double loading arrangements.

- **Internal Circulation (Council Compactor & Front Load Truck):** Council compactor trucks (approximately 11 metres long) and front load trucks (approximately 11.6 metres long) will follow a similar route along the internal roadways, with the exception of utilising the slip lanes immediately north and south to bypass the A-Double decoupling/re-coupling area. Swept path diagrams that demonstrate satisfactory access for a standard 12.5 metre long Heavy Rigid Vehicle (HRV) to these slip lanes are attached at Appendix A.

Figure 19 shows the above loading arrangements (combination of dark blue and red).

Based on the above, the proposed loading vehicle arrangements are considered appropriate and the relevant clause under Clause 65.01 is satisfied.

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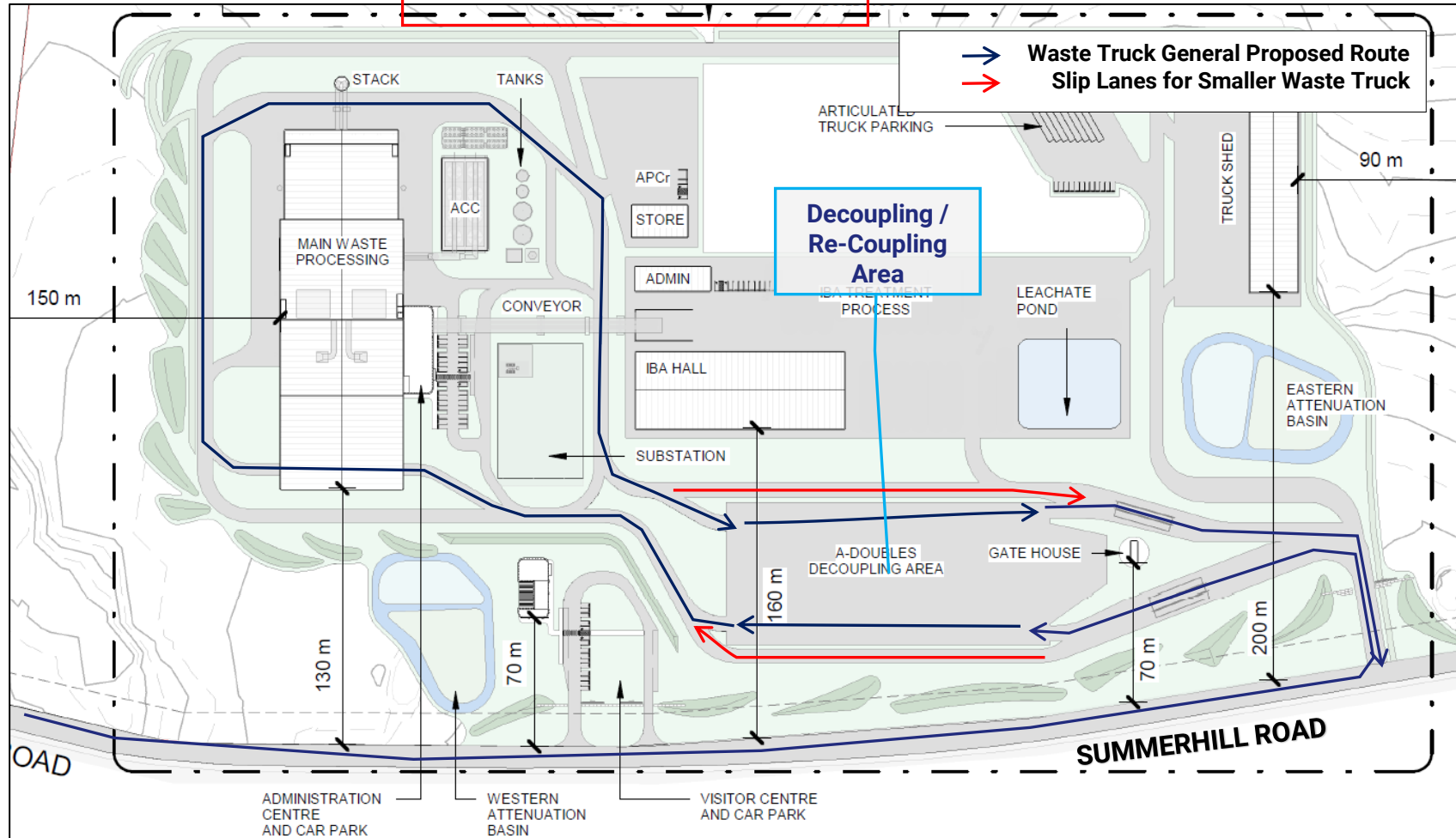


Figure 19: Proposed A-Double Internal Loading Routes

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9. Traffic Considerations

9.1. Travel Route

Trucks visiting the site are expected to be from various locations in greater Melbourne, including:

- Cleanaway, Dandenong South.
- Boral Cement, Somerton.
- Port of Melbourne.
- Omega Chemicals, Laverton North.
- Various municipalities across the Metropolitan Melbourne waste catchment area.

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Accordingly, most trucks are likely to travel to/from the south via the Hume Freeway.

The proposed truck travel route to the site is: Hume Freeway (Amaroo Road interchange) – Amaro Road – Summerhill Road, as shown in red at Figure 20.

The proposed truck travel route from the site is: Summerhill Road – Amaro Road - Hume Freeway, as shown in green at Figure 20.

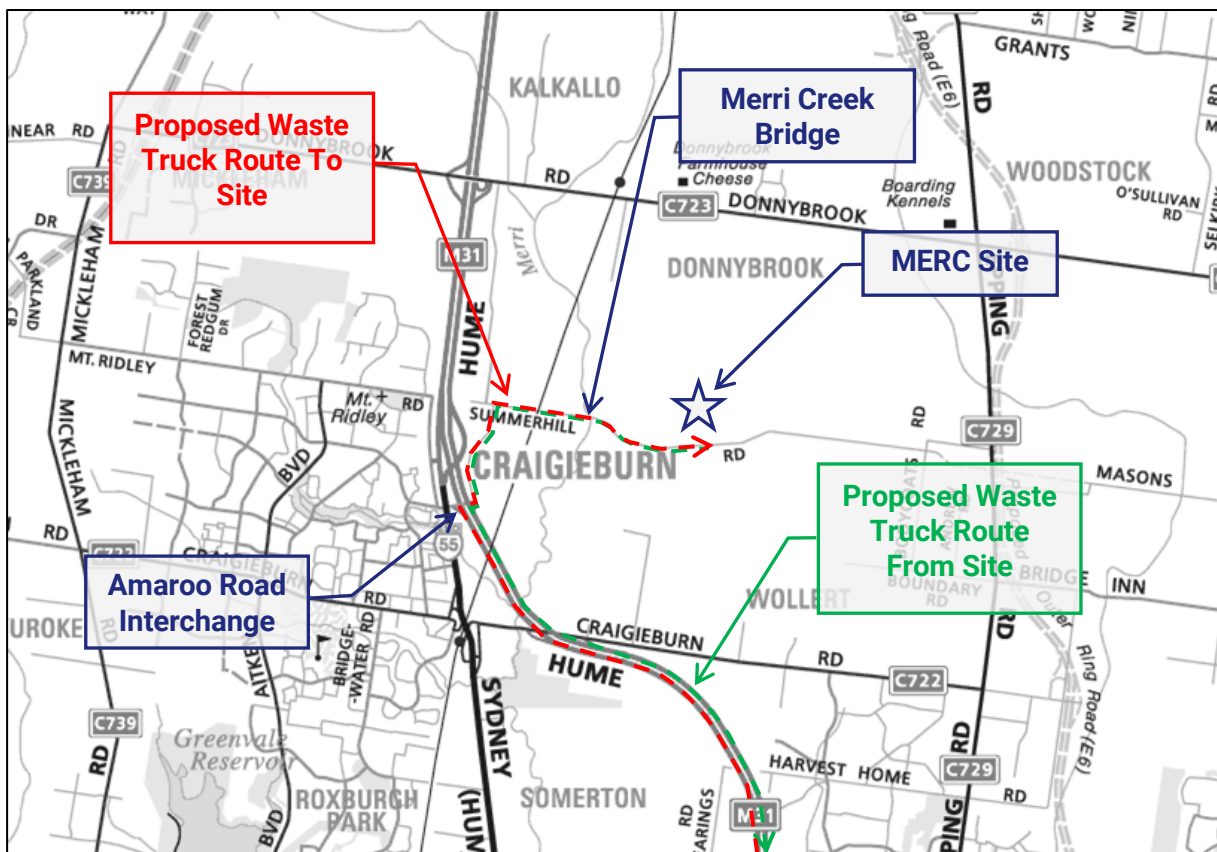


Figure 20: Truck Travel Route

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9.2. Traffic Generation & Distribution

Overall Vehicle Numbers

The proposed WtE facility will process approximately 380,000 tpa and will operate 24 hours per day, 7 days per week. We note that there will be allowance for emergency shutdown periods for maintenance or repairs which are estimated to occur 2 times per annum.

The delivery hours will be 12 hours per day between 6am to 6pm. The delivery days will be 6 days per week (Monday to Saturday). This equates to approximately 312 delivery days per year.

The MERC Project Definition Brief prepared by Ramboll (Version 6.0, dated 14 November 2022) outlines the expected average vehicle arrival and departure numbers at Table 23. A summary of the expected average vehicle numbers on weekdays at an operation of 380,000 tpa is provided below:

- Waste Delivery Vehicles:
 - Type 1 - Council Compactor Truck: Approximately 25 truck deliveries per day between Monday-Friday (250 days per year).
 - Type 2 - Front Load Truck: Approximately 24 truck deliveries per day between Monday-Saturday (312 days per year).
 - Type 3 - A-Double Truck: Approximately 21 truck deliveries per day between Monday-Saturday (312 days per year).
- Consumable Delivery Vehicles: Approximately 8 truck deliveries per day.
- Product/By-Product Dispatch Vehicles: Approximately 26 truck deliveries per day
- O&M Staff & Contractors: Approximately 2 light trucks and 44 cars per day.

Total – 150 vehicles per day (106 trucks and 44 cars)

Accordingly, a total average of 300 vehicle movements per day will be generated, generally split evenly between arrivals (150 arrival movements) and departures (150 departure movements).

The above average vehicle numbers relate to weekdays (Monday to Friday). We note that fewer vehicles are expected on Saturdays (no council compactor trucks and likely no consumable deliveries) and even fewer vehicles on Sundays (essential staff and contractor vehicles only). Accordingly, our assessment will focus on weekday morning and afternoon commuter peak hours.

Truck Trip Distribution

Truck arrivals and departures are expected to be generally spread throughout the day. We have been provided with an hourly demand profile across a weekday for truck movements at the existing Erskine Park Transfer Facility to provide guidance for MERC. With consideration of this profile, we have adopted following peak hour proportions:

- AM road network peak hour – 12% of daily truck movements
- PM road network peak hour – 5% of daily truck movements

This above equates to approximately 25 total trucks movements (including arrival and departure movements) during the AM road network peak hour, and 11 total trucks movements (including arrival and departure movements) during the PM road network peak hour

Trucks will mostly travel to/from the west of the site along the route identified at Figure 20.

Staff Trip Distribution

We have been advised that up to 34 staff will be on-site at the facility at any one time. The hours of operation are 24 hours a day, however we have been advised that majority of staff will work standard hours (i.e., 9am to 5pm). We have assumed that approximately 50% of the peak number of staff will arrive during the morning commuter peak hour (8-9am), and 50% of staff will depart during the PM peak hour (5-6pm). Accordingly, 17 inbound movements and 17 outbound movements will be generated by staff during the AM (8-9am) and PM (5-6pm) peak hours, respectively.

We expect majority of staff traffic to be generated to/from the west of the site because it provides the most direct access route to the Hume Freeway which can be used to access large parts of Greater Melbourne. However, a proportion of staff are expected to reside in population centres to the east such as Mernda, Wollert and Doreen and are therefore expected to travel to/from the east along Summerhill Roads. Accordingly, for the purposes of our assessment we have adopted the following directional proportions for staff traffic movements:

- 75% West to/from the west
- 25% West to/from the east

Based on the above, during the weekday peak hours, the staff traffic generation will comprise approximately 13 movements to/from the west and 4 movements to/from the east along Summerhill Road.

Total

Based on the above assessment, a summary of the expected average vehicle movements generated by MERC is provided at Table 2.

Table 2: Average Vehicle Movements Generated by MERC on Weekdays

	AM Peak Hour (8-9am)	PM Peak Hour (5-6pm)	Weekday Total
Truck	25	11	106
Car	17	17	44
TOTAL	42	28	150

The above traffic generation equates to approximately:

- one (1) vehicle movement every 86 seconds on average during the AM peak hour.
- one (1) vehicle movement every 129 seconds on average during the PM peak hour.

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We are satisfied that the projected peak hour traffic can be adequately absorbed by the surrounding road network and intersections, subject to the recommended road upgrade works discussed in Section 9.3.

9.3. Road Upgrades

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9.3.1. Summerhill Road

The existing condition of Amaroo Road and the section of Summerhill Road between Amaroo Road and the Merri Creek has a sealed pavement of approximately 6.5 metres with grass verges. Furthermore, the existing traffic volumes along these roads are very low (in the order of only of 600-700 vehicles per day) as shown by the traffic volume data presented at Figure 14 indicating spare capacity. Accordingly, these existing roads will adequately accommodate the additional traffic predicted to be generated by MERC (150 vehicles per day) and therefore mitigation works are not warranted in this location.

The section of Summerhill Road between Merri Creek and the eastern site access comprises a gravel formation of varying width. In consideration of the level and type of traffic projected to be generated by the potential facility, this section between Merri Creek should be upgraded to a sealed standard with a pavement width of approximately 6.5m to be consistent with the existing arrangement to the west of Merri Creek. This equates to an upgrade of Summerhill Road for a length of approximately 1.6km. Furthermore, where the adjacent terrain is relatively flat, grass verge/shoulders would be satisfactory. However, where there are batters/slopes adjacent to the carriageway, a gravel shoulder should be considered.

The proposed truck access route along Summerhill Road includes a single lane bridge at Merri Creek. There is no signed load limit for the bridge. A structural integrity assessment of the bridge has been undertaken by Pitt & Sherry (Rev01, dated 13 October 2022). The assessment concluded the structure to be in fair condition and adequate to accommodate the anticipated level of truck loading required for MERC. However, the assessment recommended a speed restriction of 10km/h for vehicles operating at Higher Mass Limits (HML) and for A-Doubles. The recommendation stated that the bridge condition should be monitored at frequent intervals and noted that the speed restriction could be reconsidered if no signs of overloading are detected following a period of monitoring.

Given the Merri Creek bridge is only single width and has restricted sightlines on the approach, we are of the opinion that some form of traffic management will be required to manage vehicle movements across it in one direction at a time. This could be required under a Condition of Permit, should a Planning Permit be issued for the development. Furthermore, a speed limit reduction at the bridge should be implemented as consistent with the recommendation of the Pitt & Sherry report. A Road Safety Audit of the bridge and associated proposed traffic management measures could be undertaken at a later stage if required.

The proposed truck route also includes a boom controlled level crossing of the Melbourne - Sydney railway line located approximately 1km to the west of the site. We do not believe any mitigating works will be required at the level crossing.

When considering Summerhill Road to the east of the site, this will not be part of the proposed truck access route. Furthermore, the likely traffic generation by staff travelling to/from the east of the site is anticipated to be relatively low (approximately 25% of total

staff vehicle movements) as discussed previously. Accordingly, no road upgrades are necessary on Summerhill Road to the east of the site.

9.3.2. Intersections along Truck Access Route

We have reviewed swept paths for A-Double vehicle movements at the following intersections along the proposed truck route:

- Amaroo Road signalised intersection at the Hume Freeway off-ramp.
- Amaroo Road roundabout with the Hume Freeway on-ramp.
- Amaroo Road and Summerhill Road T-intersection.

Our review found that the first two intersections listed above can appropriately accommodate A-Doubles for the relevant turning movements under existing conditions.

However, the Amaroo Road and Summerhill Road T-intersection does not currently accommodate A-Doubles and therefore localised widening works will be required at this intersection as part of the proposed development.

The design and construction of the upgrade works at the Amaroo Road and Summerhill Road intersection should be required under a Condition of Permit, should a Planning Permit be issued for the development.

10. Bicycle Considerations

Clause 52.34 of the Planning Scheme specifies the bicycle parking requirement for new developments. A 'waste-to-energy facility' land-use does not have a specified bicycle parking requirement under Clause 52.34 of the Planning Scheme. As such, there is no trigger for on-site bicycle parking to be provided.

Given the site's location and lack of bicycle routes in the surrounding area, we do not anticipate any arrivals to the site by bicycle and therefore bicycle parking is not considered necessary.

Notwithstanding the above, the development has allocated an indicative zone for future bicycle parking and end-of-trip facilities to meet Council's sustainability objectives.

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11. Conclusions

Having undertaken a detailed traffic engineering assessment of the waste-to-energy facility at 510 Summerhill Road, Wollert, we are of the opinion that:

- a. There is no specified car parking rate under Clause 52.06-5 of the Whittlesea Planning Scheme and therefore car parking must be provided to the satisfaction of the Responsible Authority, with consideration of the staff and visitors anticipated on the site.
- b. The anticipated car parking demands are expected to be adequately accommodated within the proposed staff car park and visitor car park with a total of 73 car spaces, including 58 staff spaces and 15 visitor spaces.
- c. The primary vehicle access connection with Summerhill Road and internal road layout have been designed to accommodate the largest anticipated trucks which are A-Doubles.
- d. The proposed truck access route between the site and the Hume Freeway is to be to/from the west via Summerhill Road and Amaroo Road.
- e. The existing Summerhill Road (to the west of Merri Creek) and Amaroo Road configurations are adequate to accommodate the development generated traffic.
- f. The existing unsealed section of Summerhill Road between Merri Creek and the site's primary access near its eastern boundary should be upgraded subject to agreement with the relevant road authority to have a sealed carriageway of approximate 6.5 metres width, similar to the existing configuration to the west of Merri Creek.
- g. A traffic management treatment at the Merri Creek bridge on Summerhill Road should be implemented to manage vehicle movements across the bridge to allow travel in one direction at any one time, as well as a speed limit reduction at the bridge as per the recommendation in the Pitt & Sherry report.
- h. The level of traffic generated as a result of this Proposal can be adequately accommodated by the wider road network.
- i. There is no requirement for bicycle parking and given the site's location there is not expected to be any demand for bicycle parking. Notwithstanding the above, the development has allocated an indicative zone for future bicycle parking and end-of-trip facilities to meet Council's sustainability objectives

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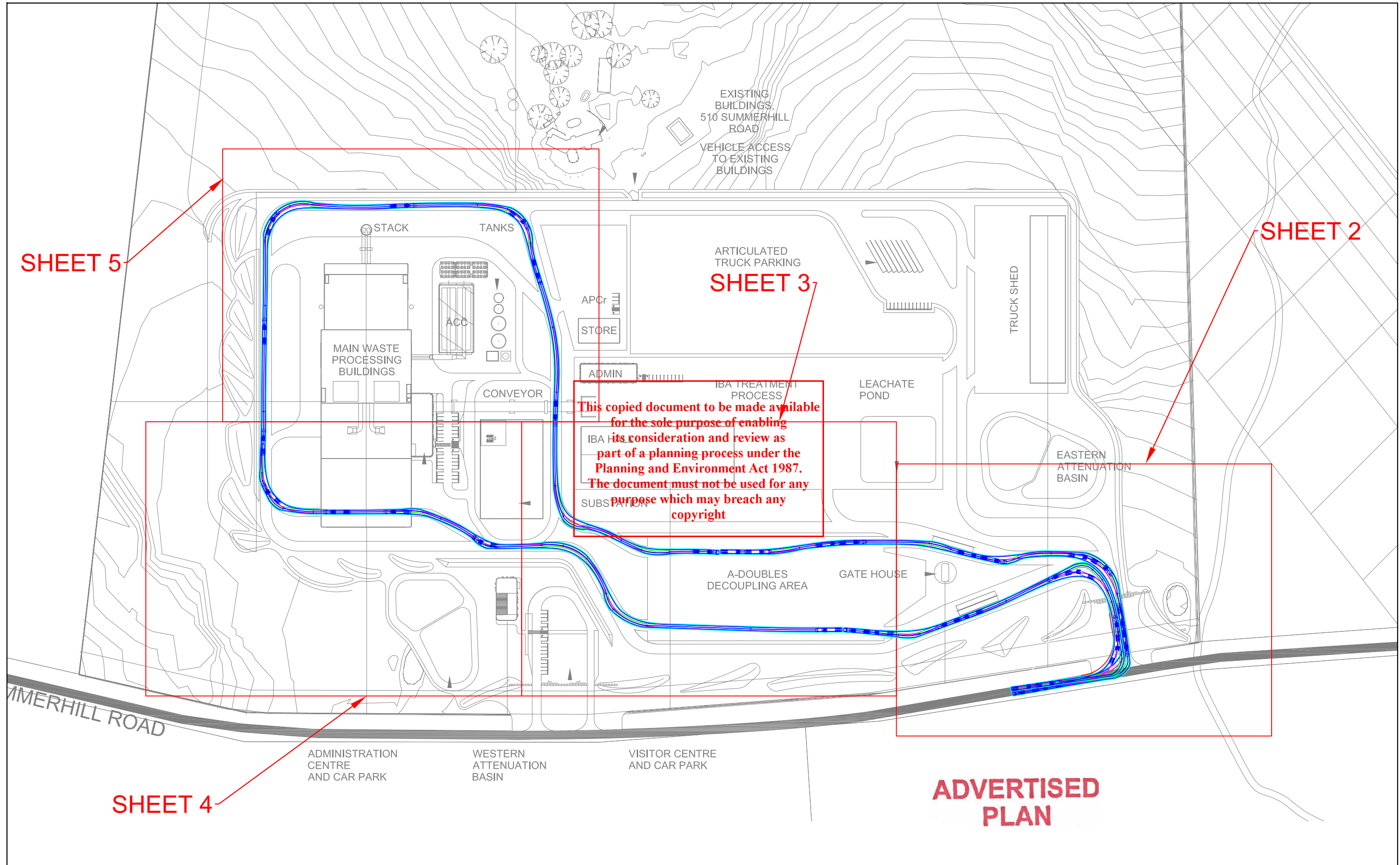


Appendix A

Swept Paths

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**510 SUMMERHILL ROAD, WOLLERT
PROPOSED WASTE-TO-ENERGY FACILITY**

GENERAL NOTES:
BASE PLANS PREPARED BY ARUP, RECEIVED 02/02/2023.

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SHEET NO.: 01



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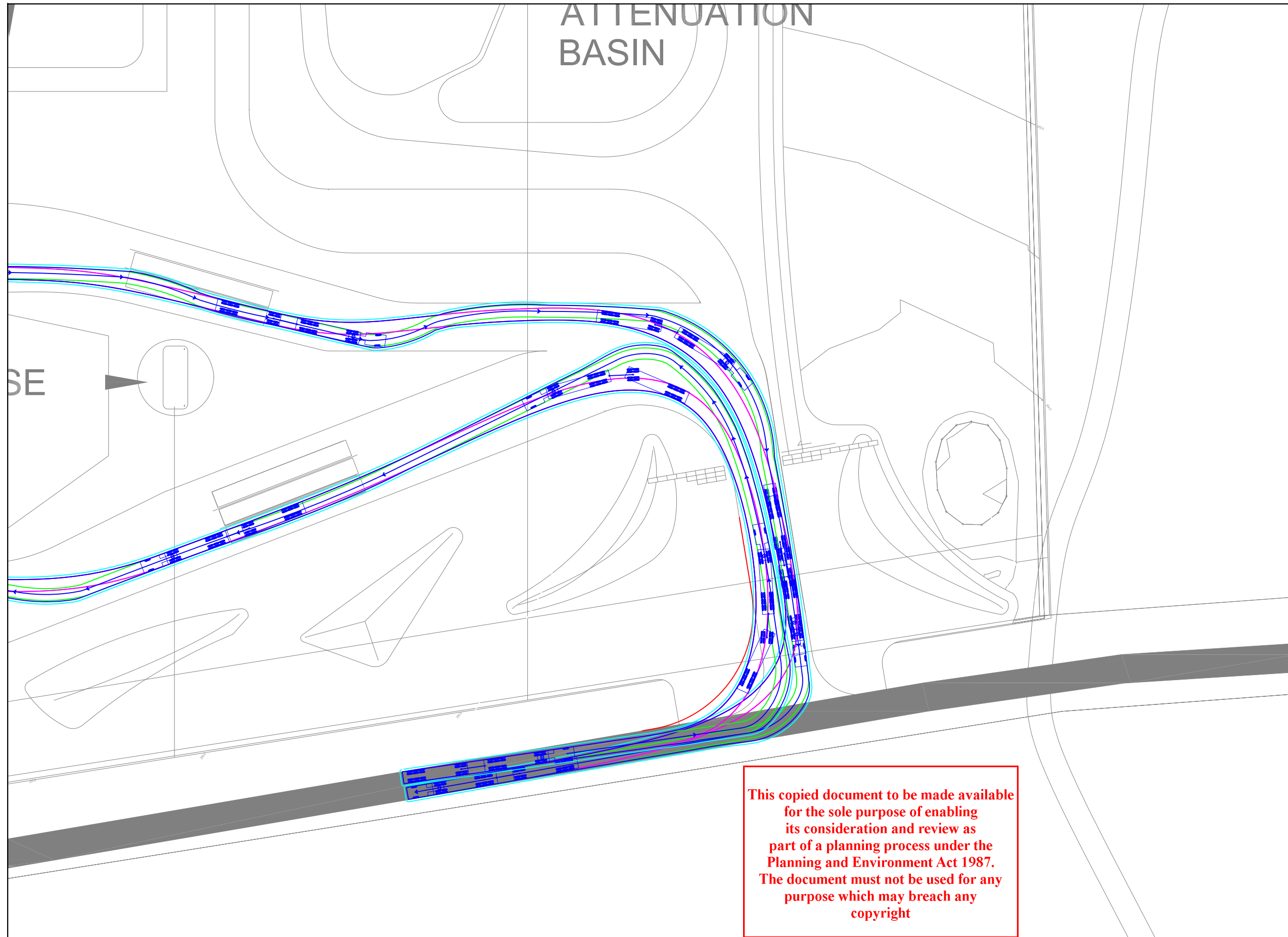
VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

A-DOUBLE
mm

Tractor Width : 2500 Lock to Lock Time : 6.0
Trailer Width : 2500 Steering Angle : 23.4
Tractor Track : 2500 Articulating Angle : 70.0
Trailer Track : 2500

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE



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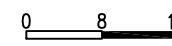
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(VEHICLE SPEED - 5KM/H)

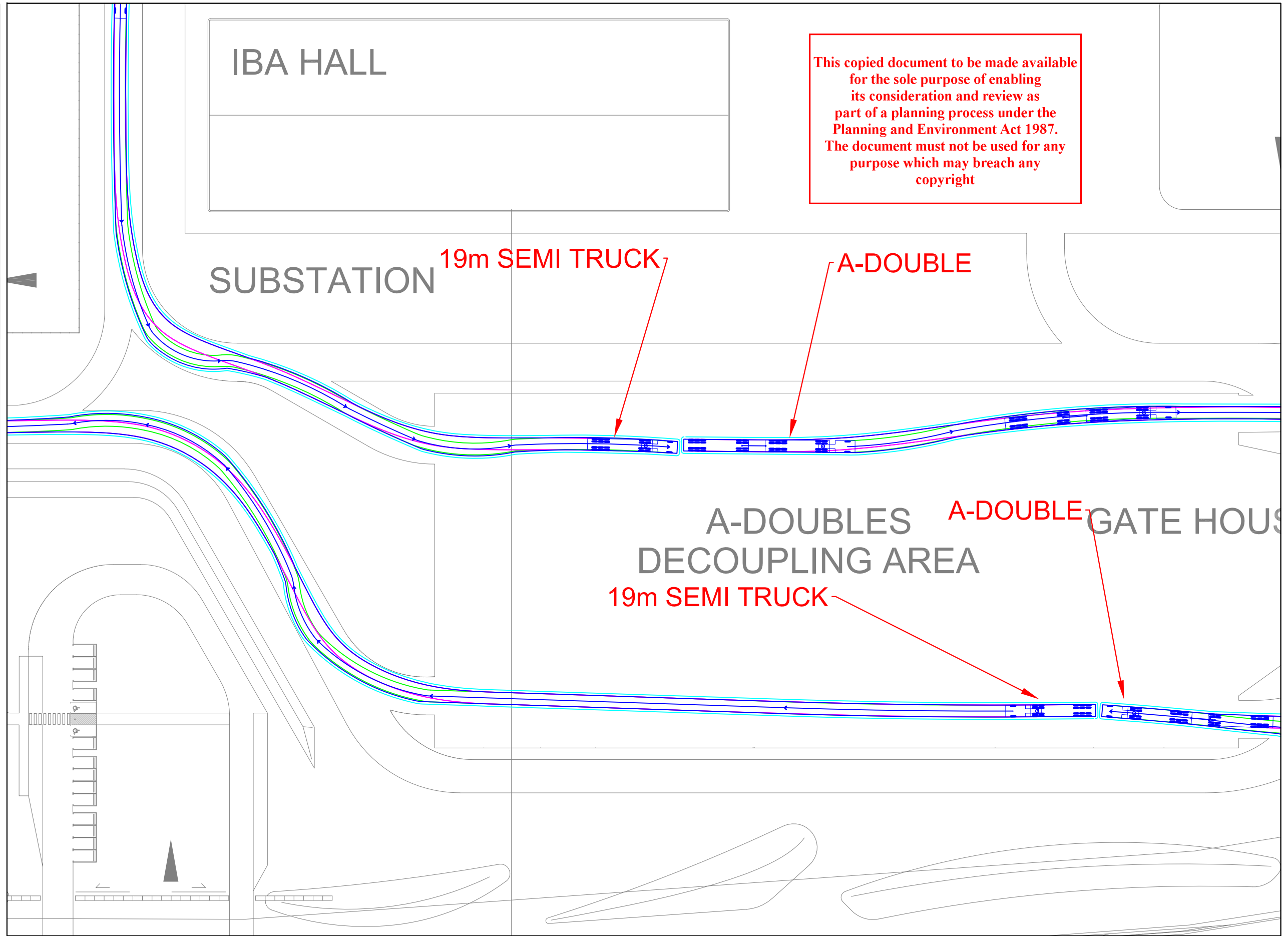
A-DOUBLE
mm
Tractor Width : 2500 Lock to Lock Time : 6.0
Trailer Width : 2500 Steering Angle : 23.4
Tractor Track : 2500 Articulating Angle : 70.0
Trailer Track : 2500

19m semi (AustRoads)
mm
Tractor Width : 2500 Lock to Lock Time: 6.0
Trailer Width : 2500 Steering Angle : 27.8
Tractor Track : 2500 Articulating Angle : 70.0
Trailer Track : 2500

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE

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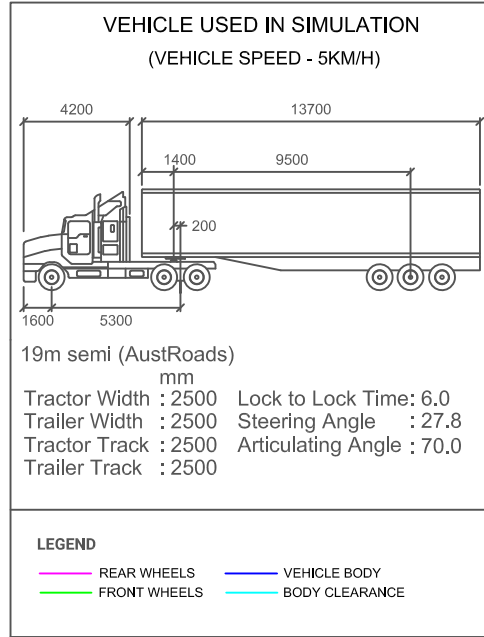


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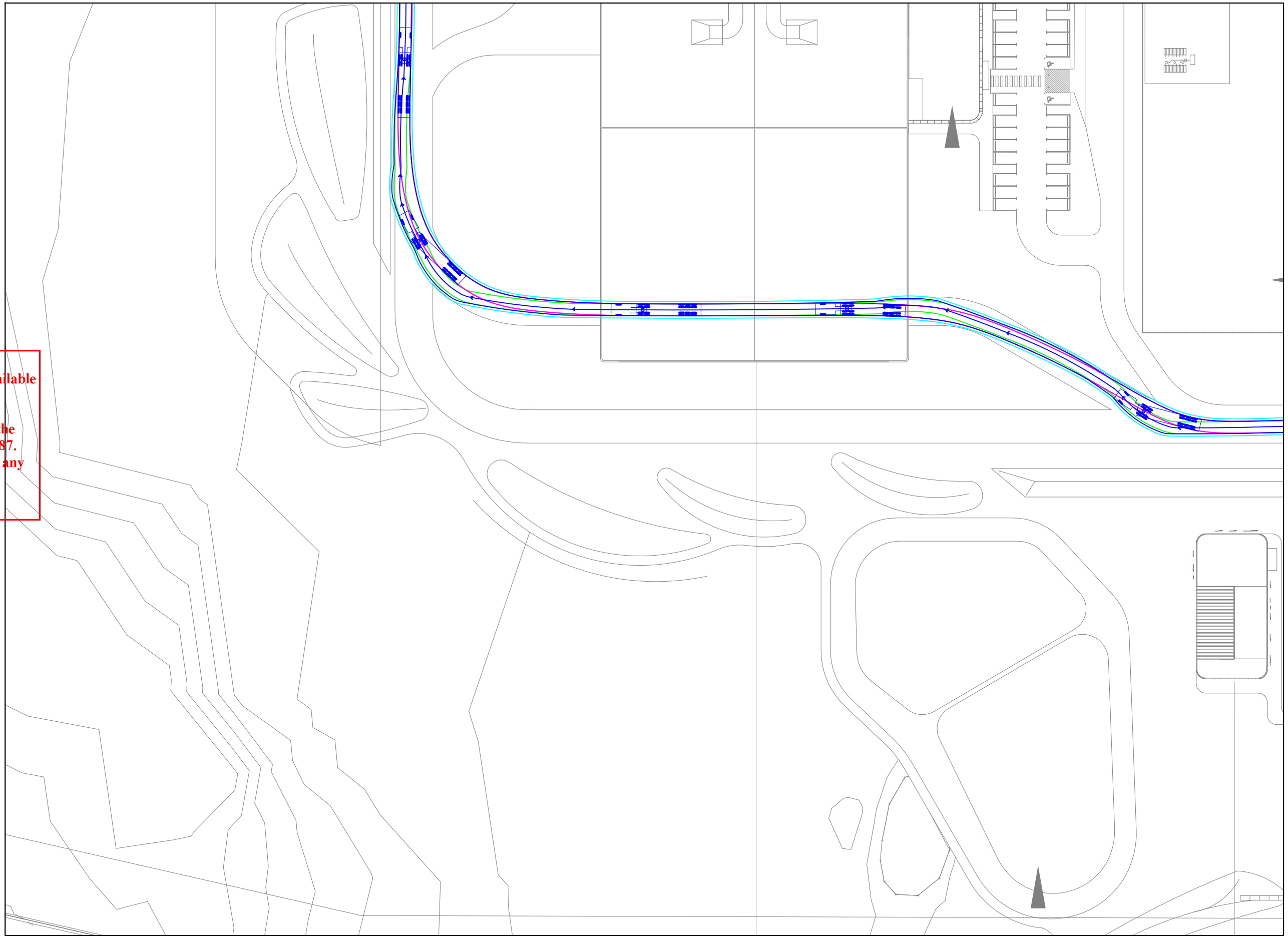
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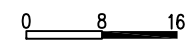
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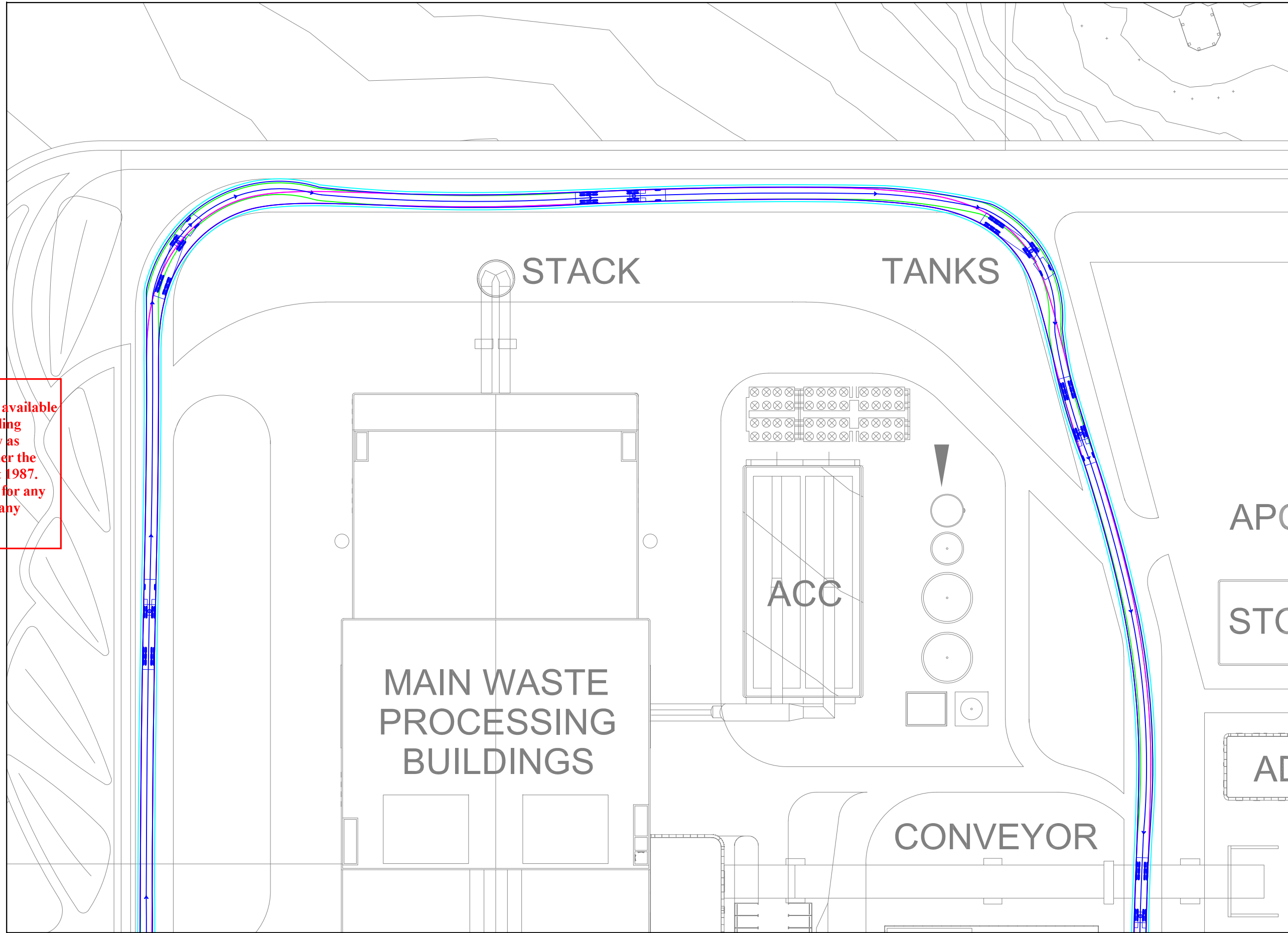
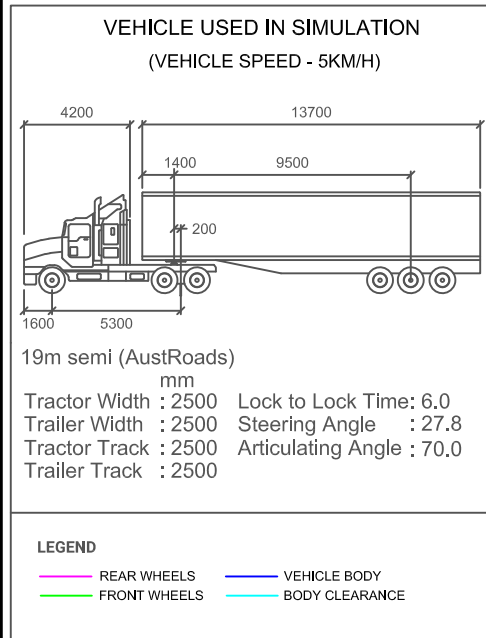
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A	03/02/2023	TOWN PLANNING	H. ROBERTSON	B. CHISHOLM (RPE7582)

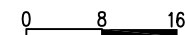
510 SUMMERHILL ROAD, WOLLERT
PROPOSED WASTE-TO-ENERGY FACILITY

GENERAL NOTES:
BASE PLANS PREPARED BY ARUP, RECEIVED 02/02/2023.

FILE NAME: G30331-01
SHEET NO.: 05



SCALE: 1:800 (A3)



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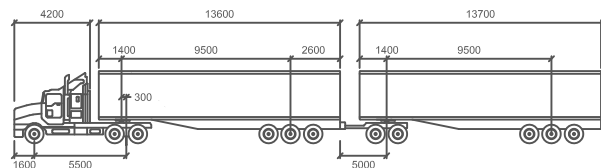
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WIDENED CROSSOVER TO ACCOMMODATE SWEEPED PATH

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)



A-DOUBLE

mm

Tractor Width : 2500 Lock to Lock Time : 6.0
Trailer Width : 2500 Steering Angle : 23.4
Tractor Track : 2500 Articulating Angle : 70.0
Trailer Track : 2500

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE

ADVERTISED PLAN

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	03/02/2023	TOWN PLANNING	H. ROBERTSON	B. CHISHOLM (RPE7582)

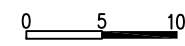
510 SUMMERHILL ROAD, WOLLERT
PROPOSED WASTE-TO-ENERGY FACILITY

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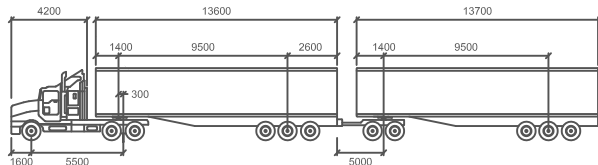
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WIDENED CROSSOVER TO ACCOMMODATE SWEEPED PATH

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)



A-DOUBLE

mm

Tractor Width : 2500 Lock to Lock Time : 6.0
 Trailer Width : 2500 Steering Angle : 23.4
 Tractor Track : 2500 Articulating Angle : 70.0
 Trailer Track : 2500

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE

ADVERTISED PLAN

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	03/02/2023	TOWN PLANNING	H. ROBERTSON	B. CHISHOLM (RPE7582)

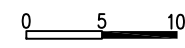
510 SUMMERHILL ROAD, WOLLERT
 PROPOSED WASTE-TO-ENERGY FACILITY

GENERAL NOTES:
 BASE PLANS PREPARED BY ARUP, RECEIVED 02/02/2023.

FILE NAME: G30331-01
 SHEET NO.: 07



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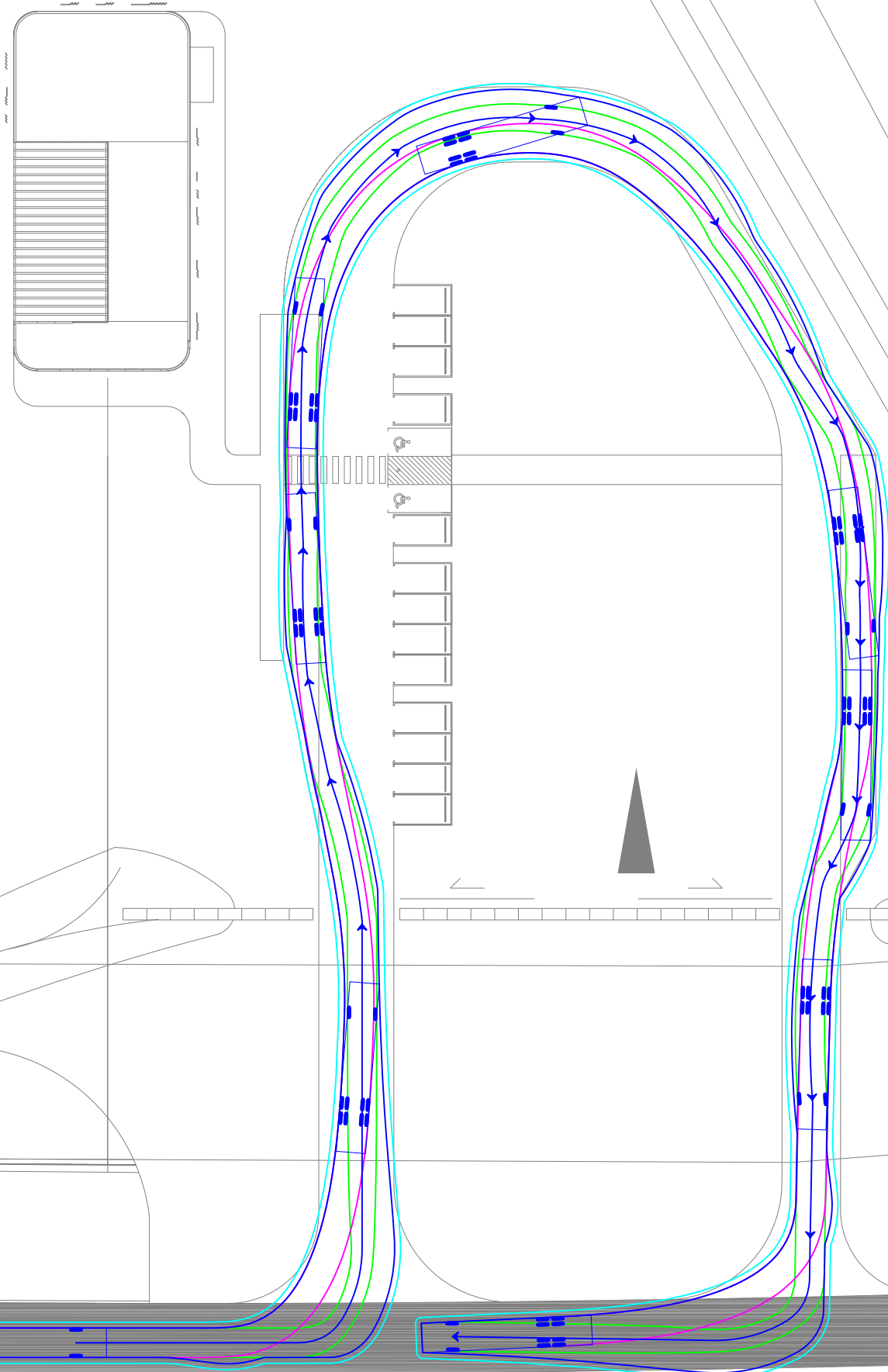


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ADVERTISED PLAN

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

14500
2600 8400

14.5m Bus AustRoads (2013)

	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

LEGEND

- REAR WHEELS (pink line)
- FRONT WHEELS (green line)
- VEHICLE BODY (blue line)
- BODY CLEARANCE (cyan line)

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
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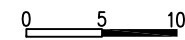
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PROPOSED WASTE-TO-ENERGY FACILITY

GENERAL NOTES:
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FILE NAME: G30331-01
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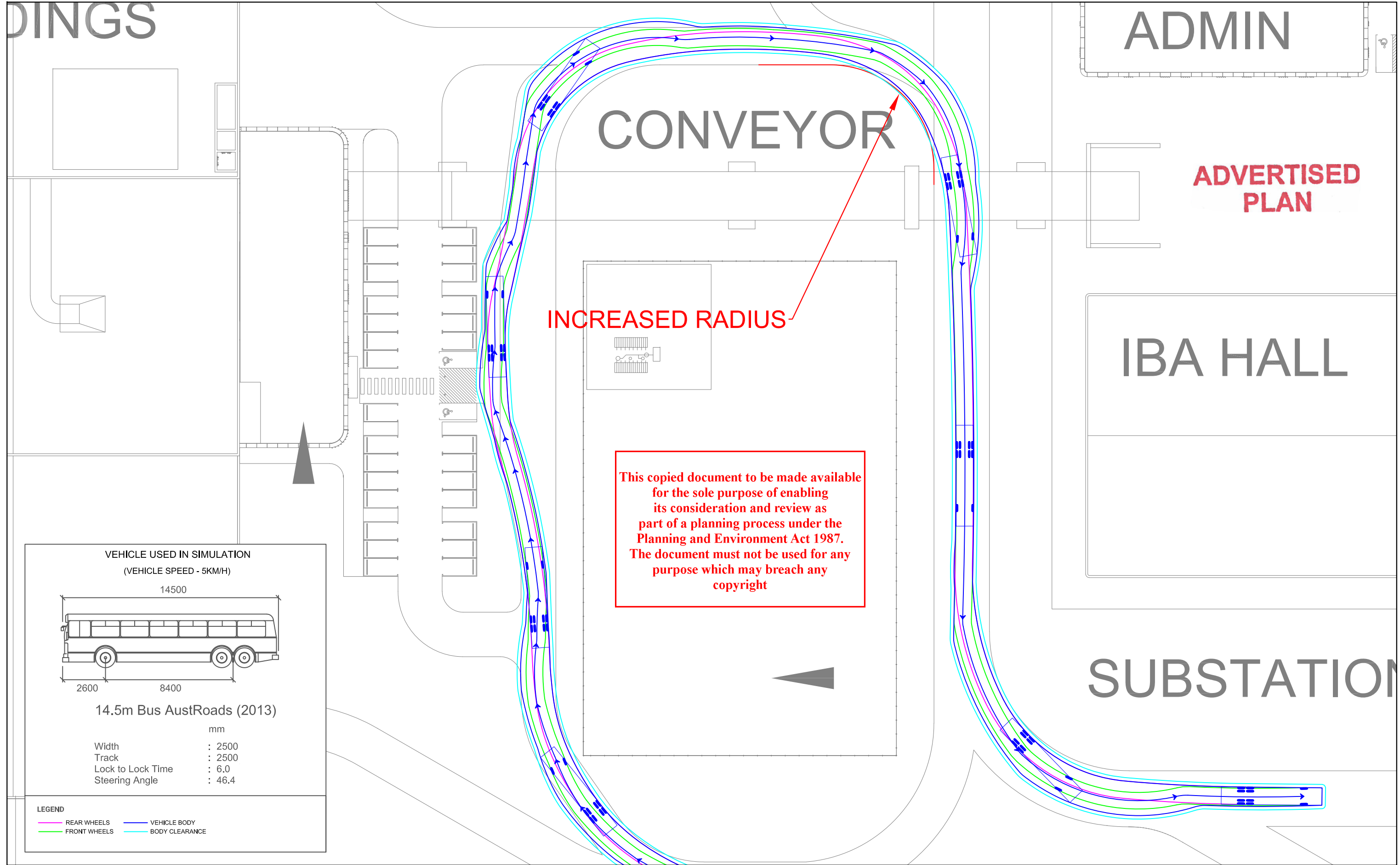
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VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

14500
2600 8400

14.5m Bus AustRoads (2013)

	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 46.4

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	03/02/2023	TOWN PLANNING	H. ROBERTSON	B. CHISHOLM (RPE7582)

510 SUMMERHILL ROAD, WOLLERT
PROPOSED WASTE-TO-ENERGY FACILITY

GENERAL NOTES:
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