Accelerated Bike Network Program
City of Sydney Council
03-Sep-2021

Review of Environmental Factors

Gadigal Avenue. Potter Street and Crystal Street Cycleway

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Gadigal Avenue, Potter Street, and Crystal Street

Client: City of Sydney Council

ABN: N/A

Prepared by

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Abbreviations

Abbreviation	Meaning
ASS	Acid Sulfate Soils
ASSMP	Acid sulfate soil management plan
BC Act	*Biodiversity Conservation Act 2016*
CBD	Central Business District
CEMP	Construction Environmental Management Plan
The City/Council	The City of Sydney Council
CLM Act	*Contaminated Land Management Act 1997*
CNVMP	Construction Noise Vibration Management Plan
CO	Carbon Monoxide
dB(A)	A weighted decibel
DPIE	Department of Planning, Industry and Environment
ESD	Ecologically Sustainable Development
EPA	Environment Protection Authority
EP&A Act	*NSW Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPI	Environmental Planning Instrument
EPBC Act	*Environment Protection Biodiversity and Conservation Act 1999*
HMP	Heritage Management Plan
ICNG	Interim Construction Noise Guideline
ICOMOS	International Council on Monuments and Sites
ISCA	Infrastructure Sustainability Council of Australia
Km	Kilometres
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
m	Metres
MNES	Matters of national environmental significance
NO_2	Nitrogen Dioxide
NPI	National Pollutant Inventory
NPW Act	*National Parks and Wildlife Act 1974*
O_3	Ozone
OOHW	Out of hours work
Pb	Lead
PM	Particulate matter

Abbreviation	Meaning
POEO Act	*Protection of the Environment Operations Act 1997*
REF	Review of Environmental Factors
RT Act	*Road Transport Act 2013*
SDS	Safety Data Sheet
SEPP	State Environmental Planning Policy
SO_2	Sulfur Dioxide
Streets Code	City of Sydney Streets Code
TPZs	Tree protection zones
WARR Act	*Waste Avoidance and Resource Recovery Act 2001*
WMP	Waste Management Plan

1.0 Introduction

The City of Sydney proposes to deliver a new priority cycleway along Gadigal Avenue, Potter Street and Crystal Street at Waterloo, as part of the broader Accelerated Bike Network Program. The new cycleway would comprise an arrangement of two-way cycleway, shared path, and cyclist priority shared road areas that provides a safer cycle network while maintaining vehicle and pedestrian access.

For the Gadigal Avenue, Potter Street and Crystal Street cycleway project, the City of Sydney is both the proponent and the determining authority for this Review of Environmental Factors (REF) under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This REF has been prepared by AECOM Australia Pty Ltd (AECOM) on behalf of the City of Sydney for the proposal. The purpose of this REF is to describe the proposal, assesses the potential environmental impacts of the proposal, identify measures that avoid, minimise or mitigate those potential impacts, and to inform the decision on whether to proceed with the proposal. The proposal and associated environmental impacts have been considered in the context of clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), fulfilling the requirements of Section 5.5 of the EP&A Act.

This assessment finds that the proposal would not result in significant impacts upon the environment and as such may be approved with relevant mitigations applied. Detail of the environmental assessment is provided in the following sections of this REF.

1.1 Overview of the proposal

1.1.1 Background

Cycling and walking are integral to Sydney's transport future because they are the most accessible, equitable, sustainable and reliable forms of transport. Since 2007, the City of Sydney has invested an average of $11 million per annum to build a safe and connected bike network. This has resulted in the doubling of average cycling trips across Sydney.

The *Cycling Strategy and Action Plan – For a more sustainable Sydney 2018 – 2030* was prepared by the City of Sydney to guide planning and development decisions to make bicycle transport easier, safer, attractive, and a more feasible option for a greater number of people. This strategic planning document is discussed in greater detail in **Section 2.1.2**.

As part of the Bike Network, the City of Sydney proposes to provide a two-way cycleway in addition to a shared path, and cyclist priority shared road areas along Gadigal Avenue, Potter Street and Crystal Street in Waterloo. The proposal seeks to minimise additional infrastructure requirements whilst contributing positively to the safety, functionality and amenity of the streets for people on bikes, without compromising essential motorised vehicle operations, pedestrian space and the legibility of the street as an urban place. This proposal is the subject of this REF.

1.1.2 Key features of the proposal

The core deliverable of the proposal would comprise the construction of a new two-way cycleway. The new path would commence at the northern part of Gadigal Avenue in Waterloo. It would travel up the eastern side of Gadigal Avenue, continuing along the northern side of Potter Street in a westerly direction. It would then turn to continue up the eastern side of Crystal Street to its intersection with Dank Street. For the purpose of this REF, the linear extent of the new two-way cycleway is referred to as the alignment.

Other key features of the proposal that would facilitate or support the construction of the new two-way cycleway would include:

- Road and pavement adjustments, including modifications to existing kerb-lines and gutters, footpaths and ramps, a pedestrian crossing and speed bumps
- Adjustment of some drainage pits and stormwater pipelines in association with kerb and gutter realignments. All new drainage pits and grating would be 'bike-safe'

- Removal and relocation of parking spaces
- Installation of new or replacement roadside furniture and signage
- Landscaping & Street Trees
- Relocation or adjustment of utilities and street lighting to suit approved design alignment of the cycleway
- Provision of surface finish to the new cycleway in accordance with City of Sydney specifications
- New line marking on adjacent roads and on the cycleway
- New pedestrian crossing on Potter Street east of Crystal Street.

1.2 Site analysis

1.2.1 Proposal location and context

The proposal is located within the Sydney Local Government Area (LGA), in the suburb of Waterloo. The proposal is located about two kilometres south of the Sydney CBD, about 200 metres west of Moore Park parklands and entertainment quarter, and about one kilometre west of Centennial Park. The Eastern Distributor motorway is located about 150 metres east of the proposal. The location of the proposal in a regional context is shown on **Figure 1-1**.

The proposal would be located on Gadigal Avenue, Potter Street, and Crystal Street, as shown on

Figure 1-2. The area surrounding the proposal can be generally described as a highly developed modern urban environment, characterised by a large volume of new multi-story apartment buildings, with commercial premises at street level. A number of older industrial premises and remnant industrial infrastructure can also be found along the alignment. Some of these older built features have local

heritage significance (refer to **Section 6.4**). Street trees as well as landscaped / planted medians, verges and gardens can also be found along the extent of the alignment.

For the purpose of this assessment, the extent of the works as shown on

Figure 1-2 (defined by a red dashed line) is referred to as the proposal footprint. The proposal footprint includes all areas where works would be undertaken and the locations of all ancillary facilities, including temporary construction material laydown areas.

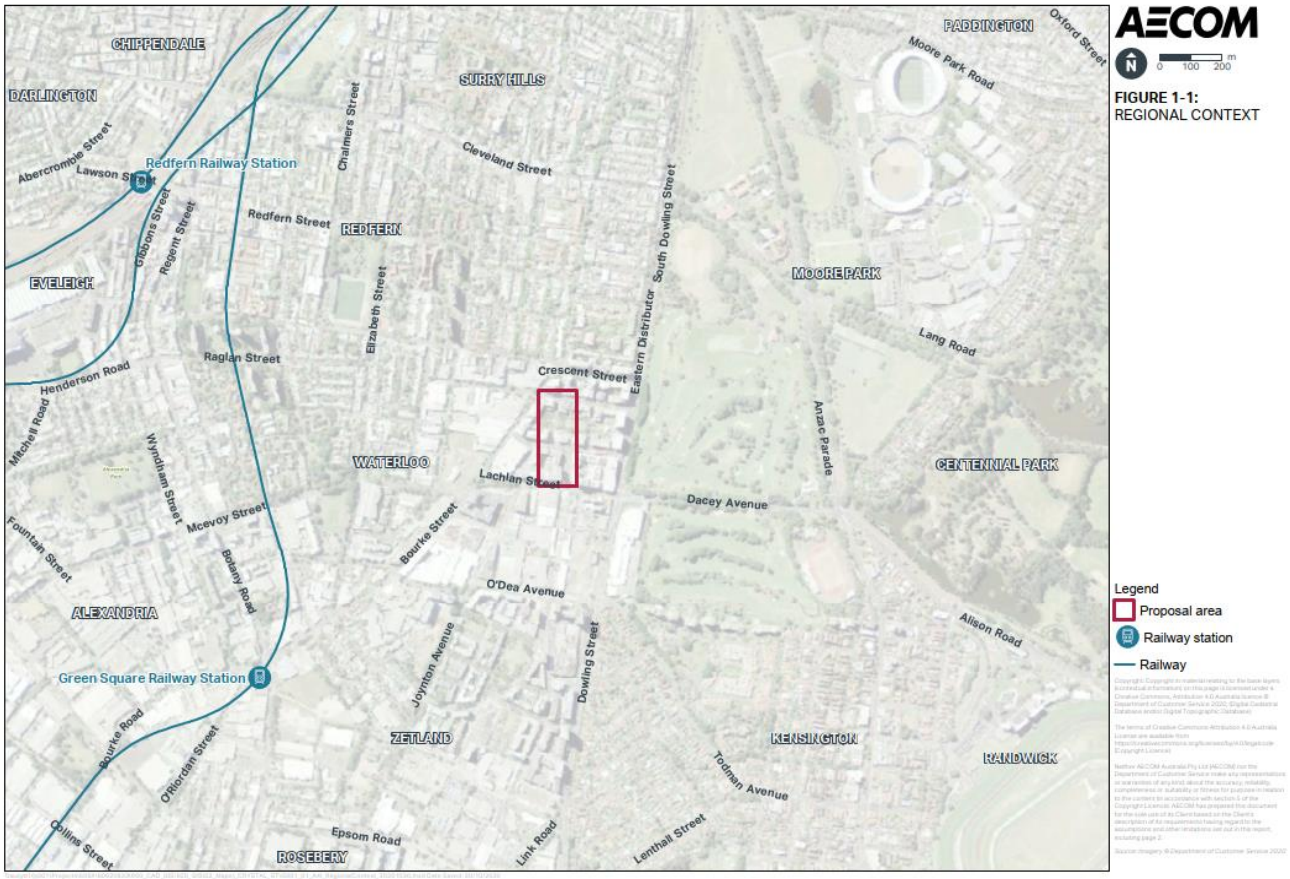

Figure 1-1 Regional context of the proposal

Figure 1-2 Local context

1.2.2 Existing environment and surrounding land uses

Land uses surrounding the proposal footprint include office premises, high-density residential premises, food and drink premises, commercial and retail premises, health services, and hotel/motel accommodation.

Key sensitive receivers (land uses which are sensitive to potential noise, air and visual impacts) along the alignment primarily consist of the numerous apartment complexes located at Lachlan Street Gadigal Avenue, Potter Avenue, Crystal Street and Danks Street. Other key sensitive receivers that have been identified along the alignment include:

- Lachlan Street – A massage clinic and chiropractors office
- Gadigal Avenue – about five restaurants
- Potter Street – Moore Park Children's early Learning Centre (7 Potter Street), and a gym
- Crystal Street – A small local supermarket, public open space (unnamed reserve), about two restaurants and three to four small businesses / commercial premises
- Danks Street – Meriton retail precinct which includes about three cafes / restaurants, and a pharmacy.

Key existing infrastructure within the proposal footprint includes:

- Underground electricity, stormwater, sewerage and telecommunications infrastructure
- Street lighting.

1.2.3 Existing zoning

The applicable land zoning for the proposal is specified by the *Sydney Local Environmental Plan 2012* (Sydney LEP). The proposal footprint is located within an area zoned as B4 – Mixed Use.

Adjacent land zones to the proposal footprint comprise the following:

- R1 – General Residential
- RE1 – Public Recreation
- B2 – Local Centre
- B4 – Mixed Use
- SP2 – Infrastructure (classified road).

1.2.4 Land ownership

The land on which work would be carried out is owned by the City of Sydney. The proposal would not require the acquisition of any property.

2.0 Need and options considered

This chapter discusses the need and objectives of the proposal within the context of the broader objectives of the Accelerated Bike Network program. This chapter also provides a summary of the options that have been considered during development of the proposal and justification as to why the preferred option has been chosen.

2.1 Strategic justification

2.1.1 Overview

The provision of separated cycleways can have immediate and long-term impacts on usage, according to the *Inner Sydney Regional Bicycle Network Demand Assessment and Economic Appraisal* (AECOM 2010). Strong shifts in cycling demand have been observed where separated cycleway infrastructure has been constructed, for example, the development of two cycleways by the City on King Street and Bourke Road saw cycling levels increase by up to 30% immediately after opening.

The *Inner Sydney Regional Bicycle Network Demand Assessment and Economic Appraisal* discusses the fragmented and disjointed nature of Sydney's bicycle network. The lack of safe and available cycling connections forces people on bikes to mix with general traffic, which can lead to conflicts with large vehicles. Safety concerns arising from this risk may discourage cycling as an option. However, the report found that up to 84% of non-regular people on bikes would be willing to consider cycling or cycling more often if dedicated cycleways and off-road routes were available. The report also included community feedback showing that there is a strong public desire for greater levels of dedicated cycling infrastructure.

The proposal provides a key connection between Bourke Street Cycleway and Gadigal Avenue South Cycleway.

2.1.2 Relevant policies and strategies

The proposal would be consistent with the policies and strategies described below.

Sydney City Centre Access Strategy

The NSW Government's *Sydney City Centre Access Strategy* was NSW's first detailed plan of how people will enter, exit and move in and around Sydney's city centre over the next 20 years (TfNSW, 2013). One of the key features of the strategy was to deliver an integrated cycleway network. The proposal would align with the strategy as it would "meet the increased demands within the city centre and make better use of the available street space" and "support the continued growth in cycling within the city centre" (TfNSW, 2013).

Environmental Action 2016 – 2021: Strategy and Action Plan

Sustainable Sydney 2030 outlines the community expectation that Sydney LGA should be an environmental leader on a global scale. To guide the implementation of *Sustainable Sydney 2030*, City of Sydney developed a series of environmental master plans and strategies between 2008 and 2015. The *Environmental Action 2016 – 2021: Strategy and Action Plan* combines the insights and data from those documents.

Sustainable Sydney 2030 Vision

The Sustainable Sydney 2030 Vision proposes a Liveable Green Network to provide safe, quality, continuous routes for pedestrians and people on bikes. It proposes a cycling network that is safe enough for children to use, giving priority to a separated, dedicated cycleway. The proposal would be consistent with this objective.

Cycling Strategy and Action Plan 2018-2030

The City of Sydney's *Cycle Strategy* supports the Sustainable Sydney 2030 vision. The City of Sydney's *Cycling Strategy and Action Plan 2018-2030* outlines the vision for cycling in Sydney. This includes an objective to connect the existing cycleway network and make it safer for people to use. Actions to achieve this that are relevant to the proposal include:

- Completing the 11 regional bike routes, and substantially complete the local bike network
- Build the regional routes as separated cycleways where feasible and necessary
- Add local wayfinding signs
- Improve safety and access by including measures such as:
    - replacing bicycle shoulder lanes
    - adding new contra-flow provisions
    - lowering speeds and reducing traffic on local streets
    - installing kerb ramps at road closures
    - upgrading stormwater grates to be bike-safe
    - maintaining road surfaces and coordinating with utility authorities where required
    - ensuring regular asset inspections, street cleaning and maintenance of the bike network and associated signage.
- Continue to provide bike parking in the public domain where needed and on request, including on-street bike parking corrals in suitable high demand locations, and continue to provide bike racks for public schools in our area
- Provide cyclewears on, and alternative routes for, state roads where the City is not currently permitted to reallocate road space
- Investigate and respond to suggestions and comments from the community about the bike network to improve safety, access and comfort
- Advocate to the NSW Government to complete the Sydney City Centre Access Strategy bike network
- Advocate for TfNSW to fully fund its portion of the network and pursue multi-year funding agreements with TfNSW
- Consider all bike network users, including those on cargo bikes, e-bikes, trishaws and mobility scooters, in the design of infrastructure.

Sydney Metropolitan Strategy

A Plan for Growing Sydney (The Sydney Metropolitan Strategy) was released in 2015 as the NSW Government's 20-year plan for the Sydney Metropolitan Area. It provides direction for Sydney's productivity, environmental management and liveability; and for the location of housing, employment, infrastructure and open space. The Plan establishes a vision for Sydney as a strong global city, and great place to live. The vision is supported by key goals and principles aimed at encouraging

improvements in transport infrastructure, housing, resilience and sustainability while maintaining a strong and competitive economy. The proposal would be consistent with the Plan, as it would enhance transport infrastructure, improve connectivity, and provide increased amenity for residents, workers and visitors.

Our Greater Sydney 2056, A metropolis of three cities

In October 2017, the Greater Sydney Commission published *Our Greater Sydney 2056*, which supports the vision for a metropolis of three cities to balance growth and deliver its benefits more equally and equitably to residents across Greater Sydney.

The proposal is consistent with the broader metropolitan vision for Greater Sydney by ensuring that it would support local access for an increasing number of residents moving within the area.

2.2 Proposal objectives

The objectives of the proposal are consistent with those that are described for the delivery of the overall Accelerated Bike Network Program and aim to provide active transport infrastructure that supports the movement of people on bikes along Gadigal Avenue, Potter Street and Crystal Street that is:

- Safe and functional
- Separated from general traffic and pedestrians
- Meets current and future community needs
- Prioritises people on bikes.

The proposed new cycleway that would be delivered as part of the proposal would be constructed within the existing road corridor between the existing kerbs. The proposal would require minimal additional infrastructure and would result in a series of measures that enhance the safety, functionality and amenity of the street for people on bikes, whilst maintaining essential traffic operations, pedestrian space and the legibility of the street as an urban place.

2.3 Alternatives considered

Option 1 – 'Do Nothing'

Option 1 would involve no cycleway being constructed at Gadigal Avenue, Potter Street and Crystal Street. This option would not achieve the proposal objectives, nor would it achieve the City of Sydney's strategic objectives. Therefore the 'Do Nothing' option is not the preferred option.

Option 2 – Gadigal Avenue, Potter Street and Crystal Street cycleway - Preferred Option

This option meets the objectives of the proposal as well as the relevant strategy documents by increasing access and safety for people on bikes along Gadigal Avenue, Potter Street and Crystal Street. It would also improve modal integration by developing infrastructure that ties in with and complements the wider transport network, inclusive of existing cycleway networks in the area.

Option 3 – Western side of Crystal Street

Considered Cycleway on western side of Crystral Street. Not preferred. This option created additional crossing points for bikes creating unnecessary possible conflict points between cars pedestrians and bikes.

Option 4 – Conventional Running on Crystal Street

Considered conventional running cycleway on Crystal Street – Not preferred. Not enough space for parking. Additional conflicts between bikes and cars.

2.4 Proposal benefits

The *Inner Sydney Regional Bicycle Network Demand Assessment and Economic Appraisal* (AECOM, 2010), found that the key benefit of separated cycleways is the perceived and actual safety they offer

to people on bikes. The level of separation between people on bikes and motorists is a key driver in both actual and perceived safety, which in turn is a key driver of demand for cycling.

Benefits arising from increased uptake of cycling as a mode of transport may include:

- Time travel savings
- Environmental savings including reduced greenhouse gas emissions, air pollution and noise
- Savings on public transport vehicle procurement, operation and maintenance as well as reduced road infrastructure investment
- Cycling-specific benefits including improved public health and journey ambience.

The proposal would also result in the following specific benefits:

- Improved access and journey time reliability for people on bikes
- Improved integration with public transport through reduced vehicle traffic congestion
- Public transport de-crowding
- Improved equity and accessibility outcomes
- Improved localised economic activity and potential for wider economic benefits beyond the transport sector
- Reduced energy dependence and transport emissions
- Improved local pedestrian connectivity.

3.0 Proposal description

This chapter describes the proposal in detail and summarises key design features and construction methodology, timing and duration, as well as site access, ancillary facilities and utility adjustments. The description of the proposal is based on the concept design and is subject to detailed design.

3.1 The proposal

As described in **Section 1.1.2**, the primary feature of the proposal involves the construction and operation of a two-way cycleway along Gadigal Avenue, Potter Street and Crystal Street at Waterloo. To deliver the new cycleway, the following works would be required:

- Road and pavement adjustments
- Adjustment of some drainage pits and stormwater pipes
- Removal and relocation of parking spaces
- Installation of new or replacement roadside furniture and signage
- Landscaping and street trees
- Relocation or adjustment of utilities and street lighting
- Surface finishes and line marking
- New raised pedestrian crossing on Potter Street.

The general layout of these work elements are shown on Figure 3-1 and the design drawings are located in Appendix C. Details of these proposed works are outlined in the following sections.

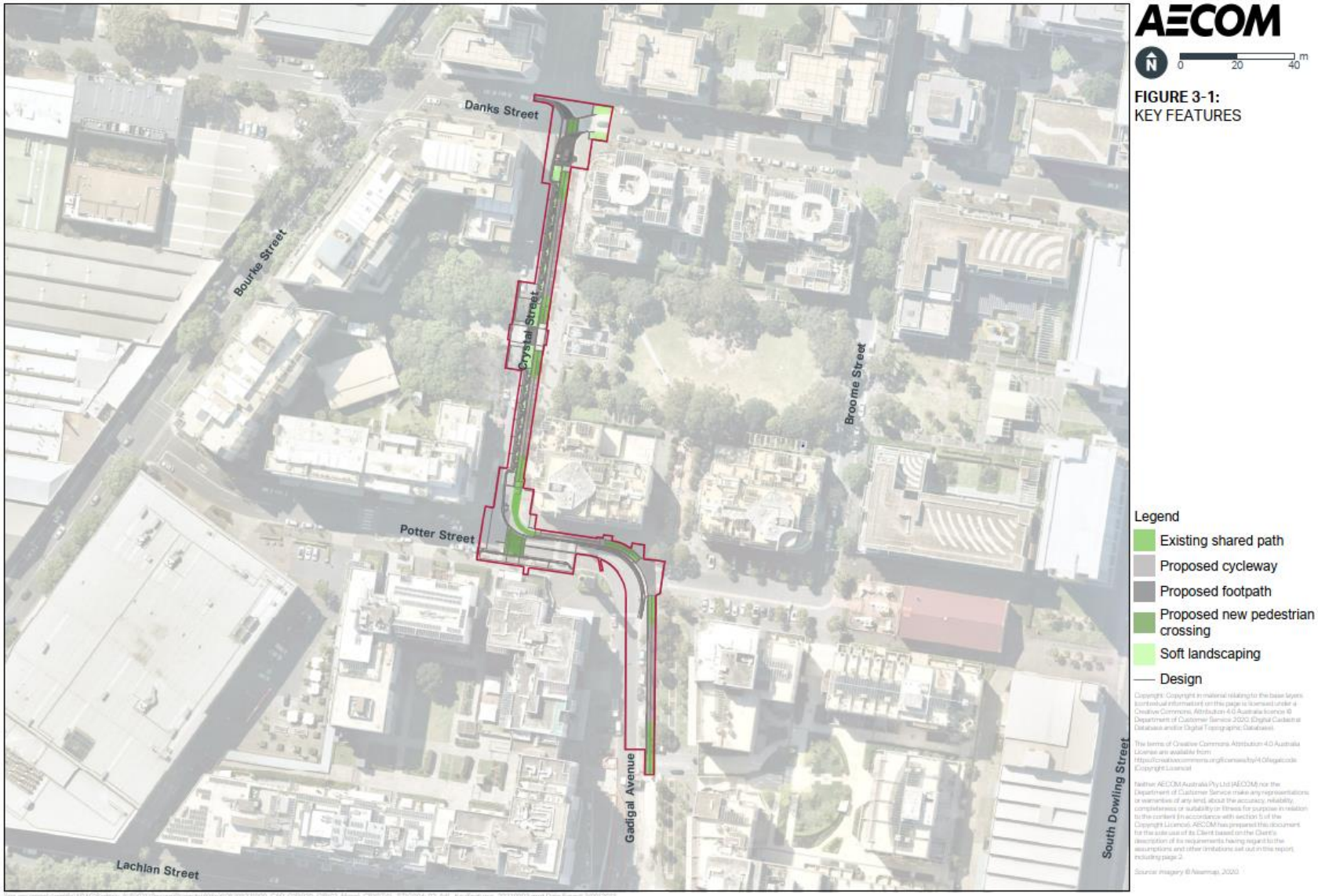

Figure 3-1 Proposed works over the proposal area

3.1.1 Scope of works

Gadigal Avenue Works

- Construction of new cycleway would begin at Gadigal Avenue (see Figure 3-1**)**
- The new lane separated cycleway would comprise a dual lane path (north bound and south bound bicycle lanes) and would travel along the eastern path of the northern end of Gadigal Avenue. After about 80 metres, it would cross the intersection of Gadigal Avenue and Potter Street. The cycleway would be 2.9 metres wide
- Existing centreline markings and reflectors at the Gadigal Avenue and Potter Street intersection would be shifted across as required to accommodate traffic adjacent to the new cycleway
- Soft landscaping and two street trees would be re-established at the intersection of Gadigal Avenue and Potter Street
- Removal of six bollards on Gadigal Avenue footpath to allow for the construction of the new cycleway, and to restrict vehicular intrusion during operation
- Installation of a new drainage pit at the north side of the road at the corner of Potter Street and Gadigal Avenue
- Paint markings would be provided on the new cycleway to designate it as a cycleway, to provide directional arrows, and to delineate shared path areas (areas for both pedestrian and cyclist use)
- New signage would be established to designate the cycleways, shared path areas, relocated crossings, parking zones etc.

Potter Street Works

- After crossing the intersection of Gadigal Avenue and Potter Street the cycleway would continue in a westerly direction on the northern side of Potter Street for about 55 metres until the intersection of Crystal Street. The cycleway would be 2.4 metres wide
- A broken median kerb (small raised concrete blocks placed at regular intervals) would be provided on Potter Street to separate the cycleway from the road
- A new drainage pipe would be installed across Potter Street to connect to the new drainage pit
- Installation of two new drainage pits at the intersection of Potter Street and Crystal Street, one on the eastern side of road in the proposed cycleway, and one at the proposed kerb build out on the eastern side of the road
- New raised pedestrian crossing east of Crystal Street intersection
- Existing centre line markings and reflectors on Potter Street to be shifted across as required to accommodate two lanes of traffic adjacent to the new cycleway
- Paint markings would be provided on the new cycleway to designate it as a cycleway, to provide directional arrows, and to delineate shared path areas (areas for both pedestrian and cyclist use)
- New signage would be established to designate the cycleways, shared path areas, relocated crossings, parking zones etc.

Crystal Street / Danks Street Works

- At the Potter Street and Crystal Street intersection, the cycleway would continue along the eastern side of Crystal Street to its intersection with Danks Street for a distance of about 145 metres. The cycleway would be 3 metres wide
- Existing median islands at the intersection of Crystal Street/Danks Street, and Crystal Street/Potter Street would be removed
- The built-out kerb line adjacent to the existing raised pedestrian crossing on the western side of Crystal Street would be removed. The revised kerb line would be flush with, and tie into the existing kerb line

- The kerb line on the eastern side of Crystal Street would be extended out into the roadway on either side of the raised pedestrian crossing to prevent parking up to 5 metres from the pedestrian crossing, in compliance with relevant road safety standards
- The raised pedestrian crossing would be rebuilt to extend from the new cycleway on the eastern side of Crystal Avenue to the reconfigured kerb line on the western and eastern sides of the street
- Soft landscaping would be provided at the pedestrian crossing on Crystal Street, and intermittently along the separator island along the length of Crystal Street
- The existing pram ramp and drop kerb at the intersection of Crystal Street/Danks Street and Crystal Street/otter Street would be removed
- The existing shared pedestrian and cyclist crossing on Danks Street, to the west of its intersection with Crystal Street, would be relocated to align with the new cycle crossing that would be provided in this location
- Relocation of seven existing bollards on Danks Street, at the northern side of its intersection with Crystal Street
- A separator island (elevated median and garden bed between the road and cycleway) would be constructed to provide a barrier between the new cycleway and the road along the length of Crystal Street
- Paint markings would be provided on the new cycleway to designate it as a cycleway, to provide directional arrows, and to delineate shared path areas (areas for both pedestrian and cyclist use).

Landscaping and other works

- Two trees are proposed to be removed as part of the works near the intersection or Potter Street and Crystal Street, to the south of the crossing on Potter Street. These trees would be relocated or replaced within the precinct, at a location to be confirmed
- During construction, tree protection devices including fencing and trunk protection in the form of a hessian wrap and timber batters would be installed on a total of 25 trees that have been identified being close to the proposed works and at potential risk of damage
- Existing sections of kerbs adjacent to tree roots would not be removed without approval from the City's Street Tree Coordinators, as removal of kerbs adjacent of mature street trees can cause trees to become unstable
- Soft landscaping and two new street trees would be established at the intersection of Gadigal Avenue and Potter Street
- Soft landscaping would be provided at the pedestrian crossing on Crystal Street, and intermittently along the separator island along the length of Crystal Street
- Eight new street trees are proposed within the Crystal Street median separator garden bed
- New signage would be established to designate the cycleways, shared path areas, relocated crossings, parking zones etc
- Eight P2/P4 parking spaces and two car share spaces would be removed on the western side of Crystal Street to provide the space required to construct the cycleway while maintaining two lanes of traffic
- South of the pedestrian crossing on Crystal Street, on the eastern side, there are currently 6 P2/P4 parking spaces. This parking area would be reconfigured, with the final arrangement providing five P2/P4 spaces and one car share space
- North of the pedestrian crossing on Crystal Street there are currently 6 P2/P4 parking spaces and 1 car share space. This parking area would be reconfigured, with the final arrangement providing five P2/P4 spaces and two car share spaces.

3.1.2 Construction timing and duration

Subject to approval, construction is anticipated to commence in the fourth quarter of 2021 and take approximately 6 months to complete. This REF is based on the concept design for the proposal, and refinement of the proposed construction methodology is anticipated to take place following the appointment of the construction contractor. Future refinements would take place in consultation with the City of Sydney.

Construction staging would be dependent on the construction contractor's preferred methodology, program and sequencing of work. Should the construction contractor's methodology contain substantive departures from that outlined within this REF, further assessment would be undertaken to consider new or altered environmental or amenity impacts.

Most works required for the proposal would be undertaken during standard construction hours as follows:

- Monday to Friday, 7 am to 6 pm
- Saturday, 8 am to 1 pm
- Sunday and Public Holidays, no work.

Where OOHW works would be required, they would be carried out Sunday to Thursday from 9:00 pm until 5:00 am.

Generally, the scheduling of noisier activities (such as concrete cutting) would take place around times of higher background noise, prior to 11pm. Additionally, works would be short term and temporary and would take place progressively along the alignment, limiting the duration that any one sensitive receiver may be exposed to any construction noise. A plan would be developed for night work to determine the number of nights that work could occur and the type of works to minimise the potential noise impacts to nearby sensitive receivers

Work would be carried out taking into consideration Section 6 - Work practices of the NSW DECC Interim Construction Noise Guideline, and work outside normal working hours would be considered in consultation with relevant stakeholders. Procedures would include notifying sensitive receivers prior to works commencing.

3.1.3 Plant and equipment

An indicative list of plant and equipment likely to be used during construction of the proposal includes:

- Air compressor
- Backhoe
- Bobcat
- Concrete agitator
- Concrete saw
- Concrete truck
- Concrete vibrator
- Hand tools
- Hiab
- Jackhammer
- Line marking equipment
- Mini excavator
- Road planner
- Small tip truck
- Vacuum truck
- Vibratory roller
- Wacker packer
- Water cart.

3.1.4 Earthworks

Earthworks would be minor, resulting from removal of the surface layer of the pavement overlaying the proposed cycleway, widening and realignment of pavement, installation of garden beds and tree pits, services installation, as well as kerb reconstruction and realignment.

The level of excavation is likely to be limited to less than a metre in most locations and would be associated with the installation of garden beds, footings and signage. Trench excavations for stormwater drainage and tree pits would be up to 1.5 metres deep.

Small amounts of waste material would be generated from construction activities such as excavation for stormwater infrastructure, replacement of the existing road pavement and kerb and gutter adjustments.

Waste would be generated in the form of concrete, asphalt and general solid waste. All waste generated from excavation work would be taken to and disposed of at a licensed off-site disposal facility.

3.1.5 Source and quantity of materials

The source and quantity of materials would be determined during the detailed design phase of the proposal and would consider the requirements of the ISCA IS Rating Scheme version 1.2. Materials would be sourced from local suppliers where practicable and reuse of existing and recycled materials would be undertaken where practicable.

3.1.6 Construction traffic and access

Access to the proposal would occur via the Eastern Distributor and the existing local road network. Construction works would require the removal of kerbs, kerbside parking and garden beds on Crystal Street however it is considered that the street can operate under traffic controlled contra-flow during this time. Temporary closure of Crystal Street for re-construction of the pedestrian crossing (potential to be nightworks over 1-2 nights) may be required. In addition, works may also require the closure of Gadigal Avenue/Potter Street and Crystal Street/Danks Street near intersections during construction in these areas. Suitable traffic and access control measures would be identified in a traffic management plan (TMP) for the Proposal and would be developed in accordance with the relevant City of Sydney policy for the preparation of TMPs.

Traffic generated by construction activities would include construction worker light vehicles (including utility vans), as well as heavy vehicles for periodic delivery and removal of materials, and construction plant and equipment.

The traffic generated from the construction phase of the proposal is not anticipated to exceed 30 light vehicles and 5 heavy vehicles per day during peak construction periods. In addition to the generation of vehicles the proposal would also involve the operation of mobile plant and equipment.

Emergency vehicle access would be maintained at all times during construction, as would rubbish truck access (as necessary).

3.1.7 Ancillary facilities

A construction ancillary facility will be required for the proposal. This is proposed to be located within the northern verge of Potter Street, between Gadigal Avenue and Broome Street. This facility will occupy two existing car parking spaces for the duration of the works.

As an alternative, it is anticipated that sections of the proposal footprint would be progressively fenced off as works would take place along the alignment, and that the majority of works would take place behind the fence. An area of about 2 metres by 5 metres on the side of the road may also be fenced off to accommodate storage of materials, plant and equipment, if required.

Detailed construction planning would be undertaken so that the vehicles, plant and equipment on site are those specifically required for the work that would be taking place on any given day. Where practicable to do so, materials, plant and equipment would be removed from the site following the completion of the workday.

3.1.8 Public utility adjustment

The proposal footprint would be anticipated to include electrical transmission lines, telephone lines, water mains and other utility infrastructure. Some public utilities may need to be relocated during construction.

Consultation with Sydney Water will be carried out as part of the development of the detailed design to identify and locate existing utilities and incorporate utility authority requirements for relocations and/or adjustments.

It is not anticipated the design would affect other utility providers. Should this change, the appropriate with public utility authority and/or service provider would be consulted.

3.1.9 Property acquisition

The proposal would not require the acquisition of any property.

4.0 Statutory and planning framework

This chapter provides a summary of the statutory considerations relevant to the proposal, including a consideration of Commonwealth legislation, NSW legislation and policies, and local environmental planning instruments.

4.1 Commonwealth

Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places – identified in the EPBC Act as matters of national environmental significance (MNES). The EPBC Act requires the assessment of whether the proposal is likely to significantly impact MNES or Commonwealth land. These matters are considered in further detail in **Appendix A**.

The proposal would not significantly affect a MNES or Commonwealth land. Therefore, a referral to the Commonwealth Minister for the Environment is not required.

4.2 State

4.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act* (EP&A Act) establishes the system of environmental planning and assessment in NSW. This proposal is subject to the environmental impact assessment and planning approval requirements of Division 5.1 of the EP&A Act. Division 5.1 specifies the environment impact assessment requirements for activities undertaken by public authorities such as City of Sydney, which are permissible without development consent.

In accordance with section 5.5 of the EP&A Act, City of Sydney, as the proponent and determining authority, must examine and consider to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposal. Clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) identifies the factors which must be considered when determining if an activity assessed under Division 5.1 has a significant impact on the environment.

Chapter 6.0 of this REF provides an environmental impact assessment of the proposal in accordance with clause 228, and **Appendix B** specifically responds to the factors for consideration under clause 228.

4.2.2 Other key NSW legislation and regulations

Table 4-1 provides a list of other key relevant legislation applicable to the proposal.

Table 4-1 Other key NSW legislation applicable to the proposal

Applicable legislation	Considerations
Biodiversity Conservation Act 2016 (BC Act)	The BC Act establishes a framework for assessing and protecting environmental and biodiversity interests that seeks to maintain a healthy, productive and resilient environment. **Section 6.9** of this REF shows that potential impacts to biodiversity resulting from the proposal would not be significant.
Contaminated Land Management Act 1997 **(CLM Act)**	Section 60 of the CLM Act imposes a duty on landowners to notify, and potentially investigate and remediate land, if contamination is above EPA guideline levels. Chemical testing and visual characterisation in accordance with the NSW EPA *Waste Classification Guidelines* (EPA, 2014) would be undertaken to confirm the composition and nature of excavated material that is

Applicable legislation	Considerations
	suspected of being contaminated. Where spoil is classified as unsuitable for reuse, it would be transported to an appropriately licensed off-site facility.
Heritage Act 1977 **(Heritage Act)**	The following sections of the Heritage Act are relevant to the proposal. Sections 57 and 60 (approval) - where items listed on the State Heritage Register (SHR) are to be affected. Sections 139 and 140 (permit) - where relics are likely to be exposed. Section 170 - where items listed on a government agency Heritage and Conservation Register are to be affected.
National Parks and Wildlife Act 1974 **(NPW Act)**	Sections 86, 87 and 90 of the NPW Act require consent from the Department of Planning, Industry and Environment for the destruction or damage of Aboriginal objects. The proposal would not result in the destruction or damage of known Aboriginal objects. There are no recorded Aboriginal objects at or near the proposal Area. The mitigation measures proposed in **Section 6.5** would mitigate potential effects on identified Aboriginal heritage item.
Protection of the Environment Operations Act 1997 **(POEO Act)**	The proposal does not involve a 'scheduled' activity under Schedule 1 of the POEO Act. However, in accordance with Part 5.7 of the POEO Act, City of Sydney would notify the EPA of pollution incidents that occur onsite. This would be managed in the Construction Environmental Management Plan (CEMP) to be prepared and implemented by the construction contractor.
Roads Act 1993 **(Roads Act)**	The proposal would require works on Crystal Street, Potter Street and Gadigal Avenue (local roads). Section 138 of the Roads Act requires consent from the relevant road authority for the carrying out of works in, on or over a public road. However, Clause 5(1) in Schedule 2 of the Roads Act states that public authorities do not require consent for works on unclassified roads other than a Crown road to exercise the public authority's functions over that road. On this basis, consent from the City of Sydney by way of a Road Occupancy Licence or other form of licence is not required. Notwithstanding, consultation would be carried out with the NSW Transport Management Centre to mitigate impacts to traffic flow as far as reasonably practicable.
Waste Avoidance and Resource Recovery Act 2001 **(WARR Act)**	City of Sydney would carry out the proposal having regard to the requirements of the WARR Act. A site-specific Waste Management Plan would be prepared.

4.2.3 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) is the key environmental planning instrument (EPI) which determines the permissibility of a proposal of this nature and how it is assessed under the EP&A Act. Clause 94 of the ISEPP allows for the development of 'roads and road infrastructure facilities' by or on behalf of a public authority without consent on any land and Clause 94(2)(c) specifically notes "*alterations or additions to an existing road (such as widening, narrowing, duplication or reconstruction of lanes…"* as development permitted without consent.

Clause 93 of the ISEPP defines 'road infrastructure facilities' as those relevant to 'road related areas', as determined by the *Road Transport Act 2013* (RT Act). The RT Act identifies 'road related areas' to include areas open to the public and designated for use by people on bikes. As such, the proposal meets the definition of 'road infrastructure facilities' under Clause 93 of the ISEPP.

Therefore, in accordance the abovementioned Clauses of the Infrastructure SEPP, development consent is not required, and the proposal is defined as 'development without consent' under Division 5.1 of the EP&A Act. However, it is still necessary and required to consider environmental impacts of the proposal under Part 5 of the EP&A Act.

Part 2 of the ISEPP contains provisions for public authorities to consult with State Emergency Services and other public authorities prior to the commencement of certain types of development. **Section 5.0** of this REF discusses the consultation undertaken under the requirements of the ISEPP.

It is noted that the ISEPP prevails over all other EPIs except where *State Environmental Planning Policy (State Significant Precincts) 2005* or *State Environmental Planning Policy (Coastal Management) 2018* applies. These SEPPs do not apply to the proposal area or proposed activity and therefore do not require further consideration as part of this REF.

4.2.4 State Environmental Planning Policy 55 – Remediation of Land

State Environmental Planning Policy 55 – Remediation of Land (SEPP 55) provides a State-wide approach to the remediation of contaminated land for the purpose of minimising the risk of harm to the health of humans and the environment. The provisions of SEPP 55 have been considered in the preparation of this REF.

Section 6.7 of this REF contains an assessment of the potential contamination impacts of the proposal. It is unlikely that large-scale remediation (Category 1) work would be required as part of the proposal. The proposal does not require a change in land use and is unlikely to be affected by potential contaminants that occur beneath the road surface.

4.2.5 State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Vegetation in Non-Rural Areas) *2017* (Vegetation SEPP) provides a mechanism for the protection of vegetation in non-rural areas of the State of NSW including the City of Sydney LGA. The policy aims to protect the biodiversity values of trees and other vegetation and preserve the amenity of non-rural areas of the State.

The proposal would involve the removal of two trees. This is further discussed in **Section 6.9**.

4.2.6 Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005)

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (Sydney Harbour Catchment REP) provides a mechanism for protecting the catchment, foreshores, waterways and islands of Sydney Harbour. The Sydney Harbour Catchment REP intends to ensure that Sydney Harbour is a place that can achieve high quality ecological values and be a culturally rich and vibrant place for people. It seeks to balance natural environmental outcomes, with socio-economic objectives.

The key matters for consideration under the Sydney Harbour Catchment REP are:

- Biodiversity, ecology and environment protection
- Public access to, and use of, foreshores and waterways
- Interrelationship of waterway and foreshore uses
- Foreshore and waterways scenic quality
- Maintenance, protection and enhancement of views
- Boat storage facilities
- Floating boat platforms
- Mooring pens.

With the exception of the potential for off-site runoff during the construction phase (refer **Section 6.10**), the proposal is unlikely to directly affect the above key matters for consideration. The proposal may have positive indirect effects including increasing the provision of access for active transport around the City to access foreshores and waterways.

4.3 Local

4.3.1 Sydney Local Environmental Plan 2012

The proposal is located in the Sydney LGA and is subject to *Sydney Local Environmental Plan 2012* (Sydney LEP).

Table 4-2 summarises the relevant aspects of the Sydney LEP applicable to the proposal.

Table 4-2 Relevant provisions of Sydney LEP

Provision description	Relevance to the proposal
Clause 2.3 – Zone objectives and Land Use Tables	The majority of works to be undertaken for the proposal would be carried out on land zoned as B4 – Mixed Use. The proposal is consistent with the objectives of the B4 zoned land on which it is located. The proposal would not affect surrounding land use zones.
Clause 5.10 – Heritage conservation	Clause 5.10 of Sydney LEP 2012 aims to: • conserve the environmental heritage of Sydney • conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, setting and views. • conserve archaeological sites. • conserve Aboriginal objects and Aboriginal places of heritage significance. The proposal does not contain heritage items but is located near several locally listed heritage items and one state-listed heritage item. A discussion of impacts to heritage is included in **Section 6.4**.
Clause 5.12 – Infrastructure development and use of existing buildings of the Crown	Clause 5.12 of Sydney LEP 2012 does not restrict or prohibit the carrying out of development, by or on behalf of a public authority, which is permitted to be carried out with or without development consent. The proposal would be undertaken by a public authority (City of Sydney) and is permitted without development consent.

4.3.2 Ecologically sustainable development

The City of Sydney is committed to ensuring that its projects are implemented in a manner that is consistent with the principles of ecologically sustainable development (ESD). The principles of ESD are generally defined under the provisions of clause 7(4) of Schedule 2 to the EP&A Regulation as:

- The precautionary principle – if there are threats of serious or irreversible damage, a lack of full scientific uncertainty should not be used as a reason for postponing measures to prevent environmental degradation
- Intergenerational equity – the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations
- Conservation of biological diversity and ecological integrity – the diversity of genes, species, populations and their communities, as well as the ecosystems and habitats they belong to, should be maintained or improved to ensure their survival
- Improved valuation, pricing and incentive mechanisms – environmental factors should be included in the valuation of assets and services.

The principles of ESD have been adopted by City of Sydney throughout the development and assessment of the proposal. **Chapter 6.0** includes an assessment of the impact of the proposal on a range of environmental factors, including greenhouse gas emissions and climate change. **Chapter 7.0** lists mitigation measures that incorporate ESD principles during the construction phase of the proposal.

5.0 Consultation

Chapter 5.0 discusses the consultation undertaken to date for the proposal and the consultation proposed for the future. This chapter discusses the consultation strategy adopted for the proposal and the results of consultation with the community, relevant government agencies and stakeholders.

Engagement was undertaken for cycling connections in Alexandria, Erskineville and Waterloo as part of the overall Cycling Strategy and Action Plan by the City of Sydney and summarised and reported for the City by Global Research Ltd. The objective of this engagement was to provide information including concept design to the community and allow them to have their say. The feedback informs the next steps of the project and suggestions will be incorporated into the detailed wherever practical.

The City of Sydney sought community feedback on the proposal that was made available on the Sydney Your Say webpage, all of which included consultation drawings. The objective of this engagement was to provide information including concept design to the community and allow them to have their say. The feedback informs the next steps of the project and suggestions will be incorporated into the detailed design wherever practical. The consultation period ran from 12 November − 10 December 2020.

The Sydney Your Say web page received 396 page views. The plan was downloaded 181 times. Overall, 55 submissions were provided feedback to the City of Sydney on the proposal. A notification letter was sent to 2435 properties and the project featured in the Sydney Your Say and Sydney Cycleways e-newsletter.

Of submissions received 94% were in support of the proposal, 3% were neutral and 3% did not support. Table 5-1 provides a summary of ideas or issued raised.

Table 5-1 Consultation summary

Idea or issue raised	City of Sydney response
Interested in seeing this project connect to the work currently happening at Lachlan Street	*The works are underway to install traffic signals at the intersection of Gadigal Avenue and Lachlan Street this will connect the existing cycleway on Gadigal Avenue to the proposed new cycleway north of Lachlan Street.*
Suggests that the cycleway is at least 3 meters wide.	*On Crystal Street and Gadigal Avenue the cycleway is 3m wide. On Potter Street the cycleway is 2.4m wide to accommodate the turning circle of larger vehicles.*
Make sure that the crossings are safe, accessible and free from debris.	*All crossings are designed to meet relevant standards and technical guidelines. Roads and cycleways are cleaned on a regular basis.*
What information is there that supports the need for more cycleways.	*Cycleways are important to provide a safe transport option for people wanting to ride. Customer research by Transport for NSW found that 70% of Sydneysiders would ride, or ride more often if it were safe and convenient. A survey of over 1,000 people living within 10kms of city centre in June 2018 found:* • *72 percent support separated cycleways* • *62 percent agree bikes help to cut congestion on roads and public transport* • *Most want bike network built faster* • *Two thirds support bike network even if it means longer car journeys*
Where can people riding electric assisted bikes ride?	*Electric assisted bikes are treated the same as bicycles in the road rules. They may ride on roads, cycleways and shared paths. If the rider is under 16, or riding with a child, or is a postal worker, or has a medical certificate, they may ride on the footpath.*
The cycleway doesn't connect anywhere.	*The works are underway to install traffic signals at the intersection of Gadigal Avenue and Lachlan Street this will connect the existing cycleway on Gadigal Avenue to the proposed new cycleway north of Lachlan Street. At the northern end of Crystal*

Idea or issue raised	City of Sydney response
	Street, cyclists can use the through site link to connect to the Bourke Street Cycleway
The separated cycleway should continue all the way to Dyuralya Square instead of pushing people riding on to shared paths.	*The works are underway to install traffic signals at the intersection of Gadigal Avenue and Lachlan Street this will connect the existing cycleway on Gadigal Avenue to the proposed new cycleway north of Lachlan Street without the need for Shared Paths at this intersection*
Provide adequate wayfinding signage to show the connection from Danks Street to East Village.	*This is a good suggestion, thank you. We will do so.*
Experienced riders feel that this isn't needed and existing crossing and speed hump make the space comfortable to ride.	*We build cycleways for the many people (ie 70% of Sydneysiders) who would ride if there was safe infrastructure, separated from traffic.*
Can the speed limit be reduced to 30km/h?	*Speed limits are controlled by NSW State Government and the City of Sydney has no jurisdiction over speed limits.*
The crossing should also include a green cycle strip as well as the existing one in the middle of Crystal Street near the fountain.	*At the mid-block crossing in Crystal Street pedestrians will have right of way over bike riders. Green paint would suggest a bicycle priority.*
The existing crossing should be retained	*The crossing across Potter Street will be relocated to the existing pedestrian desire line near Crystal Street.*
The area is already oversubscribed with on-street parking, so the removal of the spaces is supported.	*Noted*

A copy of the consultation report completed by Green Global Connected is presented in Appendix C.

5.1 Consultation requirements under the ISEPP

Part 2, Division 1 of the Infrastructure SEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Clauses 13-15 and 15A provides details of consultation requirements with councils for development impacts on council-related infrastructure, local heritage, flood liable land and land within the coastal zone. As City of Sydney Council is the proponent, these clauses are regarded as considered. Clauses 15AA and 16 provides details for consultation requirements with State Emergency Services for flood liable land, and for consultation with public authorities other than councils.

Table 5-2 provides information on consultation requirements under the ISEPP for the proposal.

Table 5-2 ISEPP consultation requirements

Clause	Clause particulars	Relevance to the Proposal
Clause 15AA | Consultation with State Emergency Service – development with impacts on flood liable land	Where the proposal: occurs on flood liable land – written notice must be given (together with a scope of works) to the State Emergency Service. A response to the notice received from the State	The proposal is not on flood liable land.

Clause	Clause particulars	Relevance to the Proposal
	Emergency Service within 21 days after the notice is given must be taken into consideration.	
Clause 16 | Consultation with public authorities other than Councils	Where the proposal: is *specified development* as outlined under Clause 16(2), being: • development adjacent to land reserved under the *National Parks and Wildlife Act 1974* • development on land zoned E1 National Parks and Nature Reserves • development adjacent to an aquatic reserve or a marine park • development in the foreshore area • development comprising a fixed or floating structure in or over navigable waters • development for the purposes of a health services facility, correctional centre or group home, or for residential purposes, in an area that is bush fire prone land.	The proposal is not considered to be specified development under Clause 16 of the Infrastructure SEPP. Consultation with specified authorities is not required.

5.2 Consultation strategy

The consultation strategy for the proposal was developed to encourage stakeholder and community involvement and foster interaction between stakeholders, the community and the project team. The consultation strategy that was developed, having regard to the requirements of the planning process ensures that stakeholders, customers and the community are informed of the proposal and have the opportunity to provide input.

The objectives of the consultation strategy are to:

- Provide accurate and timely information about the proposal and REF process to relevant stakeholders
- Raise awareness of the various components of the proposal and the specialist environmental investigations
- Ensure that the directly affected community is aware of the REF and consulted where appropriate
- Provide opportunities for stakeholders and the community to express their view about the proposal
- Understand and access valuable local knowledge from the community and stakeholders
- Record the details and input from community engagement activities
- Build positive relations with identified community stakeholders
- Ensure a comprehensive and transparent approach.

5.3 Public display

The REF display strategy adopts a range of consultation mechanisms, including:

- Public display of the REF at various locations
- Distribution of a project newsletter at the station, and to local community and rail customers, outlining the proposal and inviting feedback on the REF
- Advertisement of the REF public display in local newspapers with a link to the City of Sydney website that includes a summary of the proposal and information on how to provide feedback
- Consultation with TfNSW and other non-community stakeholders
- 'Pop-up' community information sessions.

Community consultation activities for the proposal would be undertaken during the public display of this REF. The display period of the REF would be advertised in the week that the public display commences. The REF would be displayed for a period of three weeks.

Following the consideration of feedback received during the public display period, City of Sydney would determine whether to proceed with the proposal and what conditions would be imposed on the project should it be determined to proceed.

5.4 Ongoing consultation

At the conclusion of the public display period for this REF, City of Sydney would acknowledge receipt of feedback from each respondent. The issues raised by the respondents would be considered by City of Sydney before determining whether to proceed with the proposal.

Should City of Sydney determine to proceed with the proposal, the Determination Report would be made available on the City of Sydney website and would summarise the key impacts identified in this REF, demonstrate how City of Sydney considered issues raised during the public display period, and include a summary of mitigation measures proposed to minimise the impacts of the proposal.

Should City of Sydney determine to proceed with the proposal, the project team would keep the community, and other key stakeholders informed of the process, identify further issues as they arise, and develop additional mitigation measures to minimise the impacts of the proposal if required.

6.0 Environmental Impact Assessment

This chapter provides an assessment of the likely environmental impacts associated with the construction and operation of the proposal. For each likely impacted matter, the existing environment is characterized, an assessment of potential impacts is undertaken as to how the proposal would affect the existing environment, and measures are identified to avoid, manage or mitigate those potential impacts.

This environmental impact assessment has been undertaken in accordance with clause 228 of the EP&A Regulation. A checklist of clause 228 factors and how they have been specifically addressed in this REF is included in **Appendix B**.

6.1 Traffic and transport

This section assesses and describes the impacts of the proposal on traffic, transport and pedestrian and cyclist access within and surrounding the proposal area. The assessment is based on a desktop analysis. Detailed traffic counts and modelling were not considered necessary for the proposal.

6.1.1 Existing environment

Public transport

The closest train station to the proposal area is Green Square which is about 1.26 kilometres to the south west. Redfern Station is the next closest station and is located about 1.47 kilometres to the north

west. These stations also provide the opportunity to access and transfer between other transport modes including buses, taxis and rideshare.

In addition to train services, near the proposal area, the closest bus services are on Bourke Street and include:

- Route 301
- Route 302
- Route 303
- Route 304
- Route 320.

Road network and traffic

Crystal Street, Potter Street, and Gadigal Avenue are situated between Bourke Street to the west, Lachlan Street to the south, Broome Street to the east and Danks Street to the north. There is currently no formal provision of cyclist facilities along these streets. Instead cyclists share traffic lanes with other vehicles.

Within the proposal area, Crystal Street is a north-south road which consists of one lane in each direction with lane markings only apparent as the road comes to its intersections with other connecting roads. A pedestrian crossing is located within the proposal area. Potter Street is an east-west road which consists of one lane in each direction and is wide enough to accommodate kerbside parking. A shared zone is located on the eastern area of Potter Street which is used to access Broome Street. Gadigal Avenue is a north-south road which consists of one lane in each direction and contains designated parking areas on its western and eastern side. Lachlan Street can be accessed via Gadigal Avenue.

Traffic lights do not control Crystal Street, Potter Street or Gadigal Avenue.

Access

On a local scale, Crystal Street is used to connect Potter Street to Danks Street and provides pedestrian access to Crystal Park and Crown Square Park. It also provides access to a number of apartment complexes.

Potter Street within the proposal area connects to Gadigal Avenue to Crystal Street and also connects to Broome Street and Bourke Street. Gadigal Avenue within the proposal area connects Potter Street to Lachlan Street and is also used to access apartment complexes. Footpaths are located on both sides of each road within the proposal area.

The proposal may affect, but is not limited to affecting, the following users:

- Users (pedestrians, motorists, people on bikes) of Crystal Street, Potter Street and Gadigal Avenue
- Users of Crystal Park and Crown Square Park
- Residences of Crystal Street and Gadigal Avenue
- Businesses and cafés on Crystal Street, Potter Street and Gadigal Avenue.

Kerbside use

Numerous driveways are located on both the eastern and western sides of Crystal Street and Gadigal Avenue and the north and south of Potter Street. These are used for a mix of public and private purposes. Parking is generally permitted on both sides of Crystal Street, Potter Street and Gadigal Avenue, other than where prohibitions have been introduced to facilitate access to/from premises or where additional network capacity is required such as on approach to intersections to facilitate turning movements.

A range of dedicated / authorised parking zones exist at various locations throughout the proposal area, including:

- Time-restricted parking zones
- No Parking zones
- Car share zones.

6.1.2 Potential construction impacts

Public Transport

The bus services located on Bourke Street are unlikely to be impacted by the construction of the proposal. The proposed works are unlikely to impact on the surrounding public transport network.

Road network and traffic

During construction, traffic flows along sections of Crystal Street, Potter Street and Gadigal Avenue would be temporarily disrupted to allow for construction vehicle access and deliveries of construction materials and equipment.

Construction works will require the removal of kerbs, kerbside parking and garden beds on Crystal Street, however it is likely that the street can operate under traffic controlled contra-flow during this time. Temporary closure of Crystal Street for re-construction of the pedestrian crossing (potential to be nightworks over 1-2 nights) may be required. In addition, works may also require the closure of Gadigal Avenue/Potter Street and Crystal Street/Danks Street near intersections during construction in these areas. Suitable traffic and access control measures would be identified in a traffic management plan (TMP) for the Proposal and would be developed in accordance with the relevant City of Sydney policy for the preparation of TMPs.

These disruptions would result in temporary delays for vehicles and cyclists travelling along Crystal Street, Potter Street and Gadigal Avenue. The impacts of these disruptions would be minimised through the implementation of traffic control measures during construction.

Emergency vehicle access would be maintained at all times during construction, as would rubbish truck access (as necessary).

Construction of the proposal would be planned in coordination with the NSW Transport Management Centre to ensure that these impacts are minimised.

Access

There are several properties that have driveway access directly from Crystal Street and Gadigal Avenue within the proposal area. No driveways are situated on Potter Street between Crystal Street and Gadigal Avenue. During construction there would be potential short-term disruptions for access to and from these properties. This may result in the loss of access to driveways for short periods, such as during resurfacing works. Businesses and residents would be notified of changes to their driveway access arrangements with the operational cycleway present in front of driveway entrances.

Road pavement works would be short-term and temporary, and road closures would be limited to the extent of work area required in any one location. Where possible, a traffic lane would be provided to allow for traffic throughput, under traffic controller supervision.

On this basis access impacts are considered to be minor and short-term.

Kerbside use

The proposal would result in changes to the existing kerbside use along Crystal Street, Potter Street and Gadigal Avenue including on street parking. Eight P2/P4 parking spaces and two car share spaces would be removed on the western side of Crystal Street to provide the space required to construct the cycleway while maintaining two lanes of traffic.

South of the pedestrian crossing on Crystal Street, on the eastern side, there are currently 6 P2/P4 parking spaces. This parking area would be reconfigured, with the final arrangement providing five P2/P4 spaces and one car share space. North of the pedestrian crossing on Crystal Street there are currently 6 P2/P4 parking spaces and 1 car-share space. This parking area would be reconfigured and the final arrangement would provide five P2/P4 spaces and two car share spaces.

Existing loading zones would be retained and impacts to these zones would be avoided throughout the construction of the proposal.

6.1.3 Potential operational impacts

Road network and traffic

The proposed lane configurations along Crystal Street, Potter Street and Gadigal Avenue (with the cycleway in operation) have been designed to accommodate the additional traffic volumes associated with the implementation of the projects outlined in the Access Strategy. The proposal would continue to support the safe and functional use of Crystal Street, Potter Street and Gadigal Avenue as a key public transport priority corridor whilst achieving the proposal objectives of prioritising people on bikes and meeting current and future community needs.

Access

The proposal would provide a positive operational impact by connecting people on bikes directly to other existing parts of the cycleway network, as outlined in the Access Strategy.

The proposal would not result in substantial operational changes to driveway access for the businesses fronting the proposal area. Businesses and residents would be notified of changes to their driveway access arrangements with the operational cycleway present in front of driveway entrances.

Kerbside use

The proposal would result in the permanent removal of existing kerbside usages, including some on-street parking.

The removal of existing kerbside usages would increase the strain on parking availability throughout the area. The removal of existing kerbside usages may affect businesses directly fronting the proposal area due to a reduced capacity for parking and loading and the limited availability of alternative kerbside locations. The operational loss of kerbside parking would place localised strain on on-street parking availability within the City of Sydney.

Existing taxi and loading zones would be retained and impacts to these zones during the operation of the proposal are unlikely.

6.1.4 Mitigation measures

The following mitigation measures have been identified to minimise traffic and transport impacts:

- A TMP will be prepared and implemented as part of the CEMP. The TMP would include:
  - Confirmation of haulage routes
  - Measures to maintain access to local roads and properties
  - Site specific traffic control measures (including signage) to manage and regulate traffic movement
  - Measures to maintain pedestrian and cyclist access
  - Requirements and methods to consult and inform the local community of impacts on the local road network
  - Access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads.
  - A response plan for any construction traffic incident
  - Consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic monitoring, review and amendment mechanisms
- During construction, appropriate traffic management measures would be implemented and maintained such as temporary speed restrictions, precautionary signs, illuminated warning devices, manual and/or electronic traffic controls

- During construction, arrangements would be made to ensure access to businesses and other commercial or residential premises adjacent to construction areas would be maintained where possible
- During construction, affected businesses and the occupants of other commercial and residential premises would be notified in relation to temporary access restrictions or limitations
- Business owners and residents would be informed of changes in kerbside use, including the permanent loss of, or change in, existing loading and on-street parking spaces
- A cyclist communication strategy would be implemented that would include establishing information signs and maps to inform cyclists of changes to cycleways within the city centre.

6.2 Noise and vibration

A noise and vibration assessment has been undertaken for the proposal using the Roads and Maritime Services' noise calculator tool.

6.2.1 Existing environment

The NSW DECC (2009) has prepared an Interim Construction Noise Guideline ICNG) that has been developed to assist with the management of noise impacts, rather than to present strict numeric noise criteria for construction activities. **Table 6-1** is taken from the ICNG and presents noise management levels (NMLs) for noise at sensitive receivers and how they should be applied.

Table 6-1 Construction noise management levels – Residential receivers (from the ICNG)

Time of day	Construction noise management level $L_{Aeq,15min}$	How to apply
Recommended standard hours: • Monday to Friday 7am to 6pm. • Saturday 8am to 1pm. • No work on Sundays or public holidays.	Noise affected RBL + 10 dB(A)	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured $L_{Aeq,15\ min}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially affected residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: • times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences • if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5 dB(A)	• A strong justification would typically be required for works outside the recommended standard hours

Time of day	Construction noise management level $L_{Aeq,15min}$	How to apply
		• The proponent should apply all feasible and reasonable work practices to meet the noise affected level • Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community • For guidance on negotiating agreements see Section 7.2.2 of the ICNG.

Notes:

1 Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 metres above ground level. If the property boundary is more than 30 metres from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 metres of the residence. Noise levels may be higher at upper floors of the noise affected residence.

The recommended standard hours for construction works prescribed by the ICNG are as follows:

- Monday to Friday, 7 am to 6 pm
- Saturday, 8 am to 1 pm
- Sunday and Public Holidays, no work.

The Proposal would involve work being carried out during the day as well as outside normal work hours. Work required at intersections or in heavily congested areas would generally be carried out during night time. Generally noisy work (such as jackhammering) would be carried out before midnight and less noisy (such as pavement work) work may then continue throughout the night.

Where work is planned to extend over more than three consecutive nights, potential sleep disturbance impacts should be considered. For the assessment of these potential impacts, the ICNG refers to the *NSW Environmental Criteria for Road and Traffic Noise*.

The Proposal is situated in an inner-city suburb to the south of the Sydney CBD. As such, the existing environment is generally of low-moderate noise level during the day and night. The major noise sources include traffic (both local and distant), pedestrians, business operations, educational facilities, sports, and entertainment venues. As a result, most nearby receivers would not be accustomed to the background noise levels required by the proposed works.

It should be noted that works during sensitive times would be intermittent, as works would progressively follow the proposed cycleway route along Gadigal Avenue, Potter Street and Crystal Street.

The following sensitive receivers have been identified in close proximity to the work and therefore would have the highest potential to be affected:

- Commercial receivers on Crystal Street, Potter Street and Gadigal Avenue
- Residential receivers along Crystal Street, Potter Street and Gadigal Avenue
- Moore Park Children's Early Learning Centre, Mandarin Bilingual Centre and Empowering Futures (school) – about 20 metres south of the proposed works.

6.2.2 Potential construction impacts

Construction noise

A distance-based (scenario) assessment type was selected for this proposal to assess the construction noise impacts. The assessment was carried out on the 29 October 2020 and is shown in Appendix E. As the nosiest activity in the proposal, the 'paving and asphalting' scenario was used in the assessment to determine noise impacts. 'R3' background noise environment was selected based on the road volumes within and surrounding the proposal area.

Table 6-2 below provides the background noise levels (also referred to as Rating Background Level (RBL)) and noise management levels.

Table 6-2 Noise Area Category Table

Noise Area Category		R3 (dB)
RBL or LA90[1] Background level (dB(A))	Day	50
	Evening	45
	Night	40
LAeq (15minute) Noise Management Level[2] (dB(A))	Day	60
	Day (OOHW)	55
	Evening	50
	Night	45

Notes: [1] L_{A90} = Background noise level

[2] Noise Management Level for works during standard hours = Background level plus 10 dB(A)

Noise Management Level (NML) for out of hours works = Background level plus 5 dB(A).

Based on the assessment, it has been determined that construction noise may be audible within a 180 metre radius of the proposed works. Within the assessment, two noise catchment areas (NCAs) were defined based on proximity to proposed works. NCA1 captures areas within a catchment of 35 metres to the proposal area, while NCA2 captures areas between 35 and 180 metres from the proposal area.

The results below show the noise management levels (NML in dB(A)) for day and evening works, which are based on noise background levels from a R3 background noise environment. These are presented against predicted noise levels based on distance to the paving and asphalting equipment noise (dB(A)). The results of the construction noise assessment also identify certain mitigation measures.

It should be noted that not all additional mitigation methods have been applied to the proposal. Based on a review of additional mitigation measures and their application to the Proposal, the additional mitigation measures 'N' (in bold text) are recommended to apply to this Proposal. As described above, works during sensitive times would be intermittent and would progressively follow the proposed cycleway route along Gadigal Avenue, Potter Street and Crystal Street. Respite periods as recommended by the noise calculator tool would therefore be counterproductive for this proposal as sensitive receivers impacted by construction works would change when works are required outside of standard hours. These are defined below in **Section 6.2.4**.

The results of the construction noise assessment are summarised below.

Table 6-3 Catchment distances affected by construction noise

Catchment distances	Day		
	NML, dB(A)	Predicted noise levels, dB(A)	Recommended additional mitigation measures
NCA1 [Commercial] (20m) – in line of sight	60	75	**Notification (N)**, Phone Calls (PC), Respite Offer (RO)
NCA1 (20m) – in line of sight	60	75	**N**, PC, RO
NCA1 (35m) – in line of sight	60	70	**N**

Catchment distances	Night		
	NML, dB(A)	Predicted noise levels, dB(A)	Recommended additional mitigation measures
NCA1 (35m) – in line of sight	45	70	Alternative accommodation (AA), **N**, PC, Specific Notification (SP), Respite Period 2 R2, Duration Respite (DR)
NCA2 (35m) – behind rows of buildings	45	60	**N**, PC, SN, R2**,** DR
NCA2 (115m) – behind rows of buildings	45	50	**N**, R2, DR
NCA2 (180m) – behind rows of buildings	45	45	**N**

Vibration

Sources of ground vibration associated with the proposal are considered to be minor. Some potential for ground vibration exists where vibration intensive equipment such as vibratory rollers, jackhammers or 'wacker packers' are required during demolition activities. However, the proposed equipment would be small in size and construction periods would be short.

Table 6-4 provides a guide for recommended safe working distances for typical vibration intensive plant and equipment. The safe working distances presented apply to cosmetic damage of typical buildings under typical geotechnical conditions.

Table 6-4 Recommended Safe Working Distances for Vibration Intensive

Plant	Specification	Safe working distance		
		Cosmetic Damage (BS 7385) (metres)	Cosmetic damage (DIN 4150) Heritage and other sensitive structures (metres)	Human Response (BS 6472) (metres)
Vibratory roller	1 – 2 tonnes	5	14	15 – 20
	2 – 4 tonnes	6	16	20
	4 – 6 tonnes	12	33	40
Small hydraulic hammer	5 – 12 tonnes excavator	2	2	7
Jackhammer / 'wacker packer'	Hand-held	1 (nominal)	-	Avoid contact

Source: TfNSW Construction Noise Strategy, 2012

Vibration effects would be dependent on the type of machinery used and proximity to certain types of buildings.

6.2.3 Potential operation impacts

Over time, the development of the proposal would likely result in a reduction in the number or frequency of vehicles travelling along Crystal Street, Potter Street and Gadigal Avenue, and the surrounding streets in the proposal area. This change in transport mode would result in a major reduction in existing sources of vibration in the area. Therefore, no operational vibration impacts were considered likely to occur at the new cycleway location and as such operational vibration was not considered further in this assessment.

6.2.4 Mitigation measures

The following mitigation measures have been identified to minimise potential noise and vibration impacts:

- Specific additional mitigation measurements as identified in the noise assessment:
  - **Notification (N) -** Letterbox drops for receivers within a 180 m radius. Notifications should detail work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night-time period, operational noise benefits from the works (where applicable) and contact telephone number. Notification would be sent a minimum of 7 calendar days prior to the start of works.
- Prepare a construction noise and vibration management plan (CNVMP). The CNVMP would be a sub-plan of the CEMP and as a minimum it would include:
  - A map of the sensitive receiver locations including residential properties
  - A work program to manage night noise impacts
  - Safeguards and management measures to manage out of hours working
  - An assessment to determine potential risk for activities likely to affect receivers, including for activities undertaken during and outside of standard working hours
  - A process for assessing the performance of the implemented safeguards and management measures.
- Work is to be restricted to standard working hours and where possible, noisy work should be undertaken during less sensitive periods
- Affected receivers would be notified ahead of time of the likely activities, noise impacts and duration of this work
- Nearby receivers would be notified of work in advance of the start of construction. This is essential for residential receivers potentially affected by night-time work.
- A community complaints phone number would be established and advertised prior to works commencing and be available during work periods. The community complaints line would be established for complaints or queries regarding construction
- Plant would be turned off when not in use
- The work site would be arranged to minimise the use of movement alarms on vehicles and mobile plant
- Where safety concerns can be adequately managed, the use of squawker, broadband or visual reversing alarms would be considered, rather than traditional beeper styles
- The use of equipment or methods that generate impulsive noise, particularly during night-time hours would be avoided. These include dropping materials from a height, loading/unloading of trucks and metal on metal contact
- Make the construction program available to the community and ensure it is routinely updated as works progress.

6.3 Landscape and visual

6.3.1 Existing environment

The proposal area is located within a densely urbanised environment in the midst of the Sydney suburb of Waterloo. The new cycleway would commence at the northern end of Gadigal Avenue in Waterloo. It would travel north along the eastern side of Gadigal Avenue, continuing along the northern side Potter Street in a westerly direction. It would then turn north to continue along the eastern side of Crystal Street to its intersection with Danks Street.

The existing roads are as follows:

- Crystal Street (including Danks Street intersection) - A two way (north and south) trafficable road. The street is flanked on its eastern and western sides by mid to high rise commercial and residential buildings
- Potter Street - A two way (east and west) trafficable road. The street is flanked on its northern and southern sides by mid to high rise commercial and residential buildings. A shared zone and car park are located on the most eastern end of the street
- Gadigal Avenue - A two way (north and south) trafficable road until it reaches Lachlan Street. The street is flanked on its eastern and western sides by mid to high rise commercial and residential buildings.

The area surrounding the proposal can be generally described as a highly developed modern urban environment, characterised by a large volume of new multi-story apartment buildings, with commercial premises at street level.

Street trees as well as landscaped / planted medians, verges and gardens are also found along the extent of the alignment. Lachlan Street is a busy thoroughfare that provides access to and from the Eastern Distributor. Lachlan Street is designated as a classified road under the NSW Roads Act.

Changes to the existing visual landscape of the proposal area would be noticeable to a range of permanent and temporary receivers. Permanent receivers include occupants of the range of buildings flanking Crystal Street, Potter Street and Gadigal Avenue with occupants being residents, workers and frequent visitors of those buildings. Temporary receivers include pedestrians, occupants of vehicles, people on bikes, customers of the range of food and drink premises along the proposal area and visitors to the area.

6.3.2 Potential construction impacts

The construction of the proposal would temporarily change the appearance of Crystal Street, Potter Street and Gadigal Avenue as the works progress. This change would arise via the introduction of:

- Construction materials
- Temporary fencing
- Temporary fencing around protected trees
- Removed sections of the road
- Operation of plant and equipment.

While there are properties along Crystal Street, Potter Street and Gadigal Avenue that are subject to construction works, construction activities are not a component of the street that are considered to contribute to its character and appearance. The sight of construction works, which includes various barriers to restrict public access would be obvious to both permanent and visual receivers. However, construction as a result of the proposal would not form a permanent visual component of the streetscape and is temporary in nature. Given the works would be temporary and suitable mitigation measures would be implemented, the impact of construction works upon the visual landscapes of Crystal Street, Potter Street and Gadigal Avenue are considered to be minor.

In addition to the works outlined above, temporary lighting would be required for evening and night-time construction works. Lighting would be generated from lighting towers, as the existing street lighting would not provide the necessary lighting level for works to be carried out safely and appropriately. Lighting towers have the potential to spill light into adjacent areas, particularly building uses closer to street levels. The light generated from these towers, although focused and directed to the ground level, would be visible from occupancies on higher levels of the buildings flanking Crystal Street, Potter Street and Gadigal Avenue. The effect of the lighting would reduce, the higher the occupancy is located from the street. As Crystal Street, Potter Street and Gadigal Avenue already feature lighting at night in the form of street lights, traffic lights, vehicle head lights and light spill from street-level premises, the lighting towers would not substantially alter existing conditions and as such, the overall effect of the lighting towers is considered to be a minor, negative impact.

6.3.3 Potential operation impacts

The visual appearance of the proposal area would be permanently changed as a result of:

- Introduction of the two-way cycleway on the eastern side of Crystal Street, the northern side of Potter Street and the eastern side of Gadigal Avenue
- Altered traffic lane markings and arrangements
- Removal of trachyte and bluestone kerbs
- Alteration of existing intersection arrangements
- Introduction of street trees and street furniture
- Widened footpaths
- New roadside and cycleway signage.

The introduction of the cycleway and other street components would permanently change the visual appearance of the proposal area. Changes to the visual amenity of the proposal area are considered to have a negligible impact as generally the elements fit within an urbanised street environment and are not visually intrusive. Over time, the perceived newness of the proposal would recede and blend more consistently with unchanged streetscape elements.

The proposal would also result in minor benefits to the visual environment. The reduction in parked vehicles would reduce visual clutter within the streetscape and would provide extended sight lines for pedestrians, people on bikes and drivers. This would act to draw attention more to the built environment, including buildings and the street environment itself. The presence of the cycleway may also encourage a shift in transport modes used by workers and residents in this area towards cycling. This would further reduce the number of vehicles and improve the overall streetscape.

Street trees provide environmental quality, enhance visual continuity and unity, and reinforce local identity and character. Further street furniture and elements form an integral part of the public domain identity, reinforce the public domain character, provide important amenities for pedestrians and add functionality and vitality to the public realm.

The introduction of additional street trees and street furniture, as well as a potential reduction in vehicle volumes along Crystal Street, Potter Street and Gadigal Avenue is considered to have an overall minor, positive visual impact upon the proposal area.

6.3.4 Mitigation measures

The following mitigation measures have been identified to minimise the visual impacts:

- Construction lighting is to be positioned such that light spill on neighbouring properties is minimised and that it is turned off when not in use and safe to do so
- The layout, directional positioning and types of lighting selected to minimise impacts are to be specified by the construction contractor in the CEMP
- A high level of housekeeping would be maintained by ensuring that the work site is kept in a clean and tidy condition, with appropriate areas designated for storage of waste materials
- Groundcover disturbed during construction would be re-established as soon as practical
- Waste materials must be removed from site regularly
- Removed kerbs would be replaced with the same material where possible. If that material is not available, the kerb would be replaced with a stone material consistent with streetscapes around the City of Sydney in accordance with the *Sydney Streets Code* (City of Sydney, 2013)
- Design of new elements would be designed in accordance with *Sydney Streets Code* (City of Sydney, 2013) as applicable.

6.4 Non-Indigenous heritage

This section assesses and describes the impacts of the proposal on non-Indigenous heritage within and surrounding the proposal area. This assessment is based on a desktop analysis of the relevant heritage registers. The proposal area includes items of State heritage significance under the NSW State Heritage Register and local heritage significance under the Sydney LEP and Section 170 Heritage and Conservation Register.

6.4.1 Existing environment

A search of the following heritage registers was undertaken in April and June 2020 to identify potential non-Indigenous heritage items located within the proposal area. This included a search of the following databases:

- Australian Heritage Places Inventory
- Commonwealth EPBC Heritage List
- NSW State Heritage Register (SHR)
- Section 170 Heritage and Conservation Registers
- City of Sydney Local Environmental Plan 2012.

Heritage items identified in **Table 6-5** and **Table 6-6** were found within a one kilometre buffer of the proposal area.

Table 6-5 National heritage items surrounding the proposal area

Heritage register	Heritage item	Distance from the proposal
Australian Heritage Places Inventory	Waterloo Public School (237-271 Botany Road)	952 metres south west of the proposal area

Given the separation of the above heritage items from the proposal area, no further assessment is required.

A number of non-Indigenous local and State heritage items are present within and adjacent to the proposal area as described in **Table 6-6** and **Figure 6-1**.

Table 6-6 State and local heritage items near the proposal area

Item	Address	Listing	Significance	Location relative to the proposal
Former ACI Chimney Stack	Gadigal Avenue, corner Potter Street	Sydney LEP I2084	Local	Adjacent to the proposal area (about 10 metres south)
Outside the proposed works area				
Former ACI remnant machinery	14 Broome Street	Sydney LEP I2076	Local	68 metres east of the proposal area
Former ACI Administration Building including interior	849 South Dowling Street	Sydney LEP I2098	Local	85 metres east of the proposal area
Former ACI Grissell Building	10 Broome Street	Sydney LEP I2075	Local	100 metres north east of the proposal area

Item	Address	Listing	Significance	Location relative to the proposal
Former ACI AGM Building including interior	851 South Dowling Street	Sydney LEP I2099	Local	125 metres south east of the proposal area
Former Sydney Water pumping station and valve house including interiors and associated underground pipework	903–921 Bourke Street	Sydney LEP I2073	Local	170 metres west of the proposal area

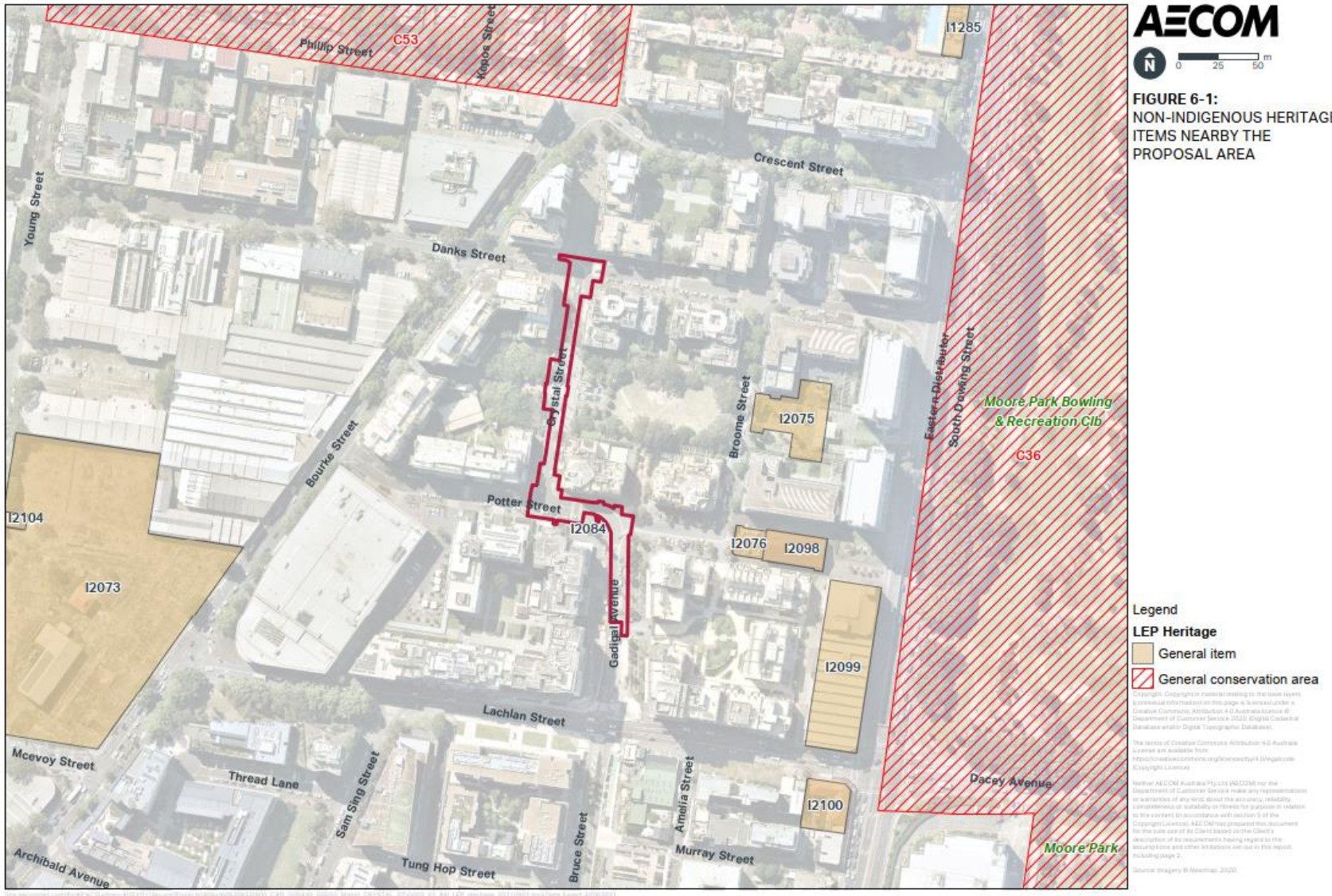

Figure 6-1 Non-Indigenous heritage items nearby the proposal area

6.4.2 Potential construction impacts

Heritage items located adjacent to the proposal area are likely to experience indirect impacts as a result of the proposed construction activities. Indirect impacts refer to resulting in changes to the setting or curtilage of heritage items or places, historic streetscapes or views.

The impacts to non-Indigenous heritage items are summarised in **Table 6-8** and described in the following section.

For the purpose of this assessment, impacts on heritage are identified as either:

- Direct impacts – resulting in the demolition or alteration of fabric of heritage significance
- Indirect impacts – resulting in changes to the setting or curtilage of heritage items or places, historic streetscapes or views.

Specific terminology and corresponding definitions are used in this assessment to consistently identify the magnitude of the project's direct, indirect or potentially direct impacts on heritage items or archaeological remains. The terminology and definitions are based on those contained in guidelines produced by the International Council on Monuments and Sites (ICOMOS) and are shown in **Table 6-7**.

Table 6-7 Terminology for assessing the magnitude of heritage impact

Magnitude	Definition
Major	Actions that would have a long-term and substantial impact on the significance of a heritage item. Actions that would remove key historic building elements, key historic landscape features, or significant archaeological materials, thereby resulting in a change of historic character, or altering of a historical resource. These actions cannot be fully mitigated.
Moderate	This would include actions involving the modification of a heritage, including altering the setting of a heritage item or landscape, partially removing archaeological resources, or the alteration of significant elements of fabric from historic structures. The impacts arising from such actions may be able to be partially mitigated.
Minor	Actions that would results in the slight alteration of heritage buildings, archaeological resources, or the setting of an historical item. The impacts arising from such actions can usually be mitigated.
Negligible	Actions that would results in very minor changes to heritage items.
Neutral	Actions that would have no heritage impact.

Table 6-8 Potential construction impacts to local heritage items as a result of the proposal

Heritage Item	Description	Heritage impact assessment
Former ACI Chimney Stack	It is a brick chimney that is historically significant as the only remaining structure of the powerhouse complex which was part of the former ACI/former AGM site. Significant for its association with glass manufacturing in Australia. Of aesthetic significance as a representative industrial chimney of the interwar period, and as a landmark structure.	There would be minor to negligible direct impacts to this heritage area as works are only limited to the footpath and kerbside structures. There is potential for the brick chimney to experience vibration levels above the cosmetic damage screening criteria as a result of construction activities including utility and road furniture relocation. Further condition assessment of the heritage item and vibration monitoring (if required) would be completed.

Heritage Item	Description	Heritage impact assessment
Former ACI remnant machinery	A significant collection of machines (1937-1958) from the former ACI site Powerhouse complex, including compressor sets which are the best quality examples of the technology of their period. The machinery is located on this site to the west of the former Administration building, at the east end of Potter Street. The blank west façade of the Administration building, behind the machinery, has been painted with an industrial-themed mural to give a backdrop to the machinery. The location, in proximity to the chimney, maintains the machinery's visual relationship to the chimney and is not far from the machinery's original location, though the buildings within which the machinery was originally housed have been demolished.	Direct impacts to this heritage item are unlikely as it is not located within the proposal area. Indirect impacts to the heritage item are considered to be minor.
Former ACI Administration Building including interior	The ACI Administration Building, built between 1938 and 1940, is of aesthetic significance as an interesting example of Inter-War Free Classical style architecture. As part of the former ACI site, the building shows the consideration given by the company to its public face. Its quality of construction and interior detailing reflect the important role of the company executives. The ACI site and remnant elements have historic significance for their association with glass manufacturing in Australia and as a typical large scale twentieth century industrial site.	Direct impacts to this heritage item are unlikely as it is not located within the proposal area. Indirect impacts to the heritage item are considered to be minor.

Temporary changes affecting visual amenity are likely to affect non-indigenous heritage during the construction phase. These affects include temporary installation of tree protection structures and temporary stationing of machinery. In addition, construction machinery would likely affect the landscape character and visual amenity temporarily.

It should be noted that the former ACI Chimney Stack is the closest heritage item to the proposal area. The next closest heritage item is the former ACI remnant machinery, which is located about 68 metres east of the proposal area. Impacts to the other heritage items identified in **Table 6-6** are therefore unlikely to be impacted and further impact assessment on these items is not deemed necessary.

6.4.3 Potential operation impacts

During operation, impacts to non-Aboriginal heritage items would be largely experienced as changes to landscape character and visual amenity.

6.4.4 Mitigation measures

The following mitigation measures have been identified to minimize impacts to non-Indigenous heritage items:

- If inadvertent damage occurs to heritage items in the vicinity of the proposal area due to vibration or other works, the damage must be reported immediately to the City of Sydney Project Manager and City of Sydney Environmental Officer who may consult with the relevant heritage specialists. Damage is to be made good in accordance with specialist heritage advice
- In order to prevent inadvertent impacts to significant fabric during construction of the proposed development, Protection Zones would be required in all areas where construction works abut a heritage item
- All relevant construction staff, contractors and subcontractors must be made aware of their statutory obligations for heritage under the NSW *Heritage Act 1977* to ensure archaeological remains or heritage fabric are not inadvertently affected during the proposed works. This would be implemented through a heritage induction carried out prior to works commencing and throughout the works program
- In the event that any unanticipated archaeological deposits are identified within the proposal area during construction, the unexpected find procedure will be followed and works within the vicinity of the find would cease immediately. The Construction Contractor would immediately notify the City of Sydney proposal Manager and the City of Sydney environmental officer so they can assist in co-ordinating the next steps which are likely to involve consultation with an archaeologist and DPIE. Where required, further archaeological work and/or consents would be obtained for any unanticipated archaeological deposits prior to works recommencing at the location.

6.5 Indigenous heritage

This section assesses and describes the potential impacts of the proposal on Indigenous heritage within and surrounding the proposal area. A desktop assessment was undertaken to determine whether the proposal has the potential to affect Aboriginal cultural heritage (including Indigenous sites, objects and places as defined under the NPW Act) and if further assessment or investigation is required.

6.5.1 Existing environment

The proposal area is located within the City of Sydney LGA and Metropolitan Local Aboriginal Land Council (LALC). The Metropolitan LALC covers a large proportion of the Sydney Basin from the Georges River in the south to Yengo National Park in the north. The Gadigal people were the original inhabitants of the land now encompassed by the City of Sydney LGA.

A search of the Aboriginal Heritage Information Management System (AHIMS) was conducted on 19 October 2020. The AHIMS search did not identify Aboriginal heritage items within or adjacent to the proposal area (200m buffer) (refer **Appendix F)**

The proposal area does not contain landscape features that indicate the presence of Indigenous heritage objects and the cultural heritage potential of the proposal area and surrounds appears to be significantly reduced due to past disturbance.

6.5.2 Potential construction impacts

Direct or indirect impacts to items of Indigenous cultural heritage are unlikely as a result of the proposal, as:

- No Aboriginal sites have been previously identified within the proposal area
- The proposal area has previously undergone extensive landscape modification and a high level of disturbance from urban development within and adjacent to Crystal Street, Potter Street and Gadigal Avenue.

The proposal area has been previously disturbed as a result of the original construction of Crystal Street, Potter Street and Gadigal Avenue, footpaths and surrounding residential and commercial developments. These previous developments have resulted in removal or disturbance to the upper layers of the natural soil profile which is where Indigenous heritage items are likely to have been found. There is clear evidence that the proposal area has also been subject to past disturbance with the introduction of fill materials, levelling, installation of utilities and services (both subsurface and

aboveground) and roadside landscaping. Therefore, there is a low likelihood that the proposal would affect previously unidentified culturally sensitive items within the proposal area.

The proposal may require some deeper excavations in localised areas along the corridor and in adjacent land for the relocation of road furniture and utilities. This has the potential to extend below previously modified areas. If potential Aboriginal objects are encountered during construction for the proposal, the Unexpected Finds Procedure would be implemented.

6.5.3 Potential operation impacts

Once operational, the proposal would not impact Indigenous heritage.

6.5.4 Mitigation measures

The following mitigation measures have been identified for application to the proposal:

- All construction staff would undergo an induction in the recognition of Indigenous cultural heritage material. This training would include information such as the importance of Indigenous cultural heritage material and places to the Indigenous community, as well as the legal implications of removal, disturbance and damage to Indigenous cultural heritage material and sites
- If unforeseen Indigenous objects are uncovered during construction, the unexpected finds procedure would be followed and works within the vicinity of the find would cease immediately. The Construction Contractor would immediately notify the City of Sydney Project Manager and City of Sydney environmental officer so they can assist in co-ordinating next steps which are likely to involve consultation with an Aboriginal heritage consultant, the DPIE and the Local Aboriginal Land Council
- If human remains are found, work would cease, the site would be secured and the NSW Police and the DPIE notified. Where required, further archaeological investigations and an Aboriginal Heritage Impact Permit would be obtained prior to works recommencing at the location.

6.6 Socioeconomic impacts

6.6.1 Existing environment

Population and growth

At the 2016 Census, the suburb of Waterloo had a population of 14,616, while the wider Sydney LGA had a population of 208,374 people. The population is relatively young, with the median age being 32 years old. The industry in the area is mainly comprised of cafes and restaurants, computer system design and related services, banking, hospitals and higher education. According to the ABS, approximately 56% of residents have a registered vehicle. In Waterloo, on the day of the Census, the most common methods of travel to work for employed people were: car, as driver 25.5%, bus 22.6% and train 12.1%. Other common responses were walked only 11.4% and bicycle 4.6%.

The 2019 Population projections indicate that the population of the Sydney LGA is estimated to increase to 287,100 people by 2041. Natural increase is estimated to drive future population growth in the Sydney LGA. People would also continue to move into the City, especially students and young workers (NSW Department of Planning Industry and Environment, 2019).

Demographics

According to the 2016 Census, the suburb of Sydney features the following demographic characteristics:

- Median age of 32
- Children aged 0 - 14 years make up 6.8% and people aged 65 years and over make up 11.5% of the population. The highest age group was persons aged 25-29 years, representing 17.7% of the population
- The suburb is culturally diverse with high proportions of people born overseas. About 47.5% of residents spoke only English at home compared to 41.1% speaking a language other than English

- The suburb contains a higher proportion of family households (45.9%) compared to single person households and group households (38% and 16.2% respectively)
- The majority of the population owns a motor vehicle. People who do not own a motor vehicle make up 38%.

Social infrastructure

Social infrastructure refers to community facilities, services and networks which help individuals, families, groups and communities meet their social needs, maximise their potential for development and enhance community wellbeing.

The suburb of Waterloo provides a range of community services and facilities catering for local residents, workers and visitors. This includes education, transport, health and medical, parks and gardens and community support services and facilities. It also boarders the suburbs of Moore Park, Redfern, Zetland and Alexandria.

Key social infrastructure located near the proposal includes:

- Public transport facilities, including (but not limited to) bus stops on Bourke Street and Crescent Street and Green Square Station.
- Emergency and health services, including (but not limited to) a medical clinic on Bourke Street, near Potter Street.
- Open space and parks, including (but not limited to):
    - Crown Square Park, bounded by Crystal Street and Broome Street
    - Crystal Park, bounded by Crystal Street and Bourke Street
    - Corning Park, bounded by Broome Street and South Dowling Street
    - Watchful Harry Square, bounded by Potter Street and Broome Street
    - Moore Park, bounded by South Dowling Street and the Eastern Distributor.
- Educational facilities, including (but not limited to) Moore Park Children's Early Learning Centre at Potter Street, Mandarin Bilingual Centre at Language school, Empowering Futures (school) at Crystal Street and Little Lion Early Learning at Broome Street
- Cultural and tourist attractions, including (but not limited to) May Space (art gallery) at George Street.

To meet the needs of its residents, the City of Sydney has committed to be green, global and connected. Relevantly, the City of Sydney intends to make the city easy to get around, with a local network for walking and cycling, connecting the city's villages, city centre and the rest of inner Sydney (City of Sydney, *Sustainable Sydney 2030 – Community Strategic Plan 2017 – 2021*).

6.6.2 Potential construction impacts

During construction, impacts to the community would primarily include noise, visual amenity and dust generation and availability of kerbside parking. Impacts to visual amenity during construction include:

- Temporary fencing
- Temporary fencing around protected trees
- Removed sections of the road
- Stationing of operating machinery plant and equipment.

Impacts to air quality during construction would impact the community temporarily. These impacts include minor increases in dust and emissions of carbon monoxide, sulphur dioxide, particulate matter, nitrous oxides, volatile organic compounds and other substances associated with excavation and the combustion of diesel fuel and petrol from construction plant and equipment. Construction noise is likely to affect nearby residential and other sensitive receivers as described in **Section 6.2**. The impact of air quality, noise and visual effects is likely to be minimal and temporary for the community.

As the proposal is located in an urbanised inner-city suburb environment, the majority of sensitive receivers nearby the proposal reside within apartment type buildings. Notwithstanding, other receivers, namely pedestrians and people on bikes, would also experience those impacts. The extent of those impacts have been outlined within this REF, and mitigation measures listed in **Chapter 7.0** aim to reduce their affect.

Where needed, temporary changes to local access associated with construction work would result in potential delays and disruption for motorists, people on bikes and pedestrians including:

- The partial and temporary closure of footpaths during construction of the road and footpath, resulting in disruptions to pedestrian movements
- Changes to the traffic environment, due to some traffic lanes needing to be temporarily closed off during construction
- The partial and temporary closure of parking spaces adjacent to proposal area footpaths

Some businesses located adjacent to the proposed cycleway infrastructure would be potentially affected through the installation or removal of infrastructure. In particular:

- During construction, there would be disruption to direct access for pedestrians and vehicles to some businesses
- Businesses reliant on the delivery of goods would be affected by changes to nearby parking.

6.6.3 Potential operation impacts

The proposal would form part of an expanding cycling network within the Sydney LGA. It would support longer term modal shifts away from the use of private motor vehicles towards active transport, in response to the growing number of residents and workers who prefer the convenience, mobility and sustainability benefits that cycling provides. This would bring with it, improvements in air quality, noise, the streetscape and equality in transport access. Increases in active transport would also bring broader (and more subtle) public health benefits.

The proposal would result in the permanent removal of existing kerbside usages, including on-street parking that is currently used by residents, shoppers and businesses. The proposal would however, provide benefits for pedestrians, with enhanced and upgraded footpaths and street furniture throughout the proposal area.

The addition of two new trees at the intersection of Gadigal Avenue and Potter Street and eight new trees within the Crystal Street median separator garden bed would benefit the public domain of Waterloo by:

- Increasing biodiversity by providing a range of food and habitat for fauna
- Improving air quality by producing oxygen through photosynthesis
- Creating a sense of place, by contributing to the character of the area and being visually appealing.

6.6.4 Mitigation measures

A number of environmental safeguards have been identified to minimise potential impacts on the community with a particular focus on keeping the community informed including:

- Mitigation measures in respect of potential impacts on amenity (e.g. noise, dust and visual) as listed in this REF
- Establishment of sustainability criteria for the proposal to encourage construction personnel to purchase goods and services locally to support the local community
- Development of a Community Liaison Management Plan (by the Construction Contractor prior to construction) which would identify potential stakeholders and the best-practice methods for consultation with these groups during construction. The plan would also encourage feedback and facilitate opportunities for the community and stakeholders to have input into the project, where possible

- Feedback through the submissions process to facilitate opportunities for the community and stakeholders to have input into the proposal, where practicable
- Informing the community of construction progress, activities and impacts in accordance with the Community Liaison Management Plan
- Further consultation with local businesses and residents would be undertaken. Specific issues relating to parking and loading zones would be addressed with individuals that are most affected.

Refer to **Chapter 7.0** for a full list of identified mitigation measures. These mitigation measures would be incorporated into the CEMP.

6.7 Contamination, landform, geology and soils

6.7.1 Existing environment

Landform, geology and soils

Reference to the 1:100,000 Geological Map of Sydney identified that the underlying geology of the proposal area is mainly underlain by medium to fine-grained “Marine” sand with Podzols.

The proposal area is relatively flat around an Australian Height Datum (AHD) elevation of 30 - 32 metres.

The soil landscape of the proposal area is located within the boundaries of the Tuggerah landscape (eSPADE, 2020), which typically has a low-medium capability for urban development although most of the land development in this area has been urban residential and heavy industry. The Tuggerah landscape mainly comprises gently undulating plains and rolling undulating rises of broad, level to very gently inclined, swales and dunes. Soils are typically deep, Podzols on dunes or Podzols/Humus Podzol intergrades on swales. Limitations of this landscape include wind erosion hazard, and non-cohesive soils and other water-based limitations.

Above the recorded soil and geological landscape, the proposal area is likely to consist of human-imported fill material, concrete and road base as a result of the ongoing construction and maintenance of the road and adjoining areas.

Acid sulfate soils

Acid sulfate soil (ASS) risk maps have been obtained from the Sydney LEP. Based on the ASS map, the proposal area is located on land mapped as containing Class 5 ASS.

Contamination

A search of the NSW EPA Contaminated Land Register on 28 October 2020 did not identify contaminated sites within or nearby the proposal area. The proposal area has not been declared as significantly contaminated and is not regulated under the CLM Act.

Given the urbanised nature of the proposal area in this location, there is potential for contaminants to be present within the underlying soils. The construction and ongoing maintenance of the roadway would likely have involved the introduction of fill and potential spills of ash, fuel, oil and other chemicals.

6.7.2 Potential construction impacts

Soil disturbance, erosion and sedimentation

The proposal would involve excavation and other earthworks associated with the proposed cycleway. If not adequately managed, these works could result in the following.

- Erosion of exposed soil and stockpiled materials
- Dust generation from excavation and vehicle movements over exposed soil
- Increase in sediment loads entering the stormwater system and/or local runoff.

The risk of the above impacts occurring is increased during high wind, rainfall events and during work situated on, or adjacent to, downward sloping surfaces. These risks have implications for

environmental factors including biodiversity, water quality and air quality. Where sediment loads in local waterways are increased as a result of erosion of materials, it would alter the existing water quality conditions, which may result in negative impacts upon aquatic flora and fauna.

Inadequately covered or stockpiles that are not watered-down may result in increased dust in the local area during high wind events. Increased dust in the area surrounding the works may have nuisance impacts upon surrounding receivers.

Without mitigation measures in place, and in inclement weather conditions involving rain and/or high-velocity wind, the impact of these risks is considered to be a temporary, moderate negative impact. However, the implementation of the mitigation measures identified in **Section 6.7.4** would avoid, manage or mitigate those potential impacts.

Acid Sulfate Soils

The proposal area has been mapped as containing Class 5 ASS, meaning that the presence of ASS is unlikely, however, it is located within 500 metres of land mapped as Class 1 to 4 ASS. Given the classification of Class 5 ASS, the potential for exposure within the proposal area is low.

In the unlikely event that ASS is uncovered during excavation activities at the proposal area, the potential impact would be managed through the implementation of an acid sulfate soil management plan (ASSMP) as identified in **Section 6.7.4**. Overall, it is considered that the potential impact of ASS as a result of construction works within the proposal area is considered to be negligible.

Contamination

Excavation has the potential to expose contaminants that might be contained within the soil underlying the road surface, which if not appropriately managed, can present a health risk to construction workers and the community. The exposure of contaminants could also pose an environmental risk if they were to enter nearby waterways through stormwater infrastructure.

Potential contamination impacts may also arise from the use of fuels, lubricants and chemicals for construction plant and equipment for the proposal. Fuels, lubricants and chemicals have the potential to be spilled during construction and may transfer off-site to adjacent properties or may contaminate the stormwater system.

The risk of impacts from contamination (if any) on human health and the receiving environment from construction activities would be reduced and managed through the mitigation measures identified in **Section 6.7.4**. Further, the extent of potential contamination is unlikely to be significant enough to preclude the proposal from going ahead as there would be no change to the existing land use post-development. Overall, the potential impact resulting from contamination within the proposal area is considered to be low.

6.7.3 Potential operation impacts

During the operational phase of the proposal, general (non-periodic) maintenance is likely to be required to ensure the continued, efficient operation of the cycleway and the road generally. During maintenance, there is potential for contamination to occur as a result of accidental fuel, oil or chemical spills. The potential impact as a result of this would be mitigated through the implementation of mitigation measures identified in **Section 6.7.4** and by following the appropriate protocols for those maintenance works.

6.7.4 Mitigation measures

The following mitigation measures have been identified for application to the proposal:

- Prior to commencement of works, an Erosion and Sediment Control Plan would be prepared for the construction works, in accordance with the ‘Blue Book’ *Managing Urban Stormwater: Soils and Construction Guidelines* (Landcom, 2004), and updated throughout construction so it remains relevant to the activities
- Erosion and sediment control measures would be established prior to site establishment activities and commencement of works and would be maintained and regularly inspected (particularly following rainfall events) to ensure their ongoing functionality. These measures would be maintained and left in place until the works are complete and areas are stabilised

- Vehicles and machinery would be properly maintained and routinely inspected to minimise the risk of fuel/oil leaks. Construction plant, vehicles and equipment would also be refuelled off-site, or in a designated refuelling area
- All fuels, chemicals and hazardous liquids would be stored within an impervious bunded area in accordance with Australian Standards and EPA Guidelines
- An appropriate Unexpected Finds Protocol for potential contaminants, would be included in the CEMP. Procedures are to be addressed for handling asbestos containing materials (including licensed contractor involvement as required), record keeping, site personnel awareness and waste disposal (to be undertaken in accordance with SafeWork NSW requirements)
- All spoil to be removed from site would be tested to confirm the presence or absence of contamination. Contaminated spoil would be disposed of at an appropriately licensed facility
- Prior to disposal, all spoil and waste must be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying waste* (EPA, 2014)
- Hydrocarbons and chemicals such as fuels, lubricants and oils that may be stored on-site are to be secured in dedicated facilities such as secure sheds, containers, storage tanks and proprietary hazardous substance cupboards, and in accordance with the applicable Safety Data Sheet (SDS)
- In the event of a pollution incident, works would cease in the immediate vicinity of the incident and the Contractor would immediately notify the City of Sydney Project Manager and the City of Sydney Environmental Officer. The EPA would be notified by City of Sydney if required, in accordance with Part 5.7 of the POEO Act
- Spill kits appropriate to products used on site must be readily available
- Spills of fuel, oil, chemicals or the like would be cleaned immediately, and the site Environmental Manager would be notified of the location of the incident, extent of the incident and type of material spilled
- An ASSMP would be included in the CEMP. The ASSMP needs to identify the management requirements for ASS discovered within the proposal area. This would be determined in consultation with the construction contractor.

6.8 Air quality

6.8.1 Existing environment

The air quality of Sydney is comparable with other Australian cities and is relatively good compared to other urban regions overseas. Concentrations of air pollutants including carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2) and lead (Pb) are low and stable, and consistently meet the national air quality standards. However, ozone (O_3) and particulate matter (PM_{10} and $PM_{2.5}$) levels can exceed the national standard from time to time across Sydney (Office of Environment and Heritage, 2018).

The proposal area would generally follow those trends, however it is located within a highly urbanised locale in the Sydney region and experiences high volumes of vehicle traffic (along with the rest of Sydney). Transport remains a major source of air pollution in the Sydney region, being the largest source of oxides of nitrogen and carbon monoxide emissions and contributing significantly to total emissions of volatile organic compounds and fine particles (Office of Environment and Heritage, 2018). Given the proposal area is located within a dense urban environment that experiences large volumes of traffic, it is reasonable to deduce that the air quality within the proposal area may not be as good as other areas of Sydney that do not experience similar levels of traffic.

A search of the National Pollutant Inventory (NPI) database was undertaken on 28 October 2020. Searches were conducted within one kilometre of the proposal area. One facility was identified to be located about 240 metres south west of the proposal area. This facility is ‘Kraft Foods Limited’ which is a manufacturer of concentrated yeast extract.

Potentially affected receivers within the vicinity of the proposal area include local residents, businesses, community centres and educational facilities surrounding the site.

6.8.2 Potential construction impacts

Temporary air quality impacts that have the potential to occur during construction include minor increases in dust and emissions of carbon monoxide, sulphur dioxide, particulate matter, nitrous oxides, volatile organic compounds and other substances associated with excavation and the combustion of diesel fuel and petrol from construction plant and equipment.

Anticipated sources of dust and dust-generating activities include:

- Removal of existing road surfaces
- Stockpiling activities
- Loading and transfer of material to and from trucks
- Other general construction activities.

The air quality impact associated with the above activities would be localised and generally contained within the proposal area. These impacts would be small scale, involving small numbers of machinery, vehicles and equipment. They would also be intermittent and temporary, being restricted to construction hours. Appropriate measures would be established to manage dust emissions from construction and demolition works. On this basis the overall significance of air quality impacts associated with the construction of the proposal is expected to be minor and temporary.

6.8.3 Potential operation impacts

The proposal is anticipated to encourage a mode shift to active transport from the use of private vehicles, aiding a reduction in emissions in the long-term. The proposal would also reduce the capacity of kerbside parking and result in improved air quality for pedestrians on Crystal Street, Potter Street and Gadigal Avenue. By reducing the number of vehicles travelling along Crystal Street, Potter Street and Gadigal Avenue the proposal may result in a minor improvement in local air quality.

6.8.4 Mitigation

The following mitigation measures have been identified for application to the proposal:

- Air quality management and monitoring for the proposal would be undertaken in accordance with relevant City of Sydney guidelines
- Methods for management of emissions would be incorporated into project inductions, training and pre-start/toolbox talks
- Plant and machinery would be regularly checked and maintained in a proper and efficient condition. Plant and machinery would be switched off when not in use and not left idling
- Vehicle and machinery movements during construction would be restricted to designated areas and sealed/compacted surfaces where practicable
- To minimise the generation of dust from construction activities, the following measures would be implemented:
    - apply water (or alternate measures) to exposed surfaces (e.g. unpaved roads, stockpiles, hardstand areas and other exposed surfaces)
    - cover stockpiles when not in use
    - appropriately cover loads on trucks transporting material to and from the construction site and securely fix tailgates of road transport trucks prior to loading and immediately after unloading
    - prevent mud and dirt being tracked onto sealed road surfaces.

6.9 Biodiversity

6.9.1 Existing environment

Landscape context

The proposal is located within the suburb of Waterloo which is an inner-city suburb, south of Sydney's CBD. The area is heavily urbanised and vegetation consists of landscaped areas (vegetated medians, parks and residential gardens) and street trees.

Gadigal Avenue is tree lined on both the eastern and western sides of the road. Scattered trees are located on both the northern and southern sides of Potter Street. Crystal Street is also lined with trees on its eastern and western sides. Crystal Street also serves as the entrance to both Crown Square Park and Crystal Park. Grass cover and landscaping vegetation (bushes) are located intermittently along all three roads.

Database searches

Database searches do not provide the exact species that are located within or around the proposal area. They provide an indication of the species that may, are likely, or known to occur in the area based on species' sightings, favoured habitats and behaviours.

A search of the Atlas of NSW Wildlife (NSW BioNet) on 28 October 2020 found records of 68 threatened flora and fauna species listed under the BC Act within a ten square kilometre area around the proposal area. According to the BioNet Atlas Map, the following individual species have been recorded in the area:

- *Pteropus poliocephalus* (Grey-headed flying-fox) 20 Dank St, Waterloo, NSW, 2017 (135 west of the proposal area)
- *Hibbertia puberula* within Moore Park (about 380 metres east of the proposal area).

A further search was undertaking using the EPBC Act Protected Matters Search Tool (18 November 2020). The search was undertaken for the proposal area and a one kilometre buffer around the proposal area. The search identified the following:

- Five listed threatened ecological communities:
    - Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin – community may occur within the area
    - Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community – community may occur within the area
    - Coastal Upland Swamps in the Sydney Basin Bioregion – community may occur within the area
    - Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion – community may occur within the area
    - Western Sydney Dry Rainforest and Moist Woodland on Shale – community may occur within the area.
- 37 listed threatened species
- 18 listed migratory species
- 2 parcels of Commonwealth land
- 25 listed marine species
- 48 invasive species.

Both search results are presented in

Appendix G.

Flora

The proposal area comprises sealed or paved surfaces and currently features about 26 trees along Crystal Street, Potter Street and Gadigal Avenue. City of Sydney's Significant Tree Register does not list significant trees as occurring within the proposal area. Garden beds are located on the eastern side of Crystal Street.

Fauna

Targeted surveys for threatened or migratory fauna were not conducted during the site inspection. The proposal area is located within an area subject to ongoing human activity including vehicle and pedestrian movements throughout the day and night. As such, the potential habitat value for threatened or migratory fauna is low to non-existent.

Despite this, certain threatened fauna that are adapted to urban environments may still occasionally use this area, such as Grey-headed Flying-Fox or threatened microbats, particularly due to the presence of street trees or crevices in buildings. The likelihood of those species occurring is very low, though without field confirmation, cannot be completely excluded. The main presence of fauna within the proposal area is likely to consist of invasive rodent species.

6.9.2 Potential construction impacts

Flora

One *Araucaria columnaris* (Cook Pine) tree is to be removed as part of the works at the corner of Potter Street and Gadigal Avenue. This tree was planted for landscaping purposes along Potter Street. Due to its size, the removal of this individual tree is unlikely to result in any substantial biodiversity impact. One additional tree, a young *Corymbia maculata* (Spotted Gum), at the intersection of Crystal Street and Potter Street is planned to be removed by CoS prior to the commencement of works.

Tree protection devices including fencing and trunk protection in the form of a hessian wrap and timber batters would be installed at the remaining 25 trees that have been identified as being close to the proposed works and at potential risk of damage. Specific management measures to manage impacts to local ecology including potential impacts to tree roots are identified in **Section 6.9.4**.

Roadside plants within garden beds are also likely to be disturbed for the removal of the raised platform on Crystal Street. These plants were likely planted for landscaping purposes.

Fauna

There would be a small degree of direct disturbance to fauna during the construction phase due to visual occupation of sites nearby trees and other habitats, as well as disturbance resulting from construction noise and other effects. Where the works are within close proximity to trees, tree protection is to be established.

Soft landscaping would be established at the intersection of Gadigal Avenue and Potter Street, at the pedestrian crossing on Crystal Street and intermittently along the separator island along the length of Crystal Street.

6.9.3 Potential operation impacts

The potential for further operational impacts to biodiversity as a result of the proposal is considered to be limited. Two new trees would be established at the intersection of Gadigal Avenue and Potter Street and eight new trees are proposed within the Crystal Street median separator garden bed.

6.9.4 Mitigation measures

A number of mitigation measures have been identified to minimise the biodiversity impact of the proposal including:

- All workers are to be provided with an environmental induction prior to commencing work onsite. This induction would include information on the protection measures to be implemented to protect vegetation, penalties for breaches and locations of areas of sensitivity

- Disturbance of vegetation is to be limited to the minimum amount necessary to construct the proposal. Two trees are planned to be removed. The remaining trees in the proposal area would be protected through temporary protection measures discussed below:
    - Tree protection would be undertaken in line with AS 4970-2009 Protection of Trees on Development Sites and would include exclusion fencing of tree protection zones (TPZs)
    - During trenching or excavation works, the use of mechanical equipment must stop if tree roots greater than 50mm diameter are encountered. Approval must be sought from the City of Sydney street tree coordinator to cut roots greater than 50mm diameter. Excavation would be done by hand, or other approved non-destructive methods in areas known to, or suspected of, having roots larger than 50mm diameter
    - Protective fencing should be erected before machinery or materials are brought onto the site and before commencement of works. Once erected, the protective fencing should not be removed or altered without approval from the City of Sydney Street Tree Coordinator
    - Each tree trunk and major branches within the work area are to be wrapped with hessian or similar material to limit damage, then planks spaced at 100mm intervals, and fixed against the trunk with tie wire, or strapping. The trunk protection shall not be fixed to the tree, for example, no nails or screw are to be used
    - Existing sections of kerbing adjacent to street trees shall not be removed without the approval from the City of Sydney Street Tree Coordinator as removal of kerbs adjacent to mature trees can cause trees to become unstable and fail
    - In the event of a tree to be retained becoming damaged during construction, the Construction Contractor is to immediately notify the City of Sydney Project Manager and the City of Sydney Environmental Officer to coordinate the response which may include contacting an arborist to inspect and provide advice on remedial action, where possible
- Should the detailed design or onsite works determine the need to remove or trim additional trees, which have not been identified in the REF, the Construction Contractor is required to complete a City of Sydney Tree Removal Application Form and submit it to the City of Sydney for approval.

6.10 Hydrology and water quality

6.10.1 Existing environment

The nearest watercourse to the proposal area is the Alexandra Canal located approximately 2.2 km from Gadigal Avenue. The canal intersects with the Cooks River, part of the Cooks River catchment which begins in Yagoona and flows through to inner south west of Sydney and then Botany Bay. The proposal is also located about 945 metres west of Kensington Pond which is located within Moore Park.

The proposal is located in an area where soils have been heavily modified by urban development. The catchment is highly urbanised and contains a high proportion of impervious surfaces. The Cooks River is in a degraded condition. Historically the catchment was stripped of natural vegetation and sewage, industrial and domestic waste were dumped in the catchment, together with stormwater pollution and rubbish. Industrial pollution is no longer allowed but sewage overflows, rubbish and stormwater runoff are continuing processes affecting the river's water quality. Water quality that drains to the Cooks River is generally poor, with stormwater from the urban catchment generally not treated (except for gross pollutants in some locations). Common urban stormwater pollutants are likely to exist.

As outlined in **Section 6.7.1**, a review of the list of NSW Contaminated Sites notified to the Environment Protection Authority as of 28 October 2020 identified no sites within the proposal area. A search of contaminated land records of notices (28 October 2020) returned no records for locations within the proposal area.

6.10.2 Potential construction Impacts

The proposal would have a minor effect on an already modified landform, with changes limited to the road verge. The construction phase of the proposal has the potential to result in impacts to the surface water quality should construction materials enter a local stormwater system. Impacts may include:

- Accidental spills of fuels, oils or other chemicals from construction vehicles or equipment
- Sediment from excavated and disturbed areas and stockpiles, generated during rainfall events
- Release of hazardous materials due to wind or water erosion of contaminated spoil/fill materials.

Spills and leaks would be managed by maintaining equipment and conducting activities that have the potential to cause a spill in a safe manner. Potential impacts on surface water quality during construction of the proposal would be similar to those experienced for other urban construction projects and are considered manageable with the application of appropriate mitigation measures.

The proposal area is not located in a flood planning area; however, temporary disruption to local drainage lines may result in localised construction flooding in parts of the proposal area, and drainage impacts could potentially arise as a result of:

- Drainage infrastructure becoming blocked (e.g. by soil, vegetation, waste) or temporarily diverted due to construction activities
- Removal of existing pavement diverting flow away from designed drainage structures and into new receiving areas. Diverting drainage lines may also create localised areas of flooding and scour unless managed appropriately.

Utility relocation is not likely to change existing flow patterns or the flooding frequency and regime. It is proposed that the contractor would ensure that all existing drainage would remain operational until the new drainage for the proposal has been constructed.

6.10.3 Potential operation impacts

The operation of the new cycleway would not result in exposure of soil or increase in impervious surfaces in the Sydney city centre. The design of the cycleway would not alter the overall existing drainage function. Therefore, no impacts to hydrology, water quality or drainage are anticipated during operation of the cycleway.

6.10.4 Mitigation measures

The following mitigation measures have been identified to avoid, minimise or mitigate potential impacts on hydrology and water quality management:

- Temporary drainage or drainage diversions would be installed so that stormwater function is not impeded during construction
- An Erosion and Sedimentation Control Plan (ESCP) would be prepared in accordance with the Landcom Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book) prior to construction commencing
- Disturbed surfaces would be compacted and stabilised in anticipation of a rain event to reduce the potential for erosion
- Material deposited onto pavements would be swept and removed at the end of each working shift and prior to rainfall
- Fuels, oils and other chemicals would not be stored in the vicinity of the construction site wherever possible
- Emergency wet and dry spill kits would be kept on site at all times and all staff would be made aware of the location of the spill kits and trained in their use.

6.11 Climate change and greenhouse gas emissions

6.11.1 Climate change

The dynamic nature of our climate system indicates a need to focus attention on how to adapt to the changes in climate and understand the limitation of adaptation. The effects of climate change on the Sydney Metropolitan region can be assessed in terms of weather changes, storm and rainfall intensities, flooding, and increased risk of fire.

Sydney may be affected in the future by an increase in maximum and minimum temperatures across all seasons, more days of extreme heat and heatwaves, changes in seasonal rainfall patterns and increased intensity of extreme rainfall events and drought conditions.

Climate change could lead to an increase in average temperatures as well as additional extreme heat days over 40°C and increased heatwaves (three consecutive days over 40°C). Physical impacts associated with extreme heat can include compromising the structural integrity of road and access path surfaces, causing heat stress in users of the cycleway and heat stress to landscaped vegetation. Measures such as the provision of landscaping to increase shade should be reviewed for feasibility during detailed design to help reduce impacts from extreme heat.

Climate change is expected to result in increased average rainfall, increased extreme rainfall and increased average recurrence interval for hail events. Impacts associated with changes to rainfall include localised flooding and surface flow, damage to aboveground structures where hail and/or damaging winds occur in conjunction with the rainfall event, and damage to vegetation due to overwatering and/or impact damage. Adequate drainage over the road network would help reduce impacts from extreme rainfall.

The proposal area may also be subject to what is known as the “heat island effect”. This occurs in metropolitan areas which have a significantly warmer climate than the surrounding rural area. The heat island effect is primarily due to human activities such as urban development replacing vegetation with hardstand areas. Concrete and asphalt are the main contributors to the heat island effect.

6.11.2 Greenhouse gas emissions

An increase in greenhouse gas emissions, primarily carbon dioxide, would be expected during construction of the proposal from exhaust emissions from construction machinery and vehicles transporting materials and personnel.

Due to the small scale of the proposal and the short-term, temporary nature of the individual construction activities, it is considered that greenhouse gas emissions resulting from the construction of the proposal would be minimal. Furthermore, greenhouse gas emissions generated during construction would be kept to a minimum through the implementation of standard mitigation measures listed in **Chapter 7.0**. It is anticipated that, once operational, the proposal may result in an increase in use of active transport and a relative decrease in use of private motor vehicles by commuters travelling around the city. This modal shift in transport usage could result in a reduction in fuel consumption by private vehicles and therefore a corresponding relative reduction in associated greenhouse gas emissions in the local area.

6.12 Waste

6.12.1 Existing environment

The waste regulatory framework is administered under the POEO Act and the WARR Act as outlined in **Table 4-1**. The purpose of these pieces of legislation is to prevent degradation of the environment, eliminate harmful wastes, reduce the amount of waste generated and establish priorities for waste reuse, recovery and recycling. The WARR Act establishes a waste hierarchy, which comprises the following principles:

- Avoidance of waste – minimising the amount of waste generated during construction by avoiding unnecessary resource consumption (i.e. avoiding the use of inefficient plant and construction equipment and avoiding materials with excess embodied energy, waste and packaging)
- Resource recovery – reusing, reprocessing and recycling waste products generated during construction to minimise the amount of waste requiring disposal
- Disposal – where resources cannot be recovered, they would be appropriately disposed of to minimise the potential adverse environmental impacts likely to be associated with their disposal.

By adopting the WARR Act principles, City of Sydney encourages the most efficient use of resources and reduces cost and environmental harm in accordance with the principles of ecologically sustainable development.

The City is committed to recycling and reusing 80% of waste generated during construction and this remains a priority with the proposal.

6.12.2 Assessment - Construction

Waste generating activities

There is the potential for waste generation during proposal construction, arising primarily from the following activities:

- Demolition of existing road infrastructure including kerbing, verges, medians, parking spaces, loading zones, taxi zones, footpaths and roadways
- Relocation and/or installation of utilities and services
- Removal and replacement of stormwater drainage pipelines and associated kerb and gutter adjustments.
- Vegetation removal.

As outlined in **Section 3.1.4**, earthworks would be minor, and generated from works including the removal of the surface layer of the road overlaying the proposed cycleway alignment, widening and realignment of road lanes as well as kerb reconstruction and realignment. It is estimated that around 2,000 cubic metres of material would be excavated during the construction of the proposal including about 700 cubic metres of concrete, 600 cubic metres of asphalt and 700 cubic metres of general solid waste.

Waste streams

The quantities of waste generated during construction are likely to be minor, based on the nature of the works and the volume of excess spoil generated by earthworks, as described in **Section 3.1.4**. Waste material anticipated to accumulate during construction is classified as 'general solid waste (non-putrescible)'.

Waste streams likely to be generated during the construction stage include:

- Construction and demolition waste from removal of existing road surface and utility relocation (soil, bitumen, concrete, asphalt, metal)
- Excess construction materials
- Excess spoil from excavations which is unsuitable for reuse
- Roadside materials (such as signage and fencing).
- Green waste from vegetation removal
- Roadside materials such as signage and fencing
- Waste water from wash down areas
- Paper and packaging wastes from materials brought to site
- Redundant erosion and sediment controls
- General and domestic waste from the construction workforce.

In relation to the proposal, there would be few opportunities for reuse of materials given the nature of the activities proposed. Spoil and topsoil generated from earthworks could potentially be re-used in some locations if it meets the appropriate soil quality and classification standards for re-use.

Materials and spoil declared unsuitable to be reused would be classified in accordance with the *Waste Classification Guidelines* (EPA 2014) and disposed of at an approved recycling or waste disposal facility depending on whether they can be reused or not.

Resource use

The materials required during the proposed construction works are not currently restricted resources although, materials such as metals and fuels are considered non-renewable and should be used

conservatively. Road pavement materials would be sourced from appropriately licenced facilities and from local suppliers where practical. Where possible, the reuse of existing materials and the recycling of materials would be conducted.

6.12.3 Assessment - Operation

The operation of the proposal would not result in increased waste generation.

6.12.4 Mitigation

The following mitigation measures have been identified to minimise the potential impacts associated with waste generation:

- A Waste Management Plan (WMP) would be prepared and implemented as part of the CEMP. The WMP would include but not be limited to:
  - measures to avoid and minimise waste associated with the proposal
  - classification of wastes and management options (re-use, recycle, stockpile, disposal) in accordance with the *Waste Classification Guidelines* (EPA, 2014) and NSW legislative requirements
  - statutory approvals required for managing both on and off-site waste, or application of relevant resource recovery exemptions
  - procedures for storage, transport and disposal of wastes
  - monitoring, record keeping and reporting.

  The WMP would be prepared taking into account the WARR Act and *Waste Classification Guidelines* (EPA, 2014).
- A far as practicable, construction materials shall be sourced within the Sydney region so as to reduce transport costs, including fuel usage
- A hierarchy of waste management shall be implemented via:
  - separation of general wastes, recyclable/reusable materials, and hazardous wastes to avoid mixing with other materials/wastes
  - regular housekeeping and servicing of waste storages
  - general waste and recycling receptacles would be provided onsite. Waste would be transported to an appropriately licensed waste disposal and/or recycling facility
  - wastes (including green waste) shall not be burnt
  - weed removal activities including removal of weeds prior to tree removal works to allow non-weed infested mulched material to be reused on site.
- Waste disposed off-site shall be taken to a waste facility that is licenced under the POEO Act to receive wastes of that type
- Work areas would be kept free of rubbish, with appropriate receptacles provided for waste management and recycling
- Contractors would recycle waste in accordance with the City of Sydney's *Leave nothing to waste: Waste strategy and action plan 2017-2030*.

6.13 Cumulative impacts

The delivery of the proposal has the potential to result in cumulative impacts. This would primarily occur during the construction stage of the proposal, due to concurrent development projects in the area. Collectively, the proposal and nearby developments could result in cumulative impacts on the local community related to traffic, noise and air quality impacts during construction.

6.13.1 Concurrent projects

Sydney Metro – Waterloo Station

Waterloo Station is a new underground Sydney Metro station located in the heart of the Waterloo precinct at Botany Road, Cope Street, Raglan Street and Wellington Street in Waterloo. Construction of Waterloo Station is currently underway, and the station is expected to be operational by 2024.

Public domain improvements, new shops, services, retail and dining would also be constructed at the station.

6.13.2 Potential construction impacts

Construction

Potential temporary construction cumulative impacts include:

- Cumulative increases in construction vehicle traffic on public roads causing congestion and delays
- Cumulative noise and vibration impacts associated with multiple construction works, particularly at night
- Disruption to public transport services
- Disruption to pedestrian amenity and capacity due to footpath restrictions during construction, including increased pedestrian journey times
- Amenity impacts resulting from the implementation of traffic management controls across the city centre
- Cumulative changes to water quality of nearby waterways or groundwater from multiple construction sites.

To address these issues, City of Sydney would work with other developers as part of a construction liaison group. This group would coordinate construction activities, as necessary, to minimise cumulative impacts on the local area, especially to existing businesses affected by the proposal.

6.13.3 Potential operation impacts

The proposal would facilitate the integrated movement of people on bikes as identified in City of Sydney's '*Cycling strategy and action plan*'. The proposal is also part of a wider program to manage traffic congestion and provide transport systems for Sydney's future growth. The predicted increase in daily bike movements along the network may be expected to translate into a reduction in vehicle volumes in the surrounding area. This would result in improvements in traffic congestion and safety as well as overall health benefits from improved air quality and a greater number of individuals participating in active transport.

6.13.4 Mitigation measures

The following mitigation measures have been identified to minimise potential cumulative impacts:

- CoS Accelerated Bike network program coordinator to consider cumulative effects of projects' construction works. There is potential to block access to Erskineville Oval via Fox Avenue with this proposal and another proposal on Ashmore Street
- Consult with TfNSW to obtain information about project timeframes and impacts. Identify and implement appropriate safeguards and management measures to minimise cumulative impacts of construction if other projects are constructed at the same time as the proposal
- The CEMP would be revised to consider potential cumulative impacts from surrounding development activities as they become known. This would include a process to review and update mitigation measures as new works begin or if complaints are received.

7.0 Environmental management

This chapter describes how the proposal would be managed through environmental management plans and specific safeguards, to reduce potential environmental impacts throughout detailed design, construction and operation.

Mitigation measures have been developed to be consistent with the Clause 228 Guidelines.

7.1 Construction environmental management plans

A Construction Environmental Management Plan (CEMP) would be prepared in accordance with the requirements of Council's Environmental Management System for the construction phase of the proposal. The CEMP provides a mechanism through which potential environmental impacts relevant to the proposal would be controlled, and outlines a framework of procedures and controls for managing environmental impacts during construction.

The CEMP would also incorporate a number of sub-plans, each of which would address a particular environmental matter e.g. construction noise and vibration, erosion and sediment control, acid sulphate soils and waste.

7.2 Safeguards and mitigation measures

Environmental safeguards and mitigation measures that have been identified for the proposal are outlined in the table below. These safeguards would minimise potential adverse impacts of the proposal, as discussed in **Section 6.0**.

Table 7-1 Environmental safeguards and mitigation measures

No.	Impact	Environmental safeguards	Timing
TT1	Traffic management	A TMP will be prepared and implemented as part of the CEMP. The TMP would include: • Confirmation of haulage routes • Measures to maintain access to local roads and properties • Site specific traffic control measures (including signage) to manage and regulate traffic movement • Measures to maintain pedestrian and cyclist access • Requirements and methods to consult and inform the local community of impacts on the local road network • Access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads. • A response plan for any construction traffic incident. Consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic monitoring, review and amendment mechanisms	Pre-Construction and Construction
TT2	Traffic management	During construction, appropriate traffic management measures will be implemented and maintained such as temporary speed restrictions, precautionary signs, illuminated warning devices, manual and/or electronic traffic controls.	Construction
TT3	Access	During construction, arrangements will be made to ensure access to businesses and other commercial or residential premises adjacent to construction areas will be maintained where possible.	Construction

No.	Impact	Environmental safeguards	Timing
TT4	Notification regarding access	During construction, affected businesses and the occupants of other commercial and residential premises will be notified in relation to temporary access restrictions or limitations.	Construction
TT5	Consultation regarding parking	Business owners and residents will be informed of changes in kerbside use, including the permanent loss of, or change in, existing loading and on-street parking spaces.	Pre-Construction and Construction
TT6	Cyclist communication strategy	A cyclist communication strategy will be implemented that will include establishing information signs and maps to inform cyclists of changes to cycleways within the city centre.	Pre-Construction
NV1	Notification to affected receivers	Letterbox drops for receivers within a 180 m radius. Notifications should detail work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night-time period, operational noise benefits from the works (where applicable) and contact telephone number. Notification will be sent a minimum of 7 calendar days prior to the start of works	Construction
NV2	Construction noise and vibration management plan	Prepare a construction noise and vibration management plan (CNVMP). The CNVMP will be a sub-plan of the CEMP and as a minimum it will include: • A map of the sensitive receiver locations including residential properties • A work program developed to manage night noise impacts • Safeguards and management measures to manage out of hours working • An assessment to determine potential risk for activities likely to affect receivers, including for activities undertaken during and outside of standard working hours • A process for assessing the performance of the implemented safeguards and management measures.	Pre-Construction
NV3	Noise management and work hours	Work is to be restricted to standard working hours and where possible, noisy work should be undertaken during less sensitive periods	Construction
NV4	Notification to affected receivers	Affected receivers will be notified ahead of time of the likely activities, noise impacts and duration of this work.	Pre-Construction
NV5	Notification to nearby receivers	Nearby receivers will be notified of work in advance of the start of construction. This is essential for residential receivers potentially affected by night-time work	Pre-Construction
NV6	Noise complaints management	A community complaints phone number will be established and advertised prior to works commencing and be available during work periods. The community complaints line will be established for complaints or queries regarding construction.	Pre-Construction
NV7	Noisy plant	Plant will be turned off when not in use.	Construction

No.	Impact	Environmental safeguards	Timing
NV8	Work site arrangements	The work site will be arranged to minimise the use of movement alarms on vehicles and mobile plant.	Construction
NV9	Reverse beepers	Where safety concerns can be adequately managed, the use of squawker, broadband or visual reversing alarms will be considered, rather than traditional beeper styles.	Construction
NV10	Night-time noise during night-time hours	The use of equipment or methods that generate impulsive noise, particularly during night-time hours will be avoided. These include dropping materials from a height, loading/unloading of trucks and metal on metal contact.	Construction
NV11	Construction program	Make the construction program available to the community and ensure it is routinely updated as works progress.	Pre-Construction and Construction
LV1	Construction lighting	Construction lighting is to be positioned such that light spill on neighbouring properties is minimised and that it is turned off when not in use and safe to do so.	Construction
LV2	Construction lighting	The layout, directional positioning and types of lighting selected to minimise impacts are to be specified by the construction contractor in the CEMP.	Pre-Construction
LV3	Work sites	A high level of housekeeping will be maintained by ensuring that the work site is kept in a clean and tidy condition, with appropriate areas designated for storage of waste materials.	Construction
LV4	Disturbed groundcover	Groundcover disturbed during construction will be re-established as soon as practical.	Construction
LV5	Waste materials	Waste materials must be removed from site regularly.	Construction
LV6	Trachyte and bluestone kerbs	Removed kerbs will be replaced with the same material where possible. If that material is not available, the kerb will be replaced with a stone material consistent with streetscapes around the City of Sydney in accordance with the *Sydney Streets Code* (City of Sydney, 2013).	Construction
LV7	Design of new elements	Design of new elements will be carried out in accordance with *Sydney Streets Code* (City of Sydney, 2013) as applicable.	Design
NIH1	Damage to heritage items	If inadvertent damage occurs to heritage items in the vicinity of the study area due to vibration or other works, the damage must be reported immediately to the City of Sydney Project Manager and City of Sydney Environmental Officer who may consult with the relevant heritage specialists. Damage is to be made good in accordance with specialist heritage advice.	Construction
NIH2	Damage to heritage items – Protection Zones	In order to prevent inadvertent impacts to significant fabric during construction of the proposed development, Protection Zones will be required in all areas where construction works abut a heritage item.	Construction
NIH3	Heritage induction	All relevant construction staff, contractors and subcontractors must be made aware of their statutory	Construction

No.	Impact	Environmental safeguards	Timing
		obligations for heritage under the NSW *Heritage Act 1977* to ensure archaeological remains or heritage fabric are not inadvertently affected during the proposed works. This will be implemented through a heritage induction carried out prior to works commencing and throughout the works program.	
NIH4	Unanticipated archaeological deposits	In the event that any unanticipated archaeological deposits are identified within the proposal area during construction, the unexpected find procedure will be followed and works within the vicinity of the find will cease immediately. The Construction Contractor will immediately notify the City of Sydney proposal Manager and the City of Sydney environmental officer so they can assist in co-ordinating the next steps which are likely to involve consultation with an archaeologist and DPIE. Where required, further archaeological work and/or consents will be obtained for any unanticipated archaeological deposits prior to works recommencing at the location.	Construction
IH1	Heritage induction	All construction staff will undergo an induction in the recognition of Indigenous cultural heritage material. This training will include information such as the importance of Indigenous cultural heritage material and places to the Indigenous community, as well as the legal implications of removal, disturbance and damage to Indigenous cultural heritage material and sites.	Construction
IH2	Unanticipated Indigenous objects	If unforeseen Indigenous objects are uncovered during construction, the unexpected finds procedure would be followed and works within the vicinity of the find willcease immediately. The Construction Contractor will immediately notify the City of Sydney proposal Manager and City of Sydney environmental officer so they can assist in co-ordinating next steps which are likely to involve consultation with an Aboriginal heritage consultant, the DPIE and the Local Aboriginal Land Council.	Construction
IH3	Human remains uncovered	If human remains are found, work will cease, the site secured and the NSW Police and DPIE notified. Where required, further archaeological investigations and an Aboriginal Heritage Impact Permit will be obtained prior to works recommencing at the location.	Construction
SE1	Socio-economic	Mitigation measures in respect of potential impacts on environmental matters that collectively influence amenity (e.g. noise, dust and visual) as listed in this REF.	Construction
SE2	Sustainability criteria	Establishment of sustainability criteria for the proposal to encourage construction personnel to purchase goods and services locally to support the local community.	Pre-Construction
SE3	Community Liaison	Development of a Community Liaison Management Plan (by the Construction Contractor prior to construction) which will identify potential stakeholders	Pre-Construction

No.	Impact	Environmental safeguards	Timing
	Management Plan	and the best-practice methods for consultation with these groups during construction. The plan will also encourage feedback and facilitate opportunities for the community and stakeholders to have input into the project, where possible.	
SE4	Feedback through the submissions process	Feedback through the submissions process to facilitate opportunities for the community and stakeholders to have input into the proposal, where practicable.	Pre-Construction
SE5	Community Liaison Management Plan	Informing the community of construction progress, activities and impacts in accordance with the Community Liaison Management Plan.	Pre-Construction and Construction
SE6	Community Liaison Management Plan	Further consultation with local businesses and residents will be undertaken. Specific issues relating to parking and loading zones will be addressed with individuals that are most affected.	Pre-Construction and Construction
CLGS1	Erosion and Sediment Control Plan	Prior to commencement of works, an Erosion and Sediment Control Plan will be prepared for the construction works in accordance with the 'Blue Book' *Managing Urban Stormwater: Soils and Construction Guidelines* (Landcom, 2004) and updated throughout construction so it remains relevant to the activities.	Pre-Construction
CLGS2	Erosion and sediment control	Erosion and sediment control measures will be established prior to site establishment activities and commencement of works and will be maintained and regularly inspected (particularly following rainfall events) to ensure their ongoing functionality. These measures will be maintained and left in place until the works are complete and areas are stabilised.	Pre-Construction
CLGS3	Vehicles and machinery maintenance	Vehicles and machinery will be properly maintained and routinely inspected to minimise the risk of fuel/oil leaks. Construction plant, vehicles and equipment will also be refuelled off-site, or in a designated refuelling area.	Construction
CLGS4	Storage of fuels, chemicals and hazardous liquids	All fuels, chemicals and hazardous liquids will be stored within an impervious bunded area in accordance with Australian Standards and EPA Guidelines.	Construction
CLGS5	Unexpected Finds Protocol	An appropriate Unexpected Finds Protocol for potential contaminants, will be included in the CEMP. Procedures are to be addressed for handling asbestos containing materials, including licensed contractor involvement as required, record keeping, site personnel awareness and waste disposal to be undertaken in accordance with SafeWork NSW requirements.	Pre-Construction and Construction
CLGS7	Testing potential contaminated spoil	All spoil to be removed from site will be tested to confirm the presence or absence of contamination. Contaminated spoil will be disposed of at an appropriately licensed facility.	Construction

No.	Impact	Environmental safeguards	Timing
CLGS8	Classifying waste and spoil	Prior to disposal, all spoil and waste must be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying waste* (EPA, 2014).	Construction
CLGS9	Dedicated storage facilities for hydrocarbons and chemicals	Hydrocarbons and chemicals such as fuels, lubricants and oils that may be stored on-site are to be secured in dedicated facilities such as secure sheds, containers, storage tanks and proprietary hazardous substance cupboards, and in accordance with the applicable Safety Data Sheet (SDS).	Construction
CLGS10	Pollution incident	In the event of a pollution incident, works will cease in the immediate vicinity and the Contractor will immediately notify the City of Sydney Project Manager and the City of Sydney Environmental Officer. The EPA will be notified by City of Sydney if required, in accordance with Part 5.7 of the POEO Act.	Construction
CLGS11	Spill kits	Spill kits appropriate to products used on site must be readily available.	Construction
CLGS12	Spills of fuel, oil, chemicals	Spills of fuel, oil, chemicals or the like will be cleaned immediately, and the site Environmental Manager will be notified of the location of the incident, extent of the incident and type of material spilled.	Construction
CLGS13	Acid sulfate soil management plan	An ASSMP will be included in the CEMP. The ASSMP needs to identify the management requirements for ASS discovered within the proposal area. This will be determined in consultation with the construction contractor.	Pre-Construction
AQ1	Air quality management and monitoring	Air quality management and monitoring for the proposal will be undertaken in accordance with relevant City of Sydney guidelines.	Construction
AQ2	management of emissions	Methods for management of emissions will be incorporated into project inductions, training and pre-start/toolbox talks.	Pre-Construction and Construction
AQ3	Vehicles and machinery maintenance	Plant and machinery will be regularly checked and maintained in a proper and efficient condition. Plant and machinery will be switched off when not in use, and not left idling.	Construction
AQ4	Designated areas for vehicle and machinery movements	Vehicle and machinery movements during construction will be restricted to designated areas and sealed/compacted surfaces where practicable.	Construction
AQ5	Generation of dust	To minimise the generation of dust from construction activities, the following measures will be implemented: • Apply water (or alternate measures) to exposed surfaces (e.g. unpaved roads, stockpiles, hardstand areas and other exposed surfaces). • Cover stockpiles when not in use • Appropriately cover loads on trucks transporting material to and from the construction site and	Construction

No.	Impact	Environmental safeguards	Timing
		securely fix tailgates of road transport trucks prior to loading and immediately after unloading • Prevent mud and dirt being tracked onto sealed road surfaces.	
BIO1	Biodiversity induction	All workers are to be provided with an environmental induction prior to commencing work onsite. This induction will include information on the protection measures to be implemented to protect vegetation, penalties for breaches and locations of areas of sensitivity.	Pre-Construction
BIO2	Disturbance of vegetation	Disturbance of vegetation is to be limited to the minimum amount necessary to construct the proposal. Two trees are planned to be removed. Trees in the proposal area will be protected through temporary protection measures discussed below. • Tree protection will be undertaken in line with AS 4970-2009 Protection of Trees on Development Sites and will include exclusion fencing of tree protection zones (TPZs) • During trenching or excavation works, the use of mechanical equipment must stop if tree roots greater than 50mm diameter are encountered. Approval must be sought from the City of Sydney street tree coordinator to cut roots greater than 50mm diameter. Excavation will be done by hand, or other approved non-destructive methods in areas known to, or suspected of, having roots larger than 50mm diameter • Protective fencing should be erected before machinery or materials are brought onto the site and before commencement of works. Once erected, the protective fencing should not be removed or altered without approval from the City of Sydney Street Tree Coordinator • Each tree trunk and major branches within the work area are to be wrapped with hessian or similar material to limit damage, then planks spaced at 100mm intervals, and fixed against the trunk with tie wire, or strapping. The trunk protection shall not be fixed to the tree, for example, no nails or screw are to be used • Existing sections of kerbing adjacent to street trees shall not be removed without the approval from the City of Sydney Street Tree Coordinator. Removal of kerbs adjacent to mature trees can cause trees to become unstable and fail • In the event of a tree to be retained becoming damaged during construction, the Construction Contractor is to immediately notify the City of Sydney Project Manager and the City of Sydney Environmental Officer to coordinate the response which may include contacting an arborist to inspect and provide advice on remedial action, where possible.	Construction

No.	Impact	Environmental safeguards	Timing
BIO3	City of Sydney Tree Removal Application Form to remove additional trees	Should the detailed design or onsite works determine the need to remove or trim additional trees, which have not been identified in the REF, the Construction Contractor is required to complete a City of Sydney Tree Removal Application Form and submit it to the City of Sydney for approval.	Pre-Construction
HWQ1	Erosion and Sedimentation Control Plan	Temporary drainage or drainage diversions will be installed so that stormwater function is not impeded during construction.	Pre-Construction
HWQ2	Erosion and Sedimentation Control Plan	An Erosion and Sedimentation Control Plan (ESCP) will be prepared in accordance with the Landcom Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book) prior to construction commencing.	Pre-Construction
HWQ3	Disturbed surfaces	Disturbed surfaces will be compacted and stabilised in anticipation of a rain event to reduce the potential for erosion.	Construction
HWQ4	Removal of material deposited	Material deposited onto pavements will be swept and removed at the end of each working shift and prior to rainfall.	Construction
HWQ5	Storage of fuels, oils and other chemicals	Fuels, oils and other chemicals will not be stored in the vicinity of the construction site wherever possible.	Construction
HWQ6	Emergency wet and dry spill kits	Emergency wet and dry spill kits will be kept on site at all times and all staff will be made aware of the location of the spill kits and trained in their use.	Construction
W1	Waste Management Plan	A Waste Management Plan (WMP) will be prepared and implemented as part of the CEMP. The WMP will include but not be limited to: • measures to avoid and minimise waste associated with the proposal • classification of wastes and management options (re-use, recycle, stockpile, disposal) in accordance with the Waste Classification Guidelines (EPA, 2014) and NSW legislative requirements • statutory approvals required for managing both on and off-site waste, or application of relevant resource recovery exemptions • procedures for storage, transport and disposal of wastes. • monitoring, record keeping and reporting. The WMP will be prepared taking into account the WARR Act and *Waste Classification Guidelines* (EPA, 2014).	Pre-Construction
W2	Source of construction materials	A far as practicable, construction materials shall be sourced within the Sydney region so as to reduce transport costs, including fuel usage.	Construction
W3	Waste management	A hierarchy of waste management shall be implemented via: • separation of general wastes, recyclable/reusable materials, and hazardous	Construction

No.	Impact	Environmental safeguards	Timing
		wastes to avoid mixing with other materials/wastes • regular housekeeping and servicing of waste storages • general waste and recycling receptacles will be provided onsite. Waste will be transported to an appropriately licensed waste disposal and/or recycling facility • wastes (including green waste) shall not be burnt • weed removal activities including removal of weeds prior to tree removal works to allow non-weed infested mulched material to be reused on site.	
W4	Waste facility licenced under the POEO Act	Waste disposed off-site shall be taken to a waste facility that is licenced under the POEO Act to receive wastes of that type.	Construction
W5	Work areas	Work areas will be kept free of rubbish, with appropriate receptacles provided for waste management and recycling.	Construction
W6	Waste management	Contractors will recycle waste in accordance with the City of Sydney's *Leave nothing to waste: Waste strategy and action plan 2017-2030*.	Construction
CU1	Cumulative impacts	CoS Accelerated Bike network program coordinator to consider cumulative effects of projects' construction works. There is potential to block access to Erskineville Oval via Fox Avenue with this proposal and another proposal on Ashmore Street.	Pre-Construction
CU2	Cumulative impacts	Consult with TfNSW to obtain information about project timeframes and impacts. Identify and implement appropriate safeguards and management measures to minimise cumulative impacts of construction if other projects are constructed at the same time as the proposal.	Pre-Construction
CU3	Cumulative impacts – CEMP	The CEMP will be revised to consider potential cumulative impacts from surrounding development activities as they become known. This will include a process to review and update mitigation measures as new works begin or if complaints are received.	Pre-Construction

8.0 Conclusion and certification

8.1 Conclusion

This Review of Environmental Factors has been prepared to assess the environmental impacts of the proposed Gadigal Avenue, Potter Street and Crystal Street cycleway. This cycleway is part of the Accelerated Bike Network Program which has been developed by the City of Sydney to improve cycling access throughout the CBD and City of Sydney LGA. The proposal would generate benefits including:

- Improved journey time reliability for people on bikes
- Improved integration with public transport

- Potential public transport de-crowding
- Improved equity and accessibility outcomes
- Potential for wider economic benefits beyond the transport sector
- Improved localised economic activity
- Reduced energy dependence.

The Review of Environmental Factors has been prepared in accordance with Part 5 of the *NSW Environmental Planning and Assessment Act 1979* and has assessed those matters listed in Clause 228 of the *NSW Environmental Planning and Assessment Regulation 2000*. The format of the report and level of environmental impact assessment also complies with the *City of Sydney Part 5 Environmental Impact Assessment Procedures* manual.

The proposal complies with relevant State and local planning, strategy and policies, specifically the City's *Cycling Strategy and Action Plan 2018*. This plan includes an objective to connect the network and make it safer for people to ride in Sydney. The Cycling Strategy and Action Plan was adopted by the City in 2007, and incorporated into the City's strategic plan, *Sustainable Sydney 2030.* The strategy aims to achieve the *Sustainable Sydney 2030* target for ten percent of all trips in the LGA to be made by bike. City of Sydney has since planned and largely implemented the delivery of the first suite of cycle network projects and updated the Strategy and Action Plan in 2018.

The assessment undertaken in this Review of Environmental Factors has confirmed that the proposal would not result in a significant impact on declared critical habitat, threatened species, populations or ecological communities or their habitats. A Species Impact Statement is therefore not required, nor is a referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The assessment demonstrated that the proposal would improve local access and would integrate within the existing transport network.

The City would continue to work with affected landowners to minimise impacts during construction and operation and would also obtain the necessary permits and approvals by working together with stakeholders including Transport for NSW.

The public exhibition of this Review of Environmental Factors would provide an opportunity for the community, businesses and landowners to comment on the proposal.

The Review of Environmental Factors has assessed key environmental and planning issues including traffic and transport, noise and vibration, non-Indigenous heritage and socio-economic impacts. Mitigation measures outlined in **Chapter 7.0** have also been identified to minimise environmental impacts associated with the implementation of the proposal, which includes the preparation of a Construction Environmental Management Plan and sub-plans.

The identified mitigation measures would enable the proposal to be constructed and operated without resulting in a significant adverse effect on the environment. In this regard, an Environmental Impact Statement is not required.

8.2 Certification

This review of environmental factors provides a true and fair review of the proposal in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposal.

Jamie McMahon

Environmental Scientist - Associate Director

AECOM

Date:

9.0 References

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Appendix A

Consideration of Matters of National Environmental Significance

The table below demonstrates City of Sydney's consideration of matters of national environmental significance under the EPBC Act to be considered in order to determine whether the proposal should be referred to the Commonwealth Department of the Environment and Energy.

Matters of National Environmental Significance	Impacts
Any impact on a World Heritage property?	**Nil**
Any impact on a National Heritage place?	**Nil**
Any impact on a wetland of international importance?	**Nil**
Any impact on a listed threatened species or communities?	**Nil**
Any impacts on listed migratory species?	**Nil**
Does the proposal involve a nuclear action (including uranium mining)?	**Nil**
Any impact on a Commonwealth marine area?	**Nil**
Does the proposal involve development of coal seam gas and/or large coal mine that has the potential to impact on water resources?	**Nil**
Additionally, any impact (direct or indirect) on Commonwealth land?	**Nil**

Appendix B

Consideration of Clause 228

The table below demonstrates City of Sydney's consideration of the specific factors of clause 228 of the EP&A Regulation in determining whether the proposal would have a significant impact on the environment.

Factor	Impacts
(a) Any environmental impact on a community? **The proposal is located within a significantly modified urban area and would not result in any environmental impact on a community. The proposal would involve public domain and additional street tree planting the provide a positive contribution to the environment.**	Minor
(b) Any transformation of a locality? **The proposal would transform Gadigal Avenue, Potter Street and Crystal Street. The change comes through the provision of active transport infrastructure and upgraded pedestrian facilities. The transformation is considered to be positive.**	Minor
(c) Any environmental impact on the ecosystem of the locality? **The proposal is located in a significantly modified urban area with limited natural environmental areas or values. There are no identified threatened species or habitats and no affected heritage items within the proposed proposal area.**	Minor
(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? **The proposal would result in a short-term reduction of the aesthetic of Gadigal Avenue, Potter Street and Crystal Street.** **The proposal area has been significantly modified by previous and current development and lacks distinctive aesthetic, recreational and scientific value or other environmental quality. There are no identified threatened species or habitats and no affected heritage items within the proposed proposal area.**	Minor

Factor	Impacts
(e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? **The proposal would have minor, indirect impacts upon items of heritage significance.** **In addition, the proposal would have a minor positive impact on Gadigal Avenue, Potter Street and Crystal Street for future generations through the provision of needed active transport infrastructure.**	Minor
(f) Any impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)? **The proposal is located in a significantly modified urban environment that is unlikely to contain habitat of protected fauna.**	Minor
(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? **The proposal is located in a significantly modified urban environment that is unlikely to contain habitat of protected fauna. Proposed tree planting along the proposed proposal route has the potential for additional foraging habitat for flying species.**	Minor
(h) Any long-term effects on the environment? **The proposal is proposed as a transport solution to improve access in the area and active transport networks. The proposal is aimed at encouraging a modal shift of transport to active transport, reducing the volume of vehicles within the City of Sydney, thereby reducing vehicle emissions.**	Minor
(i) Any degradation of the quality of the environment? **The proposal would not degrade the quality of the environment which is heavily urbanised.**	Minor
(j) Any risk to the safety of the environment? **Construction of the proposal poses risks to the safety of the environment, where works are not mitigated. This REF has proposed a number of mitigation measures aimed at avoiding, managing or mitigating potential risks to the environment.**	Minor
(k) Any reduction in the range of beneficial uses of the environment? **The proposal would provide for an increase in sustainable transport use and public domain enhancements would provide increased value to the area.** **The proposal would ensure long term access improvements in the area.**	Minor

Factor	Impacts
(l) Any pollution of the environment? **The proposal would result in a minor increase in air pollution during the construction stage.**	Minor
(m) Any environmental problems associated with the disposal of waste? **A Waste Management Plan would be prepared to properly document and dispose of waste generated during the construction stage. Once operational, the proposal would not generate significant waste.**	Minor
(n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply? **The proposal is unlikely to increase demand on resources (natural or otherwise) that are, or are likely to become, in short supply.**	Minor
(o) Any cumulative environmental effect with other existing or likely future activities? **Construction of the proposal would coincide with the construction of a number of other proposals in the City of Sydney. Cumulative impacts as a result of concurrent development would be managed in accordance with measures outlined in Section 6.13.4**.	Minor
(p) Any impact on coastal processes and coastal hazards, including those under Proposed climate change conditions? **The proposal is located approximately 5km from the coastline and is unlikely to impact on coastal processes.**	Minor

Appendix C

Community Engagement report

Attachment G

Engagement Report – Gadigal Avenue, Crystal Street and Potter Street Cycleway

CITY OF SYDNEY

Engagement report

Engagement report
Improvements on Gadigal Avenue, Crystal Street and Potter Street
December 2020

Green Global Connected

Contents

Background

The project will create a safe connection for people walking and riding, between Green Square and south eastern suburbs and the Bourke Street cycleway, Redfern and Surry Hills. It connects with the existing cycleway on Gadigal Avenue between O'Dea Avenue and Lachlan Streets, utilising a new signalised crossing of Lachlan Street.

Improvements include:

- A bidirectional cycleway on the eastern side of Crystal Street
- New garden bed plantings in medians
- Safer crossings for people walking
- Planting of eight new trees (Corymbia Maculata or spotted gum which match the existing trees on the verge).

So that we can provide these improvements, it is proposed to remove 10 parking spaces on Crystal Street. There are no proposed changes to parking on Potter Street.

Engagement summary and activities

From 12 November to 10 December 2020, we asked the community for feedback on improvements on Gadigal Avenue, Crystal and Potter streets.

The purpose of the engagement was to make concept plans available for comments that will inform a detailed design on the improvements that will benefit community including people walking and riding.

The Sydney Your Say page was created and visited 396 times during the consultation period. The plan was downloaded 181 times.

We received a total of 55 submissions (via Survey Monkey) during the public exhibition period.

A notification letter was sent to 2435 properties and the project featured in the Sydney Your Say and Sydney Cycleways e-newsletter.

Snapshot of people who answered the survey

55 people surveyed

98% completed the survey as individuals (not as an organisation or business)

24% live in Waterloo and Zetland

36% live in the City of Sydney Local Government Area

29% live in other Local Government Areas

11% didn't indicate where they live

94% of submissions support the project

3% of submissions were neutral

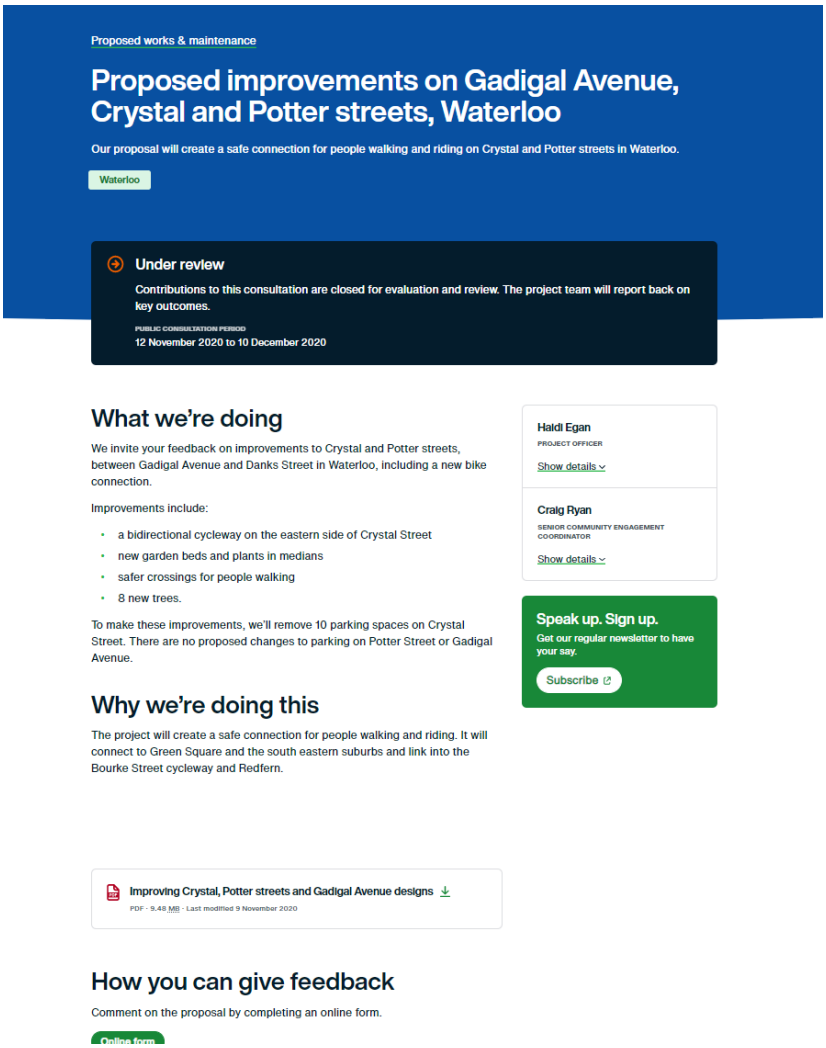
3% of submissions do not support the project

Idea or issue raised	City of Sydney response
Interested in seeing this project connect to the work currently happening at Lachlan Street.	The works are underway to install traffic signals at the intersection of Gadigal Avenue and Lachlan Street this will connect the existing cycleway on Gadigal Avenue to the proposed new cycleway north of Lachlan Street.
Suggests that the cycleway is at least 3 meters wide.	On Crystal Street and Gadigal Avenue the cycleway is 3m wide. On Potter Street the cycleway is 2.4m wide to accommodate the turning circle of larger vehicles.
Make sure that the crossings are safe, accessible and free from debris.	All crossings are designed to meet relevant standards and technical guidelines. Roads and cycleways are cleaned on a regular basis.
What information is there that supports the need for more cycleways.	Cycleways are important to provide a safe transport option for people wanting to ride. Customer research by Transport for NSW found that 70% of Sydneysiders would ride, or ride more often if it were safe and convenient. A survey of over 1,000 people living within 10kms of city centre in June 2018 found: • 72 percent support separated cycleways • 62 percent agree bikes help to cut congestion on roads and public transport • Most want bike network built faster • Two thirds support bike network even if it means longer car journeys
Where can people riding electric assisted bikes ride?	Electric assisted bikes are treated the same as bicycles in the road rules. They may ride on roads, cycleways and shared paths. If the rider is under 16, or riding with a child, or is a postal worker, or has a medical certificate, they may ride on the footpath.

Idea or issue raised	City of Sydney response
The cycleway doesn't connect anywhere.	The works are underway to install traffic signals at the intersection of Gadigal Avenue and Lachlan Street this will connect the existing cycleway on Gadigal Avenue to the proposed new cycleway north of Lachlan Street. At the northern end of Crystal Street, cyclists can use the through site link to connect to the Bourke Street Cycleway.
The separated cycleway should continue all the way to Dyuralya Square instead of pushing people riding on to shared paths.	The works are underway to install traffic signals at the intersection of Gadigal Avenue and Lachlan Street this will connect the existing cycleway on Gadigal Avenue to the proposed new cycleway north of Lachlan Street without the need for Shared Paths at this intersection
Provide adequate wayfinding signage to show the connection from Danks Street to East Village.	This is a good suggestion, thank you. We will do so.
Experienced riders feel that this isn't needed and existing crossing and speed hump make the space comfortable to ride.	We build cycleways for the many people (ie 70% of Sydneysiders) who would ride if there was safe infrastructure, separated from traffic.
Can the speed limit be reduced to 30km/h?	Speed limits are controlled by NSW State Government and the City of Sydney has no jurisdiction over speed limits.
The crossing should also include a green cycle strip as well as the existing one in the middle of Crystal Street near the fountain.	At the mid-block crossing in Crystal Street pedestrians will have right of way over bike riders. Green paint would suggest a bicycle priority.
The existing crossing should be retained.	The crossing across Potter Street will be relocated to the existing pedestrian desire line near Crystal Street.
The area is already oversubscribed with on-street parking, so the removal of the spaces is supported.	Noted

Appendices

Appendix A: Sydney Your Say webpage (including online survey)



Proposed works & maintenance

Proposed improvements on Gadigal Avenue, Crystal and Potter streets, Waterloo

Our proposal will create a safe connection for people walking and riding on Crystal and Potter streets in Waterloo.

Waterloo

Under review

Contributions to this consultation are closed for evaluation and review. The project team will report back on key outcomes.

PUBLIC CONSULTATION PERIOD
12 November 2020 to 10 December 2020

What we're doing

We invite your feedback on improvements to Crystal and Potter streets, between Gadigal Avenue and Danks Street in Waterloo, including a new bike connection.

Improvements include:

- a bidirectional cycleway on the eastern side of Crystal Street
- new garden beds and plants in medians
- safer crossings for people walking
- 8 new trees.

To make these improvements, we'll remove 10 parking spaces on Crystal Street. There are no proposed changes to parking on Potter Street or Gadigal Avenue.

Haidl Egan
PROJECT OFFICER
Show details

Craig Ryan
SENIOR COMMUNITY ENGAGEMENT COORDINATOR
Show details

Speak up. Sign up.
Get our regular newsletter to have your say.
Subscribe

Why we're doing this

The project will create a safe connection for people walking and riding. It will connect to Green Square and the south eastern suburbs and link into the Bourke Street cycleway and Redfern.

Improving Crystal, Potter streets and Gadigal Avenue designs
PDF · 9.48 MB · Last modified 9 November 2020

How you can give feedback

Comment on the proposal by completing an online form.

Online form

Appendix B: Digital marketing

Sydney Your Say e-News

Proposed improvements on Gadigal Avenue, Crystal and Potter streets, Waterloo

We're improving these streets and creating safer spaces for people walking and riding. This is the last chance to have your say.

Read more

Sydney Cycleways e-News

An artist's impression of the new cycleway on Crystal Street.

New bike links between the city centre and Waterloo

We want your feedback on plans for new cycleways in Waterloo. We're proposing riding and walking improvements on Crystal and Potter streets and Gadigal Avenue.

The new cycleways will link the existing bike lanes in city's south-east to the Bourke Street cycleway. These improvements will make it a safer journey for people riding between the city centre and the Green Square precinct.

As part of the improvements we'll also plant new trees, and add pedestrian crossings, making the street a nicer place people walking.

We'd love to hear your thoughts. Submissions close 10 December.

Appendix D

Design Drawings

ACCELERATED BIKE NETWORK PROGRAM
GADIGAL AVE, POTTER ST, CRYSTAL ST

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

COVER SHEET AND DRAWING LIST

SHEET NUMBER

60620833-1C-SHT-1000-CI-0001

GENERAL

1 THE INFORMATION CONTAINED IN THESE DRAWINGS PRODUCED BY AECOM IS SOLELY FOR THE USE OF CITY OF SYDNEY (CoS) FOR THE PURPOSE FOR WHICH IT HAS BEEN PREPARED. AECOM AUSTRALIA PTY LTD UNDERTAKES NO DUTY TO OR ACCEPTS NO RESPONSIBILITY TO ANY THIRD PARTY WHO MAY RELY UPON THIS DOCUMENT.
2 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING AND PUBLIC DOMAIN DRAWINGS, THE SPECIFICATION, CoS STANDARD DRAWINGS, AND WITH SUCH OTHER WRITTEN INSTRUCTIONS, AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.
3 ANY DISCREPANCIES BETWEEN THESE NOTES AND DRAWINGS, AND CoS SPECIFICATIONS AND DETAILS, THE DRAWINGS WILL TAKE PRECEDENCE.
4 ANY DISCREPANCIES OR OMISSIONS FROM THESE DOCUMENTS SHALL BE REFERRED TO THE SUPERINTENDENT FOR A DECISION BEFORE PRECEDING WITH THE WORK.
5 ALL WORKMANSHIP AND MATERIALS TO COMPLY WITH THE BUILDING CODE OF AUSTRALIA AS AMENDED AND THE APPROPRIATE AND CURRENT AUSTRALIAN STANDARDS OR LOCAL STATUTORY AUTHORITY GUIDELINES.
6 ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL CHAINAGES AND LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.
7 ALL DIMENSIONS RELEVANT TO SETTING OUT OR OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION AND FABRICATION HAS COMMENCED.
8 DO NOT SCALE FROM DRAWINGS.
9 ORIGIN OF LEVELS - AHD
COORDINATES TO MGA - MAP GRID AUSTRALIA.
10 WHERE NOTED ON DRAWINGS THAT WORKS ARE TO BE CARRIED OUT BY OTHERS, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COORDINATION OF THESE WORKS AND THIS WORK WILL NOT QUALIFY FOR DELAY CLAIMS.
11 WHERE A PROPRIETARY ITEM (OR EQUIVALENT) IS SPECIFIED, AND AN EQUIVALENT ITEM IS PROPOSED, THE CONTRACTOR SHALL PROVIDE MANUFACTURERS SPECIFICATIONS FOR BOTH PRODUCTS TO THE SUPERINTENDENT FOR APPROVAL, AND DEMONSTRATE THAT THE PRODUCT PERFORMANCE IS EQUIVALENT OR BETTER, PRIOR TO USE.
12 ALL PROPRIETARY PRODUCTS ARE TO BE INSTALLED FIXED AND TESTED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
13 DURING CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE STRUCTURES AND EXCAVATIONS ARE MAINTAINED IN A SAFE AND STABLE CONDITION AT ALL TIME AND NO PART IS TO BE OVERSTRESSED. THE CONTRACTOR SHALL DEVELOP WORK METHOD STATEMENTS FOR ALL ERECTION OF STRUCTURAL STEEL/FORMWORK/ DEMOLITION/EXCAVATION/TILT PANELS ETC. AND PROVIDE TEMPORARY WORKS SUCH AS BRACING, PROPPING AND SHORING ETC. TO KEEP THE WORKS AND EXCAVATIONS STABLE AND FREE FROM WATER AT ALL TIMES. THE CONTRACTOR IS TO ENGAGE A STRUCTURAL ENGINEER TO DESIGN AND CERTIFY THE TEMPORARY WORKS.

SITEWORKS AND EARTHWORKS

1 THE CONTRACTOR TO MAKE SMOOTH CONNECTION TO ANY EXISTING WORKS.
2 ON COMPLETION OF THE WORKS, THE CONTRACTOR MUST RESTORE OR REINSTATE ANY AREAS, STRUCTURES, PAVEMENTS OR UTILITY SERVICES DAMAGED OR DIRTIED DURING THE CONSTRUCTION, TO THE SATISFACTION OF THE SUPERINTENDENT OR THE ASSET OWNER.
3 ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL, OR AS REQUIRED IN THESE DRAWINGS AND THE SPECIFICATION.
4 ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED IN ACCORDANCE WITH CoS STANDARD DRAWINGS AND SPECIFICATION UNO.
5 PROVIDE EXPANSION/ISOLATION JOINTS BETWEEN BUILDINGS AND ALL CONCRETE AND UNIT PAVEMENTS.
6 ASPHALTIC CONCRETE SHALL CONFORM TO TfNSW QA SPECIFICATION R116
7 ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH TfNSW QA SPECIFICATION 3051 - GRANULAR BASE AND SUB-BASE MATERIALS FOR SURFACED ROAD PAVEMENTS. COMPACTION REQUIREMENTS AND TESTING FREQUENCY SHALL BE AS PER THE SPECIFICATION.
8 ALL SUB-BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH TfNSW QA SPECIFICATION 3051 - GRANULAR BASE AND SUB-BASE MATERIALS FOR SURFACED ROAD PAVEMENTS. COMPACTION REQUIREMENTS AND TESTING FREQUENCY SHALL BE AS PER THE SPECIFICATION.
9 THE USE OF RECYCLED MATERIALS IS ENCOURAGED BY CoS. IF THE CONTRACTOR INTENDS TO USE RECYCLED MATERIALS, A RECYCLED MATERIAL COMPLYING WITH TfNSW QA SPECIFICATION 3051 - GRANULAR BASE AND SUB-BASE MATERIALS FOR SURFACED ROAD PAVEMENTS WILL BE CONSIDERED, SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF THE PRINCIPAL'S REPRESENTATIVE.
10 THE CONTRACTOR IS TO CONTINUE TO PROVIDE CERTIFICATION FOR ALL RECYCLED MATERIALS DURING THE COURSE OF CONSTRUCTION, AND WHERE MATERIAL THAT DOES NOT COMPLY, THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL AND REPLACEMENT WITH A SUITABLY COMPLIANT MATERIAL AT THEIR OWN COST.
11 SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT, THE INTENT SHALL BE CLEARLY INDICATED IN THEIR TENDER AND THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY NOTED.
12 THE CONTRACTOR MUST FAMILIARISE THEMSELVES WITH THE RECOMMENDATIONS OF ALL GEOTECHNICAL AND CONTAMINATION REPORTS ASSOCIATED WITH THIS PROJECT
13 THE CONTRACTOR WILL BE RESPONSIBLE FOR THE SAFE EXCAVATION, CONTAMINATION MANAGEMENT AND DISPOSAL OF ALL CONTAMINATED MATERIALS FOUND WITHIN ANY EXCAVATION.
14 MATERIALS USED IN FILL MUST BE CLEAN IMPORTED GRANULAR VENM UNLESS CONFIRMED OTHERWISE BY THE SUPERINTENDENT.
15 COMPACTION, TESTING, FILLING, STANDARD DRY DENSITIES AND MOISTURE CONTENT TO BE IN ACCORDANCE WITH THE SPECIFICATION.
16 ALL EXPOSED EARTHWORKS AREAS SHALL BE ROLLED EACH EVENING TO RESTRICT THE INGRESS FROM POTENTIAL WATER INGRESS.

EROSION AND SEDIMENT CONTROLS - GENERAL INSTRUCTIONS

1 THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE AND TAKE ALL STEPS NECESSARY TO PROTECT THE ENVIRONMENT DURING THE COURSE OF THEIR CONTRACT AND IN PARTICULAR IMPLEMENT THE NECESSARY MEASURES FOR THE CONTROL OF EROSION AND SEDIMENTATION TO THE SATISFACTION OF ALL ADMINISTERING BODIES INCLUDING CITY OF SYDNEY, NSW OFFICE OF WATER, SYDNEY WATER, TfNSW AND NSW ENVIRONMENT AND HERITAGE.
2 THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE DRAWINGS SHALL ONLY BE USED AS A GUIDE BY THE CONTRACTOR AND SHALL REPRESENT THE MINIMUM REQUIREMENT ONLY.
3 EROSION AND SEDIMENTATION MEASURES ARE TO BE PROVIDED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS, ADJUSTED TO SUIT STAGING AND MAINTAINED FOR THE LIFE OF THE CONTRACT.
4 ALL MEASURES ARE TO BE DESIGNED AND IMPLEMENTED IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE "BLUE BOOK" - SOILS AND CONSTRUCTION AND CoS DCP, AND CONFIRMED AS A PART OF THEIR CONSTRUCTION MANAGEMENT OR QUALITY PLAN FOR THE SITE.
5 THE CONTRACTOR IS TO ARRANGE A PRE-CONSTRUCTION MEETING WITH CoS SOIL CONSERVATION CONSULTANT AND THE SUPERINTENDENT.
6 ALL MEASURES INCLUDING DIVERSION BANKS, CATCH AND DIVERSION DRAINS AND SILT FENCES SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF CONTRACT WORKS
7 DURING WINDY WEATHER, LARGE UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRAYING WITH CLEAN WATER TO CONTROL DUST
8 ALL STOCKPILES MUST NOT BE LOCATED IN AREAS SUBJECT TO LIKELY CONCENTRATIONS OF OVERLAND FLOWS, AND HAVE MEASURES APPLIED, SUCH AS SILT FENCING, TO PREVENT EROSION OF THE STOCKPILE.
9 CLEAN WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO THE DRAINAGE SYSTEM. ANY WATER ENTERING THE DRAINAGE SYSTEM MUST BE SEDIMENT FREE.

OTHER ENVIRONMENTAL NOTES

10 ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHING, LIGHT WEIGHT MATERIALS AND LITTER.

STORMWATER DRAINAGE

1 PIPES 375mm DIA AND LARGER TO BE REINFORCED CONCRETE CLASS'4', 10/20 COVER, APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS U.N.O. ALL PIPEWORK IS TO BE LAID WITH THE SOCKET FACING UPSTREAM. ALL WORKS ARE TO COMMENCE AT THE OUTLET END OF EACH LINE.
2 PIPES TO BE INSTALLED TO TYPE HS3 SUPPORT UNDER ROADS, PATHS AND DRIVEWAYS, AND TO TYPE HS2 ELSEWHERE, IN ACCORDANCE WITH AS3725. BACKFILLING AND MATERIALS IS TO BE IN ACCORDANCE WITH THE SPECIFICATION.
3 PITS TO BE CONSTRUCTED IN ACCORDANCE WITH CoS STANDARD DETAILS. PRECAST PITS WILL NOT BE ACCEPTED UNLESS THROUGH EXPRESSED PERMISSION OF CoS.
4 CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
5 GRATES AND COVERS SHALL CONFORM TO CITY OF SYDNEY SPECIFICATION (B10).
6 AT ALL TIMES DURING CONSTRUCTION, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO PREVENT PERSONNEL FROM FALLING INTO PITS AND OPEN TRENCHES.
7 ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN, ARE TO BE INSPECTED AND CLEANED, AND ANY PART OF THAT SYSTEM IDENTIFIED AS WARRANTING REPAIR, SHALL BE REPORTED TO THE SUPERINTENDENT FOR FURTHER DIRECTION.
8 CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT PIPES FROM DAMAGE DUE TO HEAVY CONSTRUCTION LOADING. CONTRACTOR TO UNDERTAKE PRE AND POST CONSTRUCTION CCTV INSPECTIONS FOR ALL PIPE LINES IMPACTED BY THE WORKS, TO BE PROVIDED TO CITY OF SYDNEY FOR ACCEPTANCE PRIOR TO HAND-OVER.
9 THE CONTRACTOR IS TO MANAGE AND STAGE CONSTRUCTION WORKS, INCLUDING PROVIDING TEMPORARY DIVERSION WORKS IF NECESSARY, TO ENSURE ANY EXISTING DRAINAGE SYSTEM IS ABLE TO PERFORM TO ITS CURRENT STANDARD.
10 THE CONTRACTOR SHALL PROTECT THE WORKS IN PROGRESS. ANY DAMAGE TO THE WORKS IN PROGRESS, INCLUDING FROM STORMWATER FLOWS OR FLOODING, IS AT THE CONTRACTOR'S RISK.

SURVEY NOTES

1 UNLESS NOTED OTHERWISE ON THE DRAWINGS THE EXISTING SITE CONDITIONS SHOWN ON THE DRAWINGS IS AS PRESENTED IN THE TOPOGRAPHICAL SURVEY INFORMATION AS NOTED BELOW:
- 1A: 'CASTLEREAGH, YOUNG, BLIGH, LIVERPOOL STREET PLAN OF FEATURES' BY AAM DATED 25.12.2013 (REF. 254597) AS RECEIVED FROM CoS
- 1B: 'SHOWING SELECTED LEVELS AND DETAIL OVER FITZROY STREET, SURRY HILLS' BY HILL & BLUME SURVEYORS DATED 20.11.2019 (REF. 61815) AS RECEIVED FROM CoS
- 1C: 'PLAN SHOWING DETAIL AND LEVELS OVER THE DANK STREET PRECINCT' BY RYGATE SURVEYORS DATED 10.03.2019 (REF. 78869) AS RECEIVED FROM CoS
- 2A: 'SITE PLAN SHOWING SELECTED LEVELS AND DETAIL OVER ASHMORE STREET AND HARLEY STREET, ALEXANDRIA' BY HILL & BLUME SURVEYORS DATED 02.12.2019 ISSUE 'C' (REF. 61747) AS RECEIVED FROM CoS
- 2B: 'SHOWING SELECTED LEVELS AND PARTIAL DETAIL OVER BRIDGE STREET, ERSKINEVILLE' BY HILL & BLUME SURVEYORS DATED 09.12.2019 (REF. 61743) AS RECEIVED FROM CoS 'SITE PLAN SHOWING SELECTED LEVELS AND DETAIL OVER RAILWAY PARADE AND HENDERSON ROAD, ALEXANDRIA' BY HILL & BLUME SURVEYORS DATED 20.11.2019 ISSUE 'B' (REF. 61746) AS RECEIVED FROM CoS
- 2C: 'SHOWING SELECTED LEVELS AND DETAIL OVER HUNTLEY STREET & MITCHELL ROAD, ERSKINEVILLE' BY HILL & BLUME SURVEYORS DATED 19.11.2019 (REF. 61744) AS RECEIVED FROM CoS
- 2D: 'SHOWING SELECTED LEVELS AND DETAIL OVER MITCHELL ROAD & BUCKLAND STREET, ALEXANDRIA' BY HILL & BLUME SURVEYORS DATED 07.11.2019 (REF. 61745) AS RECEIVED FROM CoS
- 2E: 'SHOWING PARTIAL LEVELS AND DETAIL OVER SWANSON STREET, ERSKINEVILLE' BY HILL & BLUME SURVEYORS DATED 27.11.2019 (REF. 61812) AS RECEIVED FROM CoS

THIS SURVEY INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN ONLY. AECOM DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT THE SUPERINTENDENT.

2 SOME AREAS OF SURVEY INDICATED ON THE DRAWINGS HAVE BEEN ASSUMED AND HAVE BEEN USED AS A BASIS FOR DESIGN ONLY. CONTRACTOR IS TO CONDUCT THEIR OWN DETAILED TOPOGRAPHICAL SURVEY AND CONFIRM ALL LEVELS AND TIE-INS PRIOR TO PROCEEDING WITH ANY WORKS.

UTILITY SERVICES

1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL PUBLIC OR PRIVATE SERVICE PROVIDER DRAWINGS AND/OR REQUIREMENTS, THIS MAY INCLUDE (BUT IS NOT LIMITED TO) THE FOLLOWING:
- JEMENA DRAWINGS
- AUSGRID DRAWINGS
- NBN DRAWINGS
- SYDNEY WATER DRAWINGS
- TfNSW SIGNAL PLAN DRAWINGS

2 EXISTING UTILITIES SHOWN ON DRAWINGS ARE INDICATIVE ONLY AND MAY NOT INCLUDE ALL SERVICES PRESENT. AECOM TAKES NO RESPONSIBILITY FOR THE UTILITY INFORMATION AS SHOWN ON THESE DRAWINGS.
3 IT IS THE CONTRACTORS RESPONSIBILITY TO LIAISE WITH EACH UTILITY SERVICE PROVIDER ON SITE, TO LOCATE AND IDENTIFY THE SIZE, POSITION, LINE AND LEVEL OF ALL UTILITY SERVICES IN BOTH PUBLIC AND PRIVATE LAND, PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
4 THE CONTRACTOR MUST TAKE EVERY PRECAUTION TO PROTECT EXISTING AND NEW UTILITY SERVICES THROUGH THE COURSE OF THE CONTRACT.
5 THE EXECUTION OF ALL WORKS INVOLVING UTILITY SERVICES, EITHER NEW OR EXISTING, IS THE RESPONSIBILITY OF THE CONTRACTOR AND FORM PART OF THE CONTRACT PRICE, UNLESS SPECIFICALLY NOTED OTHERWISE.
6 ALL WORKS INVOLVING UTILITY SERVICES TO BE UNDERTAKEN TO THE SATISFACTION OF THE UTILITY SERVICE PROVIDER. THE CONTRACTOR WILL BE RESPONSIBLE FOR ENGAGING WITH THE UTILITY SERVICE PROVIDER, THE EXECUTION OF THE WORK TO THEIR REQUIREMENTS AND PROCUREMENT OF APPROVALS FOR WORKS UNDERTAKEN.
7 ALL WORKS INVOLVING UTILITY SERVICES MUST ONLY BE UNDERTAKEN USING PLANS APPROVED BY THE UTILITY SERVICE PROVIDER.
8 THE CONTRACTOR IS TO COORDINATE THE INSTALLATION AND/OR ADJUSTMENT OF ELECTRICITY, GAS AND TELECOMMUNICATIONS SERVICES (INCLUDING PITS, MANHOLES AND COVERS). ELECTRICITY, GAS AND TELECOMMUNICATIONS SERVICES ARE TO BE LAID FOLLOWING THE INSTALLATION OF STORMWATER, SEWER AND WATER SERVICES, AND KERB AND GUTTER (IF APPLICABLE).
9 ALL SERVICE PIT COVERS AND MARKERS ARE TO BE PLACED IN ACCORDANCE WITH THE LOCATIONS AS SHOWN ON THE PUBLIC DOMAIN DRAWINGS, AND IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATION.
10 ALL SERVICE PIT COVERS TO BE PLACED AT FINISHED SURFACE LEVELS TO MATCH THE PROPOSED LONGITUDINAL AND CROSS FALL GRADES OF THE FOOTPATH OR ROADWAY IT IS CONTAINED WITHIN.
11 NO PIPE OR TRENCH SHALL BE LOCATED WITHIN THE ZONE OF INFLUENCE (1V:2H) OF A FOOTING.
12 MINIMUM CLEARANCES BETWEEN SERVICES TO BE PROVIDED UNLESS DIRECTED BY THE SUPERINTENDENT.
13 "WORKS AS CONSTRUCTED" SURVEY ON ALL UTILITY WORK SHALL BE RECORDED PRIOR TO ANY BACKFILLING.
14 MAJOR OPTUS CABLES MAY BE PRESENT WITHIN THE SITE - OPTUS REPRESENTATIVE SHALL BE ON SITE WHEN EXCAVATION IS WITHIN 3m OF OPTUS CABLES.

TELSTRA DUTY OF CARE

TELSTRA'S PLANS SHOW ONLY THE PRESENCE OF CABLES AND PLANT. THEY ONLY SHOW THEIR POSITION RELATIVE TO ROAD BOUNDARIES, PROPERTY FENCES ETC. AT THE TIME OF INSTALLATION AND TELSTRA DOES NOT WARRANT OR HOLD OUT THAT SUCH PLANS ARE ACCURATE THEREAFTER DUE TO CHANGES THAT MAY OCCUR OVER TIME. DO NOT ASSUME DEPTH OR ALIGNMENT OF CABLES OR PLANT AS THESE VARY SIGNIFICANTLY. THE CONTRACTOR HAS A DUTY OF CARE WHEN EXCAVATING NEAR TELSTRA CABLES AND PLANT. BEFORE USING MACHINE EXCAVATORS, TELSTRA PLANT MUST FIRST BE PHYSICALLY EXPOSED BY SOFT DIG POTHOLING TO IDENTIFY IT'S LOCATION. TELSTRA WILL SEEK COMPENSATION FOR DAMAGES CAUSED TO IT'S PROPERTY AND LOSSES CAUSED TO TELSTRA AND IT'S CUSTOMERS

KERB NOTES

1 ALL CONCRETE FOR KERBS TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa U.N.O. IN THE DRAWINGS.
2 ALL KERBS, GUTTERS AND CROSSINGS TO BE CONSTRUCTED ON 150mm (DGB20), COMPACTED TO MINIMUM 98% STANDARD MDD (AS1289 5.2.1)
3 EXPANSION JOINTS (E.J.) TO BE FORMED FROM 15mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT PITS, ON TANGENT POINTS OF CURVES, AND ELSEWHERE AT 12m CENTRES, EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
4 WEAKENED PLANE JOINTS TO BE 5mm WIDE AND LOCATED AT 3m CENTRES, EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
5 BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISH.
6 IN REPLACEMENT OF KERB AND GUTTER, THE EXISTING ROAD PAVEMENT IS TO BE SAWCUT AND REINSTATED IN ACCORDANCE WITH THE STANDARD DETAIL IN THESE DRAWINGS.
7 PRAM RAMPS SHALL BE IN ACCORDANCE WITH STANDARD DETAIL IN THESE DRAWINGS AND ALL LOCATIONS ARE TO BE VERIFIED ON SITE WITH THE SUPERINTENDENT PRIOR TO COMMENCEMENT OF CONSTRUCTION.

SAFETY

1 THE CONTRACTOR IS RESPONSIBLE FOR SAFETY ONSITE.
2 THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EXCAVATION WORKS IN A STABLE CONDITION, AND ENSURING NO PART SHALL BE OVERSTRESSED DURING CONSTRUCTION ACTIVITIES. PROVISION OF TEMPORARY BRACING, SHORING AND BATTERING IS BY THE CONTRACTOR AS REQUIRED TO PROVIDE A SAFE WORKING ENVIRONMENT.
3 THE CONTRACTOR MUST MAKE PROVISION FOR THE SAFETY OF NORMAL VEHICULAR TRAFFIC AND PEDESTRIANS, AND OTHERS INCLUDING UNAUTHORISED INTRUDERS.
4 ALL PITS, MANHOLES, PUMPSTATIONS AND OTHER CONFINED SPACES MUST BE FITTED WITH A CONFINED SPACE WARNING SIGN TO THE APPROVAL OF THE SUPERINTENDENT.
5 ALL CONDITIONS OF WITH THE ENVIRONMENTAL ASSESSMENT MUST BE MET.

AECOM

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
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FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

GENERAL NOTES

SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0011

LEGEND/ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
HORIZ	HORIZONTAL	N/S	NEAR SIDE
VERT	VERTICAL	F/S	FAR SIDE
CENTRAL	CENTRALLY PLACED	B/S	BOTH SIDES
CRS or C/C	CENTRES	U/S	UNDER SIDE
T or TOP	TOP or TOP FACE	L	LENGTH/LONG
B or BTM	BOTTOM or BOTTOM FACE	W	WIDTH/WIDE
T&B	TOP & BOTTOM	H	HEIGHT/HIGH
NF	NEAR FACE	D	DEPTH/DEEP
FF	FAR FACE	NOM	NOMINAL
INTF	INTERNAL FACE	REQ'D	REQUIRED
EXTF	EXTERNAL FACE	REINF	REINFORCEMENT
EF	EACH FACE	OPP	OPPOSITE
EW	EACH WAY	SIM	SIMILAR
EQ	EQUAL	GA	GENERAL ARRANGEMENT
NSOP	NOT SHOWN ON PLAN	PT	POST TENSION
NSOE	NOT SHOWN ON ELEVATION	DRG	DRAWINGS
UNO	UNLESS NOTED OTHERWISE	NTS	NOT TO SCALE
TYP	TYPICAL	LV	LENGTH VARIES
CL	CENTRE LINE	ABR	ALTERNATE BAR REVERSED
PL	PLATE	MAX	MAXIMUM
SV	SIZE VARIES	MIN	MINIMUM
STG	STAGGERED	CONT	CONTINUOUS

FOUNDATION NOTES

1 PAD AND STRIP FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 150 kPa OR AS SHOWN ON THE FOOTING DRAWINGS, FOUNDED ON NATURAL RESIDUAL SOIL/ENGINEERED FILL. THE CONTRACTOR SHALL ENGAGE A GEOTECHNICAL ENGINEER TO INSPECT AND VERIFY THAT THE GROUND AT EACH FOOTING IS CAPABLE OF CARRYING THIS PRESSURE.
2 ALL FOOTING EXCAVATIONS SHALL BE CLEANED OF LOOSE MATERIAL AND WATER PRIOR TO CASTING FOUNDATIONS.
3 UNLESS OTHERWISE NOTED ON THE DRAWINGS, LOCATE ALL PIPES, RETAINING WALLS AND EXCAVATIONS OUTSIDE A ZONE OF INFLUENCE FROM THE BOTTOM EDGE OF THE FOOTING.
4 WHERE VERIFIED FOUNDATION MATERIAL IS LOWER THAN THE UNDERSIDE OF FOOTINGS AS DETAILED, BACKFILL ADDITIONAL EXCAVATION WITH 10 MPa MASS CONCRETE.
5 FOOTINGS SHALL BE LOCATED CENTRALLY UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE.
6 FOOTINGS TO BE CONSTRUCTED AND BACKFILLED AS SOON AS POSSIBLE FOLLOWING EXCAVATION TO AVOID SOFTENING OR DRYING OUT BY EXPOSURE. IF SOFTENING OR DRYING OF FOOTING BASE OCCURS DUE TO CONSTRUCTION DELAY, FOOTINGS ARE TO BE RE-EXCAVATED AND OVER EXCAVATION BACKFILLED WITH 10 MPa MASS CONCRETE FOLLOWING INSPECTION BY CONTRACT ADMINISTRATOR.
7 THE CONTRACTOR IS TO ALLOW FOR COST OF GEOTECHNICAL INSPECTIONS.
8 DRILL 50mm VERTICAL TEST HOLE ON THE CENTRE LINE OF EACH FOOTING TO A MINIMUM DEPTH OF 1.5 TIMES THE MINIMUM PLAN DIMENSION. THESE HOLES ARE TO BE DRILLED BELOW THE LEVEL AT WHICH SUITABLE FOUNDING MATERIAL IS REACHED, AND SHALL BE CHECKED BY THE GEOTECHNICAL ENGINEER PRIOR TO CONCRETING. IF DEEPENING OF THE EXCAVATION IS NECESSARY, THE TEST HOLE WILL BE REDRILLED.
9 STRIP ALL TOPSOIL FROM THE CONSTRUCTION AREA AS REQUIRED. ALL STRIPPED TOPSOIL IS TO BE REMOVED FROM SITE UNLESS DIRECTED OTHERWISE BY THE CONTRACT ADMINISTRATOR.

PILING NOTES

1 ALL PILING IS TO BE IN ACCORDANCE WITH SAI PILING CODE AS2159.
2 PILING IS TO BE DESIGNED, CONSTRUCTED AND CERTIFIED IN ACCORDANCE WITH THE SPECIFICATION AND REQUIREMENTS SET OUT ON THE DRAWINGS. DETAILS OF EACH PILE TYPE AND CAPACITY ARE TO BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW BEFORE ANY PILING IS COMMENCED.
3 PILES ARE TO BE DESIGNED FOR 100 YEAR STRUCTURAL LIFE AND CERTIFIED BY MANUFACTURER UNO.
4 SPLICES SHALL BE CAPABLE OF TRANSMISSION OF FULL MOMENT AND AXIAL CAPACITY OF PILE BETWEEN SECTIONS. SPLICES SHALL BE CONSTRUCTED TO MANUFACTURERS DETAIL AND REFERENCED IN MANUFACTURER SUPPLIED CERTIFICATION.
5 PILES ARE TO BE FOUNDED IN FILL MATERIAL WITH A MINIMUM ALLOWABLE BEARING PRESSURE OF 150 kPa U.N.O. THE CONTRACTOR SHALL ENGAGE A GEOTECHNICAL ENGINEER TO CONFIRM PILE FOUNDATION REQUIREMENTS ARE ACHIEVED PRIOR TO POURING.
6 LENGTH OF PILES TO BE CONFIRMED BY MANUFACTURER'S DESIGN AND THE GEOTECHNICAL ENGINEER BEFORE POURING.
7 EACH PILE IS TO BE CONSTRUCTED WITHIN A TOLERANCE OF 75mm OF THE LOCATION SHOWN ON THE PLAN, AND WITHIN 1 IN 100 FOR VERTICALLY OR BETTER.

EXCAVATION & SHORING NOTES

1 ALL NECESSARY APPROVALS FROM AUTHORITIES AND ADJACENT PROPERTY OWNERS MUST BE OBTAINED BEFORE COMMENCEMENT OF WORK.
2 IDENTIFY AND VERIFY THE LOCATION OF EXISTING ADJACENT SERVICES AND CONFIRM DETAILS WITH THE ENGINEER PRIOR TO EXCAVATION.
3 THE GEOTECHNICAL ENGINEER IS TO MONITOR THE EXCAVATION AS IT PROCEEDS AND SHALL BE CONSULTED AT ALL TIMES REGARDING STABILITY OF ROCK FACES AND CONFIRMATION OF,OR CHANGES TO, THE REQUIREMENTS FOR THE ROCK BOLTS, DOWELS, ROCK ANCHORS, CONCRETE PANELS, SOLDIERS, WALERS, AND DRAIN HOLES.
4 ALL SOLDIER PILING IS TO BE IN ACCORDANCE WITH SAI PILING CODE AS 21259+
5 SOLDIER PILE AND SHOTCRETE SHORING IS TO BE DESIGNED, CONSTRUCTED AND CERTIFIED IN ACCORDANCE WITH THE SPECIFICATION AND REQUIREMENTS SET OUT ON THE DRAWINGS. DETAILS OF EACH PILE TYPE AND CAPACITY ARE TO BE SUBMITTED TO THE SUPERINTENDENT AS REQUIRED BY THE SPECIFICATION BEFORE ANY PILING HAS COMMENCED.
6 SPLICES SHALL BE CAPABLE OF TRANSMISSION OF FULL MOMENT AND AXIAL CAPACITY OF PILE BETWEEN SECTIONS. SPLICES SHALL BE CONSTRUCTED TO MANUFACTURER'S DETAIL AND REFERENCED IN MANUFACTURER SUPPLIED CERTIFICATION.

FORMWORK NOTES

1 FORMWORK SHALL COMPLY WITH AS3610.
2 THE DESIGN, CONSTRUCTION AND PERFORMANCE OF THE FORMWORK, FALSEWORK AND BACK-PROPPING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL ENGAGE A STRUCTURAL ENGINEER TO RPEQ CERTIFY ALL FORMWORK, FALSEWORK AND BACKPROPPING DESIGN. THE CONTRACTOR SHALL SUBMIT PROPOSALS FOR FORMWORK, FALSEWORK AND BACK-PROPPING AND REMOVAL OF FORMWORK TO THE CONTRACT ADMINISTRATOR FOR COMMENT AT COMMENCEMENT OF JOB.
3 RESHORING IS NOT PERMITTED UNLESS PROPOSAL SUBMITTED AND APPROVED BY THE SUPERINTENDENT PRIOR TO CARRYING OUT WORKS.
4 STRIPPING OF FORMWORK SHALL COMPLY WITH SECTION 17.6 OF AS3600.
5 FORMED CONCRETE SURFACES SHALL HAVE FINISHES IN ACCORDANCE WITH AS3610 AS REFERENCED IN CONCRETE NOTES.
6 ALL HOLES LEFT BY FORM TIE BOLTS SHALL BE FILLED WITH MORTAR MATCHING THE SURFACE COLOUR OF THE FINISHED SURFACE.
7 FORMWORK MY BE STRIPPED AFTER 7 DAYS, BUT BEAMS AND SLABS MUST REMAIN PROPPED FOR 21 DAYS U.N.O.

REINFORCEMENT NOTES

1 SYMBOLS ON DRAWINGS FOR GRADE AND STRENGTH OF REINFORCEMENT ARE:
- N DENOTES GRADE D500N HOT-ROLLED DEFORMED REINFORCEMENT BAR TO AS/NZS 4671.
- SL DENOTES GRADE 500L WELDED WIRE REINFORCEMENT MESH TO AS/NZS 4671.
- L DENOTES GRADE D500L STEEL REINFORCEMENT TO AS/NZS 4671.
- R DENOTES GRADE 250R PLAIN ROUND BAR REINFORCEMENT TO AS1302.
- TM DENOTES HARD DRAWN STEEL TRENCH MESH, GRADE 500L TO AS/NZS 4671.

ALL STEEL REINFORCEMENT IS TO BE MANUFACTURED FROM 100% RECYCLED STEEL.

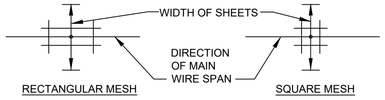
2 BAR NOTATION GIVES THE FOLLOWING INFORMATION IN THIS ORDER:

NO OF BARS; GRADE; BAR SIZE (mm); SPACING (mm, IF REQUIRED); PLACING INFORMATION
EG, 20-N16-200-BTM.

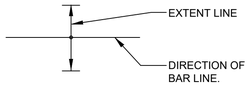
3 MESH NOTATION GIVES THE FOLLOWING INFORMATION IN THIS ORDER:

SL OR RL SYMBOL; AS REFERENCE NUMBER IF STANDARD MESH OR SPECIAL CODE IF NON-STANDARD MESH; PLACING INFORMATION.
EG, RL918 TOP.

4 MAIN WIRES OF MESH AND COVERAGE OF SHEETS SHOWN IN PLAN-VIEW AND ELEVATION THUS:



5 EXTENT OF BARS AND MESH SHOWN THUS:



6 REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.
7 REINFORCEMENT DIMENSIONS SHALL NOT BE SCALED.
8 SPLICE REINFORCEMENT ONLY AT LOCATIONS SHOWN IN THE DRAWINGS. LAP LENGTH SHALL COMPLY WITH AS3600.
REINFORCEMENT SHALL NOT BE SPLICED EXCEPT WHERE SHOWN IN THE DRAWINGS. IF SPLICES ARE NOT INDICATED IN THE DRAWINGS, SUITABLE LOCATIONS SHALL BE PROPOSED FOR WRITTEN APPROVAL BY THE CONTRACT ADMINISTRATOR.
THE SPLICED LENGTH OF BARS IN SLABS, BEAMS AND WALLS SHALL BE AS GIVEN IN THE FOLLOWING TABLE, EXCEPT WHERE OTHER DIMENSIONS ARE STATED ON THE ACTUAL DETAIL:

TYPE OF MEMBER	TENSILE LAP LENGTH (mm) FOR GRADE 500N DEFORMED BARS.							
	N10	N12	N16	N20	N24	N28	N32	N36
SLAB OR WALL (WITH 300mm OR LESS DEPTH OF CONCRETE BELOW THE BAR)	350	450	700	950	1200	1500	1800	2200
OTHER MAIN BARS	450	600	900	1200	1550	1950	2350	2800

EMBEDMENT LENGTHS FOR STARTER BARS AND SPLICE LENGTHS FOR COLUMN BARS SHALL BE AS GIVEN IN THE FOLLOWING TABLE, EXCEPT WHERE OTHER DIMENSIONS ARE STATED ON THE ACTUAL DETAIL. THE DIMENSIONS IN THE TABLE ALSO INDICATE OVERALL ANCHORAGE (DEVELOPMENT) LENGTHS FOR STARTER / DOWEL BARS. ANY COGS USED SHALL BE DETAILED AS PER AS3600.

BAR SIZE (mm)	SPLICE LENGTH (mm)	NUMBER OF FITMENTS AT COLUMN BAR CRANK
N12	500	1-R10
N16	650	1-R10
N20	800	2-R10
N24	1000	1-N12
N28	1150	2-N12
N32	1300	3-N12
N36	1450	3-N12

BARS IN ELEMENTS UNDER AXIAL TENSION SHALL BE CONNECTED USING MECHANICAL SPLICES DEVELOPING FULL BAR TENSIONS.

9 REINFORCEMENT SHALL BE BENT COLD IN ACCORDANCE WITH AS3600 EXCEPT WHERE APPROVED BY THE CONTRACT ADMINISTRATOR. NO REBENDING SHALL BE PERMITTED UNLESS APPROVED BY THE CONTRACT ADMINISTRATOR.
10 WHERE LAP IS SPECIFIED, MESH SHALL BE LAPPED SUCH THAT THE TWO OUTERMOST WIRES LAP WITH THOSE OF THE OTHER SHEET AS SHOWN:

ALL LAPS ARE TO BE WIRED TOGETHER AT 1000 CRS.

11 ALL REINFORCEMENT IS TO BE ACCURATELY POSITIONED, ADEQUATELY SUPPORTED, AND THEN INSPECTED BY THE CONTRACT ADMINISTRATOR BEFORE ANY CONCRETE IS PLACED.
12 WELDING OF REINFORCEMENT INCLUDING TACK-WELDING FOR FIXING PURPOSES SHALL COMPLY WITH AS3600 AND AS1554.3. WELDING IS PERMITTED ONLY WHERE SHOWN IN THE DRAWINGS OR WHERE OTHERWISE APPROVED BY THE CONTRACT ADMINISTRATOR.
13 WHERE NO REINFORCEMENT IS SHOWN ON THE DRAWINGS AT RIGHT ANGLES TO THE MAIN REINFORCEMENT, PLACE N12-300 TRANSVERSE TO THE REINFORCEMENT SHOWN TO SUIT THE BAR LAYING SEQUENCE.
14 FIRST SLAB BAR IS TO BE POSITIONED MAX. 100mm FROM FACE OF BEAMS, R.C. WALLS AND SLAB THICKENINGS PARALLEL TO BAR. FIRST TIE TO BE PLACED MAX. 50mm FROM FACE OF COLUMN OR SUPPORTING WALL UNDER.
15 FIX 2-N16 TRIMMER BARS AROUND OPENINGS IN EACH (TOP/BOTTOM) FACE OF MEMBER AND EXTENDING 1000mm BEYOND THEIR CROSS-OVER POINT.

REINFORCEMENT NOTES CONTINUED

16 REINFORCEMENT SHALL NOT BE CUT, BENT OR HEATED ON SITE WITHOUT THE CONTRACT ADMINISTRATOR'S PRIOR APPROVAL. DO NOT CUT REINFORCEMENT ON SITE TO CLEAR PENETRATIONS. DISPLACE REINFORCEMENT SLIGHTLY AS NECESSARY. MAINTAIN COVER DURING POUR.
17 ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON PLASTIC OR CONCRETE CHAIRS UNLESS NOTED OTHERWISE MAXIMUM CENTRES OF SUPPORTING CHAIRS SHALL BE 600mm FOR FABRIC, 600mm FOR BARS UP TO 12mm DIAMETER, 900mm FOR BARS 16mm AND GREATER. REINFORCEMENT SHALL BE SECURELY TIED WITH GALVANISED WIRE TIES AND ALL TIE ENDS SHALL BE TURNED INTO THE MEMBER CLEAR OF THE COVER ZONE.
18 REFER TO THE CONCRETE NOTES FOR THE COVER TO REINFORCEMENT NEAREST THE CONCRETE SURFACE. UNLESS NOTED OTHERWISE ON DRAWINGS.
19 THE REQUIRED COVER SHALL BE MAINTAINED TO ALL PIPES, CONDUITS, REGLETS, DRIP GROOVES ETC.
20 UNLESS NOTED OTHERWISE SLAB REINFORCEMENT AT SUPPORTING WALLS AND SLAB REINFORCEMENT BARS SHALL EXTEND 100mm ONTO SUPPORTING WALLS, WITH 50% OF BOTTOM BARS COGGED TO ACHIEVE ANCHORAGE AT SIMPLY SUPPORTS ENDS. MESH IN SLABS SHALL EXTEND 100mm ONTO SUPPORTING WALLS AND INCLUDE AT LEAST ONE CROSS WIRE.

CONCRETE NOTES

1 ALL CONCRETE WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600, AS2870 AND THE SPECIFICATION.
2 CONCRETE QUALITY, AND REQUIRED PROPERTIES OF CONCRETE SHALL BE IN ACCORDANCE TO AS1379.
3 SURFACE FINISH, FORMWORK IS TO BE IN ACCORDANCE WITH THE ARCHITECT'S SPECIFICATIONS
4 CONCRETE REQUIREMENTS AS SHOWN IN TABLE BELOW UNLESS NOTED OTHERWISE ON THE DRAWINGS. NO "BRECCIA" TYPE AGGREGATE IS TO BE USED.

MEMBER LOCATION	EXPOSURE CLASSIFICATION	CONCRETE STRENGTH f'c (MPa) AT 28 DAYS	CONCRETE CLASS	SLUMP AT SITE +/- 15mm	Nom. MAX. AGGREGATE SIZE (mm)	MAX. 56 DAY SHRINKAGE x10-6	REQUIRED COVER (mm)
PILES AND FOOTING	A2	40	N	80	20	-	30
WALLS	B1	40	N	80	10	-	40
*							

*CONCRETE FOR KERBS, CONCRETE PAVEMENT AND STORMWATER PITS SHALL BE IN ACCORDANCE WITH THE DRAWINGS AND RELEVANT SECTIONS OF THE SPECIFICATION.
PILES, FOOTINGS AND WALLS FOR WHICH THE CONCRETE REQUIREMENTS ABOVE APPLY ARE SHOWN ON DRAWINGS

5 NORMAL CLASS CONCRETE SHALL HAVE CEMENT OF TYPE GENERAL PURPOSE BLENDED CEMENT(GB)
6 THE CONTRACTOR IS TO SEEK APPROVAL FROM THE STRUCTURAL ENGINEER IN WRITING IF ANY ADMIXTURES TO BE USED IN THE CONCRETE MIX. CALCIUM CHLORIDE WILL NOT BE PERMITTED AND SHALL NOT BE USED WITHOUT THE EXPRESS PERMISSION FROM THE SUPERINTENDENT.
7 ALL CONCRETE SHALL BE SUBJECT TO PROJECT ASSESSMENT AND TESTING TO AS1379.
8 MECHANICALLY VIBRATE CONCRETE IN THE FORM TO GIVE MAXIMUM COMPACTION WITHOUT SEGREGATION OF THE CONCRETE.
9 CURE CONCRETE AS REQUIRED BY SECTION 17 OF AS3600 AND AS SET OUT IN THE SPECIFICATION.
10 IN THE DRAWINGS, THE BEAM DEPTH IS WRITTEN FIRST AND INCLUDES SLAB THICKNESS IF ANY.
11 STRIP FOOTING DEPTHS ARE WRITTEN FIRST FOLLOWED BY WIDTH.
12 UNLESS SHOWN ON THE DRAWINGS, THE LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW.
13 NO CHASES, HOLES GREATER THAN 150mm DIAMETER, OR EMBEDMENT OF PIPES GREATER THAN 40mm DIAMETER OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN THE CONCRETE SLABS. FOR ALL OTHER CONCRETE MEMBERS, NO PENETRATIONS, CHASES OR EMBEDMENTS SHALL BE MADE WITHOUT PRIOR APPROVAL BY THE STRUCTURAL ENGINEER.
14 EXACT SIZE AND LOCATION OF PENETRATIONS ARE TO BE OBTAINED FROM WORKSHOP DRAWINGS PRIOR TO SCHEDULING OF REINFORCEMENT, AND ARE NOT TO EXCEED DIMENSIONS WHERE SHOWN ON THE STRUCTURAL DRAWINGS. LIAISE WITH ALL TRADES FOR FINAL PENETRATION SETOUT.
15 DO NOT PLACE CONDUITS, PIPES AND THE LIKE WITHIN COVER CONCRETE. CONDUITS CAST INTO CONCRETE MEMBERS SHALL BE SPACED AT MAXIMUM DISTANCE POSSIBLE AND UNDER NO CIRCUMSTANCES CLOSER THAN A CLEAR SPACING OF TWICE THE LARGER CONDUIT DIAMETER FROM PARALLEL REINFORCEMENT OR ANY OTHER CONDUIT.
16 SLURRY USED TO LUBRICATE CONCRETE PUMP LINES IS NOT TO BE USED IN ANY STRUCTURAL MEMBERS.
17 CONCRETE SIZES AS DRAWN ARE MINIMUM AND DO NOT INCLUDE APPLIED FINISHES.
18 UNLESS NOTED OTHERWISE, ALL SLABS CAST ON GROUND REQUIRE 50mm THICK COMPACTED FREE DRAINING SAND BEDDING WITH A 0.2mm POLYTHENE MEMBRANE.
19 ALL FORMED EXPOSED EDGES AND RE-ENTRANT CORNERS SHALL BE CHAMFERED OR FILLETED 15mm UNLESS NOTED OTHERWISE ON THE ARCHITECTURAL OR STRUCTURAL DRAWINGS. REFER TO ARCHITECTS DRAWINGS AND SPECIFICATION FOR ALL FALLS IN SLAB, REGLETS AND CHAMFERS ETC. PROVIDE DRIP GROOVES AT ALL EXPOSED EDGES, COVER TO BE MAINTAINED.
20 THE FACE OF ALL CONCRETE WHICH HAS REINFORCEMENT PROJECTING FROM IT AND AGAINST WHICH NEW CONCRETE IS TO BE CAST, IS TO BE THOROUGHLY MECHANICALLY SCABBLED, FULLY EXPOSING THE AGGREGATE MATRIX CLEANED OF DUST AND LOOSE CONCRETE.

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CONSULTANT
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www.aecom.com

PROJECT
Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION
ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

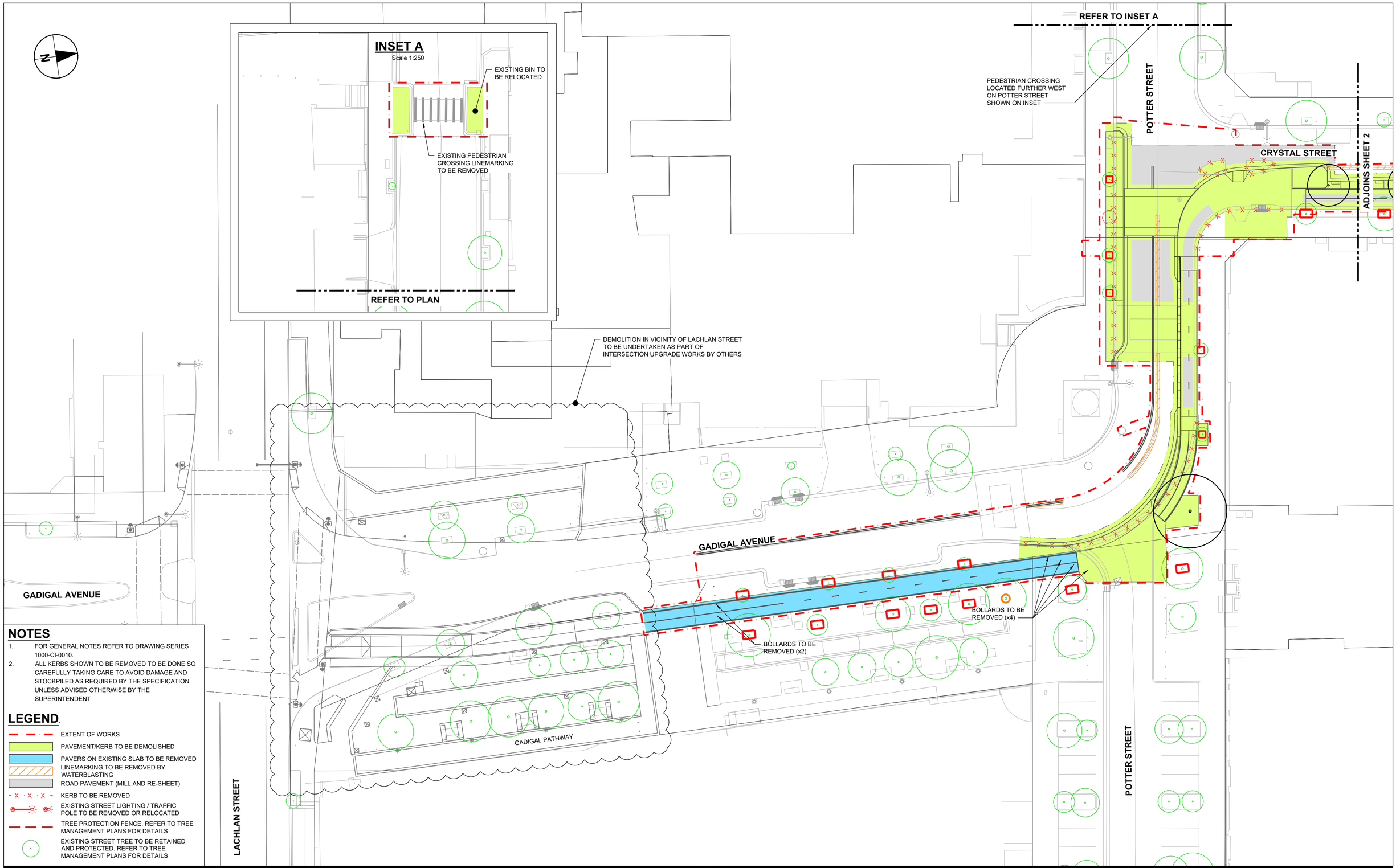
PROJECT NUMBER
60620833

SHEET TITLE
GENERAL NOTES

SHEET 2

SHEET NUMBER
60620833-1C-SHT-1000-CI-0012

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.
2. ALL KERBS SHOWN TO BE REMOVED TO BE DONE SO CAREFULLY TAKING CARE TO AVOID DAMAGE AND STOCKPILED AS REQUIRED BY THE SPECIFICATION UNLESS ADVISED OTHERWISE BY THE SUPERINTENDENT

LEGEND

- EXTENT OF WORKS
- PAVEMENT/KERB TO BE DEMOLISHED
- PAVERS ON EXISTING SLAB TO BE REMOVED
- LINEMARKING TO BE REMOVED BY WATERBLASTING
- ROAD PAVEMENT (MILL AND RE-SHEET)
- KERB TO BE REMOVED
- EXISTING STREET LIGHTING / TRAFFIC POLE TO BE REMOVED OR RELOCATED
- TREE PROTECTION FENCE. REFER TO TREE MANAGEMENT PLANS FOR DETAILS
- EXISTING STREET TREE TO BE RETAINED AND PROTECTED. REFER TO TREE MANAGEMENT PLANS FOR DETAILS

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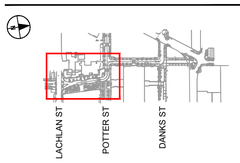
KEY PLAN



SCALE BAR

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1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

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PROJECT NUMBER

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SHEET TITLE

DEMOLITION PLAN SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0051

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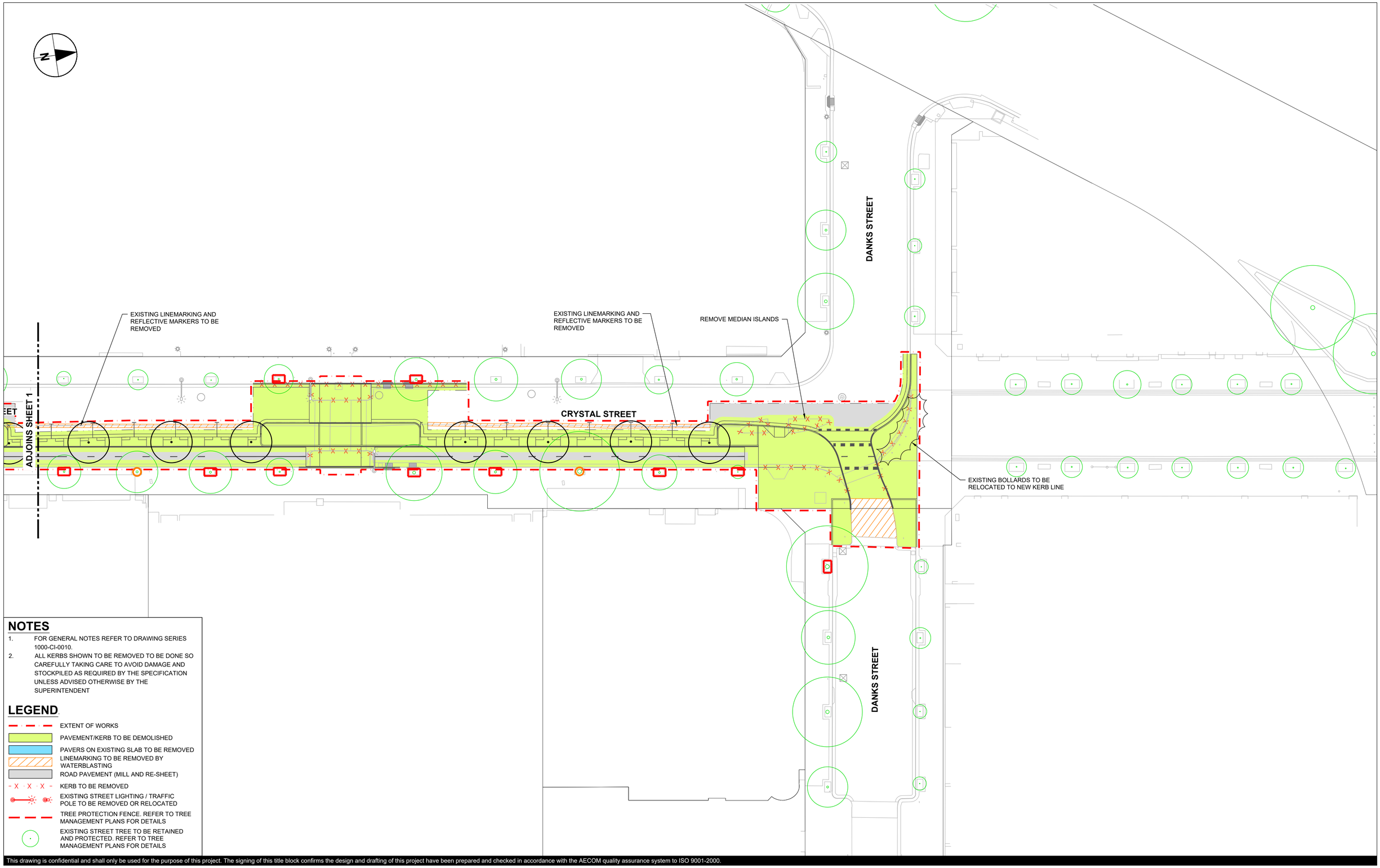

NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.
2. ALL KERBS SHOWN TO BE REMOVED TO BE DONE SO CAREFULLY TAKING CARE TO AVOID DAMAGE AND STOCKPILED AS REQUIRED BY THE SPECIFICATION UNLESS ADVISED OTHERWISE BY THE SUPERINTENDENT

LEGEND

- EXTENT OF WORKS
- PAVEMENT/KERB TO BE DEMOLISHED
- PAVERS ON EXISTING SLAB TO BE REMOVED
- LINEMARKING TO BE REMOVED BY WATERBLASTING
- ROAD PAVEMENT (MILL AND RE-SHEET)
- KERB TO BE REMOVED
- EXISTING STREET LIGHTING / TRAFFIC POLE TO BE REMOVED OR RELOCATED
- TREE PROTECTION FENCE. REFER TO TREE MANAGEMENT PLANS FOR DETAILS
- EXISTING STREET TREE TO BE RETAINED AND PROTECTED. REFER TO TREE MANAGEMENT PLANS FOR DETAILS

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PROJECT

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CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

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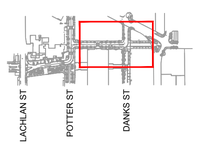
- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
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SHEET TITLE

DEMOLITION PLAN SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0052

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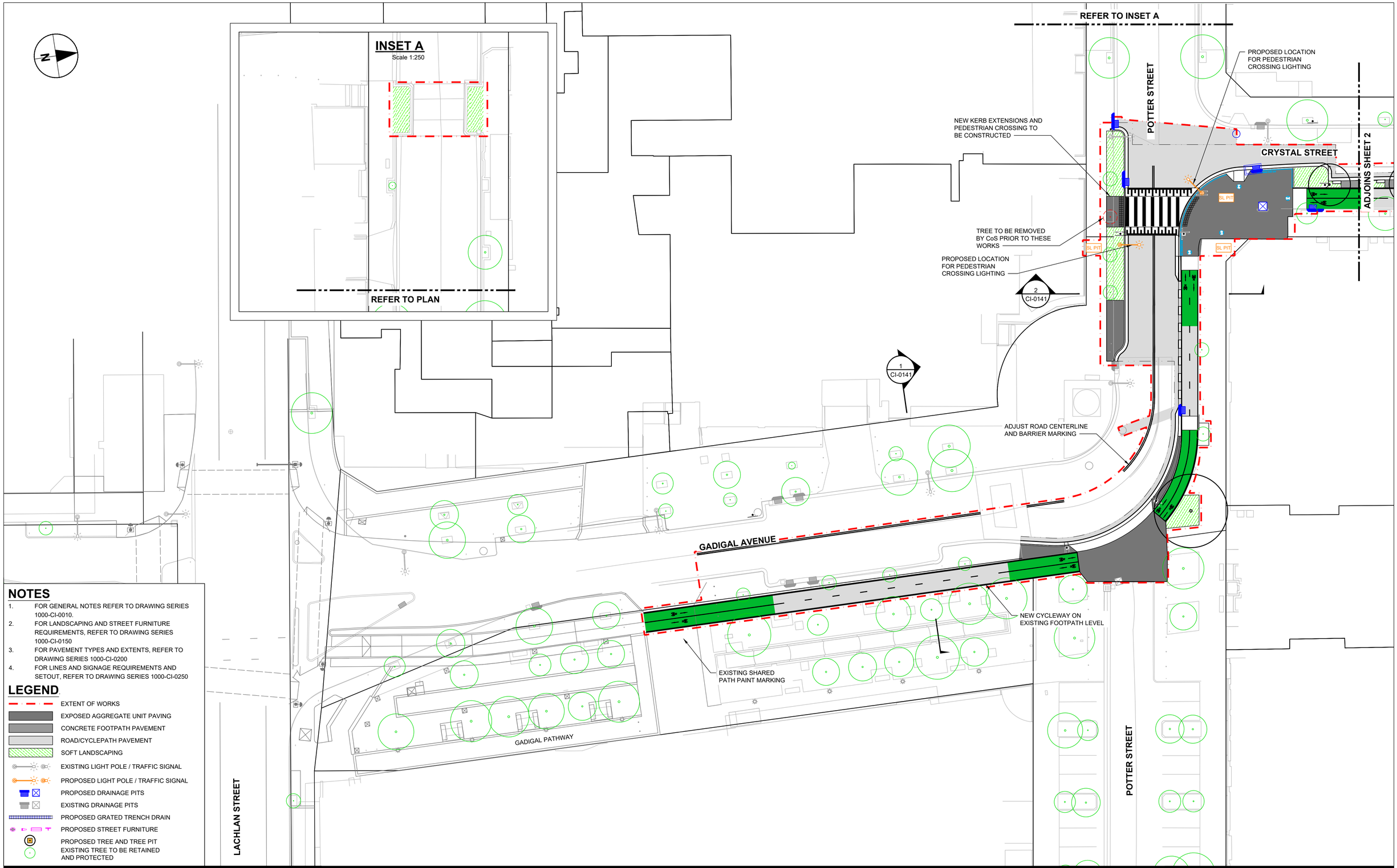

NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.
2. FOR LANDSCAPING AND STREET FURNITURE REQUIREMENTS, REFER TO DRAWING SERIES 1000-CI-0150
3. FOR PAVEMENT TYPES AND EXTENTS, REFER TO DRAWING SERIES 1000-CI-0200
4. FOR LINES AND SIGNAGE REQUIREMENTS AND SETOUT, REFER TO DRAWING SERIES 1000-CI-0250

LEGEND

- EXTENT OF WORKS
- EXPOSED AGGREGATE UNIT PAVING
- CONCRETE FOOTPATH PAVEMENT
- ROAD/CYCLEPATH PAVEMENT
- SOFT LANDSCAPING
- EXISTING LIGHT POLE / TRAFFIC SIGNAL
- PROPOSED LIGHT POLE / TRAFFIC SIGNAL
- PROPOSED DRAINAGE PITS
- EXISTING DRAINAGE PITS
- PROPOSED GRATED TRENCH DRAIN
- PROPOSED STREET FURNITURE
- PROPOSED TREE AND TREE PIT
- EXISTING TREE TO BE RETAINED AND PROTECTED

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www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

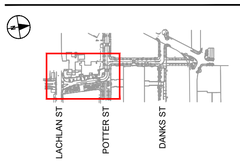
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

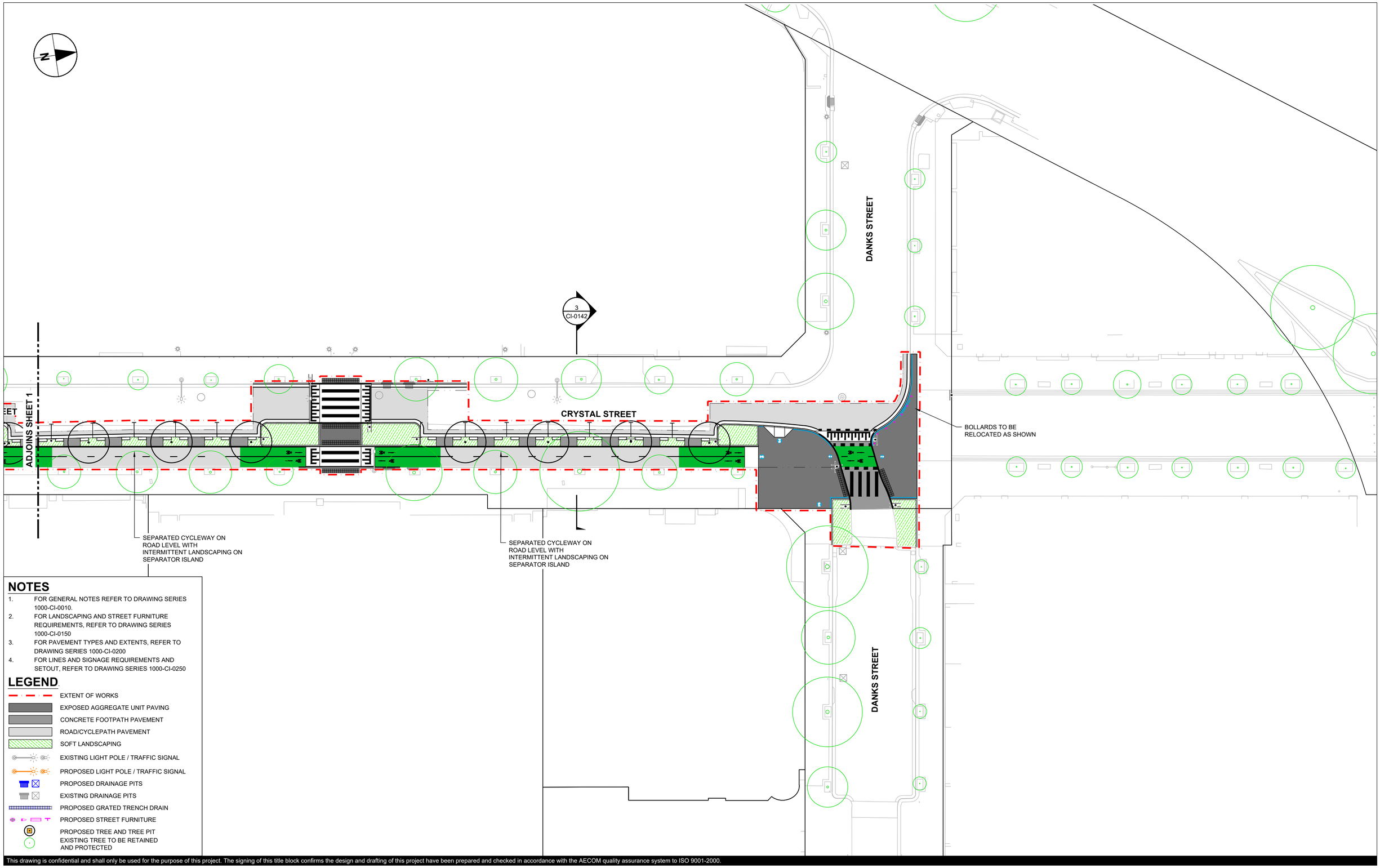
SHEET TITLE

GENERAL ARRANGEMENT PLAN
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0101

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.
2. FOR LANDSCAPING AND STREET FURNITURE REQUIREMENTS, REFER TO DRAWING SERIES 1000-CI-0150
3. FOR PAVEMENT TYPES AND EXTENTS, REFER TO DRAWING SERIES 1000-CI-0200
4. FOR LINES AND SIGNAGE REQUIREMENTS AND SETOUT, REFER TO DRAWING SERIES 1000-CI-0250

LEGEND

- EXTENT OF WORKS
- EXPOSED AGGREGATE UNIT PAVING
- CONCRETE FOOTPATH PAVEMENT
- ROAD/CYCLEPATH PAVEMENT
- SOFT LANDSCAPING
- EXISTING LIGHT POLE / TRAFFIC SIGNAL
- PROPOSED LIGHT POLE / TRAFFIC SIGNAL
- PROPOSED DRAINAGE PITS
- EXISTING DRAINAGE PITS
- PROPOSED GRATED TRENCH DRAIN
- PROPOSED STREET FURNITURE
- PROPOSED TREE AND TREE PIT
- EXISTING TREE TO BE RETAINED AND PROTECTED

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GAD\GAL\60620833-1C-SHT-1000-CI-0102.DWG

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

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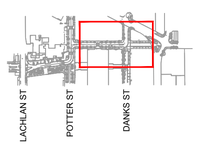
☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
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FOR INFORMATION ONLY

PROJECT NUMBER

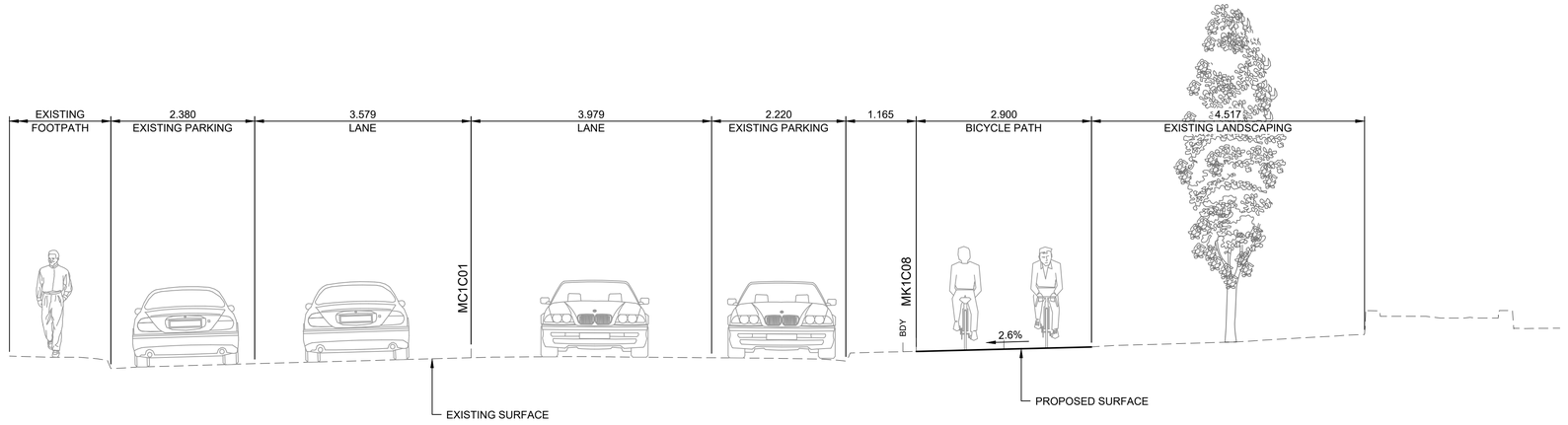
60620833

SHEET TITLE

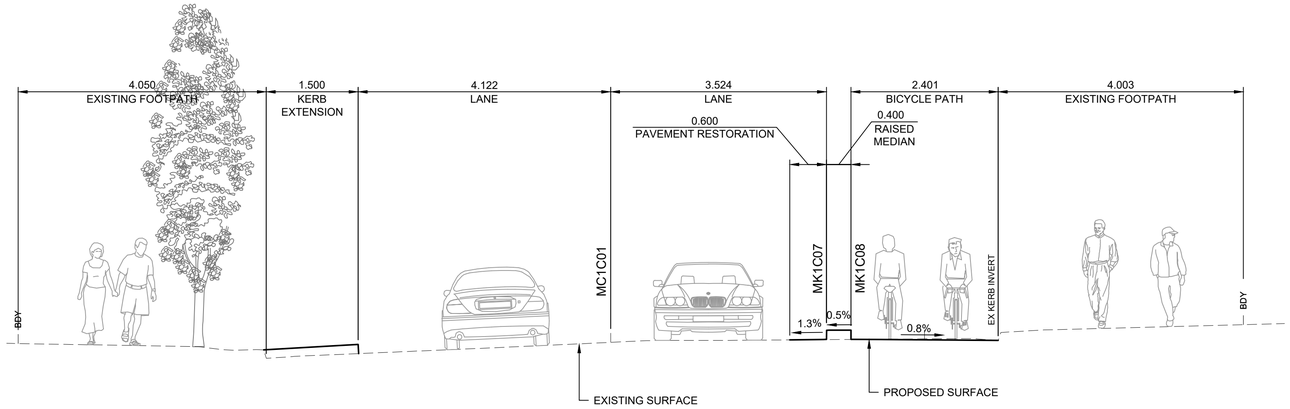
GENERAL ARRANGEMENT PLAN SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0102



1 TYPICAL SECTION
CI-0101 SCALE 1:50



2 TYPICAL SECTION
CI-0101 SCALE 1:50

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PROJECT
Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT
CITY OF SYDNEY

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☐ YES

KEY PLAN

SCALE BAR
0 1.25 2.5 m
1:50

PROJECT MANAGEMENT INITIALS

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DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

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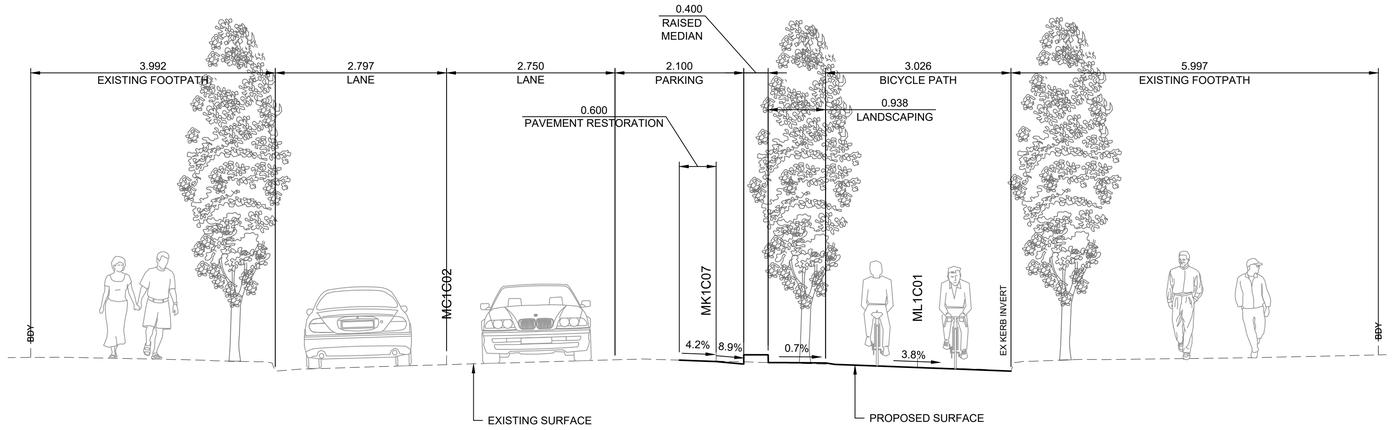
PROJECT NUMBER
60620833

SHEET TITLE
TYPICAL SITE SECTIONS

SHEET 1

SHEET NUMBER
60620833-1C-SHT-1000-CI-0141



3 TYPICAL SECTION

CI-0102

SCALE 1:50

AECOM

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

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SAFETY IN DESIGN INFORMATION

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☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 1.25 2.5 m
1:50

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

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I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

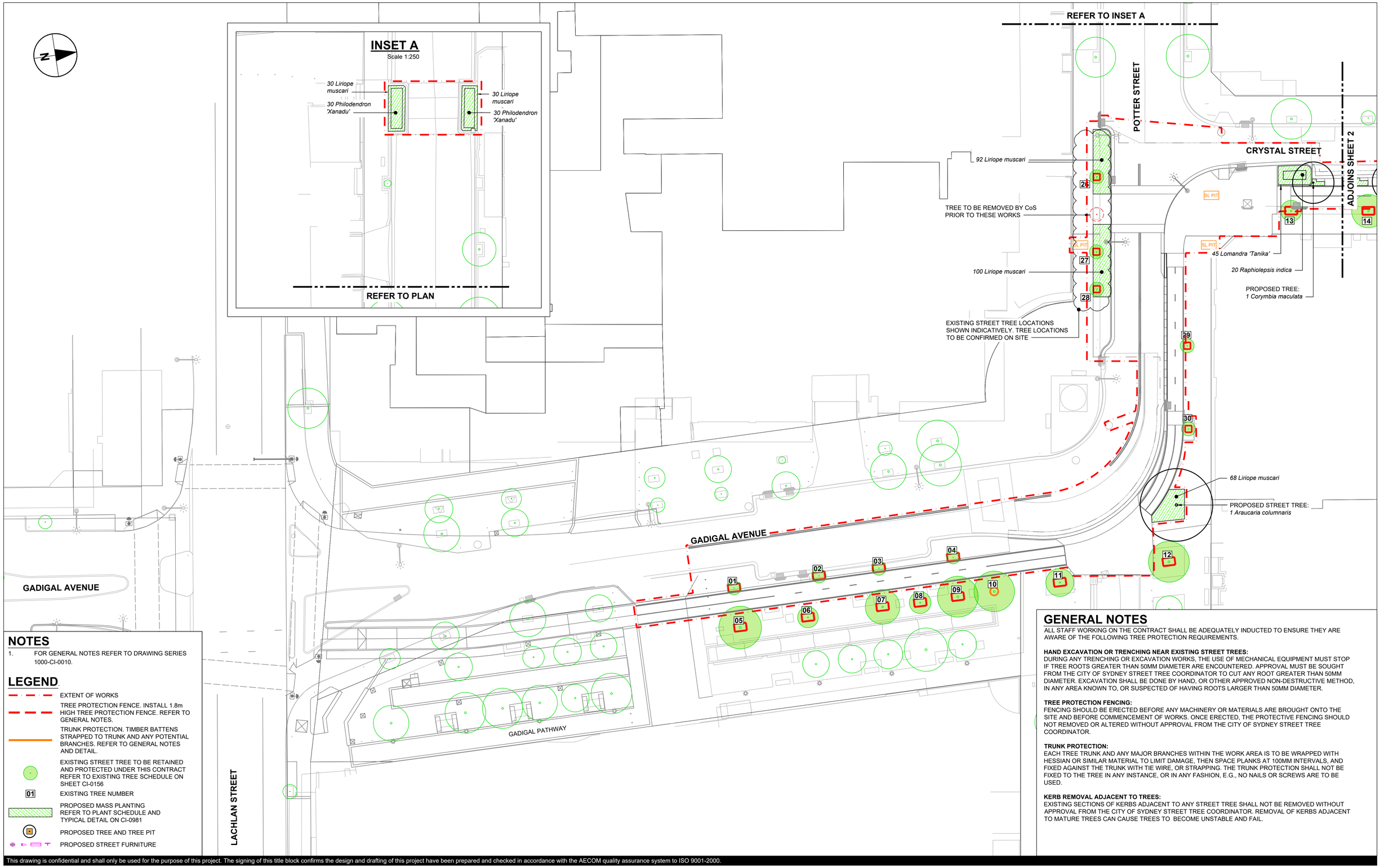
TYPICAL SITE SECTIONS

SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0142

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

- EXTENT OF WORKS
- TREE PROTECTION FENCE. INSTALL 1.8m HIGH TREE PROTECTION FENCE. REFER TO GENERAL NOTES.
- TRUNK PROTECTION. TIMBER BATTENS STRAPPED TO TRUNK AND ANY POTENTIAL BRANCHES. REFER TO GENERAL NOTES AND DETAIL.
- EXISTING STREET TREE TO BE RETAINED AND PROTECTED UNDER THIS CONTRACT REFER TO EXISTING TREE SCHEDULE ON SHEET CI-0156
- 01 EXISTING TREE NUMBER
- PROPOSED MASS PLANTING REFER TO PLANT SCHEDULE AND TYPICAL DETAIL ON CI-0981
- PROPOSED TREE AND TREE PIT
- PROPOSED STREET FURNITURE

GENERAL NOTES

ALL STAFF WORKING ON THE CONTRACT SHALL BE ADEQUATELY INDUCTED TO ENSURE THEY ARE AWARE OF THE FOLLOWING TREE PROTECTION REQUIREMENTS.

HAND EXCAVATION OR TRENCHING NEAR EXISTING STREET TREES:
DURING ANY TRENCHING OR EXCAVATION WORKS, THE USE OF MECHANICAL EQUIPMENT MUST STOP IF TREE ROOTS GREATER THAN 50MM DIAMETER ARE ENCOUNTERED. APPROVAL MUST BE SOUGHT FROM THE CITY OF SYDNEY STREET TREE COORDINATOR TO CUT ANY ROOT GREATER THAN 50MM DIAMETER. EXCAVATION SHALL BE DONE BY HAND, OR OTHER APPROVED NON-DESTRUCTIVE METHOD, IN ANY AREA KNOWN TO, OR SUSPECTED OF HAVING ROOTS LARGER THAN 50MM DIAMETER.

TREE PROTECTION FENCING:
FENCING SHOULD BE ERECTED BEFORE ANY MACHINERY OR MATERIALS ARE BROUGHT ONTO THE SITE AND BEFORE COMMENCEMENT OF WORKS. ONCE ERECTED, THE PROTECTIVE FENCING SHOULD NOT REMOVED OR ALTERED WITHOUT APPROVAL FROM THE CITY OF SYDNEY STREET TREE COORDINATOR.

TRUNK PROTECTION:
EACH TREE TRUNK AND ANY MAJOR BRANCHES WITHIN THE WORK AREA IS TO BE WRAPPED WITH HESSIAN OR SIMILAR MATERIAL TO LIMIT DAMAGE, THEN SPACE PLANKS AT 100MM INTERVALS, AND FIXED AGAINST THE TRUNK WITH TIE WIRE, OR STRAPPING. THE TRUNK PROTECTION SHALL NOT BE FIXED TO THE TREE IN ANY INSTANCE, OR IN ANY FASHION, E.G., NO NAILS OR SCREWS ARE TO BE USED.

KERB REMOVAL ADJACENT TO TREES:
EXISTING SECTIONS OF KERBS ADJACENT TO ANY STREET TREE SHALL NOT BE REMOVED WITHOUT APPROVAL FROM THE CITY OF SYDNEY STREET TREE COORDINATOR. REMOVAL OF KERBS ADJACENT TO MATURE TREES CAN CAUSE TREES TO BECOME UNSTABLE AND FAIL.

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PROJECT
Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION
ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN
LACHLAN ST · POTTER ST · DANKS ST

SCALE BAR
0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

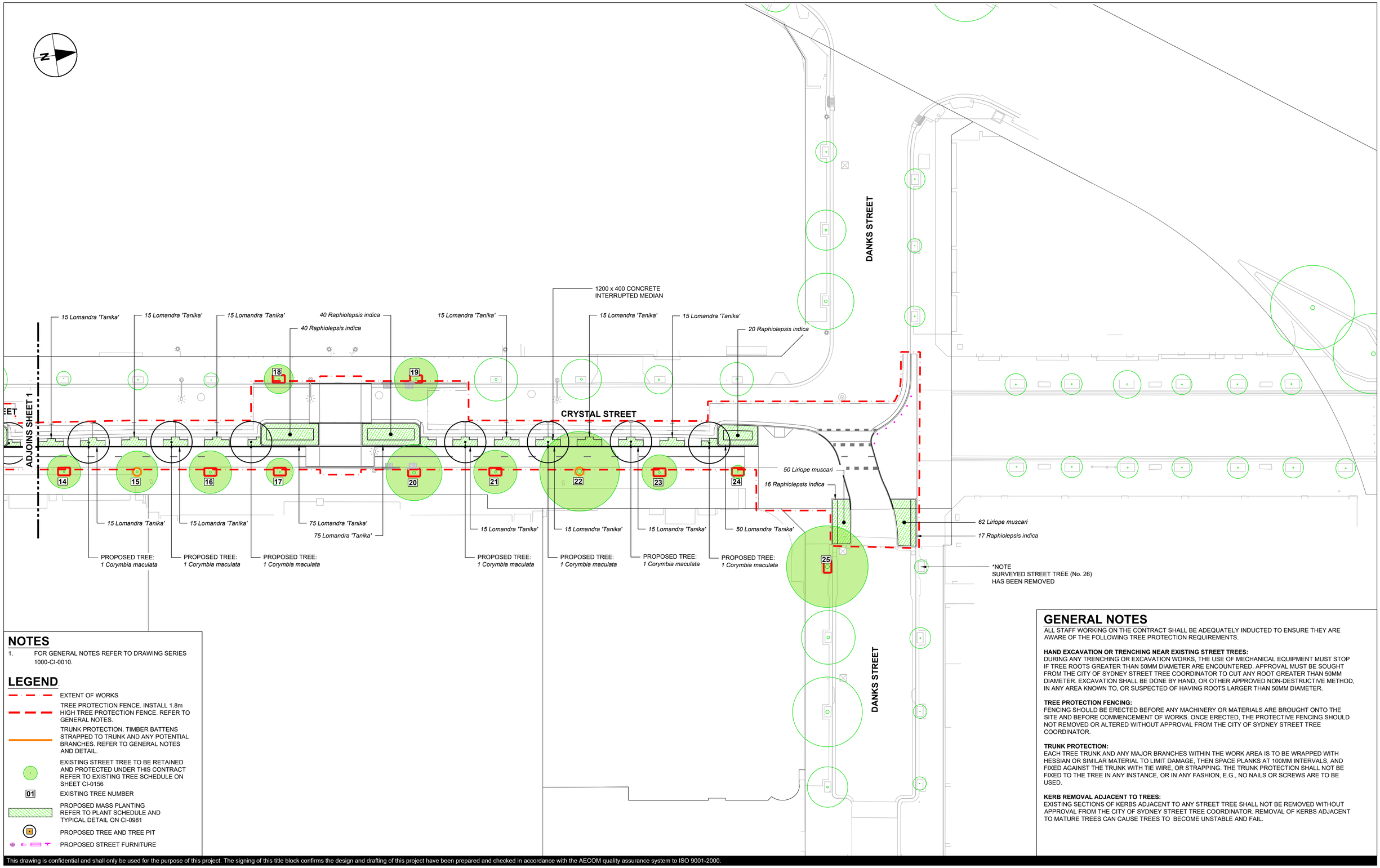
PROJECT NUMBER
60620833

SHEET TITLE
TREE MANAGEMENT AND LANDSCAPE PLAN SHEET 1

SHEET NUMBER
60620833-1C-SHT-1000-CI-0151

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0151.DWG

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

- EXTENT OF WORKS
- TREE PROTECTION FENCE. INSTALL 1.8m HIGH TREE PROTECTION FENCE. REFER TO GENERAL NOTES.
- TRUNK PROTECTION. TIMBER BATTENS STRAPPED TO TRUNK AND ANY POTENTIAL BRANCHES. REFER TO GENERAL NOTES AND DETAIL.
- EXISTING STREET TREE TO BE RETAINED AND PROTECTED UNDER THIS CONTRACT REFER TO EXISTING TREE SCHEDULE ON SHEET CI-0156
- 01 EXISTING TREE NUMBER
- PROPOSED MASS PLANTING REFER TO PLANT SCHEDULE AND TYPICAL DETAIL ON CI-0981
- PROPOSED TREE AND TREE PIT
- PROPOSED STREET FURNITURE

GENERAL NOTES

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TREE PROTECTION FENCING:
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KERB REMOVAL ADJACENT TO TREES:
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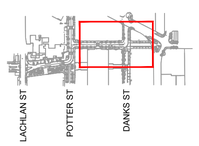
PROJECT
Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION
ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN


SCALE BAR
0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER
60620833

SHEET TITLE
TREE MANAGEMENT AND LANDSCAPE PLAN SHEET 2

SHEET NUMBER
60620833-1C-SHT-1000-CI-0152

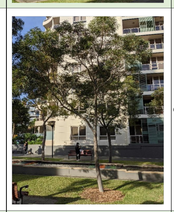
Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESSIPW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GAD\GAL\60620833-1C-SHT-1000-CI-0152.DWG

EXISTING TREE SCHEDULE
GADIGAL AVE

IMPROVING GADIGAL
EXISTING TREE SCHEDULE

TREE No.	Image	Botanical Name	Common Name	Approximate Height (m)	Approximate Spread (m)	Street Frontage Address	Description
1		*Corymbia maculata*	Spotted Gum	6m	2m	11 Potter St	Young street tree, with sparse canopy
2		*Corymbia maculata*	Spotted Gum	5m	2m	11 Potter St	Young street tree, with sparse canopy
3		*Corymbia maculata*	Spotted Gum	5m	2m	11 Potter St	Young street tree, with sparse canopy
4		*Corymbia maculata*	Spotted Gum	5m	2m	11 Potter St	Young street tree, with sparse canopy
5		*Corymbia maculata*	Spotted Gum	6m	6m	11 Potter St	Healthy young street tree with good form and structure

IMPROVING GADIGAL
EXISTING TREE SCHEDULE

TREE No.	Image	Botanical Name	Common Name	Approximate Height (m)	Approximate Spread (m)	Street Frontage Address	Description
6		*Corymbia maculata*	Spotted Gum	4m	3m	11 Potter St	Young street tree, with sparse canopy
7		*Corymbia maculata*	Spotted Gum	6m	5m	11 Potter St	Healthy young street tree with good form and structure
8		*Corymbia maculata*	Spotted Gum	5m	3m	11 Potter St	Young street tree with resonable form, canopy coverage and structure
9		*Corymbia maculata*	Spotted Gum	6m	6m	11 Potter St	Young street tree with resonable form, canopy coverage and structure
10		*Corymbia maculata*	Spotted Gum	7m	6m	11 Potter St	Healthy street tree with good form and structure

IMPROVING GADIGAL
EXISTING TREE SCHEDULE

TREE No.	Image	Botanical Name	Common Name	Approximate Height (m)	Approximate Spread (m)	Street Frontage Address	Description
11		*Corymbia maculata*	Spotted Gum	6m	4m	11 Potter St	Healthy street tree with good form and structure
12		*Corymbia maculata*	Spotted Gum	10m	6m	28A Crystal St	Healthy mature street tree with good form, canopy coverage and structure
13		*Corymbia maculata*	Spotted Gum	11m	3m	4/28 Crystal St	Resonable street treewith narrow trunk and average canopy coverage
14		*Corymbia maculata*	Spotted Gum	11m	5m	28 Crystal St	Resonable street treewith narrow trunk and average canopy coverage
15		*Corymbia maculata*	Spotted Gum	12m	7m	28 Crystal St	Healthy mature street tree with good form, canopy coverage and structure

CONSULTANT

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PROJECT

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SAFETY IN DESIGN INFORMATION

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☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
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PROJECT NUMBER

60620833

SHEET TITLE

TREE MANAGEMENT AND LANDSCAPE SCHEDULE SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0153

EXISTING TREE SCHEDULE (CONTINUED)
GADIGAL AVE

IMPROVING GADIGAL
EXISTING TREE SCHEDULE

TREE No.	Image	Botanical Name	Common Name	Approximate Height (m)	Approximate Spread (m)	Street Frontage Address	Description
16		*Corymbia maculata*	Spotted Gum	7m	5m	22 Crystal St	Resonable street tree with narrow trunk and average canopy coverage
17		*Corymbia maculata*	Spotted Gum	5m	3m	22 Crystal St	Young street tree, with sparse canopy
18		*Corymbia maculata*	Spotted Gum	10m	5m	22 Crystal St	Mature street tree with narrow trunk and sparse canopy
19		*Corymbia maculata*	Spotted Gum	12m	7m	22 Crystal St	Healthy mature street tree with good form, canopy coverage and structure
20		*Corymbia maculata*	Spotted Gum	8m	8m	22 Crystal St	Healthy mature street tree with good form, canopy coverage and structure. Damaged trunk

IMPROVING GADIGAL
EXISTING TREE SCHEDULE

TREE No.	Image	Botanical Name	Common Name	Approximate Height (m)	Approximate Spread (m)	Street Frontage Address	Description
21		*Corymbia maculata*	Spotted Gum	9m	6m	22 Crystal St	Healthy mature street tree with good form, canopy coverage and structure
22		*Corymbia maculata*	Spotted Gum	11m	10m	4/22 Crystal St	Healthy mature street tree with good form, canopy coverage and structure
23		*Corymbia maculata*	Spotted Gum	11m	5m	5/22 Crystal St	Semi-mature street tree with good form, sparse canopy coverage
24		*Corymbia maculata*	Spotted Gum	6m	3m	6/22 Crystal St	Street tree with narrow trunk and average canopy coverage
25		*Corymbia maculata*	Spotted Gum	13m	12m	6/22 Crystal St	Healthy mature street tree with good form, canopy coverage and structure
26		*TO BE CONFIRMED*					
27		*TO BE CONFIRMED*					
28		*TO BE CONFIRMED*					
29		*TO BE CONFIRMED*					
30		*TO BE CONFIRMED*					

PLANT SCHEDULE

BOTANICAL NAME	COMMON NAME	POT SIZE	HEIGHT (m)	SPREAD (m)	SPACING (m)	QUANTITY
TREES						
Araucaria columnaris	Cook Pine	100L	15	10	As Shown	**1**
Corymbia maculata	Spotted Gum	100L	15	10	As Shown	**8**
					Total	**9**
MASS PLANTING - GROUNDCOVERS						
Liriope muscari 'Amethyst'	Turf Lily	140mm	0.4	0.4	4/m²	**432**
Lomandra 'Tanika'	Lomandra	140mm	0.5	1.0	4/m²	**400**
Philodendron 'Xanadu'	Xanadu Philodendron	140mm	0.8	1.0	4/m²	**60**
Raphiolepsis indica 'Cosmic Pink'	Cosmic Pink	140mm	0.8	0.8	4/m²	**153**
						1,045

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☐ NO
☐ YES

KEY PLAN

SCALE BAR
0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

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PROJECT DATA

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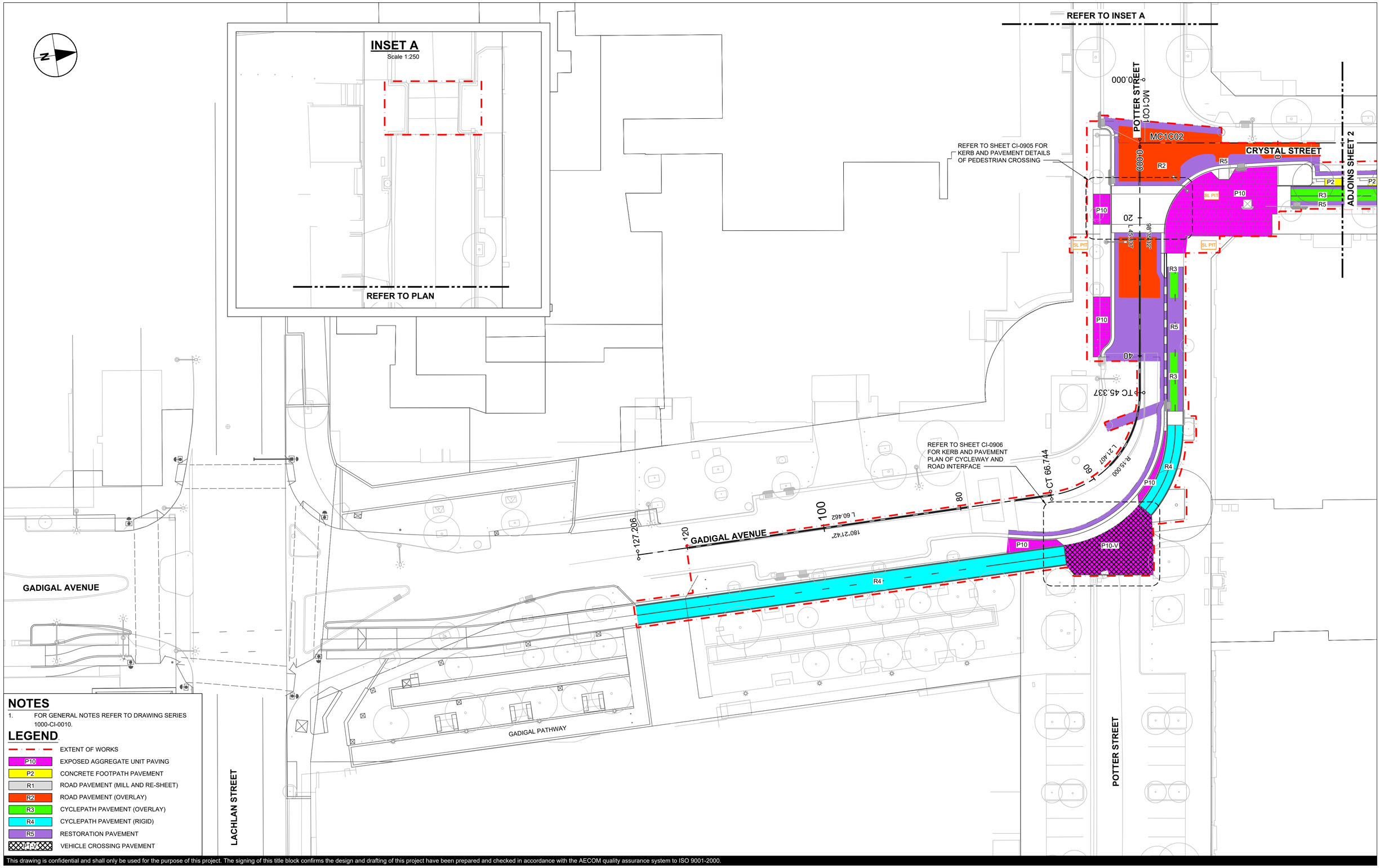
PROJECT NUMBER
60620833

SHEET TITLE
TREE MANAGEMENT AND LANDSCAPE SCHEDULE SHEET 2

SHEET NUMBER
60620833-1C-SHT-1000-CI-0154

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

	EXTENT OF WORKS
P10	EXPOSED AGGREGATE UNIT PAVING
P2	CONCRETE FOOTPATH PAVEMENT
R1	ROAD PAVEMENT (MILL AND RE-SHEET)
R2	ROAD PAVEMENT (OVERLAY)
R3	CYCLEPATH PAVEMENT (OVERLAY)
R4	CYCLEPATH PAVEMENT (RIGID)
R5	RESTORATION PAVEMENT
P10-V	VEHICLE CROSSING PAVEMENT

AECOM

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

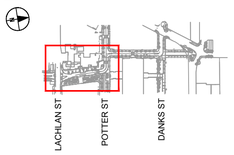
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

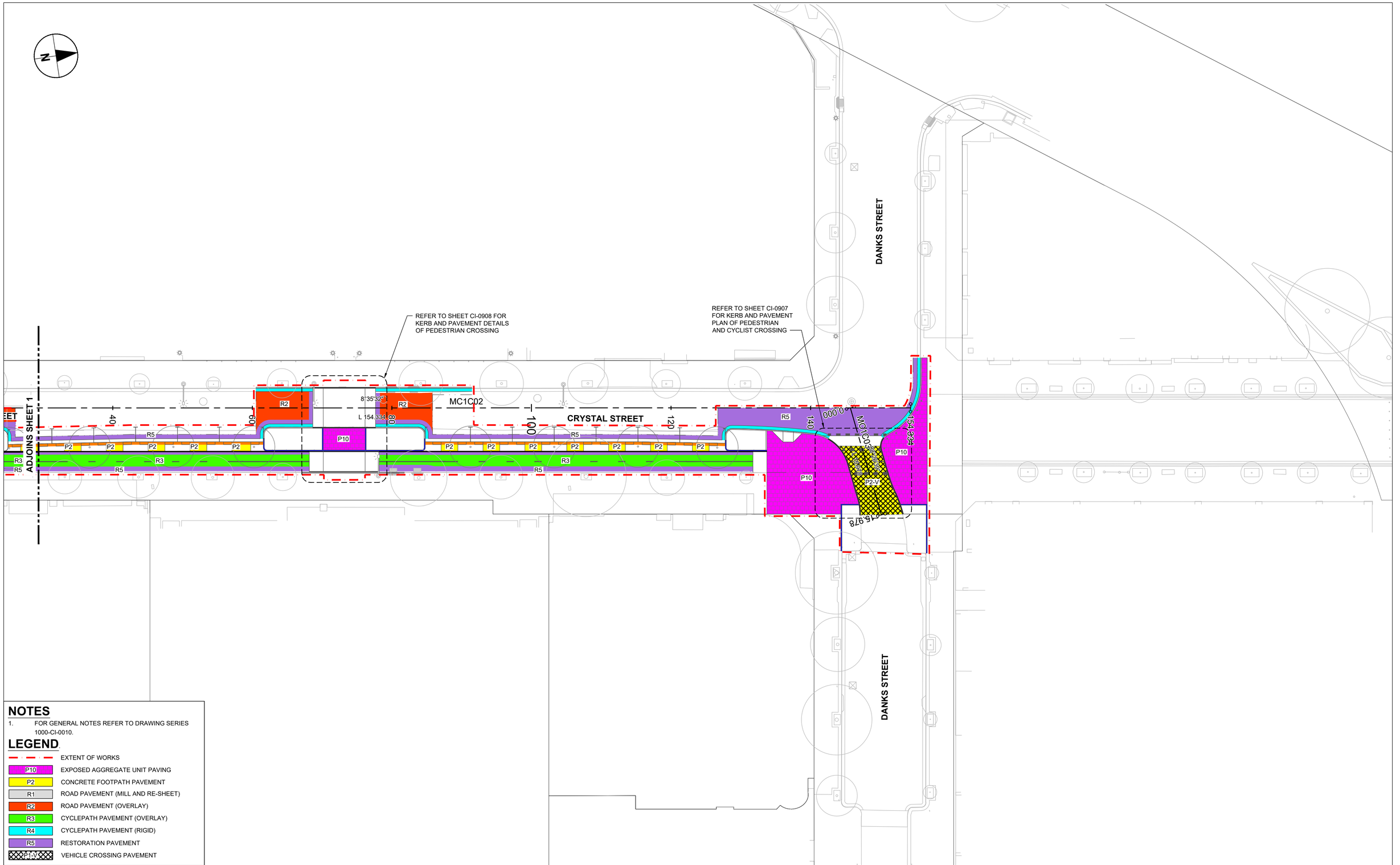
PAVEMENT PLAN SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0201

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0201.DWG

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

- EXTENT OF WORKS
- P10 — EXPOSED AGGREGATE UNIT PAVING
- P2 — CONCRETE FOOTPATH PAVEMENT
- R1 — ROAD PAVEMENT (MILL AND RE-SHEET)
- R2 — ROAD PAVEMENT (OVERLAY)
- R3 — CYCLEPATH PAVEMENT (OVERLAY)
- R4 — CYCLEPATH PAVEMENT (RIGID)
- R5 — RESTORATION PAVEMENT
- P2-V — VEHICLE CROSSING PAVEMENT

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

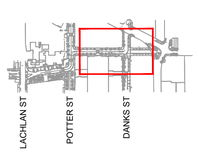
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

PAVEMENT PLAN SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0202

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0202.DWG

ISO A1 594mm x 841mm

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
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NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.
2. ALL SHARED PATH LINEMARKING TO BE IN ACCORDANCE WITH CITY OF SYDNEY SHARED PATHWAYS - PAVEMENT MARKINGS GUIDE

LEGEND

- EXTENT OF WORKS
- SIGN POST
- BIKE LANE PAINT MARKING
- SHARED PATH LINEMARKING
- EXISTING SIGNS (TO BE RETAINED)
- EXISTING SIGNS (TO BE REMOVED)
- PROPOSED SIGNS

AECOM

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

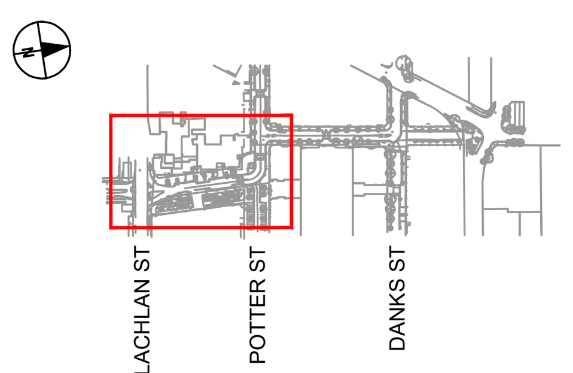
CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

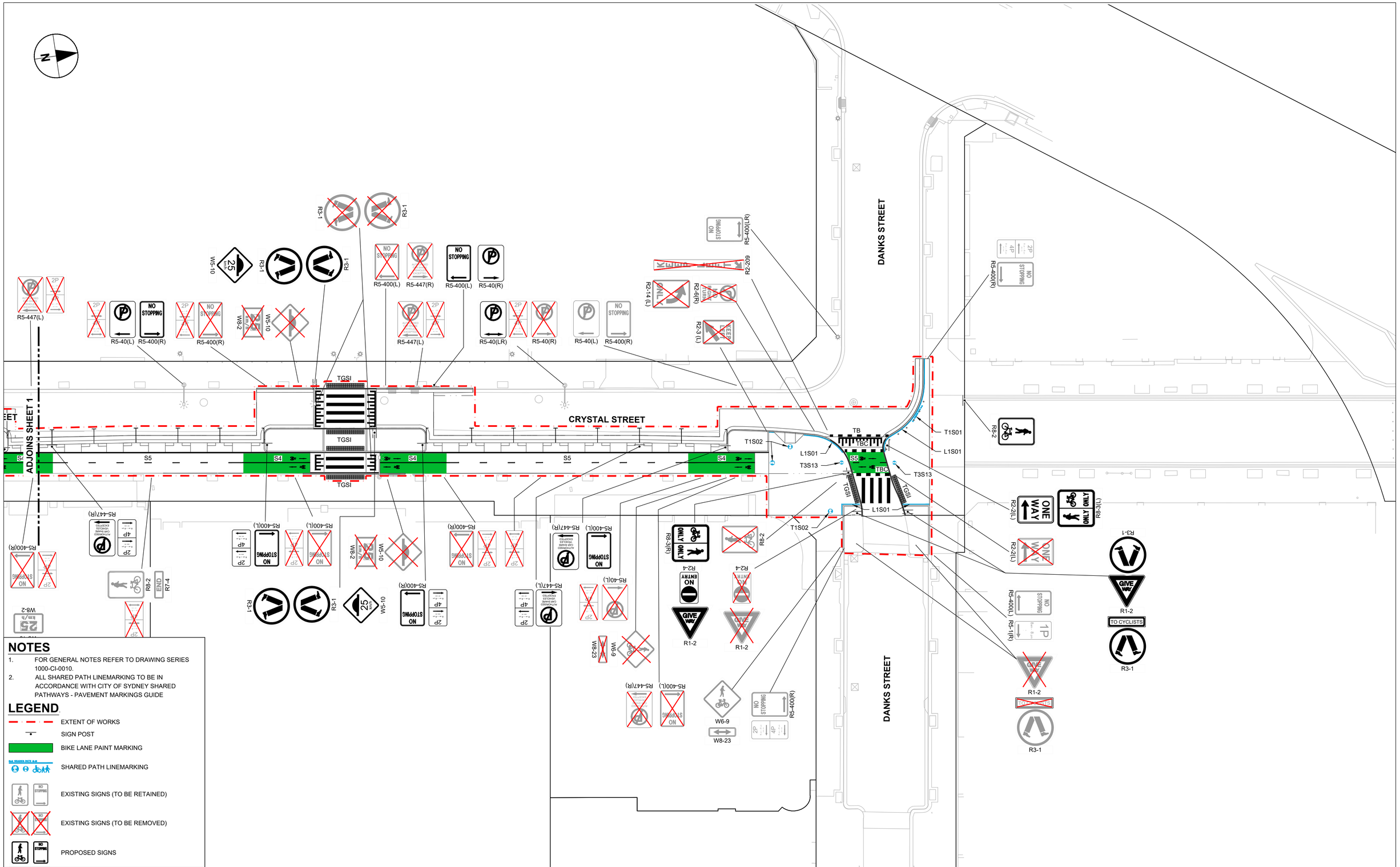
SHEET TITLE

LINES AND SIGNS PLAN SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0251

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.
2. ALL SHARED PATH LINEMARKING TO BE IN ACCORDANCE WITH CITY OF SYDNEY SHARED PATHWAYS - PAVEMENT MARKINGS GUIDE

LEGEND

- EXTENT OF WORKS
- SIGN POST
- BIKE LANE PAINT MARKING
- SHARED PATH LINEMARKING
- EXISTING SIGNS (TO BE RETAINED)
- EXISTING SIGNS (TO BE REMOVED)
- PROPOSED SIGNS

AECOM

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

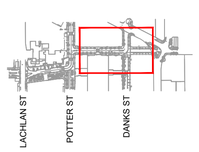
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

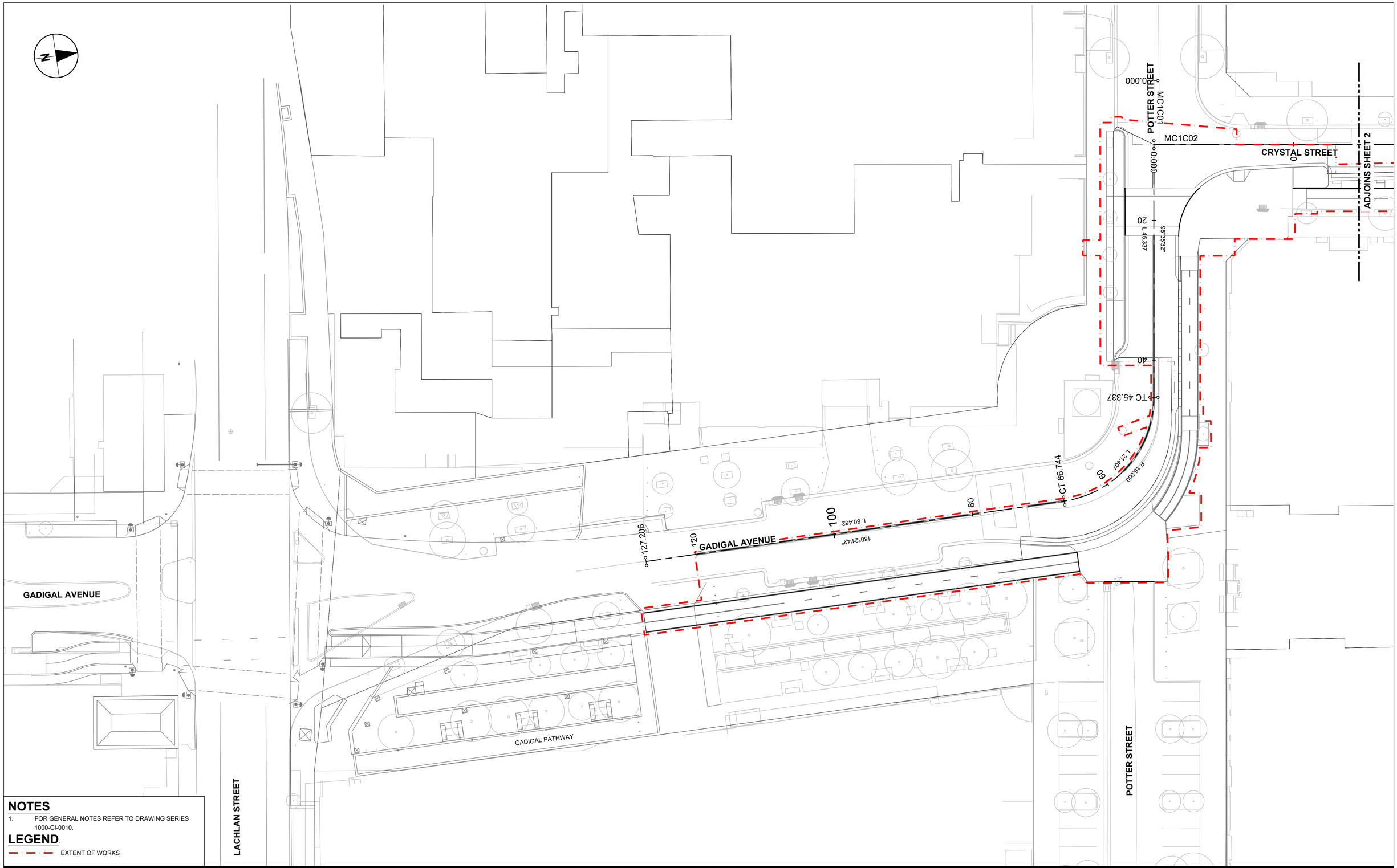
LINES AND SIGNS PLAN SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0252

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESSIPW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0252.DWG

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

EXTENT OF WORKS

AECOM

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

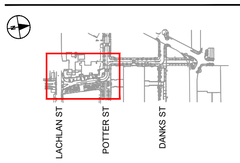
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

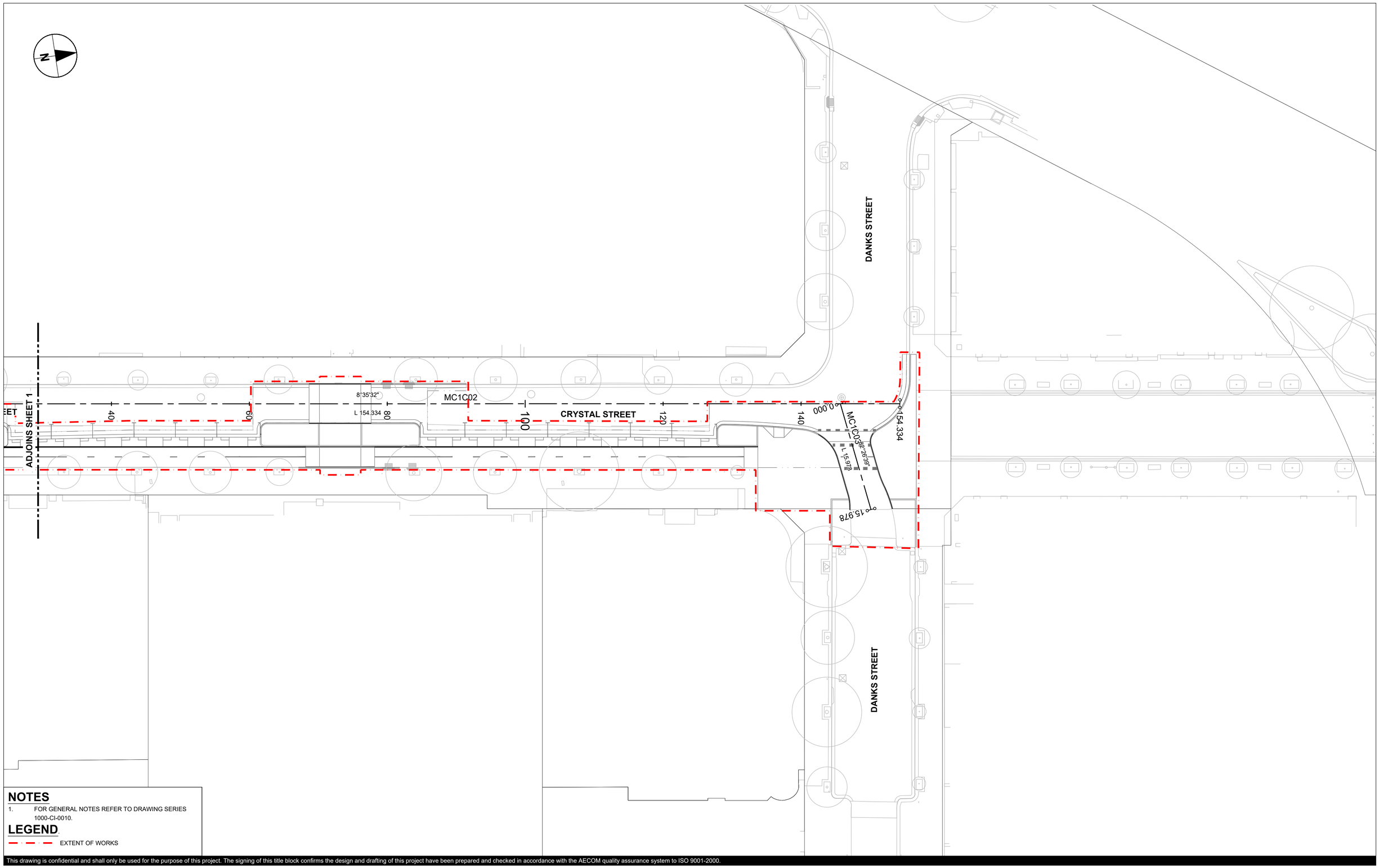
ROAD CONTROL STRING PLAN
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0301

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0301.DWG

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

EXTENT OF WORKS

AECOM

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

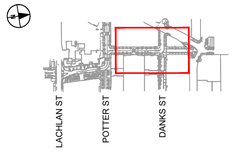
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m

1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

ROAD CONTROL STRING PLAN
SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0302

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0302.DWG

MODEL : CONTROL 1000 ROADS - STRING : MC1C01

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
Start	0.000	334734.458	6247565.540	31.309	98°35'32.11"	LINE		
TC	45.337	334779.287	6247558.766	30.269	98°35'32.11"	ARC	15.000	21.407
CT	66.744	334792.045	6247543.840	29.736	180°21'42.47"	LINE		60.462
End	127.206	334791.663	6247483.379	28.408	180°21'42.47"			

MODEL : CONTROL 1000 ROADS - STRING : MC1C02

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG
Start	0.000	334743.500	6247564.174	31.172	8°35'32.11"	LINE
End	154.334	334766.558	6247716.776	34.161	8°35'32.11"	

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	12.03.2021	95% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

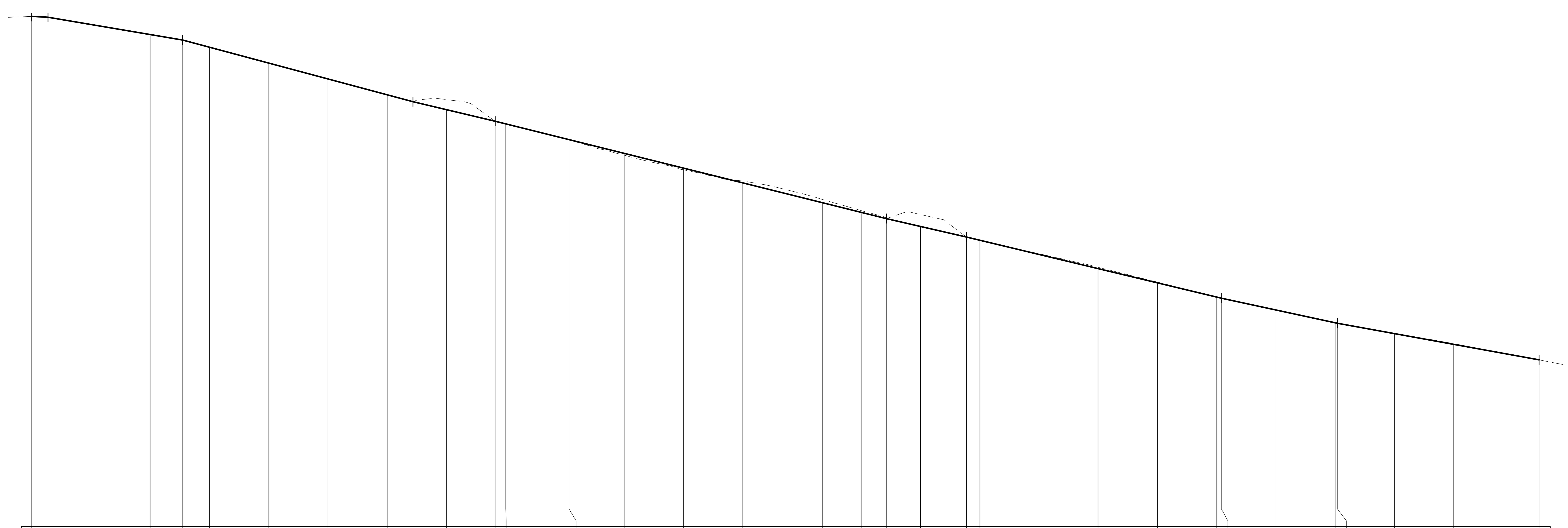
60620833

SHEET TITLE

ROAD
SETOUT TABLES

SHEET NUMBER

60620833-1C-SHT-1000-CI-0311



DATUM (m) 27.000

VERTICAL GEOMETRY: G=-0.52% | G=-1.70% | G=-2.68% | G=-2.37% | G=-2.49% | G=-2.31% | G=-2.40% | G=-2.16% | G=-1.82%

HORIZONTAL GEOMETRY: L=45.337 | R=15.000 | L=60.462

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS
0.000	31.309	31.309
1.374	31.302	31.302
5.000	31.241	31.242
10.000	31.156	31.158
12.745	31.109	31.109
15.000	31.049	31.046
20.000	30.915	30.913
25.000	30.781	30.780
30.000	30.647	30.647
32.167	30.589	30.589
35.000	30.522	30.607
39.108	30.424	30.424
40.000	30.402	30.402
45.000	30.277	30.275
45.337	30.269	30.266
50.000	30.153	30.137
55.000	30.028	30.014
60.000	29.904	29.920
65.000	29.779	29.813
66.744	29.736	29.763
70.000	29.655	29.669
72.124	29.602	29.602
75.000	29.535	29.636
78.883	29.445	29.445
80.000	29.419	29.417
85.000	29.299	29.305
90.000	29.179	29.190
95.000	29.059	29.065
100.000	28.939	28.940
100.387	28.930	28.930
105.000	28.830	28.830
110.000	28.722	28.722
110.175	28.718	28.718
115.000	28.630	28.634
120.000	28.539	28.546
125.000	28.448	28.450
127.206	28.408	28.408

LONGITUDINAL SECTION - MC1C01 (GADIGAL AVE)

A1 HORIZONTAL SCALE 1:250

A1 VERTICAL SCALE 1:25

AECOM

CONSULTANT

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www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 6.25 12.5 m H=1:250
0 0.625 1.25 V=1:25

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

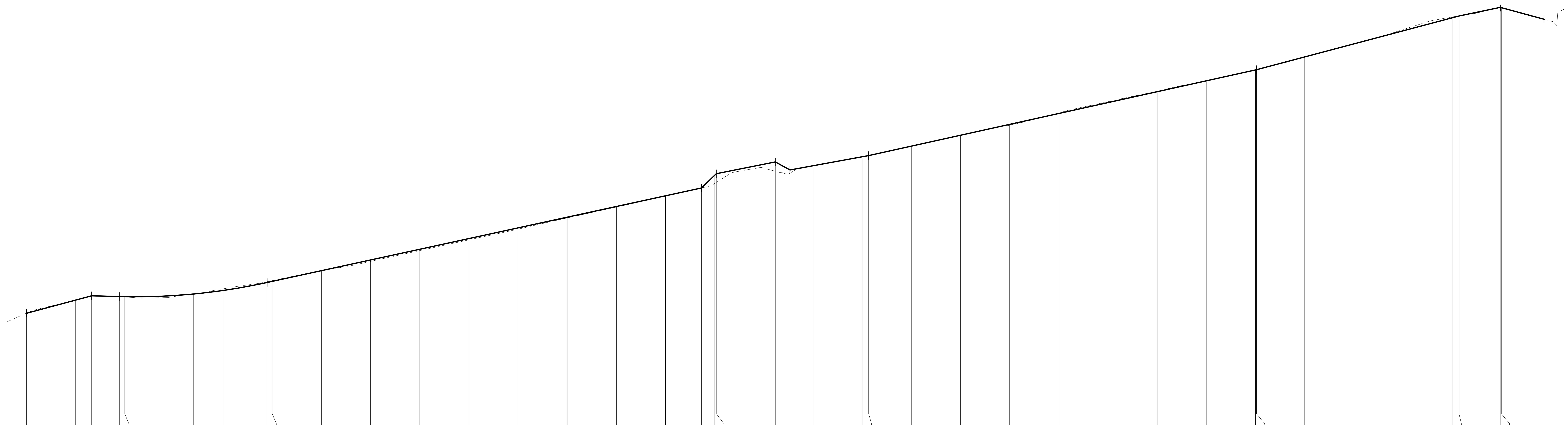
60620833

SHEET TITLE

ROAD LONG SECTIONS
MC1C01
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0321



DATUM (m) 30.000

VERTICAL GEOMETRY: G=2.67% | G=-0.27% | L=15.000 | G=2.18% | G=9.60% | G=2.00% | G=-5.39% | G=1.82% | G=2.21% | G=2.65% | G=2.10% | G=-2.74%

HORIZONTAL GEOMETRY: L=154.334

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS
0.000	31.172	31.172
5.000	31.306	31.303
6.638	31.350	31.350
9.478	31.342	31.341
10.000	31.341	31.337
15.000	31.352	31.342
16.978	31.368	31.368
20.000	31.404	31.421
24.478	31.485	31.493
25.000	31.497	31.504
30.000	31.605	31.605
35.000	31.714	31.699
40.000	31.823	31.809
45.000	31.932	31.918
50.000	32.040	32.027
55.000	32.149	32.141
60.000	32.258	32.251
65.000	32.367	32.363
68.659	32.446	32.446
70.000	32.575	32.492
70.159	32.590	32.502
75.000	32.687	32.647
76.159	32.710	32.616
77.659	32.630	32.596
80.000	32.672	32.670
85.000	32.763	32.761
85.651	32.775	32.774
90.000	32.871	32.869
95.000	32.982	32.983
100.000	33.093	33.084
105.000	33.203	33.210
110.000	33.314	33.322
115.000	33.425	33.429
120.000	33.535	33.536
125.000	33.646	33.646
125.101	33.648	33.648
130.000	33.778	33.774
135.000	33.911	33.911
140.000	34.043	34.056
145.000	34.176	34.185
145.692	34.194	34.194
149.899	34.283	34.283
150.000	34.280	34.280
154.334	34.161	34.159

LONGITUDINAL SECTION - MC1C02 (CRYSTAL ST)

A1 HORIZONTAL SCALE 1:250

A1 VERTICAL SCALE 1:25

AECOM

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 6.25 12.5 m (H=1:250)
0 0.625 1.25 (V=1:25)

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

ROAD LONG SECTIONS
MC1C02
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0322

ISO A1 594mm x 841mm
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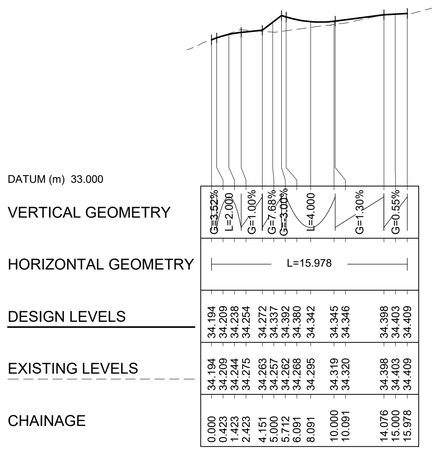

LONGITUDINAL SECTION - MC1C03 (DANKS ST)

A1 HORIZONTAL SCALE 1:250

A1 VERTICAL SCALE 1:25

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 6.25 12.5 m H=1:250 V=1:25
0 0.625 1.25

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

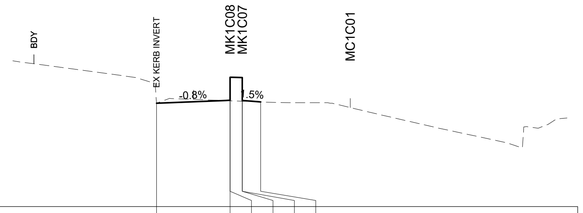
60620833

SHEET TITLE

ROAD LONG SECTIONS
MC1C03
SHEET 1

SHEET NUMBER

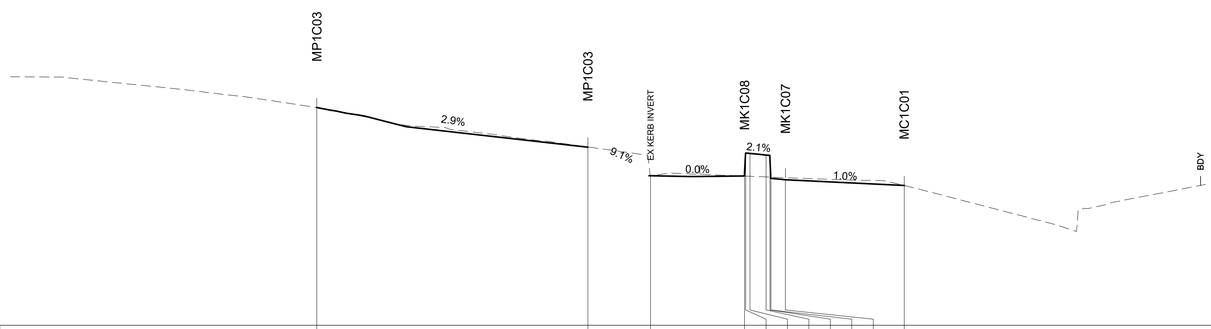
60620833-1C-SHT-1000-CI-0323



DATUM 30.00

DESIGN LEVELS		30.675	30.694	30.844	30.843	30.693	30.684	
EXISTING SURFACE		30.675	30.691	30.691	30.688	30.688	30.684	
OFFSETS		-6.325	-3.923	-3.922	-3.525	-3.524	-2.924	

CHAINAGE 30.000



DATUM 30.00

DESIGN LEVELS		31.422	31.163	30.975	30.975	31.124	31.122	31.111	31.110	30.959	30.951	30.913
EXISTING SURFACE		31.422	31.164	30.976	30.974	30.974	30.973	30.969	30.968	30.967	30.964	30.913
OFFSETS		-19.178	-10.329	-8.283	-5.213	-5.178	-5.038	-4.510	-4.384	-4.352	-3.879	0.000

CHAINAGE 20.000

AECOM

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:20
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

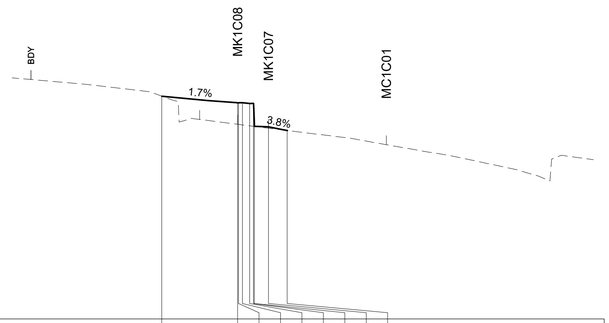
60620833

SHEET TITLE

ROAD CROSS SECTIONS
MC1C01
SHEET 1

SHEET NUMBER

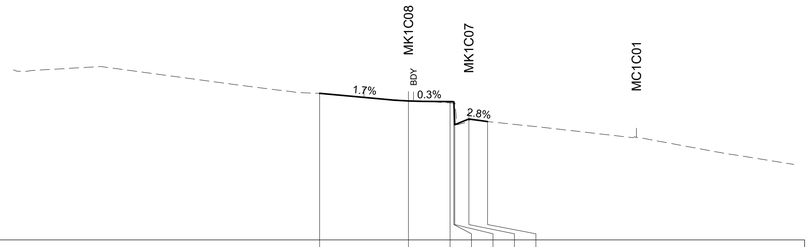
60620833-1C-SHT-1000-CI-0341



DATUM 29.00

DESIGN LEVELS	30.454	30.410	30.411	30.411	30.406	30.406	30.257	30.253	30.230
EXISTING SURFACE	30.454	30.270	30.269	30.266	30.260	30.257	30.256	30.244	30.229
OFFSETS	-7.329	-4.855	-4.824	-4.700	-4.458	-4.337	-4.306	-3.848	-3.237

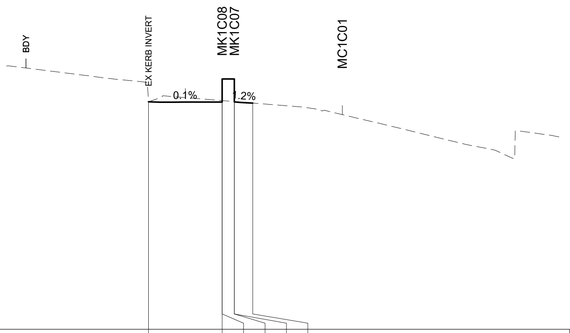
CHAINAGE 50.000



DATUM 29.00

DESIGN LEVELS	29.956	29.906	29.903	29.902	29.752	29.789	29.772		
EXISTING SURFACE	29.956	29.909	29.894	29.893	29.892	29.779	29.772		
OFFSETS	-10.341	-7.441	-6.081	-5.959	-5.928	-5.469	-4.857		

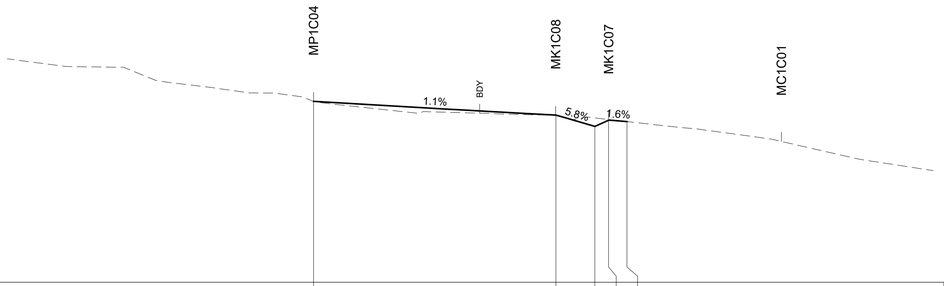
CHAINAGE 70.000



DATUM 29.00

DESIGN LEVELS	30.486	30.484	30.634	30.634	30.484	30.477			
EXISTING SURFACE	30.486	30.493	30.493	30.487	30.487	30.477			
OFFSETS	-6.326	-3.924	-3.922	-3.525	-3.524	-2.924			

CHAINAGE 40.000



DATUM 29.00

DESIGN LEVELS	30.181	30.092	30.018	30.059	30.049				
EXISTING SURFACE	30.181	30.089	30.073	30.063	30.049				
OFFSETS	-15.273	-7.360	-6.092	-5.641	-5.039				

CHAINAGE 60.000

AECOM

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PROJECT

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CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

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☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:20
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

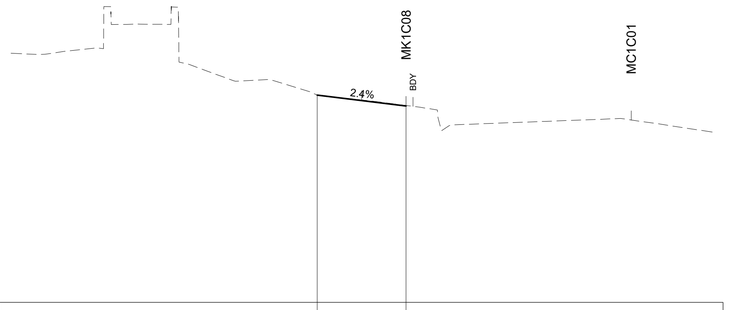
60620833

SHEET TITLE

ROAD CROSS SECTIONS
MC1C01
SHEET 2

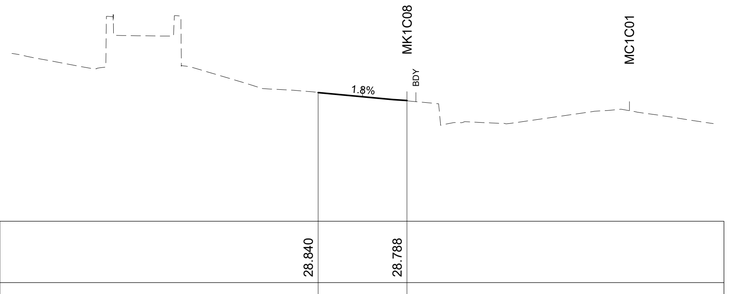
SHEET NUMBER

60620833-1C-SHT-1000-CI-0342



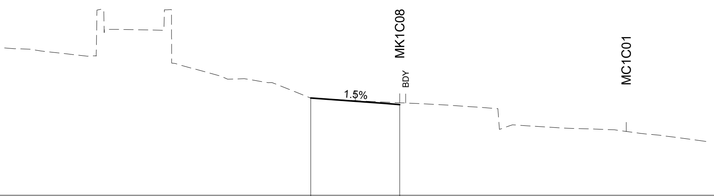
DATUM 28.00			
DESIGN LEVELS	29.353	29.282	
EXISTING SURFACE	29.353	29.285	
OFFSETS	-10.252	-7.352	

CHAINAGE 90.000



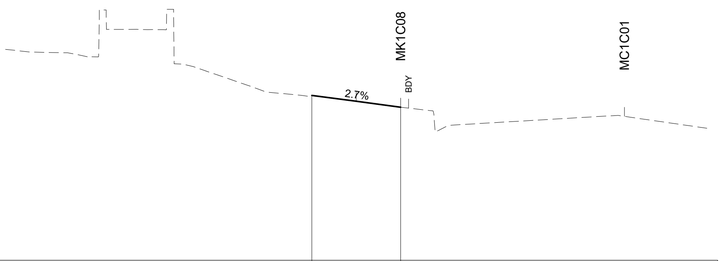
DATUM 28.00			
DESIGN LEVELS	28.840	28.788	
EXISTING SURFACE	28.841	28.786	
OFFSETS	-10.162	-7.262	

CHAINAGE 110.000



DATUM 29.00			
DESIGN LEVELS	29.636	29.592	
EXISTING SURFACE	29.636	29.604	
OFFSETS	-10.296	-7.396	

CHAINAGE 80.000



DATUM 28.00			
DESIGN LEVELS	29.077	29.000	
EXISTING SURFACE	29.077	29.000	
OFFSETS	-10.207	-7.307	

CHAINAGE 100.000

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PROJECT

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CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:20
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

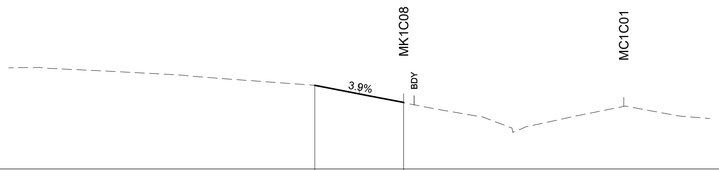
60620833

SHEET TITLE

ROAD CROSS SECTIONS
MC1C01
SHEET 3

SHEET NUMBER

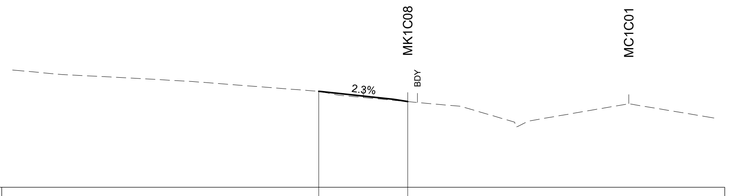
60620833-1C-SHT-1000-CI-0343



DATUM 28.00

DESIGN LEVELS	28.546	28.434	
EXISTING SURFACE	28.546	28.432	
OFFSETS	-10.086	-7.186	

CHAINAGE 127.206



DATUM 28.00

DESIGN LEVELS	28.627	28.560	
EXISTING SURFACE	28.627	28.560	
OFFSETS	-10.118	-7.218	

CHAINAGE 120.000

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

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☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:20
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

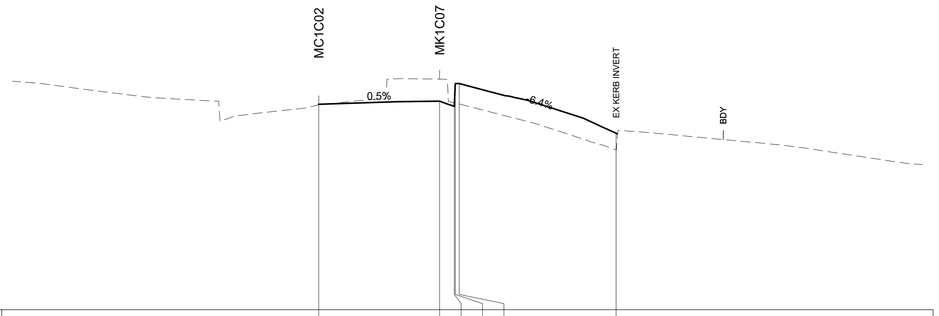
60620833

SHEET TITLE

ROAD CROSS SECTIONS
MC1C01
SHEET 4

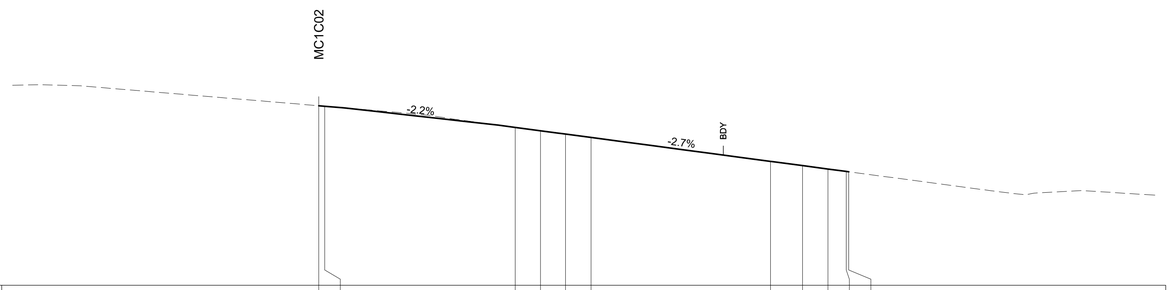
SHEET NUMBER

60620833-1C-SHT-1000-CI-0344



DATUM 30.00									
DESIGN LEVELS	31.341		31.361	31.327	31.477	31.476		31.150	
EXISTING SURFACE	31.337		31.506	31.350	31.349	31.343		31.044	
OFFSETS	0.000		3.945	4.422	4.454	4.582		9.705	

CHAINAGE 10.000



DATUM 30.00												
DESIGN LEVELS	31.172	31.169		31.031	31.009	30.987	30.965		30.809	30.781	30.759	30.743	30.741
EXISTING SURFACE	31.172	31.169		31.031	31.008	30.986	30.963		30.809	30.781	30.759	30.743	30.741
OFFSETS	0.000	0.195		6.413	7.237	8.055	8.886		14.745	15.790	16.621	17.219	17.300

CHAINAGE 0.000

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PROJECT
Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION
ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR
0 2.5 5 m H=1:100 V=1:20
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

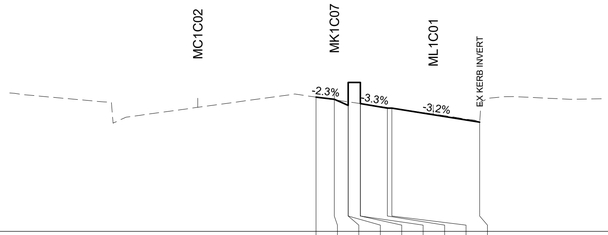
ISSUE/REVISION		
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER
60620833

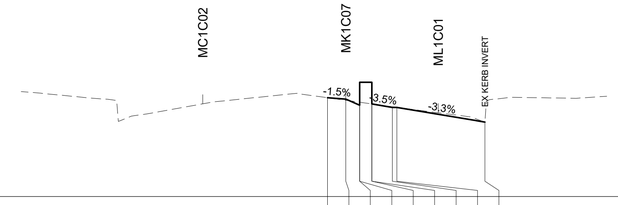
SHEET TITLE
ROAD CROSS SECTIONS
MC1C02
SHEET 1

SHEET NUMBER
60620833-1C-SHT-1000-CI-0345



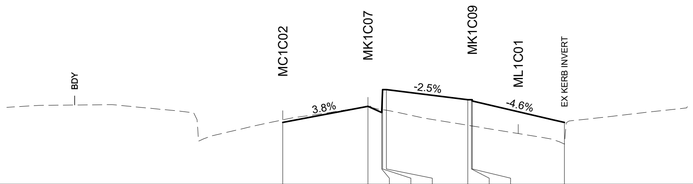
DATUM 31.00									
DESIGN LEVELS	31.876	31.862	31.822	31.972	31.971	31.834	31.804	31.804	31.713
EXISTING SURFACE	31.876	31.858	31.845	31.845	31.834	31.834	31.809	31.804	31.713
OFFSETS	3.857	4.457	4.907	4.908	5.306	5.307	6.187	6.337	9.202

CHAINAGE 40.000



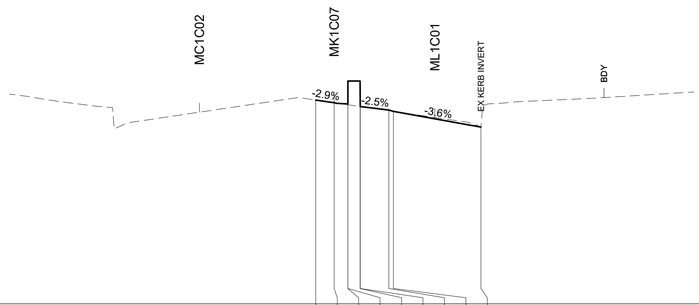
DATUM 31.00									
DESIGN LEVELS	31.645	31.636	31.596	31.746	31.746	31.605	31.582	31.582	31.486
EXISTING SURFACE	31.645	31.628	31.616	31.616	31.605	31.605	31.586	31.582	31.486
OFFSETS	4.068	4.668	5.119	5.120	5.518	5.519	6.187	6.337	9.211

CHAINAGE 30.000



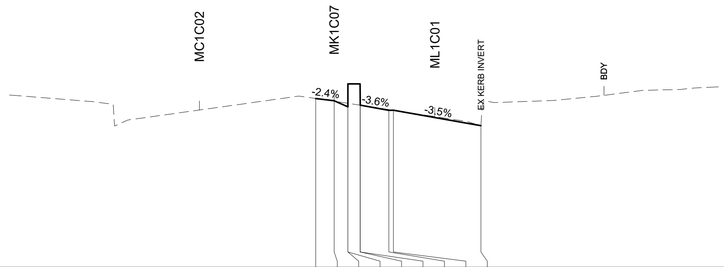
DATUM 31.00									
DESIGN LEVELS	31.404	31.509	31.469	31.619	31.619	31.553	31.553	31.544	31.404
EXISTING SURFACE	31.421	31.508	31.488	31.487	31.483	31.386	31.382	31.381	31.263
OFFSETS	0.000	2.779	3.229	3.259	3.379	6.037	6.157	6.187	9.194

CHAINAGE 20.000



DATUM 31.00									
DESIGN LEVELS	32.331	32.313	32.305	32.455	32.455	32.288	32.265	32.256	32.154
EXISTING SURFACE	32.331	32.313	32.300	32.300	32.288	32.288	32.261	32.256	32.154
OFFSETS	3.800	4.400	4.850	4.851	5.249	5.250	6.187	6.337	9.193

CHAINAGE 60.000



DATUM 31.00									
DESIGN LEVELS	32.102	32.088	32.048	32.198	32.198	32.059	32.025	32.025	31.925
EXISTING SURFACE	32.102	32.084	32.071	32.071	32.059	32.059	32.030	32.025	31.925
OFFSETS	3.800	4.400	4.850	4.851	5.249	5.250	6.187	6.337	9.192

CHAINAGE 50.000

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

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☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:20
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

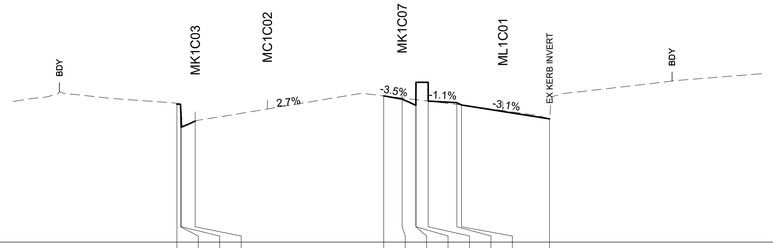
60620833

SHEET TITLE

ROAD CROSS SECTIONS
MC1C02
SHEET 2

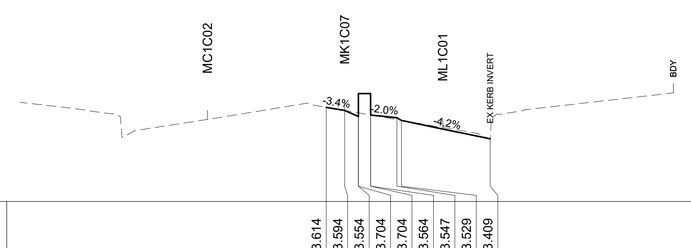
SHEET NUMBER

60620833-1C-SHT-1000-CI-0346



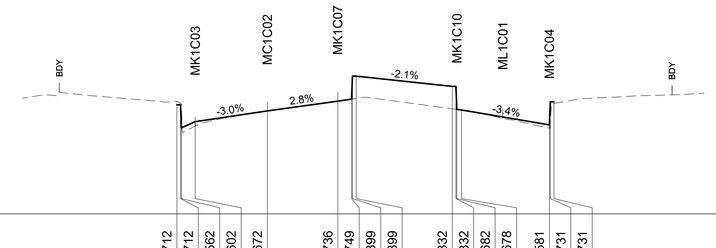
DATUM 32.00														
DESIGN LEVELS			32.900	32.900	32.750	32.790		32.954	32.933	32.893	33.043	32.910	32.895	32.805
EXISTING SURFACE			32.907	32.896	32.843	32.790		32.954	32.940	32.930	32.930	32.921	32.899	32.895	32.805
OFFSETS			-2.954	-2.834	-2.804	-2.354		3.800	4.400	4.850	4.851	5.249	6.187	6.337	9.214

CHAINAGE 90.000



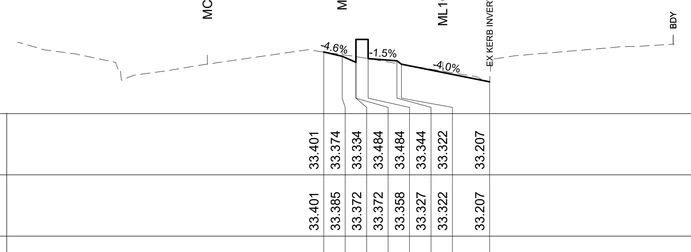
DATUM 33.00														
DESIGN LEVELS			33.614	33.594	33.554	33.704		33.704	33.564	33.547	33.529	33.409		
EXISTING SURFACE			33.614	33.593	33.578	33.704		33.578	33.564	33.534	33.529	33.409		
OFFSETS			3.881	4.481	4.931	4.932		5.330	5.331	6.187	6.337	9.232		

CHAINAGE 120.000



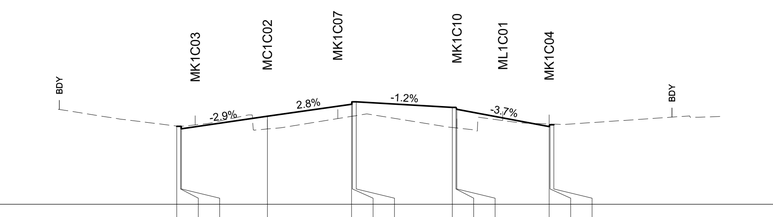
DATUM 32.00														
DESIGN LEVELS			32.712	32.712	32.562	32.602	32.672		32.736	32.749	32.899	32.899		32.832	32.832	32.682	32.678	32.581	32.731	32.731
EXISTING SURFACE			32.733	32.723	32.720	32.573	32.670		32.736	32.749	32.750	32.753		32.686	32.683	32.682	32.678	32.559	32.592	32.721
OFFSETS			-2.955	-2.835	-2.805	-2.355	0.000		2.300	2.750	2.780	2.900		6.037	6.156	6.187	6.337	9.208	9.238	9.358

CHAINAGE 80.000



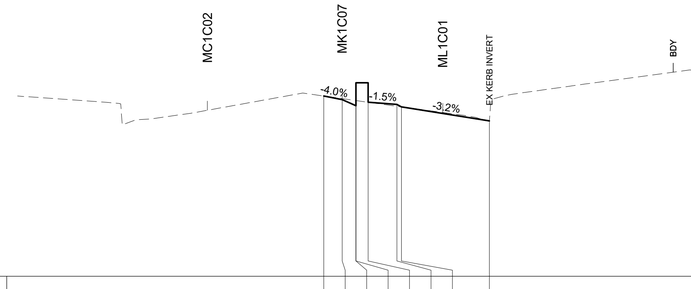
DATUM 33.00														
DESIGN LEVELS			33.401	33.374	33.334	33.484		33.484	33.344	33.322		33.207		
EXISTING SURFACE			33.401	33.385	33.372	33.372		33.358	33.327	33.322		33.207		
OFFSETS			3.800	4.400	4.850	4.851		5.249	6.187	6.337		9.216		

CHAINAGE 110.000



DATUM 32.00														
DESIGN LEVELS			32.509	32.509	32.493	32.575		32.653	32.669	32.669		32.632	32.632	32.621	32.507	32.519	32.519
EXISTING SURFACE			32.511	32.510	32.510	32.492		32.574	32.575	32.579		32.502	32.499	32.498	32.525	32.524	32.523
OFFSETS			-2.955	-2.835	-2.805	0.000		2.750	2.780	2.900		6.037	6.156	6.187	9.202	9.232	9.352

CHAINAGE 70.000



DATUM 32.00														
DESIGN LEVELS			33.177	33.153	33.113	33.263		33.263	33.122	33.106		33.015		
EXISTING SURFACE			33.177	33.160	33.148	33.148		33.136	33.110	33.106		33.015		
OFFSETS			3.800	4.400	4.850	4.851		5.249	6.187	6.337		9.208		

CHAINAGE 100.000

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:20
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60620833

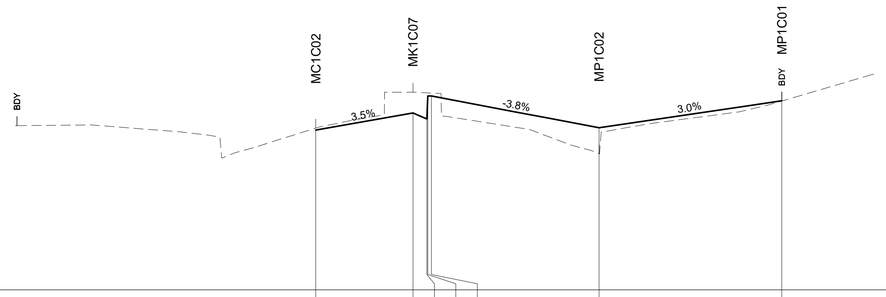
SHEET TITLE

ROAD CROSS SECTIONS
MC1C02
SHEET 3

SHEET NUMBER

60620833-1C-SHT-1000-CI-0347

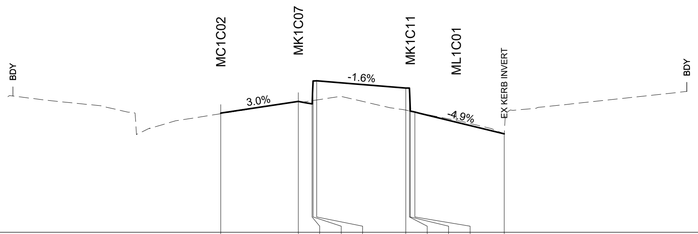
FOR INFORMATION ONLY



DATUM 33.00

DESIGN LEVELS	34.043	34.154	34.115	34.266	34.266	34.059	34.235	
EXISTING SURFACE	34.056	34.290	34.286	34.285	34.284	33.889	34.232	
OFFSETS	0.000	3.172	3.624	3.654	3.775	9.246	15.213	

CHAINAGE 140.000



DATUM 33.00

DESIGN LEVELS	33.778	33.854	33.839	33.989	33.989	33.941	33.941	33.791	33.785	33.643
EXISTING SURFACE	33.774	33.852	33.859	33.860	33.864	33.798	33.793	33.791	33.785	33.643
OFFSETS	0.000	2.530	2.980	3.010	3.130	6.037	6.156	6.187	6.337	9.253

CHAINAGE 130.000

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PROJECT

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SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:20
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

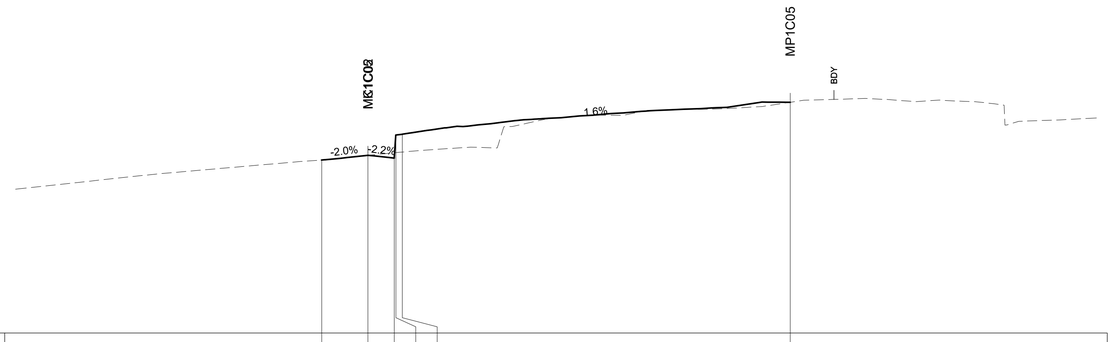
60620833

SHEET TITLE

ROAD CROSS SECTIONS
MC1C02
SHEET 4

SHEET NUMBER

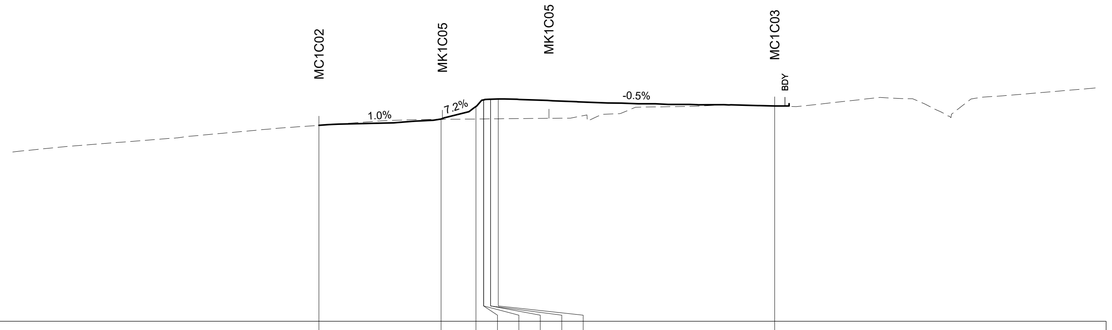
60620833-1C-SHT-1000-CI-0348



DATUM 33.00

DESIGN LEVELS	34.129	34.160	34.141	34.292	34.297	34.506		
EXISTING SURFACE	34.129	34.159	34.176	34.177	34.181	34.506		
OFFSETS	-1.506	0.000	0.860	0.913	1.121	13.787		

CHAINAGE 154.334



DATUM 33.00

DESIGN LEVELS	34.280	34.320	34.403	34.447	34.447	34.450	34.450	34.452	34.406
EXISTING SURFACE	34.280	34.319	34.321	34.321	34.321	34.322	34.322	34.322	34.406
OFFSETS	0.000	3.987	5.127	5.376	5.378	5.603	5.605	5.854	14.878

CHAINAGE 150.000

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:20
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

ROAD CROSS SECTIONS
MC1C02
SHEET 5

SHEET NUMBER

60620833-1C-SHT-1000-CI-0349

ISO A1 594mm x 841mm

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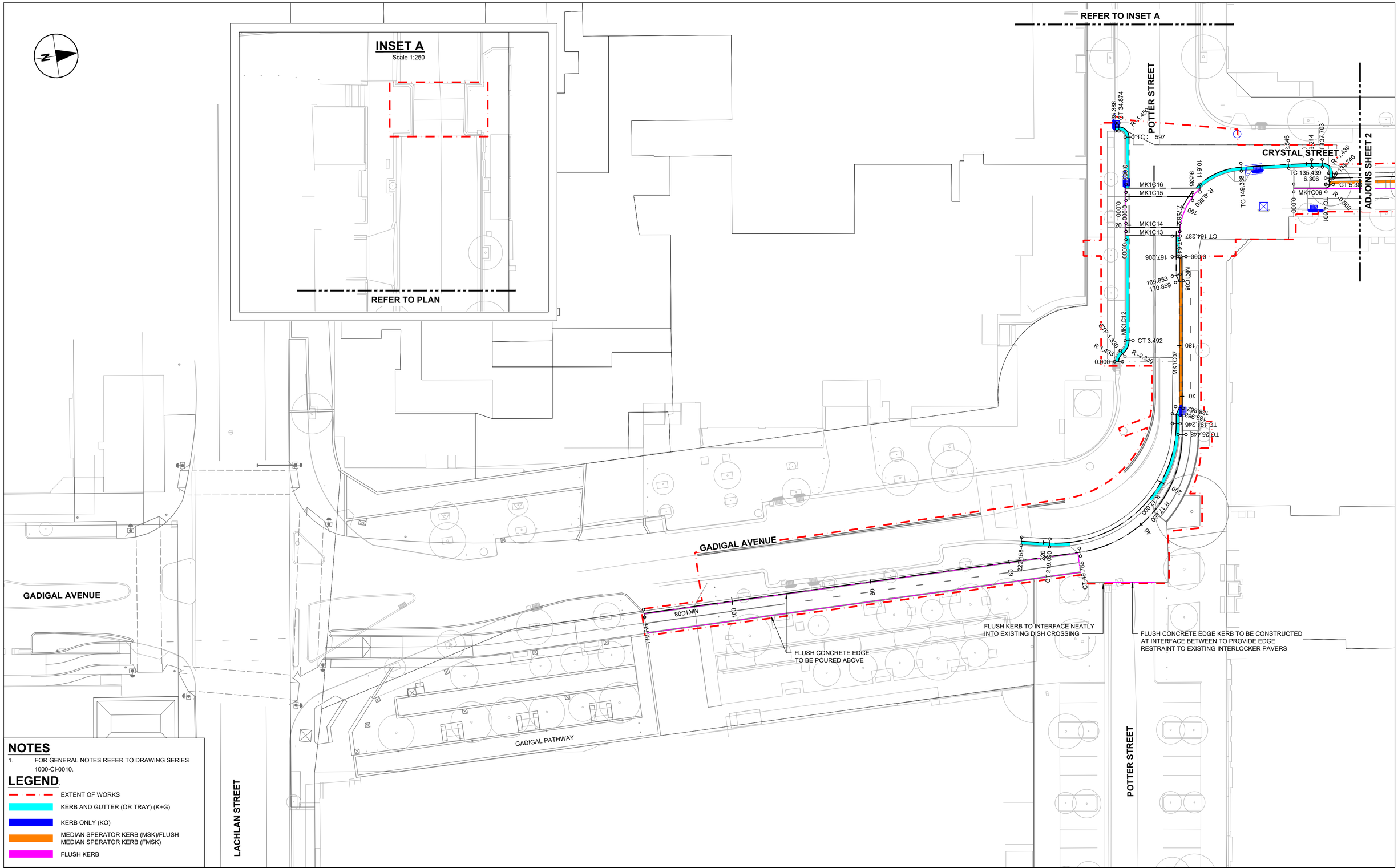

NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

- EXTENT OF WORKS
- KERB AND GUTTER (OR TRAY) (K+G)
- KERB ONLY (KO)
- MEDIAN SPERATOR KERB (MSK)/FLUSH MEDIAN SPERATOR KERB (FMSK)
- FLUSH KERB

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CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

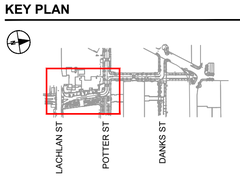
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

KERB CONTROL STRING PLAN
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0401

ISO A1 594mm x 841mm

NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

- EXTENT OF WORKS
- KERB AND GUTTER (OR TRAY) (K+G)
- KERB ONLY (KO)
- MEDIAN SPERATOR KERB (MSK)/FLUSH MEDIAN SPERATOR KERB (FMSK)
- FLUSH KERB

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

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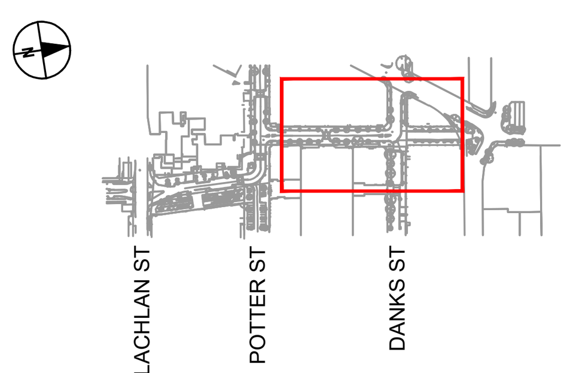
SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN



SCALE BAR

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1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

KERB CONTROL STRING PLAN SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0402

MODEL : CONTROL 1000 KERBS - STRING : MK1C03

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG
Start	0.000	334750.213	6247624.370	32.193	8°35'44.14"	LINE
End	30.918	334754.834	6247654.941	32.823	8°35'44.14"	

MODEL : CONTROL 1000 KERBS - STRING : MK1C04

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG
Start	0.000	334764.823	6247643.657	32.619	188°37'33.46"	LINE
End	14.618	334762.631	6247629.204	32.309	188°37'33.46"	

MODEL : CONTROL 1000 KERBS - STRING : MK1C05

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
Start	0.000	334759.613	6247718.796	34.003	98°58'25.05"	LINE		
TC	3.577	334763.147	6247718.238	34.066	98°58'25.05"	ARC	7.550	7.625
CT	11.202	334768.910	6247713.750	34.276	156°50'14.16"	LINE		1.196
TC	12.398	334769.381	6247712.651	34.305	156°50'14.16"	ARC	-2.450	3.181
CT	15.579	334771.955	6247711.186	34.433	82°26'40.69"	LINE		3.788
TC	19.367	334775.710	6247711.684	34.460	82°26'40.69"	ARC	-15.450	2.446
CC	21.814	334778.100	6247712.196	34.477	73°22'19.82"	ARC	18.950	3.445
End	25.259	334781.472	6247712.877	34.501	83°47'20.37"			

MODEL : CONTROL 1000 KERBS - STRING : MK1C07

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
Start	0.000	334780.747	6247707.840	34.351	277°06'50.30"	LINE		
TC	0.643	334780.109	6247707.919	34.336	277°06'50.30"	ARC	-6.450	1.651
CT	2.294	334778.462	6247707.913	34.298	262°26'40.39"	LINE		5.487
TC	7.781	334773.023	6247707.191	34.258	262°26'40.39"	ARC	-6.450	7.614
CC	15.394	334767.636	6247702.446	34.161	194°48'38.40"	ARC	-120.000	11.573
CC	26.968	334765.221	6247691.132	33.819	189°17'05.20"	ARC	-1.450	2.295
CT	29.263	334766.435	6247689.464	33.781	98°35'16.05"	LINE		0.641
Point	29.904	334767.069	6247689.369	33.773	189°31'39.60"	LINE		12.253
Point	42.157	334765.041	6247677.285	33.485	188°35'32.78"	LINE		29.836
Point	71.993	334760.583	6247647.784	32.828	278°35'28.86"	LINE		0.650
TC	72.643	334759.941	6247647.881	32.843	278°35'28.86"	ARC	-1.450	2.278
CT	74.921	334758.290	6247646.664	32.812	188°35'32.88"	LINE		21.200
TC	96.121	334755.123	6247625.701	32.378	188°35'32.88"	ARC	-1.450	2.278
CT	98.398	334756.340	6247624.051	32.357	98°35'28.86"	LINE		0.650
Point	99.048	334756.983	6247623.954	32.339	188°35'32.25"	LINE		18.433
Point	117.481	334754.229	6247605.728	31.923	187°22'47.21"	LINE		17.259
Point	134.740	334752.012	6247588.612	31.533	278°06'49.50"	LINE		0.699
TC	135.439	334751.320	6247588.711	31.541	278°06'49.50"	ARC	-1.430	2.264
CT	137.703	334749.700	6247587.480	31.554	187°23'52.01"	LINE		1.511
Point	139.214	334749.505	6247585.981	31.537	186°17'18.66"	LINE		3.330
Point	142.545	334749.141	6247582.670	31.499	185°11'32.33"	LINE		6.793
TC	149.338	334748.526	6247575.905	31.398	185°11'32.33"	ARC	-9.860	14.899
CT	164.237	334756.868	6247565.264	30.885	98°36'55.92"	LINE		2.969
Point	167.206	334759.804	6247564.819	30.807	98°36'18.85"	LINE		2.647
Point	169.853	334762.421	6247564.423	30.743	71°59'49.40"	LINE		1.006
Point	170.859	334763.377	6247564.734	30.720	98°35'32.31"	LINE		18.003
Point	188.862	334781.178	6247562.044	30.340	122°49'14.20"	LINE		1.097
Point	189.958	334782.100	6247561.450	30.303	98°35'23.74"	LINE		1.287
TC	191.246	334783.373	6247561.257	30.283	98°35'23.74"	ARC	17.100	27.845
CT	219.090	334797.552	6247540.827	29.791	191°53'14.99"	LINE		4.068
End	223.158	334796.714	6247536.846		191°53'14.99"			

MODEL : CONTROL 1000 KERBS - STRING : MK1C08

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
Start	0.000	334759.891	6247565.666	30.960	98°35'36.01"	LINE		
TC	25.448	334785.053	6247561.863	30.419	98°35'36.01"	ARC	17.000	24.337
CT	49.785	334799.512	6247544.871	29.968	180°37'02.22"	LINE		62.942
End	112.727	334798.834	6247481.933	28.419	180°37'02.22"			

MODEL : CONTROL 1000 KERBS - STRING : MK1C09

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
Start	0.000	334752.589	6247582.913	31.551	8°35'32.03"	LINE		
TC	4.601	334753.276	6247587.463	31.474	8°35'32.04"	ARC	-0.500	0.787
CT	5.388	334752.855	6247588.032	31.497	278°27'11.88"	LINE		0.918
End	6.306	334751.947	6247588.167	31.523	278°27'11.88"			

MODEL : CONTROL 1000 KERBS - STRING : MK1C10

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
Start	0.000	334757.049	6247624.399	32.349	98°35'24.03"	LINE		
TC	1.288	334758.322	6247624.207	32.311	98°35'24.03"	ARC	-0.500	0.785
CT	2.073	334758.891	6247624.626	32.308	8°35'31.87"	LINE		22.200
TC	24.273	334762.208	6247646.577	32.768	8°35'31.87"	ARC	-0.500	0.785
CT	25.059	334761.788	6247647.146	32.790	278°35'27.71"	LINE		1.288
End	26.347	334760.515	6247647.339	32.817	278°35'27.71"			

MODEL : CONTROL 1000 KERBS - STRING : MK1C11

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
Start	0.000	334767.135	6247689.814	33.783	98°35'18.15"	LINE		
TC	1.088	334768.211	6247689.651	33.747	98°35'18.15"	ARC	-0.500	0.785
CT	1.873	334768.780	6247690.071	33.742	8°35'34.36"	LINE		5.473
End	7.347	334769.598	6247695.483	34.048	8°35'34.36"			

MODEL : CONTROL 1000 KERBS - STRING : MK1C12

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
Start	0.000	334773.399	6247554.429	30.139	278°32'36.04"	ARC		
CC	1.330	334772.350	6247555.167	30.210	331°44'19.15"	ARC	-2.330	2.162
CT	3.492	334770.645	6247556.368	30.278	278°34'16.96"	LINE		29.105
TC	32.597	334741.865	6247560.706	31.020	278°34'16.96"	ARC	-1.450	2.278
CT	34.874	334740.215	6247559.488	30.979	188°34'30.20"	LINE		0.512
End	35.386	334740.139	6247558.982	30.940	188°34'30.20"			

MODEL : CONTROL 1000 KERBS - STRING : MK1C13

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG
Start	0.000	334755.742	6247558.159	30.642	8°35'32.27"	LINE
End	7.643	334756.884	6247565.717	30.891	8°35'32.27"	

MODEL : CONTROL 1000 KERBS - STRING : MK1C14

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG
Start	0.000	334754.555	6247558.338	30.822	8°35'32.31"	LINE
End	7.728	334755.710	6247565.979	31.057	8°35'32.31"	

MODEL : CONTROL 1000 KERBS - STRING : MK1C15

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG
Start	0.000	334750.204	6247558.994	30.931	8°35'32.31"	LINE
End	9.535	334751.629	6247568.421	31.254	8°35'32.31"	

MODEL : CONTROL 1000 KERBS - STRING : MK1C16

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG
Start	0.000	334749.022	6247559.172	30.810	8°33'54.71"	LINE
End	10.611	334750.603	6247569.664	31.199	8°33'54.71"	

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

01	14.05.2021	95% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

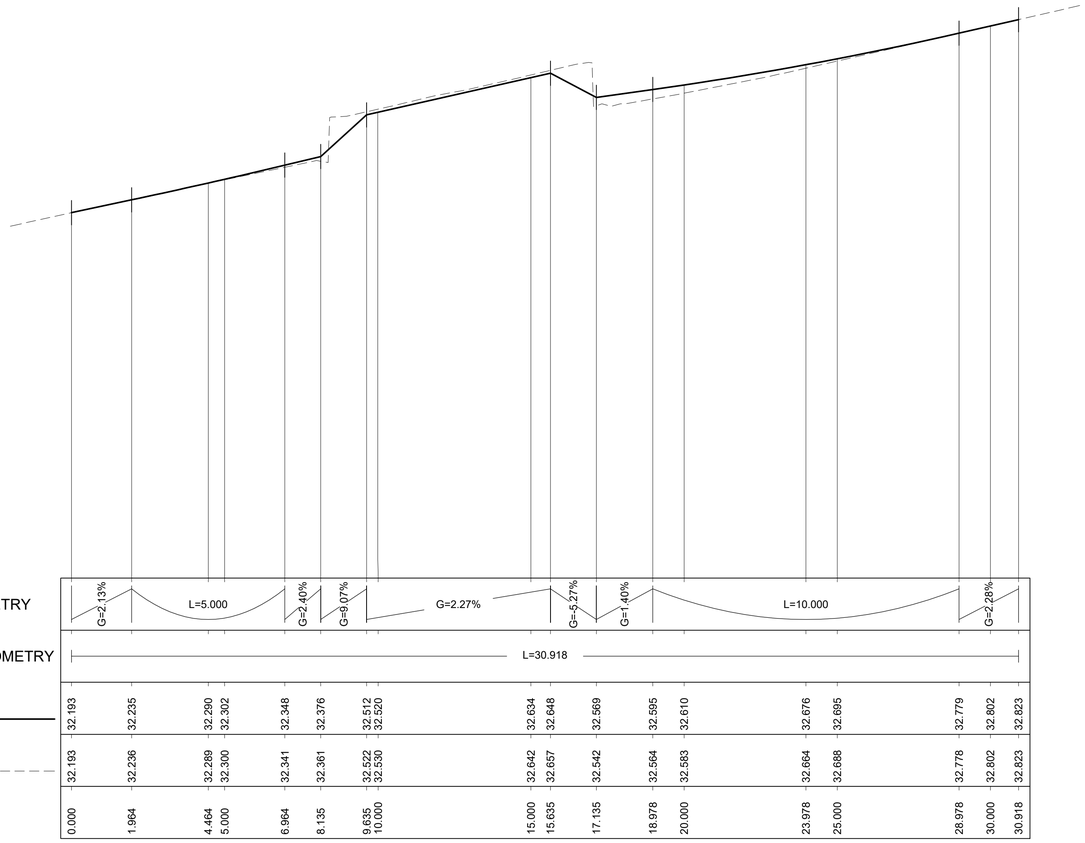
SHEET TITLE

KERB
SETOUT TABLES

SHEET NUMBER

60620833-1C-SHT-1000-CI-0411

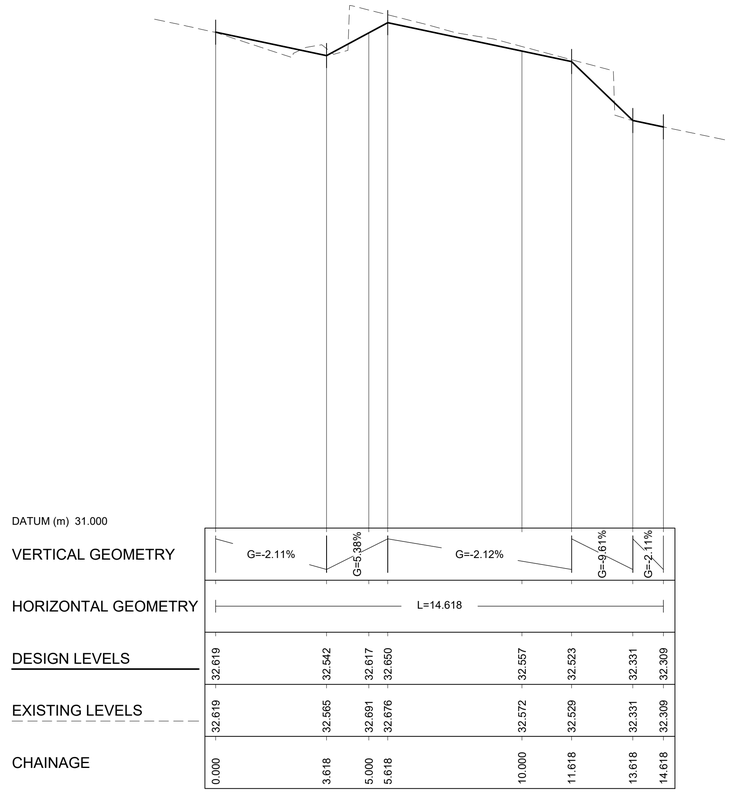
ISO A1 594mm x 841mm



LONGITUDINAL SECTION - MK1C03

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10



LONGITUDINAL SECTION - MK1C04

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:10
0 0.25 0.5

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

KERB LONG SECTIONS
MK1C03 AND MK1C04
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0421

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
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Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
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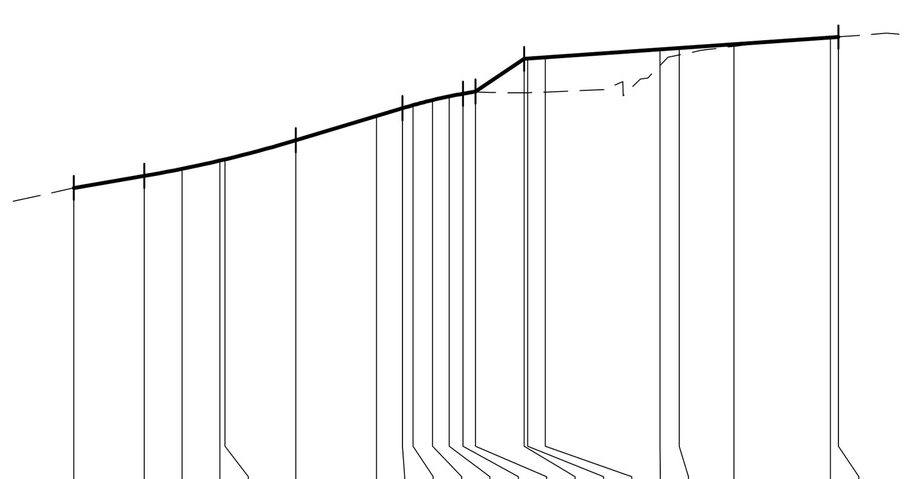

DATUM (m) 33.000

VERTICAL GEOMETRY: G=1.70% | L=5.000 | G=3.00% | L=2.000 | G=1.79% | G=6.66% | G=0.70%

HORIZONTAL GEOMETRY: L=3.577 | R=7.550 | L=1.196 | R=-2.450 | L=3.788 | R=-15.450 | R=18.950

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS
0.000	34.003	34.003
2.330	34.042	34.044
3.577	34.066	34.066
4.830	34.093	34.091
5.000	34.097	34.095
7.330	34.160	34.160
10.000	34.240	34.240
10.855	34.266	34.264
11.202	34.276	34.274
11.855	34.293	34.292
12.398	34.305	34.306
12.855	34.313	34.314
13.269	34.321	34.319
14.885	34.428	34.317
15.000	34.429	34.317
15.579	34.433	34.319
19.367	34.460	34.407
20.000	34.464	34.441
21.814	34.477	34.470
25.000	34.499	34.500
25.259	34.501	34.501

LONGITUDINAL SECTION - MK1C05

A1 HORIZONTAL SCALE 1:250

A1 VERTICAL SCALE 1:25

AECOM

CONSULTANT

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A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100
0 0.25 0.5 V=1:10

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

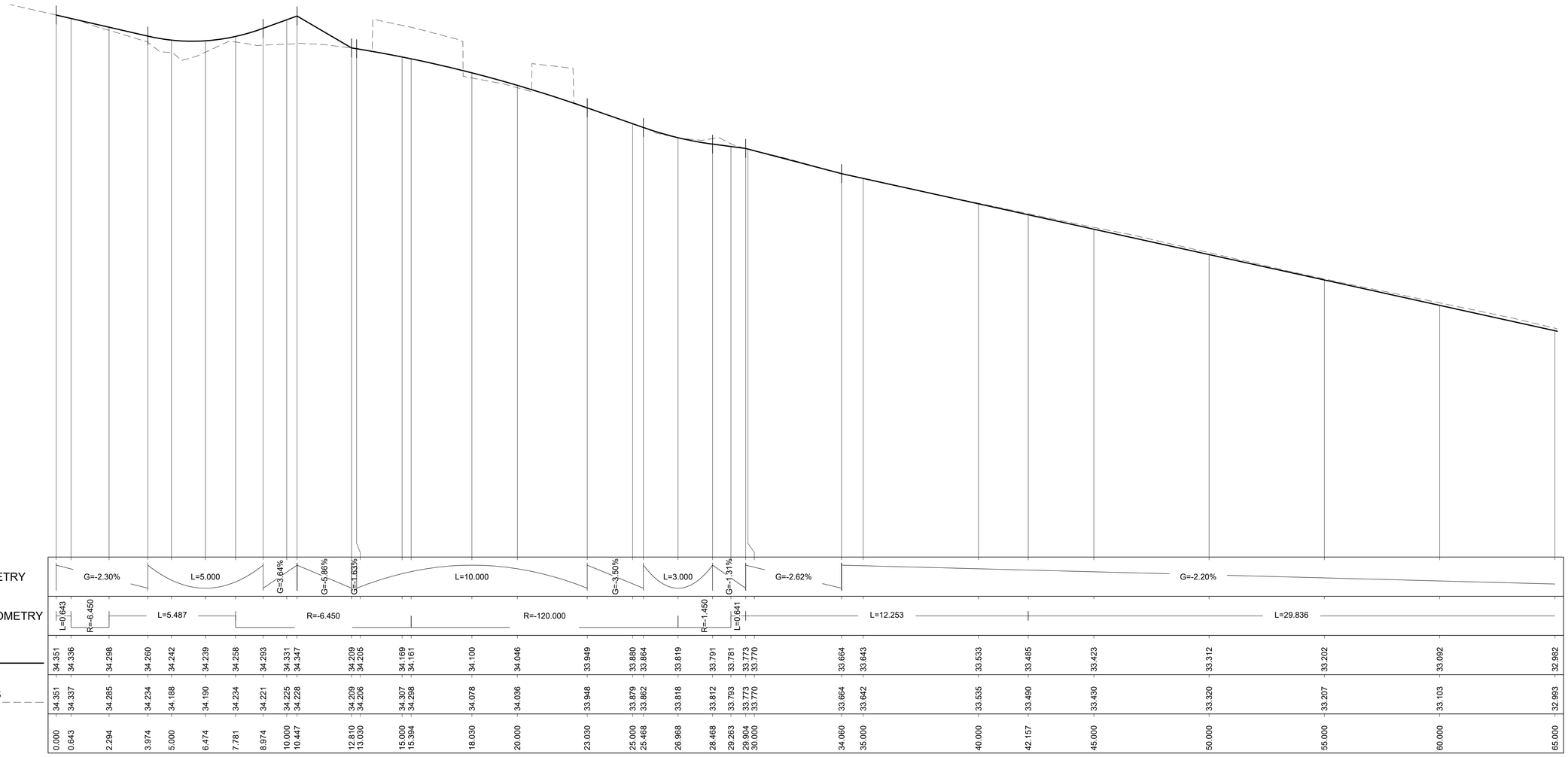
SHEET TITLE

KERB LONG SECTIONS
MK1C05
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0422

ISO A1 594mm x 841mm



LONGITUDINAL SECTION - MK1C07

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10

CONSULTANT

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A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:10
0 0.25 0.5

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

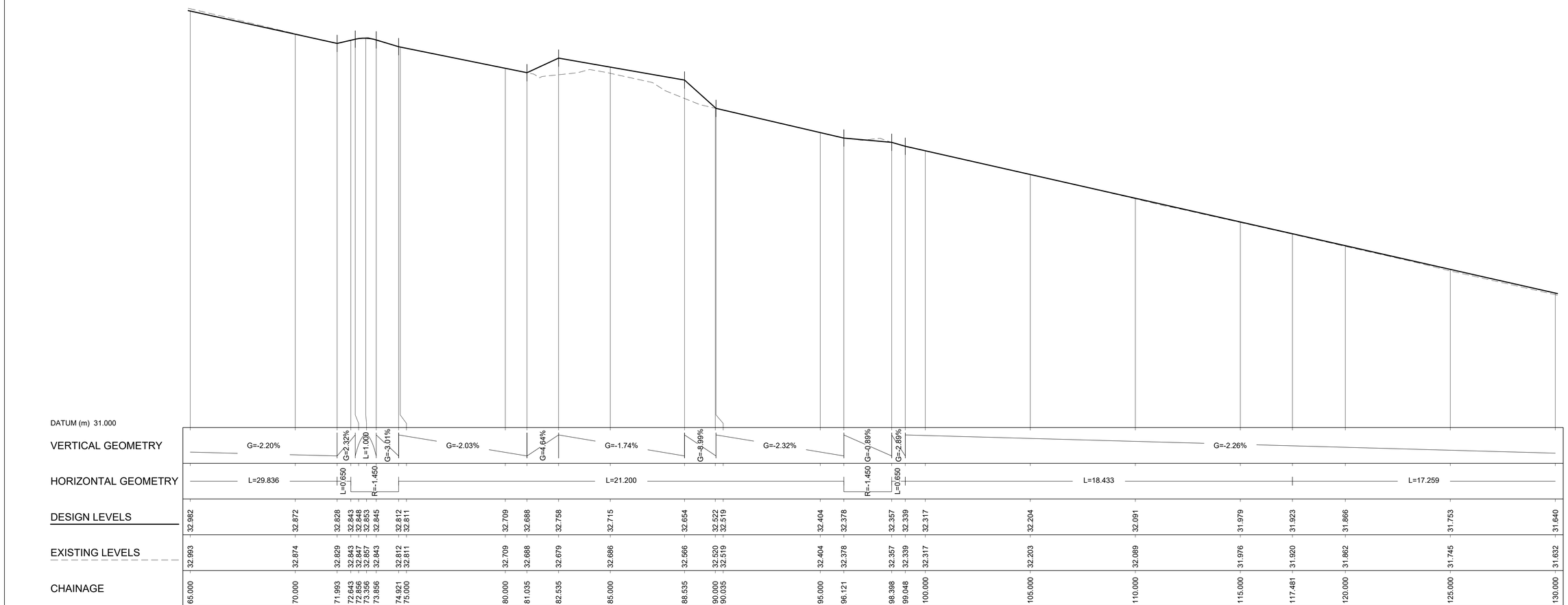
KERB LONG SECTIONS
MK1C07
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0423

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0423.DWG

ISO A1 594mm x 841mm



LONGITUDINAL SECTION - MK1C07

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10

CONSULTANT

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A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:10
0 0.25 0.5

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

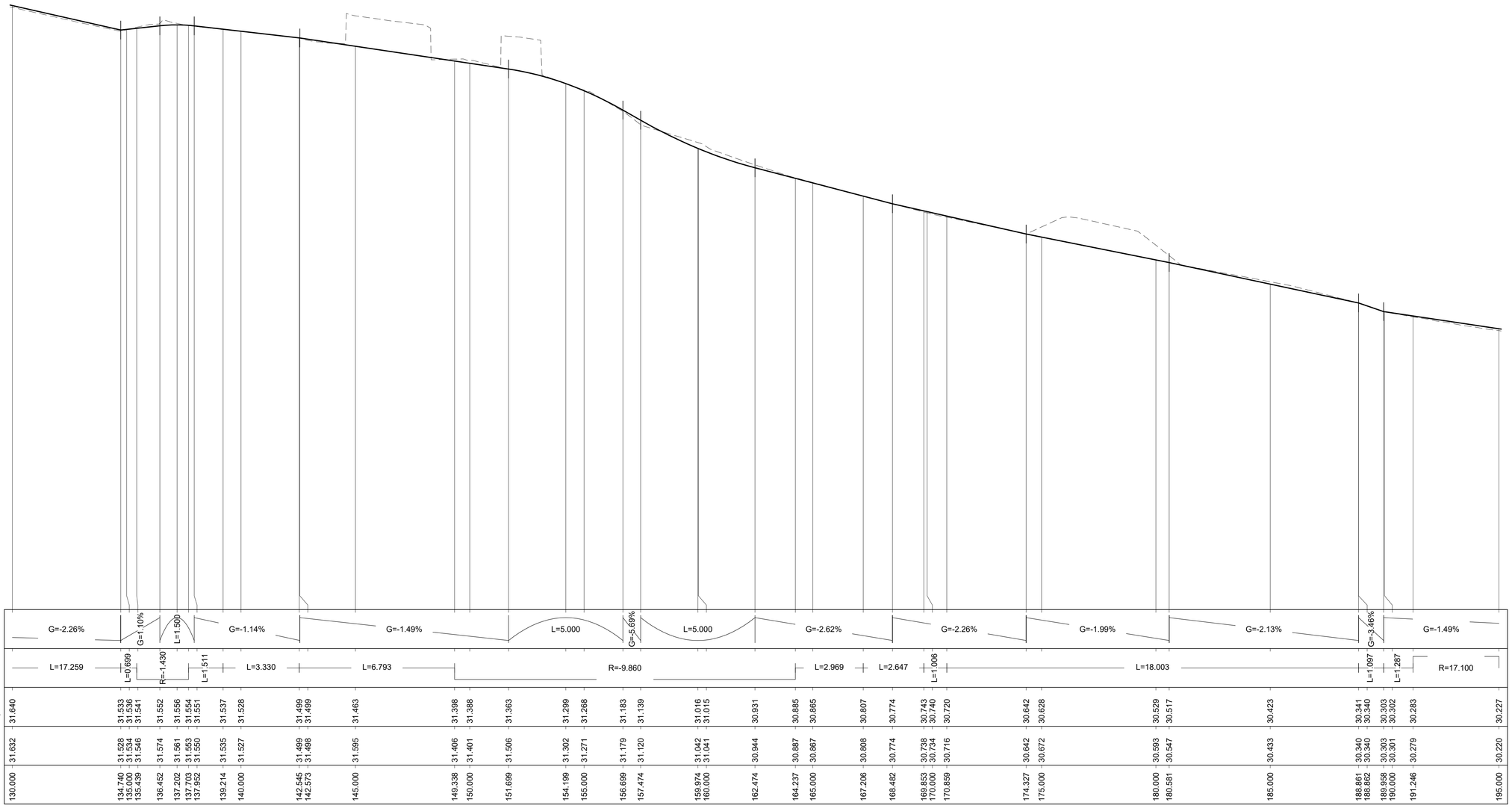
KERB LONG SECTIONS
MK1C07
SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0424

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0424.DWG

ISO A1 594mm x 841mm



LONGITUDINAL SECTION - MK1C07

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10

CONSULTANT

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A.B.N 20 093 846 925
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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:10
0 0.25 0.5

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

KERB LONG SECTIONS
MK1C07
SHEET 3

SHEET NUMBER

60620833-1C-SHT-1000-CI-0425

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
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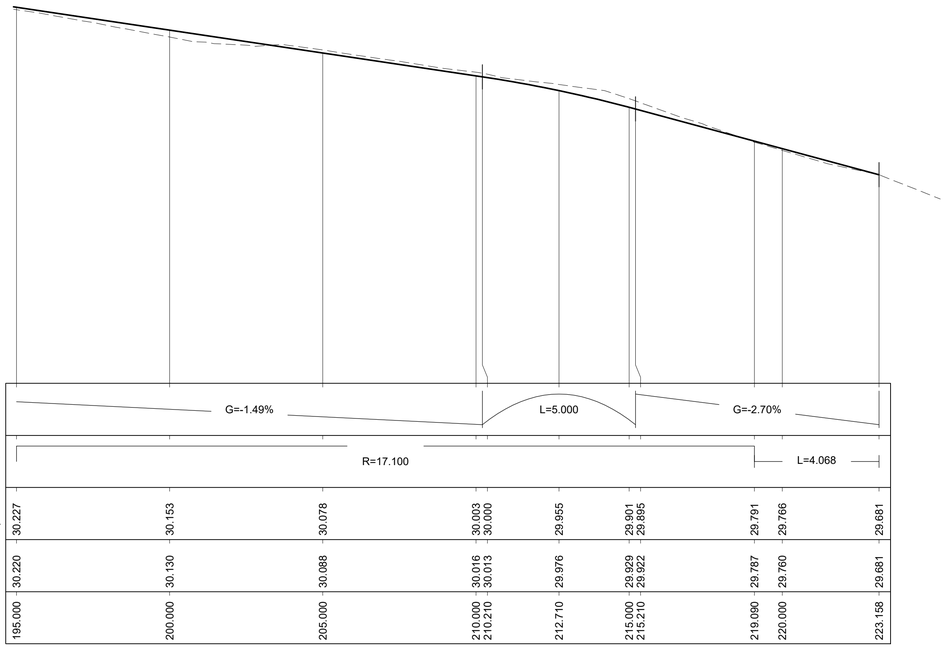

LONGITUDINAL SECTION - MK1C07

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

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SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:10
0 0.25 0.5

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

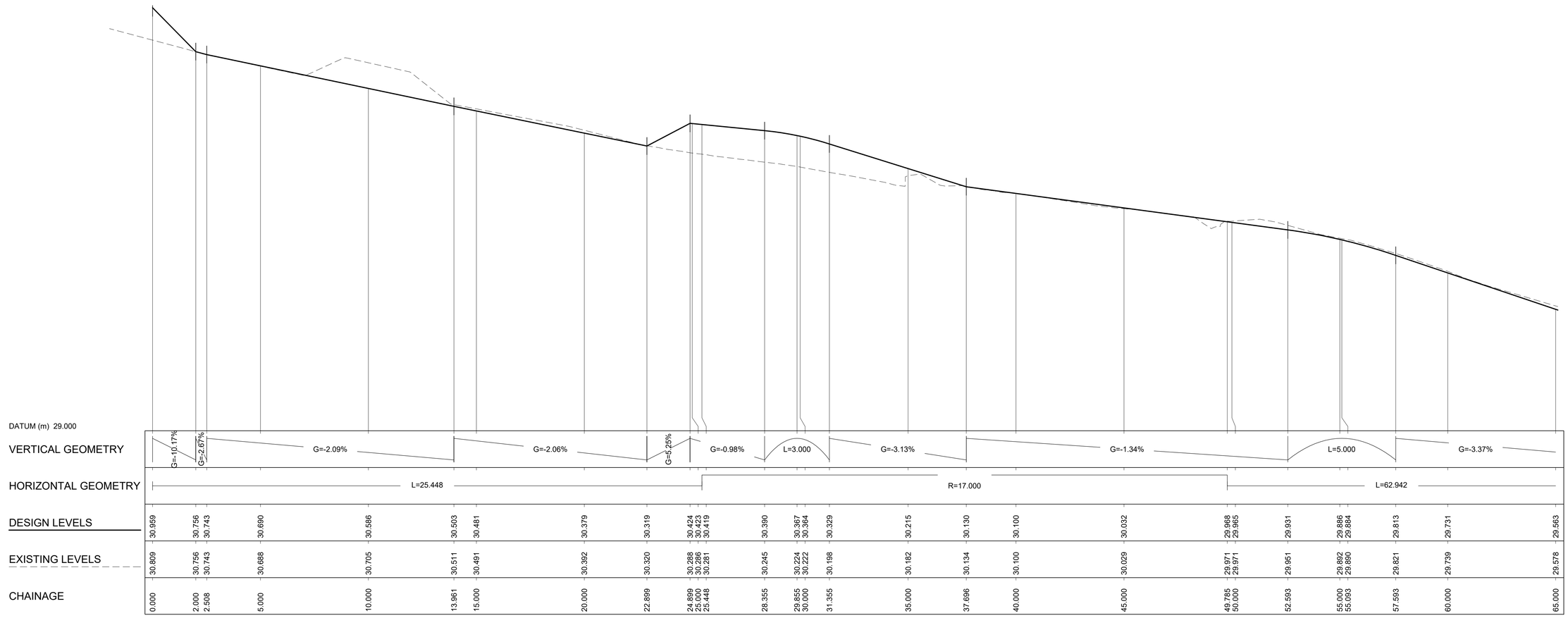
SHEET TITLE

KERB LONG SECTIONS
MK1C07
SHEET 4

SHEET NUMBER

60620833-1C-SHT-1000-CI-0426

ISO A1 594mm x 841mm



LONGITUDINAL SECTION - MK1C08

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10

CONSULTANT

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A.B.N 20 093 846 925
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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:10
0 0.25 0.5

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

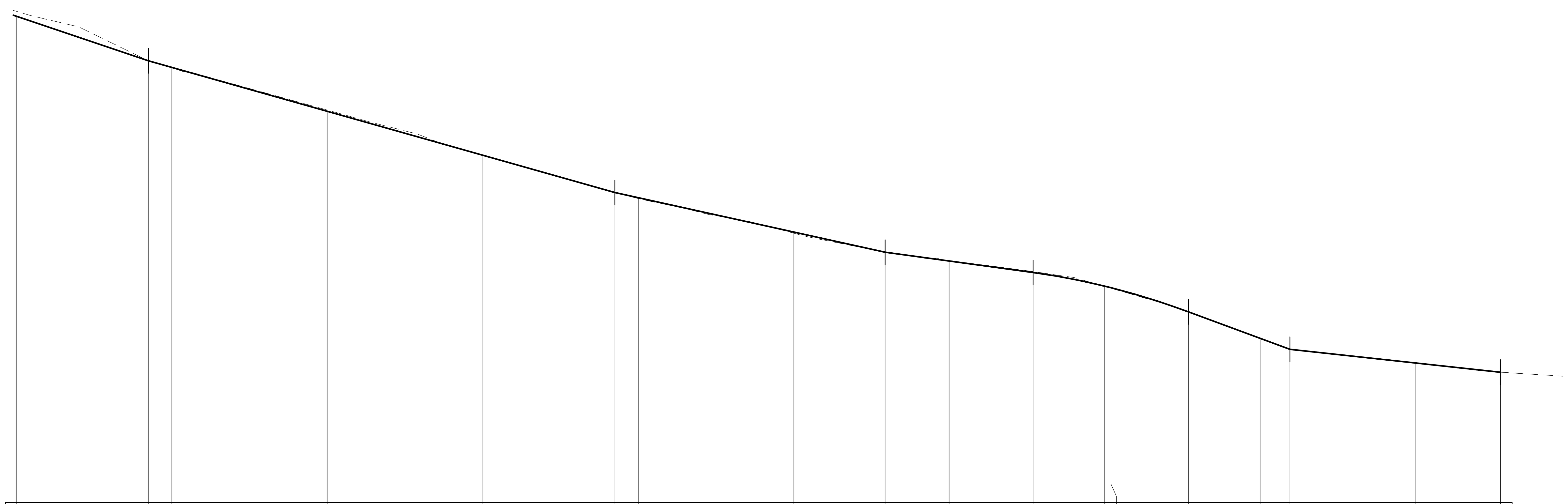
SHEET TITLE

KERB LONG SECTIONS
MK1C08
SHEET 5

SHEET NUMBER

60620833-1C-SHT-1000-CI-0427

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0427.DWG



DATUM (m) 28.000

VERTICAL GEOMETRY: G=-3.37% | G=-2.82% | G=-2.21% | G=-1.37% | L=5.000 | G=-3.69% | G=-1.09%

HORIZONTAL GEOMETRY: L=62.942

DESIGN LEVELS	29.563	29.419	29.398	29.257	29.116	28.996	28.979	28.869	28.804	28.776	28.739	28.695	28.690	28.613	28.528	28.492	28.449	28.419
EXISTING LEVELS	29.578	29.419	29.397	29.261	29.115	28.996	28.977	28.866	28.804	28.778	28.742	28.694	28.689	28.612	28.527	28.492	28.447	28.419
CHAINAGE	65.000	69.246	70.000	75.000	80.000	84.248	85.000	90.000	92.940	95.000	97.697	100.000	100.197	102.697	105.000	105.955	110.000	112.727

LONGITUDINAL SECTION - MK1C08

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10

AECOM

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100
0 0.25 0.5 V=1:10

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

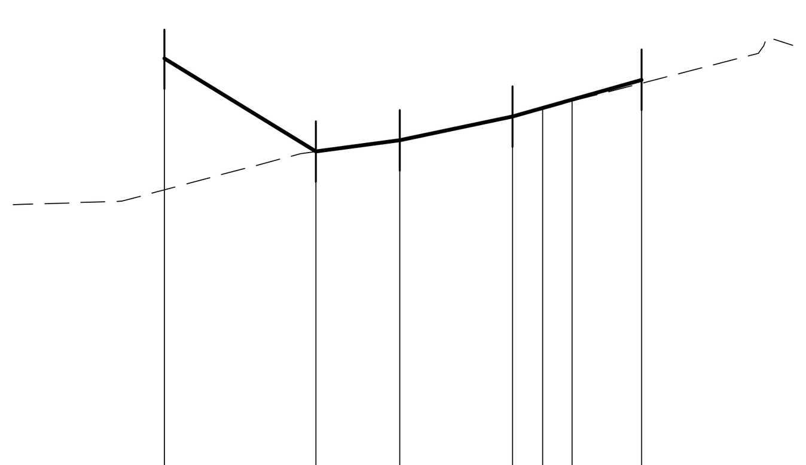
KERB LONG SECTIONS
MK1C08
SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0428

ISO A1 594mm x 841mm

Last saved by: TOWNSENDSW(2021-05-14)   Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0429.DWG



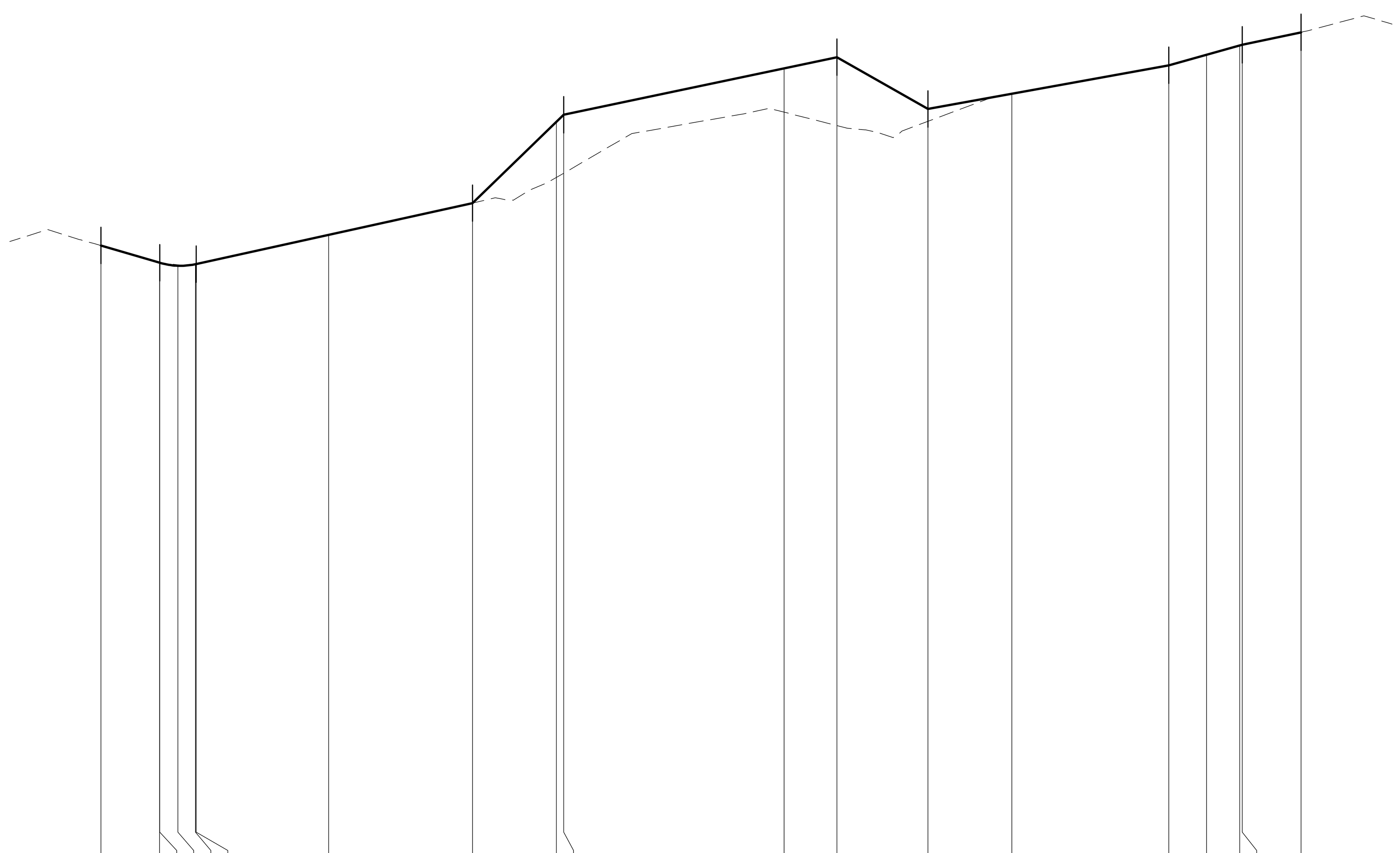
DATUM (m) 31.000

VERTICAL GEOMETRY	G=-6.15%	G=1.35%	G=2.09%	G=2.85%			
HORIZONTAL GEOMETRY	L=4.601			R=-0.500	L=0.918		
DESIGN LEVELS	31.551	31.428	31.443	31.474	31.486	31.497	31.523
EXISTING LEVELS	31.378	31.428	31.443	31.474	31.484	31.495	31.518
CHAINAGE	0.000	2.000	3.109	4.601	5.000	5.388	6.306

LONGITUDINAL SECTION - MK1C09

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10



DATUM (m) 31.000

VERTICAL GEOMETRY: G=-2.93%, L=0.800, G=2.20%, G=9.71%, G=2.11%, G=-5.69%, G=1.82%, G=2.80%, G=2.12%

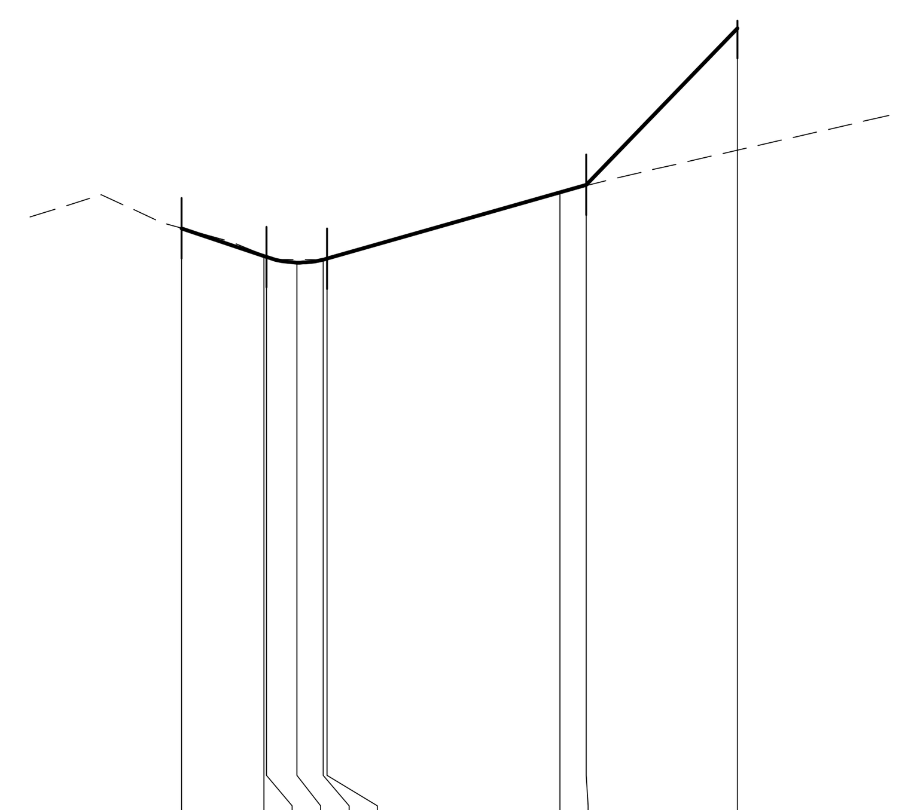
HORIZONTAL GEOMETRY: L=1.288, R=-0.500, L=22.200, R=-0.500, L=1.288

DESIGN LEVELS	32.349	32.311	32.311	32.304	32.308	32.308	32.372	32.442	32.621	32.636	32.738	32.762	32.649	32.682	32.745	32.768	32.788	32.790	32.817
EXISTING LEVELS	32.349	32.311	32.311	32.304	32.308	32.308	32.373	32.442	32.498	32.508	32.642	32.612	32.622	32.682	32.745	32.767	32.788	32.790	32.818
CHAINAGE	0.000	1.288	1.290	1.690	2.073	2.090	5.000	8.159	10.000	10.159	15.000	16.159	18.159	20.000	23.442	24.273	25.000	25.059	26.347

LONGITUDINAL SECTION - MK1C10

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10



DATUM (m) 33.000

VERTICAL GEOMETRY: G=-3.38%, L=0.800, G=2.85%, G=10.35%

HORIZONTAL GEOMETRY: L=1.088, R=-0.500, L=5.473

DESIGN LEVELS	33.783	33.747	33.745	33.738	33.742	33.743	33.831	33.841	34.048
EXISTING LEVELS	33.784	33.748	33.746	33.737	33.742	33.743	33.830	33.840	33.887
CHAINAGE	0.000	1.088	1.123	1.523	1.873	1.923	5.000	5.347	7.347

LONGITUDINAL SECTION - MK1C11

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10

AECOM

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100
0 0.25 0.5 V=1:10

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

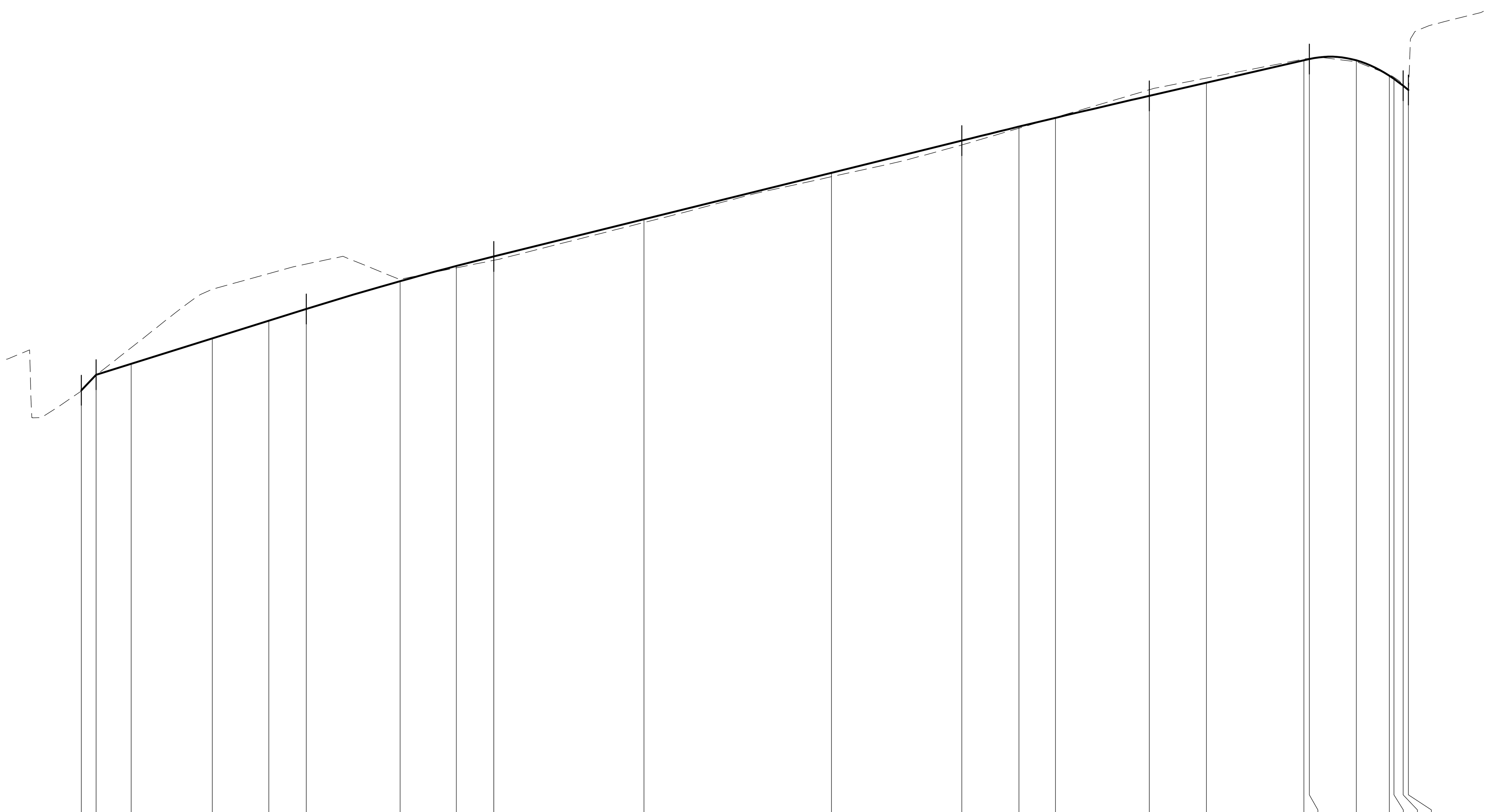
SHEET TITLE

KERB LONG SECTIONS MK1C09, MK1C10 AND MK1C11 SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0429

ISO A1 594mm x 841mm



DATUM (m) 29.000

VERTICAL GEOMETRY: G=10.48% | G=3.13% | L=5.000 | G=2.48% | L=5.000 | G=2.30% | L=2.500 | G=-8.00%

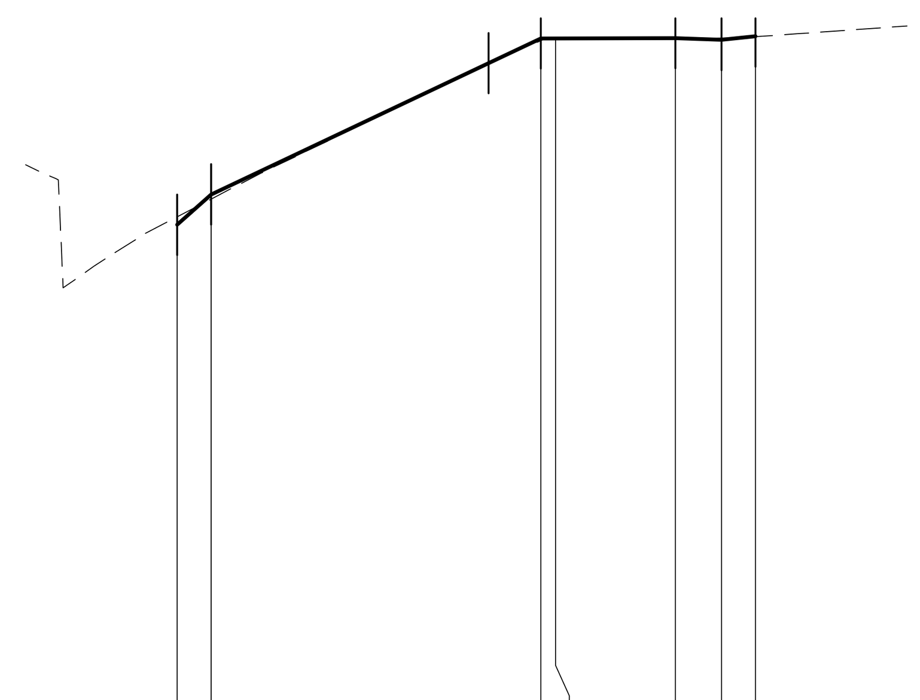
HORIZONTAL GEOMETRY: R=1.433 | R=-2.330 | L=29.105 | R=-1.450 | L=0.512

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS
0.000	30.139	30.139
0.394	30.181	30.176
1.330	30.210	30.253
3.492	30.278	30.409
5.000	30.325	30.451
5.998	30.356	30.476
8.498	30.430	30.435
10.000	30.471	30.466
10.998	30.496	30.486
15.000	30.596	30.587
20.000	30.719	30.709
23.475	30.805	30.794
25.000	30.843	30.839
25.975	30.866	30.867
28.475	30.925	30.941
30.000	30.960	30.972
32.597	31.020	31.023
32.744	31.023	31.026
33.994	31.020	31.016
34.874	30.979	30.981
35.000	30.970	30.974
35.244	30.952	30.954
35.386	30.940	30.940

LONGITUDINAL SECTION - MK1C12

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10



DATUM (m) 30.000

VERTICAL GEOMETRY: G=8.89% | G=4.73% | G=0.03% | G=-0.38% | G=1.03%

HORIZONTAL GEOMETRY: L=7.643

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS
0.000	30.642	30.653
0.450	30.682	30.676
4.807	30.888	30.885
5.000	30.888	30.888
6.585	30.889	30.889
7.193	30.886	30.889
7.643	30.891	30.891

LONGITUDINAL SECTION - MK1C13

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0430.DWG

AECOM

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100
0 0.25 0.5 V=1:10

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
01	14.05.2021	95% DETAILED DESIGN

PROJECT NUMBER

60620833

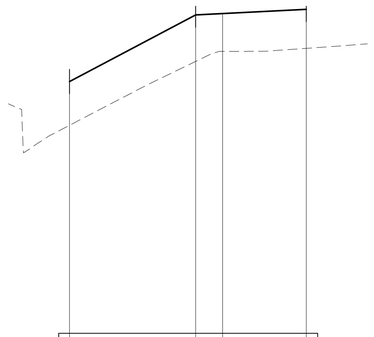
SHEET TITLE

KERB LONG SECTIONS
MK1C12 AND MK1C13
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0430

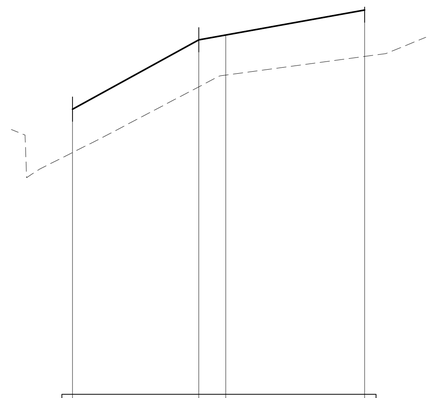
FOR INFORMATION ONLY



DATUM (m) 30.000				
VERTICAL GEOMETRY	G=5.28%	G=0.50%		
HORIZONTAL GEOMETRY	L=7.728			
DESIGN LEVELS	30.822	31.039	31.044	31.057
EXISTING LEVELS	30.679	30.888	30.920	30.930
CHAINAGE	0.000	4.118	5.000	7.728

LONGITUDINAL SECTION - MK1C14

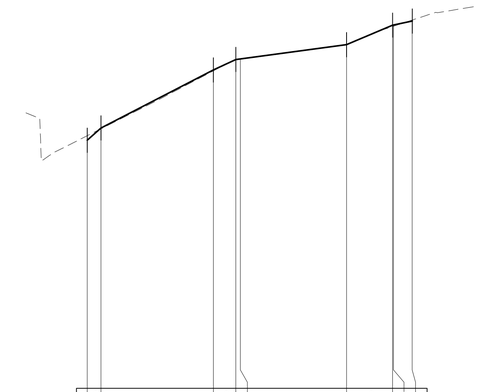
A1 HORIZONTAL SCALE 1:100
A1 VERTICAL SCALE 1:10



DATUM (m) 30.000				
VERTICAL GEOMETRY	G=5.50%	G=1.79%		
HORIZONTAL GEOMETRY	L=9.535			
DESIGN LEVELS	30.931	31.157	31.173	31.254
EXISTING LEVELS	30.789	31.004	31.042	31.103
CHAINAGE	0.000	4.120	5.000	9.535

LONGITUDINAL SECTION - MK1C15

A1 HORIZONTAL SCALE 1:100
A1 VERTICAL SCALE 1:10



DATUM (m) 30.000								
VERTICAL GEOMETRY	G=8.88%	G=5.16%	G=4.63%	G=1.34%	G=4.23%	G=2.10%		
HORIZONTAL GEOMETRY	L=10.611							
DESIGN LEVELS	30.810	30.850	31.039	31.073	31.075	31.122	31.185	31.199
EXISTING LEVELS	30.825	30.847	31.036	31.073	31.075	31.122	31.181	31.182	31.202
CHAINAGE	0.000	0.450	4.121	4.854	5.000	8.465	9.969	10.000	10.611

LONGITUDINAL SECTION - MK1C16

A1 HORIZONTAL SCALE 1:100
A1 VERTICAL SCALE 1:10

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PROJECT
Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION
ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR
0 2.5 5 m H=1:100 V=1:10
0 0.25 0.5

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

01	14.05.2021	95% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

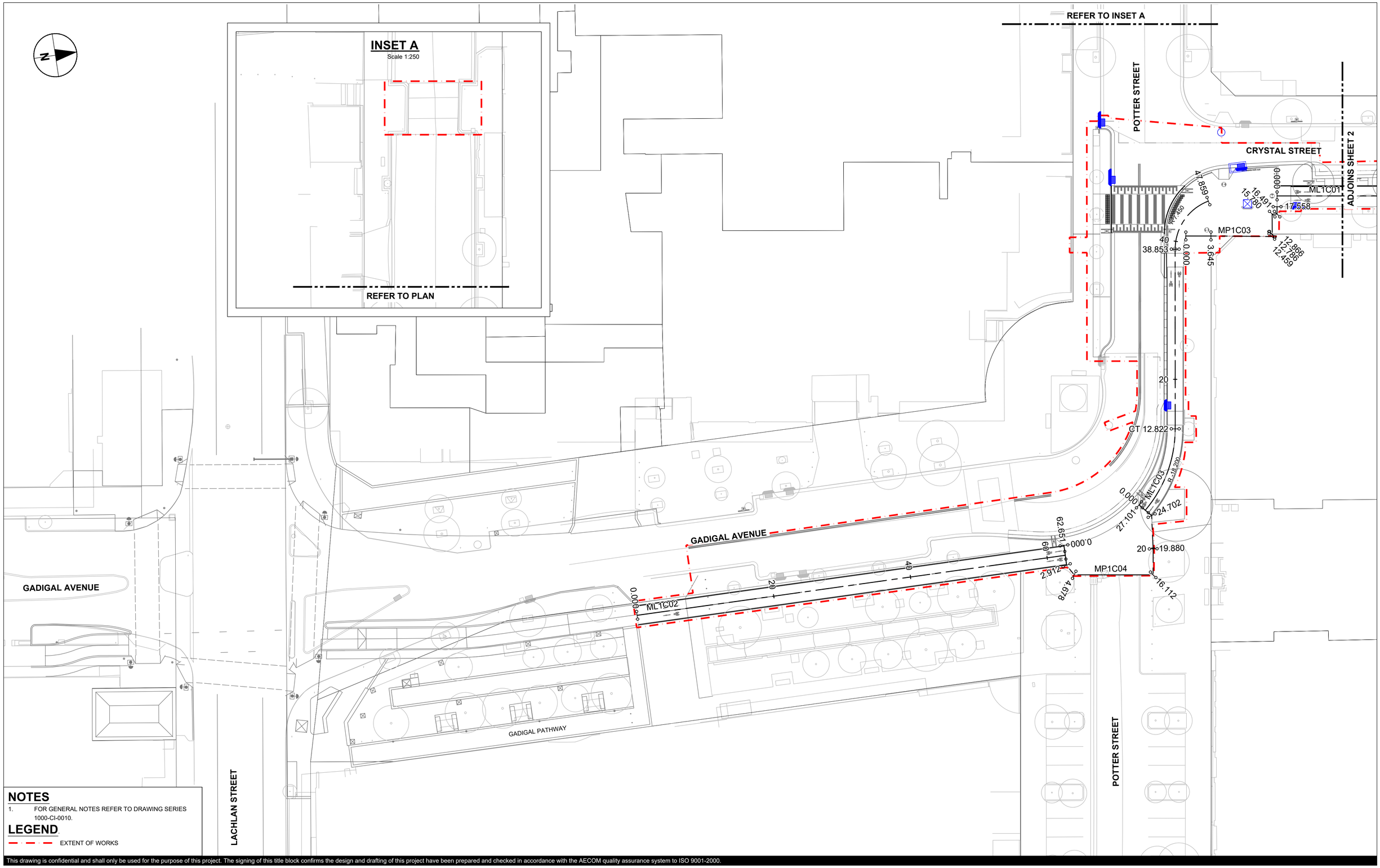
PROJECT NUMBER
60620833

SHEET TITLE
KERB LONG SECTIONS
MK1C14, MK1C15 AND MK1C16
SHEET 1

SHEET NUMBER
60620833-1C-SHT-1000-CI-0431

ISO A1 594mm x 841mm

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0501.DWG



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

EXTENT OF WORKS

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CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

LACHLAN ST | POTTER ST | DANKS ST

SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

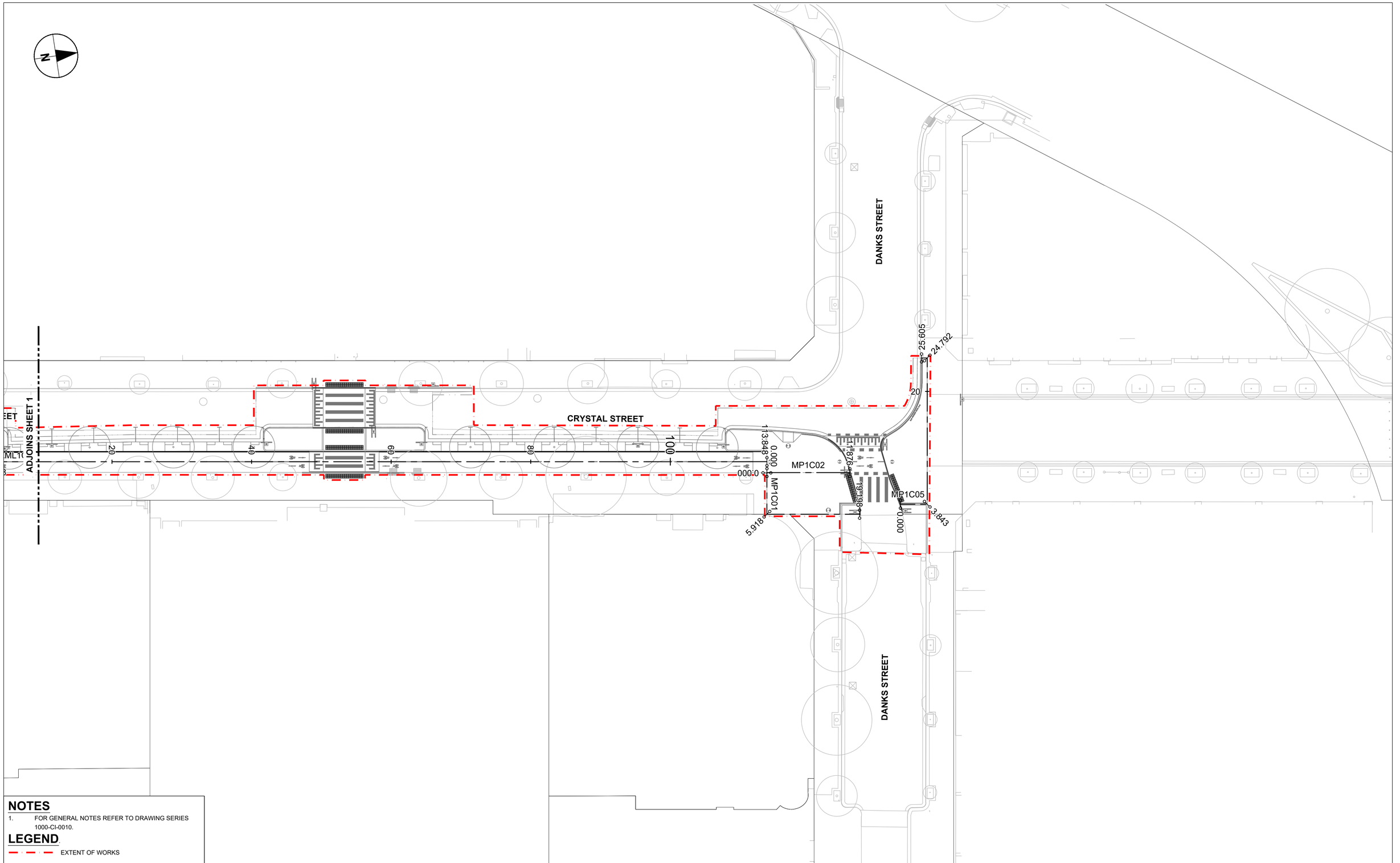
SHEET TITLE

MISCELLANEOUS CONTROL STRING PLAN
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0501

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

EXTENT OF WORKS

AECOM

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PROJECT

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CLIENT

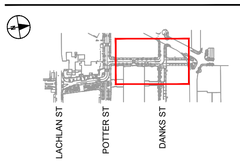
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m

1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

MISCELLANEOUS CONTROL STRING PLAN
SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0502

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESSIPW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0502.DWG

MODEL : CONTROL 1000 PATHS - STRING : MP1C01

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.LEN
Start	0.000	334772.671	6247695.019	33.878	98°35'48.44"	LINE	
Point	5.918	334778.522	6247694.134	34.022	8°35'57.06"	LINE	13.280
End	19.198	334780.507	6247707.265	34.337	8°35'57.06"		

MODEL : CONTROL 1000 PATHS - STRING : MP1C02

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG
Start	0.000	334772.622	6247695.026	33.878	8°35'57.06"	LINE
End	11.876	334774.398	6247706.768	34.221	8°35'57.06"	

MODEL : CONTROL 1000 PATHS - STRING : MP1C03

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.LEN
Start	0.000	334757.832	6247568.746	30.992	8°34'31.55"	LINE	
Point	3.645	334758.376	6247572.350	31.114	9°03'38.21"	LINE	8.814
Point	12.459	334759.764	6247581.054	31.461	275°47'52.28"	LINE	0.327
Point	12.786	334759.439	6247581.087	31.471	7°49'44.68"	LINE	0.081
Point	12.866	334759.450	6247581.167	31.474	278°24'29.65"	LINE	2.913
Point	15.780	334756.568	6247581.593	31.410	8°35'52.04"	LINE	0.711
Point	16.491	334756.674	6247582.296	31.431	278°35'52.04"	LINE	1.067
End	17.558	334755.619	6247582.455	31.408	278°35'52.04"		

MODEL : CONTROL 1000 PATHS - STRING : MP1C04

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.LEN
Start	0.000	334799.509	6247544.589	29.971	90°59'12.50"	LINE	
Point	2.912	334802.421	6247544.539	30.026	60°10'57.63"	LINE	1.766
Point	4.678	334803.953	6247545.417	30.036	8°36'29.77"	LINE	11.434
Point	16.112	334805.664	6247556.722	30.184	278°48'19.17"	LINE	3.768
Point	19.880	334801.941	6247557.299	30.175	275°52'34.22"	LINE	4.822
Point	24.702	334797.145	6247557.793	30.202	228°57'24.54"	LINE	2.400
End	27.101	334795.335	6247556.217	30.139	228°57'24.54"		

MODEL : CONTROL 1000 PATHS - STRING : MP1C05

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.LEN
Start	0.000	334779.970	6247713.262	34.499	8°35'32.11"	LINE	
Point	3.843	334780.544	6247717.062	34.517	278°35'32.11"	LINE	20.949
Point	24.792	334759.830	6247720.192	34.126	188°45'31.45"	LINE	0.813
End	25.605	334759.707	6247719.389	34.113	188°45'31.45"		

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

01	14.05.2021	95% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

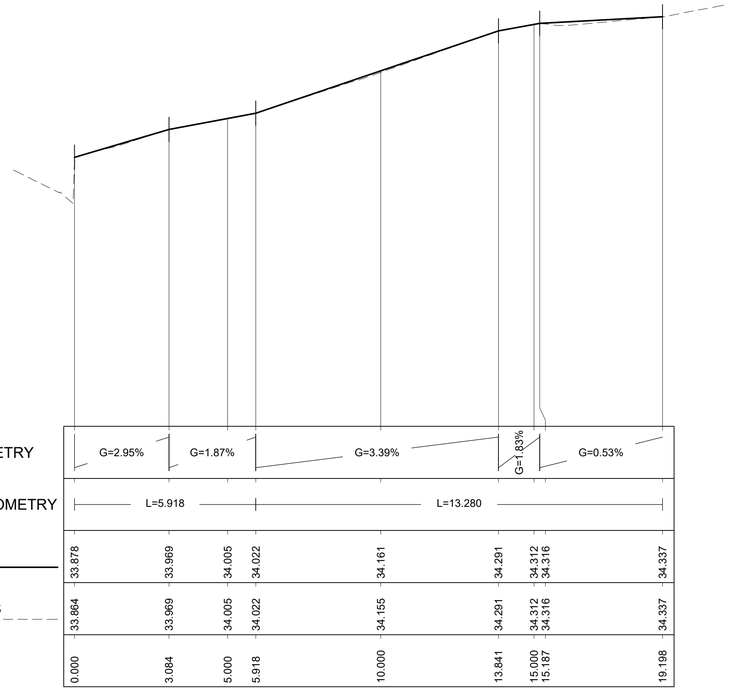
60620833

SHEET TITLE

MISCELLANEOUS SETOUT TABLES

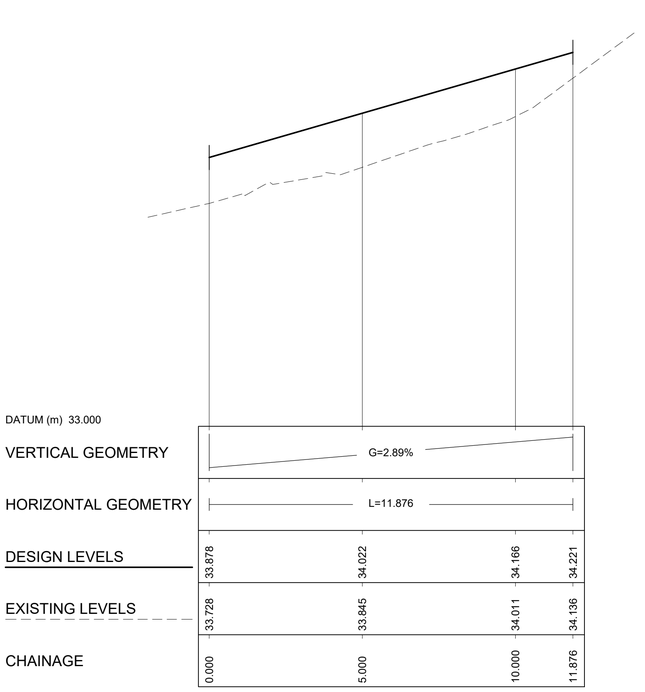
SHEET NUMBER

60620833-1C-SHT-1000-CI-0511



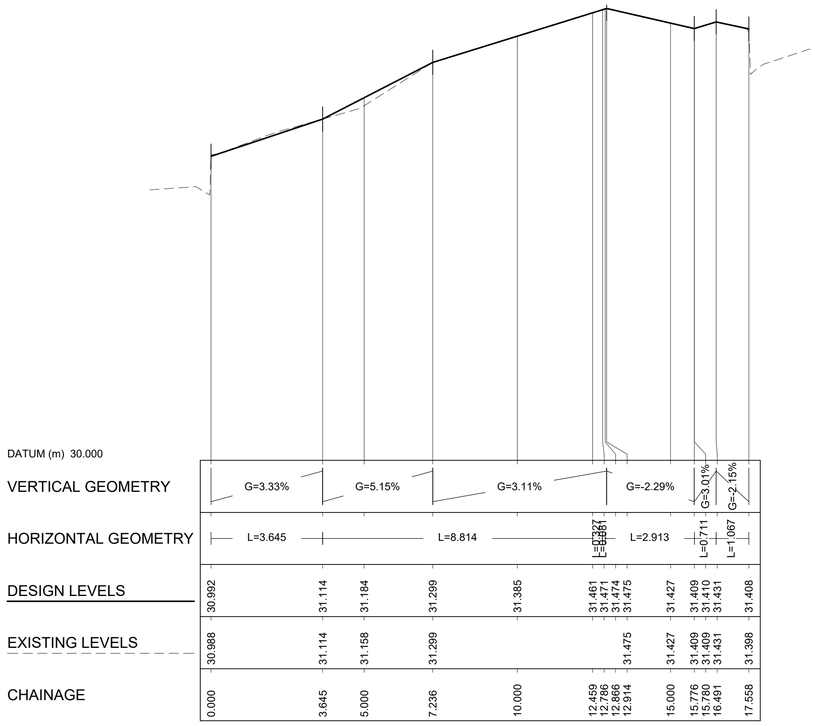
LONGITUDINAL SECTION - MP1C01

A1 HORIZONTAL SCALE 1:100
A1 VERTICAL SCALE 1:10



LONGITUDINAL SECTION - MP1C02

A1 HORIZONTAL SCALE 1:100
A1 VERTICAL SCALE 1:10



LONGITUDINAL SECTION - MP1C03

A1 HORIZONTAL SCALE 1:100
A1 VERTICAL SCALE 1:10

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PROJECT

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CLIENT

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SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:10
0 0.25 0.5

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

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PROJECT NUMBER

60620833

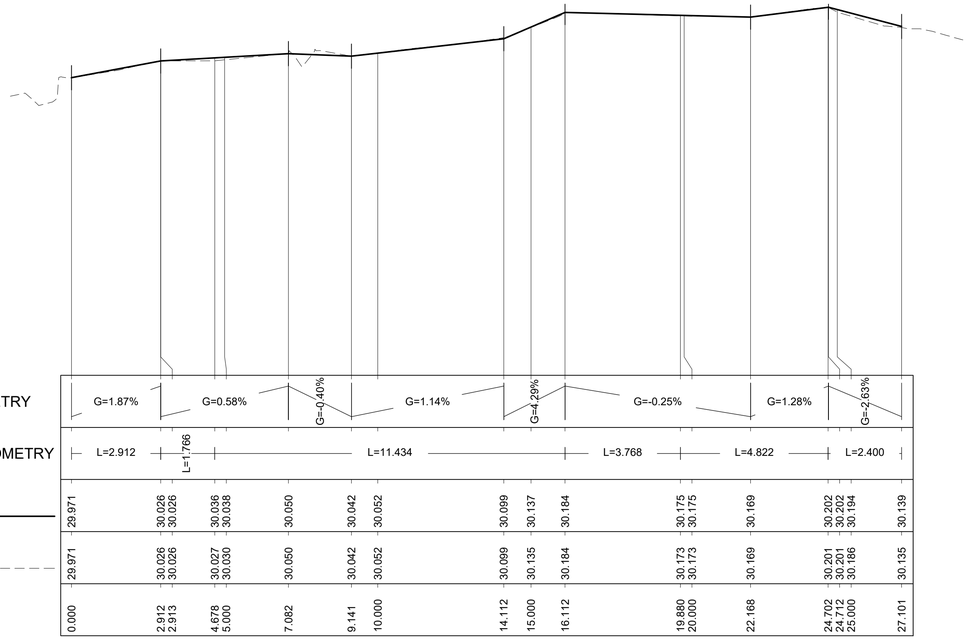
SHEET TITLE

MISCELLANEOUS LONG SECTIONS MP1C01, MP1C02 AND MP1C03 SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0521

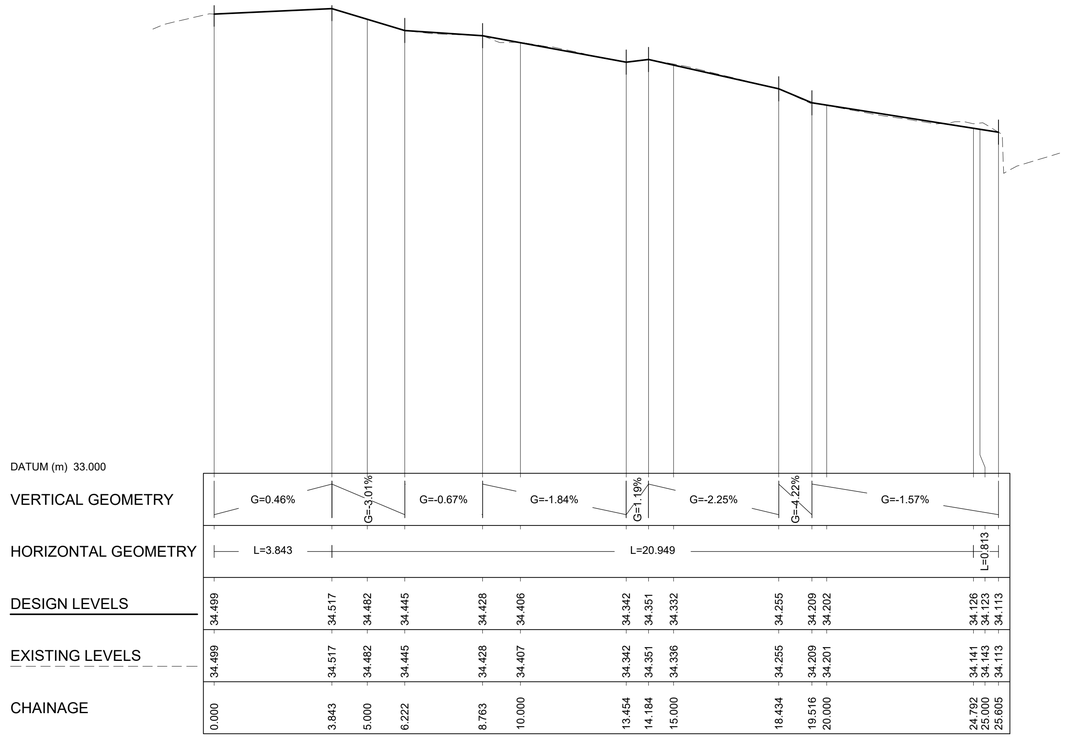
ISO A1 594mm x 841mm



LONGITUDINAL SECTION - MP1C04

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10



LONGITUDINAL SECTION - MP1C05

A1 HORIZONTAL SCALE 1:100

A1 VERTICAL SCALE 1:10

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SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 2.5 5 m H=1:100 V=1:10
0 0.25 0.5

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

MISCELLANEOUS LONG SECTIONS MP1C04 AND MP1C05 SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0522

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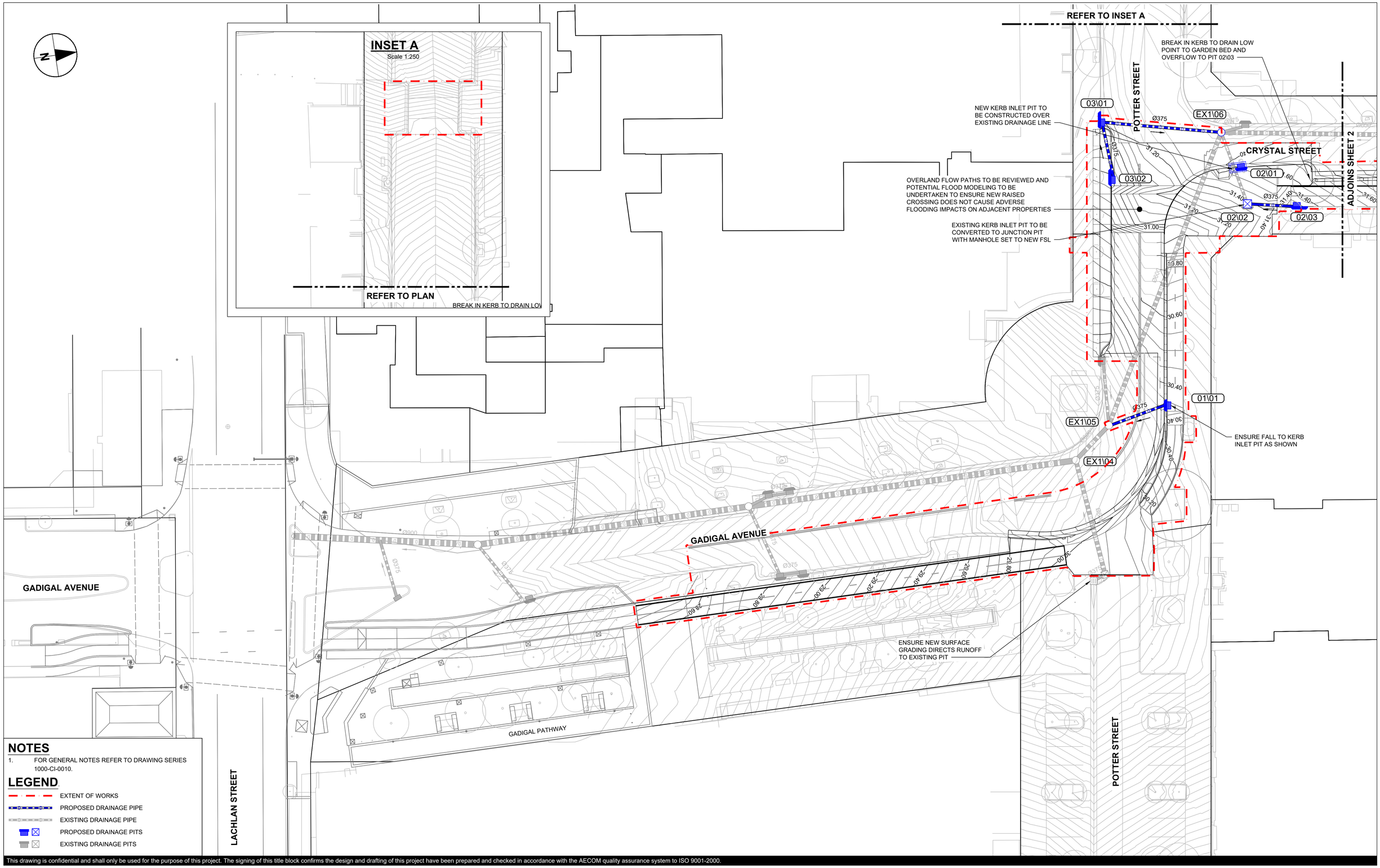
ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

- EXTENT OF WORKS
- PROPOSED DRAINAGE PIPE
- EXISTING DRAINAGE PIPE
- PROPOSED DRAINAGE PITS
- EXISTING DRAINAGE PITS

AECOM

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PROJECT

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CLIENT

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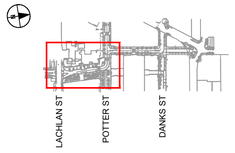
SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

DRAINAGE PLAN SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0601

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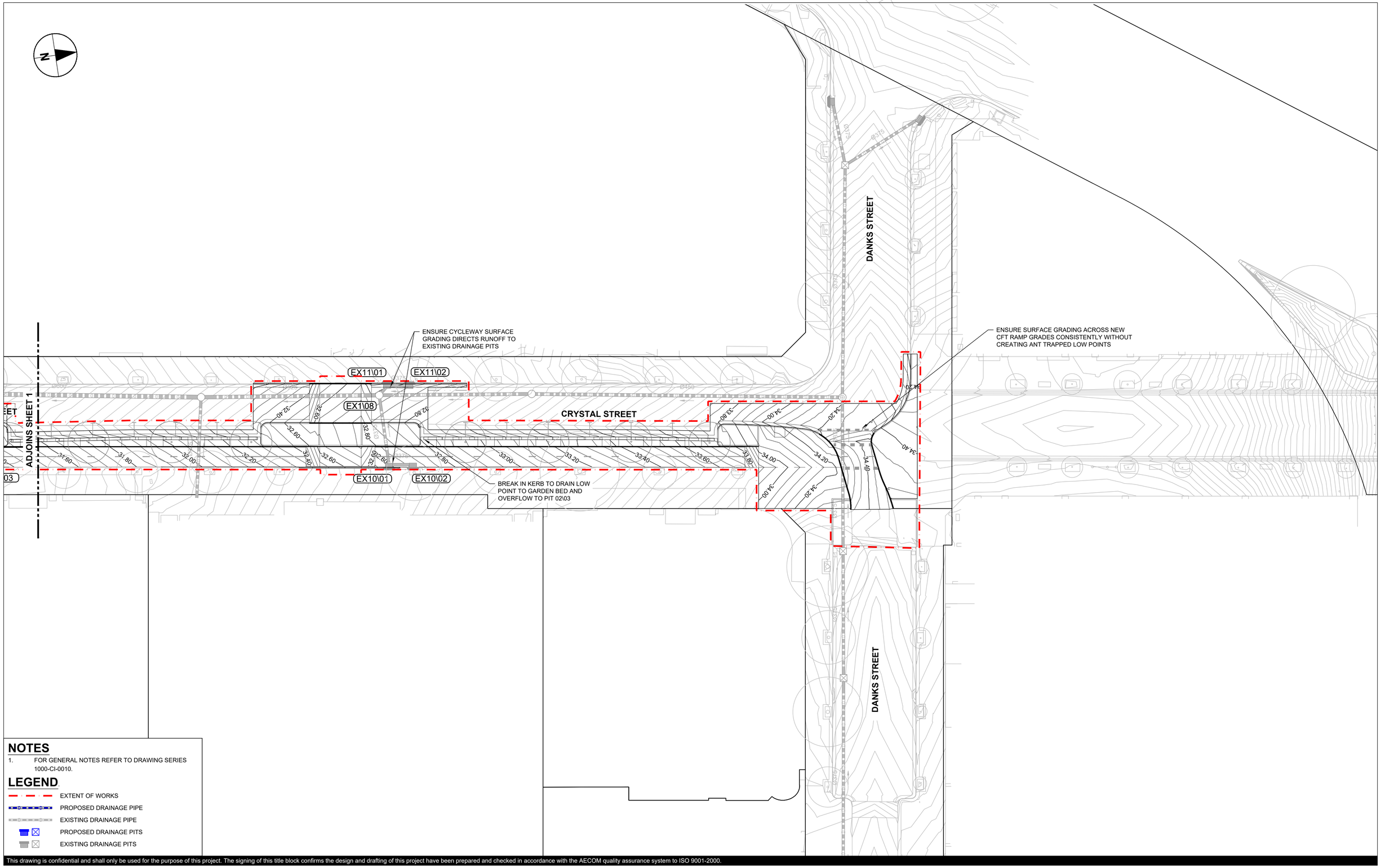
ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

- EXTENT OF WORKS
- PROPOSED DRAINAGE PIPE
- EXISTING DRAINAGE PIPE
- PROPOSED DRAINAGE PITS
- EXISTING DRAINAGE PITS

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

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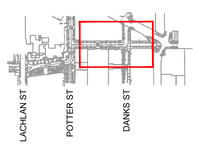
SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m

1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

DRAINAGE PLAN SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0602

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Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GAD\GAL\60620833-1C-SHT-1000-CI-0602.DWG

DRAINAGE PIT SCHEDULE

PIT NO.	PIT DETAIL REFERENCE	DESCRIPTION	EASTING	NORTHING	SETOUT RL	DEPTH	REMARKS
01\01	PIT 1	STANDARD GULLY PIT WITH EXTENDED KERB INLET	334781.689	6247562.371	30.337	1.223	PROVIDE 1.2M EKI LINTEL
02\01	PIT 3	SPECIAL PIT TO INTERCEPT EXISTING DRAINAGE LINE	334749.184	6247578.171	31.402	1.746	PROVIDE INLET PIT WITH OFFSET CHAMBER OVER EXISTING DRAINAGE LINE, PROVIDE 1.8M EKI LINTEL
02\02	PIT 2	EXISTING INLET PIT TO BE MODIFIED	334754.566	6247578.277	31.14	-	EXISTING PIT TO BE MODIFIED TO ACCEPT NEW MANHOLE COVER. ADJUST AND RAISE COVER TO SUIT FSL
02\03	PIT 1	STANDARD GULLY PIT WITH EXTENDED KERB INLET	334755.997	6247585.284	31.331	1.225	PROVIDE 1.8M EKI LINTEL
03\01	PIT 1	STANDARD GULLY PIT WITH EXTENDED KERB INLET	334739.74	6247559.042	30.948	1.243	PROVIDE 1.8M EKI LINTEL
03\02	PIT 1	STANDARD GULLY PIT WITH EXTENDED KERB INLET	334748.178	6247559.299	30.83	1.021	PROVIDE 1.8M EKI LINTEL
EX1\04	-	EXISTING STRUCTURE	334787.583	6247548.134	-	-	EXISTING MANHOLE IN ROAD
EX1\05	-	EXISTING STRUCTURE	334783.288	6247553.621	-	-	EXISTING MANHOLE IN ROAD
EX1\06	-	EXISTING STRUCTURE	334743.759	6247576.068	-	-	EXISTING MANHOLE IN ROAD
EX1\08	-	EXISTING STRUCTURE	334754.085	6247642.237	32.617	-	EXISTING MANHOLE IN ROAD. ADJUST COVER TO SUIT NEW GRADING
EX10\01	-	EXISTING STRUCTURE	334764.585	6247642.088	32.585	-	ADJUST COVER AND LINTEL TO SUIT NEW GRADING
EX10\02	-	EXISTING STRUCTURE	334765.113	6247645.505	32.658	-	ADJUST COVER AND LINTEL TO SUIT NEW GRADING
EX11\01	-	EXISTING STRUCTURE	334752.666	6247643.609	32.561	-	ADJUST COVER AND LINTEL TO SUIT NEW GRADING
EX11\02	-	EXISTING STRUCTURE	334753.146	6247646.788	32.611	-	ADJUST COVER AND LINTEL TO SUIT NEW GRADING

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 6.25 12.5 m H=1:250 V=1:50
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

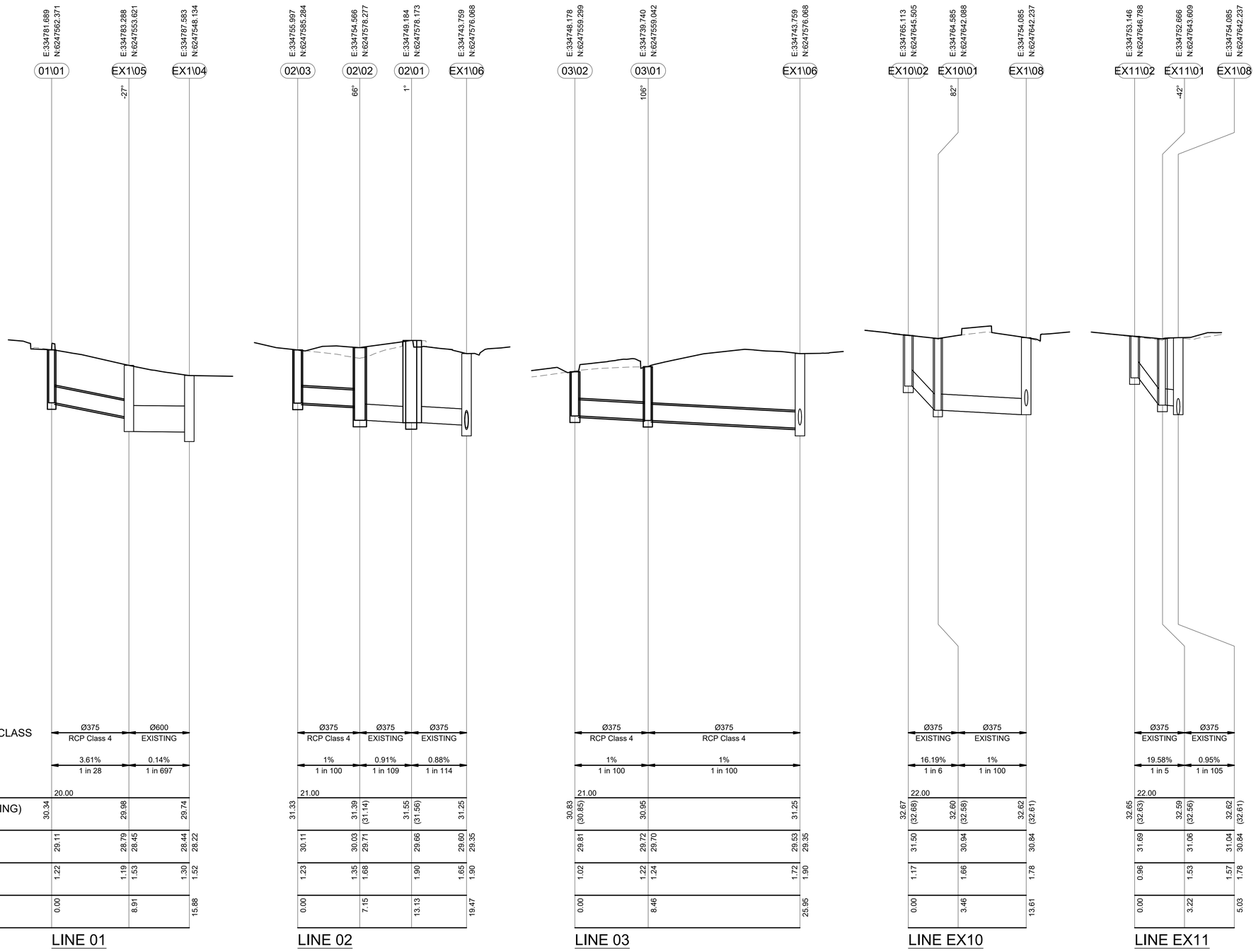
60620833

SHEET TITLE

DRAINAGE
PIT SCHEDULE

SHEET NUMBER

60620833-1C-SHT-1000-CI-0621



PIPE SIZE (mm) & CLASS	Ø375 RCP Class 4	Ø600 EXISTING
PIPE GRADE	3.61% 1 in 28	0.14% 1 in 697
DATUM (m)	20.00	
FINISHED (& EXISTING) SURFACE LEVEL	30.34 / 29.98	29.74
INVERT LEVEL	29.11 / 28.79	28.45 / 28.44 / 28.22
DEPTH TO INVERT	1.22 / 1.19	1.53 / 1.30 / 1.52
PIPE CHAINAGE	0.00 / 8.91	15.88

LINE 01

PIPE SIZE (mm) & CLASS	Ø375 RCP Class 4	Ø375 EXISTING	Ø375 EXISTING
PIPE GRADE	1% 1 in 100	0.91% 1 in 109	0.88% 1 in 114
DATUM (m)	21.00		
FINISHED (& EXISTING) SURFACE LEVEL	31.33 / 31.39	(31.14) / 31.55	(31.56) / 31.25
INVERT LEVEL	30.11 / 30.03	29.71 / 29.66	29.60 / 29.35
DEPTH TO INVERT	1.23 / 1.35	1.68 / 1.90	1.65 / 1.90
PIPE CHAINAGE	0.00 / 7.15	13.13	19.47

LINE 02

PIPE SIZE (mm) & CLASS	Ø375 RCP Class 4	Ø375 RCP Class 4
PIPE GRADE	1% 1 in 100	1% 1 in 100
DATUM (m)	21.00	
FINISHED (& EXISTING) SURFACE LEVEL	30.83 / (30.85) / 30.95	31.25
INVERT LEVEL	29.81 / 29.72	29.70 / 29.53 / 29.35
DEPTH TO INVERT	1.02 / 1.22	1.24 / 1.72 / 1.90
PIPE CHAINAGE	0.00 / 8.46	25.95

LINE 03

PIPE SIZE (mm) & CLASS	Ø375 EXISTING	Ø375 EXISTING
PIPE GRADE	16.19% 1 in 6	1% 1 in 100
DATUM (m)	22.00	
FINISHED (& EXISTING) SURFACE LEVEL	32.67 / (32.68) / 32.60	(32.58) / 32.62 / (32.61)
INVERT LEVEL	31.50 / 30.94	30.84
DEPTH TO INVERT	1.17 / 1.66	1.78
PIPE CHAINAGE	0.00 / 3.46	13.61

LINE EX10

PIPE SIZE (mm) & CLASS	Ø375 EXISTING	Ø375 EXISTING
PIPE GRADE	19.58% 1 in 5	0.95% 1 in 105
DATUM (m)	22.00	
FINISHED (& EXISTING) SURFACE LEVEL	32.65 / (32.63) / 32.59	(32.56) / 32.62 / (32.61)
INVERT LEVEL	31.69 / 31.06	31.04 / 30.84
DEPTH TO INVERT	0.96 / 1.53	1.57 / 1.78
PIPE CHAINAGE	0.00 / 3.22	5.03

LINE EX11

AECOM

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 6.25 12.5 m H=1:250 V=1:50
0 0.5 1

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

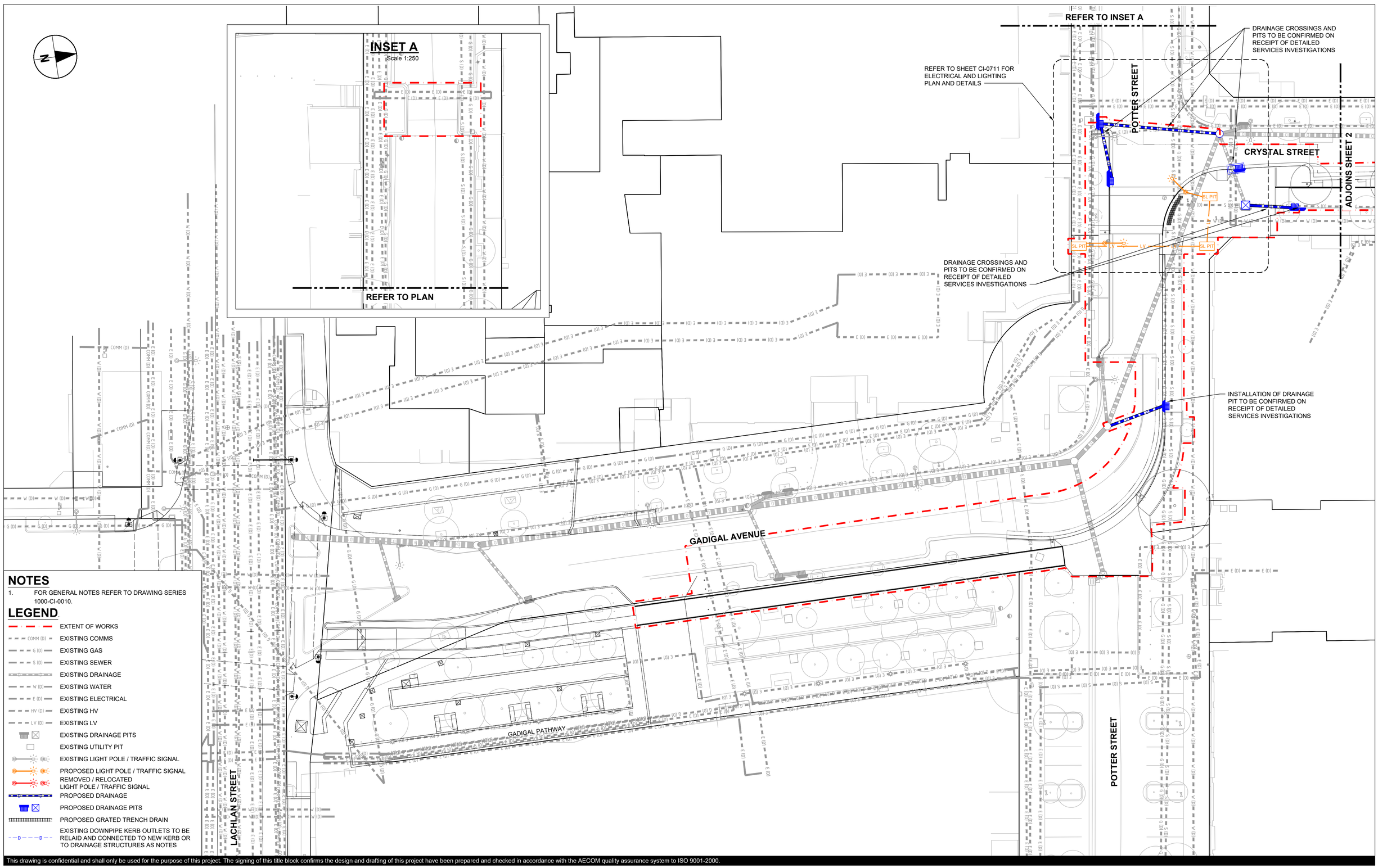
SHEET TITLE

DRAINAGE
LONG SECTIONS
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0641

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

- EXTENT OF WORKS
- COMM (D) — EXISTING COMMS
- G (D) — EXISTING GAS
- S (D) — EXISTING SEWER
- EXISTING DRAINAGE
- W (D) — EXISTING WATER
- E (D) — EXISTING ELECTRICAL
- HV (D) — EXISTING HV
- LV (D) — EXISTING LV
- EXISTING DRAINAGE PITS
- EXISTING UTILITY PIT
- EXISTING LIGHT POLE / TRAFFIC SIGNAL
- PROPOSED LIGHT POLE / TRAFFIC SIGNAL
- REMOVED / RELOCATED LIGHT POLE / TRAFFIC SIGNAL
- PROPOSED DRAINAGE
- PROPOSED DRAINAGE PITS
- PROPOSED GRATED TRENCH DRAIN
- EXISTING DOWNPIPE KERB OUTLETS TO BE RELAID AND CONNECTED TO NEW KERB OR TO DRAINAGE STRUCTURES AS NOTES

AECOM

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

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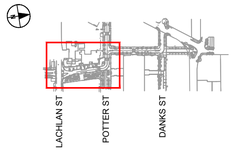
- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

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FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

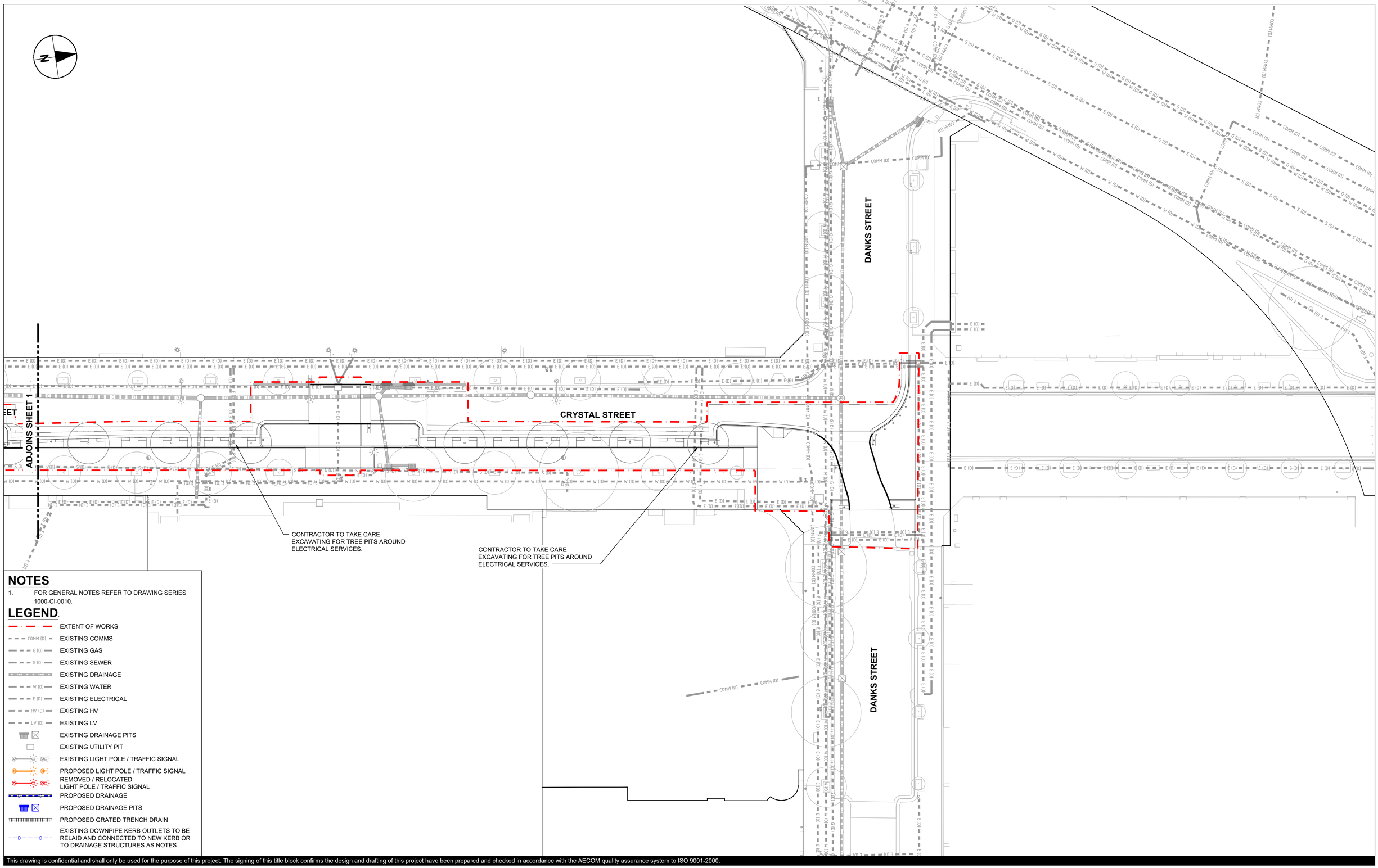
COMBINED SERVICES PLAN
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0701

Last saved by: TOWNSENDSW (2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESSPW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0701.DWG

ISO A1 594mm x 841mm



NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND

- EXTENT OF WORKS
- EXISTING COMMS
- EXISTING GAS
- EXISTING SEWER
- EXISTING DRAINAGE
- EXISTING WATER
- EXISTING ELECTRICAL
- EXISTING HV
- EXISTING LV
- EXISTING DRAINAGE PITS
- EXISTING UTILITY PIT
- EXISTING LIGHT POLE / TRAFFIC SIGNAL
- PROPOSED LIGHT POLE / TRAFFIC SIGNAL
- REMOVED / RELOCATED LIGHT POLE / TRAFFIC SIGNAL
- PROPOSED DRAINAGE
- PROPOSED DRAINAGE PITS
- PROPOSED GRATED TRENCH DRAIN
- EXISTING DOWNPIPE KERB OUTLETS TO BE RELAID AND CONNECTED TO NEW KERB OR TO DRAINAGE STRUCTURES AS NOTES

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

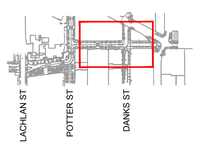
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m

1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

COMBINED SERVICES PLAN SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0702

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
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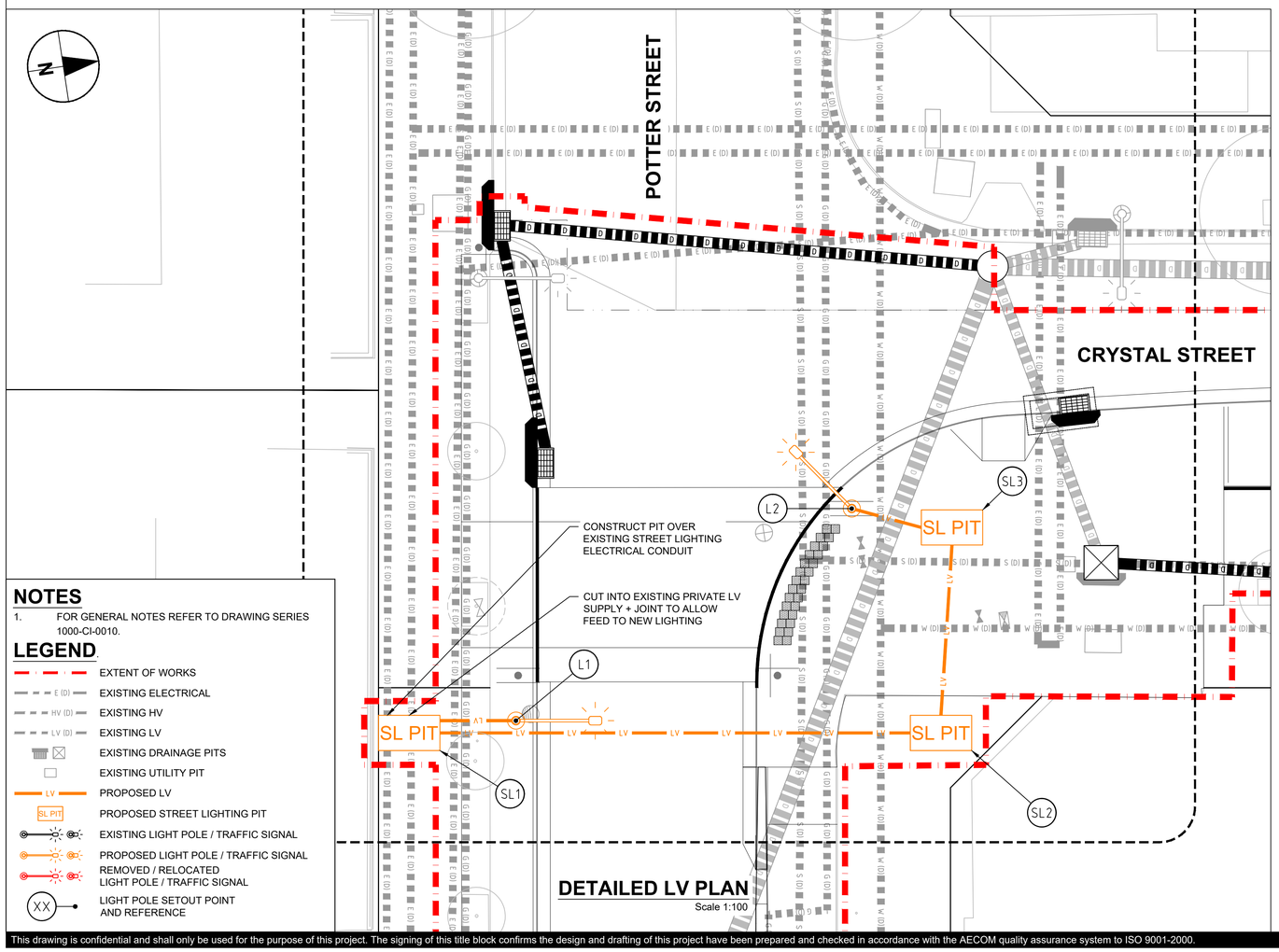
ISO A1 594mm x 841mm

STREET LIGHTING PIT SCHEDULE

REFERENCE	TYPE	COVER	DEPTH	COMMENTS	EASTING	NORTHING
SL1	STREET LIGHTING PIT	CLASS C	800mm	CONSTRUCT OVER EXISTING CONDUITS	334756.835	6247553.462
SL2	STREET LIGHTING PIT	CLASS C	800mm	-	334759.615	6247571.847
SL3	STREET LIGHTING PIT	CLASS C	800mm	-	334752.568	6247573.303

POLE SCHEDULE

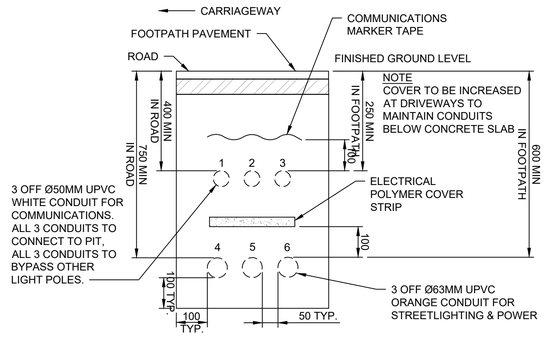
POLE NO.	POLE TYPE	HEIGHT	FOOTING TYPE	LUMINAIRE
L1	CITY OF SYDNEY STANDARD STEEL POLE	7.5m	PIER	100W FLOOD LAMP
L2	CITY OF SYDNEY STANDARD STEEL POLE	7.5m	PIER	100W FLOOD LAMP



DETAILED LV PLAN
Scale 1:100

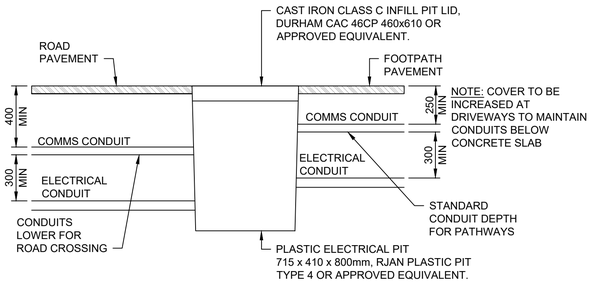
NOTES
1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.

LEGEND
- EXTENT OF WORKS
- EXISTING ELECTRICAL
- EXISTING HV
- EXISTING LV
- EXISTING DRAINAGE PITS
- EXISTING UTILITY PIT
- PROPOSED LV
- PROPOSED STREET LIGHTING PIT
- EXISTING LIGHT POLE / TRAFFIC SIGNAL
- PROPOSED LIGHT POLE / TRAFFIC SIGNAL
- REMOVED / RELOCATED LIGHT POLE / TRAFFIC SIGNAL
- LIGHT POLE SETOUT POINT AND REFERENCE

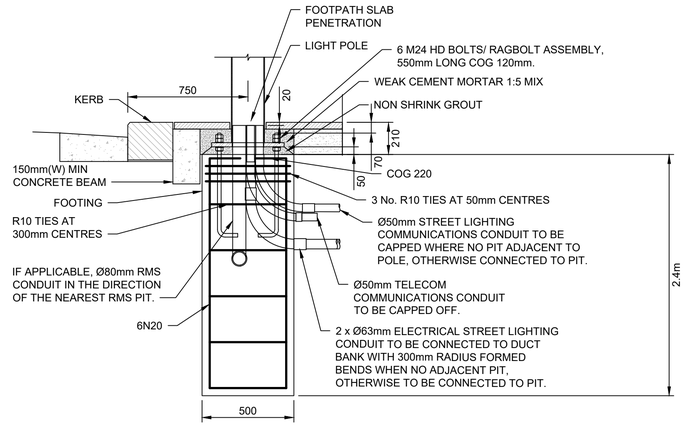


STREET LIGHTING CONDUIT ARRANGEMENT

NOTE
WHERE CONDUITS ARE LOCATED WITHIN TREE PIT OR LINK TRENCH, ARRANGEMENT TO BE WRAPPED IN ROOT BARRIER.



STREET LIGHTING PIT ARRANGEMENT
SCALE 1:20



LIGHT POLE PIER FOUNDATION DETAIL
SCALE 1:20

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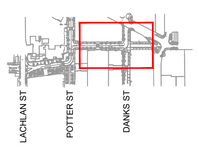
PROJECT
Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION
ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN


SCALE BAR
0 2.5 5 m
1:100
0 0.5 1 m
1:20

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

01	14.05.2021	95% DETAILED DESIGN
I/R	DATE	DESCRIPTION

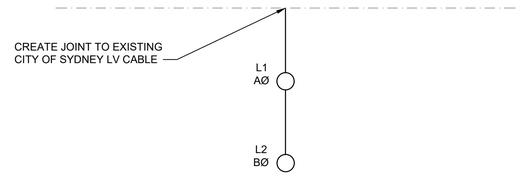
FOR INFORMATION ONLY

PROJECT NUMBER
60620833

SHEET TITLE
ELECTRICAL AND LIGHTING PLAN, DETAILS AND SCHEDULES SHEET 1

SHEET NUMBER
60620833-1C-SHT-1000-CI-0711

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESSIPW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0711.DWG



LEGEND

- PROPOSED STREET LIGHTING COLUMN
- PROPOSED 4C 16mm.sq XLPE
- EXISTING STREET LIGHTING COLUMN
- EXISTING AUSGRID LV PILLAR
- EXISTING MSB
- EXISTING 4C 16mm.sq XLPE
- EXISTING 4C 2.5mm.sq XLPE

STREET LIGHTING SCHEMATIC DIAGRAM

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

01	14.05.2021	95% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

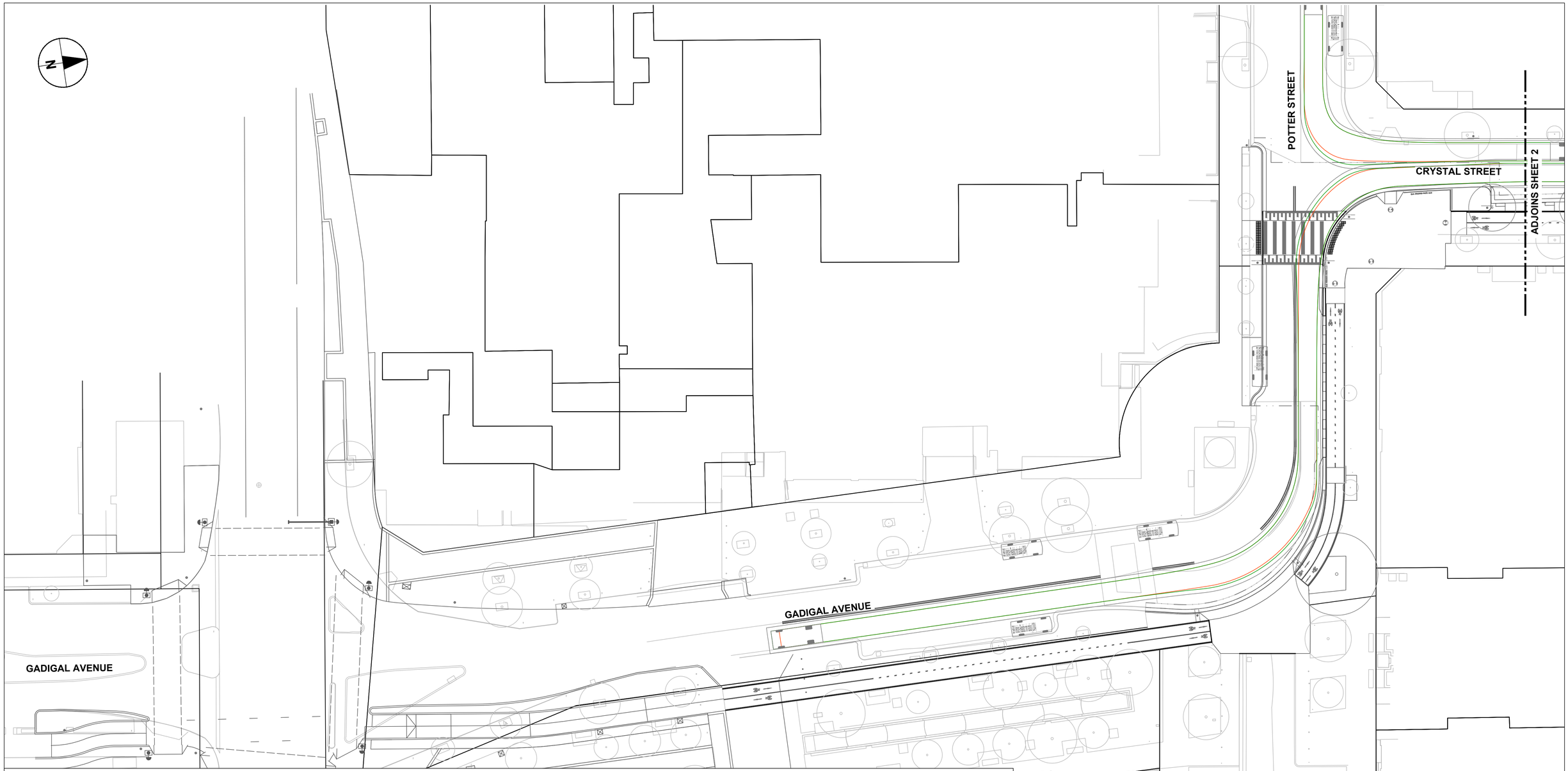
ELECTRICAL AND LIGHTING SCHEMATIC
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0712

ISO A1 594mm x 841mm

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0801.DWG



LEGEND

- INDICATES VEHICLE OVERHANG
- INDICATES WHEEL PATH
- INDICATES 300mm CLEARANCE FROM VEHICLE BODY

NOTES

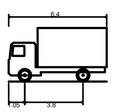
1. VEHICLE MOVEMENTS TRACKED AT 15km/h.

DESIGN VEHICLES

B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

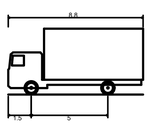
5.2m B99 VEHICLE



SRV - Small Rigid Vehicle

Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

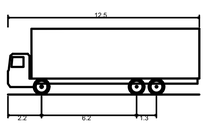
6.4m SRV - SMALL RIGID VEHICLE



Service Vehicle (8.8 m)

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12.500m

8.8m SERVICE VEHICLE



Single Unit Truck/Bus (12.5 m)

Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.490m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

12.5m SINGLE UNIT TRUCK/BUS

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SAFETY IN DESIGN INFORMATION

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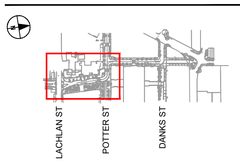
☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

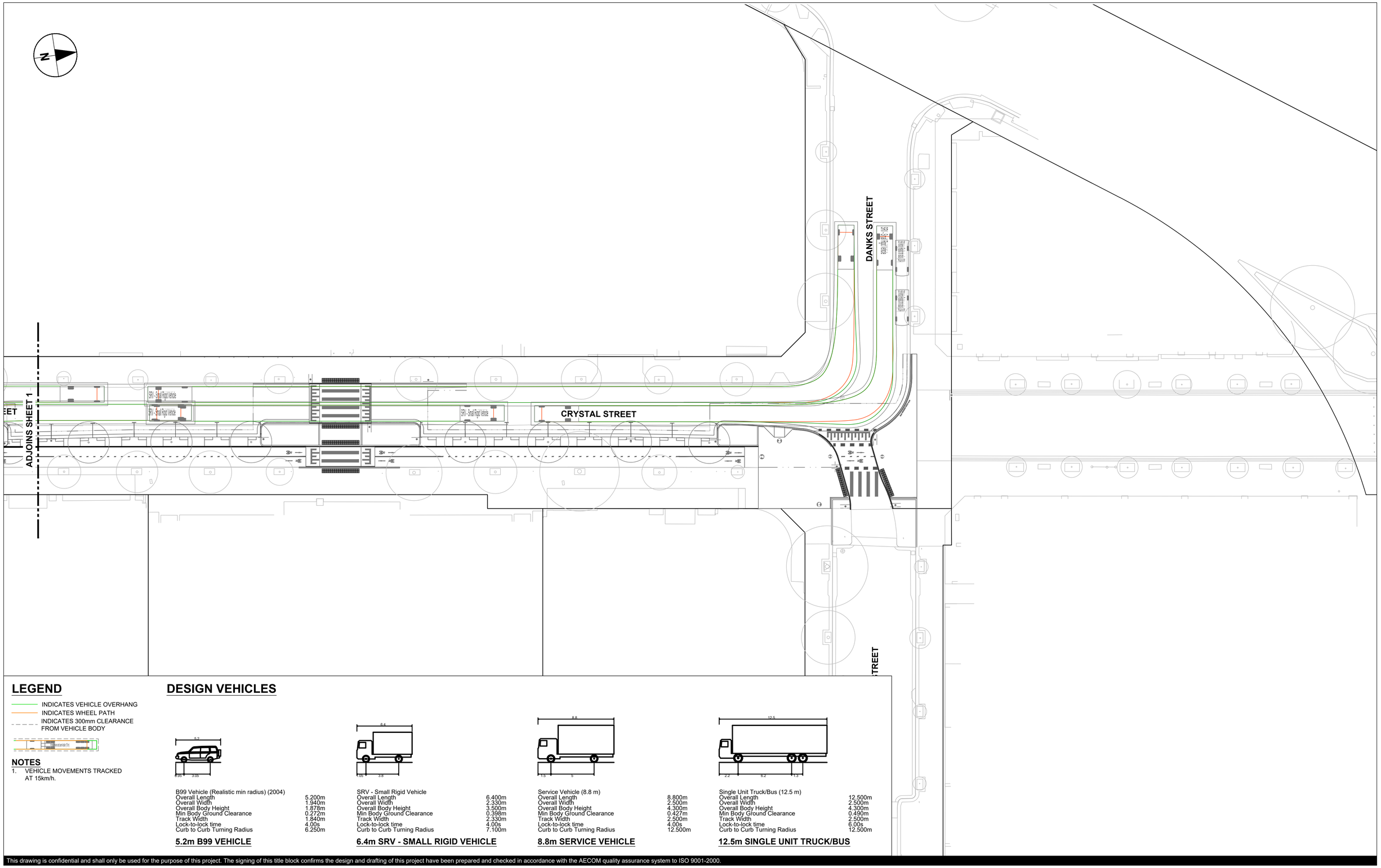
SHEET TITLE

VEHICLE TRACKING PLAN SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0801

ISO A1 594mm x 841mm



LEGEND

- INDICATES VEHICLE OVERHANG
- INDICATES WHEEL PATH
- INDICATES 300mm CLEARANCE FROM VEHICLE BODY

NOTES

1. VEHICLE MOVEMENTS TRACKED AT 15km/h.

DESIGN VEHICLES

B99 Vehicle (Realistic min radius) (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

5.2m B99 VEHICLE

SRV - Small Rigid Vehicle	
Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

6.4m SRV - SMALL RIGID VEHICLE

Service Vehicle (8.8 m)	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12.500m

8.8m SERVICE VEHICLE

Single Unit Truck/Bus (12.5 m)	
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.490m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

12.5m SINGLE UNIT TRUCK/BUS

AECOM

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

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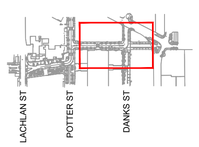
SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

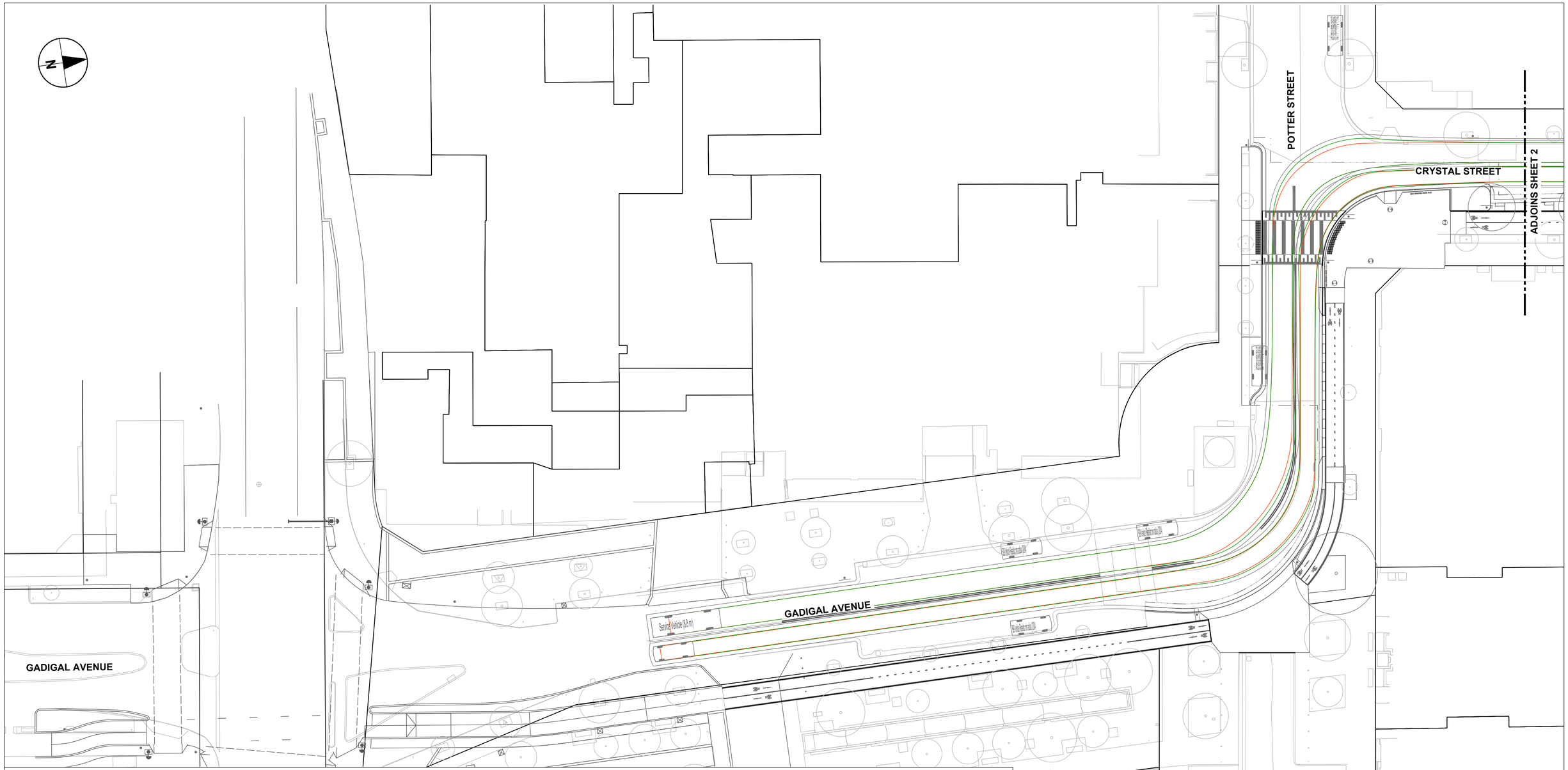
VEHICLE TRACKING PLAN SHEET 2

SHEET NUMBER

60620833-1C-SHT-1000-CI-0802

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GAD\GAL\60620833-1C-SHT-1000-CI-0802.DWG

ISO A1 594mm x 841mm



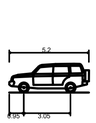
LEGEND

- INDICATES VEHICLE OVERHANG
- INDICATES WHEEL PATH
- INDICATES 300mm CLEARANCE FROM VEHICLE BODY

NOTES

1. VEHICLE MOVEMENTS TRACKED AT 15km/h.

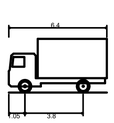
DESIGN VEHICLES



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

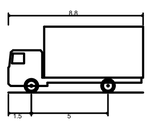
5.2m B99 VEHICLE



SRV - Small Rigid Vehicle

Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

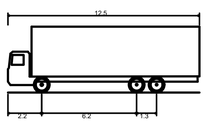
6.4m SRV - SMALL RIGID VEHICLE



Service Vehicle (8.8 m)

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12.500m

8.8m SERVICE VEHICLE



Single Unit Truck/Bus (12.5 m)

Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.490m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

12.5m SINGLE UNIT TRUCK/BUS

AECOM

CONSULTANT

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www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

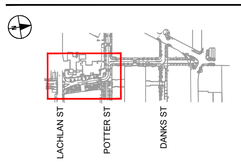
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m
1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

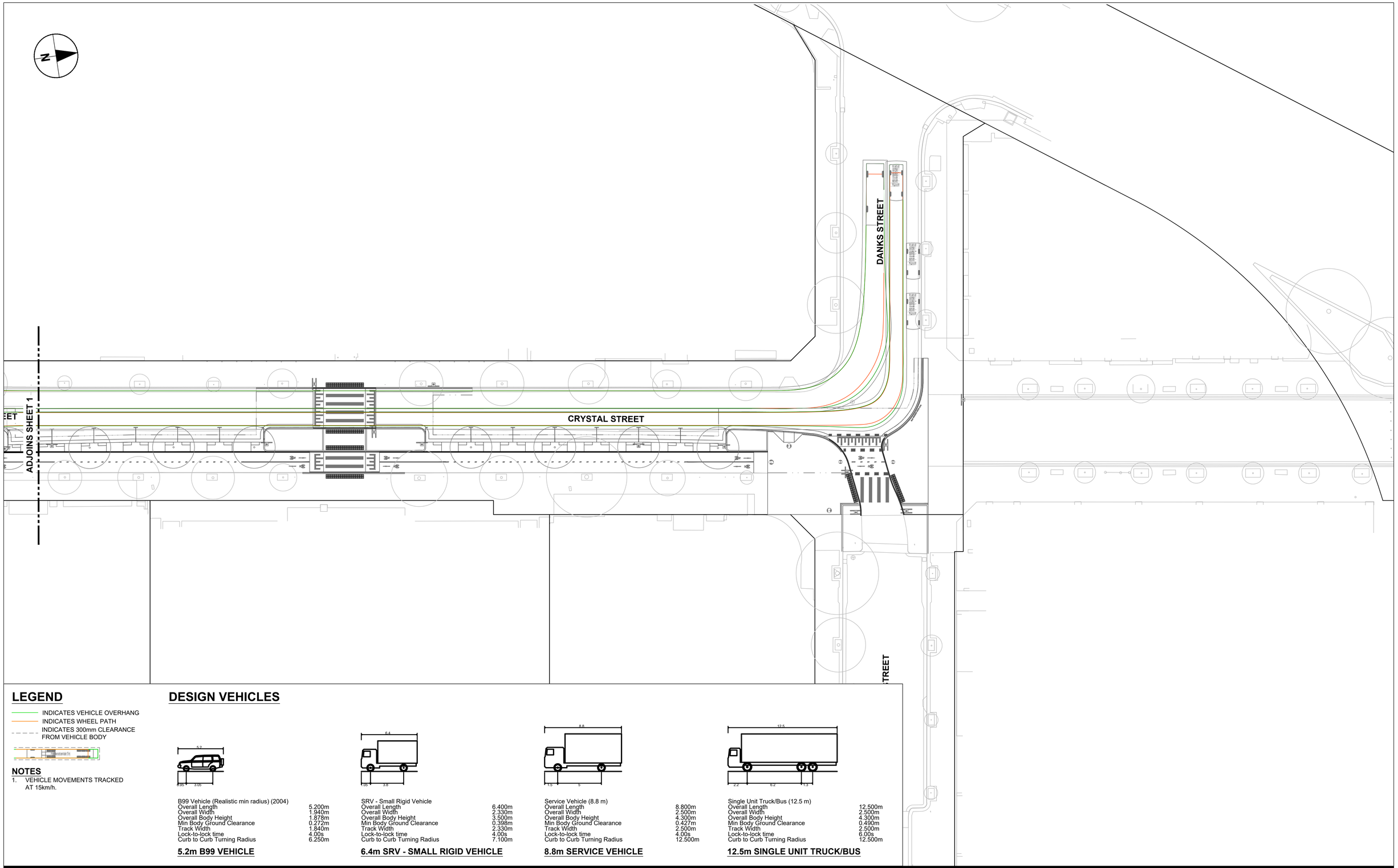
VEHICLE TRACKING PLAN SHEET 3

SHEET NUMBER

60620833-1C-SHT-1000-CI-0803

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0803.DWG

ISO A1 594mm x 841mm



LEGEND

- INDICATES VEHICLE OVERHANG
- INDICATES WHEEL PATH
- INDICATES 300mm CLEARANCE FROM VEHICLE BODY

NOTES

1. VEHICLE MOVEMENTS TRACKED AT 15km/h.

DESIGN VEHICLES

B99 Vehicle (Realistic min radius) (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

5.2m B99 VEHICLE

SRV - Small Rigid Vehicle	
Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

6.4m SRV - SMALL RIGID VEHICLE

Service Vehicle (8.8 m)	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12.500m

8.8m SERVICE VEHICLE

Single Unit Truck/Bus (12.5 m)	
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.490m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

12.5m SINGLE UNIT TRUCK/BUS

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CONSULTANT

AECOM Australia Pty Ltd
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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

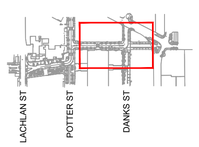
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m

1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

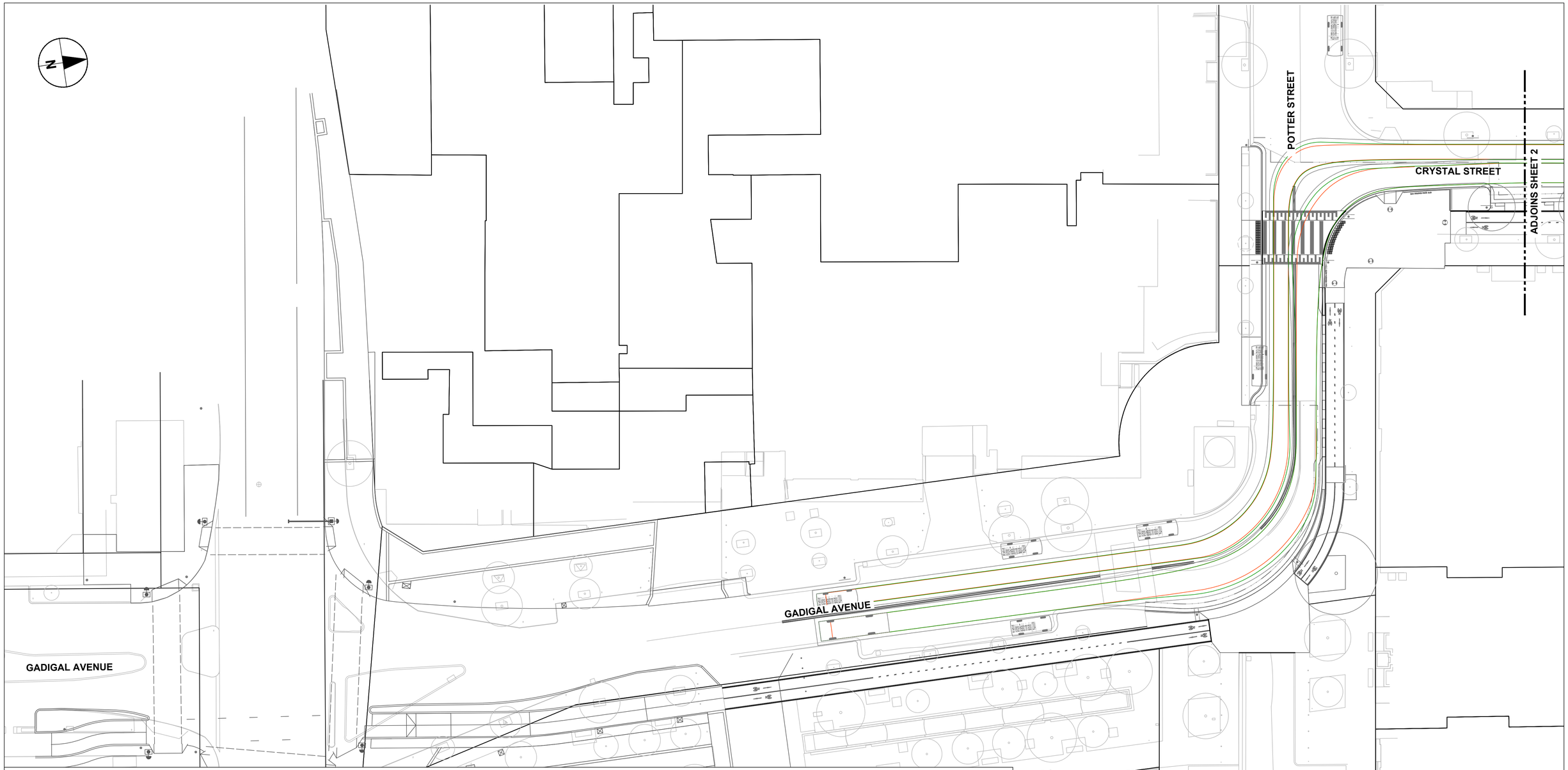
VEHICLE TRACKING PLAN SHEET 4

SHEET NUMBER

60620833-1C-SHT-1000-CI-0804

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GAD\GAL\60620833-1C-SHT-1000-CI-0804.DWG

ISO A1 594mm x 841mm



LEGEND

- INDICATES VEHICLE OVERHANG
- INDICATES WHEEL PATH
- INDICATES 300mm CLEARANCE FROM VEHICLE BODY

NOTES

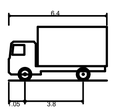
1. VEHICLE MOVEMENTS TRACKED AT 15km/h.

DESIGN VEHICLES

B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

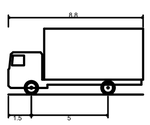
5.2m B99 VEHICLE



SRV - Small Rigid Vehicle

Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

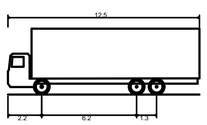
6.4m SRV - SMALL RIGID VEHICLE



Service Vehicle (8.8 m)

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12.500m

8.8m SERVICE VEHICLE



Single Unit Truck/Bus (12.5 m)

Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.490m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

12.5m SINGLE UNIT TRUCK/BUS

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

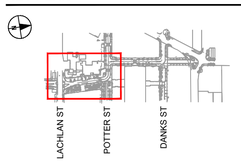
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m

1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

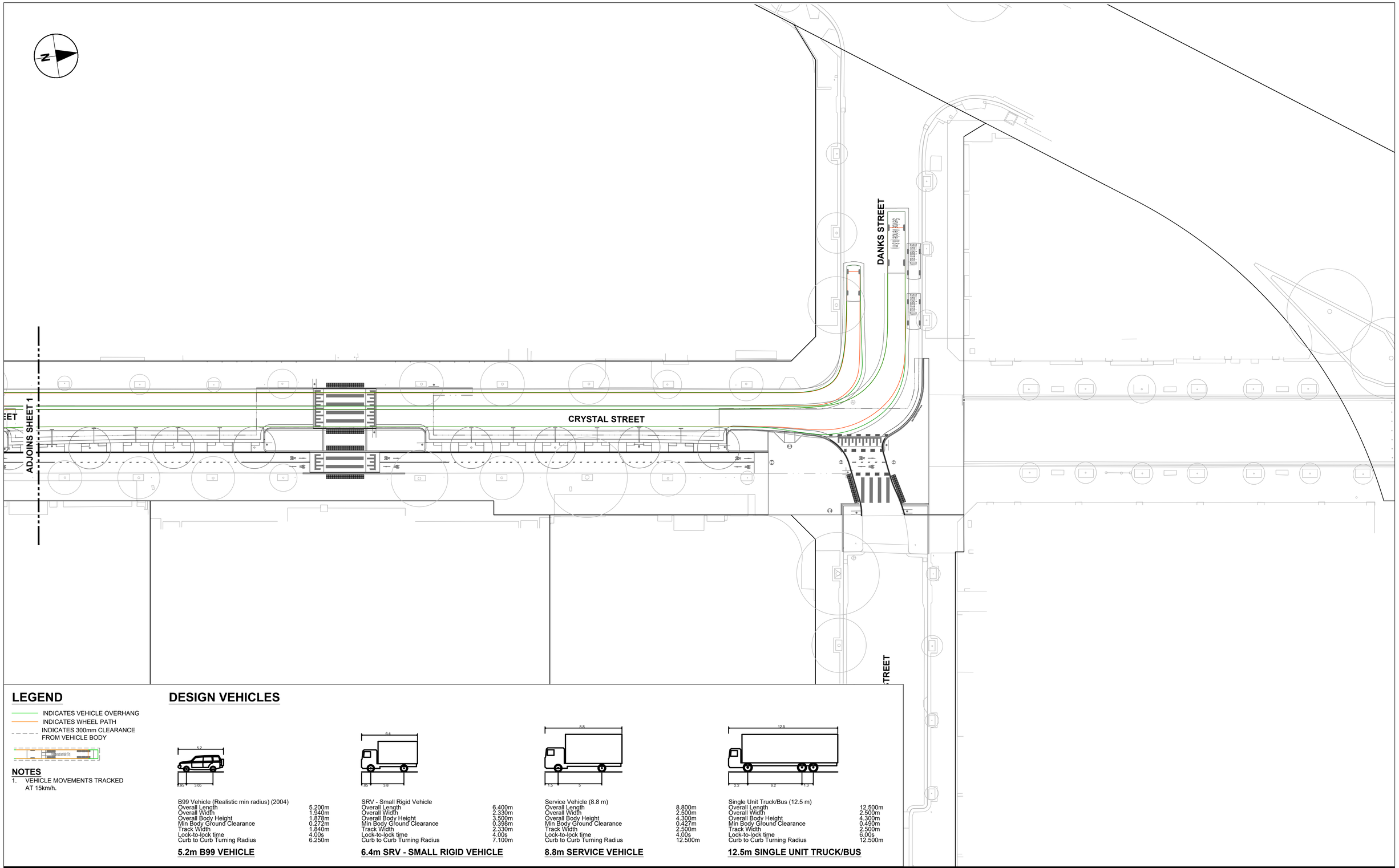
SHEET TITLE

VEHICLE TRACKING PLAN SHEET 5

SHEET NUMBER

60620833-1C-SHT-1000-CI-0805

ISO A1 594mm x 841mm



LEGEND

- INDICATES VEHICLE OVERHANG
- INDICATES WHEEL PATH
- INDICATES 300mm CLEARANCE FROM VEHICLE BODY

NOTES

1. VEHICLE MOVEMENTS TRACKED AT 15km/h.

DESIGN VEHICLES

B99 Vehicle (Realistic min radius) (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

5.2m B99 VEHICLE

SRV - Small Rigid Vehicle	
Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

6.4m SRV - SMALL RIGID VEHICLE

Service Vehicle (8.8 m)	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12.500m

8.8m SERVICE VEHICLE

Single Unit Truck/Bus (12.5 m)	
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.490m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

12.5m SINGLE UNIT TRUCK/BUS

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CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

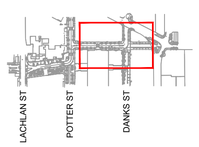
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m

1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

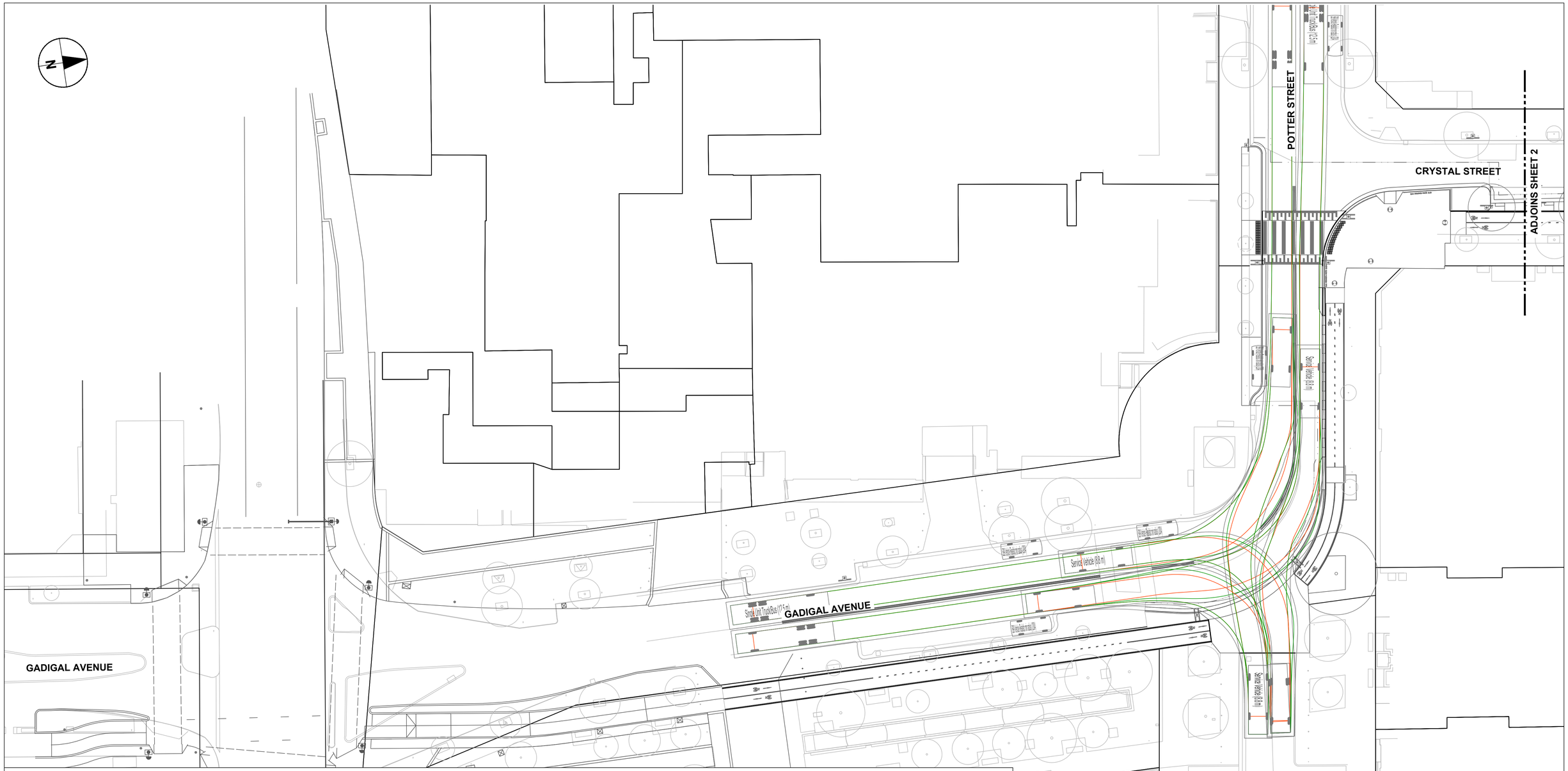
VEHICLE TRACKING PLAN SHEET 6

SHEET NUMBER

60620833-1C-SHT-1000-CI-0806

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GAD\GAL\60620833-1C-SHT-1000-CI-0806.DWG

ISO A1 594mm x 841mm



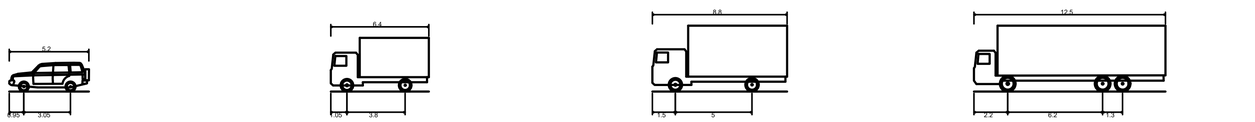
LEGEND

- INDICATES VEHICLE OVERHANG
- INDICATES WHEEL PATH
- INDICATES 300mm CLEARANCE FROM VEHICLE BODY

NOTES

1. VEHICLE MOVEMENTS TRACKED AT 15km/h.

DESIGN VEHICLES



B99 Vehicle (Realistic min radius) (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

5.2m B99 VEHICLE

SRV - Small Rigid Vehicle	
Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

6.4m SRV - SMALL RIGID VEHICLE

Service Vehicle (8.8 m)	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12.500m

8.8m SERVICE VEHICLE

Single Unit Truck/Bus (12.5 m)	
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.490m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

12.5m SINGLE UNIT TRUCK/BUS

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0807.DWG

AECOM

CONSULTANT

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PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

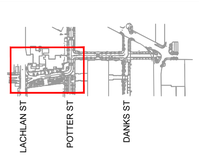
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m

1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

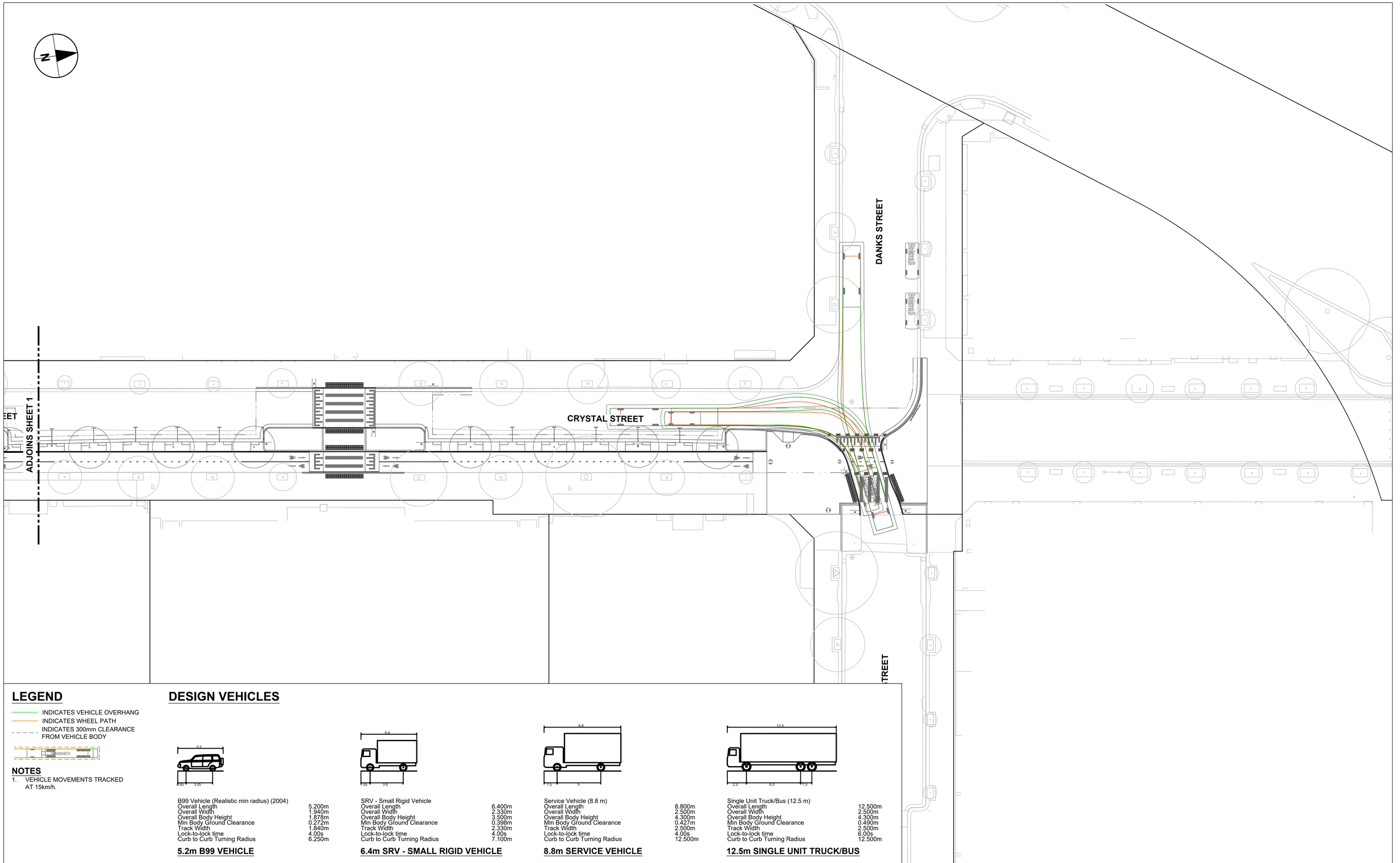
SHEET TITLE

VEHICLE TRACKING PLAN SHEET 7

SHEET NUMBER

60620833-1C-SHT-1000-CI-0807

ISO A1 594mm x 841mm



LEGEND

- INDICATES VEHICLE OVERHANG
- INDICATES WHEEL PATH
- INDICATES 300mm CLEARANCE FROM VEHICLE BODY

NOTES

1. VEHICLE MOVEMENTS TRACKED AT 15km/h.

DESIGN VEHICLES

B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

5.2m B99 VEHICLE

SRV - Small Rigid Vehicle

Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

6.4m SRV - SMALL RIGID VEHICLE

Service Vehicle (8.8 m)

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12.500m

8.8m SERVICE VEHICLE

Single Unit Truck/Bus (12.5 m)

Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.490m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

12.5m SINGLE UNIT TRUCK/BUS

AECOM

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

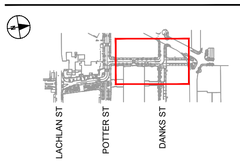
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

- ☐ NO
- ☐ YES

KEY PLAN



SCALE BAR

0 6.25 12.5 m

1:250

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

VEHICLE TRACKING PLAN SHEET 8

SHEET NUMBER

60620833-1C-SHT-1000-CI-0808

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
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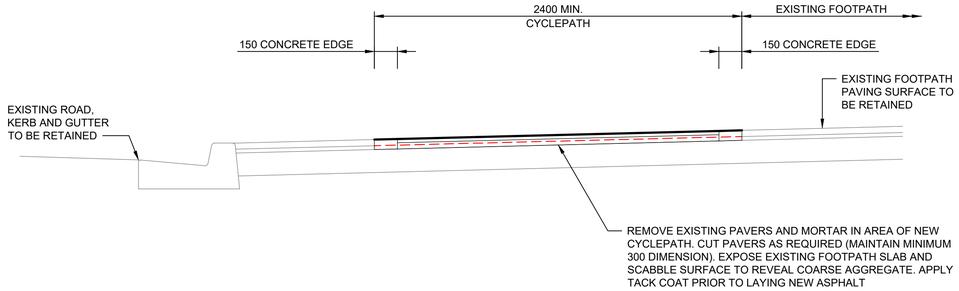
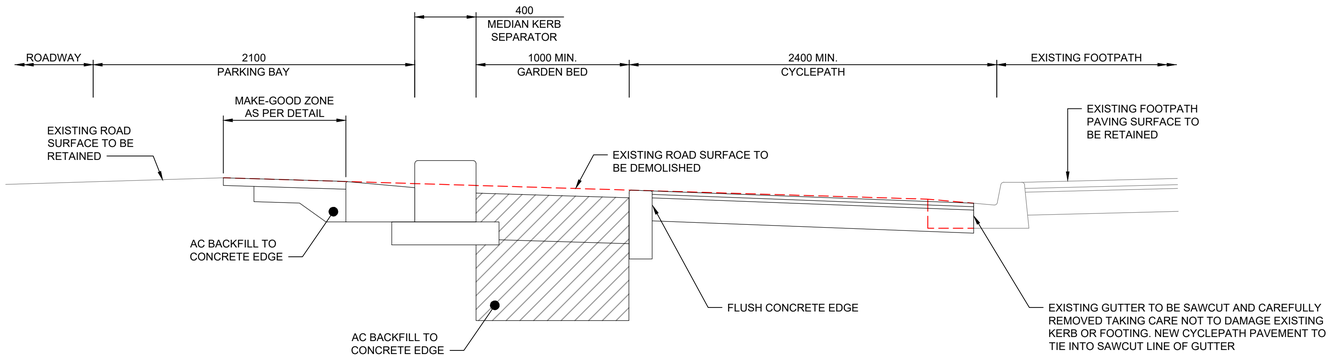


TYPICAL CYCLEPATH CROSS-SECTION 1
GADIGAL STREET

SCALE 1:20



TYPICAL CYCLEPATH CROSS-SECTION 2
CRYSTAL STREET

SCALE 1:20

AECOM

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 0.5 1 m
1:20

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

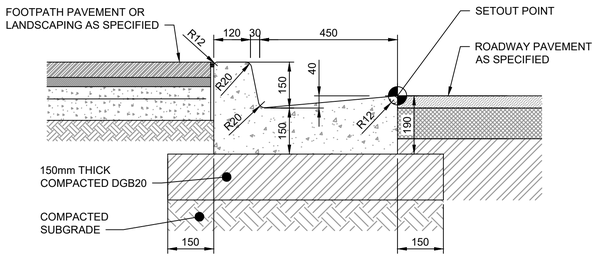
60620833

SHEET TITLE

KERB AND PAVEMENT DETAILS SHEET 1

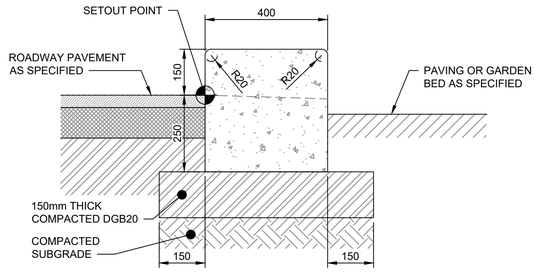
SHEET NUMBER

60620833-1C-SHT-1000-CI-0901



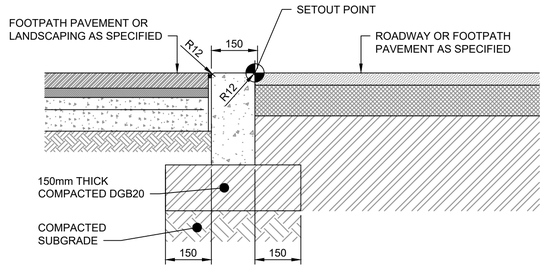
CONCRETE BARRIER KERB AND GUTTER (K+G)

SCALE 1:10



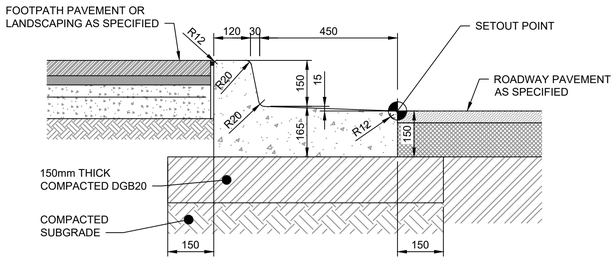
CONCRETE MEDIAN SEPARATOR KERB (MSK)

SCALE 1:10



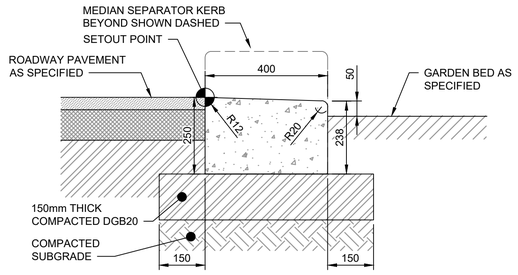
FLUSH KERB (FK)

SCALE 1:10



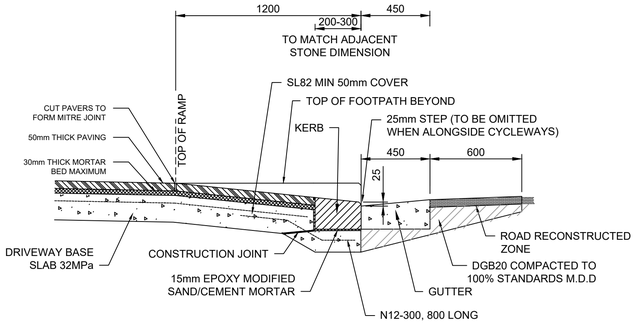
CONCRETE BARRIER KERB AND TRAY

SCALE 1:10



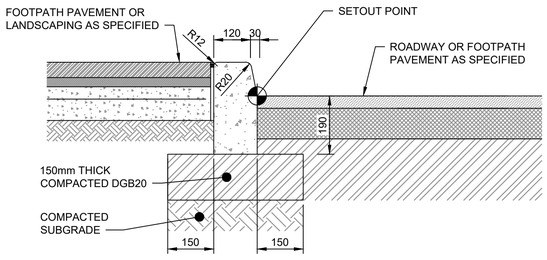
CONCRETE FLUSH MEDIAN SEPARATOR KERB - ADJACENT GARDEN (FMSK)

SCALE 1:10



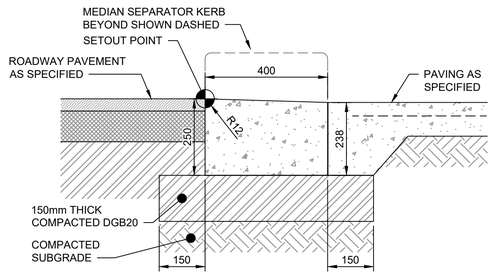
CONCRETE PAVEMENT VEHICULAR CROSSING (VEH1) SECTION

SCALE 1:20



CONCRETE KERB ONLY (KO)

SCALE 1:10



CONCRETE FLUSH MEDIAN SEPARATOR KERB - ADJACENT PAVING (FMSK)

SCALE 1:10

AECOM

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 0.25 0.5 m
1:10

0 0.5 1 m
1:20

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

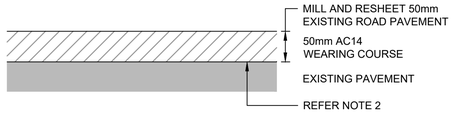
60620833

SHEET TITLE

KERB AND PAVEMENT DETAILS SHEET 2

SHEET NUMBER

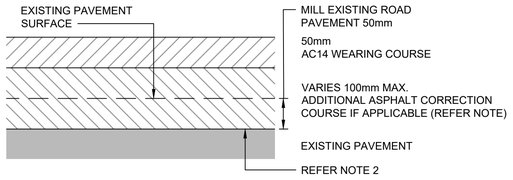
60620833-1C-SHT-1000-CI-0902



MILL AND RE-SHEET EXISTING ROAD PAVEMENT (R1)

SCALE 1:5

NOTES
1. THE THICKNESS OF SEAL SHALL BE TAKEN INTO ACCOUNT IN THE DESIGN MILLING DEPTH AND SHALL APPROXIMATELY BE EQUIVALENT TO THE AVERAGE LEAST DIMENSION (ALD) OF THE AGGREGATE. UNTIL SUCH TIME ALD TESTS ARE CONDUCTED ON THE AGGREGATES, AN ALD OF 4 MM MAY BE ASSUMED FOR A 7 MM NOMINAL SIZE AGGREGATE.
2. TACK COAT IF ASPHALT EXPOSED, POLYMER MODIFIED PRIMER EMULSION IF CONCRETE EXPOSED OR LOW CUTTER SEAL IF GRANULAR MATERIAL EXPOSED.



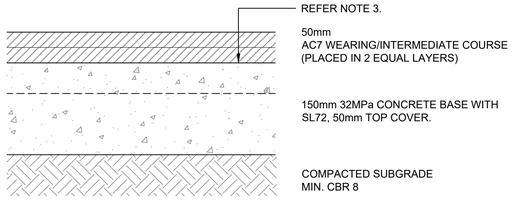
FLEXIBLE ROAD PAVEMENT OVERLAY (R2)

SCALE 1:5

NOTES
1. THE THICKNESS OF SEAL SHALL BE TAKEN INTO ACCOUNT IN THE DESIGN MILLING DEPTH AND SHALL APPROXIMATELY BE EQUIVALENT TO THE AVERAGE LEAST DIMENSION (ALD) OF THE AGGREGATE. UNTIL SUCH TIME ALD TESTS ARE CONDUCTED ON THE AGGREGATES, AN ALD OF 4 MM MAY BE ASSUMED FOR A 7 MM NOMINAL SIZE AGGREGATE.
2. TACK COAT IF ASPHALT EXPOSED, POLYMER MODIFIED PRIMER EMULSION IF CONCRETE EXPOSED OR LOW CUTTER SEAL IF GRANULAR MATERIAL EXPOSED.
3. ALL LAYERS WITHIN THE CORRECTION COURSE SHALL BE WITHIN THE RANGE OF THE ALLOWABLE ASPHALT LAYER THICKNESS LISTED IN TABLE 1.

TABLE 1 : ALLOWABLE ASPHALT LAYER THICKNESS

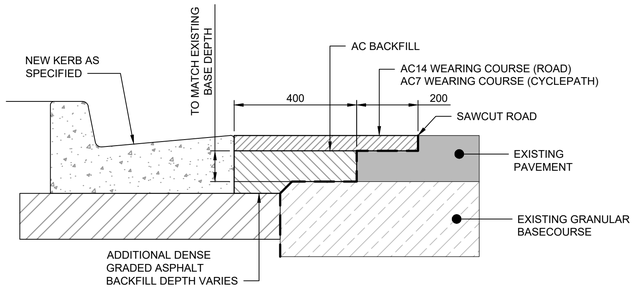
ASPHALT TYPE	ALLOWABLE ASPHALT LAYER THICKNESS FOR DIFFERENT NOMINAL ASPHALT SIZE (mm)				
	5	7	10	14	20
DENSE GRADED ASPHALT (DGA)	15 - 25	21 - 35	30 - 50	42 - 70	60 - 100



RIGID CYCLEPATH PAVEMENT (R4, R4-V)

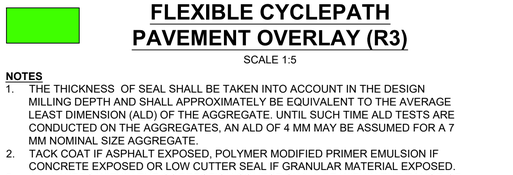
SCALE 1:5

NOTES
1. CONCRETE BASE TO BE INCREASED TO 250mm 32MPa, WITH 2 LAYERS SL82, MIN. 50mm COVER WHERE LOCATED IN DRIVEWAY, REFER TO PAVEMENT TYPE R4-V ON PLANS
2. JOINTS;
   - EXPANSION JOINTS TO BE PLACED AT TYP. 12,000mm CENTRES
   - CONTRACTION JOINTS TO BE PLACED AT TYP. 4,000mm CENTRES
   - LONGITUDINAL EXPANSION JOINTS TO BE PLACED AT MAX. 5,000mm CENTRES
   - JOINT LAYOUT TO AVOID ELONGATED OR IRREGULAR SHAPED SLABS, LAYOUT TO BE AGREED PRIOR TO POURING CONCRETE
3. POLYMER MODIFIED PRIMER EMULSION TO BE APPLIED BETWEEN CONCRETE SLAB AND NEW ASPHALTIC CONCRETE
4. WHERE NOTED ON PLAN, EXISTING SLAB TO BE RETAINED, PAVERS AND MORTAR BED TO BE REMOVED AND WEARING/INTERMEDIATE COURSE TO BE APPLIED TO SLAB



ROAD RESTORATION ADJACENT NEW KERB WORKS (R5)

SCALE 1:10



FLEXIBLE CYCLEPATH PAVEMENT OVERLAY (R3)

SCALE 1:5

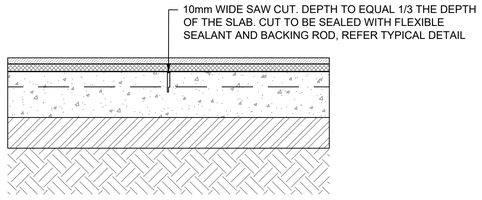
NOTES
1. THE THICKNESS OF SEAL SHALL BE TAKEN INTO ACCOUNT IN THE DESIGN MILLING DEPTH AND SHALL APPROXIMATELY BE EQUIVALENT TO THE AVERAGE LEAST DIMENSION (ALD) OF THE AGGREGATE. UNTIL SUCH TIME ALD TESTS ARE CONDUCTED ON THE AGGREGATES, AN ALD OF 4 MM MAY BE ASSUMED FOR A 7 MM NOMINAL SIZE AGGREGATE.
2. TACK COAT IF ASPHALT EXPOSED, POLYMER MODIFIED PRIMER EMULSION IF CONCRETE EXPOSED OR LOW CUTTER SEAL IF GRANULAR MATERIAL EXPOSED.
3. ALL LAYERS WITHIN THE CORRECTION COURSE SHALL BE WITHIN THE RANGE OF THE ALLOWABLE ASPHALT LAYER THICKNESS LISTED IN TABLE 1.

TABLE 1 : ALLOWABLE ASPHALT LAYER THICKNESS

ASPHALT TYPE	ALLOWABLE ASPHALT LAYER THICKNESS FOR DIFFERENT NOMINAL ASPHALT SIZE (mm)				
	5	7	10	14	20
DENSE GRADED ASPHALT (DGA)	15 - 25	21 - 35	30 - 50	42 - 70	60 - 100

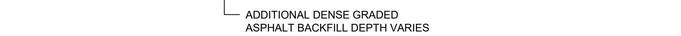
CYCLEWAY ROAD PAVEMENT EXPANSION JOINT (CEJ-R4)

SCALE 1:10



CYCLEWAY ROAD PAVEMENT CONTRACTION JOINT (CCJ-R4)

SCALE 1:10



ROAD RESTORATION ADJACENT EXISTING KERB (R5)

SCALE 1:10

CONSULTANT
AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT
Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION
ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR
0 0.125 0.25 m
1:5
0 0.25 0.5 m
1:10

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

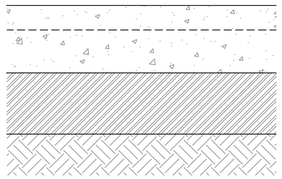
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER
60620833

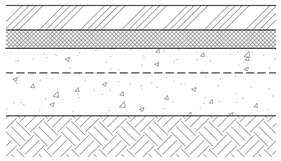
SHEET TITLE
KERB AND PAVEMENT DETAILS SHEET 3

SHEET NUMBER
60620833-1C-SHT-1000-CI-0903



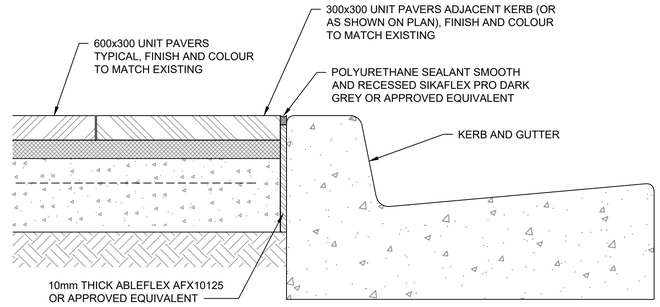
CONCRETE PAVING (P2)
SCALE 1:5

NOTES
1. PAVEMENT TO BE INCREASED TO 250mm 32MPa, 2 LAYERS SL82 MIN. COVER 50mm WHERE LOCATED IN DRIVEWAY. REFER P2-V ON PLANS.
2. JOINTS;
   - TRANSVERSE EXPANSION JOINTS TO BE PLACED AT TYP. 4,500mm CENTRES (5,400mm MAX.)
   - TRANSVERSE CONTRACTION JOINTS TO BE PLACED AT TYP. 1,500mm CENTRES (1,800mm MAX.)
   - LONGITUDINAL EXPANSION JOINTS TO BE PLACED AT MAX. 5,000mm CENTRES
   - JOINT LAYOUT TO AVOID ELONGATED OR IRREGULAR SHAPED SLABS, LAYOUT TO BE AGREED PRIOR TO POURING CONCRETE

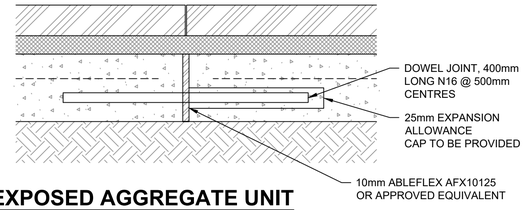


EXPOSED AGGREGATE UNIT PAVING (P10, P10-V)
SCALE 1:5

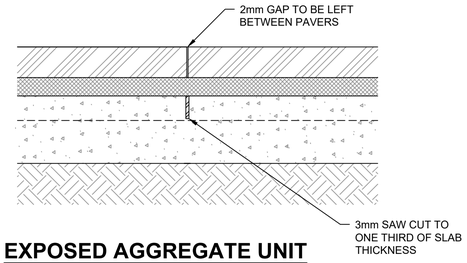
NOTES
1. CONCRETE BASE TO BE INCREASED TO 250mm 32MPa, WITH 2 LAYERS SL82 MIN 50mm COVER WHERE LOCATED IN DRIVEWAY. REFER P10-V ON PLANS.
2. PAVEMENT TO BE SEALED IN ACCORDANCE WITH THE SPECIFICATION.
3. REFER TO TREE PIT DETAILS FOR REQUIREMENT FOR THICKENING ADJACENT TO TREE PITS.
4. JOINTS;
   - EXPANSION JOINTS TO BE PLACED AT TYP. 12,000mm CENTRES
   - CONTRACTION JOINTS TO BE PLACED AT TYP. 4,000mm CENTRES
   - LONGITUDINAL EXPANSION JOINTS TO BE PLACED AT MAX. 5,000mm CENTRES
   - JOINT LAYOUT TO AVOID ELONGATED OR IRREGULAR SHAPED SLABS, LAYOUT TO BE AGREED PRIOR TO POURING CONCRETE



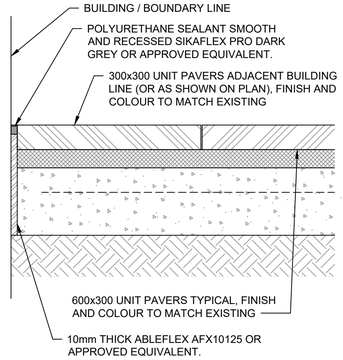
EXPOSED AGGREGATE UNIT PAVING - JUNCTION WITH BACK OF KERB (IJ1)
SCALE 1:5



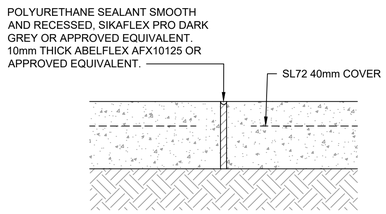
EXPOSED AGGREGATE UNIT PAVING - EXPANSION JOINT (EJ)
SCALE 1:5



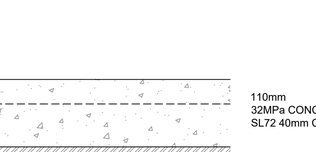
EXPOSED AGGREGATE UNIT PAVING - CONTRACTION JOINT (CJ)
SCALE 1:5



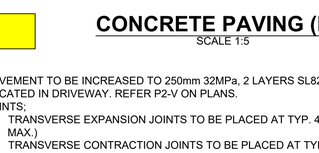
EXPOSED AGGREGATE UNIT PAVING - JUNCTION WITH BUILDING OR STRUCTURE (IJ2)
SCALE 1:5



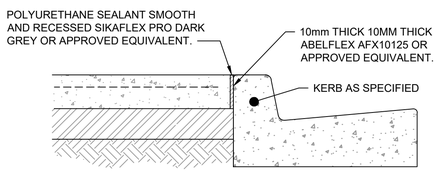
CONCRETE PAVING - EXPANSION JOINT (CEJ)
SCALE 1:5



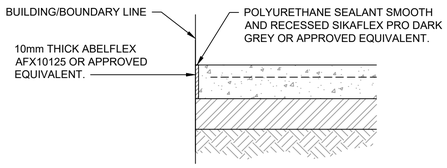
CONCRETE PAVING - CONTRACTION JOINT (CCJ)
SCALE 1:5



CONCRETE PAVING - SAW CUT (SC)
SCALE 1:5



CONCRETE PAVING JUNCTION WITH BACK OF KERB (IJ1)
SCALE 1:10



CONCRETE PAVING JUNCTION WITH BUILDING (IJ2)
SCALE 1:10

CONSULTANT
AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT
Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION
ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
☐ NO
☐ YES

KEY PLAN

SCALE BAR
0 0.125 0.25 m
1:5
0 0.25 0.5 m
1:10

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

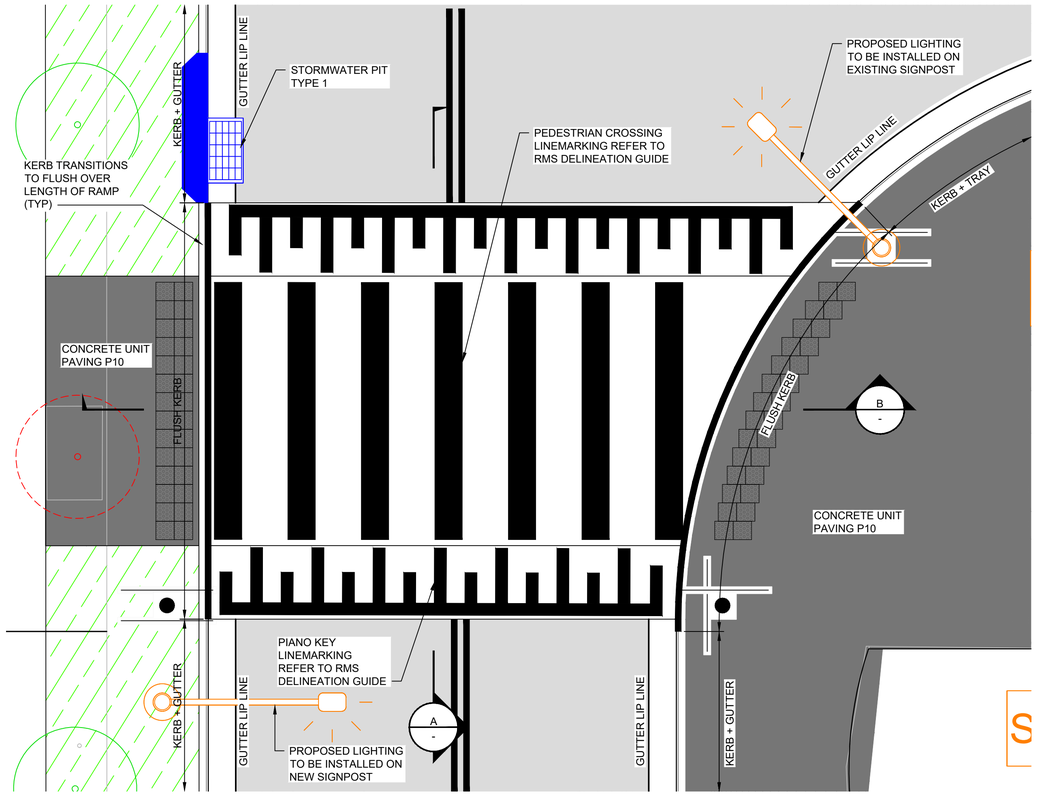
02	14.05.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

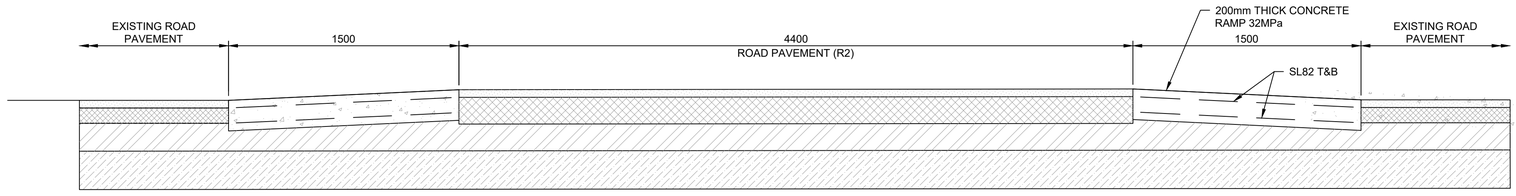
FOR INFORMATION ONLY

PROJECT NUMBER
60620833

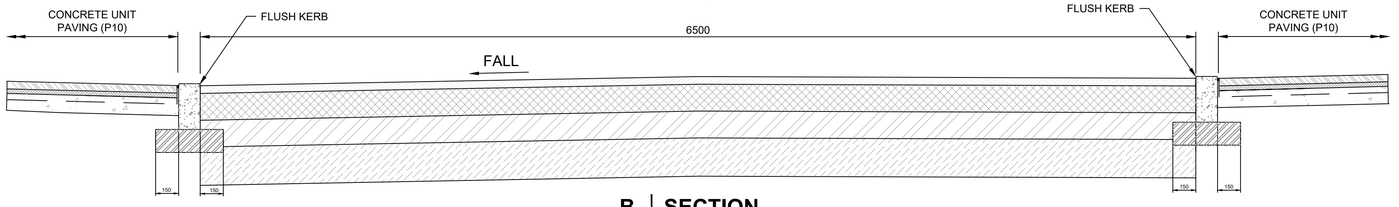
SHEET TITLE
KERB AND PAVEMENT DETAILS
SHEET 4

SHEET NUMBER
60620833-1C-SHT-1000-CI-0904





A - **SECTION**
SCALE 1:20



B - **SECTION**
SCALE 1:20

NOTES

1. FOR GENERAL NOTES REFER TO DRAWING SERIES 1000-CI-0010.
2. FOR LANDSCAPING AND STREET FURNITURE REQUIREMENTS, REFER TO DRAWING SERIES 1000-CI-0150
3. FOR PAVEMENT TYPES AND EXTENTS, REFER TO DRAWING SERIES 1000-CI-0200
4. FOR LINES AND SIGNAGE REQUIREMENTS AND SETOUT, REFER TO DRAWING SERIES 1000-CI-0250

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

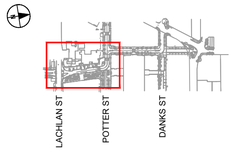
CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN



SCALE BAR

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1:50
0 0.5 1 m
1:20

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

01	14.05.2021	95% DETAILED DESIGN
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60620833

SHEET TITLE

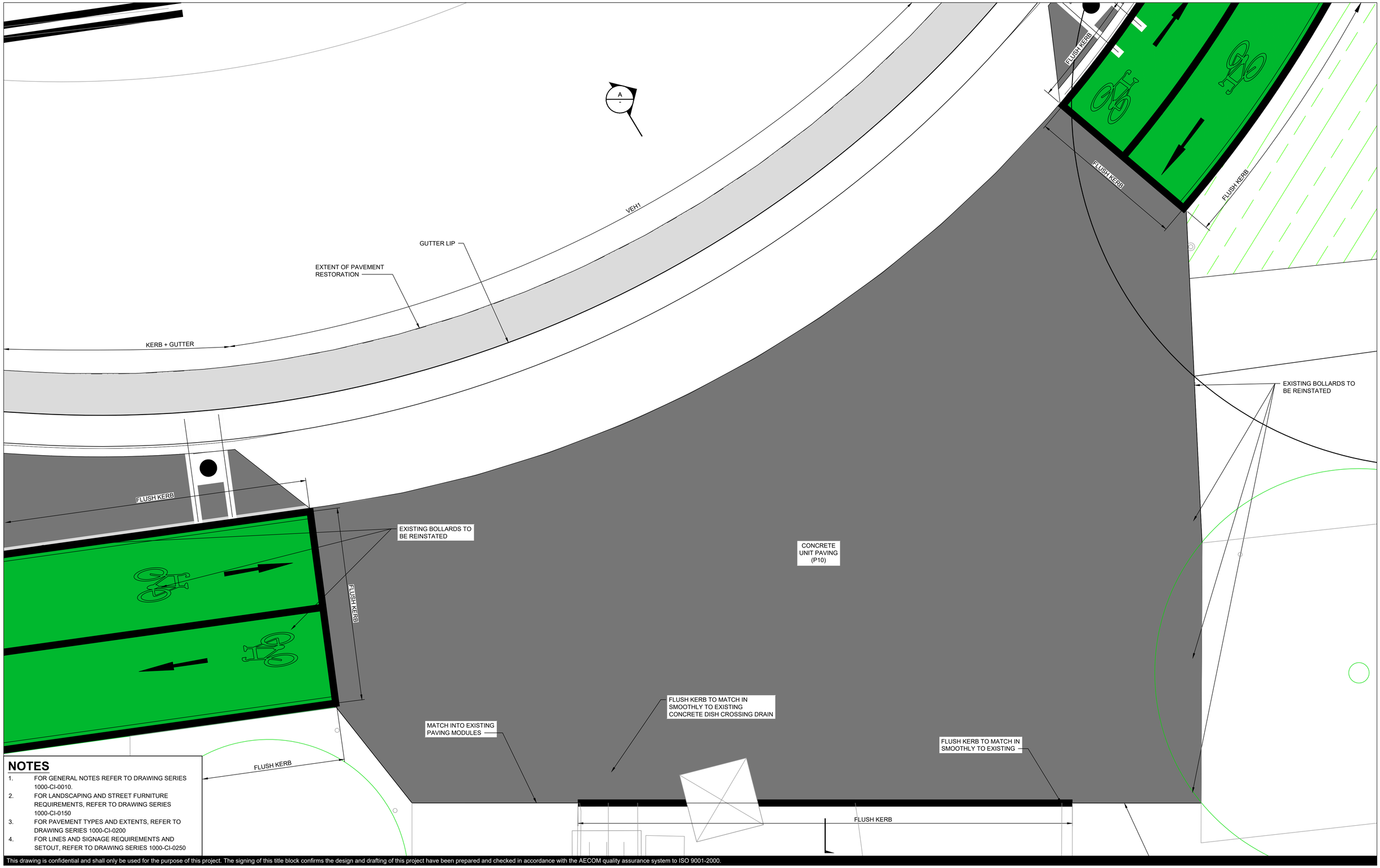
KERB AND PAVEMENT DETAILS SHEET 5

SHEET NUMBER

60620833-1C-SHT-1000-CI-0905

FOR INFORMATION ONLY

ISO A1 594mm x 841mm



NOTES

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2. FOR LANDSCAPING AND STREET FURNITURE REQUIREMENTS, REFER TO DRAWING SERIES 1000-CI-0150
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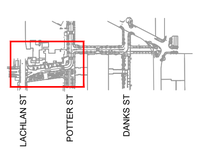
☐ NO
☐ YES

KEY PLAN



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PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

01	14.05.2021	95% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

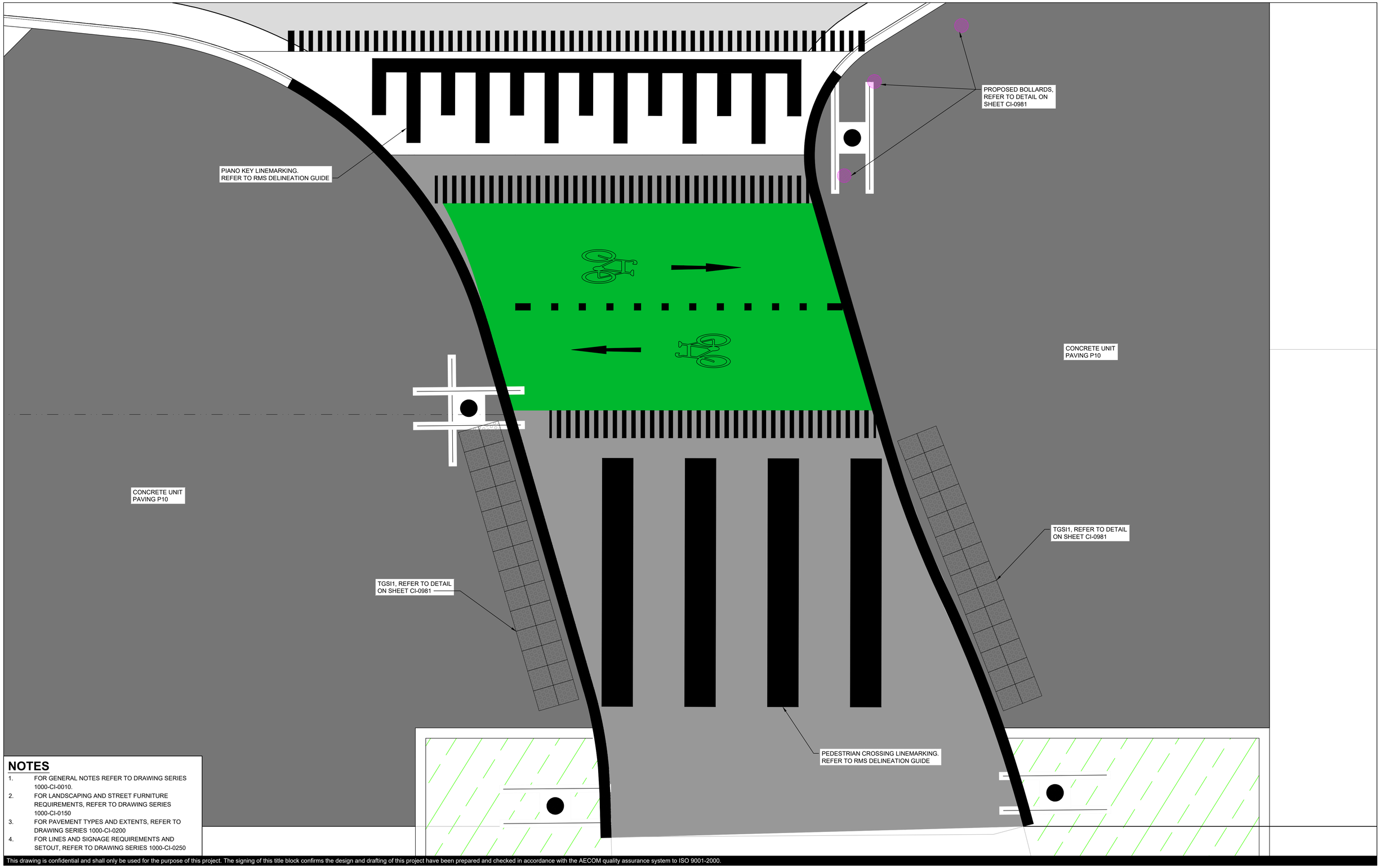
SHEET TITLE

KERB AND PAVEMENT DETAILS SHEET 6

SHEET NUMBER

60620833-1C-SHT-1000-CI-0906

Last saved by: TOWNSENDSW(2021-05-14) Last Plotted: 2021-05-14
Filename: C:_PROCESS\PW EXPORT\60620833-ACCELERATED_BIKE_NETWORK_PROGRAM\1C_GADIGAL\60620833-1C-SHT-1000-CI-0906.DWG



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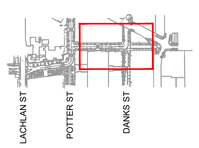
- ☐ YES

KEY PLAN



SCALE BAR

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PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

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I/R	DATE	DESCRIPTION

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PROJECT NUMBER

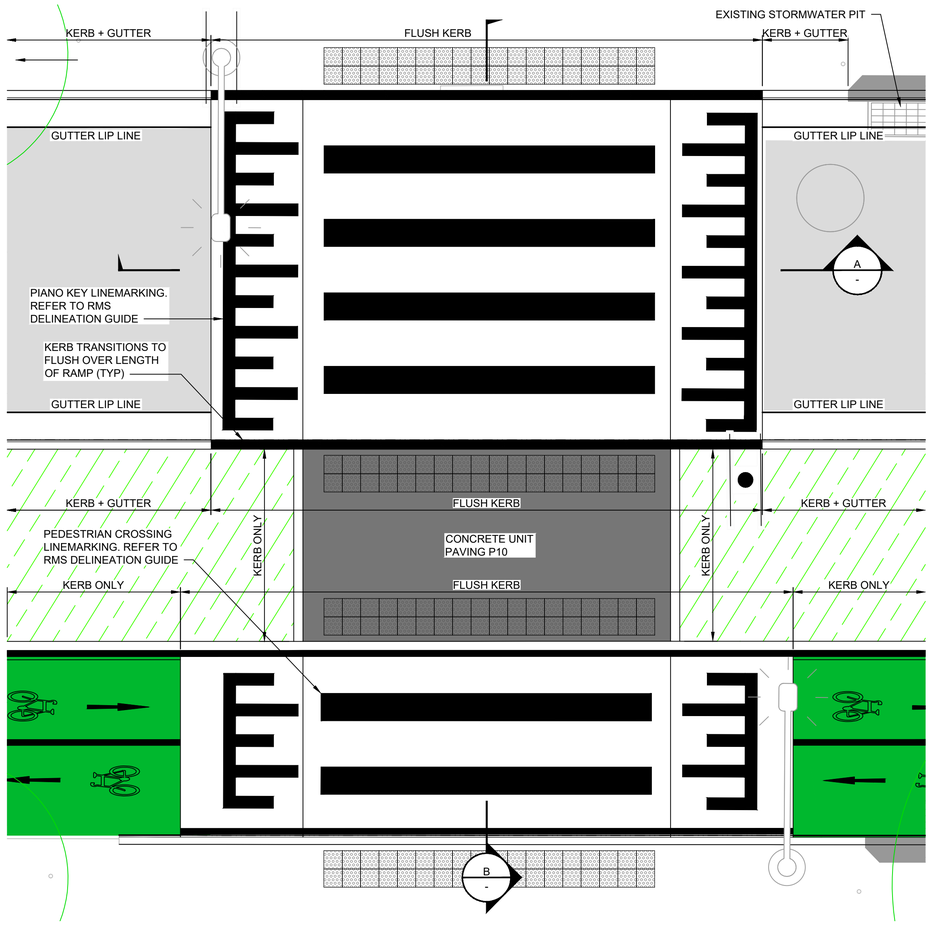
60620833

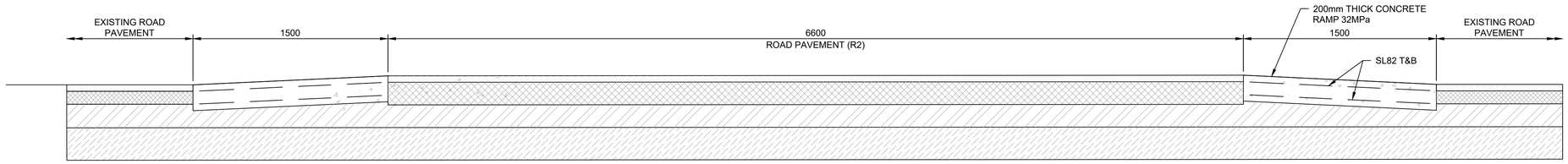
SHEET TITLE

KERB AND PAVEMENT DETAILS SHEET 7

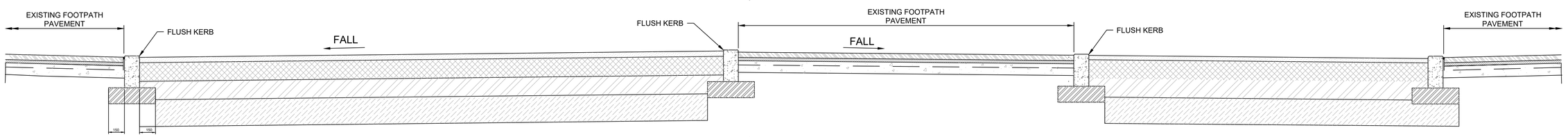
SHEET NUMBER

60620833-1C-SHT-1000-CI-0907





A | SECTION
-
SCALE 1:20



B | SECTION
-
SCALE 1:20

NOTES
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PROJECT

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CLIENT

CITY OF SYDNEY

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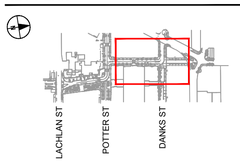
- ☐ YES

KEY PLAN



SCALE BAR

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1:50
0 0.5 1 m
1:20

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

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I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

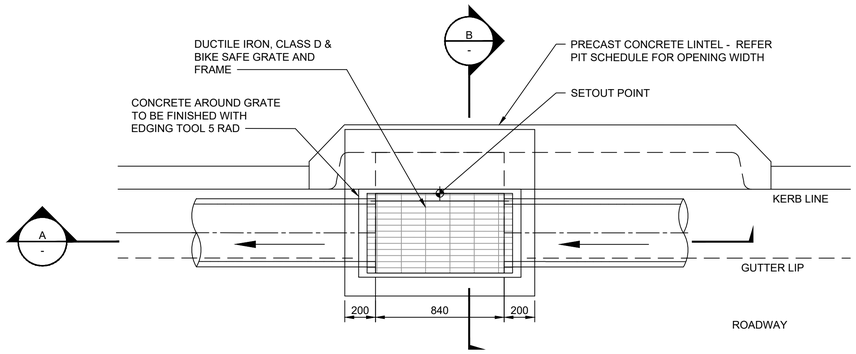
60620833

SHEET TITLE

KERB AND PAVEMENT DETAILS SHEET 8

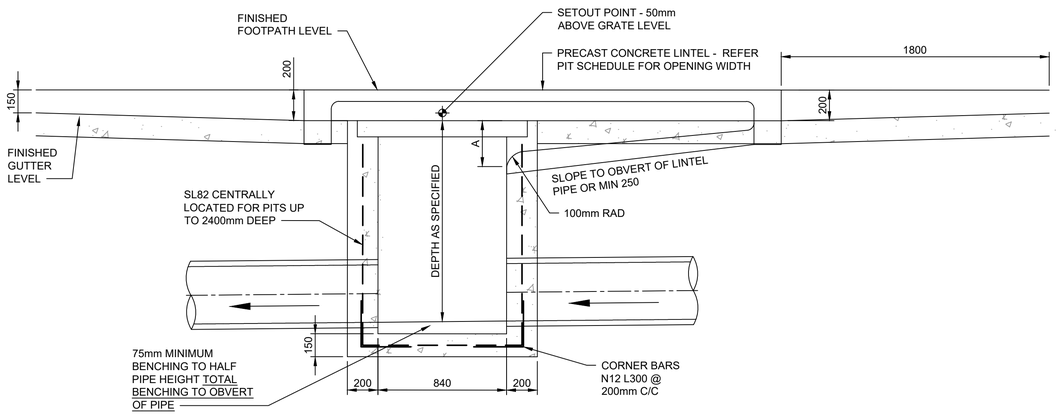
SHEET NUMBER

60620833-1C-SHT-1000-CI-0908



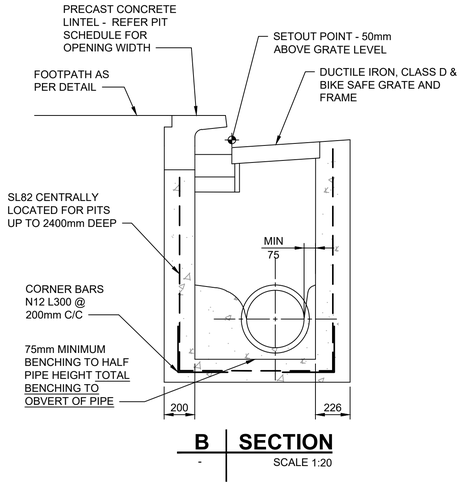
STANDARD GULLY PIT WITH EXTENDED KERB INLET - 1.8m LINTEL (PIT 1)

SCALE 1:20



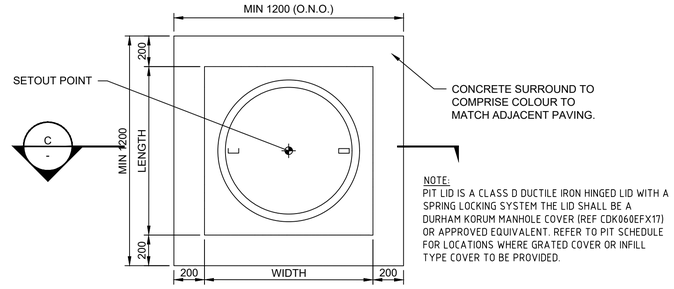
A - SECTION

SCALE 1:20



B - SECTION

SCALE 1:20



NOTE:
PIT LID IS A CLASS D DUCTILE IRON HINGED LID WITH A SPRING LOCKING SYSTEM THE LID SHALL BE A DURHAM KORUM MANHOLE COVER (REF CDK060EFX17) OR APPROVED EQUIVALENT. REFER TO PIT SCHEDULE FOR LOCATIONS WHERE GRATED COVER OR INFILL TYPE COVER TO BE PROVIDED.

STANDARD MANHOLE (PIT 2)

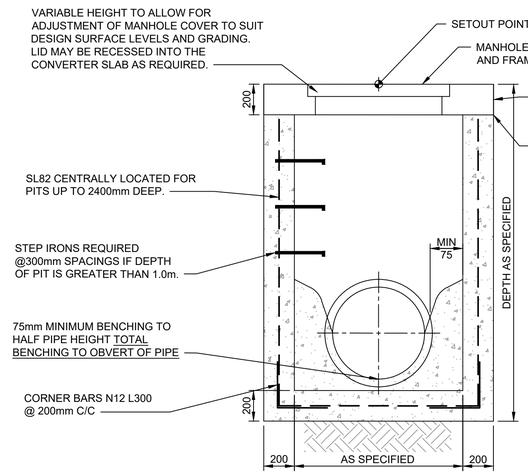
SCALE 1:20

NOTES

1. REFER TO CI-0600 SERIES DRAWINGS FOR DRAINAGE LAYOUTS, SCHEDULES AND LONGSECTIONS.
2. COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS TO BE 32MPa UNO.
3. 75mm MINIMUM BENCHING TO HALF PIPE HEIGHT TOTAL BENCHING TO OBVERT OF PIPE.
4. 100mmØ SUBSOIL DRAINAGE PIPE 3.0m LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED IN PIPE TRENCHES ADJACENT TO INLET PIPES.
5. PROVIDE STEP IRONS WHERE PIT IS DEEPER THAN 1.0m AT 300mm CENTRES
6. PITS UP TO 2.4m IN DEPTH TO BE REINFORCED WITH SL82 MESH RETURNED 300mm INTO BASE WITH WALLS 200mm THICK U.N.O.
7. REINFORCEMENT TO COMPLY WITH AS1302, 1303 & 1304.
8. REFER TO PIT SCHEDULE FOR DETAILS AND DIMENSIONS OF SPECIFIC PITS.

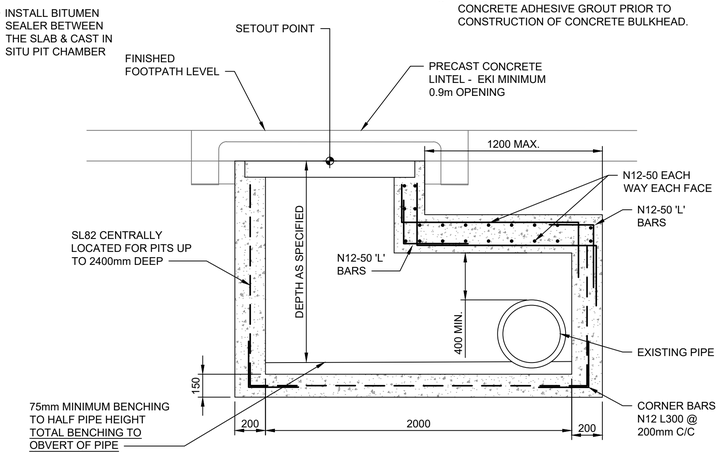
NOTES

1. DO NOT JACKPICK AND CAUSE UNNECESSARY DAMAGE TO EXISTING WALLS.
2. ONLY USE NON PNEUMATIC TOOL INCLUDING A DN100 NOMINAL DIAMOND TIPPED CIRCULAR CORE DRILL TO FORM THE OVERALL PIPE OPENING.
3. IF OPENING EXCEEDS 50mm BEYOND THE EXTENTS OF THE NEW PIPE, SECTION OF SYDNEY WATER CULVERT MAY NEED TO BE REPLACED OR WRAPPED IN CONCRETE BANDAGE COMPRISING SL82 MESH AROUND FULL CIRCUMFERENCE OF EXISTING CULVERT.
4. MAKE GOOD WITH A "WET TO DRY" EPOXY CONCRETE ADHESIVE GROUT PRIOR TO CONSTRUCTION OF CONCRETE BULKHEAD.



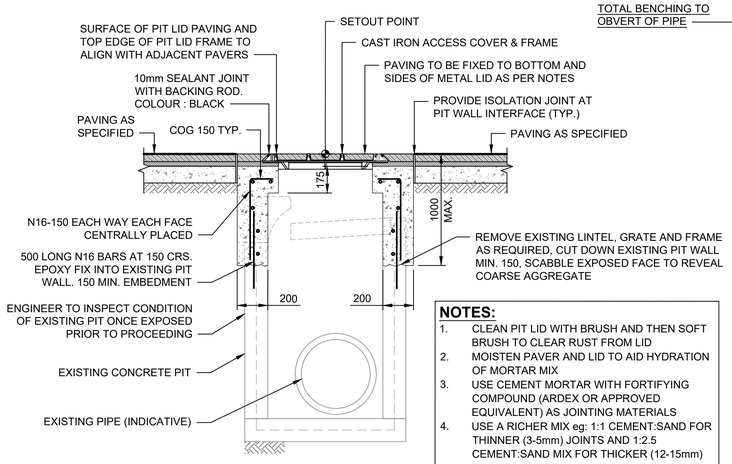
C - SECTION

SCALE 1:20



SPECIAL PIT SECTION (PIT 3)

SCALE 1:20

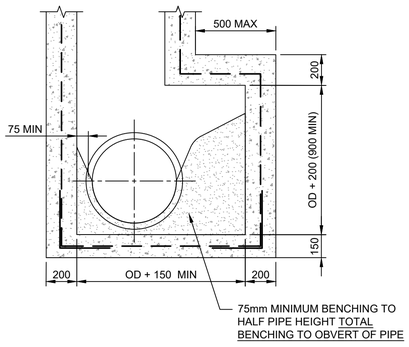


NOTES:

1. CLEAN PIT LID WITH BRUSH AND THEN SOFT BRUSH TO CLEAR RUST FROM LID
2. MOISTEN PAVER AND LID TO AID HYDRATION OF MORTAR MIX
3. USE CEMENT MORTAR WITH FORTIFYING COMPOUND (ARDEX OR APPROVED EQUIVALENT) AS JOINTING MATERIALS
4. USE A RICHER MIX eg: 1:1 CEMENT:SAND FOR THINNER (3-5mm) JOINTS AND 1:2.5 CEMENT:SAND MIX FOR THICKER (12-15mm) JOINTS
5. PIT LID INFILLS TO HAVE APPROX. 3mm GAP ON SIDES SO AS NOT TO TOUCH THE LID
6. GAPS ON SIDES SHOULD BE GROUTED WITH RICH CEMENT SAND MIX WITH FORTIFYING COMPOUND.

TYPICAL STORMWATER PIT EXTENSION DETAIL - IN PAVING

SCALE 1:20



LARGER PIPES SECTION

SCALE 1:20

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PROJECT
Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

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CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION
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☐ NO
☐ YES

KEY PLAN

SCALE BAR
0 0.25 0.5 m
1:10

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

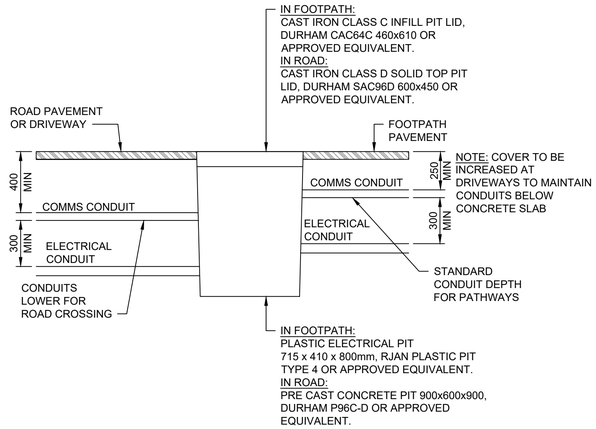
02	12.03.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

PROJECT NUMBER
60620833

SHEET TITLE
DRAINAGE DETAILS SHEET 1

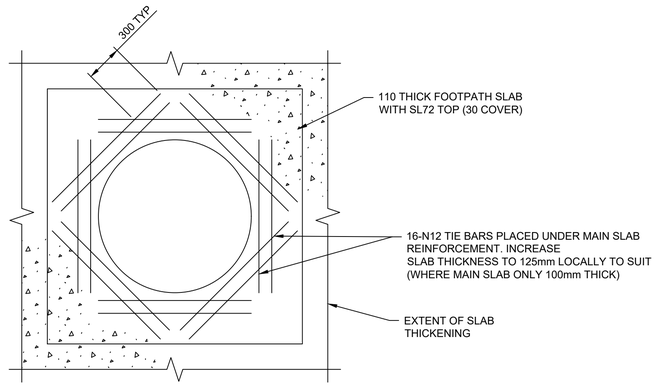
SHEET NUMBER
60620833-1C-SHT-1000-CI-0921

FOR INFORMATION ONLY



STREET LIGHTING PIT ARRANGEMENT

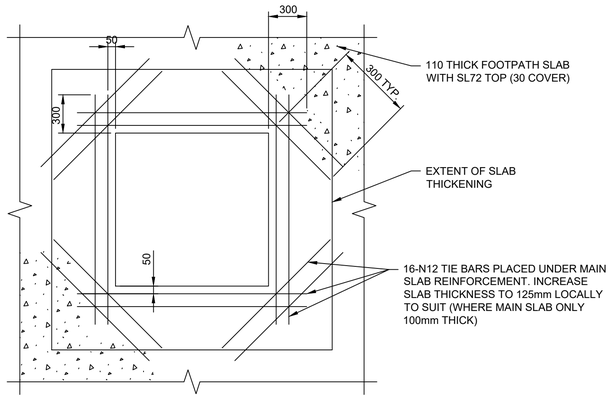
SCALE 1:20



FOOTPATH BASE SLAB REINFORCEMENT DETAIL OF CIRCULAR PENETRATION

SCALE 1:20

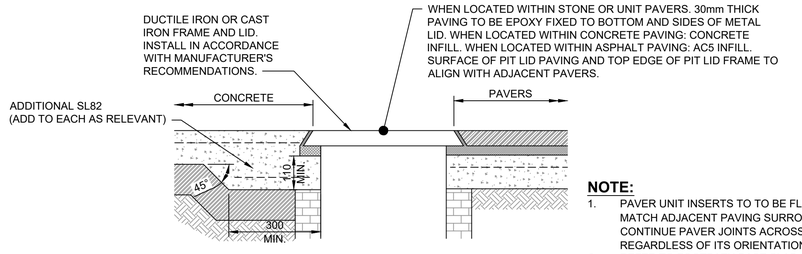
NOTE:
APPLIES TO PAVING P1, P2, P3 AND RS3.



FOOTPATH BASE SLAB REINFORCEMENT DETAIL OF SQUARE PENETRATION

SCALE 1:20

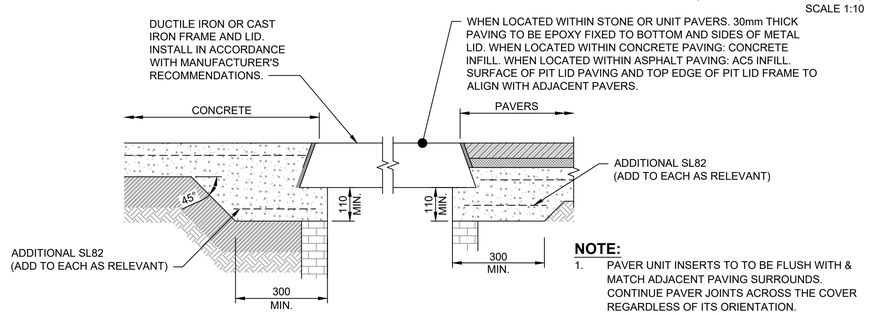
NOTE:
APPLIES TO PAVING P1, P2, P3 AND RS3.



NOTE:
1. PAVER UNIT INSERTS TO TO BE FLUSH WITH & MATCH ADJACENT PAVING SURROUNDS. CONTINUE PAVER JOINTS ACROSS THE COVER REGARDLESS OF ITS ORIENTATION.
2. REFER TO FOOTPATH BASE SLAB REINFORCEMENT DETAILS FOR FURTHER DETAILS OF BASE SLAB REINFORCEMENT AT SERVICE COVER PENETRATIONS.

TYPICAL SERVICES COVER IN FOOTPATH DETAIL (DEPTH ≤ 80mm)

SCALE 1:10



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2. REFER TO FOOTPATH BASE SLAB REINFORCEMENT DETAILS FOR FURTHER DETAILS OF BASE SLAB REINFORCEMENT AT SERVICE COVER PENETRATIONS.

TYPICAL SERVICES COVER IN FOOTPATH DETAIL (DEPTH >80mm)

SCALE 1:10

AUTHORITY SURFACE FEATURE SCHEDULE

Authority	Feature	Authority Standard Detail Reference	Dimensions (internal)			Cover Class	Cover Material	Cover Specficiation	Comments
			Width	Length	Diameter				
Ausgrid	Pillar	NS110, NS127	380	380	-	-	-	-	Dimensions are approximate
Sydney Water	Manhole	SEW-1300-V, SEW-1308-V, SEW-1309-V	-	-	610	D	DI	Durham WA60DS	Apply detail for Trafficable Covers
	Maintenance Shaft	SEW-1350-S and SEW-1317	-	-	410	B	DI	Durham WA40BS	Apply detail for Trafficable Covers for areas of Concrete Unit Pavers
	Rodding Point	SEW-1350-S	-	-	300	B	DI	Durham WA30BS	-
	Hydrant	WAT-1305-V and WAT 1306-V	222	194	-	B	DI	Pentair - MHGNSWH	Apply detail for Asphaltic Concrete Pavement to areas of Concrete Unit Pavers
	Sluice Valve	WAT-1303-V and WAT 1304-V	125	125	-	B	DI	Pentair - MVGNSWSV	Apply detail for Asphaltic Concrete Pavement to areas of Concrete Unit Pavers
NBN Co.	P5 Pit	New Developments: Deployment of the NBN Co Conduit and Pit Network - Guidelines for Developers	290	510	-	B	CI	BVCI - 32199198	Cover to be black cast iron
	P8 Pit	New Developments: Deployment of the NBN Co Conduit and Pit Network - Guidelines for Developers	390	1130	-	B	CI	BVCI - 32199071	Cover to be black cast iron
Telstra	P5 Pit	By Telstra	460	650	-	B	Infill	By Telstra	Dimensions approximate, cover to be adjusted to suit new surface level and be replaecd by infill type
	P6 Pit	By Telstra	500	1300	-	B	Infill	By Telstra	Dimensions approximate, cover to be adjusted to suit new surface level and be replaecd by infill type
	4 Part Cover Manhole	By Telstra	1200	1200	-	B	Infill	By Telstra	Dimensions approximate, cover to be adjusted to suit new surface level and be replaecd by infill type
	6 Part Cover Manhole	By Telstra	1800	1200				By Telstra	Dimensions approximate, cover to be adjusted to suit new surface level and be replaecd by infill type
RMS	Signal Pit	RMS QA Specification R155	450	450	-	D	DI	ACO - DIS44D - 89268	-
	Signal Controller	RMS QA Specification R155	550	850	-	-	-	-	Dimensions indicated are for foundation

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KEY PLAN

SCALE BAR

0 0.25 0.5 m
1:10
0 0.5 1 m
1:20

PROJECT MANAGEMENT INITIALS

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DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

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PROJECT NUMBER

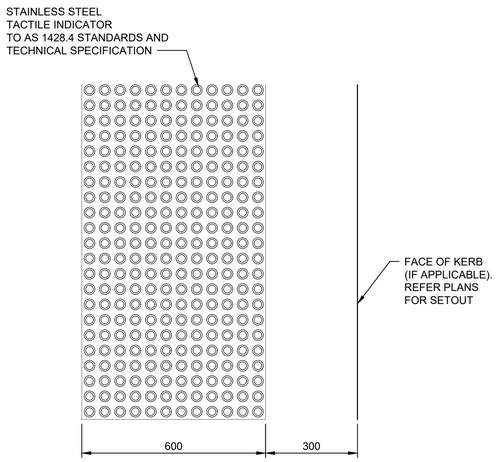
60620833

SHEET TITLE

SERVICES
DETAILS
SHEET 1

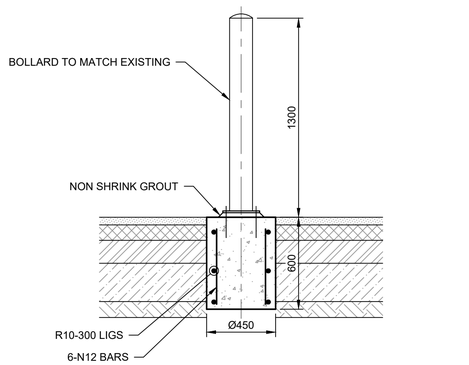
SHEET NUMBER

60620833-1C-SHT-1000-CI-0951



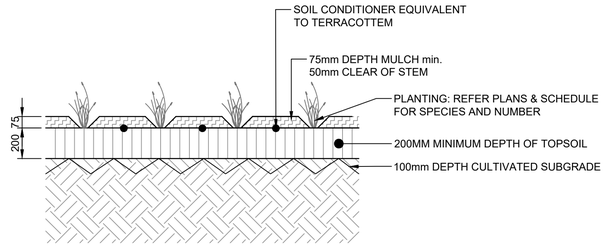
DETAILS - TACTILE GROUND SURFACE INDICATORS (TGSI1)

SCALE 1:10



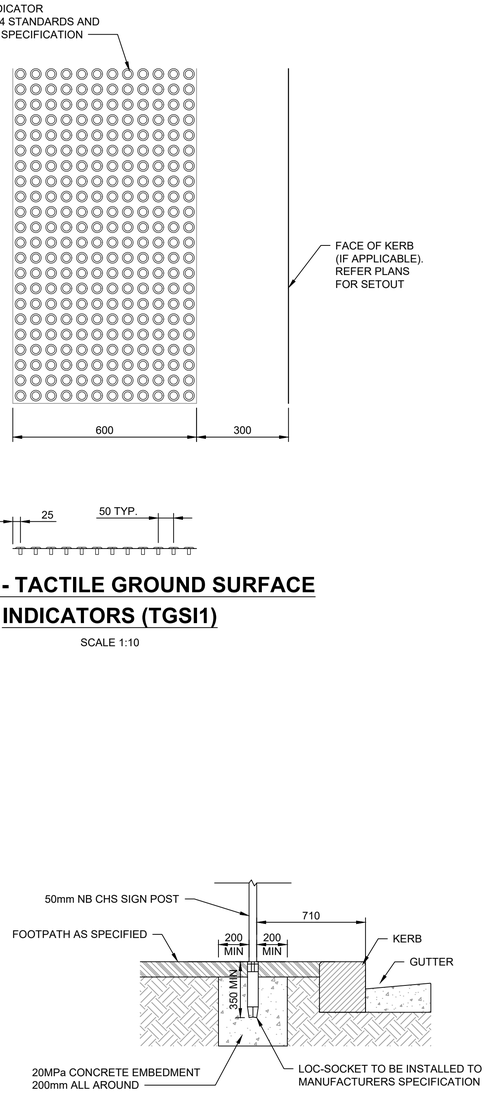
CONCRETE-FILLED PIPE BOLLARD DETAIL

Scale 1:20



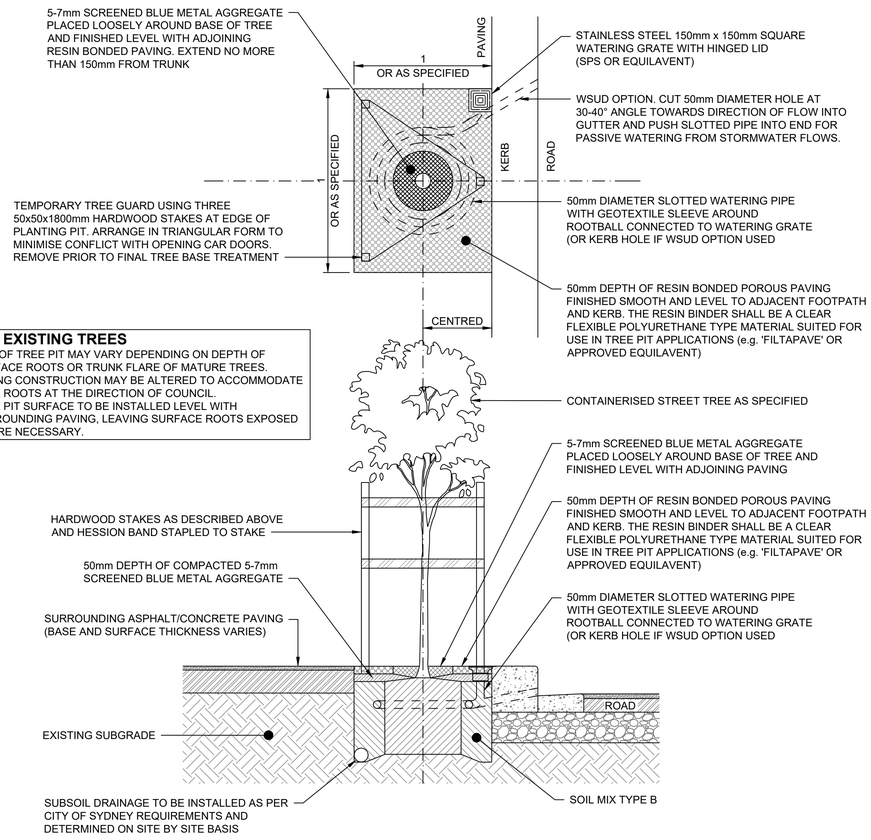
TYPICAL MASS PLANTING DETAIL

Scale 1:20



TYPICAL SIGN POST INSTALLATION - IN PAVING

SCALE 1:20



NOTE - EXISTING TREES

- SIZE OF TREE PIT MAY VARY DEPENDING ON DEPTH OF SURFACE ROOTS OR TRUNK FLARE OF MATURE TREES.
- PAVING CONSTRUCTION MAY BE ALTERED TO ACCOMMODATE TREE ROOTS AT THE DIRECTION OF COUNCIL.
- TREE PIT SURFACE TO BE INSTALLED LEVEL WITH SURROUNDING PAVING, LEAVING SURFACE ROOTS EXPOSED WHERE NECESSARY.

PLANTING IN ASPHALT/CONCRETE PAVING DETAIL

Scale 1:20

CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
www.aecom.com

PROJECT

Accelerated Bike Network Program: Gadigal Ave, Potter St, Crystal St

CLIENT

CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION

ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?

☐ NO
☐ YES

KEY PLAN

SCALE BAR

0 0.25 0.5 m
1:10

0 0.5 1 m
1:20

PROJECT MANAGEMENT INITIALS

DW	RM	FC
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM		SURVEY	

ISSUE/REVISION

02	12.03.2021	95% DETAILED DESIGN
01	21.09.2020	80% DETAILED DESIGN
I/R	DATE	DESCRIPTION

FOR INFORMATION ONLY

PROJECT NUMBER

60620833

SHEET TITLE

FURNITURE AND FIXING DETAILS
SHEET 1

SHEET NUMBER

60620833-1C-SHT-1000-CI-0981

Appendix E

Noise Calculator Tool

Distanced Based Assessment (Construction Scenario)

Please pick from drop-down list in orange cells

Noise area category		R3
RBL or L_{A90} Background level (dB(A))	**Day**	50
	Evening	45
	Night	40
$L_{Aeq(15minute)}$ Noise Mangement Level (dB(A))	**Day**	60
	Day (OOHW)	55
	Evening	50
	Night	45
Scenario		Paving / asphalting
Is there line of sight to receiver?		Yes

Steps for Screening Assessment:

1. Schedule noisy works to occur in standard hours where possible or before 11pm and implement Standard Measures.
2. Select the representative noise area category. The worksheet titled 'Representative Noise Environ.' provides a number of examples to help select the noise area category.
3. Select the scenario. If not found in drop-down list, refer to 'Source List' and select a representative scenario with similar plant combination.
4. Is there line of sight to receiver? Select the appropriate scenario from the drop down list .

Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as part of the standard mitigation measures by changing the selection in the 'Is there line of sight to receiver' drop-down list. Solid barrier can be in the form of road cutting, solid construction hoarding, acoustic curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are not considered to be a form of solid barrier and any gaps would compromise the acoustic integrity of the solid barrier.

6. Determine if there are any receivers (both residential and non-residential receivers) within the affected distance for each relevant time period . Consider background noise measurements to check assumption in Step #2 if:

(a) there are many affected receivers and the impact duration at any one receiver is more than 3 weeks; or

(b) there are a few affected receivers and the impact duration at any one receiver is more than 6 weeks.

Note that consideration need to be given to the construction staging plan when determining impact duration.

7. Identify if there are any receivers within the additional mitigation measures distances and identify feasible and reasonable measures at each receiver
8. Where night works are involved, identify sleep disturbance affected distance.
9. Document the outcomes of these steps.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction Noise Estimator should be investigated on a project-by-project basis. Please contact a

Abbreviation	Measure
N	Notification
SN	Specific notifications
PC	Phone calls
IB	Individual briefings
RO	Respite offer
R1	Respite period 1
R2	Respite period 2
DR	Duration respite
AA	Alternative accommodation
V	Verification

Note that spot check verification of noise levels and individual briefings are not required for projects with less than 3 weeks impact duration

Residential receiver

			$L_{Aeq(15minute)}$ noise level above background (L_{A90})											$L_{Aeq(15minute)}$ 75 dB(A) or greater (Highly affected)			Sleep disutrbance L_{Amax} 65 dB(A)
			5 to 10 dB(A)			10 to 20 dB(A)			20 to 30 dB(A)			> 30 dB(A)					
			Noticeable			Clearly audible			Moderately intrusive			Highly intrusive					
		Affected distance (m)	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Affected distance (m)
Undeveloped green fields, rural areas with isolated dwellings	**Day**	105							N	30	70	N, PC, RO	20	75				
	Day (OOHW)	155				N, R1, DR	105	60	N, R1, DR	30	70	N, R1, DR, PC, SN	10	80	N, PC, RO	20	75	
	Evening	230				N, R1, DR	155	55	N, R1, DR	55	65	N, R1, DR, PC, SN	20	75	N, PC, RO	20	75	
	Night	335	N	335	45	N, R2, DR	230	50	N, PC, SN, R2, DR	105	60	AA, N, PC, SN, R2, DR	30	70	N, PC, RO	20	75	270
	Highly Affected	20													N, PC, RO	20	75	
Developed settlements (urban and suburban)	**Day**	115							N	35	70	N, PC, RO	20	75	N, PC, RO	20	75	
	Day (OOHW)	180				N, R1, DR	115	60	N, R1, DR	35	70	N, R1, DR, PC, SN	10	80	N, PC, RO	20	75	
	Evening	280				N, R1, DR	180	55	N, R1, DR	70	65	N, R1, DR, PC, SN	20	75	N, PC, RO	20	75	
	Night	425	N	425	45	N, R2, DR	280	50	N, PC, SN, R2, DR	115	60	AA, N, PC, SN, R2, DR	35	70	N, PC, RO	20	75	330
	Highly Affected	20													N, PC, RO	20	75	
Propagation across a valley / over water	**Day**	140							N	40	70	N, PC, RO	20	75	N, PC, RO	20	75	
	Day (OOHW)	230				N, R1, DR	140	60	N, R1, DR	40	70	N, R1, DR, PC, SN	10	80	N, PC, RO	20	75	
	Evening	365				N, R1, DR	230	55	N, R1, DR	80	65	N, R1, DR, PC, SN	20	75	N, PC, RO	20	75	
	Night	575	N	575	45	N, R2, DR	365	50	N, PC, SN, R2, DR	140	60	AA, N, PC, SN, R2, DR	40	70	N, PC, RO	20	75	440
	Highly Affected	20													N, PC, RO	20	75	

Non-residential receiver
Undeveloped green fields, rural areas with isolated dwellings

				$L_{Aeq(15minute)}$ noise level above NML						LAeq(15minute) 75 dB(A) or greater (Highly affected)		
		Standard hours		<10 dB(A)			10 to 20 dB(A)					
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Classroom at schools and other educational institutions	**Day**	55	155				N	55	65	N, PC, RO	20	75
Hospital wards and operating theatres	**Day**	65	55							N, PC, RO	20	75
Place of worship	**Day**	55	155				N	55	65	N, PC, RO	20	75
Active recreation	**Day**	65	55							N, PC, RO	20	75
Passive recreation	**Day**	60	105				N	30	70	N, PC, RO	20	75
Industrial premise	**Day**	75	20							N, PC, RO	20	75
Offices, retail outlets	**Day**	70	30							N, PC, RO	20	75

				$L_{Aeq(15minute)}$ noise level above NML											
	OOHW			< 5 dB(A)			5 to 15 dB(A)			15 to 25 dB(A)			> 25 dB(A)		
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Hospital wards and operating theatres	**Evening**	65	55				N, R1, DR	30	70	N, R1, DR	11	80	N, R1, DR, PC, SN	4	90
	Night	65	55	N	55	65	N, R2, NR	30	70	N, PC, SN, R2, DR	11	80	AA, N, PC, SN, R2, DR	4	90
Place of worship	**Evening**	55	155				N, R1, DR	105	60	N, R1, DR	30	70	N, R1, DR, PC, SN	11	80
	Night	55	155	N	155	55	N, R2, NR	105	60	N, PC, SN, R2, DR	30	70	AA, N, PC, SN, R2, DR	11	80
Active recreation	**Evening**	65	55				N, R1, DR	30	70	N, R1, DR	11	80	N, R1, DR, PC, SN	4	90
Passive recreation	**Evening**	60	105				N, R1, DR	55	65	N, R1, DR	20	75	N, R1, DR, PC, SN	6	85
Industrial premise	**Evening**	75	20				N, R1, DR	11	80	N, R1, DR	4	90	N, R1, DR, PC, SN	1	100
	Night	75	20	N	20	75	N, R2, NR	11	80	N, PC, SN, R2, DR	4	90	AA, N, PC, SN, R2, DR	1	100
Offices, retail outlets	**Evening**	70	30				N, R1, DR	20	75	N, R1, DR	6	85	N, R1, DR, PC, SN	2	95
	Night	70	30	N	30	70	N, R2, NR	20	75	N, PC, SN, R2, DR	6	85	AA, N, PC, SN, R2, DR	2	95

Non-residential receiver
Developed settlements (urban and suburban)

	Standard hours			$L_{Aeq(15minute)}$ noise level above NML						LAeq(15minute) 75 dB(A) or greater (Highly affected)		
				<10 dB(A)			10 to 20 dB(A)					
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Classroom at schools and other educational institutions	Day	55	180				N	70	65	N, PC, RO	20	75
Hospital wards and operating theatres	Day	65	70							N, PC, RO	20	75
Place of worship	Day	55	180				N	70	65	N, PC, RO	20	75
Active recreation	Day	65	70							N, PC, RO	20	75
Passive recreation	Day	60	115				N	35	70	N, PC, RO	20	75
Industrial premise	Day	75	20							N, PC, RO	20	75
Offices, retail outlets	Day	70	35							N, PC, RO	20	75

	OOHW			$L_{Aeq(15minute)}$ noise level above NML											
				< 5 dB(A)			5 to 15 dB(A)			15 to 25 dB(A)			> 25 dB(A)		
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Hospital wards and operating theatres	Evening	65	70				N, R1, DR	35	70	N, R1, DR	11	80	N, R1, DR, PC, SN	4	90
	Night	65	70	N	70	65	N, R2, NR	35	70	N, PC, SN, R2, DR	11	80	AA, N, PC, SN, R2, DR	4	90
Place of worship	Evening	55	180				N, R1, DR	115	60	N, R1, DR	35	70	N, R1, DR, PC, SN	11	80
	Night	55	180	N	180	55	N, R2, NR	115	60	N, PC, SN, R2, DR	35	70	AA, N, PC, SN, R2, DR	11	80
Active recreation	Evening	65	70				N, R1, DR	35	70	N, R1, DR	11	80	N, R1, DR, PC, SN	4	90
Passive recreation	Evening	60	115				N, R1, DR	70	65	N, R1, DR	20	75	N, R1, DR, PC, SN	6	85
Industrial premise	Evening	75	20				N, R1, DR	11	80	N, R1, DR	4	90	N, R1, DR, PC, SN	1	100
	Night	75	20	N	20	75	N, R2, NR	11	80	N, PC, SN, R2, DR	4	90	AA, N, PC, SN, R2, DR	1	100
Offices, retail outlets	Evening	70	35				N, R1, DR	20	75	N, R1, DR	6	85	N, R1, DR, PC, SN	2	95
	Night	70	35	N	35	70	N, R2, NR	20	75	N, PC, SN, R2, DR	6	85	AA, N, PC, SN, R2, DR	2	95

Non-residential receiver
Propagation across a valley / over water

	Standard hours			$L_{Aeq(15minute)}$ noise level above NML						LAeq(15minute) 75 dB(A) or greater (Highly affected)		
				<10 dB(A)			10 to 20 dB(A)					
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Classroom at schools and other educational institutions	Day	55	230				N	70	65	N, PC, RO	20	75
Hospital wards and operating theatres	Day	65	80							N, PC, RO	20	75
Place of worship	Day	55	230				N	70	65	N, PC, RO	20	75
Active recreation	Day	65	80							N, PC, RO	20	75
Passive recreation	Day	60	140				N	35	70	N, PC, RO	20	75
Industrial premise	Day	75	20							N, PC, RO	20	75
Offices, retail outlets	Day	70	40							N, PC, RO	20	75

	OOHW			$L_{Aeq(15minute)}$ noise level above NML											
				< 5 dB(A)			5 to 15 dB(A)			15 to 25 dB(A)			> 25 dB(A)		
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Hospital wards and operating theatres	Evening	65	80				N, R1, DR	40	70	N, R1, DR	11	80	N, R1, DR, PC, SN	4	90
	Night	65	80	N	80	65	N, R2, NR	40	70	N, PC, SN, R2, DR	11	80	AA, N, PC, SN, R2, DR	4	90
Place of worship	Evening	55	230				N, R1, DR	140	60	N, R1, DR	35	70	N, R1, DR, PC, SN	11	80
	Night	55	230	N	230	55	N, R2, NR	140	60	N, PC, SN, R2, DR	35	70	AA, N, PC, SN, R2, DR	11	80
Active recreation	Evening	65	80				N, R1, DR	40	70	N, R1, DR	11	80	N, R1, DR, PC, SN	4	90
Passive recreation	Evening	60	140				N, R1, DR	80	65	N, R1, DR	20	75	N, R1, DR, PC, SN	6	85
Industrial premise	Evening	75	20				N, R1, DR	10	80	N, R1, DR	4	90	N, R1, DR, PC, SN	1	100
	Night	75	20	N	20	75	N, R2, NR	10	80	N, PC, SN, R2, DR	4	90	AA, N, PC, SN, R2, DR	1	100
Offices, retail outlets	Evening	70	40				N, R1, DR	20	75	N, R1, DR	6	85	N, R1, DR, PC, SN	2	95
	Night	70	40	N	40	70	N, R2, NR	20	75	N, PC, SN, R2, DR	6	85	AA, N, PC, SN, R2, DR	2	95

Appendix F

AHIMS Search – 200m Buffer

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Crystal Street

Client Service ID : 543443

Nicholas Woodard

17 Warabrook Boulevard
Warabrook New South Wales 2304

Attention: Nicholas Woodard

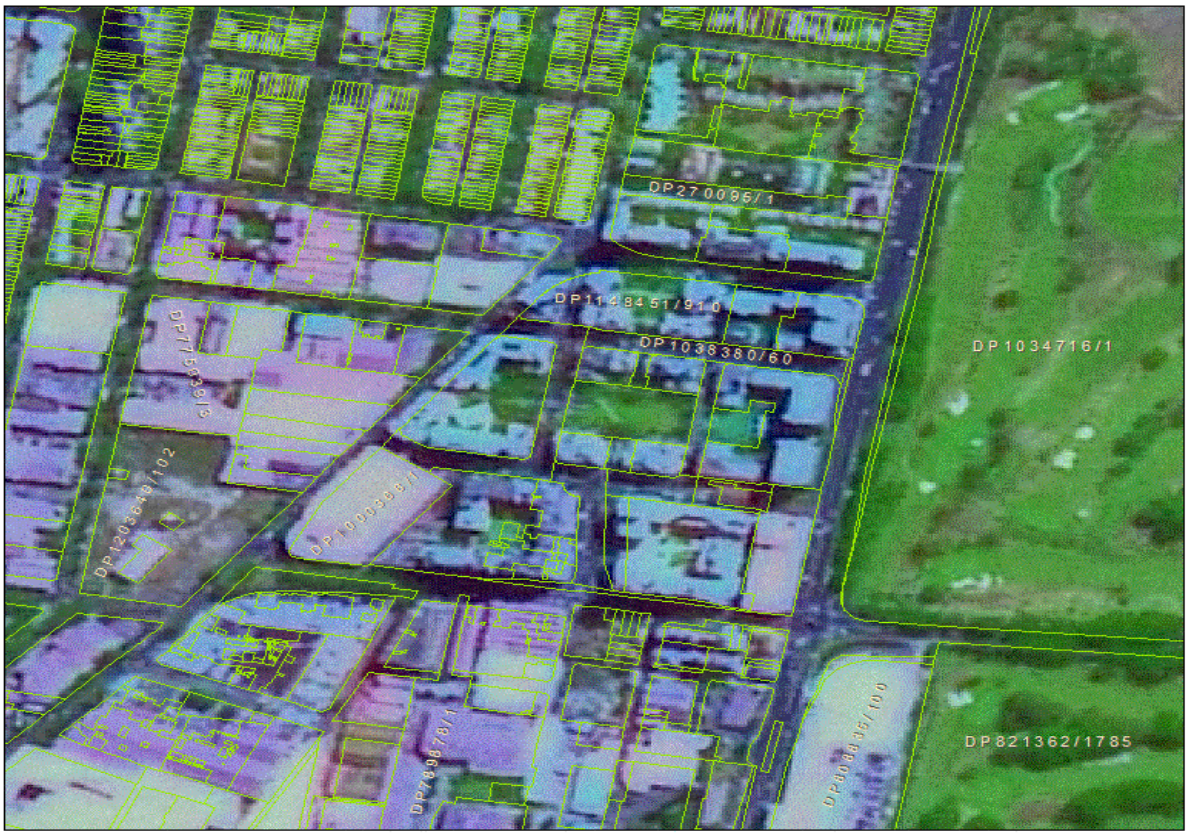
Email: nicholas.woodard@aecom.com

Date: 19 October 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -33.9006, 151.2104 - Lat, Long To : -33.8971, 151.216 with a Buffer of 200 meters, conducted by Nicholas Woodard on 19 October 2020.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

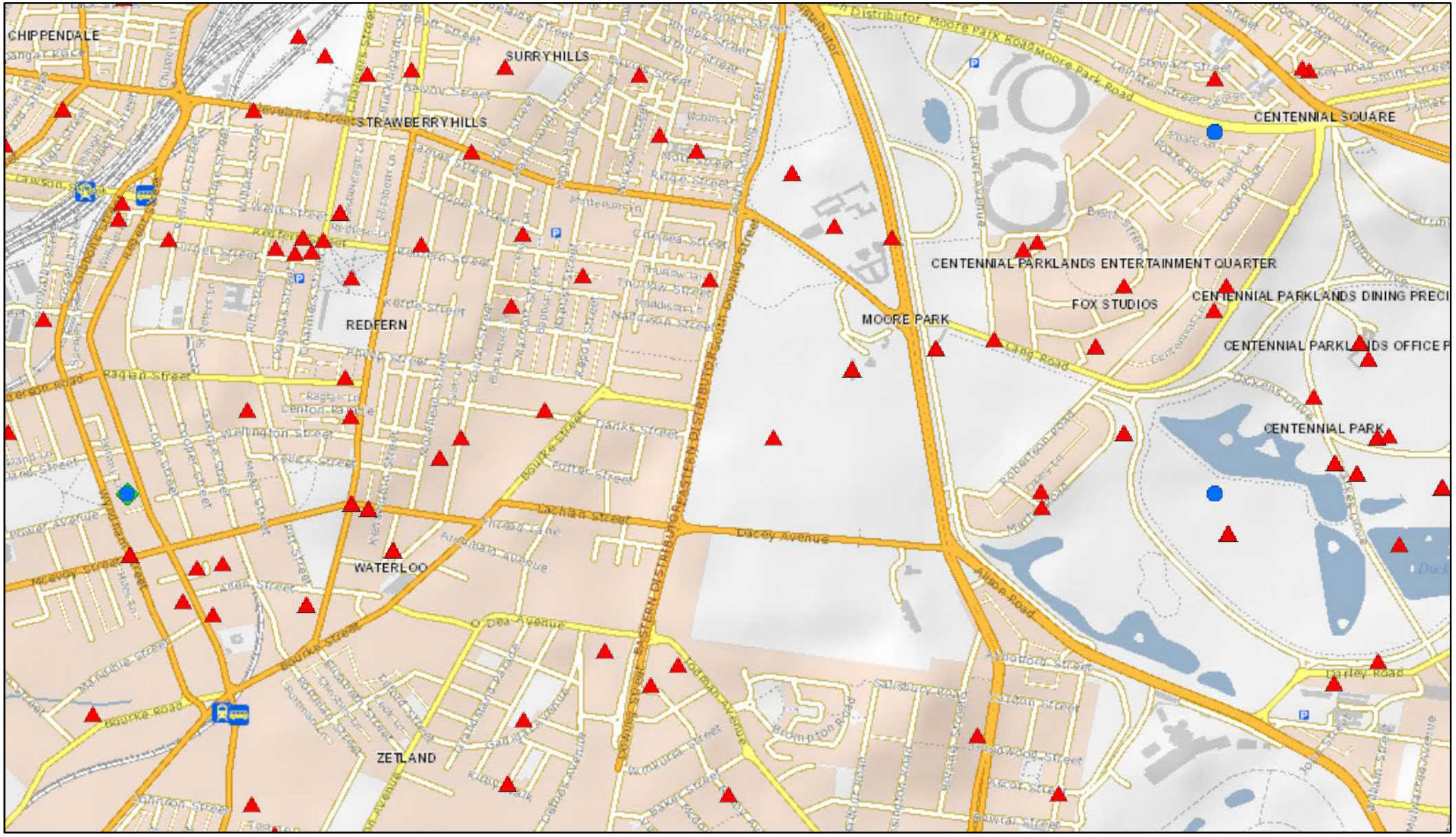
3 Marist Place, Parramatta NSW 2150
Locked Bag 5020 Parramatta NSW 2220
Tel: (02) 9585 6380 Fax: (02) 9873 8599

ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

Appendix G

BioNet Atlas and Protected Matters Search Tool

Waterloo BioNet Atlas Map



October 28, 2020

drawGraphics_poly

Override 1

spc0

spc2

spc3

1:16,000

0 0.125 0.25 0.5 mi

0 0.2 0.4 0.8 km

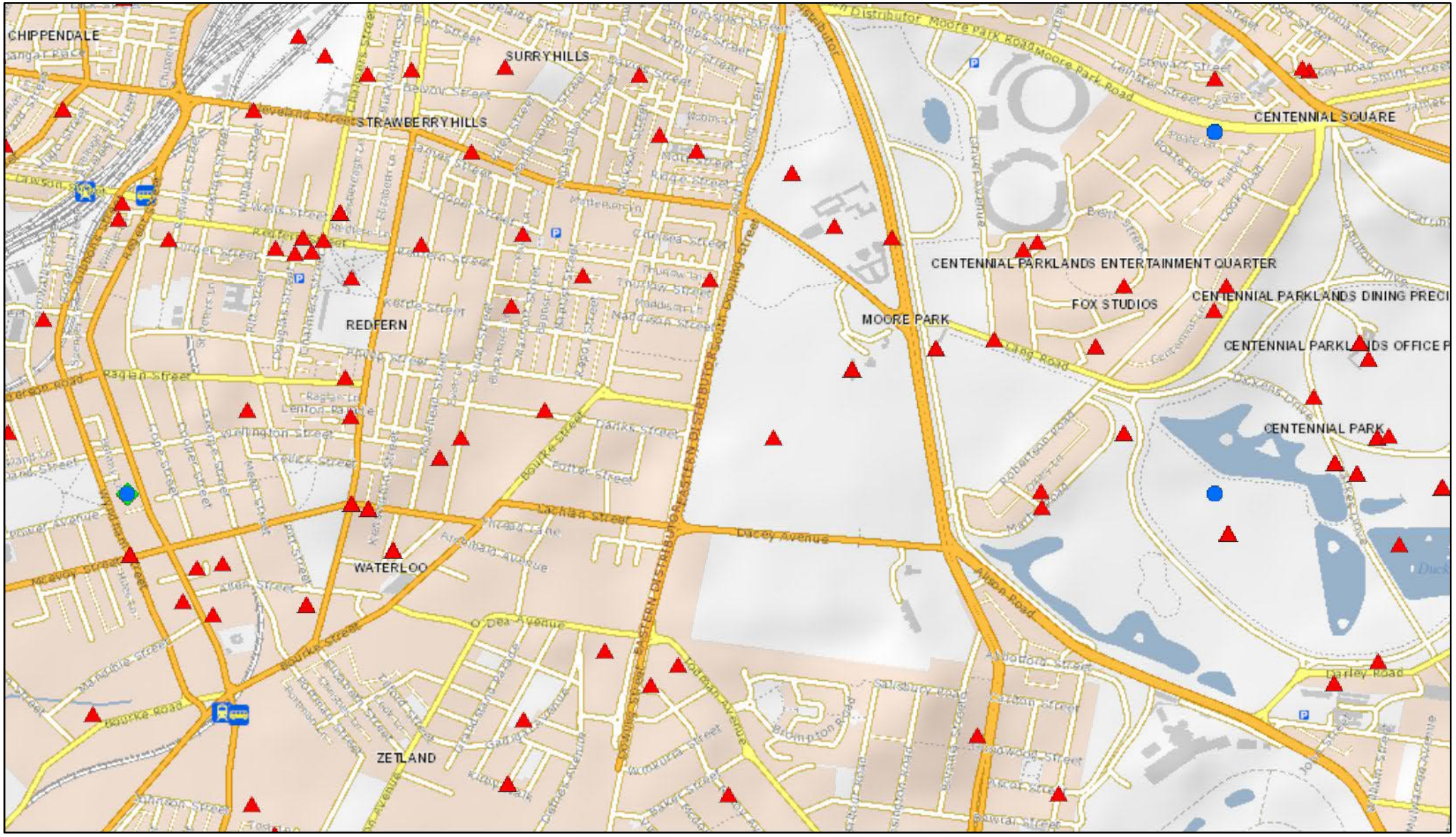
Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) Entities in selected area [North: -33.85 West: 151.17 East: 151.27 South: -33.95] returned a total of 2,224 records of 68 species.
Report generated on 28/10/2020 1:10 PM

Kingdom	Class	Family	Scientific Name	Common Name	NSW status	Comm. status	Records
Animalia	Amphibia	Myobatrachidae	*Pseudophryne australis*	Red-crowned Toadlet	V,P		4
Animalia	Amphibia	Hylidae	*Litoria aurea*	Green and Golden Bell	E1,P	V	12
Animalia	Reptilia	Cheloniidae	*Caretta caretta*	Loggerhead Turtle	E1,P	E	5
Animalia	Reptilia	Cheloniidae	*Chelonia mydas*	Green Turtle	V,P	V	1
Animalia	Reptilia	Dermochelyidae	*Dermochelys coriacea*	Leatherback Turtle	E1,P	E	1
Animalia	Aves	Anseranatidae	*Anseranas semipalmata*	Magpie Goose	V,P		9
Animalia	Aves	Anatidae	*Stictonetta naevosa*	Freckled Duck	V,P		1
Animalia	Aves	Columbidae	*Ptilinopus superbus*	Superb Fruit-Dove	V,P		9
Animalia	Aves	Diomedeidae	*Diomedea exulans*	Wandering Albatross	E1,P	E	1
Animalia	Aves	Procellariidae	*Ardenna carneipes*	Flesh-footed Shearwater	V,P	J,K	1
Animalia	Aves	Ardeidae	*Botaurus poiciloptilus*	Australasian Bittern	E1,P	E	1
Animalia	Aves	Accipitridae	*^Erythrotriorchis radiatus*	Red Goshawk	E4A,P,2	V	1
Animalia	Aves	Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V,P		12
Animalia	Aves	Accipitridae	*Hieraaetus morphnoides*	Little Eagle	V,P		3
Animalia	Aves	Accipitridae	*^^Lophoictinia isura*	Square-tailed Kite	V,P,3		1
Animalia	Aves	Accipitridae	*^^Pandion cristatus*	Eastern Osprey	V,P,3		1
Animalia	Aves	Burhinidae	*Burhinus grallarius*	Bush Stone-curlew	E1,P		2
Animalia	Aves	Haematopodidae	*Haematopus fuliginosus*	Sooty Oystercatcher	V,P		3
Animalia	Aves	Haematopodidae	*Haematopus longirostris*	Pied Oystercatcher	E1,P		1
Animalia	Aves	Charadriidae	*Charadrius mongolus*	Lesser Sand-plover	V,P	E,C,J,K	3
Animalia	Aves	Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	E1,P	CE,C,J,K	133
Animalia	Aves	Scolopacidae	*Calidris tenuirostris*	Great Knot	V,P	CE,C,J,K	3
Animalia	Aves	Scolopacidae	*Limosa limosa*	Black-tailed Godwit	V,P	C,J,K	4
Animalia	Aves	Laridae	*Onychoprion fuscata*	Sooty Tern	V,P		1
Animalia	Aves	Laridae	*Sternula albifrons*	Little Tern	E1,P	C,J,K	12
Animalia	Aves	Cacatuidae	*^^Callocephalon fimbriatum*	Gang-gang Cockatoo	V,P,3		1

Animalia	Aves	Cacatuidae	*^Calyptorhynchus lathami*	Glossy Black-Cockatoo	V,P,2		3
Animalia	Aves	Psittacidae	*Glossopsitta pusilla*	Little Lorikeet	V,P		3
Animalia	Aves	Psittacidae	*^^Lathamus discolor*	Swift Parrot	E1,P,3	CE	3
Animalia	Aves	Psittacidae	*^^Neophema pulchella*	Turquoise Parrot	V,P,3		1
Animalia	Aves	Strigidae	*^^Ninox strenua*	Powerful Owl	V,P,3		76
Animalia	Aves	Tytonidae	*^^Tyto novaehollandiae*	Masked Owl	V,P,3		2
Animalia	Aves	Meliphagidae	*Epthianura albifrons*	White-fronted Chat	V,P		1
Animalia	Aves	Meliphagidae	*Epthianura albifrons*	White-fronted Chat population in the Sydney Metropolitan Catchment	E2,V,P		1
Animalia	Aves	Artamidae	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P		3
Animalia	Aves	Petroicidae	*Petroica boodang*	Scarlet Robin	V,P		1
Animalia	Aves	Estrildidae	*Stagonopleura guttata*	Diamond Firetail	V,P		1
Animalia	Mammalia	Phascolarctidae	*Phascolarctos cinereus*	Koala	V,P	V	4
Animalia	Mammalia	Burramyidae	*Cercartetus nanus*	Eastern Pygmy-possum	V,P		1
Animalia	Mammalia	Potoroidae	*Aepyprymnus rufescens*	Rufous Bettong	V,P		1
Animalia	Mammalia	Pteropodidae	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	1615
Animalia	Mammalia	Emballonuridae	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-	V,P		2
Animalia	Mammalia	Molossidae	*Micronomus norfolkensis*	Eastern Coastal Free-	V,P		10
Animalia	Mammalia	Vespertilionidae	*Chalinolobus dwyeri*	Large-eared Pied Bat	V,P	V	1
Animalia	Mammalia	Vespertilionidae	*Myotis macropus*	Southern Myotis	V,P		23
Animalia	Mammalia	Dugongidae	*Dugong dugon*	Dugong	E1,P		2
Animalia	Mammalia	Otariidae	*Arctocephalus forsteri*	New Zealand Fur-seal	V,P		5
Animalia	Mammalia	Otariidae	*Arctocephalus pusillus doriferus*	Australian Fur-seal	V,P		6
Animalia	Mammalia	Balaenidae	*Eubalaena australis*	Southern Right Whale	E1,P	E	3
Animalia	Insecta	Petaluridae	*Petalura gigantea*	Giant Dragonfly	E1		1
Plantae	Flora	Casuarinaceae	*^^Allocasuarina portuensis*	Nielsen Park She-oak	E1,3	E	46
Plantae	Flora	Dilleniaceae	*Hibbertia puberula*		E1		1
Plantae	Flora	Doryanthaceae	*Doryanthes palmeri*	Giant Spear Lily	V,P		2
Plantae	Flora	Elaeocarpaceae	*Tetratheca juncea*	Black-eyed Susan	V	V	1
Plantae	Flora	Euphorbiaceae	*Amperea xiphoclada var. pedicellata*		E4	X	1
Plantae	Flora	Fabaceae (Mimosoideae)	*Acacia terminalis subsp. terminalis*	Sunshine Wattle	E1	E	50

Plantae	Flora	Lamiaceae	^^*Prostanthera marifolia*	Seaforth Mintbush	E4A,3	CE	3
Plantae	Flora	Myrtaceae	*Eucalyptus nicholii*	Narrow-leaved Black Peppermint	V	V	1
Plantae	Flora	Myrtaceae	*Eucalyptus pulverulenta*	Silver-leafed Gum	V	V	1
Plantae	Flora	Myrtaceae	*Eucalyptus scoparia*	Wallangarra White Gum	E1	V	3
Plantae	Flora	Myrtaceae	*Melaleuca deanei*	Deane's Paperbark	V	V	2
Plantae	Flora	Myrtaceae	*Rhodamnia rubescens*	Scrub Turpentine	E4A		1
Plantae	Flora	Myrtaceae	*Syzygium paniculatum*	Magenta Lilly Pilly	E1	V	66
Plantae	Flora	Orchidaceae	^*Diuris arenaria*	Sand Doubletail	E1,P,2		1
Plantae	Flora	Poaceae	*Dichanthium setosum*	Bluegrass	V	V	1
Plantae	Flora	Proteaceae	^^*Persoonia hirsuta*	Hairy Geebung	E1,P,3	E	3
Animalia	Mammalia	Miniopteridae	*Miniopterus australis*	Little Bent-winged Bat	V,P		1
Animalia	Mammalia	Miniopteridae	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P		45

Waterloo BioNet Atlas Map



October 28, 2020

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Australian Government

Department of Agriculture, Water and the Environment

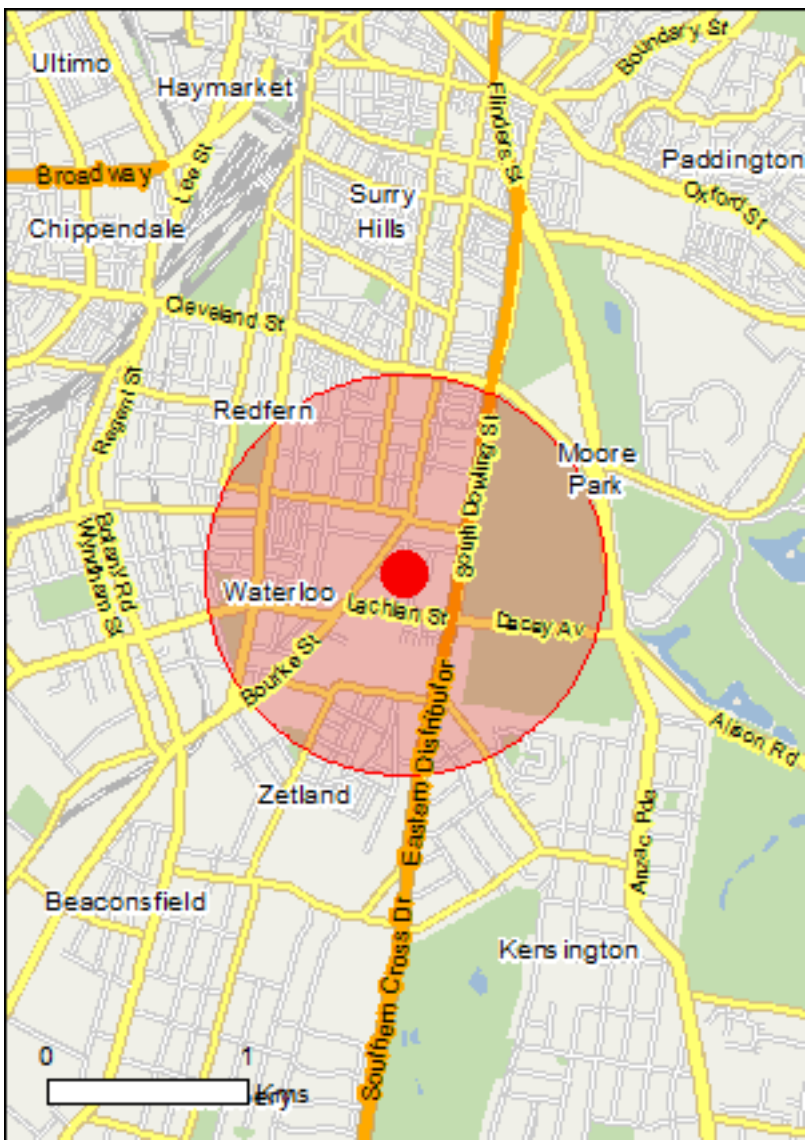
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

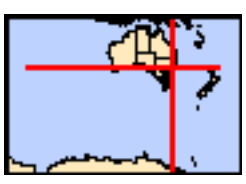
Report created: 18/11/20 13:10:15



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

Coordinates

Buffer: 1.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	37
Listed Migratory Species:	18

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	25
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	48
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	Endangered	Community may occur within area
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area
Coastal Upland Swamps in the Sydney Basin Bioregion	Endangered	Community may occur within area
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Community may occur within area
Western Sydney Dry Rainforest and Moist Woodland on Shale	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-	Vulnerable	Species or species

Name	Status	Type of Presence
tailed Godwit [86380]		habitat known to occur within area
Limosa lapponica menzbieri		
Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Neophema chrysogaster		
Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis		
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis		
Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
Thinornis cucullatus cucullatus		
Hooded Plover (eastern), Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat may occur within area
Fish		
Macquaria australasica		
Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Frogs		
Heleioporus australiacus		
Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat may occur within area
Litoria aurea		
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area
Mammals		
Chalinolobus dwyeri		
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population)		
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Isoodon obesulus obesulus		
Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat likely to occur within area
Petauroides volans		
Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Plants		
Acacia terminalis subsp. terminalis MS		
Sunshine Wattle (Sydney region) [88882]	Endangered	Species or species habitat likely to occur within area
Allocasuarina glareicola		
[21932]	Endangered	Species or species habitat may occur within

Name	Status	Type of Presence
		area
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus camfieldii Camfield's Stringybark [15460]	Vulnerable	Species or species habitat likely to occur within area
Genoplesium baueri Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchiid [7528]	Endangered	Species or species habitat likely to occur within area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat may occur within area
Persoonia hirsuta Hairy Geebung, Hairy Persoonia [19006]	Endangered	Species or species habitat may occur within area
Pimelea curviflora var. curviflora [4182]	Vulnerable	Species or species habitat may occur within area
Pimelea spicata Spiked Rice-flower [20834]	Endangered	Species or species habitat may occur within area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Hoplocephalus bungaroides Broad-headed Snake [1182]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat known to occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Limosa lapponica		
Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat known to occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land - Defence Housing Authority
Defence - ZETLAND NAVY SUPPLY CENTRE

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		

Name	Threatened	Type of Presence
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable*	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Carduelis chloris European Greenfinch [404]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Asparagus scandens Asparagus Fern, Climbing Asparagus Fern [23255]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-33.89925 151.213

Acknowledgements

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-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
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-CSIRO
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-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

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Please feel free to provide feedback via the Contact Us page.

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